



Orange County Transit Plan

through 2045

Approved April 27, 2017 | Effective April 28, 2017

The 2017 Orange County Transit Plan was approved by the Orange County Board of Commissioners by a vote of 5-2 on April 27, 2017.

ATTEST:

BY: [Signature]
ORANGE COUNTY, NORTH CAROLINA
BY: [Signature]

TITLE: Clerk to the Board
TITLE: Chairperson, Board of County Commissioners



The 2017 Orange County Transit Plan was approved by the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization Board by a vote of 7-0 on 4/28/17.

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The 2017 Orange County Transit Plan was adopted by the Research Triangle Regional Public Transportation Authority d/b/a GoTriangle by a vote of 10-0 on April 28, 2017

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Table of Contents

Executive SummaryES-1

1. About this Plan 6

1.1 Why Transit? 6

1.2 Goals of this Transit Plan 8

1.3 Transit Providers 9

1.4 Plan Governance 10

2. Status of Projects and Services from the 2012 Plan 11

2.1 Bus Service Expansion 12

 2.1.1 Service within the Town of Chapel Hill 13

 2.1.2 Regional Service 14

 2.1.3 Orange County Service 15

2.2 Bus Facilities 16

2.3 Hillsborough Train Station 16

2.4 North-South Bus Rapid Transit Project 17

2.5 Durham-Orange Light Rail Transit Project 18

2.6 Additional Needs Identified in Original Plan 19

 2.6.1 Service within the Town of Chapel Hill 19

 2.6.2 Regional service 19

 2.6.3 Rural Service 20

2.7 Meeting Additional Needs in Original Plan – Light Rail Dividend 20

3. Status of Funding Assumptions 21

3.1 Bus Services 21

3.2 Vehicles and Bus Facilities 21

 3.2.1 Federal Funding Assumptions 21

 3.2.2 State Funding Assumptions 22

3.3 Hillsborough Train Station 22

3.4 North-South Bus Rapid Transit 22

 3.4.1 Federal Funding Assumptions 22

 3.4.2 State Funding Assumptions 22

3.5 Durham-Orange Light Rail Project 23

 3.5.1 Federal Funding Assumptions 23

 3.5.2 State Funding Assumptions 23

 3.5.3 Cost-Share Assumptions 24

4. Program of Projects and Services 25

4.1 Bus Service 25

 4.1.1 Increased Cost of Existing Service 26

 4.1.2 Continuing Implemented Bus Service 26

 4.1.3 Additional Expansion Bus Service 27

 4.1.4 Operating Costs, Schedule, and Funding Assumptions 28

 4.1.5 Upcoming Activities 29

4.2 Vehicle Purchases 29

 4.2.1 Capital Costs, Schedule, and Funding Assumptions 29

 4.2.2 Upcoming Activities 30

4.3 Bus Facilities 30

 4.3.1 Transit Stop Improvements 31

 4.3.2 Access Improvements 32

 4.3.3 Park-and-Ride Facilities 32

 4.3.4 Capital Costs, Schedule, and Funding Assumptions 33

 4.3.5 Operating Costs, Schedule, and Funding Assumptions 34

 4.3.6 Upcoming Activities 34

4.4 Hillsborough Train Station 34

 4.4.1 Capital Costs, Schedule, and Funding Assumptions 34

 4.4.2 Operating Costs, Schedule, and Funding Assumptions 34

4.4.3	Upcoming Activities	34	5.6	Cash Flow Summary	54
4.5	North-South Bus Rapid Transit Project.....	34	5.7	Key Financial Issues.....	56
4.5.1	Capital Costs, Schedule, and Funding Assumptions.....	35	6.	Implementation Activities	58
4.5.2	Operating Costs, Schedule, and Funding Assumptions.....	35	6.1	Multi-Year Capital and Operating Programs	58
4.5.3	Upcoming Activities	36	6.2	Light-Rail Cost-Sharing Agreement	59
4.6	Durham-Orange Light Rail Transit Project	36	6.3	Project-Specific Agreements.....	59
4.6.1	Capital Costs, Schedule, and Funding Assumptions.....	36	6.4	Annual Budgets.....	59
4.6.2	Operating Costs, Schedule, and Funding Assumptions.....	38	6.5	Work Plans.....	60
4.6.3	State of Good Repair Costs, Schedule, and Funding Assumptions.....	38	6.6	Updating the Plan	60
4.6.4	Upcoming Activities	38	7.	Development of this Plan and Public Involvement	61
4.7	Administrative and Service Support.....	40	7.1	Notification of Availability.....	61
4.7.1	Operating Costs, Schedule, and Funding Assumptions.....	41	7.2	Opportunities to Provide Public Comment	61
4.7.2	Upcoming Activities	41	7.3	Opportunities to Learn About the Transit Plans.....	62
4.8	Additional Needs Identified in this Plan	41	7.4	Dissemination of Comments.....	63
4.8.1	Bus Service	41	7.5	Summary of Comments	63
4.8.2	Vehicles.....	42	7.5.1	Online Survey	64
4.8.3	Bus Facilities.....	42			
4.8.4	Hillsborough Train Station	43			
4.8.5	North-South Bus Rapid Transit Project	43			
4.8.6	Durham-Orange Light Rail Transit Project	43			
4.8.7	Administrative and Service Support	43			
5.	Financial Plan.....	44			
5.1	Dedicated Tax District Revenues.....	46			
5.2	Financing Assumptions	49			
5.3	Interest Rates	51			
5.4	Debt Service Coverage	51			
5.5	Reserves.....	54			
5.5.1	Operations and maintenance	54			
5.5.2	Debt service	54			

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List of Tables

Table ES-1: Orange Share of Tax District Spending..... 5

Table 4.1-1: GoTriangle Implemented Service Improvements 27

Table 4.1-2: CHT Implemented Service Improvements 27

Table 4.1-3: OPT Implemented Service Improvements 27

Table 4.1-4: GoTriangle Program of Service Improvements..... 28

Table 4.1-5 CHT Program of Service Improvements..... 28

Table 4.1-6: OPT Program of Service Improvements..... 28

Table 4.2-1: GoTriangle Vehicle Purchases 29

Table 4.2-2: CHT Vehicle Purchases 29

Table 4.2-3: OPT Vehicle Purchases..... 29

Table 4.3-1: Bus Facility Construction Costs through 2045 (YOE) ... 30

Table 4.3-2. Program of Transit Stop Improvements in FY2018-20. 31

Table 4.3-3: Program of Transit Stop Improvements after FY2020. 32

Table 4.3-4: Program of Access Improvements in FY2018-20 32

Table 4.3-5: Program of Access Improvements in FY2021-22 32

Table 4.3-6: Program of Access Improvements after FY2023..... 32

Table 4.3-7: Bus Facilities Project Capital Funding Plan (YOE)..... 33

Table 4.4-1: Hillsborough Train Station Capital Funding Plan (YOE) 34

Table 4.5-1: N-S BRT Project Capital Funding Plan (YOE millions) ... 35

Table 4.6-1: D-O LRT Project Capital Cost Updates (2016 millions). 37

Table 4.6-2: D-O LRT Project Capital Cost Updates (YOE millions) .. 37

Table 4.6-3: D-O LRT Project Capital Funding Plan (YOE millions)... 38

Table 4.8-1. Financial Plan Key Assumptions..... 45

List of Figures

Figure 2.1-1. Hours Implemented v. Hours Available 12

Figure 2.4-1: N-S BRT Corridor Study Map..... 17

Figure 2.4-1: D-O LRT Project Map..... 18

Figure 4.3-1. Bus Facility Project Tax District Revenue Spending Overview (in YOE dollars) 31

Figure 4.3-2. Bus Facilities Project Capital Funding Sources (YOE).. 33

Figure 5.1-1: Year by Year Revenue Comparison (in thousands of \$\$) 49

Figure 5.4-1. Projected Debt Service Coverage Ratios: Locally-Funded Limited Obligation Bonds (LOBs) & TIFIA Loans 52

Figure 5.4-2. Projected Debt Service Coverage Ratios: Federally-Funded Limited Obligation Bonds (LOBs)..... 52

Figure 5.4-3. Projected Transit Tax District Revenue v. Debt Service for the D-O LRT Project..... 53

Figure 5.5-1. Cash Balances (YOE)..... 54

Figure 5.6-1. Cash Balances in Durham County (YOE) 55

Figure 5.7-1. Cash balances in Orange County and Durham County (YOE) 56

Figure 7.5-1. Priorities Identified in Surveys 65

Figure 7.5-2. Average Ranking of Projects in Surveys..... 65

List of Appendices

Appendix A: Cash Flow Details..... A

Appendix B: D-O LRT Project Financial Risk & Mitigation Strategies. B

Appendix C: Public Comments C

Appendix D: Moody’s Sales Tax Forecasts D

Executive Summary

Over several decades, the Triangle has been one of the fastest growing metropolitan regions in the United States, and this growth remains strong. Each day, 20 new residents call Durham and Orange County home, while Wake County adds over 60 new residents daily. This growth brings challenges and opportunity for how both communities develop and how people get around. This region is what it is today because of numerous strategic decisions – the siting of the State Capitol in Raleigh, the creation of the first public university in the United States in Chapel Hill, the construction of the North Carolina Railroad through Durham, and the decision to build a research center amid these communities that has grown into a globally recognized center of science and technology.

Built to complement each other, the transit plans of Durham, Orange, and Wake counties are the expression of the region's next strategic decision: that exceptional public transportation can bring all of our communities together in a way that supports economic growth, expands travel choices beyond increasingly congested roadways, enhances job access and opportunity for residents across the income spectrum, and helps preserve our natural resources by focusing growth more in transit corridors and less near environmentally sensitive areas.

The 2017 Orange County Transit Plan updates the 2012 Bus and Rail Investment Plan adopted by the governing boards of Orange County, the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO), and GoTriangle. The goals

of this plan have not changed from the original plan. They remain:

- Improving overall mobility and transportation options
- Providing geographic equity
- Supporting improved capital facilities
- Encouraging transit-supportive land use
- Providing positive impacts on air quality

There are four dedicated revenue streams used to fund the local share of projects and services in this Plan, referred to throughout the Plan as Tax District Revenues. These revenues are collected in both Durham and Orange Counties; the revenues governed by this Plan are those collected in Orange County. These four dedicated Tax District Revenue streams are as follows:

- **Article 43:** Half-Cent Sales and Use Tax
- **Article 50:** Five-Percent Vehicle Rental Tax
- **Article 51:** Three-Dollar increase to GoTriangle Regional Vehicle Registration Fee
- **Article 52:** Seven-Dollar County Vehicle Registration Fee

Many of the projects and services in this Plan will be funded through a combination of Tax District Revenues and other funds including farebox revenues, state funds, and federal funds. Using these various funding sources, this Plan strives to equitably meet the transportation needs and goals of Orange County.

The projects and services to be funded under this Plan, regardless of whether they rely in part or in total on the Tax District Revenues, are:

- New hours of bus service in both urban and rural Orange County above and beyond the bus service that was available in 2013, as well as and financial support for the existing system, providing connections to destinations throughout the county and in Alamance, Durham, and Wake Counties. **In total, over 34,000 hours of bus service are funded in this Plan**
- **A light rail transit (LRT) project that will provide 50,000 annual hours of high-quality, efficient, and reliable rail service between Chapel Hill and Durham**, with the goal of improving regional mobility, accelerating economic growth, and encouraging the growth of transit-oriented development. When light rail service begins, it will free up thousands of existing bus hours where rail service can replace trips served by buses today. GoTriangle, Chapel Hill Transit, and GoDurham will work together to deploy these "rail dividend" hours to connect neighborhoods throughout the counties to light rail stations and other bus routes
- A set of bus capital projects to improve the transit passenger's experience, including **new and improved bus stops with amenities such as benches and shelters and access improvements such as sidewalks and trails**

- An intercity (Amtrak) train station in Hillsborough, linking northern Orange County to destinations throughout North Carolina, and along the East Coast with **fast passenger rail service**
- A bus rapid transit (BRT) project that provides **more efficient and effective transit through the congested core of Chapel Hill, UNC, and UNC Medical Center**

Through these investments, there is an opportunity to develop an exceptional public transportation system in Orange County, improving the travel options and local economy for those who live in, work in, or visit Orange County, and transform the way people get around their community.

Significant progress has been made in delivering the investments from the 2012 Plan, though some milestones have been reached more slowly than originally projected. **Section 2 describes the status of all projects and services implemented or advanced since the levying of the transit taxes in 2013.**

The most significant differences between the 2012 Plan and this 2017 Plan are driven by the funding assumptions. Changes to state and federal transportation funding laws and policies have greatly affected revenues available to implement projects and services. This is true for bus purchases and bus facilities, as well as for the major capital investments in the Durham-Orange LRT Project and the North-South BRT project. **These changes to state and federal funding assumptions are explained in more detail in Section 3.**

As the staffs of GoTriangle, Orange County, and the Towns of Chapel Hill, Carrboro, and Hillsborough have implemented the 2012 Plan, more definition has been given to the services and projects that are expected to be delivered over the next 12 years. **Section 4 describes these projects and services, unfunded priorities from the 2012 Plan, and additional expansion that would remain unfunded in this Plan.**

As a major project which serves both counties, the cost of construction, operations, and maintenance of the Durham-Orange Light Rail Transit Project is shared between the two county Plans using agreed upon percentage splits. In the 2012 Plan, the split was approximately 77 percent Durham, 23 percent Orange. The parties negotiated a new cost-split for several reasons:

- The scope of the D-O LRT Project was expanded. The alignment now extends 0.6 miles further into Durham, with an additional station at North Carolina Central University
- Changes to the alignment at the New Hope Creek Crossing extended the length of the alignment in Durham
- A station proposed for Orange County, Meadowmont Station, was replaced by Woodmont Station in Durham County

This Plan incorporates the cost split memorialized in a separate cost-sharing agreement which has been executed simultaneously with the Plan. The cost-sharing agreement allocates expenses as follows:

- Project capital costs:
 - Durham: \$738.4 million (YOE)
 - Orange: \$149.5 million (YOE)
- Operating expenses (through June 30, 2036)
 - Durham: 80 percent
 - Orange: 20 percent
- Operating expenses (after June 30, 2036) and State of Good Repair costs
 - Durham: 81 percent
 - Orange: 19 percent

Table ES-1 compares the Tax District Revenues used to fund projects and services between the 2012 Plan and this 2017 Plan.

In our evaluation of the ability of the Tax District Revenue to accommodate reductions in state and federal funding availability, we assessed costs of projects and service, the delivery schedule for projects and services, and the projected level of borrowing. The projected borrowing capacity is linked directly to the assumptions about Tax District Revenue growth. In accordance with industry standards, the 2017 Plan uses a baseline revenue forecast developed in late 2016 by Moody’s Analytics, a well-regarded economic analytics firm. In accordance with Federal Transit Administration (FTA) guidance, the financial plan has also been evaluated using a downside forecast developed by the same firm, to understand the effects and potential mitigations that may be required to plan for less-than-expected sales tax growth. **A detailed financial plan can be found in Section 5. Further explanation of the risks to the**

financial health of the plan and the available mitigation strategies can be found in Appendix B.

As in the 2012 Plan, there remains uncertainty about whether and how much state and federal funding will be available to implement the services and projects in the 2017 Plan, as well as how much Tax District Revenue will be raised. However, those funding amounts will be known prior to entry into construction for any project, providing opportunities to reduce project scope or revise the schedule, consider other funding sources, or suspend the projects. This Plan establishes an implementation process to ensure that projects are developed and funded responsibly. **A description of the implementation process that will be used to commit Tax District Revenue is included in Section 6.**

A draft of the Plan was released for public comment before this final Plan was prepared. **A discussion of the development of the Plan and the public involvement process is provided in Section 7.**

This 2017 Plan comes at a pivotal time for Orange County and the broader region. The Triangle region has grown significantly and is forecasted to continue growing. There also continues to be significant public demand for reliable, affordable alternatives to traveling by private automobile. Yet due to recent funding reductions at the state and federal level, the choices embodied in this Plan come with increased reliance on Tax District Revenue and a greater understanding of the risks associated with major transit investments. This Plan seeks to minimize those risks through reasonably conservative estimates of both revenues and expenditures.

At its core, this Plan reflects an opportunity to move forward with transit services and projects that will shape the future of Chapel Hill, Carrboro, Hillsborough, the University of North Carolina at Chapel Hill, the UNC Hospital system, the whole of Orange County, and the Triangle region.

Table ES-1: Orange Share of Tax District Spending

Cost Category	2012 Plan	2017 Plan		
	Orange Share of Tax District Spending	Orange Share of Tax District Spending (Plan extends to 2045)		
	2013 - 2035	2017 - 2035 only	2036 - 2045 only	2017 - 2045
Bus Service Operations	\$82.7 M	\$77.2 M	\$62.9 M	\$140.1 M
Bus Purchases	\$1.8 M	\$11.5 M	\$4.5 M	\$16.0 M
Bus Facilities	\$0.7 M	\$5.6 M	\$2.5 M	\$8.1 M
Administrative Expenses	Not programmed	\$0.7 M	\$0.5 M	\$1.2 M
Hillsborough Train Station	\$0.9 M	\$0.7 M	\$0.0 M	\$0.7 M
North-South BRT Project	\$6.1 M	\$6.1 M	\$0.0 M	\$6.1 M
North-South BRT Operations & Maintenance	Not programmed	Not programmed	Not programmed	Not programmed
D-O LRT Project Capital Cost (Orange Share)	\$104.6 M	\$149.5 M	\$0.0 M	\$149.5 M
D-O LRT Operations & Maintenance (Orange Share) ¹	\$29.6 M	\$30.9 M	\$54.7 M	\$85.7 M
Total Funds for Projects and Services	\$225.5 M	\$282.2 M	\$125.1 M	\$407.3 M
Minimum Cash Balance	\$4.1 M	\$3.8 M	\$14.4 M	\$3.8 M
Unallocated Reserves in Final Year of Period	\$45 M	\$16.7 M	\$14.7 M	\$14.7 M

¹ The planned date of opening for light rail service has shifted from 2026 in the 2012 Plan to 2028 in this 2017 Plan.

² The minimum cash balance from the 2012 plan is reported in 2011 dollars.

1. About this Plan

This Orange County Transit Plan, referred to herein as this “Plan,” “updated Plan,” “2017 Plan,” and/or “Plan update,” contains a program of transit services and projects to be funded by the dedicated local revenues for transit in Orange County over the period from 2017 to 2045.

There are four dedicated revenue streams used to fund the local share of projects and services in this Plan, referred to throughout the Plan as Tax District Revenues. These revenues are collected in both Durham and Orange Counties; the revenues governed by this Plan are those collected in Orange County. These four dedicated Tax District Revenue streams are as follows:

- **Article 43:** Half-Cent Sales and Use Tax
- **Article 50:** Five-Percent Vehicle Rental Tax
- **Article 51:** Three-Dollar increase to GoTriangle Regional Vehicle Registration Fee
- **Article 52:** Seven Dollar County Vehicle Registration Fee

This Plan is the first update of the Orange County Bus and Rail Investment Plan adopted in 2012, referred to herein as “the original Plan” or “the 2011 Plan.”

Durham County has a similar plan referred to herein as “the Durham Plan.” The plans are collectively referred to as “the Durham and Orange Transit Plans.”

Some dates in this document are reported as fiscal years. The fiscal year for the tax district begins July 1 and ends June 30.

1.1 Why Transit?

The updated Orange and Durham Transit Plans strengthen the communities’ long-standing support of transit both to facilitate a compact, walkable community and to help lower-income residents and employees who rely on transit for their daily needs. Before implementing the original Bus and Rail Investment Plans in 2011 and 2012, the counties, municipalities, and UNC and Duke had been making significant investments in transit. Today, about 72,000 people ride transit each weekday in the two counties due in large part to the high level of transit service provided. In fact, on a per capita basis, Orange County and Durham County provide more bus service than transit-rich areas such as Portland, Oregon and Minneapolis-St. Paul, Minnesota.

To strengthen the region’s transit investments, the Plans build on this strong base by providing enhanced bus service that improves existing service and connects with new destinations, investing in a light-rail system that will spark compact and sustainable economic development along existing urban areas, and providing enhanced access to transit and improved bus facilities including hundreds of improved bus stops, transit centers, and park-and-rides. Overall, these investments will benefit all members of our community and help Chapel Hill, Carrboro, Hillsborough, and Durham grow in ways that promote transit, walking, and bicycling while protecting our sensitive natural environment.

The population of Orange County and Durham County have grown dramatically over the last few decades, and this growth is expected to continue. By 2045, Orange County is expected to

increase its population another 41 percent, while Durham County will grow 70 percent. This growth is due in large part to the continued strength of the region's varied and resilient economy, anchored by a variety of universities and colleges, medical centers, and research and development industries.

This growth helps bring prosperity to the region, but it also brings transportation challenges. The key roads in the region, such as US 15-501, NC 54, I-40, I-85, and the Durham Freeway (NC 147) experience congestion during morning and evening commute times. Even with billions of dollars in planned highway and transit investments over the next 25 years, traffic congestion is expected to get worse and travel times will continue to increase. Simply put, the capacity of the roadway system will not keep pace with the increase in traffic volumes.

These transportation challenges make it difficult for the local governments to direct this incoming growth in a focused, sustainable, and responsible manner. The expected growth can strain the natural resources in our region. Orange County is the headwaters of several rivers and streams in the Piedmont region. Without investment in transit, our region's growth will be dominated by low-density suburban sprawl that negatively impacts our natural resources.

County and municipal governments in Orange County and Durham County have developed plans and implementation strategies that seek to direct growth into more compact, walkable, higher-density, mixed-use development, instead of

the sprawling, auto-centric development that has characterized much of the region's growth. These plans were developed, in part, because of the capacity and expansion challenges facing the existing roadway network. In addition, the communities seek to create more centralized residential and business districts that are accessible using multiple modes of transportation including transit, bicycling and walking. Reliance on automobile travel to solve the region's mobility needs will not allow local governments to meet these land-use and multimodal goals.

A quality transit system also provides significant equity benefits to county residents who are most in need. Car ownership is expensive. According to the American Automobile Association, the average annual cost to own and operate a vehicle is \$8,558; the total average cost per mile driven is 57 cents per mile.¹ According to a 2015 onboard customer survey, half of GoDurham's passengers have annual household income of less than \$15,000, and another quarter have annual household income between \$15,000 and \$25,000. A 2016 survey found that 51 percent of Chapel Hill Transit's riders have an income less than \$30,000. Overall, 9 percent of Durham County residents and 5.1 percent of Orange County residents do not own a single vehicle.² Among households which have two workers, 11.7 percent in Durham County and 13.7 percent in Orange County only have access to one vehicle.

¹ Driving Costs Hit Six-Year Low, Finds AAA, <http://newsroomaaa.wpengine.com/auto/your-driving-costs/>

² American Community Survey 20011-15 5-Year Estimates.

Many people in the two counties rely on transit – based on customer satisfaction surveys conducted in 2015 and 2016, 38 percent of Chapel Hill Transit passengers, 62 percent of GoDurham passengers and 32 percent of GoTriangle passengers either have no access to a car overall or for the transit trip they were making.

Thus, for people in the community, transit is a lifeline and provides their only opportunity to access employment and educational opportunities and social services. About half of GoDurham’s riders use the system to go to work, while another 10 percent use it to get to school. Half of Chapel Hill Transit’s riders use the system to go to or from school.

Orange and Durham counties are also interconnected, with major job hubs at UNC, Duke, in downtown Durham, and other sites that draw across county lines. According to the most recent U.S. Census data, 20 percent of Orange County residents commute to work in Durham County, or more than 14,300 people. In Durham County, 17,606 residents – 9.5 percent of the total – commute to Orange County for work. This does not include the thousands of students at Duke, UNC, and NCCU who also live in one county and attend school in another, or who travel between the two counties for other educational or social opportunities.

The updated Orange and Durham Transit Plans continue this long local tradition of supporting transit and linking the region by devoting additional resources towards improving the transit network through enhanced bus service, a high-quality light rail system, and improved bus facilities.

1.2 Goals of this Transit Plan

The original Plan and this update have been developed by representatives from Orange County, the Towns of Chapel Hill, Carrboro, and Hillsborough, the University of North Carolina at Chapel Hill (UNC), and GoTriangle, with the primary goal of improving transit options throughout the county and making stronger connections with neighbors in the Triangle region.

The specific goals of the original Plan, which have been carried through into development of this Plan update, include:

- Improving overall mobility and transportation options
- Providing geographic equity
- Supporting improved capital facilities
- Encouraging transit-supportive land use
- Providing positive impacts on air quality

The Plan addresses the identified goals in the following ways:

Improving overall mobility and transportation options

The Plan provides improved bus service throughout the urban and rural sections of Orange County, connecting to local residential and employment centers throughout the county, and key regional destinations in Alamance, Durham and Wake Counties. In addition, the Durham-Orange Light Rail Transit system and North-South Corridor Bus Rapid Transit system provide new mobility options along some of the most heavily traveled and congested travel corridors in our region.

Providing geographic equity

The Plan allocates a dedicated percentage of bus service funds to Orange Public Transportation (OPT), which provides service largely in northern Orange County, including Hillsborough, as well as connecting service between northern Orange County and Chapel Hill. In addition, the Plan helps fund a new intercity (Amtrak) train station in Hillsborough, linking central Orange County to destinations throughout North Carolina and along the East Coast with frequent passenger rail service, including three daily round-trips between Charlotte and Raleigh. The North Carolina Department of Transportation plans to add up to two additional round trips in coming years.

Supporting improved capital facilities

The Plan invests in capital projects to improve transit passengers' experience, including new and improved bus stops with amenities such as benches and shelters, improved access for walking or biking to bus stops, and park-and-ride lots to broaden access to the transit system. The D-O LRT Project will implement substantial capital facilities that will provide a high level of passenger amenities and improvements to bicycle, pedestrian and roadway facilities around key stations.

Encouraging transit-supportive land use

The D-O LRT Project will provide a high-quality, reliable transit system that can support compact and walkable transit-oriented development around D-O LRT stations. A station-area study funded through a grant by the Federal Transit Administration is currently underway, with participation by GoTriangle, the Town

of Chapel Hill, and the City of Durham. The study's goal is to determine the economic potential of the light-rail station areas and determine how to maximize the economic benefits to the region while meeting other important local goals such as preservation of open space, equity, and affordable housing.

The N-S Corridor BRT Project will also provide the frequent transit service and high-quality infrastructure to encourage further transit-supportive development along the Martin Luther King, Jr. Boulevard corridor in Chapel Hill. The expansion of frequent bus service throughout the urban areas will also support transit-oriented lifestyles.

Providing positive impacts on air quality

The enhanced transit system, along with the D-O LRT system and transit-oriented development sparked by the project, will provide more multimodal transportation options for residents, allowing them to substitute transit, bicycle, and pedestrian trips for auto trips, reducing vehicular emissions.

1.3 Transit Providers

Transit services in Orange County are provided by three agencies, each of which has participated in the drafting of the original Plan and this updated Plan.



Chapel Hill Transit is a multijurisdictional agency formed by a partnership of the Towns of Chapel Hill, Carrboro, and UNC. Chapel Hill Transit is responsible for regular and express

routes and demand response service in the Chapel Hill, Carrboro, and University area. Chapel Hill Transit also provides regional express bus service to Hillsborough in cooperation with GoTriangle.



Orange County Public Transportation (OPT) is a county agency that is responsible for providing transportation services

to all residents of unincorporated Orange County, the Town of Hillsborough, Efland, and a portion of the City of Mebane with destinations within and beyond Orange County’s borders. OPT provides community transportation in unincorporated Orange County, consisting of demand response and circulator service within Hillsborough (in cooperation with the Town of Hillsborough), midday service connecting Chapel Hill to Hillsborough, and to Cedar Grove in northern Orange County.



GoTriangle is a regional transit agency serving Wake, Durham, and Orange counties. GoTriangle

provides regional commuter express and demand response service connecting Wake, Durham, and Orange counties, provides express service connecting Mebane to Hillsborough and the City of Durham, and manages the Durham-Orange Light Rail Transit (D-O LRT) Project.



The signatories to this Plan are Orange County, GoTriangle, and the **Durham-Chapel Hill-Carrboro Metropolitan Planning**

Organization (DCHC MPO). The governing board of the DCHC

MPO includes local elected officials from the City of Durham, Town of Chapel Hill, Town of Hillsborough, Town of Carrboro, Durham County, Orange County, and Chatham County.

1.4 Plan Governance

The original Plan was approved in 2012 by Orange County, the DCHC MPO, and GoTriangle. Along with this Plan, Orange County, Durham County, and GoTriangle have approved an update to the Interlocal Agreement for cost sharing (the “Cost-Sharing Agreement”) that governs the division of responsibility for costs associated with the D-O LRT Project, a key element of the Plan which serves both counties. This supersedes the original cost-sharing agreement entered into by the counties in 2012.

On October 24, 2012, Orange County, GoTriangle and the DCHC MPO entered into an Interlocal Implementation Agreement (“Implementation Agreement”) to provide for effective implementation and oversight of the transit plan. The Implementation Agreement establishes a Staff Working Group including representatives from Orange County, GoTriangle, and DCHC MPO. The Staff Working Group reviews progress of Plan Implementation and prepare updates to the Plan at least every four years, or due to identified changes to costs or revenues that are significant enough to require a plan update. This Plan update is the first such update.

2. Status of Projects and Services from the 2012 Plan

Based on the initial financial and programmatic assumptions, the original Plan approved new bus services and a variety of bus facilities such as shelters and park-and-ride lots, an Amtrak intercity rail station in Hillsborough, dedicated bus lanes along Martin Luther King Jr. Boulevard in Chapel Hill, and light rail service connecting Chapel Hill and Durham over a period of 20 years. These projects were proposed to be paid for, in whole or in part, by the Tax District Revenues authorized by the Plan and by the affirmative vote on the levying of the Tax District Revenues by Orange County residents.

Since the adoption of the original Plan and implementation of the Tax District Revenues to support the Plan, the transit agencies in Orange County have already delivered many of the planned bus services and made significant progress developing the Durham-Orange Light Rail Transit Project.

At the same time, however, the transit funding landscape has shifted significantly. Most transit investments, from large investments (like light rail projects) to smaller projects (like bus stops and bus vehicle purchases), are made using a combination of federal, state, and local funding. State government also provides funds to support transit operating and maintenance expenses. In developing its program of projects, the original Plan relied on long-standing assumptions related to the level of federal and state participation in transit projects. Since 2012, however, federal and state funding for individual transit projects has been reduced.



In addition, as local governments and transit agencies have further developed the capital projects included in the original Plan, they have recommended changes in the projects to better meet the region's transit needs, often resulting in increased estimated costs. **More information about project funding and planned expenditures can be found in Sections 4 and 5.**

This Section summarizes the progress made by local transit agencies to advance projects and services included in the original Plan since its adoption, and is organized as follows:

- Bus Service Expansion
 - Service within the Towns of Chapel Hill and Carrboro
 - Regional Service
 - Service within Hillsborough and Orange County
- Bus Facilities
- Hillsborough Train Station
- North-South Bus Rapid Transit Project
- Durham-Orange Light Rail Transit Project

2.1 Bus Service Expansion

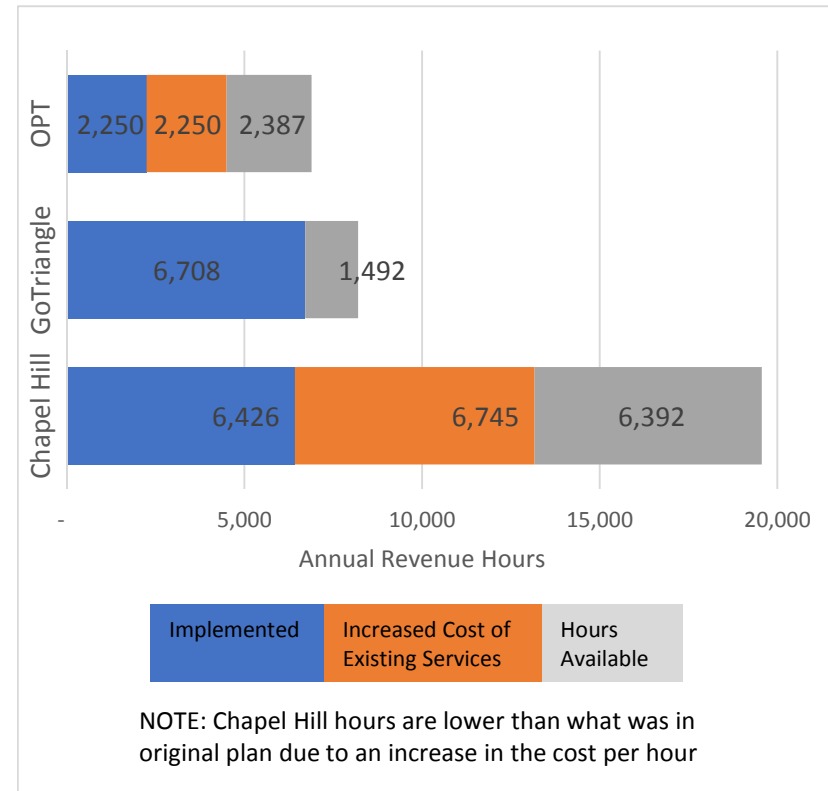
Since 2013, the Tax District Revenue has been used to enhance the region’s bus service. Existing service has been supplemented with additional trips, which provide more frequent bus service on heavily traveled routes and reduce the time passengers need to wait for buses. Some routes now have longer service spans, which allow riders to use transit earlier in the morning or later in the evening to get home or to work. There are also new bus routes that enhance transit access throughout the county and region.

The original Plan included additional service in Chapel Hill, Hillsborough, and rural Orange County, new express service connecting Mebane, Efland, and Hillsborough to central Durham, and expanded regional services connecting with Durham County and Wake County (for which funding responsibility is shared between the participating counties).

The original Plan included funding to provide about 34,650 new annual bus service hours during the first five years, with an additional 6,300 annual bus service hours beginning in 2035.

To date, the transit agencies have implemented about 15,400 additional annual hours of bus service, and used funds made available to cover the increased cost of providing transit service to support 9,000 annual hours of existing bus service. **Thus, a total of about 24,400 annual hours of service are currently supported by Tax District Revenue.**

Figure 2.1-1. Hours Implemented v. Hours Available



In connection with the service enhancements, the original Plan allocated funds to purchase new and replacement vehicles, including 15 new buses between 2013 and 2016, and 15 buses to replace these purchases during 2025-2028. To date, **the transit agencies have purchased or ordered seven new buses using Tax District Revenue.**

After approval of the original Plan in 2012, the transit agencies continued efforts to refine plans for future transit service. The

goal of these analyses was to optimize existing routes using existing resources, identify top priorities for additional transit service, and determine whether projects previously identified as transit priorities continue to be locally or regionally important projects. For example, Orange County Public Transportation (OPT) produced a short-range transit plan that identified additional future transit priorities for rural Orange County.

In addition, as new services funded by Tax District Revenue were introduced, the agencies evaluated the performance of these additional trips using metrics (such as ridership) to determine whether the services should be maintained or their resources redirected to supplement other existing routes or new services.

The cost and implementation schedule of projects proposed in the original Plan were, in some cases, modified due to these later planning efforts. **The program of projects included in Section 0 of this updated Plan also incorporates the results of these additional planning efforts.**

2.1.1 Service within the Town of Chapel Hill

For service within the Town of Chapel Hill provided by Chapel Hill Transit, specific goals during the first five years included:

- Improving evening service on key routes by extending hours and improving frequency
- Providing additional trips on peak-period services to reduce overcrowding
- Improving service along US 15-501 and NC 54

- A near-doubling of existing Saturday service, with expanded operating hours, improved service frequency, and redesigned routes
- A quadrupling of Sunday service
- Utilizing funds to supplement the increased cost of providing Chapel Hill Transit’s existing services

To date, Chapel Hill Transit has implemented 6,426 hours of new service, and has allocated the full eligible amount for the increased cost of existing service (for fiscal year 2018, this translates to about 6,745 hours).

The approximately 13,171 hours that have been implemented for new or existing service thus far is lower than the anticipated level of bus service proposed in the original Plan. This reduced level of service expansion versus projections included in the Plan is due in part to the state of the agency’s bus fleet, which limits its ability to run existing buses for additional hours. The original Plan also assumed a lower cost per hour to operate Chapel Hill Transit service than its current rate.

Specific enhancements implemented by Chapel Hill Transit include:

Service Enhancements Initiated in Fiscal Year 2014

- Evening and night service on Routes CM, CW, D and J extended year-round, instead of only when UNC is in session
- Two additional evening trips added on Route F
- Additional Saturday service on Routes CM, CW and JN

Service Enhancements Initiated in Fiscal Year 2015

- Additional midday trips on Route NS
- Additional morning trips on Routes A and J
- Extended morning service on Route D

2.1.2 Regional Service

For regional services provided by GoTriangle, specific goals during the first five years included:

- Providing new service connecting Mebane and Hillsborough with Duke University and downtown Durham (Route ODX)
- Extending existing regional service to connect Carrboro with Durham (Route 405)
- Adding frequency, reducing travel time, and expanding Saturday service and new Sunday service on existing Durham-Chapel Hill routes (Route 400)
- Expanding Saturday and new Sunday service on existing Chapel Hill-Research Triangle Park routes (Route 800)

GoTriangle has paid for about 6,700 new bus hours using Orange County Tax District Revenue (this number represents approximately half of the increased bus service on GoTriangle routes because the cost of operating routes is shared with either Durham or Wake County for routes that cross county borders). Under the Implementation Agreement, GoTriangle spends the full amount of its bus service allocation from the Tax District Revenues for expansion service; none is used to fund the increased Cost of Existing Service.

Service Enhancements Initiated in Fiscal Year 2014

- More frequent service between Streets at Southpoint and Chapel Hill (Route 800S), with buses scheduled every 15 minutes during peak commute times (previously every 30 minutes)

Service Enhancements Initiated in Fiscal Year 2015

- New commuter express service (Route ODX) connecting Mebane and Hillsborough with Duke Medical Center and downtown Durham
- Sunday service introduced on GoTriangle core routes (Routes 400, 700, and 800), including a connection to RDU International Airport on Route 100; Saturday service extended to run until 11 p.m. (previously 7 p.m.)



Service Enhancements Initiated in Fiscal Year 2016

- Additional service on the Chapel Hill-Raleigh Express service (Route CRX) during peak commute times

Service Enhancements Initiated in Fiscal Year 2017

- Extension to Carrboro on Chapel Hill-Durham regional route (Route 405) during peak commute times
- Reduced travel time and more frequent service for core route between Chapel Hill and Durham (Route 400), with buses scheduled every 30 minutes in the middle of each weekday and on Saturdays, up from every 60 minutes.

These implemented projects represent almost all of the regional service improvements pledged to be introduced during the first five years of the original Plan. The following service has not been implemented and will be evaluated as part of an upcoming five-year transit planning effort:

- Route 405 with service to Carrboro only runs every thirty minutes during peak times (vs. the 15 minute frequency anticipated in the original Plan) and does not run midday.

One improvement listed as a future priority in the original Plan is intended to be implemented this year; 30-minute midday and Saturday service along Route 800 between RTP and Chapel Hill via Southpoint. In addition, OPT has introduced midday service between Hillsborough and Chapel Hill, complementing GoTriangle Route 420 which runs during peak commute hours.

2.1.3 Orange County Service

Orange County Public Transportation's (OPT's) goal was to enhance the level of service provided in unincorporated Orange County. In addition, Tax District Revenues were planned to be used to continue weekday hourly service on the in-town Hillsborough circulator.

To date, **OPT has implemented an annual increase of 4,500 hours of bus service.** The total is higher than anticipated in part because the original Plan allocated bus hours on the basis of an average cost of service among the three agencies. Due to its smaller vehicles and the lower overhead costs of a small transit agency, OPT's hourly costs are lower. Thus the number of hours OPT could provide in the 2012 Plan for the same amount of revenue was 6,887 hours, depending on federal and state funding assumptions.

In 2016, Orange County instated OPT as its own department in County government to focus on transit services and appointed the department's first director.

OPT has implemented the following service enhancements:

- Continued service of the Hillsborough Circulator (previously funded using a time-limited federal grant)
- New midday service between Hillsborough and Chapel Hill on the Cedar Grove-Hillsborough-Chapel Hill Midday Connector (implemented in fiscal year 2016)

To date, OPT has not introduced Saturday service to the Hillsborough Circulator, as expected in the original Plan. As

discussed in Section 4.1.3, additional service to rural Orange County is scheduled to be implemented in calendar year 2017.

2.2 Bus Facilities

The original Plan set aside funds to pay for passenger transit amenities within the first three years of the Plan such as park-and-ride lots, bus shelters, passenger amenities such as real-time passenger information signs, and bus stop access improvements such as sidewalks.

Since 2012, GoTriangle, Chapel Hill Transit, and OPT have worked collaboratively with the Town of Chapel Hill, Town of Carrboro, UNC, and Orange County to refine the list of small capital projects to be funded using Tax District Revenue, such as bus stop enhancements and park-and-rides.

Bus facilities that have been implemented are:

- North Hillsborough Park-and-Ride (temporary lease)
- Lease of spaces at Mebane Cone Health for park-and-ride on Orange-Durham Express (Route ODX)
- Bus stop signs in Orange County
- Pedestrian crossings at bus stops in Chapel Hill

2.3 Hillsborough Train Station

The original Plan set aside funds to support construction of an intercity passenger rail station in the Town of Hillsborough. The station will be served by two Amtrak passenger train routes: the Carolinian, which travels between Charlotte and New York once daily in each direction, and the Piedmont, which travels



between Charlotte and Raleigh twice daily in each direction. Under the Piedmont Improvement Program, underway since 2010, the North Carolina Department of Transportation anticipates operating up to five daily trips between Raleigh and Charlotte in each direction.

Unlike other projects and services in the Plan which are managed by the local transit agencies, the Hillsborough Train Station project is managed by the North Carolina Department of Transportation (NCDOT) Rail Division and is primarily state funded. Since 2012, the NCDOT Rail Division has continued planning and coordination activities to advance the project, with support from the Town of Hillsborough and GoTriangle in a technical advisory capacity.

Identified by the NCDOT as project number P-5701, the Hillsborough Train Station is programmed for construction in fiscal years 2019 and 2020 in the 2016-2025 State Transportation Improvement Program (STIP).

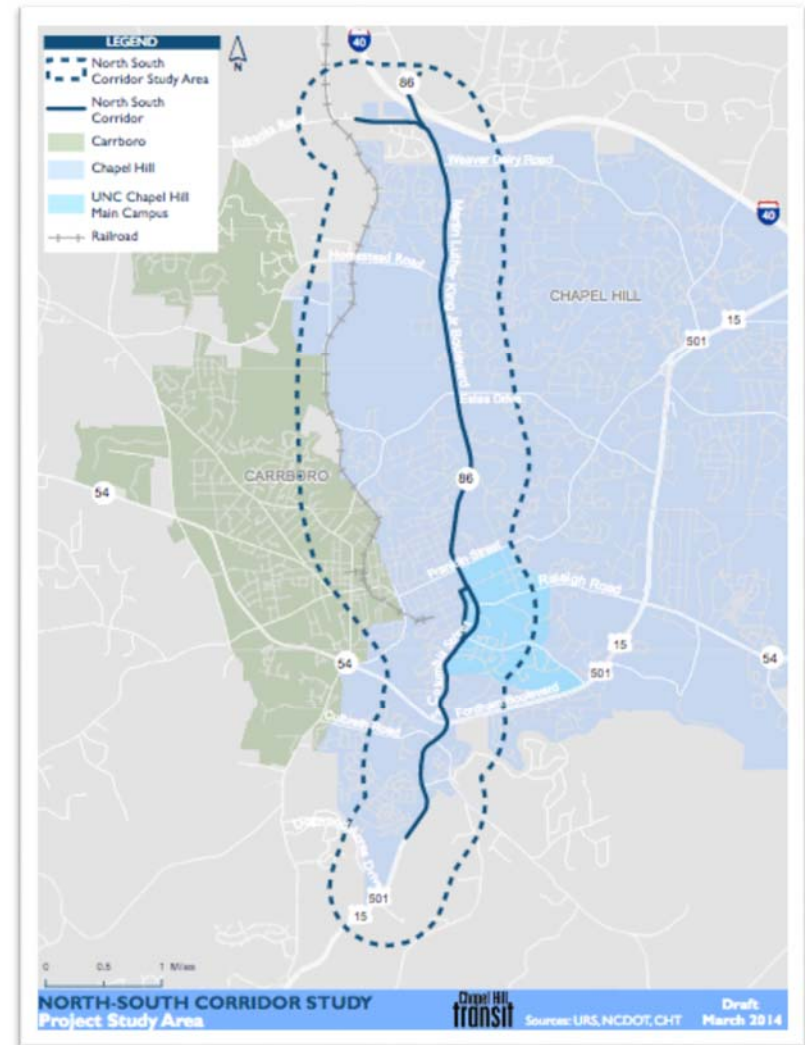
2.4 North-South Bus Rapid Transit Project

The original Plan set aside funds for bus lane improvements along Martin Luther King, Jr. Blvd. in Chapel Hill from I-40 to the UNC campuses. The original project was referred to as “Martin Luther King Boulevard Bus Lanes and Corridor Improvements.”

Beginning in 2012, Chapel Hill Transit led the North-South Corridor study to identify a Locally Preferred Alternative (LPA) for the Martin Luther King, Jr. Blvd, South Columbia Street and US 15-501 corridor. Adopted by the Chapel Hill Town Council on April 27, 2016, the North-South Corridor LPA is a combination of mixed-traffic and dedicated lanes that will connect Eubanks Road park-and-ride with Southern Village park-and-ride along Martin Luther King, Jr. Boulevard, South Columbia Street, and US 15-501. The route features direct connections to the University of North Carolina (UNC) Hospitals campus and the planned Durham-Orange Light Rail Transit (D-O LRT) Project. Chapel Hill Transit plans to carry three design variations of the LPA forward into the engineering and environmental clearance process to allow for further public input on the design of project. The project is currently known as the North-South Bus Rapid Transit (BRT).

On November 21, 2016, the Federal Transit Administration (FTA) admitted the project into Small Starts Project Development. Chapel Hill Transit is preparing to initiate engineering and environmental clearance activities at the beginning of fiscal year 2018.

Figure 2.4-1: N-S BRT Corridor Study Map



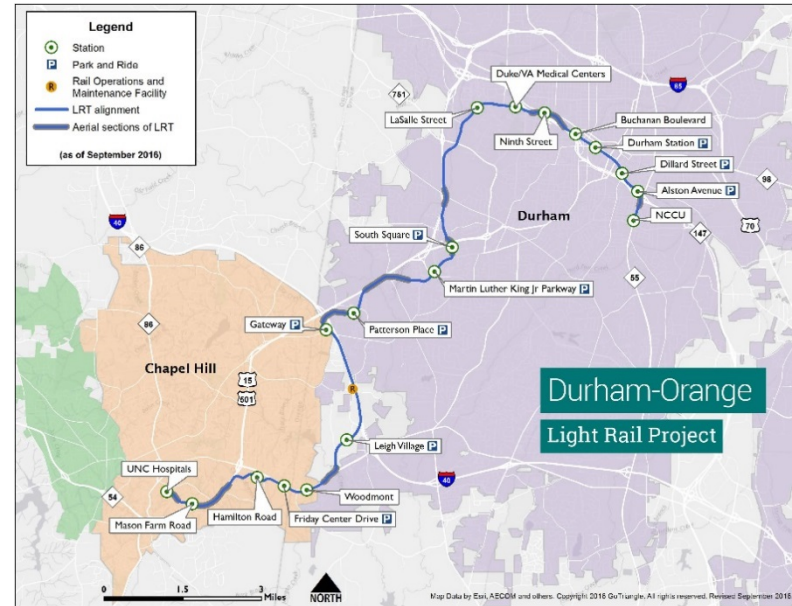
2.5 Durham-Orange Light Rail Transit Project

The original Plan set aside funding for the Orange County share of the Durham-Orange Light Rail Transit (D-O LRT) Project, which at that stage of planning was a 17-station alignment extending approximately 17 miles from UNC Hospitals in Chapel Hill to east Durham, near the intersection of Alston Avenue and NC 147. At that time, there remained several alignment and station options, including options to cross Little Creek and New Hope Creek; multiple station location options at Friday Center, Meadowmont/Woodmont, and the Duke University and Durham Veterans Affairs Medical Centers; and several options for the rail operations and maintenance facility.

Since adoption of the original Plan, GoTriangle conducted the environmental evaluation for the project, as required by the National Environmental Policy Act (NEPA). The D-O LRT Project was one of the first to complete its environmental analysis under new federal law, enacted in July 2012, which required transit agencies complete the analysis in two years.

GoTriangle began its NEPA analysis in February 2014. Following extensive study, GoTriangle and the FTA released a Draft Environmental Impact Statement (DEIS) for public comment in August 2015. The DEIS analyzed the project’s impacts to the natural and human environment, and proposed the “NEPA Preferred Alternative” including recommendations for the alignment, station, and rail operations and maintenance facility alternatives evaluated in the document. The NEPA Preferred Alternative also contained refined alignment and station locations through downtown Durham to accommodate future right-of-way needs of the North Carolina Railroad Company

Figure 2.4-1: D-O LRT Project Map



(NCRR), which owns the freight and intercity-rail tracks that also run through downtown Durham.

During the DEIS public comment period, the public was invited to attend two formal public information sessions and provide oral comments at two public hearings. GoTriangle accepted written comments via regular mail, email, and telephone between August 28 and October 13, 2015. Following a review of the public comment, GoTriangle and the FTA issued a combined Final Environmental Impact Statement (FEIS) and Final Section 4(f) Determination/ Record of Decision (ROD) on February 15, 2016.

Earlier, on November 11, 2015, the DCHC MPO unanimously passed a resolution endorsing the NEPA Preferred Alternative for the D-O LRT Project.

One of the most frequent comments received during the NEPA study was a request that GoTriangle improve the connection between the D-O LRT Project and North Carolina Central University (NCCU), which is located approximately 0.6 miles south of the Alston Avenue station across the NC 147 freeway. In response to these comments, FTA and GoTriangle committed to analyzing the feasibility of extending the alignment to the NCCU campus. This change was known as the “NCCU Station Refinement,” and FTA required preparation of a Supplemental Environmental Assessment (Supplemental EA) to document the impacts of the refinement before it could be included in the project scope.

On November 7, 2016, GoTriangle and FTA published a Supplemental EA which determined that the NCCU Station Refinement would not result in significant adverse social, economic, or environmental impacts. The public was invited to comment on the Supplemental EA through December 7. On December 14, 2016, the FTA issued an Amended Record of Decision giving environmental clearance to the NCCU Station Refinement. Also on December 14, 2016, the DCHC MPO unanimously passed a resolution amending the Locally Preferred Alternative to incorporate the NCCU Station Refinement.

On December 30, 2016, GoTriangle submitted to FTA its application to advance the D-O LRT Project into the Engineering Phase of the federal New Starts program. Design and

engineering of the project is ongoing and is expected to culminate in execution of a Full Funding Grant Agreement (FFGA) with the federal government in 2020. The project is expected to open in 2028, two years later than originally anticipated.

Ongoing work on the D-O LRT Project is being funded using Tax District Revenue and is eligible to be partially reimbursed by the federal government upon execution of a FFGA.

2.6 Additional Needs Identified in Original Plan

Beyond the projects planned to be funded within the first five years, the original Plan identified further transit needs that likely could not be funded with the Tax District Revenue.

2.6.1 Service within the Town of Chapel Hill

In the original Plan, Chapel Hill identified eight service priorities for a total of 33,136 additional hours of identified new service. The original Plan had funding for approximately two-thirds of those hours.

2.6.2 Regional service

Several services were identified in the original Plan as future regional service priorities to be implemented after 2020.

- 30-minute service frequencies on Route ODX, up from hourly
- New express service from White Cross to Carrboro to Chapel Hill, with 30-minute frequency

- Midday service on express Route CRX between Chapel Hill and Raleigh
- Added midday trips on Route 805 between Woodcroft and Chapel Hill.

GoTriangle’s planning efforts since implementation of the original Plan have resulted in a change in priorities which are reflected in this updated Plan in Section 0. In addition, GoTriangle is beginning a new short-range planning effort which will redefine the list of future regional service priorities.

2.6.3 Rural Service

The original Plan did not include any priorities for future Hillsborough or rural services to be operated by OPT. However, over the last five years, OPT has developed with approval of the Board of County Commissioners a bus expansion program to include an additional 6,464 hours.



2.7 Meeting Additional Needs in Original Plan – Light Rail Dividend

Additional bus service can be provided starting in 2029, when the D-O LRT Project is expected to begin operation. The D-O LRT service will replace several existing high-frequency bus routes in their entirety, such as, but not limited to, GoTriangle Routes 400 and 405, and Chapel Hill Transit Routes FCX and S. The service hours that will no longer be dedicated to these routes are known as the “rail dividend” — these unneeded service hours can be redirected to meet other Orange County transit priorities.

As described in the Transit Operating Plan for the D-O LRT Project, GoTriangle projects an estimated 30,000-45,000 rail dividend service hours may available in Orange County (with additional rail dividend service hours available in Durham County for service in Durham County). Decisions on how to make use of these rail dividend hours, as well as how other bus services should be modified to take advantage of the D-O LRT system, will be made by GoTriangle, GoDurham, and Chapel Hill Transit Partners working together as the opening date of the D-O LRT Project draws near.

3. Status of Funding Assumptions

Since the adoption of the 2012 Plan, changes have been made by the U.S. Congress to the federal transportation funding laws, in addition to changes made by the North Carolina General Assembly to the way that state funding decisions are made. In response to these changes, transit providers have updated their assumptions for the share of Tax District Revenues required to implement this updated Plan. The impacts of these changes are described below.

3.1 Bus Services

The original Plan assumed the operations and maintenance (O&M) of expansion bus services would be funded by a combination of formula-driven federal and state grants as well as transit fares. In the 2017 Plan, Chapel Hill Transit and Orange County Public Transportation (OPT) assume that Tax District Revenues will fund 90 percent of their O&M costs for expansion bus services. Additionally, Chapel Hill Transit and OPT assume they will use 100 percent of the proceeds from the seven dollar vehicle registration fee to fund the Increased Cost of Existing Service. This reduces the availability of funds for expansion services.

GoTriangle now assumes Tax District Revenues will fund 75 percent of its O&M costs for expansion bus services. The remaining 25 percent will be funded by state operating grants (10 percent) and fare revenues (15 percent). GoTriangle does not use any of the Tax District Revenues to support the Increased Cost of Existing Service.

3.2 Vehicles and Bus Facilities

The original Plan applied the same funding assumptions to vehicles and bus facilities. In response to the new funding environment, the transit providers have developed separate assumptions for vehicles and bus facilities.

3.2.1 Federal Funding Assumptions

The 2012 Plan assumed that bus purchases and bus facilities would receive 80 percent of the funding from discretionary federal grants, consistent with prior experience. However, shortly following adoption of the 2012 Plan, a new federal transportation law was passed, MAP-21, which eliminated the opportunity for transit agencies to compete for federal grant funding for buses and bus facilities. It was replaced with a formula-driven grant program that would not support the expansions at the levels outlined in the 2012 Plan. For example, in the last year of the previous federal transportation law, Congress allocated \$984 million nationwide to bus and bus facilities purchase. In the first year of MAP-21, the total allocation was \$421 million. In 2015, another federal transportation law was passed, the FAST Act, which restored some discretionary funding for replacement bus purchases, but not for expansion vehicles.

To address these changes, this Plan reduces the assumed share of federal revenues available for bus capital projects from 80 percent to approximately 44 percent, meaning it is now assumed the Tax District Revenues will fund a higher share of these projects.

No federal funds are assumed to cover the costs of new or replacement vehicles for any of the transit providers.

3.2.2 State Funding Assumptions

In 2013, the State of North Carolina passed the Strategic Transportation Investments law that changed how transportation funding decisions are made. The 2013 law created a 10 percent cap on the use of “regional tier” funding for transit projects in any 7-year Transportation Improvement Program, limiting the availability of state revenues to an amount lower than assumed in the 2012 Plan.

To address these changes, the 2017 Plan does not assume any state revenues will be available for bus capital projects, meaning that Tax District Revenues will need to fund a higher share of these projects.

For new and replacement vehicles, Chapel Hill Transit and OPT now assume that the Tax District Revenues will cover 100 percent of the costs. GoTriangle assumes the Tax District Revenues will cover 90 percent of the costs, with the remaining 10 percent funded by state grants.

3.3 Hillsborough Train Station

The Hillsborough Train Station project was assumed to be funded 80 percent by federal grants, 10 percent by state grants, and 10 percent by Tax District Revenues.

Now, state funding for the project is programmed in the State Transportation Improvement Program at 91.5 percent of the project cost. The remaining 8.5 percent is to be funded by Tax District Revenues.

3.4 North-South Bus Rapid Transit

The N-S BRT Project is planned to be funded through a combination of Tax District Revenues and federal funds.

3.4.1 Federal Funding Assumptions

The 2012 Plan assumed the federal government would be a significant funding partner for the N-S BRT Project at a 50 percent share of total costs. Though changes were made to the federal transportation funding law, it authorized continued funding through 2020 for the Capital Improvement Grant program, which is assumed to be an essential funding source for the BRT project. The Small Starts section of this grant program would allow up to 80 percent of project costs, \$100 million, to be paid through the federal grant. In order to improve the competitiveness of the project for this funding, the 2017 Plan assumes that the N-S BRT Project will receive 70 percent of its funding from the federal government.

3.4.2 State Funding Assumptions

The 2012 Plan also assumed the State would be a significant funding partner for the N-S South BRT Project at a 25 percent share of the total costs, just as it had done for Charlotte for the construction of their two light rail projects. North Carolina’s Strategic Transportation Investments law created a scoring

system for rating projects for funding. In 2014, the N-S BRT Project was submitted for evaluation and did not score well enough to receive state funding. Since that time, changes have been made to the state evaluation criteria which may result in a better score. However, this Plan does not assume any state funding for the N-S BRT Project.

The updated assumptions, 70 percent federal funding and zero percent state funding, mean that other sources must make up the 30 percent difference. The 2017 Plan maintains the Tax District Revenue share of the project at the dollar amount specified in the original Plan, \$6.125 million YOY. This amount can be considered a minimum and will be revisited in the future if Tax District Revenues are available.

As the project progresses through the Project Development phase, Chapel Hill Transit will refine cost estimates, continue to apply for State funding and explore other funding opportunities.

3.5 Durham-Orange Light Rail Project

The D-O LRT Project is planned to be funded primarily through a combination of Tax District Revenues, state funds, federal funds.

3.5.1 Federal Funding Assumptions

The original Plan assumed the federal government would be a significant funding partner for the major capital investments in

the Durham-Orange Light Rail Transit (D-O LRT) Project at a 50 percent share of total costs. Though changes have been made to the federal transportation funding law, federal law continues to authorize funding through 2020 for the Capital Improvement Grant program, which is assumed to be an essential funding source for the light rail and bus rapid transit projects. This Plan assumes that the D-O LRT project will receive 50 percent of its funding from the federal government.

Another key assumption about federal funding that has changed from the original Plan is that the 2017 Plan assumes an annual cap on the disbursement of federal funds for the project. The original Plan assumed the federal government would reimburse 50 percent of project costs annually as funds were spent. The 2017 Plan clarifies that the federal government is expected to reimburse a maximum of \$100 million YOY per year, for as many years as it takes for the full federal share to be reimbursed. This means that it will take longer to receive federal funds than originally assumed, which increases the need to finance a portion of the project.

3.5.2 State Funding Assumptions

The original Plan also assumed the State would be a significant funding partner for the D-O LRT Project at a 25 percent share of the total costs, which is equal to the level of state funding for the light rail projects in Charlotte. As mentioned above, in 2013 the Strategic Transportation Investments law created a 10 percent cap on the use of “regional tier” funding for transit projects in any State Transportation Improvement Program, limiting the availability of state revenues to an amount lower than assumed in the original Plan. In 2016, the General

Assembly passed a law placing another cap of 10 percent of the project cost for all light rail and commuter rail project costs. This Plan assumes the state contribution to the D-O LRT Project will be 10 percent.

This Plan addresses the reduction of state funding for the D-O LRT Project by committing a higher level of Tax District Revenue to the project than the original Plan. This Plan also assumes more borrowing against the anticipated Tax District Revenue stream.

3.5.3 Cost-Share Assumptions

In the original Plan, the capital and operating costs for the D-O LRT Project were shared by Orange and Durham counties. A cost sharing agreement between Orange County, Durham County, and GoTriangle established the cost share that GoTriangle was to use when spending Tax District Revenue on the D-O LRT Project. The Orange County share of capital project costs was 22.95 percent of the local share. The Orange County share of operating costs was 23.95 percent. No cost-share assumptions were made for financing or maintaining the project in a State of Good Repair.

With the reduction in state funding, the local share has increased from 25 percent of project costs to 40 percent of up-front project costs. In addition, as discussed in Section 4.6 below, the project scope has been modified, placing a greater portion of the project within Durham County. The relevant changes include:

- The inclusion of an additional station at North Carolina Central University, which adds an extra 0.6 miles of the light-rail alignment in Durham County
- Changes to the alignment at the New Hope Creek Crossing extended the length of the alignment in Durham County
- A station proposed for Orange County, Meadowmont Station, was replaced by Woodmont Station in Durham County, which also shortens the length of the alignment in Orange County

Representatives from Orange County, Durham County, and GoTriangle have entered into a separate cost-sharing agreement (the “Cost-Sharing Agreement”) which has been executed along with the Plan. The cost-sharing agreement allocates D-O LRT Project expenses as follows:

- Project capital costs:
 - Durham: \$738.4 million (YOE)
 - Orange: \$149.5 million (YOE)
- Operating expenses (through June 30, 2036):
 - Durham: 80 percent
 - Orange: 20 percent
- Operating expenses (after June 30, 2036) and State of Good Repair costs:
 - Durham: 81 percent
 - Orange: 19 percent

These are represented as key assumptions in Table 4.8-1.

4. Program of Projects and Services

In developing the 2017 Plan, the first priority of local staff has been to deliver on key goals of the original Plan – expansion of bus service, improved bus facilities, and major capital projects that significantly improve the quality of transit. This section summarizes the projects and services included in this Plan and is organized as follows:

- Bus Service
- Vehicle Purchases
- Bus Facilities
- Hillsborough Train Station
- North-South Bus Rapid Transit Project
- Durham-Orange Light Rail Transit Project
- Administrative Support

The program of projects and services in this Plan was developed from recommendations of staff from the local governments and participating transit agencies.

The full scope, cost, and financing assumptions of each of the projects in this Plan are preliminary. The list of projects which will be implemented and the implementation timeframe are subject to change. For example, if upon further study a project is more costly than originally anticipated, or funding available from federal, state, or the amount of Tax District Revenue collected does not match the assumptions in this Plan, the project may be delayed or its scope reduced.



As set forth in Section 6.5, the Staff Working Group will produce an annual updated financial plan incorporating revised assumptions and an annual Work Plan that identifies particular projects, services, and activities to be implemented in the upcoming year. The Work Plan will be presented to Durham and Orange County for review and comment prior to consideration for approval.

4.1 Bus Service

This Plan allocates Tax District Revenue for additional bus service in Orange County provided by Chapel Hill Transit (generally within Chapel Hill, Carrboro, and UNC), GoTriangle (regionally), and Orange County Public Transportation (OPT) (throughout Orange County). In addition, this Plan includes funding to purchase and replace buses used to provide that service.

The Plan allocates available funding for bus operations (\$3.14 million in fiscal year 2018) according to proportions established in the Interlocal Implementation Agreement — 64 percent to Chapel Hill Transit, 24 percent to GoTriangle, and 12 percent to Orange Public Transportation.

The bus hours projected for each agency in this Plan are based on the following assumptions:

- Available Tax District Revenues each year
- Hourly cost of providing bus service (specific to each agency)
- Inflation rate of hourly cost
- Share of operating costs funded by Tax District Revenue (specific to each agency)

If an agency's cost of providing service is lower than anticipated, or if operating revenues from other sources exceed expectations (e.g. farebox revenue), the agencies may be able to provide more service than set forth in this Plan. If the cost of providing service is higher, then the agencies may not be able to provide as much service. An agency's projected hourly cost to operate service may change in the future for a variety of reasons, including changes in labor costs, fuel costs, or additional administrative overhead. Any changes in the bus service hours provided under the Plan will be accounted for in the annual Work Plan (see Section 6.5).

4.1.1 Increased Cost of Existing Service

The Implementation Agreement authorizes Chapel Hill Transit and OPT to use 100 percent of the amount raised by the Seven-

Dollar Registration Fee (see Section 5.1.1.4 below) to cover the increased operating cost of services provided before the original Plan took effect. The updated Plan continues to rely on this assumption. GoTriangle does not use any Tax District Revenues to fund services provided before the original plan took effect.

4.1.2 Continuing Implemented Bus Service

The Plan is designed to provide a level of additional bus service that can be sustained annually. Therefore, this Plan provides continued support for numerous bus service expansions that have occurred since 2013, when Tax District Revenues began to accrue. The tables below list the additional bus service which has already been implemented and which the agencies anticipate continuing to provide using Tax District Revenue. The precise services funded by Tax District Revenue are subject to change based on future service needs, ridership trends, changes in revenues and expenses, and public input.

Table 4.1-1: GoTriangle Implemented Service Improvements

GoTriangle Ongoing Service Expansion	
Number of service hours funded	6,708
Route 800S, Chapel Hill - Southpoint peak service	
Route ODX, Mebane-Hillsborough-Durham express	
Route 800, additional Saturday & new Sunday service	
Route 400, additional Saturday & new Sunday service	
Route CRX, additional trips	
Route 400/405, extension to Carrboro and add'l service	
Route 400, 30-min weekday & Saturday service	
Additional FTA-required paratransit service*	

All service paid for 50% with Orange Tax-District Revenues

* Services not included in original Plan

Table 4.1-2: CHT Implemented Service Improvements

Chapel Hill Transit Ongoing Service Expansion	
Number of service hours	6,427
Routes A, D, J, and NS — additional peak and midday service	
Routes FG and D — extended Saturday service	
Routes CM, CW, D, F and I — extended weekday evening service	
Routes CM, CW, and JN — extended Saturday service	
Route HS — peak hour and evening expansion*	

* Services not included in original Plan

Table 4.1-3: OPT Implemented Service Improvements

OPT Ongoing Service Expansion	
Number of service hours	4,500
Hillsborough Circulator	
OC-CH Midday Connector	

4.1.3 Additional Expansion Bus Service

New bus services (including new routes and increased service frequency on existing routes) are proposed to be implemented by Chapel Hill Transit, GoTriangle and OPT using Tax District Revenue. The bus service hours shown below are estimates of what can be provided with the commitment of Tax District Revenue. The actual number of bus hours provided will depend on each agency’s actual costs of operations and maintenance, as well as differences in budgeting assumptions made by each agency about state, federal, farebox, or other local funds (non-Tax District Revenues) that can also support service expansion.

These proposed service expansions are subject to change as the agencies evaluate existing services (both services provided using the agencies’ other funding sources and those implemented using Tax District Revenue) and engage in studies to prioritize new services.

In 2017, GoTriangle and Chapel Hill Transit expect to begin short-range planning efforts to reevaluate plans for new and revised services over the next 5 to 10 years. OPT completed a short-range planning effort in 2015 and is scheduled to begin another expansion program in 2017. These planning efforts will be coordinated among all transit agencies in Orange County,

transit riders, the public, elected officials, and regional stakeholders.

Table 4.1-4: GoTriangle Program of Service Improvements

GoTriangle program of service improvements (1,700 hours)	
Upgrade GoTriangle Route 800 between Chapel Hill, Southpoint, and the Regional Transit Center to operate every 30 minutes from 6 AM to 7 PM Monday through Friday, and 7 AM to 7 PM on Saturday. It currently operates only every 60 minutes between 9:30 AM and 3:30 PM on weekdays, and all day on Saturday. (Cost split 50-50 with Durham County)	
Anticipated service start date	Fiscal Year 2018

Table 4.1-5 CHT Program of Service Improvements

CHT program of service improvements (5,700 hours)	
The following service improvements will be considered by the Chapel Hill Transit funding partners:	
<ul style="list-style-type: none"> o Evening service expansion to Southern Village (NS Route) o Peak hour expansion of existing service on the CW Route o Create new Saturday Route from Meadowmont via Downtown to Southern Village (V Route) o Expansion of Saturday Service – begin all routes around 8 AM, extend all routes to 7 PM o T – extend route to 15/501 & Sage Road o G – improve peak hour service o Expand Sunday service to match Saturday service levels 	
Anticipated service start date	Fiscal Years 2018-19

Table 4.1-6: OPT Program of Service Improvements

OPT program of service improvements (1,700 hours)	
The following service improvements will be considered by the Orange County Commissioners: Deviated fixed routes to three different parts of the County, running 5 hours per day, 2 days per week in each of the zones; new US 70 midday fixed-route service operating weekdays from 10 am - 3 pm; and Efland-Hillsborough commuter loop service operating 5 hours each weekday at peak commute times.	
Anticipated service start date	Fiscal Year 2018

4.1.4 Operating Costs, Schedule, and Funding Assumptions

The following operating costs per hour were provided by the three transit agencies in Orange County for fiscal year 2018 and used to calculate the hours of bus service projected to be made given the planned funding:

- Chapel Hill Transit \$113/hr
- GoTriangle \$120/hr
- Orange County Public Transportation \$68/hr

For both Chapel Hill Transit and OPT, it is assumed that 90 percent of the funding would come from Tax District Revenue, with 10 percent from state and federal grants. For GoTriangle, it is assumed that 75 percent of the funding would come from Tax District Revenue, with 15 percent from fares, and 10 percent from state grants.

4.1.5 Upcoming Activities

This Plan sets aside funding for GoTriangle to engage in a short-term 5-10 year) planning effort to update its transit plan, which will help determine what future services are funded from the Tax District Revenue. Before funds are committed to implement a particular project, the project sponsor will be required enter into a Project-Specific Agreement with GoTriangle which sets forth the cost and schedule expectations of the project. See Section 6.3.

4.2 Vehicle Purchases

This Plan dedicates funds to purchase vehicles to support new services. Eligible vehicle purchases include additional buses to support new and expanded services using Tax District Revenue. As these buses reach the end of their useful life, Tax District Revenue will be used to replace them. Additionally, this Plan includes funds for a mid-life repower of Chapel Hill Transit buses. Assumptions of the useful life and cost of each vehicle differ by vehicle type and by agency. The assumed useful life for OPT vehicles is 5 years, 12 years for GoTriangle vehicles, and 15 years for CHT vehicles assuming a mid-life repower to extend the life of the vehicle. **The financial plan provided in Section 5 accounts for the purchase of new vehicles to replace those listed at the end of their useful lives.**

Table 4.2-1: GoTriangle Vehicle Purchases

GoTriangle vehicle purchases
Purchase of 2 buses to support expanded services funded using Tax District Revenue. An additional 2 buses will be purchased using Durham Tax District Revenue for service on routes serving the two counties.

Table 4.2-2: CHT Vehicle Purchases

Chapel Hill Transit vehicle purchases
Purchase of up to 10 buses to support expanded services funded using Tax District Revenue. Up to 5 of these vehicles will be purchased using unspent operating revenues and are not eligible for replacement using Tax District Revenue.

Table 4.2-3: OPT Vehicle Purchases

OPT Vehicle purchases
Purchase of up to 6 buses plus ancillary equipment to support new Orange County services funded using Tax District Revenue.

4.2.1 Capital Costs, Schedule, and Funding Assumptions

The original Plan assumed a 10 percent Tax District funds share totaling \$1.7 million YOY for 15 new buses and their replacements. Due to the change in funding assumptions and requests from the transit agencies in the Staff Working Group, for the purchase of 13 buses, future mid-life repowers and

replacements (for eight of the buses) this Plan sets aside \$16.0 million YOE through fiscal year 2045.

4.2.2 Upcoming Activities

The agencies will continue to reevaluate their vehicle needs to take into account the condition of their fleet, opportunities to refurbish or otherwise extend the useful lives of vehicles, vehicles on order, and modifications to plans for future service.

Before funds are committed to purchase specific vehicles, the purchasing agency will be required enter into a Project-Specific Agreement with GoTriangle which sets forth the cost and schedule expectations of the project. See Section 6.3.

4.3 Bus Facilities

This Plan sets forth a program of customer-facing bus facility projects to improve the rider experience. The projects to be funded under this Plan fall into three general categories:

- Transit Stop Improvements: These are enhancements made to improve the customer’s waiting experience and includes new facilities such as transfer centers, bus stop improvements, signage, real-time information displays, and related projects.
- Access Improvements: These are enhancements that improve the ability for customers to access the transit system, including sidewalk and greenway projects, intersection improvements, and related projects. In accordance with FTA guidelines, each access

improvement project is within ½ mile (for pedestrian facilities) or 3 miles (for bicycle facilities) of a transit stop.

- Park-and-Rides: These are new facilities and associated amenities to allow transit riders to park their car before taking the bus.

Funds are also set aside in this Plan to pay for replacement of the facilities when they reach the end of their useful lives. Non-Tax District funding sources will need to be identified for operations and maintenance costs.

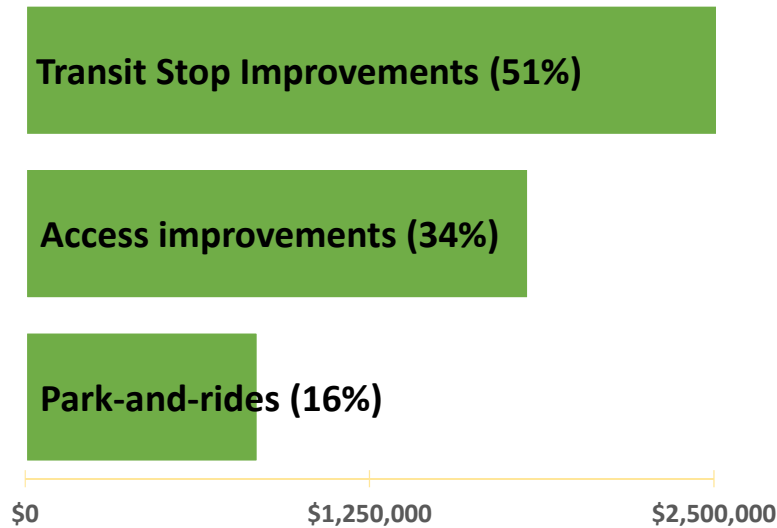
The capital cost of these projects and the Tax District contribution is provided in Table 4.3-1 and Figure 4.3-1 below.

The dates for implementation of projects in this Plan are preliminary and subject to change as the scope of each project is refined, project costs estimates are improved, and the Plan partners update their list of priority projects. In addition, the program of projects depends on assumptions of certain levels of Tax District Revenue and participation by the federal and state governments. If those revenue projections change, the list of projects and projects’ definitions may change as well.

Table 4.3-1: Bus Facility Construction Costs through 2045 (YOE)

	Total Cost	Tax District Contribution
Transit Stop Improvements	\$2,793,000	\$2,761,000
Access Improvements	\$5,348,000	\$1,828,000
Park-and-Ride	\$1,889,000	\$846,000
Total	\$10,031,000	\$5,436,000

Figure 4.3-1. Bus Facility Project Tax District Revenue Spending Overview (in YOE dollars)



4.3.1 Transit Stop Improvements

Transit stop improvements account for 51 percent of Tax District Revenue to be spent on construction of bus facilities in this Plan. The specific projects included in this Plan and preliminary anticipated implementation dates are provided in Table 4.3-2 and Table 4.3-3.

For Chapel Hill Transit, the Plan allocates funds to hire a consultant to design a system-wide bus stop amenities manual for the agency. The manual is intended to help design and improve bus stops for the transit customer, and the impacts of

the improvements will be measured through customer feedback and satisfaction surveys.

Table 4.3-2. Program of Transit Stop Improvements in FY2018-20

Name	Description
OPT bus stop signs	To support new OPT service
Bus shelter lighting	Improved lighting at selected bus stops served by CHT
GoTriangle bus stop improvements in Carrboro	Improved bus stop for GoTriangle 405 service in Carrboro
2 bus stop improvements in Carrboro	New shelters at 2 bus stops in Carrboro
CHT system-wide bus stop amenities guide manual	Procure consultant to design system-wide bus stop amenity manual
CHT ADA bus stop upgrades	ADA improvements at stops throughout Chapel Hill/Carrboro
Hillsborough Circulator short-term bus stop improvements	Improve 5 bus stops along Hillsborough Circulator route
GoTriangle bus stop improvements	Improvements at bus stops served by GoTriangle and potentially by CHT or OPT
Manning Drive Bus Station	Enhanced passenger amenities at high-volume UNC Hospitals stop
Hillsborough Train Station Bus Stop Improvements	Bus stop amenities for new Hillsborough Train Station
Bus stop sign design and replacement	Update the design of bus stop signs and poles

Table 4.3-3: Program of Transit Stop Improvements after FY2020

Name	Description
Hillsborough Transfer Center (phase 1)	Transfer center linking OPT and GoTriangle routes
OPT bus stop improvements	Improve 10 bus stops on OPT routes

4.3.2 Access Improvements

Access improvements utilize 34 percent of Tax District Revenue planned to be spent on construction of bus facilities in this Plan. The specific projects included in this Plan and their preliminary anticipated construction or completion dates are provided in Table 4.3-4, Table 4.3-5, and Table 4.3-6.

Table 4.3-4: Program of Access Improvements in FY2018-20

Name	Description
Morgan Creek Greenway	Provides access from several neighborhoods to Smith Level Road bike/ped network
Estes Drive Transit Access/Corridor Study	Study of improvements along Estes Drive from N. Greensboro St. to MLK Jr. Blvd.
South Greensboro St Sidewalk	Provides pedestrian access for several nearby CHT and GoTriangle routes
West Main St Sidewalk	Fill gap in sidewalk between Fidelity St. to Poplar Ave, improving access to transit routes, plus crosswalk improvements
HAWK signal on NC 54	This pedestrian-activated signal will allow transit riders to safely access destinations along NC 54 in Carrboro

Table 4.3-5: Program of Access Improvements in FY2021-22

Name	Description
Estes Drive Bike-Ped improvements	Provide sidewalks and bike lanes from N. Greensboro St to Carrboro town limits
Access improvement - Patriot's Point to bus stop	Create safe pedestrian access along Orange Grove Road to major bus stops

Table 4.3-6: Program of Access Improvements after FY2023

Name	Description
OPT intersection improvement	Enhanced crossing options between high ridership stops at one location, to be determined

4.3.3 Park-and-Ride Facilities

New park-and-ride facilities utilize 16 percent of Tax District Revenue to be spent on construction of bus facilities in this Plan. There are two planned park-and-ride facilities.

The first project is the Hillsborough Park-and-Ride Lot, which is a permanent park-and-ride facility in Hillsborough with 35-50 parking spaces to serve passengers riding the GoTriangle Orange-Durham Express (Route ODX) to Durham. OPT will also provide a stop at the park-and-ride lot as part of its Circulator route. The project includes the cost of acquiring property for the park-and-ride lot, design, and construction.

The second project involves additional passenger amenities at the Mebane park-and-ride facility shared by GoTriangle with OPT and Piedmont-Area Regional Transit (PART).

4.3.4 Capital Costs, Schedule, and Funding Assumptions

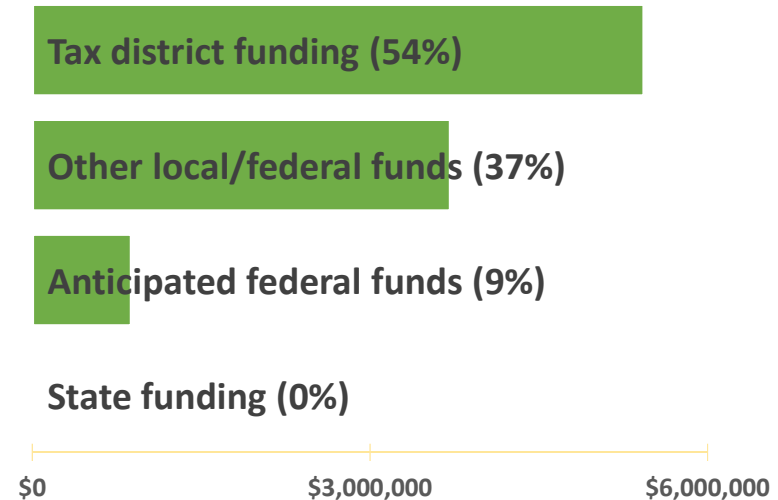
The original Plan assumed 80 percent federal funding support for the projects and 10 percent state funding support, leaving 10 percent to be funded by Tax District Revenue. The total amount set aside in Tax District Revenue for construction of these projects was \$669,000, which was intended to leverage projects with a total cost of \$6,669,000.

However, due to changes in federal and state policies regarding funding, it was determined these general assumptions were unrealistic and hampered the agencies’ ability to execute the original Plan. In the interest of delivering these priority projects in an expedited manner, this updated Plan includes updated funding and cost assumptions for each project, and overall allocates a higher percentage of Tax District Revenue to cover the cost of projects. Overall, the portfolio of projects included in this updated Plan are assumed to be funded 54 percent by Tax District Revenues, or \$5.4 million of the total project costs. Anticipated federal funding has been reduced from \$5.4 million to \$882,000. An additional \$3.7 million in other funds, about 37 percent of the total, is also assumed – these include federal funds allocated to the municipalities and transit agencies through the DCHC MPO, and other local funds outside the Tax District Revenues. No state funding is included. The capital funding plan for Bus Facilities is presented in Table 4.3-7 and Figure 4.3-2.

Table 4.3-7: Bus Facilities Project Capital Funding Plan (YOE)

	Original Plan	Updated Plan
Tax district funding	\$669,900	\$5,436,000
Other local/federal funds	\$0	\$3,714,000
Anticipated federal funds	\$5,359,200	\$882,000
State funding	\$669,900	\$0
Total	\$6,699,000	\$10,031,000

Figure 4.3-2. Bus Facilities Project Capital Funding Sources (YOE)



4.3.5 Operating Costs, Schedule, and Funding Assumptions

As in the original Plan, no funds from the Tax District Revenues are allocated to the operations and maintenance costs for these bus facilities.

4.3.6 Upcoming Activities

The sponsors of the bus facility projects will continue to refine the project scope, description and schedule and prepare projects for implementation. Before funds are committed to implement a particular project, the project sponsor will be required enter into a Project-Specific Agreement with GoTriangle which sets forth the cost and schedule expectations of the project. See Section 6.3.

4.4 Hillsborough Train Station

The Hillsborough Train Station is an intercity rail station that will be served by two Amtrak passenger train routes already passing through Hillsborough. The NCDOT Rail Division is advancing the Hillsborough Train Station project in cooperation with the Town of Hillsborough and GoTriangle.

4.4.1 Capital Costs, Schedule, and Funding Assumptions

The capital funding plan for the project is presented in Table 4.4-1. The portion of capital funds from the Tax District Revenue is \$686,000 YOE, a reduction from the local amount assumed in the original Plan. The project is slated for construction in fiscal years 2019 and 2020.

Table 4.4-1: Hillsborough Train Station Capital Funding Plan (YOE)

	Original Plan	Updated Plan
Other Funds	\$8,039,006	\$7,414,000
Tax-District Revenue	\$893,223	\$686,000
Total	\$8,932,229	\$8,100,000

4.4.2 Operating Costs, Schedule, and Funding Assumptions

The operating costs for this project are expected to be paid by the NCDOT Rail Division and Town of Hillsborough. No funds from the dedicated Tax District Revenue are budgeted to pay operating costs for this project.

4.4.3 Upcoming Activities

NCDOT Rail Division and the Town of Hillsborough will continue work on the project. Tax District Revenue funds have been committed to the project.

4.5 North-South Bus Rapid Transit Project

The N-S BRT Project will provide frequent, fixed-guideway bus service along NC 86, known locally as Martin Luther King, Jr. Boulevard and South Columbia Street, and the US Highway 15-501 corridor in Chapel Hill. In April 2016, the Chapel Hill Town Council adopted a Locally Preferred Alternative (LPA) that included three alignment design options. The adopted LPA is about 8.2 miles of combination mixed traffic/dedicated lane BRT between the Eubanks Road and the Southern Village park-and-ride lots. Currently, it is estimated that 12 articulated BRT vehicles will be necessary to provide the service.

The original Plan included a project referred to as “Martin Luther King Jr. Boulevard Bus Lanes and Corridor Improvements,” with the project boundary starting at Eubanks Road near I-40 and ending at the University of North Carolina (UNC) campus. The project was not well defined at that time.

During the North-South Corridor Study, which was guided by significant public and stakeholder involvement, the project scope was extended beyond UNC to the Southern Village Park and Ride lot. The study began in 2014 and concluded in the 2016 with the adoption of the LPA. In November 2016, the North-South BRT Project was accepted into the FTA’s Small Starts Project Development phase where it will be further defined and shaped.

4.5.1 Capital Costs, Schedule, and Funding Assumptions

The estimated capital cost of the project is \$125.8 million YOE, an increase in cost from the original Plan. The project is currently scheduled to open in calendar year 2022, although the opening date is subject to change based on the outcome of the project’s environmental and design work.

The capital funding plan is also different from the original Plan. The original Plan assumed a federal funding share of 50 percent and a state share of 25 percent. Chapel Hill Transit expects to apply for a grant from the FTA Section 5309 Small Starts program for 70 percent of the project cost. The amount of funds committed from the dedicated Tax District revenue is currently \$6.1 million YOE, to be accessed on a pay-as-you-go basis, which is the same amount dedicated in the original Plan. This amount can be considered a minimum and will be revisited in the future if local transit revenues are available. The anticipated capital funding plan for the project is presented in Table 4.5-1.

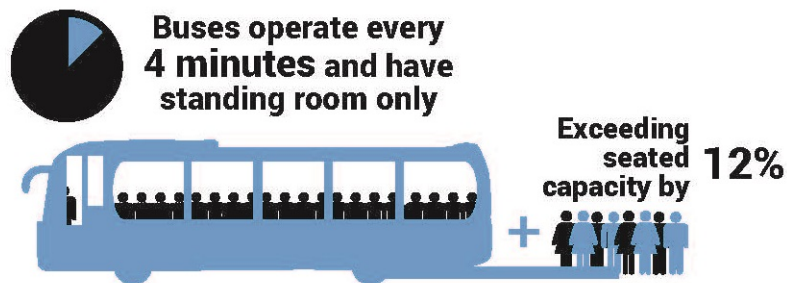
As the project proceeds through the Project Development phase, Chapel Hill Transit will refine the cost estimates, continue to apply for State funding and explore other funding opportunities.

Table 4.5-1: N-S BRT Project Capital Funding Plan (YOE millions)

	Original Plan	Updated Plan
Tax-District Revenue	\$6.1	\$6.1
Federal Funds	\$12.3	\$88.1
State Funds	\$6.1	\$0.0
Other Funds	\$0.0	\$31.6
Total	\$24.5	\$125.8

4.5.2 Operating Costs, Schedule, and Funding Assumptions

As in the original Plan, there are no funds from the dedicated Tax District Revenues that are planned for the operating cost of the N-S BRT Project.



4.5.3 Upcoming Activities

Chapel Hill Transit will continue with Project Development. The \$6.1 million YOE included in the original Plan has been committed to the project.

4.6 Durham-Orange Light Rail Transit Project

The D-O LRT Project will provide frequent, high-capacity light rail transit service in Durham and Orange Counties. As of December 2016, the scope of the project is 17.7 miles of dedicated light rail guideway with 18 stations between UNC Hospitals in Chapel Hill and North Carolina Central University (NCCU) in Durham, connecting numerous activity centers within the two counties. Once service starts, the D-O LRT Project will provide approximately 50,000 annual hours of additional transit service in Durham and Orange counties. The proposed operating plan includes service 18.5 hours per day Monday through Saturday, with 10-minute headways at peak times and 20-minute headways the rest of the day, and service 17.5 hours per day on Sunday with 20-minute headways most of the day and 30-minute headways in the early morning and late evening.

The D-O LRT Project also includes bicycle, pedestrian, and bus infrastructure improvements along the alignment.

Compared to the project scope in the original Plan, the length of the alignment is slightly longer, due to the choice of a New Hope Creek crossing alternative that is longer than the original crossing included in the 2012 Alternatives Analysis, and the addition of a new terminal station at NCCU. The design has



proceeded from a conceptual level to a level sufficient for completion of environmental analyses and entry into the Engineering phase of the federal New Starts program.

The opening of the D-O LRT Project has been delayed from calendar year 2026 to 2028 to better match the anticipated flow of funding from the federal government.

The proposed financing for the project is summarized in Section 5.

4.6.1 Capital Costs, Schedule, and Funding Assumptions

The estimated capital cost of the project is \$2,476 million YOE. This capital cost was developed in accordance with FTA requirements for federal participation through the New Starts program. It includes all eligible project expenses for project development, engineering, construction, start-up, and financing that are expected to be incurred from the date the project entered New Starts Project Development (February 2014) to the final year the project is expected to receive a

disbursement of federal funds (anticipated 2032). This capital cost was reviewed by the FTA and accepted for entry into New Starts Engineering.

The capital cost includes \$2,126 million YOE for the original project scope (UNC Hospitals – Alston Avenue), \$133 million YOE for the segment from the Alston Avenue station to the NCCU station, and \$88 million YOE in finance charges eligible for federal participation. The project cost includes \$130 million YOE in Joint Development, of which \$65 million YOE would come from local sources outside of the Tax District Revenue. The Joint Development component is entirely optional and could be funded by government or private sources, and could be used to leverage local funds to meet local priorities such as increasing the supply of additional affordable housing within D-O LRT station areas. The D-O LRT Project is expected to open in calendar year 2028.

Details of project cost changes between the original Plan and this updated Plan are provided in Table 4.6-1 and Table 4.6-2.

Table 4.6-1: D-O LRT Project Capital Cost Updates (2016 millions)

	Original Plan	Updated Plan
Level of Design	Conceptual	30%
Original Scope (UNC-Alston Ave)	\$1,605*	\$1,668**
Joint Development (Optional)	n/a	\$101
NCCU Station	n/a	\$108
Eligible Finance Charges	n/a	\$61
Total	\$1,605	\$1,877

* \$1,378 in 2011 dollars, escalated to 2016 dollars at 3.1% annually

** \$1,598 in 2015 dollars, escalated to 2016 dollars at 3.1% annually

Table 4.6-2: D-O LRT Project Capital Cost Updates (YOE millions)

	Original Plan	Updated Plan
Construction Completion Date	2026	2028
Original Scope (UNC-Alston Ave)	\$1,823	\$2,126
Joint Development (Optional)	n/a	\$130
NCCU Station	n/a	\$133
Eligible Finance Charges	n/a	\$88
Total	\$1,823	\$2,476

Project funding assumptions are also substantially different in this Plan. The original Plan assumed 25 percent state funding for the project. That assumption was consistent with prior state support for the Charlotte Lynx Blue Line in 2003 and the Charlotte Lynx Blue Line Extension in 2012. However, in June 2016, the General Assembly adopted a provision that imposes a state funding cap of ten percent for rail transit projects. The provision also made the D-O LRT Project ineligible for re-entry into the competitive system for state funding until the next

transportation project funding cycle, which will conclude with an adopted State Transportation Improvement Program in June 2019. GoTriangle plans to enter the D-O LRT Project into the state process to compete for the full ten percent state share for which the project is eligible.

The anticipated capital funding plan for the project is presented in Table 4.6-3. GoTriangle is seeking a 50 percent grant from the FTA Section 5309 New Starts program, which is consistent with the federal share awarded other New Starts projects. The amount of funds committed from the dedicated Tax District Revenue in Durham and Orange counties is \$887.9 million YOE, of which Orange County’s share is \$149.5 million in this Plan. The remaining capital funds are planned from state grants, private monetary and in-kind donations, and other funds specifically identified for the Joint Development component.

Table 4.6-3: D-O LRT Project Capital Funding Plan (YOE millions)

	Original Plan	Updated Plan
Other Funds	\$1,367.3	\$1,588.4
Dedicated Local Revenues	\$455.7	\$887.9
<i>Durham County Portion</i>	\$351.2	\$738.4
<i>Orange County Portion</i>	\$104.5	\$149.5
Total	\$1,823.0	\$2,476.3

Though the D-O LRT Project will compete for a full ten percent share from state funding, this funding is not guaranteed and could cover a lesser amount than ten percent of the full project cost. **Further information about financial assumptions is included in Section 5.**

4.6.2 Operating Costs, Schedule, and Funding Assumptions

The operating cost is projected as \$28.7 million YOE for the first year (fiscal year 2029). After applying fare revenues and state and federal grants, operating costs will be funded using the dedicated Tax District Revenue in Durham and Orange Counties. This will allow local funds that currently operate bus routes that will be replaced by the D-O LRT Project to be reallocated. Orange County’s share of the operating cost is 20 percent through June 30, 2036; thereafter, its share of the D-O LRT operating cost is 19 percent.

4.6.3 State of Good Repair Costs, Schedule, and Funding Assumptions

FTA requires that agencies plan for funding needs associated with capital asset replacement, referred to as “State of Good Repair.” This includes items such as light rail vehicle replacement every 25 years and major track work overhaul every 20 to 35 years. The first such expenditure for the D-O LRT Project is anticipated in 2040, with expenses continuing periodically thereafter for the duration of light rail operations. The total local share of these State of Good Repair costs is assumed to be 30 percent. Orange County’s portion of the local share of the capital asset replacement expenses is 19 percent.

4.6.4 Upcoming Activities

Funding for the D-O LRT Project is committed through the Cost-Sharing Agreement executed along with this Plan and which is incorporated into the annual Work Plan (see Sections 6.2 and 6.5).

4.6.4.1 Agreement for Making Changes to the Project

As the project moves forward into the Engineering Phase, GoTriangle will evaluate changes to the track alignment and station location at several sections to optimize the project’s performance and the counties’ financial investment. The goals of these changes include minimizing conflicts with vehicular & pedestrian traffic, and maximizing development opportunities and access for transit passengers.

FTA requires GoTriangle to re-evaluate any change to the project for its effects on the human and natural environment. If the proposed change results in environmental effects,



GoTriangle must demonstrate that the effects would be avoided, minimized, or mitigated through the existing commitments in the Amended Record of Decision before the change may be advanced in the design.

Before incorporating the proposed change into the final design of the project, the FTA must review and concur with the findings in the environmental re-evaluation. If FTA believes that additional environmental documentation is required to further assess the environmental effects, FTA will instruct GoTriangle to prepare and publish supplemental environmental documentation for public review and inspection. This supplemental environmental documentation will include any additional measures to avoid, minimize, or mitigate the effects of the change. The additional measures to avoid, minimize, or mitigate the effects of the change are then included in an Amended Record of Decision. This was recently completed for the design refinement associated with the addition of a station at North Carolina Central University.

While all design changes must be comprehensively re-evaluated for environmental effects, not all design changes will result in the preparation and publication of supplemental environmental documentation or amendments to the Record of Decision. The FTA makes this determination.

At this time, GoTriangle is evaluating several potential refinements to the project design, including:

- A shift of the Patterson Place station towards the east, beyond Sayward Drive. GoTriangle is aware of the proximity of the Patterson Place station to New Hope

Creek, a sensitive watershed. GoTriangle must comply with all local and state regulations and is required by FTA to carry out the mitigation commitments outlined in the Amended Record of Decision as part of the project's design. Any private land development that may result from the location of the station must comply with Durham City/County's regulations, which include regulations about the environmental effects of development.

- A shift of the Gateway station to the west, to the extent practicable, away from I-40. This change was recommended by GoTriangle's transit-oriented development consultants in a station area land-use study. If implemented, the proposed station refinement has the potential to significantly increase the economic development opportunities for both counties at that site.

The approving Boards of this Plan agree that any additions or deletions of stations along the D-O LRT Project alignment would require approval by the Orange County Board of Commissioners, Durham County Board of Commissioners, and DCHC MPO Policy Board, and the GoTriangle Board. Changes to station locations that would be significant enough to require approval by the GoTriangle Board of Trustees, such as the two changes described above, will be presented in advance to the Orange County Board of Commissioners, Durham County Board of Commissioners, and DCHC MPO Policy Board for their input.

4.6.4.2 LRT – Bus Service Planning

The D-O LRT Project is intended to provide a frequent, high-quality transit service through the congested D-O Corridor, offering a more reliable trip than buses. A key part to the system's success will be the ability for transit riders to connect to and from light rail stations using the region's wide-ranging bus network. Therefore, before the D-O LRT Project opens, the transit agencies will undertake a public process to restructure all existing bus services to improve transit options for residents and employees throughout both counties. The agencies will also work to put the "rail dividend" service hours to use to help link destinations away from the D-O Corridor with light-rail stations.

4.6.4.3 Economic Development at Gateway & Woodmont stations

Two of the stations in the Project are near the border between Durham County and Orange County and are located within the municipal limits of the Town of Chapel Hill — Woodmont station and Gateway station. In this Plan, Orange County agrees to work with Durham County to pursue strategic economic development partnerships around the sites of these two stations.

4.7 Administrative and Service Support

This updated Plan includes a new category of expenses to support the administration of new and expanded services and facilities. An administrative position and short-term transit planning efforts are identified to be funded in this Plan.

The administrative position would be responsible for coordinating the ongoing administrative and planning activities necessary to implement this Plan and Durham’s Plan. This Plan identifies a need for a part-time position (0.5 Full-Time Equivalent) for a staff member dedicated to these duties that would be housed at the Triangle J Council of Governments or the DCHC MPO. The staff member’s duties would be to coordinate and administer the committees that manage the Durham and Orange Transit Plans, improve the staff advisory process, create a process for developing and updating operating and capital programs, oversee updates to the financial plans, and establish any other formal processes necessary to improve the implementation of the transit plans. The cost of the position would be split equally between the Orange and Durham Tax District Revenues.

The Plan also identifies the need for funds to support short-range planning by GoTriangle and OPT. The results of this study will help identify changes to existing services and future needed services to be funded by Tax District Revenue or other sources.

4.7.1 Operating Costs, Schedule, and Funding Assumptions

The Plan allocates \$24,500 in fiscal year 2018 for the position of Plan administrator, with similar amounts in future years. This cost represents 50 percent of the 0.5 FTE position; the other 50 percent of the 0.5 FTE position is the responsibility of the Durham Plan.

For GoTriangle and OPT’s short-term planning, the Plan allocates \$100,000 (YOE) in fiscal year 2018.

4.7.2 Upcoming Activities

Beginning in fiscal year 2019, the DCHC MPO will enter into a Project-Specific Agreement with GoTriangle regarding the Project Administrator position. See Section 6.3.

4.8 Additional Needs Identified in this Plan

The Plan identifies additional needs to expand the transit system significantly beyond the services currently provided. However, the revenue provided by the Plan is inadequate to meet all of the region’s transit needs. This section identifies some of the transit needs that the anticipated Tax District Revenue will not be able to support. This list of projects is subject to change as the agencies and municipalities continue to evaluate the region’s transit needs and the resources available to meet them.

4.8.1 Bus Service

In addition to the identified services to be implemented by fiscal year 2019, there will be additional bus service needs between fiscal years 2020-2045. Since details of these additional bus service needs have not yet been developed, the assumption has been to increase the total bus service hours provided in the county according to the projected annual job growth rate (1.58 percent per year in Orange County). Some of these needs may be able to be met by reallocating existing bus hours when the Durham-Orange Light Rail Transit service opens. Others may require additional funding from other revenue sources.

Any additional bus service implemented would support the original goals of this Plan. They may include:

- Improved frequency of service into the major employment and education destinations in Orange County to mitigate increased traffic congestion and reduce the need to provide additional parking
- Better service outside the hours of the traditional work commute to support a less car-dependent lifestyle
- Direct bus access to future light rail stations in Orange County to expand the reach of the Durham-Orange Light Rail Transit service throughout the County

In its five-year plan, OPT proposed additional annual hours of bus services beyond what could be afforded in the original Plan.

As GoTriangle and Chapel Hill Transit conduct future planning studies, both agencies expect to develop proposals for future service which may or may not be able to be funded through the Tax District Revenue.

4.8.2 Vehicles

To support the additional bus service needs identified, new vehicles would need to be purchased by each agency. A conservative estimate suggests that 65 vehicles would need to be purchased in Orange County (this number includes replacements of new vehicles purchased) between fiscal years 2020-2045, though this number will be refined as new vehicle purchases are tied to specific bus operating projects.

4.8.3 Bus Facilities

Agencies have proposed bus facility projects in addition to those funded in this Plan. These additional projects include \$15 million YOE for capital and facilities operations and maintenance.

The additional project needs include \$5 million YOE for projects that could be delivered before fiscal year 2020. The cost includes operating and maintenance for 2018-2045:

- Old Fayetteville Road sidewalk in Carrboro
- Bike Share system pilot for Chapel Hill, Carrboro, UNC-Chapel Hill, and Hillsborough
- Real-time information system upgrades for Chapel Hill Transit

The additional project needs include \$10 million YOE for projects after fiscal year 2020:

- Two intersection improvements to improve access to OPT bus stops
- Five OPT bus stop improvement
- Hillsborough Transfer Center Phase two includes property acquisition, building, bus lane on site, bus facility on site

In addition, other as-yet-unidentified needs may include but are not limited to:

- Bus stop improvements are anticipated with the realignment of services with the opening of the D-O LRT Project.

- Bus stop improvements to comply with new design guidelines being developed by Chapel Hill Transit in fiscal year 2018
- Other bus stop and access improvements to respond to changing ridership and travel patterns beyond fiscal year 2025
- New regional transit facility at Park Center in Research Triangle Park

4.8.4 Hillsborough Train Station

The Hillsborough Train Station project is fully funded in this Plan.

4.8.5 North-South Bus Rapid Transit Project

The North-South BRT Project is not fully funded in this Plan. As the project proceeds through the Project Development phase, Chapel Hill Transit will refine the cost estimates, seek State funding, and explore other funding opportunities.

4.8.6 Durham-Orange Light Rail Transit Project

The D-O LRT Project is fully funded in this Plan. Additional needs for increased frequency and/or span of light rail service may be considered in future updates to this Plan.

4.8.7 Administrative and Service Support

Several request administrative and service support efforts are not funded in this Plan.

Unfunded requests include assisting OPT's introduction of significantly expanded services in rural Orange County, including efforts to market and rebrand OPT's expanded services and a training contractor to provide enhanced training for staff and new operators expected to be hired by the agency to support the expanded service. In addition, transit agencies had requested funding for two ongoing surveys of Durham and Orange County residents. The first would be a customer-satisfaction survey directed at transit customers to gather basic statistics and opinions of the system's performance. Every third year, the survey effort would be more robust to collect customer statistics at the route level. The second would be a community survey that tracks the perception of the transit system among all residents of both counties, including those who do and do not ride transit.

4.8.7.1 Operating Costs, Schedule, and Funding Assumptions

For the OPT rebranding and training efforts, OPT identified a need for \$111,000 in fiscal year 2018.

For the surveys, the agencies requested \$75,000 YOY in fiscal year 2018 for the surveys and two out of every three years thereafter. In fiscal year 2019, the agencies requested \$155,000 YOY to accommodate the triennial expanded customer-service survey, which represents a 50-50 cost split. The other 50 percent of the cost of the survey project would be paid for by Durham County Tax District Revenue.

5. Financial Plan

This Plan is fiscally constrained, and it relies on estimates and assumptions that have been developed by agency staff using current information and forecasting expertise. As time passes and new information is gathered, these estimates and assumptions may evolve. It will be important to monitor the potential effect of new information on the cost and timing of the projects included in this Plan. In addition, factors such as inflation, revenue growth, competition for federal funding and access to capital markets, and regional partnerships will influence the overall financial outlook of the Plan.

This Section documents current assumptions to implement projects and services included in the program in Section 4.A. A summary of the assumptions included in this Financial Plan are provided in Table 4.8-1.

Table 4.8-1. Financial Plan Key Assumptions

Input	Assumptions
Sales tax compound annual growth rate – Durham County / Orange County	4.33% / 3.71%
Inflation rate – capital cost / operating cost	3.1% / 3.1%
Bus operating cost per hour (2018 dollars)	
Chapel Hill Transit / GoTriangle / Orange Public Transportation	\$113 / \$120 / \$68
Tax District Revenue share of bus operating costs	
Chapel Hill Transit / GoTriangle / Orange Public Transportation	90% / 75% / 90%
Allocation of funding for bus operations according to the Interlocal Agreement	
Chapel Hill Transit / GoTriangle / Orange Public Transportation	64% / 24% / 12%
LRT cost share (Durham/Orange/Other)	
Local/Other share of capital cost after in-kind right-of-way donations and joint development grants	81.5% / 16.5% / 2.0%
Shared borrowings	81.5% / 18.5% / 0.0%
Operating cost	Through FY 2036: 80.0% / 20.0% / 0.0% After FY 2036: 81.0% / 19.0% / 0.0%
State of Good Repair costs	Through FY 2036: 80.0% / 20.0% / 0.0% After FY 2036: 81.0% / 19.0% / 0.0%
LRT construction period	FY 2020 through FY 2028
LRT state funding share	10%
LRT federal New Starts funding share	50%
Annual disbursement cap for LRT federal funding share	\$100 M YOY
Target minimum net debt service coverage ratio [(Revenues – Operating Expenditures) / Debt Service]	1.15x

5.1 Dedicated Tax District Revenues

There are four dedicated revenue streams used to fund the local share of projects and services in this Plan. These revenues are collected in both Durham and Orange counties; the revenues governed by this Plan are those collected in Orange County. These four dedicated Tax District Revenue streams used to finance this Plan are referred to throughout this document as “Tax District Revenue.” The Tax District Revenue includes:

- Article 43: One-half percent (half-cent) sales and use tax
- Article 50: GoTriangle five percent vehicle rental tax
- Article 51: Three-dollar increase to GoTriangle vehicle registration fee
- Article 52: Seven-dollar county vehicle registration fee

This Section describes these revenue streams, reports actual annual revenues to date (including half-year revenues from fiscal year 2017), and explains assumptions used to project future revenues.

5.1.1.1 Article 43 Half-Cent Sales Tax

The largest of the four dedicated Tax District Revenue sources is Article 43, a one-half percent (half-cent) sales and use tax collected in Durham and Orange Counties. A half-cent sales tax means when individuals spend \$10.00 on certain goods and services, an additional five cents (\$0.05) is added to the transaction and dedicated to the transit services funded under this Plan. Under state law, items such as food, gasoline, medicine, health care, and housing are excluded from the tax.

Revenue from the half-cent sales tax can be used for financing, constructing, operating, and maintaining local public transit systems. The funds can be used to supplement but not supplant or replace existing funds or resources for public transit systems.

GoTriangle has statutory authority to levy this tax in Durham, Orange, and Wake Counties. Doing so in each county is contingent on the addition of the county to a tax district, a successful referendum, and approval from the Board of County Commissioners. GoTriangle created the Western Triangle Tax District (now known as the Triangle Tax District) in June 2011. Durham County voters passed their referendum in November 2011, and the Durham County Board of Commissioners passed a resolution authorizing GoTriangle to levy the tax. GoTriangle added Orange County to the Tax District in June 2012. Additionally, Orange County and GoTriangle signed an agreement that GoTriangle would not levy the tax until the Board of Commissioners gave further approval. Following the successful Orange County referendum in November 2012, the Orange County Board of Commissioners gave its approval. GoTriangle formally levied the tax in both counties in December 2012. The North Carolina Department of Revenue (NCDOR) collects the tax in each county; collections in both counties began April 2013. NCDOR distributes these revenues directly to GoTriangle (in April 2017, following a similar process, NCDOR began collecting a half-cent sales tax dedicated to transit in Wake County).

The forecast for Orange County’s half-cent sales tax used in this updated Plan was developed by Moody’s Analytics in November 2016, using county-level personal disposable

income and metro area housing completions as the main explanatory variables for revenue growth. This analysis provided year-by-year growth rates for 2017 through 2046, incorporating assumptions about economic cycles. The compound annual growth rate (CAGR) over the 30-year period was projected at 3.71 percent. This Plan assumes the year-by-year growth rates for years 2017 through 2046 and the CAGR for years 2047 and beyond. The Moody's Analytics Sales Tax Forecast document is included as Appendix D.

5.1.1.2 Article 50 GoTriangle Vehicle Rental Tax

The second dedicated revenue source is a vehicle rental tax, which is imposed at the rate of five percent on the gross receipts derived by a retailer from the short-term rental of "U-drive-it" vehicles and motorcycles.

GoTriangle has statutory authority to levy this tax in Durham, Orange, and Wake Counties, and has since November 1997. GoTriangle collects this tax directly from rental vehicle vendors in each of the three counties, including at Raleigh-Durham International Airport. GoTriangle's Board of Trustees has a policy that allocates 50 percent of these vehicle rental tax revenues to the transit plans of Durham, Orange and Wake counties, with the remaining 50 percent reserved for GoTriangle's general use. The amount identified for the county transit plans is allocated based on 2010 population as follows: 68 percent to Wake County, 21.5 percent to Durham County, and 10.5 percent to Orange County. As such, the Orange County portion of all vehicle rental tax revenues is, compared to the total collected, 5.25 percent.

The forecast for GoTriangle's vehicle rental tax was developed in October 2014 by Dr. Michael Walden, an economist at North Carolina State University, using enplanements at RDU International Airport and annual real Gross Domestic Product (GDP) as the main explanatory variable for revenue growth. This analysis provided year-by-year growth rates for years 2014 through 2024, with an average annual growth rate of 4.8 percent. This Plan assumes the year-by-year growth rates for years 2017 through 2024 and the average annual growth rate for years 2025 and beyond.

5.1.1.3 Article 51 Three Dollar Vehicle Registration Fee

The third dedicated revenue source is a three dollar (\$3) vehicle registration fee, which is an increase to GoTriangle's five dollar (\$5) vehicles registration fee. Since 1991, GoTriangle has been collecting a five dollar (\$5) vehicle registration fee in Durham, Orange and Wake Counties; those revenues fund GoTriangle's general operations. To fund the Durham and Orange Transit Plans, GoTriangle exercised its statutory authority to increase the five dollar fee by three dollars in Durham and Orange Counties; it dedicated those incremental revenues to the county transit plans. GoTriangle needed to create the Durham-Orange Tax District (distinct from the Western Triangle Tax District) and receive approvals from GoTriangle's Special Tax Board and both Boards of County Commissioners. GoTriangle created the Durham-Orange Tax District, its Special Tax Board approved the fee in February 2014, and the Counties approved the fee in March 2014. GoTriangle began levying the fee shortly thereafter. The revenues from the three dollar fee that are collected in Orange County are included in this Plan.

The forecast for the vehicle registration fee was also developed by Dr. Walden in October 2014 using annual real Gross Domestic Product (GDP) as the main explanatory variable for revenue growth. This analysis provided year-by-year growth rates for years 2014 through 2024, with an average annual growth rate of 3.3 percent. This Plan assumes the year-by-year growth rates for years 2017 through 2024 and the average annual growth rate for years 2025 and beyond.

5.1.1.4 Article 52 Seven Dollar Vehicle Registration Fee

The fourth dedicated revenue source is a seven dollar (\$7) vehicle registration fee levied by Durham and Orange Counties. The counties have the statutory authority to levy the fee, and since levying the fee they have authorized the North Carolina Division of Motor Vehicles (NCDMV) to distribute the revenues directly to GoTriangle for the purpose of funding the county transit plans. The NCDMV collects the fees and distributes them to GoTriangle quarterly. The revenues from the seven dollar fee that are collected in Orange County are included in this Plan.

The same growth rate projection was applied to both vehicle registration fees, since they have the same tax base.

5.1.1.5 Actual Tax District Revenue, Fiscal Years 2014 through 2016

Tax District Revenue has been generated in Orange County for a period of years. This section describes the total revenue collected to date and the total expenditures to date. This section also describes the year-by-year collections to date, as compared to the year-by-year revenue projected in the original Plan.

Through the end of fiscal year 2016, the Tax District Revenue in Orange County generated \$23.1 million. Of that, the transit agencies have expended \$12.4 million to develop and deliver the projects and services in the original Plan. The remaining funds are held in reserve to be distributed in accordance with the Plan.

To date, Tax District Revenues have exceeded the expectations in the original Plan. Figure 5.1-1: Year by Year Revenue Comparison (in thousands of \$\$) contains the actual year-by-year collections to date for each of the four dedicated revenue streams, compared to the projections contained in the original Plan.

Figure 5.1-1: Year by Year Revenue Comparison (in thousands of \$\$)

YR	Tax District Revenue	Actual	Proj	Difference
Fiscal Year 2014	Half-Cent Sales Tax	\$6,560	\$5,000	\$1,560
	GoTriangle Vehicle Rental Tax	\$470	\$600	(\$130)
	\$7 Vehicle Registration Fee	\$570	\$800	(\$230)
	\$3 Vehicle Registration Fee	\$0	\$400	(\$400)
	Total Revenues	\$7,600	\$6,800	\$800
	Percentage projected vs actual			112%
Fiscal Year 2015	Half-Cent Sales Tax	\$6,190	\$5,100	\$1,090
	GoTriangle Vehicle Rental Tax	\$500	\$600	(\$100)
	\$7 Vehicle Registration Fee	\$810	\$800	\$10
	\$3 Vehicle Registration Fee	\$240	\$400	(\$160)
	Total Revenues	\$7,740	\$6,900	\$840
	Percentage projected vs actual			112%
Fiscal Year 2016	Half-Cent Sales Tax	\$6,160	\$5,300	\$860
	GoTriangle Vehicle Rental Tax	\$540	\$600	(\$60)
	\$7 Vehicle Registration Fee	\$770	\$800	(\$30)
	\$3 Vehicle Registration Fee	\$330	\$400	(\$70)
	Total Revenues	\$7,800	\$7,100	\$700
	Percentage projected vs actual			110%
Half-Year FY2017	Half-Cent Sales Tax	\$3,140	\$2,700	\$440
	GoTriangle Vehicle Rental Tax	\$310	\$300	\$10
	\$7 Vehicle Registration Fee	\$390	\$400	(\$10)
	\$3 Vehicle Registration Fee	\$170	\$200	(\$30)
	Total Revenues	\$4,010	\$3,600	\$410
	Percentage projected vs actual			111%

Projected revenues provided in original Plan

Total revenues include interest and investment but exclude grants

5.1.1.6 Projected Transit Tax Revenues, Fiscal Years 2017 through 2045

From fiscal year 2017 through fiscal year 2045, Orange County’s half-cent sales tax revenue is projected to generate \$344.1 million YOE. The vehicle rental tax allocated to Orange County is projected to total \$33.0 million YOE. The seven dollar and three dollar vehicle registration fees are expected to generate \$37.4 million YOE and \$16.0 million YOE, respectively. In total, these local transit tax revenues are projected to generate \$430.6 million YOE from fiscal year 2017 through fiscal year 2045.

5.2 Financing Assumptions

A portion of the construction cost of the Durham-Orange Light Rail Transit Project will be debt funded, with financing proceeds shown as revenues and debt service shown as expenses. In both the original Plan and this Plan, GoTriangle, as administrator of the Tax District, is the sole issuer of debt. The financial plan does not rely on or assume any debt issuances from parties other than GoTriangle.

The 2012 Plan assumed that in order to fund the projects and services proposed for Orange County, \$25 million YOE in Tax District long-term borrowing would be required. This updated Plan, in response to reductions in state and federal revenues, adjusts this total borrowing to a total of approximately \$209.4 million (YOE). The \$209.4 million is to be a combination of short- and long-term borrowing, to be repaid by a combination of federal grants and Orange County’s dedicated transit tax revenues.

Two types of borrowing are anticipated – short-term, Limited Obligation Bonds (LOBs), and a long-term federally backed Transportation Infrastructure Finance and Innovation Act (TIFIA) loan. Some of the short-term LOBs are to be repaid by federal grants for the D-O LRT Project, and the remainder of the LOBs and the TIFIA loan would be repaid by Tax District Revenue. The final terms of the debt, including the timing of the issuances, will depend on a variety of factors; this section describes the guiding assumptions used to develop this Plan. As implementation of the Plan progresses, the financing structure will be refined to ensure the most efficient use of Tax District Revenues.

This Plan assumes that during the latter half of the D-O LRT Project construction period in fiscal years 2024 through 2028, GoTriangle will issue short-term LOBs intended to be repaid by a combination of Orange County Tax District Revenues and federal grant funds for the D-O LRT Project. The total amount of LOBs intended to be repaid by Orange Tax District Revenue is \$72.5 million YOE. The amount of LOBs intended to be repaid by federal grant funds is \$57.4 million. The repayment terms vary for each issuance, but all LOBs will be repaid in full before debt service for the TIFIA loan begins in fiscal year 2033. The cost of issuance for all LOBs is assumed to be one percent of the par amount.

In 2020, GoTriangle plans to close on a TIFIA loan for the project. The TIFIA program is a federal loan program administered by the Department of Transportation. The program offers long-term, low-cost borrowing for major transportation infrastructure projects. The program is designed

to provide a portion of the financing, and to assist in projects being completed either that could not be completed without the TIFIA loan or the TIFIA loan allows the project to be completed at lower cost or a more accelerated timeline.

The loans allow borrowers to borrow at the federal government's own borrowing rates (the loan rate will be based on then-current treasury rates). Repayment terms are allowed up to 35 years past the project completion. Interest and principal can be deferred up to 5 and 10 years past project completion. The loan rate is set at closing, and the loan is treated as a drawdown facility. No interest accrues until drawdowns are made.

The TIFIA loan is projected to utilize the terms of the TIFIA program and to have a maturity of 35 years after project completion, assuming a debt service payment deferral period of five years after project completion and interest-only payments for four years (2033-2036). All LOBs will be repaid in full before debt service for the TIFIA loan begins. This Plan assumes that a par amount of \$79.6 million YOE will be funded by Orange Tax District Revenue. The cost of issuance is assumed at \$148,000.

In addition to financing needed for D-O LRT Project construction, an additional \$72.0 million YOE in borrowing is needed to fund Orange County's share of State of Good Repair costs for the project. These LOBs, which are to be issued by GoTriangle and funded by Orange Tax District Revenue, would be issued in fiscal years 2040, 2048, 2053, and 2058.

5.3 Interest Rates

The assumed interest rate for the limited obligation bonds is four percent. The bonds will be tax-exempt, and therefore the Municipal Market Data (MMD) index was utilized in the analysis of historical rate movements. It is expected the first series of limited obligation bonds (LOB) will be sold in 2024. Over the last 5-year, 10-year, 15-year and 20-year periods, average rates for the 7-year MMD have been 1.52 percent, 2.12 percent, 2.46 percent, and 2.99 percent, respectively. The budgeted rate of four percent is higher than the average rates over each of those time periods, which supports the reasonableness of the assumption.

The assumed interest rate for the TIFIA loan is 5 percent. Under the TIFIA credit program, the TIFIA Loan would have an interest rate approximately equal to the 30-year Treasury rate at the time of the loan closing. To receive that favorable interest rate, minimum credit qualifications are that the loan must be rated investment grade or be subordinate to an investment grade credit. The TIFIA loan is expected to be entered into in 2020. Over the last 5-year, 10-year, 15-year and 20-year periods, average rates for the 30-year Treasury have been 3.03 percent, 3.66 percent, 4.00 percent, and 4.54 percent, respectively. The assumed 5 percent rate in this plan is higher than the average rates over each of those time periods.

5.4 Debt Service Coverage

Given the Plan's focus on significantly increasing transit service, a key measure of financial health is GoTriangle's ongoing ability

to pay annual debt service, given projected revenue and recurring operating expenses. GoTriangle's total borrowing to implement both the Durham and Orange transit plans maintains a minimum net debt service coverage (ratio of revenues less operating expenses over annual debt service) of 1.19x for LOBs intended to be repaid by Tax District Revenues, 1.26x for LOBs intended to be repaid by federal grants, and 1.07x for the TIFIA loan. The average net coverage ratios for those same categories of borrowing are 2.28x, 3.03x, and 2.04x, respectively.

Figure 5.4-2 and Figure 5.4-1 show the net debt service coverage ratios (DSCR), distinguished by the intended repayment source. Figure 5.4-2 shows DSCR for the LOBs intended to be repaid by federal grants. Figure 5.4-3 shows DSCR for the TIFIA loan and LOBs that are intended to be funded by local transit tax revenues.

Figure 5.4-3 shows the total local transit tax revenue associated with Durham and Orange counties as well as GoTriangle's total projected debt service for the D-O LRT Project. Even as GoTriangle's debt service remains fairly level into the future, revenues available to pay debt service are projected to continue growing.

Figure 5.4-2. Projected Debt Service Coverage Ratios: Federally-Funded Limited Obligation Bonds (LOBs)

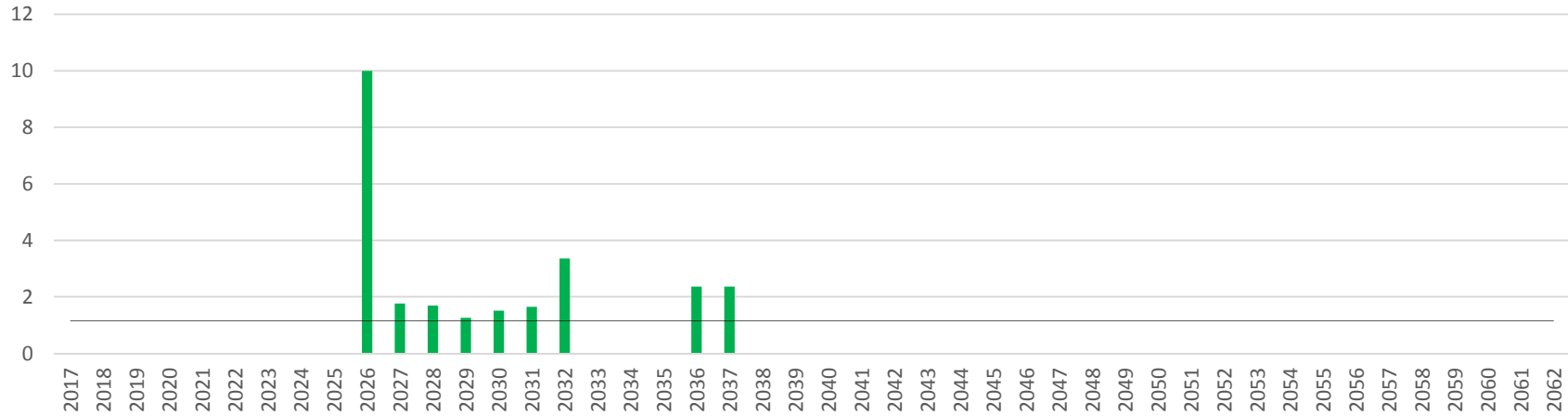


Figure 5.4-1. Projected Debt Service Coverage Ratios: Locally-Funded Limited Obligation Bonds (LOBs) & TIFIA Loans

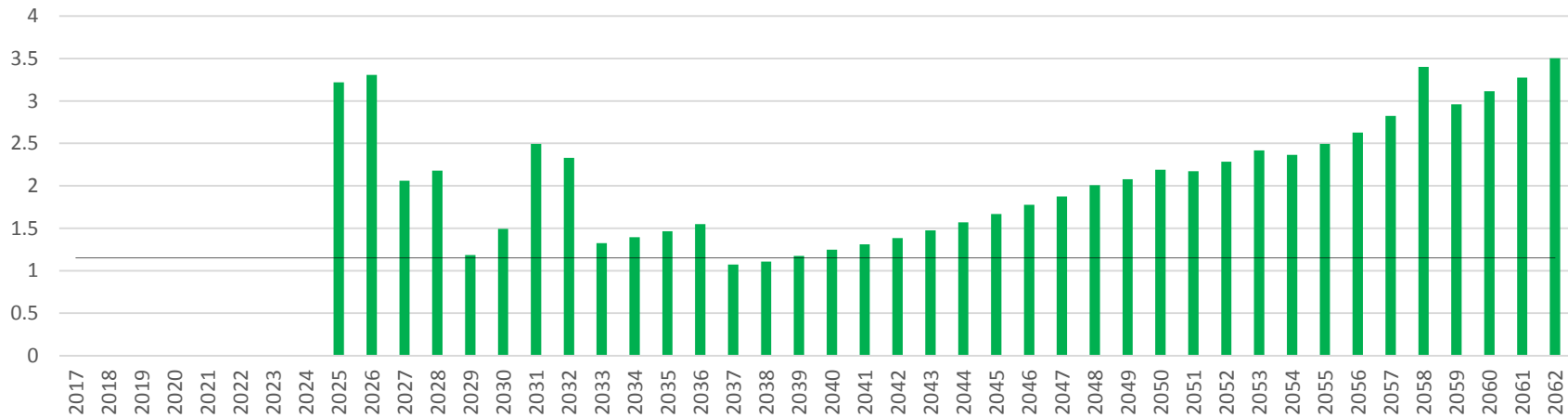
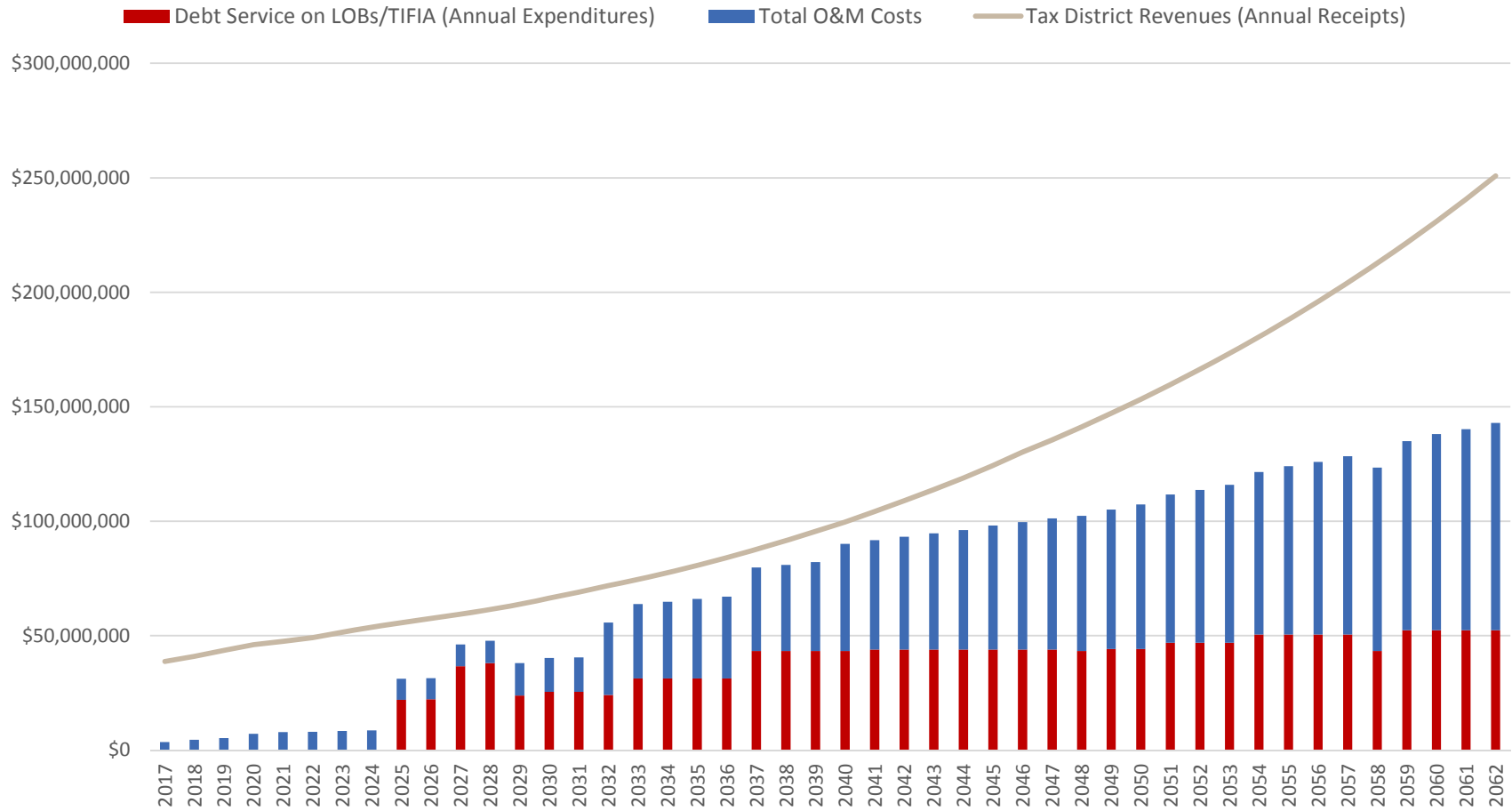


Figure 5.4-3. Projected Transit Tax District Revenue v. Debt Service for the D-O LRT Project



5.5 Reserves

GoTriangle will maintain reserves for O&M and debt service using Tax District Revenue.

5.5.1 Operations and maintenance

The 2017 Plan assumes GoTriangle will maintain cash reserves for O&M equivalent to 25 percent of its annual system operating budget, including allocations made by the Tax District to the transit providers for bus operations and maintenance. This reserve can be used to accommodate unexpected increases in operating costs or temporary revenue shortfalls. GoTriangle could also supplement O&M funding with its cash balance.

5.5.2 Debt service

As for debt service, the LOBs assume a reserve equal to 10 percent of the initial amount borrowed. The TIFIA loan assumes a reserve that is the lowest of: a) 10 percent of initial amount borrowed, b) the maximum annual debt service, or c) 125 percent of the average annual payments.

5.6 Cash Flow Summary

Figure 5.5-1 shows the projected cash balance of the 2017 Plan from fiscal year 2017 through fiscal year 2045. The cash balance in the first year reflects the amount of local transit tax revenues that have been reserved during the Project Development phase of the D-O LRT Project. This balance will be used to cash fund engineering activities in fiscal years 2018 and 2019. At the end of 2019, the 2017 Plan anticipates the first disbursement of state funds for the project, followed by a federal Full Funding

Figure 5.5-1. Cash Balances (YOE)

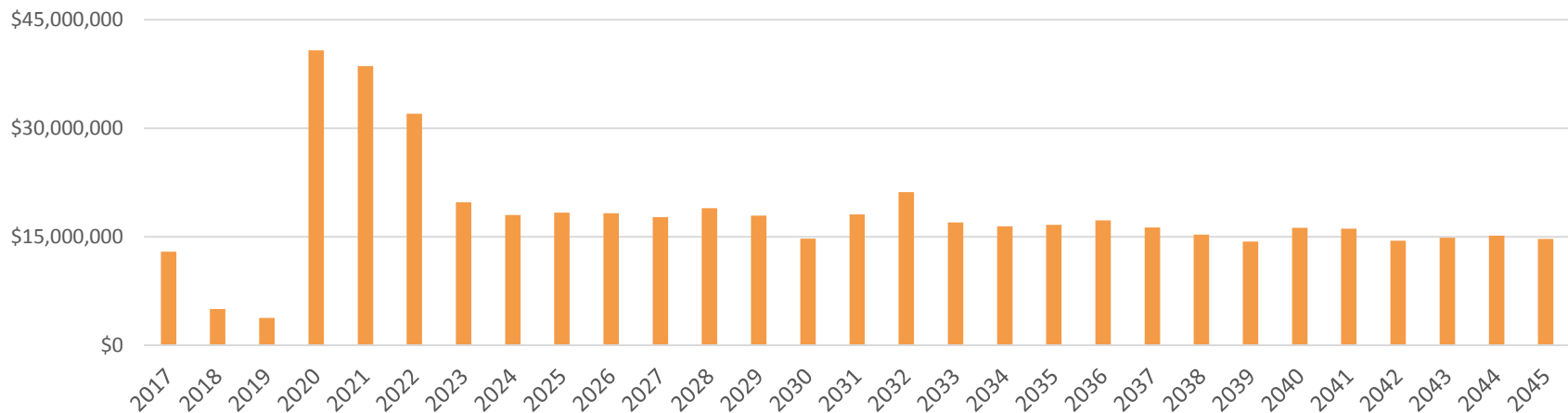
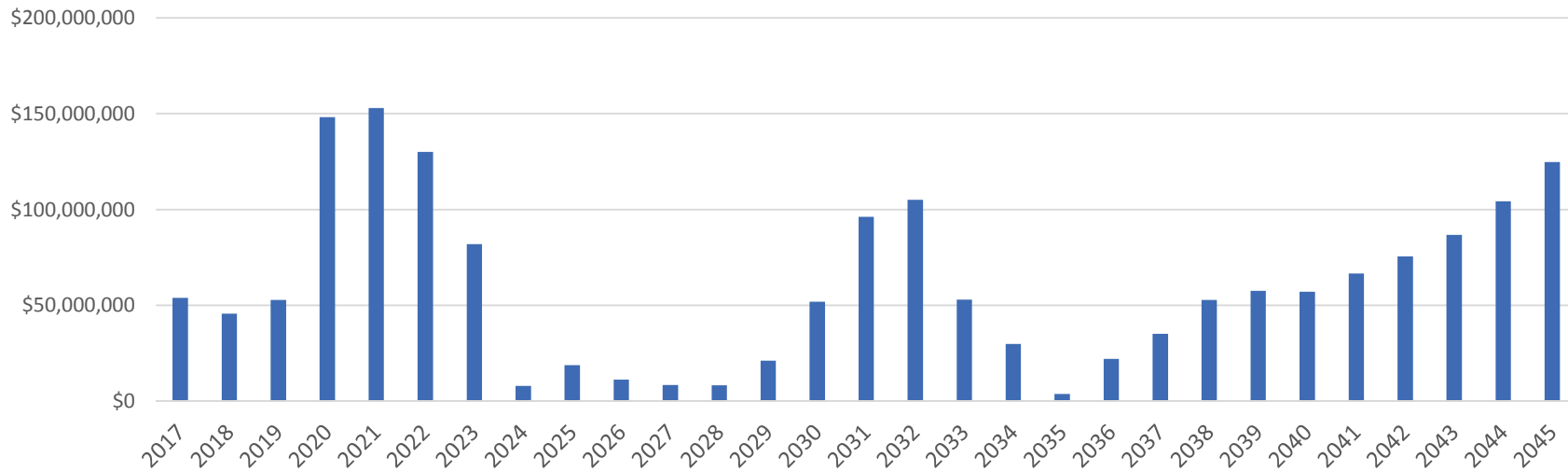


Figure 5.6-1. Cash Balances in Durham County (YOE)



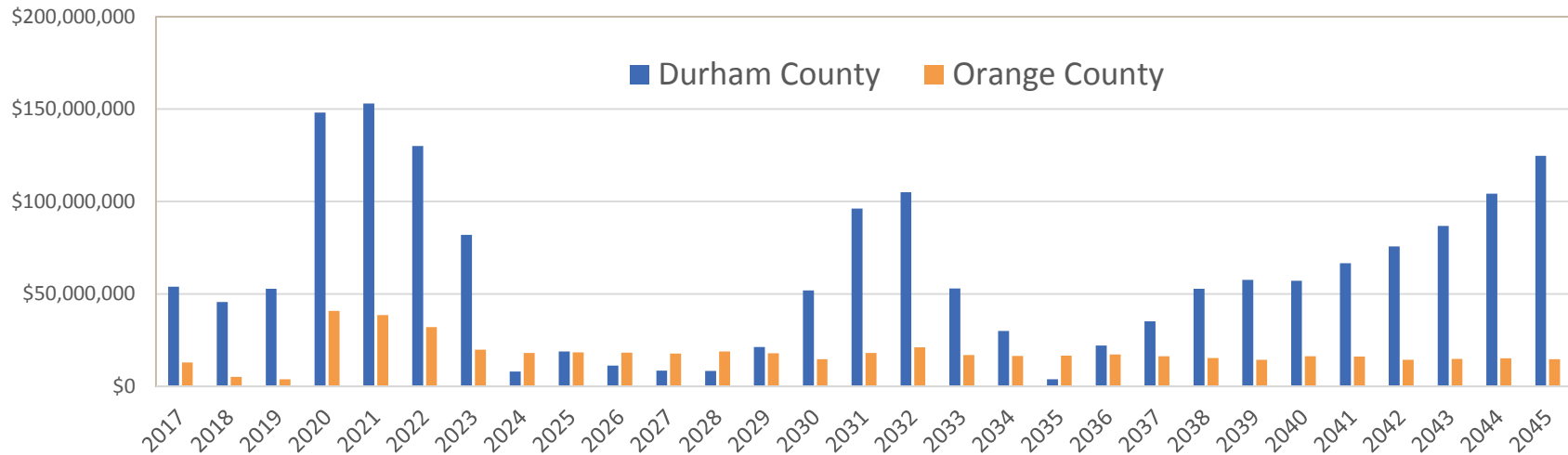
Grant Agreement in fiscal year 2020. Once the Full Funding Grant Agreement is executed, the disbursement of federal funds will begin at the rate of \$100 million YOE per year (18 percent of which is reflected in the Orange cash flow). As project construction expenditures begin to outpace the federal disbursement schedule, financing will be needed to address the timing differences. Project construction will be complete in fiscal year 2028, and operations and maintenance for the project will begin in fiscal year 2029. From that point on, the primary expenses in the cash flow will be operating and maintaining the transit system in a state of good repair as well as funding debt service. Tax District Revenues are projected to be sufficient to fund these expenses, but the capacity for expansion is limited in the long term. From fiscal years 2017 through 2045, the minimum projected cash balance after

funding debt service, operations, maintenance and reserves is \$3.8 million in FY 2019, before the first disbursement of grant funds for the D-O LRT Project.

Figure 5.5-1 shows the projected cash balance of this Plan from fiscal year 2017 through fiscal year 2045. As a point of comparison, Figure 5.6-1 shows the projected cash balance of Durham County under the Durham Plan, and Figure 5.7-1 shows both cash balances in the same chart. The variation in long-term cash balances in Orange County is due to the funding of capital asset replacement costs for the D-O LRT Project.

Year-by-year information about projected revenues and expenditures is provided in Appendix A.

Figure 5.7-1. Cash balances in Orange County and Durham County (YOY)



5.7 Key Financial Issues

As described above, this is a fiscally constrained plan using reasonably conservative assumptions. The key financial assumptions are regularly evaluated in order to assess the extent to which the plan is susceptible to these assumptions not being fully met due to external risk factors. The key identified risk factors are:

- Federal funding
- State funding
- Local sales tax forecast
- Project cost overruns

Though the current assumptions are reasonably conservative, there are risks that not all the forecasted revenues will be fully

realized, or project costs may exceed estimates. Each of these could occur at different times in the course of implementing the Plan, resulting in different mitigation strategies available to address the risks.

In addition to plan level analysis, it is also good practice to assess key risks for specific projects. For example, at this stage of project development for the D-O LRT Project, some mitigation strategies are already included, such as a 30% cost contingency in the D-O LRT Project cost and the assumption of conservative long-term lending rates.

Our other available mitigation strategies that have been identified include:

- Design changes to reduce project cost

- Savings from property donations
- Cost transfer to project partners
- New revenue commitments

Each of these risk areas and mitigation strategies for the D-O LRT Project are described in more detail in Appendix B: Durham-Orange LRT Financial Risks and Mitigation Strategies.

Orange County, Durham County, and GoTriangle also executed an updated Cost-Sharing Agreement for the D-O LRT Project. The agreement sets forth quarterly reporting requirements from GoTriangle to the two counties regarding the progress of the project, including any significant cost overruns or unmitigated funding shortfalls. If significant cost overruns or unmitigated funding shortfalls are encountered or anticipated, the parties agree to meet within 15 business days to decide upon a course of action for the D-O LRT Project.

6. Implementation Activities

This Plan represents the county's transit vision, and proposes a set of new transit services, infrastructure, facilities, and planning efforts to accomplish the county's goal of an improved transit network that increases access to jobs, employment opportunities, and social services for residents and helps guide growth in a sustainable fashion. Following this Plan's adoption, the project sponsors will continue to refine the scope of capital projects to produce more accurate cost estimates, seek other sources of funding, and make changes to service plans based on the outcome of short-term planning efforts. In addition, actual project expenses and revenues will vary from the assumptions in this Plan, which may require changes in the scope, schedule, or need for any particular project. Therefore, the Plan establishes an implementation process to translate the proposed projects in this Plan into actual funded services and facilities.

The 2012 Implementation Agreement among Orange County, DCHC MPO, and GoTriangle established a Staff Working Group with representatives from Orange County, the DCHC MPO, and GoTriangle to oversee the plan implementation and to make recommendations to the Managers or governing bodies when changes are needed. This group will continue to meet regularly for this purpose. Continuing with current practice and per the Implementation Agreement, staff from all municipalities and transit providers within the County will be invited to participate in this effort.

As discussed below in this Section, the SWG will develop the following work products to govern implementation:

- Multi-year programs for Capital Improvements and Operating Programs (Section 6.1).
- Project-Specific Agreements, assigning responsibility for executing particular projects (Section 6.3).
- Annual budgets which allocate Tax District Revenue (Section 6.4).

Collectively, these documents will be known as an Annual Work Plan (Section 6.5). The full process defined in this Section will be in place for the first Work Plan submission due in May 2018, so that all projects funded by Tax District Revenue will be in compliance with the implementation process established in this section for fiscal year 2019.

6.1 Multi-Year Capital and Operating Programs

A multi-year Capital Improvement Program (CIP) identifies by year projected capital projects, project sponsors responsible for undertaking these projects, the financial costs and anticipated sources of funding for those projects, and identifies any projected operating costs associated with those projects. A multi-year Operating Program describes activities such as development of local bus, express bus, Bus Rapid Transit, and light rail services to be funded by the Tax District. It will describe service changes planned for the upcoming year and preliminary service proposals and financial projection for the subsequent years. The document will also describe administrative, planning, marketing, or other functions that are not directly

accounted for in specific infrastructure project delivery or allocated to service delivery, but are essential to the implementation of the Plan.

6.2 Light-Rail Cost-Sharing Agreement

In conjunction with the execution of this Plan, Durham County and Orange County are executing a Cost-Sharing Agreement specific to the D-O LRT Project. This agreement commits the use of a portion of the Tax District Revenues contributed by Durham County and Orange County to fund the local share of D-O LRT Project costs. The agreement also establishes the shares of those costs attributable to each of the counties that will be borne by these Tax District Revenue. The cost shares will be applied to the planning, engineering, financing, construction, maintenance, and operating costs of the D-O LRT Project.

The agreement also sets forth regular quarterly reporting requirements from GoTriangle to the two counties regarding the progress of the project, including any significant cost overruns or unmitigated funding shortfalls. If significant cost overruns or unmitigated funding shortfalls are encountered or anticipated, the parties agree to meet within 15 business days to decide upon a course of action for the D-O LRT Project.

The Cost-Sharing Agreement defines the joint commitment of Tax District Revenues to the D-O LRT Project, including the division of responsibility for capital, O&M, and state of good repair costs. The cost splits attributed to each county for these categories will be reviewed by the county Boards of Commissioners every four years.

6.3 Project-Specific Agreements

The Staff Working Group will develop a format for project-specific agreements for all bus facility projects, vehicle purchases, and major capital projects except the D-O LRT Project for which a project-specific agreement has already been developed (see Section 6.2). These agreements will include expectations on funding, responsibilities, schedule, and performance. The project agreements will also require adherence to minimum state or federal standards (e.g., Americans with Disabilities Act).

The Staff Working Group will also develop a format for project-specific agreements for operating projects. These agreements shall state details of the services to be provided and expectations on funding, responsibilities, schedule, and performance.

Agreements will be established between the project or service sponsor and GoTriangle.

6.4 Annual Budgets

GoTriangle's Triangle Transit Tax District annual fiscal year (July 1 through June 30) budget, includes projections of revenues by source and expenses by category, including transfers to specified project and service sponsors. The budget is adopted by the GoTriangle Board of Trustees by June 30 of each year.

6.5 Work Plans

Each year, the Staff Working Group will develop a Work Plan that sets forth the program of transit capital and operating improvements to be undertaken using Tax District Revenue.

The Work Plan will include:

- the Annual Budget discussed in Section 6.4
- the Multi-Year Capital Improvement Program discussed in Section 6.1
- the Multi-Year Operating Program discussed in Section 6.1
- All project-specific agreements as discussed in Section 6.3
- An update of the long-term Financial Plan

The Work Plan would be presented to the Orange County Board of Commissioners, Durham County Board of Commissioners, and DCHC MPO Policy Board to give them opportunities to review the information and to request changes prior to consideration for approval by the GoTriangle Board and DCHC MPO Policy Board in May for the upcoming fiscal year, beginning in May 2018.

6.6 Updating the Plan

The Staff Working Group will review changes to cost and revenue assumptions and project and service priorities each year and decide whether any changes warrant an update to the Plan. At a minimum, the Plan will be updated every four years,

in advance of the DCHC MPO update of the long-range transportation plan, called a Metropolitan Transportation Plan.

7. Development of this Plan and Public Involvement

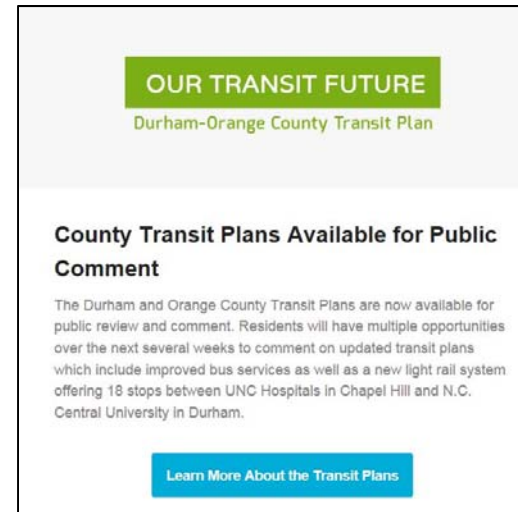
In accordance with Section 9 of the Implementation Agreement, the Staff Working Group has been meeting regularly since November to prepare this updated Plan. The initial draft of this Plan was released on March 31, 2017 on ourtransitfuture.com, starting a 21-day public comment period to receive input from members of the community. Revised versions of this Plan were released on April 4 and April 10. The revisions were posted to the ourtransitfuture.com website, along with errata which detailed the changes made in each revision.

7.1 Notification of Availability

On March 31, 2017 the draft Orange County Transit Plan and draft Durham County Transit Plan were uploaded to <http://www.ourtransitfuture.com/plans>. The plans were also posted to the DCHC MPO website: <http://www.dhcmpo.org/>.

After posting the plans an email was sent to Orange County Commissioners and elected officials, Durham County Commissioners and elected officials, members of the DCHC MPO Policy Board, and the GoTriangle Board of Trustees notifying them of the availability of the draft plans for public comment.

GoTriangle maintains a subscribers list for individuals who want to stay informed about transit planning activities in the Durham, Orange and Wake County. At 8:00 p.m. on March 31,



2017, an email alert was sent to over 2,000 individuals which comprise this list.

A media release was sent to all members of the local media. The DCHC MPO also purchased an advertisement in a local paper of general circulation

to alert members of the general public to the draft Plans availability.

Select members of the Staff Working Group posted information and resources regarding this Plan update and opportunities for public comment on their websites and update presentations were scheduled with their governing boards. Additional alerts were shared on social media.

7.2 Opportunities to Provide Public Comment

Feedback from users and potential users of the transit system is essential to improving the transportation network and setting a vision for a transit system. To make it easy for residents and other interested parties to submit comments, multiple opportunities were developed. Comments could be submitted five ways:

- Via email: info@ourtransitfuture.com,
- Via regular mail: P.O. Box 13787, Research Triangle Park, NC 27709,
- Through a comment form on ourtransitfuture.com,
- On a written comment form submitted at a public workshop, or at a public hearing

Three public hearings were held at which the public was invited to make verbal comment on this Plan and/or the Durham Plan:

- April 11 at the Durham County Board of County Commissioners. At that meeting, six people provided verbal comments.
- April 12 at the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization. At that meeting, five people provided verbal comments.
- April 18 at the Orange County Board of County Commissioners. At that meeting, 69 people provided verbal comments.
- April 24 at the Durham County Board of County Commissioners.

Due to a notification error, the Durham County public hearing scheduled for April 11, was a public comment period. An additional hearing was added on April 24.

7.3 Opportunities to Learn About the Transit Plans

PUBLIC WORKSHOPS

Four workshops were hosted by the Staff Working Groups to provide an opportunity for residents and employees of Durham and Orange County and other interested stakeholders an opportunity to learn about this Plan and the Durham Plan. Workshops were held in an open house format allowing attendees to ask questions of the county, transit agency, and GoTriangle staff. Workshops were held at the following locations and times:

- Monday, April 10 from 5-7 p.m. at Durham Station (515 W Pettigrew Street, Durham, NC 27701)
- Tuesday, April 11 from 5-7 p.m. at Orange County West Office Building (131 W Margaret Lane, Hillsborough, NC 27278)
- Wednesday, April 12 from 5-7 p.m. at GoTriangle (4600 Emperor Blvd, Durham, NC 27703)
- Thursday, April 13 from 5-7 p.m. at Chapel Hill Town Hall (405 Martin Luther King Jr. Blvd, Chapel Hill, NC 27514)

BRIEFINGS TO LOCAL GOVERNMENTS

While the Plan was out for public comment, GoTriangle and county staff gave six public briefings to local governing boards, including both sets of county commissioners and the elected

governing boards of Carrboro, Chapel Hill, Durham, and Hillsborough. These meetings were open to the public and many were televised on local public-access television and streamed over the internet.

7.4 Dissemination of Comments

Between March 31 and April 21, 2017, channels for submitting comments were monitored and comments submitted were collected and sent to members of the Staff Working Groups, the Durham County Board of Commissioners, the Orange County Board of Commissioners, the Durham City Council, the Chapel Hill Town Council, Carrboro Board of Alderman, the Hillsborough Board of Commissioners, the DCHC MPO Policy Board and the GoTriangle Board of Trustees on a rolling basis.

Across all of the avenues of public comments, the following input was received:

- 47 emails sent to info@ourtransitfuture.com
- 34 surveys submitted through the online comment form,
- 12 comment forms were submitted at public workshops

Attendance at public workshops

- 11 people attended the meeting at Durham Station on Monday, April 10
- 13 people attended the meeting in Hillsborough on Tuesday, April 12

- 2 people attended the meeting at GoTriangle’s offices on Wednesday, April 12
- 11 people attended the meeting at Chapel Hill Town Hall on Thursday, April 13

Over the course of the 21-day public comment period, many comments were received through the channels of public comment.

7.5 Summary of Comments

Major comments were about access to the light rail, connections to areas of the community, growth and congestion in the area, the cost and funding of the light rail project, the benefits of the light rail project, and equitable service to all areas of the county.

Below are a list of general themes received through public comment.

GENERAL

- There are issues that should be funded before we fund transit (i.e. schools, roads)
- Transit is an important issue for our community, which will enable smart growth
- We need to listen to the needs of seniors
- We need a plan that prioritizes community members who commute daily for work/school
- Building more roads will not work to reduce congestion
- Plan has too much debt/We can’t afford this plan

- Three County Plans should work together
- I don't want to pay any additional taxes
- Existing highways are under significant strain

BUS SERVICE EXPANSION

- Need faster/more frequent connections to RDU
- Need faster/more frequent connections to Southpoint and other areas of Durham
- Need faster/more frequent connections to Wake County/Raleigh
- Need more night service, specifically on Friday and Saturday (see plays or movies and take bus home) (service till midnight)
- More cost effective to provide mass transit than light rail
- Durham buses don't have ridership

TRANSIT FACILITIES IMPROVEMENTS

- Neighborhoods need to be more walkable

DURHAM-ORANGE LIGHT RAIL TRANSIT PROJECT

- Project is too expensive, funding is uncertain
- Project will negatively impact traffic, environment, housing values
- Project will benefit the environment
- Project will help commuters travel to popular destinations

- Not equitable; doesn't provide service to enough of Durham or Orange County; doesn't help people who depend on transit
- Project will encourage growth and smart land use decisions
- Project should not go through Meadowmont
- Project should go through Meadowmont
- Ridership projections aren't believable/Other systems aren't seeing increases in ridership
- Project will help manage traffic congestion

7.5.1 Online Survey

Participants in the online survey were asked question about the priority of projects and services in the plans. Figure 7.5-1 and Figure 7.5-2 below show generally how different projects in the plans were prioritized.

Of the 34 surveys submitted, 32 people believed that transit is an important issue in our community. 32 people reported that they are familiar with the transit system, but 19 people stated that they use transit often.

28 people would recommend to their local elected officials that they recommend this plan.

Appendix C contains all of the comments received over the course of the comment period and is available for review on <http://ourtransitfuture.com>.

Figure 7.5-1. Priorities Identified in Surveys

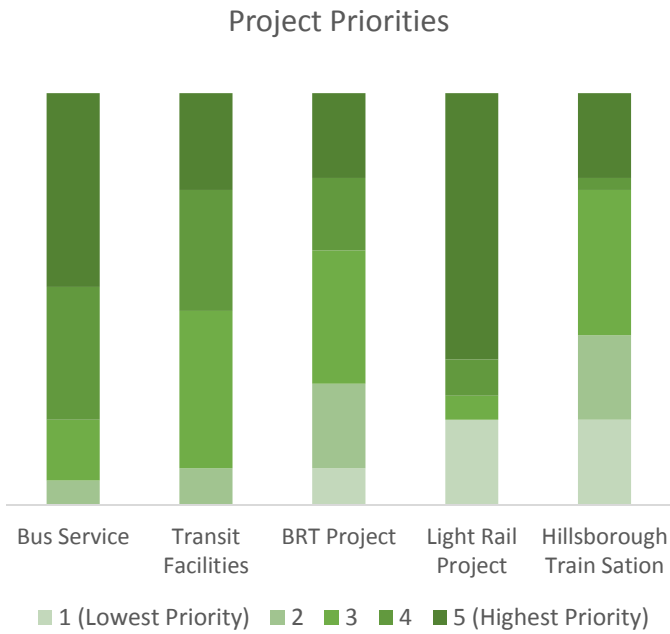
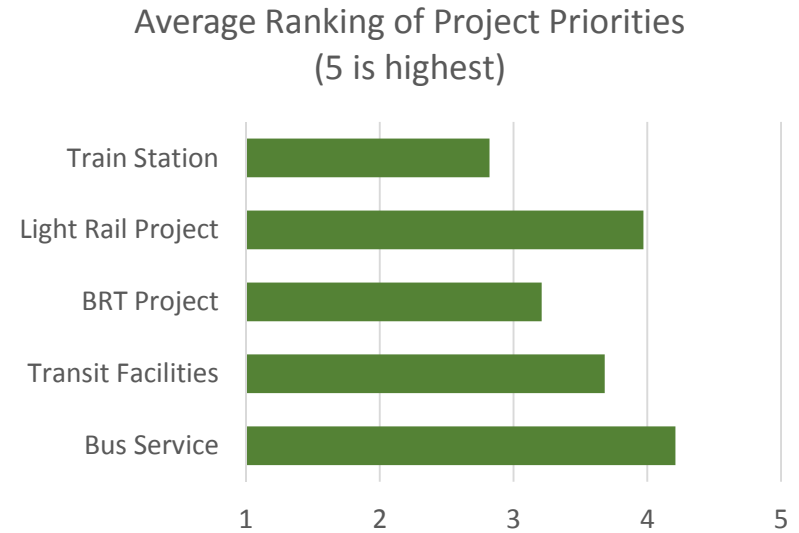


Figure 7.5-2. Average Ranking of Projects in Surveys



APPENDIX A: Cash Flow Details

Operating Revenues	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Sales Tax	26,914,101	28,579,624	30,664,248	32,519,299	33,626,774	34,830,245	36,592,160	38,338,310	39,783,898	41,069,131	42,385,733	43,920,662
Vehicle Rental Tax	1,166,764	1,220,435	1,274,134	1,327,648	1,383,409	1,438,745	1,496,295	1,553,154	1,627,705	1,705,835	1,787,715	1,873,525
\$3 Vehicle Registration Fee	696,164	718,441	736,402	754,076	771,420	789,163	806,525	824,269	841,579	864,302	887,638	911,604
\$7 Vehicle Registration Fee	1,624,470	1,676,453	1,718,364	1,759,605	1,800,076	1,841,478	1,881,991	1,923,395	1,963,786	2,016,808	2,071,262	2,127,186
Prior Year Cash Balance Restricted Operating	1,821,214	-	-	-	-	-	-	-	-	-	-	-
Prior Year Cash Balance Unrestricted	50,494,796	-	-	-	-	-	-	-	-	-	-	-
	82,717,509	32,194,953	34,393,148	36,360,628	37,581,679	38,899,631	40,776,971	42,639,128	44,216,968	45,656,076	47,132,348	48,832,977
Operating Expenses	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Allocations to Transit Providers for Bus O&M	3,821,281	3,965,821	4,294,536	4,597,881	4,734,401	4,874,129	5,018,027	5,165,300	5,316,955	5,472,164	5,637,873	5,808,613
Allocations to Transit Providers for Administration	-	174,060	123,290	84,741	87,368	297,254	92,869	95,748	98,716	152,665	293,809	108,185
Allocations to Transit Providers for Bus Facilities O&M	-	8,079	16,713	26,948	41,995	59,391	67,423	69,513	84,830	87,460	90,171	107,391
Allocation to GoTriangle for D-O LRT O&M	-	-	-	-	-	-	-	-	-	-	-	-
Allocation to GoTriangle for CRT O&M	-	-	-	-	-	-	-	-	-	-	-	-
	3,821,281	4,147,959	4,434,539	4,709,570	4,863,765	5,230,774	5,178,320	5,330,561	5,500,502	5,712,288	6,021,853	6,024,189
Deposit to Operating Reserve	634,628	108,514	23,240	22,500	22,952	23,407	24,092	24,568	25,284	25,780	28,002	28,844
Operating Revenues Remaining for Capital	78,261,600	27,938,480	29,935,369	31,628,557	32,694,962	33,645,450	35,574,559	37,283,999	38,691,183	39,918,007	41,082,493	42,779,944
Capital Revenues	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Carryover	-	53,904,375	45,842,418	52,958,260	148,328,534	153,200,665	130,139,063	82,153,263	8,167,908	18,913,507	11,319,147	8,569,523
Prior Year Cash Balance Restricted Capital	1,412,067	-	-	-	-	-	-	-	-	-	-	-
Durham D-O LRT Spent, Pre-2017 *	25,548,001	-	-	-	-	-	-	-	-	-	-	-
Operating Revenues Remaining for Capital	78,261,600	27,938,480	29,935,369	31,628,557	32,694,962	33,645,450	35,574,559	37,283,999	38,691,183	39,918,007	41,082,493	42,779,944
Durham D-O LRT Federal FFGA Revenues	-	-	-	81,500,000	81,500,000	81,500,000	81,500,000	81,500,000	81,500,000	81,500,000	81,500,000	81,500,000
Durham D-O LRT State Revenues	-	-	19,466,833	19,532,033	19,466,833	19,466,833	19,466,833	19,516,833	19,870,583	20,517,735	20,766,653	20,669,727
Durham D-O LRT LOB Proceeds	-	-	-	-	-	-	-	50,000,000	-	70,000,000	-	-
Durham D-O LRT GAN Proceeds	-	-	-	-	-	-	-	-	203,750,000	13,000,000	48,900,000	-
Durham D-O LRT TIFIA Proceeds	-	-	-	-	-	-	26,283,750	148,941,250	52,567,500	52,567,500	52,567,500	17,522,500
Durham Debt Service Reserve Release	-	-	-	-	-	-	-	-	-	-	-	3,278,254
Durham Debt Service Reserve Interest Earnings	-	-	-	-	-	-	25,826	222,175	477,577	612,229	712,782	679,999
Durham CRT Federal FFGA Revenues	-	-	-	-	-	-	-	-	-	-	-	-
In-Kind Donation (Right of Way)	-	-	-	15,791,793	-	-	-	-	-	-	-	-
Local Grants for Joint Development	-	-	-	-	-	-	-	-	465,024	478,886	25,655,793	26,451,122
	105,221,668	81,842,855	95,244,619	201,410,643	281,990,329	287,812,948	292,990,032	419,617,519	405,489,774	297,507,863	282,504,367	201,451,070
Capital Expenses	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Allocations to Transit Providers for Vehicles	-	3,622,934	2,164,189	-	-	-	-	-	676,621	455,412	244,264	-
Durham County Bus Facilities and Capital Projects	-	1,964,329	3,206,093	3,001,542	2,240,127	424,562	208,027	342,140	147,416	198,125	106,331	-
State of Good Repair for D-O LRT	-	-	-	-	-	-	-	-	-	-	-	-
CRT Project Cost	-	-	-	-	-	-	-	-	-	-	-	5,211,041
	-	5,587,263	5,370,281	3,001,542	2,240,127	424,562	208,027	342,140	824,037	653,537	350,595	5,211,041
D-O LRT Project Costs (No Debt) *	51,317,293	30,413,175	36,916,078	49,428,567	126,549,537	157,249,322	208,046,123	390,972,633	344,399,991	249,315,440	189,624,403	112,450,708
Durham LOB Debt Service	-	-	-	-	-	-	-	-	13,774,502	13,774,502	27,127,835	27,127,835
Durham GAN Debt Service	-	-	-	-	-	-	-	-	-	8,150,000	46,287,774	48,243,774
Durham TIFIA Debt Service	-	-	-	-	-	-	-	-	-	-	-	-
Durham Debt Service Reserve Deposit	-	-	-	-	-	-	2,582,619	19,634,839	25,540,237	13,465,237	10,055,237	-
Durham Cost of Issuance	-	-	-	652,000	-	-	-	500,000	2,037,500	830,000	489,000	-
	51,317,293	30,413,175	36,916,078	50,080,567	126,549,537	157,249,322	210,628,742	411,107,472	385,752,230	285,535,180	273,584,250	187,822,318
Cumulative Fund Balance	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Ending Balance	53,904,375	45,842,418	52,958,260	148,328,534	153,200,665	130,139,063	82,153,263	8,167,908	18,913,507	11,319,147	8,569,523	8,417,711

* The D-O LRT Project cost shown in FY 2017 is a total of actual and budgeted expenditures for FY 2014 through FY 2017. Corresponding Tax District revenues spent to date are shown as revenues.

Operating Revenues	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Sales Tax	45,664,741	47,522,952	49,539,604	51,632,431	53,689,766	55,861,555	58,091,810	60,655,417	63,472,589	66,369,003	69,403,981	72,589,830
Vehicle Rental Tax	1,963,454	2,057,700	2,156,470	2,259,981	2,368,460	2,482,146	2,601,289	2,726,151	2,857,006	2,994,143	3,137,861	3,288,479
\$3 Vehicle Registration Fee	936,217	961,495	987,455	1,014,116	1,041,497	1,069,617	1,098,497	1,128,156	1,158,616	1,189,899	1,222,026	1,255,021
\$7 Vehicle Registration Fee	2,184,620	2,243,605	2,304,182	2,366,395	2,430,288	2,495,906	2,563,295	2,632,504	2,703,582	2,776,578	2,851,546	2,928,538
Prior Year Cash Balance Restricted Operating	-	-	-	-	-	-	-	-	-	-	-	-
Prior Year Cash Balance Unrestricted	-	-	-	-	-	-	-	-	-	-	-	-
	50,749,032	52,785,752	54,987,711	57,272,923	59,530,011	61,909,224	64,354,891	67,142,228	70,191,793	73,329,623	76,615,414	80,061,867
Operating Expenses	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Allocations to Transit Providers for Bus O&M	5,984,538	6,165,804	6,352,575	6,545,018	6,743,305	6,947,615	7,158,130	7,375,040	7,598,540	7,828,830	8,066,116	8,310,613
Allocations to Transit Providers for Administration	167,307	114,996	118,561	342,261	189,038	129,932	133,960	207,170	398,705	146,809	151,360	234,078
Allocations to Transit Providers for Bus Facilities O&M	110,720	114,153	117,691	121,340	125,101	128,979	132,978	137,100	141,350	145,732	150,250	154,908
Allocation to GoTriangle for D-O LRT O&M	16,088,358	16,587,097	17,101,297	17,631,437	18,178,012	18,741,530	19,322,517	19,921,515	20,795,821	21,175,794	21,832,244	22,509,043
Allocation to GoTriangle for CRT O&M	-	-	-	-	-	-	-	-	6,318,254	6,514,120	6,716,058	6,924,255
	22,350,923	22,982,050	23,690,124	24,640,056	25,235,456	25,948,056	26,747,586	27,640,825	35,252,670	35,811,284	36,916,027	38,132,897
Deposit to Operating Reserve	29,711	30,604	31,524	32,471	33,448	34,453	35,490	36,557	37,656	38,789	39,956	41,158
Operating Revenues Remaining for Capital	28,368,398	29,773,099	31,266,064	32,600,396	34,261,108	35,926,714	37,571,816	39,464,846	34,901,467	37,479,550	39,659,431	41,887,812
Capital Revenues	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Carryover	8,417,711	21,263,343	51,948,552	96,215,457	105,033,236	52,974,287	29,824,831	3,657,932	21,995,279	35,079,590	52,670,419	57,395,831
Prior Year Cash Balance Restricted Capital	-	-	-	-	-	-	-	-	-	-	-	-
Durham D-O LRT Spent, Pre-2017 *	-	-	-	-	-	-	-	-	-	-	-	-
Operating Revenues Remaining for Capital	28,368,398	29,773,099	31,266,064	32,600,396	34,261,108	35,926,714	37,571,816	39,464,846	34,901,467	37,479,550	39,659,431	41,887,812
Durham D-O LRT Federal FFGA Revenues	81,500,000	81,500,000	81,500,000	28,995,898	-	-	-	-	-	-	-	-
Durham D-O LRT State Revenues	949,524	669,564	378,406	103,172	-	-	-	-	-	-	-	-
Durham D-O LRT LOB Proceeds	-	-	-	-	-	-	-	-	-	-	-	-
Durham D-O LRT GAN Proceeds	-	-	-	-	-	-	16,000,000	-	-	-	-	-
Durham D-O LRT TIFIA Proceeds	-	-	-	-	-	-	-	-	-	-	-	-
Durham Debt Service Reserve Release	-	1,300,000	20,375,000	11,890,000	-	-	-	-	1,600,000	-	-	-
Durham Debt Service Reserve Interest Earnings	679,999	666,999	463,249	344,349	344,349	344,349	360,349	360,349	344,349	344,349	344,349	344,349
Durham CRT Federal FFGA Revenues	-	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	15,045,297	-	-
In-Kind Donation (Right of Way)	-	-	-	-	-	-	-	-	-	-	-	-
Local Grants for Joint Development	-	-	-	-	-	-	-	-	-	-	-	-
	119,915,632	155,173,005	205,931,271	190,149,272	159,638,693	109,245,350	103,756,996	63,483,127	78,841,095	87,948,786	92,674,199	99,627,992
Capital Expenses	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Allocations to Transit Providers for Vehicles	-	1,374,152	2,125,125	-	3,830,068	1,193,042	311,838	-	-	-	-	1,069,609
Durham County Bus Facilities and Capital Projects	-	-	-	-	-	-	-	-	-	-	-	-
State of Good Repair for D-O LRT	-	-	-	-	-	-	-	-	-	-	-	6,311,114
CRT Project Cost	19,167,169	22,365,181	34,998,118	58,291,240	77,325,361	52,718,501	72,518,250	7,495,733	-	-	-	-
	19,167,169	23,739,333	37,123,244	58,291,240	81,155,429	53,911,542	72,830,087	7,495,733	-	-	-	7,380,723
D-O LRT Project Costs (No Debt) *	-	-	-	-	-	-	-	-	-	-	-	-
Durham LOB Debt Service	13,353,333	13,353,333	13,353,333	13,353,333	-	-	-	-	-	-	-	-
Durham GAN Debt Service	66,131,787	66,131,787	59,239,238	13,471,463	-	-	-	8,483,137	8,483,137	-	-	-
Durham TIFIA Debt Service	-	-	-	-	25,508,977	25,508,977	25,508,977	25,508,977	35,278,368	35,278,368	35,278,368	35,278,368
Durham Debt Service Reserve Deposit	-	-	-	-	-	-	1,600,000	-	-	-	-	-
Durham Cost of Issuance	-	-	-	-	-	-	160,000	-	-	-	-	-
	79,485,120	79,485,120	72,592,571	26,824,796	25,508,977	25,508,977	27,268,977	33,992,114	43,761,505	35,278,368	35,278,368	35,278,368
Cumulative Fund Balance	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Ending Balance	21,263,343	51,948,552	96,215,457	105,033,236	52,974,287	29,824,831	3,657,932	21,995,279	35,079,590	52,670,419	57,395,831	56,968,902

* The D-O LRT Project cost shown in FY 2017 is a total of actual and budgeted expenditures for FY 2014 through FY 2017. Corresponding Tax District revenues spent to date are shown as revenues.

Operating Revenues	2041	2042	2043	2044	2045	Total
Sales Tax	76,051,260	79,619,531	83,338,833	87,277,447	91,433,982	1,541,438,919
Vehicle Rental Tax	3,446,326	3,611,749	3,785,113	3,966,799	4,157,205	67,715,696
\$3 Vehicle Registration Fee	1,288,906	1,323,707	1,359,447	1,396,152	1,433,848	29,466,255
\$7 Vehicle Registration Fee	3,007,608	3,088,814	3,172,212	3,257,861	3,345,824	68,758,231
Prior Year Cash Balance Restricted Operating	-	-	-	-	-	1,821,214
Prior Year Cash Balance Unrestricted	-	-	-	-	-	50,494,796
	83,794,100	87,643,801	91,655,605	95,898,259	100,370,859	1,759,695,111
Operating Expenses	2041	2042	2043	2044	2045	Total
Allocations to Transit Providers for Bus O&M	8,562,538	8,822,120	9,089,591	9,365,190	9,649,167	189,271,710
Allocations to Transit Providers for Administration	160,890	464,456	256,529	176,321	181,787	5,182,865
Allocations to Transit Providers for Bus Facilities O&M	159,710	164,661	169,765	175,028	180,454	3,089,834
Allocation to GoTriangle for D-O LRT O&M	23,206,823	23,926,235	24,667,948	25,432,655	26,221,067	353,339,393
Allocation to GoTriangle for CRT O&M	7,138,907	7,360,213	7,588,380	7,823,620	8,066,152	64,449,959
	39,228,868	40,737,685	41,772,213	42,972,814	44,298,626	615,333,761
Deposit to Operating Reserve	42,397	43,673	44,987	46,341	47,736	1,638,761
Operating Revenues Remaining for Capital	44,522,835	46,862,443	49,838,405	52,879,105	56,024,497	
Capital Revenues	2041	2042	2043	2044	2045	Total
Carryover	56,968,902	66,337,165	75,392,595	86,445,823	103,920,720	
Prior Year Cash Balance Restricted Capital	-	-	-	-	-	1,412,067
Durham D-O LRT Spent, Pre-2017 *	-	-	-	-	-	25,548,001
Operating Revenues Remaining for Capital	44,522,835	46,862,443	49,838,405	52,879,105	56,024,497	1,142,722,588
Durham D-O LRT Federal FFGA Revenues	-	-	-	-	-	1,006,995,898
Durham D-O LRT State Revenues	-	-	-	-	-	200,841,560
Durham D-O LRT LOB Proceeds	-	-	-	-	-	120,000,000
Durham D-O LRT GAN Proceeds	-	-	-	-	-	281,650,000
Durham D-O LRT TIFIA Proceeds	-	-	-	-	-	350,450,000
Durham Debt Service Reserve Release	-	-	-	-	-	38,443,254
Durham Debt Service Reserve Interest Earnings	344,349	344,349	344,349	344,349	344,349	9,393,723
Durham CRT Federal FFGA Revenues	-	-	-	-	-	175,045,297
In-Kind Donation (Right of Way)	-	-	-	-	-	15,791,793
Local Grants for Joint Development	-	-	-	-	-	53,050,825
	101,836,086	113,543,957	125,575,349	139,669,277	160,289,566	5,060,383,343
Capital Expenses	2041	2042	2043	2044	2045	Total
Allocations to Transit Providers for Vehicles	220,553	2,497,006	3,463,515	-	-	23,248,327
Durham County Bus Facilities and Capital Projects	-	375,988	387,644	470,189	581,718	13,654,232
State of Good Repair for D-O LRT	-	-	-	-	-	6,311,114
CRT Project Cost	-	-	-	-	-	350,090,595
	220,553	2,872,994	3,851,159	470,189	581,718	393,304,267
D-O LRT Project Costs (No Debt) *	-	-	-	-	-	1,946,683,269
Durham LOB Debt Service	-	-	-	-	-	135,218,008
Durham GAN Debt Service	-	-	-	-	-	324,622,097
Durham TIFIA Debt Service	35,278,368	35,278,368	35,278,368	35,278,368	35,278,368	419,541,217
Durham Debt Service Reserve Deposit	-	-	-	-	-	72,878,169
Durham Cost of Issuance	-	-	-	-	-	4,668,500
	35,278,368	35,278,368	35,278,368	35,278,368	35,278,368	2,903,611,260
Cumulative Fund Balance	2041	2042	2043	2044	2045	Total
Ending Balance	66,337,165	75,392,595	86,445,823	103,920,720	124,429,481	

* The D-O LRT Project cost shown in FY 2017 is a total of actual and budgeted expenditures for FY 2014 through FY 2017. Corresponding Tax District revenues spent to date are shown as revenues.

Operating Revenues	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Sales Tax	6,687,816	7,001,929	7,400,189	7,753,837	8,000,493	8,259,373	8,595,236	8,927,860	9,225,637	9,505,611
Vehicle Rental Tax	569,291	595,478	621,679	647,790	674,997	701,997	730,077	757,820	794,195	832,316
\$3 Vehicle Registration Fee	345,873	359,362	370,502	381,617	392,302	403,286	414,175	425,358	436,417	450,819
\$7 Vehicle Registration Fee	806,986	838,458	864,450	890,384	915,315	940,944	966,349	992,440	1,018,243	1,051,845
Prior Year Cash Balance Restricted Operating	2,131,063	-	-	-	-	-	-	-	-	-
Prior Year Cash Balance Unrestricted	9,355,894	-	-	-	-	-	-	-	-	-
	19,896,923	8,795,227	9,256,820	9,673,628	9,983,107	10,305,600	10,705,837	11,103,478	11,474,492	11,840,591
Operating Expenses	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Allocations to Transit Providers for Bus O&M	3,100,195	3,155,000	3,241,593	3,342,082	3,444,909	3,549,297	3,656,854	3,766,829	3,880,121	3,995,939
Allocation to County Admin & Fac. O&M	-	132,339	26,850	27,682	28,540	29,425	30,337	31,278	32,247	33,247
Allocation to GoTriangle for D-O LRT O&M	-	-	-	-	-	-	-	-	-	-
	3,100,195	3,287,339	3,268,443	3,369,764	3,473,449	3,578,722	3,687,192	3,798,107	3,912,369	4,029,186
Deposit to Operating Reserve	589,016.25	11,234	39,644	19,837	20,257	20,479	21,097	21,522	22,166	22,606
Operating Revenues Remaining for Capital	16,207,712	5,496,655	5,948,733	6,284,027	6,489,400	6,706,399	6,997,548	7,283,850	7,539,957	7,788,799
Capital Revenues	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Carryover From Prior Year	-	12,958,514	5,031,514	3,770,885	40,747,859	38,579,844	31,963,998	19,948,208	18,624,502	18,956,816
Prior Year Cash Balance Restricted Capital	575,507	-	-	-	-	-	-	-	-	-
Orange D-O LRT Spent, Pre-2017 *	7,824,006	-	-	-	-	-	-	-	-	-
Operating Revenues Remaining for Capital	16,207,712	5,496,655	5,948,733	6,284,027	6,489,400	6,706,399	6,997,548	7,283,850	7,539,957	7,788,799
Orange D-O LRT Federal FFGA Revenues	-	-	-	18,500,000	18,500,000	18,500,000	18,500,000	18,500,000	18,500,000	18,500,000
Orange D-O LRT State Revenues	-	-	4,418,852	4,433,652	4,418,852	4,418,852	4,418,852	4,448,852	4,590,102	4,743,093
Orange D-O LRT LOB Proceeds	-	-	-	-	-	-	-	30,000,000	5,000,000	27,500,000
Orange D-O LRT GAN Proceeds	-	-	-	-	-	-	-	-	46,250,000	-
Orange D-O LRT TIFIA Proceeds	-	-	-	-	-	-	5,966,250	33,808,750	11,932,500	11,932,500
Orange Debt Service Reserve Release	-	-	-	-	-	-	-	-	-	-
Orange Debt Service Reserve Interest Earnings	-	-	-	-	-	-	5,862	69,083	132,057	171,282
In-Kind Donation (Right of Way)	-	-	-	3,584,640	-	-	-	-	-	-
Local Grants for Joint Development	-	-	-	-	-	-	-	-	105,557	108,704
Private Capital Campaign	-	-	-	18,120,000	-	-	-	-	-	-
	24,607,225	18,455,169	15,399,098	54,693,204	70,156,110	68,205,095	67,852,510	114,058,742	112,674,676	89,701,194
Capital Expenses	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Allocations to Transit Providers for Vehicles	-	3,496,436	376,939	-	-	-	-	-	191,496	233,373
North-South Corridor BRT (Tax District Share)	-	1,531,250	1,531,250	1,531,250	1,531,250	-	-	-	-	-
Hillsborough Train Station (Tax District Share)	-	116,000	-	285,000	285,000	-	-	-	-	-
Orange County Bus Facilities and Capital Projects	-	1,376,364	1,340,301	761,114	1,034,047	546,466	92,869	63,832	-	-
State of Good Repair for D-O LRT	-	-	-	-	-	-	-	-	-	-
	-	6,520,051	3,248,490	2,577,364	2,850,297	546,466	92,869	63,832	191,496	233,373
D-O LRT Project Costs (No Debt) *	11,648,711	6,903,604	8,379,723	11,219,981	28,725,969	35,694,631	47,225,194	88,748,389	78,176,685	56,593,075
Orange LOB Debt Service	-	-	-	-	-	-	-	-	8,264,701	8,464,701
Orange GAN Debt Service	-	-	-	-	-	-	-	-	-	1,850,000
Orange TIFIA Debt Service	-	-	-	-	-	-	-	-	-	-
Orange Debt Service Reserve Deposit	-	-	-	-	-	-	586,239	6,322,019	6,297,477	3,922,477
Orange Cost of Issuance	-	-	-	148,000	-	-	-	300,000	787,500	-
	11,648,711	6,903,604	8,379,723	11,367,981	28,725,969	35,694,631	47,811,432	95,370,408	93,526,363	70,830,254
Cumulative Fund Balance	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Ending Balance	12,958,514	5,031,514	3,770,885	40,747,859	38,579,844	31,963,998	19,948,208	18,624,502	18,956,816	18,637,567

* The D-O LRT Project cost shown in FY 2017 is a total of actual and budgeted expenditures for FY 2014 through FY 2017. Corresponding Tax District revenues spent to date are shown as revenues.

Operating Revenues	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Sales Tax	9,797,641	10,117,042	10,473,796	10,850,293	11,255,018	11,672,887	12,079,677	12,502,484	12,931,545	13,427,146
Vehicle Rental Tax	872,267	914,136	958,015	1,004,000	1,052,192	1,102,697	1,155,626	1,211,096	1,269,229	1,330,152
\$3 Vehicle Registration Fee	465,696	481,064	496,939	513,338	530,278	547,777	565,854	584,527	603,816	623,742
\$7 Vehicle Registration Fee	1,086,556	1,122,412	1,159,452	1,197,714	1,237,239	1,278,068	1,320,244	1,363,812	1,408,818	1,455,309
Prior Year Cash Balance Restricted Operating	-	-	-	-	-	-	-	-	-	-
Prior Year Cash Balance Unrestricted	-	-	-	-	-	-	-	-	-	-
	12,222,160	12,634,654	13,088,202	13,565,345	14,074,727	14,601,429	15,121,401	15,661,919	16,213,408	16,836,349
Operating Expenses	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Allocations to Transit Providers for Bus O&M	4,121,646	4,251,310	4,385,056	4,523,014	4,665,314	4,812,095	4,963,497	5,119,666	5,280,752	5,446,911
Allocation to County Admin & Fac. O&M	34,278	35,340	36,436	37,565	38,730	39,930	41,168	42,445	43,760	45,117
Allocation to GoTriangle for D-O LRT O&M	-	-	4,022,089	4,146,774	4,275,324	4,407,859	4,544,503	4,685,382	4,830,629	4,980,379
	4,155,923	4,286,651	8,443,582	8,707,353	8,979,368	9,259,885	9,549,169	9,847,493	10,155,142	10,472,406
Deposit to Operating Reserve	24,882	25,668	26,479	27,317	28,180	29,071	29,990	30,938	31,916	32,925
Operating Revenues Remaining for Capital	8,041,354	8,322,335	4,618,141	4,830,675	5,067,179	5,312,473	5,542,243	5,783,487	6,026,350	6,331,017
Capital Revenues	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Carryover From Prior Year	18,637,567	17,624,565	19,093,816	18,588,446	15,385,523	18,774,371	21,846,919	17,944,666	17,718,003	17,283,836
Prior Year Cash Balance Restricted Capital	-	-	-	-	-	-	-	-	-	-
Orange D-O LRT Spent, Pre-2017 *	-	-	-	-	-	-	-	-	-	-
Operating Revenues Remaining for Capital	8,041,354	8,322,335	4,618,141	4,830,675	5,067,179	5,312,473	5,542,243	5,783,487	6,026,350	6,331,017
Orange D-O LRT Federal FFGA Revenues	18,500,000	18,500,000	18,500,000	18,500,000	18,500,000	6,581,891	-	-	-	-
Orange D-O LRT State Revenues	4,812,304	4,800,883	325,012	242,101	149,467	53,127	-	-	-	-
Orange D-O LRT LOB Proceeds	5,000,000	5,000,000	-	-	-	-	-	-	-	-
Orange D-O LRT GAN Proceeds	11,100,000	-	-	-	-	-	-	-	-	-
Orange D-O LRT TIFIA Proceeds	11,932,500	3,977,500	-	-	-	-	-	-	-	-
Orange Debt Service Reserve Release	-	2,109,174	-	-	5,125,000	4,860,000	-	-	-	-
Orange Debt Service Reserve Interest Earnings	199,107	178,015	178,015	178,015	126,765	78,165	78,165	78,165	78,165	78,165
In-Kind Donation (Right of Way)	-	-	-	-	-	-	-	-	-	-
Local Grants for Joint Development	5,823,708	6,004,243	-	-	-	-	-	-	-	-
Private Capital Campaign	-	-	-	-	-	-	-	-	-	-
	84,046,540	66,516,715	42,714,984	42,339,238	44,353,934	35,660,028	27,467,327	23,806,319	23,822,519	23,693,019
Capital Expenses	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Allocations to Transit Providers for Vehicles	481,216	-	-	1,374,152	-	-	3,732,279	297,934	614,341	-
North-South Corridor BRT (Tax District Share)	-	-	-	-	-	-	-	-	-	-
Hillsborough Train Station (Tax District Share)	-	-	-	-	-	-	-	-	-	-
Orange County Bus Facilities and Capital Projects	-	72,123	148,718	-	-	-	-	-	133,960	-
State of Good Repair for D-O LRT	-	-	-	-	-	-	-	-	-	-
	481,216	72,123	148,718	1,374,152	-	-	3,732,279	297,934	748,301	-
D-O LRT Project Costs (No Debt) *	43,043,576	25,525,621	-	-	-	-	-	-	-	-
Orange LOB Debt Service	9,564,701	10,942,152	10,530,877	12,132,619	12,132,619	10,755,169	-	-	-	-
Orange GAN Debt Service	10,389,004	10,833,004	13,446,944	13,446,944	13,446,944	3,057,940	-	-	-	-
Orange TIFIA Debt Service	-	-	-	-	-	-	5,790,381	5,790,381	5,790,381	5,790,381
Orange Debt Service Reserve Deposit	2,782,477	-	-	-	-	-	-	-	-	-
Orange Cost of Issuance	161,000	50,000	-	-	-	-	-	-	-	-
	65,940,759	47,350,776	23,977,820	25,579,563	25,579,563	13,813,109	5,790,381	5,790,381	5,790,381	5,790,381
Cumulative Fund Balance	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Ending Balance	17,624,565	19,093,816	18,588,446	15,385,523	18,774,371	21,846,919	17,944,666	17,718,003	17,283,836	17,902,637

* The D-O LRT Project cost shown in FY 2017 is a total of actual and budgeted expenditures for FY 2014 through FY 2017. Corresponding Tax District revenues spent to date are shown as revenues.

Operating Revenues	2037	2038	2039	2040	2041	2042	2043	2044	2045	Total
Sales Tax	13,970,844	14,518,867	15,083,325	15,669,423	16,311,515	16,965,941	17,646,412	18,368,854	19,129,984	344,130,675
Vehicle Rental Tax	1,393,999	1,460,911	1,531,035	1,604,525	1,681,542	1,762,256	1,846,844	1,935,493	2,028,396	33,040,051
\$3 Vehicle Registration Fee	644,325	665,588	687,553	710,242	733,680	757,891	782,902	808,737	835,426	16,019,086
\$7 Vehicle Registration Fee	1,503,334	1,552,944	1,604,191	1,657,130	1,711,815	1,768,305	1,826,659	1,886,939	1,949,208	37,375,563
Prior Year Cash Balance Restricted Operating	-	-	-	-	-	-	-	-	-	-
Prior Year Cash Balance Unrestricted	-	-	-	-	-	-	-	-	-	-
	17,512,503	18,198,311	18,906,104	19,641,319	20,438,552	21,254,393	22,102,816	23,000,023	23,943,014	442,052,332
Operating Expenses	2037	2038	2039	2040	2041	2042	2043	2044	2045	Total
Allocations to Transit Providers for Bus O&M	5,618,301	5,795,088	5,977,441	6,165,537	6,359,556	6,559,686	6,766,117	6,979,050	7,198,688	140,121,546
Allocation to County Admin & Fac. O&M	46,516	47,958	49,444	50,977	52,557	54,187	55,866	57,598	59,384	1,241,202
Allocation to GoTriangle for D-O LRT O&M	4,878,032	5,029,251	5,185,158	5,345,898	5,511,621	5,682,481	5,858,638	6,040,255	6,227,503	85,651,778
	10,542,848	10,872,296	11,212,043	11,562,412	11,923,734	12,296,353	12,680,621	13,076,903	13,485,575	227,014,525
Deposit to Operating Reserve	33,966	35,040	36,148	37,290	38,470	39,686	40,941	42,235	43,571	
Operating Revenues Remaining for Capital	6,935,689	7,290,975	7,657,913	8,041,617	8,476,348	8,918,354	9,381,255	9,880,885	10,413,867	213,615,239
Capital Revenues	2037	2038	2039	2040	2041	2042	2043	2044	2045	Total
Carryover From Prior Year	17,902,637	16,908,518	16,269,685	15,997,790	17,890,495	17,774,597	15,738,190	15,742,904	16,849,344	
Prior Year Cash Balance Restricted Capital										575,507
Orange D-O LRT Spent, Pre-2017 *										7,824,006
Operating Revenues Remaining for Capital	6,935,689	7,290,975	7,657,913	8,041,617	8,476,348	8,918,354	9,381,255	9,880,885	10,413,867	213,615,239
Orange D-O LRT Federal FFGA Revenues	-	-	-	-	-	-	-	-	-	228,581,891
Orange D-O LRT State Revenues	-	-	-	-	-	-	-	-	-	46,273,998
Orange D-O LRT LOB Proceeds	-	-	-	4,000,000	-	-	-	-	-	76,500,000
Orange D-O LRT GAN Proceeds	-	-	-	-	-	-	-	-	-	57,350,000
Orange D-O LRT TIFIA Proceeds	-	-	-	-	-	-	-	-	-	79,550,000
Orange Debt Service Reserve Release	-	-	-	-	-	-	-	-	-	12,094,174
Orange Debt Service Reserve Interest Earnings	78,165	78,165	78,165	82,165	82,165	82,165	82,165	82,165	82,165	2,356,514
In-Kind Donation (Right of Way)	-	-	-	-	-	-	-	-	-	3,584,640
Local Grants for Joint Development	-	-	-	-	-	-	-	-	-	12,042,212
Private Capital Campaign	-	-	-	-	-	-	-	-	-	18,120,000
	24,916,491	24,277,658	24,005,764	28,121,573	26,449,009	26,775,116	25,201,609	25,705,954	27,345,377	1,283,022,195
Capital Expenses	2037	2038	2039	2040	2041	2042	2043	2044	2045	Total
Allocations to Transit Providers for Vehicles	-	-	-	302,720	-	2,362,515	784,294	-	-	14,247,696
North-South Corridor BRT (Tax District Share)	-	-	-	-	-	-	-	-	-	6,125,000
Hillsborough Train Station (Tax District Share)	-	-	-	-	-	-	-	-	-	686,000
Orange County Bus Facilities and Capital Projects	-	-	-	-	-	-	-	182,198	2,307,482	8,059,476
State of Good Repair for D-O LRT	-	-	-	1,480,385	-	-	-	-	-	1,480,385
	-	-	-	1,783,104	-	2,362,515	784,294	182,198	2,307,482	30,598,556
D-O LRT Project Costs (No Debt) *	-	-	-	-	-	-	-	-	-	441,885,159
Orange LOB Debt Service	-	-	-	-	666,438	666,438	666,438	666,438	666,438	86,119,733
Orange GAN Debt Service	-	-	-	-	-	-	-	-	-	66,470,778
Orange TIFIA Debt Service	8,007,973	8,007,973	8,007,973	8,007,973	8,007,973	8,007,973	8,007,973	8,007,973	8,007,973	95,233,282
Orange Debt Service Reserve Deposit	-	-	-	400,000	-	-	-	-	-	20,310,689
Orange Cost of Issuance	-	-	-	40,000	-	-	-	-	-	1,486,500
	8,007,973	8,007,973	8,007,973	8,447,973	8,674,411	8,674,411	8,674,411	8,674,411	8,674,411	711,506,141
Cumulative Fund Balance	2037	2038	2039	2040	2041	2042	2043	2044	2045	Total
Ending Balance	16,908,518	16,269,685	15,997,790	17,890,495	17,774,597	15,738,190	15,742,904	16,849,344	16,363,484	

* The D-O LRT Project cost shown in FY 2017 is a total of actual and budgeted expenditures for FY 2014 through FY 2017. Corresponding Tax District revenues spent to date are shown as revenues.

APPENDIX B: Transit Plan Risk & Mitigation Strategies

DURHAM-ORANGE LIGHT RAIL TRANSIT PROJECT – FINANCIAL RISKS AND MITIGATION STRATEGIES
APRIL 2017

There are several financial risks to the 2017 County Transit Plans (Plans) that could arise at different times during the period of the Plans. There are also risks and strategies to mitigate those risks that are specific to projects in the plan. This document describes the primary downside risks to the Durham-Orange LRT Project that may emerge, their potential impacts on the D-O LRT Project, the schedule on which the parties would need to respond, and the options and timeline for mitigating the risks.

Financial Risks:

1. Federal funding
2. State funding
3. Local sales tax forecast
4. Cost overruns
5. Schedule delays

Mitigation Strategies:

- A. Contingency in the project budget
- B. Design changes to reduce project cost
- C. Savings from property donations
- D. Cost transfer to project partners
- E. New revenue

Financial Risks

This section focuses on the potential impact of financial risks to the delivery of the Durham-Orange Light Rail Transit (D-O LRT) Project. The federal funding risks and local economic growth factors are faced by all transit agencies seeking to construct major capital projects; the state factors vary according to the policy environment and funding mechanisms for transit in each state.

- 1) **Federal Funding** – The Plans assume 50% federal funding for the D-O LRT Project through the Capital Investment Grant (CIG) program.

The President’s federal fiscal year (FY) 2018 budget proposal calls for limiting the CIG program to only those projects that have already received Full Funding Grant Agreements (FFGAs). While the President issues budget priorities each year, the budget is set by Congress. The elimination of the CIG program was previously proposed in the House of Representatives budget in 2011, while the Senate version of the budget retained the program. The final budget retained the CIG program and funded it at a level of \$2 billion per year. Although current federal transportation law authorizes the New Starts program through 2020, if the FY 2018 federal budget adopted by Congress funds no new FFGAs, then pursuant to the Cost Sharing Agreement, Durham and Orange Counties and GoTriangle would convene within fifteen business days and decide whether to continue advancing the D-O LRT Project at risk.

Without federal funding, Durham and Orange Counties, GoTriangle, and the DCHC-MPO would not be able to pursue the D-O LRT Project. Although a one-year reduction in CIG program funding in FY 2018 would not directly affect the D-O LRT Project, it would call into question whether CIG program funding would be available in future years when the D-O LRT Project is scheduled to request federal funds.

Federal funding risks could re-emerge (and be addressed) each federal budget year between

now and FY 2020 when GoTriangle plans to submit the request for a FFGA for the D-O LRT Project.

If a federal funding risk is realized and the parties decide to suspend pursuit of the D-O LRT Project, the losses would be limited to the amount of money that will have been spent on the project development and engineering work to that point in time when the decision is made to suspend work. To date, approximately \$40 million has been spent on project development and engineering activities for the D-O LRT Project. As the federal budget is typically adopted in October of each year – GoTriangle expects to spend approximately \$10 million more between entry to Engineering and October 2017 if the D-O LRT Project advances into Engineering.

- 2) **State Funding** – The Plans assume 10% state funding for the D-O LRT Project. In 2016, the North Carolina General Assembly passed a law capping the state contribution toward rail projects at 10% of project costs. It also required that the D-O LRT Project wait until late 2018 to be scored and prioritized for inclusion in the 2020-2029 State Transportation Improvement Program (STIP). Depending on the amount of statewide money available, the level of state funding available for the D-O LRT Project could fall below 10% of project costs.

The preliminary availability of state funding for the D-O LRT Project will be announced in late 2018. If it is lower than 10% of project costs, in accordance with the Cost Sharing Agreement, the parties would convene within fifteen business days after the release of the Draft STIP and decide upon a course of action for the D-O LRT Project.

To mitigate for the risk of lower than expected state funding, GoTriangle is pursuing new sources of revenue, including in-kind contributions of right-of-way from property owners along the D-O LRT Project alignment, grants from foundations and endowments, a private philanthropic campaign, and other sources of federal funds. (These activities are described in more detail in the Mitigation Strategies section below.) In addition, GoTriangle is preparing a set of cost mitigation strategies that could be used to reduce the cost of the D-O LRT Project, thereby reducing the amount of additional funds required. (These efforts are also described in more detail in the Mitigation Strategies section below.)

- 3) **Local Sales Tax Forecast** – The half-cent sales tax dedicated for transit is the largest local revenue source for the Plans. Over the past decade, which included declines in net collections in FY 2008 and 2010 due to the economic recession, sales tax collections for a similar one-cent sales and use tax in the two counties grew at an average annual rate of 5.5 percent (5.7 percent in Durham County and 4.8 percent in Orange County).

In November 2016, GoTriangle contracted with Moody's Analytics, a well-regarded economic analytics firm, to provide a forecast of the half-cent sales tax dedicated for transit. Moody's developed two forecasts: a Baseline forecast and a Downside forecast.

In accordance with industry standards, the Plans use the Baseline forecast as the planning assumption for the sales tax growth rate. The sales tax growth projected in the Moody's

Baseline forecast for the half-cent sales tax equates to an average annual rate of 4.2 percent in the two counties – more than a full percentage point below the 10-year average for the one-cent sales and use tax for the two counties noted above. The Moody’s Baseline forecast equates to an average annual rate of 4.33 percent in Durham County and 3.71 percent in Orange County.

In accordance with Federal Transit Administration (FTA) requirements, GoTriangle and our financial advisor have also evaluated scenarios using the Downside forecast, to understand the effects and potential mitigations that may be required to plan for less than expected sales tax growth. The Moody’s Downside forecast equates to an average annual rate of 3.14 percent in Durham County and 3.00 percent in Orange County.

The sales tax forecast affects GoTriangle’s ability to borrow money to fund construction of the D-O LRT Project. In addition to sensitivity analyses on the sales tax growth rate that GoTriangle must complete for the FTA, a sensitivity analysis on the local sales tax growth rate to evaluate GoTriangle’s ability to make debt repayments for the life of each loan will be needed in order to secure financing at favorable terms.

With other financial planning assumptions held constant, planning for the Moody’s Downside forecast creates a cash shortfall of approximately \$100 million (year of expenditure, or YOE) toward the end of the construction period for the D-O LRT Project, because the lower sales tax growth rates would limit GoTriangle’s ability to borrow funds needed for construction.

To address the potential funding shortfall and strengthen GoTriangle’s ability to borrow funds, GoTriangle is pursuing new sources of revenue, including in-kind contributions of right-of-way from property owners along the alignment, private grants, a private philanthropic campaign, and other federal funds. (These activities are described in more detail in the Mitigation Strategies section below.) In addition, GoTriangle is preparing a set of cost mitigation strategies that could be used to reduce the cost of the project, reducing the amount of additional funds required. (This is also described in more detail in the Mitigation Strategies section below.) In addition to the mitigation strategies identified in this document, another potential course could be that one or more local governments could choose to pledge other future revenues to increase the D-O LRT Project’s borrowing capacity.

- 4) **Cost Overruns** – This risk remains for all capital projects in the Plans; however, it varies based on where each project is in its development stage. The D-O LRT Project has completed the Project Development phase and is at a 30% level of engineering design. At this level of design, the project budget includes a commensurate level of contingency to guard against cost overruns as described in part A of the Mitigation Strategies section below. Strategies to mitigate cost overruns beyond the project budget are described in parts B through F of the Mitigation Strategies section below.
- 5) **Schedule Delays** – Schedule risk is particularly important for large multiyear programs due to the cost of inflation. The cost associated with a one-year construction schedule delay for the D-O LRT Project is approximately \$60 million YOE, which would not be offset by an increase in

federal funding for the project. The most likely cause of a delay of this magnitude is if the D-O LRT Project does not remain on schedule to receive a federal FFGA in FY 2020.

To keep the D-O LRT Project on schedule, there are four remaining critical steps in the federal New Starts that need to be met. First, GoTriangle will need to request a funding recommendation from the FTA by September 2018. Second, the FTA would need to include the D-O LRT Project in its Annual Report on Funding Recommendations for the CIG Program in early 2019 (typically released in February). Third, the adopted federal budget for FY 2020, scheduled to be in place by September 2019, would need to include funding for the D-O LRT Project. Finally, GoTriangle would need to apply for the federal FFGA no later than December 2019. In the event that any of these four steps is not met, pursuant to the Cost Sharing Agreement, the parties would convene within fifteen business days and decide upon a course of action.

- 6) **Interest Rate Changes** – To complete the Project by 2028, the D-O LRT Project Financial Plan assumes that GoTriangle will borrow funds to pay for the cost of construction. As described below, the interest rates assumed in the Plans are conservative (high) compared to historical experience. There is risk that interest rates will rise above the levels assumed in the Plans, increasing the cost of debt and requiring the commitment of additional funds to debt service. If actual interest rates are lower than those assumed in the Plans, the cost of borrowing will be reduced, representing a cost savings.

The Plans assume three issuances of tax-exempt Limited Obligation Bonds (LOBs) during construction, with a repayment term of between four and six years. The Plans assume that the rate on these LOBs is 4 percent. Over the last 5-year, 10-year, 15-year and 20-year periods, average rates for 7-year municipal bonds have been 1.52 percent, 2.12 percent, 2.46 percent, and 2.99 percent, respectively.

The Plans also assume \$400 million in borrowing under the Transportation Infrastructure Finance and Innovation Act (TIFIA) loan program. The assumed interest rate for the TIFIA loan is 5 percent. Under the statute, the interest rate of a TIFIA loan is roughly equal to the 30-year Treasury rate at the time of the loan closing. As of April 21, 2017, the TIFIA interest rate is 2.89 percent. The assumed 5 percent rate represents approximately a 200 basis point cushion from the current market. Since 1993, there have been no three-year periods in which interest rates increased by 200 basis points, which supports the reasonableness of the 200 basis points of interest rate cushion.

The strategies to mitigate cost overruns beyond the project budget as described in parts B through F of the Mitigation Strategies section below would be applicable to addressing the increased cost of debt.

Mitigation Strategies

Federal Oversight – All projects in the New Starts pipeline, including the D-O LRT Project, are subject to a robust Project Management Oversight program administered by the FTA. The FTA conducts Project Management Oversight reviews for major capital projects to ensure that the project sponsors have all the processes and procedures in place to effectively manage and deliver the promised benefits of the project on time, within budget, and in compliance with all applicable federal requirements and the project management plan.

Oversight begins early in project implementation, and continues through construction to the end of disbursement of federal funds to the project. A Project Management Oversight Contractor (PMOC) was assigned to the D-O LRT Project in the fall of 2015.

Over the past 18 months, the PMOC has reviewed extensive project management documentation, design plans, schedules, cost estimates, and other reports generated by GoTriangle for compliance with FTA guidelines and sufficiency for the entry to Engineering milestone. Based on its review and assessment of the D-O LRT Project, the PMOC recommended the D-O LRT Project for advancement into the Engineering phase. Once approved to enter Engineering, GoTriangle will continue to work with guidance from the FTA and the PMOC to move the project forward, secure federal grant funding, and successfully deliver the D-O LRT Project.

A significant component of the Project Management Oversight program during the Engineering phase is the FTA-led Risk Assessments for the project, the first of which typically occurs within six months after a project's entry into Engineering. As part of its Risk Assessment, FTA will require GoTriangle to formalize a risk tracking plan, as well as to identify primary and secondary mitigation measures. The term "primary mitigation" refers to strategies that are performed in advance of a risk occurring, to reduce the likelihood or severity of the risk. The term "secondary mitigation" refers to strategies that are performed after a risk event occurs, to manage the effects. The PMOC will monitor GoTriangle's risk management efforts on a quarterly basis throughout the life of the D-O LRT Project.

Mitigation Strategies for Financial Risks – This section describes mitigation strategies for the financial risks described in the previous section, which will form the basis for the financial portion of the risk mitigation plan to be developed early in Engineering. The strategies are organized in three primary categories:

- Conservative budgeting (part A)
- Cost reduction strategies that can be applied moving forward (parts B, C, and D)
- Potential other revenues (federal and private) that GoTriangle will continue to seek (part E)

Addressing the approximately \$100 million YOE shortfall associated with the downside local sales tax growth rate (part 3 above) will require cooperation between project partners. It is important to note that project scope reductions do not directly reduce the shortfall on a dollar-for-dollar basis because the federal and state shares associated with that scope goes away. For example, eliminating \$100 million YOE shortfall requires \$245 million YOE in cost reductions, in the absence of new revenue.

The following table summarizes the cost reduction strategies described in detail in parts B, C, and D below:

Cost-Reduction Strategies (YOE)	
Strategies Under GoTriangle Control	
Value Engineering (part B)	\$50 million
Further Cost Cutting (part B)	\$30 million
Strategies Requiring Cooperation from Project Partners	
Savings Associated with Property Donations (part C)	\$40 million
Cost Transfer to Project Partners (part D)	\$55 million
Total Potential Cost Reductions Identified To Date	
Total	\$175 million

A) **Contingency in the D-O LRT Project Budget** – Including appropriate contingency in a project’s budget means planning for a conservative estimate of project costs. Ten years ago, the FTA instituted a robust risk management oversight process, designed to reduce cost overruns on New Starts and Small Starts projects. In 2016, the FTA reported that of the 18 projects approved to enter the New Starts Engineering phase (or comparable phase of the Small Starts program) in 2007 or later that have since been completed, 17 projects (94%) were completed within budget. As part of its current risk management oversight process, the FTA recommends, based on historic project information from around the country, that New Starts project cost estimates include a minimum of 25% total contingency at entry to Engineering. For the D-O LRT Project, the amount of all contingency—allocated and unallocated—is approximately 30% of the base cost, which is more than the FTA’s recommended minimum of 25%. In January 2017, the FTA’s Project Management Oversight Contractor assigned to the D-O LRT Project reviewed the project cost estimate and concluded that it contains an appropriate level of contingency for entry to Engineering.

Allocated Contingency (20%) – The FTA cost estimate reporting format requires that for each line item, a base estimated cost is reported, and an allocated contingency is assigned separately based on the level of certainty in the base cost estimate for that particular item. For the D-O LRT Project, the total allocated contingency across all line items is approximately 20% of the total base cost, approximately \$350 million YOE. “Allocated contingency” is the additional cost included due to existing uncertainties related to the quantity of the construction items for known project elements. Examples of items that would be covered by the allocated contingency include: encountering deeper or lower quality bed rock, requiring more costly foundation design than anticipated; encountering unanticipated subsurface conditions, causing more rock excavation or more improvement of poor soils; and increased material quantities, such as concrete and reinforcing steel.

Unallocated Contingency (10%) – The FTA cost estimate reporting format also requires an additional amount of unallocated contingency reported separately; for the D-O LRT Project, the unallocated contingency is approximately 10% of the base cost, approximately \$170 million YOE. “Unallocated contingency” covers what are often referred to as “unknown unknowns” – construction items that are not determined until they are unexpectedly encountered on a

project, such as the unknown presence of an underground utility. Examples of items that would be covered by the unallocated contingency include: unanticipated utility relocations; unanticipated right-of-way acquisitions; and unanticipated changes in stakeholder requirements.

- B) **Design Changes to Reduce Project Cost** – Over the past 18 months, GoTriangle has engaged in several separate reviews of the preliminary engineering plans to identify potential cost savings that can be implemented as the D-O LRT Project advances. Some of these changes are considered “value engineering” – design changes that preserve the quality of the system, but that are more cost efficient than the initial design. Other changes are considered “cost cutting” – design changes that negatively affect the quality of the system, but should be considered as mitigation options in the event of a funding shortfall or cost overrun.

Value Engineering – \$50 million

To date, the design team has identified approximately \$50 million YOE in potential savings from value engineering strategies. This resulted from more detailed study following the 2015 Value Engineering Workshop, in which industry experts from peer agencies and engineering firms reviewed the preliminary design of the D-O LRT Project to identify a preliminary list of potential savings. GoTriangle intends to incorporate these changes into the design as engineering advances from the current 30-percent level to the 100-percent level for construction. These strategies include:

- Constructing the system for 2-car train operations (not 3-car)
- Reducing the length of aerial structures, where practicable
- Economizing the maintenance facility design and rail systems design
- Using less-aesthetic bridge supports in areas that are not highly visible
- Adjusting the light rail alignment along US 15-501/Western Bypass to reduce rock excavation
- Adjusting the light rail alignment along University Drive to reduce roadway reconstruction

Further Cost Cutting – \$30 million

As described above, after the D-O LRT Project enters Engineering, the FTA risk management process will require cost-cutting strategies to be identified and reserved as “levers to pull” in the event of a need to mitigate a funding shortfall or cost overrun later on in the project (referred to as “secondary mitigation”). To date, the design team has identified approximately \$30 million YOE in potential additional cost cutting strategies. These strategies all would require further evaluation during Engineering to confirm feasibility and precise cost savings. These strategies include:

- Using less-aesthetic bridge supports throughout the alignment. This strategy would have a noticeable aesthetic impact to the public.
- Single-tracking on one or more bridges. Three segments have been identified as candidates: the UNC aerial guideway, the NC 54 aerial guideway, and the New Hope Creek aerial guideway. Implementing these cuts would significantly negatively affect operational flexibility and reliability of the system by introducing “choke points” along

the alignment. The effects of single-tracking in multiple segments would be worse than implementing only one. During Engineering, an operational study would be required to confirm the operational impacts of implementation of one or more of these cuts.

- C) **Savings Associated with Property Donations from D-O LRT Project Partners** – The budget includes several costs associated with obtaining right-of-way for the D-O LRT Project: (a) the actual anticipated cost of the property, (b) a contingency in case the value of the property exceeds the estimate, and (c) administrative costs associated with making the purchases. When a project partner donates property to the project, these costs are avoided.

Avoided Costs Associated w/ Property Donations from Project Partners – \$40 million

The current financial plan for the D-O LRT Project takes into account item (a) above for properties that are expected to be donated based on memoranda of understanding (MOUs) and letters of intent (LOIs) received from public, institutional, and commercial property owners in the light rail corridor as of December 2016. When these transactions occur, the additional savings from items (b) and (c) will be realized. This would result in a total additional cost savings of approximately \$25 million YOE based on the current cost estimate.

GoTriangle is pursuing additional property donations in the D-O LRT Project corridor, beyond those already identified as of December 2016. The estimated cost savings associated with these potential additional donations is approximately \$15 million YOE.

- D) **Cost Transfer to Project Partners** – There are many project elements included in the D-O LRT Project scope that are “separate enough” from the light rail system itself that they could be efficiently constructed by other parties. If project partners agree, the cost of these items could be paid for, either in full or in part, outside of the Tax District Revenues contributed by Durham and Orange Counties and committed to the D-O LRT Project.

Cost Transfer to Project Partners – \$55 million

To date, the design team has identified two categories of items that could be considered for construction separately from the D-O LRT Project:

- Pedestrian bridge and roadway/parking reconfiguration at UNC (\$10 million)
- Parking deck at Alston Avenue station (\$45 million). This parking deck is needed to provide park-and-ride capacity at the east end of the alignment, and must be constructed on a schedule tied to the D-O LRT Project construction. It may also serve the future Durham-Wake Commuter Rail project. Potential funding partners may include the City of Durham, Durham County, Wake County, North Carolina Central University, and/or a private entity.

The \$55 million in cost savings assumes that these elements are eliminated from the D-O LRT Project and constructed separately by third parties, which means that they would no longer be eligible for the state and federal funding shares. An alternate approach would be to retain these

elements in the project scope but transfer the responsibility for the local share to a third party. In that case, the funding responsibility would be approximately \$22 million rather than the full \$55 million.

- E) **New Revenue** – As part of addressing the key risks in the financial plan, GoTriangle and its partners are exploring ways to supplement the current dedicated transit revenues.

Other federal funds – In addition to federal New Starts funds, GoTriangle is seeking to apply other federal funds to the D-O LRT Project. GoTriangle has discussed with the DCHC MPO and NCDOT how other projects around the country have used such funds, and is exploring opportunities to flex funds from the Congestion Mitigation and Air Quality Improvement Program (CMAQ) and Surface Transportation Block Grant Program (STBGP) to the D-O LRT Project during the construction phase. The DCHC MPO has agreed to work with GoTriangle to further explore this funding source.

Private philanthropic contributions and grants – In cities such as Detroit and Atlanta, private philanthropic funding sources have complemented allocations from traditional public sources to advance the construction of major infrastructure projects for their communities. GoTriangle believes that a similar funding model may prove successful for the D-O LRT Project. GoTriangle is in the process of establishing a nonprofit organization that will seek private philanthropic contributions and grants. GoTriangle’s Board of Trustees authorized GoTriangle staff to begin the incorporation process in December 2016. Within the next few months, articles of incorporation will be filed with North Carolina’s Secretary of State in order to formally establish the entity, GoTransit Partners. Once established, the organization will apply for tax-exempt status at the state and federal levels. The non-profit will be staffed with an executive director.

GoTriangle envisions several roles for the nonprofit. The nonprofit will work with the Funding and Community Collaborative (Collaborative), a group of 21 private citizens and leaders from universities, health care institutions, the private sector, and local governments who are committed to securing additional funds so as to reduce the local share of the D-O LRT Project or mitigate any funding shortfalls. The nonprofit will be able to pursue the philanthropic prospects identified by the Collaborative and be eligible to receive tax-deductible donations of property (real property, money, and other personal property). The tax benefits associated with donations will expand the range of citizens and businesses that are willing to contribute.

Additionally, the nonprofit will be eligible to seek foundation grants not typically available to public agencies. GoTriangle has begun the process of identifying grant-making organizations whose missions resonate with the values of providing excellent transit service – namely, improving the economic, environmental, cultural, social, healthcare access, and educational opportunities in our region. Such foundations, endowments, and trusts identified to date include the Golden LEAF Foundation, the Goodnight Educational Foundation, the Sall Family Foundation, the AJ Fletcher Foundation, the Blue Cross Blue Shield Foundation, the Bank of America Foundation, and the North Carolina State Employees Credit Union Foundation.

GoTriangle is confident about the prospects for building private, corporate, and philanthropic support for the D-O LRT Project. This confidence is rooted in past experience where the people and organizations of the Research Triangle region have consistently demonstrated a willingness to make robust investments in their communities.

Value Capture – As far back as 2011, Value Capture—the strategy of having the areas around stations that increase in value due to public investment contribute to paying for that transit investment—was discussed as a potential revenue stream for the D-O LRT Project. The adopted 2011 and 2012 plans in Durham and Orange Counties, which anticipated 25% state funding based on historical precedent with Charlotte, did not contain a value capture component when they went to the ballot.

As part of the Transit-Oriented Development Pilot Program grant received by GoTriangle from the FTA, consultants at Gateway Planning are currently in the process of assessing the potential value of future development at each station along the D-O LRT line, and the potential amount of revenue that value capture districts at stations could contribute to project funding will also be measured. The results of this study and potential value capture implementation strategies for local governments to consider should be available in summer or fall of 2017.

Efforts to round out the non-New Starts funding of the D-O LRT Project will be ongoing in the coming months and years. GoTriangle envisions our local government partners, the Collaborative and the nonprofit, described above, to be important components of this effort, as they consider the case for value capture opportunities and help to identify and secure private, corporate, and philanthropic contributions to the project.

APPENDIX C: Public Comments

APPENDIX C.1: Public Workshops Registration and Comment Forms

SIGN-IN SHEET: Durham County Transit Plan

4/10/2017

NAME	ADDRESS	EMAIL	PHONE NUMBER
Mr. George A. Long Sr.	3515 CENTURY OAK DRAPT ^{DR.} DR. NC	glongealongsr@yahoo.com	919-644-9886
LEKA HENDERSON	425 E Pilot STREET Durham NC 27707	leehill55@gmail.com	919-225-7144
Christin Lampkowski	605 Yancey St Durham NC 27701	christin.lampkowski@grail.com	919-621-4668
Damian Smith	605 Yancey St Durham NC 27701		
Nada Ballator	5 GLENMORE DR 27707	nada.ballator@gmail.com	650-465-6169
John Stadda	5 Glenmore Dr 27707	jers@duke.edu	919-522-9239
Jack R. Sanckford	3412 Chuck Rd 27704		919-680-0105
Anthony M.	340 Sutter St. 12 24	antmitche7@gmail.com	417-637-3902
Freddy DiValerio	5416 Old Chapel Hill Rd. ^{Durham} 27707	freddy5trees@yahoo.com	919-621-0637
Nicole Tillery	3619 Glidewell Ct 27707 ^{Durham}	nicoletillery55@gmail.com	919-4037290
Fredricka Tillery	18 Innisfree Dr. Durham 27707	ftillery@gmail.com	↓

Durham & Orange County Transit Plan

COMMENT FORM

ML George A. Long Sr
NAME

georgea161954@yahoo.com
EMAIL

3515 CENTURY OAKS DR APT 712
ADDRESS

Durham
CITY

NC. 27713-1482
STATE & ZIP CODE

I am commenting on: Durham County Plan Orange County Plan

I am: Employed Looking for Work Retired Student Other

Rank on a scale of 1-5 (5 = strongly agree, 3 = neutral, 1 = strongly disagree)

I believe transit is an important issue in our community 5

I am familiar with the transit system 5

I use transit often 5

Do you believe this plan addresses current and future transit needs? Why or why not?

What would you like to be able to do using transit?

Rank on a scale of 1-5 (5 = high priority, 3 = medium priority, 1 = low priority)

What projects in the transit plans are most important to you?

Bus Service Expansion X D-O LRT Project X

Bus Facility Improvements _____ N-S BRT Project _____

Hillsborough Train Station _____ W-D CRT Project _____

Would you recommend that your elected officials approve this plan? Why or why not?

YES BECAUSE TRANSIT IS THE FUTURE OF THE 21ST CENTURY

Durham & Orange County Transit Plan

COMMENT FORM

Leola Henderson _____
NAME EMAIL

ADDRESS CITY STATE & ZIP CODE

I am commenting on: Durham County Plan Orange County Plan

I am: Employed Looking for Work Retired Student Other

Rank on a scale of 1-5 (5 = strongly agree, 3 = neutral, 1 = strongly disagree)

I believe transit is an important issue in our community _____

I am familiar with the transit system _____

I use transit often _____

Do you believe this plan addresses current and future transit needs? Why or why not?

What would you like to be able to do using transit?

More crosstown connections & more Agency. Make my stop
feel safer.

Rank on a scale of 1-5 (5 = high priority, 3 = medium priority, 1 = low priority)

What projects in the transit plans are most important to you?

Bus Service Expansion _____ D-O LRT Project _____

Bus Facility Improvements _____ N-S BRT Project _____

Hillsborough Train Station _____ W-D CRT Project _____

Would you recommend that your elected officials approve this plan? Why or why not?

Durham & Orange County Transit Plan

COMMENT FORM

Jones, Terrence

NAME

EMAIL

ADDRESS

CITY

STATE & ZIP CODE

I am commenting on: Durham County Plan Orange County Plan

I am: Employed Looking for Work Retired Student Other

Rank on a scale of 1-5 (5 = strongly agree, 3 = neutral, 1 = strongly disagree)

I believe transit is an important issue in our community _____

I am familiar with the transit system _____

I use transit often _____

Do you believe this plan addresses current and future transit needs? Why or why not?

What would you like to be able to do using transit?

24 hour Transit system, make the system safe & more comfortable/newer buses; Driver Attitude lower cost

Rank on a scale of 1-5 (5 = high priority, 3 = medium priority, 1 = low priority)

What projects in the transit plans are most important to you?

Bus Service Expansion _____ D-O LRT Project _____

Bus Facility Improvements _____ N-S BRT Project _____

Hillsborough Train Station _____ W-D CRT Project _____

Would you recommend that your elected officials approve this plan? Why or why not?

SIGN-IN SHEET: Orange County Transit Plan Workshop

4/11/2017

NAME	ADDRESS	EMAIL	PHONE NUMBER
Theo Letman	OPT	Hetman@orangecounty.nc.gov	
Peter Murphy	OPT	pmurphy@orangecounty.nc.gov	
HAROLD GORDON	CALDWELL	HAROLDG1@Centurylink.net	
Dan Allison	Lake Orange	daalliso@me.com	
Dave Laudicina	Chapel Hill		
CRAIG BENEDICT	ORANGE COUNTY	cbenedict ✓	
Brian Littlesold	CHAPEL HILL TRANSIT		
Morgan McCann	105 WISTERIA DR, CH 27514	MMCCANN1@gmail.com	
Dawn Pappas	2806 Maple Rdg, DURHAM, NC		
Jayse Sessi	1812 Stead Fast	jayse.sessi@yahoo.com	
Kevin Otte	Hillsborough, NC		
Tom Altiers	O.C.		
Anne Zell	1814 W Chapman Ct.	Anne.3zell@gmail.com	
PAUL CUELL	"	"	
Barry Jacobs	O. County	b.jacobs@orangecounty.nc.gov	
Anthea Darling	2401 Hardwood H/Boro		
THOMAS DARLING	" " "		
BETH GODWIN	212 S BELLWE AVE H/BORO		

OUR TRANSIT FUTURE

Durham-Orange County Transit Plan

Durham & Orange County Transit Plan

COMMENT FORM

Jayse Sessi jaysesessi@yahoo.com
NAME EMAIL

1812 Steadfast Rd Hillsborough Nc 27278
ADDRESS CITY STATE & ZIP CODE

I am commenting on: Durham County Plan Orange County Plan

I am: Employed Looking for Work Retired Student Other

Rank on a scale of 1-5 (5 = strongly agree, 3 = neutral, 1 = strongly disagree)

I believe transit is an important issue in our community ✓

I am familiar with the transit system ✓

I use transit often

sometimes but will move once our office moves to downtown Raleigh

Do you believe this plan addresses current and future transit needs? Why or why not?

Improvement needed between OPT & ODX/420
so people could take OPT to ride ODX/420 to work

What would you like to be able to do using transit?

Get off the freeway & take transit to work

Rank on a scale of 1-5 (5 = high priority, 3 = medium priority, 1 = low priority)

What projects in the transit plans are most important to you?

Bus Service Expansion ✓ D-O LRT Project _____

Bus Facility Improvements _____ N-S BRT Project _____

Hillsborough Train Station ✓ W-D CRT Project _____

Would you recommend that your elected officials approve this plan? Why or why not?

yes we need public transit growth in this area needs reliable transit options

(OTHER COMMENTS ON BACK) →

Durham & Orange County Transit Plan

COMMENT FORM

DAWN PAFFENROTH

NAME

PAFFENROTH@ATT.NET

EMAIL

120 S. DRIVER ST

ADDRESS

DURHAM

CITY

NC 27703

STATE & ZIP CODE

I am commenting on: Durham County Plan Orange County Plan

I am: Employed Looking for Work Retired Student Other

Rank on a scale of 1-5 (5 = strongly agree, 3 = neutral, 1 = strongly disagree)

I believe transit is an important issue in our community 5

I am familiar with the transit system 5

I use transit often 3

NOT NOW
(LIVE IN DURHAM + WORK IN HILLSBOROUGH)

Do you believe this plan addresses current and future transit needs? Why or why not?

LIGHT RAIL: STOPS WEST OF EAST DURHAM SO BUS FOR LAST MILE

WILL BE VERY IMPORTANT.

PEOPLE NEEDED TO AGE IN PLACE SO TRANSIT NEEDS
TO FACILITATE THAT !!

What would you like to be able to do using transit?

GIVE UP MY CAR AND CONVENIENTLY AND TIMELY
GET TO MY NEEDED SERVICES.

Rank on a scale of 1-5 (5 = high priority, 3 = medium priority, 1 = low priority)

What projects in the transit plans are most important to you?

Bus Service Expansion _____ D-O LRT Project _____

Bus Facility Improvements _____ N-S BRT Project _____

Hillsborough Train Station _____ W-D CRT Project _____

Would you recommend that your elected officials approve this plan? Why or why not?

Durham & Orange County Transit Plan

COMMENT FORM

MARGARET MCCANN
NAME

MMCCANN1@gmail.com
EMAIL

105 WISTERIA DR, CH
ADDRESS

27514
CITY STATE & ZIP CODE

I am commenting on: Durham County Plan Orange County Plan

I am: Employed Looking for Work Retired Student Other

Rank on a scale of 1-5 (5 = strongly agree, 3 = neutral, 1 = strongly disagree)

I believe transit is an important issue in our community 5

I am familiar with the transit system 1

I use transit often 1

Do you believe this plan addresses current and future transit needs? Why or why not?

Yes. It's a good mix of bus & light rail.
People need to know more about current bus options
& also the bus access that will be provided
to the LRT

What would you like to be able to do using transit?

Medical appointments. I learned today that I now
can use the shared ride transportation for this - but
I did not know this before. This needs to be better
publicized!

Rank on a scale of 1-5 (5 = high priority, 3 = medium priority, 1 = low priority)
What projects in the transit plans are most important to you?

Bus Service Expansion	<u>3</u>	D-O LRT Project	<u>5</u>
Bus Facility Improvements	<u>2</u>	N-S BRT Project	<u>4</u>
Hillsborough Train Station	<u>2</u>	W-D CRT Project	<u>?</u>

Would you recommend that your elected officials approve this plan? Why or why not?

Yes. It's extremely well thought out &
carefully planned.

Durham & Orange County Transit Plan

COMMENT FORM

Daniel Allison

NAME

daalliso@me.com

EMAIL

4316 Landing Tr

ADDRESS

Hillsborough

CITY

NC 27278

STATE & ZIP CODE

I am commenting on: Durham County Plan Orange County Plan

I am: Employed Looking for Work Retired Student Other

Rank on a scale of 1-5 (5 = strongly agree, 3 = neutral, 1 = strongly disagree)

I believe transit is an important issue in our community ✓

I am familiar with the transit system ✓

I use transit often _____

Do you believe this plan addresses current and future transit needs? Why or why not?

I would prefer to use any funds for widening I-40 + I-85 instead of any light rail. That would be a much greater benefit to the citizens of Orange County.

What would you like to be able to do using transit?

Rank on a scale of 1-5 (5 = high priority, 3 = medium priority, 1 = low priority)

What projects in the transit plans are most important to you?

Bus Service Expansion _____ D-O LRT Project _____

Bus Facility Improvements _____ N-S BRT Project _____

Hillsborough Train Station _____ W-D CRT Project _____

Would you recommend that your elected officials approve this plan? Why or why not?

Durham & Orange County Transit Plan

COMMENT FORM

Ben Gullette

NAME

beng80301@gmail.com

EMAIL

533 W Banbee Chapel Rd Chapel Hill NC 27517

ADDRESS

CITY

STATE & ZIP CODE

I am commenting on: Durham County Plan Orange County Plan

I am: Employed Looking for Work Retired Student Other

Rank on a scale of 1-5 (5 = strongly agree, 3 = neutral, 1 = strongly disagree)

I believe transit is an important issue in our community 5

I am familiar with the transit system 5

I use transit often 5

Do you believe this plan addresses current and future transit needs? Why or why not?

Short term I would like better transit options ~~to~~ from CH ↔ Durham. Long term I can see how DOLRT addresses this.

What would you like to be able to do using transit?

Rank on a scale of 1-5 (5 = high priority, 3 = medium priority, 1 = low priority)

What projects in the transit plans are most important to you?

Bus Service Expansion 5 D-O LRT Project 5

Bus Facility Improvements _____ N-S BRT Project 3

Hillsborough Train Station _____ W-D CRT Project _____

Would you recommend that your elected officials approve this plan? Why or why not?

YES!! Because it is critical to both attracting and sustaining growth. ~~Need to break~~ Mobility is a basic Right, like public education. (or at least it should be)

Durham & Orange County Transit Plan

COMMENT FORM

Tom Bonn

NAME

CBOS695@VAH00.COM

EMAIL

304 SIMONVILLE RD

ADDRESS

CH

CITY

NC 27517-8146

STATE & ZIP CODE

I am commenting on: Durham County Plan Orange County Plan

I am: Employed Looking for Work Retired Student Other

Rank on a scale of 1-5 (5 = strongly agree, 3 = neutral, 1 = strongly disagree)

I believe transit is an important issue in our community _____

I am familiar with the transit system X

I use transit often _____

Do you believe this plan addresses current and future transit needs? Why or why not?

I DO NOT BELIEVE LIGHT RAIL MEETS

CHAPEL HILL, ORANGE COUNTY NEEDS. DOES NOT BELIEVE
WAY TOO EXPENSIVE & RISKY ASSUMPTION IYO OKSY

LEAVE NO FUNDS

What would you like to be able to do using transit?

BUS, UBER, ZIP CAR

Rank on a scale of 1-5 (5 = high priority, 3 = medium priority, 1 = low priority)

What projects in the transit plans are most important to you?

Bus Service Expansion X D-O LRT Project _____

Bus Facility Improvements _____ N-S BRT Project _____

Hillsborough Train Station _____ W-D CRT Project _____

Would you recommend that your elected officials approve this plan? Why or why not?

NO - NOT MEET CH OR O.C. NEEDS. ONLY

SERVICES NARROW PART OF CH.

WAY TOO EXPENSIVE & RISKY

Durham & Orange County Transit Plan

COMMENT FORM

Diane Willis

NAME

willis.dc@gmail.com

EMAIL

411 Landerwood Ln.

ADDRESS

Chapel Hill

CITY

NC 27517

STATE & ZIP CODE

I am commenting on: Durham County Plan Orange County Plan

I am: Employed Looking for Work Retired Student Other

Rank on a scale of 1-5 (5 = strongly agree, 3 = neutral, 1 = strongly disagree)

I believe transit is an important issue in our community 5

I am familiar with the transit system 3

I use transit often 1

Do you believe this plan addresses current and future transit needs? Why or why not?

Right now with the DOLRT part of the overall transit plan, I believe that the DOLRT will not take one car off 54, will not take one car off 15-501, will not serve but a few residents of Or Co (will only serve UNC → Duke → maybe UNC: all of which are paying zero!), and will suck financial resources away from very necessary bus route/facilities, schools, social services, etc. for decades. It is not a visionary plan, and will not adequately serve future transit needs.

What would you like to be able to do using transit?

Go to the RDU airport; go to (+from) RTP; go to +from Streets of Southpt + other shopping;
within Chapel Hill: take a bus to Town Hall for meetings (evening). ride to UNC library.

Rank on a scale of 1-5 (5 = high priority, 3 = medium priority, 1 = low priority)

What projects in the transit plans are most important to you?

Bus Service Expansion 5 D-O LRT Project 0

Bus Facility Improvements 3 N-S BRT Project 5

Hillsborough Train Station ? W-D CRT Project ?

Would you recommend that your elected officials approve this plan? Why or why not?

Absolutely not! DOLRT financial planning has been grossly mismanaged. The cost estimates have risen from ~\$1.5B to \$3.5 BILLION, + the assumption that the 1/2¢ sales tax was for LRT is wrong. As I said above, most people everywhere in Orange Co will not be served by this costly LRT plan. There is low likelihood of economic dvipmt because UNC owns the 4 stations, "available land" is either wetland or already built out. At-grade crossings are incredibly dangerous + will be a hindrance to vehicular travel.

Durham & Orange County Transit Plan

COMMENT FORM

NAME HEIDI PERRY EMAIL heidiperov@gmail.com
ADDRESS 407 Robert Hunt CITY Carboro STATE & ZIP CODE NC 27570

I am commenting on: Durham County Plan Orange County Plan

I am: Employed Looking for Work Retired Student Other

Rank on a scale of 1-5 (5 = strongly agree, 3 = neutral, 1 = strongly disagree)

I believe transit is an important issue in our community YES

I am familiar with the transit system YES

I use transit often YES

Do you believe this plan addresses current and future transit needs? Why or why not?

We still need more frequent service, better service to the airport, + especially late night hours, esp. on Fri. + Sat., with buses running at least until midnight

What would you like to be able to do using transit?

Go to a nine o'clock movie or an 8:00 play + be able to bus home. Also, night buses to BOCC mtgs, better regional night service

Rank on a scale of 1-5 (5 = high priority, 3 = medium priority, 1 = low priority)

What projects in the transit plans are most important to you?

Bus Service Expansion D-O LRT Project

Bus Facility Improvements N-S BRT Project

Hillsborough Train Station W-D CRT Project

Would you recommend that your elected officials approve this plan? Why or why not?

I do not think the DOLRT serves Orange County enough for Orange Co. to approve that part of the plan. I like much of the rest of it.

Durham & Orange County Transit Plan

COMMENT FORM

Jill Kuhlberg

NAME

jkuhlberg@gmail.com

EMAIL

711 MLK #209

ADDRESS

CH

CITY

27514

STATE & ZIP CODE

I am commenting on: Durham County Plan Orange County Plan

I am: Employed Looking for Work Retired Student Other

Rank on a scale of 1-5 (5 = strongly agree, 3 = neutral, 1 = strongly disagree)

I believe transit is an important issue in our community

5

I am familiar with the transit system

5

I use transit often

5

Do you believe this plan addresses current and future transit needs? Why or why not?

It's an improvement!

What would you like to be able to do using transit?

1 CRX-type route in the midday - around 2:00PM!

Covered bike parking or bike-lockers at park+ride locations to put bikes when on-bus racks are full and just to have safe secure options for bike-bus users.

Rank on a scale of 1-5 (5 = high priority, 3 = medium priority, 1 = low priority)

What projects in the transit plans are most important to you?

Bus Service Expansion D-O LRT Project _____

Bus Facility Improvements _____ N-S BRT Project _____

Hillsborough Train Station _____ W-D CRT Project _____

Also, consider "3-bike" racks on buses.

Would you recommend that your elected officials approve this plan? Why or why not?

Yes, but they need to work bike transit + bus transit together.

APPENDIX C.2: Emails Received

Last Name	First Name	Category of Comment	Subject, if applicable	Date	Comment Submitted
Ceunen	Tom	D-O LRT	Durham-Orange Light Rail Transit project	3/31 13:52	<p>Dear,</p> <p>Can you tell me who is the consultant that won the design for the Durham-Orange Light Rail Transit project?</p> <p>OTN Systems is a manufacturer of Telecom Equipment for LRT.</p> <p>Best Regards, Tom Ceunen Sales Director North America Mobile: +1 703 659 7419 Fax: +1 703 935 6360 Email: tom.ceunen@otnsystems.com</p> <p>OTN Systems USA LLC, 12020 Sunrise Valley Drive, Suite 100, Reston, VA 20191 USA www.otnsystems.com</p>
Eskridge	Stan	D-O LRT: Cost	Re: Multiple Chances to Comment on Orange and Durham County Transit Plans	3/31 20:58	<p>Like many of our residents, I was under the impression that we had defeated this ridiculous proposal that included the proposal below. Please cease and desist on this extraordinary waste of our taxpayer money. This has gone on for way too long and at far to great an expense. It's time for you people to try to find some real jobs — if you can.</p>
Lewis	Karen	D-O LRT: Impact: Transportation	Triangle Transit	3/31/2017 21:12	<p>Dear Triangle Transit, Please move forward with your plans for light rail connecting Chapel Hill, Durham and Raleigh. We need light rail not buses clogging the roads. Be bold, be brave or we will be left behind without proper transportation. Thank you, Karen Lewis Chapel Hill, Meadwomont</p> <p>Sent from Yahoo Mail for iPhone</p>
Hagerty	Stacy	A) D-O LRT: Cost; B) D-O LRT: Safety; C) D-O LRT: Technology; D) D-O LRT: Impact: Environment; E) Funding Taxes	NO to Light Rail	4/1 14:25	<p>NO NO NO to Light Rail — much too expensive, inflexible, and creates dangerous intersections</p> <p>YES YES YES to Bus Rapid Transit — cheaper, less disruptive to environment, and flexible</p> <p>As a Durham County resident since 1984, I request that you do not place any further tax burden on our county for an outdated mode of mass transit.</p> <p>Stacy Hagerty 208 Culp Hill Drive Chapel Hill, NC 27517</p>

Silver	Gwyn	A) Funding: Local; B) Funding: Federal; C) D O LRT: Impact: Traffic; D) D-O LRT: Planning; E) D-O LRT: Funding: Local Taxes	Comment of Orange and Durham County Transit Plans	4/1 14:58	<p>I cannot support this plan due to the escalating cost and the associated binding financial commitments Durham will have to make to move the project forward. We don't have the money. We have Durham Public Schools needing more funding and we have other county initiatives to fund. Moving this plan forward is especially troubling if federal funding is questionable under the Trump administration. I also have the following concerns:</p> <ol style="list-style-type: none"> 1. The route is extremely limited. It is not going to alleviate the enormous traffic on I-40 to RTP and RDU. 2. We will be in a financial bind to fund another project and this project will be a heavy burden for years. 3. Instead of light rail needing land and tracks, I believe we should re-evaluation the entire project as Wake County did to fund commuter rail that uses existing rail tracks. 4. Why push a flawed project forward to bankrupt Durham city and county? 5. I'm a senior citizen. Do you think I want to see increased taxes to support a rail system I'll never use? No! <p>We need a better plan.</p> <p>Thank you</p>
White	Marjorie	A) D-O LRT: Planning	Comment on additions to light rail plan	4/2 15:22	<p>Why didn't the planners think through the project sufficiently to include these latest additions in the first place? The whole thing has been poorly handled from the beginning, resulting in a huge amount of money down the drain.</p> <p>M. White</p>

Rosenfeld	Carol	A) Public Outreach;	Transit plan meeting scheduling	4/3 12:19	<p>Hi there,</p> <p>I just wanted to drop you a quick note to say that I'm sorry not to be able to attend either the Downtown Durham Transit Plan Workshop on April 10 or the Durham County Public Hearing on April 11, since they are scheduled during the Jewish holiday of Passover. Passover is primarily observed in the evening, and this year it falls on the nights of Monday, April 10, and Tuesday, April 11. So, these events are scheduled directly at the times when the holiday is observed.</p> <p>Jewish holidays follow a lunar calendar, so the dates of Passover jump around each year. In 2018, it will fall on the nights of Friday, March 30, and Saturday March 31 (so likely no conflict with hearings or workshops then, luckily!). I'm happy to help identify the dates for future years, or you can find them via a quick Google search or http://www.myjewishlearning.com/article/calendar-of-major-jewish-holidays/.</p> <p>I'm not sure how many other potential attendees this might affect, but I just thought I'd mention it for possible consideration when scheduling future public workshops / hearings. I live in Downtown Durham, so that workshop / hearing are the most convenient locations for me, but I'll plan to submit online comments - thanks for having that option available.</p> <p>Thanks, and please let me know if you have any questions.</p> <p>Best, Carol</p> <p>-- Carol Rosenfeld carol.rosenfeld@gmail.com (847) 721 - 6975</p>
Stoothoff	Robert	A) D-O LRT: Funding; B) Traffic	Light Rail	4/3 14:49	<p>I will be disappointed if the funding for the future light rail projects makes it impossible to proceed.</p> <p>I count on professional transportation planners to make valued decisions for our future infrastructure and transportation plans. If you are correct, this project intercepts our future needs and reduces the strain on already overcrowded streets.</p> <p>The voices of older citizens in our communities that do not commute to/from jobs, restrict their car travel to off hours, or don't care to look at the future needs might be weighing too heavily on the decision process.</p> <p>Sincerely,</p> <p>Bob Stoothoff 214 W Barbee Chapel Rd Chapel Hill, NC. 27517</p>

Janiak	Andrew	A) Growth; B) D-O LRT C) Traffic	Support for transit plan	4/3 15:40	<p>To Whom It May Concern:</p> <p>I am writing in strong support of the transit plans for the light rail that will travel from CH to NC Central in Durham. As our area experiences strong growth, it's important that we have smart growth, and without light rail, I'm afraid that we will simply see a lot more cars on our roads. As we all know (think of the huge 405 project in LA), building more roads and expanding highways only leads to more cars on the road and does not reduce traffic in the long run. Having light rail is one of the keys to having growth in our area without massive increases in traffic.</p> <p>Thank you, Dr. Andrew Janiak Durham, NC 27705 -- Andrew Janiak, PhD</p>
Gerwe	Rod	A) Cost: Light Rail; B) D-O LRT: Ridership; C) D-O LRT: Cost; D) D-O LRT: Equity; E) D-O LRT: Funding; F) D-O LRT: Expenditures	Opposed to Light Rail	4/3 18:22	<p>We should put light rail aside and find a better alternative. Here are some reasons:</p> <p>Light rail will be prohibitively expensive. The current cost is projected to be \$2.5 billion, plus \$500 million in interest on debt incurred to build the system. Given the estimated daily ridership, and multiplying that by 365 days and 20 years, even after 20 years the per passenger cost of construction is \$20-25. In other words even if one spreads the construction costs over all the riders for 20 years, it still costs \$20-25 dollars per passenger. After 50 years the cost per passenger would still be \$10. And that does not include operating costs. Surely there are less expensive alternatives.</p> <p>Light rail as envisioned would serve only a small percentage of residents in Durham or Orange County. It is a one-dimensional system that serves only those who live close to the track. It doesn't serve the great majority of residents who live elsewhere in the vast regions of these counties.</p> <p>We need a new vote on light rail. When residents approved a sales tax increase for light rail in 2013, our political leaders told us that the estimated cost was \$1.3 billion. Now the estimated cost is \$2.5 billion plus \$500 million debt servicing. Durham and Orange County residents were told in 2013 that the state would pay 25% of the cost and we would pay 25%. Now the state will pay only 10% and we will pay 40%. We were told that the light rail would have stops at RDU and RTP, which will not happen. Durham and Orange County are about to commit \$70 million for project engineering -money which will be wasted if the federal government does not approve funding 50% of the overall project cost. Our political leaders must again hold a vote on this project, which is vastly changed from the original proposal, & for which Durham and Orange Counties alone will pay upwards of \$1 billion plus \$500 million debt service. Our political leaders must be totally transparent in telling us exactly what we are voting for -where the rail line will go, where the stops will be, how much Durham/Orange Counties will pay locally and exactly what new taxes will be needed to pay for it. Since we have to go into hock for 45 years, to not allow a new vote is dereliction of duty by our politicians. We should not waste %70 million on engineering until we have a new referendum and until we know what the federal government is willing to pay.</p> <p>Rod Gerwe 2704 Trail Wood Drive Durham NC 27705</p>

Ballator	Nada	A) Public Involvement; B) Connections: Airport	List of public workshops/presentations /hearings?	4/4 10:25	<p>Hello! I have been trying to find a list of transportation hearings/presentations for Durham, Orange, and Wake, but find it too easy to get confused about the page they are on. Can you please send me the URL(s), and any other suggestions for keeping current on public discussion of plans?</p> <p>Also, I am particularly interested in finding out more about the three counties' connection to RDU. Is there one agency that oversees all three counties' transit plans, to make sure that they work in concert?</p> <p>Thanks so much for your help!</p> <p>Nada</p> <p>-- Nada Ballator 650-465-6169</p>
Myrick	Thomas	A) Improved Bus Service; B) D-O LRT Technology; C) Orange County: Economic Impact	Comments on Improved Bus Service and Light Rail	4/5 9:48	<p>Speaking for many Orange County residents, we are thankful you heard and are responding to our requests to see plans for improved bus service as a much more practical and cost-efficient alternative to light rail. Light rail is appropriate only with highly concentrated commuter destinations (like downtown Charlotte), not with diffused destinations as we have here. Light rail may be a boon to the developers in Durham, but we in Orange County have no interest in enriching those developers, and we have no need for this mode of transportation to Durham. If Durham County residents want to fund light rail, that's fine, just end the line at the Orange County border.</p> <p>Tom Myrick Chapel Hill</p>
Moul	Ellen	A) D-O LRT: Cost; B) Equity: Service	do not support the current light rail	4/5 12:53	<p>I have attended meetings in the past to learn of the light rail project and do not support its construction. The price tag is exorbitant and will not meet the communities' needs, especially those communities that are most dependent on public transportation. It is fiscally irresponsible to move forward with this current plan for a light rail. Funding could be used to support many other higher priority transportation projects.</p> <p>Ellen Moul</p>

Stambaugh	Leyla	A) D-O LRT: Alignment; B) D-O LRT: Safety; C) D-O LRT: Impact: Neighborhoods	Light Rail Comment	4/5 13:46	<p>Dear Orange County Commissioners,</p> <p>I am a Chapel Hill resident, and I am writing in regard to the current plans for Light Rail. I live in Meadowmont, and I oppose the C1A Alignment Alternative, which has the train going down Meadowmont Lane. Meadowmont is a sleepy family community where our children walk to school in the mornings and spend most after-school and weekend hours outside at the neighborhood playgrounds, and playing on the sidewalks. Having a train running adjacent to our homes would be contrary to the very peaceful, family-centered environment that we live in, and would potentially have a negative effect on our property values (and thus our taxes). I do not believe this route is what Meadowmont families want at all, and I do not think that it would be good for Chapel Hill.</p> <p>Also, the route as currently drawn runs behind the UNC Wellness Center at Meadowmont, and there is a new apartment complex being constructed there. As such, it does not look like the train would fit on the currently proposed route.</p> <p>I believe that the C2A Alignment Alternative would do a better job serving more people who are traveling to and from work because it would bring people to the Friday Center for conferences, continuing education seminars, and other major events held there. Moreover, if families living in Meadowmont want to use the light rail, it would be easily accessible at the Friday Center station. This type of business hub is a better fit for a light rail station, than a sleepy family neighborhood.</p> <p>Please do not approve the C1A route through Meadowmont.</p> <p>Many thanks for your time,</p> <p>Leyla Stambaugh</p>
Willis	Zach	A) D-O LRT: Alignment; B) Impacts: Neighborhoods	Durham-Orange Light Rail Transit Project	4/5 14:03	<p>Good afternoon,</p> <p>I am writing to you about the proposed route for the Durham-Orange Light Rail transit project. As a resident of the Meadowmont neighborhood, I am very strongly opposed to the placement of the light rail route directly through Meadowmont. Meadowmont Lane is a popular route for people jogging, biking, and walking their dogs. The proposed route would be highly disruptive and would likely generate excessive traffic in the area. In addition, the C1 and C1a alternatives appear to cut directly through a townhome development that is currently under construction (Murray Hill). The C2 and C2a options follow a much higher-traffic road along 54 and appear to have much less impact on residential neighborhoods.</p> <p>I appreciate your consideration of my comments.</p> <p>Thank you, Zach Willis, MD, MPH 311 Meadowmont Ln Chapel Hill, NC 27517 zach.willis@gmail.com cell: 843-708-2749</p>

Hunt	Anne	A) D-O LRT: Alignment; B) Impacts: Environment; C) Safety; D) Impacts: Property Values E) Transit Service: Not Available	light rail route through Meadowmont - strongly oppose	4/5 16:49	<p>Dear Light Rail Planning Committee,</p> <p>We strongly oppose the proposed Light Rail going down Meadowmont Lane in Chapel Hill. Meadowmont Village is a quiet neighborhood where people pay to live there in order to enjoy peace and nature, with its many walking trails, trees, and birds. Families feel safe here, walk everywhere, and raise their children here, while being close to work with shorter commutes – and they pay dearly for that privilege with large tax bills and mortgages to go with it.</p> <p>A Light Rail going down Meadowmont Lane will not only lower property values, but will destroy the scenic beauty and quiet of the neighborhood. And it is against precedence. There are no bus stops in most of Meadowmont Lane for a reason – one has to walk to the very end of Meadowmont Village to Barbee Chapel Rd. and Route 54 to get a bus, and for me that is a .8 mile walk (and I don't drive a car), but I do it happily, as it preserves the peace of the neighborhood.</p> <p>There are very few peaceful places left in the world, but Meadowmont Village is a real respite in an overly crowded and busy city area. We recognize that that the Light Rail is an important project as it will hopefully help with the extreme traffic congestion in an increasingly popular area. But there is absolutely no reason I can see where the stop for this area cannot be on Route 54...it is a convenient location for all and retains the natural setting of the neighborhood.</p> <p>Please don't destroy our walking neighborhood with a Meadowmont Lane route when Route 54 is a viable alternative. Thank you for considering this request.</p> <p>Sincerely, Gary and Anne Hunt 102 Springdale Way, Chapel Hill, NC 27517</p>
Brown	Grey	A) D-O LRT; Alignment; B) Bus Connection Chapel Hill to Durham	No Subject	4/6 9:50	<p>I support the light rail station in Meadowmont. I take two buses now to get from Harris Teeter to Duke every day.</p> <p>This commute takes me an hour each way and because of bus schedule, I have to run across UNC campus every morning to make a connection between the V bus and the 405. This is stressful.</p> <p>Please include the Meadowmont stop.</p> <p>Thank you,</p> <p>Grey Brown 177 Sprunt Street Chapel Hill</p> <p>Grey Brown Hospital Coordinator Duke Intensive Care Nursery Phone 919 681 2519 gbrown@gcffamilysupportservices.org</p>

Ferrell	Bill	D-O LRT; Alignment	we do not support	4/6 10:05	<p>We, the Meadowmont Community Association, are and remain on record NOT supporting the LRT through Meadowmont. The ARMY Corp of Engineers denied the route access through Meadowmont. The Meadowmont route is no longer being considered.</p> <p>Bill Ferrell, Manager Meadowmont Community Association 429 Meadowmont Village Circle Chapel Hill, NC 27517 919-240-4682 Office 919-240-4683 Fax 919-636-0598 Mobile manager@meadowmont.net www.meadowmont.net</p>
Prasad Rao Gulur	Krishna	D-O LRT; Alignment	Metro stop at MEADOWMONT	4/6 10:11	<p>I support the above Krishna Gulur</p> <p>Sent from my iPhone</p>
Gonzalez	Bianca	D-O LRT; Alignment	RE: LIGHTRAIL	4/6 14:17	<p>Supporting light rail stop in Meadowmont, Chapel Hill!</p> <p>Sent from Yahoo Mail on Android</p>
Gonzalez	Bianca	N/A, Auto-Response	Re: [Auto-Reply] RE: LIGHTRAIL	4/6 14:25	<p>You're welcome, appreciate quick response!</p>
Gonzalez	Bianca	DOLRT Alignment, D-O LRT Cost; D-O LRT Funding	RE: PUBLIC TRANSP.	4/7 13:47	<p>I sent an email yesterday in support of having the proposed light rail go thru meadowmont. Later I read the proposal had been turned down.</p> <p>There seems to be much opposition for this entire project period, I hear involves millions of dollars for something that's still inefficient since the transit routes are limited. I certainly don't want to pay MORE & or HIGHER taxes if it's going to be money wasted!</p>
Gonzalez	Bianca	Plan: Cost-Effectiveness; Impact: Congestion, Environment; Cost: Cars, Bus; Service Expansion	RE: PUBLIC TRANSP.	4/7 15:31	<p>Public transport is more cost effective to use the already established bus systems in order to improve mass transit & reduce traffic, plus the fact that it'd be ecologically friendly as well. Not everyone can drive nor afford the EXCESSIVELY high INFLATED prices of ANY functioning vehicle & everything else that goes along owning or renting cars...such as insurance, gas, RIDICULOUS NC yearly taxes & maintenance. I propose more bus's frequent stops 7 days a week, extended hours, added shelters/stops, increased routes which would possibly help employment growth & not become a HUGE burden on taxpayer's MONEY.</p> <p>Thx for taking my email comments into consideration...</p>
Andrews	J	D-O LRT: Need; Bus: Ridership	comment	4/7 19:33	<p>Don't know why we need a light rail system in Durham and Orange counties when most of the city buses in Durham have only one or two passengers on them. Just another waste of tax payer money!</p>

Osbourne	Geoffrey	DOLRT: Cost; DOLRT: Funding, local; DOLRT: Alignment	DOLRT Comments	4/8 16:29 Part 1	<p>Durham Board of Commissioners,</p> <p>I am writing this e-mail to voice my concerns over the proposed Durham Orange Light Rail Transit project. Many things have changed since this project was proposed. The costs for this project have sky-rocketed. Local funding has gone up over 300% and federal and state financing is in question, if it is even still available. Funding such a project will put extreme financial pressures on Durham and all of it's citizens (especially with Orange county try to push a heavier financial burden on us). The interest payments alone for this project are extremely high. In addition to that, with having this burden of debt on Durham and it's citizens for 45 years, we are mortgaging our future and the future of our children with this project.</p> <p>The largest financial investment of a family is commonly known as the purchase of a home. A 30-year term is standard for a mortgage which is still a very long time for a family. In this case though, everyone within the family is making use of the home. The purchase of a vehicle is another example of a common loan that a family has. The common term for these loans is 5 years and most of the time a portion of the family will primarily use the vehicle. When comparing these common loans of a family structure to that of the county and the DOLRT, there are some stark differences. The financing term for DOLRT is 45 years, 150% longer than the common mortgage term, yet it should be comparable to that of a car loan for a family. To be clear, I'm not saying that the term for DOLRT should be 5 years. This is simply a comparison to display how much of a burden this project will be on all the citizens of Durham county.</p>
Osbourne	Geoffrey	DOLRT: Cost; DOLRT: Funding, local; DOLRT: Alignment	DOLRT Comments	4/8 16:29 Part 2	<p>In addition to the extremely high cost of this project, the proposed DOLRT is only for a stretch of 17 miles and will only provide service for a small number of people in the county. Many people throughout Durham county will not use the DOLRT due to the proposed route. For example, those who live in the southeastern section of Durham will have no use for the light rail. Someone who lives in southeast Durham may have a 4-5 mile drive to get to the nearest DOLRT station, yet if they work on 15-501 their total drive may only be 7-8 miles. Why would they use the light rail when it's only a couple miles more in a vehicle and more of a hassle and longer commute time on the light rail? On the other end of the spectrum, the proposed route does not even provide transit to RTP which is heavily traveled to for employment.</p> <p>To expand on this concern, the proposed DOLRT route is not targeted toward the locations in Durham county that will be showing the most growth, both in population and employment. The following two charts show the expected population and employment growth in Durham county through 2035.</p> <p>Employment Growth: http://townhall.townofchapelhill.org/agendas/2007/03/05/7/7-3-3_durham_employ_change_map.gif Population Growth: http://townhall.townofchapelhill.org/agendas/2007/03/05/7/7-3-4_durham_pop_change_map.gif</p> <p>So essentially, the DOLRT will be behind the curve based on the expected growth of Durham county, yet we will be under a heavy burden of debt for 45 years.</p> <p>Elected officials, pulling the plug on a project like this is a very difficult decision to make. The project was meant to serve the community well, but that is not how it is working out. You have the authority to terminate this project and I urge you to consider my points of concern and save Durham from this financial calamity.</p> <p>Regards, Geoffrey Osborne</p>

Osbourne	Geoffrey	DOLRT: Cost; DOLRT: Funding, local; DOLRT: Alignment	DOLRT Comments	4/8 16:29 Part 3	<p>So essentially, the DOLRT will be behind the curve based on the expected growth of Durham county, yet we will be under a heavy burden of debt for 45 years.</p> <p>Elected officials, pulling the plug on a project like this is a very difficult decision to make. The project was meant to serve the community well, but that is not how it is working out. You have the authority to terminate this project and I urge you to consider my points of concern and save Durham from this financial calamity.</p> <p>Regards, Geoffrey Osborne</p>
Conitzer	Vincent	DOLRT: Alignment	light rail	4/8 21:52	<p>I still prefer the light rail to run through Meadowmont as initially planned, but it seems some people really set out to kill this option.</p> <p>Thanks, Vince</p>
Milchtein	Mauro	DOLRT: Need	Light train	4/9 11:00	<p>Don't built the light train in Chapel hill and Durham. It's not necessary at all. Not even in the future</p> <p>Mauro Milchtein</p>
Battle	Gregory	PLANS: Public Involvement	Durham Light Rail Meeting	4/10 12:26	<p>Hello...</p> <p>I am interested in attending the Durham Light Rail Meetings Please send me the meeting information..</p> <p>Have a good day Peace-Prayers-Out.... The continuation of Eagle Elevation into 2017 and beyond..</p>
De Flora	Ellen	DOLRT Cost; DOLRT: Impact: Environment, Housing; DOLRT: Equity	Comment on the Durham and Orange County Transit Plan	4/10 16:51	<p>I am opposed to this plan. It is too expensive, does not serve the majority of the residents of Durham/Orange county, will ruin the natural beauty of the area, lower housing values and disrupt traffic.</p> <p>It is a VERY BAD PLAN.</p> <p>Ellen De Flora</p> <p>Sent from my iPhone</p>
Ballard	Martha Lynn	ACCESS: Durham-Wake County; CONNECTIONS: Intercity Rail; ACCESS: Dutham-RDU Airport	Comment on the Durham and Orange County Transit Plan	4/11 9:29	<p>1) I look forward to more mass transit connections between Downtown Durham, Cary and Raleigh.</p> <p>2) I also would like to have more options for daily North Carolina Train connections between Durham and Charlotte.</p> <p>3) Finally, I'd like to see an express bus from Downtown Durham and the RDU airport. I believe there is no such bus right now. Buses have had to go through the Transit Hub in the Triangle.</p> <p>I support more options for mass transit and walkability in Durham neighborhoods and I am more than willing to pay more in my vehicle property tax to achieve this goal. The sooner these projects are completed, the better.</p> <p>Thank you, Martha Lynn Ballard 719 Shepherd Street Durham, NC</p>

Schoendorf	Janet	PLANS: Light Rail	Light Rail	4/11 13:05	<p>I love the idea of light rail coming to our area. It is so forward thinking. The sooner this happens, the faster we can alleviate traffic congestion; and the more transportation options we have, the better we can serve all.</p> <p>Thanks to everyone who is working to make this a reality!</p> <p>Janet Schoendorf</p>
Gulley	Wib	REGION: Congestion; DOLRT: Impact: Mobility, Environment, Land Use	Comment on the Durham and Orange County Transit Plan		<p>Dear Sir or Madam:</p> <p>I am writing to express my strong support for the Durham Orange Light Rail Transit project (DOLRT). Our region's existing highway and road transportation system is already under significant strains that will only worsen over the coming years. There is no realistic hope that the federal and state funding needed to build our way out of the coming congestion mess will appear, even if it were possible to the space which these road improvements would required in Durham and Orange counties.</p> <p>The DOLRT represents the largest infrastructure project in our region's history, a \$2+ billion investment into our county and region's future. The mobility, environmental, land use and energy benefits of the project are significant and needed. While investments in our future of this size are never easy or without some opposition, I believe we have to continue to move forward if we are to have a region with real quality of life and economic vitality.</p> <p>I urge the FTA to continue the partnership represented by this project and help enable this critical infrastructure project to move forward.</p> <p>Sincerely, Wib Gulley</p> <p>Wib Gulley redclay23@gmail.com</p>

Clay	Gordon	DOLRT: Alignment; CONNECTIONS: RDU Airport; CONNECTIONS: Wake County;	Comment on the Durham and Orange County Transit Plan		<p>Good Day,</p> <p>I would like to suggest that the eastern terminus of the Orange/Durham county light rail project be located at RDU instead of NC Central. The resulting extra 10 -15 miles of extension would pass through mostly low density warehouse area or RTP. Compared to other parts of the route, that would be a building bargain.</p> <p>10 million passengers currently use RDU every year. That will only continue to grow. Say 30% of passengers arrive/leave RDU from the west. Would 20% of 3 million use the light rail? If so, that's 600,000 annual riders or 50,000/month. That could sustain this whole effort.</p> <p>Also, once Wake country sees this service sustain ridership, perhaps they would bring their rail project to RDU from the east. The airport is the logical transit node of TheTriangle.</p> <p>To be seamless the rail line would have to stop in front of each terminal, maybe in a loop. This may present problems for the vested interests of the parking lots, but how will we know if this does not get proposed? Besides, is the future of travel really going to be decided by parking lots? That's an argument easily won, in my opinion</p> <p>Thanks for reading my comment.</p> <p>Sincerely,</p> <p>Gordon Clay Carrboro NC</p>
Swasey	Judith		DO LRT & Transit Plan	4/12 17:25 Part 1	<p>I wasn't going to bother writing to GoTriangle again regarding light rail but I have spent many years trying to get someone to listen to my (and others) concerns so I am once again commenting hoping that my and other public comments will result in some change in this plan. I have read the recent transit plan and was present at the recent Durham County Commissioners meeting where you presented your plan to the commissioners.</p>
			DO LRT & Transit Plan	4/12 17:25 Part 2	<p>Although I support mass transit, I do not support the light rail project as planned. I am concerned about the escalating costs and uncertain financing with no guarantee of state or federal funding or the expected monies from state sales or other taxes. Now there is a question whether Durham can pay for the Wake-Durham Commuter Rail Project because of the increasing amount of money being spent on light rail.</p>
			DO LRT & Transit Plan	4/12 17:25 Part 3	<p>I also do not have much confidence in the value of your public hearings and public comments. I have written numerous comments and done verbal presentations to many elected officials as well as GoTriangle and have yet to see one single change from my or anyone else's comments. It seems odd that your two recent "urgent" deadlines have occurred in December and April when many are distracted by holidays, spring break, etc. and have other priorities. Is it really possible that you did not know of these deadlines months if not years in advance? It puts undue pressure on the deciding parties (and citizens) in Durham & Orange counties leaving them with few options to take their time, reconsider options and obtain some unbiased input. It really feels like you are meeting Federal requirements rather than seeking input that will result in changes to this plan/project.</p>
			DO LRT & Transit Plan	4/12 17:25 Part 4	<p>The current focus on cost and funding seems to have pushed all other concerns regarding the environment, safety, route, ridership, access and a quickly becoming obsolete form of transportation to the bottom of the list. I am a supporter of mass transit---just not this light rail project as planned. I would support bus rapid transit (faster, more flexible, less cost) for all corridors and a continued plan for commuter rail which Wake County has so wisely chosen.</p> <p>Judith Swasey Durham County/City of Durham</p>

Nelson	Jill	A) Bus: Durham: Service	South Roxboro Street - no service	4/13 15:30	<p>Hi</p> <p>I have lived in Hope Valley Farms for 19 years and have never seen a bus on South Roxboro street.</p> <p>We would love to take public transportation to the mall, Duke Gardens, Ninth street, the public library among other destinations but we do not have any bus service down South Roxboro.</p> <p>We have to walk the 1.5 miles to Food Lion to catch a bus.</p> <p>Can this be corrected? May we please have access to public transportation in our neighborhood?</p> <p>Thank you!</p> <p>Kind regards, Jill Nelson</p> <p>This email transmission and any documents, files or previous email messages attached to it may contain information that is confidential or legally privileged. If you are not the intended recipient or a person responsible for delivering this transmission to the intended recipient, you are hereby notified that you must not read this transmission and that any disclosure, copying, printing, distribution or use of this transmission is strictly prohibited. If you have received this transmission in error, please immediately notify the sender by telephone or return email and delete the original transmission and its attachments without reading or saving in any manner.</p>
Hardman	David	A) DOLRT: Need: Population Density	Comment on the Durham and Orange County Transit Plan	4/13 16:18 Part 1/3	<p>When I moved to Chapel Hill in 1983, I was enthralled by the Triangle J Council's vision of a light-rail system connecting the major population nodes of the Triangle. Unlike a fine wine, this proposal has spoiled with time, and now that Wake County has rejected light rail as a transit option it's time to stop this train in its tracks. Simply put, Durham and Chapel Hill lack the population density necessary to justify the capital and operating costs of light rail transit (LRT).</p>
Hardman	David	B) DOLRT: Ridership C) DOLRT: Benefit: Traffic Congestion D) DOLRT: Need: Car Ownership	Comment on the Durham and Orange County Transit Plan	4/13 16:18 Part 2/3	<p>The ridership projections for the Durham-Orange LRT stretch credulity, with estimated daily boardings of 23,000. This is in contrast to the Charlotte LRT system, with daily boardings of 16,000 – which has been static since inception in 2007, while the population has increased 17 percent, with no measurable decrease in traffic congestion – in an area with a population 70 percent larger than the Triangle! These ridership projections are further inflated with the working assumption that 40 percent of households in the Durham-Chapel Hill corridor will not own automobiles in 2040, which flies in the face of current ownership levels and assumes a tectonic shift in public behavior.</p>
Hardman	David	E) DOLRT: Need: Current Bus Ridership	Comment on the Durham and Orange County Transit Plan	4/13 16:18 Part 3/3	<p>The Robertson Scholars Express Bus between Duke University and UNC runs every 30 minutes between campuses for 16 hours each weekday, yet averages only five riders per bus on a 40 passenger bus. Data from the 2009-2013 American Community Survey of Commuting traffic flows indicates a mere 1,259 mass transit daily commuters cross between Durham and Orange County lines. Is it plausible that LRT would boost that demand by ten-fold as the ridership projections assume?</p> <p>Let's learn from Wake County and make smart and affordable choices for our community by rejecting LRT.</p>

Rose	Austin	A) Connections: Rail: RDU B) Connections: Wake County: North Hills, PNC/Carter Finley/Fairgrounds	Our Transit Future - Public Comment	4/13 17:25	<p>Hi all,</p> <p>I'd like to contribute to the Public Comment on plans for Light Rail and Commuter Rail in the Triangle. I am a long-time resident of Orange County and I know this has been studied - but honestly, I feel that any rail plan should include a stop at RDU either initially or in the long-term plan. That would be the most appealing use of the new system for me and I'm sure many others.</p> <p>Either a stop within one of the terminals, or even a nearby stop that incorporated bus service similar to the Long-Term Parking lot buses currently in service.</p> <p>Other stops should include Raleigh downtown, North Hills area and the PNC arena / Carter Finley Stadium / Fairgrounds Complex.</p> <p>Appreciate the chance to have some input!</p> <p>Austin Rose</p> <p>Austin S. Rose, MD</p>
Farmer	Tom	A) DOLRT: Benefit: Economic Development	Orange County Transit Plan	4/14 19:55 Part 1/3	<p>I grew up in the area and have been a GoTriangle commuter from Chapel Hill since moving back in 2009. I would like to express my wholehearted enthusiasm for the comprehensive transit plan anchored by Durham Orange light rail.</p> <p>All forms of public transit, from superhighways to sidewalks are subsidized. However, some are just better investments. And more so than any other form of transit, including BRT, light rail is a great investment. Durham Orange Light rail not only provides efficient, environmentally friendly transit, it also is a magnificent economic development tool. In line with other light rail projects in the US, Durham Orange light rail is projected to expand the GDP of Durham and Orange Counties by \$5 billion and increase tax revenue by \$175 million.</p>
		B) DOLRT: Benefit: Connections C) DOLRT: Need: Ridership D) Technology: BRT: Impact: Land Use	Orange County Transit Plan	4/14 19:55 Part 2/3	<p>You have no doubt heard the phrase that "Wake County rejected light rail for BRT." Well, two things determine success of a light rail line - First, what it connects: along the Durham Orange route are 100,000 jobs and three major medical centers suffering from congestion that can only be relieved with the high capacity of light rail, not BRT and certainly not driverless cars & Uber. Second, pre-existing transit use: currently 10,000 people ride buses in the Durham Orange corridor - This bodes quite well for light rail ridership. Wake County does not have these kind of ridership numbers. Wake County did not reject light rail; the truth is that Wake County is not yet ready for it.</p> <p>BRT reinforces highway patterns in urban designs, making our streets less friendly for walking shoes and bikes - making our cities less livable. Further, "BRT creep" is a well recognized issue whereby even the best of BRT projects are compromised by the politics of motorists unwilling to give up asphalt. This can make BRT little more than new signage on an otherwise ordinary bus route.</p>

		E) Technology: BRT: Capacity	Orange County Transit Plan	4/14 19:55 Part 3/3	<p>Ottawa, the North American city with the most BRT experience has now turned to light rail because of capacity issues BRT just couldn't handle.</p> <p>BRT is often championed by the political right and done so as a thin veil over hostility to all forms of public transit.</p> <p>Not all BRT advocates hold this view. BRT certainly has a role as part of an integrated transit plan. However, as the anchor of a regional transit network, BRT tends to disappoint.</p> <p>Durham Orange Light Rail is economic development and sustainable growth that doesn't choke our roadways, pollute our air, and consume our open spaces. It is high capacity access to jobs in our urban cores.</p> <p>The time is now for Durham Orange light rail - we voted for it - we can't afford not to build it.</p> <p>Thank you, Tom Farmer</p>
Bedford	Jamezetta	<p>A) Plans: Equity: Service to Northern Orange County and Chapel Hill/Carrboro</p> <p>B) DOLRT: Cost: Financing</p> <p>C) Plans: Equity: Service for Elderly, Disabled, Low-Income</p> <p>D) DOLRT: Funding: State</p>	OC and Durham transit plans	4/15 12:47	<p>Hi</p> <p>I appreciate the opportunity to comment via email since I am unable to attend any of the hearings.</p> <p>I am very concerned that insufficient transportation services will be provided for both northern Orange Co and for Chapel Hill-Carrboro. The financing of light rail jeopardizes our ability to serve Orange County in any comprehensive fashion. The most in need of public transportation: the elderly, the disabled and those with lower incomes will be poorly served. There is significant social injustice in this plan for OC residents.</p> <p>We should wait four years to see if the Democrats retake the NC general assembly and federal government to provide increased funding before advancing further on the light rail project. Orange Co cannot afford light rail and also add bus hours and better connections within OC and to out other neighboring counties.</p> <p>Sincerely,</p> <p>Jamezetta Bedford</p> <p>Sent from my iPhone</p>
	Justin	A) Connections: Lee County; Cumberland County	Expanding transit	4/17 12:52	<p>Hi I was wondering if more areas were willing to get involved such as sanford and fayetteville to expand and help fund the rail service, I think it would be great to expand and get more areas involved to help with growth and funding.</p>
Suttles	Kelly	A) DOLRT: Support	Light Rail Support	4/17 14:58	<p>I just want you to know you have my support for the proposed Durham to Chapel Hill Light Rail plan.</p> <p>Kelly Suttles</p>

Burton	Wayland	A) Travel Patterns: Cross County	Durham-Orange Transit Plan	4/18 22:11 Part 1/5	<p>Dear Orange County Commissioners,</p> <p>My name is Wayland Burton. I live at 313 Shetland Road, Rougemont, NC 27572. I am advocating for the Durham –Orange Light Rail.</p> <p>Durham, Orange, as well as Wake Counties are connected by Leisure, Play, and Work. Through Leisure; by all of the great festivals, arts, and music. Through Play; by all the great athletic events that we compete for and share in each others victories. Through Work with the cross employment of workers that flow between counties. I personally know this because my daughter is one of those daily commuters as well as brothers, sisters, cousins and friends. I expect that everyone knows someone who travels between the two counties if not the three counties.</p>
		B) DOLRT: Benefits: Improved Commute C) DOLRT: Benefits: Access to Entertainment		4/18 22:11 Part 2/5	<p>The Durham - Orange Light rail means ease of movement, and a level playing field for everyone that has to commute for their jobs.</p> <p>I'm 63 years old and I do not want to drive these thoroughfares as I continue to age. The drivers are more and more aggressive yet I like many other seniors have no intention of giving up a basketball game, or an off Broadway play, or a restaurant on Franklin, Ninth, or Fayetteville Street. My grandchildren (millennial's) don't want to afford the cost of a vehicle, or garaging it, or maintaining it – they prefer mass transit.</p>
		D) DOLRT: Benefits: Economic Development E) Other Areas: Rail Access		4/18 22:11 Part 3/5	<p>Seniors and millennial's have this trait in common and the Durham-Orange Light Rail is their future mode of travel. The light rail signals to entrepreneurs that Durham, Orange, and Wake counties have the type of infrastructure that is desired to be prosperous. With that prosperity comes our own prosperity.</p> <p>I have lived and traveled in many countries around the world and across the United States. Each one had a dynamic rail system that was the main artery of their mass transit network. The bus and cab systems were the feeders to communities not the main arteries that provide transport from one major city to another.</p>
				4/18 22:11 Part 4/5	<p>Let me provide you a scenario that maybe all to real in the future. A gentleman speaks saying, "The purple route gets my vote but the people to feel sorry for are those on the orange route, who have had their property in limbo for two decades. It's an outdated plan that disregards 20 years of southern Wake County growth. What was visionary in the 1970's and affordable with much lower effect in the 1990s isn't anymore. Every route estimate is over \$2 billion. All are poor choices that wipe out decades of growth at financially staggering and socially devastating cost. All destroy hundreds of homes and businesses, instead of going through woods and fields (that no longer exist). The funding is dubious, to say the least. We're told the only way financially this road can be built is as a toll road, which few people will use because they don't want to pay for something for which they've already paid taxes for." This is a partially fictitious scenario taken from a story from the New & Observer by Peter Watson on the 540 Southern loop a road whose time came and went.</p>

		F) Roadways: New Construction		4/18 22:11 Part 5/5	<p>The 540 loop shows that expenditures to expand roads or build new ones will be difficult and in the end the populous will not like how they will need to pay for them.</p> <p>The Durham-Orange Transit System will be a vote for our children, our grandchildren and a viable future.</p> <p>Thank you for your consideration,</p> <p>Wayland Burton</p>
Salmeron	John	A) Need: Inability to Drive	Input on the Durham-Orange Light Rail	4/19 21:46 Part 1/3	<p>Dear Our Transit Future.com,</p> <p>I'm writing with regard to the upcoming vote on April 27 regarding continued support for the Durham-Orange Light Rail. While I am an avid supporter of public transit, required to regularly use the bus system due to inability to drive an automobile, I oppose the proposed light rail. The reasons for this are threefold.</p>
		B) DOLRT: Need: Obsolete C) Technology: Self-Driving Cars D) DOLRT: Cost E) DOLRT: Equity: Serving all people of the County		4/19 21:46 Part 2/3	<p>First and foremost, it's apparent that fixed-route transportation will be headed to obsolescence by the time this project is completed. Ride-sharing services are already mainstream, and the advent of autonomous vehicles promises enablement of even more flexibility in the way people get around. In ten years, people will expect to be able to get from point to point as they wish, not depend upon connecting to and from a fixed-route with intermittent stops.</p> <p>Second, this is an incredibly expensive project, costs for which appear to continually increase. A huge fraction of the counties' populations are expected to help foot the bill, even though they'll never use the service due to its fixed route. This is inequitable in addition to an inefficient way to use our collective resources.</p>
		F) Technology: Driverless Cars/Ride-Sharing: Incentivize Use		4/19 21:46 Part 3/3	<p>Finally, options exist to utilize far fewer funds in a efficient manner to solve our regional transportation needs, in a way that serves a broader segment of the population that you collectively represent. These include continued expansion of the bus system, all the way to providing credits for using autonomous vehicle or ride-sharing services in the future.</p> <p>Durham and Orange counties rightfully pride themselves on their progressive nature. So, do something truly progressive by supporting transportation solutions fit for the 21st century instead of the 20th.</p> <p>Sincerely,</p> <p>John Salmeron</p>
Wilson	Peter	A) DOLRT: Cost: Too Expensive B) DOLRT: Cost: Risking Other Local Revenues	Light Rail Comments	4/20 00:30 Part 1/3	<p>As a 19 year resident of Orange County, I am asking that you do the right and sane thing -- kill the light rail project. The reasons for cutting the County taxpayers' losses are many:</p> <ol style="list-style-type: none"> 1) Costs of project construction to the County have already doubled, and they will undoubtedly continue to increase. Public rail projects are ALWAYS over budget. 2) If the project ever actually operates (consider the California high speed rail debacle), the operating deficits will for many years divert funds from other fiscal priorities.

		<p>C) DOLRT: Need: Doesn't Serve RDU/RTP/Orange County</p> <p>D) DOLRT: Need: Doesn't Serve Orange County/Hillsborough</p> <p>E) Technology: Self-Driving Cars</p> <p>F) Technology: Ride-Sharing</p>		<p>4/20 00:30 Part 2/3</p>	<p>3)The project only serves UNC, the two hospitals and NC Central. It does not serve the airport. It does not serve RTP. It does not serve Hillsborough or northern Orange County or western Orange County.</p> <p>4) While the world is moving toward ride sharing and car sharing and self driving vehicles, this project is using 19th century technology requiring huge swaths of dedicated, single purpose infrastructure for one inflexible route.</p>
		<p>G) DOLRT: Impact: Negligible Economic Development</p> <p>H) DOLRT: Impact: Negative Impact Affordable</p>		<p>4/20 00:30 Part 3/3</p>	<p>5) Any business development will likely consist of some high density upscale housing with accompanying retail amenities. The impact of this project on other businesses offering higher paying jobs will be neutral to negative, as they will face increased local taxes to pay for the construction and operation of this project.</p> <p>6) This project may exacerbate the affordable housing problem in Chapel Hill, at least along the rail line. I've read the sales pitch from the Go Triangle people. They each have a personal financial interest (their jobs) in convincing you to commit Orange County taxpayers' money to fund this project (and their salaries). Treat any information from them as you would the claims of a commission salesperson.</p> <p>Please do not saddle the next generation or two with this project. Cut our losses now.</p> <p>Peter Wilson Chapel Hill</p>
Selby	Christopher P	<p>A) DOLRT: Benefits: Transportation; Serving popular destinations</p> <p>B) DOLRT: Benefits: Reliability</p> <p>C) DOLRT: Equity: Serves low and high income people</p>	Light Rail	<p>4/20 7:04 Part 1/4</p>	<p>I have been living in Orange and Durham Counties, and working at UNC-CH for the last 29+ years, and I write to express my sentiment about the Durham-Chapel Hill Light Rail Line, which is one of the updated transit plans currently under consideration for which public comment is being accepted.</p> <p>A few years ago I voted for the sales tax increase with the intention of helping to fund the light rail project.</p> <p>I continue to support the project. I believe that the project will provide an ideal way to move folks from point A to point B in a corridor with many points where folks will want to go. Light rail is more reliable than buses and other forms of transit. There are many low income folks who will take advantage of the service, and in addition, light rail provides a level of service that will be welcoming to higher income folks.</p>

		<p>D) Transit: Economic and Social Responsibility</p> <p>E) DOLRT: Benefits: Land Use</p>		<p>4/20 7:04 Part 2/4</p>	<p>I have taken TTA/GoTriangle buses to work for many years. I started taking the bus because the University started giving out free passes and it made economic sense. It was hard to give up my parking spot and driving, but after I did, unexpectedly, I discovered that the experience made me feel like taking the bus was the right thing to do. Thus mass transit is not just valuable economically, for me, it is the right way to fit into society. A related point is that I discovered there is a whole social world that happens on the bus, and I think that there will be a corresponding social identity that will be born with the rail line, an intangible cohesiveness that arises from the many interactions and behaviors associated with taking the train that bring us together as neighbors.</p> <p>The major reason I support light rail is the land use aspect. I have learned that cities develop around transportation infrastructure. Thus we have harbor cities such as Wilmington, Norfolk and Baltimore, we have fall line cities such as Roanoke Rapids and Raleigh, where rivers drop from the piedmont to the coastal plain, and we have Atlanta, which developed where rail lines from the west met rail lines from the East coast since they could not pass over the Appalachians to the north. More locally, on a smaller scale, we have Southpoint Mall springing up beside I-40.</p>
		<p>F) DOLRT: Benefits: Land Use: Environmental</p>		<p>4/20 7:04 Part 3/4</p>	<p>I am confident that dense development will arise surrounding the light rail stations. The permanence of light rail will support the needed investment to enable dense development to happen; the impermanence of BRT will not. Folks seem to enjoy higher density, multi-use developments, such as Southern Village and Meadowmont in Chapel Hill. Population growth in the region appears inevitable and I believe many people will want to relocate in these mini-city light rail transit nodes. These dense developments are very environmentally friendly for many reasons, for example, they cover less land than sprawl, and thus limit water pollution and deforestation, and they reduce vehicular use and associated pollution and road hazards and overall congestion.</p> <p>Thus, as with public transportation, I believe that the folks living and working in the dense nodal developments associated with the light rail line will feel that living there is the right thing to do.</p>
		<p>G) DOLRT: Impact: Safety</p>		<p>4/20 7:04 Part 4/4</p>	<p>I have been following this project for years, and listening to the pro and con sentiments. I feel that there are legitimate concerns on the con side, such as hazards associated with at-grade intersections. However, I believe that many of the con opinions lack substance and are compelled by other reasons, such as fear, or the sentiment that government is incapable of properly seeing through an investment of this nature. However the same negativity could have been applied to investments such as the interstate highway system, or RTP. Certainly there will be problems with projects such as these, for example, the fiasco that arose when I-40 was improperly widened through southern Durham and immediately had to be repaved. Nevertheless, I believe that a can-do attitude is appropriate for the light rail project, and that the next generation will be thankful for the fruits that the project will bring to the entire region.</p>

Lamont	Barry	<p>A) DOLRT: State Funding</p> <p>B) DOLRT: Impact: Local Revenues</p>	Thoughts on the Light Rail Proposal	4/20 12:34 Part 1/5	<p>I recently heard two good discussions on WHUP-FM Hillsborough, one featuring people who opposed this particular plan, the other with people who supported it.</p> <p>My background: I have homes in Boston MA and Hillsborough NC. I travel by rail whenever possible, both for business (an annual professional meeting held in a different city each year) and for pleasure (one good vacation every other year, often in Canada); while I drive my own car between my two homes in summer, I take Amtrak every winter so as not to have to deal with snow and ice on the roads. I have lived through Boston's "Big Dig", a massive highway construction project involving the major north-south and east-west highways in the city.</p> <p>From my own experience, I must oppose the Durham-Orange light rail proposal. First and foremost, however attractive an option it might be if money were no object, it is an object. The State has slashed its anticipated contribution, and the Feds are hostile to public transit, so the burden will fall mainly on the citizens of Orange and Durham County; and the projections I have heard will consume far too much of the County's revenue stream for far too many years, displacing every other worthy cause and need.</p>
		C) Other Areas: Cost Overruns		4/20 12:34 Part 2/5	<p>I would point out the history of Boston's Big Dig. The projected cost was initially three billion dollars, which was going to be paid largely with Federal dollars - one advantage of having Tip O'Neill (D-MA) as Speaker of the House. Over the next decade, the price tag ballooned to fifteen billion dollars (and climbing - poor construction has necessitated numerous repairs and a few rebuilds), and the cost overrun is being paid by the citizens of Massachusetts. This has led not only to higher taxes and fees, but to friction between different parts of the Commonwealth, with people in Western MA objecting to being charged for a highway project whose benefits seem to flow exclusively to those in the east.</p> <p>The massive Big Dig debt was allocated across various MA state agencies, including Boston's public transit system (the MBTA), whose budget, as a result, is even deeper in the red; they lack the funds to address basic, necessary "deferred maintenance" on their aging fleet of trolley cars, let alone modernize and improve service. Trolleys and buses run infrequently and indirectly, so a trip which would take twenty minutes in a car turns into an hour-and-a-half ride on different bus routes and subway lines; the only people who routinely ride the "T" are (1) people who want to make an ideological "statement", (2) people who have a direct connection from their home to their work, and/or (3) people who have no choice, because they can't afford to own, insure, and park a car in Boston. The only way to increase ridership is to improve service, but the current MBTA budget calls for service cuts - not enough to close the agency's deficit, but enough to cause complaints from the people who use those services.</p> <p>This isn't where Orange County needs to end up.</p>

		D) Other Project: System Functionality		4/20 12:34 Part 3/5	<p>Montréal's public transit system, on the other hand, is excellent - or at least it was in the 70s, when I was a student there. The subway ran every five minutes at rush hour, every fifteen minutes at other times; and while there were only a few subway lines, there were so many buses that I actually used a bus route map as my street map for the first year. I didn't own a car, and didn't miss having one. Boston could be as good - if only we had several billion dollars lying around waiting to be applied to public transit. We don't. It's a classic chicken-and-egg: nobody wants to ride an uncomfortable and inadequate system, and as long as the system is underutilized, it won't have the revenue to turn itself into an attractive option.</p> <p>I also happened to be training at Duke University Medical Center around 1980, when they opened the new hospital. One neat feature was a light rail link between the old and new hospital, so that patients could be transported back and forth in an enclosed environment - like a horizontal elevator - without requiring an expensive ambulance ride from one front door to the other. One teeny problem: the system, as we found out later, was designed for an Arizona environment, i.e. hot and dry - not for the Southeast; so every time Durham had too much precipitation, the rail system became unusable, and patients had to be transported by ambulance on precisely the days we most needed an indoor connection. Duke ain't stupid, and I don't know what prompted them to overlook such a basic design issue; but why should I believe that Orange County will be more careful with the public's money than Duke was with its own?</p> <p>Finally, there is "the future". People who favor rail speak glowingly about a world in which everyone hops on board a public rail system and is carried to their destination in a clean, safe, efficient, and hopefully not too expensive fashion. Individual automobiles will be obsolete; highways can be turned into bike trails, and city streets into pedestrian walkways.</p>
		E) DOLRT: Need: Auto Ownership		4/20 12:34 Part 4/5	<p>There are two problems with this utopian fantasy - three, if you count the huge amount of money required to create such an ideal system. First, it doesn't seem to be what people actually want. In China, people are forced into political conformity, so one might have anticipated that public transit would be universally embraced - in their behavior, at least, if not in their hearts; but what happened when China started to become prosperous? Everyone bought their own car, and now traffic (and pollution) is a serious problem. In Europe, some governments try to tax private autos out of existence, and whatever dent they may have made, people with enough money still own their own cars - unless they are powerful enough to have the free use of a "company car" (or a government car, cheerfully provided to the politicians by the taxpayers). Personal autos only for the rich and powerful? Not something I'd want to advocate - or be held responsible for.</p> <p>People value the ability to control their own lives; a personal vehicle affords them that ability, to some extent, even when it entails costs and inconveniences; and until public transit can provide - can afford to provide - a comparable level of value, it's going to be an uphill battle for acceptance. It doesn't help that some of the people urging "us all" to use public transit always seem to have good reasons why their life and work is just too important to trust to public conveyances.</p>

		F) Technology: Keep an eye on new technologies		4/20 12:34 Part 5/5	<p>Any attempt to build for the future will inevitably miss the mark, after a while, because large-scale social changes are often the unpredictable consequences of new and unanticipated technology. Many have mentioned Uber, self-driving cars, or a combination of the two; twenty years ago, nobody seriously predicted the existence of such alternatives, or the resulting possibility of living well without a permanent vehicle of one's own. Perhaps in ten years we will be happier we chose to pursue that as a robust option, rather than building an expensive single-corridor light rail line.</p> <p>Cars can go to any location, directly, which allows for the most efficient use of our most precious resource, the one truly non-renewable and irreplaceable resource: time. Rail is basically 19th century technology; personal automobiles are 20th century; so trying to build the 21st century on rail seems quite regressive in some ways. If you really want to "look to the future", why not embrace those parts of the future which are just now coming into view? And if you want to spend money, better not to commit a huge chunk of it to something whose origins - along with the attitudes which created it - are firmly in the past.</p> <p>Barry M. Lamont, M.D. Boston MA and Hillsborough NC</p>
Hunter	Kym		Orange County Transit Plan	4/21 9:41	<p>Please accept these comments on behalf of the Southern Environmental Law Center.</p> <p>Thank you, Kym Hunter Staff Attorney Southern Environmental Law Center</p>

APPENDIX C.2a: Email Attachments

SOUTHERN ENVIRONMENTAL LAW CENTER

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April 21, 2017

VIA E-MAIL

Our Transit Future
P.O. Box 13787
Research Triangle Park, NC 27709
info@ourtransitfuture.com

Re: Comments on Draft Orange County Transit Plan

Please accept these comments on the Draft Orange County Transit Plan (“Plan”). The Southern Environmental Law Center (“SELC”) represents a wide variety of citizens’ groups with an interest in North Carolina transportation issues, and as such, we are pleased to submit these comments in support of the Plan. We believe this Plan will generate many benefits for Orange County and the region, particularly by investing in long-term transportation solutions like the Durham-Orange Light Rail Transit project (“D-O LRT project”). In addition to our general support for the Plan, we submit the following specific comments.

I. A Comprehensive and Varied Plan

The Plan continues the County’s past commitment to enhancing public transit options for all residents and visitors with a balanced mix of projects. Much progress has been made since the 2012 Bus and Rail Investment Plan (“BRIP”). The updated Plan carefully evaluates the improvements made since the 2012 BRIP, highlighting progress made toward specific goals. Where goals in the 2012 BRIP have not yet been met, the Plan carries forward those goals and updates them as appropriate to ensure that the new Plan is not merely a restatement of the old, but instead builds and improves upon the 2012 BRIP.

The updated Plan supports an impressive suite of transit improvements for Orange County. Further expansions to bus service hours, coupled with the “rail dividend” bus service hours that will result when the D-O LRT project effectively replaces existing routes, will ultimately support as many as 70,000 or more bus service hours.¹ Furthermore, the Plan continues to fully fund the Hillsborough Train station, as well as a number of other transit facilities. The Plan also maintains the amount of funds previously allocated to what was formerly called “Martin Luther King Jr. Boulevard Bus Lanes and Corridor Improvements,” extending from the University of North Carolina Campus to Eubanks Road near I-40.² The

¹ See Draft Orange County Transit Plan at 2 (Mar. 31, 2017) (stating that “nearly 33,500 hours of bus service are funded in this Plan”); 18 (estimating “30,000-45,000 rail dividend service hours” in Orange County as a result of the D-O LRT project).

² *Id.* at 29-30.

project scope has further developed and grown since the 2012 BRIP, with plans to have a bus rapid transit corridor extend beyond UNC to the Southern Village Park and Ride, and is now known as the North-South Bus Rapid Transit project.³ Most importantly, the Plan continues to prioritize the essential transit investment that is the Durham-Orange Light Rail Transit Project.

The Plan has carefully incorporated a variety of transit options and solutions and has demonstrated that funding is available for all of these different components of the Plan. We appreciate that the Plan contains a variety of transportation solutions to achieve discrete objectives, all supporting the overarching goal of establishing a comprehensive transit system to serve residents and businesses throughout Orange County.

II. The Critical Role of the Durham-Orange Light Rail Transit Project's

The Durham-Orange Light Rail Transit project serves as a keystone piece of the Plan and our future transportation network. While the funding scheme for the project has shifted with waning state support and a different federal funding structure, the project's importance to our region has held steady. Investing in this project now, under the current environmental documents and in the current federal funding process, is critical. Waiting or postponing is tantamount to choosing not to do the project at all.

The recent independent financial analysis conducted by Davenport and Company demonstrated a feasible financial path forward for the light rail project. The project costs include a 30% contingency—more than the minimum amount recommended by the Federal Transit Authority—creating a funding “cushion” for possible cost overruns.⁴ Additionally, GoTriangle has identified a set of risk mitigation strategies to further insulate against the unlikely event of a cost overrun or need for additional funding.⁵ Even if such an occasion were to arise, Orange County would have the opportunity to reassess the project and its support for the project at that juncture. Importantly, the debt incurred by this project will be GoTriangle's, not Orange or Durham County's.

Given these funding assurances, SELC is satisfied that the light rail project continues to make financial sense—and that the D-O LRT project is in fact a sound and necessary investment. The light rail will create economic opportunities for the County, while fostering desirable compact, walkable communities and preventing environmentally-damaging growth patterns.

In addition to providing a reliable transportation alternative to personal vehicles, rail transit encourages smart land-use decisions such as mixed-use, dense development. Permanent, fixed-guideway transit options—like the D-O LRT project—help land-use planners, businesses, and residents establish long-term plans about how to guide growth and development in their communities. In turn, compact communities use less land compared with their sprawling counterparts; as a result, fewer natural areas are paved over, farms, wetlands, and forests are preserved, and water quality standards are maintained. These dense, mixed-use communities are in high demand by individuals and businesses alike, offering many economic development

³ *Id.*

⁴ See Draft Orange County Transit Plan Appendix B: Transit Plan Risk & Mitigation Strategies (Mar. 3, 2017), at 5.

⁵ See generally *id.*

opportunities. Many of these proven benefits of light rail systems, particularly the environmental benefits, are detailed more fully in our comments submitted on the Draft Environmental Impact Statement and the NCCU Supplemental Environmental Assessment, attached and incorporated by reference.⁶ When considering the financial costs of the project, we encourage you to consider them in the context of the plentiful benefits that will accrue to Orange County.

Finally, SELC continues to urge GoTriangle and the local governments to carefully consider affordable housing concerns and incorporate appropriate planning tools to ensure that affordable housing opportunities exist near the light rail line. We are pleased that GoTriangle has included funds for Joint Development projects in its cost estimates, and that the agency is already investigating plans for a number of viable affordable housing projects along the light rail line.⁷ Enhancing access and equity for residents of all socioeconomic backgrounds in Orange County are some of the many benefits of this light rail system, and establishing affordable housing is important in order to maximize those benefits.

Conclusion

We are pleased to offer our support for the Draft Orange County Transit Plan and to submit these positive comments regarding the Plan. We are particularly excited about the Durham-Orange Light Rail Transit Project and urge you to maintain your support for this essential transportation investment. The Plan demonstrates that not only is the Durham-Orange Light Rail Transit project feasible, but so are other transit improvements that the County has envisioned. We look forward to watching the Plan's recommendations become a reality.

Sincerely,



Kym Hunter
Staff Attorney



Ramona H. McGee
Associate Attorney

⁶ See Attachment 1 (2015-10-13 SELC Comments on D-O LRT DEIS) and Attachment 2 (2016-12-07 SELC Comments on D-O LRT NCCU Refinement Supplemental EA).

⁷ See Patrick McDonough, Joint Development and the Durham-Orange Light Rail Transit (D-O LRT) Project: A Prospectus for the Federal Transit Administration (FTA) (Dec. 28, 2016).

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December 7, 2016

VIA E-MAIL

D-O LRT Project – NCCU Station Refinement
c/o GoTriangle
Post Office Box 13787
Research Triangle Park, NC 27709
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Re: Comments on Durham-Orange Light Rail Transit Project NCCU Station Refinement Supplemental Environmental Assessment

We are pleased to submit these comments supporting the proposed North Carolina Central University (“NCCU”) Station Refinement for the Durham-Orange Light Rail Transit (“D-O LRT”) project. These comments are submitted by the Southern Environmental Law Center (“SELC”) on behalf of Clean Air Carolina and Medical Advocates for Healthy Air. SELC is a 501(c)(3) non-profit organization dedicated to protecting the natural resources of the Southeast. In particular, SELC works with groups throughout North Carolina to promote transportation and land use decisions that strengthen our communities, protect our natural resources, and improve our quality of life. Clean Air Carolina is a non-profit committed to improving North Carolina’s air quality through education and advocacy efforts to reduce pollution in our state. Medical Advocates for Healthy Air is an initiative of Clear Air Carolina comprised of health professionals dedicated to educating others about the health impacts of poor air quality and advocating for stronger policies that will promote clean and healthy air for North Carolinians.

We see this modification to the original light rail alignment as an improvement that will result in even greater benefits for the environment and communities in the area. We incorporate by reference our earlier supportive comments on the D-O LRT Draft Environmental Impact Statement which continue to apply to this project, specifically with regards to the benefits of light rail, the general environmental effects of the D-O LRT project, and the importance of collaborating with affected communities. We provide these brief additional comments on the Supplemental Environmental Assessment (“Supplemental EA”) to specifically highlight our support for and limited concerns about the NCCU Station Refinement.

I. The Refinement Will Result in Negligible Negative Environmental Impacts and Significant Positive Impacts

The NCCU Station Refinement represents a minor adjustment in terms of additional light rail line distance but will yield significant benefits, primarily resulting from increased ridership. The NCCU Station Refinement would extend the D-O LRT line past the original end point of

Alston Avenue to a terminus located next to NCCU. This will require a slight modification of the alignment for the Alston Avenue station, and will extend the rail line by 0.7 miles. This short extension of the rail line will reap great benefits by significantly increasing ridership—the NCCU station is forecast to be the highest volume station in Durham.

The line extension and new NCCU Station will go through an already developed area of Durham, and will largely follow existing roadways. Negative environmental impacts will be negligible largely due to the developed, built-out nature of the affected area. As noted in Appendix A to the Supplemental EA, the NCCU Station Refinement corridor does not include any jurisdictional waters of the United States, streams, wetlands, riparian buffer zones, ponds, or key floodplain areas.¹ Even the limited undeveloped areas near the NCCU Station Refinement are “dominated by invasive species.”² The environmental impacts resulting from the NCCU Station Refinement will be insignificant.

Any minor environmental impacts will be far outweighed by the environmental and environmental justice benefits of extending the light rail line to the employment and education center of NCCU. Including a stop next to the historically Black university and the surrounding neighborhoods of color increase the equitable benefits of the D-O LRT project. Enrollment at NCCU is more than 8,000, with a mix of graduate and undergraduate students, and the university employs more than 1,800 faculty and staff.³ With the addition of NCCU, the D-O LRT project will connect three major universities in the region, all of which serve as key employment and education hubs.

In turn, connecting NCCU and its corresponding addition of potential ridership will enhance the air quality and land use benefits we identified in our original comments: the NCCU Station Refinement will help reduce vehicle-miles traveled and thus reduce harmful local air pollution, as well as greenhouse gas emissions.⁴ Similarly, extending the light rail line will enable more people to be less reliant on personal cars and live closer to school or work. Reducing car-dependence and instead fostering mixed-use, walkable, and bikeable communities corresponds to less sprawling development into more rural, undisturbed natural areas. As NCCU continues to expand—including with the planned addition of a business school⁵—ridership and these consequent benefits will likely increase.

We do note that the NCCU Station Refinement will interfere with the Durham-Chapel Hill-Carrboro Metropolitan Transportation Plan’s inclusion of 4-foot bike lanes on Alston Avenue and Pettigrew Street.⁶ While disappointing, we understand and appreciate that the addition of light rail will ultimately enable more alternate modes of transportation throughout the D-O LRT corridor. Moreover, we are pleased that GoTriangle is committed to offsetting this

¹ Appendix A to Supplemental EA: Resources with No Impacts Supporting Documentation (October 2016) at A-6.

² *Id.* at A-6

³ *Quick Facts*, NCCU, <http://www.nccu.edu/discover/quickfacts.cfm> (last visited November 27, 2016).

⁴ SELC Comments on D-O LRT Draft Environmental Impact Statement (October 13, 2015), at 2-4.

⁵ Supplemental EA, 3-10.

⁶ *Id.* at 3-8.

loss of bike lanes by “work[ing] with the City of Durham, NCDOT, and local advocates to identify the potential for off-street [bicycle] facilities or on-street [bicycle] facilities on parallel or nearby roadways.”⁷

At an approximate additional cost of \$100 million, the NCCU Station Refinement represents around a 5.5% increase in cost of the D-O LRT project. By comparison, the percentage increase in light rail ridership with this modification will be more than a 16% increase⁸—nearly three times the relative increase in cost. The NCCU station refinement represents a smart transportation infrastructure investment in light of its low relative additional cost compared with its significant ridership benefits.

II. GoTriangle Should Continue to Collaborate With Affected Communities to Mitigate Harmful Impacts

We note that GoTriangle has worked diligently to connect with affected communities about potential impacts of the D-O LRT project as a whole, and about the NCCU Station Refinement in particular. Indeed, it was GoTriangle’s genuine receptiveness to community feedback that ultimately led to the NCCU Station addition and route refinement.

The NCCU Station Refinement stands to provide significant benefits in terms of access and connectivity for communities in the refinement area. The NCCU Station Refinement expands the D-O LRT corridor to include 400 additional zero-car households and an additional 800 individuals who are either under 18 or over 65.⁹ In other words, populations potentially in greater need of public transportation will be within the vicinity of the NCCU Station.

Even as GoTriangle has already expended significant time and resources in community outreach, we encourage GoTriangle to stay the course and continue its public outreach and community collaboration. In order to continue to ensure community impacts are mitigated, this public outreach must be a continual, ongoing process throughout all stages of planning and construction of the D-O LRT project.

As we mentioned in our past comments, we hope that GoTriangle will continue to do its part to ensure that affordable housing is available throughout the D-O LRT corridor, including the new extension with the NCCU Station Refinement. We also urge GoTriangle to engage in an equitable process for the acquisition of five businesses and 14 residential properties that would be relocated to complete the NCCU Station refinement.¹⁰ The statement that community adherence impacts are not anticipated¹¹ should be supported by a relocation plan that embodies principles of environmental justice. Meeting environmental justice goals for ensuring public

⁷ *Id.* at 3-9.

⁸ *Id.* at Table 3-1.

⁹ *Id.* at Table 3-6.

¹⁰ *Id.* at 3-15.

¹¹ *Id.*

participation by modest wealth communities and communities of color includes meaningful involvement not only in the decision to extend the line, but also the process of acquiring properties to effectuate that extension. To the extent practicable, GoTriangle should actively seek minority-owned firms in close proximity to the refinement area to work in the preliminary acquisition process. Having the title work, appraisals, and appraisal revisions completed by qualified firms in close proximity to the refinement area can have the effect of establishing trust in negotiations to fairly create the value of the residences and businesses, and may expeditiously reach offers of just compensation and acceptance.

In addition, in order to meet the needs of those living and working in the acquisition zone, it will be helpful to coordinate with NCCU staff, local business owners, and public community space directors to set up an in-neighborhood negotiation and counseling site to assist those who may need to relocate. By seeking qualified residents and NCCU staff to provide counseling in the Federal Relocation Assistance Program process, and by increasing accessibility to affected residents through conducting negotiations from community sites, there is a greater likelihood of successful community engagement.

Finally, whether by agreement of the current owners and tenants, or in the unfortunate event of settlement impasse that would necessitate property acquisition by eminent domain, we urge GoTriangle to not be limited by the relocation benefits allowable under the Uniform Relocation and Real Property Acquisition Policies Act. Seeking additional state, federal and local funding to provide payments above Uniform Act limits when necessary, will result in a more equitable acquisition process.

Conclusion

We are thrilled to continue to offer our support for the D-O LRT project as it progresses and adapts in response to feedback to incorporate additional ridership. As discussed above and in our previous comments, the D-O LRT project will provide communities in Durham and Orange counties with a reliable, environmentally-beneficial transportation investment. The NCCU Station Refinement will enhance and extend those benefits by increasing light rail ridership and connecting more communities to regional public transit. We look forward to continuing to work with GoTriangle in advancing this exciting transportation investment.

Sincerely,



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October 13, 2015

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Re: Comments on Durham-Orange Light Rail Transit Project Draft Environmental Impact Statement

These comments on the Draft Environmental Impact Statement (“DEIS”) for the Durham-Orange Light Rail Transit (“D-O LRT”) project are submitted by the Southern Environmental Law Center on behalf of Clean Air Carolina, Medical Advocates for Healthy Air, and the Orange-Chatham Group of the North Carolina Chapter of the Sierra Club. SELC is a 501(c)(3) non-profit organization dedicated to protecting the natural resources of the Southeast. In particular, SELC works with groups throughout North Carolina to promote transportation and land use decisions that strengthen our communities, protect our natural resources, and improve our quality of life. Clean Air Carolina is a non-profit committed to improving North Carolina’s air quality through education and advocacy efforts to reduce pollution in our state. Medical Advocates for Healthy Air is an initiative of Clear Air Carolina comprised of health professionals dedicated to educating others about the health impacts of poor air quality and advocating for stronger policies that will promote clean and healthy air for North Carolinians. The Orange-Chatham Sierra Club Group is a local division of the national nonprofit Sierra Club, which promotes protection of wild places and responsible use of natural resources through education and advocacy. Orange-Chatham Sierra Club Group’s members live in Orange, Chatham, Alamance, and Caswell Counties.

We are pleased to indicate our enthusiastic support for the D-O LRT project and the National Environmental Protection Act (“NEPA”) Preferred Alternative identified in the DEIS. We see this project generating many benefits to the region, and we appreciate that GoTriangle has identified light rail as the best-fit solution for the growth demands of the Durham-Orange Corridor (“D-O Corridor” or “the Corridor”). In addition to our strong support for the project, we submit the following specific comments regarding the DEIS.

I. Light Rail Creates Significant Benefits Beyond Public Transportation Improvement

We are thrilled by the prospect of a light rail system within the Triangle Region. Light rail lines have been successfully implemented in cities across the country to enhance public

transportation options while generating a variety of corresponding benefits. We are encouraged that a light rail system will finally be constructed within the Triangle, and we hope that the system will continue to expand as its promised benefits become a reality. In particular, we wish to highlight the environmental, human health, economic, and community benefits a light rail system will bring to the D-O Corridor and the greater Triangle area.

A. *Light Rail Yields Significant Environmental Benefits*

The environmental benefits of light rail are myriad. Most obvious, light rail reduces the number of vehicle trips that are made each day and correspondingly reduces tail pipe pollution. Pollutants from cars contain a variety of toxic and carcinogenic compounds.¹ Such pollution includes harmful carbon monoxide (“CO”), nitrogen oxides (“NO_x”), and volatile organic compounds (“VOCs”).² NO_x and VOCs emissions are precursors to ozone, which is associated with a variety of detrimental human health and ecological effects.³ Car emissions also contain greenhouse gases (“GHGs”) like carbon dioxide (“CO₂”), which contribute to global climate change.

In addition, urban light rail systems such as this one encourage concentrated growth in already disturbed environments, rather than the sprawling development into undeveloped, natural areas that is often enabled by new-location highway projects.⁴ Light rail facilitates these concentrated growth patterns primarily because it is a “fixed-guideway” system. Once the light rail line is constructed and its various stations are fixed in place, the D-OLRT project will allow investors and developers to confidently invest in an area that will thrive due to the transportation options in place. Light rail will effectively anchor development within a predictable corridor along the light rail route.

Such guided, planned land use with built-in public transportation options is environmentally beneficial on many levels. By containing development within a specific, planned, high-density area, the light rail system will help stall sprawling, unplanned growth patterns into suburban and exurban areas. This type of unplanned growth can lead to long commute times and an associated increase in vehicle miles travelled (“VMT”). With more cars on the road driving for longer periods there is an associated increase in local air pollution and greenhouse gas emissions, as discussed above. Likewise, as growth sprawls out of urban areas

¹ E.g. HEALTH EFFECTS INST., SPECIAL REPORT 17: A CRITICAL REVIEW OF THE LITERATURE ON EMISSIONS, EXPOSURE, AND HEALTH EFFECTS OF TRAFFIC-RELATED AIR POLLUTION 2-17-2-18 (2010), available at <http://pubs.healtheffects.org/getfile.php?u=553>

² E.g. *id.*; EPA, AUTOMOBILE EMISSIONS: AN OVERVIEW 2 (1994), available at <http://www3.epa.gov/otaq/consumer/05-autos.pdf>; *Greenhouse Gas Emissions: Transportation Sector Emissions*, EPA, <http://www3.epa.gov/climatechange/ghgemissions/sources/transportation.html> (last updated September 11, 2015).

³ *Ground-Level Ozone*, EPA, <http://www3.epa.gov/ozonepollution/> (last updated October 1, 2015).

⁴ DEIS at 4-291 (noting that “[t]he proposed D-O LRT Project and associated land use policies are expected to encourage more compact development, which has a smaller footprint than the auto-oriented development likely to occur without the transit investment”).

into less disturbed, rural areas, there can be significant impacts on other aspects of the natural environment. Forests may be cleared, farmland developed, and wetlands and streams paved over. The increase in impervious surfaces from this development can have an extremely detrimental effect on water quality as run-off increases.

In contrast, compact, planned land use enables developers to use space more efficiently, requiring less new development into rural areas. Moreover, compact, mixed-use communities mean residents can walk, bike, or use public transportation to reach destinations. In turn, fewer people rely on cars in their daily lives, which equates to fewer harmful pollutants being emitted into our air and water on a daily basis.

Moreover, the D-O LRT will serve as a keystone piece of a long-term vision for an improved Triangle-wide public transit system. As explained in the DEIS, the D-O LRT has not been proposed or developed in isolation; instead, it is part of a broader regional plan to invest in fixed-guideway transportation solutions.⁵ As such, the D-O LRT is an important regional investment in an environmentally-sound public transit solution which will facilitate compact, less environmentally damaging transit-oriented development. Indeed, the affected municipalities have premised their public transportation plans on this light rail project being implemented.⁶ Local governments' land-use visions "call for more compact, walkable, higher-density, mixed-use development within the D-O Corridor," and a light rail system will accordingly "channel future growth by providing a transportation option that supports compact, high-density developments."⁷

B. *Light Rail Improves Physical and Mental Health*

By driving mixed-use, compact development near public transportation options, light rail encourages more active lifestyles. Walking and bicycling to destinations, or to the closest light rail station, will be feasible and easier than driving and finding parking. Transit-oriented development, and the corresponding greater use of public transportation, increases physical activity and improves physical health.⁸ For example, mixed-use neighborhoods with public transportation access correspond to lower rates of obesity, while sprawling neighborhoods correspond to higher rates of hypertension, diabetes, asthma, and cancer.⁹

One study of individuals living near the Charlotte Lynx light rail system showed significant increases in physical health, including that light rail users lost weight and substantially reduced their likelihood of becoming obese.¹⁰ Public transportation access and

⁵ *Id.* at 2-2-2-8.

⁶ *E.g. id.* at 8-7.

⁷ *Id.* at 1-22; *see id.* at 4-291, 4-298.

⁸ *See* TODD LITMAN, VICTORIA TRANSPORT POLICY INSTITUTE, EVALUATING PUBLIC TRANSPORTATION HEALTH BENEFITS 13-15 (2015), *available at* http://www.vtppi.org/tran_health.pdf.

⁹ *Id.* at 15.

¹⁰ John M. MacDonald, et al., *The Effect of Light Rail Transit on Body Mass Index and Physical Activity*, 39 AM. J. PREVENTIVE MED. 105, 108 (2010). The study concluded that "[t]he findings from the current study suggest that

walkable communities are also associated with numerous mental health benefits, such as reducing emotional stress and symptoms of depression.¹¹ Moreover, in terms of general public health, public transit use is safer than private automobile use, with a much lower fatality rate than automobile travels.¹² As one researcher has observed, “[p]eople who live or work in transit oriented communities tend to drive fewer annual miles, drive at lower speeds, and have better travel options that allow them to avoid high risk driving, such as after drinking alcohol or when ill.”¹³ Light rail, as a fixed public transportation system, will lay the foundation for such healthier and safer transit-oriented communities in the D-O Corridor.

Additionally, light rail’s resulting reduction in tailpipe emissions corresponds to significant human health effects. As noted above, driving individual automobiles creates toxic particulate matter pollution and ozone-producing chemicals that can have a wide range of adverse health effects. A recent study published in the journal *Nature* suggests that air pollution was responsible for 3.3 million premature deaths worldwide in 2010.¹⁴ Air pollution exacerbates asthma, which was the leading medical cause for school absences in North Carolina during the 2009-2010 school year.¹⁵ It is also linked to low birth weight, premature birth, miscarriage, autism, ADHD, obesity, diabetes, compromised immune response, increased susceptibility to allergies, stroke, liver disease, dementia, anxiety, and depression.¹⁶ Particulate matter pollution is created not only by burning fossil fuels, but also by road wear, brake wear, and tire wear. The cleanest electric car will still cause particulate matter pollution because it cannot avoid friction with the petroleum-based asphalt comprising our roads. However, light rail avoids these friction-based sources of pollution by not using the petroleum-based asphalt. Moreover, light rail can avoid or mitigate these many adverse health impacts by providing a high-capacity public transit alternative to driving private vehicles. Fewer cars on the road equates to cleaner air for North Carolinians.

increasing the access to LRT transit for individuals to commute to work may help overcome some of the barriers to engaging in daily utilitarian exercise.” *Id.* at 110.

¹¹ LITMAN, *supra* note 9, at 17.

¹² *Id.* at 8–9.

¹³ *Id.* at 8.

¹⁴ J. Lelieveld et al. *The Contribution of Outdoor Air Pollution Sources to Premature Mortality on a Global Scale*, 525 *NATURE*, 367–371 (2015).

¹⁵ N.C. DEPT. OF HEALTH & HUMAN SERVS., *ASTHMA IN NORTH CAROLINA FACT SHEET 1* (2011), available at <http://www.asthma.ncdhhs.gov/docs/factsheets/2011/AsthmaInNorthCarolina.pdf>; N.C. DEPT. OF HEALTH & HUMAN SERVS., *THE NORTH CAROLINA ASTHMA PLAN 2013-2018 2* (2013), available at <http://www.asthma.ncdhhs.gov/docs/NorthCarolinaAsthmaPlan-2013-2018.pdf> (identifying Reducing school absences due to asthma as one of four priorities of the North Carolina Asthma Plan).

¹⁶ *E.g. Ambient (Outdoor) Air Quality and Health*, WORLD HEALTH ORG., <http://www.who.int/mediacentre/factsheets/fs313/en/> (last updated Mar. 2014); *ARB Fact Sheet: Air Pollution and Health*, AIR RES. BD., <http://www.arb.ca.gov/research/health/fs/fs1/fs1.htm> (last updated Dec. 2, 2009); Bradley S. Peterson, et al., *Effects of Prenatal Exposure to Air Pollutants (Polycyclic Aromatic Hydrocarbons) on the Development of Brain White Matter, Cognition, and Behavior in Later Childhood*, 72 *JAMA PSYCHIATRY* 531 (2015); W. James Gauderman, et al. *Association of Improved Air Quality with Lung Development in Children*, 372 *N. ENG. J. MED.* 905 (2015).

C. Light Rail Brings Business and Boosts Economic Development

As alluded to above, the proposed light rail system will draw concentrated economic development.¹⁷ Large companies are deliberately investing in and developing areas connected to permanent public transit systems like light rail. Mercedes-Benz relocated to downtown Atlanta,¹⁸ and Kaiser-Permanente decided on Georgia over Colorado because of the public transit options available, specifically the rail system in the Midtown area.¹⁹ Indeed, The Charlotte Lynx System has proven to be an enormous economic success for the area: “From 2005 to-date, the Blue Line has generated approximately \$900M in development projects completed within a ½ mile of the Blue Line Stations.”²⁰ This has “transformed portions of the community from vacant or underutilized parcels to vibrant, pedestrian friendly communities including housing, restaurants, retail and small businesses.”²¹ Charlotte Area Transit System staff project an additional \$500 million-worth of development in the coming years.²² The Blue Line Extension, which is set to begin operations in 2017, has already attracted more than \$200 million in new, private development projects along the future route.²³ Clean Air Carolina, which is based in Charlotte, has witnessed first-hand these positive community—not to mention environmental and health—benefits of the Lynx system. While this success story from within our State is particularly impressive, it is not an isolated instance. Light rail systems across the country, in metropolitan regions similar to the D-O corridor, have likewise experienced substantial economic benefits. These include systems in Portland, Oregon; Dallas, Texas; Denver, Colorado; Santa Clara County, California; and St. Paul-Minneapolis, Minnesota.²⁴

Notably, bus service, including bus rapid transit (“BRT”), has not and cannot spur such economic benefits precisely because of its unpredictable, ever-changing routes.²⁵ A BRT system includes fixed guideways for buses, thus removing segments of bus service from mixed-use traffic to enable quicker travel times. However, BRT is still characterized by flexibility in route

¹⁷ See DEIS at 1-22; *id.* at Table 8.1-1: *Project Need Performance Summary for No Build, NEPA Preferred, and Project Element Alternatives.*

¹⁸ Matt Kempner and J. Scott Trubey, *MARTA A Sudden Factor in Company Moves*, THE ATLANTA JOURNAL-CONSTITUTION, Jan. 16, 2015, <http://www.myajc.com/news/business/marta-a-sudden-factor-in-company-moves/njpnF/>.

¹⁹ Maria Saporta, *Transit and Walkability Key Factors in Kaiser Permanente’s Decision to Put 900 New Jobs in Midtown*, SAPORTAREPORT, Apr. 17, 2015, <http://saportareport.com/transit-and-walkability-key-factors-in-kaiser-permanentes-decision-to-put-900-new-jobs-in-midtown/>.

²⁰ E-mail from Tina Votaw, Transit Oriented Dev. Specialist, Charlotte Area Transit Sys., to Kym Hunter, Staff Attorney, S. Env’tl Law Ctr. (April 22, 2015); *see also* Alternatives Analysis at 5-86 (“North Carolina’s first LRT line, the Blue Line, has been a catalyst for almost \$1.5 billion of new or planned development along Charlotte’s South Corridor, a formerly underutilized railroad corridor.”).

²¹ E-mail from Tina Votaw, *supra* note 20.

²² *Id.*

²³ *Id.*

²⁴ Alternatives Analysis, at 5-86–5-87 (listing the significant economic benefits which have accrued to the areas surrounding the respective light rail systems).

²⁵ Alternatives Analysis, at 5-88 (citing limited available studies on BRT and noting that potential economic benefits of BRT are unproven and speculative, unlike light rail’s demonstrated positive effects).

and still relies on mixed-use traffic for portions of its trip. Businesses cannot plan on bus service, but businesses can and will plan on a fixed light rail system.

D. *Light Rail Creates Desirable Mixed-Use Communities*

Private citizens are also increasingly choosing to live near established public transportation options. Indeed, a recent Chapel Hill poll indicated that the D-O LRT project is “overwhelmingly popular” with 69% of voters supporting the project.²⁶ This is in line with national trends showing that people, particularly the Millennial generation, are consciously driving less and prefer to use alternate modes of transportation.²⁷ The vast majority of Millennials express a preference for living in more urbanized, mixed-use, walkable communities with public transportation access.²⁸ Existing compact, mixed-use development along public transportation routes have shown that such less automobile-dependent communities are a reality with corresponding real benefits: “[r]esidents of communities with high-quality, well integrated public transit . . . own half as many vehicles, drive half as many annual miles, walk and bicycle four times more, and use public transit ten times more than residents of more automobile-dependent communities.”²⁹

Light rail will also assist less mobile populations, such as the elderly, 0- or low-car households, and lower-income families. These populations will be able to depend on light rail for their transportation needs, while also making long-term housing and employment decisions knowing that light rail will remain, fixed in route, for the future. Indeed, the D-O LRT system will connect large employment and education centers with its end points near the institutions of the University of North Carolina and Duke University, respectively.³⁰ Public transportation to such employment hubs will provide a low-cost, reliable means of transportation to jobs for low-income and 0-car households. These same individuals will also have greater access to the educational opportunities at both universities on the D-O LRT project route. Light rail and its corresponding transit-oriented development “provide basic mobility and accessibility, particularly for physically and economically disadvantaged people, such as people with disabilities and lower-income seniors.”³¹ Public transportation and more compact, mixed-use communities can provide a means of greater access to necessary medical services for the elderly and disabled.³² The D-O LRT project exemplifies this attribute by connecting to both the UNC

²⁶ Memorandum from Tom Jensen, Dir. of Pub. Policy Polling, State of the Chapel Hill Election 2 (Sept. 23, 2015), available at <http://chapelboro.com/wp-content/uploads/2015/09/ChapelHillPoll2015.pdf>.

²⁷ TONY DUTZIK & PHINEAS BAXANDALL, U.S. PIRG FUND & FRONTIER GRP., A NEW DIRECTION: OUR CHANGING RELATIONSHIP WITH DRIVING AND THE IMPLICATIONS FOR AMERICA’S FUTURE 21-25 (2013), available at <http://www.uspirg.org/sites/pirg/files/reports/A%20New%20Direction%20vUS.pdf>.

²⁸ *Id.* at 23; *Millennials Prefer Cities to Suburbs, Subways to Driveways*, NIELSON (Mar. 4, 2014), <http://www.nielsen.com/us/en/insights/news/2014/millennials-prefer-cities-to-suburbs-subways-to-driveways.html>.

²⁹ LITMAN, *supra* note 9, at 3.

³⁰ *E.g.* DEIS, at 1-3-1-4.

³¹ LITMAN, *supra* note 9, at 16.

³² *E.g.* WENDY FOX-GRAGE & JANA LYNOTT, AARP PUB. POLICY INST., EXPANDING SPECIALIZED TRANSPORTATION: NEW OPPORTUNITIES UNDER THE AFFORDABLE CARE ACT 1 (Jan. 2015), available at

Hospitals and the Duke/VA Medical Centers. Furthermore, fixed-route transportation helps older adults maintain a more independent lifestyle while remaining in their homes and communities, particularly when paired with well-coordinated, community-focused transportation and growth policies.³³

Public transportation and compact, walkable communities will also assist families living in poverty by enhancing transportation options and access. As recognized in a Federal Highway Administration paper, “[i]mproving mobility and job accessibility are very important factors to escape poverty.”³⁴ Light rail will serve as a reliable, fixed, accessible transportation option and drive development of less automobile-dependent communities. Such characteristics appeal to and benefit populations in need of greater transportation accessibility, as well as those who are deliberately choosing to rely less on private automobiles for their travel needs.

II. The NEPA Preferred Alternative is the Best Option for the D-OLRT Project

The above-stated benefits of light rail inform our support for the specific D-O LRT project. The stated Purpose and Need of the D-O LRT project includes implementing a high-transit transportation solution that facilitates future land use plans which focus on compact, transit-oriented development.³⁵ As the DEIS states, “[i]n order to address the transportation challenge faced by the region and more specifically within the D-O Corridor, and to cultivate a more sustainable cycle of growth for a future, a high-capacity transportation infrastructure solution is required.”³⁶ Thus, this project is intended to address not only transportation demands, but land-use demands. Indeed, the Alternatives Analysis completed at an earlier stage of this project identified four needs to be addressed, one of which was “to foster compact development.”³⁷ A light rail system is by far the best high-transit option in terms of promoting compact, less-environmentally damaging development. As documented throughout the DEIS, the D-O LRT project will best satisfy the defined Purpose and Need of the project as compared to other transportation options and the studied alternative light rail routes.

A. Light Rail is the Best Transportation Alternative for Meeting the Stated Purpose and Need of the Project

Light rail represents the best option for alleviating the already-present problems of increasing congestion in the project area. As identified in the DEIS, population growth in

<http://www.aarp.org/content/dam/aarp/ppi/2015/AARP-New-ACA-Transportation-Opportunities.pdf> (identifying access to transportation as a critical need for elderly individuals).

³³ *E.g.* TRANSP. FOR AM., AGING IN PLACE, STUCK WITHOUT OPTIONS 3, 35 (2011), available at <http://www.t4america.org/docs/SeniorsMobilityCrisis.pdf>.

³⁴ FED. HIGHWAY ADMIN., NATIONAL HOUSEHOLD TRAVEL SURVEY BRIEF: MOBILITY CHALLENGES FOR HOUSEHOLDS IN POVERTY 3 (2014), available at <http://nhts.ornl.gov/briefs/PovertyBrief.pdf>.

³⁵ DEIS at 1-22–1-23; *see also* Alternatives Analysis at 3-1.

³⁶ DEIS at 1-16.

³⁷ Alternatives Analysis at 3-1. The other three needs were: “to enhance mobility,” “to expand transit options between Durham and Chapel Hill,” and “to serve populations with high propensity for transit use.” *Id.*

Durham and Orange Counties is exploding; indeed, “[b]etween 2010 and 2040, the population of each county is expected to grow by 64 percent and 52 percent, respectively.”³⁸ We agree with and applaud the DEIS’s acknowledgment that “[t]he existing built and natural environments limit the ability to widen the roadways to accommodate additional travel lanes,” and that “[i]f left unmanaged, this rapid growth will not only continue to constrain corridor mobility, but will also result in sprawling development patterns, which would lead to the reduction of open space and farmlands.”³⁹ Building more roads is not the answer to population growth and increased transportation demands, and expanding such roads would result in environmentally harmful development patterns and further exacerbate dependence on automobile travel. We further agree with the DEIS’s conclusion that “[e]ven with implementation of all roadway projects programmed in the 2040 MTP, the capacity of the roadway system will not keep pace with the increase in traffic volumes.”⁴⁰ Importantly, building new roads can sometimes paradoxically cause an increase in congestion. Travelers who previously avoided congested roads by foregoing discretionary trips or by traveling at non-peak hours might now opt to take more trips at different times. Moreover, development might expand along the new road, creating new communities and new travel demands. As such, building roads entices new vehicle trips, creating what is known as “induced demand” and in turn causing more, not less, congestion.

Light rail is uniquely suited to meet the transportation needs in the D-O Corridor. GoTriangle analyzed a variety of different transit system options in the Alternatives Analysis phase, and correctly concluded that they would not meet the identified Purpose and Need of the project.⁴¹ As identified in the earlier Alternatives Analysis, “the flexibility in the delivery of conventional bus services fails to provide the permanency in routing and stop placement necessary to shift current development patterns.”⁴² Furthermore, adding additional buses on already congested roadways will not address increased travel demands.⁴³ As observed by the DEIS, “[t]he number of buses serving each of these areas [near UNC hospitals and /Durham VA Medical Center/Duke University Medical Center] has surpassed or is approaching the feasible limit of the number of buses that can be accommodated on the roadways.”⁴⁴ We have been pleased by the increased bus ridership in the region, as identified by the DEIS, and believe this is indicative of the shift in the public’s desire and willingness to utilize public transportation options. However, the DEIS correctly identifies that the current bus system at our present-day population levels is increasingly inconsistent and unreliable in adhering to bus schedules.⁴⁵

³⁸ DEIS at 1-5.

³⁹ *Id.* at 1-6.

⁴⁰ *Id.* at 1-17.

⁴¹ Alternatives Analysis, ES-4–ES-8, 5-113–5-118, (2012); *see* 42 U.S.C. § 4332 (C), (E) (requiring evaluation of “appropriate alternatives” when preparing EIS); 40 C.F.R. § 1502.14 (limiting EIS review of alternatives to those that are “reasonable”).

⁴² Alternatives Analysis at 3-8.

⁴³ DEIS at 1-18–1-19.

⁴⁴ *Id.* at 3-9; *see id.* at 1-22.

⁴⁵ *Id.* at 1-10.

Clogged roadways already prevent efficient travel times of both private cars and buses, and this will only worsen with an increased population in the area.⁴⁶

Like increased bus service, BRT falls far short of meeting the Purpose and Need of the project. Triangle Transit ruled out BRT largely because of its inability to meet the economic development and compact growth elements of the project's Purpose and Need.⁴⁷ While proponents of BRT tout its flexibility and ability to respond to growth and development, this characteristic is precisely why BRT is less effective in driving compact land use patterns. Light rail outcompetes BRT in passenger capacity, partially because cars can be added to trains, and additional trains can be added to the entire light rail system with minimal impact so as to easily increase passenger capacity. Finally, commuter rail or heavy rail was appropriately rejected as a feasible option for the D-O corridor. Such vehicles are incapable of stopping quickly enough between closely-spaced stations, such as are needed on Duke and UNC campuses and in downtown Durham.

In contrast to other options, the D-O LRT project is a fixed transportation system which will drive smart, compact development while decreasing the numbers of cars on the road and enhancing public transportation accessibility. As the Alternatives Analysis succinctly summarized, after extensive evaluation of other modes of transportation, “the [light rail alternative] alone can fully address the stated Purpose and Need for a fixed-guideway investment in the Durham-Orange Corridor.”⁴⁸ Ridership forecasts of the NEPA Preferred Alternative demonstrate that light rail will provide a substantial reduction in automobile trips; by 2040, the preferred alternative will account for more than 23,000 trips per average weekday.⁴⁹ These forecasts are supported by the ridership rates of the Charlotte Lynx system where daily ridership exceeded 2020 forecast levels within three years of its initial operations “and now averages about 15,000 trips per day.”⁵⁰ The DEIS also projects that the light rail system will yield 23 million fewer vehicle miles traveled annually by year 2040.⁵¹ We agree with and support GoTriangle's determination that light rail is the best mode of public transportation for meeting the transportation and development needs of the D-O Corridor.

B. The NEPA Preferred Alternative is the Superior Alignment for the D-OLRT Project

We urge GoTriangle to proceed with the currently identified NEPA Preferred Alternative. We agree with and applaud the DEIS's observation that “[t]he NEPA Preferred Alternative would cause the least damage to the biological and physical environment and best protect,

⁴⁶ *Id.* at 1-18.

⁴⁷ *E.g.* Alternatives Analysis at 5-88, 5-113 ; DEIS at 1-16.

⁴⁸ Alternatives Analysis at 5-113.

⁴⁹ DEIS at 3-14.

⁵⁰ Alternatives Analysis at 5-86.

⁵¹ DEIS at 4-252; *id.* at Table 4.13-1: *Comparison of Estimated Annual VMT for the Triangle Region (2040)* (in millions of miles).

preserve, and enhance historic, cultural, and natural resources.”⁵² The NEPA Preferred Alternative represents the Least Environmentally Damaging Practicable Alternative (“LEDPA”), as determined by the U.S. Environmental Protection Agency (“EPA”).⁵³ The United States Army Corps of Engineers (“USACE”) likewise supports the NEPA Preferred Alternative.⁵⁴

In completing its thorough review of alternatives, GoTriangle carefully considered whether certain sections of the proposed D-OLRT route could be aligned differently. These Project Element Alternatives constitute different possible routes in the New Hope Creek and Little Creek areas of the project’s route. As determined by the DEIS after careful evaluation, the other Project Element Alternatives have greater environmental impacts, particularly to undisturbed natural habitats, than the NEPA Preferred Alternative.

For example, the C2 Alternative impacts 23 more acres of biotic resources than the NEPA Preferred Alternative.⁵⁵ The C1 and C1A Alternatives would impact undisturbed natural areas, such as the Little Creek Bottomlands and Slopes Significant Natural Heritage Area.⁵⁶ Importantly, the USACE informed GoTriangle that given the existence of a less-environmentally damaging alternative, the USACE would not authorize the C1 alternative with its corresponding significant adverse impacts to natural resources and public use of the Jordan Lake Game Lands.⁵⁷ Although the DEIS nonetheless carefully studied this alternative, the USACE’s unwillingness to grant GoTriangle use of the Jordan Lake Game Lands for the C1 Alternative effectively eliminates it as an option.⁵⁸

The NEPA Preferred Alternative also outperforms the New Hope Creek Alternatives in terms of impacts to the natural environment. The New Hope Creek LPA (“NHC LPA”) Alternative would result in fragmentation of undisturbed forested areas and wetlands, and would create a new transportation corridor in the New Hope Creek Bottomlands.⁵⁹ The New Hope Creek 1 (“NHC 1”) Alternative fares slightly better than the NHC LPA Alternative, but would impact 7 more acres of hardwood forests than the NEPA Preferred Alternative. We are pleased that the selected NEPA Preferred Alternative impacts the fewest acres of biotic resources as compared to the other element alternatives, and we support GoTriangle in advancing this route for further evaluation and implementation.⁶⁰

⁵² *Id.* at 8-26.

⁵³ *See id.* at 8-14.

⁵⁴ *See id.* at 8-14.

⁵⁵ *Id.* at 8-18.

⁵⁶ *Id.* at 8-17.

⁵⁷ *Id.* at 8-17, G-99.

⁵⁸ *See* 16 U.S.C. § 460d (authorizing USACE to “grant leases of lands . . . at water resource development projects . . . for such purposes as [the Secretary] may deem reasonable in the public interest”).

⁵⁹ *Id.* at 8-18–8-19.

⁶⁰ *See* DEIS at Table 8.2-1: *D-O LRT Alternatives Benefits and Consequences Matrix*.

C. Fewer Harmful Effects Correspond to the Farrington Road Rail Operations and Maintenance Facility

In addition to studying different alignment routes, the DEIS reviewed different possible locations for a rail operations and maintenance facility (“ROMF”), where trains will be serviced and stored, and where the technical operations for the system will be based. The Farrington Road ROMF included in the NEPA Preferred Alternative surpasses each of the alternative ROMF locations. Leigh Village would permanently impair use of the historic Walter Curtis Hudson Farm, and the Patterson Place ROMF is incompatible with the Preferred Alternative New Hope Creek Element (“NHC 2”), as well as the perhaps “second best” New Hope Creek route possibility of NHC 1.⁶¹ Because the Patterson Place ROMF would rule out these two environmentally-preferable routes, we oppose the Patterson Place ROMF and strongly concur with the NEPA Preferred Alternative’s selection of the Farrington ROMF. While the Cornwallis and Alston Avenue ROMF locations may result in fewer impacts to water resources, and natural resources in the case of the Alston Avenue ROMF, the resulting operational difficulties, higher costs, and community impacts render these locations less desirable to the NEPA Preferred Alternative location.⁶² Specifically, the Cornwallis Road location would have significant impacts on the Judea Reform Congregation, Levin Jewish Community Center, and the Lerner Jewish Community Day School.⁶³ The Alston Avenue Location would be located in an area with high low-income and minority populations, result in a net loss of jobs, and displace multiple businesses.⁶⁴ Such significant community impacts would undermine the community support and longevity of the D-O LRT project.

In sum, the NEPA Preferred Alternative utilizes existing transportation right-of-ways and follows a route that minimizes new impacts to sensitive environmental resources. By sticking close to established transportation corridors, most of the NEPA Preferred Alternative’s environmental impacts are to already disturbed environments. As such, we are pleased with the identified NEPA Preferred Alternative and strongly support GoTriangle’s continued selection of this route and ROMF location as the NEPA Preferred Alternative.

III. GoTriangle Should Continue to Analyze Certain Environmental Impacts and Develop Further Mitigation Measures

On the whole, the DEIS carefully and thoroughly documents the possible impacts to natural resources, streams and wetlands, water quality, and air quality within the project area. We are pleased with the consistent recommendation of best management practices to avoid and reduce certain environmental impacts. The below comments applaud some of the specific aspects of the DEIS’s discussion of the affected environment and environmental consequences,

⁶¹ *Id.* at 8-20.

⁶² *Id.* at 8-21–8-22.

⁶³ *Id.* at 8-21.

⁶⁴ *Id.* at 8-22–8-23.

while also noting areas in which the Final Environmental Impact Statement (“FEIS”) should be improved.

A. *Natural Resources*

Overall, we are content with how the DEIS addresses potential impacts to natural resources, including wildlife and broader ecosystem impacts. The DEIS recognizes that the indirect impacts—largely compact development in the affected area—“would be more beneficial to natural resources than the type of dispersed growth that typically occurs with auto-oriented development.”⁶⁵ We believe such acknowledgments and comparisons are important when considering a project such as this, where some minimal environmental harm may result in the construction and implementation phases, but where the long-term environmental effects are substantial. Even then, the natural resource impacts will largely be limited to already disturbed habitats.⁶⁶

However, the DEIS provides an incomplete picture regarding endangered and threatened species. We are pleased that GoTriangle carefully analyzed the occurrence of federally listed species in the project area, and that the DEIS includes preliminary measures to be taken in the event the species are observed in the area. Nonetheless, the DEIS lists many North Carolina state-listed endangered and threatened species, but does not include any information about their abundance in the project area or how to mitigate possible harm to the species. We understand that studies and coordination with North Carolina agencies are ongoing, and we encourage careful evaluation of possible harm to these species and implementation of necessary mitigation measures. The FEIS should include a more thorough discussion regarding these state-listed species.

B. *Water Resources*

While the NEPA Preferred route will have impacts to water resources in the project area—particularly wetlands, streams, and floodplains—the impacts are relatively minor when considered in comparison with the sprawling, car-oriented development that would occur under a No Build scenario.⁶⁷ Nonetheless, we note that the NEPA Preferred Alternative will impact approximately .558 acres of wetlands,⁶⁸ and that the Little Creek project elements alternatives would actually impact .05 acres fewer than the NEPA Preferred Little Creek route (C2A).⁶⁹ We have limited concerns about this as the acreage impact is so slight. Moreover, we understand that while the Little Creek alternatives may impact a smaller acreage of wetlands, these alternatives “would impact one or two more [discrete] wetlands.”⁷⁰ Nonetheless, GoTriangle

⁶⁵ *Id.* at 4-92.

⁶⁶ *Id.* at 4-138, 4-142.

⁶⁷ *E.g. id.* at 4-290, 4-292.

⁶⁸ *Id.* at 4-156.

⁶⁹ *Id.* at 4-159.

⁷⁰ *Id.* at 4-159.

should continue to evaluate the possible wetlands impacts associated with the NEPA Preferred Alternative and identify specific mitigation measures to ensure the least impact possible to these special water resources.

C. Air Quality

The DEIS's cursory examination of air quality impacts does a disservice to the project by failing to document the significant positive effects the D-O LRT will have on air quality. While "[m]odeling analyses are only required for areas that are in nonattainment or maintenance for a particular pollutant" in terms of National Ambient Air Quality Standards ("NAAQS") under the Clean Air Act, the FEIS should discuss more of the air quality impacts than are discussed in the DEIS.⁷¹ The DEIS identifies that Durham County is a maintenance area for carbon monoxide and then limits air quality discussion to this sole pollutant and area. Even if modeling analyses are not required, the FEIS should document and consider the possible air quality impacts that will result from this project. For example, the FEIS should note that by reducing the numbers of cars on the road, there will be a corresponding reduction in multiple harmful pollutants. Moreover, even if additional modeling analyses are not *required*, they certainly are not prohibited, and we would support GoTriangle conducting further modeling analyses to document the positive effects this system will have on air quality.

D. Greenhouse Gas Emissions

One of the prime environmental benefits of the D-O LRT is the potential for reductions in tailpipe emissions of GHGs. In December 2014, the Council of Environmental Quality ("CEQ") issued a draft guidance on "Consideration of Greenhouse Gas Emissions and the Effects of Climate Change," under NEPA.⁷² The draft guidance instructs agencies to consider impacts on GHGs when conducting a NEPA analysis. The DEIS failed to conduct such an analysis, citing a lack of a "national strategy to address greenhouse gas emissions from transportation," and asserting that "[i]t is technically unfeasible to accurately model how negligible increases or decreases of CO₂ emissions at a project scale would add or subtract to the carbon emissions from around the world."⁷³ We disagree with this sentiment. As recognized by the CEQ's draft guidance, while "climate impacts are not attributable to any single action," they are "exacerbated by a series of smaller decisions, including decisions made by the government" and should be analyzed as such.⁷⁴ Here, the D-O LRT's impact would almost certainly have the positive environmental effect of reducing GHGs. Documenting such a positive effect is important for future transportation planning and to establish the precedent of conducting such evaluations.

⁷¹ The FEIS should also clarify that 40 C.F.R. 93, subpart A, requires modeling analyses for only nonattainment or maintenance areas for a given pollutant. While reference is made in Appendix K23, the source of this requirement should be clarified within the text of the FEIS.

⁷² Revised Draft Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change, 79 Fed. Reg. 77801 (Dec. 24, 2014).

⁷³ DEIS at 4-201.

⁷⁴ Revised Draft Guidance, 79 Fed. Reg. at 77825.

IV. GoTriangle Should Continue to Collaborate with Low-Income and Minority Communities Who May be Impacted

Although there is wide community support for enhanced public transit options in the D-O Corridor and for light rail in particular,⁷⁵ the D-O LRT project has the potential to disproportionately burden certain low-income and minority communities in Durham. While the Durham-Chapel Hill Metropolitan Statistical area is economically robust, the DEIS notes that the census tracts within the D-O Corridor have a 19 percent lower median household income than the combined median household income in Durham and Orange counties on the whole.⁷⁶ More than thirteen percent of households within the Corridor do not have an available vehicle, and 42.6 percent of households in the Corridor have only one vehicle.⁷⁷ Moreover, Durham has a history of proposed transportation projects having a disproportionate impact on people of color and low-income communities.⁷⁸ GoTriangle must be mindful of these disparities and the historical backdrop in continuing to proactively engage communities that will be affected by the D-O LRT project.

We are pleased by GoTriangle's thoughtful efforts to date in informing and collaborating with affected communities. The DEIS identifies access to proposed stations is a primary concern voiced by low-income and racial minority communities in the area.⁷⁹ The DEIS also highlights concerns about affordable housing, business displacements, and inequitable distribution of sales tax revenues from the area.⁸⁰ While the DEIS identifies responses to each of these concerns, we hope GoTriangle continues to collaborate and develop additional means of mitigating these concerns, as required by Executive Order 12898.⁸¹ We are pleased that Durham County and the City of Durham have set goals of having "15 percent housing within a ½ mile of each station be affordable to people at or below 60 percent of the median area income."⁸² However, we encourage GoTriangle to work with local leaders to develop more hard-and-fast policies and mechanisms to keep housing affordable. Such measures should include methods to help current residents in the affected areas remain in their homes and not be priced-out of their residences. Additionally, the DEIS should be clearer and more consistent about the potential problem of

⁷⁵ E.g. Jensen, *supra* note 26, at 2.

⁷⁶ DEIS at 1-8.

⁷⁷ *Id.* at 1-5.

⁷⁸ See *id.* at 5-30; *Removal of Los Primos Supermarket – Analyzing and Identifying Alternatives*, FED. HIGHWAY ADMIN. (last updated Feb. 4, 2013),

https://www.fhwa.dot.gov/environment/environmental_justice/ej_and_nepa/case_studies/case04.cfm; *Case Studies: East-West Expressway Environmental Impact Study*, FED. HIGHWAY ADMIN. (last updated Aug. 29, 2011).

http://www.fhwa.dot.gov/environment/environmental_justice/case_studies/case3.cfm.

⁷⁹ DEIS at 5-18.

⁸⁰ *Id.* at Table 5.3-1: *EJ Community Concerns Expressed and Triangle Transit Actions/Response*.

⁸¹ Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 11, 1994).

⁸² DEIS at Table 5.3-1: *EJ Community Concerns Expressed and Triangle Transit Actions/Response*; *id.* at 5-31; see N.C. GEN. STAT. § 136-252(b)(3)(d) (requiring recipients of state public transportation grant money to develop strategies "to provide replacement housing for low-income residents displaced by transit development . . . for the purpose of increasing the stock of affordable housing to at least fifteen percent (15%) [near the transit development] to be affordable to families with income less than sixty percent (60%) of area median income.").

affordable housing; a few pages after identifying this problem, the DEIS includes “[a]ffordable housing near transit” as one of the offsetting beneficial impacts the project will have on low-income and minority populations.⁸³ Affordable housing should be eliminated from this list of benefits in the FEIS, unless concrete and enforceable policies are instituted that guarantee access to affordable housing proximate to light rail stops.

The DEIS observes that acquisitions and displacements required by the D-O LRT project might “be perceived as a disproportionately high and adverse effect on the east Durham community in particular.”⁸⁴ The DEIS lacks documentation or analysis of the businesses and community resources that may be displaced due to the project. This missing information creates an incomplete picture of the nature and extent of the adverse effects such displacements and acquisitions will have on affected people of color and low-income communities. As such, we urge GoTriangle to devote detailed discussion in the FEIS to the precise businesses and resources to be displaced in the affected areas. Further, as much as possible, GoTriangle should select routes that will require as few business, community resource, and residential displacements as possible. Retaining community pillars is key for community cohesion.

We are mindful that community members have expressed concerns that the current D-O LRT project does not reach East Durham, where low-income and minority populations are in dire need of better access to public transportation. Instead, light rail will reach these communities only during a possible later phase of light rail expansion. In the transportation mitigation section, the FEIS should address coordinating connecting bus service from East Durham communities to the nearest D-O LRT stop as well as provide realistic numbers on the ridership projections for D-O LRT from East Durham. Because community members have expressed that the D-O LRT will not serve the East Durham community due to the local nature of community travel, these additional actions would work toward establishing how East Durham residents would get to the D-O LRT, assessing the level of current East Durham community transportation need, and firmly determining how this project can actually provide transit to those lower-income, less mobile households. Indeed, since a prime part of the Purpose and Need for the project is providing public transit access to lower-income, less mobile households, connecting East Durham communities to this light rail project should be prioritized.

Finally, we urge GoTriangle to study and include in the FEIS information about the estimated fares for light rail passengers. We note that the DEIS stated Go Triangle will work with public transportation staff to “engage the public and complete a Transit Service and Fare Equity Analysis” prior to initiating revenue service.⁸⁵ If the light rail service is cost-prohibitive for low-income populations, the project will not satisfy its stated Purpose and Need, and may not yield as many positive benefits for target populations as forecast by the DEIS.

⁸³ DEIS at 5-35.

⁸⁴ *Id.* at 5-30.

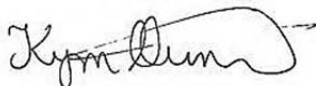
⁸⁵ *Id.* at 3-14.

As noted throughout the DEIS's section on impacts to low-income and minority populations, despite the possible negative impacts, many positive impacts will accrue to the affected communities. These include new employment prospects and greater mobility and connectivity with other communities through the greater access to reliable public transportation.⁸⁶ We agree that in many ways, low income and people of color communities stand to benefit from the D-O LRT project, but we nonetheless encourage GoTriangle to continue to carefully analyze and avoid potential impacts to these communities.

V. Conclusion

We are thrilled to offer our support for the D-O LRT project and to submit these overwhelmingly positive comments regarding the project. As discussed above, the D-O LRT system represents an opportunity to improve the public transportation network in the region, while driving compact, prosperous growth and development in the face of future population growth in the D-O Corridor. In turn, the D-O LRT project corresponds to environmental, health, and community benefits. We urge GoTriangle to enhance its analysis and address our limited concerns regarding the project. We look forward to continuing to work with GoTriangle in advancing this exciting public transit investment.

Sincerely,



Kym Hunter
Staff Attorney



Ramona McGee
Associate Attorney

⁸⁶ *Id.* at 5-3-5-35.

KH/lv

cc (via email):

Stanley A Mitchell, FTA

S. Kenneth Jolly, USACE

John Sullivan, FHWA

Chris Militscher, USEPA

Pete Benjamin, USFWS

Joey Hopkins, NCDOT

Renee Gledhill-Earley, NC SHPO

Jay Zimmerman, NCDENR - DWQ

Felix Nwoko, DCHC MPO

June Blotnick, CAC

Laura Wenzel, MAHA

Terry Lansdell, MAHA

Max Felsher, Orange-Chatham Group of the North Carolina Chapter of the Sierra Club

Olga Grlic, Orange-Chatham Group of the Sierra Club

May Becker, Orange-Chatham Group of the Sierra Club

Roger Diedrich, North Carolina Chapter of the Sierra Club

APPENDIX C.3: Surveys Received

Name	Kim	Matthew
Last	Lyons	Clark
Which plan are you commenting on?	Both	Both
Where do you live?	City of Durham	City of Durham
Which best describes you?	I am employed in Durham or Orange County	I am not employed but looking for work
Do you believe transit is an important issue in our community?	Strongly Agree	Strongly Agree
Are you familiar with the transit system?	Agree	Agree
Do you use transit often?	Agree	Agree
Do you think this plan addresses both current and future transit needs in our community?	Yes	Yes
Please explain why or why not.	We need to bring to area together	The transit plan understands the essential role transit will continue to play in the sustainable, efficient, and equitable expansion of our community.
What would you like to be able to do with transit?	I want to be able to get to work or school easily	I want to be able to get to work or school easily
	I want to be able to run errands easily (e.g. grocery shopping, etc.)	
	I want to access entertainment (e.g. shopping, movies, night-life, etc.)	I want to access entertainment (e.g. shopping, movies, night-life, etc.)
	I want my dependents (e.g. children, parents) to be able to access our community	
	I want to be able to give up my car or walk/bike more	I want to be able to give up my car or walk/bike more
	I would like to learn more about using transit	I would like to learn more about using transit
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	5 High	4 Mid-High
Transit Facility Improvements	4 Mid-High	5 High
North-South Bus Rapid Transit Project	5 High	3 Med
Durham-Orange Light Rail Transit Project	5 High	5 High
Hillsborough Train Station	5 High	2 Mid-Low
Would you recommend that your elected officials approve this plan?	Yes	Yes
Please explain why or why not.	We need it to move durham a head	Through the power of their votes, citizens vest elected officials with the responsibility of serving the public interest. Transit is one of the essential foundations of a vibrant, mobile, diverse, and engaged community. If elected officials are interested in producing a community with these characteristics, they'll also be interested in important transit plans.
Date Created	2017-04-01 14:59:04	2017-04-02 18:39:00

Name	Della	Doug
Last	Pollock	Clark
Which plan are you commenting on?	Both	Durham County Transit Plan
Where do you live?	City of Durham	City of Durham
Which best describes you?	I am employed in Durham or Orange County	I am employed in Durham or Orange County
Do you believe transit is an important issue in our community?	Strongly Agree	Strongly Agree
Are you familiar with the transit system?	Strongly Agree	Agree
Do you use transit often?	Neutral	Strongly Agree
Do you think this plan addresses both current and future transit needs in our community?	Yes	No
Please explain why or why not.	The demographics of CH/Durham are rapidly changing, with more demand for transit that is speedy, convenient, and modern.	Need more and better transit! Like the light rail!
What would you like to be able to do with transit?	I want to be able to get to work or school easily	I want to be able to get to work or school easily
		I want to be able to run errands easily (e.g. grocery shopping, etc.)
		I want to access entertainment (e.g. shopping, movies, night-life, etc.)
		I want my dependents (e.g. children, parents) to be able to access our community
		I want to be able to give up my car or walk/bike more
		I would like to learn more about using transit
	Other	
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	4 Mid-High	4 Mid-High
Transit Facility Improvements	4 Mid-High	4 Mid-High
North-South Bus Rapid Transit Project	4 Mid-High	2 Mid-Low
Durham-Orange Light Rail Transit Project	5 High	5 High
Hillsborough Train Station	1 Low	3 Med
Would you recommend that your elected officials approve this plan?	Yes	Yes
Please explain why or why not.	Because auto congestion is proving a daily hazard. Commuting between Durham and CH I see a minimum of 1 congestion-related accident daily and feel as if I am constantly at risk of the same. The roads are no longer tenable for the population.	Durham needs a better public transit to match its growing population!
Date Created	2017-04-02 22:10:32	2017-04-03 07:33:39

Name	Ellen	Charlie
Last	Stutts	Stanfield
Which plan are you commenting on?	Durham County Transit Plan	Both
Where do you live?	City of Durham	Orange County
Which best describes you?	I am employed in Durham or Orange County	I am a student in Durham or Orange County
Do you believe transit is an important issue in our community?	Strongly Agree	Strongly Agree
Are you familiar with the transit system?	Strongly Agree	Strongly Agree
Do you use transit often?	Strongly Agree	Strongly Agree
Do you think this plan addresses both current and future transit needs in our community?	Other	Yes
Please explain why or why not.	I really hope that we get light rail. However, unless it's linked up Wake Co (RDU airport, RTP and Raleigh), it's going to be of limited use.	
What would you like to be able to do with transit?	I want to be able to get to work or school easily	I want to be able to get to work or school easily
		I want to be able to run errands easily (e.g. grocery shopping, etc.)
		I want to be able to give up my car or walk/bike more
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	5 High	5 High
Transit Facility Improvements	3 Med	3 Med
North-South Bus Rapid Transit Project	2 Mid-Low	5 High
Durham-Orange Light Rail Transit Project	4 Mid-High	5 High
Hillsborough Train Station	2 Mid-Low	2 Mid-Low
Would you recommend that your elected officials approve this plan?	Yes	Yes
Please explain why or why not.	Our insistence on dealing with traffic congestion with adding more lanes to I-40 is short sighted. We're a decent-sized area - we need public transportation that's comparable to other cities.	The plan is integral to our growing region and transports thousands of people every day.
Date Created	2017-04-03 08:50:05	2017-04-03 09:19:47

Name	Julie	Fred
Last	Kowal	Eggleston
Which plan are you commenting on?	Durham County Transit Plan	Durham County Transit Plan
Where do you live?	City of Durham	City of Durham
Which best describes you?	I am employed outside of Durham or Orange County	I am retired
Do you believe transit is an important issue in our community?	Strongly Agree	Strongly Agree
Are you familiar with the transit system?	Agree	Strongly Agree
Do you use transit often?	Disagree	Agree
Do you think this plan addresses both current and future transit needs in our community?	Yes	Yes
Please explain why or why not.		This is a rapidly growing community which needs forward-looking, development-friendly transit systems. Comparably sized growing communities like Salt Lake City have had very effective light rail systems with connecting bus lines for many years.
What would you like to be able to do with transit?	I want to be able to get to work or school easily	
		I want to be able to run errands easily (e.g. grocery shopping, etc.)
		I want to access entertainment (e.g. shopping, movies, night-life, etc.)
	I want to be able to give up my car or walk/bike more	I want to be able to give up my car or walk/bike more
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	4 Mid-High	3 Med
Transit Facility Improvements	3 Med	3 Med
North-South Bus Rapid Transit Project	3 Med	3 Med
Durham-Orange Light Rail Transit Project	5 High	5 High
Hillsborough Train Station	1 Low	3 Med
Would you recommend that your elected officials approve this plan?	Yes	Yes
Please explain why or why not.	The proposed transit plan has strong potential to greatly improve transit options and quality of life in the Triangle.	The chance to secure a billion dollar federal infrastructure investment in our future is too good an opportunity for us to lose. The contribution to growth and development in the community will be positive for our two great universities and the people of our neighborhoods.
Date Created	2017-04-03 09:55:43	2017-04-03 13:36:47

Name	Alyson	Will
Last	West	Senner
Which plan are you commenting on?	Orange County Transit Plan	Durham County Transit Plan
Where do you live?	Town of Carrboro	City of Durham
Which best describes you?	I am a student in Durham or Orange County	I am employed in Durham or Orange County
Do you believe transit is an important issue in our community?	Strongly Agree	Strongly Agree
Are you familiar with the transit system?	Strongly Agree	Agree
Do you use transit often?	Strongly Agree	Neutral
Do you think this plan addresses both current and future transit needs in our community?	Yes	Yes
Please explain why or why not.		
What would you like to be able to do with transit?	I want to be able to get to work or school easily	I want to be able to get to work or school easily
	I want to be able to run errands easily (e.g. grocery shopping, etc.)	I want to be able to run errands easily (e.g. grocery shopping, etc.)
	I want to access entertainment (e.g. shopping, movies, night-life, etc.)	I want to access entertainment (e.g. shopping, movies, night-life, etc.)
	I want my dependents (e.g. children, parents) to be able to access our community	I want my dependents (e.g. children, parents) to be able to access our community
	I want to be able to give up my car or walk/bike more	I want to be able to give up my car or walk/bike more
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	5 High	3 Med
Transit Facility Improvements	5 High	3 Med
North-South Bus Rapid Transit Project	5 High	1 Low
Durham-Orange Light Rail Transit Project	5 High	5 High
Hillsborough Train Station	5 High	3 Med
Would you recommend that your elected officials approve this plan?	Yes	Yes
Please explain why or why not.	transit is essential for our growing region	Critical to develop transit infrastructure to support ongoing population growth
Date Created	2017-04-03 15:36:05	2017-04-03 16:13:10

Name	Sarah	Jessie
Last	Johnson	Poteat
Which plan are you commenting on?	Orange County Transit Plan	Durham County Transit Plan
Where do you live?	Town of Carrboro	City of Durham
Which best describes you?	I am employed in Durham or Orange County	I am employed in Durham or Orange County
Do you believe transit is an important issue in our community?	Strongly Agree	Strongly Agree
Are you familiar with the transit system?	Agree	Agree
Do you use transit often?	Agree	Agree
Do you think this plan addresses both current and future transit needs in our community?	Yes	Yes
Please explain why or why not.		
What would you like to be able to do with transit?	I want to be able to get to work or school easily	I want to be able to get to work or school easily
	I want to be able to run errands easily (e.g. grocery shopping, etc.)	
	I want to access entertainment (e.g. shopping, movies, night-life, etc.)	I want to access entertainment (e.g. shopping, movies, night-life, etc.)
		I want my dependents (e.g. children, parents) to be able to access our community
	I want to be able to give up my car or walk/bike more	I want to be able to give up my car or walk/bike more
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	5 High	2 Mid-Low
Transit Facility Improvements	2 Mid-Low	5 High
North-South Bus Rapid Transit Project	2 Mid-Low	2 Mid-Low
Durham-Orange Light Rail Transit Project	3 Med	5 High
Hillsborough Train Station	1 Low	5 High
Would you recommend that your elected officials approve this plan?	Yes	Yes
Please explain why or why not.	<p>This congestion is seriously limiting the triangle's ability to grow sustainably. I support this plan as long as it pursues transportation equity by increasing service in traditionally underserved communities such as the Rogers Road-Eubanks neighborhoods.</p>	<p>The population in the triangle is growing and we need to increase our transit infrastructure and increase our options for types of public transportation available and this plan does both. There is so much business and social connection between wake, orange, and durham county and we need our transit system to accommodate and encourage movement between areas. This plan creates options that will be used for years and years to come. I am especially supportive of options such as a light rail.</p>
Date Created	2017-04-03 18:47:04	2017-04-05 21:43:03

Name	Dan	Beth
Last	Barker	Clarke
Which plan are you commenting on?	Both	Orange County Transit Plan
Where do you live?	Town of Hillsborough	Orange County
Which best describes you?	I am employed in Durham or Orange County	I am employed in Durham or Orange County
Do you believe transit is an important issue in our community?	Strongly Agree	Agree
Are you familiar with the transit system?	Agree	Agree
Do you use transit often?	Neutral	Agree
Do you think this plan addresses both current and future transit needs in our community?	Yes	Yes
Please explain why or why not.		I moved here from Boston which has a wonderful transit system that I used daily for work commute, and also for entertainment to travel to Boston from home so didn't have to stress about driving or parking. I look forward to more mass transit options in the area.
What would you like to be able to do with transit?	I want to be able to get to work or school easily	I want to be able to get to work or school easily
	I want to be able to run errands easily (e.g. grocery shopping, etc.)	
		I want to access entertainment (e.g. shopping, movies, night-life, etc.)
		I want my dependents (e.g. children, parents) to be able to access our community
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	4 Mid-High	5 High
Transit Facility Improvements	2 Mid-Low	3 Med
North-South Bus Rapid Transit Project	3 Med	3 Med
Durham-Orange Light Rail Transit Project	4 Mid-High	5 High
Hillsborough Train Station	5 High	5 High
Would you recommend that your elected officials approve this plan?	Yes	Yes
Please explain why or why not.	The economic development, company headquarters, and jobs attracted by efficient public transportation will benefit Orange-Durham for a long time. This is an excellent time to invest in infrastructure to help our future.	Live in Mebane and it has grown incredibly (as has Hillsborough) since I moved to the area. These are wonderful options for everyone
Date Created	2017-04-06 09:41:19	2017-04-06 12:17:03

Name	Samuel	Joyce
Last	Tenor	Briggs
Which plan are you commenting on?	Both	Orange County Transit Plan
Where do you live?	Other	Town of Hillsborough
Which best describes you?	will be moving there in the near future	I am retired
Do you believe transit is an important issue in our community?	Strongly Agree	Strongly Disagree
Are you familiar with the transit system?	Strongly Agree	Agree
Do you use transit often?	Strongly Agree	Strongly Disagree
Do you think this plan addresses both current and future transit needs in our community?	No	No
Please explain why or why not.	One day. If not already. Durham, Raleigh, and chapel hill will become one metro soon. So, the region will require train transit. Light Rail or Commuter rail. Raleigh nc's metro area is already at one million and a half and growing very fast. Attaching Durham to Raleigh would be by rail transit would make since. Because very soon these 2 areas will connect at some point. Take care of it now, it would ease traffic a little. Notice I said a little.	This plan does nothing for Hillsborough part of Orange County. We should not have to pay for Chapel Hill and Durham convenience. Hillsborough has nothing to do with it at all
What would you like to be able to do with transit?	I want to be able to get to work or school easily	
	I want to be able to run errands easily (e.g. grocery shopping, etc.)	
	I want to access entertainment (e.g. shopping, movies, night-life, etc.)	
	I want my dependents (e.g. children, parents) to be able to access our community	
	I want to be able to give up my car or walk/bike more	
	I would like to learn more about using transit	I would like to learn more about using transit
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	3 Med	4 Mid-High
Transit Facility Improvements	3 Med	4 Mid-High
North-South Bus Rapid Transit Project	3 Med	1 Low
Durham-Orange Light Rail Transit Project	5 High	1 Low
Hillsborough Train Station	3 Med	1 Low
Would you recommend that your elected officials approve this plan?	Yes	No
Please explain why or why not.	Because its time to act now than later	Again, not benefit to Hillsborough. Only for big money. Not Hillsborough. Maybe more bus stops, but that's it
Date Created	2017-04-06 15:35:02	2017-04-07 00:21:25

Name	Linda	Kathleen
Last	Spallone	Mcandrews
Which plan are you commenting on?	Both	Both
Where do you live?	City of Durham	City of Durham
Which best describes you?	I am retired	I am employed in Durham or Orange County
Do you believe transit is an important issue in our community?	Agree	Strongly Agree
Are you familiar with the transit system?	Strongly Agree	Strongly Agree
Do you use transit often?	Strongly Disagree	Disagree
Do you think this plan addresses both current and future transit needs in our community?	No	No
Please explain why or why not.	The Poland to build lite rail is too expensiv and out dated for our community we would be smarted to develop flexible bus routes that serve more of the counties now. Not wait years and tears for anything to happen . We need to have buses going back and forth from large pick up place not a billion dollar do nothing plan for lite rail. It will put us in debt for year beyond usabilty , take us out of the forefront of new technologies and hinder our abilities to upgrade our bus routes as needed	It does not go to Raleigh, Rtp, the airport, any malls or any where useful to me! It is slow! Expensive , disruptive and by the time it is ready , there will be better and agile solutions!
What would you like to be able to do with transit?		
	Other	Other
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	5 High	5 High
Transit Facility Improvements	5 High	5 High
North-South Bus Rapid Transit Project	5 High	5 High
Durham-Orange Light Rail Transit Project	1 Low	1 Low
Hillsborough Train Station	2 Mid-Low	1 Low
Would you recommend that your elected officials approve this plan?	No	No
Please explain why or why not.	Too expensive , too long to build , to slow	See comment above? Do not want this out dated! Expensive and slow service? Does not go any where ... just a land grab.
Date Created	2017-04-09 18:29:53	2017-04-09 18:38:36

Name	Nate	Catherine
Last	Baker	Miller
Which plan are you commenting on?	Durham County Transit Plan	Both
Where do you live?	City of Durham	City of Durham
Which best describes you?	I am employed in Durham or Orange County	I am a student in Durham or Orange County
Do you believe transit is an important issue in our community?	Strongly Agree	Strongly Agree
Are you familiar with the transit system?	Neutral	Strongly Agree
Do you use transit often?	Disagree	Strongly Agree
Do you think this plan addresses both current and future transit needs in our community?	Yes	Yes
Please explain why or why not.	We need a multimodal system. I don't want to imagine what the Triangle would look like in 20 years without a light rail system. If there is anything we need and can support in this area, it is better transit, including light rail.	As the Triangle region continues to grow and develop, it will need a modern transit system that serves its growing population and connects people to centers of opportunity.
What would you like to be able to do with transit?	I want to be able to get to work or school easily	I want to be able to get to work or school easily
		I want to be able to run errands easily (e.g. grocery shopping, etc.)
		I want to access entertainment (e.g. shopping, movies, night-life, etc.)
	I want my dependents (e.g. children, parents) to be able to access our community	
	I want to be able to give up my car or walk/bike more	I want to be able to give up my car or walk/bike more
	I would like to learn more about using transit	
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	5 High	5 High
Transit Facility Improvements	5 High	4 Mid-High
North-South Bus Rapid Transit Project	5 High	2 Mid-Low
Durham-Orange Light Rail Transit Project	5 High	5 High
Hillsborough Train Station	3 Med	2 Mid-Low
Would you recommend that your elected officials approve this plan?	Yes	Yes
Please explain why or why not.	There has been public input and expertise from transportation experts. I recommend approval.	I enthusiastically recommend that our elected officials approve all aspects of this transit plan. It is a much-needed investment in infrastructure and will be increasingly necessary in the years to come.
Date Created	2017-04-10 17:16:56	2017-04-11 09:16:38

Name	Katy	Morandi
Last	Lang	Hurst
Which plan are you commenting on?	Orange County Transit Plan	Durham County Transit Plan
Where do you live?	Town of Carrboro	City of Durham
Which best describes you?	I am a student in Durham or Orange County	I am employed outside of Durham or Orange County
Do you believe transit is an important issue in our community?	Strongly Agree	Strongly Agree
Are you familiar with the transit system?	Strongly Agree	Agree
Do you use transit often?	Strongly Agree	Strongly Disagree
Do you think this plan addresses both current and future transit needs in our community?	Yes	Yes
Please explain why or why not.	It addresses the connectivity issue (not every mode can serve every person - we need light rail, bus connections, paratransit, bike infrastructure, and sidewalks to connect all of us).	
What would you like to be able to do with transit?	I want to be able to get to work or school easily	
	I want to be able to run errands easily (e.g. grocery shopping, etc.)	I want to be able to run errands easily (e.g. grocery shopping, etc.)
	I want to access entertainment (e.g. shopping, movies, night-life, etc.)	I want to access entertainment (e.g. shopping, movies, night-life, etc.)
	I want to be able to give up my car or walk/bike more	I want to be able to give up my car or walk/bike more
		I would like to learn more about using transit
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	5 High	4 Mid-High
Transit Facility Improvements	4 Mid-High	4 Mid-High
North-South Bus Rapid Transit Project	3 Med	2 Mid-Low
Durham-Orange Light Rail Transit Project	5 High	5 High
Hillsborough Train Station	2 Mid-Low	3 Med
Would you recommend that your elected officials approve this plan?	Yes	Yes
Please explain why or why not.	I am a transit rider. I don't have a car. I think it's important that the OCBOCC hears from transit users who benefit (and suffer) from the system we have now. Looking long-term, light rail is the option that makes the most sense for our community (and it has been studied and determined that it is the best option). Orange and Durham counties should work together on the funding structure for light rail. If they don't, we could lose out on state and federal funding for the project that would put us worse off. Any major changes to our transportation network will lose years, if not decades, and create further sprawl that puts the Triangle in a worse financial position.	Expanding public transportation will benefit all residents of different socioeconomic statuses, while also reducing our environmental impact.
Date Created	2017-04-11 15:04:13	2017-04-11 16:21:42

Name	Anne	Ryan
Last	Ezell	Johnson
Which plan are you commenting on?	Both	Durham County Transit Plan
Where do you live?	Town of Hillsborough	City of Durham
Which best describes you?	Stay at home mom	I am employed outside of Durham or Orange County
Do you believe transit is an important issue in our community?	Strongly Agree	Strongly Agree
Are you familiar with the transit system?	Disagree	Strongly Agree
Do you use transit often?	Disagree	Agree
Do you think this plan addresses both current and future transit needs in our community?	Yes	No
Please explain why or why not.	Yes, I like how downtown Durham is very well connected on light rail. I don't know Chapel Hill as well, so I can't comment on those connections. Would love to see Hillsborough connected to downtown Durham and Chapel Hill somehow with weekend and evening service.	The future of transit must include a very large shift to more rail travel. Cars and roads are simply unsustainable, and for so many reasons. The most sustainable and effective transit is rail. I dream of a time when I can sell my car and take rail only.
What would you like to be able to do with transit?		I want to be able to get to work or school easily
		I want to be able to run errands easily (e.g. grocery shopping, etc.)
	I want to access entertainment (e.g. shopping, movies, night-life, etc.)	I want to access entertainment (e.g. shopping, movies, night-life, etc.)
	I want my dependents (e.g. children, parents) to be able to access our community	
	I want to be able to give up my car or walk/bike more	I want to be able to give up my car or walk/bike more
	I would like to learn more about using transit	
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	3 Med	5 High
Transit Facility Improvements	3 Med	4 Mid-High
North-South Bus Rapid Transit Project	4 Mid-High	2 Mid-Low
Durham-Orange Light Rail Transit Project	4 Mid-High	3 Med
Hillsborough Train Station	5 High	2 Mid-Low
Would you recommend that your elected officials approve this plan?	Yes	Yes, with additions
Please explain why or why not.	With the new Waterstone development in Hillsborough and Collins Ridge on the horizon, we will need alternate ways to move about town (bus service) and connect to other parts of our county and neighboring town for work and entertainment.	There are not enough rail options. As a modern city, one should be able to travel by rail from Durham to the airport to Raleigh to Chapel Hill, etc. Trains are the best option for so much of NC. There is simply not enough focus and money placed on rail in the plan. Much more train, please.
Date Created	2017-04-11 21:28:46	2017-04-11 21:35:42

Name	David	Caroline
Last	Hardman	Stoia
Which plan are you commenting on?	Both	Durham County Transit Plan
Where do you live?	Durham County	City of Durham
Which best describes you?	I am employed in Durham or Orange County	I am not employed and I am not looking for work
Do you believe transit is an important issue in our community?	Disagree	Strongly Agree
Are you familiar with the transit system?	Strongly Agree	Disagree
Do you use transit often?	Strongly Disagree	Strongly Disagree
Do you think this plan addresses both current and future transit needs in our community?	No	Yes
Please explain why or why not.	The plan is too focused on light rail and will waste transit dollars on a high capital cost and maintenance behemoth that is unnecessary and will never be financially viable, due to the low population density of Orange and Durham County. This plan does not adequately consider the impact of ride sharing services and self-driving cars of the future.	I am new to the area and don't have a very strong understanding of the specific needs of the area but having lived in larger cities for many years I think a very good public transportation system is essential for a well functioning city.
What would you like to be able to do with transit?		
		I want to be able to run errands easily (e.g. grocery shopping, etc.)
		I want to access entertainment (e.g. shopping, movies, night-life, etc.)
		I want my dependents (e.g. children, parents) to be able to access our community
		I want to be able to give up my car or walk/bike more
	Other	
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	2 Mid-Low	5 High
Transit Facility Improvements	3 Med	5 High
North-South Bus Rapid Transit Project	3 Med	5 High
Durham-Orange Light Rail Transit Project	1 Low	5 High
Hillsborough Train Station	1 Low	3 Med
Would you recommend that your elected officials approve this plan?	No	Yes
Please explain why or why not.	<i>This comment was longer than able to be displayed in this cell. Please see attached document.</i>	Having great public transportation is an important part of sustainable development. Good public transportation will help curb suburban sprawl and the pollution that comes with it.
Date Created	2017-04-13 16:18:19	2017-04-14 08:54:58

Name	Sydney	Sue
Last	Miller	Hunter
Which plan are you commenting on?	Both	Both
Where do you live?	City of Durham	Town of Chapel Hill
Which best describes you?	I am employed in Durham or Orange County	I am employed in Durham or Orange County
Do you believe transit is an important issue in our community?	Strongly Agree	Strongly Agree
Are you familiar with the transit system?	Strongly Agree	Strongly Agree
Do you use transit often?	Neutral	Agree
Do you think this plan addresses both current and future transit needs in our community?	Yes	Yes
Please explain why or why not.		Yes - I live in Chapel Hill and commute to work in Durham. I want to see this project built and use it before I retire.
What would you like to be able to do with transit?		I want to be able to get to work or school easily
	I want to be able to run errands easily (e.g. grocery shopping, etc.)	
	I want to access entertainment (e.g. shopping, movies, night-life, etc.)	I want to access entertainment (e.g. shopping, movies, night-life, etc.)
	I want my dependents (e.g. children, parents) to be able to access our community	I want my dependents (e.g. children, parents) to be able to access our community
	I want to be able to give up my car or walk/bike more	I want to be able to give up my car or walk/bike more
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	5 High	4 Mid-High
Transit Facility Improvements	3 Med	2 Mid-Low
North-South Bus Rapid Transit Project	4 Mid-High	3 Med
Durham-Orange Light Rail Transit Project	5 High	5 High
Hillsborough Train Station	4 Mid-High	5 High
Would you recommend that your elected officials approve this plan?	Yes	Yes
Please explain why or why not.	I urge our elected officials to approve this plan as a necessary step in the process of developing effective public transportation for the Triangle Region. Our "world class region" deserves world class transportation. A bold vision for the Triangle requires commitment now.	YES! I've supported this project for 10 years and want to see it built. A small but very vocal minority in Orange county opposes commuter rail, and it's frustrating to see them attack this project. Please don't let this project fail or allow Orange county to be an outlier. Wake county, Durham county, Duke and UNC all support commuter rail. The voters approved the transit tax and we can make this work.
Date Created	2017-04-16 07:14:15	2017-04-16 16:53:00

Name	Shauna	D
Last	Farmer	Thanks
Which plan are you commenting on?	Orange County Transit Plan	Orange County Transit Plan
Where do you live?	Town of Chapel Hill	Town of Carrboro
Which best describes you?	I am employed in Durham or Orange County	I am employed in Durham or Orange County
Do you believe transit is an important issue in our community?	Strongly Agree	Agree
Are you familiar with the transit system?	Strongly Agree	Agree
Do you use transit often?	Neutral	Neutral
Do you think this plan addresses both current and future transit needs in our community?	Yes	No
Please explain why or why not.		No need for light rail
What would you like to be able to do with transit?	I want to be able to get to work or school easily	I want to be able to get to work or school easily
		I want to be able to run errands easily (e.g. grocery shopping, etc.)
	I want to access entertainment (e.g. shopping, movies, night-life, etc.)	
	I want my dependents (e.g. children, parents) to be able to access our community	
	I want to be able to give up my car or walk/bike more	
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	4 Mid-High	5 High
Transit Facility Improvements	5 High	3 Med
North-South Bus Rapid Transit Project	3 Med	4 Mid-High
Durham-Orange Light Rail Transit Project	5 High	1 Low
Hillsborough Train Station	3 Med	3 Med
Would you recommend that your elected officials approve this plan?	Yes	No
Please explain why or why not.	The current plan would help Durham/Chapel Hill grow responsibly by providing a multi-modal transportation infrastructure that can adapt and accommodate future growth.	No light rail
Date Created	2017-04-16 21:40:52	2017-04-17 10:23:53

Name	Carly	Rhonda
Last	Hoffmann	Lee
Which plan are you commenting on?	Both	Both
Where do you live?	Town of Chapel Hill	City of Durham
Which best describes you?	I am a student in Durham or Orange County	I am employed in Durham or Orange County
Do you believe transit is an important issue in our community?	Strongly Agree	Strongly Agree
Are you familiar with the transit system?	Strongly Agree	Strongly Agree
Do you use transit often?	Strongly Agree	Neutral
Do you think this plan addresses both current and future transit needs in our community?	Yes	Yes
Please explain why or why not.		We need more, and better, public transit services in this growing area to improve daily life for residents, and to alleviate the harmful environmental and other effects of our current over-reliance on private transportation.
What would you like to be able to do with transit?	I want to be able to get to work or school easily	I want to be able to get to work or school easily
	I want to be able to run errands easily (e.g. grocery shopping, etc.)	I want to be able to run errands easily (e.g. grocery shopping, etc.)
	I want to access entertainment (e.g. shopping, movies, night-life, etc.)	I want to access entertainment (e.g. shopping, movies, night-life, etc.)
		I want my dependents (e.g. children, parents) to be able to access our community
	I want to be able to give up my car or walk/bike more	
	I would like to learn more about using transit	
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	5 High	
Transit Facility Improvements	4 Mid-High	
North-South Bus Rapid Transit Project	4 Mid-High	
Durham-Orange Light Rail Transit Project	5 High	
Hillsborough Train Station	3 Med	
Would you recommend that your elected officials approve this plan?	Yes	
Please explain why or why not.	Improving public transit is critical for smart growth in our region!	
Date Created	2017-04-18 09:44:17	

Name	Reese	Keith
Last	McHenry	Swisher
Which plan are you commenting on?	Both	Durham County Transit Plan
Where do you live?	Other	City of Durham
Which best describes you?	I am employed in Durham or Orange County	I am retired
Do you believe transit is an important issue in our community?	Strongly Agree	Agree
Are you familiar with the transit system?	Strongly Agree	Agree
Do you use transit often?	Strongly Agree	Agree
Do you think this plan addresses both current and future transit needs in our community?	Yes	No
Please explain why or why not.		Escalating co\$t\$ versus a few riders ... NOT WHAT WE WERE TOLD THE INCREASED TAX WAS FOR ... NO (or miniscule) STATE / FEDERAL FUNDING ... Serves very few residents of either county ... It totally omits Northern Durham County ... It seems not to address reality of "driverless" conveyances powered by hydrogen or solar = FLEETS SERVING ALL OF DURHAM COUNTY. Embarrassed enough about our schools which are losing funding; increasing responsibilities and staffing.
What would you like to be able to do with transit?	I want to be able to get to work or school easily	
	I want to be able to run errands easily (e.g. grocery shopping, etc.)	I want to be able to run errands easily (e.g. grocery shopping, etc.)
	I want to access entertainment (e.g. shopping, movies, night-life, etc.)	
RANK THE FOLLOWING PRIORITIES		
Bus Service Expansion	3 Med	4 Mid-High
Transit Facility Improvements	3 Med	3 Med
North-South Bus Rapid Transit Project	3 Med	1 Low
Durham-Orange Light Rail Transit Project	5 High	1 Low
Hillsborough Train Station	3 Med	1 Low
Would you recommend that your elected officials approve this plan?	Yes	No
Please explain why or why not.	Because a light rail would be wonderful and functional for all.	please see above which also states: Escalating co\$t\$ versus a few riders ... NOT WHAT WE WERE TOLD THE INCREASED TAX WAS FOR ... NO (or miniscule) STATE / FEDERAL FUNDING ... Serves very few residents of either county ... It totally omits Northern Durham County ... It seems not to address reality of "driverless" conveyances powered by hydrogen or solar = FLEETS SERVING ALL OF DURHAM COUNTY. Embarrassed enough about our schools which are losing funding; increasing responsibilities and staffing.
Date Created	2017-04-18 13:07:31	2017-04-20 01:08:41

APPENDIX C.3a: Survey Attachments

DAVID HARDMAN COMMENT

When I moved to Chapel Hill in 1983, I was enthralled by the Triangle J Council's vision of a light-rail system connecting the major population nodes of the Triangle. Unlike a fine wine, this proposal has spoiled with time, and now that Wake County has rejected light rail as a transit option it's time to stop this train in its tracks. Simply put, Durham and Chapel Hill lack the population density necessary to justify the capital and operating costs of light rail transit (LRT).

The project as it is currently conceived is based on fundamentally unsound ridership projections, and if the Charlotte experience with LRT is any guide, will probably not result in any appreciable reduction in traffic congestion between Durham and Chapel Hill.

Furthermore, the routing of the proposed light rail track is not aligned with the higher-density compact neighborhood developments in Orange and Chatham counties; including the Ephesus-Fordham, Glenn Lennox and Obey Creek communities.

Lastly, there is no incentive to take light rail to reduce travel time between Durham and Chapel Hill, with an estimated LRT time of 42-44 minutes end to end, versus a projected automobile commuting time of 27 minutes in 2040.

Academic studies reviewing the cost and feasibility of light rail projects across the U.S. indicate that most of these projects require an annual 70 percent taxpayer subsidy, as the ridership fare collection only supports a small percentage of the annual operating costs. The \$1.6 billion capital cost associated with this project (\$94 million/mile) is not a responsible use of scarce resources for mass-transit development when equally effective and lower-cost alternatives exist.

Present and future technologies such as Uber ride-sharing and autonomous smart-driving cars may render much of our current mass-transit systems obsolete, with the promise of cheap and convenient door-to-door service that will trump the inconvenience of walking to a transit stop, or driving to a parking lot and then waiting to catch a bus or train. A research working paper from the University of California-Berkeley, which analyzed urban light-rail mass transit, indicated that a population density of 30 people per gross acre, or roughly 19,000 people per square mile (ppsm), was necessary in order to support LRT. The Chapel Hill-Durham corridor has a population density less than 20 percent of that threshold, with a current density of approximately 3,000 ppsm, which is predicted to rise to 4,000 ppsm in 2035.

The ridership projections for the Durham-Orange LRT stretch credulity, with estimated daily boardings of 23,000. This is in contrast to the Charlotte LRT system, with daily boardings of 16,000 – which has been static since inception in 2007, while the population has increased 17 percent, with no measurable decrease in traffic congestion – in an area with a population 70 percent larger than the Triangle! These ridership projections are further inflated with the working assumption that 40 percent of households in the Durham-Chapel Hill corridor will not own automobiles in 2040, which flies in the face of current ownership levels and assumes a tectonic shift in public behavior.

The Robertson Scholars Express Bus between Duke University and UNC runs every 30 minutes between campuses for 16 hours each weekday, yet averages only five riders per bus on a 40 passenger bus. Data from the 2009-2013 American Community Survey of Commuting traffic flows indicates a mere 1,259 mass transit daily commuters cross between Durham and Orange County lines. Is it plausible that LRT would boost that demand by ten-fold as the ridership projections assume? Let's learn from Wake County and make smart and affordable choices for our community by rejecting LRT.

Read more here: <http://www.newsobserver.com/news/local/community/chapel-hill-news/chn-opinion/article44759529.html#storylink=cpy>

APPENDIX C.4: Resolutions

A motion was made by Alderman Seils, seconded by Alderman Chaney to approve the resolution below.

A RESOLUTION OFFERING COMMENTS ON THE DRAFT ORANGE COUNTY TRANSIT PLAN

WHEREAS, the Orange County Transit Plan demonstrates the county's commitment to a public transit system through 2045; and

WHEREAS, the Orange County Transit Plan identifies four dedicated revenue streams to fund the projects and services in the Plan: the half-cent sales tax, the vehicle rental tax, the three-dollar vehicle registration fee, and the seven-dollar vehicle registration fee; and

WHEREAS, on September 17, 2013, and on April 22, 2014, the Board of Aldermen adopted resolutions identifying capital projects to enhance access to transit.

NOW, THEREFORE BE IT RESOLVED by the Carrboro Board of Aldermen that the Board makes the following comments on the draft Orange County Transit Plan (dated March 31, 2017) and directs staff to convey this information to GoTriangle representatives, to the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization Board through the Town's liaisons, and to the Orange County Board of Commissioners.

1) The Board of Aldermen supports transit improvements and is cognizant of citizen concerns relating to the increasing costs for the Durham-Orange Light Rail Transit project and the North-South Corridor Bus Rapid Transit project, as well as the potential need to reallocate funding for other transportation projects such as bike and pedestrian improvements, which may provide more direct benefit to Carrboro residents. Timely dissemination of updates relating to both the cost and scheduling of these projects will be critical to their success moving forward. Enhanced feeder bus services and access improvements, including direct access, that will enable Carrboro residents to utilize these transit projects to the same extent as their neighbors will likewise be essential.

2) Itemize in the Plan the following access improvements located in Carrboro, some of which were erroneously omitted from the draft Plan:

- a) sidewalk on South Greensboro Street;
- b) Morgan Creek Greenway;
- c) corridor study of Estes Drive;
- d) sidewalks and bike lanes on Estes Drive;
- e) sidewalk on West Main Street between Fidelity Street and Poplar Street; and
- f) HAWK signal on NC Highway 54.

3) Include a chart showing the Durham County fund balances, similar to the chart showing the Orange County fund balances.

4) Attach the appendices to the main document.

5) Given changes in the projected state and federal contributions to the Plan, be clearer about the current expected cost burden for Orange County.

6) Clearly identify strategies to address potential revenue shortfalls if dedicated sources provide lower revenues than projected.

This the 4th day of April, 2017

The motion carried by the following vote:

Aye: Alderman Gist, Alderman Haven-O'Donnell, Alderman Slade, Alderman Chaney, Alderman Seils, Mayor Lavelle, and Alderman Johnson

This the 4th day of April, 2017

The motion carried by the following vote:

Aye: Alderman Gist, Alderman Haven-O'Donnell, Alderman Slade, Alderman Chaney, Alderman Seils, Mayor Lavelle and Alderman Johnson

I, Catherine Dorando, Town Clerk for the Town of Carrboro, NC do hereby certify that the foregoing is a true and correct copy of a resolution adopted by the Carrboro Board of Aldermen.



Catherine Dorando
Town Clerk

**APPENDIX D:
Moody's Sales Tax Forecast**

NORTH CAROLINA

Revenue Outlook: Durham and Orange County Article 43 Tax Collections

Prepared by

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Revenue Outlook: Durham and Orange County Article 43 Tax Collections

BY DAN WHITE, EFUA AMOONUA AFFUL AND EMILY MANDEL

The following revenue outlook links Durham and Orange County Article 43 sales tax collections to measures of underlying economic growth in an effort to better understand and anticipate future funding levels. A healthy labor market and strong income growth will fuel robust tax collections throughout the forecast. Collections will grow more strongly in Durham County because of stronger private-sector job and population gains. Orange County's large government presence will drive slower job creation and consequent collections.

Regional economic outlook

North Carolina's economic growth has cooled considerably after a strong start to the year, though job gains still best the U.S. average and track those of the South. Service-providing payrolls are expanding at a healthy pace, although performance across industries is uneven. Professional/business services and trade/transportation/utilities are increasing at an above-average rate, leisure/hospitality payrolls are contracting, and financial service payrolls have leveled off (see Charts 1 and 2). Less than half of industries are contributing to job growth, but a tighter job market is still leading to wage gains (see Chart 3).

Longer term, a generally good investment climate and faster than average popu-

lation growth will spur above-average gains in higher-paying employment. Though much of this will continue to come in professional services and—despite recent struggles—finance, an increasing share will come from tech.

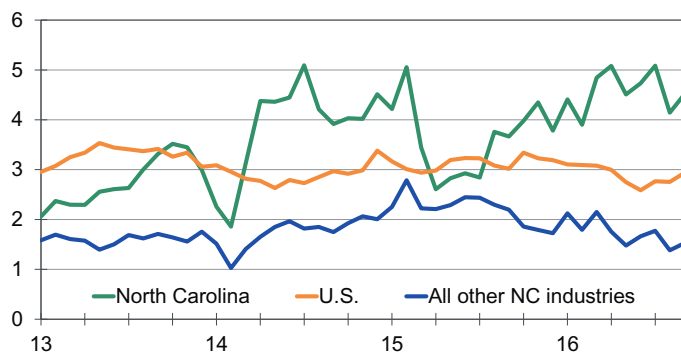
The Research Triangle Park will remain the backbone of North Carolina's high-tech industry, an important growth engine throughout the forecast. In 2015 the state ranked in the top 10 for growth in high tech, churning out net new jobs faster than Massachusetts and Colorado and only slightly more slowly than California. The Durham and Raleigh metro areas, which together house the RTP, accounted for nearly half of the state's tech job gains last year. A large pool of talent and lower costs than in the

Bay Area and Northeast draw firms to the RTP (see Chart 4). For example, Cohera Medical is moving its headquarters to Raleigh from Pittsburgh and Arbiom is setting up a new research and development center in Durham.

Thanks to still-low interest rates and healthy risk appetite, venture capital is being put to work in North Carolina and helping firms such as Bivarus and Windsor Circle expand. North Carolina firms received more than \$700 million in venture capital over the last four quarters, up 40% from the prior four-quarter period and 10th highest in the nation. Startup incubators and accelerators such as the Hamner Institutes for Health Sciences and the Triangle Startup Factory bode well for growth.

Chart 1: Professional/Business Services Lead

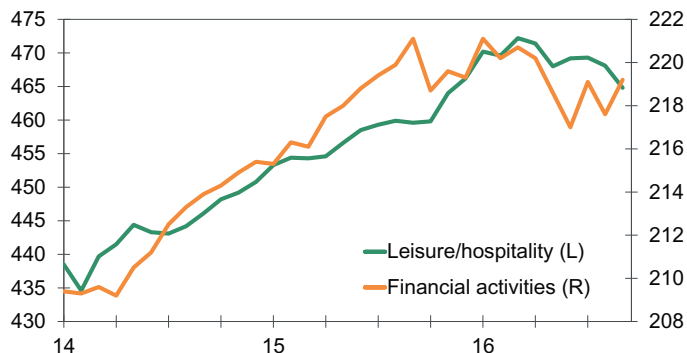
Professional/business services employment, % change yr ago



Sources: BLS, Moody's Analytics

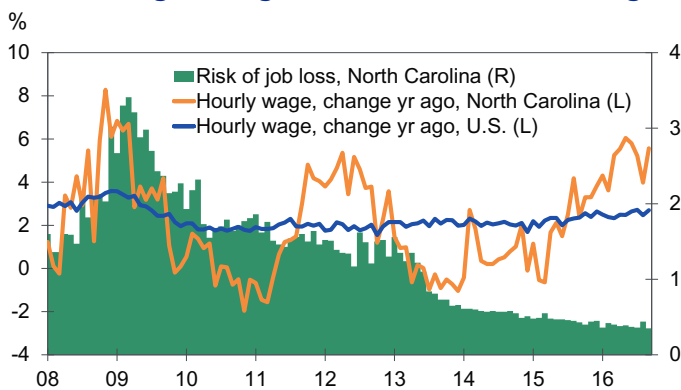
Chart 2: Banking and Tourism Hit the Brakes

North Carolina employment, ths



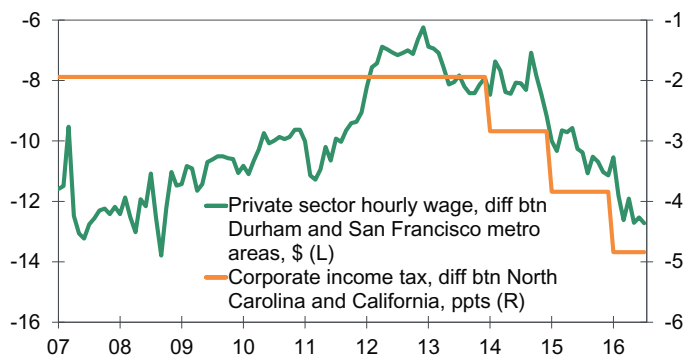
Sources: BLS, Moody's Analytics

Chart 3: Tightening Labor Market Boosts Wages



Sources: BLS, ETA, Moody's Analytics

Chart 4: Durham Positioned for Tech Growth



Sources: BLS, Tax Foundation, Moody's Analytics

North Carolina's banks, on the other hand, will expand at a measured pace as improving household balance sheets and accelerating wage growth drive stronger demand for consumer credit. Wells Fargo and Bank of America, which together account for one-quarter of the state's finance and insurance jobs, will benefit from stronger demand for home loans in the coming years despite rising interest rates.

This increased demand for housing thanks to strong demographics and even stronger income gains ahead will also manifest itself in faster homebuilding. Construction is poised to take off and take the baton from manufacturing as the engine of growth in goods-producing industries. Supply and demand fundamentals are much improved compared with this time last year, suggesting a bigger boost from housing in the quarters ahead. Population growth is steadily ahead of the national average, and

more households are forming now that the tightening job market is generating faster income growth. More people will be willing and able to buy homes, and with supplies tight and prices rising, builders will turn more aggressive and the recent lull in construction employment will prove short-lived (see Chart 5).

In total, North Carolina economic growth will accelerate in the near term thanks to more spending by consumers and businesses, which will benefit from bigger wage gains and declining costs, respectively. Longer term, a diverse industrial structure, low costs, and educated workforce will attract a wide range of capital and help the state to outperform the national average and its neighbors.

Sales tax forecast

Methodology. With only three full years of data, Article 43 collections were impossible to forecast directly, and the more established Article 39 collections history was used as a proxy. Separate regressions were performed for each county utilizing county-level personal disposable income and metro area housing completions

as explanatory variables. Because of the delay between initial sales and distributable proceeds, both independent variables were found to have the strongest explanatory power when lagged by one quarter.

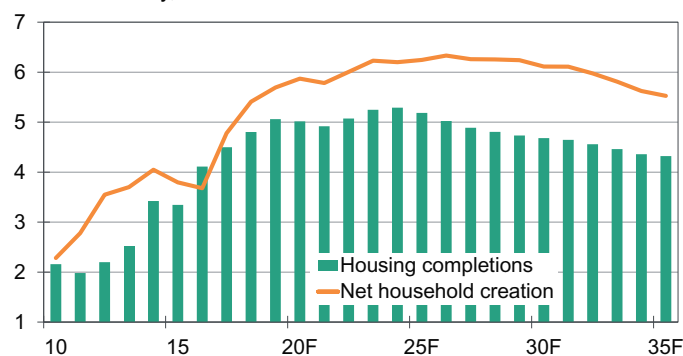
Orange County collections display an erratic seasonal pattern, with a tremendous amount of volatility that is not always correlated with underlying measures of economic growth. This is likely due to the large tax-exempt presence in the county, which can create distortions between what is occurring in the economy and what ultimately comes in the door in the form of revenues. Durham County collections, by contrast, were found to have a much more stable and consistent seasonal pattern.

Historical collections growth rates for Article 39 and Article 43 collections were compared for both counties, and found to be extremely similar despite the inclusion of food and medical purchases in one series and not the other. After the determination of an appropriate forecast for Article 39 collections, the results were then fitted to historical Article 43 values to provide the county-level forecasts. A Monte Carlo simulation was then used to create optimistic and pessimistic scenarios based on probabilities encompassing 85% of potential outcomes (see Charts 6 and 7).

Forecast. Sales tax collections will grow at a healthy pace in both Durham and Orange counties. Although the short history available for Article 43 collections demonstrates considerable volatility, strong underlying economic drivers will yield a consistent

Chart 5: Housing Market Has Room to Grow

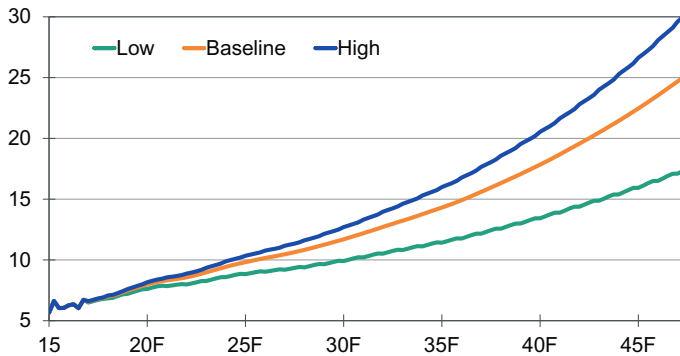
Durham County, ths



Sources: Census Bureau, Moody's Analytics

Chart 6: Durham County Scenarios

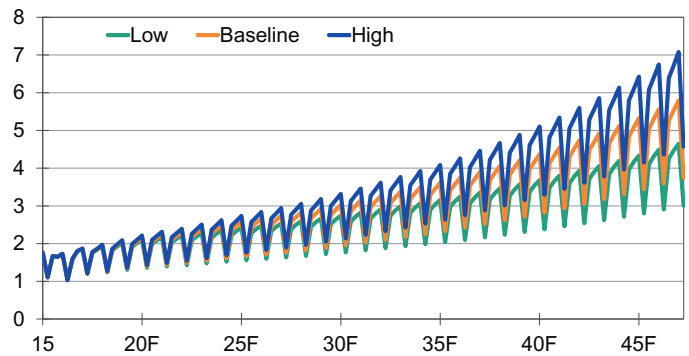
Article 43 collections, fiscal yr, mil



Sources: GoTriangle, Moody's Analytics

Chart 7: Orange County Scenarios

Article 43 collections, fiscal yr, mil



Sources: GoTriangle, Moody's Analytics

upward trend. Orange County Article 43 collections underperformed through much of fiscal 2016, but the economy's underlying strength and tight labor market ensure that

collections will turn around this year. The past year's weak comparative base will drive especially strong gains for Orange County in the coming year. Near-term collections will

also improve in Durham County, but a relatively strong performance in fiscal 2016 will deliver slower, steadier gains in fiscal 2017.

Longer term, however, Durham will be the stronger of the two. Over the coming decade Durham County tax collections will settle into an average of 4.1% year-to-year growth, while Orange County will lag slightly at around 3.5% (see Tables 1 and 2).

Drivers. Sales tax collections will be supported by a number of factors, with growth underpinned by a strong labor market. Disposable personal income has consistently proved to be a reliable driver of consumer spending. Prospects are quite bright in both counties, with disposable personal income expected to rise at well above the national pace (see Chart 8). Durham benefits from a number of dynamic industries, and the Research Triangle Park will propel high-wage job growth. Wages will also pick up across industries, as the county's tightening labor market leads businesses to compete for workers. As consumers see their take-home pay rise, they will increase spending on retail, recreation and housing.

Income gains will be slightly slower in Orange County. The county will also benefit from falling unemployment and rising wages, but the county's large public sector, anchored by the University of North Carolina at Chapel Hill, will weigh on top-line job growth (see Chart 9). The public sector tends to expand more slowly in good times, but also will experience smaller declines during economic downturns. However, the tax exempt status of the university and accompanying medical

Table 1: Durham County Growth Forecast

Article 43 distributable proceeds, % change yr ago

	Low	Baseline	High
FY2017	5.0	6.2	6.8
FY2018	5.0	6.2	6.8
FY2019	6.1	7.3	7.9
FY2020-FY2029	2.8	4.1	4.7
FY2030-FY2039	3.1	4.3	4.9
FY2040-FY2046	3.5	4.7	5.4

Sources: GoTriangle, Moody's Analytics

Table 2: Orange County Growth Forecast

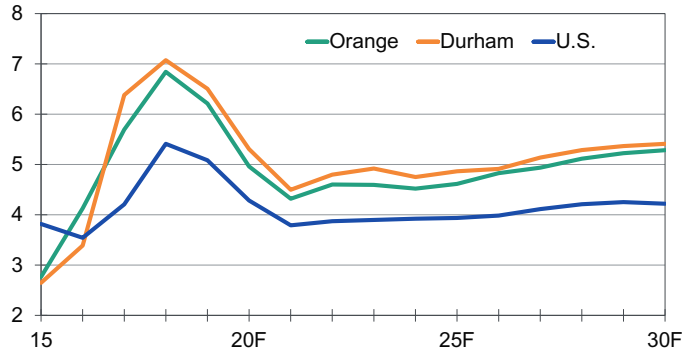
Article 43 distributable proceeds, % change yr ago

	Low	Baseline	High
FY2017	8.7	9.4	10.1
FY2018	3.9	4.6	5.3
FY2019	5.0	5.7	6.4
FY2020-FY2029	2.8	3.5	4.2
FY2030-FY2039	3.0	3.7	4.4
FY2040-FY2046	3.4	4.1	4.8

Sources: GoTriangle, Moody's Analytics

Chart 8: Rising Incomes Will Fuel Spending

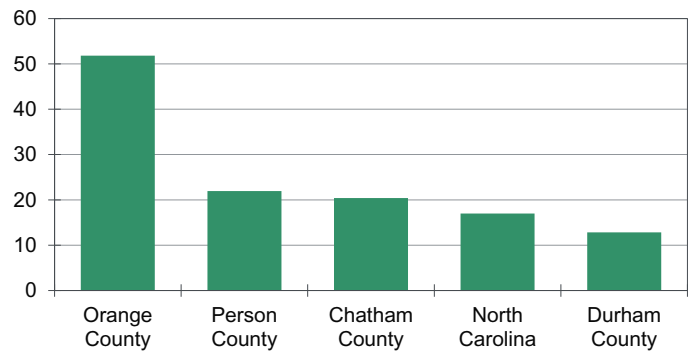
Disposable personal income, %



Sources: BEA, Moody's Analytics

Chart 9: Low Industrial Diversity Risk to Growth

Public sector share in total payrolls, %, 2015



Sources: BLS, Moody's Analytics

center lessens the overall pool for collections, increasing seasonal variations, and creating a more volatile revenue series.

In addition to consumer activity, construction plays an outside role in determining sales tax collections. The model utilizes housing completions to account for the positive economic

impact of building. New housing construction requires significant expenditures on durable goods. This includes building materials and the significant spending that goes into furnishing a newly built house. Homebuilding has picked up significantly over the past year, but there is further room for growth.

Strong population gains, particularly in Durham County, are fueling robust demand. The improving labor market will also boost household formation in the near term, further supporting home sales. Its more dynamic demographic profile will also help Durham County outperform throughout the forecast.

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