



Draft Durham County Transit Plan

through 2045

Revised April 4, 2017

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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 today. 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 both how our communities develop and how we 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 accelerates 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.

This 2017 Durham County Transit Plan updates the 2011 Bus and Rail Investment Plan (2011 Plan), adopted by the governing boards of Durham 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 are to move toward creation of an exceptional public transportation system in our region that provides greater transportation options for Durham residents and employers in order to positively impact traffic congestion and air quality while supporting local development policies.

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 Durham 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 Revenue 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 Durham County.

As in the 2011 Plan, this 2017 Plan includes continued funding for the same level of bus service expansion. This includes all-day, every-15-minute service along key corridors, more frequent regional service connections to Chapel Hill, Carrboro, RDU Airport, and Raleigh, as well as more demand-response

service throughout Durham County to connect residents with jobs and educational opportunities.

This Plan also includes improvements to bus facilities to improve the transit passenger's experience, including improved bus stops with amenities such as benches and shelters, improved walking access to stops, and more leased park-and-ride lots to widen the access to outlying areas.

The 2017 Plan also commits the local funding needed to construct, operate, and maintain the Durham-Orange Light Rail Transit Project that will provide 50,000 annual hours of high-quality, efficient, and reliable transportation service between Chapel Hill and Durham, with the goal of 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, GoDurham, and Chapel Hill Transit will work together to deploy these "rail dividend" hours to connect neighborhoods throughout the counties to light rail stations and other bus routes.

Despite reductions in state funds for rail transit projects described below, Durham and GoTriangle leaders are committed to the Wake-Durham Commuter Rail Project that would connect Durham with Research Triangle Park, Cary, Raleigh, and Garner, providing a reliable alternative to the congestion of the Durham Freeway and I-40. Durham's 2017 Plan will commit \$850,000 in fiscal year 2018 to support planning efforts for commuter rail. Future plan updates will specify additional Durham County contributions to the Wake-Durham Commuter Rail Project beyond fiscal year 2018.

Through these investments, we have an opportunity to improve the travel options and the local economy for those who live in, work in or visit Durham County and transform the way people get around our community. Significant progress has been made in delivering the investments from the 2011 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 2011 Plan and this 2017 Plan driven by the funding assumptions. Changes to the state and federal transportation funding laws and policies have greatly affected the revenues available to implement the projects and services. This is true for bus purchases and bus facilities, for the major capital investments in the D-O LRT Project and the Wake-Durham Commuter Rail Project, and for future transit network expansion. **These changes to state and federal funding assumptions are explained in more detail in Section 3.**

As the staffs of GoTriangle, Durham County, and the City of Durham have advanced the services and projects from the 2011 Plan, more definition has been given to these services and projects that are expected to be delivered over the next 12 years. The Wake-Durham Commuter Rail Project and some service expansion between Raleigh and Durham have not yet advanced due to the delay in Wake County's adoption of a transit plan. **Section 4 describes these projects and services and also identifies additional expansion that would remain unfunded in this Plan.**

The result of reduced funding from state and federal sources is that more of the Tax District Revenue is required to deliver the projects and services from the 2011 Plan that can be afforded, and that a new cost-split with Orange County for construction and operation of the D-O LRT Project is required. Due to the ongoing cost-share negotiation, the Plan does not yet determine the amount of Tax District Revenues for the Wake-Durham Commuter Rail project. Further analysis will be done on scenarios considered in the cost-share negotiations. Table ES-1 below compares the Tax District Revenues used to fund the projects and services between the 2011 Plan and the 2017 Plan, and differences in the minimum and ending cash balances between the plans.

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. However, those funding amounts will be known prior to entry into construction for any project, providing opportunity to reduce project scope or revise the schedule, consider other funding sources, or suspend the projects.

When evaluating the ability of the Tax District Revenues to accommodate potential reductions in state and federal funding availability, it is important to assess 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 Section 5.4.**

This greater reliance on the local transit tax through greater borrowing introduces new risks to the financial health of the plan. 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. However, those funding amounts will be known prior to entry into construction for any project, providing opportunity to reduce project scope or revise the schedule, or suspend the projects.

The other significant risk relates to the planned level of borrowing against the anticipated transit tax revenues. To deliver the transformative D-O LRT Project, the financial plan approaches the maximum borrowing capacity. The borrowing capacity is linked directly to the assumptions about transit tax revenue growth. In 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. The Plan uses the Moody's baseline forecast. 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. **Further**

explanation of the risks to the financial health of the plan and the available mitigation strategies can be found in Section 5.7.

This 2017 Plan comes at a pivotal time for Durham 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 Revenues and a greater understanding of the risks associated with major transit investments. This Plan seeks to attenuate 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 the City of Durham, its universities and major medical centers, the whole of Durham County and the Triangle region.

Figure ES-1.1-1: Funded Projects and Services in this Plan

	2011 Plan	Draft 2017 Plan	
	Durham Share of Tax District Spending	Durham Share of Tax District Spending	Durham Share of Tax District Spending
	(2013 – 2035)	(2017 – 2035)	(2017 – 2045)
Bus Service Operations	\$117.0 M	\$104.6 M	\$189.3 M
Bus Facilities Operations	-	\$1.5 M	\$3.1 M
Administrative Expenses	-	\$2.8 M	\$5.2 M
Bus Purchases	\$3.2 M	\$16.0 M	\$23.2 M
Bus Facilities	\$1.5 M	\$11.0 M	\$12.8 M
Wake-Durham Commuter Rail Planning Study (Durham Share)	-	\$0.9 M	\$0.9 M
Wake-Durham Commuter Rail Project (Durham Share)	\$75.0 M	Reserves Available	Reserves Available
Commuter Rail Operations & Maintenance (Durham Share) ¹	\$35.0 M	Reserves Available	Reserves Available
D-O LRT Project Cost (Durham Share)	\$351.0 M	\$742.9 M	\$742.9 M
D-O LRT Operations & Maintenance (Durham Share) ²	\$22.5 M	\$123.7 M	\$353.1 M
Total Funds for Projects and Services	\$605.0 M	\$1003.3 M	\$1330.5 M
Minimum Cash Balance	\$12.9 M	\$7.1 M	\$7.1 M
Unallocated Reserves in Final Year of Period	\$89.0 M	\$222.7 M	\$374.0 M

¹ The planned date of opening for commuter rail service was 2017 in the 2011 Plan.

1 About this Plan

This Durham County Transit Plan, referred to herein as “this Plan,” “this updated Plan,” the “2017 Plan,” and/or “this Plan update,” contains a program of transit services and projects to be funded by the dedicated local revenues for transit in Durham 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 Durham 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 Bus and Rail Investment Plan in Durham County adopted in 2011, referred to herein as “the original Plan.”

Orange County has a similar plan referred to herein as the “Orange 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 Goals of this Transit Plan

The original Plan and this Plan update have been developed by representatives from Durham County, the City of Durham (which includes GoDurham), and GoTriangle (which manages GoDurham) and is designed to improve transit options within Durham County and between Durham and its neighboring counties to achieve these goals:

- Connecting more residents with job opportunities in Durham and the region
- Connecting more residents with post-secondary and vocational educational opportunities
- Expanding bus capacity in corridors with high current bus ridership
- Providing better regional connections to other cities and RDU International Airport

A variety of projects are included in this Plan to meet these goals, including:

- Improved bus service, including all-day, every-15-minute service along key corridors and improving demand-response service in rural Durham County to connect residents with jobs and educational opportunities
- A set of capital projects to improve the transit passenger’s experience, including park-and-ride lots, new and improved bus stops with amenities such as benches, shelters, and real-time vehicle locator information

- 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, GoDurham, and Chapel Hill Transit will work together to deploy these "rail dividend" hours to connect neighborhoods throughout the counties to light rail stations and other bus routes.
- A commuter-rail service (CRT) that connects Durham with RTP, Cary, Raleigh, and Garner, providing a reliable alternative to the congested transportation links between these major job centers.

The purpose of this Plan is to provide for the equitable allocation of Tax-District Revenues in support of these goals.

1.2 Transit Providers

Transit services in Durham County are provided by the following agencies, each of which have participated in the drafting of the original Plan and this updated Plan.



GoDurham, formerly known as Durham Area Transportation Authority (DATA), is operated by the City of Durham and since 2010 has been managed by GoTriangle. GoTriangle is responsible for regular and demand

response services provided in the City of Durham. GoDurham also operates the Robertson Scholars Express (RSX) route for GoTriangle between Duke University and the University of North Carolina at Chapel Hill, as well as the fare-free Bull City Connector.

Durham County Access is a county agency that provides community transportation in Durham County consisting of demand response service. Durham County Access utilizes a fleet of vans that are equipped with lifts to serve a variety of passenger needs, and provides transportation for employment and medical purposes as well as other personal trip purposes.



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 Durham 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.

1.3 Plan Governance

The original Plan was approved in 2011 by Durham County, the DCHC MPO, and GoTriangle. In 2012, Durham County, Orange County, and GoTriangle entered into an Interlocal Agreement to govern cost-sharing of the D-O LRT Project, an element of the Plan which serves both Durham and Orange County (“Cost-Sharing Agreement”). Concurrently with this Plan update, the signatories to the Cost-Sharing Agreement are updating that agreement.

On March 26, 2013, Durham County, GoTriangle and the DCHC MPO entered into an Interlocal Implementation Agreement (“Implementation Agreement”) to govern distribution of the funds collected following voter approval. While most of the funds can only be used to provide new bus service that did not exist before November 2011, the agreement allows GoDurham to use a portion of the funds to pay for the increased costs of existing service. The Implementation Agreement also establishes a Staff Working Group including representatives from Durham County, GoTriangle, and DCHC MPO to review the Plan and prepare updates as needed, or at least every four years. This Plan update is the first of those such updates.

2 Status of Planned Projects and Services from the 2011 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, as well as two major transit projects – light rail service connecting Chapel Hill and Durham, and commuter rail service connecting Wake County and Durham County, over a period of 20 years. These projects were proposed to be paid for, in whole or in part, by the new revenues authorized by the Plan and by the affirmative vote on the levying of the Tax District Revenues by Durham County residents.

Since the adoption of the original Plan and subsequent implementation of the Tax District Revenues to support the Plan, the transit agencies in Durham County have already delivered many of the planned services.

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 Section 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 Durham
 - Regional Service
 - Rural Service
- Bus Facilities
- Durham-Orange Light Rail Transit Project
- Wake-Durham Commuter Rail Transit Project

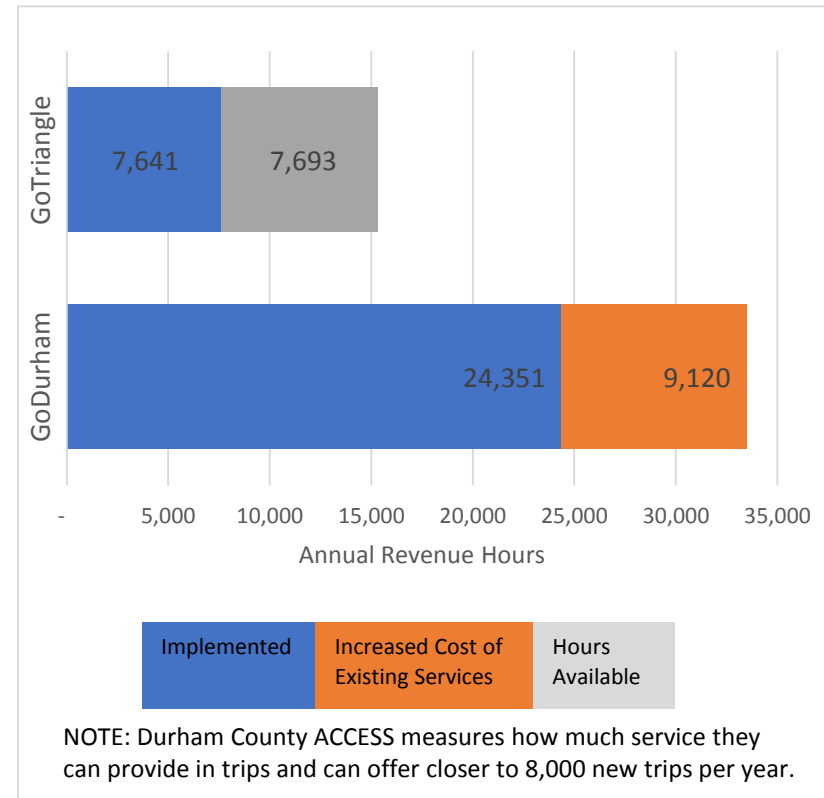
2.1 Bus Service Expansion

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 buses on heavily traveled routes and reduce the time that 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. And there are new bus routes that enhance transit access throughout the county and the region.

The original Plan included additional service in urban and rural areas of Durham, and new regional services connecting with Orange County and Wake County (for which funding responsibility is shared between the participating counties).

The goal was to provide about 50,000 additional annual bus service hours during the first three years, and a total of 27,000 additional annual bus service hours phased in over the remainder of the plan, a 44 percent increase to the bus service previously provided in Durham. To date, the transit agencies have implemented about 32,000 additional annual hours of bus service, and GoDurham has 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 41,000 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. The original Plan provided for the purchase of 19 new buses between and the replacement of these buses as needed. To date, the transit agencies have purchased seven new buses using Tax District Revenue.

The original Plan proposed service improvements to meet the goals of the Plan, including:

- Connecting more residents with jobs
- Connecting more residents with post-secondary and vocational educational opportunities
- Expanding bus capacity in corridors with high current bus ridership
- Providing better regional connections to other cities and the RDU International Airport

To date, the transit agencies have met many of the Plan's goals.

Connecting more residents with jobs

- GoDurham Route 20, which started operations in 2016, now provides a direct trip from southwest Durham to the Duke and VA Medical Centers.
- Service has been significantly increased along GoDurham Routes 12 and 15, providing additional connections to employment centers along NC 55/54 and at Brier Creek, respectively.
- GoTriangle initiated the ODX express route, which provides peak-hour connections between Mebane, Efland, Hillsborough, and the Duke and VA Medical Centers.
- GoDurham Sunday service as extended later into the evening, with last trips now departing at 9 p.m. instead of 7 p.m.

- Additional trips provided in rural parts of the county by Durham County ACCESS.

Connecting more residents with post-secondary and vocational educational opportunities

- GoDurham Route 5 now provides 15-minute service for 11 hours each day, serving NCCU via Fayetteville St.
- GoDurham Route 12 now provides 30-minute service all day, serving NCCU via Alston Ave.

Expanding bus capacity in corridors with high current bus ridership

- GoTriangle now provides more frequent trips with 30-minute service all day on Route 400, which connect downtown Durham and Durham/VA Medical Centers with downtown Chapel Hill and UNC Hospitals; Route 405 now connects to Carrboro during peak periods.
- GoDurham expanded its 15-minute service network, with buses running every 15 minutes for 11 hours per day, to include Route 10 to South Square and Route 5 down Fayetteville St.

Providing better regional connections to other cities and the RDU International Airport

- GoTriangle Route 400 to Chapel Hill, Route 700 to RTP, Route 800 between RTP, South Durham, and Chapel Hill, and Route 100 to RTP and Raleigh now run seven days per week, providing more access to RDU Airport and Raleigh.

- Additional service was provided on the GoTriangle Route DRX which provides peak-hour express service between Durham and Raleigh and on Route 800 between the Streets at Southpoint and UNC.

2.2 Bus Facilities

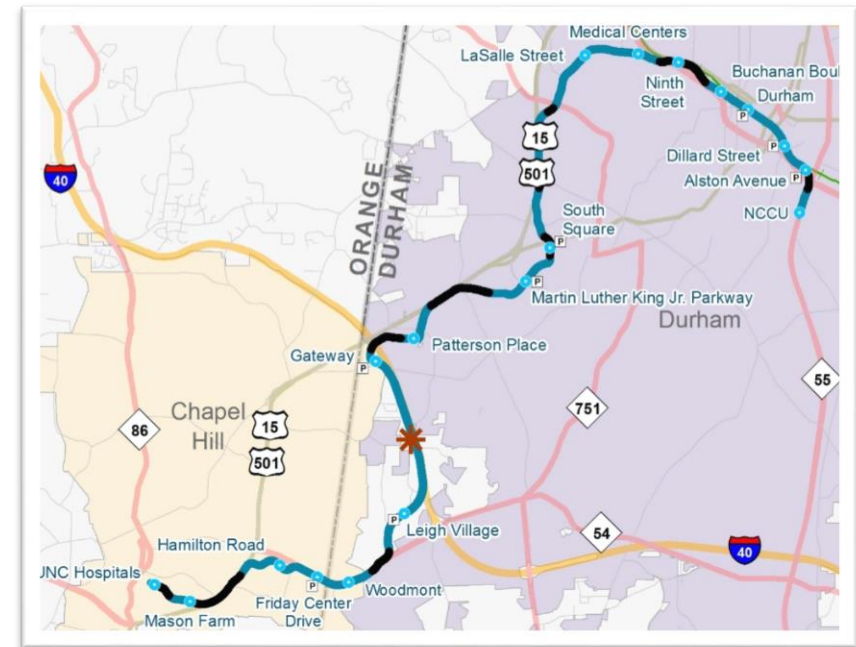
The original Plan set aside funds to pay for customer-facing facilities such as park-and-ride lots, neighborhood transit centers, transit emphasis corridors (sidewalks, shelters and transit signal priority), and pedestrian accessibility and amenities improvements at the top 200 boarding locations in Durham. The total cost of the projects was estimated at \$15 million.

Since 2011, GoTriangle and the City of Durham have begun planning activities to support implementation of the projects listed in the appendix of the original Plan, and to refine the priority and cost assumptions of the projects.

2.3 Durham-Orange Light Rail Transit Project

The original Plan set aside funding for the Durham 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

Figure 2.1-2: D-O LRT Project Map



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 that 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 the future right-of-way needs of the North Carolina Railroad Company (NCR), which owns the freight and intercity-rail tracks that also run through downtown Durham.

The public was invited to attend two formal public information sessions and provide oral comments at two public hearings, and GoTriangle accepted written comments via regular mail, email, 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 analyze 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 fiscal year 2029.

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.

2.4 Wake-Durham Commuter Rail Transit Project

The original Plan provided funding for a fixed-guideway transit system serving Durham and Wake Counties using Commuter Rail (CRT). The project was designed to extend from West Durham to Greenfield Parkway in Garner, serving 12 stations including ones in downtown Durham, RTP, Morrisville, Cary, Raleigh, and Garner. Given the orientation of the travel market and congestion challenges in this corridor towards rush hour workday travel, and because the system was designed to share track with existing freight and intercity (Amtrak) trains that utilize the North Carolina Railroad Corridor, the CRT service plan was designed to serve weekday, peak-period commuting to major employment centers.

Durham County commissioners supported the transit referendum and Durham County voters approved it in 2011. The Wake County commissioners and Wake County voters did not approve their own plan until 2016. Therefore, local government actions to develop the Wake-Durham CRT Project were limited between 2011 and 2016; those actions are described later in this document.

2.5 Meeting Additional Needs in Original Plan – Light Rail Dividend

Some of the additional services could be provided starting in 2029, when the D-O LRT Project is expected to begin operation. The D-O LRT Project will replace segments of several routes, such as, but not limited to, the Bull City Connector and GoTriangle Route 400/405, and allow other routes that serve the D-O LRT corridor to serve destinations elsewhere in



Durham. 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 Durham County transit priorities.

As described in the Transit Operating Plan for the D-O LRT Project, GoTriangle projects an estimated 15,000-27,500 rail dividend service hours available in Durham County (with additional rail dividend service hours available in Orange County for service in Orange County). Decisions on how to make use of these rail dividend hours, as well as how other bus routes should be modified to take advantage of the D-O LRT Project, will be made by GoTriangle, GoDurham, and Chapel Hill Transit Partners before the D-O LRT Project opens.

3 Status of Funding Assumptions

Since the adoption of the 2012 Plan, changes have been made by the US Congress to the federal transportation funding laws, and changes have been 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. After a review of these funding assumptions, the transit providers have recommended to move forward with more conservative assumptions in the 2017 Plan. The impact of these more conservative funding assumptions is that the Tax District Revenues are assumed to make up the difference.

GoDurham assumes that Tax District Revenues will fund 85 percent of its O&M costs for expansion bus services. The remaining 15 percent will be funded through fares, state, and federal grants. GoDurham also assumes they will use 50 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 existing service.

3.2 Bus Purchases and Facilities

The original Plan applied the same funding assumptions to vehicles and bus facilities. Now, 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 original Plan assumed that bus purchases and bus facilities would receive 80 percent of the funding from discretionary federal grants, consistent with past 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 at levels that would not support the expansions at levels outlined in the original Plan. In 2015, another federal transportation law was passed, FAST Act, which restored some discretionary funding for replacement bus purchases, but not for expansion vehicles.

To address these changes, the 2017 Plan reduces the assumed share of federal revenues available for these projects from 80 percent to approximately 26 percent. To address that reduction, the 2017 Plan assumes that the Tax District Revenues will fund a higher share of these projects.

3.2.2 State Funding Assumptions

In 2013, the State of North Carolina passed a Strategic Transportation Investment law that changed how transportation funding decisions were 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 original Plan.

To address these changes, the 2017 Plan does not assume that any state revenues will be available for these projects. To address that reduction, this Plan assumes that the local transit tax revenues will fund a higher share of these projects.

For new and replacement vehicles, GoDurham and Durham County ACCESS now assume 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 Durham-Orange Light Rail Project

3.3.1 Federal Funding Assumptions

The original Plan assumed that 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 the 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 \$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.

3.3.2 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. The

2017 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.

3.3.3 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. With this increased local share, the Tax District Revenues attributable to Orange County would be insufficient to maintain the original cost-sharing splits. Elected representatives from Orange and Durham counties have been meeting with GoTriangle to re-negotiate the cost-share agreement. Though a final agreement has not been reached, the parties have consented to release this Plan with a working assumption of the following cost share percentages:

- Capital costs (including shared borrowings): Durham 82 percent, Orange 18 percent;
- Operations and maintenance costs: Durham 80 percent, Orange 20 percent;
- State of Good Repair costs: Durham 80 percent, Orange 20 percent. More detail can be found in Section 4.4.3.

3.4 Wake-Durham Commuter Rail Project

The Wake-Durham Commuter Rail Project (CRT) is planned to be funded through a combination of Tax District Revenues, state funds, and federal funds.

3.4.1 Federal Funding Assumptions

The original Plan assumed that the federal government would be a significant funding partner for the major capital investment in the Wake-Durham Commuter Rail Project at a 50 percent share of the total costs. As a strategy to fund the Wake-Durham Commuter Rail Project is developed, it is likely that the strategy will continue to assume 50 percent federal funding for the project.

3.4.2 State Funding Assumptions

The original Plan also assumed that the State would be a significant funding partner for the Wake-Durham Commuter Rail Project at a 25 percent share of the total costs. As previously mentioned, in 2016 the General Assembly passed a law imposing a cap on the state contribution for commuter rail

projects, limiting the potential state funding to 10 percent of the project cost. At this time, the Wake Transit Plan assumes no state funding for the Wake-Durham Commuter Rail Project.

3.4.3 Local Funding Assumptions

Local Transit District Funding attributable to Durham County is programmed to join funds attributed to Wake County toward joint planning activity to advance the Wake-Durham Commuter Rail project beginning in fiscal year 2018. Due to the increased local funding commitment for the other elements of the plan, and due to the ongoing nature of a new cost-share agreement with Orange County to fund the D-O LRT Project and light rail operations, a specific local funding amount for construction of the Wake-Durham Commuter Rail Project has yet to be determined.

Further analysis will be conducted on the local funding levels as cost-sharing scenarios are considered. These will assume the CRT project costs, project development timeline, and preliminary cost-share with Wake County.

In 2009, when the State Legislature gave counties throughout the authority to levy new sales taxes, including the ½-cent sales tax for transit, it also gave Research Triangle Park and Durham County the authority to partner together to levy an additional property tax of up to 10 cents on each \$100 of value within the Research Triangle Park special tax district to be used for public transportation.

4 Program of Projects and Services

In this 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 proposed projects and services included in this Plan and is organized as follows:

- Bus Services
- Vehicle Purchases
- Bus Facilities
- Durham-Orange Light Rail Transit Project
- Wake-Durham Commuter Rail 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.

Along with customer-facing projects, this Plan also sets aside Tax-District Revenue to pay for certain costs relating to administration of this Plan, such as maintaining the Financial Plan and coordinating implementation of the services delivered under this Plan.

4.1 Bus Service

This Plan allocates Tax District Revenue for additional bus services in Durham County provided by GoDurham (generally within the City of Durham), Durham ACCESS (within Durham

County and the City of Durham), and GoTriangle (regionally). In addition, this Plan includes funding to purchase and replace buses used to provide that service.

4.1.1 Increased Cost of Existing Service

The Implementation Agreement authorizes GoDurham to use up to 50 percent of the amount raised by the Seven-Dollar Registration Fee to cover the increased cost of operating the service it 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 Expansion Bus Service

This 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, and public input.

Table 4.1-1: GoTriangle Implemented Service Improvements

GoTriangle Ongoing Service Expansion	
Number of service hours funded	7,640
Route 800S, Chapel Hill - Southpoint peak service	
Route ODX, Mebane-Hillsborough-Durham express	
Route 800, additional Saturday & new Sunday service	
Route 700, additional Saturday & new Sunday service	
Route 400, additional Saturday & new Sunday service	
Route DRX, additional trips	
Route 400/405, extension to Carrboro and add'l service	
Route 400, 30-minute weekday and Saturday service	
Additional FTA-required paratransit service*	

All service paid for 50 percent with Durham Tax-District Revenues, except for Route 700 service with is 100 percent funded by Durham Tax District Revenues

* Services not included in original Plan

Table 4.1-2: GoDurham Implemented Service Improvements

GoDurham Ongoing Service Expansion	
Number of service hours	24,350
Route 5 15-minute service, 7am - 6 pm	
Route 10B, 15-minute service, 7am - 6 pm	
Route 10, Sunday 7 am departure	
Route 3 extra evening/Sunday trips	
Route 14, extra early weekday trip*	
Route 15 enhanced weekday & Saturday service	
Route 12 30-minute service	
Systemwide Sunday service extension until 9 pm	
Systemwide New Year's Eve service extension until 12 am*	
Route 15 extra 5 pm trips*	
Route 20, new Woodcroft-S Square-Duke service**	

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 Durham County ACCESS and GoTriangle using Tax District Revenue. The details of this expanded service are presented below. GoDurham has already reached the target number of service hours in the original Plan. The bus service hours shown below are estimates of what can be provided with the commitment of Tax District Revenue, but may vary due to budgeting assumptions made by each agency about state, federal, or farebox revenues that can also support service expansion.

These proposed service changes are subject to change as the agencies evaluate existing services (both pre-existing the original Plan and implemented using Tax District Revenue) and engage in studies to prioritize new services. In 2017, GoTriangle expects to begin a short-range planning effort to develop plans for new and revised services over the next five years for both the GoTriangle and GoDurham systems.

Table 4.1-3: Durham County ACCESS Program of Service Improvements

Durham County ACCESS: Demand Response services	
Annual Trips Provided	7,896
Provide additional service to fill service gaps and provide trips not available through existing grant sources	
Anticipated service start date	Fiscal Year 2018

Table 4.1-4: GoTriangle Program of Service Improvements

GoTriangle proposed service enhancements	
Annual Revenue Hours	7,690
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 Orange County).	
Upgrade GoTriangle Route 700 between Durham Station 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.	
Upgrade GoTriangle Route DRX with express service between Durham and Raleigh to provide service every 30 minutes during AM and PM peak periods; frequencies currently vary between 30 and 45 minutes due to increased traffic congestion, requiring additional service to meet the 30-minute goal set forth in the original Plan. (Cost split 50-50 with Wake County).	
Implement new Route RDX to provide express trips from Rougemont in northern Durham County to Duke and Veterans' Administration Medical Centers, with 3 inbound AM trips and 3 outbound PM trip (and one morning outbound and one afternoon inbound trip).	
Anticipated service start date	Fiscal Years 2018-2020

4.1.4 Operating Costs, Schedule, and Funding Assumptions

The following operating costs per hour were provided by the three transit agencies in Durham County for fiscal year 2016:

- GoDurham \$90/hr
- Durham County ACCESS \$21/trip
- GoTriangle \$111/hr

For Durham County ACCESS, the Plan assumes that 100 percent of the funding for new bus service would need to come from the Tax District Revenue. For GoDurham, the plan assumes that 85 percent of the funding would come from Tax District Revenue, with 15 percent from fares. For GoTriangle, the plan assumes that 75 percent of the funding would come from Tax District Revenue, with 15 percent from fares, and 10 percent from State grants.

4.2 Vehicle Purchases

This Plan dedicates funds to purchase vehicles to support new services. Eligible vehicle purchases include additional buses to support expanded services provided using Tax District Revenue; as these buses reach the end of their useful life, Tax District Revenue will be used to replace them. **The financial plan provided in Section 5 accounts for the purchase of new vehicles to replace these those listed at the end of their useful lives.**

Table 4.2-1: GoTriangle vehicle purchases

GoTriangle vehicle purchases
Purchase of 3 buses to support expanded services funded using Tax-District Revenue.

Table 4.2-2: GoDurham vehicle purchases

GoDurham vehicle purchases
Purchase of 1 buses to support expanded service funded with Tax-District Revenue.

Table 4.2-3: Durham County ACCESS vehicle purchases

Durham County ACCESS vehicle purchases	
Purchase of 7 vehicles plus ancillary equipment to support additional demand-response trips in Durham County.	
Vehicle Type	Expansion

4.2.1 Capital Costs, Schedule, and Funding Assumptions

The original Plan set aside \$3.2 million in funds for bus replacements assuming a 10 percent local match contribution by Tax District Revenue. Due to the change in funding assumptions, the total amount set aside for the 18 buses included in this Plan, plus future replacements, is \$23.2 million YOY.

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 four general categories:

- Park-and-rides: These are new or expanded facilities to allow transit riders to park their car before taking the bus.
- Transit Emphasis Corridors: These are enhancements to corridors with high transit use to improve access to the bus. The improvements include but are not limited to bus stop amenities, sidewalks, intersection improvements and transit signal priority.
- Transit Centers: These are enhanced facilities at high boarding bus stop locations outside of downtown Durham to improve the customer experience and the operational efficiency of the bus service.
- Transit Stop Improvements: These are enhancements to improve pedestrian accessibility and provide additional passenger amenities at key GoDurham and GoTriangle bus stop locations throughout Durham.

Funds are also set aside in this Plan to pay for the cost of operating and maintaining these facilities, as well as replacement of the facilities when they reach the end of their useful lives.

The cost of these projects and the contribution from the Tax District Revenue are provided in Table 4.3- and Figure 4.3-1. The facility cost includes the capital expenditures. Additional



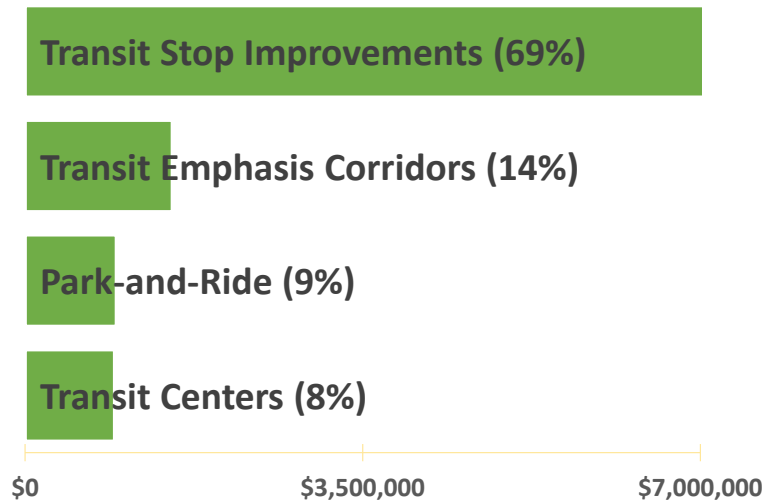
funds are provided in the Plan for operations and maintenance and replacement of facilities.

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, participation by the federal and state governments and other partners. If those revenue projections change, the projects may change as well.

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

	Total Cost	Tax District Contribution
Park-and-Ride	\$948,000	\$948,000
Transit Emphasis Corridors	\$5,782,000	\$1,527,000
Transit Centers	\$3,703,000	\$928,000
Stop Improvements	\$8,371,000	\$7,586,000
Total	\$18,804,000	\$10,989,000

Figure 4.3-1: Bus Facility Project Tax-District Revenue Spending Overview (YOE)



4.3.1 Transit stop improvements

Transit stop improvements account for 69 percent of the 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 below:

- Improvements at 180 high profile GoDurham bus stop locations. This includes providing shelter, bench, trash can, and accessibility improvements. In addition, Tax-District Revenue funds bus stop improvements associated with other City of Durham projects such as sidewalks and roadway projects.
- Improvements at 20 GoTriangle bus stop locations
- Improvements at Patterson Place shopping center. This project includes additional amenities and other elements to improve the operational efficiency of the GoTriangle and GoDurham routes that serve this stop.

City of Durham grant funds are planned to be spent on the GoDurham bus stop improvements, but all other bus stop improvements are assumed to be fully funded with Tax District Revenue.

4.3.2 Transit Emphasis Corridors

Transit Emphasis Corridors account for 14 percent of Tax District Revenue to be spent on construction of Bus Facilities in this Plan. The Access to Transit Study completed by the City of Durham and NCDOT in 2014 recommended improvements along three corridors with Phase 1 funded through the original Plan. This Plan recommends funding improvements along corridors with high frequency bus service (15-minute service frequency or better), which is Holloway Street and Fayetteville

Street. The original Plan included a Roxboro Road transit emphasis corridor, however high frequency bus service has not been implemented. This Plan funds enhancements along a future to be determined corridor.

The enhancements within the transit emphasis corridors are proposed to be implemented in coordination with the City of Durham Bike+Walk Plan priority corridor projects along Holloway Street and Fayetteville Street.

The specific projects included in this Plan and preliminary anticipated implementation dates are provided in Table 4.3- below.

Table 4.3-2. Program of Transit Emphasis Corridor Improvements.

Transit Emphasis Corridor	Related Operating Service	Schedule
Holloway St (Miami Blvd to Park Ave)	GoDurham Route 3	FY18-19
Fayetteville St (Umstead Ave to Lawson St)	GoDurham Route 5	FY19-20
Future	To be determined	FY20-22

4.3.3 Park-and-Ride Facilities

Park-and-Ride facilities account for 9 percent of the 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-.

Table 4.3-3. Program of Park-and-Ride Improvements.

Capital Project	Related Operating Service	Schedule
Northern Durham Park-and-Ride	GoTriangle Rougemont-Durham Express	FY21-24
Patterson Place Park-and-Ride	GoTriangle Route 400 - Durham-Chapel Hill	FY18-27
Woodcroft Park-and-Ride	GoTriangle Route 805 - RTC-Woodcroft-CH GoDurham Route 20 - South Durham-Duke/VA	FY21

The original Plan included two park-and-ride facilities that are not included in this Plan: Duke Regional Park-and-Ride and Southpoint Area Park-and-Ride. Since 2011, GoDurham determined that a peak-hour service to Duke/VA Medical Centers from a Duke Regional Park-and-Ride would not be a viable service. As such, the Duke Regional Park-and-Ride is no longer needed. The Southpoint Area Park-and-Ride is not included in this plan because other parking spaces have been identified that meet the Park-and-Ride needs.

4.3.4 Transit Centers

Transit centers account for 8 percent of the Tax District Revenue to be spent on construction of Bus Facilities in this Plan. The specific projects included in this Plan and their anticipated implementation dates are provided in Table 4.3-.

Table 4.3-4. Program of Transit Center Improvements.

Transit Centers	Related Operating Service	Schedule
The Village	GoDurham Route 3 and 2B	FY18-21
Southpoint	GoDurham 5 and GoTriangle 800	FY24-27

The original Plan identified a Duke Regional Hospital transit center. Since 2011, bus service expansion plans have changed and frequent service is no longer planned to Duke Regional. This change has eliminated the need for a transit center at this location.

4.3.5 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.

However, due to changes in federal and state policies regarding funding of transit projects, it was determined that these general assumptions were unrealistic and hampered the agencies' ability to execute on 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 the projects. Overall, the portfolio of projects included in this updated Plan are assumed to be funded 58 percent by Tax District Revenue. Compared to the original Plan, Tax District Revenue pays for \$11 million YOE of the project costs, up from \$1.5 million. Anticipated federal funding has been reduced from \$12 million to \$4.1 million YOE and no state funding has been assumed.

The Holloway Street and Fayetteville Street transit emphasis corridors are assumed to be paid fully with Tax District Revenue and local dedicated bicycle and pedestrian funds.

The capital funding plan for Bus Facilities is presented in Table 4.3-.

Table 4.3-5: Bus Facilities Project Capital Funding Plan (YOE)

	Original Plan	Updated Plan
Tax-District Revenue	\$1,500,000	\$10,989,000
Other local/federal funds	\$0	\$3,666,000
Anticipated federal funds	\$12,000,000	\$4,150,000
State funding	\$1,500,000	\$0
Total	\$15,000,000	\$18,804,000

4.3.6 Operating Costs, Schedule, and Funding Assumptions

Unlike the original Plan, this updated Plan sets aside funds to pay for the operations and maintenance of new bus facilities, including such tasks as trash pickup and minor repairs. The annual operations and maintenance costs begin in fiscal year 2018 and increase as projects are completed to \$107,000 YOE in fiscal year 2028.

4.4 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 project scope 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.

The opening of the D-O LRT Project has also 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.



4.4.1 Capital Cost, Schedule, and Funding Assumptions

The estimated capital cost of the project is \$2.476 billion 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 4.4-1 and in Table 4.1-1.

Table 4.4-1: 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 4.4-2: 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 from those in the original Plan. The original Plan assumed 25 percent state funding for the project. This assumption was consistent with prior state grants 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 budget provision that imposed a state funding cap of 10 percent for rail transit projects. The provision also made the D-O LRT Project ineligible for re-entry into the competitive system 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 10 percent state share for which the project is eligible.

The anticipated capital funding plan for the project is presented in Table 4.4-. GoTriangle is seeking a 50 percent grant from the FTA Section 5309 New Starts program. The amount of funds budgeted from the dedicated local revenues in Durham and Orange Counties is \$906 million YOE, of which Durham County's share is assumed to be \$742.9 million YOE for purposes of this draft Plan. The remaining capital funds are planned from state grants, private in-kind donations, and other funds specifically identified for the Joint Development component.

Table 4.4-3: D-O LRT Project Capital Funding Plan (YOE millions)

	Original Plan	Updated Plan
Other Funds	\$1,367.3	\$1,570.3
Dedicated Local Revenues	\$455.7	\$906.0
<i>Durham County Portion</i>	\$351.2	\$742.9
<i>Orange County Portion</i>	\$104.5	\$163.1
Total	\$1,823.0	\$2,476.3

4.4.2 Operating Cost 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. Durham County's share of the operating cost is 80 percent.

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

FTA requires that agencies plan for the funding needs associated with capital asset replacement. 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. For planning purposes, Durham County's share of the capital asset replacement expenses is assumed to be 80 percent.

4.5 Wake-Durham Commuter Rail Project

Since 2011, some additional steps have been taken to advance the Wake-Durham Commuter Rail Project. In 2013, both the DCHC MPO and Capital Area MPO included the Wake-Durham Commuter Rail Project in their 2040 Metropolitan Transportation Plan as a future investment. NCR, working with Norfolk Southern Railway and GoTriangle, completed a capacity study for the NCR corridor that explored potential capital improvements needed to support a variety of commuter rail service scenarios.

In November 2016, Wake County voters approved a referendum in support of the Wake Transit Plan that included the Wake-Durham Commuter Rail Project. In fiscal year 2018, GoTriangle, Durham, and partners in the Wake Transit Plan intend to reach out to the NCR and the freight railroad companies operating in the NCR corridor to continue planning for commuter rail service in this corridor.

4.5.1 Capital Cost, Schedule, and Funding Assumptions

This Plan does not allocate Tax District Revenues for construction of the Wake-Durham Commuter Rail Project, although there are cash balances available in the Plan that could be programmed for this purpose. As mentioned above, further analysis will be conducted on the local funding levels as cost-sharing scenarios are considered in the coming weeks. These will assume the project costs, project development timeline, funding sources and preliminary cost-splits with Wake County that are consistent with the Wake Transit Plan.

These assumptions will be updated after completion of the final Cost Sharing Agreement between Durham and Orange counties for the D-O LRT Project, and incorporated into the Final Plan.

4.5.2 Operating Cost and Funding Assumptions

These assumptions will be updated after the final Cost Sharing Agreement between Durham and Orange counties for the D-O LRT Project is completed.

4.6 Administrative and Service Support

This updated Plan adds a new category of projects to pay for expenses associated with the planning provision of new and expanded services and facilities under this Plan. A full-time administrative position, ongoing customer outreach efforts and training/rebranding initiatives are proposed to be funded in this Plan.

This Plan proposes an administrative position responsible for coordinating, administering and implementing this Plan and Durham's updated Plan. This Plan allocates funds to pay for a part-time position for a staff member dedicated to these duties and would be housed at 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. This Plan assumes that the cost of the position would be split equally between the Durham Plan and Orange Plan.

The Plan identifies a need for annual funding beginning in fiscal year 2018 to conduct two ongoing surveys of Durham and Orange County residents. The first is 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 will be more robust to collect customer statistics at the route level. The second is 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.

4.6.1 Operating Costs, Schedule, and Funding Assumptions

The Plan allocates \$37,500 in fiscal year 2018 for the position of Plan administrator, with similar amounts in future years, which represents a 50-50 cost split. The other 50 percent of the cost of the Plan administrator position is assumed to be the responsibility of the Orange Plan.

The Plan allocates \$75,000 (in 2018 dollars) in fiscal year 2018 for the surveys and two out of every three years thereafter. In fiscal year 2019, the Plan allocates \$154,650 (in 2019 dollars) 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 is assumed to be the responsibility of the Orange Plan.

4.7 Additional Needs Identified in this Plan

The Plan acknowledges that there will be a demand to expand transit services and capital investments beyond what is currently identified in the 2017 Plan. While not identified specifically in this Plan, future expansion will be possible due to

the significant, growing cash balances projected in the 2017 Plan. This section identifies some of the transit needs that will be considered for funding in the future. 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.

4.7.1 Bus Service

In addition to the identified services 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 (1.76 percent per year in Durham County). This results in an additional \$272.2 million YOE worth of needs in Durham County over the course of that 26-year period. 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 Durham 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 Durham County to expand the reach of the Durham-Orange Light Rail Transit service throughout the County.

GoDurham has already identified the near-term need for 3,036 additional annual revenue hours to support additional trips on six routes to help improve on-time performance without making significant reductions in service coverage.

As GoTriangle and GoDurham conduct future planning studies, both agencies expect to develop proposals for future service which may or may not be able to be funded by the anticipated Tax-District Revenue allocated to bus service expansion.

4.7.2 Vehicles

To support the additional bus service needs identified, new vehicles would need to be purchased by each agency. A conservative estimate suggests that 64 vehicles would need to be purchased in Durham 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.

4.7.3 Bus Facilities

GoTriangle and GoDurham have identified the need for additional bus facilities that go beyond what is provided in the updated Plan. The additional projects described below in Table 4.7-1 require further study and will need to be coordinated with future service expansions. The cost estimates are subject to change and are shown in 2016 dollars.

Table 4.7-1: Additional Bus Facility Needs Not Funded in the Updated Plan (2016 dollars)

Capital Project	Description	Estimated Cost (in 2016 millions)
Bus stop improvements	Improve 30 bus stops in fiscal year 2022 to achieve 95% of daily ridership at a stop that meets standards	\$1
Bus stop improvements	Improve 250 GoDurham bus stops from fiscal year 2023 and beyond to meet GoDurham standards	\$6
Bus stop improvements	Accessibility improvements at bus stops, ongoing bus stop improvements through fiscal year 2045 to respond to changing ridership and travel patterns, public art and technology improvements at bus facilities	\$32
Garage expansion	Build a new garage facility to accommodate additional vehicles due to expanded bus service	\$23
Transit centers	For the Village and Southpoint transit centers, expand the scope to acquire land and provide a bus facility with a bus lane, building with restrooms, security office and parking, kiosks, associated roadway and intersection requirements, and additional amenities	\$30
Park-and-ride	For Northern Durham and Woodcroft Park-and-Ride lots, acquire land to build surface asphalt lot with bus lane and amenities. Build new Park-and-Ride lots to provide satellite parking and coordinate with bus service.	\$17
Transit emphasis Corridors	Expand the corridor enhancements to deliver the full Access to Transit recommendations.	\$15
Operations & Maintenance	Provide safe, clean and well-maintained facilities	\$12

4.7.4 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.

4.7.5 Wake-Durham Commuter Rail Transit Project

The Wake-Durham Commuter Rail Project is an important project designed to connect the East and West sides of the Triangle Region. While this Plan does not specifically allocate Tax District Revenues for construction of the Wake-Durham Commuter Rail Project in specific years at this time, there are cash balances available in the Plan that could be programmed for the project that may or may not meet the full funding needs depending on other assumptions. As mentioned above, further analysis will be conducted on the local funding levels as cost-sharing scenarios are considered in the coming weeks. These will assume the project costs, project development timeline, funding sources and preliminary cost-splits with Wake County that are consistent with the Wake Transit Plan.

These assumptions will be updated after completion of the final Cost Sharing Agreement between Durham and Orange counties for the D-O LRT Project, and incorporated into the Final Plan. Additional funding needs may be identified as part of that process.

While a strategy to fund the construction of the Wake-Durham Commuter Rail Project is developed, as a demonstration of partnership with Wake County, this Plan will commit \$850,000 funds in fiscal year 2018 to support planning efforts for

commuter rail. Future plan updates will specify additional Durham County contributions to the Wake-Durham Commuter Rail Project beyond fiscal year 2018.

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, and is organized as follows:

- Dedicated Tax-District Revenue
- Inflation assumptions
- Financing assumptions
- Cash flow summary
- Financial health of the Plan

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 Durham County. These four dedicated Tax District Revenue streams

used to finance this Plan are referred to throughout this document as “Tax District Revenue.”

This Section describes these revenue streams, reports actual revenues through fiscal year 2016, and explains assumptions used to project future revenues.

5.1.1 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 will begin collecting a transit tax in Wake County).

The forecast for Durham 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 4.33 percent. This Plan assumes the year-by-year growth rates for years 2017 through 2046 and the CAGR for years 2047 and beyond.

5.1.2 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 as follows: 68 percent to Wake County, 21.5 percent to Durham County, and 10.5 percent to Orange County. As such, the Durham County portion of all vehicle rental tax revenues is, compared to the total collected, 10.75 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.

5.1.3 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 Durham County are included in the draft 2017 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 2.7 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.

5.1.4 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 Durham County are included in the draft 2017 Plan.

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

5.1.5 Actual Tax District Revenue, Fiscal Years 2014 through 2016

Tax District Revenue has been generated in Durham 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 Durham County generated \$80.2 million. To date, Tax District Revenues have exceeded the expectations in the original Plan. Table 5.1-1 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.

Table 5.1-1: Year-by-Year Revenue Comparison (YOE thousands)

YR	Tax-District Revenue	Actual	Proj	Difference
Fiscal Year 2014	Half-Cent Sales Tax	\$21,960	\$19,000	\$2,960
	GoTriangle Vehicle Rental Tax	\$980	\$1,100	(\$120)
	\$7 Vehicle Registration Fee	\$0	\$1,600	(\$1,600)
	\$3 Vehicle Registration Fee	\$0	\$700	(\$700)
	Total Revenues	\$22,940	\$22,400	\$540
	Percentage projected vs actual			102%
Fiscal Year 2015	Half-Cent Sales Tax	\$24,370	\$19,600	\$4,770
	GoTriangle Vehicle Rental Tax	\$1,030	\$1,100	(\$70)
	\$7 Vehicle Registration Fee	\$2,680	\$1,700	\$980
	\$3 Vehicle Registration Fee	\$490	\$700	(\$210)
	Total Revenues	\$28,570	\$23,100	\$5,470
	Percentage projected vs actual			124%
Fiscal Year 2016	Half-Cent Sales Tax	\$25,370	\$20,300	\$5,070
	GoTriangle Vehicle Rental Tax	\$1,100	\$1,200	(\$100)
	\$7 Vehicle Registration Fee	\$1,570	\$1,700	(\$130)
	\$3 Vehicle Registration Fee	\$670	\$700	(\$30)
	Total Revenues	\$28,710	\$23,900	\$4,810
	Percentage projected vs actual			120%
Half-Year FY2017	Half-Cent Sales Tax	\$13,470	\$10,500	\$2,970
	GoTriangle Vehicle Rental Tax	\$630	\$600	\$30
	\$7 Vehicle Registration Fee	\$800	\$900	(\$100)
	\$3 Vehicle Registration Fee	\$340	\$400	(\$60)
	Total Revenues	\$15,240	\$12,400	\$2,840
	Percentage projected vs actual			123%

Projected revenues provided in original Plan

Total revenues include interest and investment but exclude grants

5.1.6 Projected Transit Tax Revenues, Fiscal Years 2017 through 2045

From fiscal year 2017 through fiscal year 2045, Durham County's half-cent sales tax revenue is projected to generate \$1,541.4 million YOE. The vehicle rental tax allocated to Durham County is projected to total \$67.7 million YOE. The seven dollar and three dollar vehicle registration fees are expected to generate \$68.8 million YOE and \$29.5 million YOE, respectively. In total, these local transit tax revenues are projected to generate \$1,707.4 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 2012 Plan and the draft 2017 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 Durham County, \$136 million YOE in Tax District long-term borrowing would be required. The draft 2017 Plan, in response to reductions in state and federal revenues and an adjusted cost share assumption with Orange County, adjusts this total borrowing to a total of approximately \$726.8 million (YOE). The \$726.8 million is to be a combination of short- and long-term borrowing, to be repaid by a

combination of federal grants and Durham County's Tax District Revenue.

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 Revenue.

The draft 2017 Plan assumes that during the latter half of the D-O LRT Project construction period in fiscal years 2024 through 2027, GoTriangle will issue short-term LOBs intended to be repaid by a combination of Durham County Tax District Revenues and federal grant funds for the D-O LRT Project. The total amount of LOBs intended to be repaid by Durham local transit taxes is \$120.0 million YOY. The amount of LOBs intended to be repaid by federal grant funds is \$254.2 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 initial amount borrowed.

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. The draft 2017 Plan assumes that a par amount of \$352.6 million YOY will be funded by Durham local transit taxes. The cost of issuance is assumed at \$656,000.

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 five 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 five 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,

1.34x for LOBs intended to be repaid by federal grants, and 1.18x for the TIFIA loan. The average net coverage ratios for those same categories of borrowing are 2.34x, 2.78x, and 2.21x, respectively.

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

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

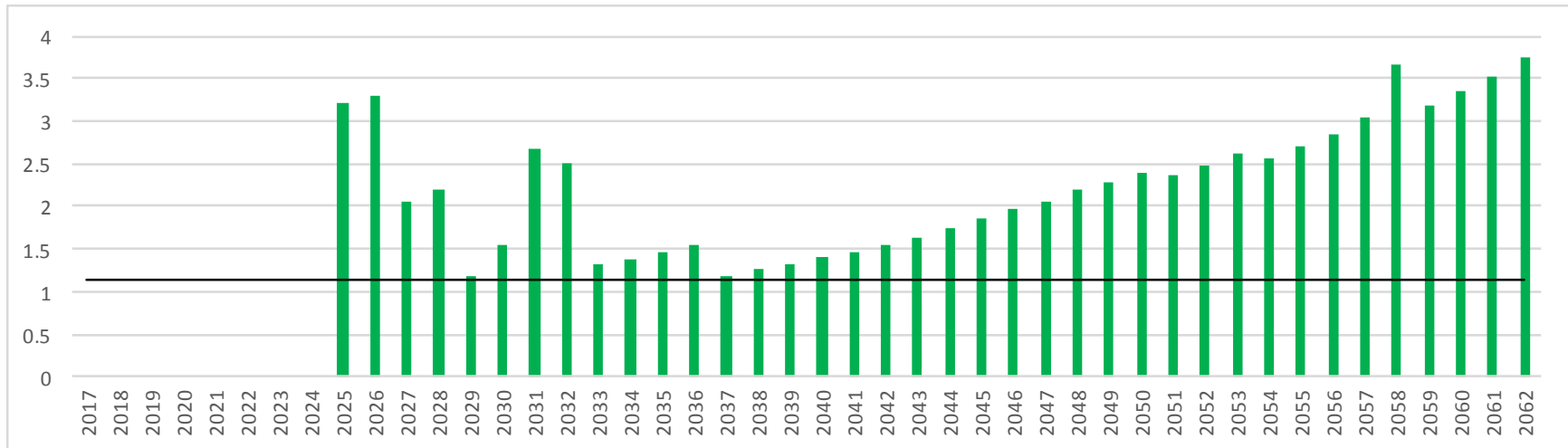


Figure 5.4-2: Projected Debt Service Coverage Ratios: Federally-Funded Limited Obligation Bonds (LOBs)

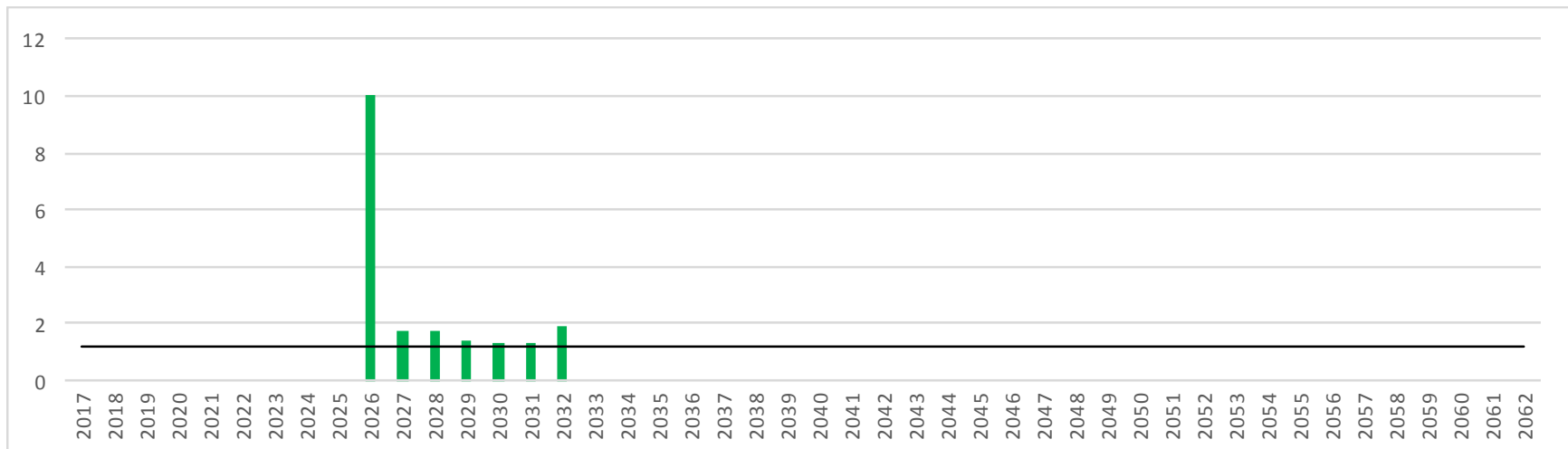
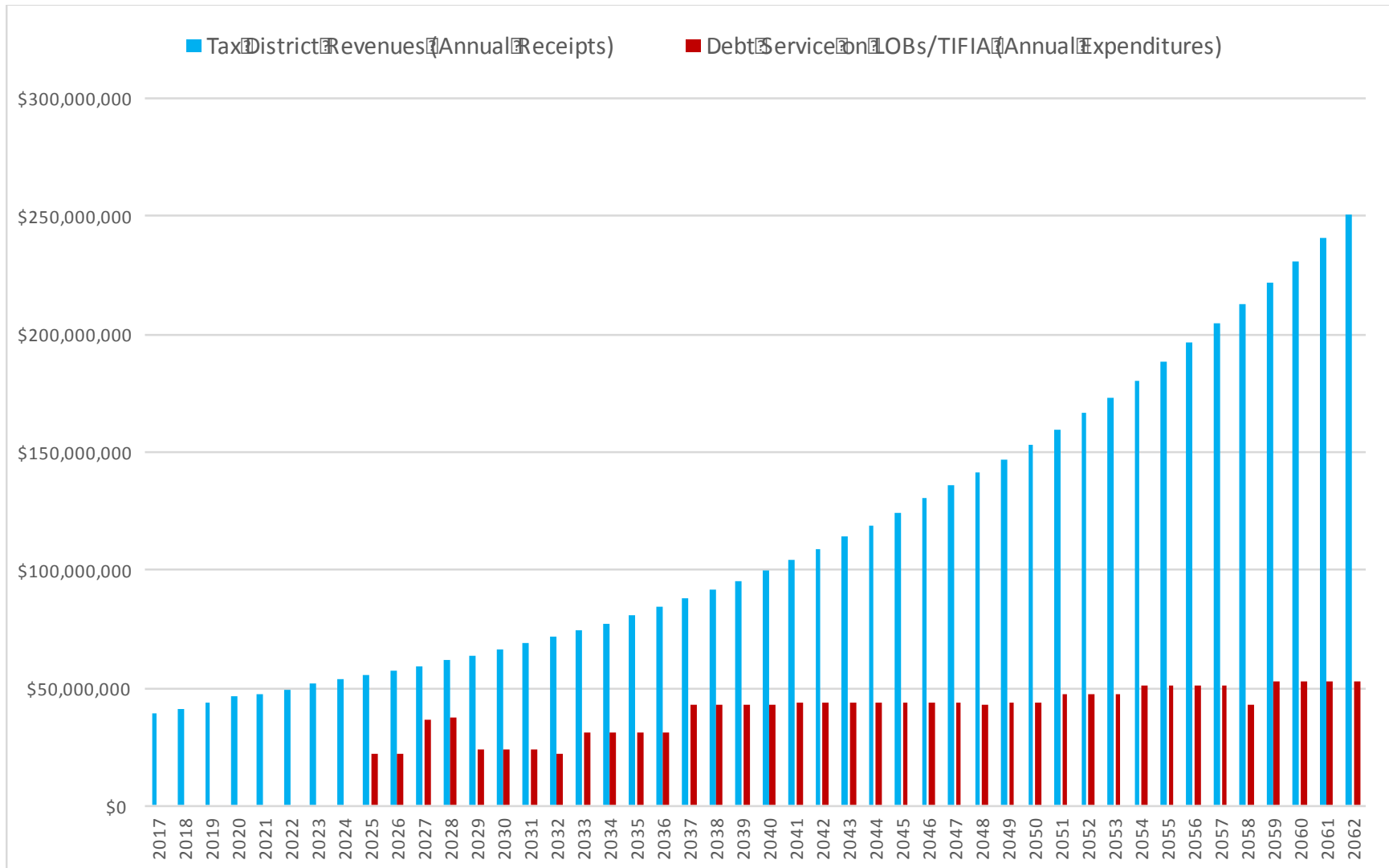


Figure 5.4-3: Projected Transit Tax District Revenue v. Debt Service for the D-O LRT Project



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 the initial amount borrowed, b) the maximum annual debt service, or c) 125 percent of the average annual payments.

5.6 Cash Flow Summary

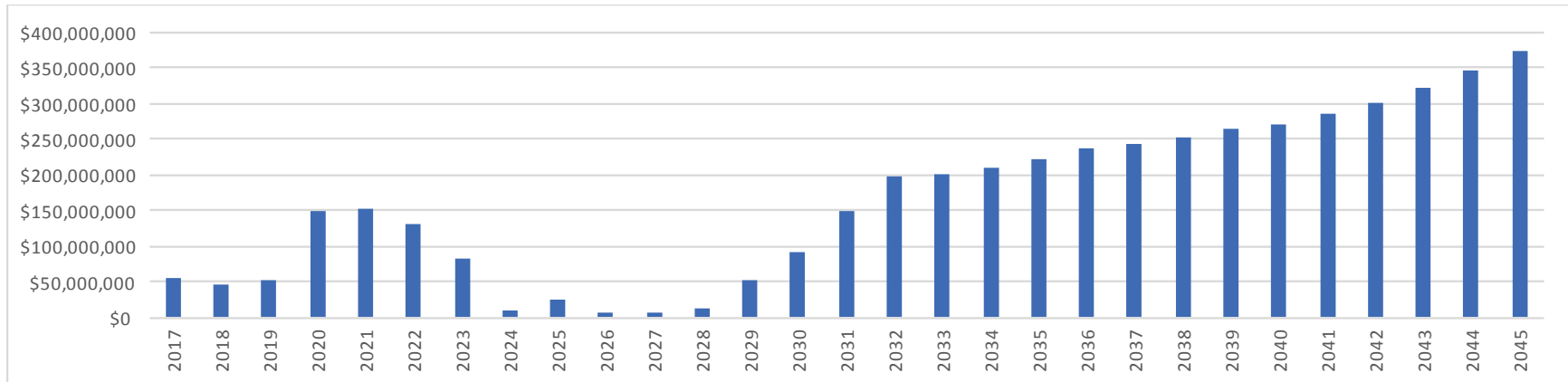
Figure 5.6-1 shows the projected cash balance of the 2017 Plan from fiscal year 2017 through fiscal year 2045. The cash balance in the first year reflects the amount of local transit tax revenues that have been reserved during the Project Development phase of the D-O LRT Project. This balance will be 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 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 (82 percent of which is reflected in the Durham 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. Local transit tax revenues are projected to be sufficient to fund these expenses, with significant capacity for additional expansion of transit investments in the long term. From fiscal years 2017 through 2045, the minimum projected cash balance after funding debt service, operations, maintenance and reserves is \$7.1 million YOE in fiscal year 2027.

Figure 5.6-1 shows the projected cash balance of the draft 2017 Plan from fiscal year 2017 through fiscal year 2045. The variation in long-term cash balances is due to the cash 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 5.6-1: Cash Balances (YOE)



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 the 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 Project Financial Risks and Mitigation Strategies.

Orange County, Durham County, and GoTriangle are also negotiating updates to the Cost-Share Agreement for the D-O LRT Project. The draft agreement will set 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

Once the 2017 Plan is approved by the Durham County Board of County Commissioners, DCHC MPO Policy Board, and GoTriangle Board of Trustees, there will be several ongoing processes to implement the Plan. These include the development and updating of multi-year capital and operating programs, a Durham-Orange Light Rail Cost-Sharing Agreement, project-specific agreements, and annual budgets.

A 2012 Interlocal Implementation Agreement among Orange County, DCHC MPO, and GoTriangle established a Staff Working Group with representatives from Durham 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 our 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.

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, and light rail services to be funded by the Tax District Revenues. 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 development of this Plan, elected representatives from Durham and Orange counties are meeting with GoTriangle to negotiate a Cost-Sharing Agreement specific to the D-O LRT Project. This agreement will commit the use of a portion of the Tax District Revenues contributed by Durham and Orange counties to fund the local share of project costs. The agreement also will establish 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, financing, construction, maintenance, and operating costs of the D-O LRT Project.

The draft agreement also sets forth regular quarterly reporting requirements from GoTriangle to the two counties about 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, then the parties agree to meet within 15 business days to decide upon a course of action for the D-O LRT Project.

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. 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 the allocation of financial resources for specified projects and services to be undertaken by specified project sponsors. The budget is adopted by the GoTriangle Board of Trustees by June 30 of each year.

6.5 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.