



Wake Bus Plan

Bus Service Expansion Project Prioritization Policy

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Bus Service Expansion Project Prioritization Policy Update
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1 Overview

The Bus Service Expansion Project Prioritization Policy is a framework to guide the development and implementation of expanded public transportation services in Wake County, North Carolina.

In 2016, voters in Wake County approved a tax package that will invest \$2.3 billion in public transit services over the 10-year period between 2017 and 2027. The combined investment strategy, branded as the Wake Transit Plan, reflects a vision for transit service development articulated through “Four Big Moves”, which include:

- **Connect Regionally:** Create cross-county connections by developing a combination of regional rail and bus investments. The investment plan reflects a Durham-Wake commuter rail project as well as a series of regional express routes.
- **Connect All Wake County Communities:** Connect all 12 municipalities in Wake County plus the Research Triangle Park (RTP) and Raleigh-Durham International Airport (RDU). This investment will include a combination of regional and express bus routes.
- **Frequent, Reliable Urban Mobility:** Develop a frequent transit network in Wake County’s urban core. The frequent transit network will include development of bus rapid transit services, plus high frequency bus services along major corridors in the County’s most developed communities.
- **Enhanced Access to Transit:** Directs investment to existing fixed-route services to make service more convenient. The investments include expanding transit operating hours, such as providing more service on weekend days or increasing services on weeknights. Enhancing access to transit also increases the frequency of service on many routes and develops demand-response services in lower density areas.

In addition to the Four Big Moves, the Wake Transit Plan identifies a series of investment goals to guide transit network development:

- Prioritize investment in ridership-justified routes but continue investment in coverage routes.
- Build a transit network that ensures both residents and jobs in Wake County are accessible by public transportation.
- Balance investments in transit infrastructure and new services to create a network that will be robust and viable in the long term. The Wake Transit Plan emphasizes infrastructure investments that improve the speed and reliability of transit operations.
- Focus investment on projects that will enhance customer service and the user experience. The Wake Transit Plan will prioritize accessibility, comfort, security, reliability, cleanliness, courtesy, and communication.

The Governing Boards directing the implementation of the Wake Transit Plan (hereinafter Wake Transit Governing Boards) are accountable for governing and overseeing implementation of the Wake Transit Plan. The Wake Transit Governing Boards include the Governance ILA parties,

which consists of the Capital Area Metropolitan Planning Organization (CAMPO) Executive Board and the GoTriangle Board of Trustees.

The Governance ILA parties established the Wake County Transit Planning Advisory Committee (TPAC), a staff-level advisory committee to coordinate planning and implementation of the Wake Transit Plan. The TPAC is comprised of regional and local governments, as well as the region's transit providers (GoTriangle, City of Raleigh, Town of Cary, and GoWake ACCESS) and major institutions. The TPAC is overseeing development of the Wake Bus Plan. Hands-on management and direction are provided through the Wake Bus Plan Core Technical Team (CTT), a subsidiary of the TPAC.

WAKE TRANSIT PLAN BUS SERVICE IMPLEMENTATION AND PRIORITIZATION

While the Wake Transit Plan identifies a clear vision for regional transit investment, it does not dictate or prescribe specific transit-related investments that TPAC member agencies must implement over the 10-year development period. This purposeful lack of specificity for significant portions of the transit network creates an opportunity for the region to adjust to changing needs and shape future investments in response to growth and development patterns. Bus service investments, including both transit operating and capital projects, are developed through the Wake Bus Plan. The Project Prioritization Policy is intended to create a shared implementation schedule that reflects Wake Transit Plan goals combined with local and regional needs.

The first version of the Project Prioritization Policy was published and approved for use on the Wake Bus Plan in 2018. This Policy was updated as a part of the Wake Bus Plan Update in 2022, which is the version described in this document.

The 2022 Wake Bus Plan Update will recommend an implementation program that schedules projects for funding up until Fiscal Year (FY) 2030. The Wake Transit Governing Boards and the TPAC also acknowledge that implementation may vary from the Bus Plan's guiding framework. Changes may occur because there is more or less funding available than planned and/or in response to a variety of exogenous variables that could change investment priorities in any given year. The TPAC, at its discretion, may elect to utilize the Project Prioritization Policy to update the investment schedule when needed.

The Project Prioritization Policy is a decision-making framework. It is intended to provide:

- A transparent and easily understandable process for making choices between competing investment needs associated with implementation of the bus service components of the Wake Transit Plan
- Guidance on the development of the 10-year bus service and capital investment plan prepared through the Wake Bus Plan
- An optional process that may be used by the TPAC to adjust bus service and the capital investment program outlined by the Wake Bus Plan to reflect changes in available funds, new or substantially modified project requests, or other needs in the region

Accordingly, the Project Prioritization Policy provides a consistent and mutually agreed-upon process for prioritizing operating and capital projects. The Policy also provides guidance on how the projects are programmed by year based on funding projections. Ultimately programming, not prioritization, determines when a project will be funded and scheduled for implementation.

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Collectively, the two processes – prioritization and programming – create a process that aligns and affirms regional transit investments to advance the goals of the Wake Transit Plan.

The Project Prioritization Policy balances the need to create a transparent, data-driven approach that ranks projects based on expected performance and the need to prioritize projects according to the broader, qualitative goals of the Wake Transit Plan. The Policy is designed to reinforce the investment schedule proposed by the Wake Bus Plan by translating the values and goals of the Wake Transit Plan into an objective and transparent method to choose between competing projects. Accordingly, the Project Prioritization Policy should prioritize and advance projects that offer the most overall value to the Wake Transit Plan. By agreeing to this policy, Wake Transit Governing Boards are agreeing to a framework and process for allocating resources within in a constrained investment schedule.

2 Prioritization Framework

The Prioritization Framework is a quantitative process designed to prioritize and rank proposed operating and capital projects. It is the first step in a two-step process to provide guidance to TPAC member agencies as they rank projects and arbitrate investment decisions. The Prioritization Framework considers bus service expansion operating projects, as well as capital projects that are tied to bus service expansion. The framework is intended to be used in conjunction with the Programming Guidance, outlined in Chapter 3.

The outcome of the financially unconstrained Prioritization Framework will be a complete ranking of the projects included in the Wake Bus Plan. This set of ranked projects will be subsequently reviewed and programmed through a financially constrained process according to future funding projections (see Chapter 3). The Programming Guidance will help ensure individual projects fall within the funding allocations and overall network needs by balancing total investments in operating and capital projects.

This chapter outlines project typologies, prioritization metrics, and scoring methodologies that guide both the operating project evaluation and capital project evaluation processes.

SELECTING PROJECTS FOR EVALUATION

For the Wake Bus Plan Update, projects that will be prioritized include proposals submitted by sponsors for new projects, major changes to existing projects, and related capital projects, including those that were previously programmed but have not been implemented or are not planned to be implemented in FY24 or earlier. All projects included were presented and agreed upon by the Wake Bus Plan CTT and Stakeholder Team representatives through a series of highly collaborative workshops.

Major changes to existing projects will be guided by the definition of “Major Amendments” in the Wake Transit Plan Amendment Policy, defined in August 2022 as changes in scope that:

“Cause deviation from the original purpose of the project as intended when the project scope was included in the subject work plan;

Cause deviation from the originally intended method of project achievement; and

Cause a major deviation to the outcome of the project as intended when the project scope was included in the subject work plan.”

Projects submitted for prioritization and programming may include fixed-route bus services and associated capital projects, as well as on-demand or microtransit services. Projects not a part of the bus service expansion prioritization framework include projects requesting funding from the Wake Transit Community Funding Area Program. These projects are prioritized and programmed through a separate process.

As the Prioritization Framework focuses on scoring bus service expansion projects, proposals to reduce service or reduce Wake Transit funds are considered in the later programming stage.

EVALUATING OPERATING PROJECTS

Projects submitted for prioritization will be evaluated according to a three-step process:

- **Step 1 – Project Typologies:** As the Wake Bus Plan Update is developed, the project sponsors will categorize each project as one of three typologies. The project management team will use the Wake Transit Financial Model to collect information on project characteristics, including projected operating costs, and performance estimates. If additional information is required, the team will collect the data from relevant parties. Projects may only be assigned to one typology.
- **Step 2 – Individual Project Evaluation:** Project proposals are evaluated using quantitative metrics designed to gauge the project's effectiveness at meeting Wake Transit Plan objectives.
- **Step 3 – Final Scoring:** Projects within each typology are scored comparatively with ordinal scores of 1 to 4 for each metric. Ordinal scores for each project type will be compiled and ranked into an overall slate of projects that will be subjected to programming, detailed in Chapter 3.

Operating projects are evaluated at the route level, though projects may be grouped into packages as a part of programming in Chapter 3.

Step 1: Project Typologies

The Prioritization Framework separates Wake Transit operating proposals into three distinct project typologies, according to direction provided by the project sponsors. Each project typology is directly tied to one or more of the Four Big Moves and linked to one or more of the overarching Wake Transit Plan goals (Figure 1). As part of submitting projects for prioritization, project sponsors will assign each operating project proposal to a single typology, using definitions provided in Figure 1. Operating projects will be evaluated relative to other projects within their designated typology, rather than in comparison to all operating projects. Dividing the evaluation process across three project typologies provides the following benefits:

- Allows consistent progress towards each of the Four Big Moves and overarching goals during each funding cycle. Without typologies, TPAC member agencies risk consistently prioritizing projects that have the highest ridership or lowest costs.
- Ensures that the most viable projects within each typology are prioritized. This will ensure that the strongest aspects of the transit network are constructed first and will create better opportunities for secondary projects to succeed in later years.

It is worth noting that the project typologies are not mutually exclusive. It is anticipated that some projects will qualify for multiple typologies and that it will be the responsibility of the project's sponsor to choose which individual category to they would like to place the project in for prioritization. This ambiguity is tolerated in the prioritization process for two reasons: 1) creating transit service types that are mutually exclusive would result in an overly complex categorization that would make an efficient ranking process untenable; and 2) the ambiguity allows project sponsors flexibility to position individual projects into the typology which best meet the needs and goals of their agency.

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Figure 1 | Operating Project Categories and Related Four Big Moves/Overarching Goals

Project Typologies	Typology Definition	Related Four Big Moves	Wake Transit Plan Goals
Frequent Network Routes	- Operating projects on Frequent Network corridors, as outlined by the Wake Transit Plan - Bus service that comes every 15 minutes all day - Will include phased or interim investments (e.g., new routes initially implemented as 30-minute service but scheduled for subsequent upgrade to 15-minute service)	Frequent, Reliable Urban Mobility	Achieve 70% ridership-oriented service
Intra-County and Regional Express Routes	- Operating projects on limited stop and/or peak only routes designed to increase mobility within and beyond Wake County - Includes limited stop and/or peak only routes that provide service to areas that are currently unserved - Includes microtransit or on-demand services designed for regional travel	- Connect Regionally - Connect All Wake County Communities	- Ensure all Wake County communities have access to a regional or express bus route - Provide transit service to all Wake County municipalities
Investments in Local Services	- Operating projects on routes designed to improve local transit access - Includes increases to service span and/or frequency on existing routes - Includes new, not-frequent routes	- Connect All Wake County Communities - Enhanced Access to Transit	- Provide transit service to all Wake County municipalities - Maintain 30% coverage-oriented service - Ensure all-day transit service within ¾ miles from 54% of residents and 80% of jobs in Wake County

Step 2: Individual Project Evaluation

Each project is evaluated based on six metrics that draw from the overarching goals of the Wake Transit Plan. These six metrics reflect three evaluation categories:

- Transit Demand – Improve transit in the areas that best support it
- Network Improvements – Improve access to high-quality transit services
- Service Productivity – Provide financial and long-term sustainability

The six metrics and their evaluation methodologies are shown in Figure 2. Metrics reflect transit service design principles, such as the density of people served, or the number of new residents within walking distance of a frequent route. In this way, the process grounds the prioritization process in customer benefits.

Each metric is operationalized using a simple methodology designed to be easily replicated throughout the Wake Transit Plan implementation process. Definitions used in the evaluation are as follows:

- **Frequent service:** transit that operates all-day weekdays with 15-minute or better service.
- **All-day service:** transit that operates regularly throughout the day, with a minimum service span defined by route type in the Wake Bus Plan Service Guidelines and Performance Measures
- **Service area:**
 - **Local Routes:** within $\frac{3}{4}$ -mile straight line buffer of corridor
 - **Regional/Limited-Stop Routes:** within $\frac{3}{4}$ -mile straight line buffer of planned stops
 - **Microtransit:** within boundaries of the project's defined microtransit zone

The metrics rely on data published by the U.S. Census Bureau, CAMPO and DCHC MPO, and proposed service characteristics developed by the agency sponsoring the operating projects. The methodology for estimating ridership is described in Appendix A. Projects of all typologies first receive a raw score for each prioritization metric. Depending on the metric, these raw scores are expressed as total or density of people/jobs, cost, or other factors.

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Figure 2 | Prioritization Framework Metric Operationalization

Category	Prioritization Metric	Evaluation Methodology	Data Source
Transit Demand	People + Job Density	Calculate the sum of average population and job density in service area	CAMPO/DCHC MPO Model (most recent base year)
	Minority + Low Income Population Density Served	Calculate sum of density of minority population and individuals with low incomes in service area	Recent 5-year ACS data (block group)
	Number of Key Destinations Served	Count number of key destinations within service area	Defined list of ▪ Downtown centers of each municipality ▪ Colleges and Universities ▪ Wake Tech and Durham Tech Campuses ▪ Large Shopping Centers ▪ Hospitals ▪ Transit Centers
Network Improvements	New People + Jobs with Access to Improved Transit Services	Calculate the following three sub-metrics and use the one with the maximum value as the raw score for this metric: ▪ Frequent Transit: Calculate the net number of new people and jobs in service area that will gain frequent transit service who are currently not served by frequent transit service. ▪ All Day Transit: Calculate the net number of new people and jobs in service area that will gain all day service who are currently not served by all day service. ▪ Weekend Service: Calculate the net number of new people and jobs in service area that will gain weekend service who are currently not served by weekend service. If only one day of weekend service is added, divide the number by half.	CAMPO/DCHC MPO Model Existing transit route alignment shapefiles
Service Productivity	Projected Passengers per Revenue Hour	Divide the projected total ridership of proposed project by the planned total revenue hours	Ridership and service characteristics projections developed through Bus Plan (see Appendix A)
	Projected Operating Cost per Passenger	Divide the projected total operating cost of proposed project by the projected total ridership	Ridership and service characteristics projections developed through Bus Plan (see Appendix A)

Step 3: Final Scoring

The next step of the prioritization process is to calculate an ordinal score for each metric of each project within a typology and summing the ordinal scores across all metrics into a total project score, which can be used to represent the project during the ranking process. For each metric, the raw inputs (such as number of people and jobs per acre) associated with each project within a typology are translated into ordinal scores of one to four. The ordinal scores are assigned based on quartiles: roughly 25% of projects in each typology score a four (highest performing) for that specific metric, 25% of projects score a three (second highest performing), and so on.

Due to the nature of the quartile scoring methodology, manual adjustments to the ordinal score may be needed, especially in cases where a typology has only a few projects. For example, if there are fewer than four projects, or if there are four or five projects where multiple projects have the very close raw scores for a metric, the project team may manually assign an ordinal score based on the relative spread across the range of raw scores for that metric. In these cases, projects may end up being assigned the same ordinal score for a metric if the quantitative results are very similar to each other.

The ordinal scores are summed across all metrics for each project to get to the total project score. Figure 3 is an example of scoring for the projects within one typology. The total project score allows all projects regardless of typology to be compiled into one ranked list, from the highest score—and thus highest priority—to the lowest score. This list of ranked projects is then brought forward to programming (Chapter 3).

Figure 3 | Example Operating Project Scoring

Frequent Network Typology	Ordinal Score for Each Metric						Total Project Score
	Metric #1	Metric #2	Metric #3	Metric #4	Metric #5	Metric #6	
Project 1	4	3	4	2	3	4	20
Project 2	4	2	3	4	3	3	19
Project 3	1	4	4	3	4	2	18
Project 4	2	4	1	4	2	3	16
Project 5	1	2	3	1	4	2	13
Project 6	3	1	2	2	1	4	13
Project 7	3	1	1	3	2	1	11
Project 8	2	3	2	1	1	1	10

EVALUATING CAPITAL PROJECTS

The Bus Service Expansion Project Prioritization Policy guides prioritization and programming of capital projects that are directly tied to bus service expansion operating projects. Other types of capital projects, such as improved fare payment systems, are prioritized and programmed based on the Wake Transit Plan Update Final Project Prioritization and Reprogramming Guidance.

Projects required for the implementation of bus operating projects, such as the vehicles needed to operate the service and bus stops along new alignments are not evaluated as part of the project prioritization process. Because these project investments are required to advance the operating projects, the investments are programmed with the operating projects.

Other capital projects that enhance bus operations but are not directly required by transit operating costs will be prioritized based on two categories:

- **Capital Projects Tied to a Single Operating Project:** Wake Transit Governing Boards will support bus capital projects required to support or improve the operations of a single bus service, such as upgrading ADA compliant bus stop pads and/or amenities for larger facilities.
- **Capital Projects Tied to Multiple Operating Projects:** Some bus capital projects will support multiple operating projects. In some cases, these investments may be tied to a specific package of operating projects (i.e., the need for a transit super stop); in other cases, a critical mass of operating projects will lead to larger scale investments, such as more vehicles, or creating additional capacity in transit maintenance facilities.

Capital projects are prioritized based on the calculated scores of the associated operating project or projects and those projects' expected implementation timeline. Capital projects supporting multiple operating projects will be prioritized based on the combined score of all associated operating projects. This methodology ensures that the capital projects that are necessary to implement the highest priority operations projects or represent significant barriers to making any service improvements for a significant part of Wake County, are prioritized first. Most importantly, the Wake Bus Plan should program and complete capital projects before the related operating service commences.

3 Programming Guidance

OVERVIEW

The Wake Bus Plan Project Prioritization Policy is a decision-making framework to guide the Wake Transit Plan's annual investment program, and to ensure that the network development works towards the Wake Transit Vision. Once projects have been prioritized and ranked on a quantitative basis, the TPAC member agencies and project management team will program projects for inclusion in the fiscally constrained Multi-Year Operating Program in an iterative, qualitative process laid out in this chapter.

The TPAC member agencies will use the Programming Guidance to review the overall impact of the prioritized projects and assess the combined impact of the projects on progress towards the goals and vision articulated in the Wake Transit Plan. It will also consider the financial impact of the individual projects and available revenues to lay out an implementation and funding schedule. The programming process provides the project sponsors an opportunity to balance and adjust recommendations in the context of the overall Wake Transit Plan and available funding. Despite being subjective, the process is directed and constrained by the goals articulated in the Wake Transit Plan, as well as the available financial resources.

FRAMEWORK AND GOALS

As discussed, the Wake Transit Plan sets a series of network development goals to guide system investment. Of the four overarching goals, two concern bus service expansion:

- Prioritize investment for ridership-justified routes but continue investment in coverage routes. **The Wake Transit Plan sets a system-wide goal of 70% ridership routes and 30% coverage routes.**
- Expand the number of Wake County residents and jobs that have access to a reliable transit network. Specifically, the Wake Transit Plan identifies a **network goal of ensuring that all-day transit service is within three-quarters of a mile (roughly walking distance) from 54% of all Wake County residents and 80% of jobs in Wake County.** The existing network is within $\frac{3}{4}$ of a mile of all-day service for 41% of Wake County's population and 66% of jobs in the County (per 2016 Wake Transit Plan).

The Programming Guidance gives decision-makers an opportunity to apply a broader, qualitative perspective to projects that were ranked and prioritized based on quantitative parameters. By applying the broader perspective, the Wake Transit Governing Boards will ensure that key Wake Transit Plan goals retain focus on regional priorities and goals and the annual work program is equitable, appropriate, and justifiable. As such, while the process allows for a re-balancing of the prioritized projects, it does not give project sponsors free reign to direct investments away from projects that work towards the successful implementation of the Wake Transit Plan.

PROGRAMMING GUIDANCE

Programming will occur after the Prioritization Framework prioritizes and ranks all potential projects. Staff participating in the Programming process will consider the recommended projects individually and collectively for their combined impact and progress towards the Wake Transit Plan vision and goals. The goal of the Programming Guidance is to ensure annual investment decisions advance the overall goals of the Wake Transit Plan. As such, the process will be the second and final step in recommending the annual Wake Transit work program.

Partners are free to program projects not funded by the Wake Transit Plan in any year. These projects are included in the programming phase to help an agency understand how a project might be prioritized and provide an overall perspective of all projects. Project sponsors may also opt to use different funding to advance their project or investment based on the results of the prioritization exercise.

Packaging Projects

Although projects are evaluated at the individual route level, for operating reasons, multiple route projects may need to be packaged together for programming in the same year because of their interdependency or cumulative impact. Project sponsors may make recommendations for packaging investments after project prioritization. Packages should be created if certain projects are reliant on one another, such as the removal of one route when another begins, or the realignment of two routes that interact. Packaging projects can result in later programming dates and adjusting packaging may occur during the iterative process to balance a variety of factors, including funding. However, involved parties should ensure that projects that require the implementation of another to provide adequate service coverage are kept together. Packages must hold together from an operational and market perspective.

Projects that are not funded by Wake Transit funds may be included in a package for programming if useful for implementation planning, but costs of that external route would not be counted as a part of that package's cost to the Wake Transit Plan.

Process Steps

Project programming is an iterative process, with involvement of partner transit providers and municipalities. Through it, staff will adjust the annual investment schedule to maximize progress towards the goals identified above. Staff is also directed to consider the current year's projects together with the slate of projects advanced within the current funding cycle to ensure the investment program is in line with expectations. Record keeping during all steps is essential in understanding how decisions were made.

Staff will use the following process to create the investment program:

- **Step 1: Draft Programming of Operating Projects–** Use list of prioritized operating projects and available funding projection by year to develop first draft of Multi-Year Operating Program, with projects that are ranked higher programmed earlier in the timeline. Also, include any projects that reduce service or reduce the amount of Wake Transit funds requested (since they were not included in the prioritization list) in the year deemed fit by the project sponsor. Check if the draft programming is advancing the Wake

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Transit Plan goals by evaluating the proposed FY2027 and FY2030 networks against the targets set in the Plan.

- 70% ridership routes and 30% coverage routes
 - 54% of all Wake County residents and 80% of jobs in Wake County within ¾ miles of all-day service
 - The percent of population and jobs within ¾-miles of frequent transit and weekend service can also be evaluated, though the WTP does not define exact targets for those.
- **Step 2: Draft Programming of Capital Projects** – Slot in capital projects based on their related operating projects and capital funding projections. In many cases, capital projects will be programmed in advance of an operating project, e.g., vehicle purchases and bus stop funding will be programmed 18 months in advance of new route.
 - **Step 3: Proposals for Changes** – Project sponsors submit proposals for changes to the draft programming to advance or defer projects based on any of the following qualitative factors. Potential programming changes that may be made include:
 - **Operating projects related to capital projects that have already started** – partners can propose to move these projects earlier to time implementation with capital investment
 - **Projects that were previously programmed but not yet implemented, with no or minimal changes to the proposals** – since these projects have already been vetted by the public, partners can propose to move these projects earlier, but no earlier than the year they were programmed in the most recently adopted Work Plan
 - **Projects proposed to replace or fix low performing services** – partners must provide justification on the urgency of the project, compared to if low performing service continued to operate
 - **Projects ranked differently in internal agency processes** – partners may propose swapping the order of projects that they sponsor, especially if the projects scored closely during the prioritization phase
 - **Projects previously suspended** but have funding to return, or projects funded in an earlier year but have not yet been implemented due to other operational factors not related to the Wake Transit Plan.
 - **Separate out critical aspects** of a package that can be implemented independently at an earlier time, even if the full package is preferred to be implemented as a whole
 - **Step 4: Iterate and Adjust** – Edit draft programming based on discussion and input from TPAC partner agencies and project sponsors, through a conversation facilitated by CAMPO.
 - **Step 5: Wake Transit Plan Goals** – Check again to see if the draft programming is advancing the Wake Transit Plan goals by evaluating the proposed FY2027 and FY2030 networks against the ridership/coverage and proximity to transit targets set in the Plan. Edit the programming as needed to meet these goals.
 - **Step 6: Finalize** – Continue to iterate and edit programming as needed to meet goals and work within available funding to finalize program.

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A project sponsor may make changes to a project or package of projects after programming under the conditions laid out in the Wake Transit Work Plan Amendment Policy. Lastly, for implemented projects that are in the adopted Wake Transit Work Plan, but are under consideration for reprioritization and reprogramming, Wake Transit funds will continue to be provided until the programmed year of implementation for the new changes.

Appendix A: Methodology to Estimate Ridership

The Project Prioritization Policy describes the process and metrics used to evaluate and prioritize individual operating and capital projects associated with the Wake Bus Plan. The evaluation framework for operating projects includes two metrics that require estimating the number of riders expected to use the route:

- Projected Passengers per Revenue Hour
- Projected Operating Cost per Passenger

There is no standard approach to estimating ridership on individual bus routes. While there are key factors that can be used to identify strong markets for transit services (like population and employment densities and demographic characteristics), many other factors can also affect actual ridership, such as the overall network structure. The Wake Bus Plan includes a diversity of service improvements ranging from adjusted alignments, increased span of service, increased service frequency and new routes. Ridership impacts will vary depending on the type of service improvement.

Nelson\Nygaard adopted a relatively simple and straightforward approach to estimating ridership based on the service area (e.g., urban, suburban, rural), the operator, and the type of improvement (e.g., new route, frequency improvement, alignment modification). Ridership was estimated by applying a ridership productivity factor, measured as riders per revenue bus-hour of service. The approach used to assign an appropriate productivity factor was as follows:

- In cases where minor alignment improvements were made to an existing route, typically the existing route ridership productivity factor was applied to the route's new service statistics i.e., riders per hour).
- In cases where a route's span was expanded (e.g., the addition of weekday midday service and/or weekend service), ridership was estimated by applying a productivity factor from similar routes operated by the transit operator.
- In cases where a route's service frequency was improved (e.g., from 60 minutes to 30 minutes), the route's ridership was assumed to be the higher of either 1) the existing route productivity or 2) the systemwide average for similar service levels (see Table 1).
- New bus routes or routes with significant alignment changes were assumed to have ridership consistent with bus routes that had the same service profile (i.e., frequency and day of week) provided by the same transit operator. Ridership productivity factors shown in Table 1 were generally applied for new routes.
- In some cases, if a route was being absorbed into a new route, ridership estimates assumed the productivity of the new route.

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For on-demand microtransit services, where there is less experience in Wake County, Nelson\Nygaard assumed that ridership on the existing routes would increase by 5% per year, recognizing that the service is brand new, and productivity should increase with awareness and familiarity. In the case of GoWake Access microtransit projects, we used the existing productivity (1.28 passengers per hour) for 2022, increasing by 5% per year.

Table 1: Ridership per Hour Factors by Service Type

	Weekdays	Saturdays	Sundays
Urban Routes			
15 minutes	27.0		
30 minutes	17.0	17.8	18.0
60 minutes	14.2	14.2	12.5
Rural, Regional and Suburban Routes			
Regional Routes	17.3*	14.0	12.6
Suburban Routes	5.9	5.2	6.2
Local/Rural Routes	5.2	4.6	5.5

*Average productivity factor for Go Triangle Routes 100, 300, 700