GoTriangle
Board of Trustees
Wed, April 24, 2019 12:00 pm-2:30 pm

I. Call to Order and Adoption of Agenda

ACTION REQUESTED: Adopt agenda with any changes requested.
(1 minute Ellen Reckhow)

II. Recognition

A. Introduction of New Hires
(1 minute Jeff Mann)

B. Announcement of Promotions
(1 minute Jeff Mann)

C. Presentation of Service Awards
(5 minutes Christy Winstead)

D. Staff Retirement
(5 minutes Ellen Reckhow)

III. Public Hearing - Proposed Fare Change

IV. Public Comment
The public comment period is held to give citizens an opportunity to speak on any item. The session is no more than thirty minutes long and speakers are limited to no more than three minutes each. Speakers are required to sign up in advance with the Clerk to the Board.
(Ellen Reckhow)

V. Consent Agenda
Items listed on the consent agenda are considered as a single motion. At the request of any Board member, or member of the public, items may be removed from the consent agenda and acted on by a separate motion. Items pulled from the consent agenda will be placed at the beginning of the general business agenda for discussion and action. Any Board member wishing to remove an item from the consent agenda should advise staff in advance.

ACTION REQUESTED: Approve consent agenda.
(1 minute Ellen Reckhow)

A. Minutes

ACTION REQUESTED: Approve draft minutes.
1. March 27, 2019 - Regular Session
2. March 27, 2019 - Closed Session

VI. General Business Agenda
Items listed on the general business agenda are for discussion and possible action. Such designation means that the Board intends to discuss the general subject area of that agenda item before making any motion concerning that item.

A. Items Removed from the Consent Agenda

ACTION REQUESTED: Discuss and take action on any items removed from the consent agenda.
(1 minute Ellen Reckhow)

B. Fare Change Proposal - Informational Item
(implementation date postponed until January)
(15 minutes Mary Kate Morookian)

    Attachment A. Wake-Durham Fare Integration Study

    Attachment B. Fare Change Details

    Attachment C. Title VI Fare Equity Analysis Report

    Attachment E. Public Engagement Summary

C. Recommended Service Changes for Fall 2019

    ACTION REQUESTED: Approve the recommended service changes.
    (15 minutes Jennifer Green)

    Attachment A. Fall 2019 Service Change Details

    Attachment B. Transit Connect Pilot Details

    Attachment C. Title VI Service Equity Analysis

    Attachment D. Wake County Transit Plan - Service Change Equity Analysis

    Attachment F. Public Engagement Summary

    Attachment G. Summary of Comments Received

    Attachment H. Revenue Hours by County

D. Greater Triangle Commuter Rail Pre-Planning Study

    ACTION REQUESTED: Authorize the President/CEO to execute an agreement with STV to conduct the GTCR pre-planning study.
    (15 minutes Jeff Mann)

E. 30% Design for Raleigh Union Station Bus Facility (RUS Bus)

    ACTION REQUESTED: Authorize the President/CEO to issue a Notice-to-Proceed to On-
    Call engineering consultant, WSP, to start and complete all professional services listed in the enclosed task order (total not-to-exceed amount of $1,329,353.85).
    (15 minutes Jeff Mann)

    WSP Task Order

    RUS Bus 30% Design Fee Schedule

VII. Other Business

A. Real Property Inventory Update
(10 minutes Gary Tober)

B. President & CEO's Report
(5 minutes Jeff Mann)

    Contracts

    1. Transit Operations Report
       (5 minutes Patrick Stephens)

    2. Wake Transit Update
       (5 minutes Patrick McDonough, Stephen Schlossberg)

    C.   General Counsel's Report
      (5 minutes Shelley Blake)

    D.   Chair's Report
      (5 minutes Ellen Reckhow)

    E.   Board Member Reports

        1.   CAMPO Executive Board Representative
          (5 minutes Will Allen III)

        2.   DCHC MPO Board Representative
          (5 minutes Ellen Reckhow)

        3.   Regional Transportation Alliance (RTA) Rep.
          (5 minutes Will Allen III)

VIII.   Closed Session - D-O LRT Project Office

ACTION REQUESTED: Enter into Closed Session pursuant to NCGS §143-318.11.(3) to consult with an attorney employed or retained by the public body in order to preserve the attorney-client privilege between the attorney and the public body, which privilege is hereby acknowledged.

IX.   Closed Session - Rail Operations Maintenance Facility (ROMF) Litigation Update

ACTION REQUESTED: Enter into Closed Session pursuant to NCGS §143-318.11.(3) to consult with an attorney employed or retained by the public body in order to preserve the attorney client privilege between the attorney and the public body, which privilege is hereby acknowledged. The following cases will be discussed:

    GoTriangle v. Wesley and Marianne Massey
    GoTriangle v. Mary Hart
    GoTriangle v. Paula Sanders and Mary Hart
    GoTriangle v. Ella Day Turrentine
    GoTriangle v. Patterson's Mill, LLC

    John Gunter, Patricia Gunter, Joan Hart, Jon Hoffman, Betty Hoffman, and Virginia Meihaus vs. City of Durham and GoTriangle

X.   Adjournment
    (Ellen Reckhow)

GoTriangle Board of Trustees
Meeting Minutes
March 27, 2019
Board Room, The Plaza, 4600 Emperor Blvd., Suite 100
Durham, NC

Board Members Present:

Will Allen III	Michael Parker
Sig Hutchinson	Ellen Reckhow, Chair
Wendy Jacobs	Jennifer Robinson (arr. 12:03 p.m.)
Vivian Jones	Steve Schewel (arr. 12:35 p.m.)
Valerie Jordan (arr. 12:03 p.m.)	Russ Stephenson
Mark Marcoplos	

Board Members Absent:

Andy Perkins	Nina Szlosberg-Landis (excused)

Chair Ellen Reckhow officially called the meeting to order at 12:02 p.m.

I. Adoption of Agenda
Action: On motion by Parker and second by Allen the agenda was adopted. The motion was carried unanimously.

II. Recognition
A. Introduction of New Hires
President and CEO Mann announced the hiring of Tammy Kearney, Service Attendant; Candice Moody, Paratransit Operator I; and Vincent Whitfield, Bus Operator I.

B. Announcement of Promotions
None.

C. Presentation of Service Awards
Christy Winstead presented 15 year service awards to James G. Hall and Irene J. Jones, Dispatcher/Operator.

Robinson and Jordan arrived.

III. Public Hearing – Proposed Fare Change
Action: Chair Reckhow opened the public hearing on the proposed fare change at 12:04 p.m.

- Enzo Niebuhr spoke in opposition to the proposed increase in regional bus fares.

- Martha Brock spoke in opposition to the proposed fare increase.
- Jayse Sessi spoke against the elimination of the 6:40 p.m. bus on the CRX route.

Action: There being no further comments the hearing was closed at 12:12 p.m.

IV. **Public Comment**
Chair Reckhow recognized the following speakers:
- Kevin Primus spoke in support of the light rail project and asked that the African American community be included in the decision regarding its future.
- Dick Hails spoke in support of the light rail project. His statement is attached and hereby made a part of these minutes.
- Waldo Fenner spoke against allowing Duke University to determine the fate of the light rail project.
- John Morris on behalf of the group, Affordable Transit for All, asked that the Board find the light rail project no longer viable and work toward a better alternative for the region. A letter from the group is attached and hereby made a part of these minutes.

V. **Consent Agenda**
Action: On motion by Parker and second by Hutchinson the consent agenda was approved. The motion was carried unanimously.

The following consent agenda items were approved:
- February 27, 2019 – Regular Session Minutes;
- February 27, 2019 – Closed Session A Minutes; and
- February 27, 2019 – Closed Session B Minutes; and
- Set a public hearing for a proposed fare change for April 24, 2019.

VI. **General Business Agenda**
A. **Items Removed from Consent Agenda**
None.

B. **Regional Technology Integration Study**
Saundra Freeman ask that the Board authorize the President/CEO to sign a contract with WSP for the regional technology study. She stated that the funds were approved in the FY19 budget.

Action: On motion by Jones and second by Robinson the Board authorized the President/CEO to sign a contract with the consultant, WSP, for a regional Technology Integration Study. The motion was carried unanimously.

VII.   Other Business

A.   President & CEO's Report

A list of contracts approved by the President and CEO is attached and hereby made a part of these minutes.

Mann provided an update on the light rail project.

- The draft risk assessment has been received and identifies additional funding of $237 million to project budget. The breakdown is attached and hereby made a part of these minutes.
- An additional $87 million is required to fund the deficit of the private fundraising effort.
- Interest rates are assumed to be lower than previously estimated, bringing the additional funding requirement to $267 million.
- FTA is requiring the identification of up to 10% of total project costs for potential project cost overrun or shortfall, which is over $500 million.
- A Supplemental Environmental Assessment will be required for the design changes for a tunnel and bridge through downtown Durham. They are requiring at least 30 days for a review period.
- We met with FTA's senior leadership team last week and they expressed significant concerns with our ability to reach an FFGA by Nov 30th.
- State funding, now at 7.7%, would be lost if an FFGA is not reached by November 30th.

Schewel arrived.

Board members asked for clarification about schedule impacts, lease fee requested by NCRR and the $190 million in State funding.

Jacobs asked if there is a way to save $190 million in project costs to cover the State contribution. John Tallmadge responded yes, with a scope reduction, and added this is not uncommon for New Starts projects. Robinson asked for an example of the type of cuts. Tallmadge said the elimination of low ridership stations; reducing the number of cars purchased and starting with single car trains; eliminating or building smaller park-and-ride lots.

Jacobs asked what would cut the most cost. Tallmadge stated shortening the length of the system and eliminating the Alston Avenue station to NCCU at approximately $60 million.

B.   Chair's Report

Chair Reckhow reminded the Board of a budget work session at 9 a.m. before next month's regular meeting.

C. **Board Member Reports**

1. **CAMPO Executive Board Representative**

Will Allen III stated the group approved the Raleigh Urbanized Area and Wake County Locally Coordinated Human Services Transportation Plan and guidelines for staff making LAPP decisions.

2. **DCHC MPO Board Representative**

Ellen Reckhow stated that NC Secretary of Transportation Jim Trogdon spoke at the meeting.

3. **Regional Transportation Alliance (RTA) Representative**

No report.

VIII. **Closed Session – D-O LRT Project**

Pursuant to NCGS §143-318.11.(3) to consult with an attorney employed or retained by the public body in order to preserve the attorney-client privilege between the attorney and the public body, which privilege is hereby acknowledged; and NCGS §143-318.11.(5) to establish, or to instruct the public body's staff or negotiating agents concerning the position to be taken by or on behalf of the public body in negotiating (i) the price and other material terms of a contract or proposed contract for the acquisition of real property by purchase, option, exchange, or lease.

Action: On motion by Allen and second by Parker the Board entered into closed session at 12:57 p.m. pursuant to the General Statutes and purpose listed above. The motion was carried unanimously.

IX. **Next Steps for D-O LRT**

The Board returned to open session at 2:10 p.m.

Chair Reckhow recognized President and CEO Jeff Mann, who read this statement:

> *The light-rail project has been considered the spine of Durham and Orange counties' transit plans since Durham voters in 2011 and Orange voters in 2012 approved a half-cent sales tax to invest in significant public transit improvements. As we've stated many times, the project would create and support tens of thousands of new jobs and infuse billions of dollars into our local and state economies. The final, approved light-rail alignment connects three of the top 10 employers in the state and three major hospitals as well as UNC, Duke and North Carolina Central University.*

> *Over the years, the two counties have used this approved light-rail alignment as a basis for land-use, economic development and affordable housing plans to best accommodate the more than 7,000 people the counties are adding each year. Unfortunately, this project has recently faced a number of significant challenges,*

most notably Duke University's refusal to sign necessary agreements with GoTriangle. Additionally, several changes to state law since 2016 brought the anticipated state contribution to the project from 25 percent to 10 percent and eventually down to no more than $190 million, or about 7.7 percent.

In late 2018, the Durham County Board of Commissioners approved spending an additional $57.6 million in voter-approved, transit-designated revenue from Durham County to close part of the gap created by the legislative change. The financial plan also anticipated that $102.5 million in light-rail project funding would come from other public and private sources, including property donations through the GoTransit Partners' Capital Campaign. Unfortunately, the prolonged and ultimately unfruitful negotiations with Duke University halted those fundraising efforts.

The 2018 legislative change also required that all other nonfederal funds for the project be committed by April 30, 2019, and all federal funds no later than Nov. 30, 2019, for the light rail to receive any state funding for the project. Over the past six months, new challenges have made those deadlines increasingly difficult to meet and contributed to additional project costs.

For more than a decade, and more intensely over the past year, GoTriangle and local elected officials have worked closely with Duke to address the university's concerns, going as far as to include a $90 million design change to elevate the light rail over Erwin Road at the university's request. As you know, Duke has refused to sign a cooperative agreement with GoTriangle and more recently denied our request to continue conversation through mediation. As of today, we also have not reached a final agreement with the state-owned North Carolina Railroad that is also necessary for the project to move forward. In December, Norfolk Southern expressed concerns regarding railroad operations, and stakeholders, including Duke University, expressed concerns over light-rail plans calling for a section of Blackwell Street to be closed to vehicles. As a result, the project team proposed a new tunnel option for the light rail in downtown Durham.

In part because of the proposed design changes in downtown Durham and the unresolved agreements, the FTA recently sent GoTriangle staff a draft risk assessment report stating that an additional $237 million in project costs and contingency must be built into the project budget. The FTA also informed GoTriangle that the downtown Durham project change would require a significant amount of additional environmental study and review.

Last week I traveled to Washington, D.C., to meet with representatives of the Federal Transit Administration and had some very frank conversations. FTA let us know that because of the continued uncertainty with Duke and the North Carolina Railroad and the additional environmental assessment needed for the downtown Durham changes, it is no longer practical to anticipate that Durham and Orange counties' light-rail project will receive a Full Funding Grant Agreement by November 2019. That means this project would not be able to meet the Nov. 30

deadline set by the legislature and therefore would no longer be eligible for any state funding.

At this point, the counties would have to identify a path to cover the loss of the state's $190 million, the additional $237 million in project costs and contingency, and the approximately $87 million shortfall in fundraising efforts. That doesn't include an FTA requirement to identify a source for up to 10 percent of the project costs to cover potential cost overruns or revenue shortfalls, the cost of borrowing or possible costs associated with pursuing eminent domain to secure the remaining land needed.

Based on all of those factors and our most recent meeting with the FTA, I am asking today that the Board recommend that the cost-sharing partners from Durham and Orange counties and the Durham – Chapel Hill – Carrboro Metropolitan Planning Organization (DCHC MPO) discontinue the light-rail project. It pains me to make this recommendation.

We remain committed to improving transit in the Triangle and will work with our county partners to determine what elements of the existing community investment can be repurposed as we move forward.

Chair Reckhow asked General Counsel Shelley Blake to report on the issue of eminent domain discussed in closed session. Blake stated that GoTriangle has eminent domain power under NCGS §40A, which has a provision that limits a public condemner (GoTriangle) from condemning against a private condemner (Duke University), removing the quick take authority. Title is not obtained until a final court ruling. She stated that a Superior Court ruling could be appealed, but this process has uncertain time delays and financial impact of legal fees.

Jacobs asked about NCRR's requirement of 65% design plans. Mann stated that NCRR has asked that the tunnel and bridge section within NCRR's right-of-way in downtown Durham be at 65% or final design. He noted that this design change from at-grade was made to accommodate railroad concerns late last year and there are provisions in the proposed lease agreement giving NCRR the authority to approve 30%, 60%, 90% and final designs. Mann said 65% design is not anticipated until July or August, leaving very little time for FTA to process our application.

Robinson commented that the current situation involves more than just Duke not working with GoTriangle. The project has been challenged with cost overruns, need for more revenue, and relationships with Duke, NCRR and Norfolk Southern. She said it is unfortunate to have gotten to a place where the hurdles are now insurmountable, particularly the additional costs. She added that there is enthusiasm for increasing mobility through transit and the governing bodies should stand by this corridor and continue to pursue it.

Marcoplos noted that immense study determined this corridor really needed transit and if this project is discontinued there is bigger challenge because the issues will have to be addressed with lesser modes that carry less people less efficiently. He encouraged everyone to remain cooperative regionally and keep the regional vision alive. He added that probably the biggest blow to the project was the Legislative action.

Hutchinson applauded the leadership of the members from Durham and Orange counties and encouraged everyone to keep going. He said transit is a critical part of the regional vision for the future and there are opportunities for this corridor. Hutchinson also noted the work of staff. He added he is concerned that a big component of transit has to be rail and NCRR and Norfolk Southern have to be willing partners who are in good faith working with us to make transit work in the region.

Stephenson agreed that transit is key to the sustainable and equitable growth and prosperity of the region. He said although unfortunate to get to this late date, we will come out with a renewed, and maybe stronger, commitment to make transit work for our community.

Jacobs asked how much money had been spent to address the different concerns raised by Duke and the railroads throughout the course of the project. Tallmadge responded approximately $7 million for Duke and $4 million for the railroads.

Jacobs commented that although high risk, this project has such high benefits and so much work has been done related to land use planning, job training and affordable housing. She also pointed out the projected economic development benefits including 20,000 jobs, millions of dollars' worth of yearly revenue and the $1.2 billion Federal money. She said the Federal government shutdown hurt, but this discussion would not be happening today if there was a cooperative agreement with Duke University. She agreed that the region requires transit and mobility options but said a lot of things need to change - we have to have good faith partners and more funding at the State and Federal levels. Jacobs also acknowledged staff and their dedication to this project.

Parker said this is a very disappointing decision. He thanked the staff and turning over every stone, looking at every possibility, over the past few weeks. He thanked Board members and the Chair for her leadership. He echoed the commitment to transit regionally and locally.

Schewel said he cannot overstate his disappointment at arriving at this place. He said the stakes are so high for this project and represent a systems change - transformative. He echoed the praise for project staff and GoTriangle leadership. He added that as expensive as it is, locally we could have made the lift but Duke's non-cooperation has been an absolute body blow with no good option. He agreed that until the attitude and essential hostility towards public transit changes in the State Legislature, North Carolina will not be

the State we want to be, and certainly not the cities we want to be. He said our Legislature needs to fund transit and that was a devastating blow to our project. He added thanks to NC Secretary of Transportation Trogdon, Governor Cooper, Representatives Butterfield and Price, and his Durham and Orange County colleagues.

Jacobs thanked other partners on this project: the people of Durham, the Coalition for Affordable Housing and Transit in Durham, members of the Duke community (students, faculty and staff), Durham CAN, NCCU, UNC Medical Center and the Durham VA Health Care System. She reiterated the critical nexus between transit, housing and jobs that has to be the guiding foundation for prosperity in the region.

Reckhow read a prepared statement:

> *First, I want to thank the very dedicated and hard-working GoTriangle staff. You've tried to move this project forward against many odds, particularly over the last few months. I want to applaud the huge work ethic of our staff in turning things around quickly – just doing an amazing job. As I was thinking about the staff work, I thought of The Little Engine That Could, because they continued to move forward even as additional hurdles were thrown in our path. They showed a true commitment and grit, so I want to thank particularly the light rail project team for your valiant efforts.*

> *I want you to think about the fact that it is not just one thing that is causing us to abort.*

> *First, the North Carolina General Assembly reduced our funding significantly and that was after we restored it from zero. We started with an assumption of 25% going to 10% and now down to 7.7%. What that reduction has done is reduced our resiliency and our flexibility to respond to new project needs and requirements by the FTA, such as the latest requirements coming out of the risk assessment and the flexibility of time because of the time deadlines to deal with the environmental assessment that we now know we have to do. It is very important to emphasize that we are so constrained financially because of the General Assembly's actions.*

> *Second, Duke, our most important community partner, backed out after we worked so hard to respond to all their concerns, including spending millions of dollars to design a bridge along Erwin Road to satisfy their concerns.*

> *Third, the railroads made onerous requests, despite the fact that we moved the light rail out to the edge of their right-of-way where thousands of cars*

travel daily in a roadway. Still we were hit with numerous very difficult requirements.

Fourth, the Federal shutdown contributed to our learning the results of the risk assessment and the need for an environmental assessment for the downtown grade separations just a few weeks ago which is delaying our project submittal by several months and putting us up against this General Assembly-imposed deadline.

Since we received the letters in February from Duke and the railroads, we have done extensive due diligence to determine whether we still had a viable path forward. I really want to commend our staff, particularly Jeff and Shelley, but all of our staff for looking at what we could do legally with the railroads and unfortunately we were not able to find a path forward. That is the bottom line. That is why we are sitting here today.

I do feel that while this is a huge setback, this Board is not going to be deterred. We are committed to providing excellent public transit service that will connect our rapidly growing region. The issues still remain and we still have to remain committed to moving forward. I commit to working with all of our community partners to repurpose what we have done, salvage as much of the investment that we have made in planning and engineering, and try to move forward on a new path.

Action: On motion by Marcoplos and second by Schewel the Board voted to recommend that the cost-sharing partners from Durham and Orange counties and the DCHC MPO Board discontinue the light rail project as we work together to determine what elements of the project can be repurposed to improve transit in our region. The motion was carried unanimously.

Action: On Parker and second by Robinson the Board amended the agenda, removing items A and C under D-O LRT project next steps. The motion was carried unanimously.

A. **Design Change Approval: Modification of the Pettigrew Street Alignment**
   Removed.

B. **D-O LRT Project Reimbursement Agreement for City of Durham Plan Review**
   Action: On motion by Robinson and second by Jones the Board approved the agreement with the City of Durham, as recommended by the O&F Committee, for reimbursement of final design plan review, with a total dollar amount not to exceed $500,000 and authorized the President/CEO to execute the agreement. The motion was carried unanimously.

C. **Professional Services Contract Amendment – GEC Phase 3B**
Removed.

X. **Adjournment**
Action: Chair Reckhow the meeting was adjourned the meeting at 3:11 p.m.

_____
Ellen Reckhow, Chair

Attest:

_____
Michelle C. Dawson, CMC
Clerk to the Board

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MEMORANDUM

TO: GoTriangle Board of Trustees

FROM: Regional Services Development

DATE: April 18, 2019

SUBJECT: Fare Change Recommendation - Informational Update

Strategic Objective Supported

The item supports the following *objectives* from the Strategic Plan:

- Maintain cost-effectiveness
- Incorporate innovations to improve mobility and environmental stewardship
- Deliver a customer-friendly experience through our people and systems

Action Requested

Staff requests that the Board of Trustees receive the fare proposal as information.

Background and Purpose

A Regional Fare Study was conducted as part of the Wake Bus Plan to identify opportunities for more consistent fare purchase and collection procedures, standardization of fare policies and improved technology for the partner agencies (GoTriangle, GoRaleigh, GoCary and GoDurham). As part of the study, a fare proposal was developed and will be proposed for adoption/approval by GoTriangle, GoRaleigh, and GoCary.

The Regional Fare Study identified six goals:

1. Improve regional coordination
2. Balance revenue and ridership goals
3. Improve the passenger experience
4. Improve pass distribution
5. Make transit an affordable option
6. Explore new fare technologies

Staff presented the fare proposal to the GoTriangle Operations and Finance Committee on December 19, 2018 and January 17, 2019. On February 27, 2019 the Board of Trustees set a public hearing date for the fare proposal to occur on March 27, 2019.

Public outreach was conducted from March 11th to 29th with a public hearing on the proposed fare and service changes at the March 27th Board of Trustees meeting. Public outreach was extended until April 24th with an additional public hearing set for April 24th. Attachment E provides an overview of the public outreach plan, customers reached and comments received.

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Staff has reviewed the public comments and recommends the following service changes to be implemented in January 2020. Additional details about the fare change recommendations are provided in Attachment A.

- Offer free transit service to senior citizens (65 years or older).
- Remove distinction between regional and express fares.
- Increase the base fare $0.25.
- Adjust the pricing of 7-day and 31-day passes.
- Implement mobile ticketing.
- Implement fare capping.

Financial Impact

- The Wake Transit Plan identified funds for technology improvements that will cover the necessary capital investment for mobile ticketing ($150,000-$350,000). An FY20 Wake Transit Work Plan request for mobile ticketing was submitted.
- The fare change recommendation estimates a loss of roughly $11,000 in farebox revenue which will be covered through Wake Transit funds. Wake County submitted an FY20 funding request to cover revenue lost due to the implementation of fare capping and free transit for senior citizens.

Attachments

- Attachment A: Wake-Durham Fare Integration Study
- Attachment B. Fare Change Details
- Attachment C. Title VI Fare Recommendation Equity Analysis
- Attachment D. Fare Recommendation Presentation
- Attachment E. Proposed Service and Fare Change Outreach Public Engagement Summary

Staff Contact

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

Fare Integration Study

GoCary, GoDurham, GoRaleigh, and GoTriangle

Final Report

November 2018

NELSON
NYGAARD

FARE INTEGRATION STUDY

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FARE INTEGRATION STUDY

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.

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[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.

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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.

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[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.

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- **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

Improve **Pass Distribution** & Sales

Balance **Revenue** and **Ridership** Goals

Improve **Passenger Experience**

Improve Regional **Coordination**

Make Transit An **Affordable Option**

Explore New **Fare Technologies**

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.

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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.

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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.

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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

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Figure 2-3   Fare Discounts Available

	GoRALEIGH	GoCARY	GoTRIANGLE	GoDURHAM
Under Age 6	Free	Free	Free	Free
Under Age 12	Free	Free	Free	Free
Age 13 – 17, 13 – 18, or Students 13 and Up	Free	Free	Free	Free
Age 60 and Older or Age 65 and Older	Free	50%	58%	Free
Disabilities	50%	50%	58%	50%

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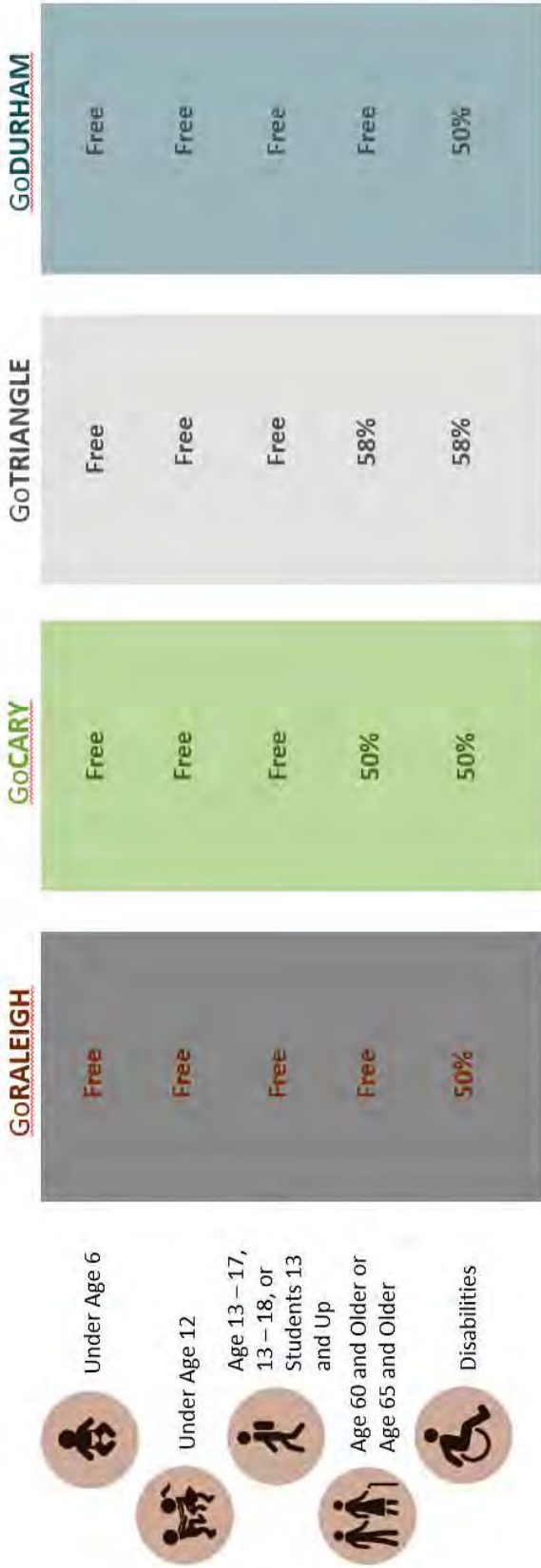
Transfers

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
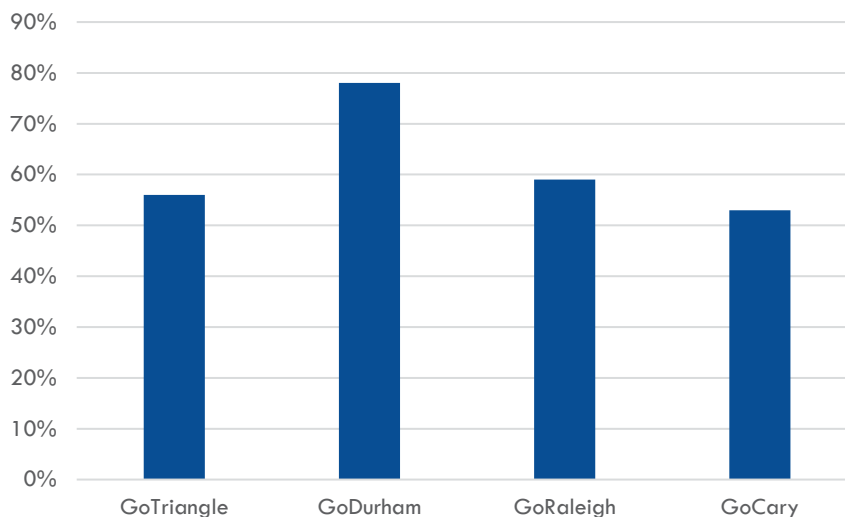
Fare Policies

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.

FARE INTEGRATION STUDY

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			✓		

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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)
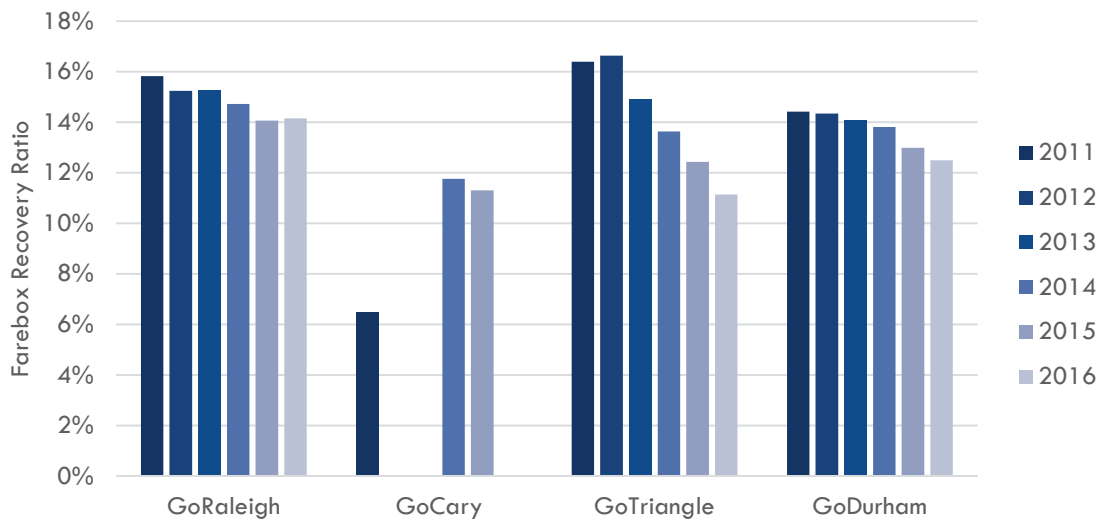
Operating Cost per Trip

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.

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

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FARE INTEGRATION STUDY

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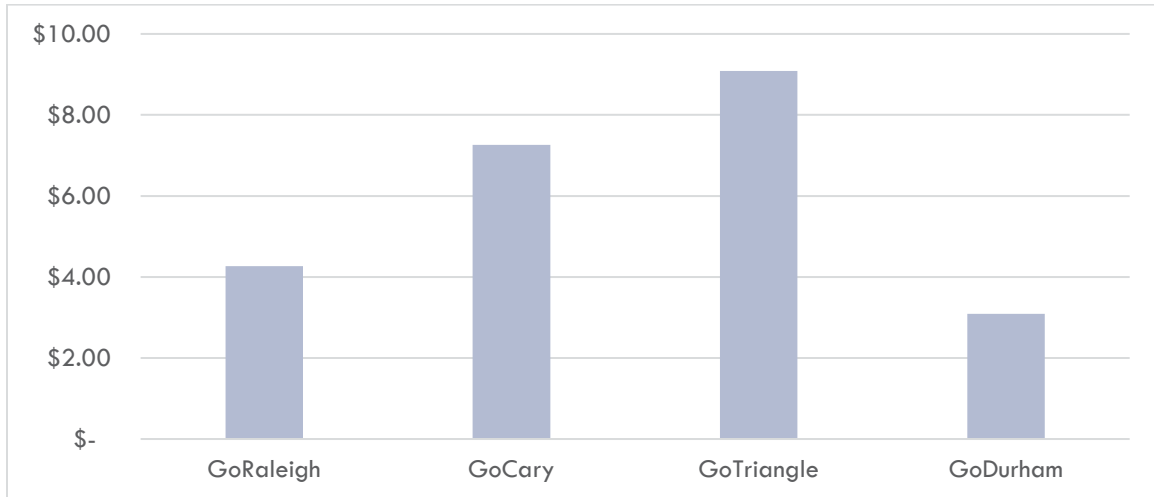
Fares Paid per Trip

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)

GO Cary GO Durham GO Raleigh GO Triangle
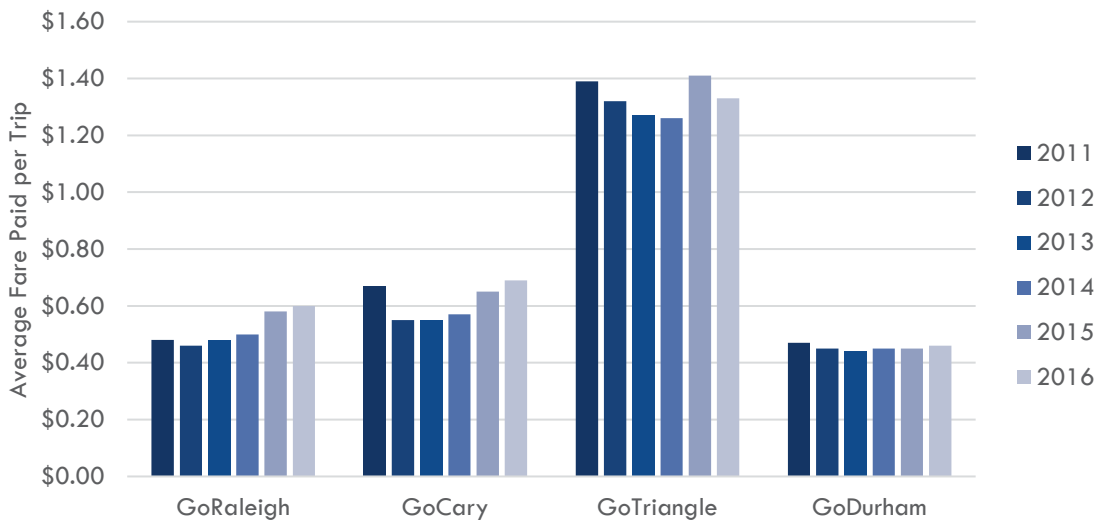
FARE INTEGRATION STUDY

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)
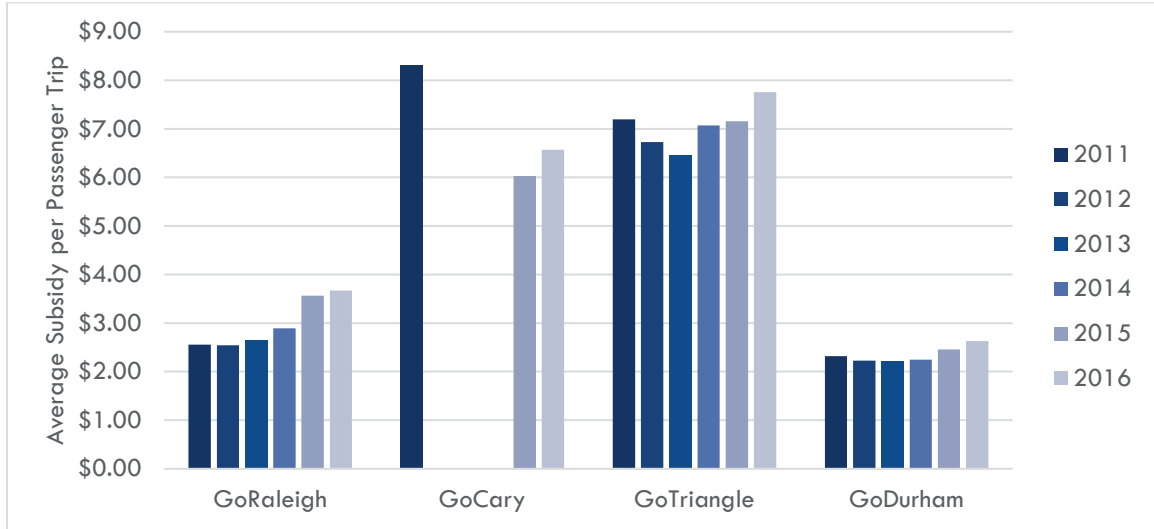
Fare Media

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.

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Figure 2-10   Fare Media Used by Agency

GoRaleigh

- Other 11%
- Cash 8%
- Free 15%
- College/Contracts 3%
- Pass 63%

GoCary

- Other 11%
- Cash 19%
- Pass 70%

GoTriangle

- Other 7%
- Transfer 2%
- Cash 14%
- Pass 77%

GoDurham

- Other 1%
- Cash 24%
- Pass 75%

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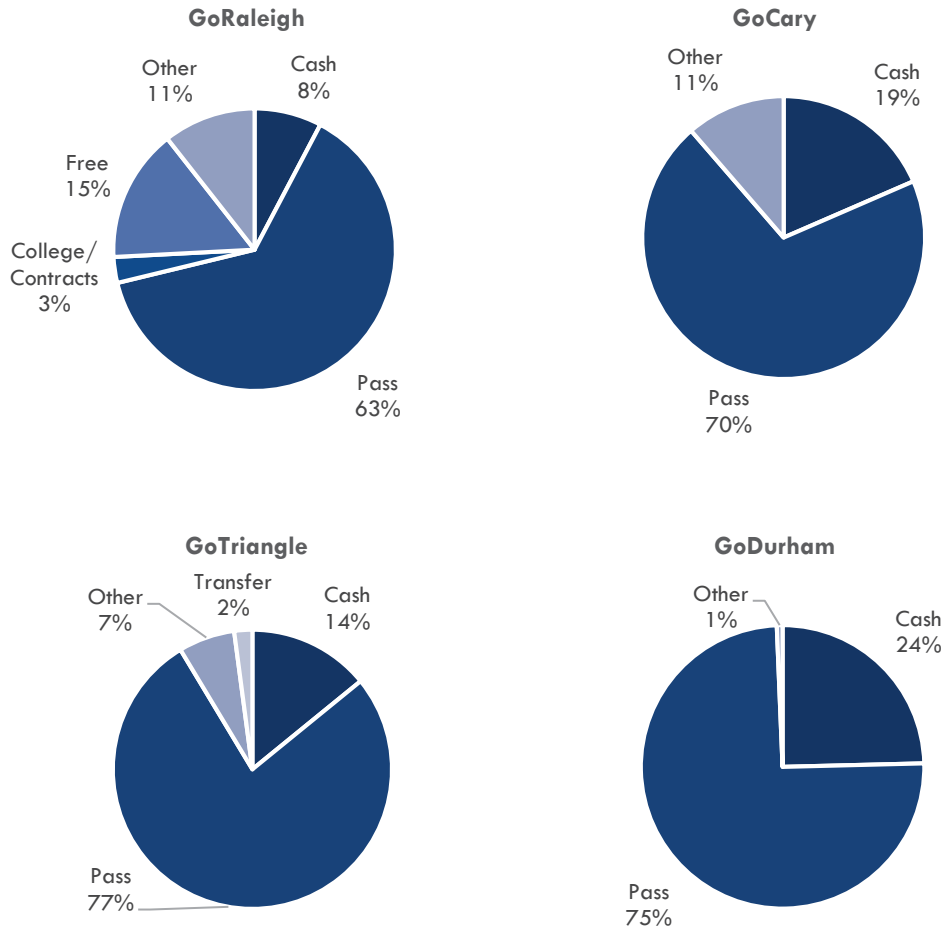
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Figure 2-11   Pass Type by Agency

GoDurham

GoPass 22%
Express 0%
Regional 5%
Local 73%

GoRaleigh

Regional 6%
Express 1%
GoPass 3%
Local 90%

GoCary

Express 0%
GoPass 6%
Regional 31%
Local 63%

GoTriangle

Regional 32%
Express 4%
GoPass 64%
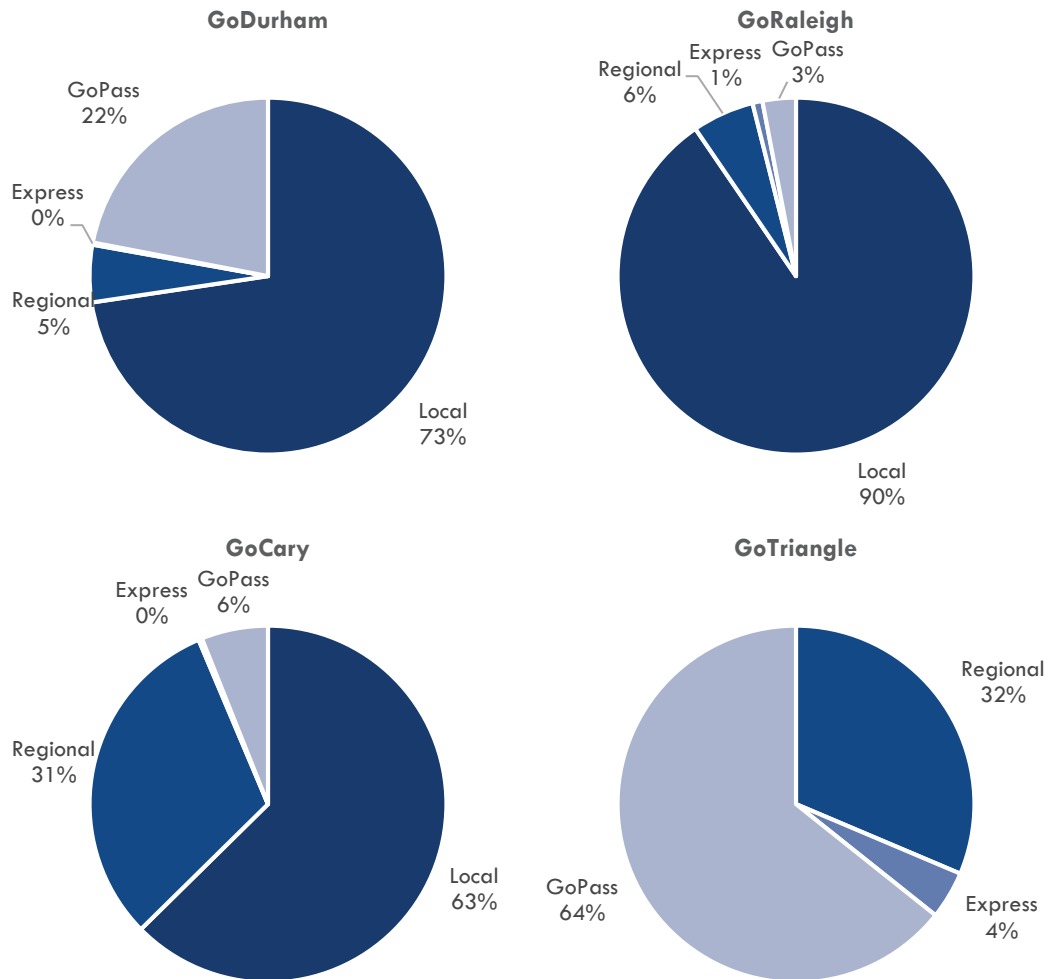
GOPASS PROGRAM

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.

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Figure 2-12   Annual GoPass Use by Agency
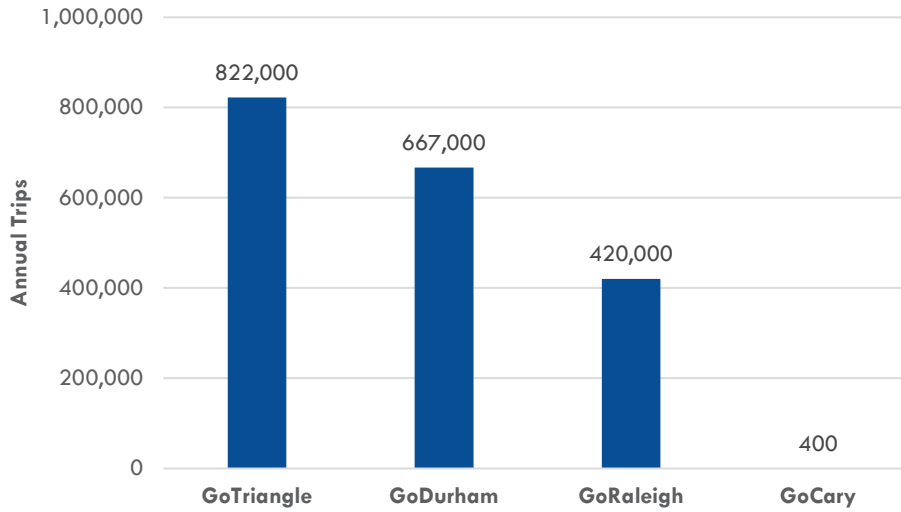
GoTriangle

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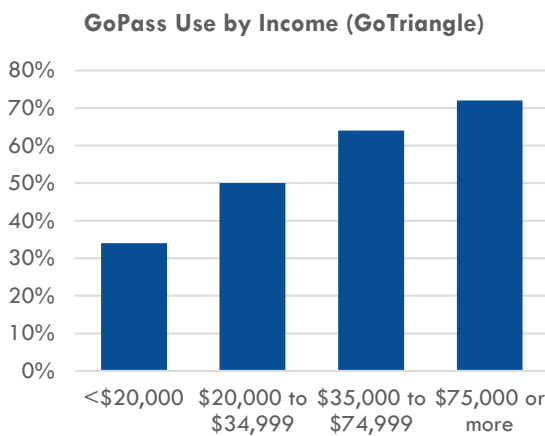
Universities	Express	Regional	% of Total
Duke University	72,000	106,000	22%
Durham Tech	1,800	25,000	3%
NC State	38,000	56,000	11%
NCCU	500	5,000	0.6%
UNC-Chapel Hill	56,000	335,000	48%
Total	168,000	527,000	85%

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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

GoPass Use by Income (GoDurham)

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%**
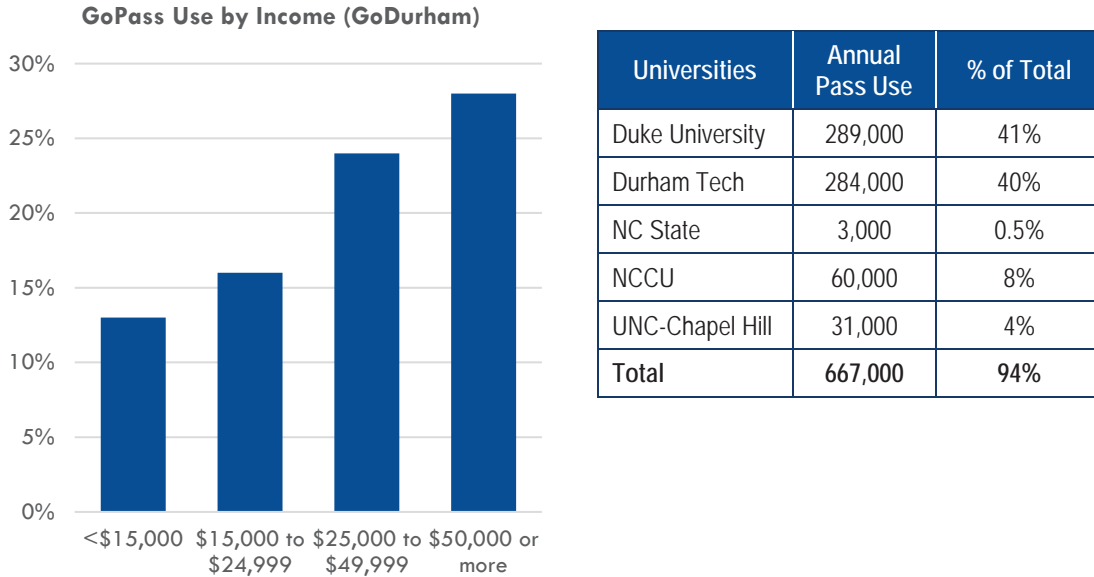
GoRaleigh

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.

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FARE INTEGRATION STUDY

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.

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FARE INTEGRATION STUDY

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)

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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.

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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.

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Figure 3-5   Peer Agency Discount Policies

	King County Metro	Valley Metro	MBTA	CATS	RTD	TriMet
Under Age 6	Free	Free	Free	Free	Free	Free
Under Age 12	45%	50%	Free	50%	50%	50%
Age 13 - 18	45%	50%	50%	50%	50%	50%
Age 65 and Older	64%	50%	50%	50%	50%	50%
Disabilities	64%	50%	50%	50%	50%	50%
Monthly Pass	50%	50%	36%	50%	50%	72%

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

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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)
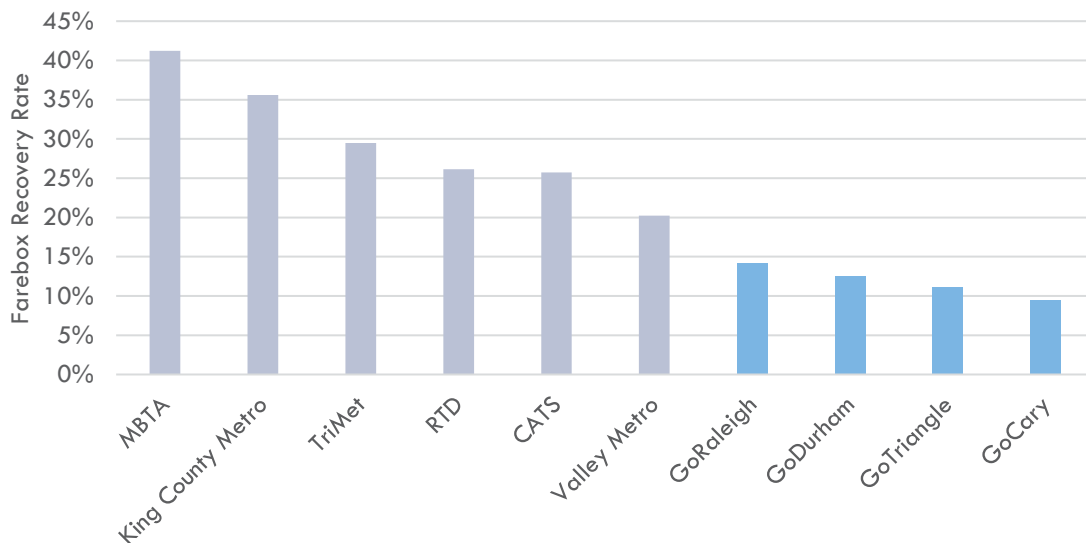
Source: NTD

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.

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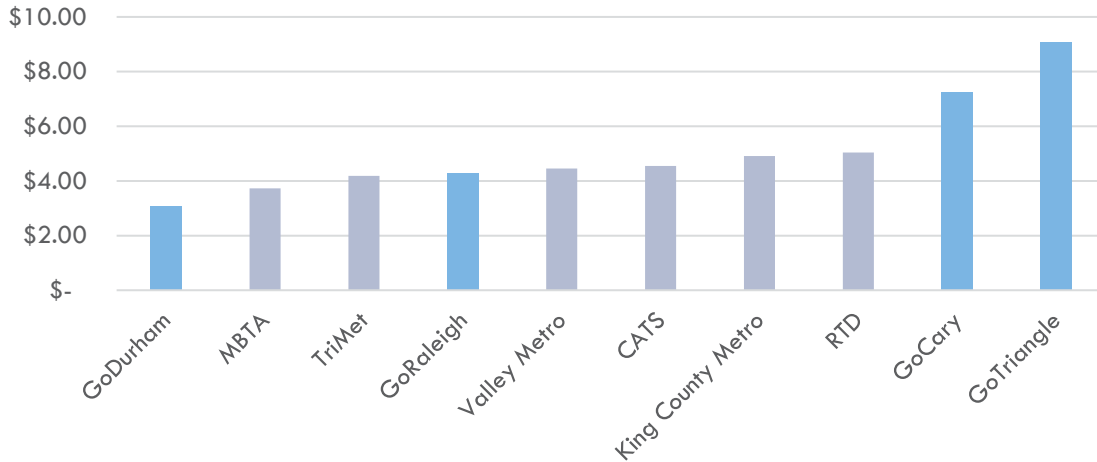
Source: NTD

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

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FARE INTEGRATION STUDY
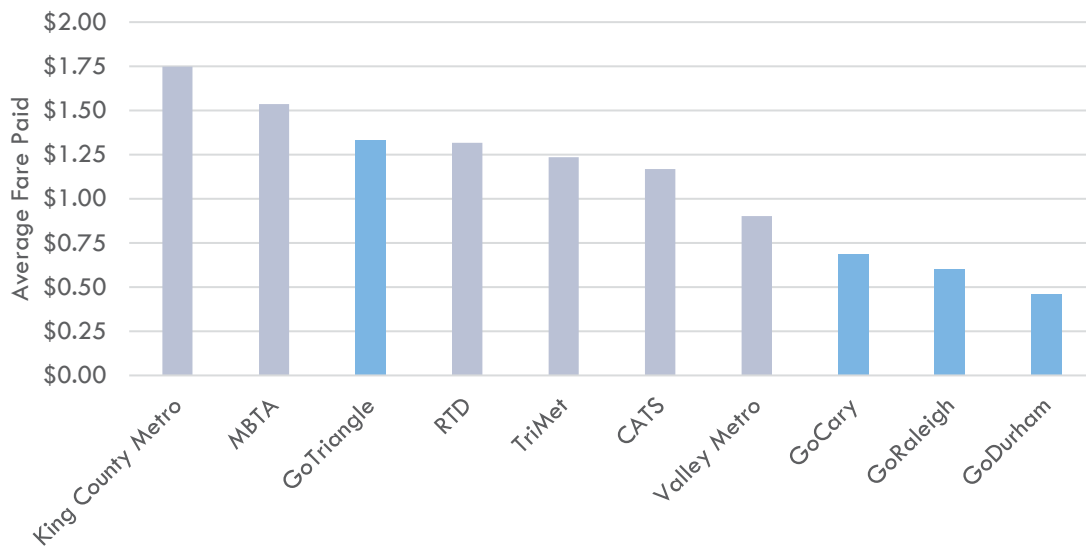
Average Subsidy per Passenger

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)
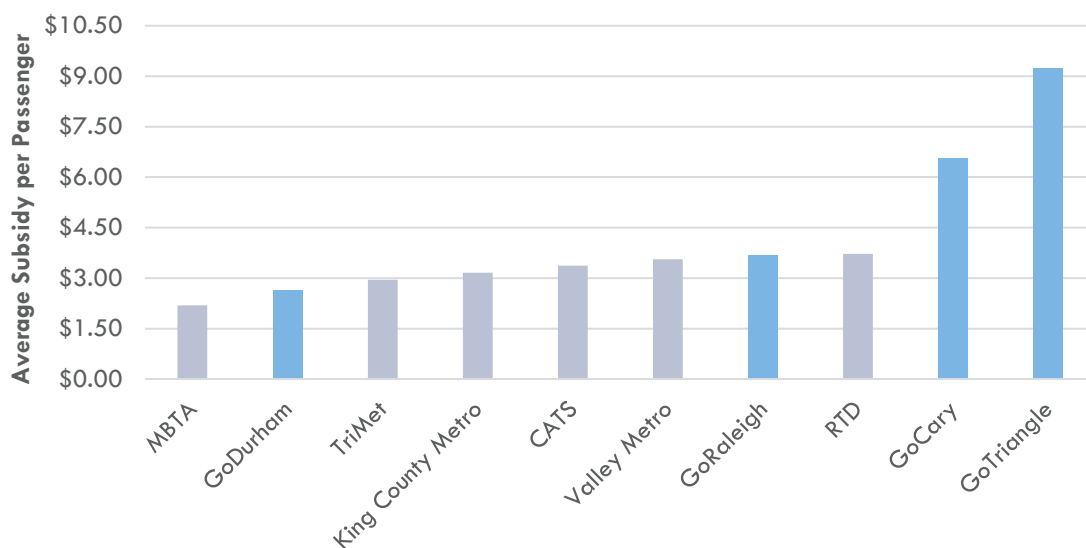
Source: NTD

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.

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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.

Regional Reduced Fare Permit
for Senior and Disabled Persons
Medical Eligibility Criteria and Conditions

Available In Accessible Format   May 2016

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

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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

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- 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

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

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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

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

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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

Chapel Hill Transit Fixed-Route Ridership 1993-2015
Before/After Fare-Free Implementation

GO ▸ Cary GO ▸ Durham GO ▸ Raleigh GO ▸ Triangle
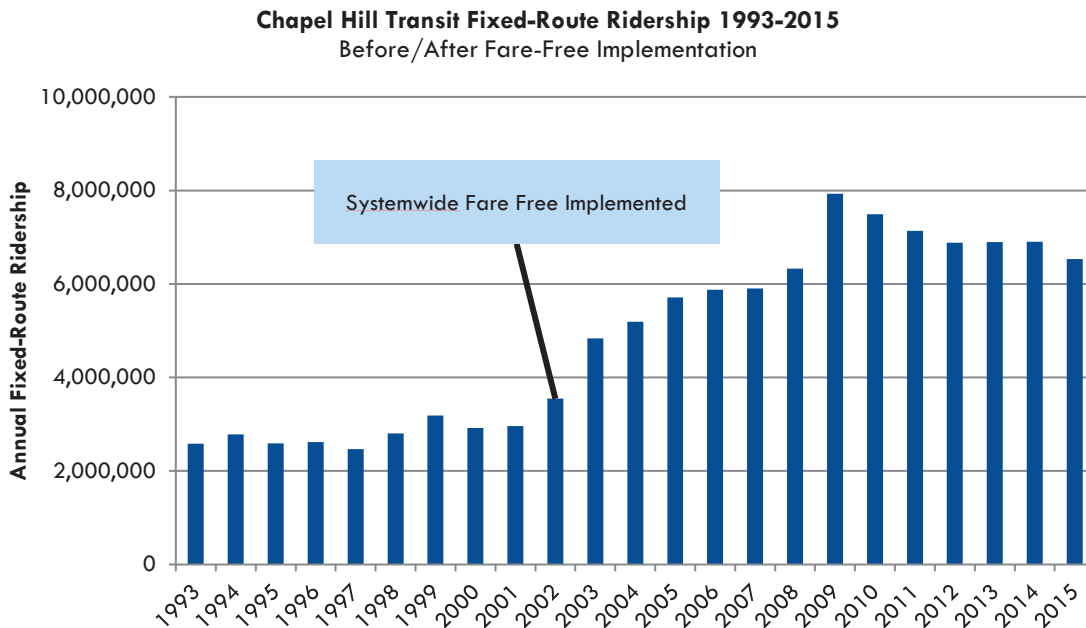
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Figure 3-13   Chapel Hill Transit Demand Response Ridership Trends
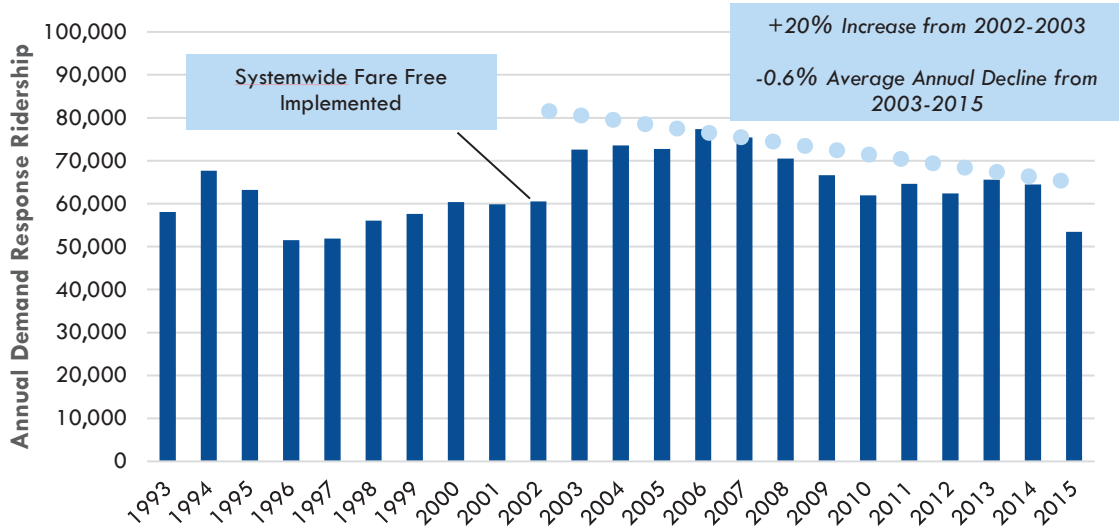
Figure 3-14   Chapel Hill Transit Revenue Hours Trends
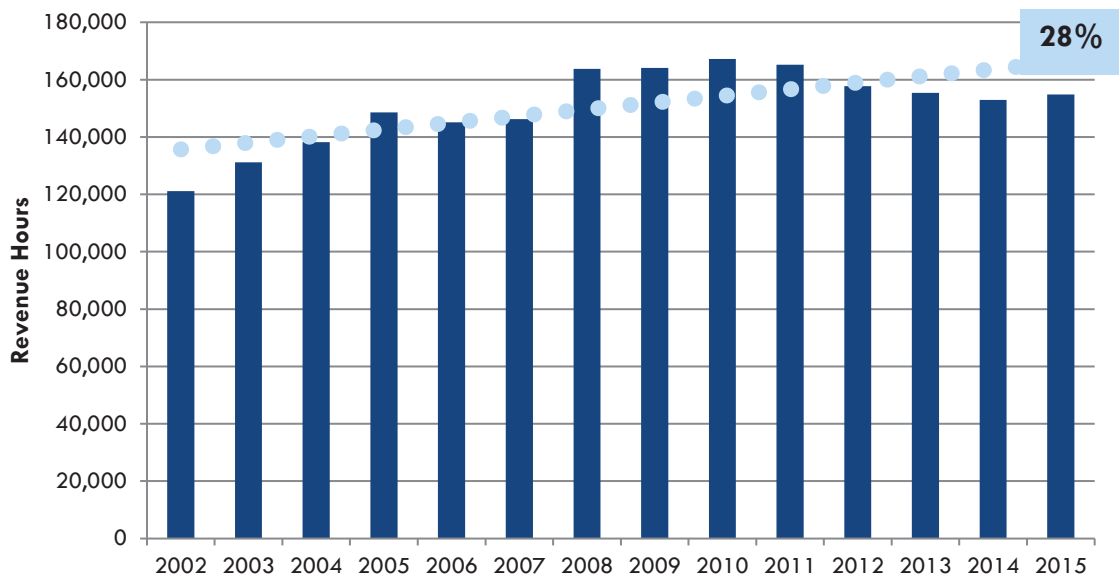
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Figure 3-15   Chapel Hill Transit Cost per Revenue Hour Trends

Operator Salary/Wages: **53%**
Fringe Benefits: **104%**
Fuel/Lube: **382%**
Casualty/Liability Costs: **86%**

76%
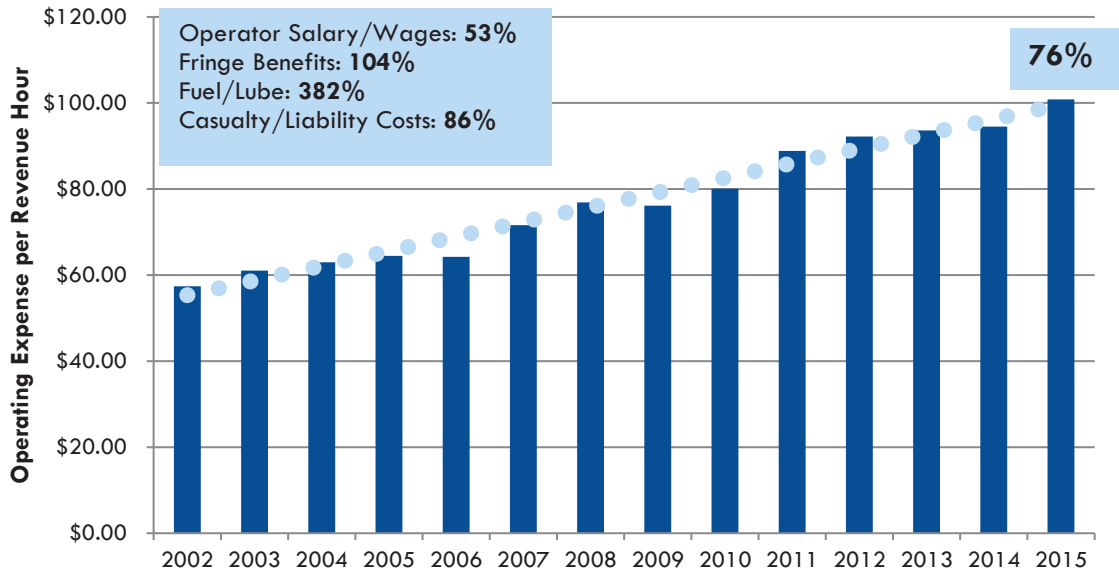
Funding Trends

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

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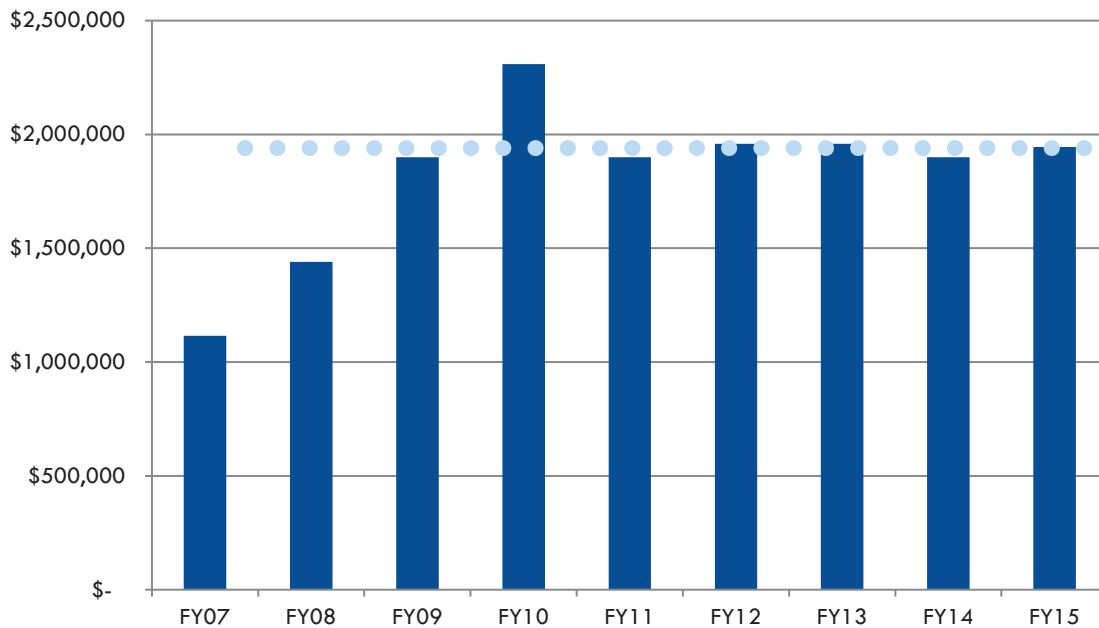
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Figure 3-17   Chapel Hill Transit State Funding Trends
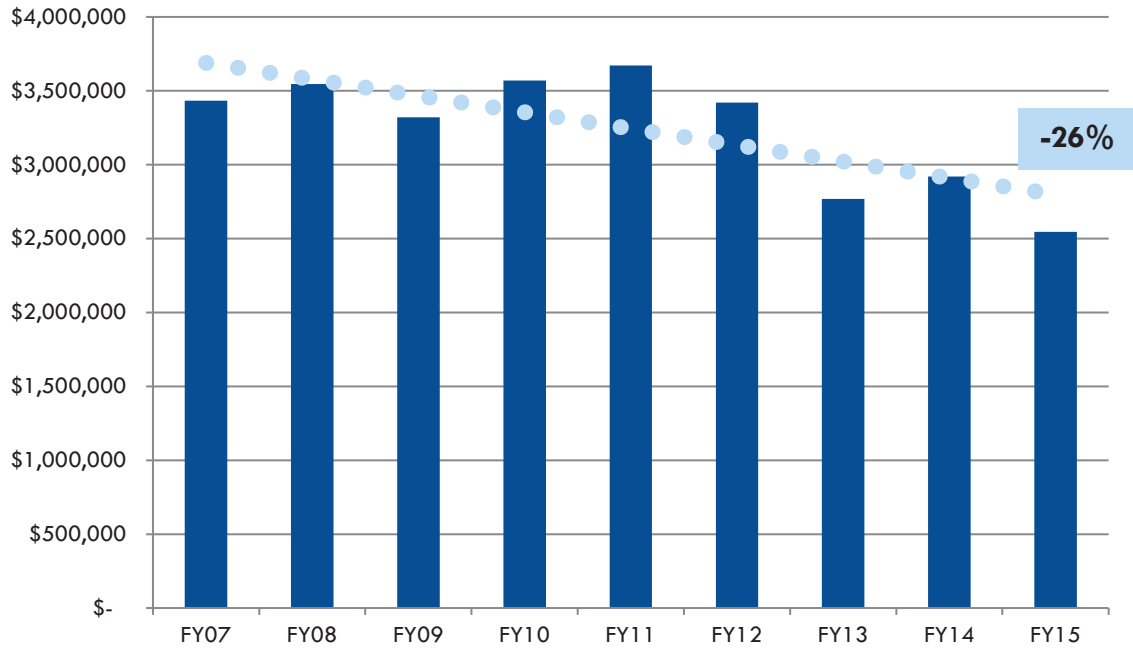
Figure 3-18   Chapel Hill Transit Partner Funding Trends

GO▸ Cary GO▸ Durham GO▸ Raleigh GO▸ Triangle

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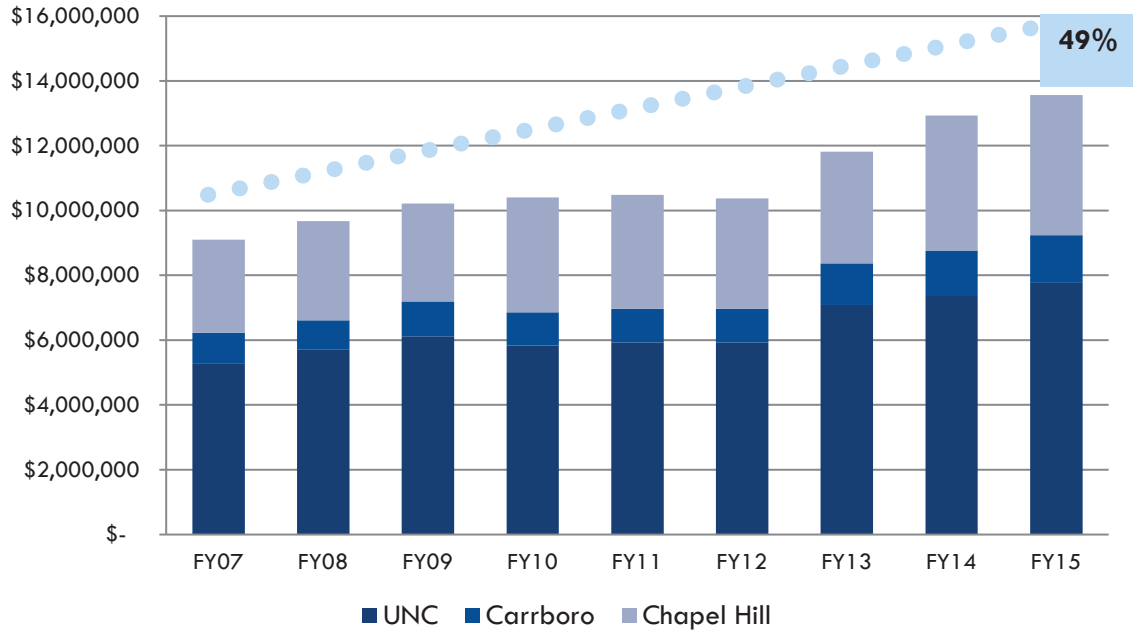
Fare Free Best Practices and Lessons Learned

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*.

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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%.

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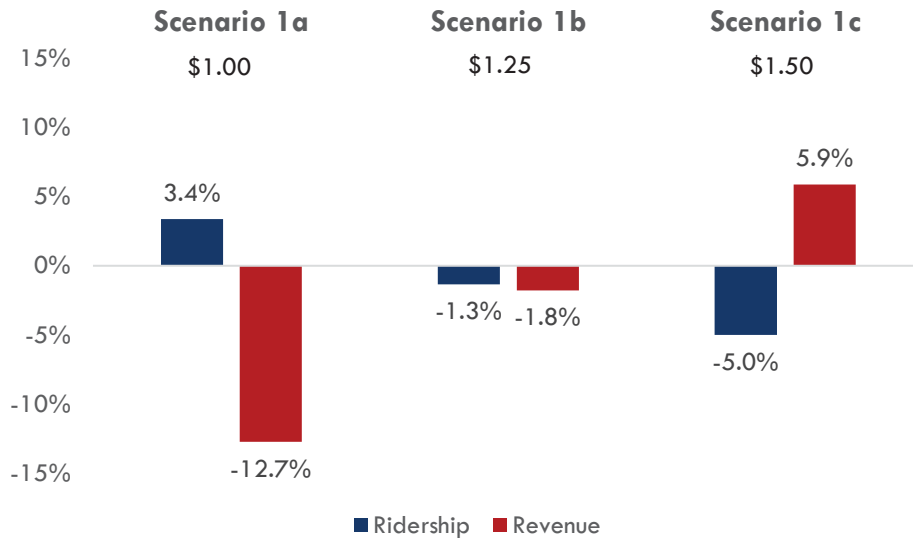
Figure 4-2   Region-Wide Flat Fare - $1.25 Ridership and Revenue Impacts for Agencies

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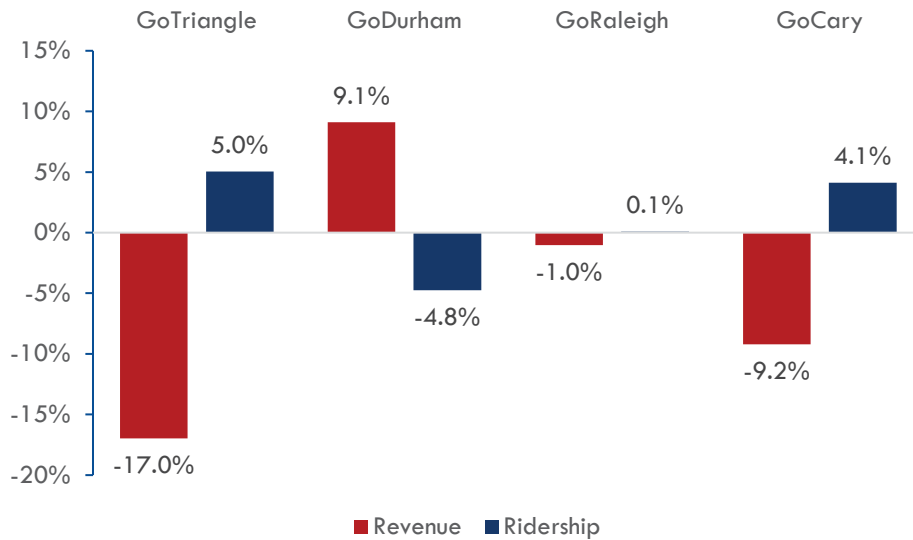
FARE INTEGRATION STUDY

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

GO〉 Cary GO〉 Durham GO〉 Raleigh GO〉 Triangle
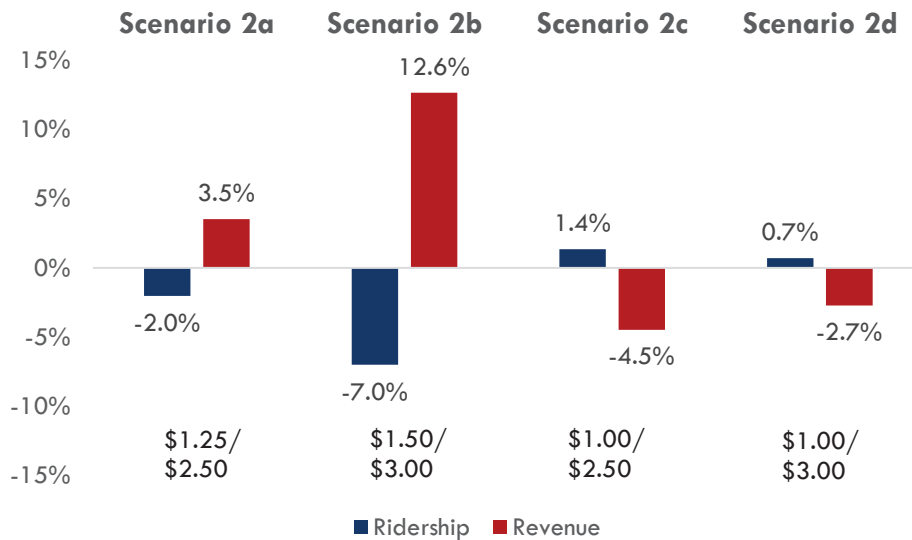
FARE INTEGRATION STUDY

Figure 4-4   Region-Wide Tiered Fare $1.25/$2.50 Ridership and Revenue Impacts for Agencies
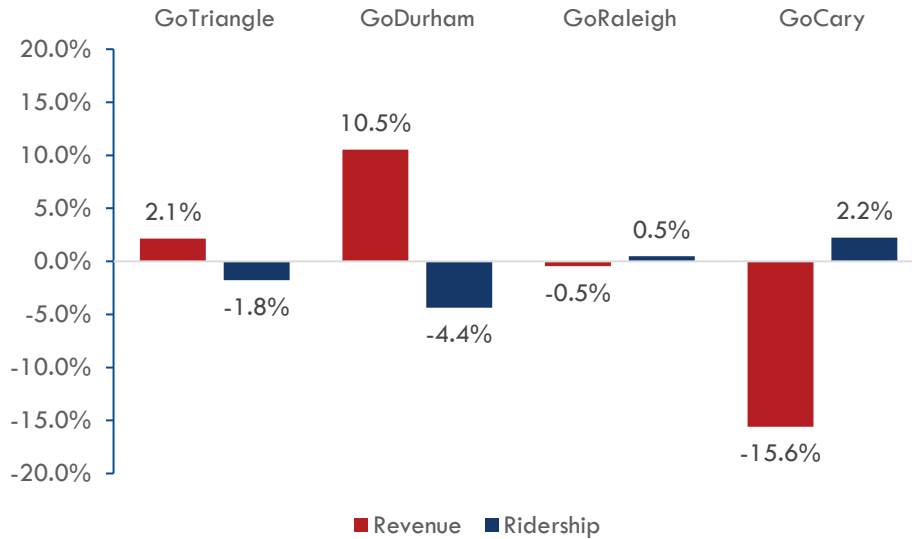
Scenario 3: Optimize Fares to Increase Ridership

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.

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Figure 4-5   Optimized to Increase Ridership, Revenue and Ridership Impacts for Agencies
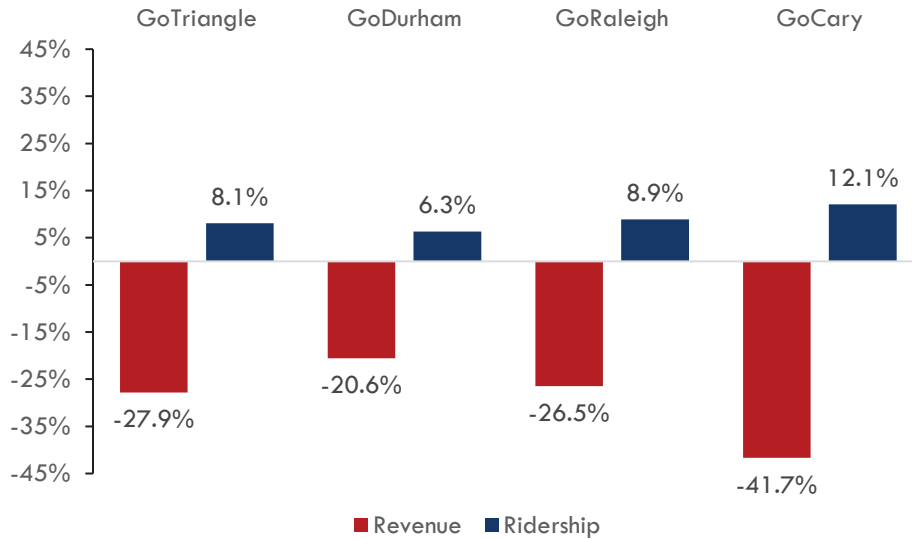
Scenario 4: Maximize Farebox Recovery

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.

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Figure 4-6   Maximized Farebox Recovery Ridership and Revenue Impacts for Agencies
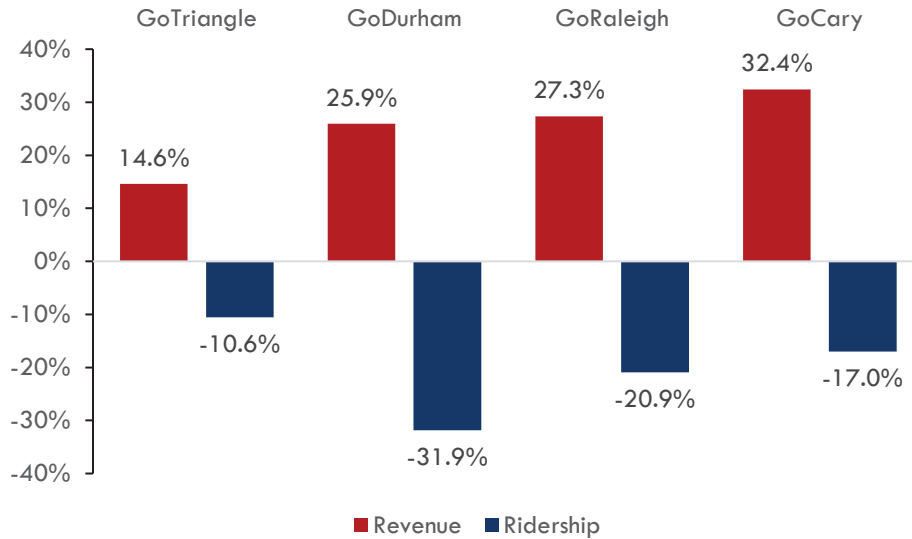
Scenario 5: Align Regional Discount Fare Policies

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.

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Figure 4-7   Align Regional Discount Policies Ridership and Revenue Impacts
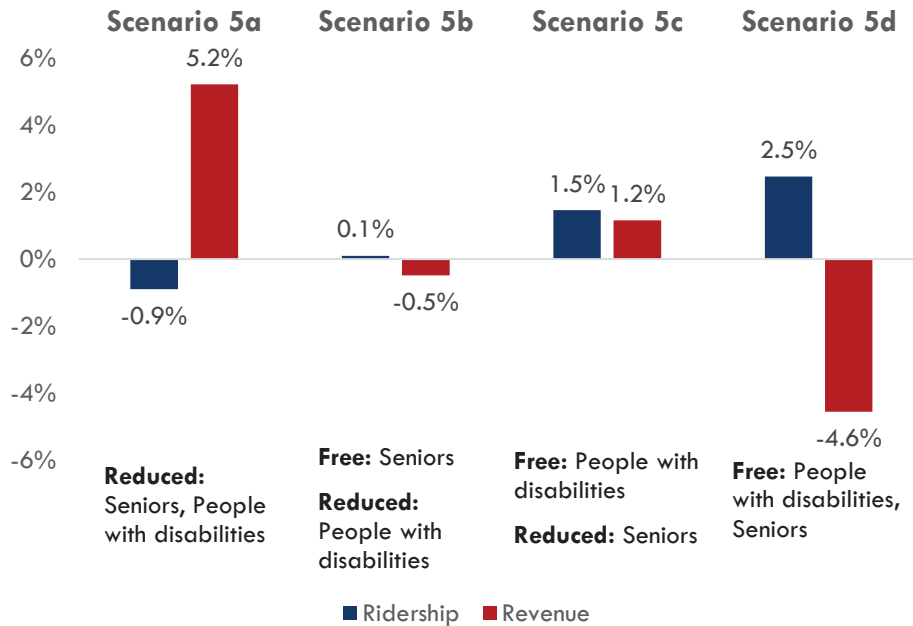
There is no change to ridership or revenue for GoTriangle in Scenario 5a, but there are significant revenue increases and small ridership decreases for the other agencies. GoDurham and GoRaleigh currently offer free service to seniors over aged 65, so instituting a fare on this discount category accounts 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

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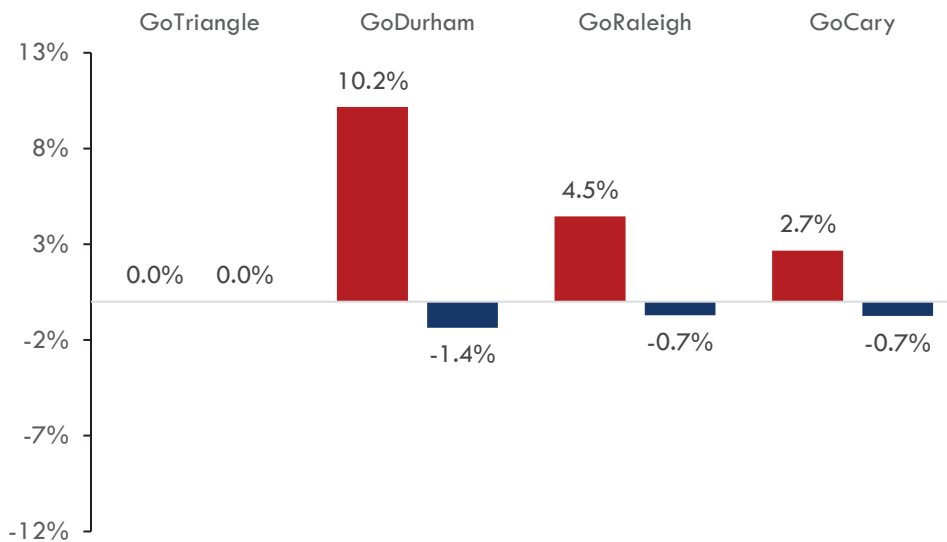
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Providing free service to seniors and discounted service to people with disabilities results in no ridership or revenue changes for GoDurham or GoRaleigh (Figure 4-9). Providing free service for seniors results in a small increase in ridership for 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
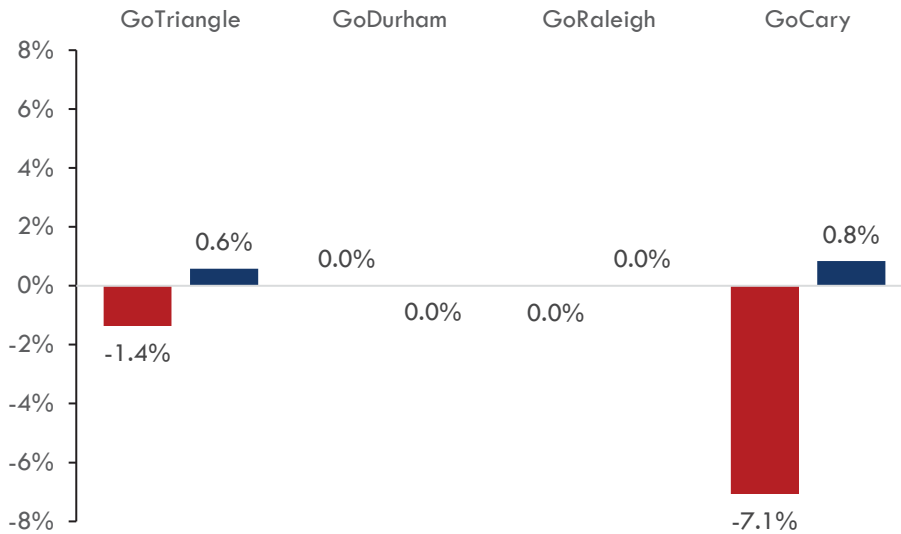
Providing free service for people with disabilities but charging a discounted fare for seniors results in a small overall increase in ridership and revenue—1.5% and 1.2%, respectively (Figure 4-10). At the agency level, ridership would increase for all four agencies; however, revenue impacts would be 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

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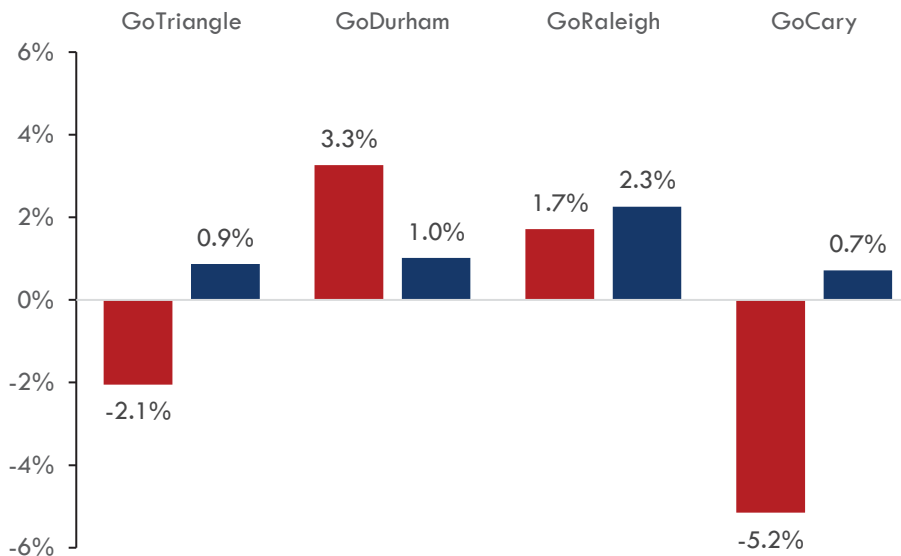
FARE INTEGRATION STUDY

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

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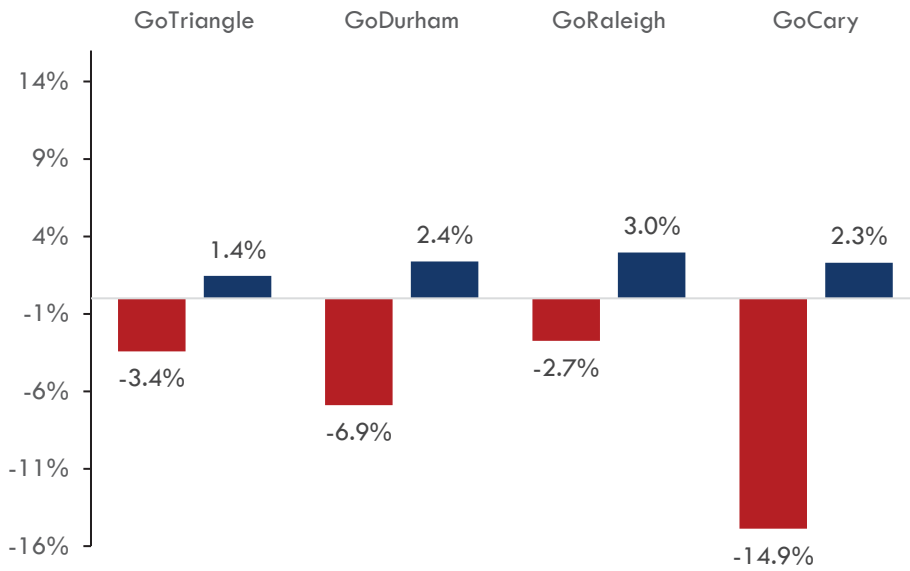
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Scenario 6: Offer Fare Capping

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

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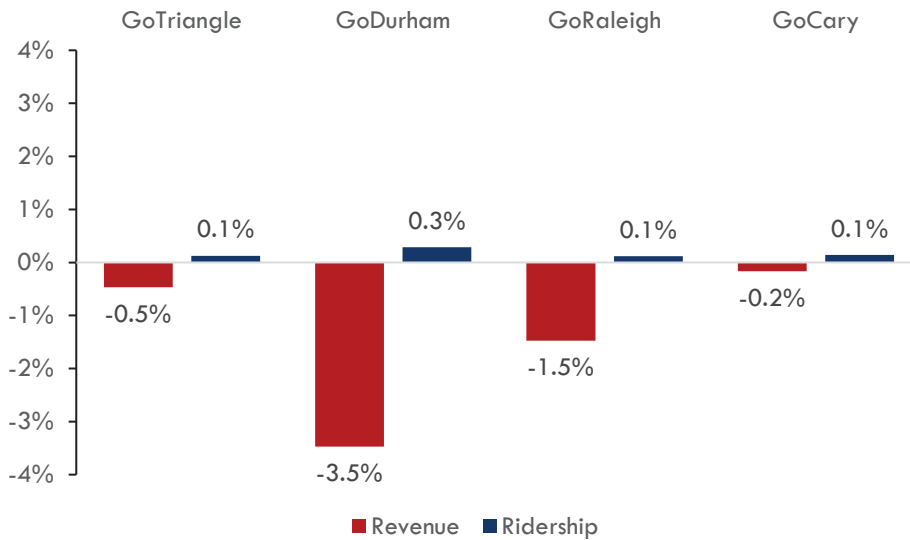
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Scenario 7: Offer a Low-Income Fare Category

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

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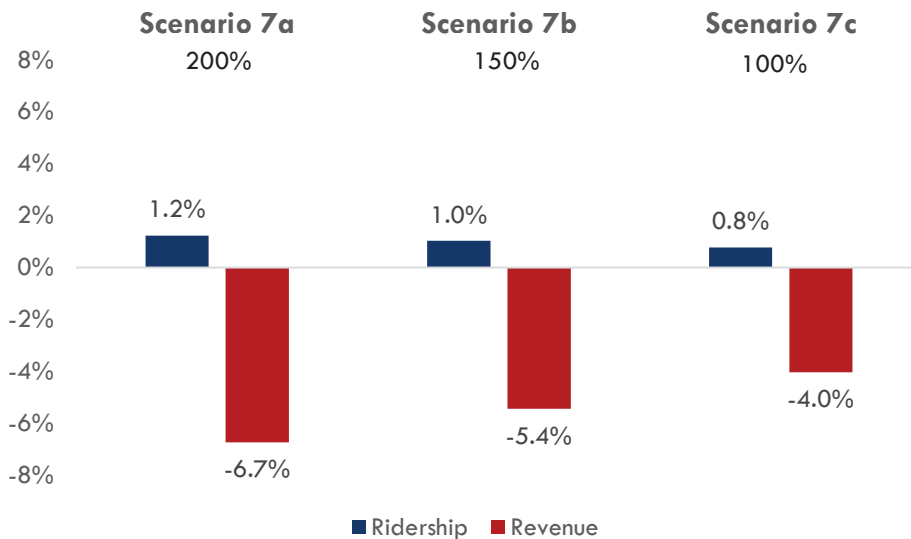
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Figure 4-14   Low-Income Fare Category at 200% of the Federal Poverty Line Impacts

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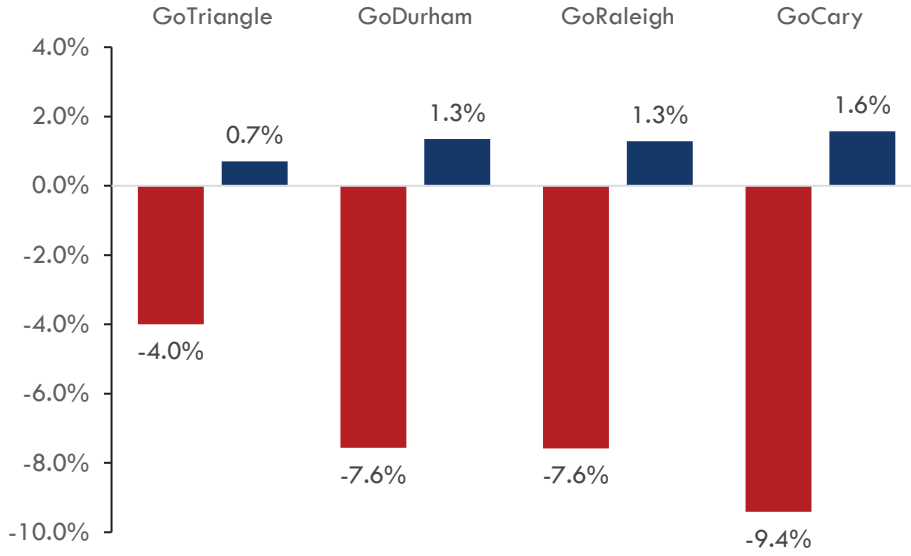
FARE INTEGRATION STUDY

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

GO Cary GO Durham GO Raleigh GO Triangle
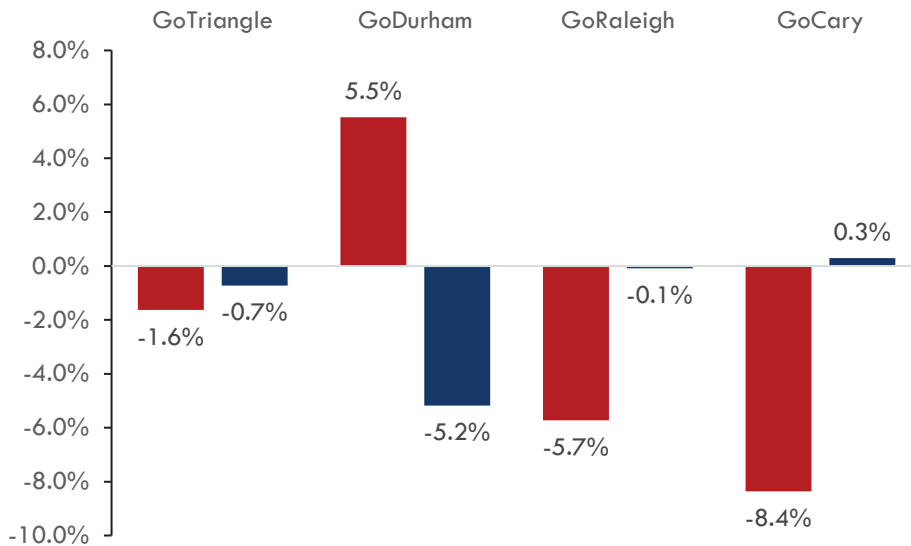
FARE INTEGRATION STUDY

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.

GO Cary GO Durham GO Raleigh GO Triangle

FARE INTEGRATION STUDY

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
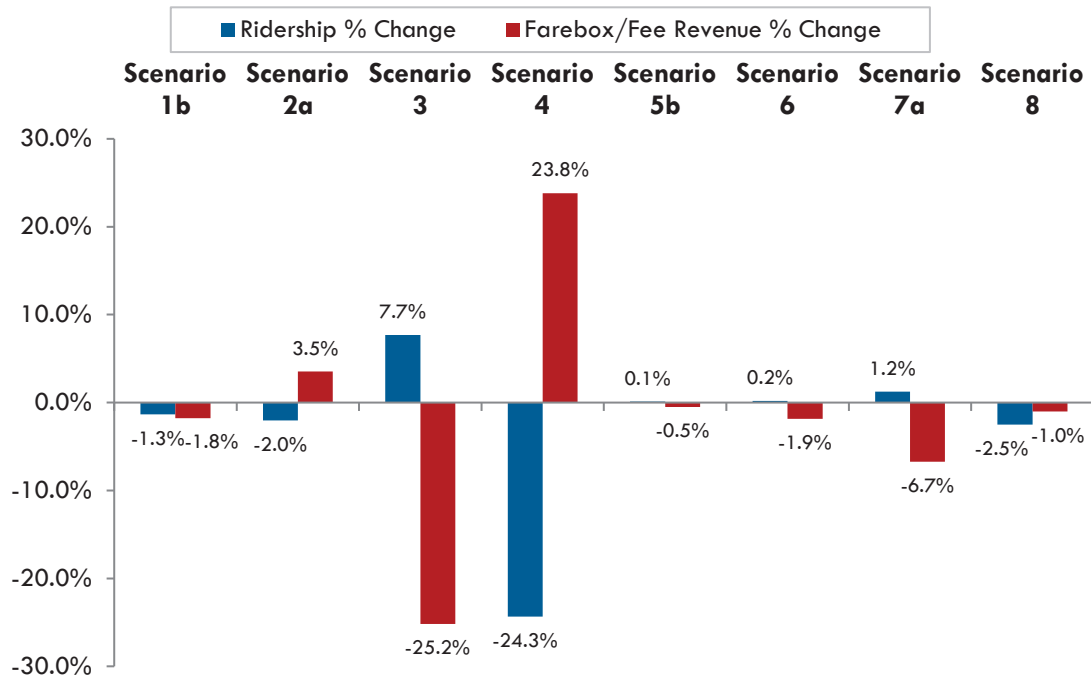
5 Recommendations

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.

GO❯ Cary GO❯ Durham GO❯ Raleigh GO❯ Triangle

FARE INTEGRATION STUDY

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%).

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

FARE INTEGRATION STUDY

Figure 5-2   Total Ridership and Revenue Impacts of Recommended Fare Structure
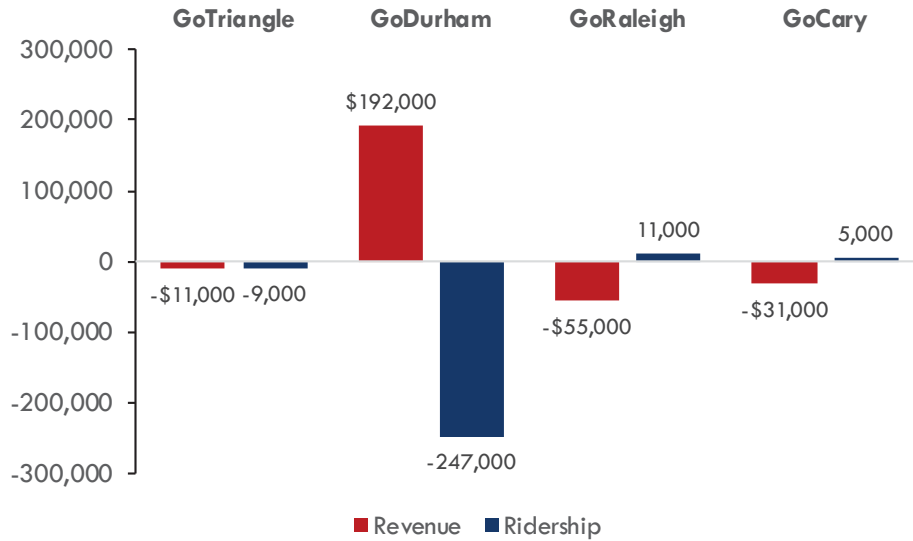
Figure 5-3   Percent Ridership and Revenue Impacts of Recommended Fare Structure

GO Cary GO Durham GO Raleigh GO Triangle
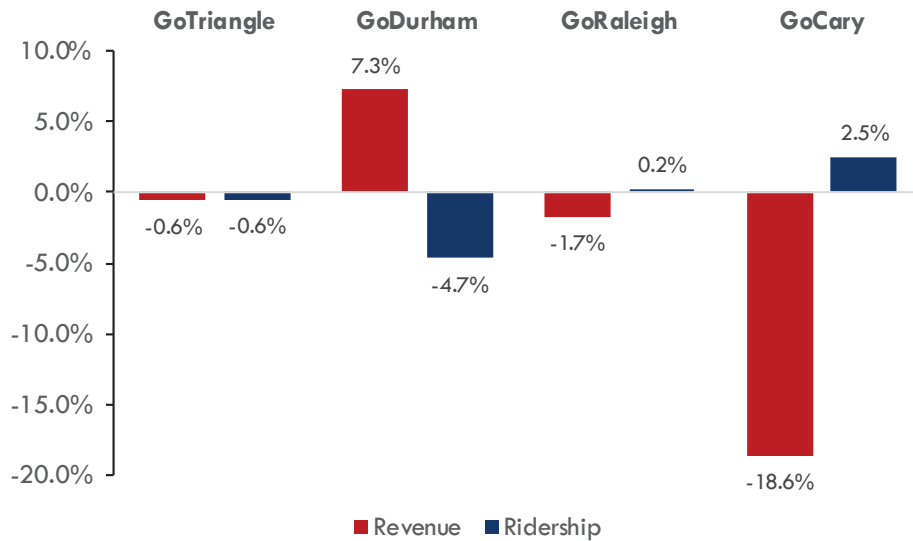
FARE INTEGRATION STUDY

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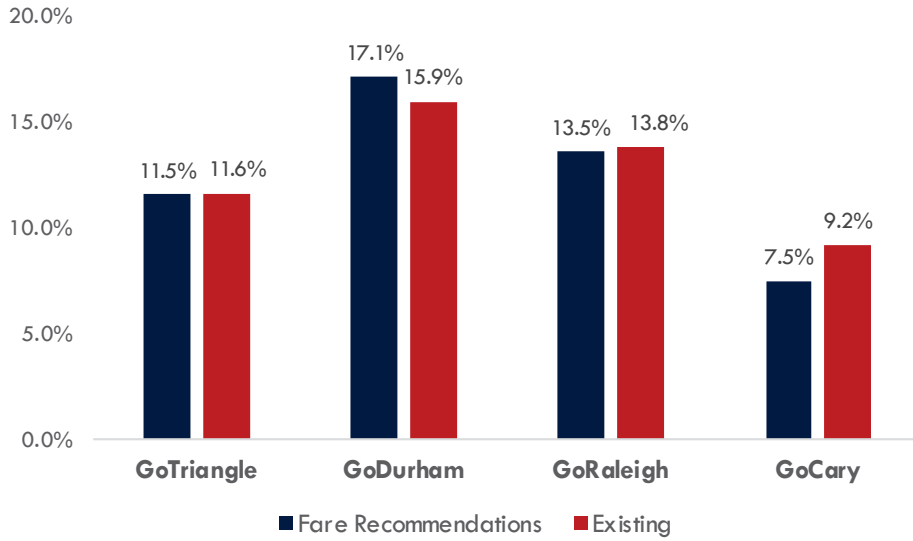
POLICY RECOMMENDATIONS

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.

GO Cary GO Durham GO Raleigh GO Triangle

FARE INTEGRATION STUDY

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.

- A cross-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

Fare Change Proposal

April 11, 2019

Report completed by Mary Kate Morookian, Jennifer Green and Matthew Frazier

Background

A Regional Fare Study was conducted as part of the Wake Bus Plan to identify opportunities for more consistent fare purchase and collection procedures, standardization of fare policies and improved technology for the partner agencies (GoTriangle, GoRaleigh, GoCary and GoDurham). As part of the study, a fare proposal was developed and will be proposed for adoption/approval by GoTriangle, GoRaleigh, and GoCary.

The following analysis discusses the following questions:

1. What is the fare proposal and how does it differ from today?
2. Why a fare change?
3. Who is affected by the fare proposal?
4. Will the fare proposal affect GoTriangle's ridership and revenue?
5. How has the public been made aware of the fare proposal and what has the response been?

1. What is the fare proposal and how does it differ from today?

Fare Pricing Structure Changes

With the approval of the recommended fare proposal, GoRaleigh and GoCary local one-way base fares would be $1.25, and GoTriangle regional/express services would be $2.50.

Current GoTriangle Fare Structure			Proposed GoTriangle Fare Structure	
Fares	**Regional**	**Express**	**Fares**	**Regional**
Single Ride	$2.25	$3.00	Single Ride	$2.50
Day Pass	$4.50	$6.00	Day Pass	$5.00
7-Day	$16.50	$22.00	7-Day	$24.00
31-Day	$76.50	$102.00	31-Day	$80.00
Discount Single Ride	$1.00	$1.25	Discount Single Ride	$1.25
Discount Day Pass	$2.00	$2.50	Discount Day Pass	$2.50
Discount 7-Day	$7.50	$9.25	Discount 7-Day	$12.00
Discount 31-Day	$34.00	$42.50	Discount 31-Day	$40.00

Fare Policy Changes

Seniors 65 and older will ride GoTriangle services free; currently, GoTriangle offers a 50% discount to seniors with ID.

Technology Upgrades and Fare Capping

Mobile ticketing, proposed for January 2020 implementation, eliminates the need for customers to purchase paper tickets, increases the availability of fare products and often speeds up the boarding process. This level of technology also allows transit agencies to track an individual customer's purchases so that customers who buy single-day passes never spend more in a week or month than those who buy seven-day or 31-day passes.

The practice of fare capping is particularly beneficial for those who may not be able to buy more than a one-day pass at a time, keeping them from paying more than the cost of the longer pass over the course of a week or month.

2. Why a fare change?

Regional Coordination and Simplification

The Wake Bus Plan development process considered transit service improvement proposals on a regional scale. GoRaleigh, GoCary and GoTriangle are making improvements to their individual systems/routes, but those proposed improvements are based on the goal of using all systems together to create efficient, convenient and attractive travel across the region. Intuitive and consistent transit network design, fare structure and policies are important. The goals of the fare recommendation are:

1. Improve regional coordination
2. Balance revenue and ridership goals
3. Improve the passenger experience
4. Improve pass distribution
5. Make transit an affordable option
6. Explore new fare technologies

The final fare pricing recommendation is to have a local base fare of $1.25 and a regional/express fare of $2.50, which is easy for agency staff to communicate and for passengers to understand.

Issues with Current Pricing Structure

GoTriangle currently charges $16.50 for a 7-Day Regional Pass. This pricing strategy does not provide a benefit to buying a 31-day pass. For passengers using transit 5-7 days a week, it costs significantly less to buy four 7-day passes over a month for $66 than to buy one 31-day pass for $76.50. This pricing structure is confusing to customers based on their answers to GoTriangle's most recent Customer Satisfaction Survey. The data show 43% of 31-day pass holders report a household income of less than $35,000, which means price-sensitive passengers are buying a higher-priced pass because they assume it is a better deal.

Agencies typically set a base one-way fare price and then apply ride multipliers to determine the cost of multi-ride passes. These multipliers determine the number of one-way trips a customer must make in order to break even on the cost of the multi-ride pass. Based on peer agencies included in the Regional Fare Study, the agency standard for a 7-day pass multiplier ranges from 9.6 to 12 rides—GoTriangle applies a multiplier of 7.3.

According to the 2016 Customer Satisfaction Survey, 86% of GoTriangle 7-day pass customers are riding between 5-7 days a week, indicating they are making a total of 10-14 one-way trips. The final fare recommendation includes a multiplier of 9.6 for the 7-day pass.

2

Improving the Customer Experience

The fare recommendation also includes technology upgrades to include mobile ticketing as soon as January 2020 and possibly smart cards (or another form of contactless payment) in the future, as well as policy changes that include free boardings for seniors aged 65 and older and fare capping. These changes address the goals of exploring new technologies, improving the customer experience, improving pass distribution and making transit an affordable option.

Increasing the number of free rides, introducing fare capping, and reducing the cost of the express pass, together, would result in a loss of fare box revenue. However, increasing the base regional fare while increasing the cost of the currently underpriced 7-day pass would help minimize revenue loss.

3. Who is affected by the fare proposal

In the recommended fare proposal, there is no longer a price distinction between GoTriangle's Regional and Express services. This results in a $0.50 decrease in the one-way express fare — making express routes more accessible to price-sensitive passengers — and an increase of $0.25 in the one-way regional fare. The biggest increases can be seen in the cost of the regional 7-day and 31-day passes —from $16.50 to $24 and from $76.50 to $80.

Below is a breakdown of total pass usage by type. The majority of passes used on GoTriangle buses are GoPasses at 46.2%, followed by the one-way trip pass at 20.1% and the day pass at 12.6%.

Total GoTriangle pass usage by type

Pass Type	Percent
Cash for one-way trip	20%
Day pass	13%
7-day pass	5%
31-day pass	5%
Stored value card	5%
GoPass	46%
Other	4%
Invalid	2%

Fare capping would help mitigate effects of the proposed fare increase for passengers frequently purchasing short-term passes and who, by the end of the week or month, are spending more than the cost of a 7-day or 31-day pass.

Income levels of passengers purchasing different pass types

Fare Type	Cash	1-day	7-day	31-day	SVC	GoPass	Other	All Types
Less than $20k	36.9%	41.0%	37.9%	23.3%	14.1%	14.7%	22.7%	24.3%
$20k to $35k	24.7%	32.8%	30.4%	19.8%	14.2%	21.2%	18.5%	23.3%
$35k to $75k	23.9%	16.2%	24.8%	29.7%	33.2%	31.3%	23.0%	27.3%
$75k or more	14.4%	10.0%	6.9%	27.2%	38.5%	32.8%	35.8%	25.1%

Of day-pass and one-way pass holders with an income of less than $35,000, 46% report using GoTriangle services at least five days a week—which means those people are overpaying for transit service by the end of the week or month. This number does not include the passengers currently purchasing 31-day passes when they could be purchasing four 7-day passes at a lower rate.

The chart below details the effects of the fare recommendation on current passengers making less than $35,000 annually:

Passengers making less than $35,000
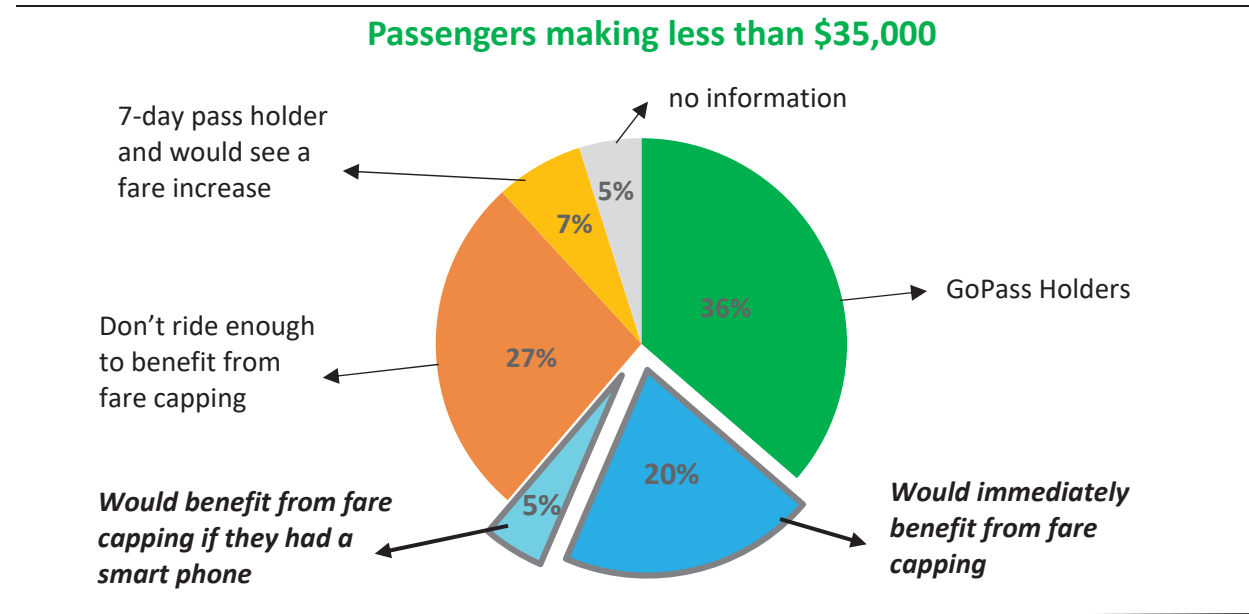
When considering how to mitigate the effects of a fare increase on low income passengers, 36% of GoTriangle's low income customers are GoPass holders, therefore not price sensitive, and not effected by a fare increase. For price sensitive low income customers, fare capping provides a mitigation for 25% of (20% without an alternative to the smart phone), totaling 51% of low income passengers unaffected by the proposed fare increase of the regional pass. Another 11% of low income passengers who currently purchase an express pass, will see a reduction in fares.

7% of low income passengers would not see a savings with the implementation of fare capping because of the current underpricing of the 7-day pass, and 27% of GoTriangle passengers do not ride frequently enough to realize savings through fare capping.

4. Will the fare proposal affect GoTriangle's ridership and revenue?

In transit, the commonly-accepted standard measurement of sensitivity to fare changes is that for every 10% increase in fares, ridership will decrease by 3% (and vice-versa)[1]. If only basing an analysis on the proposed increased in regional pass price, the correction of the underpriced 7-day pass, reduction in the price of the express pass, and the loss in revenue due to the implementation of fare capping, projected impacts to GoTriangle's rates of ridership and revenue are relatively small — with ridership and revenue both decreasing by an estimated 0.6%.

[1] Litman, T. (2018, Nov 28). *Transit Price Elasticities and Cross-Elasticities .* Retrieved from Victoria Transport Policy Institute: https://www.vtpi.org/tranelas.pdf

These ridership/revenue projections do not include any estimates for the effects of mobile ticketing. Mobile ticketing is a relatively new technology and there is not yet a wealth of data to support correlations between the implementation of mobile ticketing and increases in ridership. However, staff is not concerned with the estimates in revenue and ridership losses provided by the consultant during the fare study. With the proposed equity improvements, simplification of the regional fare structure, increased accessibility of express fares, and making fare payment easier and more convenient—transit becomes a more affordable and attractive option.

Aside from ridership/fare revenue increases, mobile ticketing can help agencies realize savings and benefits through reduced farebox maintenance costs and faster boarding times. Since implementing mobile ticketing in 2012, MBTA in Boston sales has seen a shift in pass sales. Sales via the mobile app now account for more than 1/3rd of all tickets sold.[2]

5. How has the public been made aware of the fare proposal and what has the response been?

In a collaborative effort between GoTriangle's planning, marketing and public engagement teams, the proposed 2019 service and fare changes were advertised broadly to current customers and stakeholders. In-person outreach included formal presentations, pop-up events, on-the-bus engagement, and "Talk to a Planner" events. The information was also available online and there were multiple pushes made across GoTriangle's social media platforms, as well as targeted marketing campaigns using Facebook advertising to further engage the community. From those efforts, 300 comments were generated, providing a robust picture of the public's perception of the proposals.

In total:
- More than **600 people** received information about the service and fare changes directly from a GoTriangle staff member, either on the bus, at a pop-up event or during a public presentation.
- Over **8,000 individuals and organizations** were sent the information via email.
- Another **380 people** found the information promoted on their Facebook feeds.
- Between March 11 and April 12, the Service Changes **webpage had 3,965 page views, a 300 percent increase** from the previous period.
- GoTriangle's social media posts for fare and service changes reached **an audience of 5,700 and resulted in 220 engagements**.
- From those efforts, **300 comments** were generated, providing a robust picture of the public's perception of the service and fare change proposals.

Below is an overview of the public's response to the proposed fare recommendation:

- 53 people responded to the survey.
- 68% of respondents are in favor of the fare pricing and policy changes and 32% are against.
- Regarding just the changes to the fare pricing structure, an equal number of people are for and against the proposed changes.

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[2] "Mobile Becomes the Dominant Sales Channel as a Total Ticket Sales Surpass $120 Million." *Masabi*, Masabi and Massachusetts Bay Transportation Authority, info.masabi.com/hubfs/MBTA_case_study_02FINAL.pdf.

- People are very excited about mobile ticketing, fare capping, free fares for seniors, and the combined fare for regional/express.
- Most frequently cited concerns:
    o Increase of the 7-day discount and 31-day pass is too high
    o Concerned about fare increase impact to low income riders
    o What is the rationale for the change? What are the revenue impacts?
    o More details on the implementation – how to get the senior pass? Integration with other agency's fare capping?
    o How will people without a smart phone access the mobile ticketing?

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TRIANGLE REGION TITLE VI FARE EQUITY ANALYSIS

Title VI Fare Equity Analysis Report

April 2014

cat triangletransit

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Contents

1   Introduction

Capital Area Transit (CAT) and Triangle Transit Authority (Triangle Transit) are conducting a Fare Equity Analysis under Title VI of the Civil Rights Act of 1964 to evaluate a proposal to increase transit fares incrementally over the next two years. This review addresses how the proposed fare increase will impact Title VI populations in the region and how impacts will be mitigated in accordance with Federal Transit Administration (FTA) guidelines.

1.1   PROJECT OVERVIEW

In early 2013, the four agencies that make up the Triangle Region, CAT, Triangle Transit, Durham Area Transit Authority (DATA) and Town of Cary Transit Agency (C-Tran) coordinated a proposal to increase fares to be implemented incrementally in 2014 and 2015. The list of proposed fare increases are shown in Section 2 of this report. Map 1 shows the service area for each of the region's transit agencies.

Map 1: Transit Agencies and Service Lines
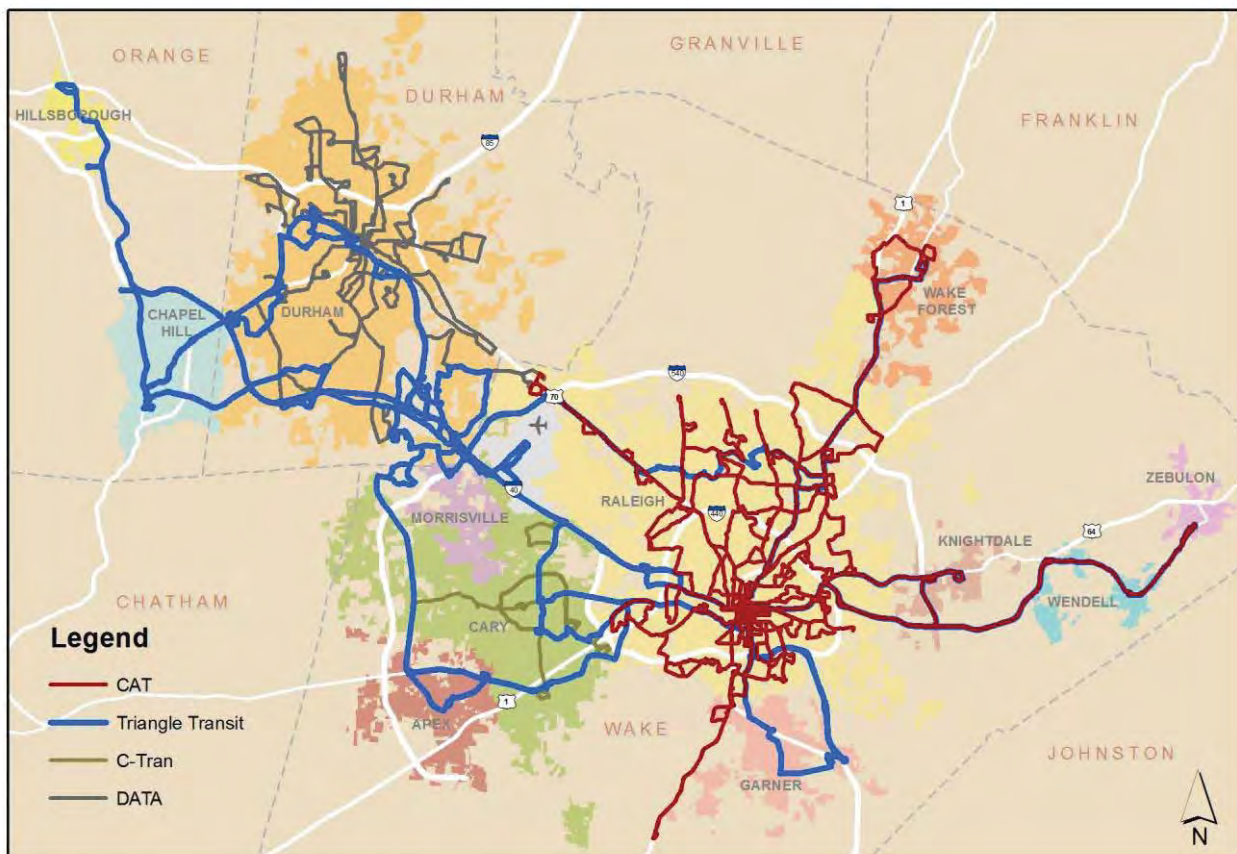
Due to the size of the agency's operations and the size of the population served, C-Tran is not required to prepare a Title VI Fare Equity Analysis for the proposed fare increases. C-Tran has completed their public hearing on the proposed fare increases and received Town Council approval to begin the fare increases in January 2014. DATA also falls below the threshold for vehicles operated in the peak and subsequently the agency has chosen

not to increase fares. The fare analysis in this report will focus on the potential impacts to Title VI population on CAT and Triangle Transit riders.

CAT provides transit services for the City of Raleigh, and operates 24 routes, 6 circulator routes, 3 express routes and a downtown circulator (R-Line service). CAT provides approximately 21,000 passenger trips per weekday and logged 6.4 million passenger trips in FY2013. Triangle Transit's regional bus system serves a broader area and includes routes serving communities across Wake, Durham, and Orange Counties. Triangle Transit served over 1.5 million riders in 2012 on 23 routes (including 5 routes operated under contract), with 62 buses in its fleet. 51 buses are directly operated in peak service plus 9 buses used to operate the contracted services. Triangle Transit serves multiple universities within the region, with these riders making up a large share of agency's ridership.

The proposed fare increases are needed to address rising operating costs, reductions in federal funding in recent years, relative low farebox recovery levels, and the need to continue to improve current services and coverage. While the agencies have worked in recent years to limit fare increases by eliminating operating inefficiencies, limiting salary increases, attracting new transit riders, and obtaining other federal funding resources, these measures provided a temporary solution to the funding needs of the transit agencies. CAT last increased fares in 2007 and while Triangle Transit adjusted multi-day pass periods and prices in 2010, Triangle Transit's cash fare and day pass prices have not changed since 2004. Review of other peer agencies confirms that farebox recovery ratios for both CAT and Triangle Transit are relatively low compared to other transit agencies of similar sizes.

The Fare Equity Analysis will assess if the proposed fare changes will have disparate impact on minority and low-income populations and if low-income populations bear a disproportionate burden of the fare changes. If impacts are identified, mitigation strategies will be considered in an effort to reduce the negative impacts. In an effort to engage the affected riders, specifically the Title VI populations, a public outreach program was implemented throughout the study.

1.2 TITLE VI GUIDELINES

Section 601 of Title VI of the Civil Rights Act of 1964 states the following:

> *"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."*

The FTA Circular 4702.1B *Title VI Requirements and Guidelines for Federal Transit Administration Recipients* was published in 2012 by the FTA in order to comply with the law and fulfill the requirement for all transit agencies receiving Federal funds to develop and implement an agency-wide Title VI program. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" is a directive from the Federal government to prevent minority communities and low-income populations from being subject to disproportionately high and adverse environmental effects. The FTA circular on Title VI compliance states that while low- income populations are not a protected class under Title VI there is an "...inherent overlap of environmental justice principles in this area, and because it is important to evaluate the impacts of service and fare changes on passengers who are transit-dependent, FTA requires transit providers to

2   Proposed Fare Structure

Based on reviews of recent trends in service levels, costs, and fare revenues; existing usage levels of current fare payment options; fare comparisons to peer agencies, and estimated impacts on revenue and ridership levels of several fare change scenarios, Triangle region transit agencies developed a proposed fare increase schedule. Since the development of the proposed fares, DATA has opted to not pursue the fare increase. C-Tran has completed their approval of the proposed fare increases to be implemented in January 2014 and is not subject to requirements for the analysis of fare equity.

2.1   EXISTING FARE STRUCTURE AND FARE TYPES

Local fares represent services provided by the municipalities, including CAT for Raleigh, DATA for Durham and C-Tran for the Town of Cary. Regional fares cover access to Triangle Transit buses as well as CAT and DATA services. Express fares covers specific buses provided by Triangle Transit for commuters. The evaluations of the fares below are for CAT and Triangle Transit services to support the Fare Equity Analysis.

The fare structure listed in Table 1 of Section 2.2 lists the current, as well as proposed, local, regional, and express fares for CAT and Triangle Transit. Available passes include the Day, 5-Day and 31-Day passes that provide unlimited rides by days. The 6-bundle, 12-bundle and 10-ride passes provides the allotted number of DayPasses per bundle or single ride per pass. The $25 Stored Value Card costs $20 dollars and can be used to purchase any transit fare type, except express bus fares. It should be noted that the current 5-Day Pass for local and regional services is proposed to be discontinued and replaced with a 7-Day Pass for local, regional and express services. Regional 10-ride cards are also proposed to be discontinued.

Seniors currently ride free on CAT and Triangle Transit, as do children ages 12 and under. Persons with disabilities receive a 50 percent discount on all fares. CAT and Triangle Transit both provide a GoPass Program. The GoPass program allows employees of companies or students at universities enrolled in a contractual program with the transit agencies the opportunity to ride CAT and Triangle Transit buses for free or a nominal fee. Other companies in the region provide other employee discounts options for transit passes.

The proposed fare increases will also affect paratransit, which is a curb to curb service for riders in the Wake, Durham, and Orange County area with disabilities that prevent them from using fixed route transit services. One-way fares are based on twice the corresponding cash fares. There are day, 11-ride and monthly paratransit passes available.

2.2   CURRENT AND PROPOSED FARES

Table 1 is a comparison of the current fares and the proposed yearly increases. The table is divided into the three types of fares, local, regional, and express. Information on paratransit fares as well as discounted fares is identified in the table as well. Proposed local, regional, and express fares are proposed to increase by 50, 25, and 40 percent, respectively by 2015, with discounted fares and paratransit fares increasing proportionally. Seniors will be eligible for a 50 percent discount on all fares which was the discount for this group prior to the introduction of free fares in 2010. Youth age 6 to 18 will also be eligible for the fare discount, introducing a new discount for youth age 13 to 18 that currently pay full fare price, while adding a charge for children age 6 to 12, who currently ride for free.

evaluate proposed service and fare changes to determine whether low-income populations will bear a disproportionate burden of the changes."

Since CAT and Triangle Transit are public agencies that receive federal funding from FTA, they must demonstrate compliance with the circular. In accordance with Chapter 4 of 4702.1B of the FTA Title VI guidelines, fixed route transit providers that operate 50 or more fixed route vehicles in the peak and are located in an urbanized area of a population of 200,000 or more are required to analyze the impacts of any fare changes. CAT and Triangle Transit both meet the thresholds; therefore, a fare equity analysis is required for the proposed fare increases.

1.3   METHODOLOGY

The main steps in completing this Fare Equity Analysis include:

- Determining overall ridership and ridership by fare category for Title VI populations for each agency.
- Establishing fare equity impact analysis thresholds.
- Evaluating whether planned fare changes will have a disparate impact on populations protected under Title VI and whether low-income populations will bear a disproportionate burden of the changes.
- Recommending methods to avoid, minimize or mitigate impacts, as needed.

Demographic data for the counties and major urbanized areas served by the region's transit agencies was compiled in order to provide regional context and comparison for the survey data provided by the transit agencies. Data on race/ethnicity, age, household income, and ability to speak English was compiled from the US Census 2010 (*Profile of General Population and Housing Characteristics: 2010 – Appendix A*), as well as 2007-2011 American Community Survey (ACS) 5 Year Estimates. The US Census provides data including age, race/ethnicity, and household income. ACS provides information on *Language Spoken at Home by Ability to Speak English for the Population 5 Years and Over* (Limited English Proficiency or LEP).

Onboard survey data collected by each transit agency was compiled in order to assess ridership characteristics. Data on age, race, income, minority status, and type of fare used are provided in the *2013 Triangle Transit Passenger Survey* and the *2010 Capital Area Bus Transit Rider Survey.* Transit data and proposed fare changes were evaluated to determine whether the proposal will create a disparate impact or a disproportionate burden on Title VI populations.

The Title VI guidelines identify disparate impacts as impacts to the minority population, while disproportionate burdens address impacts on low-income populations. Threshold percentages are proposed individually for CAT and Triangle Transit for both disparate impact and disproportionate burdens. The analysis of these potential impacts was completed using the onboard survey data.

Alternatives available to offset impacts from fare increases were reviewed. Additional potential mitigation measures are discussed as transit agencies consider measures to further limit the impacts of the proposed fare changes on Title VI populations.

Table 1: Current and Proposed Fares

FARE TYPE		CURRENT	2014	2015
LOCAL	Cash Fare	$1.00	$1.25	$1.50
	2-Trip Pass (Pack of 11)	$9.00	$11.25	$13.50
	DayPass	$2.00	$2.50	$3.00
	7-Day Pass*	n/a	$12.00	$14.50
	31-Day Pass	$36.00	$45.00	$54.00
REGIONAL	Cash Fare	$2.00	$2.25	$2.50
	DayPass	$4.00	$4.50	$5.00
	7-Day Pass*	n/a	$18.00	$20.00
	31-Day Pass	$68.00	$76.50	$85.00
EXPRESS	Cash Fare	$2.50	$3.00	$3.50
	DayPass	$5.00	$6.00	$7.00
	7-Day Pass*	n/a	$24.00	$28.00
	31-Day Pass	$85.00	$102.00	$119.00
	Local Paratransit	$2.00	$2.50	$3.00
	Regional Paratransit	$4.00	$4.50	$5.00

Discounted Fares - 50% for Disabled, Seniors (65 and older) and Youth (ages 6-18), Children 5 and younger ride free.

*7-Day Pass to replace current 5-day Pass

3   Regional Demographics, Ridership and Fare Profile

In order to help identify the Title VI populations, demographic data from the region and transit providers were examined. Both the American Community Survey (three-year estimates, 2007-2011) and US Census Data between 2000 and 2010 were used along with onboard surveys provided by the individual transit agencies. While the demographics provide an important evaluation of the make-up of the area, the fare equity analysis will focus on the transit provider information as the fare increase will specifically impact existing riders.

3.1   REGIONAL DEMOGRAPHICS AND RIDERSHIP DATA

The review of the existing 2010 Census data, ACS data, and onboard survey data shows that minority and low income populations are much more likely to make use of the region's transit systems as compared to the proportion of these populations for the region as a whole. The percentages of these populations reflected in the

survey data are much higher than the corresponding percentages for the regional communities reflected by Census data.

Race/Ethnicity

Race and ethnicity data is available from the 2010 US Census for area jurisdictions and from the onboard surveys conducted by the transit agencies and is presented in Table 2. It should be noted that the transit agencies considered Hispanic/Latino to be a separate race, while in the Census data; Hispanic is considered an ethnicity and is included in the race totals.

A substantial majority of surveyed CAT riders were African American, accounting for 72 percent of riders, more than double the proportion of the population of the City of Raleigh that identifies as African-American (29.3 percent). Triangle Transit has a higher percentage of White riders, with a lower proportion of minority riders. African-American ridership on Triangle Transit (36.5 percent) reflects a higher proportion than for Wake County and Orange County (20.7 percent and 12.2 percent, respectively), but is slightly below the percentages of African-American population for Durham County and the City of Durham (38.0 and 41.0 percent, respectively). Hispanic ridership is low as a proportion of total ridership in comparison with regional demographics. The Hispanic ridership percentage is slightly higher on Triangle Transit (5.3 percent) than on CAT (4 percent) and may reflect service in Durham County. Triangle Transit has a sizable percentage of Asian riders (11.9 percent) in comparison with the other transit agencies, as well as in comparison with the larger Triangle communities with the exception of the Town of Cary (13.1 percent) and Chapel Hill (11.9 percent).

Table 2: Race/Ethnicity

	White	African American	Asian	Am Indian/ Alaska Native	Other	Hispanic/ Latino*
Regional Transit Agencies						
Triangle Transit	42.2%	36.5%	11.9%	0.9%	3.2%	5.3%
CAT	18%	72%	2%	1%	4%	4%
Counties/System Urban Areas						
Wake County	66.3%	20.7%	5.4%	0.5%	7.1%	9.4%
Raleigh	57.5%	29.3%	4.3%	0.5%	8.4%	10.8%
Cary	73.1%	8.0%	13.1%	0.4%	5.4%	8.8%
Durham County	46.4%	38.0%	4.6%	0.5%	10.5%	12.9%
City of Durham	42.5%	41.0%	5.1%	0.5%	10.9%	13.9%
Orange County	75.9%	12.2%	6.7%	0.3%	2.9%	7.8%
Chapel Hill	72.8%	9.7%	11.9%	0.3%	2.7%	6.4%

* For transit agencies, Hispanic/Latino was treated as a separate race; census data reflects Hispanic/Latino as an ethnicity.
** Not included in C-Tran's 2012 survey.

Income

Income data is available from the 2007-2011 ACS for area jurisdictions and from the onboard surveys conducted by the transit agencies and is presented in Table 3. As would be anticipated, transit use decreased with increasing income across the agencies. For CAT more than 50 percent of riders had a household income of less than $15,000, and six percent had an income greater than $50,000. Triangle Transit's ridership was more proportional across income ranges and reflected higher income levels with 26 percent of riders reporting a household income of less than $15,000 and 35 percent having a household income greater than $50,000.

Table 3: Household Income

	Less than $10,000	$10,000 to $14,999	$15,000 to $24,999	$25,000 to $34,999	$35,000 to $49,999	$50,000 to $74,999	$75,000 to $99,999	More than $100,000
Regional Transit Agencies								
Triangle Transit	18%	8%	15%	11%	14%	16%	8%	11%
CAT	35%	20%	18%	13%	7%	4%	1%	1%
Counties/System Urban Areas								
Wake County	4.4%	3.6%	7.9%	9.1%	13.1%	18.3%	13.4%	30.2%
Raleigh	6.0%	4.7%	9.9%	11.0%	15.2%	18.7%	12.0%	22.4%
Cary	2.3%	2.0%	5.2%	7.0%	8.7%	16.1%	11.9%	46.8%
Durham County	8.0%	5.4%	10.5%	11.4%	14.6%	18.1%	11.5%	20.4%
Durham	9.9%	5.7%	11.5%	12.6%	17.6%	18.4%	9.9%	14.3%
Orange County	9.6%	4.9%	9.8%	9.4%	12.4%	14.0%	10.8%	26.1%
Chapel Hill	12.8%	4.8%	8.6%	8.5%	10.5%	14.1%	9.4%	31.3%

* Distribution based on available data; will be updated upon receipt of detailed data on income levels.

** Data derived from the 2010 Capital Area Bus Transit Rider Survey. Not included in C-Tran's 2012 survey.

Age

Age data is available from the 2010 US Census for area jurisdictions and from the onboard surveys conducted by the transit agencies and is presented in Table 4. In general transit use decreased with increasing age for those 16 years and older even as the proportion of the population for each age range of the total population increases initially with age. Then transit use decreases at a faster rate than does the corresponding proportion of the population in each age range in Triangle area communities, with the exception of Cary and C-Tran. Data on riders under 16 years of age was not collected by Triangle Transit, and the percentage of surveyed youth ridership on CAT is small.

Table 4: Age

	Under 15 years*	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 or over
Regional Transit Agencies							
Triangle Transit	**	28.2%	28.6%	16.0%	14.9%	9.7%	2.6%
CAT	1%	27%	21%	20%	20%	9%	2%
Counties/System Urban Areas							
Wake County	22.0%	13.8%	15.2%	16.2%	14.6%	9.8%	8.6%
Raleigh	19.6%	17.3%	18.4%	15.2%	12.4%	8.8%	8.2%
Cary	23.0%	11.0%	13.3%	17.1%	16.6%	10.2%	8.6%
Durham County	19.2%	15.4%	18.3%	14.1%	12.8%	10.5%	9.8%
Durham	19.5%	16.3%	19.4%	14.2%	12.2%	9.6%	8.9%
Orange County	16.9%	22.7%	12.5%	12.8%	14.2%	6.5%	8.7%
Chapel Hill	14.4%	34.5%	13.1%	10.4%	10.4%	8.0%	9.3%

* For transit agencies, data is for less than 16 years of age.

** Triangle Transit did not survey riders less than 16 years of age.

Limited English Proficiency

Information on adults with limited English proficiency (LEP) is available from ACS for the communities in the region. Triangle Transit collected data on persons who speak English less than well during onboard surveys. Triangle Transit's percentage of LEP riders is comparable to LEP populations throughout the region as shown in Table 5.

Table 5: Persons with Limited English Proficiency

Persons who Speak English Less than Very Well (18 and older)	
Regional Transit Agencies	
Triangle Transit	9.2%
CAT	*
Counties/System Urban Areas	
Wake County	7.9%
Raleigh	8.9%
Cary	11.3%
Durham County	11.2%
Durham	11.9%
Orange County	7.4%
Chapel Hill	6.9%

* Data not collected in provider survey.

Regional Poverty and Wage Trends

ACS Data shows that the 2012 percentage of the population living at or below the poverty level in the Triangle region ranges widely from 7 percent for the Town of Cary, up to 23 percent for Chapel Hill. The percentage of the population living in poverty increased between 2007 and 2012. The percentage change between 2007 and 2012 ranged from 2.5 percent, for the Town of Cary, to 4.5 percent, for Durham County. The senior population, 65 and over, showed a decrease in the percentage of the senior population living at or below the poverty line over this time period, except in Chapel Hill and Raleigh. The Asian population also showed a decrease in the percentage of the population at or below the poverty line for all areas except Raleigh. Details on these poverty trends are provided in Appendix A.

The US Bureau of Labor and Statistics show North Carolina's median hourly wage at $15.31 for 2012. The state and federal minimum wage increased from $6.15 to $7.25 between 2007 and 2013, an increase of 18 percent.

3.2   FARE USAGE

The Title VI Fare Equity Analysis focuses on the proposed fare increases for CAT and Triangle Transit. Table 6 provides a breakdown of fare payment methods for riders of CAT and Triangle Transit from the most recent surveys. There were slight variations in the types of fares surveyed by each agency. CAT survey data did not distinguish regional fares and there were small differences in how certain fare types were captured. Both CAT and Triangle Transit have a substantial proportion of riders who use cash fares (45 percent and 30 percent, respectively). For Triangle Transit, however, more riders or nearly half of those surveyed use GoPass (45 percent). Regional DayPass and Regional 31-Day Pass users represented just below 7 percent of those surveyed. Nearly a quarter of CAT riders use Local Day Pass, followed by Local 31-day pass and GoPass users, each reported at about 11 percent of riders.

Table 6: Fare Payment Method

Payment Method	Triangle Transit	CAT
Cash Fare	30.0%	45.4%
Local Day Pass	**	23.0%*
Local 5-Day Pass	**	3.5%*
Local 31-Day Pass	**	11.4%*
Regional Day Pass	6.6%	*
5-Day Regional Pass	0.8%	*
31-Day Regional Pass	6.5%	*
Express Pass	0.5%	**
31-Day Express Pass	1.2%	**
10 or 11 Ride Card	1.8%	3.1%
$25 Value Card	3.1%	**
Go Pass	43.2%	11.1%
Other	3.5%	2.1%
Free Senior Fare	2.9%	**

* Survey did not differentiate local from regional pass users.

** Data not collected.

Triangle Transit and CAT ridership data on fares used is broken down further into the percentages of fares used by race/ethnicity and income as presented in the following sections. These percentage breakdowns provide greater insight as to how Title VI populations may be impacted by the proposed fare increases.

3.2.1   Fare Type and Payment Method by Race/Ethnicity

The Triangle Transit Passenger Survey conducted in 2013 provides the percentage of riders by race for each fare payment method as summarized in Table 7. Table 8 identifies CAT data on the percentage of riders by race for each fare payment method provided in the *2010 Capital Area Bus Transit Rider Survey*.

Table 7: Fare Type and Payment Method by Race/Ethnicity for Triangle Transit

Payment Method	Caucasian/ White	Total Minority	African American	Asian	Hispanic*	Other**
Paid Cash Fare	29%	70%	51%	6%	8%	5%
Used A Pass*	50%	50%	28%	14%	4%	4%
Free Senior Fare	48%	52%	35%	11%	4%	2%
All Payment Methods	**44%**	**55%**	**36%**	**12%**	**5%**	**4%**
*Pass Type						
Regional Day Pass	25%	74%	62%	6%	1%	5%
5-Day Regional Pass	16%	84%	66%	0%	18%	0%
31-Day Regional Pass	41%	58%	39%	10%	5%	4%
Express Day Pass	51%	49%	45%	4%	0%	0%
31-Day Express Pass	33%	68%	59%	6%	3%	0%
10 Ride Card	55%	44%	24%	19%	0%	1%
$25 Stored Value Card	68%	32%	23%	3%	2%	4%
Go Pass	54%	46%	21%	18%	4%	3%
Other	58%	43%	22%	10%	4%	7%

* For transit agencies, Hispanic/Latino was treated as a separate race, while census data reflects Hispanic/Latino as an ethnicity.

* For Triangle Transit, Native American was combined with other races in tabulated data for fare payment methods.

Table 8: Fare Type and Payment Method by Race/Ethnicity for CAT

Payment Method	Caucasian/ White	Total Minority	African American	Asian	Hispanic*	Native American	Other Race
Paid Cash Fare	16.0%	84.0%	73.4%	0.5%	4.8%	1.5%	3.8%
Local Day Pass	16.0%	84.0%	74.7%	1.4%	4.1%	0.4%	3.3%
Local Weekly Pass	23.6%	76.4%	61.1%	6.4%	1.0%	0.0%	7.9%
Local 31-Day Pass	22.0%	78.0%	67.2%	1.6%	3.4%	1.6%	4.1%
10 or 11 Ride Pass	22.8%	77.2%	73.2%	2.3%	0.5%	1.1%	0.0%
Go Pass	13.7%	86.3%	78.6%	0.0%	3.4%	0.0%	4.3%
Other**	22.2%	77.8%	66.9%	0.0%	0.9%	10.1%	0.0%
All Fare Types	**17.9%**	**82.1%**	**71.4%**	**1.5%**	**3.7%**	**1.4%**	**4.0%**

* For transit agencies, Hispanic/Latino was treated as a separate race, while census data reflects Hispanic/Latino as an ethnicity.

** Stored Value is included in Other fare types in the survey.

For Triangle Transit, the proportion of minority riders reporting use of GoPass, the fare payment method reported most frequently for the agency in Table 7, is 46 percent, comprised predominantly of African-American (21 percent) and Asian (18 percent) riders. The proportion of minority riders who reported paying cash fare, the next most frequently reported payment method for Triangle Transit riders, is 70 percent and is comprised of riders who identified as African-American (51 percent), Hispanic (8 percent), Asian (6 percent) and some other race (5 percent). 52 percent of those who used a free senior fare are minority. Review of the CAT data shows a higher proportion of minority riders across all fare categories. The minority proportion of those paying cash fare, which is the payment method reported by nearly half of CAT riders, and day pass, the next most reported payment method, is 84 percent in each instance, comprised predominantly of African-American riders at 73 percent and 75 percent respectively. The category with the highest proportion of minorities in the CAT survey is GoPass riders (86 percent), which is somewhat in contrast with the proportion reported by Triangle Transit.

3.2.2   Fare Type and Payment Method by Household Income

The percentage of Triangle Transit riders by household income and fare payment type is provided in Table 9 from the *2013 Triangle Transit Passenger Survey*. Table 10 provides the percentage of riders by household income for each fare payment type from the *2010 Capital Area Bus Transit Rider Survey*.

Table 9: Fare Type and Payment Method by Household Income for Triangle Transit

Payment Method	Less than $10,000	$10,000 to $14,999	$15,000 to $24,999	$25,000 to $34,999	$35,000 to $49,999	$50,000 to $74,999	$75,000 to $99,999	Over $100,000
Paid Cash Fare	27%	12%	21%	11%	10%	9%	4%	5%
Used A Pass	14%	6%	12%	11%	15%	19%	10%	13%
Free Senior Fare	14%	16%	9%	21%	17%	12%	3%	10%
All Payment Methods	**18%**	**8%**	**15%**	**11%**	**14%**	**16%**	**8%**	**11%**
*Pass Type								
Regional Day Pass	28%	18%	23%	11%	6%	6%	3%	5%
31-Day Regional Pass	19%	7%	11%	7%	9%	25%	11%	11%
5-Day Regional Pass	27%	11%	22%	26%	10%	0%	0%	4%
Express Day Pass	24%	0%	32%	0%	17%	27%	0%	0%
31-Day Express Pass	17%	12%	14%	5%	15%	17%	0%	20%
10 Ride Card	15%	5%	6%	8%	12%	12%	16%	26%
$25 Stored Value Card	6%	1%	2%	7%	20%	24%	15%	26%
Go Pass	11%	4%	12%	12%	18%	21%	11%	13%
Other	33%	8%	10%	5%	11%	9%	6%	17%

Table 10: Fare Type and Payment Method by Household Income for CAT

Payment Method	Under $10,000	$10,000 to $14,999	$15,000 to $24,999	25,000 to $34,999	$35,000 to $49,999	$50,000 to $74,999	$75,000 to $99,999	Over $100,000
Paid Cash Fare	31.5%	21.8%	19.8%	13.9%	6.6%	4.6%	1.2%	0.8%
Local Day Pass	45.1%	16.7%	13.9%	12.3%	6.4%	4.1%	1.2%	0.3%
Local 31-Day Pass	37.8%	17.5%	18.8%	11.1%	7.5%	6.1%	0.7%	0.6%
Local Weekly Pass	32.5%	35.2%	16.3%	7.8%	1.3%	1.0%	5.9%	0.0%
10 or 11 Ride Pass	22.7%	24.9%	34.5%	12.9%	2.3%	1.4%	0.0%	1.4%
Go Pass	32.3%	15.7%	15.2%	16.5%	12.2%	4.3%	2.5%	1.3%
Other*	40.0%	19.6%	13.0%	5.1%	19.4%	2.0%	0.9%	0.0%
All Fare Types	**35.3%**	**20.1%**	**18.0%**	**13.0%**	**7.2%**	**4.3%**	**1.4%**	**0.7%**

* Stored Value is included in Other fare types in the survey.

The proportion of Triangle Transit riders with household incomes under $25,000 is highest for regional day pass users at 69 percent, followed by cash fare and 5-day regional pass (60 percent). Riders with household incomes greater than $100,000 represent the highest proportion of users in three categories: $25 stored value (26 percent); 10-ride card (26 percent) and the 31-day express pass (20 percent). Thirty-nine (39) percent of Triangle Transit riders who report using a senior fare have a household income under $25,000. The proportions of CAT riders with household incomes under $25,000 is highest for weekly pass users (84 percent) and 10 or 11 ride pass (82 percent). Cash fare and day pass users represent the majority of CAT riders and the proportions of these users who have household incomes under $25,000 are 73 percent and 76 percent, respectively.

3.2.3 Fare Type by Age

Triangle Transit did not survey those under 16 and separately identified those paying with a senior fare in Tables 5, 6 and 8 showing 52 percent of the senior fares were minority, 39 percent were seniors with a household income of less than $25,000 and 2.9 percent of the overall fare payment method. Table 11 provides the percentage of riders by age range for each fare payment type from the *2010 Capital Area Bus Transit Rider Survey* summarized to illustrate the percentages of youth and seniors paying each fare type.

Table 11: Fare Type by Age for CAT

Payment Method	Under 16 years	15 to 64 years	65 or over
Paid Cash Fare	1.0%	98.0%	1.0%
Local Day Pass	0.7%	94.6%	4.8%
Local Weekly Pass	0.9%	98.2%	1.0%
Local 31-Day Pass	0.5%	96.5%	3.0%
10 or 11 Ride Pass	1.6%	98.4%	0.0%
Go Pass	0.0%	99.3%	0.7%
Other**	0.0%	98.2%	1.8%
All Fare Types	**0.7%**	**97.2%**	**2.1%**

** Stored Value is included in other fare types in the survey.

The senior fare is currently free for all fare types. While the proportion of seniors in most fare categories for CAT is 1 percent or less, seniors represented 5 percent of day pass users and 3 percent of 31-day pass users. The percent of youth under 16 years of age is 1 percent or less for all fare payment methods, except the 10 or 11 ride pass at nearly 2 percent of those pass users.

4   Proposed Title VI Fare Equity Policies

In accordance with updated guidance from the FTA Circular 4702.1B, CAT and Triangle Transit are required to develop policies with respect to evaluating impacts of fare changes. The following sections provide definitions and proposed policy thresholds for Triangle Transit and CAT for fare changes.

4.1   POPULATION DEFINITIONS

Minority Persons and Populations

According to FTA Circular 4702.1B, a minority person is defined as an individual identifying as: American Indian and Alaska Native, Asian, Black or African American, Hispanic or Latino, and Native Hawaiian or Other Pacific Islander. Minority populations are defined by FTA as any readily identifiable group of minority persons who live in geographic proximity, or who may be geographically dispersed, but who may be similarly affected by a proposed action. Ridership data on minority populations is obtained from the transit agency ridership surveys.

Low Income Persons and Populations

The FTA circular on Title VI compliance states that while low-income populations are not a protected class under Title VI there is an "…inherent overlap of environmental justice principles in this area, and because it is important to evaluate the impacts of service and fare changes on passengers who are transit-dependent, FTA requires transit providers to evaluate proposed service and fare changes to determine whether low-income populations will bear a disproportionate burden of the changes."

According to the FTA circular, "Low-income" means a person whose median household income is at or below the U.S. Department of Health and Human Services poverty guidelines or within a locally developed income threshold that is at least as inclusive as these guidelines. For these policies, persons with household incomes below 150 percent of the federal poverty level for a regionally average household size are determined to be low income. Low-income population is defined by FTA as any readily identifiable group of low-income persons who live in geographic proximity or who may be geographically dispersed, but who may be similarly affected by a proposed action. Data on low-income populations is obtained from the U.S. Census Bureau and transit agency ridership surveys dependent upon the analysis required.

4.2   PROPOSED FARE CHANGE POLICIES

FTA guidelines require that impacts to Title VI and low-income populations be evaluated for all fare changes regardless of the amount of increase or decrease. Table 12 provides a summary of the agencies' fare equity thresholds.

4.2.1   Proposed Disparate Impact Policies

The following proposed disparate impact policies establish thresholds for determining when impacts of proposed fare changes by each respective agency disproportionately impact minority populations. The thresholds apply to the difference in the impacts of each proposed fare change on minority populations compared to the impacts on non-minority populations. This is measured by analyzing ridership surveys as to whether minority riders are more likely to use each mode of service, payment type, or payment media that would be subject to the fare change.

Capital Area Transit

For Fare Equity Analyses, a threshold of 3 percent shall be used by CAT to determine if the effects of a proposed fare change are borne disproportionately by minority populations.

Triangle Transit

For Fare Equity Analyses, a threshold of 10 percent shall be used by Triangle Transit to determine if the effects of a proposed fare change are borne disproportionately by minority populations.

4.2.2 Proposed Disproportionate Burden Policy

The following proposed disproportionate burden policies establish thresholds for determining when impacts of proposed fare changes by each respective agency disproportionately impact low-income populations. The thresholds apply to the difference in the impacts of each proposed fare change on low-income populations compared to the impacts on other populations. This is measured by analyzing ridership surveys as to whether low-income riders are more likely to use each mode of service, payment type, or payment media that would be subject to the fare change.

Capital Area Transit

For Fare Equity Analyses, a threshold of 5 percent shall be used by CAT to determine if the effects of a proposed fare change are borne disproportionately by low-income populations.

Triangle Transit

For Fare Equity Analyses, a threshold of 10 percent shall be used by Triangle Transit to determine if the effects of a proposed fare change are borne disproportionately by low-income populations.

Table 12: Summary of Fare Equity Thresholds

Agency	Minority Ridership	Disparate Threshold	Low-Income Ridership	Disproportionate Threshold
CAT	82%	+/- 3%	73%	+/- 5%
Triangle Transit	55%	+/- 10%	41%	+/- 10%

5 Fare Equity Analysis

To determine the disparate impacts and disproportionate burdens, the percentage of minority and low income riders by fare type, from the onboard survey data, were compared to the percentage of total ridership of the minority and low income population. If the difference exceeded the established threshold, which varies with each transit agency, then the percentage increase would need to be evaluated to determine if there is a

disparate impact or disproportionate burden based on the percentage increase of the fare change. This is further addressed in the sections below.

5.1 IMPACTS TO MINORITY RIDERSHIP

The proportion of minority and non-minority riders for each fare type, along with the proposed fares and percentage increase in fares over the 2-year period for Triangle Transit is shown in Table 13.

Table 13: Proposed Increases by Fare Type and Minority Status for Triangle Transit

Fare Type	Minority	Non-Minority	2013 Fares	2014 Fares	% Change	2015 Fares	% Change	2-Year % Change
Regional Cash Fare*	70%	29%	$2.00	$2.25	12.5%	$2.50	11.1%	25.0%
Regional DayPass	74%	25%	$4.00	$4.50	12.5%	$5.00	11.1%	25.0%
Regional 5-Day Pass	84%	16%	$17.00	Discontinued	N/A	Discontinued	N/A	N/A
Regional 7-Day Pass	N/A	N/A	N/A	$18.00	N/A	$20.00	11.1%	N/A
Regional 31-Day Pass	58%	41%	$68.00	$76.50	12.5%	$85.00	11.1%	25.0%
Express Cash Fare*	*	*	$2.50	$3.00	20.0%	$3.50	16.7%	40.0%
Express Day Pass	49%	51%	$5.00	$6.00	20.0%	$7.00	16.7%	40.0%
Express 7-Day Pass	N/A	N/A	N/A	$24.00	N/A	$28.00	16.7%	N/A
Express 31-Day Pass	68%	32%	$85.00	$102.00	20.0%	$119.00	16.7%	40.0%
GoPass	46%	54%	*Nominal or no cost to the user to ride.*					
All Fare Types	**55%**	**44%**						

Survey did not distinguish the type of cash fare (regional or express)

Based on the minority percentages provided in Table 13, the following fares exceed the 10 percent disparate impact threshold established by Triangle Transit:

- Cash Fare (+15 percent)
- Regional Day Pass (+19 percent)
- Regional 5-Day Pass (+29 percent)
- Express 31-Day Pass (+13 percent)

The cash fare has the third highest percentage of minority ridership as compared to other fare types. While survey data did not distinguish between regional and express cash fares, based on proportions for other categories, it is likely that a substantial majority of cash fares are regional rather than express. The Regional Day Pass has the second highest percentage of minority ridership as compared to the other fare types. Regional fares are increasing by 25 percent compared with 40 percent for express fares. The Regional 5-Day Pass has the highest percentage of minority ridership. The potential cost to a Regional 5-Day Pass user who purchases the new 7-Day Regional Pass would be just a 5.9 percent increase, which is a smaller increase than for any other fare type. Additionally, these users may gain savings on a per ride basis if they ride more than 5 days a week. Triangle Transit is evaluating extending Saturday service and adding new Sunday service. The Express 31-Day Pass is in

excess of 10 percent threshold and as an express fare type has the larger percent change at 40 percent, thus there is a potential for disparate impacts to minority riders utilizing this fare type. However, just 1.2 percent of Triangle Transit riders use the Express 31-Day Pass.

The proportion of minority and non-minority riders for each fare type, along with the proposed fares and percentage increase in fares over the 2-year period for CAT is shown in Table 14.

Table 14: Proposed Increases by Fare Type and Minority Status for CAT

Fare Type	Minority	Non-Minority	2013 Fares	2014 Fares	% Change	2015 Fares	% Change	Total 2-Year % Change
Local Cash Fare	84.0%	16.0%	$1.00	$1.25	25.0%	$1.50	20.0%	50.0%
Local Day Pass	84.0%	16.0%	$2.00	$2.50	25.0%	$3.00	20.0%	50.0%
Local 5-Day Pass	76.4%	23.6%	$8.50	Discontinued	N/A	Discontinued	N/A	N/A
Local 7-Day Pass	N/A	N/A	N/A	$12.00	N/A	$14.50	20.8%	N/A
Local 31-Day Pass	78.0%	22.0%	$36.00	$45.00	25.0%	$54.00	20.0%	50.0%
GoPass	78.0%	22.0%	*Nominal or no cost to the user to ride*					
All Fare Types	82.1%	17.9%						

Table 14 shows three fares have minority percentages that fall below the average for all fares by amounts that exceed CAT's disparate impact threshold of three percent:

- Local 5-Day Pass (-5.7 percent)
- Local 31-Day Pass (-4.1 percent)
- GoPass (-4.1 percent)

The three fares types identified have a lower percentage of minority riders compared to the overall fares. The Local 5-Day Pass has the lowest percentage of minority ridership. The potential cost to a Local 5-Day Pass user who converts to use of a Local 7-Day Pass may be greater per trip and greater relative to other fare categories dependent upon how many days a week the user rides. However, some users may gain savings if they ride 7 days a week and have not had a full weekly pass available to purchase as this would cost $12.50 currently for a rider using the Local 5-Day Pass plus two Day Passes. The percentage of increase for the 31-day is comparable to the percentages proposed for other fare types. The percentage of minority riders using GoPass exceeds the disparate impact threshold. The cost associated with this pass is nominal or at no cost to the users. As no fare increase affects these riders and the minority percentage of GoPass users is a lower percentage, there is a potential for disparate impacts from the proposed fare increases. Some impact may be experienced by GoPass users if an employer decides to discontinue program participation or raise currently nominal fees; however, this is anticipated to be a more infrequent circumstance. As noted in section 2.1, the GoPass is not provided directly from CAT and Triangle Transit to riders, but is made available through employer-based programs at the

discretion of the employer or educational institution and thus is a discount offered by these entities to the transit customer rather than by the transit agencies.

5.2 IMPACTS TO LOW INCOME RIDERSHIP

The proportion of low-income and non low-income riders for each fare type, along with the proposed fares and percentage increase in fares over the 2-year period for Triangle Transit is shown in Table 15.

Table 15: Proposed Increases by Fare Type and Income Status for Triangle Transit

Fare Type	Low-income	Non Low-income	2013 Fares	2014 Fares	% Change	2015 Fares	% Change	2-Year % Change
Regional Cash Fare*	60%	39%	$2.00	$2.25	12.5%	$2.50	11.1%	25.0%
Regional Day Pass	69%	31%	$4.00	$4.50	12.5%	$5.00	11.1%	25.0%
Regional 5-Day Pass	60%	40%	$17.00	Discontinued	N/A	Discontinued	N/A	N/A
Regional 7-Day Pass	N/A	N/A	N/A	$18.00	N/A	$20.00	11.1%	N/A
Regional 31-Day Pass	32%	68%	$68.00	$76.50	12.5%	$85.00	11.1%	25.0%
Express Cash Fare*	*	*	$2.50	$3.00	20.0%	$3.50	16.7%	40.0%
Express Day Pass	56%	44%	$5.00	$6.00	20.0%	$7.00	16.7%	40.0%
Express 7-Day Pass	N/A	N/A	N/A	$24.00	N/A	$28.00	16.7%	N/A
Express 31-Day Pass	43%	57%	$85.00	$102.00	20.0%	$119.00	16.7%	40.0%
GoPass	27%	73%	*Nominal or no cost to the user to ride.*					
All Fare Types	**41%**	**60%**						

* Survey did not distinguish the type of cash fare (regional or express)

Table 15 identifies the following fares, exceeding the 10 percent threshold established by Triangle Transit:

- Regional Cash Fare (+19 percent)
- Regional Day Pass (+28 percent)
- Regional 5-Day Pass (+19 percent)
- Express Day Pass (+15 percent)
- GoPass (-14 percent)

The cash fare has the second highest percentage of low-income ridership as compared to other fare types. While survey data did not distinguish between regional and express cash fares, based on proportions for other categories, it is likely that a substantial majority of cash fares are regional rather than express. The Regional Day Pass has the highest percentage of low-income ridership as compared to the other fare types. Regional fares are increasing by 25 percent compared with 40 percent for express fares. The Regional 5-Day Pass matches the cash fare in having the second highest percentage of low-income ridership. The potential cost to a Regional 5-Day Pass user who purchases the new Regional 7-Day Pass would be just a 5.9 percent increase, which is a smaller increase than for any other fare type. Additionally, some users may gain savings if they ride more than 5 days a

week, especially as Triangle Transit is evaluating potential expansions to weekend service. The Express Day Pass is in excess of the 10 percent threshold and as an express fare type has the larger percent increase at 40 percent, thus there is a potential for a disproportionate burden to low-income riders. However, just 0.5 percent of Triangle Transit riders use the Express Day Pass.

The percentage of low-income riders using GoPass is lower than the percentage for all fare users by an amount that exceeds the disproportionate burden threshold. The cost associated with this pass is nominal or at no cost to the users. As no fare increase affects these riders and the low-income percentage of GoPass users is a lower percentage, there is a potential for a disproportionate burden from the proposed fare increases. Some impact may be experienced by GoPass users if an employer decides to discontinue program participation or raise currently nominal fees; however, this is anticipated to be a more infrequent circumstance.

The proportion of low-income and non low-income riders for each fare type, along with the proposed fares and percentage increase in fares over the 2-year period for CAT is shown in Table 16.

Table 16: Proposed Increases by Fare Type and Income Status for CAT

Fare Type	Low-income	Non Low-income	2013 Fares	2014 Fares	% Change	2015 Fares	% Change	Total 2-Year % Change
Local Cash Fare	73.0%	27.0%	$1.00	$1.25	25.0%	$1.50	20.0%	50.0%
Local Day Pass	75.7%	24.3%	$2.00	$2.50	25.0%	$3.00	20.0%	50.0%
Local 5-Day Pass	84.0%	16.0%	$8.50	Discontinued	N/A	Discontinued	N/A	N/A
Local 7-Day Pass	N/A	N/A	N/A	$12.00	N/A	$14.50	20.8%	N/A
Local 31-Day Pass	74.0%	26.0%	$36.00	$45.00	25.0%	$54.00	20.0%	50.0%
GoPass	63.2%	36.8%	Nominal or No cost to the user to ride					
All Fare Types	**73.4%**	**26.6%**						

Table 16 shows two fare types that exceed CAT's disproportionate burden threshold of five percent:

- Local 5-Day Pass (+10.6 percent)
- GoPass (-10.2 percent)

The Local 5-Day Pass has the highest percentage of low-income ridership. The potential cost to a Local 5-Day Pass user who converts to use of a Local 7-Day Pass may be greater per trip and greater relative to other fare categories dependent upon how many days a week the user rides. However, some users may gain savings if they ride 7 days a week and have not had a full weekly pass available to purchase as noted previously. The percentage of low-income riders using GoPass exceeds the disproportionate burden threshold. The cost associated with this pass is nominal or at no cost to the users. As no fare increase affects these riders and the low-income percentage of GoPass users is a lower percentage, there is a potential for a disproportionate burden to low-income populations from the proposed fare increases. Some impact may be experienced by GoPass users

if an employer decides to discontinue program participation or raise currently nominal fees; however, this is anticipated to be a more infrequent circumstance.

5.2.1   Other Title VI Related Populations

Disabled, senior and youth fare impacts are not evaluated against policy thresholds in accordance with FTA's Circular 4702.1B. However, a number of statutes considered in relation to Title VI such as the Americans with Disabilities Act and the Age Discrimination Act of 1975 afford protections to the disabled, seniors and youth as vulnerable population groups. Thus some review was conducted on the impacts of the proposed fare increases to these other populations that fall under the Title VI "umbrella".

Disabled

Increases in the disabled fares, for fixed route transit fares, will remain proportional to the standard fares. The disabled fares are currently 50 percent off the standard fare price for all fare types and will remain half the cost with the proposed increases for local, regional and express fixed-route transit fares.

The local paratransit services will also include an increase in fares that are consistent with the other fare types with a tier increase of 25 percent in 2014 and 20 percent in 2015 for a total increase of 50 percent. Regional paratransit fare increases are consistent with other regional fare increases at a 12.5 percent increase in 2014, 11.1 percent increase in 2015 for a total increase of 25 percent. The two-year fare increase in both local and regional paratransit fares will result in a $1.00 increase for a one-way fare.

Seniors

The fare increases for seniors is the highest percentage change of all fare types at 100 percent since services to seniors ages 65 and over under are currently free. This free fare was introduced in 2010 to the senior and youth population. The Triangle Transit data shows 52 percent of the senior fares were minority, 39 percent were low-income seniors. The proportion of seniors in most fare categories for CAT is one percent or less, seniors represented five percent of day pass users and three percent of 31-day pass users. The fare increase proposal does include charging fares to seniors at a 50 percent discount from the standard fares. Under 49 USC 5307(d)(1)(D), the FTA requires fixed route transit service providers using Section 5307 assistance to charge elderly persons, persons with disabilities or individuals presenting a Medicare card during off-peak hours no more than half the peak fare. Although free fares for seniors are being eliminated with the proposed fares, the Triangle region's transit agencies will continue to exceed the FTA requirements with the proposed fares by offering half price fares for seniors and persons with disabilities on all fare types at all times of the day.

Youth

The fare increase includes charging fares to youth ages 6 to 18 at a 50 percent discount from the standard fares. This discounted fare will provide a cost-savings to youth ages 13 to 18 that currently pay full fare price. The impacts to youth are limited to the age range of 6 to 12 with the same percentage change at 100 percent as seniors since children age 12 and under are currently free. Triangle Transit data does not identify fare usage for riders under 16 years of age; however in Table 11 the CAT ridership data did identify the percentage of fares used by youth riders (under 16 years) at 0.7 percent.

6 Alternatives and Mitigation Measures

While the impacts associated with the proposed fare increase are limited to a few fare types, certain mitigation measures are in place or can be expanded to off-set these impacts. The following sections discuss existing and potential mitigation measures and alternatives for riders.

6.1 TIMING OF FARE INCREASES

To limit the impacts of the proposed fare changes to the riders, CAT and Triangle Transit are proposing incremental fare changes as shown on Table 1. The proposed fare increase schedule shows phased rate increases in both 2014 and 2015 to mitigate the impact of introducing the proposed fares at one time. This results in a fare increase range of 11 to 25 percent each year as compared with a total fare increase range of 25 to 40 percent.

6.2 FARE ALTERNATIVES AND DISCOUNTS

Alternative fare types and discount passes provide an opportunity to reduce the impacts of the proposed fare increase by providing an opportunity for riders to reduce their costs. The following are a list of existing programs in place or already included as a part of the proposed fare structure:

- 11-Pack Bundles: This discount is provided to nonprofit organizations as a resource to minority and low-income population they serve. Promoting this service to more nonprofit organizations may increase the opportunity to capture additional Title VI riders.

- Discount Passes for Disabled, Seniors and Youth: The disabled are currently provided discount fares of 50% of the all Fare Types which will not change. The proposal will include expanding this 50% discount to youths ages 13 to 18 that currently pay full fares. Children age five and younger will still ride free. Children age 6 to 12 and senior ages 65 and over will pay a discount fare at all times, though those groups currently ride free. Continuing to offer the 50% discount during peak hours exceeds the minimum requirements from FTA.

- Multi-day and multi-ride passes: The existing fare structure provides a discount for multiple rides and multiple days of ridership, offering an alternative and potential benefit to transit-dependent populations who may ride more frequently. The new Express 7-Day pass included in the proposed fares introduces an alternative that can provide savings to Express Day Pass users impacted by the proposed fare increase as noted previously.

- The Stored Value Card: This card carries a value of $25 and is priced at $20, offering a 20% discount to customers compared with paying cash fares or purchasing day passes on-board the bus. Further promoting this service to the public may encourage more Title VI riders to participate.

- Go Pass: This service is coordinated between the transit agencies and certain institutions and municipalities in the area to provide employees and students access to transit services with a pass at no cost or for a nominal fee. Promoting this service to more employers and educational institutions may provide free passes to more Title VI riders.

- Other Employee Discounts: The transit agencies will also continue to partner with companies and other organizations to provide discounted and/or pre-tax transit pass options.

CAT and Triangle Transit are proceeding to evaluate and implement options for expanding mitigation to offset the impact of the fare increases to Title VI populations. CAT is evaluating a possible discount for bulk purchases of ADA (ART) tickets and Triangle Transit plans to implement a 31-Day Pass option for T-Linx users. The agencies plan to increase efforts to promote the non-profit pass bundles and are evaluating the potential to provide a greater discount by adjusting the pricing and/or adjusting the number of passes included in a pack. The agencies also plan to market and pursue employer-based programs with smaller companies, service industry employers, and centers of service-based employment such as Triangle Town Center, Crabtree Valley Mall, or the Streets at Southpoint. Additional strategies the agencies are pursuing to promote mitigation options including marketing the Stored Value Card through on-board, customer service line, and point of sale advertising and establishing more third party sales outlets for the Stored Value Card, as well as for multi-day passes.

7 Public Outreach

The Title VI guidelines recommend the public be included in the decision-making process for determining the disparate impact thresholds for fare equity review. The guidelines for general Title VI program public involvement are fairly broad and allow the transit providers to choose specific strategies that will best meet the needs of their rider demographics but requires a public participation plan to outline the strategies for engaging minority, low-income and LEP populations. A detailed plan was drafted for the proposed fare change and below is a summary of the strategies. Details of the Public Participation Plan summary are found in Appendix B.

7.1 GOALS AND MEASURES

The overall goal of this process was to raise awareness of the study and provide opportunities for learning about the study and providing valuable input to be used in the decision-making process. The objectives of the Public Participation Plan, in support of this goal, included:

- actively engage regional transit agencies on the Title VI Fare Equity Analysis;
- solicit participation and feedback from target Title VI populations;
- hold meetings early in the process;
- provide frequent notification of opportunities to be involved;
- provide equitable access to relevant project information; and
- monitor and evaluate outreach activities to determine effectiveness;

The performance measures to determine the effectiveness of the participation plan are the following:

- Accessibility
- Reach
- Diversity/Equity
- Decision Integration

7.2 OUTREACH MEETINGS

A variety of public participation methods were used to facilitate public involvement throughout the Title VI Fare Equity Analysis. The public outreach included: agency coordination, public meetings, community events and transit center canvasing, notifications and announcements, website and social media and media coverage. The follow section describes these methods for engaging the target audiences and stakeholders.

7.2.1   Public Meetings

A series of six public meetings were scheduled across the region in key areas to present draft findings and obtain feedback on the Fare Equity Analysis. Meetings were provided to educate attendees on the project; obtain feedback on fare equity findings and provide input on any mitigation that may be needed. The following is a list of the meetings:

- Durham Station* - November 6, 2013
- One Exchange Plaza* - November 14, 2013
- Woodcroft Club - November 20, 2013
- Green Road Community Center - November 12, 2013
- Chapel Hill Public Library - November 18, 2013
- CAT Operations Facility - November 21, 2013

Summaries of the public meetings are provided in Appendix B.

7.2.2   Community Events and Canvassing

The project team attended a number of community events and/or meetings across the service area in an effort to engage a broader audience and specifically target Title VI populations and those interested in transit issues. The following is a list of community events and transit center canvassing areas:

- Viva Raleigh - October 12, 2013
- La Feria Salud – October 12, 2013
- Regional Transit Center - October 23, 2013
- Crabtree Valley Mall - October 23, 2013
- Cary Train Station - October 24, 2013
- Durham Station* - November 6, 2013
- Moore Square* - November 14, 2013

*At Durham Station and Moore Square, the project team facilitated a public meeting and participated in canvassing on the same day to effectively use project team and staff time to talk with both transit riders and stakeholders coming to the meeting.

Community Group Briefings

Transit agency staff and project team members have attended additional events and meetings held by community organizations to further educate Title VI populations and other community members about the project and solicit public comment. The following is a list of community meetings at which the transit agency staff attended to provide a project overview or update:

- Northeast Citizen Advisory Council - October 10, 2013
- Southeast Citizen Advisory Council – October 10, 2013
- Raleigh Mayor's Committee on Disabilities - October 17, 2013
- Midtown Citizen Advisory Council – November 7, 2013
- East Citizen Advisory Council - November 18, 2013
- Raleigh Citizen Advisory Council - November 20, 2013
- North Citizen Advisory Council - December 5, 2013

- Southeast Raleigh Association – December 12, 2013

7.2.3   Transit Agency Briefings

Coordination with regional transit provider agencies provides the opportunity for input and review of project information at key milestones. The project team attended the Triangle Transit and CAT committee and board meetings at the start of the study to introduce the project. The following is a list of meetings attended to date:

- Triangle Transit Operations and Finance Committee Meeting - October 3, 2013
- Raleigh Transit Authority (CAT) Board Meeting - October 10, 2013
- Triangle Transit Board of Trustees Meeting - October 31, 2013
- Triangle Transit Operations and Finance Committee – December 3, 2013
- Raleigh Transit Authority (CAT) Board Meeting – December 12, 2013
- Raleigh Transit Authority (CAT) Board Meeting – January 12, 2014

Upon completion of the Draft Fare Equity Analysis, the project team will attend additional agency meetings to obtain feedback on the findings and input into any proposed mitigation strategies. Public hearings will be scheduled to occur at each of the transit providers' local governing board meetings for adoption by agency boards of the Final Fare Equity Analysis.

7.3   COMMUNICATIONS METHODS

7.3.1   Notifications and Announcements

Several notification strategies were implemented to ensure the public is aware of upcoming opportunities to engage in the study. A series of flyers were created to convey key project information and to advertise the public forums. Flyers were strategically placed and/or distributed in public locations that were to reach the target audiences, including at transit centers, on buses and at other locations effective at reaching audiences with limited access to the online information. Notification materials were translated in Spanish to reach LEP populations. Copies of these handouts, flyers and notifications are found in the Summary of Public Outreach document (Appendix B).

7.3.2   Web-Based Communication and Social Media

Web-based communications and social media outreach was another portion of the public outreach strategies that was a highly effective tool in providing information quickly to a wide and diverse audience, all for little cost. Web page and social media content that was developed were provided for upload to regional partner agency and municipal websites, including Triangle Transit, City of Raleigh, City of Durham, Town of Cary and others. Project updates, announcements and links to study information and documents were included in the web page updates provided for on each agency's Facebook pages and Twitter pages and to community organizations. Press releases were developed and circulated to media outlets across the region and provided updates on the project and important meeting notifications. The news releases were distributed to minority and Spanish language media outlets to support outreach to Title VI minority population groups and those LEP populations. A copy of the notification list for all stakeholders is provided in the Public Participation Summary document.

7.3.3   Media Relations

News releases were used to provide information about the public workshops. News releases were provided to area newspapers, radio, and television broadcast stations and online forums.

7.4   MINORITY, LOW-INCOME, AND LIMITED-ENGLISH PROFICIENCY POPULATIONS

The demographic data identified a high proportion of Spanish speakers in the region and using transit services; therefore, translation services were recommended. Translation of vital project materials, such as handouts and comment forms, and targeted meetings were developed for groups that serve Spanish-speaking LEP populations and interpretation services were provided at select public forums and community events. The following public involvement and outreach tools were used to engage minority, low-income and LEP populations in the planning process.

- Presentations to key groups and organizations serving low-income, minority, senior, youth and disabled populations.
- Canvassing at transit stations as a large portion of the minority or low-income populations are transit dependent.
- Bus placards on CAT and Triangle Transit buses, again targeting riders
- Electronic and hardcopy notifications and announcements distributed to organizations that serve minority, low-income, and LEP populations
- Public meetings held in locations convenient to minority, low-income, and LEP populations
- Vital materials including project handout, comment form, flyer, and notifications translated in Spanish
- Canvassing at events that attract LEP populations
- Interpreters at appropriate public meetings and canvassing events

7.5   PUBLIC COMMENTS

Comment forms were collected at all community events and public meetings, and through a project webpage, dedicated phone line, and email. Information on name, address, email, stakeholder type, voluntary demographic data, transit system patronized, issues noted and specific comments were entered into a comment database. Comments collected totaled 329 and covered a variety of topics, many specific to the impacts of the proposed fare increases and other general transit-related comments. The comments were categorized into the following groups:

- **Fare increases will change ridership.** The most common response was that people are already facing financial hardship and will therefore have to ride less frequently due to the financial burden of the proposed fare increase. Some would look into other modes, such as walking or driving, or would get a different type of pass. Many commenters said they would need to restrict the number of destinations during their travel.
- **Fare increase will not change ridership, but have negative financial impacts**. Commenters stated that the cost of travel is already too expensive for some, especially for those who work part-time or minimum wage jobs. The second most frequent response was that transit service is the only option for transportation so the commenters will have to continue riding but re-examine their budgets.
- **No Change**. The third most common response was simply requesting no change to the fares.

- **Fare Increases will have Unfair Implications.** Commenters were concerned for riders who live on fixed-incomes, specifically disabled and senior riders. Additionally, commenters with families were concerned over the increase for children which would add an additional financial strain.
- **Support for the proposed fare increases.** Commenters were in general supportive of the proposed fare increases as a way to support funding for new buses and off-set the cost of rising fuel prices. While the fares may be increase many commenters found that the fares were less expensive than transit services in other places across the country.

In addition to responses to the proposed fare increases, some commenters provided suggestions for mitigation or information service riders may be interested in to help off-set the increase. Suggestions provided in the public comments include:

- Incentivizing buying a monthly pass with a larger discount or a payment plan
- Create a 'commuter pass' for people who only ride the bus five days a week
- Create a system for the fare increases where larger businesses pay a higher rate while individuals have a lower increase
- Start with a smaller increase and gradually increase over more years
- Determine fare increases based on the length of trip in terms of time and/or distance (similar to zone based fare structure)

Comment summaries that describe these trends in more detail as well as further detail on the outcomes of the public outreach are located in the Summary of Public Outreach (Appendix B).

8   Conclusion

This fare equity analysis has shown that the majority ridership for many of the fare types is the minority and low-income populations. However, when comparing the percentages by fare type to the overall minority and low-income ridership, there are only a few fare types that exceed agency thresholds for potential disparate impact and disproportionate burden:

- Express Day Pass (no disparate impact, potential for disproportionate burden)
- Express 31-Day Pass (potential for disparate impact, no disproportionate burden)
- GoPass (potential for disparate impact – CAT only – and potential for disproportionate burden – CAT and Triangle Transit)

As noted previously, Express Day Pass and 31-Day Pass users represent a very small portion of total ridership for Triangle Transit and the impact represents either a disparate impact or a disproportionate burden, but not both. Further, both are commuter routes. The new Express 7-Day pass included in the proposed fares introduces an alternative that can provide savings to Express Day Pass users impacted by the proposed fare increase. Express 31-Day Pass users may be able to access employer-based programs that could provide an alternative and savings on this monthly expenditure.

The GoPass program was initially developed to support transit ridership, which has historically been predominantly minority and low-income. The discounted passes are not offered directly by the transit agencies, but are made available through employer-based programs. While GoPass currently has higher relative utilization by non-minority and non-low-income populations, opportunities exist to offset the identified impact distribution inequity such as adjusting or enhancing mitigation programs/passes targeted to Title VI populations and/or expanding employer-based programs.

The proposed fare increases which range from 25 to 50 percent when fully implemented will impact Title VI populations, as minority and low-income riders represent a substantial majority of CAT riders and about half the Triangle Transit's riders. The implementation of phased increases to the fares provides mitigation from the impact of the proposed fare increases. Existing mitigation measures such as discount passes also help to off-set the identified impacts. Strategies for expanding existing mitigation measures that are being evaluated for implementation include promoting or adjusting pricing on non-profit pass bundles, expanding pass options and discounts for paratransit fares, enhancing marketing strategies for the Stored Value Card, and pursuing employer-based programs with additional, diverse employer types. Further discussion by CAT and Triangle Transit on mitigation strategies will refine these approaches for implementation to offset potential impacts that fare increases may have to Title VI populations.

The last fare increase for CAT was 2007 and 2010 for Triangle Transit. To address the rising operating costs, reductions in federal funding in recent years, relatively low farebox recovery levels and the need to continue to improve current services and coverage, the proposed fare increases are necessary to continue to meet the needs of the transit riders in the region and have been developed in a manner consistent with or reasonable in comparison with peer systems reviewed in development of the fare increase proposal. Furthermore, enhanced alternatives and mitigation measures have been proposed by the agencies to ensure all means of limiting these impacts to Title Vi populations will be taken prior to implementation of the fare increases.

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Appendix A: Demographic Data

DP-1   Profile of General Population and Housing Characteristics: 2010

2010 Demographic Profile Data

NOTE: For more information on confidentiality protection, nonsampling error, and definitions, see http://www.census.gov/prod/cen2010/doc/dpsf.pdf.

Geography: Raleigh city, North Carolina

Subject	Number	Percent
SEX AND AGE		
Total population	403,892	100.0
Under 5 years	29,027	7.2
5 to 9 years	26,366	6.5
10 to 14 years	23,957	5.9
15 to 19 years	29,151	7.2
20 to 24 years	40,864	10.1
25 to 29 years	38,927	9.6
30 to 34 years	35,493	8.8
35 to 39 years	32,267	8.0
40 to 44 years	28,949	7.2
45 to 49 years	26,508	6.6
50 to 54 years	23,526	5.8
55 to 59 years	19,845	4.9
60 to 64 years	15,874	3.9
65 to 69 years	10,482	2.6
70 to 74 years	7,205	1.8
75 to 79 years	5,849	1.4
80 to 84 years	4,648	1.2
85 years and over	4,954	1.2
Median age (years)	31.9	(X)
16 years and over	320,030	79.2
18 years and over	310,656	76.9
21 years and over	286,660	71.0
62 years and over	42,307	10.5
65 years and over	33,138	8.2
Male population	195,143	48.3
Under 5 years	14,748	3.7
5 to 9 years	13,382	3.3
10 to 14 years	11,989	3.0
15 to 19 years	14,722	3.6
20 to 24 years	20,617	5.1
25 to 29 years	19,086	4.7
30 to 34 years	17,286	4.3
35 to 39 years	15,740	3.9
40 to 44 years	14,267	3.5
45 to 49 years	12,720	3.1
50 to 54 years	11,181	2.8
55 to 59 years	9,037	2.2
60 to 64 years	7,139	1.8
65 to 69 years	4,660	1.2
70 to 74 years	3,005	0.7

Subject	Number	Percent
75 to 79 years	2,389	0.6
80 to 84 years	1,670	0.4
85 years and over	1,505	0.4
Median age (years)	30.8	(X)
16 years and over	152,741	37.8
18 years and over	147,943	36.6
21 years and over	135,910	33.7
62 years and over	17,398	4.3
65 years and over	13,229	3.3
Female population	208,749	51.7
Under 5 years	14,279	3.5
5 to 9 years	12,984	3.2
10 to 14 years	11,968	3.0
15 to 19 years	14,429	3.6
20 to 24 years	20,247	5.0
25 to 29 years	19,841	4.9
30 to 34 years	18,207	4.5
35 to 39 years	16,527	4.1
40 to 44 years	14,682	3.6
45 to 49 years	13,788	3.4
50 to 54 years	12,345	3.1
55 to 59 years	10,808	2.7
60 to 64 years	8,735	2.2
65 to 69 years	5,822	1.4
70 to 74 years	4,200	1.0
75 to 79 years	3,460	0.9
80 to 84 years	2,978	0.7
85 years and over	3,449	0.9
Median age (years)	32.8	(X)
16 years and over	167,289	41.4
18 years and over	162,713	40.3
21 years and over	150,750	37.3
62 years and over	24,909	6.2
65 years and over	19,909	4.9
RACE		
Total population	403,892	100.0
One Race	393,360	97.4
White	232,377	57.5
Black or African American	118,471	29.3
American Indian and Alaska Native	1,963	0.5
Asian	17,434	4.3
Asian Indian	4,681	1.2
Chinese	3,377	0.8
Filipino	1,486	0.4
Japanese	443	0.1
Korean	1,957	0.5
Vietnamese	2,954	0.7
Other Asian [1]	2,536	0.6
Native Hawaiian and Other Pacific Islander	173	0.0
Native Hawaiian	49	0.0
Guamanian or Chamorro	56	0.0
Samoan	10	0.0
Other Pacific Islander [2]	58	0.0
Some Other Race	22,942	5.7

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Subject	Number	Percent
Two or More Races	10,532	2.6
White; American Indian and Alaska Native [3]	831	0.2
White; Asian [3]	1,976	0.5
White; Black or African American [3]	2,853	0.7
White; Some Other Race [3]	1,372	0.3
Race alone or in combination with one or more other races: [4]		
White	240,430	59.5
Black or African American	124,035	30.7
American Indian and Alaska Native	4,541	1.1
Asian	20,389	5.0
Native Hawaiian and Other Pacific Islander	595	0.1
Some Other Race	25,553	6.3
HISPANIC OR LATINO		
Total population	403,892	100.0
Hispanic or Latino (of any race)	45,868	11.4
Mexican	23,867	5.9
Puerto Rican	4,340	1.1
Cuban	1,082	0.3
Other Hispanic or Latino [5]	16,579	4.1
Not Hispanic or Latino	358,024	88.6
HISPANIC OR LATINO AND RACE		
Total population	403,892	100.0
Hispanic or Latino	45,868	11.4
White alone	17,173	4.3
Black or African American alone	2,495	0.6
American Indian and Alaska Native alone	944	0.2
Asian alone	125	0.0
Native Hawaiian and Other Pacific Islander alone	34	0.0
Some Other Race alone	22,114	5.5
Two or More Races	2,983	0.7
Not Hispanic or Latino	358,024	88.6
White alone	215,204	53.3
Black or African American alone	115,976	28.7
American Indian and Alaska Native alone	1,019	0.3
Asian alone	17,309	4.3
Native Hawaiian and Other Pacific Islander alone	139	0.0
Some Other Race alone	828	0.2
Two or More Races	7,549	1.9
RELATIONSHIP		
Total population	403,892	100.0
In households	384,366	95.2
Householder	162,999	40.4
Spouse [6]	62,611	15.5
Child	104,034	25.8
Own child under 18 years	84,734	21.0
Other relatives	20,842	5.2
Under 18 years	6,711	1.7
65 years and over	2,419	0.6
Nonrelatives	33,880	8.4
Under 18 years	1,318	0.3
65 years and over	486	0.1
Unmarried partner	10,904	2.7
In group quarters	19,526	4.8
Institutionalized population	5,387	1.3
Male	2,742	0.7

Subject	Number	Percent
Female	2,645	0.7
Noninstitutionalized population	14,139	3.5
Male	7,242	1.8
Female	6,897	1.7
HOUSEHOLDS BY TYPE		
Total households	162,999	100.0
Family households (families) [7]	91,186	55.9
With own children under 18 years	47,218	29.0
Husband-wife family	62,611	38.4
With own children under 18 years	29,973	18.4
Male householder, no wife present	6,502	4.0
With own children under 18 years	3,169	1.9
Female householder, no husband present	22,073	13.5
With own children under 18 years	14,076	8.6
Nonfamily households [7]	71,813	44.1
Householder living alone	53,520	32.8
Male	22,629	13.9
65 years and over	2,563	1.6
Female	30,891	19.0
65 years and over	7,947	4.9
Households with individuals under 18 years	50,960	31.3
Households with individuals 65 years and over	24,449	15.0
Average household size	2.36	(X)
Average family size [7]	3.06	(X)
HOUSING OCCUPANCY		
Total housing units	176,124	100.0
Occupied housing units	162,999	92.5
Vacant housing units	13,125	7.5
For rent	6,645	3.8
Rented, not occupied	303	0.2
For sale only	2,361	1.3
Sold, not occupied	377	0.2
For seasonal, recreational, or occasional use	973	0.6
All other vacants	2,466	1.4
Homeowner vacancy rate (percent) [8]	2.6	(X)
Rental vacancy rate (percent) [9]	8.0	(X)
HOUSING TENURE		
Occupied housing units	162,999	100.0
Owner-occupied housing units	87,284	53.5
Population in owner-occupied housing units	213,149	(X)
Average household size of owner-occupied units	2.44	(X)
Renter-occupied housing units	75,715	46.5
Population in renter-occupied housing units	171,217	(X)
Average household size of renter-occupied units	2.26	(X)

X Not applicable.

[1] Other Asian alone, or two or more Asian categories.

[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

[3] One of the four most commonly reported multiple-race combinations nationwide in Census 2000.

[4] In combination with one or more of the other races listed. The six numbers may add to more than the total population, and the six percentages may add to more than 100 percent because individuals may report more than one race.
[5] This category is composed of people whose origins are from the Dominican Republic, Spain, and Spanish-speaking Central or South

American countries. It also includes general origin responses such as "Latino" or "Hispanic."

[6] "Spouse" represents spouse of the householder. It does not reflect all spouses in a household. Responses of "same-sex spouse" were edited during processing to "unmarried partner."

[7] "Family households" consist of a householder and one or more other people related to the householder by birth, marriage, or adoption. They do not include same-sex married couples even if the marriage was performed in a state issuing marriage certificates for same-sex couples. Same-sex couple households are included in the family households category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. "Nonfamily households" consist of people living alone and households which do not have any members related to the householder.

[8] The homeowner vacancy rate is the proportion of the homeowner inventory that is vacant "for sale." It is computed by dividing the total number of vacant units "for sale only" by the sum of owner-occupied units, vacant units that are "for sale only," and vacant units that have been sold but not yet occupied; and then multiplying by 100.

[9] The rental vacancy rate is the proportion of the rental inventory that is vacant "for rent." It is computed by dividing the total number of vacant units "for rent" by the sum of the renter-occupied units, vacant units that are "for rent," and vacant units that have been rented but not yet occupied; and then multiplying by 100.

Source: U.S. Census Bureau, 2010 Census.

U.S. Census Bureau

AMERICAN FactFinder

DP-1	Profile of General Population and Housing Characteristics: 2010
	2010 Demographic Profile Data

NOTE: For more information on confidentiality protection, nonsampling error, and definitions, see http://www.census.gov/prod/cen2010/doc/dpsf.pdf.

Geography: Durham city, North Carolina

Subject	Number	Percent
SEX AND AGE		
Total population	228,330	100.0
Under 5 years	17,583	7.7
5 to 9 years	14,305	6.3
10 to 14 years	12,492	5.5
15 to 19 years	15,754	6.9
20 to 24 years	21,370	9.4
25 to 29 years	23,144	10.1
30 to 34 years	21,248	9.3
35 to 39 years	17,675	7.7
40 to 44 years	14,845	6.5
45 to 49 years	14,320	6.3
50 to 54 years	13,419	5.9
55 to 59 years	12,209	5.3
60 to 64 years	9,820	4.3
65 to 69 years	6,347	2.8
70 to 74 years	4,266	1.9
75 to 79 years	3,414	1.5
80 to 84 years	2,927	1.3
85 years and over	3,192	1.4
Median age (years)	32.1	(X)
16 years and over	181,570	79.5
18 years and over	176,435	77.3
21 years and over	163,817	71.7
62 years and over	25,700	11.3
65 years and over	20,146	8.8
Male population	108,556	47.5
Under 5 years	9,035	4.0
5 to 9 years	7,242	3.2
10 to 14 years	6,387	2.8
15 to 19 years	7,848	3.4
20 to 24 years	10,130	4.4
25 to 29 years	10,800	4.7
30 to 34 years	10,488	4.6
35 to 39 years	8,757	3.8
40 to 44 years	7,227	3.2
45 to 49 years	6,785	3.0
50 to 54 years	6,075	2.7
55 to 59 years	5,436	2.4
60 to 64 years	4,464	2.0
65 to 69 years	2,771	1.2
70 to 74 years	1,819	0.8

Subject	Number	Percent
75 to 79 years	1,343	0.6
80 to 84 years	1,020	0.4
85 years and over	929	0.4
Median age (years)	31.2	(X)
16 years and over	84,648	37.1
18 years and over	82,060	35.9
21 years and over	75,934	33.3
62 years and over	10,371	4.5
65 years and over	7,882	3.5
Female population	119,774	52.5
Under 5 years	8,548	3.7
5 to 9 years	7,063	3.1
10 to 14 years	6,105	2.7
15 to 19 years	7,906	3.5
20 to 24 years	11,240	4.9
25 to 29 years	12,344	5.4
30 to 34 years	10,760	4.7
35 to 39 years	8,918	3.9
40 to 44 years	7,618	3.3
45 to 49 years	7,535	3.3
50 to 54 years	7,344	3.2
55 to 59 years	6,773	3.0
60 to 64 years	5,356	2.3
65 to 69 years	3,576	1.6
70 to 74 years	2,447	1.1
75 to 79 years	2,071	0.9
80 to 84 years	1,907	0.8
85 years and over	2,263	1.0
Median age (years)	32.9	(X)
16 years and over	96,922	42.4
18 years and over	94,375	41.3
21 years and over	87,883	38.5
62 years and over	15,329	6.7
65 years and over	12,264	5.4
RACE		
Total population	228,330	100.0
One Race	222,265	97.3
White	96,932	42.5
Black or African American	93,517	41.0
American Indian and Alaska Native	1,161	0.5
Asian	11,574	5.1
Asian Indian	2,982	1.3
Chinese	3,019	1.3
Filipino	1,130	0.5
Japanese	380	0.2
Korean	947	0.4
Vietnamese	701	0.3
Other Asian [1]	2,415	1.1
Native Hawaiian and Other Pacific Islander	166	0.1
Native Hawaiian	34	0.0
Guamanian or Chamorro	33	0.0
Samoan	14	0.0
Other Pacific Islander [2]	85	0.0
Some Other Race	18,915	8.3

Subject	Number	Percent
Two or More Races	6,065	2.7
White; American Indian and Alaska Native [3]	424	0.2
White; Asian [3]	1,004	0.4
White; Black or African American [3]	1,530	0.7
White; Some Other Race [3]	1,028	0.5
Race alone or in combination with one or more other races: [4]		
White	101,410	44.4
Black or African American	96,706	42.4
American Indian and Alaska Native	2,744	1.2
Asian	13,147	5.8
Native Hawaiian and Other Pacific Islander	331	0.1
Some Other Race	20,632	9.0
HISPANIC OR LATINO		
Total population	228,330	100.0
Hispanic or Latino (of any race)	32,459	14.2
Mexican	17,626	7.7
Puerto Rican	1,641	0.7
Cuban	445	0.2
Other Hispanic or Latino [5]	12,747	5.6
Not Hispanic or Latino	195,871	85.8
HISPANIC OR LATINO AND RACE		
Total population	228,330	100.0
Hispanic or Latino	32,459	14.2
White alone	10,413	4.6
Black or African American alone	1,232	0.5
American Indian and Alaska Native alone	550	0.2
Asian alone	96	0.0
Native Hawaiian and Other Pacific Islander alone	37	0.0
Some Other Race alone	18,299	8.0
Two or More Races	1,832	0.8
Not Hispanic or Latino	195,871	85.8
White alone	86,519	37.9
Black or African American alone	92,285	40.4
American Indian and Alaska Native alone	611	0.3
Asian alone	11,478	5.0
Native Hawaiian and Other Pacific Islander alone	129	0.1
Some Other Race alone	616	0.3
Two or More Races	4,233	1.9
RELATIONSHIP		
Total population	228,330	100.0
In households	218,394	95.6
Householder	93,441	40.9
Spouse [6]	33,826	14.8
Child	57,893	25.4
Own child under 18 years	45,524	19.9
Other relatives	15,239	6.7
Under 18 years	5,366	2.4
65 years and over	1,577	0.7
Nonrelatives	17,995	7.9
Under 18 years	795	0.3
65 years and over	370	0.2
Unmarried partner	6,640	2.9
In group quarters	9,936	4.4
Institutionalized population	1,962	0.9
Male	1,146	0.5

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Subject	Number	Percent
Female	816	0.4
Noninstitutionalized population	7,974	3.5
Male	4,044	1.8
Female	3,930	1.7
HOUSEHOLDS BY TYPE		
Total households	93,441	100.0
Family households (families) [7]	52,409	56.1
With own children under 18 years	25,706	27.5
Husband-wife family	33,826	36.2
With own children under 18 years	15,164	16.2
Male householder, no wife present	4,057	4.3
With own children under 18 years	1,868	2.0
Female householder, no husband present	14,526	15.5
With own children under 18 years	8,674	9.3
Nonfamily households [7]	41,032	43.9
Householder living alone	31,444	33.7
Male	12,616	13.5
65 years and over	1,692	1.8
Female	18,828	20.1
65 years and over	4,826	5.2
Households with individuals under 18 years	28,717	30.7
Households with individuals 65 years and over	15,117	16.2
Average household size	2.34	(X)
Average family size [7]	3.04	(X)
HOUSING OCCUPANCY		
Total housing units	103,221	100.0
Occupied housing units	93,441	90.5
Vacant housing units	9,780	9.5
For rent	5,457	5.3
Rented, not occupied	158	0.2
For sale only	1,562	1.5
Sold, not occupied	324	0.3
For seasonal, recreational, or occasional use	359	0.3
All other vacants	1,920	1.9
Homeowner vacancy rate (percent) [8]	3.2	(X)
Rental vacancy rate (percent) [9]	10.4	(X)
HOUSING TENURE		
Occupied housing units	93,441	100.0
Owner-occupied housing units	46,570	49.8
Population in owner-occupied housing units	112,215	(X)
Average household size of owner-occupied units	2.41	(X)
Renter-occupied housing units	46,871	50.2
Population in renter-occupied housing units	106,179	(X)
Average household size of renter-occupied units	2.27	(X)

X Not applicable.

[1] Other Asian alone, or two or more Asian categories.

[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

[3] One of the four most commonly reported multiple-race combinations nationwide in Census 2000.

[4] In combination with one or more of the other races listed. The six numbers may add to more than the total population, and the six percentages may add to more than 100 percent because individuals may report more than one race.

[5] This category is composed of people whose origins are from the Dominican Republic, Spain, and Spanish-speaking Central or South

American countries. It also includes general origin responses such as "Latino" or "Hispanic."

[6] "Spouse" represents spouse of the householder. It does not reflect all spouses in a household. Responses of "same-sex spouse" were edited during processing to "unmarried partner."

[7] "Family households" consist of a householder and one or more other people related to the householder by birth, marriage, or adoption. They do not include same-sex married couples even if the marriage was performed in a state issuing marriage certificates for same-sex couples. Same-sex couple households are included in the family households category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. "Nonfamily households" consist of people living alone and households which do not have any members related to the householder.

[8] The homeowner vacancy rate is the proportion of the homeowner inventory that is vacant "for sale." It is computed by dividing the total number of vacant units "for sale only" by the sum of owner-occupied units, vacant units that are "for sale only," and vacant units that have been sold but not yet occupied; and then multiplying by 100.

[9] The rental vacancy rate is the proportion of the rental inventory that is vacant "for rent." It is computed by dividing the total number of vacant units "for rent" by the sum of the renter-occupied units, vacant units that are "for rent," and vacant units that have been rented but not yet occupied; and then multiplying by 100.

Source: U.S. Census Bureau, 2010 Census.

AMERICAN
FactFinder

DP-1	Profile of General Population and Housing Characteristics: 2010
	2010 Demographic Profile Data

NOTE: For more information on confidentiality protection, nonsampling error, and definitions, see http://www.census.gov/prod/cen2010/doc/dpsf.pdf.

Geography: Cary town, North Carolina

Subject	Number	Percent
SEX AND AGE		
Total population	135,234	100.0
Under 5 years	9,444	7.0
5 to 9 years	11,014	8.1
10 to 14 years	10,703	7.9
15 to 19 years	8,681	6.4
20 to 24 years	6,245	4.6
25 to 29 years	8,568	6.3
30 to 34 years	9,513	7.0
35 to 39 years	11,095	8.2
40 to 44 years	12,057	8.9
45 to 49 years	12,181	9.0
50 to 54 years	10,337	7.6
55 to 59 years	7,662	5.7
60 to 64 years	6,050	4.5
65 to 69 years	4,176	3.1
70 to 74 years	2,733	2.0
75 to 79 years	1,950	1.4
80 to 84 years	1,493	1.1
85 years and over	1,332	1.0
Median age (years)	36.6	(X)
16 years and over	101,901	75.4
18 years and over	97,724	72.3
21 years and over	94,474	69.9
62 years and over	15,251	11.3
65 years and over	11,684	8.6
Male population	65,819	48.7
Under 5 years	4,846	3.6
5 to 9 years	5,514	4.1
10 to 14 years	5,442	4.0
15 to 19 years	4,499	3.3
20 to 24 years	3,028	2.2
25 to 29 years	4,157	3.1
30 to 34 years	4,557	3.4
35 to 39 years	5,381	4.0
40 to 44 years	5,908	4.4
45 to 49 years	5,978	4.4
50 to 54 years	4,970	3.7
55 to 59 years	3,716	2.7
60 to 64 years	2,805	2.1
65 to 69 years	1,953	1.4
70 to 74 years	1,222	0.9

Subject	Number	Percent
75 to 79 years	888	0.7
80 to 84 years	552	0.4
85 years and over	403	0.3
Median age (years)	35.9	(X)
16 years and over	48,884	36.1
18 years and over	46,781	34.6
21 years and over	45,044	33.3
62 years and over	6,650	4.9
65 years and over	5,018	3.7
Female population	69,415	51.3
Under 5 years	4,598	3.4
5 to 9 years	5,500	4.1
10 to 14 years	5,261	3.9
15 to 19 years	4,182	3.1
20 to 24 years	3,217	2.4
25 to 29 years	4,411	3.3
30 to 34 years	4,956	3.7
35 to 39 years	5,714	4.2
40 to 44 years	6,149	4.5
45 to 49 years	6,203	4.6
50 to 54 years	5,367	4.0
55 to 59 years	3,946	2.9
60 to 64 years	3,245	2.4
65 to 69 years	2,223	1.6
70 to 74 years	1,511	1.1
75 to 79 years	1,062	0.8
80 to 84 years	941	0.7
85 years and over	929	0.7
Median age (years)	37.3	(X)
16 years and over	53,017	39.2
18 years and over	50,943	37.7
21 years and over	49,430	36.6
62 years and over	8,601	6.4
65 years and over	6,666	4.9
RACE		
Total population	135,234	100.0
One Race	131,727	97.4
White	98,907	73.1
Black or African American	10,787	8.0
American Indian and Alaska Native	559	0.4
Asian	17,668	13.1
Asian Indian	8,769	6.5
Chinese	4,294	3.2
Filipino	582	0.4
Japanese	314	0.2
Korean	1,273	0.9
Vietnamese	969	0.7
Other Asian [1]	1,467	1.1
Native Hawaiian and Other Pacific Islander	46	0.0
Native Hawaiian	19	0.0
Guamanian or Chamorro	15	0.0
Samoan	1	0.0
Other Pacific Islander [2]	11	0.0
Some Other Race	3,760	2.8

Subject	Number	Percent
Two or More Races	3,507	2.6
White; American Indian and Alaska Native [3]	385	0.3
White; Asian [3]	1,193	0.9
White; Black or African American [3]	667	0.5
White; Some Other Race [3]	316	0.2
Race alone or in combination with one or more other races: [4]		
White	101,785	75.3
Black or African American	11,966	8.8
American Indian and Alaska Native	1,353	1.0
Asian	19,370	14.3
Native Hawaiian and Other Pacific Islander	179	0.1
Some Other Race	4,432	3.3
HISPANIC OR LATINO		
Total population	135,234	100.0
Hispanic or Latino (of any race)	10,364	7.7
Mexican	5,012	3.7
Puerto Rican	1,169	0.9
Cuban	529	0.4
Other Hispanic or Latino [5]	3,654	2.7
Not Hispanic or Latino	124,870	92.3
HISPANIC OR LATINO AND RACE		
Total population	135,234	100.0
Hispanic or Latino	10,364	7.7
White alone	5,705	4.2
Black or African American alone	302	0.2
American Indian and Alaska Native alone	275	0.2
Asian alone	48	0.0
Native Hawaiian and Other Pacific Islander alone	7	0.0
Some Other Race alone	3,426	2.5
Two or More Races	601	0.4
Not Hispanic or Latino	124,870	92.3
White alone	93,202	68.9
Black or African American alone	10,485	7.8
American Indian and Alaska Native alone	284	0.2
Asian alone	17,620	13.0
Native Hawaiian and Other Pacific Islander alone	39	0.0
Some Other Race alone	334	0.2
Two or More Races	2,906	2.1
RELATIONSHIP		
Total population	135,234	100.0
In households	134,974	99.8
Householder	51,791	38.3
Spouse [6]	30,722	22.7
Child	42,675	31.6
Own child under 18 years	36,208	26.8
Other relatives	4,614	3.4
Under 18 years	1,052	0.8
65 years and over	1,212	0.9
Nonrelatives	5,172	3.8
Under 18 years	240	0.2
65 years and over	171	0.1
Unmarried partner	2,371	1.8
In group quarters	260	0.2
Institutionalized population	211	0.2
Male	61	0.0

Subject	Number	Percent
Female	150	0.1
Noninstitutionalized population	49	0.0
Male	31	0.0
Female	18	0.0
HOUSEHOLDS BY TYPE		
Total households	51,791	100.0
Family households (families) [7]	36,344	70.2
With own children under 18 years	20,059	38.7
Husband-wife family	30,722	59.3
With own children under 18 years	16,507	31.9
Male householder, no wife present	1,535	3.0
With own children under 18 years	854	1.6
Female householder, no husband present	4,087	7.9
With own children under 18 years	2,698	5.2
Nonfamily households [7]	15,447	29.8
Householder living alone	12,363	23.9
Male	4,930	9.5
65 years and over	582	1.1
Female	7,433	14.4
65 years and over	2,346	4.5
Households with individuals under 18 years	20,694	40.0
Households with individuals 65 years and over	8,398	16.2
Average household size	2.61	(X)
Average family size [7]	3.15	(X)
HOUSING OCCUPANCY		
Total housing units	55,303	100.0
Occupied housing units	51,791	93.6
Vacant housing units	3,512	6.4
For rent	1,590	2.9
Rented, not occupied	89	0.2
For sale only	779	1.4
Sold, not occupied	264	0.5
For seasonal, recreational, or occasional use	379	0.7
All other vacants	411	0.7
Homeowner vacancy rate (percent) [8]	2.1	(X)
Rental vacancy rate (percent) [9]	8.9	(X)
HOUSING TENURE		
Occupied housing units	51,791	100.0
Owner-occupied housing units	35,656	68.8
Population in owner-occupied housing units	99,207	(X)
Average household size of owner-occupied units	2.78	(X)
Renter-occupied housing units	16,135	31.2
Population in renter-occupied housing units	35,767	(X)
Average household size of renter-occupied units	2.22	(X)

X Not applicable.

[1] Other Asian alone, or two or more Asian categories.

[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

[3] One of the four most commonly reported multiple-race combinations nationwide in Census 2000.

[4] In combination with one or more of the other races listed. The six numbers may add to more than the total population, and the six percentages may add to more than 100 percent because individuals may report more than one race.

[5] This category is composed of people whose origins are from the Dominican Republic, Spain, and Spanish-speaking Central or South

American countries. It also includes general origin responses such as "Latino" or "Hispanic."

[6] "Spouse" represents spouse of the householder. It does not reflect all spouses in a household. Responses of "same-sex spouse" were edited during processing to "unmarried partner."

[7] "Family households" consist of a householder and one or more other people related to the householder by birth, marriage, or adoption. They do not include same-sex married couples even if the marriage was performed in a state issuing marriage certificates for same-sex couples. Same-sex couple households are included in the family households category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. "Nonfamily households" consist of people living alone and households which do not have any members related to the householder.

[8] The homeowner vacancy rate is the proportion of the homeowner inventory that is vacant "for sale." It is computed by dividing the total number of vacant units "for sale only" by the sum of owner-occupied units, vacant units that are "for sale only," and vacant units that have been sold but not yet occupied; and then multiplying by 100.

[9] The rental vacancy rate is the proportion of the rental inventory that is vacant "for rent." It is computed by dividing the total number of vacant units "for rent" by the sum of the renter-occupied units, vacant units that are "for rent," and vacant units that have been rented but not yet occupied; and then multiplying by 100.

Source: U.S. Census Bureau, 2010 Census.

AMERICAN
FactFinder

DP-1	Profile of General Population and Housing Characteristics: 2010
	2010 Demographic Profile Data

NOTE: For more information on confidentiality protection, nonsampling error, and definitions, see http://www.census.gov/prod/cen2010/doc/dpsf.pdf.

Geography: Chapel Hill town, North Carolina

Subject	Number	Percent
SEX AND AGE		
Total population	57,233	100.0
Under 5 years	2,391	4.2
5 to 9 years	2,909	5.1
10 to 14 years	2,896	5.1
15 to 19 years	7,693	13.4
20 to 24 years	12,065	21.1
25 to 29 years	4,410	7.7
30 to 34 years	3,069	5.4
35 to 39 years	2,823	4.9
40 to 44 years	3,199	5.6
45 to 49 years	3,016	5.3
50 to 54 years	2,911	5.1
55 to 59 years	2,518	4.4
60 to 64 years	2,052	3.6
65 to 69 years	1,553	2.7
70 to 74 years	1,085	1.9
75 to 79 years	950	1.7
80 to 84 years	803	1.4
85 years and over	890	1.6
Median age (years)	25.6	(X)
16 years and over	48,448	84.7
18 years and over	47,288	82.6
21 years and over	37,805	66.1
62 years and over	6,430	11.2
65 years and over	5,281	9.2
Male population	26,661	46.6
Under 5 years	1,267	2.2
5 to 9 years	1,527	2.7
10 to 14 years	1,458	2.5
15 to 19 years	3,364	5.9
20 to 24 years	5,354	9.4
25 to 29 years	2,128	3.7
30 to 34 years	1,548	2.7
35 to 39 years	1,321	2.3
40 to 44 years	1,567	2.7
45 to 49 years	1,461	2.6
50 to 54 years	1,366	2.4
55 to 59 years	1,209	2.1
60 to 64 years	928	1.6
65 to 69 years	698	1.2
70 to 74 years	463	0.8

Subject	Number	Percent
75 to 79 years	400	0.7
80 to 84 years	319	0.6
85 years and over	283	0.5
Median age (years)	25.7	(X)
16 years and over	22,106	38.6
18 years and over	21,525	37.6
21 years and over	17,553	30.7
62 years and over	2,670	4.7
65 years and over	2,163	3.8
Female population	30,572	53.4
Under 5 years	1,124	2.0
5 to 9 years	1,382	2.4
10 to 14 years	1,438	2.5
15 to 19 years	4,329	7.6
20 to 24 years	6,711	11.7
25 to 29 years	2,282	4.0
30 to 34 years	1,521	2.7
35 to 39 years	1,502	2.6
40 to 44 years	1,632	2.9
45 to 49 years	1,555	2.7
50 to 54 years	1,545	2.7
55 to 59 years	1,309	2.3
60 to 64 years	1,124	2.0
65 to 69 years	855	1.5
70 to 74 years	622	1.1
75 to 79 years	550	1.0
80 to 84 years	484	0.8
85 years and over	607	1.1
Median age (years)	25.5	(X)
16 years and over	26,342	46.0
18 years and over	25,763	45.0
21 years and over	20,252	35.4
62 years and over	3,760	6.6
65 years and over	3,118	5.4
RACE		
Total population	57,233	100.0
One Race	55,685	97.3
White	41,641	72.8
Black or African American	5,530	9.7
American Indian and Alaska Native	176	0.3
Asian	6,788	11.9
Asian Indian	1,260	2.2
Chinese	2,819	4.9
Filipino	155	0.3
Japanese	293	0.5
Korean	1,285	2.2
Vietnamese	186	0.3
Other Asian [1]	790	1.4
Native Hawaiian and Other Pacific Islander	14	0.0
Native Hawaiian	3	0.0
Guamanian or Chamorro	3	0.0
Samoan	2	0.0
Other Pacific Islander [2]	6	0.0
Some Other Race	1,536	2.7

Subject	Number	Percent
Two or More Races	1,548	2.7
White; American Indian and Alaska Native [3]	157	0.3
White; Asian [3]	604	1.1
White; Black or African American [3]	325	0.6
White; Some Other Race [3]	158	0.3
Race alone or in combination with one or more other races: [4]		
White	43,000	75.1
Black or African American	6,061	10.6
American Indian and Alaska Native	471	0.8
Asian	7,548	13.2
Native Hawaiian and Other Pacific Islander	55	0.1
Some Other Race	1,782	3.1
HISPANIC OR LATINO		
Total population	57,233	100.0
Hispanic or Latino (of any race)	3,638	6.4
Mexican	1,566	2.7
Puerto Rican	332	0.6
Cuban	197	0.3
Other Hispanic or Latino [5]	1,543	2.7
Not Hispanic or Latino	53,595	93.6
HISPANIC OR LATINO AND RACE		
Total population	57,233	100.0
Hispanic or Latino	3,638	6.4
White alone	1,864	3.3
Black or African American alone	70	0.1
American Indian and Alaska Native alone	24	0.0
Asian alone	13	0.0
Native Hawaiian and Other Pacific Islander alone	3	0.0
Some Other Race alone	1,398	2.4
Two or More Races	266	0.5
Not Hispanic or Latino	53,595	93.6
White alone	39,777	69.5
Black or African American alone	5,460	9.5
American Indian and Alaska Native alone	152	0.3
Asian alone	6,775	11.8
Native Hawaiian and Other Pacific Islander alone	11	0.0
Some Other Race alone	138	0.2
Two or More Races	1,282	2.2
RELATIONSHIP		
Total population	57,233	100.0
In households	48,230	84.3
Householder	20,564	35.9
Spouse [6]	8,299	14.5
Child	11,179	19.5
Own child under 18 years	9,491	16.6
Other relatives	1,366	2.4
Under 18 years	306	0.5
65 years and over	276	0.5
Nonrelatives	6,822	11.9
Under 18 years	72	0.1
65 years and over	89	0.2
Unmarried partner	981	1.7
In group quarters	9,003	15.7
Institutionalized population	258	0.5
Male	84	0.1

Subject	Number	Percent
Female	174	0.3
Noninstitutionalized population	8,745	15.3
Male	3,709	6.5
Female	5,036	8.8
HOUSEHOLDS BY TYPE		
Total households	20,564	100.0
Family households (families) [7]	10,501	51.1
With own children under 18 years	5,383	26.2
Husband-wife family	8,299	40.4
With own children under 18 years	4,076	19.8
Male householder, no wife present	523	2.5
With own children under 18 years	244	1.2
Female householder, no husband present	1,679	8.2
With own children under 18 years	1,063	5.2
Nonfamily households [7]	10,063	48.9
Householder living alone	6,287	30.6
Male	2,541	12.4
65 years and over	365	1.8
Female	3,746	18.2
65 years and over	1,223	5.9
Households with individuals under 18 years	5,560	27.0
Households with individuals 65 years and over	3,738	18.2
Average household size	2.35	(X)
Average family size [7]	2.98	(X)
HOUSING OCCUPANCY		
Total housing units	22,254	100.0
Occupied housing units	20,564	92.4
Vacant housing units	1,690	7.6
For rent	827	3.7
Rented, not occupied	59	0.3
For sale only	265	1.2
Sold, not occupied	60	0.3
For seasonal, recreational, or occasional use	210	0.9
All other vacants	269	1.2
Homeowner vacancy rate (percent) [8]	2.6	(X)
Rental vacancy rate (percent) [9]	7.1	(X)
HOUSING TENURE		
Occupied housing units	20,564	100.0
Owner-occupied housing units	9,784	47.6
Population in owner-occupied housing units	24,577	(X)
Average household size of owner-occupied units	2.51	(X)
Renter-occupied housing units	10,780	52.4
Population in renter-occupied housing units	23,653	(X)
Average household size of renter-occupied units	2.19	(X)

X Not applicable.

[1] Other Asian alone, or two or more Asian categories.

[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

[3] One of the four most commonly reported multiple-race combinations nationwide in Census 2000.

[4] In combination with one or more of the other races listed. The six numbers may add to more than the total population, and the six percentages may add to more than 100 percent because individuals may report more than one race.

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American countries. It also includes general origin responses such as "Latino" or "Hispanic."

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[8] The homeowner vacancy rate is the proportion of the homeowner inventory that is vacant "for sale." It is computed by dividing the total number of vacant units "for sale only" by the sum of owner-occupied units, vacant units that are "for sale only," and vacant units that have been sold but not yet occupied; and then multiplying by 100.

[9] The rental vacancy rate is the proportion of the rental inventory that is vacant "for rent." It is computed by dividing the total number of vacant units "for rent" by the sum of the renter-occupied units, vacant units that are "for rent," and vacant units that have been rented but not yet occupied; and then multiplying by 100.

Source: U.S. Census Bureau, 2010 Census.

U.S. Census Bureau

AMERICAN FactFinder

DP-1 | Profile of General Population and Housing Characteristics: 2010

2010 Demographic Profile Data

NOTE: For more information on confidentiality protection, nonsampling error, and definitions, see http://www.census.gov/prod/cen2010/doc/dpsf.pdf.

Geography: Wake County, North Carolina

Subject	Number	Percent
SEX AND AGE		
Total population	900,993	100.0
Under 5 years	65,495	7.3
5 to 9 years	68,093	7.6
10 to 14 years	64,118	7.1
15 to 19 years	61,816	6.9
20 to 24 years	62,344	6.9
25 to 29 years	66,814	7.4
30 to 34 years	70,112	7.8
35 to 39 years	73,837	8.2
40 to 44 years	72,271	8.0
45 to 49 years	69,847	7.8
50 to 54 years	61,100	6.8
55 to 59 years	49,052	5.4
60 to 64 years	39,545	4.4
65 to 69 years	26,590	3.0
70 to 74 years	17,801	2.0
75 to 79 years	13,083	1.5
80 to 84 years	9,721	1.1
85 years and over	9,354	1.0
Median age (years)	34.4	(X)
16 years and over	690,874	76.7
18 years and over	666,380	74.0
21 years and over	628,898	69.8
62 years and over	99,523	11.0
65 years and over	76,549	8.5
Male population	438,792	48.7
Under 5 years	33,312	3.7
5 to 9 years	34,517	3.8
10 to 14 years	32,654	3.6
15 to 19 years	31,771	3.5
20 to 24 years	31,549	3.5
25 to 29 years	32,516	3.6
30 to 34 years	33,713	3.7
35 to 39 years	35,981	4.0
40 to 44 years	35,457	3.9
45 to 49 years	33,975	3.8
50 to 54 years	29,627	3.3
55 to 59 years	23,075	2.6
60 to 64 years	18,426	2.0
65 to 69 years	12,443	1.4
70 to 74 years	7,833	0.9

Subject	Number	Percent
75 to 79 years	5,558	0.6
80 to 84 years	3,624	0.4
85 years and over	2,761	0.3
Median age (years)	33.4	(X)
16 years and over	331,961	36.8
18 years and over	319,370	35.4
21 years and over	300,055	33.3
62 years and over	42,974	4.8
65 years and over	32,219	3.6
Female population	462,201	51.3
Under 5 years	32,183	3.6
5 to 9 years	33,576	3.7
10 to 14 years	31,464	3.5
15 to 19 years	30,045	3.3
20 to 24 years	30,795	3.4
25 to 29 years	34,298	3.8
30 to 34 years	36,399	4.0
35 to 39 years	37,856	4.2
40 to 44 years	36,814	4.1
45 to 49 years	35,872	4.0
50 to 54 years	31,473	3.5
55 to 59 years	25,977	2.9
60 to 64 years	21,119	2.3
65 to 69 years	14,147	1.6
70 to 74 years	9,968	1.1
75 to 79 years	7,525	0.8
80 to 84 years	6,097	0.7
85 years and over	6,593	0.7
Median age (years)	35.3	(X)
16 years and over	358,913	39.8
18 years and over	347,010	38.5
21 years and over	328,843	36.5
62 years and over	56,549	6.3
65 years and over	44,330	4.9
RACE		
Total population	900,993	100.0
One Race	878,427	97.5
White	597,546	66.3
Black or African American	186,510	20.7
American Indian and Alaska Native	4,503	0.5
Asian	48,553	5.4
Asian Indian	19,935	2.2
Chinese	9,882	1.1
Filipino	3,096	0.3
Japanese	1,023	0.1
Korean	4,213	0.5
Vietnamese	4,967	0.6
Other Asian [1]	5,437	0.6
Native Hawaiian and Other Pacific Islander	387	0.0
Native Hawaiian	105	0.0
Guamanian or Chamorro	129	0.0
Samoan	20	0.0
Other Pacific Islander [2]	133	0.0
Some Other Race	40,928	4.5

Subject	Number	Percent
Two or More Races	22,566	2.5
White; American Indian and Alaska Native [3]	2,352	0.3
White; Asian [3]	4,988	0.6
White; Black or African American [3]	5,749	0.6
White; Some Other Race [3]	2,842	0.3
Race alone or in combination with one or more other races: [4]		
White	615,587	68.3
Black or African American	197,078	21.9
American Indian and Alaska Native	10,150	1.1
Asian	55,721	6.2
Native Hawaiian and Other Pacific Islander	1,195	0.1
Some Other Race	46,067	5.1
HISPANIC OR LATINO		
Total population	900,993	100.0
Hispanic or Latino (of any race)	87,922	9.8
Mexican	47,680	5.3
Puerto Rican	8,869	1.0
Cuban	2,616	0.3
Other Hispanic or Latino [5]	28,757	3.2
Not Hispanic or Latino	813,071	90.2
HISPANIC OR LATINO AND RACE		
Total population	900,993	100.0
Hispanic or Latino	87,922	9.8
White alone	37,010	4.1
Black or African American alone	3,717	0.4
American Indian and Alaska Native alone	1,966	0.2
Asian alone	266	0.0
Native Hawaiian and Other Pacific Islander alone	70	0.0
Some Other Race alone	39,173	4.3
Two or More Races	5,720	0.6
Not Hispanic or Latino	813,071	90.2
White alone	560,536	62.2
Black or African American alone	182,793	20.3
American Indian and Alaska Native alone	2,537	0.3
Asian alone	48,287	5.4
Native Hawaiian and Other Pacific Islander alone	317	0.0
Some Other Race alone	1,755	0.2
Two or More Races	16,846	1.9
RELATIONSHIP		
Total population	900,993	100.0
In households	880,010	97.7
Householder	345,645	38.4
Spouse [6]	174,737	19.4
Child	265,530	29.5
Own child under 18 years	218,088	24.2
Other relatives	41,660	4.6
Under 18 years	13,448	1.5
65 years and over	6,601	0.7
Nonrelatives	52,438	5.8
Under 18 years	2,540	0.3
65 years and over	1,177	0.1
Unmarried partner	19,531	2.2
In group quarters	20,983	2.3
Institutionalized population	6,279	0.7
Male	2,995	0.3

Subject	Number	Percent
Female	3,284	0.4
Noninstitutionalized population	14,704	1.6
Male	7,573	0.8
Female	7,131	0.8
HOUSEHOLDS BY TYPE		
Total households	345,645	100.0
Family households (families) [7]	227,117	65.7
With own children under 18 years	119,544	34.6
Husband-wife family	174,737	50.6
With own children under 18 years	88,130	25.5
Male householder, no wife present	12,735	3.7
With own children under 18 years	6,505	1.9
Female householder, no husband present	39,645	11.5
With own children under 18 years	24,909	7.2
Nonfamily households [7]	118,528	34.3
Householder living alone	90,976	26.3
Male	38,430	11.1
65 years and over	4,927	1.4
Female	52,546	15.2
65 years and over	15,454	4.5
Households with individuals under 18 years	127,213	36.8
Households with individuals 65 years and over	55,711	16.1
Average household size	2.55	(X)
Average family size [7]	3.12	(X)
HOUSING OCCUPANCY		
Total housing units	371,836	100.0
Occupied housing units	345,645	93.0
Vacant housing units	26,191	7.0
For rent	11,146	3.0
Rented, not occupied	532	0.1
For sale only	5,904	1.6
Sold, not occupied	1,074	0.3
For seasonal, recreational, or occasional use	1,932	0.5
All other vacants	5,603	1.5
Homeowner vacancy rate (percent) [8]	2.5	(X)
Rental vacancy rate (percent) [9]	8.4	(X)
HOUSING TENURE		
Occupied housing units	345,645	100.0
Owner-occupied housing units	225,154	65.1
Population in owner-occupied housing units	599,727	(X)
Average household size of owner-occupied units	2.66	(X)
Renter-occupied housing units	120,491	34.9
Population in renter-occupied housing units	280,283	(X)
Average household size of renter-occupied units	2.33	(X)

X Not applicable.

[1] Other Asian alone, or two or more Asian categories.

[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

[3] One of the four most commonly reported multiple-race combinations nationwide in Census 2000.

[4] In combination with one or more of the other races listed. The six numbers may add to more than the total population, and the six percentages may add to more than 100 percent because individuals may report more than one race.
[5] This category is composed of people whose origins are from the Dominican Republic, Spain, and Spanish-speaking Central or South

American countries. It also includes general origin responses such as "Latino" or "Hispanic."

[6] "Spouse" represents spouse of the householder. It does not reflect all spouses in a household. Responses of "same-sex spouse" were edited during processing to "unmarried partner."

[7] "Family households" consist of a householder and one or more other people related to the householder by birth, marriage, or adoption. They do not include same-sex married couples even if the marriage was performed in a state issuing marriage certificates for same-sex couples. Same-sex couple households are included in the family households category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. "Nonfamily households" consist of people living alone and households which do not have any members related to the householder.

[8] The homeowner vacancy rate is the proportion of the homeowner inventory that is vacant "for sale." It is computed by dividing the total number of vacant units "for sale only" by the sum of owner-occupied units, vacant units that are "for sale only," and vacant units that have been sold but not yet occupied; and then multiplying by 100.

[9] The rental vacancy rate is the proportion of the rental inventory that is vacant "for rent." It is computed by dividing the total number of vacant units "for rent" by the sum of the renter-occupied units, vacant units that are "for rent," and vacant units that have been rented but not yet occupied; and then multiplying by 100.

Source: U.S. Census Bureau, 2010 Census.

AMERICAN FactFinder

DP-1   Profile of General Population and Housing Characteristics: 2010

2010 Demographic Profile Data

NOTE: For more information on confidentiality protection, nonsampling error, and definitions, see http://www.census.gov/prod/cen2010/doc/dpsf.pdf.

Geography: Durham County, North Carolina

Subject	Number	Percent
SEX AND AGE		
Total population	267,587 (r24643)	100.0
Under 5 years	19,815	7.4
5 to 9 years	16,563	6.2
10 to 14 years	14,942	5.6
15 to 19 years	17,952	6.7
20 to 24 years	23,232	8.7
25 to 29 years	25,344	9.5
30 to 34 years	23,612	8.8
35 to 39 years	20,267	7.6
40 to 44 years	17,495	6.5
45 to 49 years	17,401	6.5
50 to 54 years	16,731	6.3
55 to 59 years	15,454	5.8
60 to 64 years	12,662	4.7
65 to 69 years	8,393	3.1
70 to 74 years	5,664	2.1
75 to 79 years	4,478	1.7
80 to 84 years	3,688	1.4
85 years and over	3,894	1.5
Median age (years)	33.2	(X)
16 years and over	213,404	79.8
18 years and over	207,266	77.5
21 years and over	193,624	72.4
62 years and over	33,296	12.4
65 years and over	26,117	9.8
Male population	127,656	47.7
Under 5 years	10,198	3.8
5 to 9 years	8,338	3.1
10 to 14 years	7,666	2.9
15 to 19 years	9,006	3.4
20 to 24 years	11,046	4.1
25 to 29 years	11,869	4.4
30 to 34 years	11,674	4.4
35 to 39 years	10,040	3.8
40 to 44 years	8,544	3.2
45 to 49 years	8,239	3.1
50 to 54 years	7,693	2.9
55 to 59 years	6,964	2.6
60 to 64 years	5,838	2.2
65 to 69 years	3,793	1.4
70 to 74 years	2,456	0.9

Subject	Number	Percent
75 to 79 years	1,809	0.7
80 to 84 years	1,308	0.5
85 years and over	1,175	0.4
Median age (years)	32.3	(X)
16 years and over	99,945	37.4
18 years and over	96,843	36.2
21 years and over	90,183	33.7
62 years and over	13,800	5.2
65 years and over	10,541	3.9
Female population	139,931	52.3
Under 5 years	9,617	3.6
5 to 9 years	8,225	3.1
10 to 14 years	7,276	2.7
15 to 19 years	8,946	3.3
20 to 24 years	12,186	4.6
25 to 29 years	13,475	5.0
30 to 34 years	11,938	4.5
35 to 39 years	10,227	3.8
40 to 44 years	8,951	3.3
45 to 49 years	9,162	3.4
50 to 54 years	9,038	3.4
55 to 59 years	8,490	3.2
60 to 64 years	6,824	2.6
65 to 69 years	4,600	1.7
70 to 74 years	3,208	1.2
75 to 79 years	2,669	1.0
80 to 84 years	2,380	0.9
85 years and over	2,719	1.0
Median age (years)	34.2	(X)
16 years and over	113,459	42.4
18 years and over	110,423	41.3
21 years and over	103,441	38.7
62 years and over	19,496	7.3
65 years and over	15,576	5.8
RACE		
Total population	267,587 [r24643]	100.0
One Race	260,734	97.4
White	124,274	46.4
Black or African American	101,577	38.0
American Indian and Alaska Native	1,339	0.5
Asian	12,278	4.6
Asian Indian	3,152	1.2
Chinese	3,202	1.2
Filipino	1,236	0.5
Japanese	407	0.2
Korean	1,012	0.4
Vietnamese	790	0.3
Other Asian [1]	2,479	0.9
Native Hawaiian and Other Pacific Islander	172	0.1
Native Hawaiian	34	0.0
Guamanian or Chamorro	38	0.0
Samoan	15	0.0
Other Pacific Islander [2]	85	0.0
Some Other Race	21,094	7.9

Subject	Number	Percent
Two or More Races	6,853	2.6
White; American Indian and Alaska Native [3]	523	0.2
White; Asian [3]	1,141	0.4
White; Black or African American [3]	1,717	0.6
White; Some Other Race [3]	1,156	0.4
Race alone or in combination with one or more other races: [4]		
White	129,383	48.4
Black or African American	105,142	39.3
American Indian and Alaska Native	3,148	1.2
Asian	14,077	5.3
Native Hawaiian and Other Pacific Islander	362	0.1
Some Other Race	22,996	8.6
HISPANIC OR LATINO		
Total population	267,587 (r24643)	100.0
Hispanic or Latino (of any race)	36,077	13.5
Mexican	19,939	7.5
Puerto Rican	1,824	0.7
Cuban	519	0.2
Other Hispanic or Latino [5]	13,795	5.2
Not Hispanic or Latino	231,510	86.5
HISPANIC OR LATINO AND RACE		
Total population	267,587 (r24643)	100.0
Hispanic or Latino	36,077	13.5
White alone	11,577	4.3
Black or African American alone	1,317	0.5
American Indian and Alaska Native alone	617	0.2
Asian alone	98	0.0
Native Hawaiian and Other Pacific Islander alone	37	0.0
Some Other Race alone	20,394	7.6
Two or More Races	2,037	0.8
Not Hispanic or Latino	231,510	86.5
White alone	112,697	42.1
Black or African American alone	100,260	37.5
American Indian and Alaska Native alone	722	0.3
Asian alone	12,180	4.6
Native Hawaiian and Other Pacific Islander alone	135	0.1
Some Other Race alone	700	0.3
Two or More Races	4,816	1.8
RELATIONSHIP		
Total population	267,587 (r24643)	100.0
In households	257,466	96.2
Householder	109,348	40.9
Spouse [6]	42,664	15.9
Child	68,086	25.4
Own child under 18 years	52,997	19.8
Other relatives	17,461	6.5
Under 18 years	6,196	2.3
65 years and over	1,946	0.7
Nonrelatives	19,907	7.4
Under 18 years	909	0.3
65 years and over	516	0.2
Unmarried partner	7,414	2.8
In group quarters	10,121 (r13744)	3.8
Institutionalized population	2,094	0.8
Male	1,214	0.5

Subject	Number	Percent
Female	880	0.3
Noninstitutionalized population	8,027	3.0
Male	4,078	1.5
Female	3,949	1.5
HOUSEHOLDS BY TYPE		
Total households	109,348	100.0
Family households (families) [7]	63,486	58.1
With own children under 18 years	29,918	27.4
Husband-wife family	42,664	39.0
With own children under 18 years	18,318	16.8
Male householder, no wife present	4,681	4.3
With own children under 18 years	2,134	2.0
Female householder, no husband present	16,141	14.8
With own children under 18 years	9,466	8.7
Nonfamily households [7]	45,862	41.9
Householder living alone	35,310	32.3
Male	14,213	13.0
65 years and over	2,108	1.9
Female	21,097	19.3
65 years and over	5,807	5.3
Households with individuals under 18 years	33,414	30.6
Households with individuals 65 years and over	19,345	17.7
Average household size	2.35	(X)
Average family size [7]	3.02	(X)
HOUSING OCCUPANCY		
Total housing units	120,217	100.0
Occupied housing units	109,348	91.0
Vacant housing units	10,869	9.0
For rent	5,700	4.7
Rented, not occupied	166	0.1
For sale only	1,880	1.6
Sold, not occupied	395	0.3
For seasonal, recreational, or occasional use	439	0.4
All other vacants	2,289	1.9
Homeowner vacancy rate (percent) [8]	3.1	(X)
Rental vacancy rate (percent) [9]	10.2	(X)
HOUSING TENURE		
Occupied housing units	109,348	100.0
Owner-occupied housing units	59,299	54.2
Population in owner-occupied housing units	143,487	(X)
Average household size of owner-occupied units	2.42	(X)
Renter-occupied housing units	50,049	45.8
Population in renter-occupied housing units	113,979	(X)
Average household size of renter-occupied units	2.28	(X)

(r24643) This count has been revised.
Revised count: **269,974**
Revision date: **01-10-2013**
For more information, see 2010 Census Count Question Resolution.
(r13744) This count has been revised.
Revised count: **12,508**
Revision date: **01-10-2013**
For more information, see 2010 Census Count Question Resolution.

X Not applicable.

[1] Other Asian alone, or two or more Asian categories.

[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

[3] One of the four most commonly reported multiple-race combinations nationwide in Census 2000.

[4] In combination with one or more of the other races listed. The six numbers may add to more than the total population, and the six percentages may add to more than 100 percent because individuals may report more than one race.

[5] This category is composed of people whose origins are from the Dominican Republic, Spain, and Spanish-speaking Central or South American countries. It also includes general origin responses such as "Latino" or "Hispanic."

[6] "Spouse" represents spouse of the householder. It does not reflect all spouses in a household. Responses of "same-sex spouse" were edited during processing to "unmarried partner."

[7] "Family households" consist of a householder and one or more other people related to the householder by birth, marriage, or adoption. They do not include same-sex married couples even if the marriage was performed in a state issuing marriage certificates for same-sex couples. Same-sex couple households are included in the family households category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. "Nonfamily households" consist of people living alone and households which do not have any members related to the householder.

[8] The homeowner vacancy rate is the proportion of the homeowner inventory that is vacant "for sale." It is computed by dividing the total number of vacant units "for sale only" by the sum of owner-occupied units, vacant units that are "for sale only," and vacant units that have been sold but not yet occupied; and then multiplying by 100.

[9] The rental vacancy rate is the proportion of the rental inventory that is vacant "for rent." It is computed by dividing the total number of vacant units "for rent" by the sum of the renter-occupied units, vacant units that are "for rent," and vacant units that have been rented but not yet occupied; and then multiplying by 100.

Source: U.S. Census Bureau, 2010 Census.

U.S. Census Bureau

AMERICAN FactFinder

DP-1 | Profile of General Population and Housing Characteristics: 2010

2010 Demographic Profile Data

NOTE: For more information on confidentiality protection, nonsampling error, and definitions, see http://www.census.gov/prod/cen2010/doc/dpsf.pdf.

Geography: Orange County, North Carolina

Subject	Number	Percent
SEX AND AGE		
Total population	133,801	100.0
Under 5 years	6,890	5.1
5 to 9 years	7,985	6.0
10 to 14 years	8,055	6.0
15 to 19 years	12,483	9.3
20 to 24 years	16,966	12.7
25 to 29 years	9,434	7.1
30 to 34 years	7,895	5.9
35 to 39 years	8,098	6.1
40 to 44 years	8,960	6.7
45 to 49 years	9,444	7.1
50 to 54 years	9,357	7.0
55 to 59 years	8,591	6.4
60 to 64 years	6,754	5.0
65 to 69 years	4,532	3.4
70 to 74 years	2,974	2.2
75 to 79 years	2,157	1.6
80 to 84 years	1,636	1.2
85 years and over	1,590	1.2
Median age (years)	33.1	(X)
16 years and over	109,217	81.6
18 years and over	105,832	79.1
21 years and over	94,003	70.3
62 years and over	16,767	12.5
65 years and over	12,889	9.6
Male population	63,954	47.8
Under 5 years	3,496	2.6
5 to 9 years	4,107	3.1
10 to 14 years	4,097	3.1
15 to 19 years	5,881	4.4
20 to 24 years	7,730	5.8
25 to 29 years	4,586	3.4
30 to 34 years	3,977	3.0
35 to 39 years	3,946	2.9
40 to 44 years	4,353	3.3
45 to 49 years	4,511	3.4
50 to 54 years	4,337	3.2
55 to 59 years	4,096	3.1
60 to 64 years	3,288	2.5
65 to 69 years	2,154	1.6
70 to 74 years	1,329	1.0

Subject	Number	Percent
75 to 79 years	928	0.7
80 to 84 years	635	0.5
85 years and over	503	0.4
Median age (years)	32.5	(X)
16 years and over	51,388	38.4
18 years and over	49,666	37.1
21 years and over	44,483	33.2
62 years and over	7,411	5.5
65 years and over	5,549	4.1
Female population	69,847	52.2
Under 5 years	3,394	2.5
5 to 9 years	3,878	2.9
10 to 14 years	3,958	3.0
15 to 19 years	6,602	4.9
20 to 24 years	9,236	6.9
25 to 29 years	4,848	3.6
30 to 34 years	3,918	2.9
35 to 39 years	4,152	3.1
40 to 44 years	4,607	3.4
45 to 49 years	4,933	3.7
50 to 54 years	5,020	3.8
55 to 59 years	4,495	3.4
60 to 64 years	3,466	2.6
65 to 69 years	2,378	1.8
70 to 74 years	1,645	1.2
75 to 79 years	1,229	0.9
80 to 84 years	1,001	0.7
85 years and over	1,087	0.8
Median age (years)	33.8	(X)
16 years and over	57,829	43.2
18 years and over	56,166	42.0
21 years and over	49,520	37.0
62 years and over	9,356	7.0
65 years and over	7,340	5.5
RACE		
Total population	133,801	100.0
One Race	130,398	97.5
White	99,495	74.4
Black or African American	15,928	11.9
American Indian and Alaska Native	570	0.4
Asian	9,023	6.7
Asian Indian	1,694	1.3
Chinese	3,544	2.6
Filipino	320	0.2
Japanese	386	0.3
Korean	1,483	1.1
Vietnamese	250	0.2
Other Asian [1]	1,346	1.0
Native Hawaiian and Other Pacific Islander	41	0.0
Native Hawaiian	10	0.0
Guamanian or Chamorro	16	0.0
Samoan	7	0.0
Other Pacific Islander [2]	8	0.0
Some Other Race	5,341	4.0

Subject	Number	Percent
Two or More Races	3,403	2.5
White; American Indian and Alaska Native [3]	608	0.5
White; Asian [3]	961	0.7
White; Black or African American [3]	718	0.5
White; Some Other Race [3]	427	0.3
Race alone or in combination with one or more other races: [4]		
White	102,477	76.6
Black or African American	17,145	12.8
American Indian and Alaska Native	1,537	1.1
Asian	10,253	7.7
Native Hawaiian and Other Pacific Islander	141	0.1
Some Other Race	5,955	4.5
HISPANIC OR LATINO		
Total population	133,801	100.0
Hispanic or Latino (of any race)	11,017	8.2
Mexican	6,860	5.1
Puerto Rican	669	0.5
Cuban	333	0.2
Other Hispanic or Latino [5]	3,155	2.4
Not Hispanic or Latino	122,784	91.8
HISPANIC OR LATINO AND RACE		
Total population	133,801	100.0
Hispanic or Latino	11,017	8.2
White alone	4,824	3.6
Black or African American alone	206	0.2
American Indian and Alaska Native alone	187	0.1
Asian alone	27	0.0
Native Hawaiian and Other Pacific Islander alone	6	0.0
Some Other Race alone	5,025	3.8
Two or More Races	742	0.6
Not Hispanic or Latino	122,784	91.8
White alone	94,671	70.8
Black or African American alone	15,722	11.8
American Indian and Alaska Native alone	383	0.3
Asian alone	8,996	6.7
Native Hawaiian and Other Pacific Islander alone	35	0.0
Some Other Race alone	316	0.2
Two or More Races	2,661	2.0
RELATIONSHIP		
Total population	133,801	100.0
In households	124,244	92.9
Householder	51,457	38.5
Spouse [6]	23,802	17.8
Child	32,292	24.1
Own child under 18 years	25,967	19.4
Other relatives	4,892	3.7
Under 18 years	1,573	1.2
65 years and over	836	0.6
Nonrelatives	11,801	8.8
Under 18 years	333	0.2
65 years and over	215	0.2
Unmarried partner	3,023	2.3
In group quarters	9,557	7.1
Institutionalized population	735	0.5
Male	461	0.3

Subject	Number	Percent
Female	274	0.2
Noninstitutionalized population	8,822	6.6
Male	3,755	2.8
Female	5,067	3.8
HOUSEHOLDS BY TYPE		
Total households	51,457	100.0
Family households (families) [7]	30,659	59.6
With own children under 18 years	14,685	28.5
Husband-wife family	23,802	46.3
With own children under 18 years	10,858	21.1
Male householder, no wife present	1,725	3.4
With own children under 18 years	841	1.6
Female householder, no husband present	5,132	10.0
With own children under 18 years	2,986	5.8
Nonfamily households [7]	20,798	40.4
Householder living alone	14,374	27.9
Male	6,126	11.9
65 years and over	927	1.8
Female	8,248	16.0
65 years and over	2,567	5.0
Households with individuals under 18 years	15,713	30.5
Households with individuals 65 years and over	9,431	18.3
Average household size	2.41	(X)
Average family size [7]	2.99	(X)
HOUSING OCCUPANCY		
Total housing units	55,597	100.0
Occupied housing units	51,457	92.6
Vacant housing units	4,140	7.4
For rent	1,732	3.1
Rented, not occupied	96	0.2
For sale only	631	1.1
Sold, not occupied	150	0.3
For seasonal, recreational, or occasional use	381	0.7
All other vacants	1,150	2.1
Homeowner vacancy rate (percent) [8]	2.0	(X)
Rental vacancy rate (percent) [9]	7.7	(X)
HOUSING TENURE		
Occupied housing units	51,457	100.0
Owner-occupied housing units	30,930	60.1
Population in owner-occupied housing units	79,113	(X)
Average household size of owner-occupied units	2.56	(X)
Renter-occupied housing units	20,527	39.9
Population in renter-occupied housing units	45,131	(X)
Average household size of renter-occupied units	2.20	(X)

X Not applicable.

[1] Other Asian alone, or two or more Asian categories.

[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

[3] One of the four most commonly reported multiple-race combinations nationwide in Census 2000.

[4] In combination with one or more of the other races listed. The six numbers may add to more than the total population, and the six percentages may add to more than 100 percent because individuals may report more than one race.

[5] This category is composed of people whose origins are from the Dominican Republic, Spain, and Spanish-speaking Central or South

American countries. It also includes general origin responses such as "Latino" or "Hispanic."

[6] "Spouse" represents spouse of the householder. It does not reflect all spouses in a household. Responses of "same-sex spouse" were edited during processing to "unmarried partner."

[7] "Family households" consist of a householder and one or more other people related to the householder by birth, marriage, or adoption. They do not include same-sex married couples even if the marriage was performed in a state issuing marriage certificates for same-sex couples. Same-sex couple households are included in the family households category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. "Nonfamily households" consist of people living alone and households which do not have any members related to the householder.

[8] The homeowner vacancy rate is the proportion of the homeowner inventory that is vacant "for sale." It is computed by dividing the total number of vacant units "for sale only" by the sum of owner-occupied units, vacant units that are "for sale only," and vacant units that have been sold but not yet occupied; and then multiplying by 100.

[9] The rental vacancy rate is the proportion of the rental inventory that is vacant "for rent." It is computed by dividing the total number of vacant units "for rent" by the sum of the renter-occupied units, vacant units that are "for rent," and vacant units that have been rented but not yet occupied; and then multiplying by 100.

Source: U.S. Census Bureau, 2010 Census.

Appendix B: Summary of Public Outreach

Triangle Region 2014–2015 Proposed Transit Fare Increases

Summary of Public Outreach

Capital Area Transit and Triangle Transit are committed to early and continuing public and agency engagement during the development of proposed fare increases for regional transit, analysis of the equity of these increases under Title VI and preparation of new or updated agency Title VI policies. A public involvement program, outlined in the Public Participation Plan (PPP) developed at the start of the project, has been conducted to inform and engage the public, agencies and stakeholders. Public and agency involvement are essential to inform final proposed fare increases, updated Title VI policies and the Triangle Region Title VI Fare Equity Analysis.

The project has provided multiple opportunities for the public to review the proposed fare increases, policies and equity analysis through events such as public meetings, canvassing and briefings. Input has been solicited through comment forms in person and online. This document summarizes the public involvement program conducted during the preparation of the Triangle Region Title VI Fare Equity Analysis and the input received through March 2014. The information will be updated as additional meetings are held and further feedback is received.

Outreach Meetings

The project team held or attended a variety of community meetings to educate the public and stakeholders about the proposed fare increases, Title VI policies and Title VI Fare Equity Analysis and to solicit input. These meeting opportunities included:

- **Public Meetings**
  Public meetings were identified as a needed strategy for the agencies to provide advertised, open public forums for the public to comment on the proposed fare changes and related policies and analysis. The project team held six public meetings throughout the region and took place in locations near transit stops to provide access to the meetings and opportunity to solicit feedback at stops during the meetings. These meetings are outlined in Table 1-1 – Public Meetings.

- **Community Events - Canvassing**
  Community events and canvassing were proposed as the primary strategy for reaching transit riders and Title VI populations. The project team canvassed at five transit centers to target a diversity of riders. Interpreters were used at canvassing events in Raleigh and Durham to reach LEP populations. These canvassing events are outlined in Table 1-2 - Community Events. Project staff also had the opportunity for limited canvassing at transit stops during the Green Road and CAT Operations Center public meetings.

- **Other Community Events and Presentations**
  Transit agency staff and project team members have attended events and meetings held by community organizations to further educate Title VI populations and other community members

about the project and solicit public comment. These events and organizations were also included in Table 1-2 – Community Events.

- **Local transit agency meetings**
  The project team has presented at the Raleigh Transit Authority, Triangle Transit Operations and Finance Board and Triangle Transit Board of Trustees. The purpose of these meetings has been to update the transit agencies on the status of the project and analysis and introduce Title VI policies. These meetings are outlined in Table 1-3 – Agency Meetings. Additional briefings and meetings will take place to review findings of the fare equity study, further discuss proposed fare increases and adopt updated Title VI policies.

Attachment 1 provides more details on these meeting in the meeting summaries.

Communications Methods

A variety of communications methods and media were used to support the outreach meetings and to further engage stakeholders and the public on the proposed fare increases and development of the Title VI Fare Equity Analysis.

Informational materials

Two informational handouts were developed for distribution at community events and public meetings and were also available online. The project overview handout included general project information with an overview of the background of the project, reasons for the proposed increases, a table outlining the proposed fares and a brief description of the Title VI Fare Equity Analysis. This handout was deemed a vital material and was translated into Spanish. A second handout provided a more detailed description of proposed Title VI program and service and fare equity analysis policies. Display materials utilized at the large public meetings contained highlighted information from the handouts and project materials. Interpreters were available at several of the public meetings to provide sight translation for the displays and second handout to LEP persons.

Comment Forms

A comment form was developed to collect data on ridership demographics and feedback on proposed fare increases and Title VI policies. Questions included both specific, structured questions as well as open-ended inquiries. The comment forms were available in English and Spanish and were distributed in person at community events and public workshops, with staff assisting in completion of forms at canvassing opportunities. Identified stakeholders and community organizations that serve minority and low-income populations or have are tied to transit services were provided copies electronically. The comment form was also available online starting October 24, 2013. A copy of the comment form and summary of results can be found in Attachment 2.

Agency web and social media sites

A web page providing information regarding the proposed fare increases and the Triangle Region Title VI Fare Equity Analysis website has been maintained on GoTriangle's website at: http://www.gotriangle.org/transit/fare-increase-proposal?/fareincrease. The web page has been updated with public meeting announcements, informational materials and the online comment form. A copy of the project website can be found in Attachment 3. Agency social media sites including Facebook and twitter were also utilized to provide project announcements and further promote awareness.

Notifications

English and Spanish version flyers were created for notification of the November 2013 public meetings and distributed electronically to stakeholders and in person during the community events. Bus placard flyers were also created for distribution at transit centers and on CAT and Triangle Transit bus routes.

The project team developed a list of community organizations and individuals that work with or represent Title VI populations for distribution of digital updates and announcements. These included emails for redistribution to organizational list servs, announcements for posting to community websites, and social media updates. Email, twitter, and Facebook updates can be found in Attachment 3. The Stakeholder List is provided in Attachment 4.

Media relations

News releases were used to provide information about the public workshops. News releases were provided to area newspapers, radio and television broadcast stations and online forums. A number of media outlets have provided coverage for the proposed fare increases and public meetings. Media coverage is presented in Table 1-4.

Outreach Activity Summary

The following tables summarize the public outreach events that have been utilized for the Triangle Region Title VI Fare Equity Analysis. Date, time and location information is included for each event.

Table 1-1: Public Meetings

Date	Time	Location	Materials Distributed/Collected
11/6/2013	3:30-7:30 pm	Durham Station, Durham	13 Handouts 7 Comments
11/12/2013	4:00-7:00 pm	Green Road Community Center, Raleigh	5 Handouts 3 Comments
11/14/2013	3:30-7:00 pm	One Exchange Plaza, Raleigh	7 Handouts 5 Comments
11/18/2013	4:00-7:00 pm	Chapel Hill Public Library, Chapel Hill	5 Handouts 1 Comments
11/20/2013	3:30-6:30 pm	Woodcroft Club, Durham	1 Handout 0 Comments

Triangle Region Title VI Fare Equity Analysis – Public Participation Summary

Date	Time	Location	Materials Distributed/Collected
11/21/2013	3:30-7:00 pm	CAT Operations Facility, Raleigh	19 Handouts 2 Comments

Table 1-2: Community Events/Presentations

Date	Name/Type of Event	Time	Location	Materials Distributed
10/10/2013	Staff Presentation – Northeast Citizens Advisory Council (CAC)	7:00 pm	Marsh Creek Park, Raleigh	
10/10/2013	Staff Presentation – Southeast CAC	7:00 pm	Barwell Road Community Center, Raleigh	
10/12/2013	LEP/Community Festival – Viva Raleigh	1:00-3:00 pm	Green Road Community Center, Raleigh	20 Flyers 16 Comments
10/12/2113	LEP/Community Event – La Feria de la Salud		Holton Career & Resource Center, Durham	45 Flyers 16 Comments
10/13/2013	LEP Outreach	1:00-3:00 pm	Twin Lakes Park, Durham	45 Flyers 15 Comments
10/17/2013	Staff Presentation – Raleigh Mayor's Committee on Disabilities	12:00-1:00 pm		
10/21/2013	LEP Outreach	1:00-3:00 pm	Chewing Middle School, Durham	10 Flyers 9 Comments
10/23/2013	Transit Center Canvassing	7:00-9:00 am	Regional Transit Center, Durham	75 Flyers 14 Comments
10/23/2013	Transit Center Canvassing	3:00-6:00 pm	Crabtree Valley Mall, Raleigh	100 Flyers 40 Comments
10/24/2013	Transit Center Canvassing	7:00-9:00 am	Cary Train Station, Cary	40 Flyers 13 Comments
11/6/2013	Transit Center Canvassing	3:30-5:30 pm	Durham Station, Durham	60 Flyers 19 Comments
11/7/2013	Staff Presentation – Midtown CAC	7:00 pm	Eastgate Park and Neighborhood Center, Raleigh	
11/12/2013	Staff Presentation – Durham Mayor's Committee for Persons with Disabilities	1:30 pm	City Hall, Durham	

Triangle Region Title VI Fare Equity Analysis – Public Participation Summary

Date	Name/Type of Event	Time	Location	Materials Distributed
11/14/2013	Transit Stop Canvassing	3:30-6:00 pm	Moore Square Transit Station, Raleigh	75 Flyers 25 Handouts 55 Comments
11/18/2013	Staff Presentation – East CAC	7:00 pm	Lions Park, Raleigh	
11/20/2013	Staff Presentation – Raleigh CAC	7:00 pm	City Council Chambers, Raleigh	
12/5/2013	Staff Presentation – North CAC	7:00 pm	Millbrook Exchange Park	
12/15/2013	Staff Presentation – Southeast Raleigh Association	12:00 pm		

Table 1-3: Agency Meetings

Date	Organization	Time	Location
10/3/2013	Triangle Transit Operations and Finance Committee	10:00 am-12:30 pm	Triangle Transit, Durham
10/10/2013	Raleigh Transit Authority	2:30-5:00 pm	Raleigh Municipal Building, Raleigh
10/31/2013	Triangle Transit Board of Trustees	1:00-5:00 pm	Triangle Transit, Durham
12/3/2013	Triangle Transit Operations and Finance Committee	10:45-12:00	Triangle Transit, Durham
12/12/13	Raleigh Transit Authority	2:30-5:00 pm	Raleigh Municipal Building, Raleigh

A number of promotional techniques have been employed to support the stakeholder outreach events and activities described in the previous sections. The following notifications have been utilized to announce public meetings and promote the website and online comment form.

Table 1-4: Notifications and Announcements

Date	Method	Recipient	Topic/Purpose
October – November 2013	Bus Placards	Bus riders	Public Meetings Announcement
10/24/2013	News Release	Media – GoTriangle Website	Public Meetings Announcements

Triangle Region Title VI Fare Equity Analysis – Public Participation Summary

Date	Method	Recipient	Topic/Purpose
10/25/2013	Email	Stakeholder email list	Public Meetings Announcement
10/30/2013	Email	Stakeholder email list	Public Meetings Update
10/30/2013	Advertisement	Media – La Conexion*	Public Meetings Announcements
11/1/2013	Email	Raleigh Public Records	Project Announcement Public Meetings Announcement
11/1/2013	Email	CAT	Public Meetings Announcement
11/6/2013	Advertisement	Media – La Conexion*	Public Meetings Announcement

*Paid advertisement

Minority, Low-Income, and Limited-English Proficiency Populations

The following public involvement and outreach tools were used to engage minority, low-income and LEP populations in the planning process.

- Presentations to key groups and organizations serving low-income, minority, senior, youth and disabled populations.
- Canvassing at transit stations as a large portion of the minority or low-income populations are transit dependent.
- Bus placards on CAT and Triangle Transit buses, again targeting riders
- Electronic and hardcopy notifications and announcements distributed to organizations that serve minority, low-income, and LEP populations
- Public meetings held in locations convenient to minority, low-income, and LEP populations
- Vital materials including project handout, comment form, flyer, and notifications translated in Spanish
- Canvassing at events that attract LEP populations
- Interpreters at appropriate public meetings and canvassing events

Public Comments

Comment forms were collected at all community events and public meetings, and through a project webpage, dedicated phone line, and email. Information on name, address, email, stakeholder type, voluntary demographic data, transit system patronized, issues noted and specific comments were entered into a comment database. Comments collected totaled 329 and covered a variety of topics, many specific to the impacts of the proposed fare increases and other general transit-related comments. The comments were categorized into the following groups:

- Fare increases will change ridership. The most common response was that people are already facing financial hardship and will therefore have to ride less frequently due to the financial burden of the proposed fare increase. Some would look into other modes, such as walking or

driving, or would get a different type of pass. Many commenters said they would need to restrict the number of destinations during their travel.

- Fare increase will not change ridership, but have negative financial impacts. Commenters stated that the cost of travel is already too expensive for some, especially for those who work part-time or minimum wage jobs. The second most frequent response was that transit service is the only option for transportation so the commenters will have to continue riding but re-examine their budgets.
- No Change. The third most common response was simply requesting no change to the fares.
- Fare Increases will have Unfair Implications. Commenters were concerned for riders who live on fixed-incomes, specifically disabled and senior riders. Additionally, commenters with families were concerned over the increase for children which would add an additional financial strain.
- Support for the proposed fare increases. Commenters were in general supportive of the proposed fare increases as a way to support funding for new buses and off-set the cost of rising fuel prices. While the fares may increase commenters found that the fares remain less expensive than transit services in other places across the country.

In addition to responses to the proposed fare increases, some commenters provided suggestions for mitigation or information service riders may be interested in to help off-set the increase. Suggestions provided in the public comments include:

- Incentivizing buying a monthly pass with a larger discount or a payment plan
- Create a 'commuter pass' for people who only ride the bus five days a week
- Create a system for the fare increases where larger businesses pay a higher rate while individuals have a lower increase
- Start with a smaller increase and gradually increase over more years
- Determine fare increases based on the length of trip in terms of time and/or distance (similar to zone base fare structure)

Meeting summaries providing more detail can be found in Attachment 1.

Media Coverage

The project has been covered in various media outlets across the region. Table 1-5 provides an overview of the media coverage to date.

Table 1-5: Media Coverage

Date	Source	Article Name	Link
10/25/2013	NewsObserver	Triangle Transit and Raleigh's CAT Propose to Increase Bus Fares	http://www.newsobserver.com/2013/10/25/3312170/triangle-transit-and-raleighs.html
10/28/2013	NewsObserver	Triangle Transit and Raleigh's CAT Propose to Increase Bus Fares	http://www.newsobserver.com/2013/10/28/3321071/triangle-transit-and-raleighs.html

Triangle Region Title VI Fare Equity Analysis – Public Participation Summary

Date	Source	Article Name	Link
10/30/2013	INDY Weekly	Bus Fare Hikes Proposed for Raleigh	http://www.indyweek.com/indyweek/bus-fare-hikes-proposed-for-raleigh-triangle-transit/Content?oid=3755736
10/30/2013	ABC-11	Bus Fares to Increase in the Triangle	http://abclocal.go.com/wtvd/story?section=news/local&id=9305720
10/30/2013	WUNC 91.5	Triangle Bus Services Considering Fare Increase	
10/30/2013	Univision North Carolina	Department of Transportation Talks about A Possible Increase to 'Transportation Ticket'	http://northcarolina.univision.com/videos/video/2013-10-31/pasaje-precios-aumento
11/2/2013	WRAL-TV	Look for Raleigh Bus Fare to Increase	http://www.wral.com/look-for-raleigh-bus-fare-to-rise/13065671/
11/4/2013	Chapel Hill News	Triangle Transit Eyes Fare Increase	http://www.chapelhillnews.com/2013/11/04/3332103/triangle-transit-eyes-fare-increases.html
11/5/2013	NCSU Technician Online	Triangle Bus Fares Could Increase Next Year	http://www.technicianonline.com/news/article_4c74006e-45d8-11e3-b7c7-0019bb30f31a.html
11/6/2013	WRAL-TV	Triangle Transit, Capital Area Transit Considering Fare Increases	http://www.wral.com/triangle-transit-capital-area-transit-considering-fare-increases/13082913/

Evaluation of Outreach

Performance measures to evaluate the effectiveness of the public outreach for the proposed fare increase, Title VI policies update and Fare Equity Analysis were established in the PPP for the project. The performance measures were organized by the following areas:

- Accessibility
- Reach
- Diversity/Equity
- Decision Integration

The results of the outreach to date against the specific performance measures are presented below.

Table 1-6: Evaluation of Outreach Measures

Outreach Measure	Target	Outcome
Accessibility		
Distribution/convenience of meeting locations	Meeting and community event locations represent the target demographics	Yes

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Triangle Region Title VI Fare Equity Analysis – Public Participation Summary

Outreach Measure	Target	Outcome
Transit accessibility	All meetings are within 1/8 of a mile from a transit stop	Yes
ADA accessibility	All meetings are ADA accessible	Yes
Language accessibility	All meetings have language accessibility	Yes
Reach		
Total number of comments	250	329
Total number of comments received from LEP persons	25	60
Total number of participants at public meetings and community events	100	23 Signed In 400 Spoken With
Total number of LEP persons in attendance at public meetings and community events	15	0 Signed In 120 Spoken With
Number of visits to the project webpages	100	1023, including 893 unique visitors
Number of articles or other media coverage	1 in each jurisdiction	5 regional stories, 4 Raleigh/Wake County, 2 Chapel Hill/Orange County, 1 regional Spanish media
Diversity/Equity		
Demographic distribution	Voluntary demographic data collected via comment forms represents costumer base	Yes
Geographic distribution	20% of zip codes represented by participants - based on comment form addresses or zip codes	Yes (60%)
Diversity of community organizations provided notifications or targeted by community events and cross-section of Title VI populations served	10 organizations each representing seniors, low-income, minority and disabled populations	Yes, see Community Events and Stakeholder List
Decision Integration		
All comments are analyzed and summarized to the project team in a timely manner for decision making	Meeting summaries prepared within 10 business days	Yes
Decision Integration	All comments requiring response are responded to within 15 business days	Yes
Decision Integration	Comments requiring response and actions taken in response	Yes

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Triangle Region Title VI Fare Equity Analysis – Public Participation Summary

Outreach Measure	Target	Outcome
	to comments are tracked	

Attachments

1. **Public Meeting Summaries:**
   Durham Station
   Green Road Community Center
   One Exchange Plaza
   Chapel Hill Public Library
   Woodcroft Club
   CAT Operations Facility

2. **Comment Form and Results**
   Comment Form (English)
   Comment Form (Spanish)
   Comment Form Results

3. **Outreach Materials:**
   Email Announcements
   Website
   Flyer
   Translated Flyer
   Bus Placard
   Project Overview handout
   Title VI handout

4. **Stakeholder List**

Attachment 1 – Public Meeting Summaries

Durham Station

November 6, 2013

Meeting Format:

- Staff members canvassed the Triangle Transit bus stops from 3:30 until 5:30, collecting comment forms, distributing handouts and comment forms, and encouraging people to go inside the center for the public meeting.
- The public meeting ran concurrently with Triangle Transit's standing public meeting and included a brief presentation to the People Riding In Durham Everyday (PRIDE) Ambassadors.

Number of Public Meeting Attendees:

- 12 public meeting attendees
- 4 signed in
- 7 PRIDE Ambassadors

Number of Comment Forms Collected:

- 19 Canvassing
- 7 Public Meeting

Summary of Comments:

Commenters expressed concern over the fare increase and many stated that they would have to rethink the pass they purchased or change the number of times they took the bus. Several commenters were concerned about the financial burden of the proposed increase to regional paratransit fares since many riders are disabled on fixed incomes.

Green Road Community Center

November 12, 2013

Meeting Format:

- The public meeting was held from 3:30-7:00 at the community center.
- Staff also canvassed the 23L bus stop outside of the community center every half hour.

Number of Public Meeting Attendees: 5

Number of Comment Forms Collected: 3

Summary of Comments:

Commenters at this event stated that increased fares would decrease ridership or be a significant burden, as many riders already experience financial hardships. One commenter suggested starting with a smaller increase and gradually increasing over a longer period of time. Commenters also shared recommendations for general improvements for the transit system, including service enhancements and benches and shelters at all bus stops.

Moore Square/One Exchange Plaza

November 14, 2013

Meeting Format:

- The public meeting was held from 3:30 until 7:00 pm in the lobby of the building.
- Staff canvassed Moore Square Transit Center from 3:30 until 6:00 pm.

Number of Meeting Attendees: 5

Number of Comment Forms Collected:

- 55 Canvassing
- 5 Public Meeting

Summary of Comments:

Many commenters were not aware of the proposed fare increases, or had not been aware the increase applied to their fare type (typically seniors), so these participants were very interested in collecting information and providing input. Commenters at this event focused primarily on the potential financial burden of the proposed increase, as many noted strained budgets. Additionally, many commenters provided suggestions on how to distribute the fares in different manners as well as suggestions for improvements for the system, such as extended evening hours and weekend services.

Chapel Hill Public Library

November 18, 2013

Meeting Format:

- The public meeting was held from 4:00 until 7:00 pm in Meeting Room B at the public library.

Number of Meeting Attendees: 5

Number of Comment Forms Collected: 1

Summary of Comments:

The attendees at this meeting were very interested in how the transit services would change if a light rail system was implemented in the region. One event attendee expressed disappointment that the state government no longer provided the GoPass for employees and felt that some other incentive program should be enacted.

Triangle Region Title VI Fare Equity Analysis – Public Participation Summary

Woodcroft Club

November 19, 2013

Meeting Format:

- The public meeting was held from 3:30 to 6:30 in the community center.
- Staff canvassed the Triangle Transit bus stop on West Woodcroft Parkway.

Number of Meeting Attendees: 3

Number of Comment Forms Collected: 0

Summary of Comments:

No comments were collected at this event.

CAT Operations Facility

November 21, 2013

Meeting Format:

- The public meeting was held from 3:30-7:00 in the conference room of the facility.
- Staff also canvassed the 18L and 55X bus stops on Poole Road and Bus Way outside of the facility every half hour.

Number of Meeting Attendees: 1

Number of Comment Forms Collected: 2

Summary of Comments:

Commenters were generally concerned about the older adult disabled populations that travel on the buses. They were concerned that the increased fares may be too expensive for people on fixed incomes, and also concerned about the distances some must travel to reach the bus stops. In general, many of the transit riders were not familiar with the proposed fare increases and appreciative of the information.

Attachment 2 – Comment Form Results

In total, 329 comment forms were collected however, not all respondents completed all sections of the comment form. The data presented below indicates how many responses were collected for each question.

Demographic Information

The first set of questions was designed to collect the demographic information of the respondents. The purpose of this section was to compare the demographics of the riders participating in this outreach to the rider data collected by the transit agencies and ensure that the Title VI populations were being reached through the public engagement opportunities.

Of the 310 respondents that selected an age group, 93.2 percent were 16 to 64, 5.2 percent seniors 65 and older, and the remaining 1.6 percent were 16 or younger. The racial breakdown included 45.5 percent African American, 40.2 percent White, 8.6 percent multiracial, 3.7 percent Asian and 2.0 percent Native American. Ethnically, 62.5 percent of the respondents identified as non-Hispanic and 37.5 percent Hispanic (176 total).

Age
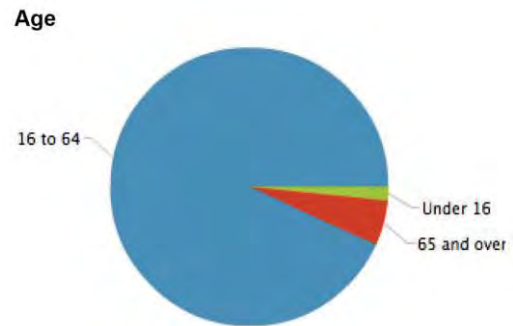
Race
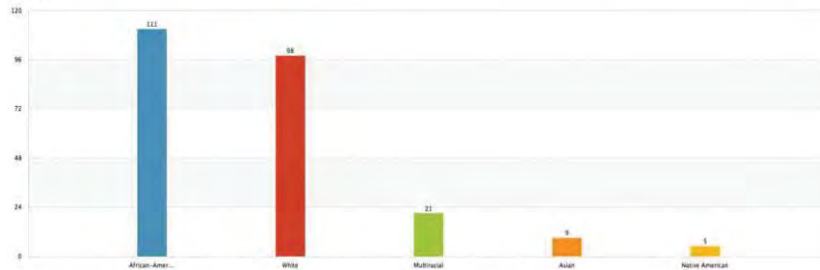
Ethnicity
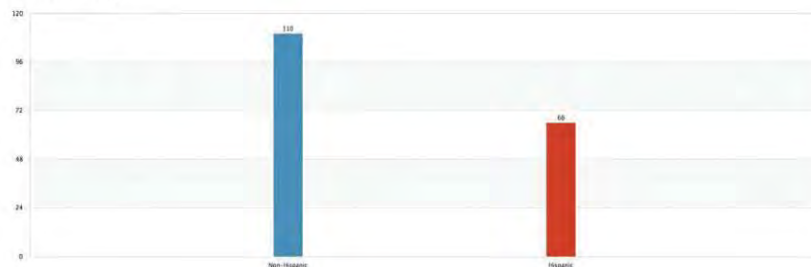
Of the 265 people who selected an income range, 57.3 percent of the respondents indicated an income of $25,000 or less annually (39.6 percent less than $15,000, 17.7 percent $15,000 to less than $25,000).

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Triangle Region Title VI Fare Equity Analysis – Public Participation Summary

Income

Transit Use

The purpose of this section was to collect data on the current transit usage as well as how transit riders pay for bus fare (fare type and trip type) and discount programs. Respondents were allowed to select more than one response for the questions.

For the transit agencies listed, 518 responses were provided: 179 selected Capital Area Transit, 173 Triangle Transit, 80 DATA, 34 C-Tran, 26 Chapel Hill Transit, 12 for 'other' transit services, and 12 selected no transit services.

Transit riders who use services daily or almost daily returned the highest number of comment forms (250 out of 335 responses). People who ride one to two times a week provided slightly more responses than occasional riders (49 compared to 35).
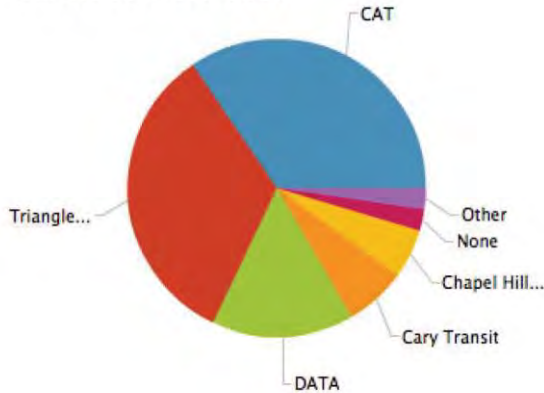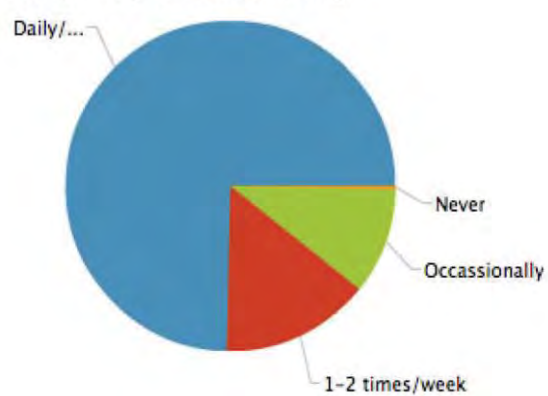
Two questions asked about bus payment. The first allowed the responded to select all the fare types the respondent uses. Seven options were given and 395 responses were given and cash fare was the most frequent response (154). Day pass was the second more frequently selected response with 78, 48 selected GoPass and 41 people selected 31 Day Pass. The 5-Day pass has the least amount of responses with 17 responses.

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Triangle Region Title VI Fare Equity Analysis – Public Participation Summary

Paying Fare

The second question allowed the responded to select the discount programs purchased and 122 people provided responses to this question. Of those, employer passes was the most frequently selected with 36.9 percent of the responses. Reduced disability fares were selected next, with 21.5 percent of the responses which was slightly above reduced senior fares, which received 16.4 percent of the responses.
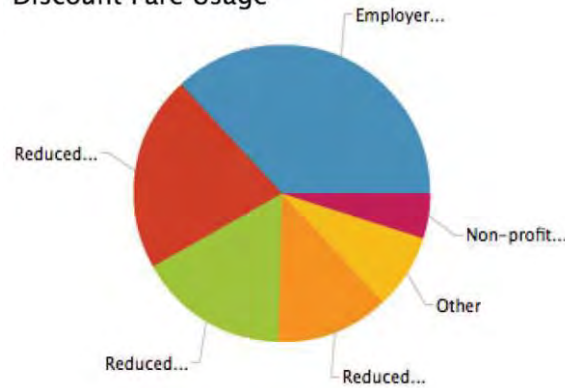
The last closed-ended question on the comment form asked transit riders how the proposed fare increases will change the way they ride the bus. Over half of the respondents stated that the fare increases would not change their ridership behaviors (54.3 percent). Approximately 30 percent of the riders said they will ride less often and another 12.4 percent said they will stop riding. Finally, 3.7 percent said they will change the type of bus service they use. Of the different ticket options provided, 31.0 percent said they would switch to paying cash for tickets, while 16.5 percent said they would switch to the $25 stored value card and another 13.1 percent would buy the 31-Day pass.

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Triangle Region Title VI Fare Equity Analysis – Public Participation Summary
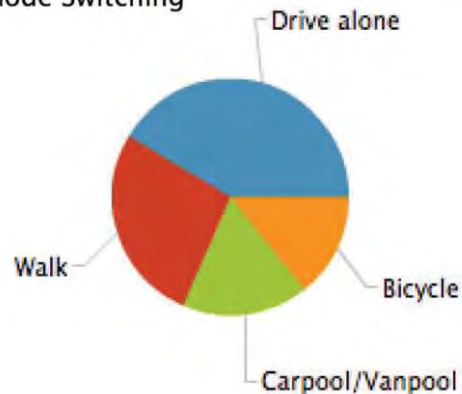
Attachment 3 – Outreach Materials

Attachment 4 – Stakeholder List

Proposed Service and Fare Change Outreach – Public Engagement Summary
March 2019 – April 2019

The Public Engagement Strategy

GoTriangle conducted public outreach efforts between March 11, 2019 and April 24, 2019 to inform the community about the proposed service and fare changes. Customers and the general public provided feedback that would be incorporated into the final recommendations presented to the GoTriangle Board of Trustees. Staff used varied tactics to support the overall goal of engaging both current customers whose commutes would be affected and groups that would potentially use the proposed services below:

- RTP Service Changes
  - Discontinuation of OnDemand services
  - Replacement of OnDemand services with "Transit Connect"
  - 311 – Realign route to serve Kit Creek Road & Davis Drive
- New Routes/Park-and-Rides
  - North Raleigh Express (NRX) – New express route on I-540 to replace Route 201
  - 310W – New Service from RTC to Wake Tech RTP Campus
  - FRX – New Park-and-Ride at Wake Tech – Southern Wake Campus, replacing Park-and-Ride at Hilltop Crossings Food Lion
- General Changes
  - Chapel Hill-Raleigh Express (CRX) – Schedule changes
  - Durham-Raleigh Express (DRX) – Add trips and other schedule changes
  - Robertson Scholars Express (RSX) – GoTriangle will no longer operate the service after the school year
  - 700 – Construction reroute becomes permanent route
  - 102 – Replaced with GoRaleigh Route 20, an all-day weekday route with hourly service *(September implementation)*
  - Knightdale-Raleigh Express (KRX) – Replaced with GoRaleigh Route 33, an all-day weekday route with hourly service *(September implementation)*
- Fare Changes
  - New Pricing Structures
  - New Policy for Elderly Riders – Seniors 65 and older will ride GoTriangle services for free
  - Technology Upgrades – Mobile ticketing and fare capping

The Approach

The community was able to submit comments on the proposed service and fare changes via the following methods:

- Online: Use the online feedback form that will present the service changes and fare updates in both English and Spanish at gotriangle.org/service-changes
- Phone: Leave a message for Service Planning at 919-485-PLAN (7526)
- Email: serviceplanning@gotriangle.org
- Mail: GoTriangle, Attn: Service Planning, P.O. Box 13787, RTP, NC 27709

- In Person: Speak to the GoTriangle Board of Trustees at either their meeting on March 27, 2019 at 12 p.m., or on April 24, 2019 at 12 p.m., in the Board Room of GoTriangle's administrative offices at 4600 Emperor Blvd, Suite 100 in Durham

GoTriangle used a mixed-method approach to drive public participation in in the comment period. For all in-person activities, staff provided service change brochures and a fare change handout that was double-sided English and Spanish. All social media campaigns linked to the webpage and survey.

Find below an outline of specific activities that were conducted:

- A news release was posted on GoTriangle's website.
- Public hearing notices were posted in the Herald Sun, News & Observer, La Noticia, and La Conexion on March 20. Another round of notices were included in the News & Observer, the Herald Sun, La Noticia, and La Conexion on April 3 and April 10.
- Service change brochures were placed on all of the buses.
- Email communications were sent to the following GoTriangle listservs: GoTriangle News Alerts, OnDemand Riders, GoForward List, Wake County Community Contacts, Durham and Orange County Community Contacts, Transit Advisory Committee.
- The news release was provided to the following organizations for internal distribution:
  o North Carolina State University
  o Apex
  o Wake Forest
  o Cisco
  o Fuquay Varina
  o Morrisville
  o Duke University
  o Rolesville
  o Smart Commute Raleigh
  o WakeUp Wake County
- Presentations on the service and fare changes were given to the following groups:
  o Environmental Protection Agency
  o Research Triangle Foundation
  o Southeast Raleigh Lions Club
- Staff conducted targeted marketing via Facebook Advertising to obtain feedback from Spanish-speaking communities, elderly populations, and other stakeholders along the affected bus routes. See attachment for additional detail.
- "Talk to a Planner," events in the lobby prior to the Board of Trustees meeting where planners are available to answer questions as the public arrives.
- On-the-bus outreach per below:

Date	Time	Route	# of People Reached
Tues, March 19	3pm-6pm	105, DRX, CRX, 300, KRX, ZWX	65
Thurs, March 21	7am and 4:30pm	201	17

GO Triangle

| Thurs, March 21 | 6:05am (bus ops)-7:25am (RTC) | 201 | 9 |
| Mon, March 25 | 1pm, 1:30pm, 3:30pm, 4pm | 400, 405 and 700 | 50 |

- **Pop-up events** per below:

Date	Time	Location	# of People Reached
Monday, March 11	10:30am – 11:30am	GoTriangle Bus Operations	10
Monday, March 11	2pm – 3pm	GoTriangle Bus Operations	20
Tuesday, March 19	7am-9:30am	GoRaleigh Station Wilmington St	30
Tuesday, March 19	3pm-5pm	Regional Transit Center	25
Tuesday, March 19	4pm – 5pm	GoRaleigh Station	65
Wednesday, March 20	6:45am-8:45am	McKnight Dr at Village Park Dr (Walmart)	10
Wednesday, March 20	10am – 12pm	Wake Tech RTP Campus	47
Thursday, March 21	8am – 10am	Morehead Planetarium	15
Thursday, March	6:30am-8:30am	7th Ave at Forest Hills, Garner	18
Thursday, March 21	8:25am	Regional Transit Center	2
Thursday, March 21	3pm-5:30pm	Health Sciences Library, Chapel Hill	10
Friday, March 22	2pm – 4pm	RSX Stop at Duke Chapel	31
Friday, March 22	6am – 8am	Hilltop Park-and-Ride	19
Tuesday, March 26	3pm-5:15pm	Chapel Drive	35
Tuesday, April 9	3:30pm – 5 pm	Regional Transit Center	27
Wednesday, April 10	5:30pm – 7:30pm	Maureen Joy Charter School (Health Fair)	80
Friday, April 12	7:30am – 9:30am	Regional Transit Center	82
Friday, April 12	11pm – 2pm	Dress for Success Job Fair	20
Thursday, April 18	11:30am – 1:30pm	Cisco Sustainability Fair	TBD

GO Triangle

The Results

In total, more than **700 people** received information about the service and fare changes directly from a GoTriangle staff member, either on the bus, at a pop-up event, or at a presentation. Over **8,000 individuals and organizations** were sent the information via email. Another **380 people** found the information promoted on their Facebook feed.

Between March 11 and April 12, the Service Changes **webpage had 3,965 page views, a 300 percent increase** from the previous period. GoTriangle's social media posts for fare and service changes reached **an audience of 5,700 and resulted in 220 engagements**.

From those efforts, **300 comments** were generated, providing a robust picture of the public's perception of the service and fare change proposals.

MEMORANDUM

TO: GoTriangle Board of Trustees

FROM: Regional Services Development

DATE: April 17, 2019

SUBJECT: Recommended Service Changes for Fall 2019

Strategic Objective Supported

The item supports the following *objectives* from the Strategic Plan:

>   1.2 Pursue service improvements and expansion opportunities
>   1.3 Incorporate innovations to improve mobility and environmental stewardship
>   2.2 Deliver reliable service

Action Requested

Staff requests that the Board of Trustees approve the recommended service changes.

Background and Purpose

GoTriangle recommends service changes for August and September 2019 that will implement many of the recommendations in the Short Range Transit Plan that was adopted by the GoTriangle Board of Trustees on November 28, 2018.

The GoTriangle Short Range Transit Plan identified three goals:

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

Staff presented the preliminary service change proposals to the GoTriangle Operations and Finance Committee on February 27, 2019. Public outreach was conducted from March 11th to 29th with a public hearing on the proposed fare and service changes at the March 27th Board of Trustees meeting. Public outreach was extended until April 24th with an additional public hearing set for April 24th. Attachment F provides an overview of public engagement. Attachment G provides a summary of the comments that were most frequently received during public outreach and the staff responses to each comment.

Staff has reviewed the public comments and recommends the following service changes. Additional details about the service change recommendations are provided in Attachment A.

- Initiate the **Transit Connect Pilot Program** to improve the first/last mile connection to transit for RTP customers. The goal of the program is to provide a convenient and easy

connection to or from a bus route within the Research Triangle Park zone, which includes the Research Triangle Park and some additional areas. Customers will be able to book a trip through the Uber or Lyft app on their smartphone or by calling a phone number. GoTriangle will provide a subsidy of up to $10 per trip for trips that begin or end within 100 feet of designated transit connection points on weekdays when GoTriangle services are running. Additional details on how the Transit Connect program will work are in Attachment B.

- Realign **Route 311** to serve Davis Dr and Kit Creek Rd in Research Triangle Park. This improves service at Cisco, which has shown strong ridership potential on the RTP shuttles that operated before the OnDemand shuttles were implemented. Route 311 would no longer serve the US EPA and NIEHS, but customers at those locations can use Transit Connect to access GoTriangle and GoDurham routes within the RTP zone, including the Regional Transit Center.

- Discontinue the **Go OnDemand** shuttles due to declining ridership and low productivity. The OnDemand service began as a pilot program in January 2018 in response to declining ridership on the RTP shuttles. The goals of the pilot were to either increase ridership within RTP to exceed the levels of the RTP shuttles or to increase productivity by serving the same number of customers with fewer resources. As the OnDemand service is not meeting either of these goals, staff recommends reallocating resources to the Transit Connect program and popular GoTriangle services that are experiencing overcrowding (Durham-Raleigh Express and Chapel Hill-Raleigh Express).

- Implement a new express route from North Raleigh to the Regional Transit Center called the **North Raleigh Express (NRX)** using resources currently allocated to the **Route 201**, which would be eliminated. Route 201 has been underperforming according to the GoTriangle service standards in productivity (boardings per revenue hour) for many years. The 2016 Wake Transit Plan identified the reallocation of the Route 201 resources to the North Raleigh Express.

- Begin operation of **Route 310W** to serve the Wake Tech RTP Campus in Morrisville. The route will serve the Regional Transit Center every 30 minutes on weekdays from 6:30am to 8:30pm via Perimeter Park. The route will be extended to the Cary Depot in the future to expand public transit access in Morrisville.

- Add a stop at the Wake Tech Main Campus on the **Fuquay-Varina Express** (FRX) at a new park and ride. The new stop will provide a direct connection for Fuquay-Varina residents to the Wake Tech campus on Fayetteville Road and would replace the Hilltop Needmore Rd Food Lion Park-and-Ride. The FRX is operated by GoRaleigh.

- Add trips earlier in the afternoon to alleviate to overcrowding on the **Chapel Hill-Raleigh Express** (CRX). (Previously, staff recommended changes to the 5:50pm and 6:40pm departures from Raleigh, but that recommendation has been withdrawn following public comment.)

- Add trips to the **Durham-Raleigh Express** (DRX) to provide frequent service (every 15-20 minutes) during the busiest times of the day when customers are experiencing

overcrowded buses. This will better match the bus schedule to customer work schedules and reduce wait time between trips. Two additional buses would be assigned to the route.

- Terminate contract for operation of the **Robertson Scholars Express** due to underperformance during midday, evening and weekend and duplicative service within the Durham to Chapel Hill corridor.

- Make the long term detour on the **Route 700** permanent. The detour started in 2016 caused by the NCDOT construction on NC 55 that impacted the intersection with NC 147. The route operates non-stop between Durham Station and the Regional Transit Center.

- Discontinue the **Route 102**, a peak-hour service from Garner to Raleigh operated by GoRaleigh. To replace it, GoRaleigh will implement a new Route 20 that would run hourly on weekdays from 5:30am to 12:30am. This service change would be coordinated with GoRaleigh to provide continuous service to customers.

- Discontinue the **Knightdale-Raleigh Express** (KRX), a peak-hour service operated by GoRaleigh from Knightdale to GoRaleigh Station. To replace it, GoRaleigh will implement a new Route 33 that would connect Knightdale to the New Hope Commons shopping center, which is served by multiple bus routes. This service change would be coordinated with GoRaleigh to provide continuous service to customers.

Finally, minor schedule changes would be made to other GoTriangle routes to improve reliability. Minor schedule changes do not require Board action.

Financial Impact
- The new **Route 310W** will cost $415,063 in FY20. It would be funded with approved FY20 Wake Transit Work Plan funds.

- The **Transit Connect** pilot program is budgeted at $455,400 in FY20. It would be funded with resources that were previously allocated to the **OnDemand** service.

- New service on the **Durham-Raleigh Express** will cost $166,311 in FY20. It would be funded with approved FY19 Durham and FY19 Wake Transit Work Plan funds and resources that were previously allocated to the **OnDemand** service.

- New service on the **Chapel Hill-Raleigh Express** will cost $62,975 in FY20. It would be funded with resources that were previously allocated to the **OnDemand** service.

- The new **North Raleigh Express** (NRX) would be funded using resources that were previously allocated to the **Route 201**.

- There are no financial impacts related to the operation of the following services: **RSX**, **FRX**, **311**, or **700**.

Attachments
- Attachment A. August 2019 Service Change Details
- Attachment B. Transit Connect Pilot Details
- Attachment C. Title VI Service Equity Analysis (Short Range Transit Plan)
- Attachment D. Wake County Transit Plan - Service Change Equity Analysis

- Attachment E. Title VI Service Equity Analysis (RSX and RTP Shuttles)
- Attachment F. Proposed Service and Fare Change Outreach – Public Engagement Summary
- Attachment G. Summary of Comments Received
- Attachment H. Revenue Hours by County

Staff Contact
- Jennifer Green, 919-485-7529, jgreen@gotriangle.org

Attachment A: Fall 2019 Service Change Details

Introduction

The GoTriangle Board of Trustees adopted a Short Range Transit Plan on November 28, 2018 that identified service changes in Wake, Durham and Orange counties. The plan was developed in coordination with partners in each of the counties, including GoRaleigh, GoCary, GoDurham, Orange County Public Transportation, Capital Area MPO, Durham-Chapel Hill-Carrboro MPO, Wake County, and municipal representatives on the Wake Transit - Transit Planning Advisory Committee (TPAC). The plan supports the goals of the Wake Transit Plan, Durham County Transit Plan and the Orange County Transit Plan.

The GoTriangle Short Range Transit Plan identified three goals:
- Make service faster and more time-competitive
- Provide more frequent service
- Provide more all-day service

Service Change Overview

The recommended service changes for fall 2019 support the goals of the short range transit plan. Additional recommended changes follow the guidance of the GoTriangle service standards approved in 2004 to provide cost effective and reliable service.

Route-by-Route Details

Specific details about each of the recommended service changes for fall 2019 are provided in the following section. The following services are included:
- Route 102: Garner to Raleigh
- North Raleigh Express (NRX)/Route 201: North Raleigh to RTC
- Route 310W: Wake Tech to RTC
- Go OnDemand Pilot Program
- Route 311: Apex to RTC
- Route 700: Durham to RTC
- Chapel Hill-Raleigh Express (CRX)
- Durham-Raleigh Express (DRX)
- Fuquay-Varina Express (FRX)
- Knightdale-Raleigh Express (KRX)
- Robertson Scholars Express (RSX)

Details about the Transit Connect Pilot Program are provided in Attachment B.

Route 102: Raleigh to Garner

Area Served: Garner, Downtown Raleigh, GoRaleigh Station

Recommended Action: Discontinue GoTriangle Route 102, a peak hour service operated by GoRaleigh, to be replaced by GoRaleigh Route 20. Route 20 will operate hourly all day on weekdays.

Implementation Date: September 8, 2019

Rationale: In 2016, the Wake Transit Plan identified the need for expanded service to Garner. The Wake Transit 10-Year Operating and Capital Plan recommended the expansion of bus service to Garner on a new GoRaleigh Route 20 starting in FY 2020. Route 20 would provide all-day weekday service once an hour from 5:30am to 12:30am. The 10-Year Operating and Capital Plan recommended that weekend service begin in FY 2024.

GoTriangle continue to provide Route 102 until the new GoRaleigh Route 20 begins service.

Public Input Received: See Attachments F and G for a summary of the public engagement effort and the comments received.

Impacts Likely to Occur Regarding:
- Current Customers: New midday and evening service will provide more options for current customers travelling from Garner to Raleigh.
- Target Markets: Increased span may attract new customers.
- Minority Populations: No disparate impacts were identified in the Title VI analyses completed as part of the Wake Bus Plan or the GoTriangle Short Range Transit Plan. See Attachments C and D.
- Regional Service Distribution: The route operates in Wake County.
- Estimated Cost for FY 2020: Discontinued funding for this service will support Route 310W.
- Funding Source: GoTriangle General Fund

North Raleigh Express (NRX)/Route 201: North Raleigh to RTC

Area Served: North Raleigh, Research Triangle Park, Regional Transit Center, Millbrook Rd, Shelley Lake Park-and-Ride, Pleasant Valley Park-and-Ride

Recommended Action: Eliminate Route 201. Reallocate Route 201 resources to operate the recommended express service from Triangle Town Center Park-and-Ride and Bent Tree Plaza Park-and-Ride to the Regional Transit Center. This service would operate every 30 minutes during weekday peak hours.

Implementation Date: August 4, 2019

Rationale: The 2016 Wake Transit Plan recommended the elimination of Route 201 and the creation of the North Raleigh Express (NRX). The Route 201 had 50 boardings per day in FY 2018. With a productivity of 6.2 boardings per hour, it is an underperformer in the GoTriangle system according to the service standards approved in 2004. Additionally, with 6.3 passengers per trip, Route 201 does not

meet the standard of 8 passengers per trip established by the Wake Bus Plan Service Standards that were adopted in February 2018.

The North Raleigh Express (NRX) will provide a more direct trip for North Raleigh customers travelling to the Regional Transit Center and other connecting routes serving Durham, Morrisville, and Chapel Hill. The express service will be more time competitive with driving and will provide more consistent service throughout the peak commute time.

Public Input Received: See Attachments F and G for a summary of the public engagement effort and the comments received.

Impacts Likely to Occur Regarding:
- Current Customers: Some customers may be able to switch to utilize the new Park-and-Rides at Triangle Town Center and Bent Tree Plaza. Existing customers boarding at Shelley Lake Park-and-Ride and Pleasant Valley Park-and-Ride will not have a replacement service.
- Target Markets: North Raleigh, Wake Forest, and Rolesville residents travelling to points west such as Research Triangle Park, Morrisville, Durham and Chapel Hill
- Minority Populations: No disparate impacts were identified in the Title VI analyses completed as part of the Wake Bus Plan or the GoTriangle Short Range Transit Plan. See Attachments C and D.
- Regional Service Distribution: The route operates in Wake County.
- Estimated Cost for FY 2020: $221,845 (1,775 revenue hours at $125 per hour)
- Funding Source: GoTriangle General Fund

Route 310W: Wake Tech to RTC

Area Served: Regional Transit Center, Perimeter Park, Wake Tech RTP Campus

Recommended Action: Provide a new service operating every 30 minutes from Regional Transit Center to Wake Tech RTP Campus via Perimeter Park from 6:30AM – 8:30PM on weekdays. In the future, the route will be expanded to connect the Regional Transit Center and Cary Depot via the Wake Tech RTP campus, providing all-day service to a larger portion of Morrisville. The future implementation will operate along the McCrimmon Parkway Extension, which is currently under construction.

Implementation Date: August 4, 2019

Rationale: The Wake Bus Plan calls for improved service between Cary and Research Triangle Park, serving a larger portion of Morrisville and the new Wake Tech RTP campus, beginning in FY 2020. Route 300 provides peak hour weekday only service between the Regional Transit Center and Cary via Perimeter Park. The Wake Bus Plan identified a need to expand the hours of operation of the GoTriangle service into the midday to provide more flexibility for those traveling outside peak commute hours and for those wishing to access Wake Tech's RTP campus.

Town of Morrisville staff expressed support for the additional service frequency and span to key destinations in Perimeter Park. The additional service into the midday and evening should better match with employee work schedules.

Maps: The following maps show the outbound and inbound routing from the Regional Transit Center through Perimeter Park to the Wake Tech RTP Campus. The bus stop locations along the alignment are marked with large bus icons.
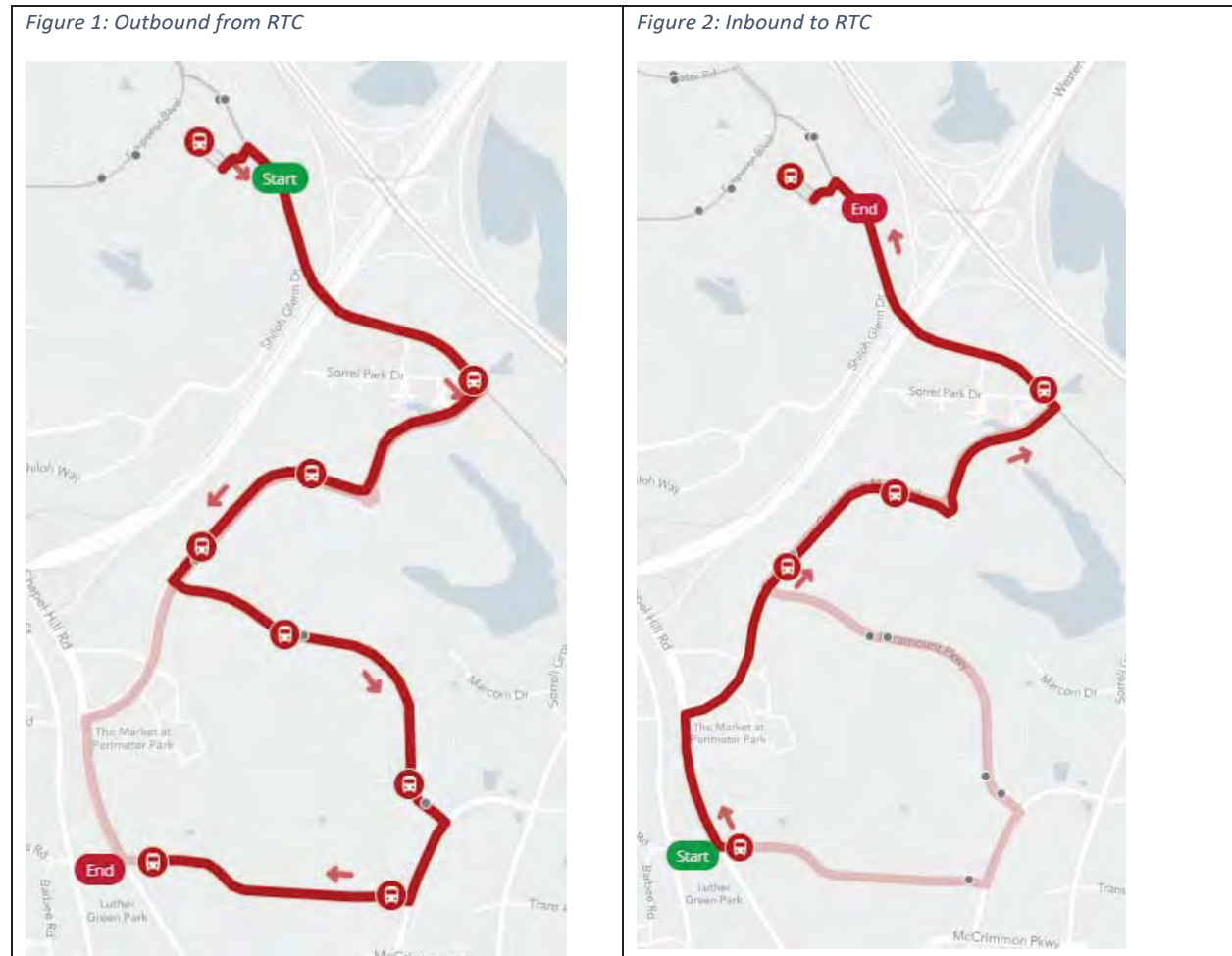
Figure 1: Outbound from RTC   *Figure 2: Inbound to RTC*

Public Input Received: See Attachments F and G for a summary of the public engagement effort and the comments received.

Impacts Likely to Occur Regarding:
- Current Customers: Expanded service into the midday and evening to Perimeter Park employees may attract new customers with a service that better matches their work schedules.
- Target Markets: Expanded service to new serve new destinations at Wake Tech RTP Campus may increase ridership on this route and connecting routes at the Regional Transit Center.
- Minority Populations: No disparate impacts were identified in the Title VI analyses completed as part of the Wake Bus Plan or the GoTriangle Short Range Transit Plan. See Attachments C and D. Regional Service Distribution: The route operates in Wake County.
- Estimated Cost for FY 20: $415,063 (3,321 revenue hours at $125 per hour).

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- Funding Source: Resources in the GoTriangle General Fund currently used for Routes 102 and KRX will be reallocated to Route 310W after those services are discontinued and replaced with GoRaleigh service. The remainder of Route 310W's cost will be funded by Wake Transit.

Go OnDemand Pilot Program

Area Served: Research Triangle Park, Regional Transit Center, apartments/other destinations surrounding RTP

Recommended Action: Discontinue the OnDemand Pilot program. Reallocate resources to Transit Connect pilot program and to additional service on the Durham-Raleigh Express (DRX) and the Chapel Hill-Raleigh Express (CRX).

Implementation Date: August 4, 2019

Rationale: Prior to January 2018, GoTriangle operated four peak-only shuttle routes throughout the RTP service area. From FY 2013-2015, shuttle ridership remained steady around 180 boardings per day. In 2016-2017, ridership fell to approximately 110 boardings per day. With 21.56 revenue hours of service, this was less than 6 boardings per hour and made the shuttles the most expensive GoTriangle services to operate.

Figure 3: RTP Shuttles and OnDemand Ridership FY 2013-2019FY13-19
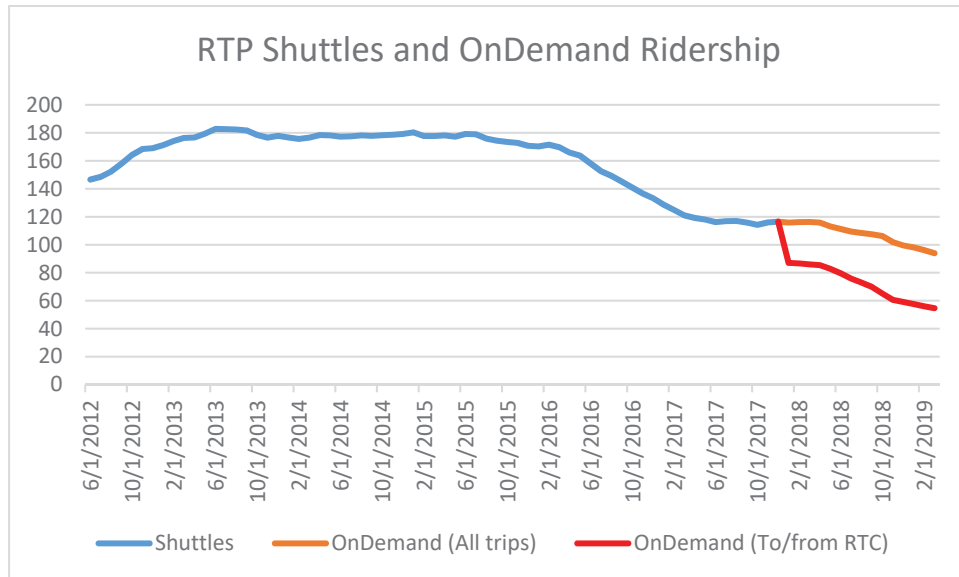
The OnDemand pilot program was initiated in January 2018 with two defined goals:
1. Increase ridership to exceed the previous shuttle ridership of 180 boardings per day or
2. Serve the same customers (110 boardings per day) with 25% fewer GoTriangle resources

The OnDemand Pilot started at an average of 120 boardings per day using 28 revenue hours of service. A CMAQ grant to cover start-up costs allowed us to operate more service than had been operated on the RTP shuttles. The CMAQ grant was available only for the first few months of operation of the service. In August 2019, service was reduced to within the 21.56 revenue service hours of service that had been

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provided on the shuttles. With fewer vehicles available during peak commute times, customers experienced longer wait times and longer in vehicle travel times.

Ridership has declined, such that as of January 2019, Go OnDemand provided 80 boardings per day. In January 2019, midday service was eliminated in order to allocate more resources to the peak commute times, but ridership has continued to decline.

Reliability issues may contribute to the ridership decline as well. When considering timed connections to regional core routes, OnDemand services are less dependable when compared to the previous fixed-route model. OnDemand services and trip times constantly shift, making it difficult for customers to reliably meet their timed connections, thus discouraging utilizing the service for trips with connections.

Our conclusion is that Go OnDemand requires the same level of resources as the RTP Shuttles and has not resulted in increased ridership. As such, the OnDemand pilot has not met either of the project goals.

Public Input Received: See Attachments F and G for a summary of the public engagement effort and the comments received.

Impacts Likely to Occur Regarding:
- Current Customers: Transit Connect would be available for RTP customers to complete their first/last mile connections within the RTP zone. See Attachment B for more details on the Transit Connect pilot program.
- Target Markets: Ridership may increase for customers travelling to Kit Creek Road with the realignment of Route 311. In addition, ridership may increase on Transit Connect with improved travel times and reduced wait times to destinations within the RTP zone.
- Minority Populations: See Attachment E. Title VI Service Equity Analysis
- Regional Service Distribution: The service operates in Durham and Wake counties.
- Estimated Cost for FY 2020: Discontinued service with funds to be allocated to the Transit Connect Pilot program, Durham-Raleigh Express and the Chapel Hill-Raleigh Express
- Funding Source: GoTriangle General Fund

Route 311: Apex to RTC

Area Served: Regional Transit Center, Apex, NC 55, and Research Triangle Park

Recommended Action: Realign the route to serve Kit Creek Rd and Davis Dr. This would provide fixed route service to employers such as Cisco, Pfizer, and Biogen. Service to US EPA and NIEHS would be possible through the Transit Connect Pilot Program, but no longer available on Route 311. There are no changes to the service along NC 55 and within Apex. The route will continue to provide service in the peak direction with service from the RTC to Kit Creek Rd in the morning and from Kit Creek Rd to the RTC in the afternoon.

Implementation Date: August 4, 2019

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Rationale: There are several reasons to support the recommendation to realign the route to provide fixed route service to Kit Creek Rd instead of the US EPA:

From FY 2013-2017, GoTriangle showed strong ridership on the RTP Shuttle 49. The shuttle 49 served destinations along Kit Creek Rd, Davis Dr, Development Dr, and Louis Stephens Rd. According to the GoTriangle service standards, a route is an average performer if its productivity (boardings per hour) is at least 75% of the system average.

Table 1: Service Productivity of the Shuttle 49 and System Average FY 2013-2017

Boardings per hour	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Shuttle 49	12.4	13.7	13.3	13.1	8.8
GoTriangle Average	16.2	15.8	14.3	13.0	11.8

Figure 4: Service Productivity of the Shuttle 49 and System Average FY 2013-2017
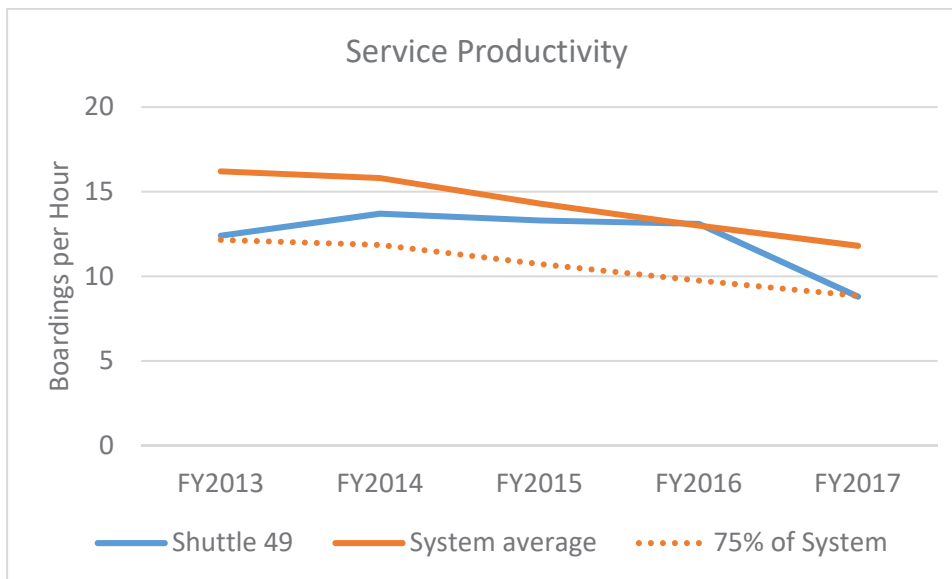
The Wake Bus Plan identified a need for service to Kit Creek Rd. The Wake Bus Plan Community Funding Area Market Analysis reviewed the population and employment densities in the Research Triangle Park. The study found a strong propensity for transit demand along Kit Creek Rd near Cisco. The analysis concluded that RTP can support 30 minute service to the employment center along Kit Creek Road.

Ridership along Kit Creek Rd and Davis Dr shows a stronger potential for ridership growth than the US EPA campus. In 2015, there were 58 daily boardings and alightings at bus stops in the Kit Creek Rd area. Ridership declined in subsequent years, due to ridership declines common to transit agencies nationwide. However, the high ridership in previous years indicates a potential for growth to higher ridership levels than the US EPA and NIEHS.

Table 2: Daily boardings and alightings

Year	Kit Creek Rd	US EPA and NIEHS
2015	58	31
2016	48	36
2017	33	28

Source: Automatic Passenger Counters (March each year)

Finally, Kit Creek Road is "on the way" from NC 55 to the Regional Transit Center. In support of the GoTriangle Short Range Transit Plan goal to make service faster and more time competitive, routes must follow as direct an alignment as possible. The alignment along Kit Creek Rd and Davis Dr provides a direct service from Apex and NC 55 to the RTC while serving major employers along the way. Deviating the route onto the US EPA campus decreases the attractiveness of the service for customers travelling to other destinations due to the increased in-vehicle travel time.

Map: The following map shows the recommended realignment of the Route 311 along Kit Creek Rd and Davis Dr and the elimination of service through US EPA and TW Alexander Dr. The dark green line represents the recommended realignment of the Route 311 while the light green line represents the recommended eliminated section.

Public Input Received: See Attachments F and G for a summary of the public engagement effort and the comments received.

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Impacts Likely to Occur Regarding:
- Current Customers: Customers travelling to the EPA and NIEHS would be able to utilize the Transit Connect Program to book an Uber or Lyft trip from the RTC. Customers can book a trip using an app or by calling a phone number. In our research, the trip can be completed in a similar travel time as the current Route 311 and within the $10 subsidy.
- Target Markets: Ridership may increase at Cisco and other employers along Davis Dr and Kit Creek Rd in response to the availability of 30-minute fixed route service.
- Minority Populations: No disparate impacts were identified in the Title VI analyses completed as part of the Wake Bus Plan or the GoTriangle Short Range Transit Plan. See Attachments C and D. Regional Service Distribution: The route operates in Wake County.
- Estimated Cost for FY 2020: The service change does not require additional funding to implement. The full cost of Route 311 will remain $468,683 (3,750 revenue hours at $125 per hour).
- Funding Source: GoTriangle General Fund

Route 700: Durham to RTC

Area Served: Durham Station, Regional Transit Center

Recommended Action: Permanently implement the construction detour put into place in 2016 due to construction on the Durham Freeway and Alston Ave. Customers can use GoDurham Route 8 to access Lawson St and Durham Technical Community College, and GoDurham Route 12 to access Alston Ave.

Implementation Date: August 4, 2019

Rationale: Route 700 provides fast, direct service between Durham Station and the Regional Transit Center, where customers connect to other routes serving Raleigh, Cary, and Chapel Hill. Due to planned construction on the Durham Freeway and Alston Ave, a detour was put in place in 2016 that bypassed bus stops on Alston Ave and Lawson St, including Durham Technical Community College and McDougald Terrace. Ridership has remained high during the detour and service has exceeded on time performance targets. Increasing congestion on NC147 and I-40 have slowed travel speeds on the route such that the trip from Durham Station to Regional Transit Center takes up to 25 minutes during peak commute times. The current service is very reliable with 98% of arrivals on time to the RTC and 97% on time to Durham Station.

Public Input Received: See Attachments F and G for a summary of the public engagement effort and the comments received.

Impacts Likely to Occur Regarding:
- Current Customers: Current customers will continue to experience reliable service between Durham Station and the Regional Transit Center. Customers have service on GoDurham Route 8 and 12 to access Alston Ave and Lawson St.
- Target Markets: Providing reliable service will benefit riders travelling between Durham and other destinations such as RTP, Raleigh or Perimeter Park.
- Minority Populations: No disparate impacts were identified in the Title VI analysis completed as part of the GoTriangle Short Range Transit Plan. See Attachment C.

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- Regional Service Distribution: The route operates in Durham County.
- Estimated Cost for FY 2020: No change to the current funding
- Funding Source: GoTriangle General Fund

Chapel Hill-Raleigh Express (CRX)

Area Served: Downtown Chapel Hill, Downtown Raleigh, Eubanks Road Park-and-Ride, District Drive Park-and-Ride, Hillsborough St, UNC-Chapel Hill, GoRaleigh Station

Recommended Action: Add trips to the afternoon peak period departing Chapel Hill at 3pm and departing Raleigh at 3:25pm. Other minor schedule changes will be made to improve on-time performance. The recommendation adds 2.2 daily revenue hours to provide 33.52 daily revenue hours of service. The CRX would provide 13 trips in the morning and 15 trips in the afternoon.

Implementation Date: August 4, 2019

Rationale: Ridership on the first departure of the afternoon indicates that customers often experience crowded buses or standing conditions. Shown in Table 1, the 3:30pm departure from Chapel Hill towards Raleigh has an average ridership of 30 passengers. The recommendation for an earlier trip will allow some customers to shift to the earlier trip if they are most interested in taking the first trip of the afternoon. This will relieve the high passenger loads on the 3:30pm trip.

Table 3: Average Ridership towards Raleigh in afternoon

Trip Time	Average Ridership	Percentage of days with crowded conditions (over 32 passengers)	Percentage of days with standees (over 37 passengers)
3:30 PM	30	17%	0%
4:00 PM	22	5%	0%

Ridership on the first trip of the afternoon departing Raleigh towards Chapel Hill at 3:55pm indicates that while average ridership is 22 passengers, conditions are crowded 9% of the time.

Table 4: Average Ridership towards Chapel Hill in afternoon

Trip Time	Average Ridership	Percentage of days with crowded conditions (over 32 passengers)	Percentage of days with standees (over 37 passengers)
3:55 PM	22	9%	5%
4:20 PM	11	4%	4%

Public Input Received: See Attachments F and G for a summary of the public engagement effort and the comments received. Staff has amended the recommended service change in response to public comment. Initially, the 6:40pm trip was proposed to be eliminated due to low ridership and the 5:50pm trip was proposed to be changed to depart at 6:10pm. However, many customers provided many comments about the value of these two trips.

Impacts Likely to Occur Regarding:
- Current Customers: Some customers will shift to take the earliest departure in the afternoon, which will result in alleviating the overcrowded or busy conditions of the 4pm departure from Raleigh and the 3:30pm departure from Chapel Hill.
- Target Markets: Providing more seat capacity, trip options and expanded service span will encourage customers to ride.
- Minority Populations: The recommendation is a 7% increase in service, which does not meet the threshold (25% change in revenue hours) for a major service change according to the GoTriangle Title VI policy.
- Regional Service Distribution: The route travels between Orange and Wake Counties.
- Estimated Cost for FY 2020: $62,975 (504 revenue hours at $125 per hour) for the cost of the additional trips
- Funding Source: GoTriangle General Fund, using funds previously allocated towards the OnDemand service.

Durham-Raleigh Express (DRX)

Area Served: Duke Hospitals, Duke University, Durham Station, NC State University, Carter-Finley Park-and-Ride, Downtown Raleigh

Recommended Action: Our goal is to provide consistent, frequent departures that match the customer work schedules, while providing connections to GoDurham and GoRaleigh routes. Add 3 new trips to the schedule to provide departures every 15-20 minutes during the busiest times of the day. The additional trips require assigning two more buses to the route during the peak period. The new trips would be provided at the following times:
- Departing Raleigh at 7:30am
- Departing Durham at 8:15am
- Departing Durham at 4:45pm

Additionally, to provide 15-20 minute service between 4:00pm and 5:00pm and to better match afternoon departure times with observed ridership, the 4:50pm departure from Raleigh would be moved to 4:40pm, and the 5:10pm would be moved to 4:55pm. Other minor schedule changes would be made to improve on-time performance.

The recommendation adds 4.05 daily revenue hours to provide 42.67 daily revenue hours of service. If approved, the DRX would provide 19 trips in the morning and 18 trips in the afternoon.

Implementation Date: August 4, 2019

Rationale: The DRX is among the most productive routes in the GoTriangle system. There are some trips during the morning and afternoon commutes in which customers experience crowded trips and must stand for the long duration of the trip along NC 147 and I-40. The additional trips will spread out the passenger loads to provide more seats for customers and will provide more frequent service to match the schedule to customer requests.

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Public Input Received: See Attachments F and G for a summary of the public engagement effort and the comments received.

Impacts Likely to Occur Regarding:
- Current Customers: More trip options and more seating capacity may maintain existing riders.
- Target Markets: New riders may be attracted to the service with additional trip options.
- Minority Populations: The recommendation is a 10% increase in service, which does not meet the threshold (25% change in revenue hours) for a major service change according to the GoTriangle Title VI policy.
- Regional Service Distribution: The route travels between Wake and Durham counties.
- Estimated Cost for FY 2020: $166,311 (1,130 revenue hours – 5.81 revenue hours per day – at $125 per hour)
- Funding Source: GoTriangle General Fund using funds previously allocated towards the OnDemand service, as well as funds authorized in the FY 2019 Wake Transit Work Plan and Durham County Transit Work Plan.

Fuquay-Varina Express (FRX)

Area Served: Fuquay-Varina, Wake Tech Southern Wake Campus, Downtown Raleigh

Recommended Action: Add a new park-and-ride at Wake Tech Southern Wake Campus to replace the Hilltop Food Lion Park and Ride. Customers would have a direct connection from the Fuquay-Varina South Park Community Center Park and Ride to the Wake Tech Southern Wake Campus at 9101 Fayetteville Road.

Implementation Date: The service change will be implemented after the new park-and-ride at Wake Tech Southern Wake Campus is constructed.

Rationale: While developing the Wake Bus Plan, Town of Fuquay-Varina elected officials and staff expressed a desire for a direct connection to Wake Tech Southern Campus. Recently, GoTriangle has received public requests for a direct connection from Fuquay-Varina to Wake Tech. Students currently ride Route FRX to downtown Raleigh to catch the 40X to go back to Wake Tech. Providing the direct connection will improve access to educational opportunities from Fuquay-Varina by reducing the transit travel time.

In coordination with Wake County, Wake Tech will design and construct a new park and ride facility with 25 parking spaces to be served by Route FRX. To maintain a time competitive service, the new park and ride will replace the Hilltop Needmore Rd Food Lion Park-and-Ride, which is located 2 miles south of Wake Tech. GoTriangle leases Park-and-Ride spaces at the shopping center. There are no amenities provided and the bus travels through the parking lot to serve a bus stop. The new park-and-ride location at Wake Tech Southern Campus will improve the customer experience with a dedicated park-and-ride facility, a bus shelter and waiting area at a bus stop. In addition, the bus will serve the bus stop from an internal road, which will minimize interactions with car traffic.

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In 2016, GoTriangle surveyed Route FRX riders about closing the Hilltop Park-and-Ride and adding a stop at Wake Tech.

- 48% of respondents indicated that if the Hilltop Park-and-Ride closed, they would switch to South Park, and 24% were willing to switch to a park-and-ride nearby.
- 79% of respondents indicated that if Route FRX were to serve Wake Tech in addition to South Park and Hilltop, they would ride just as often.

Given the goal of providing a time competitive service, the improved amenities which would be available at Wake Tech, and an indication that some people are willing to use alternate locations for a park-and-ride, the recommended service change includes elimination of the Hilltop Park-and-Ride once the Wake Tech Park-and-Ride is built and the FRX begins serving it.

Public Input Received: See Attachments F and G for a summary of the public engagement effort and the comments received.

Impacts Likely to Occur Regarding:

- Current Customers: Some of the current customers using Hilltop Park-and-Ride will adjust to use South Park and Community Center Park-and-Ride or the Wake Tech Park-and-Ride, while others may stop riding due to the inconvenience of a new location.
- Target Markets: Reduced travel time from Fuquay-Varina to educational opportunities at Wake Tech will improve access to education and may increase ridership.
- Minority Populations: No impacts were identified in the Title VI analyses completed as part of the Wake Bus Plan or the GoTriangle Short Range Transit Plan. See Attachments C and D.
- Regional Service Distribution: The route operates in Wake County.
- Estimated Cost for FY 2020: $165,082 (1,834 revenue hours at $90 per hour)
- Funding Source: Wake Transit

Knightdale-Raleigh Express (KRX)

Area Served: Knightdale, Downtown Raleigh, WakeMed Hospital, and State Government Complex

Recommended Action: Discontinue GoTriangle Knightdale-Raleigh Express (KRX), a peak hour service operated by GoRaleigh, to be replaced by GoRaleigh Route 33 New Hope-Knightdale. Route 33 would connect Knightdale to the New Hope Commons shopping center, which is served by multiple bus routes. GoRaleigh Route 15 WakeMed, which operates every 15 minutes, would provide onward service to downtown Raleigh. Route 33 would provide hourly service, from 6:00am to 9:00pm on weekdays. Weekend service will be added in FY 2023.

GoTriangle would continue to provide Route KRX until the new GoRaleigh Route 33 begins service.

Implementation Date: September 8, 2019

Rationale: In 2016, voters in Wake County approved a tax package that would invest $2.3 billion in public transportation services over the 10-year period between 2017 and 2027. The Wake Bus Plan identified a need to provide all-day service to Knightdale in FY 2020.

The KRX had 31 boardings per day in FY 2018. With a productivity of 5.5 boardings per hour, it is an underperformer in the GoTriangle system according to the service standards approved in 2004. Additionally, the KRX does not meet the standard of 8 passengers per trip established by the Wake Bus Plan Service Standards that were adopted in February 2018.

Public Input Received: See Attachments F and G for a summary of the public engagement effort and the comments received.

Impacts Likely to Occur Regarding:
- Current Customers: KRX customers can use the new GoRaleigh Route 33, but will be required to transfer to the GoRaleigh Route 15 at the New Hope Commons shopping center. Some existing customers who prefer the one seat ride may discontinue riding as a result, but others may benefit from the expanded span of the service throughout the day.
- Target Markets: Increased service span will encourage new customers to use the service.
- Minority Populations: No impacts were identified in the Title VI analyses completed as part of the Wake Bus Plan or the GoTriangle Short Range Transit Plan. See Attachments C and D.
- Regional Service Distribution: The route operates in Wake County.
- Estimated Cost for FY 2020: Discontinued funding for this service will support the Route 310W.
- Funding Source: GoTriangle General Fund

Robertson Scholars Express (RSX)

Area Served: Duke Chapel, Morehead Planetarium in Chapel Hill

Recommended Action: GoTriangle would no longer operate the Robertson Scholars Express service starting the fall of 2019. The Robertson Scholars Foundation is considering service options for the fall.

Implementation Date: August 4, 2019

Rationale: In FY 2018, the RSX underperformed compared to the GoTriangle service standards during midday, evenings and weekends. A route is underperforming when it is less than 75% of the service category average. While it was an average performer during peak times, there was a 13% drop in ridership compared to FY 2017: ridership decreased from 112 to 98 boardings per day during the peak periods. The RSX duplicates GoTriangle Routes 400 and 405 within the US 15-501 corridor, which contributes to the low productivity. Additionally, GoTriangle's current contractor could no longer operate the RSX on GoTriangle's behalf. To remain compliant with the Federal Transit Administration regulations regarding Charter Service, GoTriangle cannot directly operate the service.

Table 5: Boardings per revenue hour FY 2018 Annual Report

	RSX	System
Weekday Peak	11.1	12.2
Weekday Midday	7.4	10.7
Weekday Evening	3.9	9.2
Saturday	4.6	7.2
Sunday	5.2	8.1

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Public Input Received: See Attachments F and G for a summary of the public engagement effort and the comments received.

Impacts Likely to Occur Regarding:
- Current Customers: Some RSX customers will shift to use the GoTriangle Route 400 or 405 that also provide service between Chapel Hill and Durham. Routes 400 and 405 serve bus stops on Franklin Street in Chapel Hill in front of the Planetarium, while the bus stops in Durham on Erwin Road are ½ to ¾ mile away from the Duke Chapel. Routes 400 and 405 have capacity to accommodate customers who currently use the RSX.
- Minority Populations: See Attachment E. Title VI Service Equity Analysis (RSX)
- Regional Service Distribution: The route travels between Durham and Orange counties.
- Estimated Cost for FY 2020: Discontinued
- Funding Source: Robertson Scholars Foundation

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Attachment B. Transit Connect Pilot Proposal

April 24, 2019
Report completed by Mary Kate Morookian and Jenny Green

Background

Transit Connect is a proposed pilot program facilitating first/last mile connections within a designated Research Triangle Park (RTP) zone. Through partnerships with Uber and Lyft, GoTriangle would provide an up-to $10 subsidy (per trip) to transit passengers traveling within RTP, to-or-from specified "connection points," weekdays from 6:30am-10:45pm. The connection points would be within 100 feet of the following fixed route transit stops:

- Regional Transit Center
- NC 54 @Alston Ave
- NC 54 @ New Millennium Way
- TW Alexander Dr @ Stirrup Creek Dr

GoTriangle previously served RTP with fixed-route shuttles, but currently operates an on-demand shuttle service (Go OnDemand) in RTP using small, agency-owned transit vehicles. Ridership has declined since the implementation of the on demand shuttles—from 180 trips per day being served by fixed route shuttles in 2016, to 80 trips per day in 2019 being served by Go OnDemand. The reduction in productivity and customer response to the Go OnDemand program illustrates a need to serve RTP differently and improve the customer experience.

This memo discusses the following questions:

1. What are the goals of Transit Connect?
2. How does a customer book a ride?
3. How is Transit Connect better than the current Go OnDemand shuttles or the previous fixed route shuttles operated by GoTriangle?
4. How long will GoTriangle fund the program? Can the program exist without GoTriangle funding in future years?
5. How will GoTriangle evaluate the performance of Transit Connect?

1. What are the goals of Transit Connect?

The Transit Connect program has identified several goals:
- Provide first/last mile connections to-and-from four identified "connection points" along GoTriangle and GoDurham routes operating in RTP
- Encourage transit ridership to RTP and increase within-RTP service usage to 180 trips per day
- Provide a more cost effective service

2. How does a customer book a ride?

Customers with smartphones would be able to book a subsidized Uber/Lyft trip by opening their preferred app, entering their requested drop-off and pick-up locations, and:

- If using the Uber app, selecting the "transit connect" button when prompted to choose a ride type (instead of Uber XL, for example)

- If using Lyft, in order to receive the subsidy, customers would be prompted to enter a promo code (which would be advertised by GoTriangle and Lyft)

If the pick-up and drop-off locations are within the "rules" of the program, a $10 discount would be immediately applied to the estimated cost of the trip (matching subsidy-per-passenger guidelines for on-demand services established in the approved Wake Transit Service Guidelines and Performance Measures document).

Passengers without smartphones would be able to call the GoTriangle call center directly and have their Uber/Lyft trip booked via a "concierge dashboard." Staff access either the Uber or Lyft dashboard and enter the customer's requested pick-up and drop-off locations. Similarly to the smartphone interface, if the requested origin and destination follows the "rules" of the Transit connect program, a $10 discount would be applied to the cost of the trip.

Passengers requiring a wheelchair-accessible vehicle would call a direct number to arrange their trip. Providing quality service to our ADA customers is a priority for GoTriangle. Until an agreement is reached with a an ADA taxi service provider, GoTriangle will continue to provide necessary on demand rides via small shuttle vehicles and customers will be directed to call GoTriangle dispatch to request their trip.

3. How is Transit Connect better than the current on demand shuttles or previous fixed-route shuttle service operated by GoTriangle?

GoTriangle's mission is to improve our region's quality of life by connecting people and places through safe, reliable and easy-to-use travel choices. Transit Connect supports this mission by providing reliable and convenient connections to RTP destinations for transit customers at all times of day. If approved,
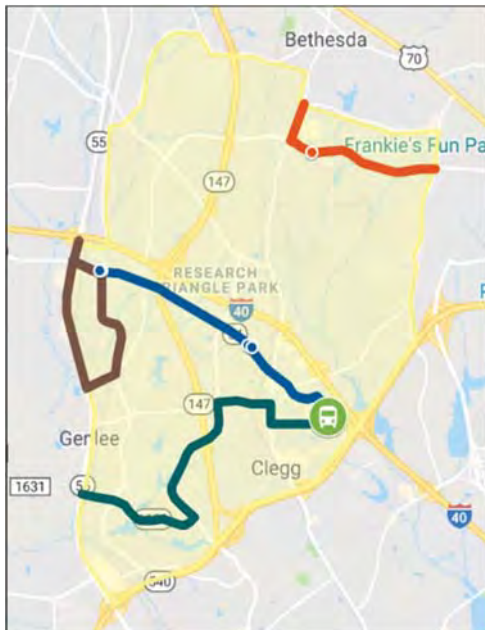
Transit Connect would improve upon current service offerings by increasing possible destinations within RTP, offering competitive trip and wait times, expanding service hours, and reducing overall program cost.

The current Go OnDemand service design requires customers to request trips to-and-from designated GoOnDemand stops (which are not transit stops) throughout the RTP service zone—Transit Connect requires that a trip begin OR end with transit. With only one end of the trip required to be one of the identified "connection points", the other end of the trip can be any location within the defined RTP zone, increasing trip options for transit riders, including providing service to one's front door.

While expanding possibilities for trip destinations, Transit Connect would also help limit point-to-point travel within RTP. Currently, several Go OnDemand stops are located near apartment complexes, allowing a portion of users to take on-demand shuttle service directly from home to work, dining, Walmart, etc., never having to utilize fixed route transit. Transit Connect would no longer support those types of point-to-point trips.

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Transit Connect would provide subsidized trips on weekdays from 6:30am-10:45pm, versus the peak-only Go OnDemand service. This service hour extension helps assure those traveling to RTP, if commuting with transit, there will always be a connection back to a fixed route service as long as GoTriangle routes are operating from the Regional Transit Center.

GoTriangle currently has $653,689 budgeted in FY20 for Go OnDemand and provides an 80 trips per day through the program. Transit Connect's FY20 budget would be $455,400—the cost of which would cover up to 180 trips per day at up-to $10 per trip. Transit Connect would be able to serve more customers while significantly reducing program cost. The remaining funds would be used to add trips on the Durham-Raleigh Express (DRX) and Chapel Hill-Raleigh Express (CRX) to alleviate overcrowded conditions.

4. How long will GoTriangle fund the program? Can the program exist without GoTriangle funding in future years?

Transit Connect is being proposed as an FY20 service pilot, funded using a portion of the General funds previously dedicated to the Go OnDemand program. Research Triangle Foundation (RTF) staff have expressed interest in the Transit Connect program and are planning to submit for Wake Transit Plan Community Funding Area (CFA) matching funds for the FY21 operation of the Transit Connect service.

As it is encouraged by CAMPO for CFA applicants to partner with an operating agency through the application process, GoTriangle would remain an active planning partner as RTF moved toward ownership of the Transit Connect program. Beyond Wake Transit CFA matching funds, there are other funding mechanisms RTF could employ to cover the cost of Transit Connect. RTF staff is currently exploring budgeting options and timelines with their Board.

GoTriangle's RTP service area extends beyond official RTP corporate boundaries and RTF would only be able to pay for services within park boundaries. After receiving months of consistent, reliable data, GoTriangle staff would be better equipped to evaluate whether supplementing trips outside the bounds of RTP is a GoTriangle policy with merit and would present a recommendation to the Board at that time.

5. How would GoTriangle evaluate the performance of Transit Connect?

A performance evaluation program would be developed, allowing GoTriangle to track progress toward achieving the goals of Transit Connect. Staff will present the proposed performance evaluation program to the Board for approval at a later date.

Uber and Lyft would provide GoTriangle with trip-level data to help measure the success of the project and evaluate future decisions surrounding the Transit Connect program. Data points include (but are not limited to):

- Trip origin
- Trip destination
- Time trip was requested
- Date trip was requested
- Estimated wait time given to passenger
- Actual wait time
- Trip distance
- Trip Time

- Trip date
- Trip cost
- Deadhead miles traveled by driver (miles driven before picking up passenger at origin point)
- Trip rating (given by passenger)

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Current ridership goals for the Transit Connect program are 180 trips per day. This assumes ridership levels would increase to levels similar to the fixed route RTP shuttles at their most popular with Transit Connect. Staff would also periodically survey Transit Connect users to gauge satisfaction with the program, as well as identify any issues with the program's structure.

Attachment C: Title VI Service Equity Analysis

Short-Range Transit Plan 2018-2024

Approved by the GoTriangle Board of Trustees on November 28, 2018

Contents

Introduction

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving Federal financial assistance. This analysis was conducted in compliance with Federal Transit Administration (FTA) Circular 4702.1B, which requires any FTA recipient serving a population of 200,000 or greater to evaluate any fare change and any major service change at the planning and programming stages to determine whether those changes have a discriminatory impact. These objectives work to ensure that FTA-assisted benefits and related services are made available and are equitably distributed without regard to race, color, or national origin.

The GoTriangle Short Range Transit Plan focused on voter approved revenue for improvements to transit services across the county and across all service-providing agencies. These improvements were developed through an analysis of the local market and existing services, as well as an extensive outreach process with current customers and other community stakeholders. Using this information, a system network plan was developed with a funding and implementation schedule to enhance service for existing customers and also attract potential new ones. The elements of this plan that will be operated by GoTriangle and implemented by the conclusion of fiscal year 2024 will be examined as part of this Equity Analysis. This will be compared against current services.

Under the recommended service improvement plan through FY 2024, all census block groups currently served by GoTriangle will continue to receive fixed-route service through either GoTriangle or a partner agency. This Equity Analysis focuses primarily on how changes in GoTriangle service differently affect communities characterized by particular demographics. The income and race, as reported by the 2016 American Community Survey, of individuals within the service area was examined to determine whether the proposed service changes would disproportionately impact classes protected by Title VI and Environmental Justice (EJ). Specific focus was placed on identifying whether areas with disproportionately high low-income and/or minority residents would see significant service reductions under the GoTriangle Short Range Transit Plan.

Title VI Definitions and Policies

Definition of Minority and Low-Income Populations

Minority Population

According to FTA Circular 4702.1B, a minority person is defined as an individual identifying as:

- American Indian and Alaska Native, Asian, Black or African American, Hispanic or Latino, and Native Hawaiian or Other Pacific Islander.

Minority populations are defined by FTA as any readily identifiable group of minority persons who live in geographic proximity, or who may be geographically dispersed, but who may be similarly affected by a proposed action.

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Low-Income Population

According to the FTA circular, low-income means a person whose median household income is at or below the U.S. Department of Health and Human Services poverty guidelines or within a locally developed income threshold that is at least as inclusive as these guidelines. For these policies, persons with household incomes below 150 percent of the federal poverty level for a regionally average household size are determined to be low income.

Low-income population is defined by FTA as any readily identifiable group of low-income persons who live in geographic proximity or who may be geographically dispersed, but who may be similarly affected by a proposed action.

The FTA circular on Title VI compliance states that while low-income populations are not a protected class under Title VI there is an "…inherent overlap of environmental justice principles in this area, and because it is important to evaluate the impacts of service and fare changes on passengers who are transit-dependent, FTA requires transit providers to evaluate proposed service and fare changes to determine whether low-income populations will bear a disproportionate burden of the changes."

GoTriangle Policies

The GoTriangle Board of Trustees adopted three policies in June 2014 related to Title VI that guide this analysis:

- Major Service Change Policy
- Disparate Impact Policy, and
- Disproportionate Burden Policy.

The requirement for these policies comes from Federal Transit Administration (FTA) Circular 4702.1B, "Title VI Requirements and Guidelines for Federal Transit Administration Recipients" which became effective October 1, 2012. The Circular requires any FTA recipient that operates 50 or more fixed route vehicles in peak service and serving a population of 200,000 persons or greater to evaluate any fare change and any major service change at the planning and programming stages to determine whether those changes have a discriminatory impact.

Disparate Impact Policy for Major Service Changes

The FTA circular identifies disparate impacts as a "facially neutral policy or practice that disproportionately affects members of a group identified by race, color, or national origin, where the recipient's policy or practice lacks a substantial legitimate justification and where there exists one or more alternatives that would serve the same legitimate objectives but with less disproportionate effect on the basis of race, color, or national origin."

These disparate impact policies establish thresholds for determining when impacts of major service changes by each respective agency disproportionately affect minority populations. The thresholds apply to the difference in impacts of the proposed service change between minority populations and non-minority populations, measured by using the service population or ridership of the affected route(s) compared with the service population or ridership of the system.

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For Service Equity Analyses, a threshold of 10 percent shall be used by GoTriangle to determine if the effects of a proposed service change are borne disproportionately by minority populations.

Disproportionate Burden Policy for Major Service Changes

Disproportionate burden addresses impacts to low-income populations. The FTA circular defines disproportionate burden as "a neutral policy or practice that disproportionately affects low-income populations more than non-low-income populations."

These disproportionate burden policies establish thresholds for determining when impacts of major service changes by each respective agency disproportionately affect low-income populations. The thresholds apply to the difference in impacts of the proposed service change on low-income populations compared to the impacts on other populations, measured by using service population or ridership of the affected route(s) compared with the service population or ridership of the system.

For Service Equity Analyses, a threshold of 10 percent shall be used by GoTriangle to determine if the effects of a proposed service change are borne disproportionately by low-income populations.

Data Sources

- Census data is provided by the US American Community Survey, 2009-2013.
- Population is coded by table B03002, field B03002001.
- Low income status is set at 100%, 150% or 200% the US poverty level. This is coded by the appropriate fields in table C17002.
- Minority status is coded by table B03002, by subtracting the white, non-Hispanic population (B03002003) from the total population (B03002001).
- Service area is a set of block groups determined by a shapefile your agency provides.
- Map and routing data is provided OpenStreetMap, Mapbox, and Valhalla.

Methodology

1. Get the population near a route, including its low-income and minority percentage.

- For each route, build a shape that represents the area within quarter mile of the route.
- Intersect the catchment area with 20012-2016 ACS Census data. Get a list of block groups and the percentage overlap with each.
- For each block group, take the percentage of overlap and multiply it by the block group's statistics.
- Get the total population, including minority and low-income, for each block group and sum them together. This is the total population a route could serve.

2. Compare the number of people-trips, before and after.
- Multiply the population near a route by the number of trips it makes (per year) to get people-trips.
- Repeat for low-income and minority populations to get low-income people-trips and minority people-trips.

- Compare these numbers between the before and after versions of the route, to get a set of people-trip differences. We match before and after using routes that have the same name.

3. Calculate the total difference in people-trips across the transit system.
- Repeat the process above for every route in the transit system.
- Sum together the difference in people-trips. This will return three numbers: total difference in people-trips, total difference in low-income people-trips, and total difference in minority people trips.

4. Calculate the change borne by low-income and minority populations.
- Divide the total difference in low-income people trips by the total difference in people-trips to get the percentage of change borne by those with low incomes.
- Repeat for minority people-trips.

5. Compare the percentage change to the average in the service area.
- Calculate the average percentage of low-income and minority populations across the entire service area.
- Subtract from the change borne by those populations.
- Get two final numbers: the delta between the impact this set of transit changes had on low income and minority populations compared to any average change.

Identification of Impacted Census Block Groups

There are three types of routes in the GoTriangle system:

- Commuter – operates weekdays during peak hours only and serves a limited number of stops at the beginning and end of a route with a long portion of the route operating as express service
- Core – operates all days of the week and serves stops along the entire length of the route
- Regional – operates weekdays during peak hours only and serves stops along the entire length of the route; however some portions of the route may operate as express service

Based on the route type, any block group intersecting the impacted service area is considered impacted. The following criteria are used to determine the impacted service area:

- Commuter routes
  - 1/4 mile around all routes
- Core routes
  - 1/4 mile around route line
- Regional routes
  - 1/4 mile around route line

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Service Analysis

GoTriangle System Profile

GoTriangle provides service to Wake, Durham, and Orange counties. The entire area within these counties is considered the GoTriangle service area.

Average Daily Ridership

The following table shows the ridership for the GoTriangle system for weekdays, Saturdays and Sundays. Ridership data is collected via Automatic Passenger Counters (APCs) on GoTriangle vehicles and on GoTriangle routes operated by GoRaleigh, Chapel Hill Transit, and GoCary.

Table 1: GoTriangle Average Daily Ridership (FY 18)

	Average Daily Ridership
Weekday	6,196
Saturday	1,495
Sunday	799

Race and Ethnicity

Based on the American Community Survey 2012-2016 5-Year estimates, 43% of the GoTriangle service area is considered minority using the definition provide in the FTA Circular 4702.1A.

Table 2: Minority Population in GoTriangle Service Area

	Minority	Non-Minority	Total Population within ¼ mile of routes
Number	110,830	147,515	258,345
Percentage	43%	57%	100%

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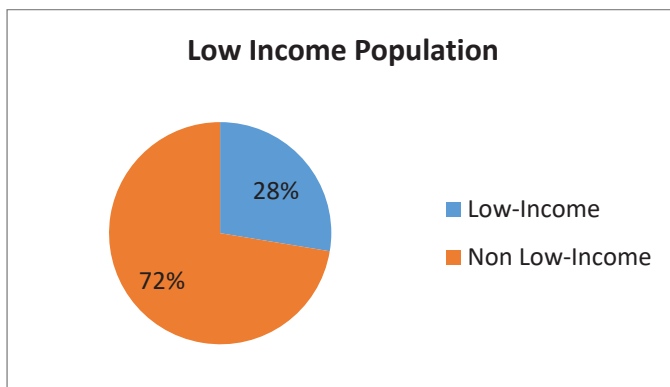**Minority Population**

43%

57%

- Minority
- Non-minority
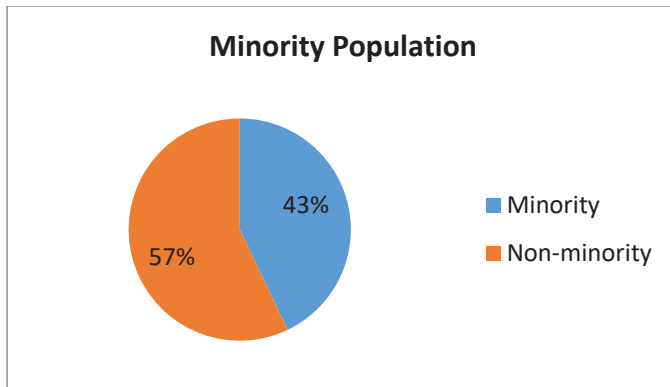
Income

Based on the American Community Survey 2012-2016 5-Year estimates, 28% of the GoTriangle service area is considered low-income using the definition provide in the FTA Circular 4702.1A.

Table 3: Low-Income Population in GoTriangle Service Area

	Low-Income	Non-Low-Income	Total Population within ¼ mile of routes
Number	71,303	187,042	258,345
Percentage	28%	72%	100%

Figure 2: Low-Income Population in GoTriangle Service Area

Low Income Population

28%

72%

- Low-Income
- Non Low-Income

Determination of System-Level Impacts

To determine the final system-wide impacts of service changes, we compare the percentages of impacted minority and low-income populations to the percentages of impacted non-minority and non-low-income populations. If the percentage differs by more than 10%, the changes overall will be considered disparate to minority and low-income populations.

8

System Level Analysis

For all proposed major service changes, staff analyzed percentages of impacted minority and low-income populations and evaluated them according to the disparate impact and disproportionate burden policies. If the percentage of impacted minority and low-income populations differs by more than 10% from the service area average, the proposed service change were considered disparate to minority and low-income populations.

The total package of proposed service changes have been found to affect a population that is 29% low income, while the service area average is 42% minority. The changes yield no disparate impacts or disproportionate burdens to these population from a system level.

Table 4: Minority population affected by all proposed major service changes

	Before Total Population (w/n ¼ mi)	Before Percent of Minority Population Affected (number)	After Total Population (w/n ¼ mi)	After Percent of Minority Population Affected (number)	Disparate Impact? (number)
Minority Assessment	100% (258,345)	43% (110, 830)	100% (203,735)	42% (86,384)	-1%

There is a -1% disparate impact identified on the system level, which falls within an acceptable threshold.

Table 5: Low-Income population affected by all proposed major service changes

	Before Total Population (w/n ¼ mi)	Before Percent of Low Income Population Affected (number)	After Total Population (w/n ¼ mi)	After Percent of Low Income Population Affected (number)	Disproportionate Burden? (number)
Low-Income Assessment	100% (258,345)	28% (71,303)	100% (203,735)	29% (59,491)	1%

There is a 1% disproportionate burden identified on the system level, which falls within an acceptable threshold.

9

Conclusions

The proposed service changes were developed to improve the GoTriangle services. The service equity analysis was completed to comply with FTA guidelines using policies that were adopted by the GoTriangle Board of Trustees in June 2014. The analysis did not flag any system level concerns.

The total package of proposed service changes were found to affect the low income population at a difference of 1% higher than the area average. This shows a nominal disproportionate burden to low income populations that is within an acceptable threshold.

Minority populations see a 1% difference lower than the area average. It should be noted that while a small percentage of minorities are losing immediate access to a greater share of GoTriangle services, the large majority of these same areas will see either no change or an actual overall increase in nearby available services via GoCary, GoRaleigh, GoDurham, and Chapel Hill Transit services. This effect is more present in Wake County due to the comparatively large expansion in services relative to Durham and Orange counties.

Attachment D

SERVICE CHANGE EQUITY ANALYSIS

Wake County Transit Plan | GoTriangle

October 2018

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INTRODUCTION

Title VI of the Civil Rights Act of 1964 ensures that "no person in the United States shall, on the basis of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." GoTriangle has committed to the Federal Transit Administration (FTA) objectives set forth in Circular 4702.1B. These objectives work to ensure that FTA-assisted benefits and related services are made available and are equitably distributed without regard to race, color, or national origin.

The Wake County Transit Plan focused on using new voter-approved revenue for improvements to transit services across the county and across all service-providing agencies. These improvements were developed through an analysis of the local market and existing services, as well as an extensive outreach process with riders and other community stakeholders. Using this information, a network design plan was developed with a funding and implementation schedule to enhance service for existing riders and attract potential new riders. The elements of this plan that will be operated by GoTriangle and implemented by the conclusion of fiscal year 2024 will be examined as part of this Equity Analysis.

Under the recommended service improvement plan through FY2024, all census block groups currently served by GoTriangle will continue to receive fixed-route transit service. This Equity Analysis focuses primarily on how changes in GoTriangle service differently affect communities characterized by particular demographics. The income and race, as reported by the 2016 American Community Survey, of individuals within the service area was examined to determine whether the proposed service changes would disproportionately impact classes protected by Title VI and Environmental Justice (EJ). Specific focus was placed on identifying whether areas with disproportionately high low-income and/or minority residents would see significant service reductions under the Wake County Transit Plan.

DATA + THRESHOLDS

For the Wake County Transit Plan, this analysis measures the impacts of recommended GoTriangle service changes on low-income and minority communities by comparing the number of trips accessible per weekday within the 2017 network to those accessible within the proposed 2024 network. Data concerning these communities were obtained by way of the 2016 American Community Survey.

SERVICE AREA

A ½ mile buffer around GoTriangle's 2017 fixed-route network in Wake County was created. This buffer, considered a comfortable walk to transit by the FTA, was then overlaid on Wake County block groups. All block groups which had direct contact with the ½ mile buffer were categorized as the GoTriangle 2017 service area. The same was done for GoTriangle's 2024 proposed fixed-route network. These two service areas were used as the basis of this equity analysis.

DEMOGRAPHIC DATA: INCOME

The FTA defines individuals who reside in households where total household income is equal to or less than the American Community Survey (ACS) poverty level as "low-income." The following table (Figure 1) shows the poverty guidelines for 2016.

Figure 1 | Poverty Guidelines for 2016

Persons in Family/Household	Poverty Guideline
1	$11,880
2	$16,020
3	$20,160
4	$24,300
5	$28,440
6	$32,580
7	$36,730
8	$40,890
For families/households with more than 8 persons, add $4,160 for each additional person.	

Source: U.S. Department of Health & Human Services, 2016

From the 2016 ACS, household income data were collected. These combined characteristics were then assessed against the appropriate poverty threshold, depending on household size, to render a number of persons within each Census block group that would be considered "low-income" according to the FTA definition. This number was then compared to the total population resulting in a percentage of population classified as "low-income" for each block group in both the 2017 and 2024 GoTriangle service areas.

DEMOGRAPHIC DATA: RACE

In an effort to calculate a percentage of block group population that identifies as a racial minority, the 2016 ACS was again consulted. Self-identified racial composition is reported via the ACS on an individual, rather than household, basis. For the purpose of this equity analysis, individuals who identified as any race other than non-Hispanic white were considered minorities. The number of individuals per block

group who identified as minorities was assessed against the total population to render a percent minority population for each block group in both the 2017 and 2024 GoTriangle service areas.

BLOCK GROUP CLASSIFICATION

All block groups within the GoTriangle service areas were classified as representing one of the following: minority, low-income, neither, or both. A block group would receive the minority classification if its proportion of minority residents was above the average minority proportion for the entire 2017 service area. The same is true of each block group's proportion of residents who are of low-income. If a block group's population was above both the average minority and average low-income proportions, then it was classified as "both"; the opposite rendered a classification of "neither".

Figure 2 | Block Group Classification Thresholds

Service Area Year	Average % of Block Group Population that Identifies as a Minority	Average % of Block Group Population considered Low-Income
2017	32%	13%

DISPARATE IMPACT + DISPROPORTIONATE BURDEN THRESHOLD

In accordance with FTA guidelines, the following criteria for defining the disparate impact and disproportionate burden thresholds were used in this analysis:

- *Disparate Impact*: If block groups within the service area with a higher than average percent minority population experience a 10% greater decrease or lesser increase in service (defined in the following section) than the service area overall.

- *Disproportionate Burden*: If block groups within the service area with a higher than average percent low-income population experience a 10% greater decrease or lesser increase in service (defined in the following section) than the service area overall.

These thresholds are defined in GoTriangle's Disparate Impact Policy for Major Service Changes (and Disproportionate Burden Policy), which are included in GoTriangle's current Title VI Program.

SERVICE ANALYSIS

DETERMINING SERVICE INCREASE OR DECREASE

To calculate existing service level, each existing route's total number of trips per weekday was used. The trips per weekday metric generally reflects the number of times a rider will be able to access transit from a given location. Each block group within the service area was then assigned the sum of the total trips per weekday of all routes whose ½ mile buffer passed through it. This was done for both the 2017 and proposed 2024 networks. The proposed trips per weekday figure was then subtracted from the existing trips per weekday to determine the change in service: increased service, decreased service, or no change.

Figure 3 | Service Change Overview

Service Change Category	% of Block Groups within 2024 Service Area by Change Classification
Increased Service	33%
No change in Service	0%
Decreased Service	67%

About 33% of neighborhoods served under the 2024 network will experience an increase in GoTriangle service under the recommended service plan. Around 67% of neighborhoods served by the proposed network will experience decreased GoTriangle service (see Figure 3). It is important to note that these areas of decreased service are likely gaining service from another provider, be it GoCary or GoRaleigh, since the Wake County Transit Plan increases integration of service from multiple providers. The specifics of how residents currently living within the GoTriangle service area will be integrated into a different provider's service area is explored in the following section.

CHANGE IN SERVICE ANALYSIS

The 2024 proposed network and service plan primarily entail changes in span to include more midday service, and the realignment of regional routes to better feed into the more frequent network. In cases where service would duplicate local GoCary or GoRaleigh service, areas may undergo a decrease or elimination of GoTriangle service under the proposed service plan (see Figure 7). This is the case in Cary along Harrison Avenue – which will be served by GoCary Route 3 Harrison, and along Kildaire Farm Road, Maynard Road, Walnut Street, and Buck Jones Road which will be served by a combination of GoCary Routes 5 Kildaire Farm and Route 9B Buck Jones. This is also the case in Raleigh along Glenwood Avenue – to be served by GoRaleigh Route 6L Glenwood North and 6La Glenwood Pleasant Valley – and Spring Forest Road north of the Millbrook Exchange Park – to be served by GoRaleigh Route 32 Lynn-Spring Forest (see Figure 6). The impacts of GoTriangle's service changes between 2017 and 2024 within GoTriangle's service area by demographic classification can be seen in Figures 4 and 5.

Figure 4 | Service Change by Minority Designation – all trips are per weekday

	2017 Minority Block Groups	2024 Minority Block Groups	2017 Total Service Area	2024 Total Service Area
Trips	6,172	5,738	12,589	12,050
Change in Trips from 2017	-	-434	-	-539
% Change in Trips from 2017	-	-7%	-	-4%

Figure 5 | Service Change by Low-Income Designation – all trips are per weekday

	2017 Low-Income Block Groups	2024 Low-Income Block Groups	2017 Total Service Area	2024 Total Service Area
Trips	6,323	5,944	12,589	12,050
Change in Trips from 2017	-	-379	-	-539
% Change in Trips from 2017	-	-6%	-	-4%

Residents in neighborhoods where GoTriangle service between 2017 and 2024 will see the greatest decrease are more likely to be minorities; note that minority areas see a 7% decrease in GoTriangle service while the overall network sees a 4% decrease in service. This difference in service change is within the 10% threshold. **Therefore, the proposed service changes for GoTriangle do not have a disparate impact on minorities within the service area.** Also, while minorities are losing a greater share of GoTriangle service, the great majority of these areas will see either no change or an overall increase of weekday service via the GoRaleigh and GoCary proposed 2024 networks.

Similarly, the difference in change in service between the overall service area and low-income areas is within the allotted 10% threshold. **This means that low-income communities within the GoTriangle service area are not subject to a disproportionate burden under the recommended service plan.** In addition, due to being integrated into the GoCary and GoRaleigh proposed 2024 networks, these areas will generally have their current number of weekday trips either maintained or increased significantly.

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Figure 6 | Eliminated GoTriangle Service Replaced by GoCary and GoRaleigh

Figure 7 | Change in Number of Trips per weekday from 2017 to 2024 – GoTriangle Network by Block Group

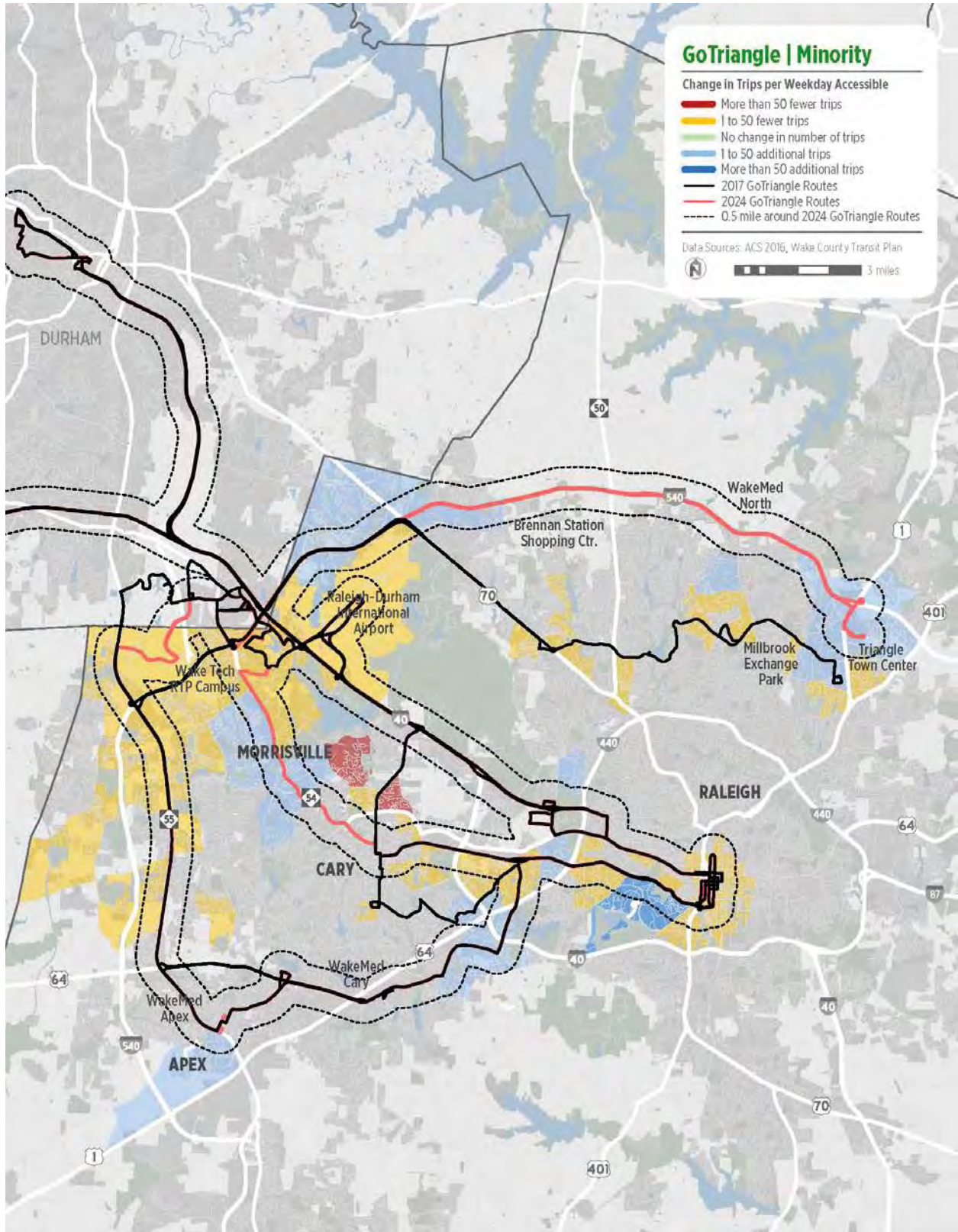Figure 8 | Change in Number of Trips per weekday from 2017 to 2024 – GoTriangle Network by Minority Block Group
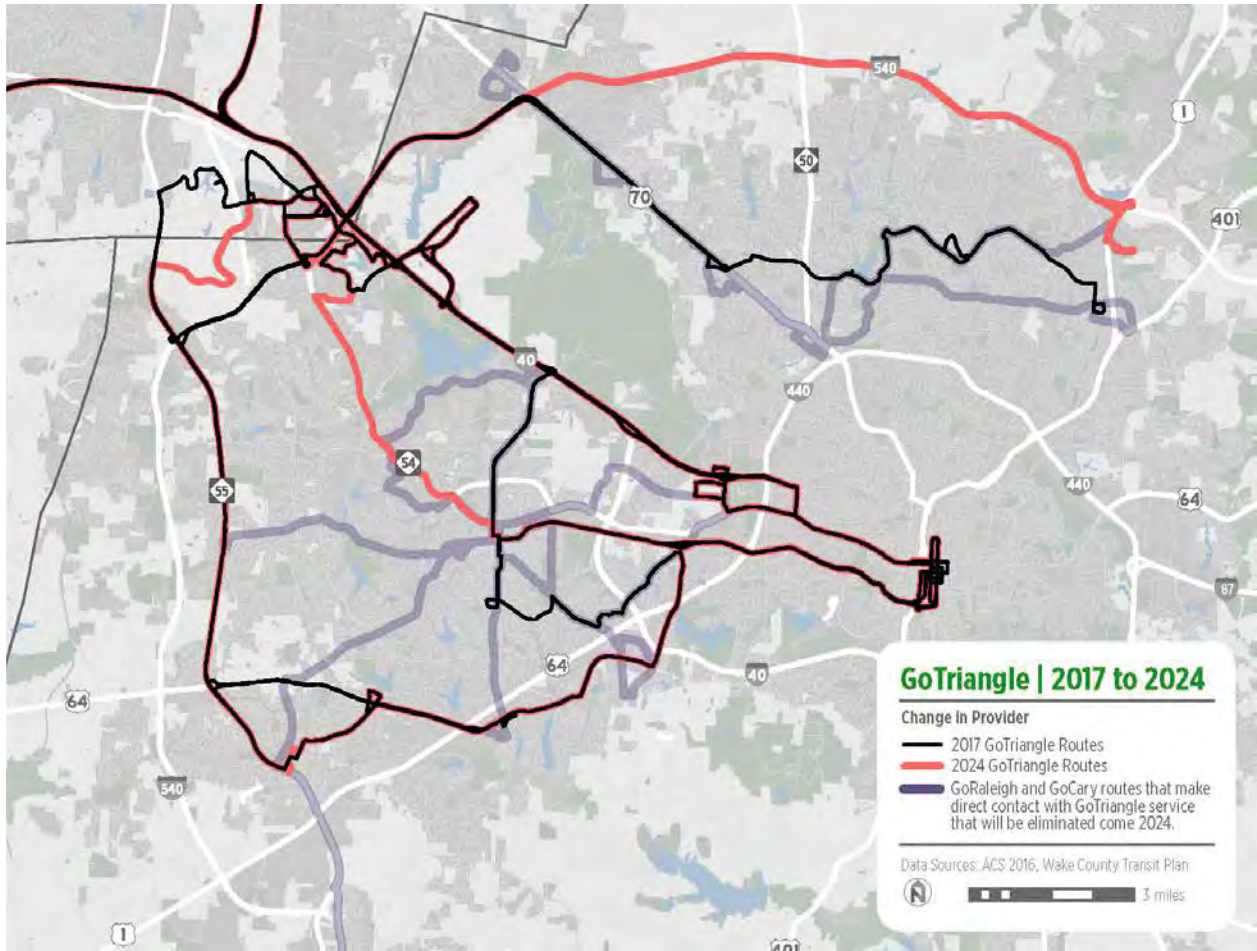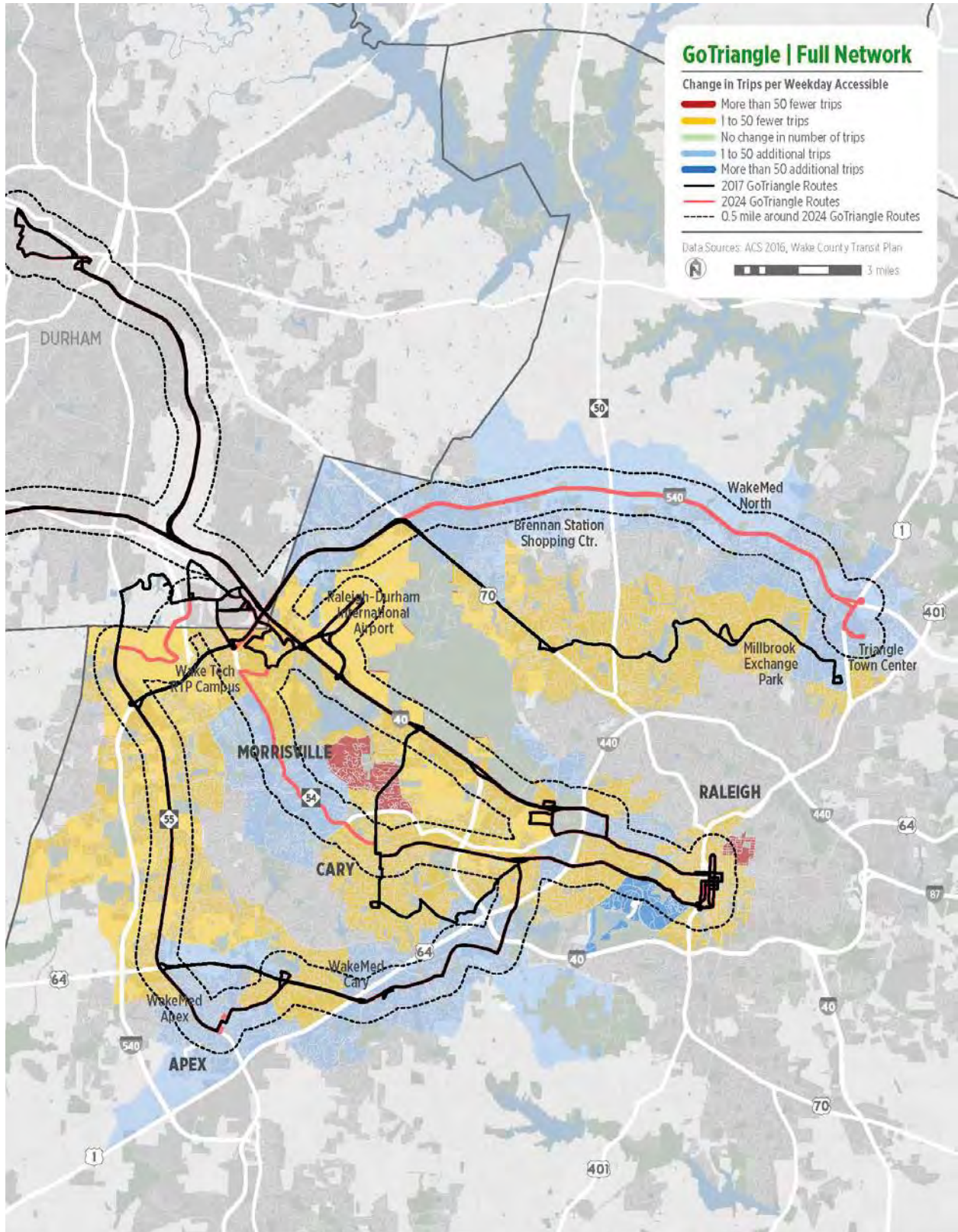
Wake County Transit Plan | Service Change Equity Analysis
GoTriangle

Figure 9 | Change in Number of Trips per weekday from 2017 to 2024 – GoTriangle Network by Low-income Block Group

EXAMPLES OF SERVICE CHANGES

The following section takes a deeper look at multiple origin and destination pairs as examples of how travel times are expected to change between the 2017 and 2024 transit networks. This information is summarized in Figure 10.

Travel from Oak Forest Estates

The minority neighborhood of Oak Forest Estates is located in Millbrook south of Oak Forest Drive, north of Spring Forest Road, and just west of Capital Boulevard. Traveling from here to the Raleigh-Durham International Airport by way of the 2017 GoTriangle network would call for a 7 minute walk to GoRaleigh Route 1, and transferring at the GoRaleigh Station to GoTriangle Route 100. This trip would take a total of 90 minutes. By way of the 2024 transit network, this trip would require making a 7 minute walk to GoTriangle NRX, and transferring to GoTriangle Route 100 at the Regional Transit Center. This trip would take a total of 60 minutes to complete.

Traveling from Oak Forest Estates to Downtown Cary using the 2017 network would require making the 7 minute walk to GoRaleigh Route 1, traveling to the GoRaleigh Station, and transferring to GoTriangle Route 300. This would take 95 minutes to complete. Using the 2024 network, you would likely make the same trip via GoRaleigh Route 1 and GoTriangle Route 300. However, you would have more transfer options at the GoRaleigh Station to the frequent network – for example to GoRaleigh Route 9 – if the GoTriangle Route 300 were delayed or not well aligned to your arrival time at the GoRaleigh Station. This increase in options improves the quality of the trip for passengers allowing for decreased uncertainty and a higher probability of on-time arrival at their final destination.

Travel from Justice Heights

The low-income neighborhood of Justice Heights is situated in Apex along Lynch Street, just north of Salem Street and south of Apex Jaycee Park. Under the 2017 network, traveling from this neighborhood to the Raleigh-Durham International Airport would have required accessing GoTriangle Route 311 via a 15 minute walk, traveling to the Regional Transit Center, and transferring to GoTriangle Route 100. Assuming average wait time at your transfer location, this trip would take a total of 90 minutes to complete. Under the 2024 proposed network, you would make the 5 minute walk to GoTriangle Route 305, travel into Raleigh, and transfer to GoTriangle Route 100. This trip would take 80 minutes to complete.

Traveling from this same neighborhood to Downtown Cary by way of the 2017 network would require walking 15 minutes to GoTriangle Route 311 and transferring to GoCary Route 4. This would generally take 70 minutes. Using the 2024 network, you would walk 5 minutes to GoCary HSX, and connect directly to Downtown Cary. This trip would take 25 minutes to complete.

Figure 10 | Approximate Travel Times for O-D Pairs with 2017 and Proposed 2024 Service (AM Peak Service)

Travel From	Classification	Airport 2017	Airport 2024	Downtown Cary 2017	Downtown Cary 2024
Oak Forest Estates	Minority Area	90 mins	**60 mins**	95 mins	**95 mins**
Justice Heights	Low-Income Area	90 mins	**80 mins**	70 mins	**25 mins**

Proposed Service and Fare Change Outreach – Public Engagement Summary
March 2019 – April 2019

The Public Engagement Strategy

GoTriangle conducted public outreach efforts between March 11, 2019 and April 24, 2019 to inform the community about the proposed service and fare changes. Customers and the general public provided feedback that would be incorporated into the final recommendations presented to the GoTriangle Board of Trustees. Staff used varied tactics to support the overall goal of engaging both current customers whose commutes would be affected and groups that would potentially use the proposed services below:

- RTP Service Changes
  - Discontinuation of OnDemand services
  - Replacement of OnDemand services with "Transit Connect"
  - 311 – Realign route to serve Kit Creek Road & Davis Drive
- New Routes/Park-and-Rides
  - North Raleigh Express (NRX) – New express route on I-540 to replace Route 201
  - 310W – New Service from RTC to Wake Tech RTP Campus
  - FRX – New Park-and-Ride at Wake Tech – Southern Wake Campus, replacing Park-and-Ride at Hilltop Crossings Food Lion
- General Changes
  - Chapel Hill-Raleigh Express (CRX) – Schedule changes
  - Durham-Raleigh Express (DRX) – Add trips and other schedule changes
  - Robertson Scholars Express (RSX) – GoTriangle will no longer operate the service after the school year
  - 700 – Construction reroute becomes permanent route
  - 102 – Replaced with GoRaleigh Route 20, an all-day weekday route with hourly service *(September implementation)*
  - Knightdale-Raleigh Express (KRX) – Replaced with GoRaleigh Route 33, an all-day weekday route with hourly service *(September implementation)*
- Fare Changes
  - New Pricing Structures
  - New Policy for Elderly Riders – Seniors 65 and older will ride GoTriangle services for free
  - Technology Upgrades – Mobile ticketing and fare capping

The Approach

The community was able to submit comments on the proposed service and fare changes via the following methods:

- Online: Use the online feedback form that will present the service changes and fare updates in both English and Spanish at gotriangle.org/service-changes
- Phone: Leave a message for Service Planning at 919-485-PLAN (7526)
- Email: serviceplanning@gotriangle.org
- Mail: GoTriangle, Attn: Service Planning, P.O. Box 13787, RTP, NC 27709

- In Person: Speak to the GoTriangle Board of Trustees at either their meeting on March 27, 2019 at 12 p.m., or on April 24, 2019 at 12 p.m., in the Board Room of GoTriangle's administrative offices at 4600 Emperor Blvd, Suite 100 in Durham

GoTriangle used a mixed-method approach to drive public participation in in the comment period. For all in-person activities, staff provided service change brochures and a fare change handout that was double-sided English and Spanish. All social media campaigns linked to the webpage and survey.

Find below an outline of specific activities that were conducted:

- A news release was posted on GoTriangle's website.
- Public hearing notices were posted in the Herald Sun, News & Observer, La Noticia, and La Conexion on March 20. Another round of notices were included in the News & Observer, the Herald Sun, La Noticia, and La Conexion on April 3 and April 10.
- Service change brochures were placed on all of the buses.
- Email communications were sent to the following GoTriangle listservs: GoTriangle News Alerts, OnDemand Riders, GoForward List, Wake County Community Contacts, Durham and Orange County Community Contacts, Transit Advisory Committee.
- The news release was provided to the following organizations for internal distribution:
  - North Carolina State University
  - Apex
  - Wake Forest
  - Cisco
  - Fuquay Varina
  - Morrisville
  - Duke University
  - Rolesville
  - Smart Commute Raleigh
  - WakeUp Wake County
- Presentations on the service and fare changes were given to the following groups:
  - Environmental Protection Agency
  - Research Triangle Foundation
  - Southeast Raleigh Lions Club
- Staff conducted targeted marketing via Facebook Advertising to obtain feedback from Spanish-speaking communities, elderly populations, and other stakeholders along the affected bus routes. See attachment for additional detail.
- "Talk to a Planner," events in the lobby prior to the Board of Trustees meeting where planners are available to answer questions as the public arrives.
- On-the-bus outreach per below:

Date	Time	Route	# of People Reached
Tues, March 19	3pm-6pm	105, DRX, CRX, 300, KRX, ZWX	65
Thurs, March 21	7am and 4:30pm	201	17

| Thurs, March 21 | 6:05am (bus ops)-7:25am (RTC) | 201 | 9 |
| Mon, March 25 | 1pm, 1:30pm, 3:30pm, 4pm | 400, 405 and 700 | 50 |

- **Pop-up events** per below:

Date	Time	Location	# of People Reached
Monday, March 11	10:30am – 11:30am	GoTriangle Bus Operations	10
Monday, March 11	2pm – 3pm	GoTriangle Bus Operations	20
Tuesday, March 19	7am-9:30am	GoRaleigh Station Wilmington St	30
Tuesday, March 19	3pm-5pm	Regional Transit Center	25
Tuesday, March 19	4pm – 5pm	GoRaleigh Station	65
Wednesday, March 20	6:45am-8:45am	McKnight Dr at Village Park Dr (Walmart)	10
Wednesday, March 20	10am – 12pm	Wake Tech RTP Campus	47
Thursday, March 21	8am – 10am	Morehead Planetarium	15
Thursday, March	6:30am-8:30am	7th Ave at Forest Hills, Garner	18
Thursday, March 21	8:25am	Regional Transit Center	2
Thursday, March 21	3pm-5:30pm	Health Sciences Library, Chapel Hill	10
Friday, March 22	2pm – 4pm	RSX Stop at Duke Chapel	31
Friday, March 22	6am – 8am	Hilltop Park-and-Ride	19
Tuesday, March 26	3pm-5:15pm	Chapel Drive	35
Tuesday, April 9	3:30pm – 5 pm	Regional Transit Center	27
Wednesday, April 10	5:30pm – 7:30pm	Maureen Joy Charter School (Health Fair)	80
Friday, April 12	7:30am – 9:30am	Regional Transit Center	82
Friday, April 12	11pm – 2pm	Dress for Success Job Fair	20
Thursday, April 18	11:30am – 1:30pm	Cisco Sustainability Fair	TBD

The Results

In total, more than **700 people** received information about the service and fare changes directly from a GoTriangle staff member, either on the bus, at a pop-up event, or at a presentation. Over **8,000 individuals and organizations** were sent the information via email. Another **380 people** found the information promoted on their Facebook feed.

Between March 11 and April 12, the Service Changes **webpage had 3,965 page views, a 300 percent increase** from the previous period. GoTriangle's social media posts for fare and service changes reached **an audience of 5,700 and resulted in 220 engagements**.

From those efforts, **300 comments** were generated, providing a robust picture of the public's perception of the service and fare change proposals.

Attachment G. Summary of Comments Received

April 18, 2019

Introduction

Public outreach on proposed GoTriangle service changes for Fall 2019 was conducted from March 11th to 29th with a public hearing on the proposed fare and service changes at the March 27th Board of Trustees meeting. Public outreach was extended until April 24th with an additional public hearing set for April 24th. The purpose of this memo is to summarize the results of the outreach effort and share frequently received comments for each of the route proposals.

Route 102: Garner to Raleigh

11 people responded to the survey.

Frequently Received Comments

- Like the increased service to Garner and want to see it expanded in the evenings and weekends.
- Continue to serve the Route 102 bus stops and provide connections at GoRaleigh Station.
- Do not want to transfer from 20L to 20 to get downtown

North Raleigh Express (NRX)/Route 201

28 people responded to the survey.

Frequently Received Comments

- Some existing riders can switch to the new park and ride locations
- Like the Bent Tree Plaza shopping center park and ride location
- 7 people responded indicating that they would not be able to ride the new route.
- Add a new connection with the Route 36 on Strickland/Creedmoor
- Add a park and ride at Leesville or Creedmoor
- Don't sacrifice service for transit dependent people when adding new service
- Want a direct route from North Raleigh to Duke/VA
- Provide connections with the WRX and Rolesville route at Triangle Town Center

Route 310W: Wake Tech to RTC

9 people responded to the survey

Frequently Received Comments

- Provide service to Perimeter Park
- Like new service to Wake Tech RTP campus
- Want faster service from Cary Depot to RTC
- Provide better connections with GoCary Route 6

RTP Service Change Proposals: Go OnDemand, Transit Connect, Route 311

51 people responded to the survey about the proposed service changes related to RTP service including the discontinuation of the OnDemand program, realignment of Route 311 and new Transit Connect Pilot Program.

Frequently Received Comments

- Support RTP proposal
- Don't like Transit Connect program concept
- Keep serving EPA
- How does Transit Connect work?
- Concern about Uber and Lyft being unsafe, expensive, unavailable
- I don't like OnDemand
- Don't change service so often
- Like OnDemand service
- I have difficulty using the Uber and Lyft apps due to my visual disability

Route 700: Durham to RTC

3 people responded to the survey, all in favor. In addition, 31 people who have ridden the Route 700 in the last 30 days took the survey, but not all provided comments on the Route 700.

Chapel Hill-Raleigh Express (CRX)

56 people responded to the survey.

Frequently Received Comments

- Support for the 3:30pm departure from Raleigh and the 3pm departure from Chapel Hill
- Request all day, midday, evening and extended peak hour service
- Many people opposed the elimination of the 6:40pm trip allows for flexibility in work schedule
- Many people were opposed to eliminating trips in general
- More trips departing CH between 4:40pm and 6:40pm
- Non-CRX service takes too long and doesn't serve the Eubanks Rd park and ride

Durham-Raleigh Express (DRX)

55 people responded to the survey. We did an outreach period in February 2019 in which we received 181 responses to the survey. Those earlier results were used to inform these service proposals.

Frequently Received Comments

- Many people expressed support for the additional trips.
- Requests for extending the hours into the midday, evening and on weekends. Also additional frequency leaving Raleigh between 5pm-6pm.
- Some people wanted to see the schedule before its finalized.

Fuquay-Varina Express (FRX)

13 people responded to the survey.

Frequently Received Comments

- Don't eliminate Hilltop Needmore Park-and-Ride
- Wake Tech is too congested with not enough available parking
- Serve both Hilltop Needmore Park-and-Ride and Wake Tech campus
- GoRaleigh 40X already provides service to Wake Tech
- Students won't use the service arriving at 6:30am
- Additional distance towards Raleigh makes it much less convenient
- Some riders have to wait for other rides at Hilltop to get home

Knightdale-Raleigh Express (KRX)

7 people responded to the survey.

Frequently Received Comments

- Need more information on what the new Route 33 will be like
- Keep direct service to GoRaleigh Station
- Like all day service and it'll make it easier to get to work
- New Hope Commons bus stop is an unsafe transfer location
- Want more weekend and expanded service to other destinations near Knightdale

Robertson Scholars Express (RSX)

53 people responded to the survey. All comments were in support of continuing the service.

Respondents were asked how likely they were to take the Route 400 or 405 instead. 23% reported being very likely or likely, 32% reported being unlikely. 28% did not know and 17% did not respond to the question.

Frequently Received Comments

- The route provides a vital connection between the two universities that makes work, classes and collaboration possible
- If the route goes away, GoTriangle should add more trips on the 400/405 and extend hours in midday, evenings and Sundays
- Instead of discontinuing the service, GoTriangle should lower the investment
- GoTriangle should continue to operate the RSX until another operator is found
- UNC GoPass cannot be attained by UNC students living in CH
- Route 400/405 should go into Duke's campus near the Duke Chapel
- Provide additional bike-bus capacity

Attachment H: Revenue Hours by County

GoTriangle Service Changes Proposed for August 2019

GoTriangle follows Board-adopted Service Standards (last amended on September 22, 2004) in the development, provision, and evaluation of transit service. The performance measure considered include service productivity (customer usage per unit of service provided), Title VI equity (no discrimination based on race or income-level), regional equity (service benefits reasonably reflect County revenues), and sound land-use support (serving jurisdictions/sub-areas with transit-supportive development patterns and policies).

Practically, staff achieve this by providing service to major activity centers and other key destinations/communities where there is an adequate market for our services. We then monitor service productivity and routinely re-cycle services from low-productivity routes to higher productivity routes or to new travel markets.

The following chart shows the revenue hours by county for the base GoTriangle services that were in place prior to the addition of new services funded by the three county transit plans. It also shows the revenue hours by county for all the services that have been proposed for FY2020. GoTriangle receives funding from all three counties to support additional transit service.

Table 1: GoTriangle revenue hours by County operated in FY2013 and proposed for FY2020

	Durham	Orange	Wake	Total
All GoTriangle Services in place prior to August 2013	32,000	28,000	47,000	107,000
Percent of Total	30%	26%	44%	
All GoTriangle services proposed in FY2020	42,000	34,000	69,000	145,000
Percent of Total	29%	23%	48%	

MEMORANDUM

TO: GoTriangle Board of Trustees

FROM: Jeff Mann, President and CEO

DATE: April 11, 2019

SUBJECT: **Greater Triangle Commuter Rail Pre-Planning Study**

Strategic Objective or Initiative Supported

Action Requested
Authorize the President and CEO to execute an agreement with STV to conduct the GTCR pre-planning study.

Background and Purpose
Both the Wake County and Durham County transit plans include a 37 mile Commuter Rail system that will operate between Garner, Downtown Raleigh, Cary, Morrisville, RTP, Durham and West Durham, with possible extensions into Orange, Alamance and Johnston Counties. The Greater Triangle Commuter Rail (GTCR) Pre-planning Study will prepare the project for entry into the federal funding pipeline by building upon the soon to be completed MIS study.

The study will evaluate six service scenarios, three of which include service into Orange, Johnston and Alamance counties. Study elements include establishing purpose and need for the project, ridership modeling, high level capacity analysis, development of capital and O&M cost estimates, development of a stakeholder and public outreach plan, assessment of project delivery methods, and evaluation of existing conditions. All tasks will be completed during CY2019.

The study will be managed by GoTriangle and led by a team including representatives from the NC Railroad Company, Wake County, Durham County, Research Triangle Foundation, DCHC and CAMPO.

STV was selected through a competitive procurement process.

Financial Impact
The project will be funded through existing funds that are included in the Wake County and Durham County Transit Plans in an amount not to exceed $850,191.39. Based on the existing cost share agreement, the Wake County Transit Plan will fund 67% or $569,628.23, the Durham County Transit Plan will fund 33% or $280,563.16.

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Attachments

- None

Staff Contact

- Jeff Mann, 919-485-7424, jmann@gotriangle.org

MEMORANDUM

TO: GoTriangle Board of Trustees

FROM: Jeff Mann, President and CEO

DATE: April 15, 2019

SUBJECT: 30% Design for Raleigh Union Station Bus Facility (RUS Bus)

Strategic Objective or Initiative Supported

This item supports strategic objective 3.3, Pursue joint development opportunities.

Action Requested

Authorize the President/CEO to issue a Notice-to-Proceed to On-Call engineering consultant, WSP, to start and complete all professional services listed in the enclosed task order. The fees for WSP and its subconsultants, as itemized in the enclosed *RUS Bus 30% Design Fee Schedule*, are in the total not-to-exceed dollar amount of $1,329,353.85.

Background and Purpose

Volume 4 of the *Wake Bus Plan: Capital Project Plans* includes a project to design and construct a rail and bus Transit Center in downtown Raleigh that services commuter rail, bus rapid transit and bus services. GoTriangle recognized the opportunity to partner with a developer and incorporate a mixed-use, high-rise building above the bus transit facility that could include office and retail space, a hotel and residential units with an affordable housing component. Accordingly, given that GoTriangle is a $20 million BUILD grant recipient, and is in the process of selecting a development partner, it is imperative that WSP be given an immediate notice to proceed with preparation and completion of 30% design documents and related tasks for the publically funded elements of the RUS Bus facility. The design documents will be furnished as 'bridging' documents to the future developer's team that will be responsible for final design and construction of the transit facility and building.

Financial Impact

The design services performed by WSP will be funded through existing funds included in the Wake Bus Plan for Capital Improvements at the RUS Bus facility: $700,000 in FY19 and $13,630,000 in FY20.

Attachments

- WSP Task Order
- RUS Bus 30% Design Fee Schedule

Staff Contact

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GoTriangle Architectural and Engineering Task Order

Large Projects Category

Raleigh Union Station Bus Facility 30% Design Documents

Purpose

To provide GoTriangle with 30% design documents for the publicly funded elements of the Raleigh Union Station Bus Facility (RUS Bus). These design documents will be provided as 'bridging' documents to a future design-build team who will be responsible for final design and construction of the proposed new facility. RUS Bus is envisioned to be a multi-story tower with the transit center on the ground floor. Design documents procured under this task order will enable GoTriangle to establish the design of the transit center to guide the development of a mixed use overbuild planned for above the transit center. The 30% documents produced by the WSP team will include design parameters for transit operations such as bus bays, passenger waiting areas, vehicle and passenger circulation, and utility infrastructure to optimize the transit facilities.

Project Overview

Raleigh Union Station is a multi-phase, multi-modal facility located on the western side of downtown Raleigh. Upon completion, the facility will provide seamless connections between multiple transportation modes: intercity passenger rail, local bus, taxi and rideshare, Bus Rapid Transit, Bicyclists, Pedestrians, regional commuter rail and future South East Higher Speed Rail. RUS Bus is a new bus facility with both off-street and on-street components, structured parking and a future development opportunity on the site immediately adjacent to Raleigh Union Station

Scope of Work

Task 1 – PM / Administration

This task shall include coordination of the appropriate attendees at stakeholder workshops and the design charrette, coordination of design document reviews, and design team coordination with City of Raleigh and the Urban Design Center. The project manager shall also provide monthly progress and schedule reports, presentation materials as needed for external stakeholders, and coordination with WSP team sub consultants.

Task 2 –Plan for savage and reuse of existing site content

The WSP team shall complete an assessment of materials on the existing site which may be salvaged and reused as part of the RUS Bus concept design.

Task 3 – Geotechnical evaluation *(Falcon)*

The WSP team shall complete geotechnical analysis of the RUS Bus site at the outset of 30% design. This task shall include review of recent investigations for the nearby Raleigh Union Station, adjacent Plaza at the corner of W Martin St and S West St, and any other nearby geotechnical investigations available.

These investigations are likely to provide valuable points of reference for scoping additional investigation and getting an early idea of what conditions and foundation systems might be expected.

Given the fact that the vast majority of the development area is currently occupied by buildings, limited opportunities are available for conventional geotechnical borings. Generally speaking, the perimeter of the site can be investigated within existing roadways and sidewalks. An existing alleyway may provide additional investigation opportunities provided utility conflicts do not prevent drilling in that area. Perimeter investigations will need to take into account logistical considerations including time restrictions and costs of lane closures, and right of entry (ROE) processing time and fees for the west side of the development, adjacent to the CSX Railway Corridor. Additionally - if warranted - low-overhead specialty drill rigs may be able to access portions of the building with wide door openings. Falcon has access to and experience with some the most versatile and compact equipment for this kind of work on the east coast. Finally, if interior investigation is deemed prudent, but the cost of specialty equipment not warranted, geophysical methods can be utilized inside the buildings in a more cost-effective manner than traditional borings. Seismic refraction and/or multi-channel analysis of surface waves (MASW) methods can be employed within hallways and large open areas of the building using compact and hand-placed equipment. These methods can also be deployed rapidly around the exterior of the buildings to supplement and/or reduce the necessary scope of conventional borings, providing valuable insight into seismic design considerations and more detailed depictions of subsurface variability.

Task 4 – Programming and Functional Needs Assessment Report

The WSP team shall review previous studies and facilitate workshops and interviews with the project key stakeholders to develop a programming document that will identify the goals and objectives for the project. The document will also provide a set of urban design principles and detail design guidelines for the size, scale and functions of various activities related to this project as well as how those activities coordinate internally with the site and the overall neighborhood. WSP design leaders will conduct periodic reviews through the design process to make sure all work from different disciplines and sub-consultants will be in line with the principles and achieve the project goals.

Task 5 – Environmental/NEPA/Permitting

GoTriangle has submitted a draft checklist to the Federal Transit Administration (FTA) to determine the level of environmental document that will be required. The WSP team shall coordinate with FTA on next steps and required approvals to obtain the final CE document for the facility. The WSP team shall also provide support to GoTriangle's Brownfield application for the site as necessary.

\\SP

Task 6 – Concept design (10%) *(HH Architecture, Dewberry, Susan Hatchell)*

The WSP team shall develop drawings and conceptual 3D modeling studies to illustrate how the programmatic, functional and sustainable elements of the project will inform the overall form and composition of the project area. This will include: site plan, floor plans, building elevations and sections for the bus facility component, room program areas and 3D massing studies. The concept design shall identify the following elements (these elements will be further defined in the 30% design phase):

- bus bay locations and placement
- bus vehicle movements and circulation
- passenger ticketing and amenities, including restroom facilities
- identification of taxi and rideshare areas
- identification of designated areas for bike, scooter and other personal mode devices.
- placement and design alternatives for the cores for the overbuild
- site planning including vehicle connections to Hargett and West Streets
- streetscape and landscape architecture elements
- on-street bus bay design on West Street to accommodate anticipated BRT service
- layout of development opportunities on the ground floor, including 'back of store' access (shipping, receiving, trash services etc.)
- space allocation for building utility infrastructure (HVAC, plumbing, fire suppression, electrical, data, communications, etc.)
- specification of which materials should be uniquely considered or rejected
- identification of specific acoustical and lighting considerations
- consideration of building venting or keeping the transit facility open on two sides to allow for natural venting of vehicle emissions
- Compliance with applicable local codes and ADA requirements throughout the project area, inclusive of all users
- Identification of bicycle and pedestrian access and travel patterns
- Multimodal conflict point analysis to identify where conflicts may occur along with appropriate design treatments to either mitigate or eliminate conflict locations.
- Preliminary concept plan for the site to address storm water quantity and quality control requirements.
- Conceptual Crime Prevention Through Environmental Design (CPTED review) for proposed solutions
- Identify opportunities for art enhancements for this project.
- Coordinate with authorities having jurisdiction (AHJ) about the proposed development, to provide a general project introduction and receive preliminary considerations.

Deliverables will include both digital files (CAD or Revit) and printed plan sheets.

WSP

Task 6.1 - Design Charrette

The WSP team shall facilitate a multi-day design workshop with key project stakeholders to study, evaluate and develop a preferred alternative for the transit functions and overall operational approach to the project area.

Task 6.2 - Sustainability Report

The WSP team shall conduct a sustainability workshop with the key project stakeholders to assess general goals and objectives related to energy conservation and sustainability initiatives for the overall project. Included will be a general checklist of preferred sustainable features to be included in the overall design and construction.

Task 6.3 Public Involvement

The WSP team shall prepare the materials for one public workshop which will be staffed by GoTriangle. The WSP Project Manager shall attend the public workshop.

Task 6.4 Stakeholder Engagement

The WSP team shall coordinate and prepare materials for early coordination meetings as follows:

Railroad coordination meeting – representatives from NCDOT Rail Division (as the owners of the East Leg track) and CSX (which holds an operating agreement on the tracks adjacent to RUS Bus)

City of Raleigh Development Services coordination meeting – WSP shall set up a meeting with appropriate representatives from this City department to gain early input into concept design for the facility

Task 7 – Schematic design (30%)

The WSP team will develop a schematic design package which will be used as the graphical bridging documents. This will include, drawings, outline specifications, opinion of probable costs and preliminary schedule. The task shall include identification of which classes of structural systems are appropriate, and criteria for design of mechanical, electrical plumbing, fire protection, communications and security systems.

Proposed drawings for the schematic design package include:

Site (Civil and Landscape):

- Civil site plan showing major utility access, curb layouts, connections to existing streets, boarding locations for local buses and Bus Rapid Transit (BRT)
- Civil grading plan showing major grading elements including ramps, retaining walls (existing or proposed), slopes in boarding areas
- Utility Coordination Plan
- Landscaping / irrigation plan
- Pedestrian paving and site furnishings plan
- Bicycle parking and storage plan
- Streetscape improvement plan
- Maintenance of Traffic control plans to address potential lane closures, traffic shifts and temporary signal modifications

WSP

- Erosion and sediment control plans
- Site stormwater control / mitigation systems

Architecture / Structure:

- Architectural site plan including overall site components, artwork, support facilities, dumpsters, etc
- Life safety plan and code block.
- Schematic floor plans for each level including general room arrangement, doors, windows, column locations and primary framing
- Reflected ceiling plan for each level including general ceiling types and some general lighting information
- Roof plan including roof systems, major systems equipment, roof access and layout
- Building elevations showing massing, materials, openings.
- Building sections showing overall composition of primary spaces, relationship to grades across the site, and connectivity to future levels above the transit levels.
- Typical wall sections showing primary building envelope assemblies and systems.
- Typical framing plan and general details to illustrate basic approach to structural systems
- Room Finish schedules indicating general material selections for floors, ceilings and walls

Mechanical / Electrical / Plumbing / Security:

- General site plan showing major site equipment such as generators, transformers, possible cooling towers, etc.; also primary ventilation, lighting and CCTV configurations
- Floor plans including major equipment configurations in their designated rooms, access control, CCTV layouts.
- Roof plans including major equipment / roof drainage.
- Equipment schedules to identify major systems, general equipment types and their loads / sizing

Stormwater:

- WSP will provide conceptual-level design of proposed drainage improvements at the project location. WSP will coordinate with the City of Raleigh's Development Services Center to determine the water quality and quantity permit conditions that will be required to be addressed with the project. WSP's concept-level design will provide an approach to meeting the ultimate permit requirements of the City.

Additionally, WSP will produce:

- outline specifications
- anticipated project schedule
- an opinion of probable construction costs for the project
- 3D visualizations (up to 3 views).

Deliverables will include both digital files and printed plan sheets.

WSP

Task 8 - Safety and Security Review
The WSP team shall ensure the 30% design utilizes Crime Prevention through Environmental Design (CPTED) for Transit Facilities principals, using specialists on the team. GoTriangle shall review the Safety and Security of the design for approval early in the design process.

Task 9 – Bidding /Procurement
The WSP team shall finalize the information from the Schematic Design Package, incorporating owner comments and develop general procurement documents for the purpose of establishing the minimum design criteria for the developer led Design/Build teams bidding on the work.

Task 9.1 - Bid Evaluation Services
As it relates to the bus facility and related project components, the WSP team will assist the GoTriangle team in compiling and issuing the procurement documents.

Services provided will include:

- Assist GoTriangle in preparing the pre-bid meeting. WSP will also attend pre-bid meeting.
- Review bidders questions and draft responses for coordination with GoTriangle.
- Develop necessary supplemental drawings / specifications in response to bidders questions
- Compile and issue Addenda
- Attend bid opening to assist GoTriangle with receipt and processing of bid tabs.
- Upon receipt of the Design Build Teams respective submissions, WSP will review and evaluate the proposals, using GoTriangle evaluation criteria, to verify compliance with specified criteria.
- WSP will participate in interviews with proposers and provide opinion of assessment to GoTriangle evaluation team.

Task 10 – Support during design completion
Task 10.1 - Owners Representative for Design Build Team review / coordination.
Once GoTriangle has selected and contracted with a development team, WSP will support GoTriangle in the review of the Design Build team's 60%, 90% and Final Design packages. WSP will facilitate a kick-off meeting with the Design Build team to discuss approach and intent of the transit portion of the project and how it will relate to the overall project.

- WSP will attend up to (2) design workshops with the Design Build team and participate in assisting with design solutions for work impacting the proposed transit functions.
- WSP will review and respond to Design Build team RFI's with respect to their design decisions impact on the proposed transit functions.
- WSP will attend up to (12) monthly coordination meetings with the Design Build team to review progress of the overall design as it relates to and impacts the proposed transit functions
- Review of 60%, 90% and Final Design packages provided by the D/B team to provide comments on the proposed transit functions

RUS Bus 30% Design Fee Schedule
4/12/2019

	WSP	HH Architecture	S Hatchell	Falcon	Toole	Dewberry	EDI Engineering	Total
Task 1 Project Management/Administration								
Sub-total hours	640	28	8	0	36	92	0	804
Sub-total cost	$ 96,930.57	$5,320	$1,030	$0.00	$4,848	$14,750	$0.00	$122,878.57
Task 2 Plan for Salvage/Reuse								
Sub-total hours	72	0	0	0	0	0	0	72
Sub-total cost	$13,287.22	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$13,287.22
Task 3 Geotech Evaluation and Surveying								
Sub-total hours	16	0	1	150	0	0	0	167
Sub-total cost	$3,282.02	$0.00	$135.00	$17,860.00	$0.00	$0.00	$0.00	$21,277.02
Task 4 Programming and Functional Needs Assessment Report								
Sub-total hours	330	8	30	0	12	0	0	380
Sub-total cost	$ 49,548.33	$ 1,520.00	$ 3,390.00	$0.00	$1,368.00	$0.00	$0.00	$55,826.33
Task 5 Environmental/NEPA/Permitting								
Sub-total hours	192	0	0	0	0	20	0	212
Sub-total cost	$28,376.14	$0.00	$0.00	$0.00	$0.00	$3,160.00	$0.00	$31,536.14
Task 6 Concept Design (10%)								
Sub-total hours	1238	66	199	0	120	380	32	2035
Sub-total cost	$181,883.48	$10,590.00	$22,395.00	$0.00	$13,288.00	$54,240.00	$4,900.00	$287,296.48
Task 7 Schematic Design (30%)								
Sub-total hours	1610	234	312	0	88	440	72	2756
Sub-total cost	$237,107.72	$37,070.00	$33,640.00	$0.00	$11,152.00	$60,800.00	$10,964.80	$390,734.52
Task 8 Safety and Security Review								
Sub-total hours	186	0	4	0	0	24	0	214
Sub-total cost	$28,272.37	$0.00	$490.00	$0.00	$0.00	$4,240.00	$0.00	$33,002.37
Task 9 Bidding/Procurement Support								
Sub-total hours	224	90	101	0	0	164	36	615
Sub-total cost	$34,739.22	$13,970.00	$11,490.00	$0.00	$0.00	$26,200.00	$5,479.60	$91,878.82
Task 10 Support during Design Completion								
Sub-total hours	836	138	136	0	0	112	226	1448
Sub-total cost	$141,463.98	$22,450.00	$16,800.00	$0.00	$0.00	$17,760.00	$34,931.40	$233,405.38
TOTAL PROJECT HOURS	5344	564	791	150	256	1232		8337
FIRM TOTAL FEE	$814,891.05	$90,920.00	$ 89,370.00	$ 17,860.00	$ 30,656.00	$ 181,150.00	$ 56,275.80	$1,281,122.85
FIRM EXPENSES	$ 8,191.00	$ -	$ -	$40,040.00	$ -	$ -	$ -	$ 48,231.00
FIRM TOTAL LABOR AND EXPENSES	$823,082.05	$90,920.00	$ 89,370.00	$ 57,900.00	$ 30,656.00	$ 181,150.00	$ 56,275.80	$1,329,353.85
FIRM %	62%	7%	7%	4%	2%	14%	4%	

WSP	$823,082.05	62%
SUBCONSULTANTS	$506,271.80	38%

CONTRACT WORK ORDERS FOR MARCH 2019
(< $100K)

Contract #	Contractor (or subject if no contractor listed)	Contract Amount	Subject	Comments	President & CEO (Jeff Mann) Date Executed	General Counsel (Shelley Blake) Date Executed
19-014	GoPass Agreement/ Wake County	$19,999		Provides for a GoPass Agreement with Wake County. The County agrees to pay GoTriangle 55% of the full fare for each recorded boarding and the maximum payable amount shall not exceed the contract amount. Term of agreement: Jul 1, 2018 – June 30, 2019.	3/11/19	3/7/19
16-053	Amendment 3	-	TJCOG TOD	Amendment extends the term of the contract through December 14, 2018 to match up with end of the period of performance of the TOD Grant.	3/20/19	3/20/19
18-041B	On-Call A&E Consultant Services Master Agreement	$7,205	(MBP Task Order No.2 Agreement: project Mgmt Pre-Training Mtg)	Provides for settlement of costs associated with completion of Task Order Request No.2 to MBP Carolinas. Work included conducting a pre-project management training session with over 50 GoTriangle staff; assessment of their project management maturity; and recommendations for ideal difficulty level for upcoming PM training. Term of agreement Feb 11, 2019 – March 11, 2019.	3/26/19	3/26/19