GoTriangle
Operations & Finance Committee
Wed, December 19, 2018 10:30 am-11:45 am

I. Call to Order and Adoption of Agenda

ACTION REQUESTED: Adopt agenda.
(1 minute Michael Parker)

II. Draft Minutes - November 28, 2018

ACTION REQUESTED: Approve minutes.
(1 minute Michelle Dawson)

III. Global Signal Acquisitions Easement

ACTION REQUESTED: Recommend Board adoption of a resolution authorizing a Grant of Easement to Global Signal Acquisitions IV LLC (GSA IV).
(5 minutes Gary Tober)

Resolution 2018 0011

IV. Vanpool Subsidy

ACTION REQUESTED: Recommend the Board set a monthly vanpool subsidy at $450 for all vanpool groups traveling more than 35 daily commute miles and $350 for vanpool groups traveling 35 or fewer daily commute miles.
(8 minutes John Tallmadge)

V. PMIS Procurement – e-Builder

ACTION REQUESTED: Recommend the Board authorize the President/CEO to approve the e-Builder Service Agreement for an amount not-to-exceed $300,000.
(9 minutes John Tallmadge)

VI. Professional Services Contract Amendment – GEC Phase 3B

ACTION REQUESTED: Recommend the Board authorize the President/CEO to increase the not-to-exceed amount for the GEC Phase 3B Contract with HDR Engineering Inc. by $900,000 for relocation design services for university-owned utilities.
(9 minutes John Tallmadge)

VII. Update on D-O LRT Professional Services Contracts
(10 minutes John Tallmadge)

VIII. Regional Fare Study – Informational Update
(10 minutes Mary Kate Morookian)

Wake-Durham Fare Integration Study - DRAFT

IX. Comprehensive Annual Financial Report
(12 mintues Ren Wiles)

X. FY18 Annual Bus Service Performance Report.pdf
(12 minutes Matthew Frazier)

A. Attachment A.pdf
B. Attachment B.pdf
C. Attachment C.pdf
D. Attachment D.pdf
E. Attachment E.pdf
F. Attachment F.pdf

XI. Adjournment
(Michael Parker)

GoTriangle Board of Trustees
Operations & Finance Committee Meeting Minutes
November 28, 2018

Board Room, The Plaza, 4600 Emperor Blvd., Suite 100
Durham, NC

Committee Members Present:

Sig Hutchinson
Michael Parker, Committee Chair
Ellen Reckhow
Russ Stephenson (by phone)
Steve Schewel (arr. 10:43 a.m.)

Committee Members Absent:

Valerie Jordan
Andy Perkins Jr.

Other Board Members Present:

Will Allen III

Committee Chair Michael Parker called the meeting to order at 10:35 a.m.

I. Adoption of Agenda

Action: On motion by Reckhow and second by Hutchinson the agenda was adopted. The motion was carried unanimously.

II. Approval of Minutes

Action: On motion by Hutchinson and second by Reckhow the Committee approved the minutes of the October 24, 2018, meeting. The motion was carried unanimously.

III. GoTriangle Short-Range Transit Plan

Jon Dodson's presentation is attached and hereby made a part of these minutes. He stated there were no raised flags in the Title VI equity analysis.

Schewel arrived.

Action: On motion by Reckhow and second by Hutchinson the Committee voted to recommend Board approval of the GoTriangle Short-Range Transit Plan. The motion was carried unanimously.

IV. GoTriangle January 2019 Service Change Recommendation

Jon Dodson's presentation is attached and hereby made a part of these minutes. He stated that changes are being proposed to the OnDemand service which require Board approval. The proposal is to remove midday service and increase the peak vehicles available from three to four. This is a reallocation of existing

service hours to better reflect shuttle usage. The change will reduce customer wait times and reduce travel times during the peak. Other minor schedule changes do not require Board approval.

Dodson added that 61 responses were received from existing customers and two-thirds are in favor of reallocating hours from mid-day to peak for a more reliable peak period experience. He added that staff continues to work with Research Triangle Park to come up with long term solution. He stated that staff plans to bring a recommendation in the spring that will go into effect by August.

Action: On motion by Schewel and second by Reckhow the Committee voted to recommend Board approval of changes to the GoTriangle OnDemand Service: removing midday service and increasing peak vehicles available from three to four. The motion was carried unanimously.

V. Wake Transit Community Funding Area Program Management Plan

Laurie Barrett requested approval of the Wake Transit Community Funding Area Program (CFAP) management plan. She stated that Wake County municipalities were surveyed by the consultant who also conducted a peer review. Stakeholder meetings also were held. The program is modeled after the Locally Administered Projects Program (LAPP). Funding will start at $184,000 and increase by $250,000 each year until it reaches $2 million. It requires a 50% match by the applicant.

Reckhow asked if the funding can be renewed. Barrett responded yes.

Action: On motion by Hutchinson and second by Reckhow the Committee voted to recommend Board approval of the Wake Transit Community Funding Area Program Management Plan. The motion was carried unanimously.

VI. Town of Wake Forest - Use of Existing Town Expenditures in Community Funding Area

Steven Schlossberg brought a request from the Town of Wake Forest to allow current funds for the Wake Forest circulator to qualify as matching funds for the CFAP. He stated that the CAMPO executive board voted to allow current expenditures to qualify as matching funds for Wake Forest and all future applications.

Action: On motion by Hutchinson and second by Schewel the Committee voted to recommend the Board allow the current expenditure of funds on public transportation service to qualify as necessary matching funds for new Community Funding Area Program applications. The motion was carried unanimously.

VII. Wake Transit FY19 Q2 Amendment

Steven Schlossberg presented a minor amendment which allocates $4.3 million from reserve to the City of Raleigh for BRT sponsorship. He added that this was recommended by the TPAC and has been approved by CAMPO.

Action: On motion by Reckhow and second by Hutchinson the Committee voted to recommend the designation of $4,315,545 from FY18 and FY19 adopted Wake Transit Plan reserves to the City of Raleigh as project sponsor for one or more Bus Rapid Transit (BRT) corridors. The motion was carried unanimously.

VIII. Duke Energy Permanent and Temporary Drainage Easement

Gary Tober explained that Duke Energy had approached GoTriangle to request a temporary construction easement and permanent drainage easement along segment 15 of the CSX right-of-way, which is owned by GoTriangle. FTA initially denied our request for concurrence to convey the easement and we asked them to reconsider. Last week FTA stated they would approve the conveyance of the easement but Duke Energy has said it does not need the easement now. Tober requested authorization in case Duke Energy comes back.

Action: On motion by Hutchinson and second by Reckhow the Committee voted to recommend that the Board authorize the conveyance of a temporary construction and permanent drainage easement to Duke Energy.

IX. Adjournment

Action: On motion by Reckhow the meeting was adjourned at 11:22 a.m.

_____
Michael Parker, Committee Chair

Attest:

_____
Michelle C. Dawson, CMC
Clerk to the Board of Trustees

Connecting all points of the Triangle

MEMORANDUM

TO: GoTriangle Board of Trustees Operations & Finance Committee

FROM: Real Estate

DATE: December 6, 2018

SUBJECT: **Global Signal Acquisitions Easement**

Strategic Objective or Initiative Supported

Action Requested

Staff requests that the Committee recommend Board adoption of a resolution authorizing a Grant of Easement to Global Signal Acquisitions IV LLC (GSA IV).

Background and Purpose

When the Patterson's Mill property was condemned by GoTriangle for the Rail Operations and Maintenance Facility (ROMF), there were pre-existing easements on the property. Global Signal Acquisitions IV LLC operates a cell tower and has rights for utility and access purposes on this property. To confirm the pre-existing easement rights on the land now owned by GoTriangle for the ROMF – and as a pre-condition to agreeing to the release of the condemnation deposit to Patterson's Mill – GSA IV is seeking a Grant of Easement by GoTriangle for its cell tower, access and utilities.

Financial Impact

There is no funding in this transaction. The transaction confirms pre-existing easement rights held by GSA IV prior to the condemnation and reflects current conditions at the site.

Attachments

- Resolution 2018 0011

Staff Contact(s)

- Gary Tober, 919.485.7577, gtober@gotriangle.org
- Tom Henry, 919.485.7589, thenry@gotriangle.org

2018 0011

RESOLUTION OF THE GOTRIANGLE BOARD OF TRUSTEES AUTHORIZING EXECUTION OF A GRANT OF EASEMENT TO GLOBAL SIGNAL ACQUISITIONS IV LLC

WHEREAS, pursuant to N.C.G.S. §160A-619, GoTriangle took by eminent domain a certain parcel of land in Durham County (the "former Patterson's Mill property") for the purpose of constructing a Rail Operations and Maintenance Facility ("ROMF") in connection with the Durham-Orange Light Rail Transit Project; and

WHEREAS, a cell tower facility and associated access and utility infrastructure serving the cell tower existed on the former Patterson's Mill property prior to the eminent domain action and still presently exist on the site; and

WHEREAS, the cell tower facility and other associated property interests belong to Global Signal Acquisitions IV LLC ("GSA IV"), a Delaware limited liability company; and

WHEREAS, the Durham City Council approved a rezoning action on December 3, 2018, which will enable development of the ROMF, while also allowing the cell tower facility to remain on the former Patterson's Mill property; and

WHEREAS, GoTriangle is actively coordinating with GSA IV's operating agent, Crown Castle, on utility relocation designs and other matters to ensure that development of the ROMF is not disruptive to GSA IV's use of the area; and

WHEREAS, GoTriangle intends to confirm pre-existing easements owned by GSA IV on the former Patterson's Mill property in a conveyance involving no exchange of funds.

NOW, THEREFORE, BE IT RESOLVED, by the GoTriangle Board of Trustees that the GoTriangle President and CEO is authorized to execute a Grant of Easement to confirm GSA IV's pre-existing easements on the former Patterson's Mill property.

ADOPTED THIS 19TH DAY OF DECEMBER 2018.

_____
Ellen Reckhow, Board of Trustees Chair

ATTEST:

_____
Michelle C. Dawson, Clerk to the Board

GO Triangle

Connecting all points of the Triangle

MEMORANDUM

TO: GoTriangle Board of Trustees Operations & Finance Committee

FROM: Regional Services Development

DATE: December 13, 2018

SUBJECT: **GoTriangle Vanpool Subsidy**

Strategic Objective or Initiative Supported

This recommendation comes out of the work on the initiative to "Develop and Implement a Vanpool Business Plan (including strategies to improve fleet management, billing, reporting)." It supports the objectives 1.1 Increase number of customers served with sustainable transportation services and 1.5 Maintain cost-effectiveness.

Action Requested

Staff requests that the Committee recommend the Board set a monthly vanpool subsidy at $450 for all vanpool groups traveling more than 35 daily commute miles and $350 for vanpool groups traveling 35 or fewer daily commute miles.

Background and Purpose

In March 2018, the GoTriangle Board established a vanpool subsidy level of $400 for all vanpool groups traveling more than 35 daily commute miles and $300 for vanpool groups traveling 35 or fewer daily commute miles. This was based on a comparison of the current GoTriangle vanpool price schedule and the Enterprise price schedule. The subsidy levels were set in an effort to minimize price impacts on GoTriangle's customers and to make vanpool prices attractive to potential customers. The subsidy levels were also intended to encourage longer distance vanpool groups which have a more significant impact on emissions reductions. Finally, the levels were set at a level which is projected to be offset by future Section 5307 grant funds.

Since entering the contract with Enterprise this summer, we came to understand that there are several taxes that Enterprise is required to pay, including the GoTriangle vehicle rental tax of 5%, which raise the prices to customers higher than we had projected. As Enterprise has begun communicating with current vanpool groups, our staff and their staff are clearly hearing that the increase in Enterprise's pricing is a concern and may affect the retention of numerous vanpool groups.

We have discussed this with Enterprise representatives and they have agreed to offer their own $50 monthly subsidy to each vanpool for the first six months of operation, and then a $25 subsidy for the subsequent six months. GoTriangle does not have the legal authority to waive that tax for

any companies that are leasing vehicles in the three county service area. However, we can adjust the subsidy to compensate for the vehicle rental tax that will be levied on each vanpool.

Financial Impact

The additional costs of an increased subsidy would not have an significant net impact on our budget because the vehicle rental tax revenues associated with vanpools had not been assumed and they will be 5% of the monthly vanpool price which will range from approximately $990 to $1700, depending upon vehicle type and commute distance.

Attachments

- None

Staff Contact(s)

- John Tallmadge, jtallmadge@gotriangle.org, 919.485.7430
- Shelly Parker, mparker@gotriangle.org, 919.485.7439

GO Triangle

Connecting all points of the Triangle

MEMORANDUM

TO: GoTriangle Board of Trustees Operations & Finance Committee

FROM: Capital Development, D-O LRT Project Team

DATE: December 13, 2018

SUBJECT: **Project Management Information System (PMIS) Procurement – e-Builder**

Strategic Objective or Initiative Supported

This item supports Strategic Objective Approach 1: Providing the skills, staffing, systems and technology needed to meet our objectives.

Action Requested

Staff requests that the Operations and Finance Committee recommend that the Board of Trustees authorize the President and CEO to approve the e-Builder Service Agreement, which includes the initial annual subscription fee and one-time setup fee, for the light-rail project for an amount not-to-exceed $300,000.

Background and Purpose

The light-rail project is a massive collaborative undertaking between GoTriangle and numerous consultants, contractors, and third parties. The project is currently being managed via a variety of mediums including: SharePoint, BlueBeam, numerous Excel workbooks, and Outlook. These systems do not function well together at a large scale, and do not provide the requisite business intelligence and process management to support a project of this scope efficiently as it moves into Construction.

GoTriangle tasked the Program Management Consultant (PMC) with researching potential replacements for these various systems. Numerous Project Management Information Systems (PMIS) applications offered potential solutions. The PMC investigated several possibilities and developed a long list to research further. Additional evaluation reduced the list to five choices which were assessed against project requirements: business process management, document management, cost management and integration, reporting capabilities, and general functionalities such as search, mobile access, and integration with various applications like Office, BlueBeam, and DocuSign. Based on these requirements, three systems were invited to provide additional information for consideration by the evaluation committee. Each of these vendors has General Services Administration (GSA) Schedule 70 pricing, through which GoTriangle can directly purchase software at pre-negotiated government rates.

On October 22, 2018, the three vendors presented their solutions to the evaluation committee, which is comprised of members from GoTriangle, the Construction Management Consultant (CMC) and the PMC. Members of the evaluation committee had follow-up conversations with the vendors to address additional questions, then met on November 2, 2018, to conclude the evaluation. The committee was able to come to a consensus on e-Builder and the decision was made to proceed, contingent on a final meeting with e-Builder to address issues raised by the CMC. E-Builder provided acceptable responses to the CMC's questions, as well as assurances that additional improvements would be forthcoming in future enhancement updates. As such, GoTriangle is ready to move forward with e-Builder procurement.

For reference, e-Builder is the PMIS solution used by the Charlotte Area Transit System (CATS) Blue Line Extension project team, and is in use by many other transit agencies and government entities delivering major capital programs across the country.

The next step in the process is to negotiate scope and pricing for one-time setup costs with e-Builder. E-Builder has provided a draft Service Agreement based on a preliminary scope that outlines an estimate of one-time setup costs, as well as annual subscription fees. One-time setup fees are expected to be approximately $65,000 based on the required scope. The annual subscription fees are based on the average annual capital program spending for the light-rail project; the initial annual fee is expected to be between $186,000 and $211,000. Should GoTriangle choose to expand e-Builder use to other projects in the future, the annual subscription fee could increase based on the change in average capital program spending. At each renewal period, e-Builder may increase the annual subscription fees up to Consumer Price Index (CPI) plus two percent (2%), or five percent (5%), whichever is greater. Should early contract termination be necessary, that year's subscription fee is forfeit, but as long e-Builder receives written notice of termination 60 days prior to renewal, no additional subscription costs are incurred.

GoTriangle is also negotiating a scope for PMIS implementation to be performed by the PMC. If an amendment to the PMC contract amount to incorporate these services, staff will bring a request to the board in early 2019.

Financial Impact

Funding for this is available in the approved FY 19 Budget which includes approximately $900,000 for the light-rail project's PMIS procurement and implementation;, therefore no budget amendment is required. The funding source is the Western Triangle Tax District.

Attachments

- Draft e-Builder Scope of Service

Staff Contact(s)

- John Tallmadge, 919-485-7430, jtallmadge@gotriangle.org
- Katharine Eggleston, 919-485-7546, keggleston@gotriangle.org

Connecting all points of the Triangle

MEMORANDUM

TO: GoTriangle Board of Trustees Operations & Finance Committee

FROM: Capital Development, D-O LRT Project Team

DATE: December 13, 2018

SUBJECT: **Professional Services Contract Amendment – GEC Phase 3B**

Strategic Objective or Initiative Supported

This item supports Strategic Objective 1.1: Increase number of customers served with Sustainable Transportation Services.

Action Requested

Staff requests that the Operations and Finance Committee recommend that the Board of Trustees authorize the President and CEO to increase the not-to-exceed amount for GEC Phase 3B of the Professional Services Contract with HDR Engineering Inc. (HDR) for General Engineering Consultant (GEC) Services for the light-rail project by $900,000 for relocation design services for university-owned utilities.

Background and Purpose

On July 28, 2017, the Federal Transit Administration (FTA) admitted the light-rail project into the Engineering Phase of the FTA New Starts Program. The FTA has since acknowledged GoTriangle's intent to pursue a Full Funding Grant Agreement (FFGA) for the project in September 2019.

On July 27, 2016, the Board of Trustees authorized the General Manager to execute Phase 1 of a Professional Services Contract with HDR for GEC Services for the light-rail project. The term for Phase 1, Design Feasibility Studies and Financial Planning, was up to three (3) months, in an amount not to exceed $500,000.

On December 14, 2016, the Board of Trustees authorized the General Manager to execute Phase 2, which included a continuation of the Phase I Scope as well as additional tasks determined to be necessary to further the design baseline prior to advancing the Final Design. The term for Phase 2, Design Feasibility Studies, Supplemental Engineering, and Advanced Permitting, was up to five (5) months, in an amount not to exceed $6,000,000.

On May 24, 2017, the Board of Trustees authorized the General Manager to execute Phase 3, which encompasses those components of the Final Design of the project identified in the Phase 3 Scope. The term for Phase 3 runs through June 30, 2020, is funded at an amount not to exceed $75,000,000. As of June 30, 2018, the Phase 3 unspent balance is approximately $37,000,000.

On September 26, 2018, the Board of Trustees authorized the General Manager to execute Phase 3B, Additional Final Design Services. The Additional Final Design Services identified in the previous Contract Amendment included changes to the scope of design services required to accommodate significant changes in the design and engineering of the light-rail project that were identified since the beginning of Phase 3, Final Design.

This memorandum describes the proposed request to add further Additional Final Design Services to Phase 3B up to $900,000 for the design of university-owned utilities.

Responsibility for the relocation of the university-owned utilities has been recently coordinated with the universities as part of the process that will culminate in execution of the Cooperative Agreements. In both cases – for the University of North Carolina at Chapel Hill (UNC) and for Duke University – it has been agreed that it will be most expeditious and advantageous to both parties for GoTriangle to design and perform the relocations. This is the same model already in effect for utilities owned by public entities (i.e., water and sewer owned by the Orange Water and Sewer Authority [OWASA] and City of Durham), in which the GEC is performing the design, and the GoTriangle construction contractors will perform the relocations. The alternative would be for the universities to perform the design and relocations themselves or with their own contractors with reimbursement by GoTriangle; this approach would introduce additional schedule risk and additional burden on university staff.

As a result, GoTriangle seeks to engage the GEC to perform the utility relocation design for the university-owned utilities. The GEC will incorporate the utility relocation designs into the contract documents for the Civil West and Civil East construction contractors. This work must begin soon in order for the university-owned utility relocations to appear on the 90% plans, which for Civil West (UNC) are due in May 2019 and for Civil East (Duke University) are due in August 2019.

Financial Impact

Funding for this Contract Amendment is available in the approved FY19 Budget which includes approximately $62 million for professional services related to the light-rail project, therefore no budget amendment is required. The funding source is the Western Triangle Tax District.

Staff Contact(s)

- John Tallmadge, 919-485-7430 jtallmadge@gotriangle.org
- Saundra Freeman, 919-485-7415, sfreeman@gotriangle.org

Connecting all points of the Triangle

MEMORANDUM

TO: GoTriangle Board of Trustees Operations & Finance Committee

FROM: Regional Services Development

DATE: December 5, 2018

SUBJECT: **Regional Fare Study – Informational Update**

Strategic Objective or Initiative Supported

Action Requested
No action required.

Background and Purpose
As part of the Wake Transit Bus Plan, GoTriangle, GoRaleigh, GoCary, and GoDurham participated in a regional fare study to evaluate existing conditions and fare trends, research peer agencies and their fare policies, evaluate opportunities for a standardized fare structure for the region, develop a series of fare scenarios to understand ridership and revenue impacts, and draft a preferred recommendation.

Agencies identified the following goals for the Fare Study:

- Improve Pass Distribution and Sales
- Balance Revenue and Ridership Goals
- Improve Passenger Experience
- Improve Regional Coordination
- Make Transit an Affordable Option
- Explore New Fare Technologies

Fare Scenarios
The study tested ridership and revenue impacts of the following scenarios, respectively:

1. Region-Wide Flat Fare
2. Region-Wide Tiered Fare
3. Optimize to Increase Ridership
4. Maximize Farebox Recovery
5. Align Discount Fare Policies
6. Offer Fare Capping
7. Offer Low-Income Fare Category
8. Offer Low-Income Fare Category with General Fare Increase

Peer Agencies
Based on agency size, demographics, and regional coordination, six transit areas/agencies were chosen as peers for the Fare Study: Seattle, Portland, Denver, Phoenix, Boston, and Charlotte. In most cases, peer agencies offered fewer pass types, had fewer discount categories, and had a wider pass distribution network than Triangle transit providers.

Final Recommendations
Based on the peer study and fare scenario impact testing, the final recommendation includes:

1. A two-tiered region-wide fare structure
2. Consistent region-wide discount and pass categories
3. Region-wide discount ID
4. Establish pass sales agreement and discount guidelines
5. Implement fare-capping technology with mobile ticketing and/or smart card technology

Financial Impact

Attachments

- Attachment A, Fare Study Presentation
- Attachment B, Fare Study Final Report

Staff Contact(s)

- Mary Kate Morookian, 919-485-7549, mmorookian@gotriangle.org

Fare Integration Study

GoCary, GoDurham, GoRaleigh, and GoTriangle

Final Report

November 2018

NELSON NYGAARD

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Executive Summary

The Wake and Durham County Fare Integration Study provides a comprehensive review of the current fare system and policies for four agencies operating in the region—GoCary, GoDurham, GoRaleigh, and GoTriangle. Across the region, opportunities exist for more common fare purchase and collection procedures, as well as standardization of some fare policies among the different providers. Analysis as part of this planning effort was conducted to help the region better understand how various policy and fare changes will impact the ridership and revenue of individual agencies and the region as a whole.

This study included a comprehensive evaluation of the existing fare structure, pricing and policies, a review of peer agencies and fare-related best practices, and input from stakeholders through a series of Fare Working Group[1] meetings held from April through October 2018.

Study Goals

The Fare Integration Study includes a review of the existing fare policies in Wake and Durham County, fare structures currently in place at peer agencies, best practices for fare structures, bulk pass programs, low-income programs, potential impacts of modeled fare scenarios, and fare and policy recommendations. The overall goals of the Fare Integration Study include:

- **Improve Pass Distribution and Sales.** Pass options, pricing, and discounts on pass products impact pass sales. Aligning fares and pass pricing and making all passes consistently available at the same locations would simplify the passenger experience.
- **Balance Revenue and Ridership Goals.** There is general agreement between agencies that increasing ridership is a priority of adjusting fares and integrating service; however, balancing revenue and ensuring financial sustainability also remain important.
- **Improve Passenger Experience.** Consistent fare pricing, discount policies, and fare media availability improves the passenger experience and makes the process as intuitive and seamless as possible.
- **Improve Regional Coordination.** Improve cooperation between agencies while maintaining a degree of autonomy.
- **Make Transit an Affordable Option.** Investigate feasibility of fare capping, low-income fares, and additional reduced fare categories.
- **Explore New Fare Technologies.** Pursue regional approach to smartcards and mobile ticketing to help understand the fare structure needs for adopting new technologies.

[1] The Fare Working Group was comprised of representatives from GoCary, GoDurham, GoRaleigh, GoTriangle, Wake County, City of Raleigh, and the Capital Area Metropolitan Planning Organization (CAMPO).

Existing Conditions and Background

The analysis of existing conditions reviews the existing fare structure and policies for GoTriangle, GoDurham, GoRaleigh, and GoCary to assess discrepancies between agency policies and identify potential opportunities for regional coordination and policy integration. This analysis also summarizes trends for farebox revenue within the region from 2011 to 2016, as well as fare media usage to determine opportunities for modifications to fare policies and structure. Key findings include the following:

- **Base fare pricing is inconsistent.** Regional and Express service is priced in two tiers ($2.25 and $3.00), while local service is priced at a single tier for each agency. Each local service provider charges a different base fare—$1.00, $1.25, or $1.50. Simplifying the fare structure and aligning fares would simplify the customer experience.
- **There is an opportunity to align regional discount policies.** All of the agencies in the region offer the same discount for youth riders; however, discount policies for seniors and people with disabilities vary. Aligning these policies and pursuing a regional discount ID accepted by all service providers would improve the customer experience.
- **The pass distribution network is inconsistent.** Pass availability is limited in the existing pass distribution network. Pass availability varies by type of pass and by agency, which may be confusing for passengers.

Peer Review and Best Practices

The peer review and best practices analysis presents a comparison of the Wake-Durham region's fare structure and policies—including pass distribution network, base fares, pass multipliers, discount policies, farebox recovery rate, average cost per trip, average fare paid per trip, and average subsidy per trip—with peer agencies around the country. This chapter also assesses best practices for several policies and fare technologies, including electronic smartcards, fare capping, low-income fare programs, bulk pass programs, transfer policies, and fare free service. Key findings include the following:

- **Wake-Durham local fares are less expensive than peer agencies.** Local fares in the Wake-Durham region are between $0.50 and $1.75 less expensive than peer agency fares. Express fares are generally consistent with peer agencies.
- **Pass multipliers are consistent with peer agencies.** There is some variability between peer agency pass multipliers, but Wake-Durham agency multipliers are within the acceptable range of peer agencies.
- **Peer agency pass distribution networks are more robust and consistent.** The Wake-Durham region would benefit from improving the pass distribution network to align with peer agencies.
- **Mobile ticketing can be a cost-effective technology improvement that has the potential to be implemented quickly.** Implementing mobile ticketing can be less costly than electronic smartcards and can accommodate fare capping and incorporating other discount programs. Peer agencies have invested in mobile ticketing infrastructure.
- **Fare capping can improve equity and reduce upfront costs for low-income passengers.** Incorporating fare capping through mobile ticketing and/or smartcards is a

method for reducing high out-of-pocket payments required for low-income riders to purchase monthly pass products.

- **Low-income fare categories can improve equity and increase the affordability of transit for vulnerable populations.** However, low-tech strategies can be burdensome to the passenger, and high-tech strategies may be expensive or burdensome to the agency. The pros and cons of such a program should be considered before implementing.
- **Expanding pass programs can increase transit ridership and revenue for the agency.** As more passengers have expanded options for cost effective use of the transit system, ridership potential increases.

Fare Recommendations

Fare and policy recommendations for GoCary, GoDurham, GoRaleigh, and GoTriangle are based on findings from the existing conditions analysis, peer review and best practices, fare modeling, and refining concepts with the Fare Working Group. The first phase of implementation is anticipated to occur in Summer 2019, with additional recommendations anticipated for implementation in early 2020.

- **Phase 1: Fare structure, discount policies, and pricing should be aligned across the region.** Beginning in the Summer of 2019, it is recommended that the region implement a tiered fare structure ($1.25/$2.50) with consistent discount policies.
- **Phase 2: Fare capping, smartcards, and mobile ticketing should be pursued in early 2020.** After the fare structure and discount policies are aligned, the region should pursue the implementation and integration of mobile ticketing, fare capping, and smartcards.

The recommended fare structure is provided in Figure ES-1, and Figure ES-2 provides a summary of recommendations developed as part of the Fare Integration Study.

Figure ES-1 Recommended Regional Fare Structure

Fares/Multipliers	Local	Regional/ Express
Base	$1.25	$2.50
Day Pass	$2.50	$5.00
7-Day Pass	$12.00	$24.00
31-Day Pass	$40.00	$80.00
Base Discount	$0.60	$1.25
Discount Day Pass	$1.25	$2.50
Discount 7-Day Pass	$6.00	$12.00
Discount 31-Day Pass	$20.00	$40.00

Figure ES-2 Fare Recommendations Summary

Type	Recommendation
Fare Structure Recommendations (Implementation in Summer 2019)	▪ Implement two-tiered region-wide fare structure with a local base fare of $1.25 and regional/express base fare of $2.50 ▪ Offer consistent discounts/categories – Youth 12 and Under – Free – Youth 13 to 18 – Free with Youth GoPass, otherwise 50% discount – Seniors 65+ – Free – People with Disabilities – 50% discount ▪ Offer $2.50/$5.00 paratransit base fare ▪ Provide consistent products/discounts – Offer 15% discount for Day Pass bundles – Continue to offer Value Cards – Eliminate GoDurham 5-Day Pass – Sell only Day Passes on-board
Near-Term Fare Policies (Implementation in Summer 2019)	▪ Establish pass sales agreement and discount guidelines ▪ Pursue new sales partnerships ▪ Expand GoPass program ▪ Establish guidelines for fare adjustments ▪ Implement region-wide discount ID
Mid-Term Fare Policies (Implementation in Early 2020)	▪ Pursue mobile ticketing ▪ Pursue fare capping ▪ Consider implementation of smartcards

1 Introduction

The Wake and Durham County Fare Integration Study provides a comprehensive review of the current fare system and policies for four agencies operating in the region—GoCary, GoDurham, GoRaleigh, and GoTriangle. Across the region, opportunities exist for more common fare purchase and collection procedures, as well as standardization of some fares among different providers. Analysis as part of this planning effort was conducted to help the region better understand how policy and fare changes will impact the ridership and revenue of individual agencies and the region as a whole.

This study included a comprehensive evaluation of the existing fare structure, pricing, and policies, a review of peer agencies and fare-related best practices, and input from stakeholders through a series of Fare Working Group[1] meetings. This report provides recommendations for fare pricing and structure, fare policy changes, and fare-related technology for the four agencies.

Key recommendations from the study include: adjustments to base fare and pass pricing, aligning regional fares and discount policies, offering a new technology options, offering fare capping on daily and monthly products, establishing new policies, and expanding the GoPass program to employers of all sizes in the region.

STUDY GOALS

The Fare Integration Study includes a review of the existing fare policies in Wake and Durham County, fare structures currently in place at peer agencies, best practices for fare structures, pass programs, low-income programs, potential impacts of modeled fare scenarios, and fare and policy recommendations. The overall goals of the fare integration study include:

- **Improve Pass Distribution and Sales.** Pass options, pricing, and discounts on pass products impact pass sales. Aligning fares and pass pricing and making all passes consistently available at the same locations would simplify the passenger experience.
- **Balance Revenue and Ridership Goals.** There is general agreement between agencies that increasing ridership is a priority of adjusting fares and integrating service; however, balancing revenue and ensuring financial sustainability also remain important.
- **Improve Passenger Experience.** Consistent of fare pricing, discount policies, and fare media availability improves the passenger experience and make the process as intuitive and seamless as possible.
- **Improve Regional Coordination.** Improve cooperation between agencies while maintaining a degree of autonomy.

[1] The Fare Working Group was comprised of representatives from GoCary, GoDurham, GoRaleigh, GoTriangle, Wake County, City of Raleigh, and the Capital Area Metropolitan Planning Organization (CAMPO). The work group met monthly from April through October 2018.

- **Make Transit an Affordable Option.** Investigate feasibility of fare capping, low-income fares, and additional reduced fare categories.
- **Explore New Fare Technologies.** Regional approach to smartcards and mobile ticketing to help understand the fare structure needs for adopting new technologies.

Figure 1-1 Fare Integration Study Goals

REPORT ORGANIZATION

The report is organized into four chapters in addition to this Introduction—existing conditions and background, peer agency findings, fare scenarios, and recommendations.

- **Chapter 02 Existing Conditions and Background.** This chapter highlights the regional pass distribution network, fare policies, pricing, fare structure, and revenue and ridership trends.
- **Chapter 03 Peer Review and Best Practices.** This chapter provides an overview of each peer agency's key information and current fare structure and policies. Performance indicators are compared for the region and each peer agency. This chapter also explores best practices and lessons learned for low-income fare programs, fare capping, pass programs, and fare free transit service.
- **Chapter 04 Fare Scenarios.** This chapter summarizes the eight fare scenarios that were modeled and highlights the associated ridership and revenue impacts.
- **Chapter 05 Recommendations.** This chapter builds on the fare scenarios and peer agency findings by identifying priority outcomes and combining scenarios into a single preferred recommendation. There is additional discussion of policy recommendations for consideration and incorporation by the agencies.

2 Existing Conditions and Background

This chapter reviews the existing fare structure and policies for GoCary, GoDurham, GoRaleigh, and GoTriangle to assess discrepancies between agencies and identify potential opportunities for regional coordination and policy integration. This chapter also summarizes trends for farebox revenue within the region from 2011 to 2016, as well as fare media usage to determine opportunities for modifications to fare policies and structure.

KEY FINDINGS

Fare Structure and Pricing

- **Base fare pricing is inconsistent.** Regional and Express service is priced in two tiers ($2.25 and $3.00), while local service is priced at a single tier for each agency. Each local service provider charges a different base fare—$1.00, $1.25, or $1.50. Simplifying the fare structure and aligning fares would simplify the customer experience.
- **Fare pass multipliers are relatively consistent.** Pass multipliers for day passes, 7-day passes, and 31-day passes, as a function of base fare price, are relatively consistent between the four agencies. Day passes are consistent at 2x, 7-day passes range from 7x to 10x, and 31-day passes range from 34x to 36x.
- **There is an opportunity to align regional discount policies.** All of the agencies in the region offer the same discount for youth riders; however, discount policies for seniors and people with disabilities vary. Aligning these policies and pursuing a regional discount ID accepted by all service providers would improve the customer experience.
- **The pass distribution network is inconsistent.** Pass availability is limited in the existing pass distribution network. Pass availability varies by type of pass and by agency.

Revenue Trends

- **Farebox recovery rate in the region is decreasing.** During the period of 2011 to 2016, farebox recovery rates in the region have generally been decreasing, and all agencies are currently at recovery rate under 20%. Falling farebox recovery rates can indicate an opportunity to look at fare adjustments.
- **Subsidy per trip in the region is increasing.** Related to operating costs per trip and fares paid per trip, the average subsidy per trip in the region has generally increased from 2011 to 2016. This also may be indicative of a need to adjust fare pricing and policies.
- **Passes are used more frequently than cash fares.** Fares are paid in cash for fewer than 25% of trips in the region and are most common on GoDurham routes. Express passes are also used much less frequently than regional or local passes.

FARE STRUCTURE AND PRICING

Fare Structure

Fare structures are similar across the agencies; however, there are key differences in fare pricing and pass multipliers, as shown in Figure 2-1 and Figure 2-2. One key structural difference is that GoTriangle service is priced in two tiered categories for regional and express service, while GoDurham, GoRaleigh, and GoCary only offer one tier of local service, although the base price for local service is different for each of these agencies. Each agency offers cash fares, local and regional day-passes, local and regional 7-day passes, local and regional 31-day passes, and stored value cards. Each agency also offers discount fares for a number of fare categories. GoDurham is unique in also offering 5-day passes.

Pricing

Base fares range from as low as $1.00 for GoDurham service to as high as $3.00 for GoTriangle Express service. Local service is priced at $1.00, $1.25, and $1.50 for GoDurham, GoRaleigh, and GoCary, respectively. GoTriangle Regional and Express service are more expensive than local service, priced at $2.25 and $3.00, respectively.

Pass multipliers are the number of single trips that a rider must purchase in order to “break even” on the cost of a given pass product. For example, a day pass with a 2x multiplier means that a passenger would need to ride transit twice in a day to break even. Pass multipliers can be adjusted to make passes more attractive fare options for riders or to raise additional revenue for the agency.

Pass multipliers for day passes and 31-day passes are generally consistent across the agencies, with day-passes at 2x and 31-day passes between 34x and 36x; however, 7-day passes range from roughly 7x for GoTriangle, 10x for GoRaleigh and GoCary, and 12x for GoDurham. These differences present an opportunity to make pass multipliers consistent across the region.

Figure 2-1 Agency Fare Structures

	GoRALEIGH		GoCARY		GoTRIANGLE Regional		GoTRIANGLE Express		GoDURHAM	
	Full Fare	Reduced Fare	Full Fare	Reduced Fare	Full Fare	Reduced Fare	Full Fare	Reduced Fare	Full Fare	Reduced Fare
Cash Fare	**$1.25**	$0.60	**$1.50**	$0.75	**$2.25**	$1.00	**$3.00**	$1.25	**$1.00**	$0.50
Local Day Pass	**$2.50**	$1.25	**$3.00**	$1.50	**N/A**	N/A	**N/A**	N/A	**$2.00**	$1.00
Regional Day Pass	**$4.50**	$2.00	**$4.50**	$2.00	**$4.50**	$2.00	**$6.00**	$2.50	**$4.50**	$2.00
Local 7-Day Pass	**$12.00**	$6.00	**$14.50**	$7.25	**N/A**	N/A	**N/A**	N/A	**$12.00**	$7.00
Regional 7-Day Pass	**$16.50**	$7.50	**$16.50**	$7.50	**$16.50**	$7.50	**$22.00**	$9.25	**$16.50**	$7.50
Local 31-Day Pass	**$45.00**	$22.50	**$54.00**	$27.00	**N/A**	N/A	**N/A**	N/A	**$36.00**	$18.00
Regional 31-Day Pass	**$76.50**	$34.00	**$76.50**	$34.00	**$76.50**	$34.00	**$102.00**	$42.50	**$76.50**	$34.00
$25 Stored Value Card* Sold in $50, $25, and $13.50 increments	**$20.00**	$20.00	**$20.00**	$20.00	**$20.00**	$20.00	**$20.00**	$20.00	**$20.00**	$20.00

Regional Passes: allow riders to travel on all routes across all providers with the exception of GoTriangle Express Routes.
Express Passes: allow riders to travel on all routes across all providers without exception.

Figure 2-2 Agency Pass Multipliers

	GoRALEIGH		GoCARY		GoTRIANGLE Regional		GoTRIANGLE Express		GoDURHAM	
	Full	Reduced	**Full**	Reduced	**Full**	Reduced	**Full**	Reduced	**Full**	Reduced
Base Fare	**$1.25**	$0.60	**$1.50**	$0.75	**$2.25**	$1.00	**$3.00**	$1.25	**$1.00**	$0.50
Day Pass Multiplier	**2**	2.1	**2**	2	**2**	2	**2**	2	**2**	2
7-Day Pass Multiplier	**9.6**	10	**9.6**	9.6	**7.3**	7.5	**7.3**	7.4	**12**	14
31-Day Pass Multiplier	**36**	37.5	**36**	36	**34**	34	**34**	34	**36**	36

Discount Policies

Discount policies also vary between the agencies, as shown in Figure 2-3. Generally, there is an opportunity to standardize discount policies by aligning discounts offered for students/youth, seniors, and people with disabilities.

There is also an opportunity to standardize discount ID policies between the agencies, especially for seniors and people with disabilities. Existing policies are described further below. Recent implementation of the Youth GoPass program has created a standard ID policy for riders age 13-18 across all agencies.

Youth

All Wake-Durham agencies currently offer free service for children and youth ages 18 and younger. Children 0-12 ride free with no pass or ID required. Youth age 13-18 are able to ride free with a Youth GoPass but are charged a fare if they do not have one. This is a recent policy change that was implemented in Summer 2018.

Seniors

GoRaleigh and GoDurham both offer free service for seniors age 65 and older. GoTriangle offers a 58% discount for seniors age 65 and older, while GoCary offers a 50% discount for seniors age 60 and older. Integrating senior policy in terms of the discount provided and the age group considered under the discount policy would enhance interagency cooperation and the rider experience, particularly for seniors transferring between agencies.

Existing ID policies for seniors include the following:

- GoRaleigh riders must present GoRaleigh ID
- GoCary accepts GoCary Door to Door ID or valid government ID
- GoTriangle accepts discount ID issued by GoTriangle, GoCary, GoDurham, or GoRaleigh or Medicare ID
- GoDurham riders must present GoDurham ID or government-issued photo ID

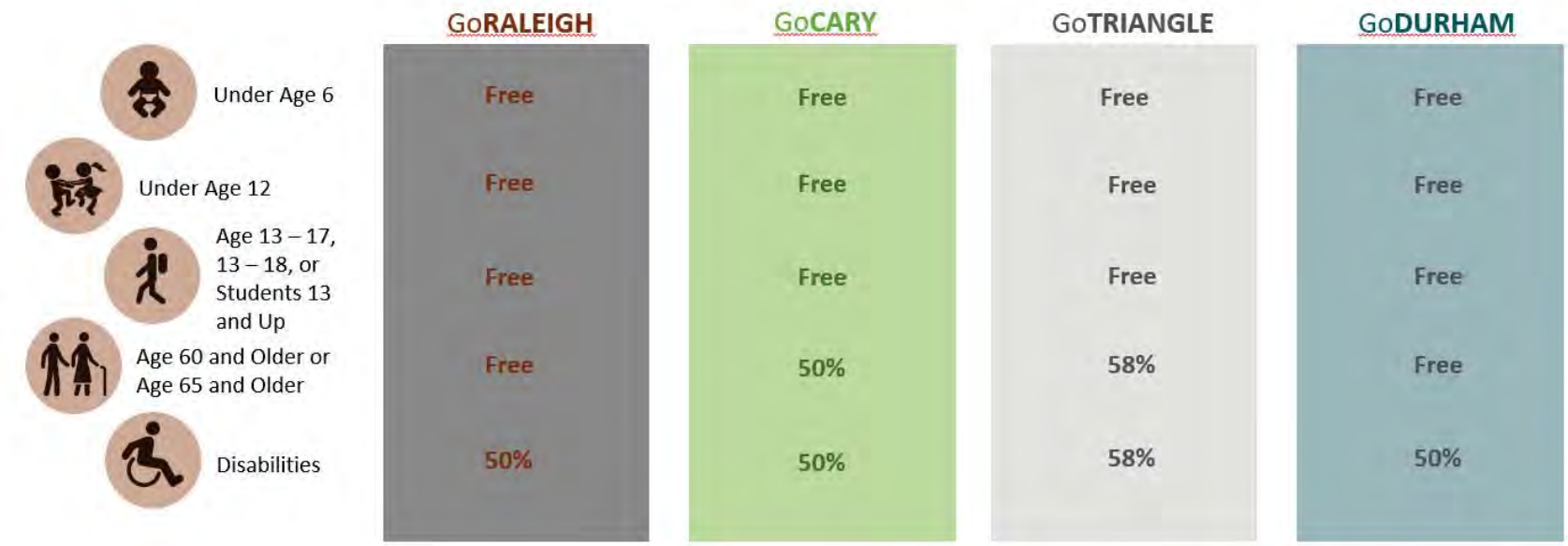
Disabilities

All agencies offer a 50% discount for passengers with disabilities except GoTriangle, which offers a 58% discount. This policy is generally consistent among the agencies. GoTriangle's discount percentage is currently set to round their discount fares to the nearest quarter. This percentage should be reevaluated whenever base fares for the agency are altered.

Existing ID policies for people with disabilities include the following:

- GoRaleigh riders must present GoRaleigh ID
- GoCary accepts GoCary Door to Door ID or valid government ID
- GoTriangle accepts discount ID issued by GoTriangle, GoCary, GoDurham, or GoRaleigh; Braille Institute ID card; Veterans Health ID card; or proof of ADA eligibility from another transit system
- GoDurham accepts GoDurham ID or Medicare card

Figure 2-3 Fare Discounts Available



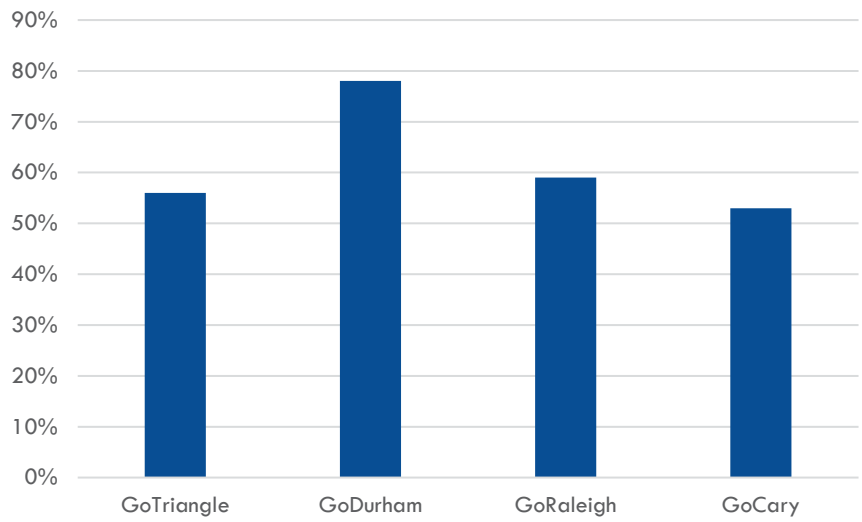
Transfers

There is significant potential to make transfer policies more consistent among the Wake-Durham agencies. Currently, riders using an express pass can transfer between local, regional, or express bus, as well as across providers for free. Riders using a regional pass can transfer between local and regional buses—regardless of provider—for free, but cannot transfer to an express bus without paying an upcharge.

Using local passes or cash payments, GoDurham, GoCary, and GoRaleigh do not offer any free local transfers. All one-way bus boardings for these agencies require full fare payment.

In the Wake-Durham region, many one-way trips require a transfer, and this may become more prevalent in the future as the network is modified, creating a financial burden for some riders. Currently, more than 50% of trips for each agency require a transfer to complete their trip, as shown in Figure 2-4. In the future, an alternative approach to consider instead of offering transfers is to create a two-hour pass policy that allows unlimited use of the transit network for that amount of time.

Figure 2-4 One-Way Trips Requiring More than One Bus



Fare Policies

Unique fare policies between the agencies can add confusion for customers. Policies should be made consistent for all agencies if possible. These policies include:

- GoRaleigh offers 15% bundle discount on six or more Day Passes.
- Prepaid Value Cards are available to purchase one way fares and day passes at a 20% discount and are accepted at the fareboxes of all four agencies.
- GoRaleigh and GoDurham have free fares for seniors but charge ADA-eligible riders half price.
- GoCary issues change cards at the farebox that expire after one year; GoRaleigh issues change cards that work across regional agencies.
- All GoCary passes sold on board are activated immediately.

- GoTriangle currently offers transfers to other GoTriangle regional routes with a transfer card issued on board and express routes with a $0.75 upcharge; GoTriangle is also seeking to eliminate transfers but has not yet done so.
- GoDurham, GoCary, and GoRaleigh do not offer free local transfers.
- GoWake Access fares are only paid onboard.

General discounts offered for making upfront purchases would be more effective if they were consistent across all agencies. For example, a 15% discount for purchasing at least six day passes and a 20% discount for purchasing value cards worth $13.50, $25, or $50 could be made available at all regional agencies to encourage additional ridership.

Pass Distribution

The existing pass distribution network, shown in Figure 2-5, varies by pass type and agency, presenting challenges for passengers. The pass distribution network is generally inconsistent among the agencies. All four agencies offer day passes onboard their vehicles; however, GoCary is unique in also offering 7-day passes and 31-day passes onboard.

GoTriangle is the only agency that allows riders to purchase passes online. Almost every pass option in the region is available in a transit or government building with the exception of GoCary, which only offers the 31-day pass in transit or government buildings. GoRaleigh is the only agency to offer passes at ticket vending machines (TVMs) or third-party retail locations. All GoRaleigh pass options are available at TVMs, while only 7-day passes and 31-day passes are available at third-party retail locations, including select Harris Teeter locations in Raleigh.

There is opportunity to develop a consistent, regional pass distribution network which offers the same passes at the same locations for all agencies in the Wake-Durham region. Such a distribution network would enhance the customer experience by allowing for purchase of all pass types in a greater variety of locations.

Figure 2-5 Existing Pass Distribution Network

Agency	Fare Type	Onboard	Online	Transit/ Government Building	In Stores	TVM
GoRaleigh	Day Pass	✓		✓		✓
	7-Day Pass			✓	✓	✓
	31-Day Pass			✓	✓	✓
GoCary	Day Pass	✓				
	7-Day Pass	✓				
	31-Day Pass	✓		✓		
GoTriangle	Day Pass	✓	✓	✓		
	7-Day Pass		✓	✓		
	31-Day Pass		✓	✓		
GoDurham	Day Pass	✓		✓		
	7-Day Pass			✓		
	31-Day Pass			✓		

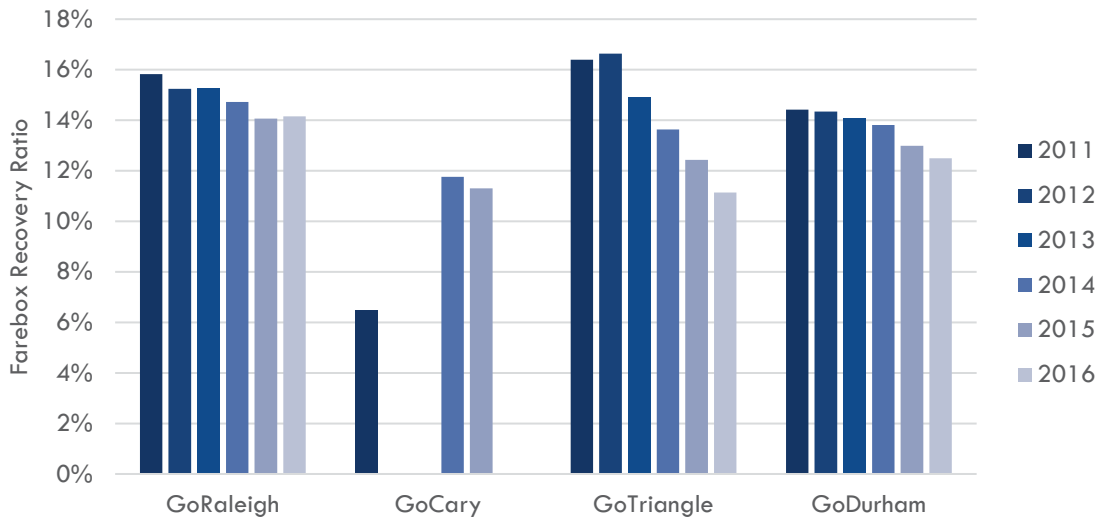
REVENUE TRENDS

Farebox Recovery Rate

Farebox recovery is a measure of the percentage of agency operating funds that come from fare-paying customers. Currently, there are no farebox recovery goals established for any of the agencies in the Wake-Durham region. Farebox recovery rates for each agency from 2011 to 2016 are shown in Figure 2-6.

In general, farebox recovery rates have been declining across the agencies since 2011.[1] The average farebox recovery for the four agencies is below 20%. While increasing ridership is a goal of this fare study, it is also imperative to balance this with farebox recovery to ensure agency financial sustainability.

Figure 2-6 Farebox Recovery Rate Trends (2011-2016)



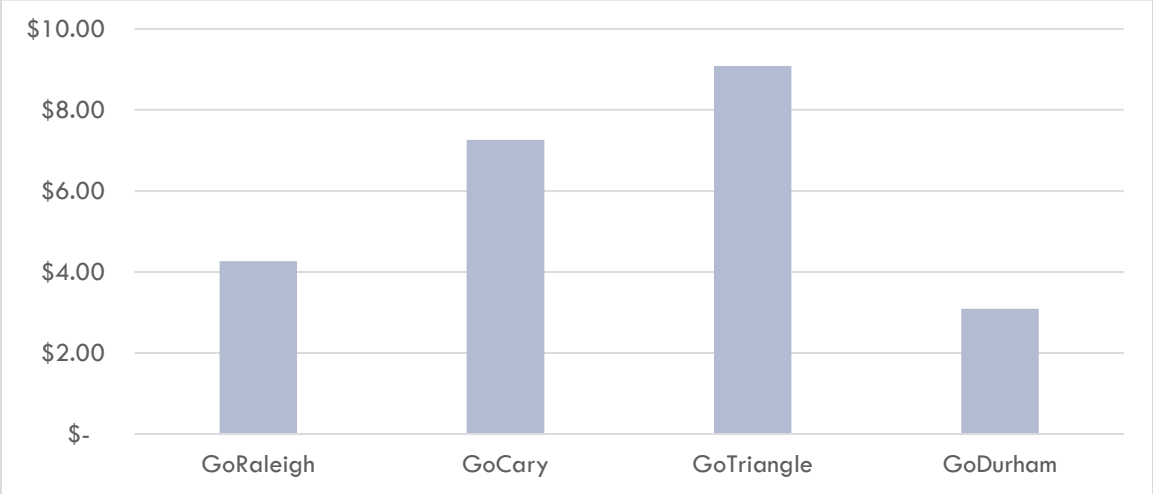
Operating Cost per Trip

Operating cost per trip is a metric used to determine the average operating cost to the agency for each passenger trip in the system. The average operating cost per trip for the four agencies in 2016 is shown in Figure 2-7. Average operating cost per trip ranges from $3.09 for GoDurham service to $9.09 for GoTriangle service.

GoTriangle provides regional service over a larger area than the other agencies, resulting in a higher operating cost per trip. The operating cost per trip for GoCary ($7.26) is relatively high compared to the other local services, likely due to GoCary's smaller size.

[1] Data was not available for GoCary in 2012 or 2013

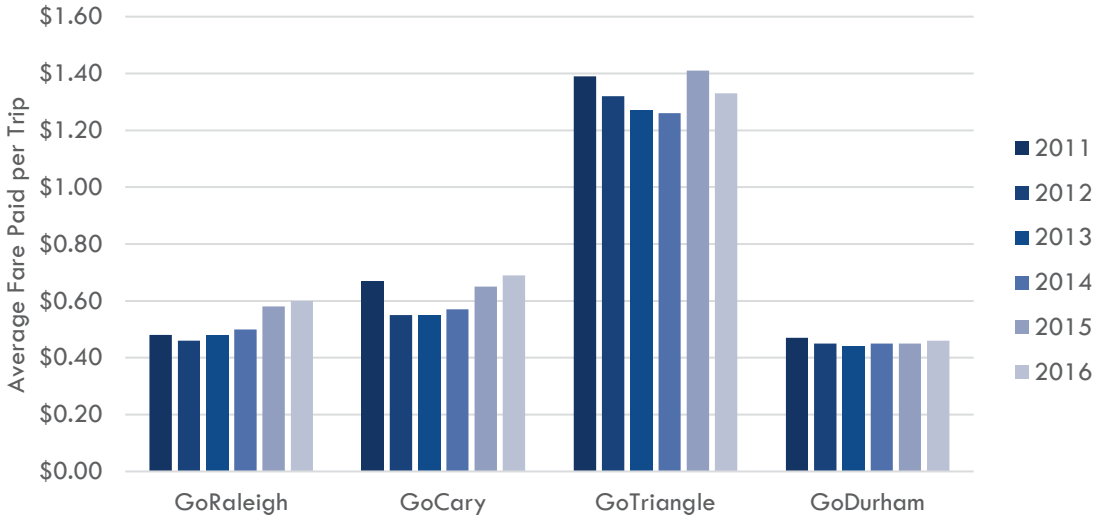
Figure 2-7 Average Operating Cost per Trip (2016)



Fares Paid per Trip

Due to discount policies, fare pass discounts, and fare evasion, the full base fare for service is not always paid for every trip—instead, the actual fare paid per trip is often lower. Figure 2-8 shows the average fares paid per trip for each agency between 2011 and 2016. Average fares paid per trip generally follow the same pattern as the listed base fares for each agency—GoDurham has the lowest fares paid, followed by GoRaleigh, GoCary, and GoTriangle with the highest. Average fares paid range from a low of $0.44 for GoDurham to $1.41 for GoTriangle. The fares paid per trip vary from year to year, but fluctuations are relatively small (within $0.15 per trip).

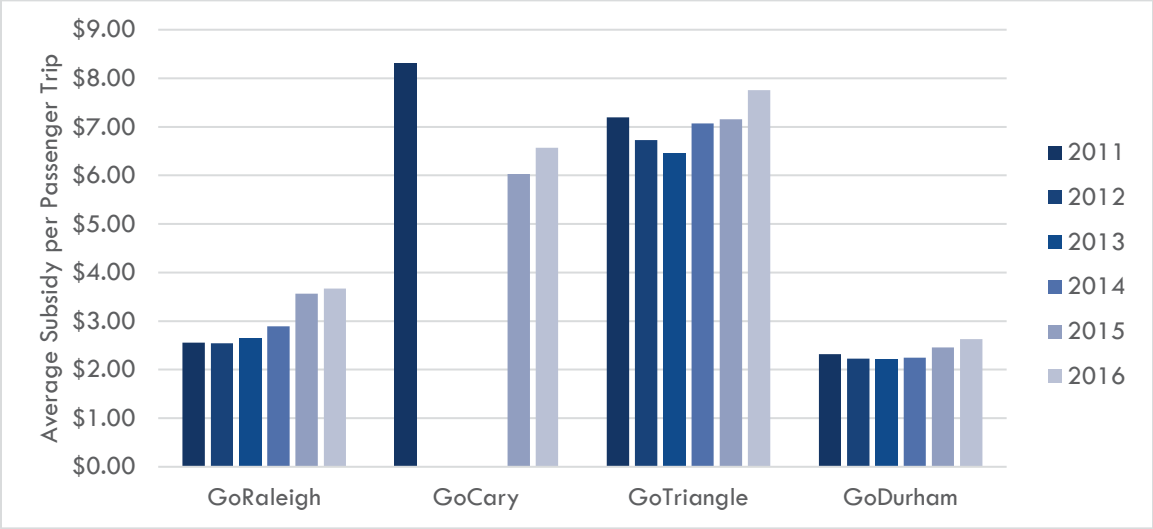
Figure 2-8 Average Fares Paid per Trip (2011-2016)



Subsidy per Trip

By subtracting the average cost per trip by the average fare paid per trip, it is possible to calculate the average subsidy per trip. In general, the average subsidy per trip, shown in Figure 2-9, ranged from a low of $2.63 per trip for GoDurham to a high of $7.76 per trip for GoTriangle. GoTriangle subsidies have increased since 2013, growing by more than $1.00 in a three-year period. GoCary had an average subsidy per trip of $8.32 in 2011, but that number decreased to $6.57 in 2016.

Figure 2-9 Average Subsidy per Trip (2011-2016)



Fare Media

The fare media used at regional agencies is shown in Figure 2-10. In general, all four agencies primarily rely on passes for the bulk of their fare media. Passes are used for 75% of GoDurham riders, 70% of GoCary riders, 77% of GoTriangle riders, and 64% of GoRaleigh riders.

Cash payments account for less than 25% of boardings across the agencies, with 24% of GoDurham riders, 19% of GoCary riders, 14% of GoTriangle riders, and 8% of GoRaleigh riders paying cash.

The type of passes used for each agency are shown in Figure 2-11. Generally, Express Passes are not widely used, accounting for less than 5% of all pass usage. GoTriangle (64%) and GoDurham (22%) have higher GoPass usage than the other agencies. GoTriangle (32%) and GoCary (31%) also have higher Regional Pass usage than the other agencies. The majority of pass use for GoDurham (73%), GoRaleigh (90%), and GoCary (63%) are local passes.

This indicates that changes to Express Passes are unlikely to have large impacts, while changes to Regional Passes are likely to have a greater impact for GoTriangle and GoCary. Similarly, changes to the GoPass structure will have greater impacts to GoTriangle and GoDurham. Changes to local passes will likely have a significant impact for all local service agencies.

Figure 2-10 Fare Media Used by Agency

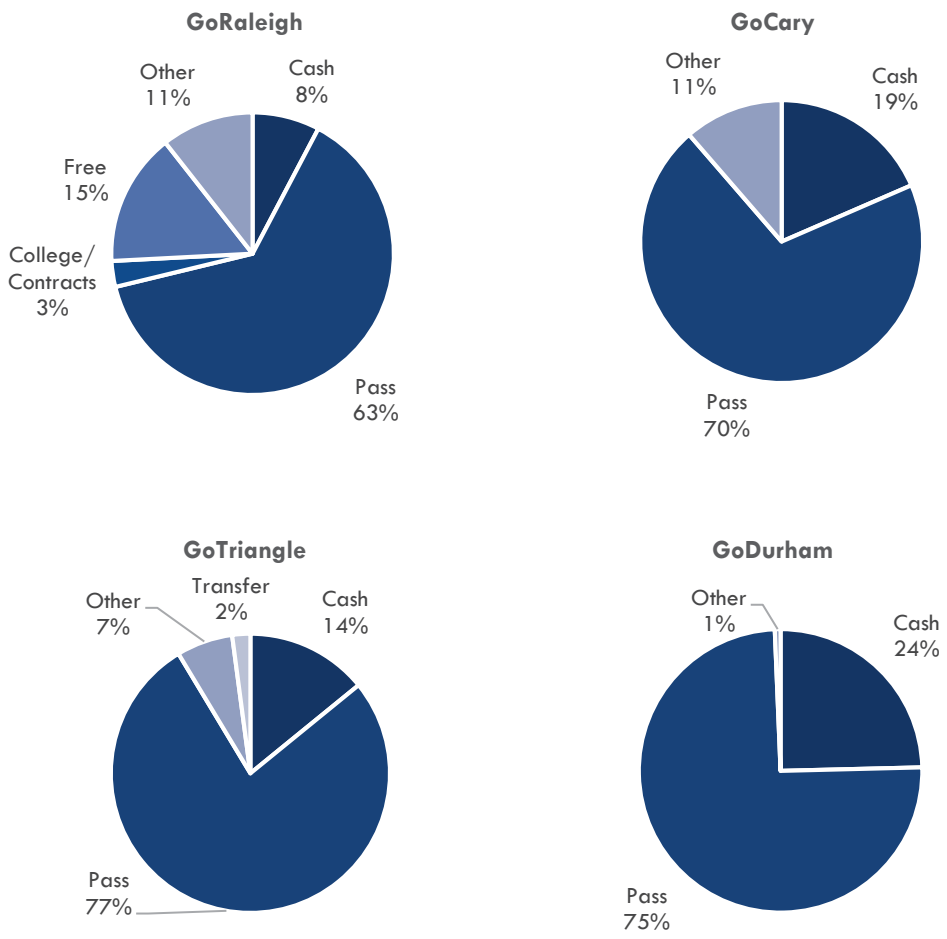
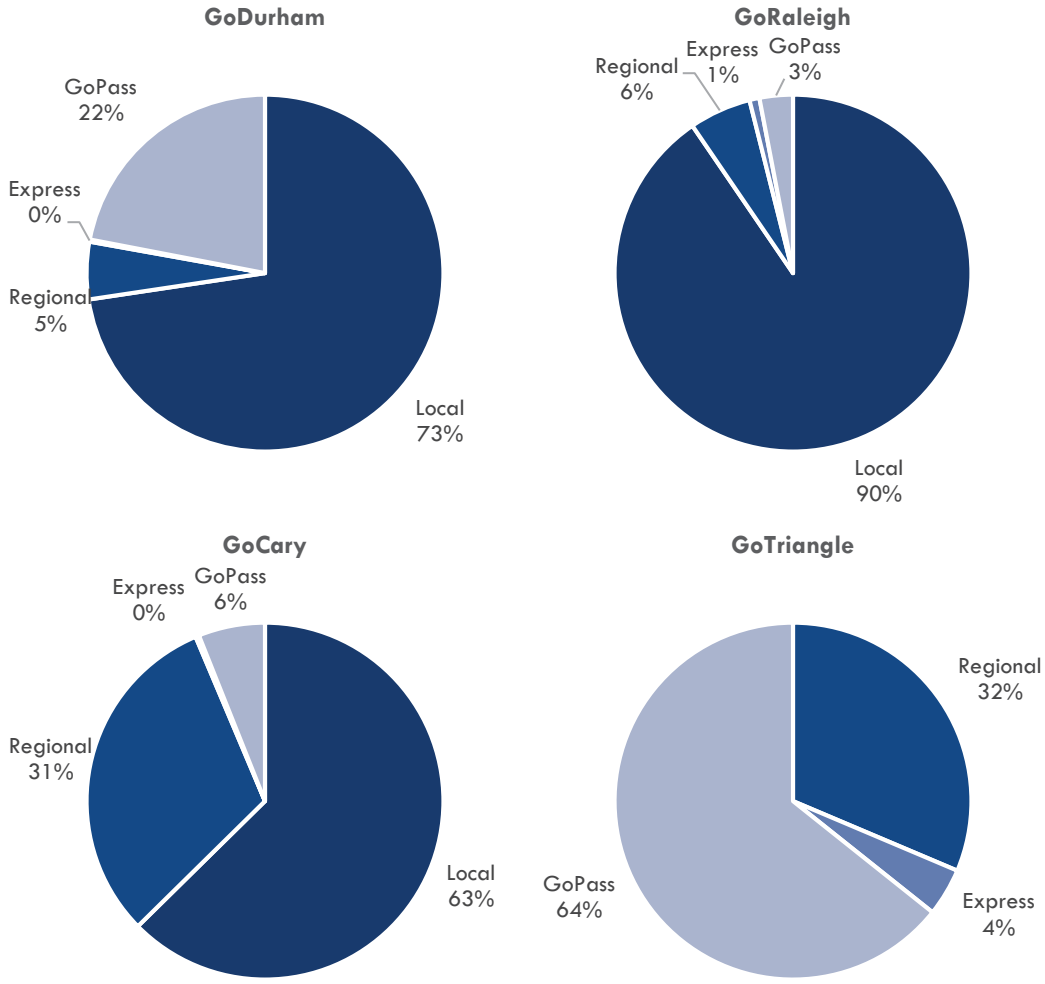


Figure 2-11 Pass Type by Agency

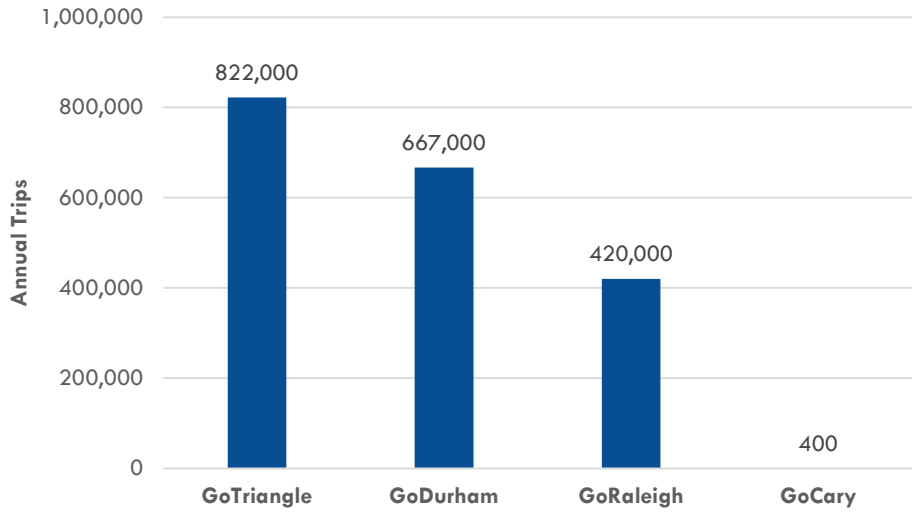


GOPASS PROGRAM

In the Wake-Durham region, the GoPass Program is available through numerous employers and universities. GoPass use varies by agency and passenger demographics. The annual GoPass use for each agency in the region is shown in Figure 2-12. Generally, GoPasses are used by commuters employed by universities and government agencies. Eligible employees have the option of purchasing or using an employer-provided GoPass, and employers participating in the GoPass program are billed by the transit agency based on pass usage.

In this section, GoPass use is analyzed in greater detail for each agency, with the exception of GoCary. GoPass use for GoCary is sufficiently small that detailed data from the agency was not available.

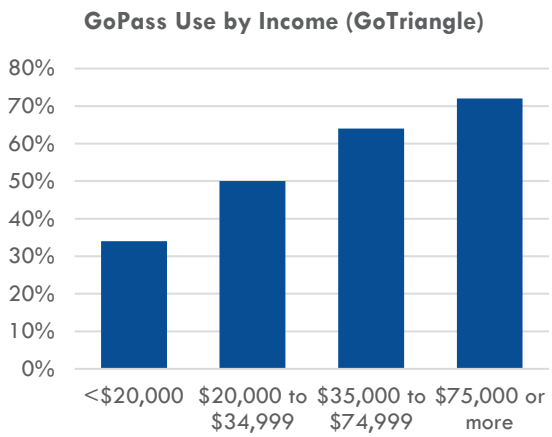
Figure 2-12 Annual GoPass Use by Agency



GoTriangle

The majority of GoTriangle riders (53%) use a GoPass. Additionally, 85% of GoPass use on GoTriangle routes is by riders affiliated with a university. Higher incomes are also correlated with higher GoPass use, indicating that high-income commuters are more likely to have access to the program.

Figure 2-13 GoPass Use by Income and by University Affiliation for GoTriangle Riders

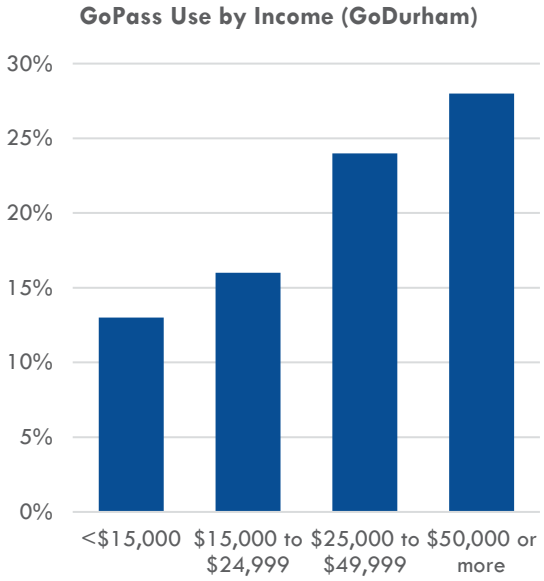


Universities	Express	Regional	% of Total
Duke University	72,000	106,000	22%
Durham Tech	1,800	25,000	3%
NC State	38,000	56,000	11%
NCCU	500	5,000	0.6%
UNC-Chapel Hill	56,000	335,000	48%
Total	168,000	527,000	85%

GoDurham

GoPass use is significantly lower for GoDurham than for GoTriangle, with only 16% of GoDurham riders utilizing GoPass. The majority of GoPass use on GoDurham routes is by university-affiliated riders, accounting for 94% of all GoPass use for the agency. Higher incomes are also correlated with higher GoPass use, but less significantly than for GoTriangle.

Figure 2-14 GoPass Use by Income and by University Affiliation for GoDurham Riders



Universities	Annual Pass Use	% of Total
Duke University	289,000	41%
Durham Tech	284,000	40%
NC State	3,000	0.5%
NCCU	60,000	8%
UNC-Chapel Hill	31,000	4%
Total	667,000	94%

GoRaleigh

GoPass use for GoRaleigh is similar to GoDurham, with 14% of GoRaleigh riders utilizing GoPass. Similar to GoDurham and GoTriangle, GoPass use for GoRaleigh is primarily through university-affiliated riders; however, there is also a large share of government employees using GoPass on GoRaleigh service. Income data was not available for GoRaleigh for inclusion in this analysis.

Figure 2-15 GoPass Use by Organization/Employer Affiliation for GoRaleigh Riders

Organization	Annual Pass Use	% of Total
NC State	184,000	44%
Wake Tech	78,000	19%
State Gov.	55,000	13%
Shaw Univ.	32,000	8%
City of Raleigh	20,000	5%
Total	369,000	89%

3 Peer Review and Best Practices

This chapter presents a comparison of the Wake-Durham region's fare structure and policies—including pass distribution network, base fares, pass multipliers, discount policies, farebox recovery rate, average cost per trip, average fare paid per trip, and average subsidy per trip—with peer agencies around the country. This chapter also assesses best practices for several policies and fare technologies, including electronic smartcards, fare capping, low-income fare programs, pass programs, transfer policies, and fare free service. These topics expand beyond the listed peer agencies and regions to explore relevant case studies for applicable policies and programs.

KEY FINDINGS

Fare Structure

- **Wake-Durham local fares are less expensive than peer agencies.** Local fares in the Wake-Durham region are between $0.50 and $1.75 less expensive than peer agency fares. Express fares are generally consistent with peer agencies.
- **Pass multipliers are consistent with peer agencies.** There is some variability between peer agency pass multipliers, but Wake-Durham agency multipliers are within the acceptable range of peer agencies.
- **Peer agency pass distribution networks are more robust and consistent.** The Wake-Durham region would benefit from improving the pass distribution network to align with peer agencies.
- **The Wake-Durham region offers more free service categories than peer agencies.** Discount categories are relatively similar between the peer agencies, but Wake-Durham agencies provide free service to youth under 18, while most peers offer discounted service to youth under 18 and free service to children under 6 only.

Revenue Trends

- **The Wake-Durham region has lower farebox recovery rates than peer agencies.** Lower fares and more free service categories in the region are a likely contributing factor to this trend.
- **GoTriangle and GoCary have higher average costs and average subsidy per trip.** GoDurham and GoRaleigh are comparable to peer agencies, but GoTriangle and GoCary have higher average costs and average subsidy per trip.

Policies and Programs

- **Mobile ticketing can be a cost-effective technology improvement that has the potential to be implemented quickly.** Implementing mobile ticketing can be less

costly than electronic smartcards and can accommodate fare capping and incorporating other discount programs. Peer agencies have invested in mobile ticketing infrastructure.

- **Fare capping can improve equity and reduce upfront costs for low-income passengers.** Incorporating fare capping through a mobile ticketing flash pass or smartcard provide methods for reducing out of pocket payments required for low-income riders.
- **Low-income fare categories can improve equity and increase the affordability of transit for vulnerable populations.** However, low-tech strategies can be burdensome to the passenger, and high-tech strategies may be expensive or burdensome to the agency. The pros and cons of such a program should be considered before implementing.
- **Expanding bulk pass programs can increase transit ridership and revenue for the agency.** As more passengers have expanded options for cost-effective use of the transit system, ridership potential increases.
- **Fare free operation can be transformative for a transit agency but requires creative funding partnerships.** Fare free systems typically experience significant ridership growth after eliminating fares. Replacing lost fare revenue while meeting growing ridership demand may be challenging without establishing supportive financial partnerships.

INTRODUCTION

Peer reviews are a useful technique to understand the "state of the practice" with regard to fare levels, structures, and policies. The purpose of this peer review is to provide current and accurate information about fare structures and policies at other comparable transit agencies. The peer agencies were selected based on various attributes, including service area, service population, operating characteristics, implementation of innovative fare policies and/or technology, and feedback from the Fare Working Group. The six agencies/regions in this peer review are:

- **Seattle, WA** (King County Metro and Sound Transit)
- **Portland, OR** (TriMet)
- **Phoenix, AZ** (Valley Metro)
- **Denver, CO** (RTD)
- **Charlotte, NC** (CATS)
- **Boston, MA** (MBTA)

These peer regions are shown in Figure 3-1. Data for this peer review was collected from the most recently available data from the National Transit Database (NTD, 2016), agency websites, and other agency-related materials.

Figure 3-1 Map of Peer Agencies

FARE STRUCTURE

Fares by Service Type

Fares by service type for each of the peer agencies are shown in Figure 3-1. In general, local service for peer agencies is more expensive than in the Wake-Durham region. Peer agency base fares vary from $2.00 to $2.75, compared to $1.00 to $1.50 in the Wake-Durham region. Express service fares are in line with fares in other peer agencies, which range from $2.50 in Portland to $5.00 in Boston. Commuter/regional fares in Wake-Durham are on the low side compared to peers, which are generally in the $4.00 to $7.00 range. Trip length and fares for demand response service are also in line with peer agencies.

Other findings from peer agency fare structures include:

- Portland offers a flat fare across all modes.
- Phoenix and Charlotte charge the same fare for light rail and local bus.
- Seattle charges the same fare for Bus Rapid Transit (BRT) and local bus.
- Denver and Boston offer discounts for using a smartcard compared to cash and magnetic tickets.
- Wake-Durham premiums are 50% to 300% for local versus regional/express service.
  - Phoenix and Denver charge a 62.5% and 73% premium for regional service.
  - Boston charges a 150%-250% premium for express service.
- Zone-based and peak fares are not common.

Figure 3-2 Peer Agency Base Fares by Service Type

Region	Local Fare	Express	Commuter/ Regional	BRT/Rapid Bus	LRT	Demand Response
Wake/Durham (Multiple)	$1.00-$1.50	$3.00 (GoTriangle)	$2.25 (GoTriangle)	N/A	N/A	$2.50 (Access)
Seattle (Multiple)	$2.75 (Metro)	$2.75-$3.75 (ST)	$1.75-$5.75 (Sounder)	$2.75 (Metro)	$2.25-$3.25 (ST)	$1.75 (Access)
Portland (TriMet)	$2.50	$2.50	$2.50	N/A	$2.50	$2.50 (LIFT)
Phoenix (Valley Metro)	$2.00	$3.25	$3.25	$3.25	$2.00	$1.00-$4.00
Denver (RTD)	$2.35-$2.60 (Pass-Cash)	N/A	$4.25-$4.50 (Pass-Cash)	N/A	$2.35-$4.50 (Pass-Cash)	$2.60 (Call-n-Ride)
Boston (MBTA)	$1.70-$2.00 (Pass-Cash)	$4.00-$5.00 (Pass-Cash)	$5.25-$7.00 (Pass-Cash)	$1.70-$2.00 (Pass-Cash)	$2.25-$2.75 (Pass-Cash)	$3.15-$5.25 (RIDE)
Charlotte (CATS)	$2.20	$3.00	$4.40	N/A	$2.20	$3.50 (STS)

Pass Multipliers

As described in Chapter 2, pass multipliers are the number of single trips that a rider must purchase in order to break even on the cost of a given pass product. For example, a day pass with a 2x multiplier means that a passenger would need to ride transit twice in a day to break even. Pass multipliers can be adjusted to make them more attractive fare options for riders or to raise additional revenue for the agency.

Pass multipliers for peer agencies are shown in Figure 3-3. Agencies in Wake and Durham County are generally in line with other peer agencies in terms of pass multipliers for local bus service.

- **Day pass** multipliers for peer agencies are relatively consistent, between 2 and 2.9, and are in line with Wake-Durham's multiplier of 2.
- **7-day pass** multipliers for peer agencies range from 9.6 to 12.3. The Wake-Durham region is again in line with peer agencies, with multipliers varying from 9.6 to 12.
- **Monthly passes** in peer agencies have the most variability of all pass multipliers, ranging between 27.5 in Boston and 40 in Portland. Wake-Durham monthly passes are set with a multiplier of 36, placing it in line with peers, though toward the higher end.

Figure 3-3 Peer Agency Local Bus Fare Pass Multipliers

Region	Cash Fare	Day Pass	10-Ride Pass	7-Day Pass	Monthly Bus Pass
Wake/Durham (Multiple)	$1.00-$1.50	2	N/A	9.6 - 12	36
Seattle (Multiple)	$2.75	2.3 - 2.9	N/A	N/A	36
Portland (TriMet)	$2.50	2	N/A	N/A	40
Phoenix (Valley Metro)	$2.00	2	N/A	10	32
Denver (RTD)	$2.60	2	N/A	N/A	38
Boston (MBTA)	$2.00	N/A	N/A	10.6	27.5
Charlotte (CATS)	$2.50	N/A	13.6% discount	12.3	35.2

Pass Distribution

Peer agencies have a wider distribution network than the Wake-Durham agencies. All pass types are available online, in transit/government agency buildings, at social service provides, and in third party retail stores. Additionally, there are fewer pass products available onboard transit vehicles, with day passes being the only available fare media for purchase. The peer pass distribution network is summarized in Figure 3-4.

Figure 3-4 Peer Agency Pass Distribution Network

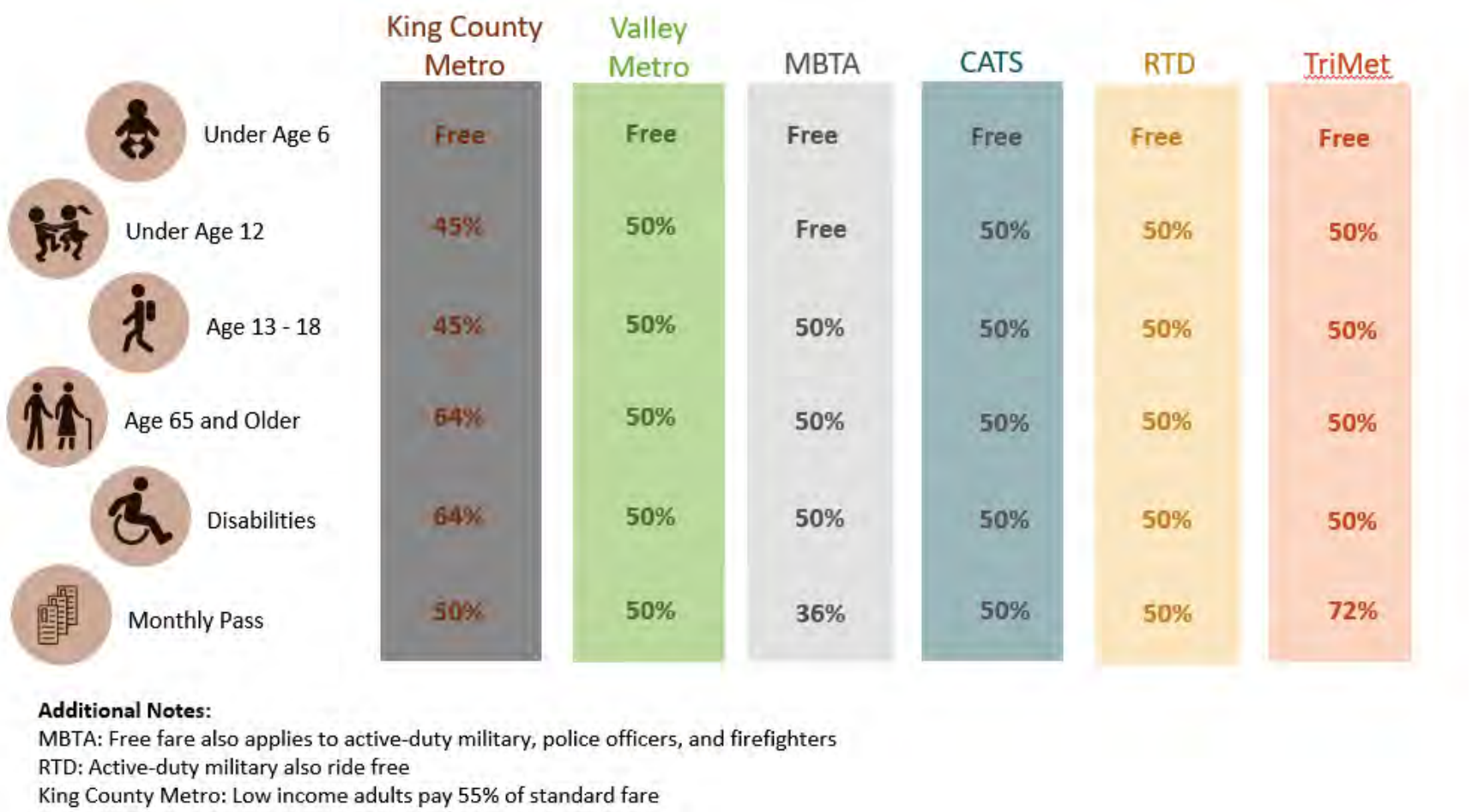
Agency	Fare Type	Onboard	Online	Transit/ Government Building	Social Services	In Stores	TVM
King County Metro	Day Pass		✓	✓	✓	✓	✓
	31-Day Pass		✓	✓	✓	✓	✓
TriMet	Day Pass	✓	✓	✓	✓	✓	✓
	31-Day Pass		✓	✓	✓	✓	✓
Valley Metro	Day Pass	✓	✓	✓	✓	✓	✓
	7-Day Pass		✓	✓	✓	✓	✓
	31-Day Pass		✓	✓	✓	✓	✓
RTD	Day Pass	✓	✓	✓	✓	✓	✓
	31-Day Pass		✓	✓	✓	✓	✓
CATS	7-Day Pass		✓	✓	✓	✓	✓
	31-Day Pass		✓	✓	✓	✓	✓
MBTA	7-Day Pass		✓	✓	✓	✓	✓
	31-Day Pass		✓	✓	✓	✓	✓

Discount Policies

Peer agency discount policies as of Spring 2018 are shown in Figure 3-5. Discounts are generally consistent among the peer agencies; however, the Wake-Durham region offers more free services than the peer agencies. Boston offers free service to children under 12, while other peers offer free service only to children under 6. All agencies in Wake/Durham offer free service to children and youth ages 18 and under. Additionally, GoDurham and GoRaleigh offer free service to seniors over 65, and GoCary offers a 50% discount for seniors over 60.

Peer agencies also offer additional discount categories not offered in the Wake/Durham region, including free fare to active-duty military in Boston and Denver and a 45% discount for low-income adults in Seattle.

Figure 3-5 Peer Agency Discount Policies



Additional Notes:
MBTA: Free fare also applies to active-duty military, police officers, and firefighters
RTD: Active-duty military also ride free
King County Metro: Low income adults pay 55% of standard fare

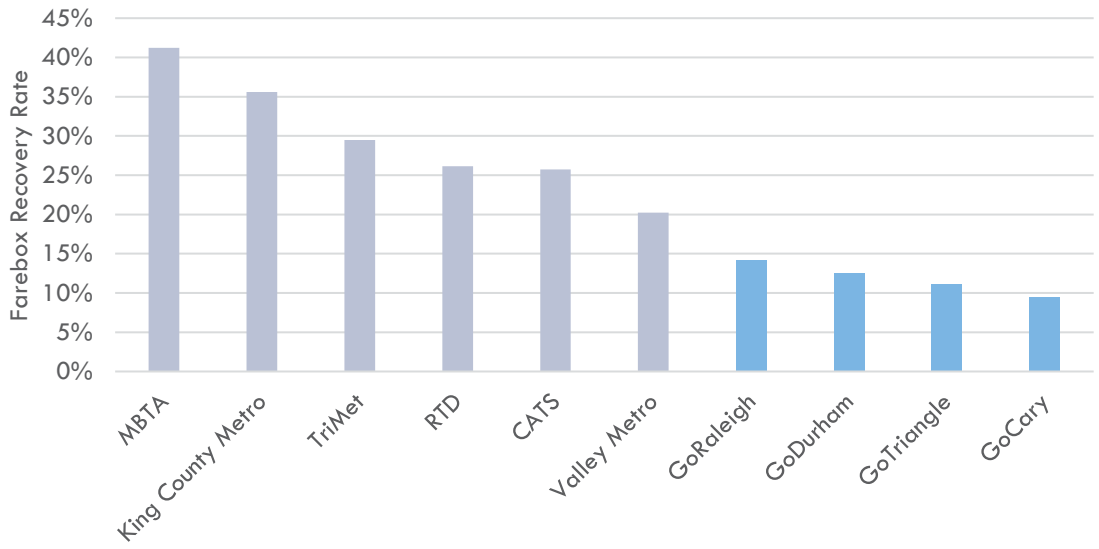
REVENUE TRENDS

Revenue trends between the Wake-Durham region and other peer agencies—with indicators such as farebox recovery rate, average operating cost, average fare paid per trip, and average subsidy per passenger—may indicate a need for updated fare policies to improve competitiveness and stay in line with the financial sustainability of peers. This section highlights revenue trends at peer agencies.

Farebox Recovery

Farebox recovery rates for peer agencies are shown in Figure 3-6. Peer agencies generally have a higher farebox recovery rate than agencies in the Wake-Durham region. All of the peer agencies have a recovery rate of at least 20%, with Boston recovering more than 40%. The highest farebox recovery rate in the Wake-Durham region is 14.2% for GoRaleigh, with a low of 9.5% for GoCary. This suggests that there is room to improve the farebox recovery rate in the region to become more competitive with peer agencies.

Figure 3-6 Farebox Recovery Rate for Peer Agencies (2016)

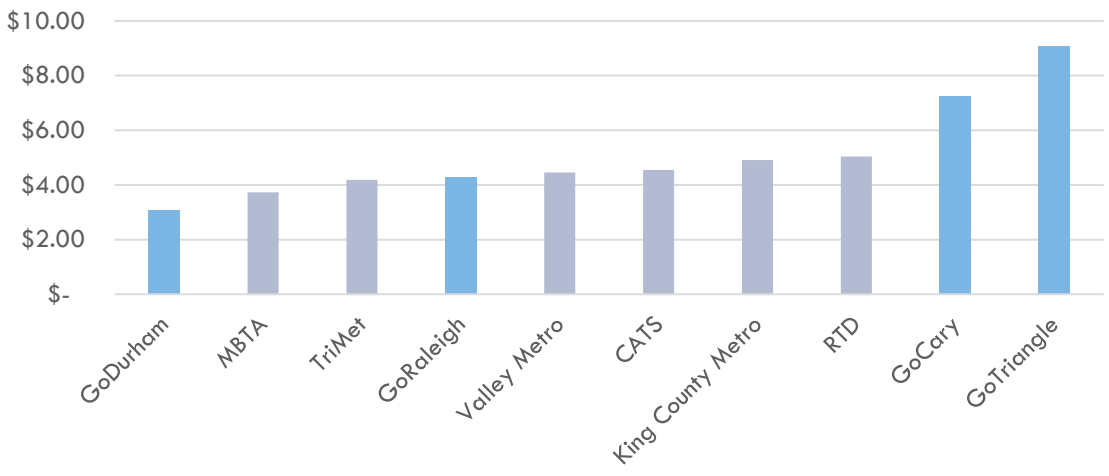


Source: NTD

Average Operating Cost per Trip

The average operating cost per trip varies among the peer agencies and is shown in Figure 3-7. Among peer agencies, GoDurham has the lowest average operating cost, GoRaleigh is about average, and GoCary and GoTriangle have highest operating costs per trip. Peer agency operating costs per trip range between $3.72 in Boston to $5.04 in Denver. The $3.09 and $4.27 cost per trip for GoDurham and GoRaleigh, respectively, are in line with peers; however, the $7.26 and $9.09 cost per trip for GoCary and GoTriangle respectively are significantly higher than other peer agencies.

Figure 3-7 Average Operating Cost per Trip for Peer Agencies (2016)

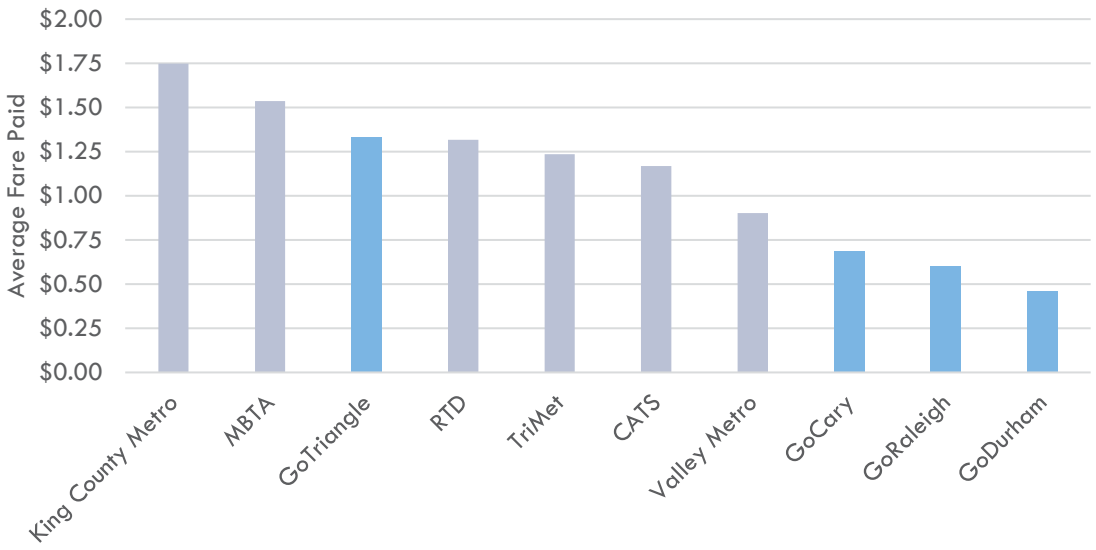


Source: NTD

Average Fare Paid per Trip

The average fare paid per trip for peer agencies is shown in Figure 3-8. In general, peer agencies have higher average fares paid per trip than agencies in the Wake/Durham region, with the exception of GoTriangle. Average fares paid for peer agencies range from $0.90 for Phoenix to $1.75 for Seattle. GoTriangle is in line with peers at $1.33; however, GoCary, GoRaleigh, and GoDurham have lower fares paid, ranging from $0.46 to $0.69. This difference is likely due to lower base fares and more generous discount policies in the Wake-Durham region and suggests that altering the fare structure could improve financial competitiveness.

Figure 3-8 Average Fare Paid per Trip for Peer Agencies (2016)



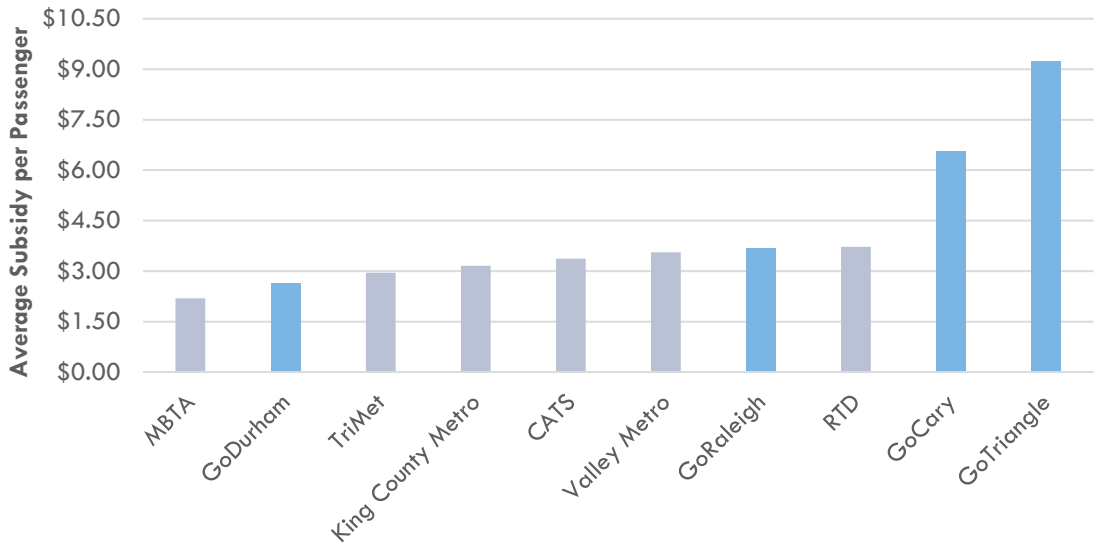
Source: NTD

Average Subsidy per Passenger

The average subsidy per passenger for peer agencies is shown in Figure 3-9. The average subsidy per passenger follows a similar trend as the average operating cost per trip for peer agencies. GoDurham and GoRaleigh are in line with peer agency subsidies; however, GoCary and GoTriangle have higher subsidies per passenger than the other agencies.

Peer agency subsidies range from $2.19 for Boston to $3.72 for Denver. GoDurham and GoRaleigh are both in line with this range, with subsidies of $2.63 and $3.67, respectively. GoCary and GoTriangle have significantly higher subsidies than peer agencies at $6.57 and $9.22, respectively.

Figure 3-9 Average Subsidy per Passenger for Peer Agencies (2016)



Source: NTD

PEER AGENCY POLICIES AND PROGRAMS

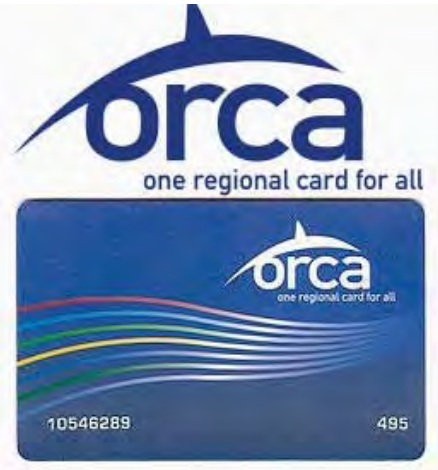
In addition to fare structures, discount policies, and revenue trends, unique policies and programs at peer agencies were also evaluated. These policies include the use of technology and unique fare categories, including electronic smartcards, mobile ticketing, regional policy integration, fare capping, low-income fare programs, pass programs, and fare free service.

Electronic Smart Cards and Mobile Ticketing

Advances in fare payment technology, including mobile payment systems and electronic smartcards, are moving riders away from cash payments. General trends in the transit industry support fare incentives for passengers to move to pass products instead of cash. Reducing the use of cash on transit vehicles has numerous benefits, included decreased dwell time, reduced potential for conflicts with operators, and simpler accounting procedures. It also raises potential equity considerations as disadvantaged rider populations may be more reliant on cash fares. This section discusses peer fare media offerings and approaches to reducing cash payments through pricing and other incentives and disincentives.

TriMet, RTD, King County Metro, and MBTA all currently use smartcard systems and mobile ticketing. Valley Metro has a smartcard called the Platinum Pass that is available to employers only; however, they are looking into an expansion to make the pass available to the general public. CATS is planning to introduce smart cards in 2018-2019.

King County Metro



King County Metro currently offers cash, paper tickets, mobile tickets, and smartcard (ORCA) fare media options. More than 30% of King County Metro riders pay fares with cash. The agency is planning to conduct studies on cash fare payments and farebox replacement or elimination, potentially looking at commuter routes with high smartcard usage for possible cashless routes. The agency is also interested investigating if a more attractive low-income fare or program could increase smartcard usage.

The ORCA Program provides seamless transfers between seven different transit agencies in the region. The ORCA Program greatly improves the customer experience, but the fare reconciliation process is complicated for the agencies. Through the shared smartcard, revenue is transferred between agencies based on proportional ridership data, with revenue being allocated based on the cash fare if each leg of the trip were taken independently.

Best practices and lessons learned from the ORCA Program include:

- Standardizing fares across service types is recommended.
- Standardizing the fare change process at a regional level is helpful to facilitate a coordinated process.
- Use an open system if possible; closed-loop systems make it difficult to designate new passenger or fare types.
- Significant coordination is needed between partner agencies to deliver a quality product.

King County Metro is preparing for the next generation of ORCA cards and ticket vending machines in the upcoming years, and they are hoping to expand the card's abilities and increase the retail distribution network.

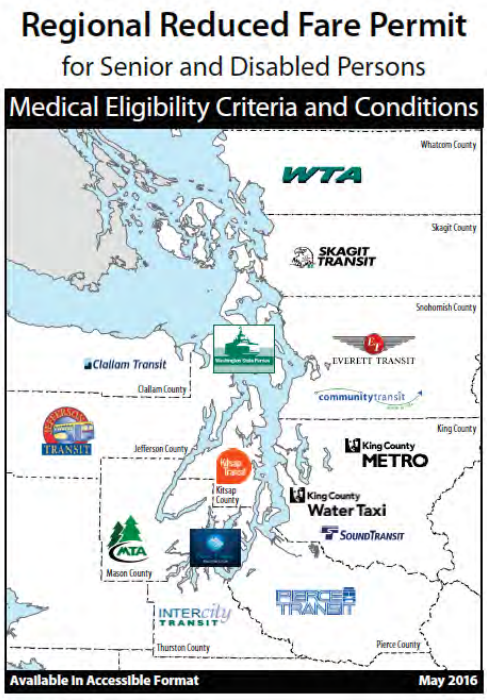
TriMet

TriMet offers cash, mobile ticketing, smartcards (Hop Fastpass) and mobile payment systems (Apple or Android) fare media options. The agency began phasing out paper tickets in mid-2018 and are replacing ticket vending machines with Hop stations, which allow customers to load funds onto their Hop card. TriMet also offers employer and school pass programs, which are being moved to the Hop card.

TriMet has about 30%-35% cash fare riders and is using a phased approach to increasing non-cash fare payments. With new technology and smartcard options, the agency is trying to address

the two main groups using cash: those who are paying cash because it's more convenient and don't ride frequently, or those who can only afford one fare at a time. There is no surcharge for cash use, but the agency thinks that riders understand the benefit of lost card protection, card replacement, and pass earnings, which will incentivize them to move away from cash fares.

TriMet's current challenge is marketing the variety of options and programs to various markets. The agency is hopeful that all types of riders will see the benefits of using smartcards over cash or paper media. As the Wake-Durham regional agencies begin making long-term policy decisions, a cost-benefit analysis should be conducted regarding smartcards, mobile ticketing, and required farebox upgrades.



Regional Discount Policies and Smart Cards

Standardized discount policies and ID throughout the region improve the customer experience and facilitate regional integration. The Puget Sound Regional Reduced Fare Permit (RRFP) offers a best practice example for a reduced fare program for seniors and people with disabilities in the Puget Sound, WA region. RRFP entitles senior riders aged 65 and older, riders with a disability, and Medicare cardholders to reduced fares on 13 different transit agencies throughout the region.

Fare Capping

Fare capping is an emerging trend for some of the peer agencies in which individual trips are tracked and fares are capped after reaching certain thresholds (i.e., two trips in a day or 30 trips in a month). Benefits of fare capping include increased affordability of passes, increased fare equity, and increased simplicity. Fare capping is particularly beneficial for low-income riders who may not have the cash on hand to purchase a 31-day pass and end up paying more in cash fares over the course of the month. Fare capping can be introduced through electronic smartcards, which track fare payments through an internal database, or through mobile ticketing, which tracks fare payments and automatically provides riders a pass once the payment threshold has been reached.

TriMet introduced fare capping in conjunction with a new electronic smart card in 2018, and King County Metro is exploring fare capping as a part of the next generation of ORCA cards. Additionally, agencies in the San Francisco Bay Area offer a similar day pass accumulator program on Clipper cards.

Key considerations for fare capping include:

- Programs require the use of an electronic fare collection system (smart cards or mobile ticketing) capable of tracking paid trips.
- It can be difficult to implement a fare cap in systems with multiple service types (e.g., local and regional).
- There is potential for revenue loss on daily or monthly passes.

Low-Income Fare Programs

Low-income fare programs are currently being used by King County Metro, TriMet, and the San Francisco Municipal Transportation Agency (SFMTA) to provide discounted service for eligible adults making up to 200% of the federal poverty level. Low-income programs may be "high-tech," requiring electronic smartcards and upgraded farebox infrastructure to verify rider identity and maintain discounts, or "low-tech," which are more commonly photo ID cards to prevent fraud combined with magnetic swipe card technology. Low-tech options are cheaper and faster to implement but require greater administrative costs, while high-tech options could require costly upgrades to farebox infrastructure and may not be feasible in the short-term.

High-Tech Options

ORCA Lift

The ORCA Lift program in the Puget Sound region requires in-person verification with proof of income. ORCA Lift riders receive ORCA cards that look and work just like a regular ORCA card, but that contains the low-income rider designation within the internal system database. These ORCA cards can be obtained from more than 40 different locations and are valid for two years before participants must reapply. While riders are permitted to have multiple ORCA cards, only one ORCA Lift card may be registered to a single person at any given time to prevent fraud. If someone attempts to register two ORCA Lift cards, the first card is automatically deactivated.

Promoting low-income programs through engagement with social service providers and community groups has been effective for marketing the ORCA Lift program. Social service agencies were involved with structuring the program from the outset and helped make recommendations to the agency about the program structure. These agencies also provide income verification services and help enroll qualifying riders who are applying for other benefits. In King County, for example, the Department of Social and Health Services (DSHS) offered ORCA Lift applications to applicants for EBT services, which resulted in increased enrollment. DSHS is planning to increase their role in Pierce and Snohomish Counties as well.

Cardholders pay $1.50 for most one-way trips or may purchase discounted monthly passes for $54 (regularly $99). Fare value and passes can be renewed online, similar to other ORCA pass products.

Not everyone who is eligible uses the program, but ridership is expected to increase as a result of the program. Out of the approximately 160,000 riders eligible for the ORCA Lift program, there were 60,000 participants as of March 2018. Additional funding may be necessary to offset revenue loss associated with these programs. The ORCA Lift program costs were offset by a fare increase for the general public.

TriMet Low-Income Hop Pass

TriMet's program is relatively new and has not yet released enrollment data, but during the planning phase, the agency projected 45,000 users out of 120,000 eligible riders and an annual

ridership increase of 1-2% (2 million trips). The program is funded by a state transportation package that provides $12.5 million annually through a payroll tax increase.

After in-person income verification, Low-Income Hop Pass program participants receive a special Hop card with their photo on the front in order to discourage fraud. This Hop card is valid for two years before participants must reapply. Program participants have multiple fare options including $1.25 for a single ride, $2.50 for a day pass, and $28 for a 31-day pass. These fares represent a discount between 50% and 72% compared to standard base fares.

Low-Tech Options

SFMTA Lifeline Pass

The Lifeline Pass is a low-income pass program implemented in San Francisco in 2005 to reduce the impacts of planned fare increases on low-income riders. Any San Francisco County resident at or below 200% of the federal poverty line is eligible for the program. Applicants must submit government-issued identification, proof of income eligibility, and proof of residency to the San Francisco Human Services Agency to verify eligibility every two years.

The Lifeline Pass is not a smartcard; instead, it is a photo ID that requires monthly validation stickers that cost $38 per month (50% of a regular monthly pass). Participants use their card as a flash pass to board the vehicle and don't pay any additional fare. Riders have to purchase their validation stickers every month in person at one of eight locations throughout the city of San Francisco. This validation sticker component is more burdensome to the user than smartcard-based programs.

Out of approximately 159,000 eligible riders, 45,000 have enrolled in Lifeline and 20,000 were actively purchasing passes in 2017.

Dallas Area Rapid Transit TANF Program

Dallas Area Rapid Transit (DART) offers a low-income monthly pass for TANF recipients using magnetic swipe card technology. This program requires riders to purchase monthly passes at the transit center or select pass outlet locations. TANF recipients are able to use their benefits to directly purchase the transit pass at a reduced rate. Using TANF benefits to purchase transit passes serves as an income verification process. This program provides less flexibility than other low-income programs since participants are limited to monthly passes and cannot receive a discounted day pass or single ride fare.

Pinellas Suncoast Transit Authority Transportation Disadvantaged Program

Pinellas Suncoast Transit Authority (PSTA) in Pinellas County, FL, offers a low-tech low-income fare program for residents of Pinellas County with a documented household income not exceeding 150% of the poverty level as one component of the agency's Transportation Disadvantaged (TD)

Program. The TD program is state-funded and paid for through vehicle registration fees. The TD Program does not offer a reduced fare cash option—instead, qualified riders can purchase 10-day passes for $5 per month (regularly $50) and 31-day unlimited passes for $11 per month (regularly $70).

Applicants for the TD Program self-certify their residency and lack of alternative transportation options, but are required to verify their income level with acceptable documentation. The program currently requires passengers to certify their income annually. Passes are sold at PSTA vending locations only, not through any other agreements or third-party retail locations. Passengers must show government-issued photo ID to receive their pass. Administrative staff access a database which includes name, date of birth, address, and phone number to verify the passenger's identity and eligibility.

The annual TD Program budget for reduced passes is approximately $350,000 at 150% of the poverty level. Previously, the program used 200% as the poverty level threshold, but it caused the program to exceed available budget, so the poverty level was adjusted down. The program requires approximately 1.5 FTEs dedicated to handling eligibility verification and database management.

The TD Program had a negative impact on PSTA's farebox recovery, but meets the agency's goal of allowing those who need it most to be able to use the service more often. The in-person pass purchasing process is burdensome for users but is necessary until there is a more streamlined ID verification or high-tech system in place.

PASS PROGRAMS

In recent years, growing numbers of transit agencies have teamed with universities, employers, or residential neighborhoods to provide bulk transit passes. These passes typically provide unlimited rides on local or regional transit providers for low monthly fees, often absorbed entirely by the employer, school, or developers.

A bulk pass program provides a participating organization free or deeply discounted transit rides for a financial guarantee. These programs are slightly different than pass sales since they often assume that 100% of an organization's members are eligible for the program whether or not they regularly use public transportation. The benefit to major institutions is that a well-designed program provides a simple, packaged solution to help solve transportation access issues to their organization. These types of programs can be implemented in different ways, but the most common financial contribution approaches include the following:

- Contribution determined by current employees, residential units, students, etc. as reported by the participating organization
- Contribution determined by ridership

- Annual fixed fee (same price, regardless of institution size or usage)

Bulk transit passes provide multiple benefits, as discussed in Figure 3-10. While pass programs tend to be affiliated with bus service, in most cases they are part of a broader multi-modal transportation strategy that includes improved bike programs, car share programs, carpooling/vanpooling strategies, and often, increased parking rates.

Figure 3-10 Bulk Pass Program Benefits

Beneficiary	Bulk Pass Benefit
Transit Riders	Free access to transit
	Rewards existing riders, attracts new ones
	For employees who drive, making existing transit free can effectively create convenient park-and-ride shuttles to existing underused remote parking areas
Transit Agencies	Provides a stable source of income
	Increases transit ridership, helping to meet agency ridership goals
	Can help improve cost recovery, reduce agency subsidy, and/or fund service improvements
Communities	Reduces traffic congestion and increases transit ridership
	Reduces existing, unmet, and future growth in parking demand
Developers	Bulk pass programs can benefit developers if implemented concurrently with reduced parking requirements, which consequently lower construction costs
	Providing free cost transit passes for large developments provides an amenity that can help attract renters or home buyers as part of a lifestyle marketing campaign appealing to those seeking a "new urban lifestyle"
Employees/ Employers	Reduces demand for parking on-site
	Provides a tax-advantaged transportation benefit that can help recruit and retain employees

Source: City of Pasadena Traffic Reduction Strategies Study, 2007

RTD EcoPass (Denver, CO)

Denver RTD's Business EcoPass provides unlimited usage of RTD services and is an annual transit pass purchased by a company and its employees or a collection of residences. Companies purchase the EcoPass for all full-time employees with an option to include part-time employees. Transit service levels are also accounted for through a tiered pricing structure (Figure 3-11). Pricing for businesses is determined by two factors—location of the business (and corresponding level of service for that area) and total number of full-time employees or total number of full/part-time employees on the payroll. Contract minimum rates apply for businesses with a per-person rate that equals less than the contract minimum. The resulting discount per employee per year ranges from 71% to 97% off the retail price.[1]

Additionally, Boulder County offers a multi-year EcoPass discount (60% off of the first year's purchase price, 30% off of the second year's contract price) to all businesses and neighborhoods

[1] Calculated based on July 2018 Valupass pricing of $1,881 for regional/airport service.

signing up for their initial EcoPass contract. EcoPass is tax deductible to employers and tax free to employees.

As of Summer 2018, RTD is currently investigating making changes to the existing EcoPass program to charge per use. If updated policies are implemented, employers would continue to be grouped by location and number of employees, but fees per EcoPass use would be charged based on tier categories. RTD is still considering fees per tier, level of discounts provided, and potential adjustments to tier size as part of the revised program structure.

Figure 3-11 Denver RTD Business EcoPass Pricing Structure (2016)

Cost per Employee per Year (2016)							
Service Level Area	Number of Employees	Contract Minimum Per Year	1-24 Employees	25-249 Employees	250-999 Employees	1,000-1,999 Employees	2,000+ Employees
A: Outer Suburban	1-10 11-20 21+	$1,150 $2,300 $3,448	$98	$85	$75	$64	$60
B: Major Transit Centers	1-10 11-20 21+	$2,108 $4,215 $6,322	$209	$189	$173	$160	$151
C:Downtown Denver CBD	1-10 11-20 21+	$2,874 $5,748 $8,621	$532	$493	$470	$459	$434
D: DIA and home businesses	1-10 11-20 21+	$2,874 $5,748 $8,621	$544	$522	$483	$470	$445

Source: Denver RTD

FARE FREE SYSTEMS

The majority of public transit systems charge a fare for passengers to access the system; however, some agencies provide fare free, or prepaid, service with no fare charged at the point of access. Fare free transit service is generally funded by other means than collected fares, including partnerships with local universities, non-profit organizations, or community groups, which can make up lost farebox revenue.

Transitioning to fare free service can be a transformative way to increase public transit use, with potential benefits including:

- Increasing ridership between 30-40%[2]
- Improving speed and reliability
- Reducing administrative costs
- Eliminating cost to maintain and upgrade fareboxes
- Reducing fare disputes
- Environmental benefits including carbon reduction and reduced parking requirements

[2] According to experiences from systems include Chapel Hill Transit and Mountain Line (Missoula, MT)

Case Study: Chapel Hill Transit

Chapel Hill Transit (CHT) serves as a local case study to identify potential impacts and best practices for transitioning to fare free service in the Wake-Durham region. Key impacts to the CHT system include a significant increase in ridership and demand for service, an increase in service to accommodate new ridership demand, and the need to offset operating cost increases with revenue other than fares.

Ridership and Operations Trends

After eliminating fares in 2002, ridership on CHT doubled over the next 10 years. To accommodate increased ridership demand, CHT has increased service by 28% between 2002 and 2015. As CHT revenue hours increased, the cost per revenue hour of providing service has also continued to increase—76% between 2002 and 2015. These increased operating costs appear to be primarily driven by inflationary changes, as well as the cost of fuel and employee benefits.

A key consideration before transition to fare free service is the associated increased demand for paratransit service. Legally, 100% of paratransit demand must be met and fare free paratransit is attractive to the rider but costly for the agency. After moving to a fare free system, Chapel Hill Transit experienced a 20% increase in demand response ridership, though overall demand response ridership is currently declining.

These trends are shown in Figure 3-12 through Figure 3-15.

Figure 3-12 Chapel Hill Transit Fare Free Ridership Impacts

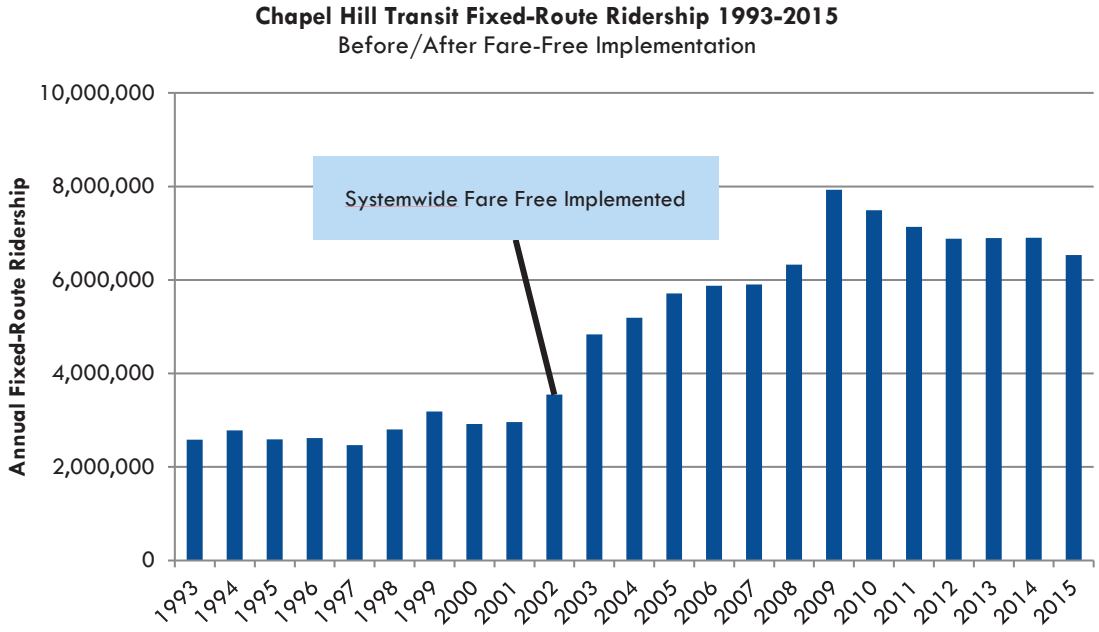


Figure 3-13 Chapel Hill Transit Demand Response Ridership Trends

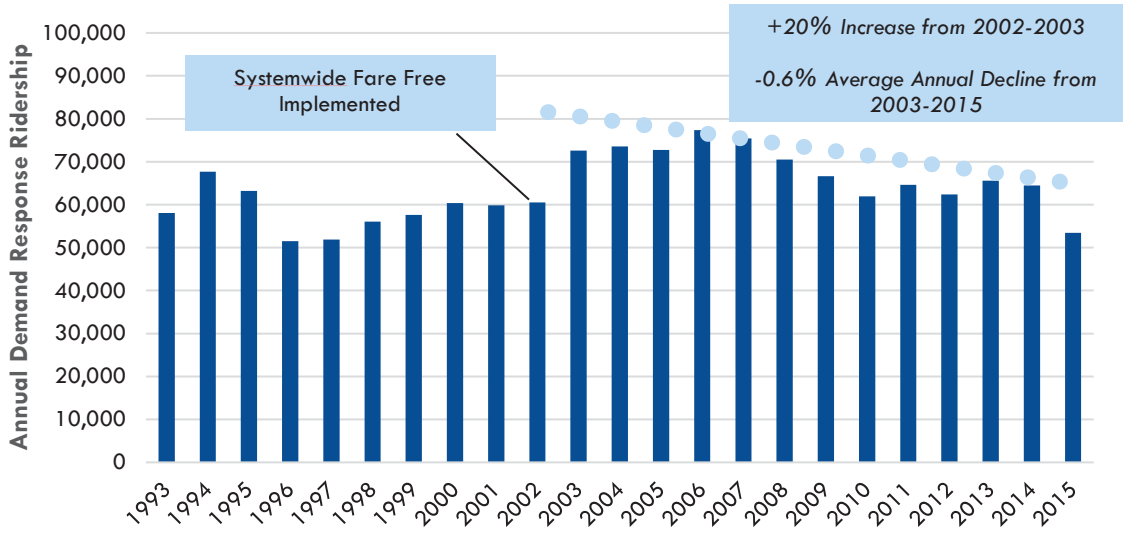


Figure 3-14 Chapel Hill Transit Revenue Hours Trends

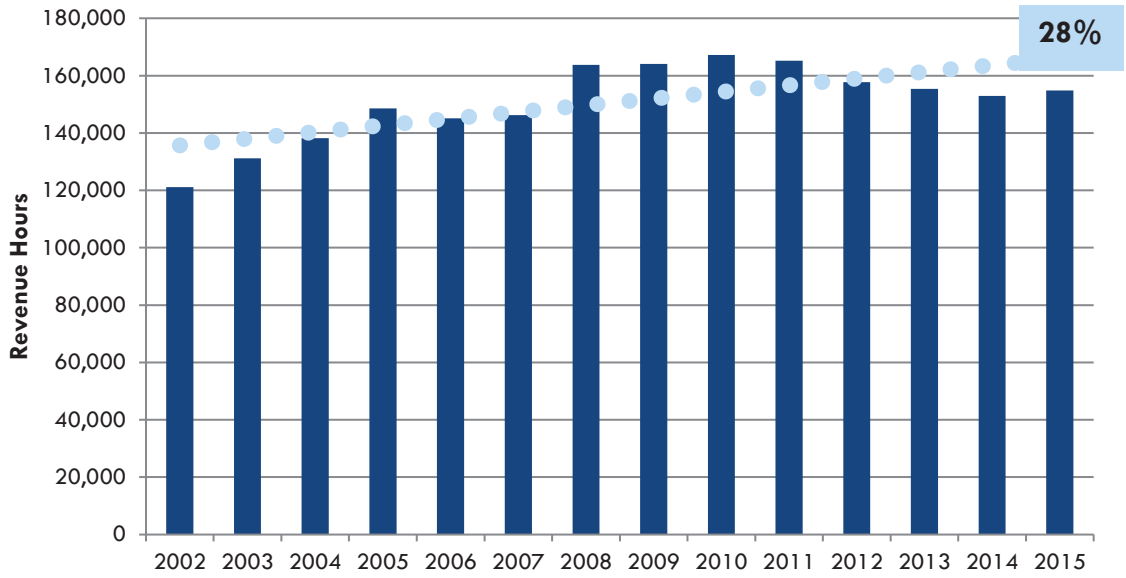
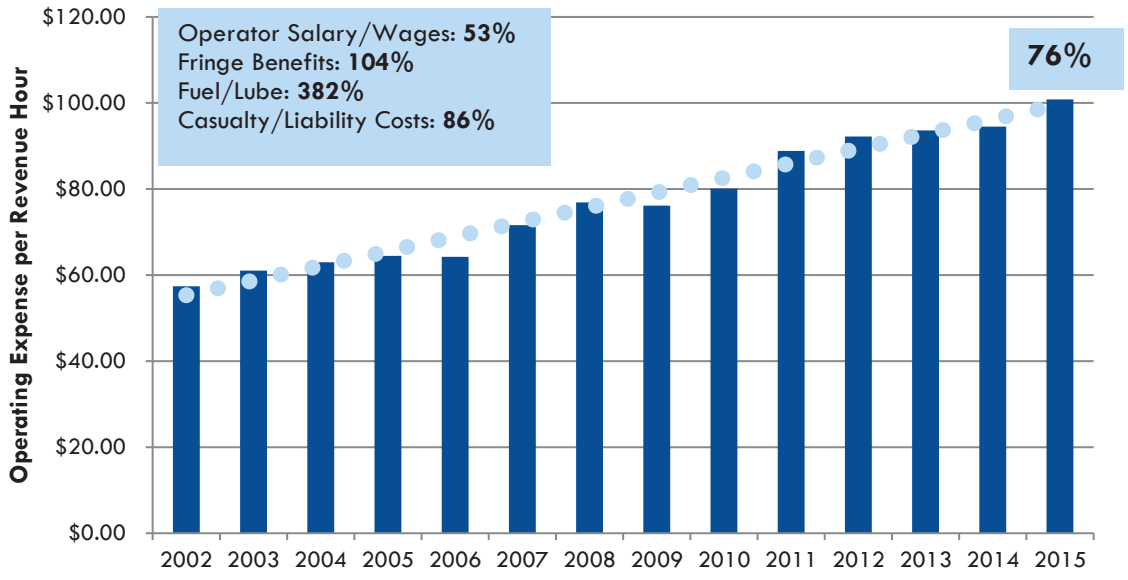


Figure 3-15 Chapel Hill Transit Cost per Revenue Hour Trends



Funding Trends

After eliminating fares, federal formula funding for CHT increased before leveling off in 2011 and has been relatively flat since. While federal funding has been consistent, state funding for CHT service declined 26% between 2007 and 2015. CHT has made up for this decrease in state funding with partner contributions from UNC-Chapel Hill, the Town of Chapel Hill, and the Town of Carrboro. These funding trends are shown in Figure 3-16 through Figure 3-18.

Figure 3-16 Chapel Hill Transit Federal Formula Funding Trends

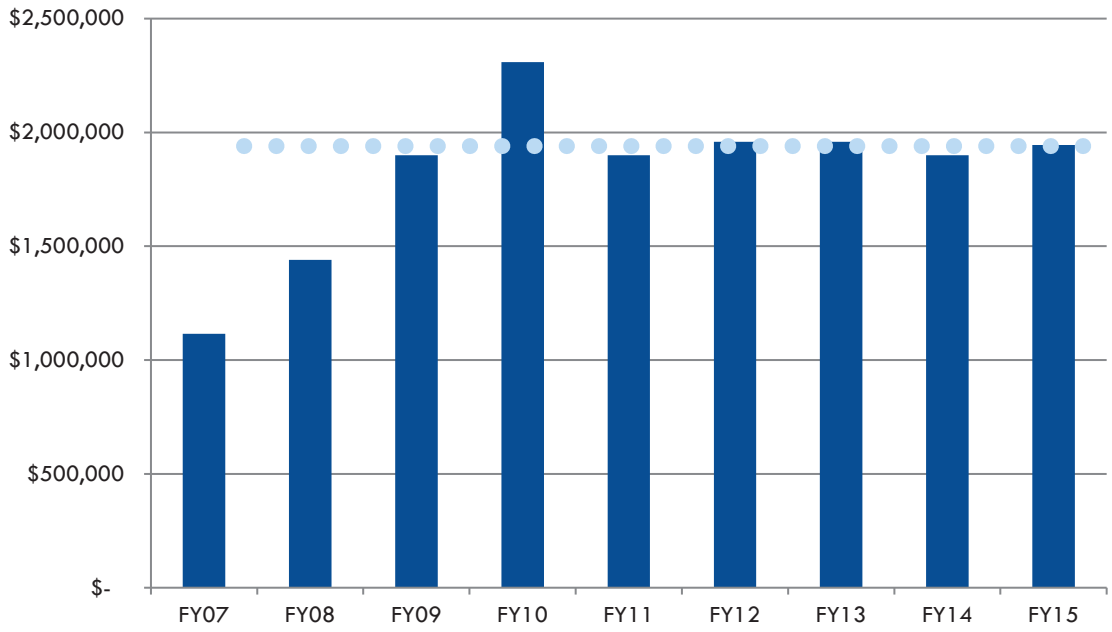


Figure 3-17 Chapel Hill Transit State Funding Trends

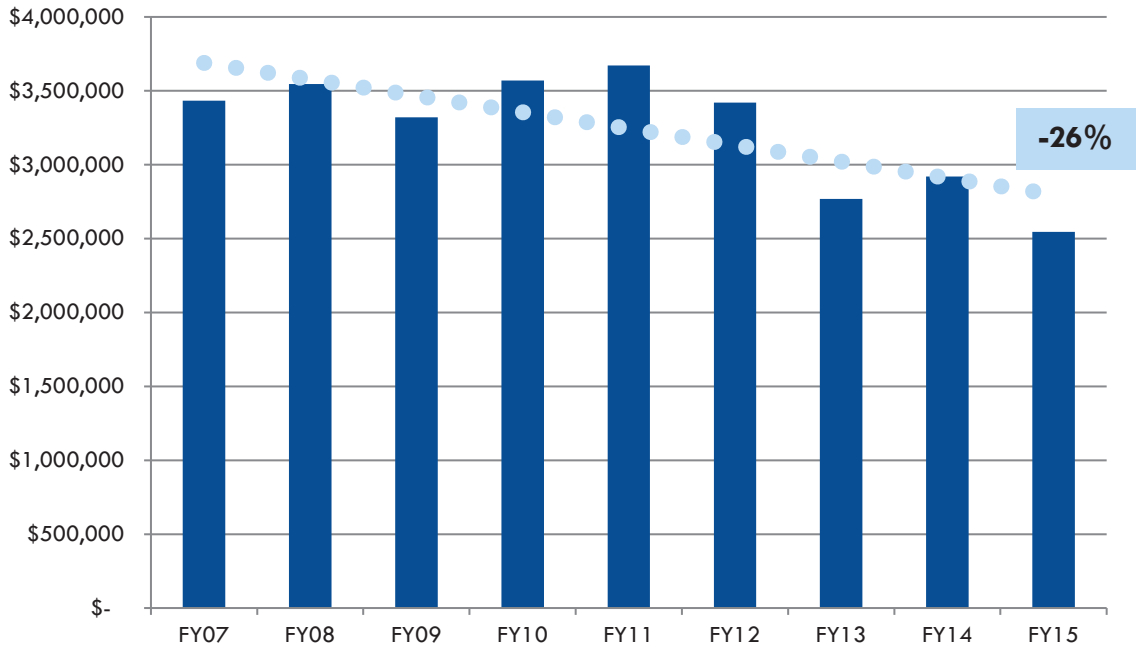
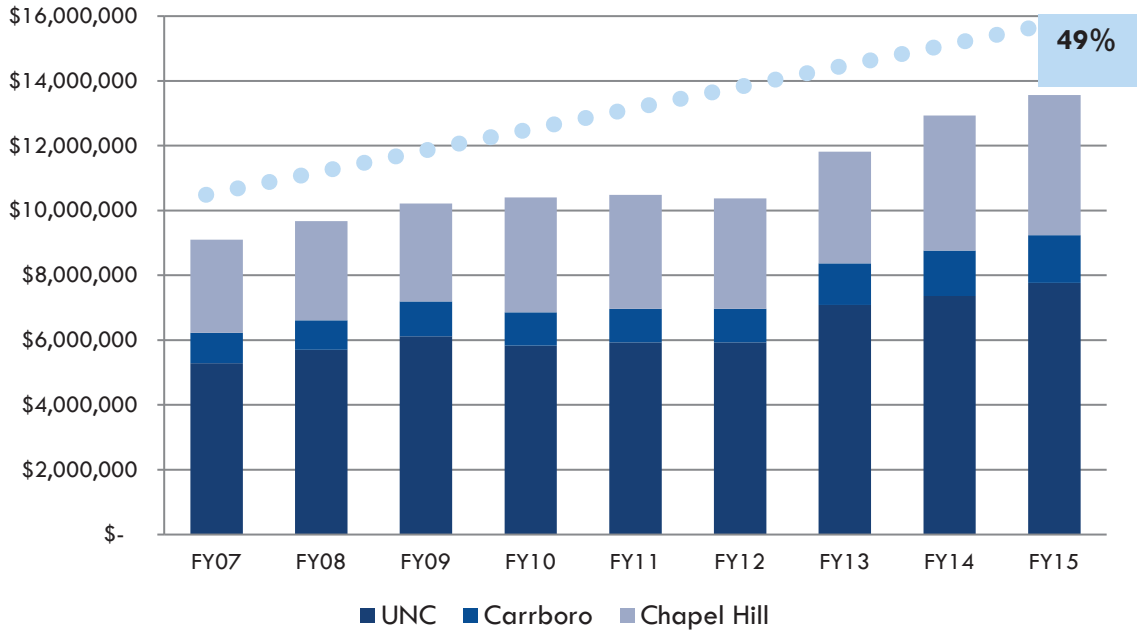


Figure 3-18 Chapel Hill Transit Partner Funding Trends



Fare Free Best Practices and Lessons Learned

There are numerous costs and benefits associated with providing fare free service. Potential benefits include increased ridership, simplified administration, and travel time/dwell time savings. After eliminating fares, CHT experienced significant ridership growth and adjusted their service accordingly. This growth has stabilized and remained steady since 2010; however, the impacts of growth and expansion are still being felt as CHT continues to increase service and the operating cost per revenue hour continues to increase. These cost increases largely reflect inflation but are still important considerations for transit agencies before implementing fare free service.

As costs generally increased, the funding mechanism used to provide the service also fundamentally changed. Federal funding remained relatively consistent, while state funding declined significantly. This funding gap was bridged through the partnership between CHT, UNC-Chapel Hill, the Town of Chapel Hill, and the Town of Carrboro to provide increased funding for service.

Local partnerships are imperative for ensuring adequate funding to both maintain the existing level of service and gradually increase service to meet expected increases in ridership demand.

4 Fare Scenarios

This chapter presents a summary of the fare scenarios that were modeled and evaluated to assess ridership and revenue impacts. Scenarios were identified based on potential to address the study goals and approved by the Fare Working Group.

FARE MODEL DEVELOPMENT

The fare model developed for this project is based on existing ridership and revenue data (FY 2017) and assumptions on average fare per passenger for each fare product. This information is then used as a baseline to understand order of magnitude changes to fare revenues and ridership as a result of pricing or structural changes.

Consumption of transit, like other goods and services, reacts to cost. Significant research over time has examined the sensitivity of transit ridership to fare increases. In transit, the standard measurement of sensitivity to fare changes means that for every 10% increase in fares, ridership will decrease by 3% (and vice-versa).

As such, elasticity factors are common in fare modeling, as they define the price sensitivity of riders to fare changes. An elastic factor suggests a larger change in ridership relative to a fare change. An inelastic factor suggests a relatively small change in ridership relative to a fare change. The model accounts for two elasticity factors[1]:

- A relatively inelastic factor (-0.33), which is consistent with industry standards for regular fares
- A "reduced" elasticity factor (-0.21) to account for observations associated with student, elderly, and disabled patrons

Using these elasticity factors, ridership changes (on a fare product basis) are determined from the proposed fare increase or decrease. A new average fare for each fare product is also calculated from the percentage change in the fare product price. Finally, multiplying the new ridership estimate by the new average fare produces a revenue estimate for that fare product.

It should be cautioned that any estimation model is an approximation based on a set of assumptions and is highly dependent on accurate data inputs to ensure quality outputs. The fare model bases ridership and revenue changes strictly on price variation. Qualitative factors such as customer simplicity or other factors are not considered here, but are certainly factors in reality that influence ridership and revenue levels. Based on the perceived simplicity gains, it is likely that ridership benefits in each scenario are understated. As a result, the findings from this analysis are simply estimates but offer a valuable means to compare different scenarios against one another.

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[1] Source: TCRP Report 95, Chapter 12, *Transit Pricing and Fares*.

KEY FINDINGS

- **Tiered fares may align regional fare structures and increase revenue for the region with limited impacts to ridership.** Aligning fares throughout the region, a stated goal of the study, would result in an expected revenue increase of 3.5% and ridership decrease of 2.0%.
- **Low-income programs may be costly.** Implementing a low-income program with an eligibility threshold of 200% of the regional poverty line would result in an expected revenue loss of 6.7% with a ridership increase of 1.2%.
- **Fare capping may improve fare equity without a significant revenue decrease.** Implementing a fare capping policy resulted in a small ridership increase of 0.2% and revenue decrease of 1.9%. This option may improve fare equity and affordability with a smaller revenue loss than a low-income program.

FARE SCENARIOS

Eight fare scenarios were developed and modeled to test impacts of fare structure and discount policy changes to the region as a whole and to individual agencies. Identifying the individual impacts of a specific change allows for informed decision-making about the likely effects of implementing new fare policies, as well as helping agencies better plan for the associated changes in ridership and revenue. The fare scenarios that were modeled and analyzed in the study include:

1. Region-Wide Flat Fare
2. Region-Wide Tiered Fares
3. Optimize Fares to Increase Ridership
4. Maximize Farebox Recovery
5. Align Discount Fare Policies
6. Offer Fare Capping
7. Offer Low-Income Fare Category
8. Offer Low-Income Fare Category with General Fare Increase

Scenario 1: Region-Wide Flat Fare

The goal of the region-wide flat fare scenario is to provide a simplified fare structure in which all four agencies in the region charge the same flat rate fare, regardless of service type. In this scenario, multiple base fare levels were tested in Scenario 1a ($1.00), Scenario 1b ($1.25), and Scenario 1c ($1.50). Pass multipliers for all three scenario iterations were left constant, with day passes at 2x, 5-day passes at 8x, 7-day passes at 10x, and 31-day passes at 32x. The simplified fare structure in Scenario 1 would bolster a regional transit system approach.

The three pricing levels in Scenario 1 result in large swings between ridership and revenue, shown in Figure 4-1. Scenario 1b ($1.25) is the most balanced result of the three options, with small reductions in ridership and revenue (less than 2%). The agency-specific impacts of a region-wide flat fare set at $1.25 are shown in Figure 4-2. There are significant revenue impacts for GoTriangle and GoCary, with decreases of 17.0% and 9.2% respectively, as both agencies would have to reduce their fares substantially in this scenario. GoDurham would have a revenue increase of 9.1% accompanied by a ridership decrease of 4.8%.

While a region-wide flat fare would simplify the customer experience and improve a regional approach to transit, the steep financial impacts to GoTriangle and GoCary may be prohibitive for this approach.

Figure 4-1 Region-Wide Flat Fare Ridership and Revenue Impacts

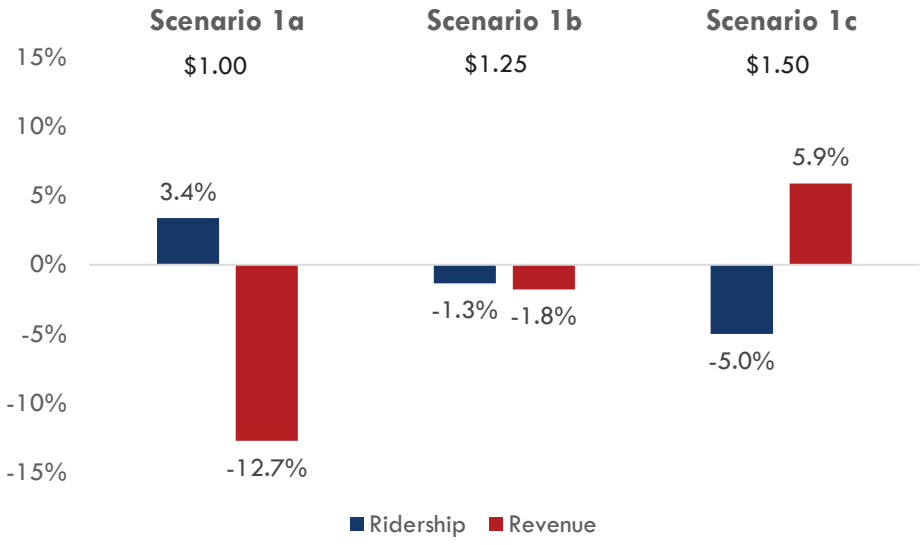
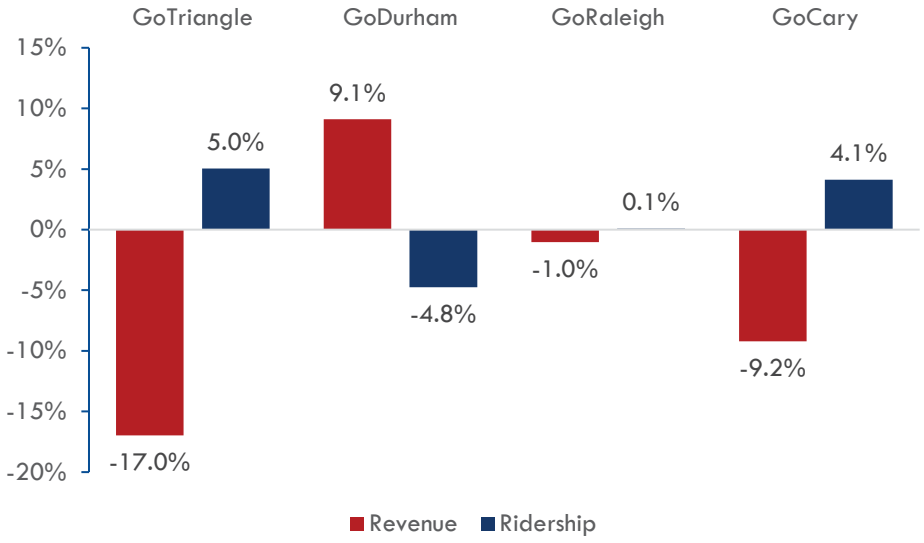


Figure 4-2 Region-Wide Flat Fare - $1.25 Ridership and Revenue Impacts for Agencies



Scenario 2: Region-Wide Tiered Fare

A region-wide tiered fare would simplify the regional fare structure, while allowing regional and express service offered by GoTriangle to continue charging a higher rate than local service. In this scenario, GoDurham, GoRaleigh, and GoCary are considered local services, and all GoTriangle services are considered regional/express. In this scenario, multiple fare tiers were tested in Scenario 2a ($1.25/$2.50), Scenario 2b ($1.50/$3.00), Scenario 2c ($1.00/$2.50), and Scenario 2d ($1.00/$3.00). The ridership and revenue impacts of the four tiered alternatives in Scenario 2 are shown in Figure 4-3. Scenario 2a is the most balanced of these alternatives, with a slight decrease in ridership (2.0%) and increase in revenue (3.5%).

The agency-specific ridership and revenue impacts for a region-wide tiered fare set at $1.25 for local service and $2.50 for regional/express service are shown in Figure 4-4. This fare structure would have small impacts for GoTriangle and GoRaleigh, but much more significant impacts for GoDurham and GoCary. GoDurham would be projected to increase revenue by 10.5% and decrease ridership by 4.4%, while GoCary is expected to decrease revenue by 15.6% and increase ridership by 2.2%. While this is a large percent decrease in revenue for GoCary, it accounts for an annual loss of approximately $26,000. The 10.5% increase in revenue for GoDurham accounts for approximately $278,000, more than ten times as much.

Figure 4-3 Region-Wide Tiered Fare Ridership and Revenue Impacts

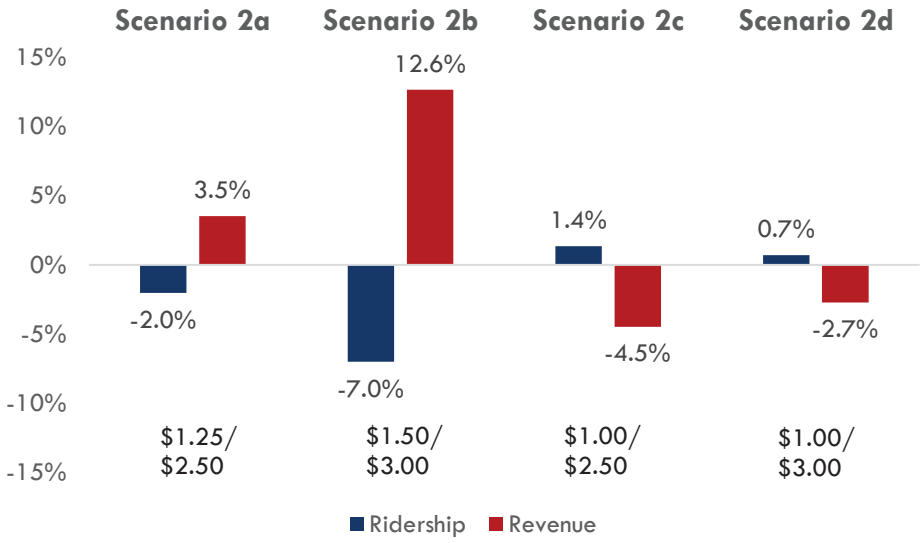
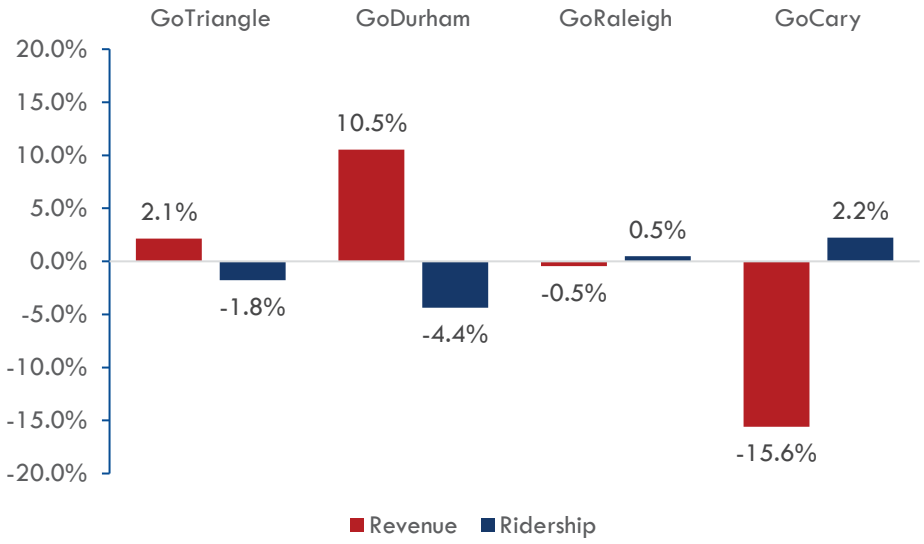


Figure 4-4 Region-Wide Tiered Fare $1.25/$2.50 Ridership and Revenue Impacts for Agencies



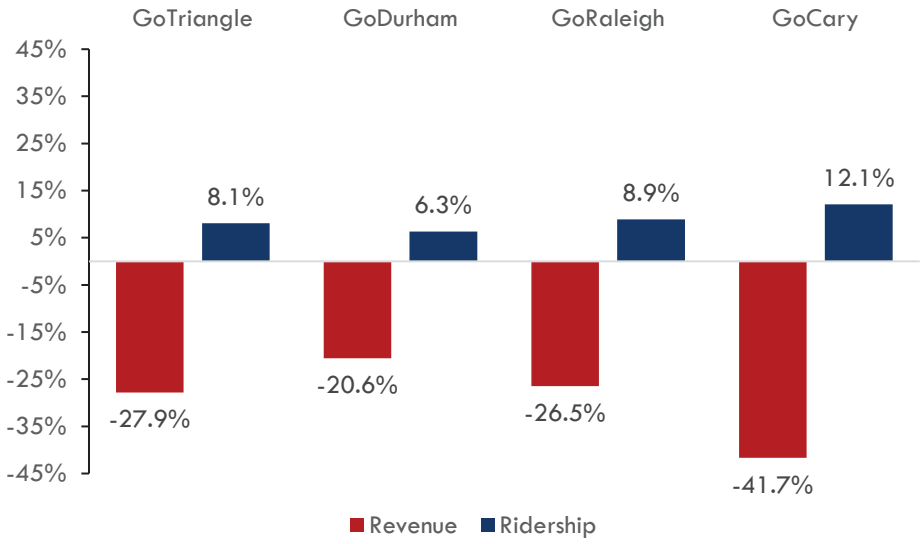
Scenario 3: Optimize Fares to Increase Ridership

This scenario takes an iterative approach to adjusting fares and pass multipliers until prices are such that ridership is maximized and no longer increases with subsequent decreases in fare price. This scenario also assumes that fares would not be reduced so low as to provide fare free service and that pass multipliers must remain within peer agency best practices. Ultimately, the optimized fare rate was established as a region-wide flat fare of $0.75, with a discount fare rate of $0.25 and pass multipliers of 2x for day passes, 4x for 5-day passes, 10x for 7-day passes, and 32x for monthly passes.

The agency-specific ridership and revenue impacts for Scenario 3 are shown in Figure 4-5. These impacts show large decreases in revenue and increases in ridership for all four agencies. Ridership increases range from 6.3% for GoDurham to 12.1% for GoCary. Revenue decreases range from 20.6% for GoDurham to 41.7% for GoCary.

This scenario is not intended to be a potential approach for new fare pricing; instead, it identifies the potential maximum ridership increase related to fare changes for each agency.

Figure 4-5 Optimized to Increase Ridership, Revenue and Ridership Impacts for Agencies



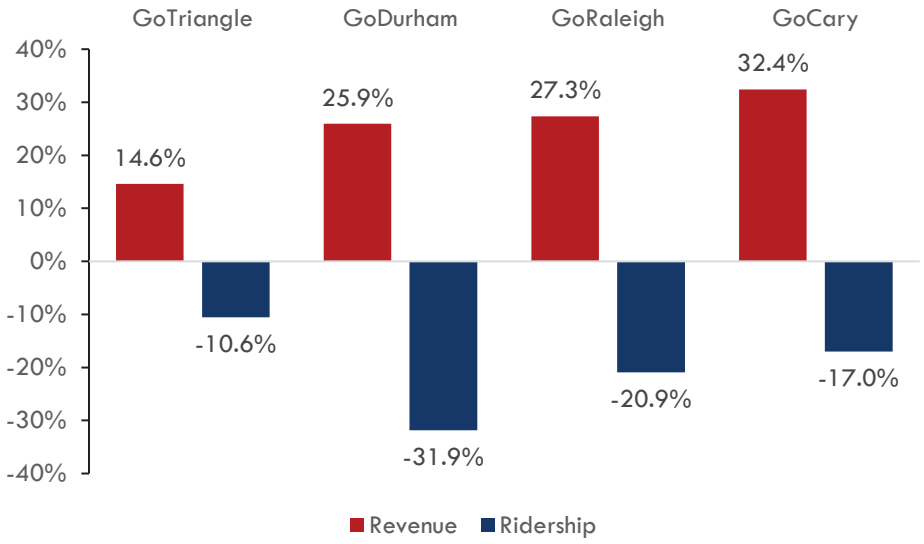
Scenario 4: Maximize Farebox Recovery

Similar to Scenario 3, this scenario takes an iterative approach to adjusting fares and pass multipliers until prices are such that farebox recovery rate is maximized and no longer increases with subsequent increases in fare price. The maximized fare for this scenario was established as a region-wide tiered fare charging $2.25 for local service and $4.00 for regional/express service, with discounted fares set at 50% of the base fare. Pass multipliers also remained within the range of peer agency best practices, 2x for day passes, 8x for 5-day passes, 10x for 7-day passes, and 36x for monthly passes.

The agency-specific ridership and revenue impacts for Scenario 4 are shown in Figure 4-6. These impacts show large increases in revenue and large decreases in ridership for all four agencies. Ridership decreases range from 10.6% for GoTriangle to 31.9% for GoDurham. Revenue increases range from 14.6% for GoTriangle to 32.4% for GoCary.

This scenario is not intended to be a potential approach for new fare pricing; instead, it identifies the potential maximum revenue increase related to fare changes for each agency.

Figure 4-6 Maximized Farebox Recovery Ridership and Revenue Impacts for Agencies



Scenario 5: Align Regional Discount Fare Policies

This scenario assumes that all existing base fares and pass multipliers remain consistent with existing conditions, but discount policies will be aligned for the agencies. Discount categories for the agencies analyzed in this scenario include:

- Seniors (aged 65 and older)
- Youth (aged 18 and younger)
- People with disabilities

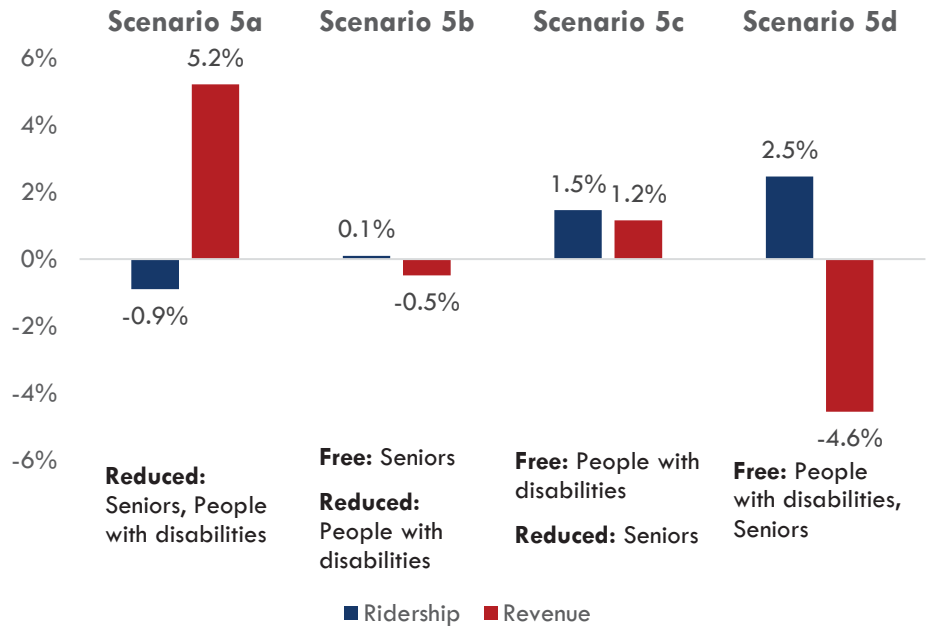
Youth fares were recently made free for all agencies in the region through the Youth GoPass program, and these scenario alternatives assume this policy would continue. The existing category for seniors in GoCary is set at age 60 and older, and this scenario would separate out those aged 60-64 and only apply the senior discount to those aged 65 and older.

This scenario tests four different alternatives for aligning discount policies, including Scenario 5a (Reduced: Seniors, People with Disabilities), Scenario 5b (Free: Seniors; Reduced: People with Disabilities), Scenario 5c (Free: People with Disabilities; Reduced: Seniors), Scenario 5d (Free: Seniors, People with Disabilities). Ridership and revenue impacts for these alternative discount policies are shown in Figure 4-7.

The results of these scenario alternatives present a range of ridership and revenue impacts, all of which may be feasible discount policies. Ridership impacts range from a 0.9% decrease in Scenario 5a to a 2.5% increase in Scenario 5d. Revenue impacts range from a 4.6% decrease in Scenario 5d to a 5.2% increase in Scenario 5a. Scenario 5b and Scenario 5c have more balanced impacts than the other two alternatives.

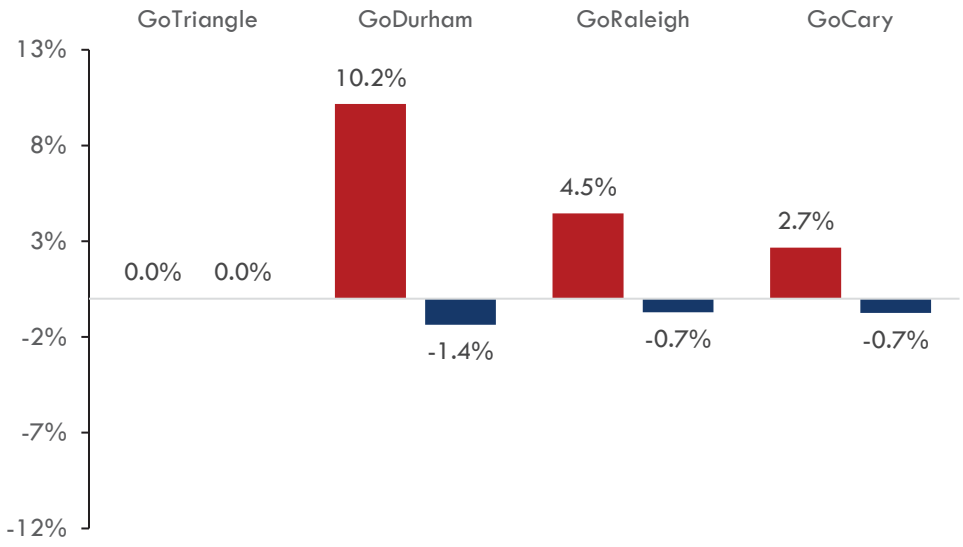
Agency-specific ridership and revenue impacts for these scenario alternatives are shown below in Figure 4-8 through Figure 4-11.

Figure 4-7 Align Regional Discount Policies Ridership and Revenue Impacts



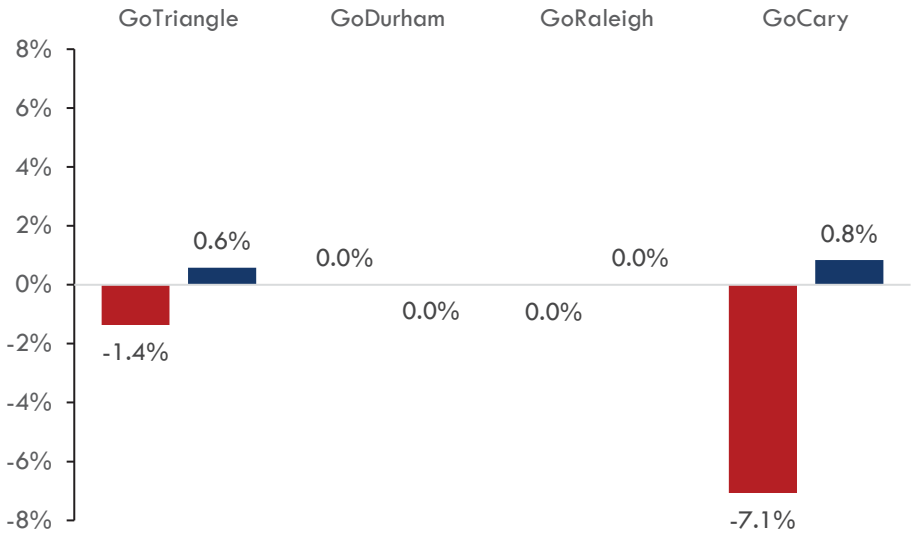
There is no change to ridership or revenue for GoTriangle in Scenario 5a, but there are significant revenue increases and small ridership decreases for the other agencies. GoDurham and GoRaleigh currently offer free service to seniors over aged 65, so instituting a fare on this discount category accounts for this increase in revenue and decrease in ridership (Figure 4-8). GoCary currently provides a discounted fare for seniors aged 60 and older. Altering this category to include only seniors aged 65 and older provides a small increase in revenue and decrease in ridership.

Figure 4-8 Scenario 5a Agency-Specific Ridership and Revenue Impacts



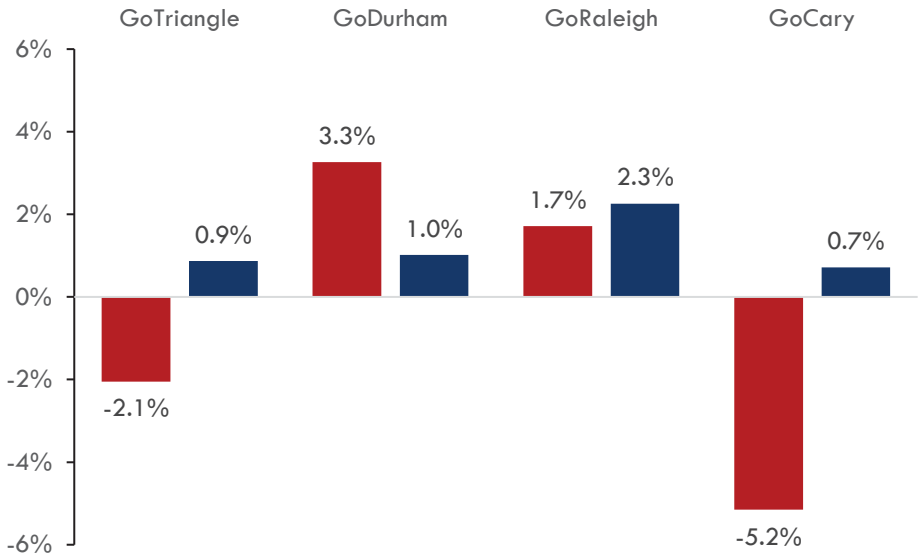
Providing free service to seniors and discounted service to people with disabilities results in no ridership or revenue changes for GoDurham or GoRaleigh (Figure 4-9). Providing free service for seniors results in a small increase in ridership for GoTriangle and GoCary, but a decrease in revenue. The 1.4% decrease in revenue for GoTriangle equates to approximately $27,000 annually, while the 7.1% decrease in revenue for GoCary would be approximately $12,000 annually.

Figure 4-9 Scenario 5b Agency-Specific Ridership and Revenue Impacts



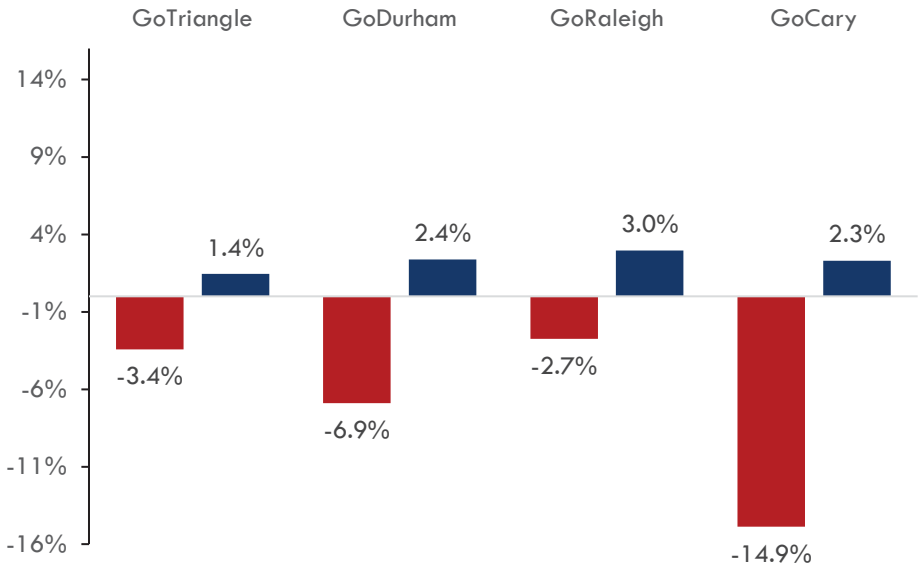
Providing free service for people with disabilities but charging a discounted fare for seniors results in a small overall increase in ridership and revenue—1.5% and 1.2%, respectively (Figure 4-10). At the agency level, ridership would increase for all four agencies; however, revenue impacts would be mixed. Revenue for GoDurham and GoRaleigh would increase by 3.3% and 1.7% respectively, while revenue for GoTriangle and GoCary would decrease by 2.1% and 5.2%.

Figure 4-10 Scenario 5c Agency-Specific Ridership and Revenue Impacts



Providing free service for all discount categories (youth, seniors, and people with disabilities) results in varying levels of increased ridership and decreased revenues for each agency (Figure 4-11). Overall, there would be a 2.5% increase in ridership and a 4.6% decrease in revenue across the region. Ridership increases range from 1.4% for GoTriangle to 3.0% for GoRaleigh, while revenue decreases range from 2.7% for GoRaleigh to 14.9% for GoCary. While this alternative has the largest ridership increase, it also comes with the largest revenue decrease. These priorities must be weighed and taken into account while developing and implementing new fare structures and discount policies.

Figure 4-11 Scenario 5d Agency-Specific Ridership and Revenue Impacts

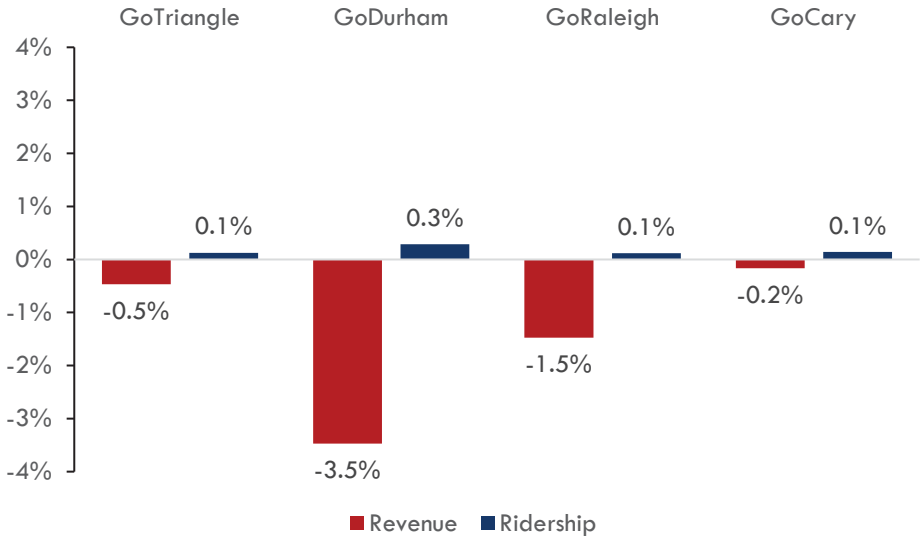


Scenario 6: Offer Fare Capping

Fare capping is an emerging trend to make transit an affordable option and reduce the fare burden for cash riders. Fare capping works by allowing transit riders to pay for trips with smartcards cards or mobile ticket as they ride on a per-trip basis, but will stop charging them after reaching specific thresholds. In this scenario, fare capping would occur after two trips in a single day and 32 trips in a single month. Investing in fare capping policy requires implementing an electronic fare collection system such as smartcards and/or mobile ticketing.

Ridership and revenue impacts for individual agencies are shown in Figure 4-12. Overall, fare capping would result in a 1.9% decrease in revenue and a 0.2% increase in ridership across the region. The largest impacts of fare capping would be for GoDurham, which would experience a 3.5% decrease in revenue and a 0.3% increase in ridership.

Figure 4-12 Fare Capping Agency Specific Ridership and Revenue Impacts



Scenario 7: Offer a Low-Income Fare Category

Offering a low-income fare category is another method for making transit a more affordable transportation option. This scenario analyzes the impacts of offering a discount to eligible adults making up to 200%, 150%, and 100% of the federal poverty level. This scenario assumes that 35% of eligible riders would actually use the low-income fare program—the observed usage rate for the ORCA Lift low-income fare program in Seattle, WA and in line with the projected usage rate for TriMet in Portland, OR.

Offering a low-income discount program with a threshold at 200% of the federal poverty line has the largest impacts to ridership and revenue and is the current industry standard, although 150% of the federal poverty line is also being used. These thresholds coincide with eligibility for a number of other public benefit programs and may reduce administrative costs through streamlined income verification.

Agency-specific impacts of a low-income fare category at 200% of the federal poverty line are shown in Figure 4-14. Ridership increases for the program range between 0.7% for GoTriangle and 1.6% for GoCary; conversely, revenue decreases range between 4% for GoTriangle and 9.4% for GoCary. While this is a large percent difference for GoCary, the 9.4% decrease in revenue equates to approximately $16,000 while the 4% decrease for GoTriangle is equal to approximately $78,000.

Figure 4-13 Low-Income Fare Category Ridership and Revenue Impacts

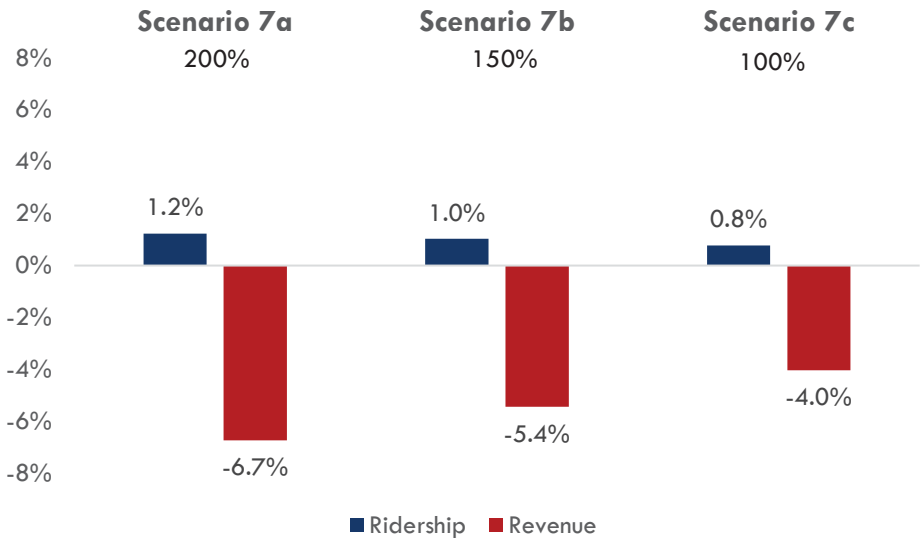
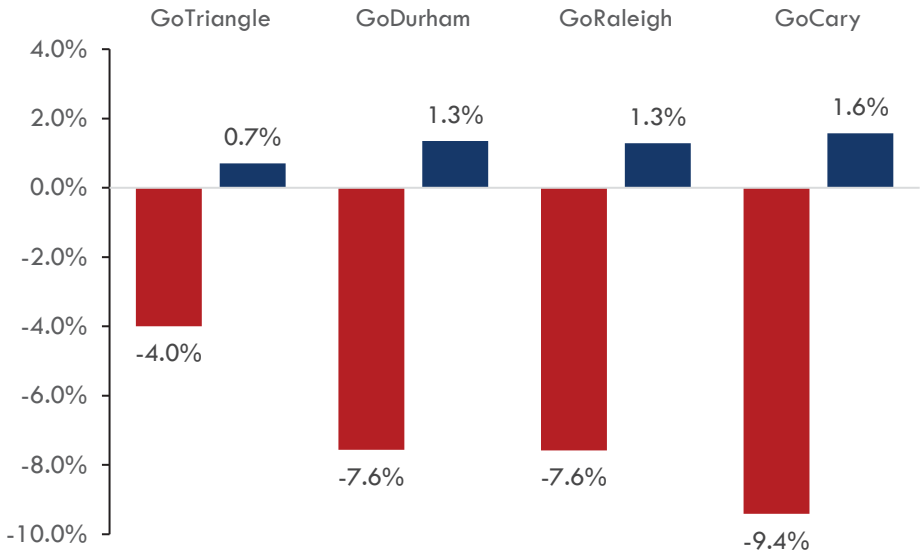


Figure 4-14 Low-Income Fare Category at 200% of the Federal Poverty Line Impacts

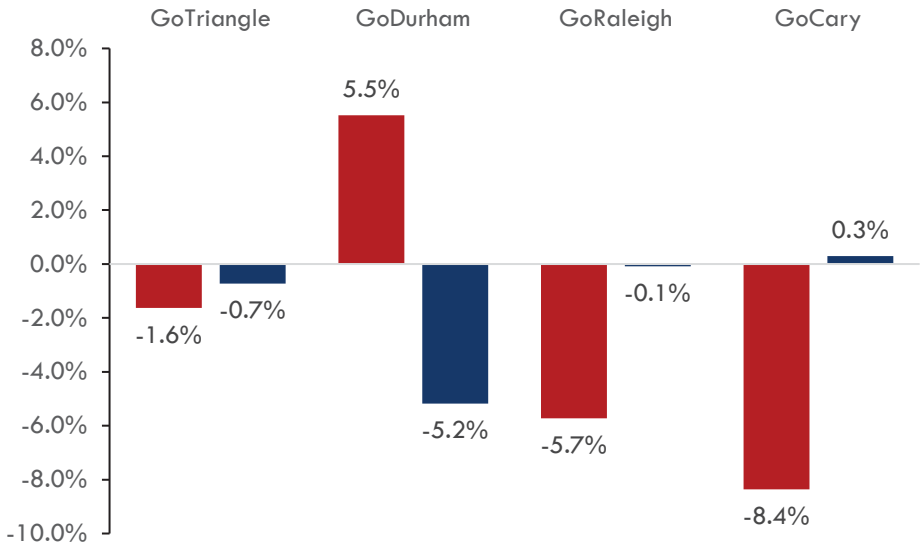


Scenario 8: Offer a Low-Income Fare Category and a General Fare Increase

Pairing a low-income fare category with a general fare increase can help offset some lost revenue, but would also reduce ridership. Building from Scenario 7a, which would establish a low-income fare category at 200% of the federal poverty line, Scenario 8 would increase all base fares by $0.25 and provide 50% discounts for low-income passengers.

Overall, Scenario 8 would result in a 2.5% decrease in ridership and a 1% decrease in revenue. Agency-specific ridership and revenue impacts are shown in Figure 4-15. GoDurham is the only agency with a revenue increase in this scenario. The ridership impacts for GoTriangle, GoRaleigh, and GoCary are generally small; however, GoDurham ridership is projected to decrease by 5.2%.

Figure 4-15 Ridership and Revenue Impacts For a Low-Income Fare Category and General Fare Increase



INITIAL FARE SCENARIO RESULTS

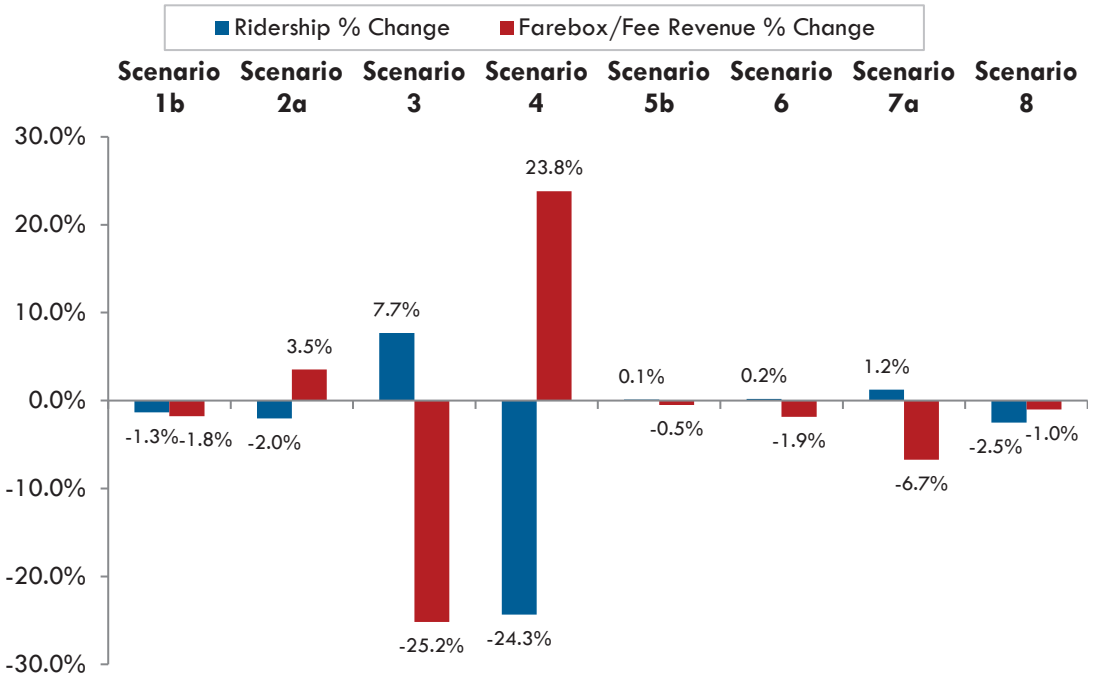
The relative ridership and revenue changes region-wide for each scenario are shown in Figure 4-16 and Figure 4-17. The fare structure and resulting ridership and revenue impacts for each scenario are described in further detail below.

- Scenario 1b, which proposes charging all passengers the same flat fare of $1.25 and a discounted rate of $0.50, regardless of local, regional, or express service type, resulted in small ridership and revenue decreases (less than 2% each).
- Scenario 2a, which proposes a tiered fare structure in which fares for regional and express service are set at $2.50 and local fares are aligned at $1.25, resulted in a relatively small ridership decrease of 2% and a 3.5% revenue increase.
- Scenario 3 reduced fares to maximize ridership and resulted in a 7.7% increase in ridership with a 25.2% revenue loss. This scenario represents the theoretical maximum ridership increase.
- Scenario 4 increased fares to maximize farebox recovery and resulted in a revenue increase of 23.8% with a 24.3% revenue loss. This scenario represents the theoretical maximum revenue increase.
- Scenario 5b, which aligned regional discount policies in order to provide free service to youth under the age of 18 and seniors over the age of 65 and discounted service to people with disabilities, resulted in very small changes to ridership (0.1% increase) and revenue (0.5% decrease).
- Scenario 6 offers fare capping after passengers purchase two trips in one day and 32 trips in one month. This scenario resulted in a small ridership increase of 0.2% and a revenue decrease of 1.9%.
- Scenario 7a established a low-income fare category set at 200% of the federal poverty line and had the largest revenue decrease, aside from scenario 3. In this scenario, ridership is expected to increase by 1.2% and revenue is expected to decrease by 6.7%.
- Scenario 8 expands on Scenario 7a by coupling the low-income fare program with a general fare increase to offset revenue loss. This scenario assumes the low-income program is set at 200% of the federal poverty line and each agency's base fare is increased by $0.25. This scenario resulted in small ridership and revenue decreases—2.5% and 1%, respectively.

Figure 4-16 Initial Fare Scenarios Ridership and Revenue Change

	Change in Ridership	Ridership % Change	Change in Revenue	Revenue % Change
1. Region-Wide Flat Fare	-154,000	-1.3%	-$141,000	-1.8%
2a. Region-Wide Tiered Fares	-234,000	-2.0%	$279,000	3.5%
3. Optimize Fares to Increase Ridership	887,000	7.7%	-$1,994,000	-25.2%
4. Maximize Farebox Recovery	-2,815,000	-24.3%	$1,887,000	23.8%
5b. Align Discount Fare Policies	11,000	0.1%	-$39,000	-0.5%
6. Offer Fare Capping	23,000	0.2%	-$147,000	-1.9%
7a. Offer Low-Income Fare Category	143,000	1.2%	-$533,000	-6.7%
8 Offer Low-Income Fare Category with General Fare Increase	-289,000	-2.5%	-$81,000	-1.0%

Figure 4-17 Initial Fare Scenarios Ridership and Revenue Percent Change



5 Recommendations

This chapter culminates the findings from the existing conditions analysis, peer review and best practices, and fare modeling effort to establish a set of fare policy, pricing, and product recommendations for the Wake-Durham region. The following fare recommendations incorporate results from reviewing national best practices, evaluation of fare scenarios, and refining concepts with the Fare Working Group.

The recommendations in this section are divided into two categories:

- **Fare Structure Recommendations**: Recommendations to specific fare products offered to the riding public and pricing of those products.
- **Fare Policy Recommendations:** Recommendations related to internally-adopted policies or procedures such as fare collection, as well as revised or new fare policies such as fare capping, mobile ticketing, and pass sales.

Additionally, it is anticipated that recommendations from this study will be implemented in two phases:

- **Phase 1: Fare structure, discount policies, and pricing should be aligned across the region.** Beginning in the Summer of 2019, it is recommended that the region implement a tiered fare structure ($1.25/$2.50) with consistent discount policies.
- **Phase 2: Fare capping, smartcards, and mobile ticketing should be pursued in early 2020.** After the fare structure and discount policies are aligned, the region should pursue the implementation and integration of mobile ticketing, fare capping, and smartcards.

FARE STRUCTURE RECOMMENDATIONS

The recommended fare structure is provided in Figure 5-1. The recommended fare structure takes into account experience across the transit industry, fare study goals, as well as fare pricing at peer agencies. To improve regional coordination between the four agencies, it is recommended that fares, pass options, and discount policies are all made consistent. The recommended approach would be to establish a tiered regional fare structure with aligned discount policies, consistent pass options, and fare capping.

The recommended fare structure and discount policies are proposed for implementation in Summer 2019. The recommended fare structure incorporates the following:

- **Discount Policies:**
  - Youth 12 and Under – Free
  - Youth 13 to 18 – Free with Youth Go Pass, otherwise 50% discount
  - Seniors 65 and Older – Free
  - People with disabilities – 50% discount
- **Pass Options:**
  - Day Pass
  - 7-Day Pass
  - 31-Day Pass
- **Paratransit:**
  - Fare twice base fare ($2.50/$5.00)
  - Offer 11-ticket booklet for the price of 10 ($25.00/$50.00)
- **Fare Capping (to be implemented in early 2020):**
  - Fares would be capped after purchasing two rides in one day and 32 rides in one month

To improve consistency throughout the regional agencies, it is recommended that GoDurham eliminate 5-day passes, all agencies adopt a 15% discount for day pass bundles, and all agencies continue allowing magnetic stored value cards as an additional fare media option for passengers.

Figure 5-1 Recommended Regional Fare Structure

Fares/Multipliers	Local	Regional/ Express
Base	$1.25	$2.50
Day Pass	$2.50	$5.00
7-Day Pass	$12.00	$24.00
31-Day Pass	$40.00	$80.00
Base Discount	$0.60	$1.25
Discount Day Pass	$1.25	$2.50
Discount 7-Day Pass	$6.00	$12.00
Discount 31-Day Pass	$20.00	$40.00

Ridership and Revenue Impacts

As discussed in Chapter 4, consumption of transit—like other goods and services—reacts to cost. Significant research over time has examined the sensitivity of transit ridership to fare increases. In transit, the standard measurement of sensitivity to fare changes means that for every 10% increase in fares, ridership will decrease by 3% (and vice-versa). As such, elasticity factors are common in fare modeling and can help determine anticipated ridership and revenue changes from the proposed fare increase or decrease, and the fare modeling effort conducted as part of this study helped identify anticipated impacts of the suggested fare structure.

The ridership and revenue impacts for each agency are shown in Figure 5-2 and Figure 5-3.[1] Region-wide, the recommended scenario would reduce ridership by approximately 240,000 passengers (2.1%) and increase revenue by approximately $94,000 (1.2%).

- Impacts to GoTriangle are relatively small, with ridership decreasing by 9,000 passengers (0.6%) and revenue decreasing by $11,000 (0.6%).
- Impacts to GoDurham are much larger, including a ridership decrease of 247,000 (4.7%) and a revenue increase of $192,000 (7.3%) as a result of an increase to the existing base fare.
- GoRaleigh ridership would increase by 11,000 (0.2%) passengers and revenue would decrease by $55,000 (1.7%).
- The impacts to GoCary are significant as a percentage, but the absolute numbers appear less severe. Ridership would increase by 5,000 (2.5%) and revenue would decrease by $31,000 (18.6%).

The farebox recovery rate for each agency is shown in Figure 5-4. Region-wide, the recommended scenario would have a small impact on farebox recovery rates, increasing by 0.2%; however, there are more significant impacts for individual agencies. GoDurham is the only agency to improve farebox recovery, increasing from 15.9% to 17.1%. GoTriangle's farebox recovery rate would decrease very slightly (0.1%), GoRaleigh would decrease by 0.3%, and GoCary would have a more significant decrease (1.7%).

[1] Since the Youth GoPass was implemented prior to completion of this study, no impacts were assumed related to this fare product.

Figure 5-2 Total Ridership and Revenue Impacts of Recommended Fare Structure

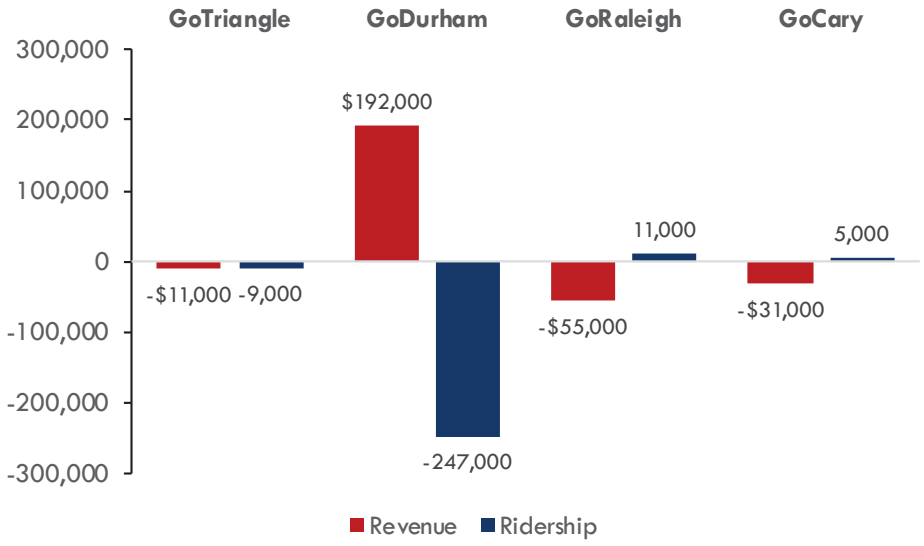


Figure 5-3 Percent Ridership and Revenue Impacts of Recommended Fare Structure

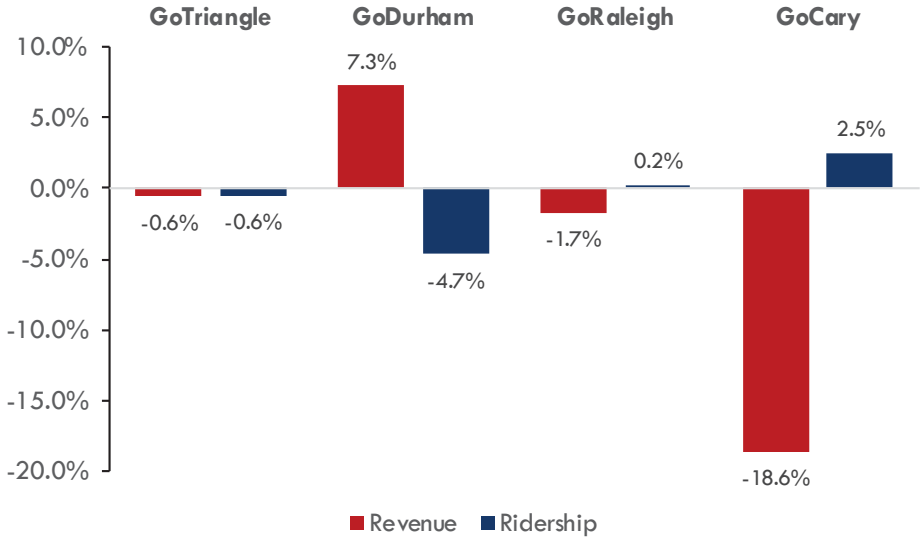
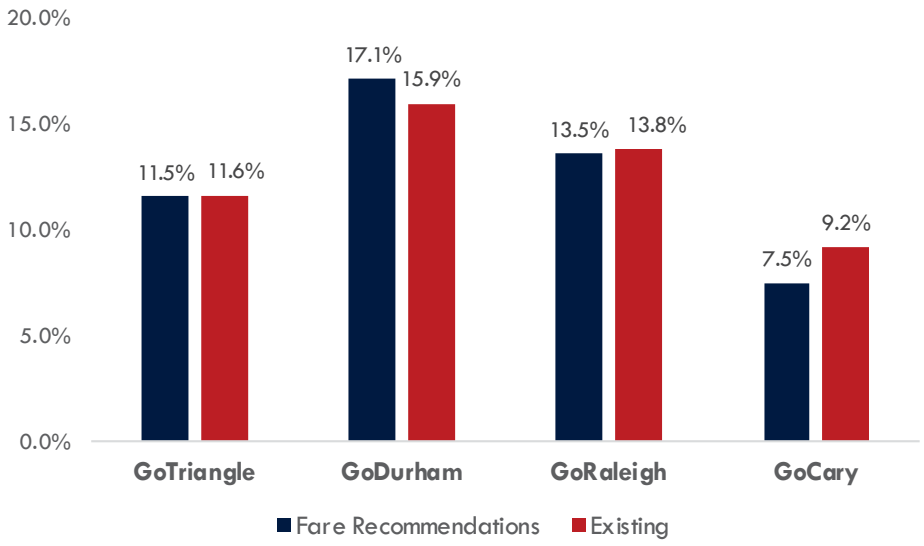


Figure 5-4 Farebox Recovery Rate Impacts of Recommended Fare Structure



POLICY RECOMMENDATIONS

Phase 1 Policy Recommendations

In conjunction with fare structure recommendations, several policy recommendations are also suggested for implementation in summer 2019.

Establish Pass Sales Agreement and Standardized Discount Policies

There is an opportunity to formalize and expand third-party retail sales of passes by establishing pass sales agreements. This would allow the agencies to standardize retailer and social service agency discount policies region-wide. It is also recommended that all pass types be made available in all locations, with the exception of day passes, which would be the only pass offered onboard. Improving availability of passes improves the rider experience, raises visibility of the agencies, and further facilitates regional integration.

Expand GoPass Program

There are several opportunities to expand and improve the GoPass program including:

- Expand GoPass program to employers of any size
- Offer neighborhood pass option for passengers without an employer GoPass
- Consider implementing tiered pricing structure based on employer/neighborhood size

It is recommended that the cost of the GoPass program be based on the number of trips taken by pass holders and the pre-determined cost per trip. Agreements should be formalized with a contract to ensure that agencies are adequately reimbursed for ridership. At the same time, the partner entity can be confident that they benefit from the relationship through improved access to service for employees and discounted rates associated with a pre-paid fare. Agencies should consider the following in developing pricing structures and contracts:

- **Discounted per trip rates:** Programs like GoPass almost always offer a discounted trip rate. The amount of the discount must balance the benefit of a large, bulk purchase with the actual cost of providing the service.
- **Actual trips taken by bulk pass holders:** The number of trips taken together with the fare determines the cost of the program, and thus agreement on how the number of trips taken is measured is critical. Depending on the type of fare collection system used by a transit agency, pass usage may be easily measured at the farebox. In other cases, trip levels can be measured through surveys.
- **Escalation rates:** Programs like GoPass are nearly always effective in increasing transit ridership. Consequently, program costs can increase substantially over time. Transit agencies and universities often negotiate escalation rates to ensure program cost increases are manageable for end users, especially in the early years of the program. Contracts should allow for periodic adjustment of pricing according to changes in ridership, operating cost, and level of service provided.
- **Program marketing:** For these types of programs to be successful, they must be successfully marketed. Marketing should capitalize on the cost benefits to riders and the environmental benefits associated with the program and should include information about how to use transit and/or other transportation programs.

Establish Formal Guidelines for Fare Adjustments

Several factors need to be considered when raising fares, ranging from how fares are perceived by the transit-riding public, whether they are in line with peer agencies, to what is the appropriate ratio between passenger fares and operating costs. In the future, the Wake-Durham region should consider a transparent fare increase policy that enables more regular fare increases to stay in line with inflation and other revenue related trends.

The following guidelines are provided for each agency's consideration:

- On an annual basis, the average fare, subsidy per passenger, and farebox recovery ratio should be reviewed when developing the annual operating budget. If all three ratios are declining and costs to operate the service are increasing, consider a fare adjustment.
- The local consumer price index should be monitored; if increases are greater than 5% in any given year, consider increasing fares to keep pace with inflation.
- Monitor and track use of all passes and if there is a significant drop in sales with any fare product, consider a fare adjustment for that product. Similar to underperforming routes, underperforming fare products should be evaluated for adjustments or elimination.
- For all future fare increases, pass product prices should be rounded to the nearest dollar. Single-ride prices and/or day pass products should be rounded to the nearest quarter.
- Across-the-board fare increases are simple and transparent, but will often create disproportionate impacts. These types of fare increases should be avoided unless supported by evidence that the strategy meets specific goals at the time of evaluation.
- Services that offer a competitive time or comfort advantage over vehicle or transit alternatives should be priced at a higher level to differentiate the product.

These guidelines assume that service levels would remain constant. Fare increases paired with service level increases may be warranted assuming support exists for both. Fare increases paired with service cuts should be avoided when possible.

Establish Region-wide Discount ID

Along with aligning regional discount policies, standardizing acceptable discount IDs would facilitate additional regional integration. Each agency is currently issuing some form of discount ID; however, this policy recommends developing and issuing one standardized ID that would be accepted by all agencies. Additional policies could be established for accepting other forms of ID (e.g., Medicare card).

Phase 2 Policy Recommendations

Additional policy recommendations are suggested for implementation in early 2020, after the short-term recommendations are in effect, as well as to allow each agency adequate time for procurement of fare technology and farebox upgrades.

Pursue Mobile Ticketing

Mobile ticketing (payment using a smartphone) offers an increase in customer convenience over paper or smartcard payment, as well as potential operational savings. Smartphone payments eliminate the need for customers to procure and carry a physical fare payment media, may reduce delay in fare payment (by reducing cash in the system), and reduce the volume of passes that must be processed by the farebox (potentially lowering maintenance costs).

In this day and age of nearly ubiquitous smartphone adoption, mobile ticketing can make booking and paying for transit a seamless experience for many riders and help lower the barrier of entry for new transit users. However, while digital options like mobile ticketing are an easy option for some riders, it can be intimidating or a non-option for others. Thus, it is recommended that agencies in the Wake-Durham region continue to offer traditional ticketing options to accommodate all riders—particularly those with disabilities, older adults, and low-income residents without smartphones.

Pursue Fare Capping

As discussed in Chapter 3, fare capping is an emerging trend with benefits including increased affordability of passes, increased fare equity, and increased simplicity. Fare capping is particularly beneficial for low-income riders who may not have the cash on hand to purchase a 31-day pass and end up paying more in cash fares over the course of the month. Fare capping can be introduced through electronic smartcards, which track fare payments through an internal database, or through mobile ticketing, which tracks fare payments and automatically provides riders a pass once the payment threshold has been reached.

Implementing fare capping in conjunction with mobile ticketing and/or smartcards is recommended to improve the affordability of transit service for riders.

Consider Implementation of Smartcards

Investing in smartcard infrastructure is costly, but improves the customer experience and available pass options. Transitioning to smartcards would require upgrading the farebox infrastructure on buses throughout the region and ensuring regional coordination on fare products and accounting to accommodate interagency transfers. While mobile ticketing could provide a number of these benefits at a reduced cost, electronic smart cards are common among peer agencies and should continue to be explored for implementation in early 2020 to provide additional rider benefits and maintain regional competitiveness.

FARE RECOMMENDATIONS SUMMARY

Fare recommendations for GoCary, GoDurham, GoRaleigh, and GoTriangle are comprised of fare structure changes and policy recommendations. The first phase of implementation is anticipated to occur in Summer 2019, with additional recommendations anticipated for implementation in early 2020. Figure 5-5 provides a summary of recommendations developed as part of the Fare Integration Study.

Figure 5-5 Fare Recommendations Summary

Type	Recommendation
Fare Structure Recommendations (Implementation in Summer 2019)	▪ Implement two-tiered region-wide fare structure with a local base fare of $1.25 and regional/express base fare of $2.50 ▪ Offer consistent discounts/categories – Youth 12 and Under – Free – Youth 13 to 18 – Free with Youth GoPass, otherwise 50% discount – Seniors 65+ – Free – People with Disabilities – 50% discount ▪ Offer $2.50/$5.00 paratransit base fare ▪ Provide consistent products/discounts – Offer 15% discount for Day Pass bundles – Continue to offer Value Cards – Eliminate GoDurham 5-Day Pass – Sell only Day Passes on-board
Phase 1 Policy Recommendations (Implementation in Summer 2019)	▪ Establish pass sales agreement and discount guidelines ▪ Pursue new sales partnerships ▪ Expand GoPass program ▪ Establish guidelines for fare adjustments ▪ Implement region-wide discount ID
Phase 2 Policy Recommendations (Implementation in Early 2020)	▪ Pursue mobile ticketing ▪ Pursue fare capping ▪ Consider implementation of smartcards

GO Triangle

Connecting all points of the Triangle

MEMORANDUM

TO: GoTriangle Board of Trustees Operations & Finance Committee

FROM: Regional Services Development

DATE: December 13, 2018

SUBJECT: **FY 2018 Annual Bus Service Performance Report**

Strategic Objective or Initiative Supported

Action Requested
None.

Background and Purpose
In September 2003, GoTriangle's Board of Trustees adopted the Regional Bus Service Standards to establish performance expectations for the agency's fixed-route services. This report provides a summary of GoTriangle's regional bus service performance during Fiscal Year 2018, with comparisons to FY 2017 and prior years to illustrate changes and trends in performance.

Key Findings
- Ridership on the GoTriangle system increased to 1,667,545 boardings in FY 2018 from 1,661,720 in FY 2017.
- Increased midday and weekend frequency has led to increased ridership at all off-peak times. Midday ridership is up 10%, weekday evening ridership is up 25%, Saturday ridership is up 11%, and Sunday ridership is up 15%.
- Productivity fell from 11.8 boardings per hour to 11.4 boardings per hour, a 4% drop. This is partly due to the introduction of increased midday and weekend frequency.
- GoTriangle met the agency goal for on-time performance with 88% of trips arriving on-time to end of line timepoints, up from 86% the previous year. However, several routes failed to meet the target on weekdays, with Routes 102, 305, DRX, and WRX having the lowest on-time performance.

Financial Impact
Not applicable.

Attachments

- Attachment A - FY 2018 Annual Bus Service Performance Report
- Attachment B - FY 2018 System Statistics
- Attachment C - FY 2018 Route Statistics
- Attachment D - FY 2018 Commute Market Statistics
- Attachment E - FY 2018 On-Time Performance
- Attachment F - FY 2018 Wake Service Standards Analysis

Staff Contact(s)

- Matthew Frazier, Data Specialist – mfrazier@gotriangle.org, 485-7528
- Jon Dodson, Transit Service Planner – jdodson@gotriangle.org, 485-7592

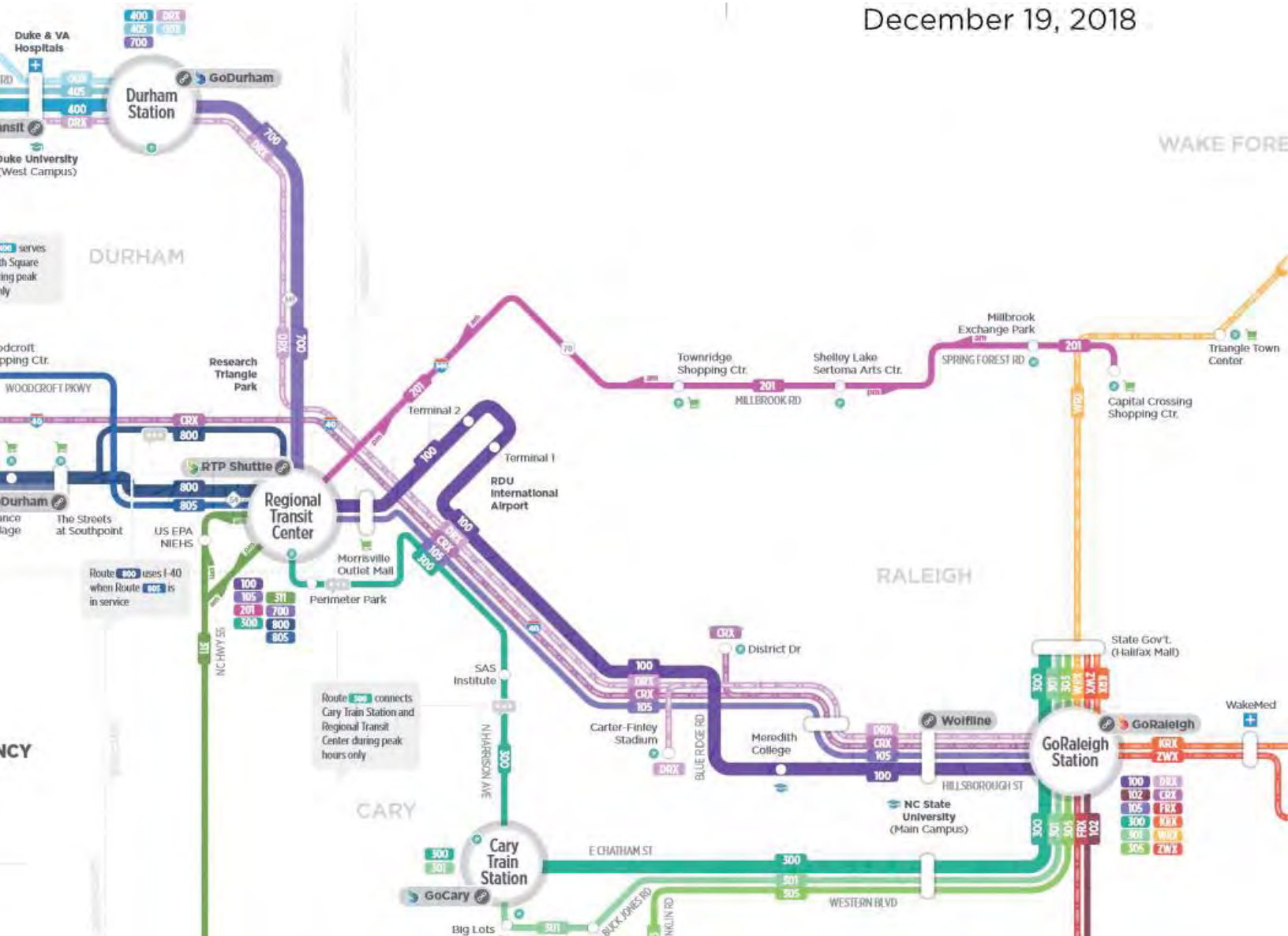
GO Triangle

FY 2018 Annual Bus Service Performance Report

Prepared by
Jon Dodson (Transit Service Planner)
and Matthew Frazier (Data Specialist)

Regional Services Development

December 19, 2018



Introduction

In September 2003, GoTriangle's Board of Trustees adopted the Regional Bus Service Standards to establish performance expectations for the agency's fixed-route services. The intent was to drive improvements in productivity by routinely and systematically evaluating bus service performance against quantifiable indicators. Since the adoption of the Standards, the annual performance reporting process has been incrementally adjusted to provide the most useful information about GoTriangle's bus service.

The GoTriangle performance indicators presented in this report are:

- **Daily Boardings** – how many people are using the service provided?
- **Boardings per Revenue Hour** – how cost-effective is this service compared to others?
- **On-Time Performance** – how well is the service meeting the expectations set by the schedule?

This report provides a summary of GoTriangle's regional bus service performance during Fiscal Year 2018, with comparisons to Fiscal Year 2017 and prior years in order to illustrate changes and trends in performance.

Key Findings

- Ridership on the GoTriangle system increased to 1,667,545 boardings in FY 2018 from 1,661,720 in FY 2017.
- Increased midday and weekend frequency has led to increased ridership at all off-peak times. Midday ridership is up 10%, weekday evening ridership is up 25%, Saturday ridership is up 11%, and Sunday ridership is up 15%.
- Productivity fell from 11.8 boardings per hour to 11.4 boardings per hour, a 4% drop. This is partly due to the introduction of increased midday and weekend frequency.
- GoTriangle met the agency goal for on-time performance with 88% of trips arriving on-time to end of line timepoints, up from 86% the previous year. However, several routes failed to meet the target on weekdays, with Routes 102, 305, DRX, and WRX having the lowest on-time performance.

What Changed in FY 2018

GoTriangle usually implements major service changes in August of each year. However, this year, there were three groups of service changes.

In July 2017, FHWA mitigation funding for the Fortify I-40/I-440 project ended. This funding had covered the operating costs of Routes FRX (Fuquay-Varina – Raleigh Express), CLX (Clayton – Raleigh Express), and JCX (Johnston County – Raleigh Express), as well as peak service on Route 300 between Raleigh and Cary.

The Wake County Transit Plan provided funding to continue Route FRX and the expanded Route 300 service. However, since Route FRX was not meeting performance standards, its service was reduced from 12 peak-direction trips to 6 peak-direction trips. Routes CLX and JCX were discontinued because they were not meeting performance standards and no funding was available from Johnston County.

In August 2017, funding from the Wake, Durham, and Orange County Transit Plans allowed service to be increased on the core routes. Routes 100 (Raleigh – Airport – RTC), 300 (Raleigh – Cary), 700 (Durham – RTC), and 800 (Chapel Hill – Southpoint – RTC) received additional midday and Saturday trips to raise frequency to every 30 minutes. Previously, the routes operated every 60 minutes from 9:30 AM – 3:30 PM on weekdays and 7:00 AM – 7:00 PM on Saturdays. Service levels on Route 400 (Durham – Patterson Place – Chapel Hill) had already been raised to this level in August 2016.

In addition, Route 300 (Raleigh – Cary – RTC) received hourly evening service until 10:00 PM on weekdays and Saturdays, and Sunday service to match the other core routes. Previously, Route 300 did not operate after 7:00 PM on weekdays and Saturdays, and it did not operate at all on Sundays.

Finally, in January 2018, the Research Triangle Park shuttles (Routes 42, 46, 47, and 49) were replaced with the Go OnDemand pilot service. Rather than operating on a fixed route, customers request a shuttle ride within the RTP area via phone, a Web site, or the TransLoc Rider smartphone app. Midday service was introduced as part of this project. The goal of the pilot was to either increase ridership within the RTP, or to serve the same ridership more cost-effectively.

Overall Performance

Across the system and including contracted services, GoTriangle had 1,667,545 customer boardings in FY18. This represents a nominal increase compared to FY17 (1,661,720 boardings).

GoTriangle increased the amount of service provided from 140,448 revenue hours in FY 2017 to 146,503 revenue hours in FY 2018. The increase in revenue hours mostly consisted of the additional midday and weekend services on the core routes. Productivity declined from 11.8 boardings per hour to 11.4, a decrease of 4%. This was expected, because it takes time for ridership increases to catch up with additional service offered.

System-wide on-time performance increased from 85% to 88%, meeting the GoTriangle goal of 85%.

Attachment C contains detailed ridership and productivity data for each route, and Attachment D contains data for each route's peak service, broken down by direction of travel. The following sections will discuss highlights from the ridership and productivity data.

Changes in Ridership by Route

Ridership on weekday peak services as a whole was slightly down in FY 2018. However, thanks to service increases funded by the County Transit Plans, all off-peak service categories show marked improvements in ridership.

Boardings Per Day	FY 2017	FY 2018	Change
Weekday Peak	4,869	4,782	-2%
Weekday Midday	981	1,078	10%
Weekday Evening	247	309	25%
Saturday	1,351	1,495	11%
Sunday	697	799	15%

* This table includes Route RSX (Robertson Scholars Express), but tables in the following subsections do not.

Peak Services

While the overall change in ridership on the peak services shows a slight decrease, there continues to be a large difference between each route and destination. The following analysis discusses ridership on peak services based on which regional destination each route serves: Chapel Hill, Durham, Raleigh, and the Regional Transit Center.

When a route connects two of these regional centers, ridership is split by direction. (For example, on Route DRX, AM trips from Raleigh to Durham and PM trips from Durham to Raleigh are reported in the "Peak Service to Durham" section.) This is marked by a "†" symbol in the tables.

To Raleigh

Unlike FY 2017, peak ridership to Raleigh increased by 4% in terms of daily boardings. Employment growth in downtown Raleigh is likely contributing, combined with intentional TDM efforts by downtown employers such as Red Hat.

Route DRX continues to be the highest-ridership route to Raleigh. It is followed by Route 300, which also posted the highest year-over-year increase: 33 boardings per day. (The August 2017 service changes to Route 300 did not add more peak service, but the increased off-peak service enables riders to take more trips at peak as well.)

Route	From	FY 17	FY 18	Δ
300	Cary †	157	190	21%
102	Garner	45	67	50%
DRX	Durham †	191	202	6%
105	Raleigh †	85	90	6%
ZWX	Zebulon/Wendell	56	61	9%
WRX	Wake Forest	47	51	9%
CRX	Chapel Hill †	154	157	2%
FRX	Fuquay-Varina	67	63	-6%
KRX	Knightdale	37	31	-16%
100	RTC/Airport †	92	86	-7%
301	Southeast Cary	130	124	-5%
305	Cary/Apex	111	95	-14%
Total Daily Boardings		**1,172**	**1,217**	**4%**

Route 102's ridership increased by 50%, but in absolute terms this is only 22 boardings per day. Ridership on Routes WRX and ZWX is slightly up as well. And while ridership on Route FRX is down by 6%, a full 48% of the route's service was discontinued at the beginning of the fiscal year. This suggests that the new service level (three peak direction trips per day) is more appropriate for the route.

To Durham

Peak ridership to Durham decreased slightly in FY 2018. Route ODX's ridership increased from 93 daily boardings to 103, but Route 400's ridership decreased from 184 daily boardings to 162. (The decrease on Route 400 may be a continuing effect of the August 2016 service change, which reduced service on University Dr and Southwest Durham Dr to peak-only.) The other routes were generally flat, fluctuating by only a few daily boardings.

Route	From	FY 17	FY 18	Δ
ODX	Hillsborough/Mebane	93	103	10%
405	Chapel Hill/Carrboro †	203	209	3%
DRX	Raleigh †	269	269	0%
700	RTC †	98	96	-3%
400	Chapel Hill/South Sq. †	184	162	-12%
Total Daily Boardings		**848**	**837**	**-1%**

To Chapel Hill

Overall boardings to Chapel Hill had a nominal decrease of 2%, and in general ridership remained flat on individual routes. The only significant change was on Route 805, whose ridership decreased from 294 boardings per day to 277.

Route	From	FY 17	FY 18	Δ
400	Durham/Patterson Pl. †	285	287	1%
CRX	Raleigh †	238	237	0%
405	Durham †	287	285	-1%
800	RTC/Southpoint †	455	449	-1%
420	Hillsborough	180	173	-4%
805	RTC/Woodcroft †	294	277	-6%
Total Daily Boardings		**1,740**	**1,708**	**-2%**

To the Regional Transit Center

Boardings to the Regional Transit Center were down by 8% from last year, with across-the-board decreases. Due to the introduction of Go OnDemand, ridership on services within the Research Triangle Park decreased from 117 boardings per day to 104. (Go OnDemand is free during the pilot period, which suggests that ridership decreases would have been even greater if a fare had been charged.)

Route	From	FY 17	FY 18	Δ
300	Cary †	122	123	0%
311	Apex/Lake Pine	82	78	-5%
100	Raleigh/Airport †	118	113	-4%
805	Woodcroft †	112	103	-8%
105	Raleigh †	133	124	-7%
201	North Raleigh	60	50	-16%
700	Durham †	184	173	-6%
	Shuttles/Go OnDemand	117	104	-11%
800	Chapel Hill/Southpoint †	112	89	-20%
Total Daily Boardings		**1,038**	**956**	**-8%**

A more detailed analysis of Go OnDemand revealed that even though the ridership trend is only slightly down, the number of trips to and from the Regional Transit Center has decreased sharply, with their replacements taking trips directly from origin to destination within the RTP area. This suggests that fewer riders are connecting with GoTriangle fixed routes, which is probably contributing to the decrease in ridership on other routes serving the RTC.

Off-Peak Services

Midday Service	FY 17	FY 18	Δ
100 (Raleigh – Airport – RTC)	211	248	17%
300 (Raleigh – Cary)	119	140	17%
400 (Durham – Chapel Hill)	253	260	3%
700 (Durham – RTC)	136	150	10%
800 (Chapel Hill – RTC)	206	223	9%
Go OnDemand		14	new
Total Daily Boardings	**926**	**1,035**	**12%**

Evening Service	FY 17	FY 18	Δ
100 (Raleigh – Airport – RTC)	69	77	11%
300 (Raleigh – Cary)		25	new
400 (Durham – Chapel Hill)	61	75	22%
700 (Durham – RTC)	49	57	16%
800 (Chapel Hill – RTC)	52	61	17%
Total Daily Boardings	**232**	**294**	**27%**

Saturday Service	FY 17	FY 18	Δ
100 (Raleigh – Airport – RTC)	377	431	14%
300 (Raleigh – Cary)	105	180	71%
400 (Durham – Chapel Hill)	343	340	-1%
700 (Durham – RTC)	233	258	11%
800 (Chapel Hill – RTC)	252	252	0%
Total Daily Boardings	**1,310**	**1,461**	**12%**

Sunday Service	FY 17	FY 18	Δ
100 (Raleigh – Airport – RTC)	223	238	7%
300 (Raleigh – Cary)		78	new
400 (Durham – Chapel Hill)	185	184	0%
700 (Durham – RTC)	128	151	18%
800 (Chapel Hill – RTC)	131	117	-11%
Total Daily Boardings	**666**	**767**	**15%**

The new off-peak service on Routes 100, 300, 700, and 800 resulted in noticeable ridership gains – especially on Route 300 (Raleigh – Cary), where evening and Sunday service was added for the first time. Route 400 is maintaining the additional ridership it gained in the August 2016 service change.

The expanded service was not well-received on Route 800 (Chapel Hill – RTC via Southpoint), where Saturday ridership remained flat despite a near-doubling of service, and Sunday ridership decreased. This continues a trend of declining weekend ridership that began in FY 2016. Additional analysis reveals that the decline in ridership has been mostly in trips from Chapel Hill to Southpoint – ridership to and from the RTC is essentially the same.

Staff suspects that the additional weekend service hasn't attracted new riders because Route 800 serves local stops on NC-54 off-peak, which makes trips from Chapel Hill to the RTC and points east very slow. Currently, a trip from UNC Chapel Hill to NC State at 2:00 PM on Saturday takes 1 hour 25 minutes by bus, while driving takes only 30-40 minutes. The Short-Range Transit Plan recommends realigning Route 800 to I-40 off-peak to provide more competitive travel times.

Robertson Scholars Express (RSX)

Route RSX (Robertson Scholars Express) is unique in that it is funded by the Robertson Scholars Foundation, which reimburses GoTriangle for the route's operating costs. It operates directly between the Duke Chapel and UNC Morehead Planetarium without making any stops in between, and provides service only during the academic year.

From FY 2017 to FY 2018, ridership decreased from 222 to 198 boardings per weekday, and decreased from 72 to 61 boardings per Saturday. Sunday ridership was essentially the same, with 53 daily boardings in FY 2018 compared to 51 daily boardings in FY 2017. This continues a trend of declining ridership that begin in FY 2015. GoTriangle has made suggestions to the Robertson Scholars Foundation for increasing the route's ridership, but the Foundation wants to keep the route design the same.

Productivity by Route

GoTriangle's Regional Bus Service Standards establish categories for routes, and compare routes to one another within each category. A route is considered "high performing" if its number of boardings per revenue hour is above 125% of the average for its service category, and "low performing" if its number of customer boardings per hour is below 75% of the average for its service category.

The Wake Transit Service Standards and Performance Measures set a different process for evaluating route performance, by comparing each route's productivity to a fixed target for the service category. For reference, GoTriangle routes are evaluated against the Wake Transit targets in Attachment F.

Peak Services

Peak services are divided into two categories: Regional and Express[1].

Regional Routes	Productivity	Performance
405 (Durham – Chapel Hill/Carrboro)	**20.6**	**High**
700 (Durham – RTC)	**20.1**	**High**
800 (Chapel Hill – RTC via Southpoint)	**17.9**	**High**
400 (Durham – Chapel Hill via Patterson Place)	**16.6**	**High**
805 (Chapel Hill – RTC via Woodcroft)	14.0	Average
105 (Raleigh – RTC)	11.5	Average
102 (Raleigh – Garner)	11.2	Average
420 (Hillsborough – Chapel Hill)	12.7	Average
300 (Raleigh – Cary – RTC)	11.1	Average
100 (Raleigh – Airport – RTC)	**8.5**	**Low**
305 (Lake Pine – Cary – Raleigh)	**8.1**	**Low**
301 (SE Cary – Raleigh)	**7.2**	**Low**
201 (North Raleigh – RTC)	**6.2**	**Low**
311 (Apex – RTC – EPA)	**5.3**	**Low**
42-49 and Go OnDemand (RTP Shuttles)	**5.1**	**Low**
Category Average – FY 2018	**12.5**	
Category Average – FY 2017	**13.0**	

Routes 400, 405, 700, and 800 have been consistently high performing by this measure. Routes 201, 301, 305, and 311 have been consistently low performing, but the Wake Bus Plan includes proposals to address the productivity of each of these routes.

Route 100's low performing status is challenging to solve, because while it performs well off-peak, at peak it competes with Routes 105, CRX, and DRX for passengers. Similarly, it was hoped that Go OnDemand would have higher productivity than the previous fixed-route shuttles (which were very low performing when compared to other routes), but the productivity has actually declined. Staff is considering other options for GoTriangle service in the RTP and will present proposals in early 2019.

[1] Because the previous shuttles were all combined into a single service (Go OnDemand) in the middle of the year, they have been moved into the Regional category for comparison purposes.

Express Routes	Productivity	Performance
DRX (Durham – Raleigh Express)	**18.2**	**High**
CRX (Chapel Hill – Raleigh Express)	13.5	Average
RSX (Robertson Scholars Express)	11.1	Average
ODX (Orange – Durham Express)	9.5	Average
FRX (Fuquay-Varina – Raleigh Express)	**8.7**	**Low**
ZWX (Zebulon – Wendell – Raleigh Express)	**8.6**	**Low**
KRX (Knightdale – Raleigh Express)	**5.5**	**Low**
WRX (Wake Forest – Raleigh Express)	**5.3**	**Low**
Category Average – FY 2018	**12.2**	
Category Average – FY 2017	**11.5**	

Route DRX has always been the highest-performing express route due to its strong bidirectional demand. To accommodate its growing passenger demand (which leads to consistent passenger overcrowding on some trips), GoTriangle added ten new daily trips in August 2018.

Route FRX is still classified as low performing, but its productivity has improved significantly thanks to the service changes in July 2017. Ridership growth over time, combined with future access to Wake Tech, should allow it to reach average. The Wake Bus Plan recommended finding a new Park-and-Ride for Route WRX, and converting Route KRX into a local route (which is a better fit for the travel market).

Off-Peak Services

Off-peak services are split into categories based the time of day: Midday, Evening, Saturday, and Sunday. High performing routes are highlighted in blue, and low performing routes in orange.

Route	Midday	Evening	Saturday	Sunday
100 (Raleigh – Airport – RTC)	12.3	10.8	8.4	9.9
300 (Raleigh – Cary)	10.7	7.8	7.6	7.1
400 (Durham – Chapel Hill)	10.8	9.5	6.5	8.0
700 (Durham – RTC)	13.2	**14.3**	**10.1**	**12.7**
800 (Chapel Hill – RTC via Southpoint)	10.0	8.1	**5.2**	**5.1**
RSX (Robertson Scholars Express)	**7.4**	**3.9**	**4.6**	**5.2**
Go OnDemand	**2.3**			
Category Average – FY 2018	**10.7**	**9.2**	**7.2**	**8.1**
Category Average – FY 2017	**15.2**	**8.7**	**9.1**	**7.8**

While the service added to Routes 100 and 700 has increased ridership, it has also pulled their productivity closer to the system average. (Both routes were previously high performing at midday, and Route 100 was also previously high performing on Saturday.) And since the service added to Route 800 on Saturday has not resulted in increased ridership, it is now low performing on Saturdays as well as Sundays.

Route 700 has been consistently high-performing by this measure since it has a shorter pattern than other off-peak routes, with high demand at both ends. Similarly, Route RSX has been consistently low-performing by this measure since its travel market is so limited, and staff's suggestions for expanding the market have not been accepted by the Robertson Scholars Foundation. Midday service for Go OnDemand is new, but due to the extremely low productivity, staff is proposing that it be discontinued so the resources can be used to improve the quality of peak service.

On-Time Performance

GoTriangle considers a trip on time if it arrives at its end-of-line timepoint no more than five minutes later than the scheduled time. The defined goal is for 85% of trips to arrive on time. For FY 2018, GoTriangle met this goal with 88% of trips arriving on time, up from 86% the previous year.

Despite the overall increase, some routes did not meet the 85% mark on weekdays. These routes are:

Route	FY 17	FY 18	Δ	Actions in FY 19
102 (Raleigh – Garner)	64%	77%	+13%	Changes proposed in Wake Bus Plan
305 (Raleigh – Cary- Lake Pine)	80%	80%	0%	Schedule adjusted January 2019
800 (Chapel Hill – RTC via Southpoint)	81%	84%	+3%	Changes proposed in SRTP
CRX (Chapel Hill – Raleigh Express)	70%	83%	+13%	Schedule adjusted August 2018
DRX (Durham – Raleigh Express)	78%	79%	+1%	Schedule adjusted August 2018
KRX (Knightdale – Raleigh Express)	84%	84%	0%	Changes proposed in Wake Bus Plan
WRX (Wake Forest – Raleigh Express)	83%	80%	-3%	Changes proposed in Wake Bus Plan

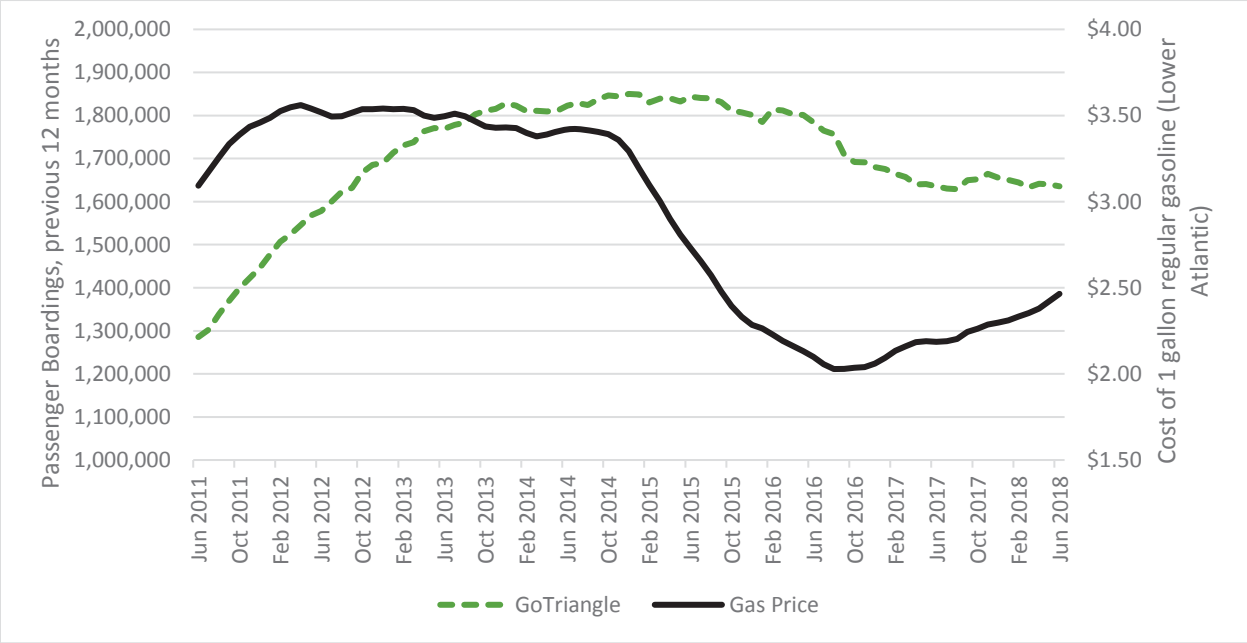
Save for the WRX, all routes not meeting the 85% in FY 2018 did improve from FY 2017. Similarly, Routes 105, 300, 805, FRX, and ZWX had not met the 85% standard in FY 2017, but did meet it in FY 2018. The increase in gas prices may have moderated the growth of regional traffic congestion. Key construction projects also completed during FY 18, including the renovation of GoRaleigh Station.

All routes met the 85% standard on weekends, except for Routes 300 (on both Saturdays and Sundays) and Route 400 (on Saturdays only).

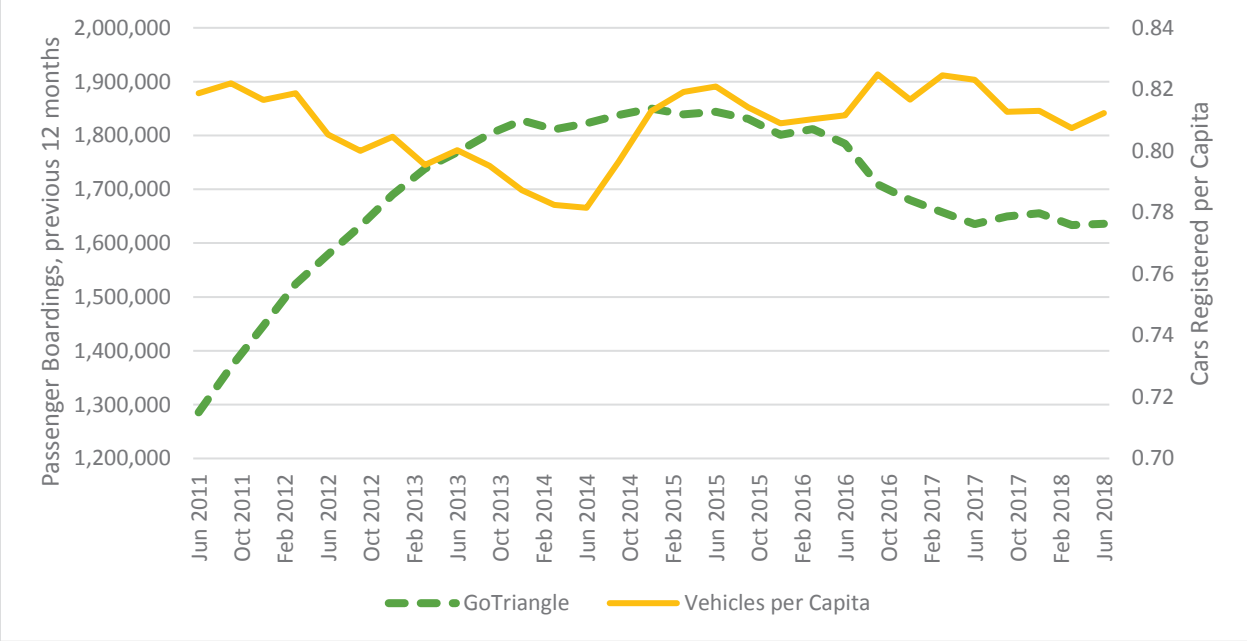
A complete table with each route's on-time performance is included as Attachment E.

External Trends

Gas prices rose during FY 2017, from $2.18 in June 2017 to $2.71 in June 2018. This may explain why the previous trend of decreasing ridership has slowed. However, gas prices are still nowhere near the high levels that characterized the period of high ridership growth from FY 2012 – 2014. The relationship between GoTriangle's ridership and gas prices can be seen in the below chart.

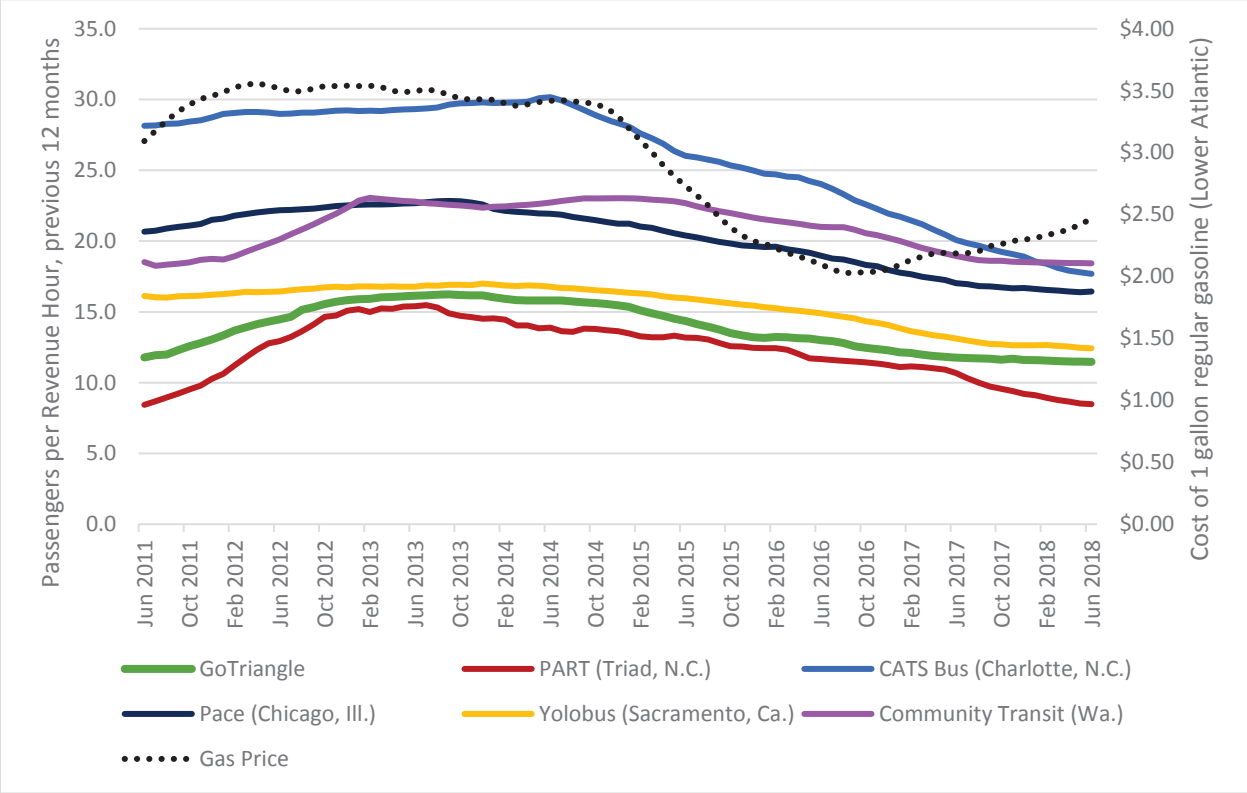


Similarly, the period of increasing ridership in FY 2012 – 2014 was characterized by a noticeable decline in car ownership in GoTriangle's service area, but currently the rate of car ownership has remained the same since FY 2015.



Peer Comparison

Other transit systems in the United States have been experiencing a trend of decreasing ridership and productivity over the past few years. This chart shows productivity (in terms of boardings per revenue hour) for other transit agencies which have been identified as GoTriangle's peers.



While none of the peers have a trend of increasing productivity, there is less of a downward trend for GoTriangle and our out-of-state peers. GoTriangle had the lowest year-to-year decrease in productivity, followed by Community Transit – another agency which is expanding service through voter-approved funding. By contrast, our North Carolina peers have continued to see sharp declines. CATS' is a continuation of a trend which has been ongoing since 2014, while PART's ridership is still recovering from a revenue-neutral restructure (implemented in July 2017) which discontinued several routes.

GoTriangle's relative position within the peer group has not changed. PART and Yolobus are our closest peers: they are the only other transit systems in the United States which provide regional express bus as their basic service type, operate in regions without a single dominant city, coordinate with multiple municipal transit systems, and do not operate rail service. Accordingly, GoTriangle's productivity is comparable to those systems. If we are able to further increase productivity through investments identified in the SRTP, we may overtake Yolobus.

While CATS, Community Transit, and Pace serve entire regions and operate express service, their basic service type is urban (or suburban) local bus service, which tends to have higher productivity on the basis of boardings per hour, and their express bus service has a single regional CBD on which to focus. Accordingly, their productivity is much higher than GoTriangle's. These systems are included as aspirational peers.

What's Next?

Several service changes have already been implemented in August 2018.

- Sunday service on Routes 100, 300, 400, 700, and 800 was extended by two hours to match the span of the local systems, funded by the Wake, Durham, and Orange County Transit Plans.
- Route CRX's schedule was adjusted to utilize a new vehicle funded by the Wake County Transit Plan.
- Route DRX received a major investment from both the Wake and Durham County Transit Plans, with ten new daily trips added in the AM and PM peak.
- Service was added on previously unserved holidays (Memorial Day, Independence Day, Labor Day, Christmas Eve, and New Year's Day).

More service changes are scheduled for January 2019.

- Midday Go OnDemand service will be discontinued due to low ridership, and the resources will be reinvested in improving the service's reliability during peak hours.
- Minor schedule changes will be made to Routes 100, 105, 300, and 305.

Also in FY 2019, the Wake Bus Plan and the GoTriangle Short-Range Transit Plan (which incorporates GoTriangle's route changes from the Wake Bus Plan) were completed by staff and approved by the GoTriangle Board of Trustees. The Short-Range Transit Plan was focused on three key improvements to the regional transit network, which are cited by both customers and non-customers as reasons to take transit more often:

- Make service faster and more time-competitive
- Provide more frequent service
- Provide more all-day service

The plan provides a blueprint for how the agency will develop and implement regional bus service through FY 2027. Changes to many routes are proposed for implementation in FY 2020 and FY 2021, but coordination with other agencies may affect the alignments of these new routes and the timing of their implementation.

- Route 102 will be replaced with an all-day GoRaleigh local service to Garner.
- Route 201 will be converted into an express route between Triangle Town Center and the RTC.
- Route 300's service between Cary and the RTC will be split into a new Route 310, which will serve the Wake Tech RTP campus and key destinations in Morrisville all day.
- Route 305 will be upgraded to run all day, seven days a week.
- Routes 400 and 405 will be realigned to provide service every 15 minutes between Durham and Chapel Hill during peak.
- Route 800 will be streamlined to use I-40 at all times rather than providing local service along NC-54 off-peak, which will provide faster travel times between Chapel Hill and points east.
- Route FRX will begin serving Wake Technical Community College's Main Campus. (Wake Tech is designating a Park-and-Ride on campus for Route FRX.)
- Route KRX will be replaced with an all-day GoRaleigh local service to Knightdale.

- Route ODX will be streamlined to focus on the high-ridership stops (Mebane Cone Health Park-and-Ride, Durham Tech OCC Park-and-Ride, and in the future, the North Hillsborough Park-and-Ride), providing higher frequency.
- Route WRX will begin serving a new Park-and-Ride which will be convenient for more area residents.

As a follow-up to the Short-Range Transit Plan, Service Planning staff will develop updated service standards and performance measures for GoTriangle bus service. These will be presented to the Board of Trustees later in FY 2019, and if approved, the FY 2019 annual bus service performance report will evaluate service according to the new standards.

The Wake Bus Plan was accompanied by a regional fare study, whose results are currently being presented to the governing boards of GoTriangle, GoDurham, GoRaleigh, and GoCary. If the study results are received favorably by the governing boards, staff would like to implement the new regional fare structure for FY 2020. Already, the transit agencies have implemented a new Youth GoPass, which allows youth ages 13 – 18 to ride transit for free.

GO Triangle

Attachment B: System Statistics									
	Daily Boardings			Daily Revenue Hours			Boardings per Hour		
	FY 2017	FY 2018	Δ	FY 2017	FY 2018	Δ	FY 2017	FY 2018	Δ
System							**11.8**	**11.4**	**-4%**
Weekday	**6,097**	**6,169**	**1%**	**494.3**	**543.4**	**10%**	**12.7**	**11.9**	**-6%**
Regional Peak	3,528	3,442	-2%	262.5	264.9	1%	13.5	13.1	-3%
Express	1,224	1,236	1%	111.1	106.1	-5%	11.5	12.2	7%
Shuttles	117	104	-11%	19.0	22.5	19%	6.2	5.1	-17%
Regional Midday	981	1,078	10%	70.9	115.5	63%	15.2	10.7	-30%
Regional Night	247	309	25%	30.9	34.4	11%	8.7	9.2	6%
Saturday	**1,351**	**1,495**	**11%**	**156.3**	**222.3**	**42%**	**9.1**	**7.2**	**-21%**
Sunday	**697**	**799**	**15%**	**93.5**	**104.4**	**12%**	**7.8**	**8.1**	**4%**

	Annual Boardings			Revenue Hours			Revenue Miles	
	FY 2017	FY 2018		FY 2017	FY 2018		FY 2017	FY 2018
System	**1,661,720**	**1,667,545**		**140,448**	**146,503**		**2,819,922**	**2,892,938**
Weekday	**1,530,270**	**1,542,263**		**120,708**	**129,667**		**2,454,113**	**2,602,845**
Regional Peak	885,618	860,383		65,778	65,759		1,225,176	1,231,297
Express	307,262	309,040		26,823	25,269		701,719	652,476
Shuttles	29,272	26,053		4,751	5,066		96,401	119,716
Regional Midday	246,191	269,483		16,226	25,206		289,600	447,168
Regional Night	61,927	77,304		7,131	8,368		141,217	152,188
Saturday	**74,287**	**83,718**		**8,160**	**11,697**		**143,847**	**197,317**
Sunday	**35,554**	**41,564**		**4,551**	**5,139**		**81,001**	**92,776**

Attachment C: Route Statistics	Boardings	Days	Daily Boardings			Daily Revenue Hours			Boardings per Hour		
Route	FY 2018		FY 17	FY 18	Δ	FY 17	FY 18	Δ	FY 17	FY 18	Δ
System Total	1,667,545	358							11.8	11.4	-4%
Weekday System Total	1,542,263	250	6,097	6,169	1%	494.3	543.4	10%	12.7	11.9	-6%
Weekday Peak Services	1,195,476	250	4,869	4,782	-2%	392.5	393.5	0%	12.6	12.4	-1%
Weekday Peak - Regional Routes	860,383	250	3,528	3,442	-2%	262.5	264.9	1%	13.5	13.1	-3%
100 Raleigh-Airport-RTC	49,686	250	210	199	-5%	23.3	23.3	0%	9.0	8.5	-6%
102 Raleigh-Garner	16,763	250	45	67	50%	6.0	6.0	0%	7.4	11.2	51%
105 Raleigh-RTC	53,490	250	217	214	-2%	18.3	18.7	2%	11.9	11.5	-3%
201 North Raleigh-RTC	12,497	250	60	50	-16%	8.0	8.2	2%	7.4	6.2	-17%
300 Raleigh-Cary-RTC	78,190	250	280	313	12%	26.1	26.1	0%	10.7	11.1	4%
301 Raleigh-Southeast Cary	30,886	250	130	124	-5%	17.0	17.2	1%	7.6	7.2	-5%
305 Raleigh-Cary-Lake Pine	23,749	250	111	95	-14%	11.8	11.8	0%	9.4	8.1	-14%
311 Apex-Lake Pine-RTC-EPA	19,472	250	82	78	-5%	14.8	14.8	0%	5.5	5.3	-4%
400 Durham-Patterson Place-Chapel Hill	112,222	250	469	449	-4%	29.5	29.5	0%	15.9	16.6	5%
405 Durham-Chapel Hill/Carrboro	123,455	250	490	494	1%	23.4	24.2	3%	21.1	20.6	-2%
420 Hillsborough-Chapel Hill	43,315	250	180	173	-4%	13.7	13.7	0%	13.5	12.7	-6%
700 Durham-RTC	67,022	250	282	268	-5%	13.2	13.2	0%	21.3	20.1	-6%
800 Chapel Hill-Southpoint-RTC	134,709	250	568	539	-5%	30.8	30.8	0%	18.5	17.9	-3%
805 Chapel Hill-Woodcroft-RTC	94,927	250	406	380	-6%	26.6	27.6	3%	15.3	14.0	-8%
Weekday Peak - Express Routes	309,040	250	1,224	1,236	1%	111.1	106.1	-5%	11.5	12.2	7%
CRX Chapel Hill-Raleigh Express	98,565	250	392	394	1%	28.3	29.4	4%	13.9	13.5	-3%
DRX Durham-Raleigh Express	117,576	250	460	470	2%	25.5	26.0	2%	18.1	18.2	1%
FRX Fuquay-Varina-Raleigh Express	15,695	250	67	63	-6%	13.8	7.3	-48%	4.8	8.7	80%
KRX Knightdale-Raleigh Express	7,695	250	37	31	-16%	5.6	5.6	0%	6.5	5.5	-15%
ODX Orange-Durham Express	25,662	250	93	103	10%	10.9	10.8	-1%	8.5	9.5	12%
RSX Robertson Scholars Express	15,644	161	112	97	-13%	10.0	10.0	0%	12.3	11.1	-10%
WRX Wake Forest-Raleigh Express	12,852	250	47	51	9%	9.8	9.8	0%	4.8	5.3	9%
ZWX Zebulon-Wendell-Raleigh Express	15,351	250	56	61	9%	7.2	7.2	0%	7.9	8.6	9%
Weekday Peak - RTP Shuttle Service	26,053	250	117	104	-11%	19.0	22.5	19%	6.2	5.1	-17%
Weekday Midday	269,483	250	981	1,078	10%	70.9	115.5	63%	15.2	10.7	-30%
100 Raleigh-Airport-RTC	61,939	250	211	248	17%	11.0	22.0	100%	19.2	12.3	-36%
300 Raleigh-Cary	34,950	250	119	140	17%	7.0	16.2	131%	17.0	10.7	-37%
400 Durham-Patterson Place-Chapel Hill	65,100	250	253	260	3%	22.9	23.1	1%	11.7	10.8	-8%
700 Durham-RTC	37,462	250	136	150	10%	6.1	12.3	101%	22.4	13.2	-41%
800 Chapel Hill-Southpoint-RTC	55,753	250	206	223	9%	11.9	24.1	103%	17.3	10.0	-42%
RSX Robertson Scholars Express	12,539	161	86	78	-10%	12.0	12.0	0%	7.9	7.4	-6%
RTP OnDemand (Midday)	1,740	125		14	*new*		6.0	*new*		2.3	*new*
Weekday Evening	77,304	250	247	309	25%	30.9	34.4	11%	8.7	9.2	6%
100 Raleigh-Airport-RTC	19,267	250	69	77	11%	6.8	6.8	0%	10.2	10.8	6%
300 Raleigh-Cary	6,161	250		25	*new*		3.5	*new*		7.8	*new*
400 Durham-Patterson Place-Chapel Hill	18,692	250	61	75	22%	6.8	6.8	0%	8.8	9.5	8%
700 Durham-RTC	14,203	250	49	57	16%	4.0	4.0	0%	12.2	14.3	17%
800 Chapel Hill-Southpoint-RTC	15,273	250	52	61	17%	6.8	6.8	0%	7.7	8.1	4%
RSX Robertson Scholars Express	3,708	161	24	23	-4%	6.5	6.5	0%	3.8	3.9	2%
Saturday	83,718	56	1,351	1,495	11%	156.3	222.3	42%	9.1	7.2	-21%
100 Raleigh-Airport-RTC	24,128	56	377	431	14%	32.1	53.4	66%	11.7	8.4	-28%
300 Raleigh-Cary	10,068	56	105	180	71%	11.9	25.8	117%	8.8	7.6	-14%
400 Durham-Patterson Place-Chapel Hill	19,036	56	343	340	-1%	52.3	52.3	0%	6.9	6.5	-5%
700 Durham-RTC	14,468	56	233	258	11%	15.8	26.7	68%	14.7	10.1	-31%
800 Chapel Hill-Southpoint-RTC	14,119	56	252	252	0%	31.2	51.1	64%	8.1	5.2	-36%
RSX Robertson Scholars Express	1,899	31	72	61	-15%	13.0	13.0	0%	5.5	4.6	-18%
Sunday	41,564	52	697	799	15%	93.5	104.4	12%	7.8	8.1	4%
100 Raleigh-Airport-RTC	12,361	52	223	238	7%	24.1	24.1	0%	9.2	9.9	7%
300 Raleigh-Cary	4,050	52		78	*new*		11.9	*new*		7.1	*new*
400 Durham-Patterson Place-Chapel Hill	9,572	52	185	184	0%	23.4	22.9	-2%	7.9	8.0	1%
700 Durham-RTC	7,837	52	128	151	18%	11.8	11.8	0%	10.8	12.7	18%
800 Chapel Hill-Southpoint-RTC	6,088	52	131	117	-11%	23.2	22.7	-2%	5.7	5.1	-9%
RSX Robertson Scholars Express	1,656	31	51	53	6%	11.0	11.0	0%	4.6	5.2	13%

Attachment D: Commute Market Statistics	Daily Boardings			Daily Revenue Hours			Boardings per Hour		
Route Origin	**FY 17**	**FY 18**	**Δ**	**FY 17**	**FY 18**	**Δ**	**FY 17**	**FY 18**	**Δ**
To Raleigh	1,172	1,217	4%	130.3	123.8	-5%	9.0	9.7	7%
100 * From RTC/Airport	92	86	-7%	11.4	11.4	0%	8.1	7.2	-11%
102 From Garner	45	67	50%	6.0	6.0	0%	7.4	11.2	51%
105 From RTC	85	90	6%	8.3	8.6	4%	10.2	10.6	4%
300 From Cary **(2015)**	157	190	21%	13.7	13.7	0%	11.4	11.9	4%
301 * From Southeast Cary	130	124	-5%	17.0	17.2	1%	7.6	7.2	-5%
305 * From Cary/Apex	111	95	-14%	11.8	11.8	0%	9.4	8.1	-14%
CRX From Chapel Hill	154	157	2%	13.0	13.3	3%	11.9	12.0	1%
DRX From Durham	191	202	6%	12.6	11.8	-6%	15.2	17.2	13%
FRX From Fuquay-Varina **(2015)**	67	63	-6%	13.8	7.3	-48%	4.8	8.7	80%
KRX From Knightdale	37	31	-16%	5.6	5.6	0%	6.5	5.5	-15%
WRX From Wake Forest	47	51	9%	9.8	9.8	0%	4.8	5.3	9%
ZWX From Zebulon/Wendell	56	61	9%	7.2	7.2	0%	7.9	8.6	9%
To Durham	848	837	-1%	56.5	58.1	3%	15.0	15.2	1%
400 * From Chapel Hill	184	162	-12%	13.6	13.6	0%	13.5	13.0	-4%
405 From Chapel Hill/Carrboro **(2016)**	203	209	3%	12.1	12.5	4%	16.9	18.1	7%
700 * From RTC	98	96	-3%	7.0	7.0	0%	14.0	14.8	6%
DRX From Raleigh	269	269	0%	12.9	14.2	10%	20.8	19.1	-8%
ODX From Hillsborough/Mebane **(2014)**	93	103	10%	10.9	10.8	-1%	8.5	9.5	12%
To Chapel Hill	1,740	1,708	-2%	89.4	91.1	2%	19.5	19.4	-1%
400 From Durham/Patterson Place	285	287	1%	15.9	15.9	0%	17.9	19.7	10%
405 From Durham	287	285	-1%	11.4	11.7	3%	25.4	23.0	-10%
420 From Hillsborough	180	173	-4%	13.7	13.7	0%	13.5	12.7	-6%
800 * From RTC/Southpoint	455	449	-1%	18.4	18.4	0%	24.8	28.0	13%
805 From RTC/Woodcroft	294	277	-6%	14.9	15.5	4%	19.8	18.1	-8%
CRX From Raleigh	238	237	0%	15.3	16.1	5%	15.6	14.8	-5%
To RTC	1,038	956	-8%	106.4	110.5	4%	9.8	8.7	-11%
100 * From Raleigh/Airport	118	113	-4%	11.8	11.8	0%	9.9	9.8	-1%
105 From Raleigh	133	124	-7%	10.0	10.1	1%	13.2	12.3	-7%
201 From North Raleigh	60	50	-16%	8.0	8.2	2%	7.4	6.2	-17%
300 * From Cary	122	123	0%	12.4	12.4	0%	9.9	10.0	1%
311 From Apex/Lake Pine	82	78	-5%	14.8	14.8	0%	5.5	5.3	-4%
700 * From Durham	184	173	-6%	6.2	6.2	0%	29.6	25.0	-16%
800 * From Chapel Hill/Southpoint	112	89	-20%	12.4	12.4	0%	9.1	6.4	-30%
805 From Woodcroft	112	103	-8%	11.7	12.1	3%	9.5	8.7	-9%
RTP Service (42/46/47/49/OnDemand)	117	104	-11%	19.0	22.5	19%	6.2	5.1	-17%

Attachment E: On-Time Performance Percent of trips on time at end of route (no more than five minutes behind schedule)		Did not meet target (85%) in FY 2017 or 2018 Met target FY 2017, but not FY 2018 Did not meet target in FY 2017, but did in FY 2018			
Route	**Description**	**Hours of Operation**	**FY 2017**	**FY 2018**	**Δ**
Weekdays					
100	Raleigh-Airport-RTC	6:40 AM - 11:25 PM	87%	92%	↑ 6 pt
102	Raleigh-Garner	*Peak only*	64%	**77%**	↑ 13 pt
105	Raleigh-RTC	*Peak only*	85%	**90%**	↑ 5 pt
201	North Raleigh-RTC	*Peak only*	89%	89%	--
300	Raleigh-Cary-RTC	6:00 AM - 10:25 PM	83%	**88%**	↑ 5 pt
301	Raleigh-SW Cary	*Peak only*	88%	90%	2 pt
305	Raleigh-Cary-Lake Pine	*Peak only*	80%	**80%**	--
311	Apex-Lake Pine-RTC-EPA	*Peak only*	88%	91%	3 pt
400	Durham-Patterson Place-Chapel Hill	6:15 AM - 10:55 PM	88%	89%	1 pt
405	Durham-Chapel Hill	*Peak only*	86%	85%	-1 pt
420	Hillsborough-Chapel Hill	*Peak only*	86%	92%	↑ 6 pt
700	Durham-RTC	6:00 AM - 10:55 PM	96%	96%	--
800	Chapel Hill-Southpoint-RTC	6:00 AM - 11:10 PM	81%	**84%**	3 pt
805	Chapel Hill-Woodcroft-RTC	*Peak only*	80%	**90%**	↑ 11 pt
CRX	Chapel Hill-Raleigh Express	*Peak only*	70%	**83%**	↑ 13 pt
DRX	Durham-Raleigh Express	*Peak only*	78%	**79%**	2 pt
FRX	Fuquay-Varina-Raleigh Express	*Peak only*	80%	**86%**	↑ 7 pt
KRX	Knightdale-Raleigh Express	*Peak only*	84%	**84%**	--
ODX	Orange-Durham Express	*Peak only*	91%	94%	2 pt
RSX	Robertson Scholars Express	7:30 AM - 11:28 PM	94%	92%	-2 pt
WRX	Wake Forest-Raleigh Express	*Peak only*	83%	**80%**	-3 pt
ZWX	Zebulon-Wendell-Raleigh Express	*Peak only*	77%	**88%**	↑ 12 pt
Saturday					
100	Raleigh-Airport-RTC	6:40 AM - 11:12 PM	89%	95%	↑ 6 pt
300	Raleigh-Cary	7:00 AM - 9:55 PM	n/a	**72%**	
400	Durham-Patterson Place-Chapel Hill	7:00 AM - 10:55 PM	85%	**81%**	↓ -5 pt
700	Durham-RTC	7:00 AM - 10:55 PM	100%	99%	--
800	Chapel Hill-Southpoint-RTC	6:45 AM - 11:20 PM	88%	86%	-1 pt
RSX	Robertson Scholars Express	12:00 PM - 12:28 AM	90%	88%	-2 pt
Sunday					
100	Raleigh-Airport-RTC	6:40 AM - 9:12 PM	96%	97%	1 pt
300	Raleigh-Cary	7:00 AM - 8:55 PM	n/a	**79%**	
400	Durham-Patterson Place-Chapel Hill	7:00 AM - 8:55 PM	96%	91%	↓ -5 pt
700	Durham-RTC	7:00 AM - 8:55 PM	100%	100%	--
800	Chapel Hill-Southpoint-RTC	6:45 AM - 9:20 PM	96%	91%	↓ -4 pt
RSX	Robertson Scholars Express	12:00 PM - 10:28 PM	91%	97%	↑ 6 pt
Weekday Total			85%	88%	3 pt
Saturday Total			90%	87%	-3 pt
Sunday Total			96%	92%	↓ -4 pt
System Total			86%	88%	3 pt

Attachment F: Wake Transit Service Standards Analysis		Boardings per Revenue Trip	Op. Cost per Boarding	Farebox Recovery	On-Time Performance
Regional Core Routes - Weekdays					
100	Raleigh-Airport-RTC	10.3 ✗	$11.83 ✗	7.8% ✗	92% ✓
300	Raleigh-Cary-RTC	10.7 ✗	$11.36 ✗	8.2% ✗	88% ✓
400	Durham-Patterson Place-Chapel Hill	13.3 ✗	$9.19 ✗	11.2% ✗	89% ✓
700	Durham-RTC	16.5 ✓*	$7.38 ✗	12.6% ✗	96% ✓
800	Chapel Hill-Southpoint-RTC	13.7 ✗	$8.88 ✗	12.2% ✗	84% ✗
Current Standard, through FY 2021		16.0	$7.20	16.0% **	85%
Eventual Standard, FY 2027 and beyond		20.0	$6.00	20.0% **	85%
Regional Core Routes - Saturdays					
100	Raleigh-Airport-RTC	8.4 ✗	$14.48 ✗	6.4% ✗	95% ✓
300	Raleigh-Cary-RTC	7.6 ✗	$9.67 ✗	9.6% ✗	72% ✗
400	Durham-Patterson Place-Chapel Hill	6.5 ✗	$18.75 ✗	5.5% ✗	81% ✗
700	Durham-RTC	10.1 ✗	$12.05 ✗	7.7% ✗	99% ✓
800	Chapel Hill-Southpoint-RTC	5.2 ✗	$23.68 ✗	4.6% ✗	86% ✓
Current Standard, through FY 2021		12.0	$7.20	16.0% **	85%
Eventual Standard, FY 2027 and beyond		15.0	$6.00	20.0% **	85%
Regional Core Routes - Sundays					
100	Raleigh-Airport-RTC	9.9 ✓*	$12.37 ✗	7.5% ✗	97% ✓
300	Raleigh-Cary-RTC	7.1 ✗	$9.82 ✗	9.5% ✗	79% ✗
400	Durham-Patterson Place-Chapel Hill	8.0 ✓*	$15.25 ✗	6.7% ✗	91% ✓
700	Durham-RTC	12.7 ✓	$9.58 ✗	9.7% ✗	100% ✓
800	Chapel Hill-Southpoint-RTC	5.1 ✗	$23.70 ✗	4.6% ✗	91% ✓
Current Standard, through FY 2021		8.0	$7.20	16.0% **	85%
Eventual Standard, FY 2027 and beyond		10.0	$6.00	20.0% **	85%
Express Routes* **					
102	Raleigh-Garner	11.2 ✓	$9.40 ✓	10.5% ✗	77% ✗
105	Raleigh-RTC	11.5 ✓	$10.56 ✓*	9.0% ✗	90% ✓
201	North Raleigh-RTC	6.2 ✗	$19.72 ✗	4.5% ✗	89% ✓
301	Raleigh-SW Cary	7.2 ✗	$16.86 ✗	5.6% ✗	90% ✓
305	Raleigh-Cary-Lake Pine	8.1 ✓*	$15.11 ✗	6.6% ✗	80% ✗
311	Apex-Lake Pine-RTC-EPA	5.3 ✗	$23.09 ✗	3.9% ✗	91% ✓
CRX	Chapel Hill-Raleigh Express	13.5 ✓	$9.01 ✓	16.1% ✓	83% ✗
DRX	Durham-Raleigh Express	18.2 ✓	$6.69 ✓	20.8% ✓	79% ✗
FRX	Fuquay-Varina-Raleigh Express	8.7 ✓*	$13.40 ✗	11.3% ✗	86% ✓
KRX	Knightdale-Raleigh Express	5.5 ✗	$20.91 ✗	6.6% ✗	84% ✗
WRX	Wake Forest-Raleigh Express	5.3 ✗	$20.10 ✗	7.3% ✗	80% ✗
ZWX	Zebulon-Wendell-Raleigh Express	8.6 ✓*	$13.38 ✗	10.3% ✗	88% ✓
405	Durham-Chapel Hill/Carrboro	20.6 ✓	$5.91 ✓	18.2% ✓	85% ✓
420	Hillsborough-Chapel Hill	12.7 ✓	$8.75 ✓	8.9% ✗	92% ✓
805	Chapel Hill-Woodcroft-RTC	14.0 ✓	$8.72 ✓	11.8% ✗	90% ✓
ODX	Orange-Durham Express	9.5 ✓*	$12.81 ✗	11.5% ✗	94% ✓
Current Standard, through FY 2021		8.0	$12.00	12.0% **	85%
Eventual Standard, FY 2027 and beyond		10.0	$10.00	15.0% **	85%

* Meets the standard currently in force, but would not meet the eventual standard (FY 2027 and beyond).

** Standards for farebox recovery are not final - this value was included as a proposal in an earlier draft.

*** All regional peak-only routes are classified as "Express" by the Wake Transit Service Standards.