



Draft Orange 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. 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.

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

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

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

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

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

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

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

- New hours of bus service in both urban and rural Orange County above and beyond the bus service that was available in 2013, as well as and financial support for the existing system, providing connections to destinations throughout the county and in Alamance, Durham, and Wake Counties. **In total, nearly 33,500 hours of bus service are funded in this Plan**
- **A light rail transit (LRT) project that will provide 50,000 annual hours of high-quality, efficient, and reliable rail service between Chapel Hill and Durham**, with the goal of improving regional mobility, accelerating economic growth, and encouraging the growth of transit-oriented development. When light rail service begins, it will free up thousands of existing bus hours where rail service can replace trips served by buses today. GoTriangle, Chapel Hill Transit, and GoDurham will work together to deploy these "rail dividend" hours to connect neighborhoods throughout the counties to light rail stations and other bus routes
- A set of bus capital projects to improve the transit passenger's experience, including **new and improved bus stops with amenities such as benches and shelters and access improvements such as sidewalks and trails**
- An intercity (Amtrak) train station in Hillsborough, linking northern Orange County to destinations throughout

North Carolina, and along the East Coast with **fast passenger rail service**

- A bus rapid transit (BRT) project that provides **more efficient and effective transit through the congested core of Chapel Hill, UNC, and UNC Medical Center**

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

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

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

As the staffs of GoTriangle, Orange County, and the Towns of Chapel Hill, Carrboro, and Hillsborough have implemented the 2012 Plan, more definition has been given to the services and projects that are expected to be delivered over the next 12

years. **Section 4 describes these projects and services, unfunded priorities from the 2012 Plan, and additional expansion that would remain unfunded in this Plan.**

More of the Tax District Revenue is required to deliver the projects and services in the 2012 Plan, because of reduced funding from state and federal sources, and a new cost-split with Durham County for construction and operation of the Durham-Orange LRT Project, is required. Representatives from Orange County, Durham County, and GoTriangle have worked to achieve consensus on an appropriate cost-split. This Plan includes a prospective scenario with Orange County's share of Tax District Revenues paying 18 percent of the local share of the Durham-Orange LRT Project costs, and 20 percent of the light rail operating costs. This assumption does not represent an agreement or a recommendation, but is included in this draft Plan for discussion purposes. Table ES-1 below compares the Tax District Revenues used to fund projects and services between the 2012 Plan and this draft 2017 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, consider other funding sources, or suspend the projects.

When evaluating the ability of the Tax District Revenue 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 2017 Plan comes at a pivotal time for Orange County and the broader region. The Triangle region has grown significantly and is forecasted to continue growing. There also continues to be significant public demand for reliable, affordable alternatives to traveling by private automobile. Yet due to recent funding reductions at the state and federal level, the choices embodied in this Plan come with increased reliance on Tax District Revenue and a greater understanding of the risks associated with major transit investments. This Plan seeks to 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 Chapel Hill, Carrboro, Hillsborough, the University of North Carolina at Chapel Hill, the UNC Hospital system, the whole of Orange County, and the Triangle region.

Figure 1: ES-1: Orange Share of Tax District Spending

	2012 Plan	Draft 2017 Plan	
	Orange Share of Tax District Spending	Orange Share of Tax District Spending	Orange Share of Tax District Spending
	(2013 – 2035)	(2017 – 2035)	(2017 – 2045)
Bus Service Operations	\$82.7 M	\$76.8 M	\$139.7 M
Bus Purchases	\$1.8 M	\$10.8 M	\$14.2 M
Bus Facilities	\$0.7 M	\$5.6 M	\$8.1 M
North-South BRT Project	\$6.1 M	\$6.1 M	\$6.1 M
Bus Rapid Transit Operations & Maintenance	Not programmed	Not programmed	Not programmed
D-O LRT Project (Orange Share)	\$104.6 M	\$163.1 M	\$163.1 M
D-O LRT Operations & Maintenance (Orange Share) ¹	\$29.6 M	\$30.9 M	\$88.3 M
Total Funds for Projects and Services	\$225.5 M	\$293.3 M	\$419.4 M
Minimum Cash Balance ²	\$4.1 M	\$1.0 M	\$1.0 M
Unallocated Reserves in Final Year of Period	\$45.0 M	\$3.0 M	\$2.0 M

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

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

1. About this Plan

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

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

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

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

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

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

1.1 Goals of this Transit Plan

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

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

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

- Improved bus service throughout the county, in both urban and rural Orange County, connecting to destinations throughout the county, and in Alamance, Durham and Wake Counties
- A light rail transit (LRT) system that provides a high-quality, efficient, and reliable transportation link between Chapel Hill and Durham, with the goal of improving regional mobility, accelerating economic growth, and encouraging the growth of transit-oriented development
- A set of capital projects to improve the transit passenger’s experience, including new and improved bus stops with

amenities such as benches and shelters, improved access for walking or biking to bus stops, and park-and-ride lots to broaden access to the transit system

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

1.2 Transit Providers

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



Chapel Hill Transit is a multijurisdictional agency formed by a partnership of the Towns of Chapel Hill, Carrboro, and UNC. Chapel Hill Transit is responsible for regular and express routes and demand response service in the Chapel Hill, Carrboro, and University area. Chapel Hill Transit also provides regional express bus service to Hillsborough in cooperation with GoTriangle.



Orange County Public Transportation (OPT) is a county agency that is responsible for providing transportation services to all residents of unincorporated Orange County, the Town of Hillsborough, Efland, and a portion

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



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



The signatories to this Plan are Orange County, GoTriangle, and the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO). The governing board of the DCHC MPO includes local elected officials from the City of Durham, Town of Chapel Hill, Town of Hillsborough, Town of Carrboro, Durham County, Orange County, and Chatham County.

1.3 Plan Governance

The original Plan was approved in 2012 by Orange County, the DCHC MPO, and GoTriangle. Prior to the original Plan's approval, Orange County, Durham County, and GoTriangle entered into an agreement to govern cost-sharing for the D-O

LRT Project, an element of the Plan which serves both Orange and Durham Counties. Concurrently with this Plan update, the signatories to the Cost-Sharing Agreement are updating that agreement.

On October 24, 2012, Orange County, GoTriangle and the DCHC MPO entered into an Interlocal Implementation Agreement (“Implementation Agreement”) to provide for effective implementation of the transit plan. The Implementation Agreement establishes a Staff Working Group including representatives from Orange 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 updates.

2. Status of Projects and Services from the 2012 Plan

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

Since the adoption of the original Plan and implementation of the Tax District Revenues to support the Plan, the transit agencies in Orange County have already delivered many of the planned 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 4.**

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

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

2.1 Bus Service Expansion

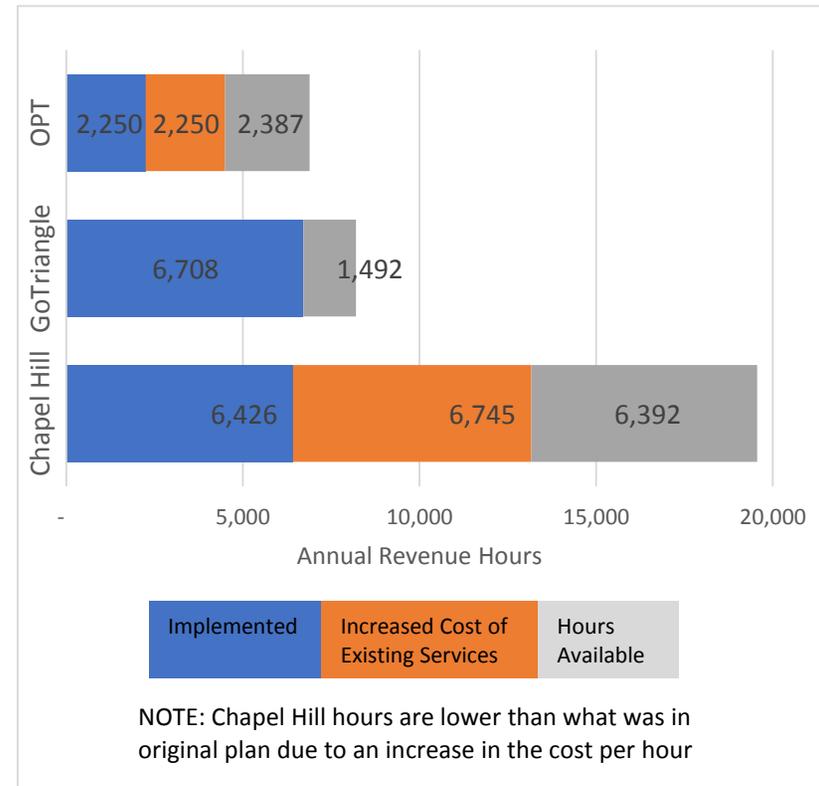
Since 2013, the Tax District Revenue has been used to enhance the region’s bus service. Existing service has been supplemented with additional trips, which provide more frequent bus service on heavily traveled routes and reduces time passengers need to wait for buses. Some routes now have longer service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

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

The goal was to provide about 34,650 additional annual bus service hours during the first five years, with an additional 6,300 annual bus service hours by 2035.

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

Figure 2: Hours Implemented v. Hours Available



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

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

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

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

The cost and implementation schedule of projects proposed in the original Plan were, in some cases, modified due to these later planning efforts. **The program of projects included in Section 4.1 of this updated Plan also incorporates the results of these additional planning efforts.**

2.1.1 Service within the Town of Chapel Hill

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

- Improving evening service on key routes by extending hours and improving frequency

- Providing additional trips on peak-hour services to reduce overcrowding
- Improving service along US 15-501 and NC 54
- A near-doubling of existing Saturday service, with expanded operating hours, improved service frequency, and redesigned routes
- A quadrupling of Sunday service
- Utilizing funds to supplement the increased cost of providing Chapel Hill Transit's existing services

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

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

Specific enhancements implemented by Chapel Hill Transit include:

Service Enhancements Initiated in Fiscal Year 2014

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

Service Enhancements Initiated in Fiscal Year 2015

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

2.1.2 Regional Service

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

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



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

Service Enhancements Initiated in Fiscal Year 2014

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

Service Enhancements Initiated in Fiscal Year 2015

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

Service Enhancements Initiated in Fiscal Year 2016

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

Service Enhancements Initiated in Fiscal Year 2017

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

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

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

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

2.1.3 Orange County Service

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

To date, **OPT has implemented an annual increase of 4,500 hours of bus service.** The total is higher than anticipated in part because the original Plan allocated bus hours on the basis of an average cost of service among the three agencies. Due to its smaller vehicles and the lower overhead costs of a small transit agency, OPT's hourly costs are lower. Thus the number of hours OPT can provide for the same amount of revenue is 6,000-7,000 hours, depending on federal and state funding assumptions.

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

OPT has implemented the following service enhancements:

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

To date, OPT has not introduced Saturday service to the Hillsborough Circulator, as expected in the original Plan. As discussed in **Section 4** of this Plan, additional service to rural Orange County is scheduled to be implemented in calendar year 2017.

2.2 Bus Facilities

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

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

Bus facilities that have been implemented are:

- North Hillsborough Park-and-Ride (temporary lease)



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

2.3 Hillsborough Train Station

The original Plan set aside funds to support construction of an intercity passenger rail station in the Town of Hillsborough. The station will be served by two Amtrak passenger train routes: the Carolinian, which travels between Charlotte and New York once daily in each direction, and the Piedmont, which travels between Charlotte and Raleigh twice daily in each direction. Under the Piedmont Improvement Program, underway since 2010, the North Carolina Department of Transportation anticipates operating up to five daily trips between Raleigh and Charlotte in each direction.

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

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

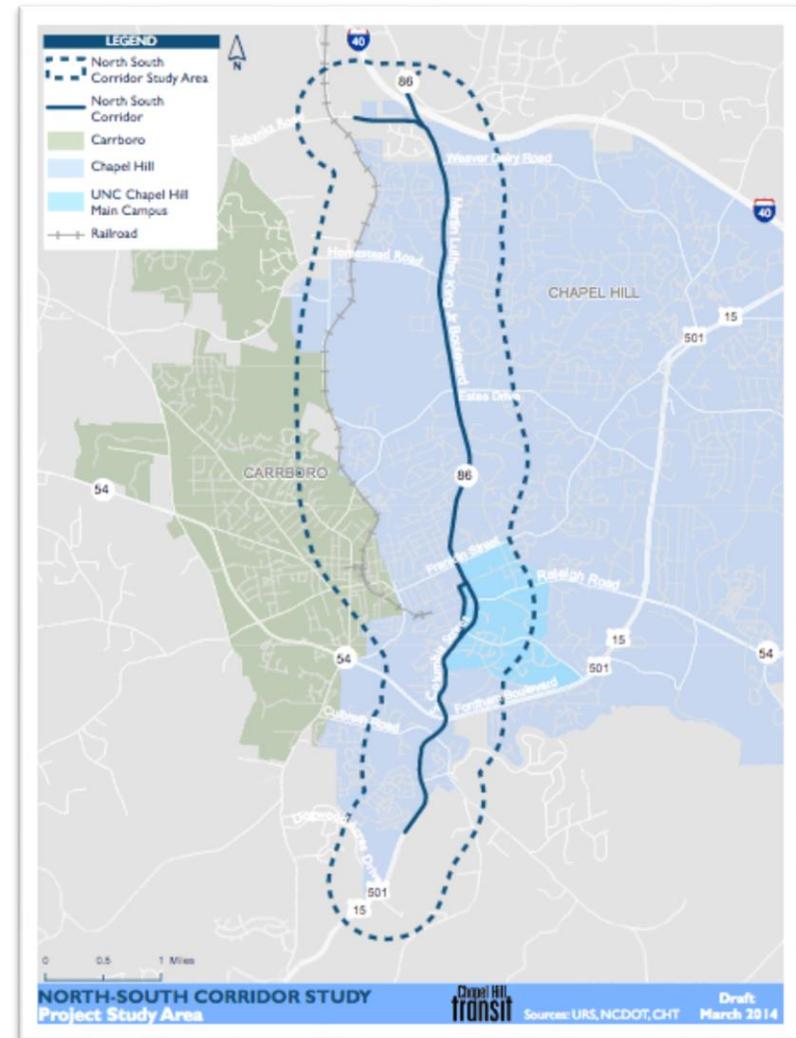
2.4 North-South Bus Rapid Transit Project

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

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

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

Figure 3: N-S BRT Corridor Study Map



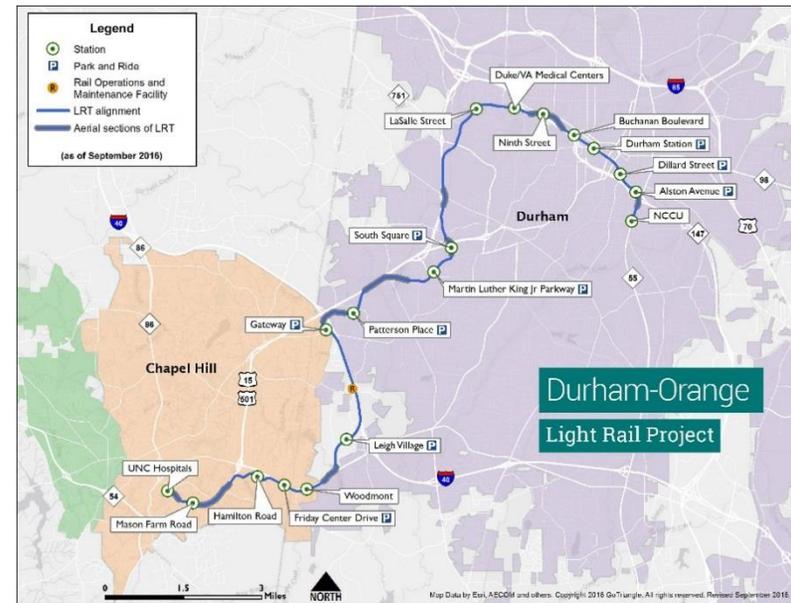
2.5 Durham-Orange Light Rail Transit Project

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

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

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

Figure 4: D-O LRT Project Map



(NCRR), 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, and telephone between August 28 and October 13, 2015. Following a review of the public comment, GoTriangle and the FTA issued a combined Final Environmental Impact Statement (FEIS) and Final Section 4(f) Determination/ Record of Decision (ROD) on February 15, 2016.

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

One of the most frequent comments received during the NEPA study was a request that GoTriangle improve the connection between the D-O LRT Project and North Carolina Central University (NCCU), which is located approximately 0.6 miles south of the Alston Avenue station across the NC 147 freeway. In response to these comments, FTA and GoTriangle committed to 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 2028.

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

2.6 Additional Needs Identified in Original Plan

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

2.6.1 Service within the Town of Chapel Hill

In the original Plan, Chapel Hill identified eight service priorities for a total of 33,136 additional hours of identified new service. The original Plan had funding for approximately 2/3 of those hours.



2.6.2 Regional service

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

- 30-minute service frequencies on Route ODX, up from hourly
- New express service from White Cross to Carrboro to Chapel Hill, with 30-minute frequency
- Midday service on express Route CRX between Chapel Hill and Raleigh
- Added midday trips on Route 805 between Woodcroft and Chapel Hill.

GoTriangle's planning efforts since implementation of the original Plan have resulted in a change in priorities which are reflected in this updated Plan in Section 4.1. In addition, GoTriangle is beginning a new short-range planning effort which will redefine the list of future regional service priorities.

2.6.3 Rural Service

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

2.7 Meeting Additional Needs in Original Plan – Light Rail Dividend

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

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

3. Status of Funding Assumptions

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

3.1 Bus Services

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

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

3.2 Vehicles and Bus 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 2012 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 that would not support the expansions at the levels outlined in the 2012 Plan. In 2015, another federal transportation law was passed, the FAST Act, which restored some discretionary funding for replacement bus purchases, but not for expansion vehicles.

To address these changes, the draft 2017 Plan reduces the assumed share of federal revenues available for bus capital projects from 80 percent to approximately 44 percent, meaning it is now assumed the Tax District Revenues will fund a higher share of these projects.

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

3.2.2 State Funding Assumptions

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

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

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

3.3 Hillsborough Train Station

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

Now, state funding for the project under the Strategic Transportation Investments law is programmed at 91.5 percent of the project cost. The remaining 9.5 percent is to be funded by Tax District Revenues.

3.4 North-South Bus Rapid Transit

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

3.4.1 Federal Funding Assumptions

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

3.4.2 State Funding Assumptions

The 2012 Plan also assumed the State would be a significant funding partner for the N-S South BRT Project at a 25 percent share of the total costs, just as it had done for Charlotte for the construction of their two light rail projects. North Carolina’s Strategic Transportation Investments law created a scoring system for rating projects for funding. In 2014, the N-S BRT Project was submitted for evaluation and did not score well enough to receive state funding. Since that time, changes have been made to the state evaluation criteria which may result in

a better score. However, this Plan does not assume any state funding for the N-S BRT Project.

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

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

3.5 Durham-Orange Light Rail Project

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

3.5.1 Federal Funding Assumptions

The original Plan assumed the federal government would be a significant funding partner for the major capital investments in the Durham-Orange Light Rail Transit (D-O LRT) Project at a 50 percent share of total costs. Though changes have been made to the federal transportation funding law, federal law continues to authorize funding through 2020 for the Capital Improvement

Grant program, which is assumed to be an essential funding source for the light rail and bus rapid transit projects. This Plan assumes that the D-O LRT project will receive 50 percent of its funding from the federal government.

Another key assumption about federal funding that has changed from the original Plan is that the draft 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 draft 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.

3.5.2 State Funding Assumptions

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

- 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 4.6.3.

3.5.3 Cost-Share Assumptions

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

With the reduction in state funding, the local share has increased from 25 percent of project costs to 40 percent of up-front project costs. 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;

4. Program of Projects and Services

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

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

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

4.1 Bus Service

This Plan allocates Tax District Revenue for additional bus service in Orange County provided by Chapel Hill Transit (generally within Chapel Hill, Carrboro, and UNC), GoTriangle (regionally), and Orange County Public Transportation (OPT) (throughout Orange County). In addition, this draft 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 Chapel Hill Transit and OPT to use 100 percent of the amount raised by the Seven-Dollar Registration Fee (see Section 5.1.1.4 below) to cover the increased operating cost of services provided before the original Plan took effect. The updated Plan continues to rely on this assumption. GoTriangle does not use any Tax District Revenues to fund services provided before the original plan took effect.

4.1.2 Continuing Implemented Bus Service

The Plan is designed to provide a level of additional bus service that can be sustained annually. Therefore, this Plan provides continued support for numerous bus service expansions that have occurred since 2013, when Tax District Revenues began to accrue. The tables below list the additional bus service which has already been implemented and which the agencies

anticipate continuing to provide using Tax District Revenue. The precise services funded by Tax District Revenue are subject to change based on future service needs, ridership trends, and public input.

Table 1: GoTriangle Implemented Service Improvements

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

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

* Services not included in original Plan

Table 2: CHT Implemented Service Improvements

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

* Services not included in original Plan

Table 3: OPT Implemented Service Improvements

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

4.1.3 Additional Expansion Bus Service

New bus services (including new routes and increased service frequency on existing routes) are proposed to be implemented by Chapel Hill Transit, GoTriangle and OPT using Tax District Revenue. The bus service hours shown below are estimates of what can be provided with the commitment of Tax District Revenue, 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 expansions are subject to change as the agencies evaluate existing services (both services provided using the agencies' other funding sources and those implemented using Tax District Revenue) and engage in studies to prioritize new services. In 2017, GoTriangle and Chapel Hill Transit expect to begin short-range planning efforts to reevaluate plans for new and revised services over the next five years.

Table 4: GoTriangle Program of Service Improvements

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

Table 5 CHT Program of Service Improvements

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

Table 6: OPT Program of Service Improvements

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

4.1.4 Operating Costs, Schedule, and Funding Assumptions

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

- Chapel Hill Transit \$110/hr
- GoTriangle \$111/hr
- Orange County Public Transportation \$58/hr

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

4.2 Vehicle Purchases

This draft Plan dedicates funds to purchase vehicles to support new services. Eligible vehicle purchases include additional buses to support new and expanded services using Tax District Revenue; as these buses reach the end of their useful life, Tax District Revenue will be used to replace them. Additionally, the draft 2017 Plan includes funds for a mid-life repower of Chapel Hill Transit buses. Assumptions of the useful life and cost of each vehicle differ by vehicle type and by agency. **The financial plan provided in Section 5 accounts for the purchase of new vehicles to replace those listed at the end of their useful lives.**

Table 7: GoTriangle Vehicle Purchases

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

Table 8: CHT Vehicle Purchases

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

Table 9: OPT Vehicle Purchases

OPT vehicle purchases	
Purchase of 6 buses plus ancillary equipment to support new Orange County services funded by Tax-District Revenue.	
Vehicle Type	Expansion

The original Plan assumed a 10 percent Tax District funds share totaling \$1.7 million YOE for 15 new buses and their replacements. Due to the change in funding assumptions and requests from the Staff Working Group, the total Tax District funds set aside in this Plan for the purchase of 13 buses, future mid-life repowers and replacements (for eight of the buses), is \$14.2 million YOE through fiscal year 2045.

4.3 Bus Facilities

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

- Transit Stop Improvements: These are enhancements made to improve the customer’s waiting experience and includes new facilities such as transfer centers, bus stop improvements, signage, real-time information displays, and related projects.
- Access Improvements: These are enhancements that improve the ability for customers to access the transit system, including sidewalk and greenway projects, intersection improvements, and related projects.
- Park-and-Rides: These are new facilities and associated amenities to allow transit riders to park their car before taking the bus.

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

The capital cost of these projects and the Tax District contribution is provided in Table 10 and Figure 5 below.

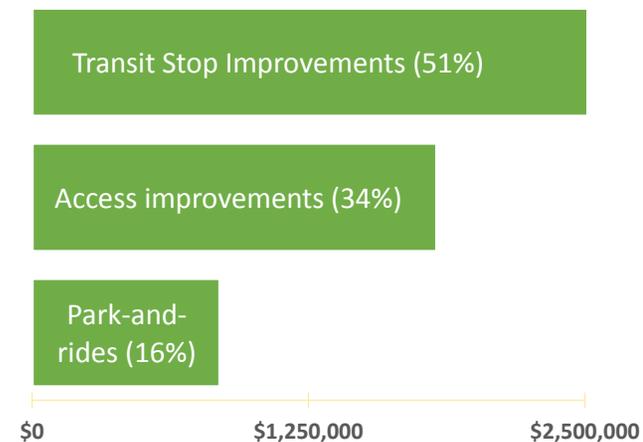
The dates for implementation of projects in this Plan are preliminary and subject to change as the scope of each project is refined, project costs estimates are improved, and the Plan partners update their list of priority projects. In addition, the

program of projects depends on assumptions of certain levels of Tax District Revenue and participation by the federal and state governments. If those revenue projections change, the project schedule may change as well.

Table 10: Bus Facility Construction Costs through 2045 (YOE)

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

Figure 5. Bus Facility Project Tax District Revenue Spending Overview (in YOE dollars)



4.3.1 Transit Stop Improvements

Transit stop improvements account for 51 percent of Tax District Revenue to be spent on construction of bus facilities in this Plan. The specific projects included in this Plan and preliminary anticipated implementation dates are provided in Table 11 and Table 12.

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



Table 11. Program of Transit Stop Improvements in FY2018-20

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

Table 12: Program of Transit Stop Improvements after FY2020

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

4.3.2 Access Improvements

Access improvements utilize 34 percent of Tax District Revenue planned to be spent on construction of bus facilities in this Plan. The specific projects included in this Plan and their preliminary anticipated construction or completion dates are provided in Table 13, Table 14, and Table 15.

Table 13: Program of Access Improvements in FY2018-20

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

Table 14: Program of Access Improvements in FY2021-22

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

Table 15: Program of Access Improvements after FY2023

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

4.3.3 Park-and-Ride Facilities

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

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

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

4.3.4 Capital Costs, Schedule, and Funding Assumptions

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

However, due to changes in federal and state policies regarding funding, it was determined these general assumptions were unrealistic and hampered the agencies' ability to execute the original Plan. In the interest of delivering these priority projects in an expedited manner, this updated Plan includes updated funding and cost assumptions for each project, and overall allocates a higher percentage of Tax District Revenue to cover the cost of projects. Overall, the portfolio of projects included in this updated Plan are assumed to be funded 54 percent by Tax District Revenues; compared to the original Plan, Tax District Revenues will pay for \$5.4 million of the project costs. Anticipated federal funding has been reduced from \$5.4 million to \$882,000, and no state funding has been assumed. An additional \$3.7 million in other funds is also assumed – these include federal funds allocated to the municipalities and transit agencies through the MPO, and other local funds outside the Tax District Revenue. The capital funding plan for Bus Facilities is presented in Table 16.

Table 16: Bus Facilities Project Capital Funding Plan (YOE)

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

4.3.5 Operating Costs, Schedule, and Funding Assumptions

As in the original Plan, there are no funds from the dedicated Tax District Revenue are planned for the operations and maintenance costs for these projects.

4.4 Hillsborough Train Station

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

4.4.1 Capital Costs, Schedule, and Funding Assumptions

The capital funding plan for the project is presented in Table 17. The portion of capital funds from the Tax District Revenue is \$686,000 YOE, a reduction from the local amount assumed in the original Plan. The project is slated for construction in fiscal years 2019 and 2020.

Table 17: Hillsborough Train Station Capital Funding Plan (YOE)

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

4.4.2 Operating Costs, Schedule, and Funding Assumptions

The operating costs for this project are expected to be paid by the NCDOT Rail Division and Town of Hillsborough. No funds

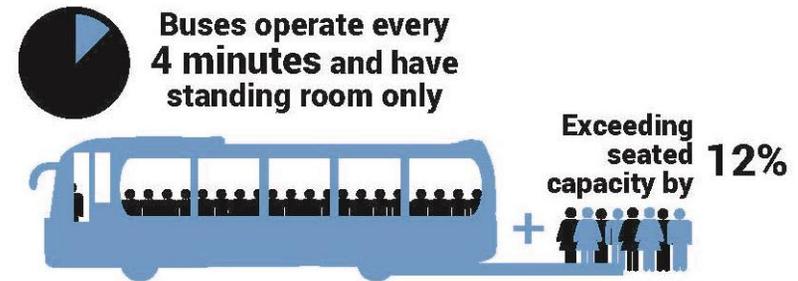
from the dedicated Tax District Revenue are budgeted to pay operating costs for this project.

4.5 North-South Bus Rapid Transit Project

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

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

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



4.5.1 Capital Costs, Schedule, and Funding Assumptions

The estimated capital cost of the project is \$125.8 million YOE, an increase in cost from the original Plan. The project is currently scheduled to open in calendar year 2020.

The capital funding plan is also different from the original Plan. The original Plan assumed a federal funding share of 50 percent and a state share of 25 percent. Chapel Hill Transit is currently seeking a 70 percent grant from the FTA Section 5309 Small Starts program. The amount of funds committed from the dedicated Tax District revenue is currently \$6.1 million YOE, to be accessed on a pay-as-you-go basis, which is the same amount dedicated in the original Plan. This amount can be considered a minimum and will be revisited in the future if local transit revenues are available. The anticipated capital funding plan for the project is presented in Table 18.

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

Table 18: N-S BRT Project Capital Funding Plan (YOE millions)

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

4.5.2 Operating Costs, Schedule, and Funding Assumptions

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

4.6 Durham-Orange Light Rail Transit Project

The D-O LRT Project will provide frequent, high-capacity light rail transit service in Durham and Orange Counties. As of December 2016, the scope of the project is 17.7 miles of dedicated light rail guideway with 18 stations between UNC Hospitals in Chapel Hill and North Carolina Central University (NCCU) in Durham, connecting numerous activity centers within the two counties. Once service starts, the D-O LRT Project will provide approximately 50,000 annual hours of additional transit service in Durham and Orange counties. The 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 been delayed from calendar year 2026 to 2028 to better match the anticipated flow of funding from the federal government.

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

4.6.1 Capital Costs, Schedule, and Funding Assumptions

The estimated capital cost of the project is \$2,476 million YOE. This capital cost was developed in accordance with FTA requirements for federal participation through the New Starts

program. It includes all eligible project expenses for project development, engineering, construction, start-up, and financing that are expected to be incurred from the date the project entered New Starts Project Development (February 2014) to the final year the project is expected to receive a disbursement of federal funds (anticipated 2032). This capital cost was reviewed by the FTA and accepted for entry into New Starts Engineering.

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

Details of project cost changes between the original Plan and this updated Plan are provided in Table 19: D-O LRT Project Capital Cost Updates (2016 millions) and Table 20.

Table 19: 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 20: D-O LRT Project Capital Cost Updates (YOE millions)

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

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

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

The anticipated capital funding plan for the project is presented in Table 21. GoTriangle is seeking a 50 percent grant from the FTA Section 5309 New Starts program, which is consistent with the federal share awarded other New Starts projects. The amount of funds budgeted from the dedicated Tax District Revenue in Durham and Orange Counties is \$906 million YOE, of which Orange County's share is assumed to be \$163.1 million 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 21: 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

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

4.6.2 Operating Costs, Schedule, and Funding Assumptions

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

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

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

4.7 Additional Needs Identified in this Plan

The Plan identifies additional needs to expand the transit system significantly beyond the services currently provided. However, the revenue provided by the Plan is inadequate to meet all of the region's transit needs. This section identifies some of the transit needs that the anticipated Tax District

Revenue will not be able to support. This list of projects is subject to change as the agencies and municipalities continue to evaluate the region's transit needs and the resources available to meet them.

4.7.1 Bus Service

In addition to the identified services to be implemented by fiscal year 2019, there will be additional bus service needs between fiscal years 2020-2045. Since details of these additional bus service needs have not yet been developed, the assumption has been to increase the total bus service hours provided in the county according to the projected annual job growth rate (1.58 percent per year in Orange County). This results in an additional \$278 million YOE worth of needs in Orange 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 Orange County to mitigate increased traffic congestion and reduce the need to provide additional parking
- Better service outside the hours of the traditional work commute to support a less car-dependent lifestyle

- Direct bus access to future light rail stations in Orange County to expand the reach of the Durham-Orange Light Rail Transit service throughout the County

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

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

4.7.2 Vehicles

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

4.7.3 Bus Facilities

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

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

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

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

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

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

- Bus stop improvements are anticipated with the realignment of services with the opening of the D-O LRT Project.
- Bus stop improvements to comply with new design guidelines being developed by Chapel Hill Transit in fiscal year 2018
- Other bus stop and access improvements to respond to changing ridership and travel patterns beyond fiscal year 2025
- New regional transit facility at Park Center in Research Triangle Park

4.7.4 Hillsborough Train Station

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

4.7.5 North-South Bus Rapid Transit Project

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

4.7.6 Durham-Orange Light Rail Transit Project

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

4.7.7 Administrative and Service Support

This updated Plan identified a new category of expenses to support the administration of new and expanded services and facilities. A full-time administrative position, ongoing customer outreach efforts and training/rebranding initiatives are identified to be funded in this Plan.

The administrative position would be responsible for coordinating the ongoing administrative and planning activities necessary to implement this Plan and Durham's Plan. This Plan identified a need for a part-time position for a staff member dedicated to these duties that 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. While the cost of the position would be split equally between the Orange and Durham Tax District Revenues, the Orange County portion needs to be identified.

The Plan also identifies the need for funds to support OPT's introduction of significantly expanded services in rural Orange County, including efforts to market and rebrand OPT's expanded services and a training contractor to provide enhanced training for staff and new operators expected to be hired by the agency to support the expanded service.

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.

4.7.7.1 Operating Costs, Schedule, and Funding Assumptions

The Plan identifies a need for \$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 paid for by the Durham County Tax District Revenue as specified in the Durham Plan.

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

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

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 Orange 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.

5.1.1.1 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 Orange County's half-cent sales tax used in this updated Plan was developed by Moody's Analytics in November 2016, using county-level personal disposable income and metro area housing completions as the main explanatory variables for revenue growth. This analysis provided year-by-year growth rates for 2017 through 2046, incorporating assumptions about economic cycles. The compound annual growth rate (CAGR) over the 30-year period was projected at 3.71 percent. This Plan assumes the year-by-year growth rates for years 2017 through 2046 and the CAGR for years 2047 and beyond.

5.1.1.2 Article 50 GoTriangle Vehicle Rental Tax

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

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

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

5.1.1.3 Article 51 Three Dollar Vehicle Registration Fee

The third dedicated revenue source is a three dollar (\$3) vehicle registration fee, which is an increase to GoTriangle's five dollar (\$5) vehicles registration fee. Since 1991, GoTriangle has been collecting a five dollar (\$5) vehicle registration fee in Durham, Orange and Wake Counties; those revenues fund GoTriangle's

general operations. To fund the Durham and Orange Transit Plans, GoTriangle exercised its statutory authority to increase the five dollar fee by three dollars in Durham and Orange Counties; it dedicated those incremental revenues to the county transit plans. GoTriangle needed to create the Durham-Orange Tax District (distinct from the Western Triangle Tax District) and receive approvals from GoTriangle’s Special Tax Board and both Boards of County Commissioners. GoTriangle created the Durham-Orange Tax District, its Special Tax Board approved the fee in February 2014, and the Counties approved the fee in March 2014. GoTriangle began levying the fee shortly thereafter. The revenues from the three dollar fee that are collected in Orange County are included in 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 3.3 percent. This Plan assumes the year-by-year growth rates for years 2017 through 2024 and the average annual growth rate for years 2025 and beyond.

5.1.1.4 Article 52 Seven Dollar Vehicle Registration Fee

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

to GoTriangle quarterly. The revenues from the seven dollar fee that are collected in Orange County are included in the draft 2017 Plan.

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

5.1.1.5 Actual Tax District Revenue, Fiscal Years 2014 through 2016

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

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

To date, Tax District Revenues have exceeded the expectations in the original Plan. Figure 6: Year by Year Revenue Comparison (in thousands of \$\$) contains the actual year-by-year collections to date for each of the four dedicated revenue streams, compared to the projections contained in the original Plan.

Figure 6: Year by Year Revenue Comparison (in thousands of \$\$)

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

Projected revenues provided in original Plan

Total revenues include interest and investment but exclude grants

5.1.1.6 Projected Transit Tax Revenues, Fiscal Years 2017 through 2045

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

5.2 Financing Assumptions

A portion of the construction cost of the Durham-Orange Light Rail Transit Project will be debt funded, with financing proceeds shown as revenues and debt service shown as expenses. In both the 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 Orange County, \$25 million YOE in Tax District long-term borrowing would be required. The draft 2017 Plan, in response to reductions in state and federal revenues, adjusts this total borrowing to a total of approximately \$205.7 million (YOE). The \$205.7 million is to be a combination of short- and long-term borrowing, to be repaid by a combination of federal grants and Orange County's dedicated transit tax revenues.

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

The draft 2017 Plan assumes that during the latter half of the D-O LRT Project construction period in fiscal years 2024 through 2028, GoTriangle will issue short-term LOBs intended to be repaid by a combination of Orange County Tax District Revenues and federal grant funds for the D-O LRT Project. The total amount of LOBs intended to be repaid by Orange local transit taxes is \$67.5 million YOY. The amount of LOBs intended to be repaid by federal grant funds is \$60.8 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 paramount.

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 \$71.6 million YOY will be funded by Orange local transit taxes. The cost of issuance is assumed at \$144,000.

In addition to financing needed for D-O LRT Project construction, an additional \$72 million YOY in borrowing is needed to fund Orange County's share of State of Good Repair costs for the project. These LOBs, which are to be funded by local transit tax revenues, would be issued in Fiscal Years 2040, 2048, 2053, and 2058.

5.3 Interest Rates

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

The assumed interest rate for the TIFIA loan is 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 7 and Figure 8 show the net debt service coverage ratios (DCSR), distinguished by the intended repayment source. Figure 7 shows DCSR for the LOBs intended to be repaid by federal grants. Figure 8 shows DCSR for the TIFIA loan and LOBs that are intended to be funded by local transit tax revenues.

Figure 9 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 7. Projected Debt Service Coverage Ratios: Federally-Funded Limited Obligation Bonds (LOBs)

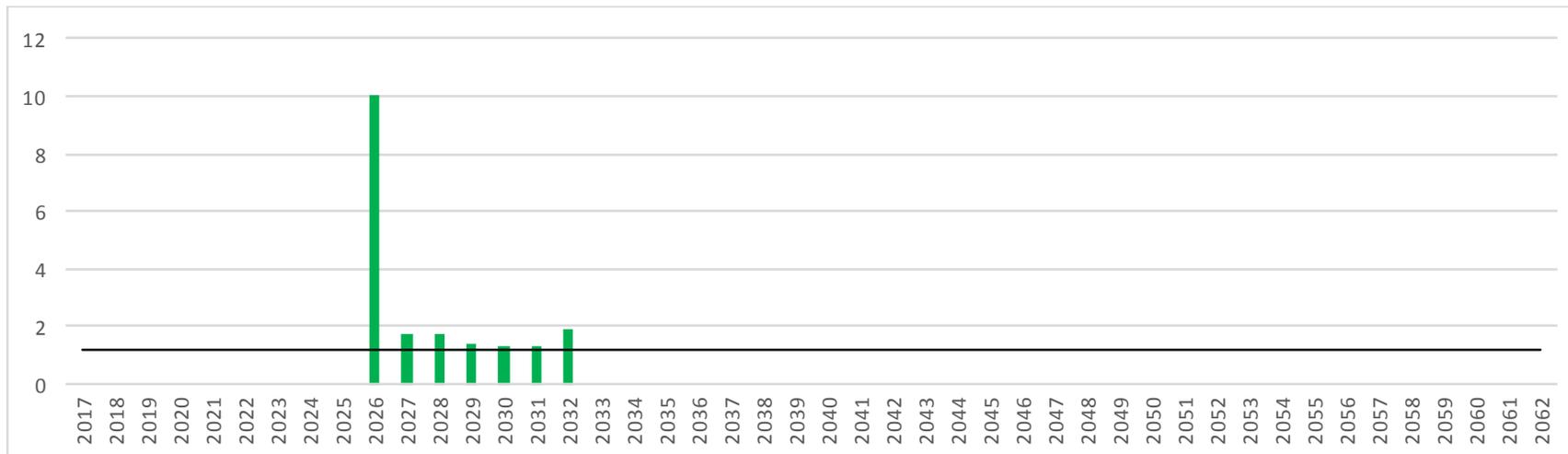


Figure 8. Projected Debt Service Coverage Ratios: Locally-Funded Limited Obligation Bonds (LOBs) & TIFIA Loans

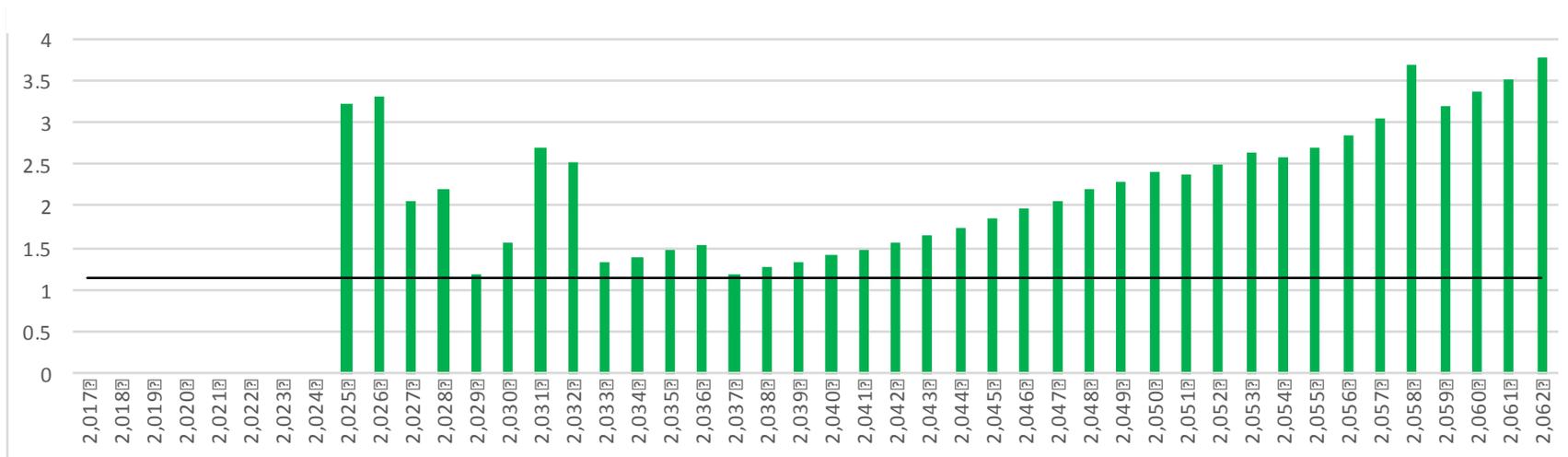
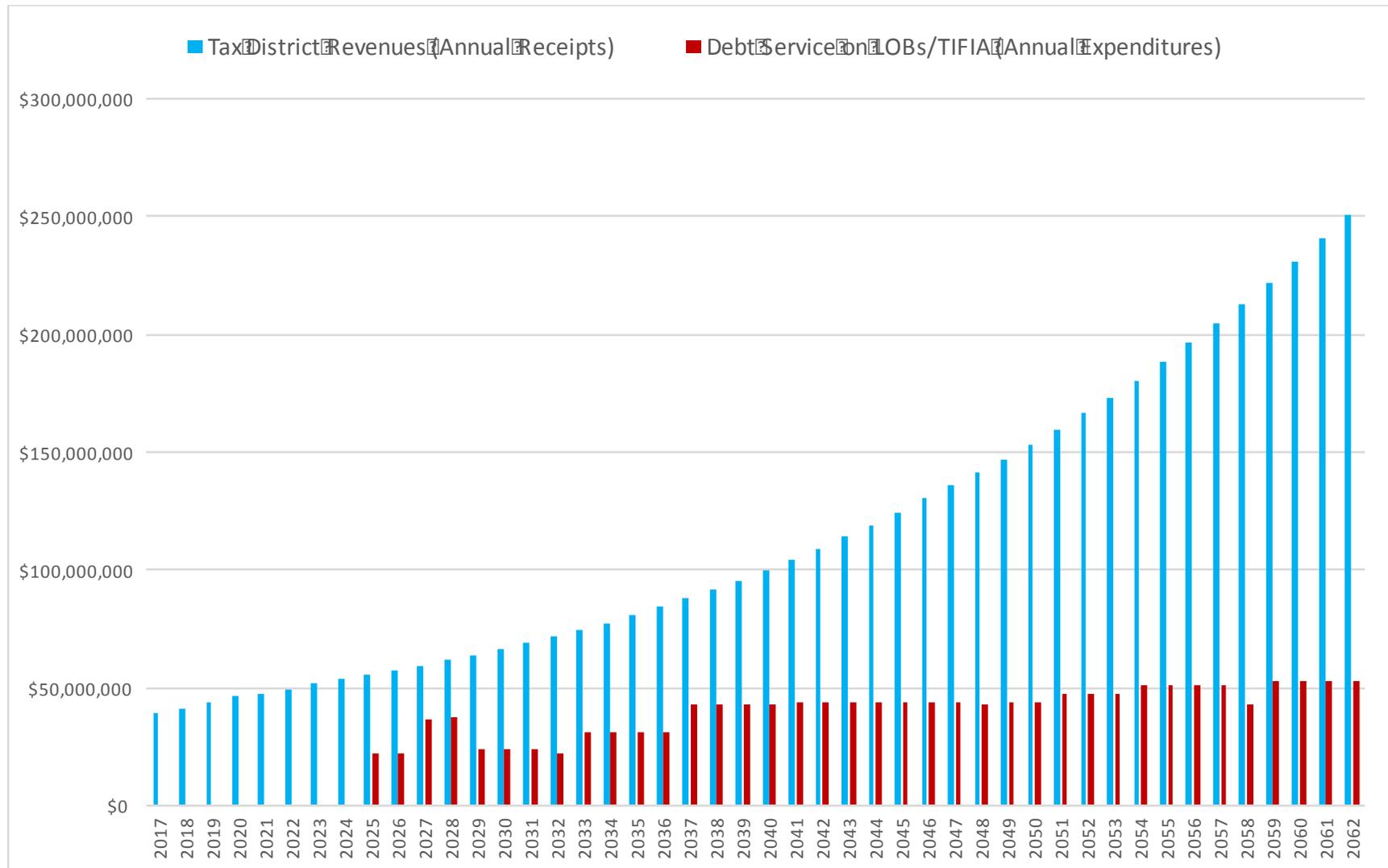


Figure 9. Projected Transit Tax District Revenue v. Debt Service for the D-O LRT Project



5.5 Reserves

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

5.5.1 Operations and maintenance

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

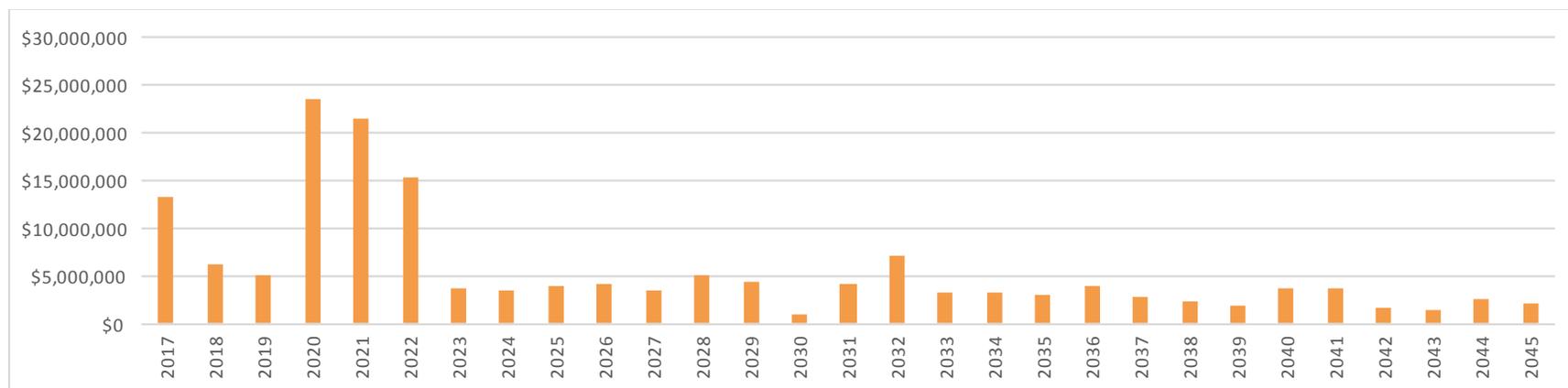
5.5.2 Debt service

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

5.6 Cash Flow Summary

Figure 10 shows the projected cash balance of the 2017 Plan from fiscal year 2017 through fiscal year 2045. The cash balance in the first year reflects the amount of local transit tax revenues that have been reserved during the Project Development phase of the D-O LRT Project. This balance will be used to cash fund engineering activities in fiscal years 2018 and 2019. At the end of 2019, the 2017 Plan anticipates the first disbursement of state funds for the project, followed by a federal Full Funding

Figure 10. Cash Balances (YOE)



Grant Agreement in fiscal year 2020. Once the Full Funding Grant Agreement is executed, the disbursement of federal funds will begin at the rate of \$100 million YOE per year (18 percent of which is reflected in the Orange cash flow). As project construction expenditures begin to outpace the federal disbursement schedule, financing will be needed to address the timing differences. Project construction will be complete in fiscal year 2028, and operations and maintenance for the project will begin in fiscal year 2029. From that point on, the primary expenses in the cash flow will be operating and maintaining the transit system in a state of good repair as well as funding debt service. Local transit tax revenues are projected to be sufficient to fund these expenses, but the capacity for expansion is limited in the long term. From fiscal years 2017 through 2045, the minimum projected cash balance after funding debt service, operations, maintenance and reserves is \$1.05 million YOE in fiscal year 2030.

Figure 10 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 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.

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

6.1 Multi-Year Capital and Operating Programs

A multi-year Capital Improvement Program (CIP) identifies by-year projected capital projects, project sponsors responsible for undertaking these projects, the financial costs and anticipated sources of funding for those projects, and identifies any projected operating costs associated with those projects. A multi-year Operating Program describes activities such as development of local bus, express bus, Bus Rapid Transit, and light rail services to be funded by the Tax District. It will describe service changes planned for the upcoming year and preliminary

service proposals and financial projection for the subsequent years. The document will also describe administrative, planning, marketing, or other functions that are not directly accounted for in specific infrastructure project delivery or allocated to service delivery, but are essential to the implementation of the Plan.

6.2 Light Rail Cost-Sharing Agreement

In conjunction with the 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 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.

6.3 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.