City of Greenville, NC
Short Range Transit Plan

October 2013

Stantec

in partnership with:

CDM Smith

What's Inside

Acknowledgments

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MODULE 1

Envisioning Success

Summary: This section summarizes the vision and mission statements as well as the themes and guiding principles for the GREAT system going forward.

The ultimate vision of the Greenville Area Transit Short-Range Plan is to be the public's choice for transportation within the Greenville Community. This document is a synopsis of the effort, outreach, analysis, and recommendations for the GREAT service in the next five years.

Vision Statement:

To be the public's choice for transportation within the Greenville Community.

Mission Statement:

To provide safe, convenient, and friendly public transit service that improves mobility for all people in the Greenville Community.

Themes and Guiding Principles:

Service and Operations

OBJECTIVE #1 | Continue to focus on serving the needs of existing dependent riders. Revisit stop locations based on ridership patterns and enhance the physical amenities and sense of safety; reduce transfers and consider new service for current riders (i.e. continue to expand service to new areas but also consider how expansions impact travel time for existing riders). Make every effort to communicate changes to the public.

OBJECTIVE #2 | Create new partnerships. Coordinate service with potential partners (e.g., public and private i.e. Uptown Greenville, Department of Social Services, etc.) and strengthen existing alliances (i.e. Pitt Community College agreement) via extended hours and expanded stop locations.

OBJECTIVE #3 | Plan for focal attractions and destinations in Winterville, Ayden, ECU, PCC, Vidant and the Airport to become activity nodes and determine associated transit level of service.

OBJECTIVE #4 | Provide more service to Uptown area during weekdays and make full use of special events to attract "choice" riders.

Capital Investment:

OBJECTIVE #1 | Add bus stop amenities to improve the safety and create a hospitable environment at key stops. Place shelters and benches at stop locations that

serve the greatest number of riders per day. Set warrants and thresholds for amenities using 'level of service' metrics and then create a schedule to achieve this standard.

OBJECTIVE #2 | Update and maintain the fleet to address complaints about the condition of the vehicles.

Land Use Compatibility:

OBJECTIVE #1 | Market economic development opportunities near the proposed Greenville Transportation and Activity Center (GTAC) to developers, agencies and investors to ensure compatible mixes of users and the best and highest surrounding land uses. Market this strategy under "Sustainable Transportation Choices."

OBJECTIVE #2 | Develop transit supportive land use ordinances and code language including 'Walkable Overlay Districts', cluster development standards and encourage mixed-use development by regulating improvements on designated 'Transit Corridors.'

OBJECTIVE #3 | Institute transit service along growth corridors and at proposed growth nodes, i.e. Fire Tower Road, medical and assisted living facilities and Vidant campus.

Marketing and Finance

OBJECTIVE #1 | Provide information kiosks to help inform the general public and riders at key destinations like Convention Center, Town Common, and Wal-Mart.

OBJECTIVE #2 | Incorporate advertising into all GREAT informational materials, including on tickets and advertising both inside and outside of the buses.

OBJECTIVE #3 | Develop an overall marketing strategy and branding theme using a variety of effective communication tools (both passive and active) to keep riders informed and attract more riders. Create more outlets for information.

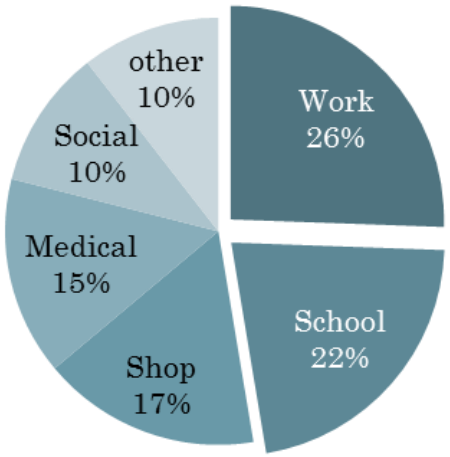


Figure 1.1: Current GREAT Ridership Trip Purpose

MODULE 2

Existing GREAT Services

Summary: This section provides information regarding the GREAT system's capital assets, the system's current operational performance, and the GREAT service's relationship with the Pitt Area Transit System (PATS).

GREAT CAPITAL ASSETS

Vehicle Fleet

Great currently has 11 fixed route vehicles and two support vehicles, as shown in **Table 2.1**. The fixed route vehicles are all 35-foot passenger buses and the oldest are four 2003 Gillig buses.

A key component for receiving Federal Transit Administration (FTA) funds is the maintaining a 20 percent spare vehicle ratio. At peak times, only six buses are in service, leaving five buses as backup, which gives GREAT a spare ratio of 83 percent. **GREAT presently has the ability to expand the current peak service level from six to nine buses while still maintaining a 20 percent spare ratio.**

Table 2.1 GREAT Fixed Route Fleet Roster 2013

	Make	Year	Asset Number	Service	Fuel	Purchase Date
1	35' LOW FLOOR	2003	TN0117	Fixed-Route	Diesel	6/18/2003
2	35' LOW FLOOR	2003	TN0118	Fixed-Route	Diesel	6/19/2003
3	35' LOW FLOOR	2003	TN0119	Fixed-Route	Diesel	6/20/2003
4	35' LOW FLOOR	2003	TN0120	Fixed-Route	Diesel	6/21/2003
5	35' LOW FLOOR	2005	TN0135	Fixed-Route	Diesel	6/3/2005
6	35' LOW FLOOR	2006	TN0137	Fixed-Route	Diesel	3/1/2006
7	35' LOW FLOOR	2006	TN0138	Fixed-Route	Diesel	3/1/2006
8	35' LOW FLOOR	2008	TN0139	Fixed-Route	Diesel	10/9/2008
9	35' LOW FLOOR	2008	TN0140	Fixed-Route	Diesel	10/10/2008
10	35' LOW FLOOR	2011	TN0141	Fixed-Route	Diesel	3/7/2011
11	35' LOW FLOOR	2011	TN0142	Fixed-Route	Diesel	3/8/2011
12	DODGE	N/A	TN5359	Support Vehicle	Unleaded	3/25/2002
13	DODGE	N/A	TN0115	Support Vehicle	Unleaded	8/5/2002

Rolling Stock Replacement Schedule

The service-life policy for transit buses and vans establishes the minimum number of years (or miles) that transit vehicles purchased with federal funds must be in service before they can be retired without financial penalty. The clear goal of this policy is to ensure that vehicles procured using federal funds remain in service for a substantial portion of their service life, thus ensuring that federal taxpayers obtain an adequate return on their investment. The FTA Service life for Heavy-Duty Large Buses (35-48ft) is 12 years or 500,000 miles, whichever comes first. **Table 2.2** displays GREATS's replacement schedule for transit vehicles through Fiscal Year (FY) 2018. **GREAT has plans to add two additional transit vehicles in FY 2015 which will expand the total fleet to 13 vehicles.**

Table 2.2 GREAT Transit Vehicle Replacement Schedule

		REPLACEMENT					EXPANSION	TOTAL
MODEL YEAR		*2003*	*2005*	*2006*	*2008*	*2011*		
QUANTITY		4	1	2	2	2		11
FY 2014								11
FY 2015							2	13
FY 2016		2						13
FY 2017		2	1					13
FY 2018				2				13

Bus Stops and Shelters

The GREAT routes have signs at most scheduled stops. There are a total of 11 benches, two shelters, and 22 shelters with benches at various stops along the routes. **GREAT is planning on installing additional shelters and benches along the routes as a result of this study.** **Table 2.3** displays a complete list of GREAT's non-rolling stock assets including signs, benches, and shelters.

Table 2.3 GREAT Assets

MAKE	QTY	VIN OR DESCRIPTION	ASSET NUMBER	LOCATION	PURCHASE DATE
BELSON	10	Benches	TN0035	Routes	4/19/2005
COLUMBIA	3	5 X 10 Transit Shelter w/ Bench	TN0046	Routes	5/31/1985
	1	Transit Garage	TN0047	Garage	8/12/1983

MAKE	QTY	VIN OR DESCRIPTION	ASSET NUMBER	LOCATION	PURCHASE DATE
	1	Transit Garage Steam Cleaner Wiring	TN0047	Garage	6/19/2003
	1	Transit Garage Exhaust System	TN0047	Garage	3/18/2004
HANDI HUT	1	5 X 10 Transit Shelter w/ Bench	TN0082	Route	11/30/1992
HANDI HUT	1	5 X 10 Transit Shelter w/ Bench	TN0083	Route	11/30/1992
HANDI HUT	1	5 X 10 Transit Shelter w/ Bench	TN0092	Route	8/23/1996
HANDI HUT	1	5 X 10 Transit Shelter w/ Bench	TN0093	Route	8/23/1996
HANDI HUT	1	5 X 10 Transit Shelter w/ Bench	TN0094	Route	8/23/1996
HANDI HUT	1	5 X 10 Transit Shelter w/ Bench	TN0095	Route	8/23/1996
HANDI HUT	1	5 X 10 Transit Shelter w/ Bench	TN0096	Route	8/23/1996
BRASCO	1	5 X 10 Transit Shelter w/ Bench	TN0106	Route	8/25/2000
BRASCO	1	5 X 10 Transit Shelter w/ Bench	TN0107	Route	8/25/2000
BRASCO	1	5 X 10 Transit Shelter w/ Bench	TN0108	Route	8/25/2000
BRASCO	1	5 X 15 Transit Shelter w/ Bench	TN0109	Route	8/25/2000
DUOGARD	1	5 X 10 Transit Shelter w/ Bench	TN0110	Route	6/29/2001
DUOGARD	1	5 X 10 Transit Shelter w/ Bench	TN0111	Route	6/29/2001
DUOGARD	1	5 X 10 Transit Shelter w/ Bench	TN0112	Route	6/29/2001
DUOGARD	1	5 X 10 Transit Shelter w/ Bench	TN0113	Route	6/29/2001
DODGE	1	2B5WB35Z42K134923	TN0115	Yard	8/5/2002
	1	Van Tax & Tags	TN0115	Yard	8/5/2002
	1	Mobile Lift	TN0130	Garage	2/2/2005
	6	8 Ton Jack Stands for	TN0130	Garage	2/2/2005
BRASCO	1	Shelter	TN0131	Routes	3/30/2005
BRASCO	1	Shelter	TN0132	Routes	3/30/2005
	1	Automated Bus Wash	TN0133	Garage	3/30/2012

MAKE	QTY	VIN OR DESCRIPTION	ASSET NUMBER	LOCATION	PURCHASE DATE
	1	Grease Pump	TN0134	Garage	7/29/2004
	1	Transmission Lift	TN0136	Garage	2/10/2006
BRASCO	1	5 X 10 Transit Shelter w/ Bench		Routes	5/22/2006
BRASCO	1	5 X 10 Transit Shelter w/ Bench		Routes	5/22/2006
HANDIHUT	1	5 X 10 Transit Shelter w/ Bench		Routes	5/6/2008
HANDIHUT	1	5 X 10 Transit Shelter w/ Bench		Routes	5/6/2008
VERINT	9	Audio Video Recording System	TN143	Buses	3/21/2011
VERINT	1	Viewing Stat. w/ Computer	TN143	Office	3/21/2011
TRAILSIDE	27	Cedar Color Benches	TN144	Warehouse	5/11/2011
TRAILSIDE	1	Cedar Color Benches	TN144	Routes	5/11/2011
BRASCO	8	5x10 Shelters w/ Bench	TN145	Warehouse	2/28/2013
BRASCO	0	5x10 Shelters w/ Bench	TN145	Routes	2/28/2013
BRASCO	5	5x15 Shelters w/ Bench	TN146	Warehouse	2/28/2013
BRASCO	1	5x15 Shelters w/ Bench	TN146	Routes	2/28/2013
	2	Heater for Garage	GR003	Garage	11/1/2006
	1	Vacuum Turbine and Motor	GR004	Garage	3/26/2008
	1	Tire Changer	8024	Garage	10/14/2011
	1	Hydraulic Jack	GR006	Garage	1/13/2011
	1	Photo ID System		Office	2/1/2010
DODGE	1	Transit Car	5359	Yard	3/25/2002
	1	Book Case	NFA	Office	
	25	Bus Stop Poles	NFA	Routes	5/5/2006
	1	Cables, HDD, Microphones & Brackets	NFA		
	1	Cell Phone	NFA	Office	

MAKE	QTY	VIN OR DESCRIPTION	ASSET NUMBER	LOCATION	PURCHASE DATE
	1	Cell phone	NFA	Office	7/31/2012
	6	Chairs	NFA	Office	
	1	Desk	NFA	Office	
	1	Exhaust Fan	NFA		
	5	File Cabinets	NFA	Office	
	1	Hand Tools	NFA	Garage	
	1	Leaf Blower	NFA	Garage	
	4	Office Furniture (3 Desks, 1 Part.)	NFA	Office	12/13/2004
	1	Reel Hose & Wall Mount	NFA	Garage	
SAFECO	0	Aggregate Trash Cans	NFA	Warehouse	10/10/2005
SAFECO	19	Aggregate Trash Cans	NFA	Routes	10/10/2005
SAFECO	4	Aggregate Trash Cans	NFA	Warehouse	5/18/2008
SAFECO	6	Aggregate Trash Cans	NFA	Routes	5/18/2008
	1	Service Jack	NFA	Garage	
	1	Shed	NFA	Yard	
	1	Storage Cabinet	NFA	Garage	
	1	Tool Box	NFA	Garage	
	1	Tool Box	NFA	Garage	
	1	Tool Cart	NFA	Garage	
	1	Vacuum Cleaner	NFA	Garage	12/19/2007
	1	Weed Eater	NFA	Garage	
	1	Steam Cleaner E-1000-C	NFA	Garage	5/20/2003
	1	King Pin Press OTC-4240	NFA	Garage	4/28/2006
	1	Heater	NFA	Garage	12/8/2006
	1	Heater	NFA	Garage	12/8/2006

MAKE	QTY	VIN OR DESCRIPTION	ASSET NUMBER	LOCATION	PURCHASE DATE
DIAMOND	10	Fare boxes	NFA	Buses	11/21/2007
DIAMOND	12	Fare boxes	NFA	Buses	11/1/2008
TASK FORCE	1	2000 PSI Electric Pressure Washer	NFA	Garage	5/18/2010
	1	Axle Jack 2.5 Ton Cap.	NFA	Garage	1/13/2011
	1	Lacie Server	NFA	City Hall	3/3/2011
ADOBE	1	Adobe Photoshop	NFA	Office	7/1/2011
LEXINGTON	8	30 Gal. Concrete Trash Cans	NFA	Warehouse	7/1/2011
LEXINGTON	11	30 Gal. Concrete Trash Cans	NFA	Routes	7/1/2011
VULCAN	0	Bus Stop Poles	NFA	Sign Shop	7/1/2011
VULCAN	100	Bus Stop Poles	NFA	Routes	7/1/2011
VULCAN	0	Bus Stop Signs	NFA	Sign Shop	7/1/2011
VULCAN	100	Bus Stop Signs	NFA	Routes	7/1/2011
MOTOROLA	1	DashMNT	NFA	Buses	12/12/2012
MOTOROLA	1	DashMNT	NFA	Buses	12/13/2012
MOTOROLA	1	DashMNT	NFA	Buses	12/13/2012
MOTOROLA	1	DashMNT	NFA	Buses	12/13/2012
MOTOROLA	1	DashMNT	NFA	Buses	12/13/2012
MOTOROLA	1	DashMNT	NFA	Buses	12/13/2012
MOTOROLA	1	DashMNT	NFA	Buses	12/13/2012
MOTOROLA	1	DashMNT	NFA	Buses	12/13/2012
MOTOROLA	1	DashMNT	NFA	Buses	12/13/2012
MOTOROLA	1	DashMNT	NFA	Buses	12/13/2012
MOTOROLA	1	DashMNT	NFA	Buses	12/13/2012
MOTOROLA	1	DashMNT	NFA	Van	12/13/2012
MOTOROLA	1	DashMNT	NFA	Drivers Room	12/13/2012

MAKE	QTY	VIN OR DESCRIPTION	ASSET NUMBER	LOCATION	PURCHASE DATE
MOTOROLA	1	DashMNT	NFA	Drivers Room	12/14/2012
MOTOROLA	1	DashMNT	NFA	Drivers Room	12/14/2012
MOTOROLA	1	DashMNT	NFA	Drivers Room	12/14/2012
MOTOROLA	1	DashMNT	NFA	Drivers Room	12/14/2012
MOTOROLA	1	DashMNT	NFA	Office	12/14/2012
MOTOROLA	1	DashMNT	NFA	Office	12/14/2012
	1	A/C Leak Detector	NFA	Garage	10/18/2012
	1	Laptop	NFA	Garage	10/30/2012
	1	12/24 Volt Jump Starter	NFA	Garage	10/15/2012
	1	Brake Drum Cart	NFA	Garage	10/18/2012
	1	3/4" Impact Wrench	NFA	Garage	10/23/2012
	1	1" Impact Wrench	NFA	Garage	10/23/2012
	1	Shop Vacuum	NFA	Garage	10/4/2012
	1	Shop Vacuum	NFA	Garage	10/4/2012
	1	Grease Pump	NFA	Garage	10/15/2012
	1	Hydraulic Shop Press	NFA	Garage	10/11/2012
	1	Storage Cabinet	NFA	Garage	9/12/2012
	1	Storage Cabinet	NFA	Garage	9/12/2012
	1	Storage Cabinet	NFA	Garage	9/12/2012
	1	33 Ton Floor Jack	NFA	Garage	11/7/2012
	1	33 Ton Floor Jack	NFA	Garage	11/7/2012
	1	Platform Rolling Ladder	NFA	Garage	10/22/2012
	1	Platform Rolling Ladder	NFA	Garage	10/22/2012
	1	Battery Charger	NFA	Garage	10/15/2012
	1	Pallet Jack	NFA	Garage	10/15/2012

MAKE	QTY	VIN OR DESCRIPTION	ASSET NUMBER	LOCATION	PURCHASE DATE
	1	Jenny Pressure Washer	tbd	Garage	11/14/2012
	1	AC Recovery/Recycle/Recharge	tbd	Garage	12/31/2012
	2	Mobile Lift	tbd	Garage	12/31/2012

Existing GREAT Services

The City of Greenville operates GREAT as a division of the Public Works Department. The Public Works Department is responsible for planning, operating, and managing GREAT public transportation services. GREAT operates fixed-route bus service and dial-a-ride service within incorporated City of Greenville. **Figure 2.1** presents the GREAT fixed-route system.

System Characteristics

Span of Service

The GREAT system runs six fixed-routes within the City of Greenville, including two routes (#6 and #3) that take transit users to the edge of the Town of Winterville, while serving Pitt Community College (PCC). GREAT provides service six days per week, from 6:25 a.m. to 7:00 p.m. during the weekdays and from 9:25 a.m. to 6:00 p.m. on Saturday. GREAT does not currently offer Sunday service and does not operate on certain City holidays.

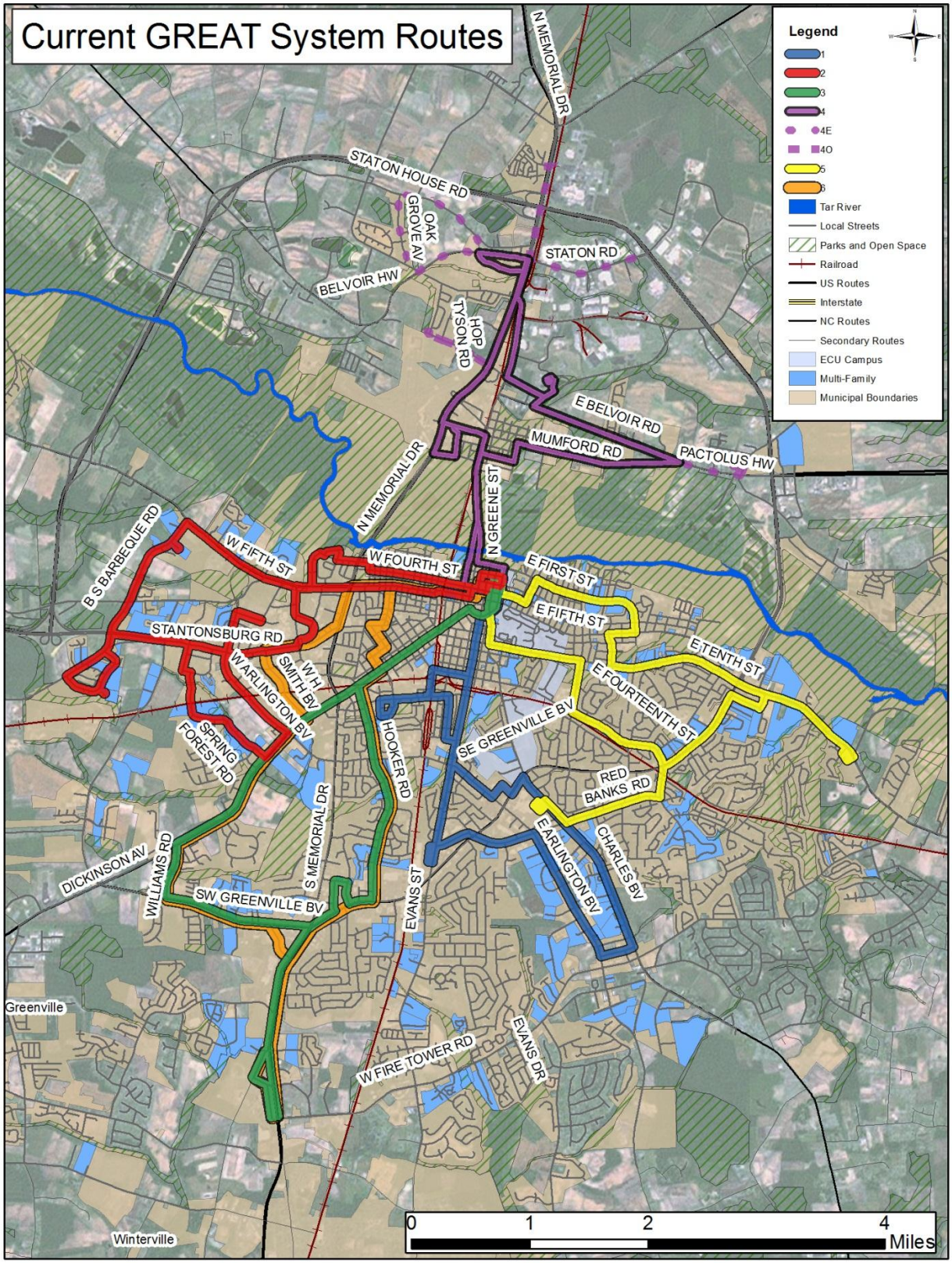
Service Frequencies

The GREAT headways are every 60 minutes as shown in **Table 2.4**.

Table 2.4 GREAT Headways

Route	Peak Headway	Non-Peak Headway
Route 1-Blue	60 minute	60 minute
Route 2-Red	60 minute	60 minute
Route 3-Green	60 minute	60 minute
Route 4-Purple	60 minute	60 minute
Route 5-Yellow	60 minute	60 minute
Route 6-Orange	60 minute	60 minute

Figure 2.1: GREAT System Map



GREAT Route Descriptions1 Route

Route 1–Blue

Route 1-Blue, shown on **Figure 2.2**, serves east Greenville. Turn-by-turn directions for the route are listed in **Table 2.5**.

Table 2.5 Route 1-Blue Turn-by-Turn Directions

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
Reade	To	Left	On	2nd
2nd	To	Left	On	Cotanche
Cotanche	To	Right	On	Reade Circle
Reade Circle	To	Left	On	Evans
Evans	To	Right	On	14th
14th	To	Left	On	Beatty
Beatty	To	Right	On	Howell
Howell	To	Left	On	Perkins
Perkins	To	Left	On	Harris
Harris	To	Left	On	S. Skinner
S. Skinner	To	Right	On	Howell
Howell	To	Right	On	S. Greene
S. Greene	To	Left	On	Deck
Deck	To	Right	On	Evans
Evans	To	Left	On	Arlington
Arlington	To	Left	Into	Greenville Square Shop.

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
Greenville Square Shop. Ctr.	To	Left	On	Greenville
Greenville	To	Right	On	Charles
Charles	To	Right	Into	Greenville Mall
Greenville Mall	To	Right	On	Charles
Charles	To	Right	On	Smythewyck
Smythewyck	To	Right	On	E. Arlington
E. Arlington	To	Left	On	Red Banks
Red Banks	To	Left	On	Evans
Evans	To	Right	Into	Target Shopping Ctr.
Target Shopping Ctr.	To	Left	On	Evans
Evans	To	Right	On	Reade Circle
Reade Circle	To	Straight	On	Reade

Route 2–Red

Route 2-Red, shown on **Figure 2.3** serves west Greenville. Turn-by-turn directions for the route are listed in **Table 2.6**.

Table 2.6 Route 2-Red Turn-by-Turn Directions

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
Reade	To	Left	On	2nd
2nd	To	Left	On	S. Washington

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
S. Washington	To	Right	On	4th
4th	To	Right	On	Nash
Nash	To	Left	On	3rd
3rd	To	Right	On	Roundtree
Roundtree	To	Left	On	Conley
Conley	To	Right	On	3rd
3rd	To	Left	On	Darden
Darden	To	Right	On	5th
5th	To	Left	On	Moye
Moye	To	Right	On	Stantonsburg
Stantonsburg	To	Right	On	Arlington
Arlington	To	Right	On	Heart
Heart	To	Left	On	Service
Service	To	Left	Into	Family Practice Parking Lot
Family Practice Parking Lot	To	Right	On	Heart
Heart	To	Left	On	Arlington
Arlington	To	Right	On	Stantonsburg
Stantonsburg	To	Left	On	Bethesda
Bethesda	To	Left	On	Johns Hopkins
Johns Hopkins	To	Right	On	Spring Forest
Spring Forest	To	Left	On	Dickinson

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
Dickinson	To	Left	On	Arlington
Arlington	To	Left	On	Stantonsburg
Stantonsburg	To	Left	On	Old Stantonsburg
Old Stantonsburg	To	Left	On	Westpointe
Westpointe	To	Right	On	Old Stantonsburg
Old Stantonsburg	To	Straight	On	Bs Barbeque
Bs Barbeque	To	Right	On	5th
5th	To	Left	On	S. Greene
S. Greene	To	Right	On	4th
4th	To	Left	On	Reade

Route 3–Green

Route 3-Green, shown on **Figure 2.4**, serves southwest Greenville. Turn-by-turn directions for the route are listed in **Table 2.7**.

Table 2.7 Route 3-Green Turn-by-Turn Directions

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
Reade	To	Left	On	Second
Second	To	Left	On	Cotanche
Cotanche	To	Right	On	Reade Circle
Reade Circle	To	Left	On	Dickinson

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
Dickinson	To	Left	On	Hooker
Hooker	To	Right	On	Greenville
Greenville	To	Right	On	St. Andrews
St. Andrews	To	Left	On	Dexter
Dexter	To	Left	On	Bismark
Bismark	To	Right	On	Greenville
Greenville	To	Left	On	S. Memorial
S. Memorial	To	Right	On	Reedy Branch
Reedy Branch	To	Left	Into	PCC at Craig Goess Building
PCC at Craig Goess Building	To	Right	On	Eddie Smith
Eddie Smith	To	Straight	On	Dr. Fulford
Dr. Fulford	To	Left	On	S. Memorial
S. Memorial	To	Left	On	Greenville
Greenville	To	Right	On	Williams
Williams	To	Right	On	Dickinson
Dickinson	To	Right	On	Reade Circle
Reade Circle	To	Straight	On	Reade

Route 4-Purple

Route 4-Purple, shown on **Figure 2.5**, serves north Greenville. There are several time-based variations of Route 4-Purple, including:

- Route 4-Purple with turns for Flora MHP, the Aquatics Center, and Oak Grove trips shown in **Table 2.8**.
- Route 4-Purple with turns for Westwood MHP and the Hop Tyson trips shown in **Table 2.9**.

Table 2.8 Route 4-Purple Turn-by-Turn directions for Flora MHP, the Aquatics Center, and Oak Grove trips.

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
Reade	To	Left	On	1st
1st	To	Right	On	S. Greene
S. Greene	To	Right	On	Dudley
Dudley	To	Left	On	Van Dyke
Van Dyke	To	Right	On	Mumford
Mumford	To	Right	On	Pactolus
Pactolus	To	Left	On	Azalea
Azalea	To	Right	On	E. Jackson
E. Jackson	To	Right	On	Whichard
Whichard	To	Right	On	Pactolus
Pactolus	To	Right	On	Old Creek
Old Creek	To	Left	On	Government Circle
Government Circle	To	Left	Into	Social Services Complex
Social Services Complex	To	Right	On	Government Circle
Government Circle	To	Right	On	Belvoir
Belvoir	To	Right	On	N. Greene

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
N. Greene	To	Right	On	N. Memorial
N. Memorial	To	Right	On	Staton
Staton	To	Left	Into	Aquatics Center
Aquatics Center	To	Right	On	Staton
Staton	To	Left	On	N. Memorial
N. Memorial	To	Right	On	Easy
Easy	To	Left	On	Belvoir Highway
Belvoir Highway	To	Right	On	Flemming School
Flemming School	To	Right	On	Oakgrove
Oakgrove	To	Right	On	Staton House
Staton House	To	Left	On	Belvoir Highway
Belvoir Highway	To	Right	On	N. Memorial
N. Memorial	To	Left	On	Airport
Airport	To	Right	On	Old River
Old River	To	Right	On	Legion
Legion	To	Right	On	W. Moore
W. Moore	To	Right	On	N. Memorial
N. Memorial	To	Right	On	Airport
Airport	To	Right	On	N. Greene
N. Greene	To	Left	On	4th
4th	To	Left	On	Reade

Table 2.9 Route 4-Purple Turn-by-Turn directions with turns for Westwood MHP and the Hop Tyson trips.

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
Reade	To	Left	On	1st
1st	To	Right	On	S. Greene
S. Greene	To	Right	On	Dudley
Dudley	To	Left	On	Van Dyke
Van Dyke	To	Right	On	Mumford
Mumford	To	Left	On	Pactolus
Pactolus	To	Right	On	Old Creek
Old Creek	To	Left	On	Government Circle
Government Circle	To	Left	Into	Social Services Complex
Social Services Complex	To	Right	On	Government Circle
Government Circle	To	Right	On	Belvoir
Belvoir	To	Right	On	N. Greene
N. Greene	To	Right	On	N. Memorial
N. Memorial	To	U-Turn	At	Westwood Mobile Home Park
N. Memorial	To	Right	On	Easy
Easy	To	Right	On	Belvoir Highway
Belvoir Highway	To	Right	On	N. Memorial
N. Memorial	To	Right	On	Belvoir Highway/Hop

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
				Tyson
Belvoir Highway/Hop Tyson	To	U-turn	At	Dead End
Belvoir Highway/Hop Tyson	To	Right	On	N. Memorial
N. Memorial	To	Left	On	Airport
Airport	To	Right	On	Old River
Old River	To	Right	On	Legion
Legion	To	Right	On	W. Moore
W. Moore	To	Right	On	N. Memorial
N. Memorial	To	Right	On	Airport
Airport	To	Right	On	N. Greene
N. Greene	To	Left	On	4th
4th	To	Left	On	Reade

Route 5–Yellow

Route 5-Yellow, shown on **Figure 2.6** serves east Greenville. Turn-by-turn directions for the route are listed in **Table 2.10**.

Table 2.10 Route 5-Yellow Turn-by-Turn Directions

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
Reade	To	Left	On	3rd
3rd	To	Left	On	Cotanche
Cotanche	To	Left	On	10th
10th	To	Right	On	S. Elm
S. Elm	To	Left	On	14th
14th	To	Right	On	Red Banks
Red Banks	To	Right	On	Charles
Charles	To	Left	Into	Greenville Mall
Greenville Mall	To	Right	On	Charles
Charles	To	Left	On	Red Banks
Red Banks	To	Left	On	14th
14th	To	Right	On	Greenville
Greenville	To	Right	On	Moseley
Moseley	To	Left	On	Eastgate
Eastgate	To	Right	On	10th
10th	To	Right	On	Portertown
Portertown	To	Left	Into	Walmart Shopping Ctr.
Walmart Shopping Ctr.	To	Left	On	10th

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
10th	To	Right	On	Forrest Hill
Forrest Hill	To	Right	On	5th
5th	To	Left	On	Brownlea
Brownlea	To	Straight	On	1st
1st	To	Left	On	S. Jarvis
S. Jarvis	To	Right	On	4th
4th	To	Right	On	Reade

Route 6–Orange

Route 6-Orange, shown on **Figure 2.7**, serves southwest Greenville. Turn-by-turn directions are listed in **Table 2.11**.

Table 2.11 Route 6-Orange Turn-by-Turn Directions

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
Reade	To	Left	On	3rd
3rd	To	Left	On	Cotanche
Cotanche	To	Right	On	5th
5th	To	Left	On	Memorial
Memorial	To	Right	On	Stantonsburg
Stantonsburg	To	Left	On	W. H. Smith
W. H. Smith	To	Right	On	Dickinson

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
Dickinson	To	Left	On	Williams
Williams	To	Left	On	Greenville
Greenville	To	Right	On	Mall
Mall	To	Right	On	S. Memorial
S. Memorial	To	Right	On	Reedy Branch
Reedy Branch	To	Left	Into	PCC at Craig Goess Building
PCC at Craig Goess Building	To	Right	On	Eddie Smith
Eddie Smith	To	Straight	On	Dr. Fulford
Dr. Fulford	To	Left	On	S. Memorial
S. Memorial	To	Right	On	Greenville
Greenville	To	Left	On	Hooker
Hooker	To	Right	On	Dickinson
Dickinson	To	Left	On	Wilson
Wilson	To	Right	On	Myrtle
Myrtle	To	Left	On	Manhattan
Manhattan	To	Right	On	Farmville
Farmville	To	Left	On	Tyson
Tyson	To	Straight	On	14th
14th	To	Right	On	5th
5th	To	Left	On	S. Greene

STREET TRAVEL	TO	RIGHT OR LEFT	ON	STREET TURN
S. Greene	To	Right	On	4th
4th	To	Left	On	Reade

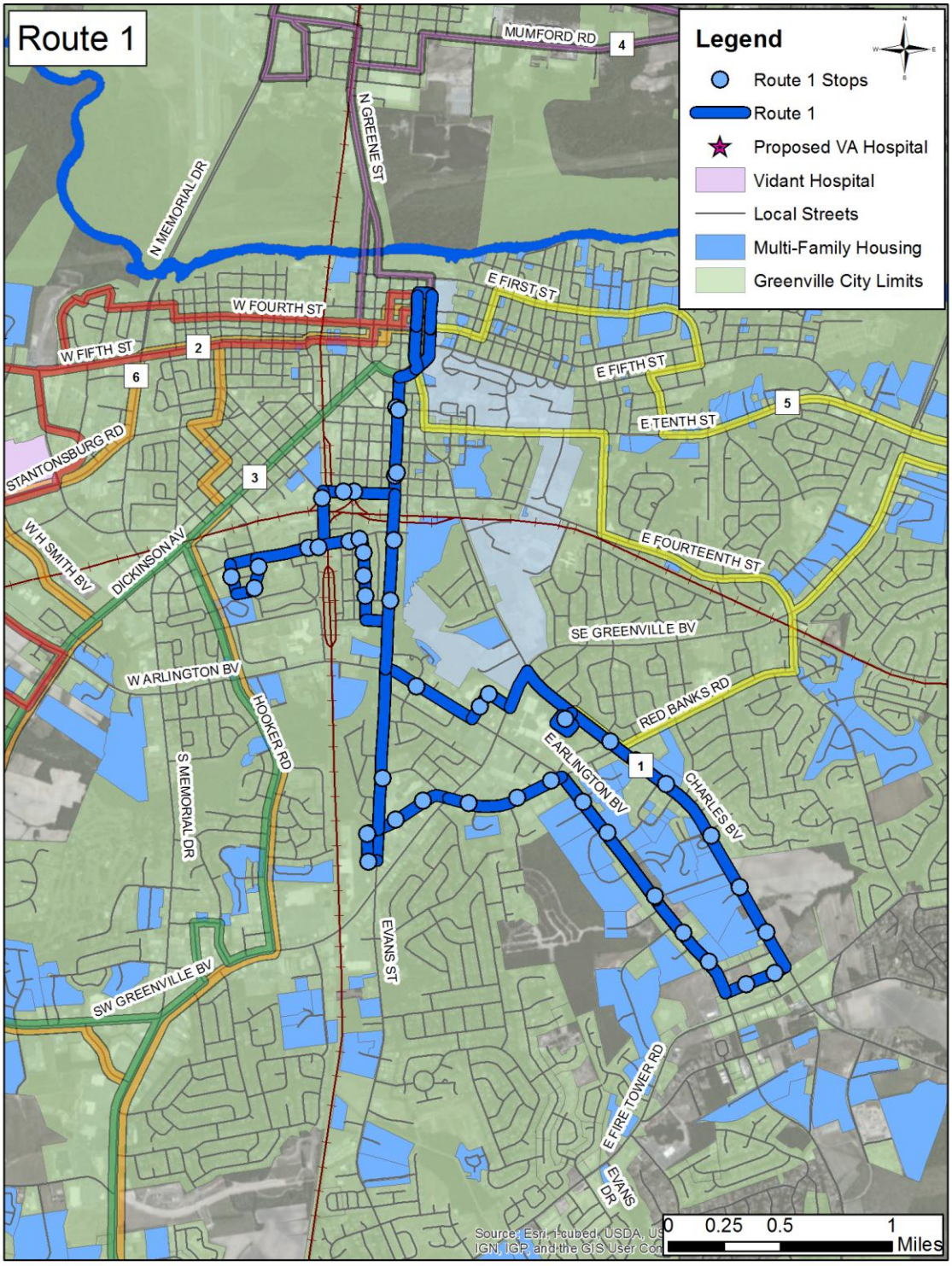


Figure 2.2: Route 1-Blue

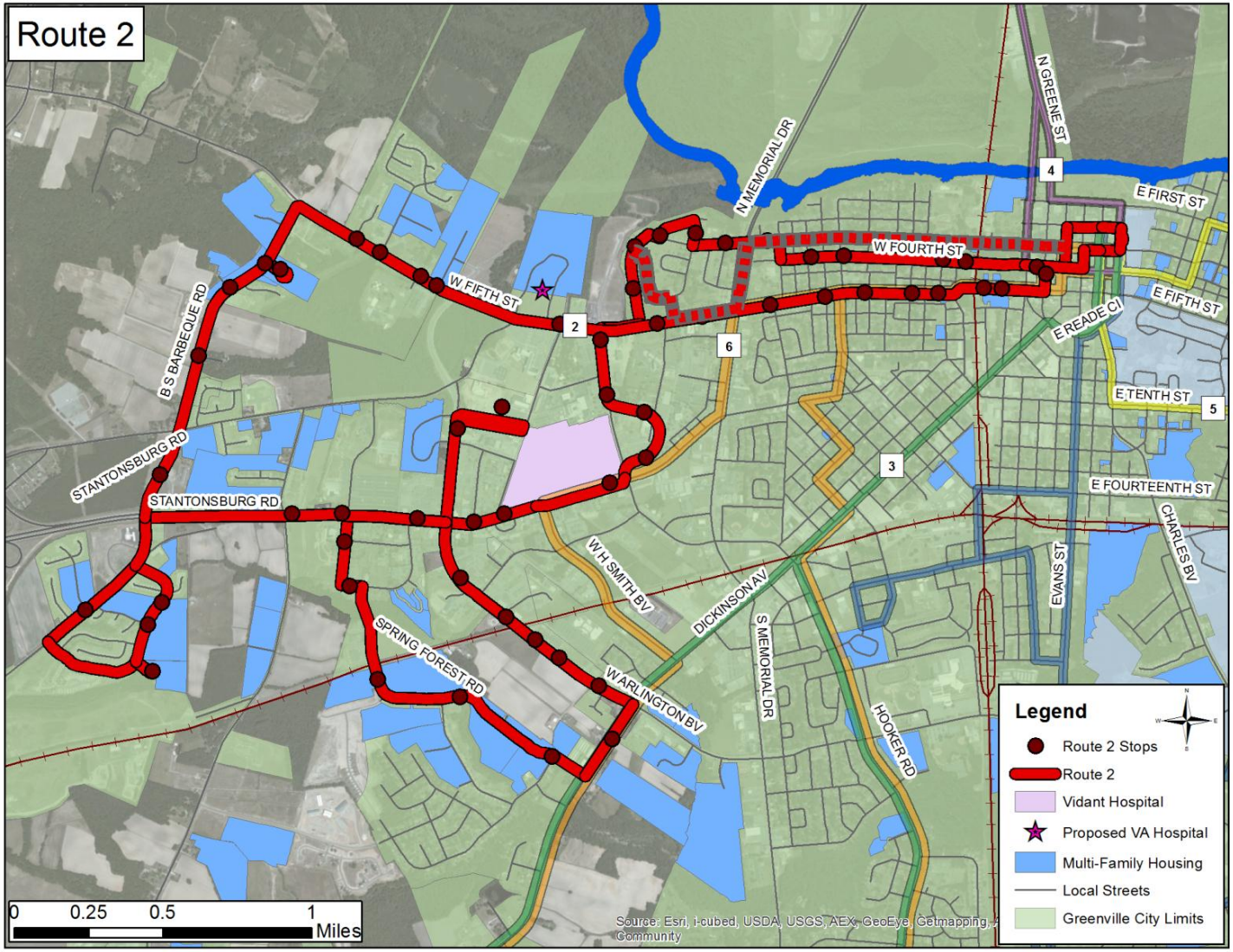


Figure 2.3: Route 2-Red

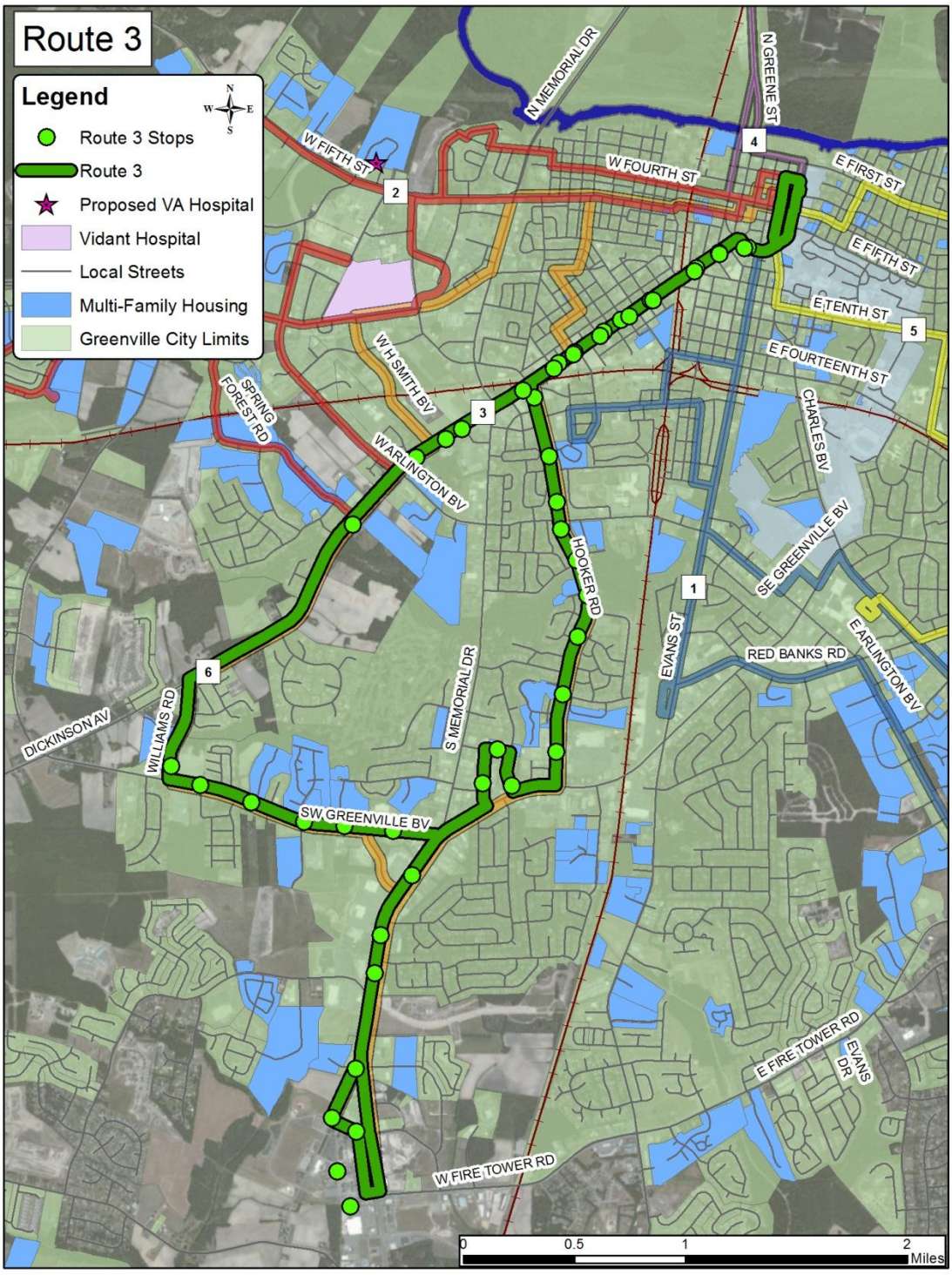


Figure 2.4: Route 3-Green

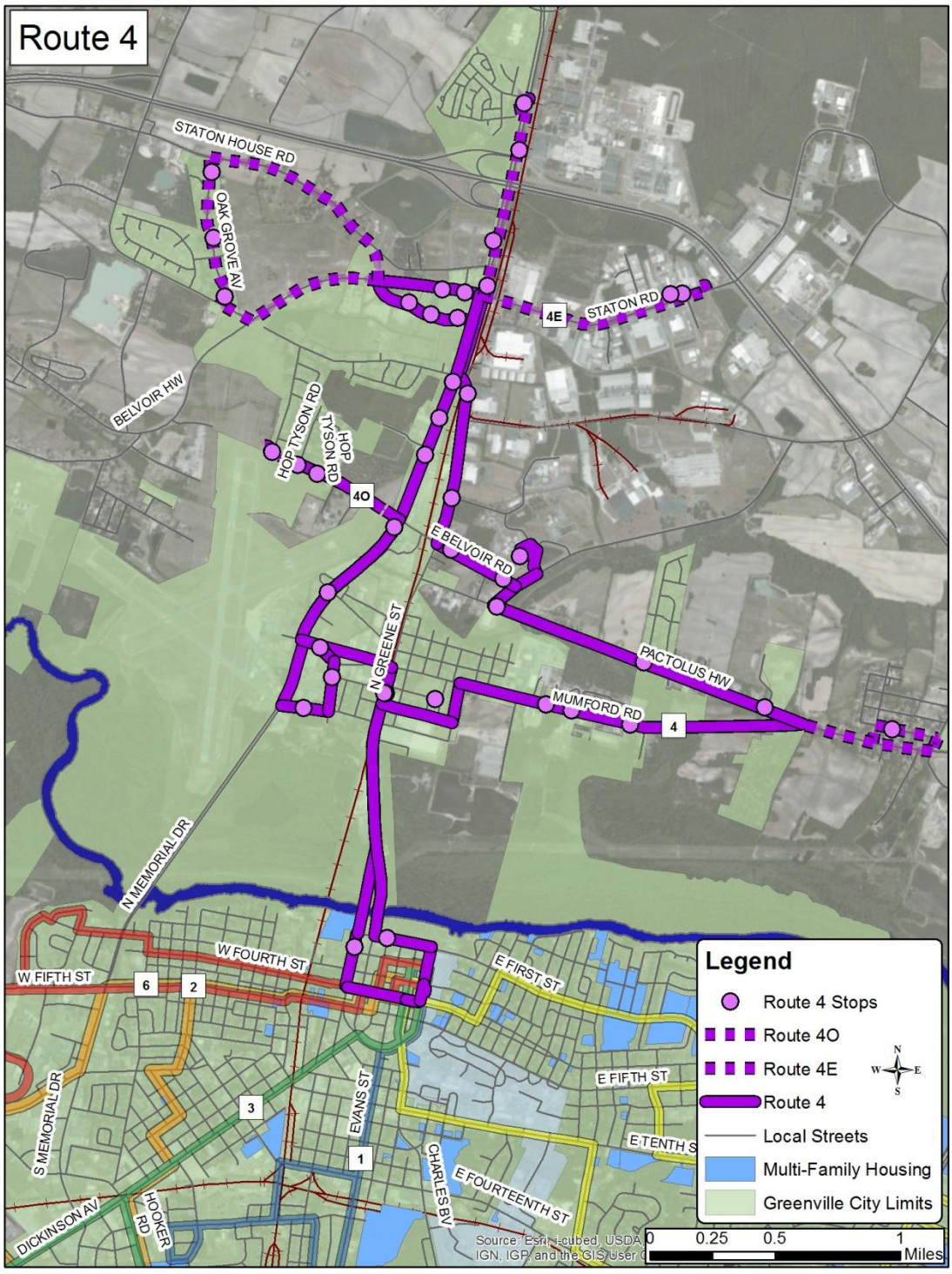


Figure 2.5: Route 4-Purple

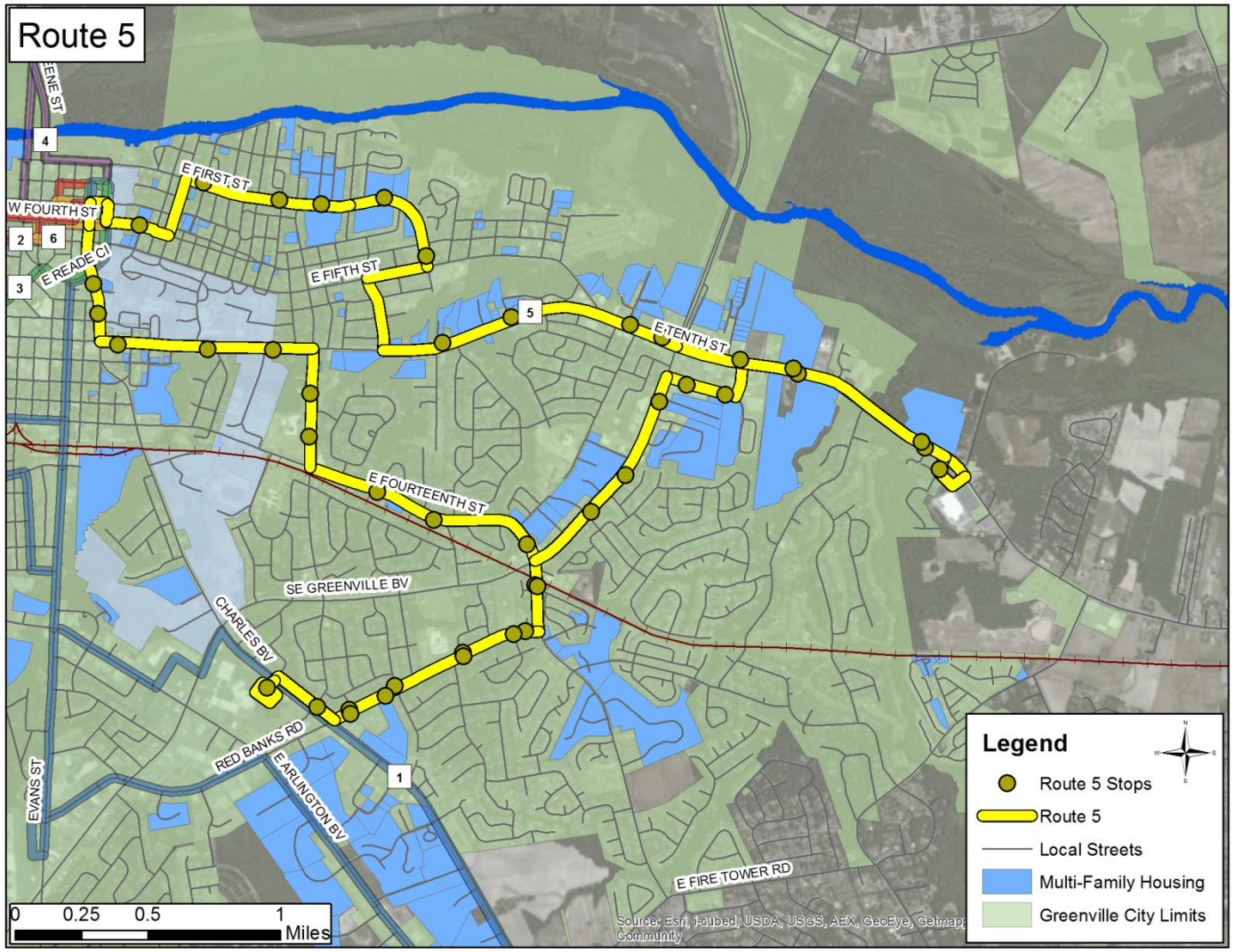


Figure 2.6: Route 5-Yellow

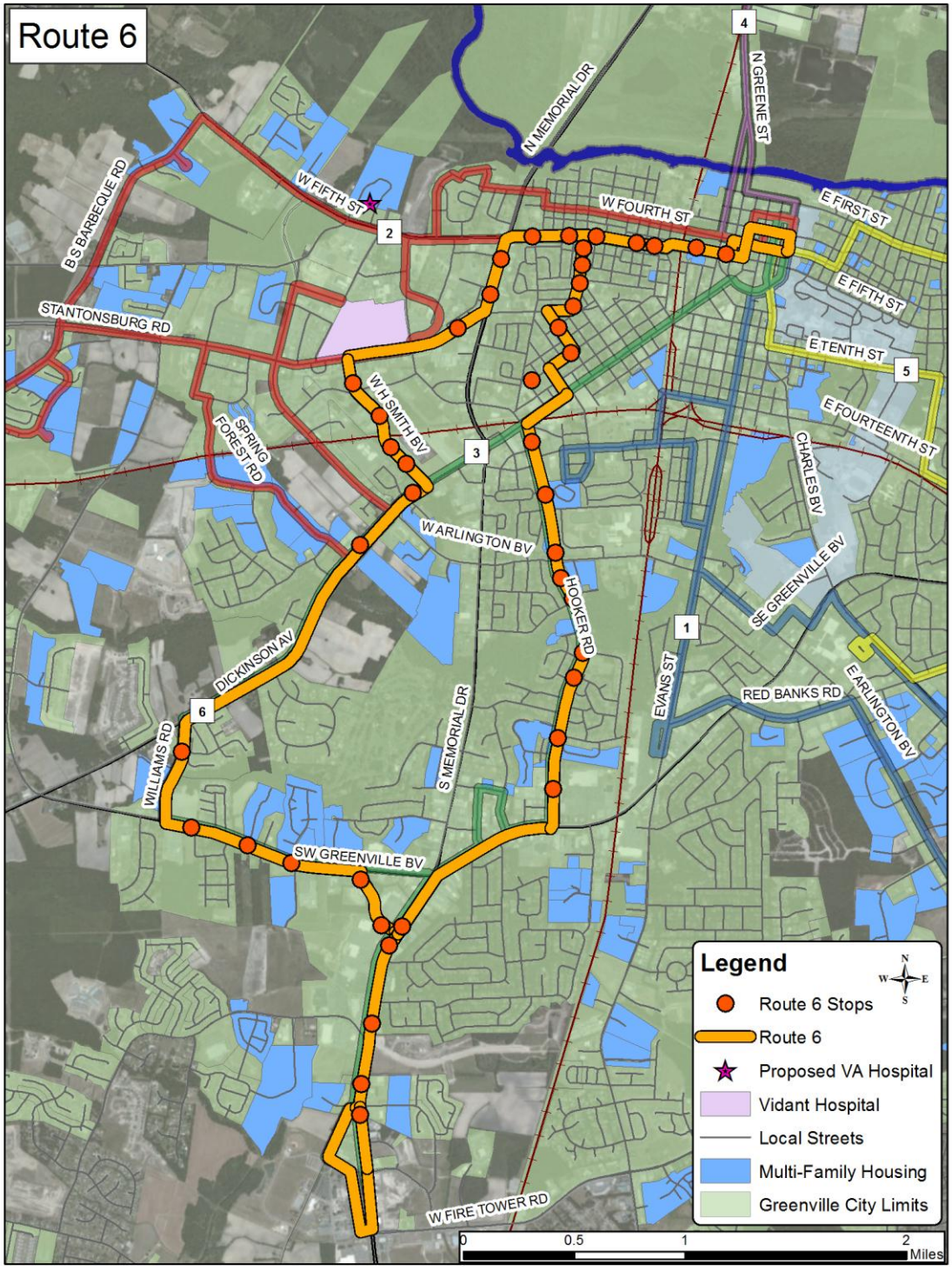


Figure 2.7: Route 6-Orange

System wide Ridership

A crucial element in assessing GREAT services is to understand how customers use the transit system. Ridership and operating performance data were obtained for all GREAT fixed-route and dial-a-ride service for the last fiscal year, FY2012 (Jul 2011 – Jun 2012). In addition, all GREAT routes were surveyed to assess boarding's, alighting, and transfers for weekday and Saturday service. **Table 2.12** shows the overall daily fixed-route ridership for FY2012.

Table 2.12 GREAT System wide Daily Ridership, FY2012

	Jul 11– Jun 12
Weekday Average Daily Fixed-route Ridership	1,792
Saturday Average Daily Fixed-route Ridership	890
Weekday Average Daily Dial-a-ride Ridership	49
Saturday Average Daily Dial-a-ride Ridership	18

The data indicates Weekday ridership is approximately twice the number of Saturday riders. National trends for transit agencies typically have Saturday ridership as half of their weekday ridership. As indicated in the above table, GREAT Saturday ridership is just slightly lower than half the average weekday, indicating GREAT operates similar service as many agencies across the nation.

Annual ridership over the last several years is displayed on **Figure 2.8**. **Ridership has steadily increased from FY 2008-2012.**

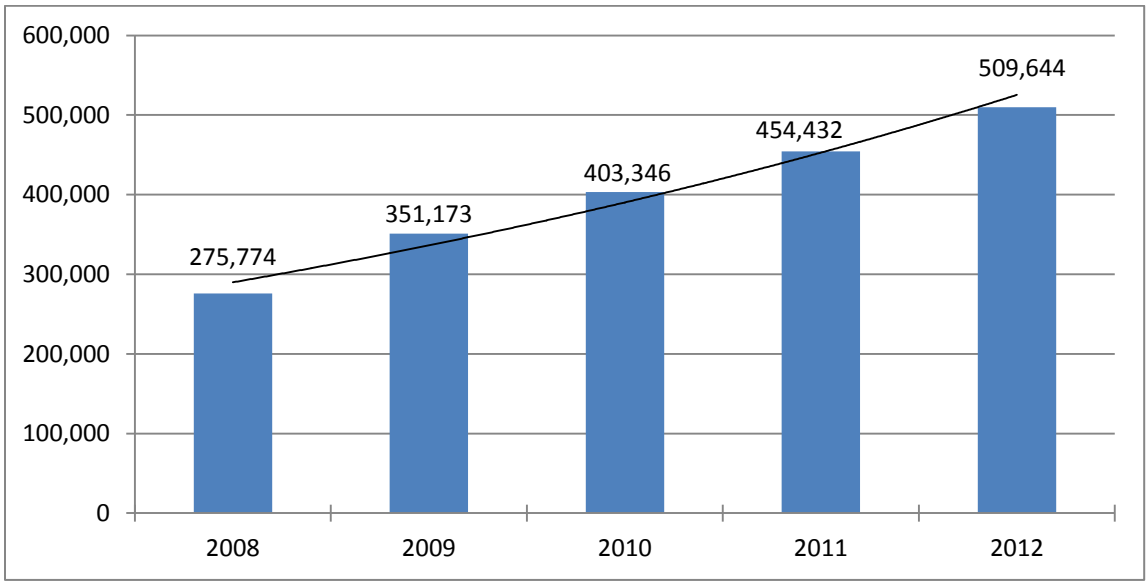


Figure 2.8 GREAT Fixed-Route Ridership Trends FY2008-2012

Monthly ridership for FY2012 is displayed on **Figure 2.9** for all GREAT fixed-routes. Average Monthly Ridership was highest in January 2012 with approximately 47,377 one-way trips, and lowest in September 2012 with approximately 34,484 one-way trips.

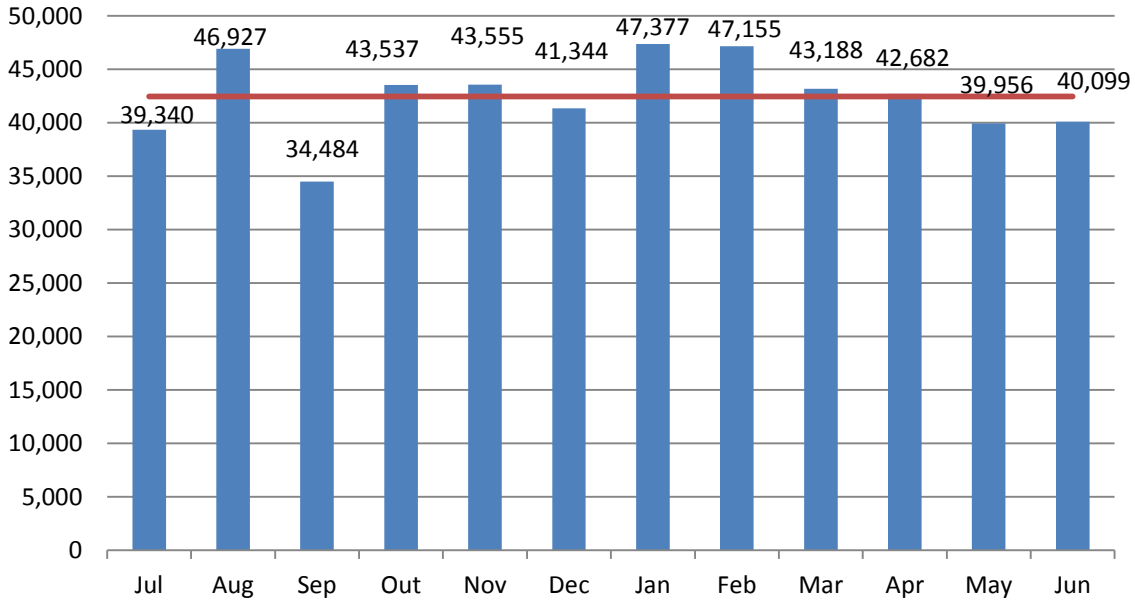


Figure 2.9 GREAT Fixed-Route Ridership by Month FY2012

Fluctuations in route ridership can be expected. Ridership trends may indicate seasonal events, such as holidays. Small variance may illustrate the high number of transit dependent riders who rely on GREAT services year-round for employment, medical, and other necessary trips. As additional services are implemented in the future to attract choice riders, ridership will likely show more fluctuation throughout the year.

As part of the study, a ride check survey was conducted on GREAT's fixed-route service. The objective of the survey was to compile boarding and alighting information by bus stop and by trip for all six of GREAT routes for Weekday and Saturday service. Various summaries from this survey were developed for use in evaluating the effectiveness and efficiency of the existing service.

Preparation for the surveys was completed in Spring 2013. The field work was conducted on April 2013. The manual method was used to collect the survey data. This method basically consisted of preparing "surveyor packets" for a surveyor to tabulate boardings and alightings by stop and by route. The surveyor attached the packet to a clipboard and recorded the information as he/she rode the bus.

Fare Category

Farebox data was also reviewed to determine fare category and transfer characteristics by route. **Figure 2.10** presents system wide ridership by fare category. **By far, the largest fare category was the $2.00 Day Pass with approximately 34 percent of all daily boardings.** The second most used fare method with approximately 22 percent of total boardings is $1.00 Cash. By contrast, $1.00 ECU fares account for less than one percent of total boardings.

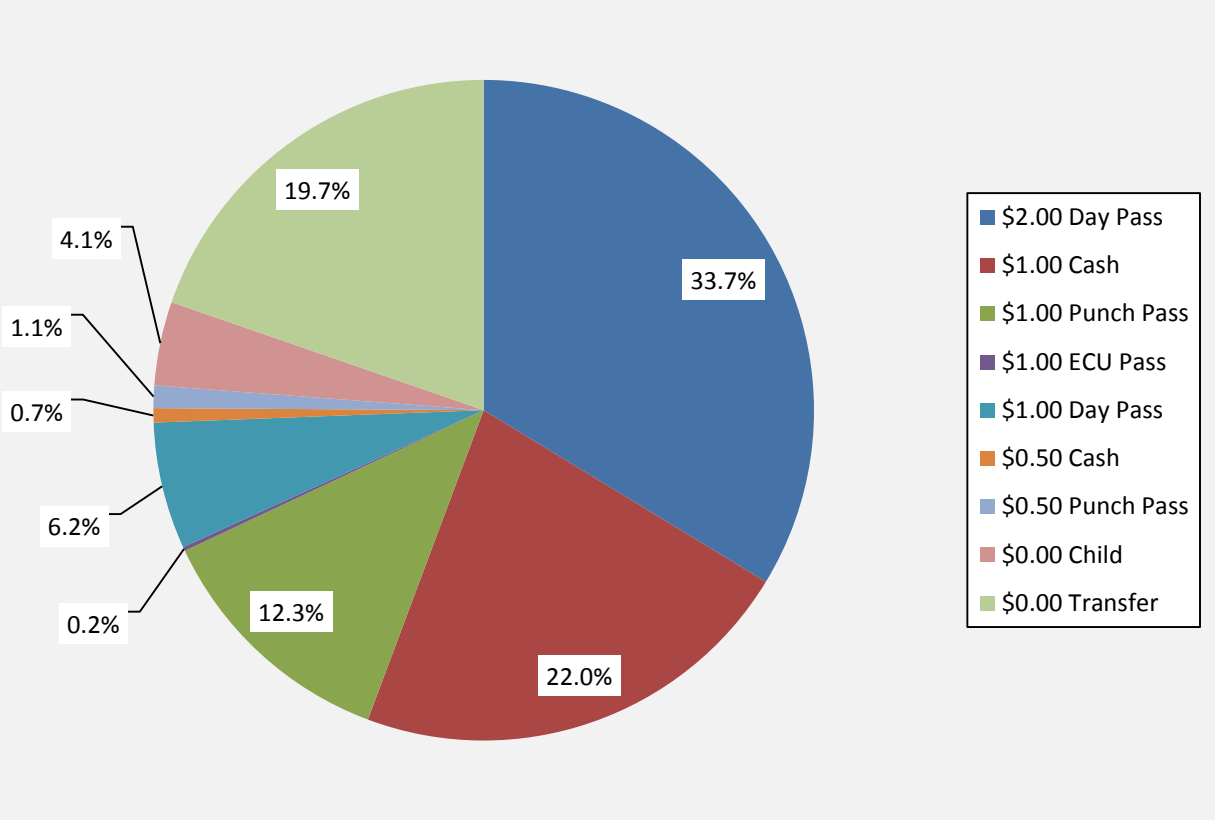


Figure 2.10 System wide Fixed Route Ridership by Fare Category

Route Level Ridership

Public transit agencies develop route alignments and schedules similar to the development of the roadway transportation network alignments. The end result is to provide residents with the most direct routes to/from their destinations. All roads cannot be arterial roads or highways. Smaller feeder roads such as collector and local streets coordinate mobility with the other higher volume roadways. Transit agencies have this same philosophy. The busiest and primary bus routes will likely be the most efficient and operate along high activity corridors, which are usually arterial roads. Many small neighborhood and service routes feed into the busier route and allow passengers transfer opportunities.

GREAT ridership by route is shown on **Figure 2.11**. In FY2012, out of the average ridership of each route, **Route 6-Orange and Route 3-Green had the highest ridership with approximately 117,000 and 114,000 annual one-way trips, respectively.** Route 4-Purple has the lowest annual ridership of approximately 50,000 one-way trips.

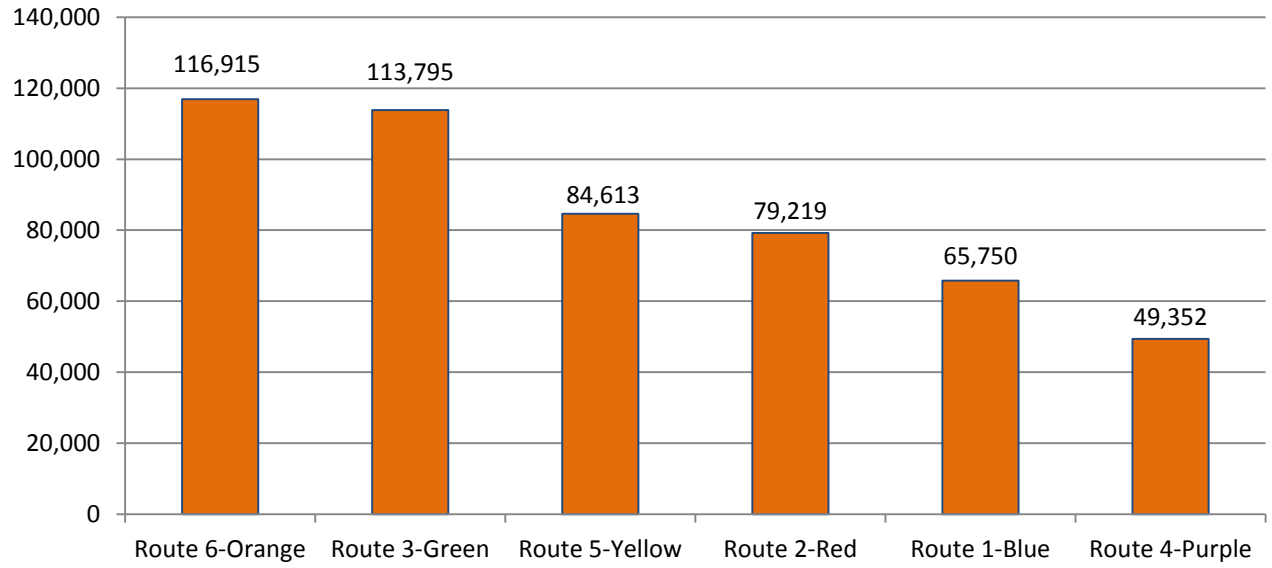


Figure 2.11 GREAT FY2012 Ridership by Route

Temporal Analysis

The daily boardings for GREAT were analyzed for consecutive hours of the day for each route. **Table 2.13** shows the total boardings broken down by the hour and route. The number of passengers by per hour determines the boarding patterns during various times of the day, which helps determine peak load times, peak-hour vehicle allocations, and schedules.

Figure 2.12 illustrates the total daily boardings for various times of the day. As depicted, the time period from 7:25 a.m. to 8:25 a.m. had the highest number of boardings, representing approximately 11 percent of total boarding counts. This is closely followed by all other time periods, except for services after 6:25 p.m. Service decreases after 6:25 p.m. may be due to riders finding alternate modes of transportation to service trips later than GREAT operational hours.

Table 2.13 GREAT Weekday Daily Boardings by Time Period

Time	Route 1 Blue	Route 2 Red	Route 3 Green	Route 4 Purple	Route 5 Yellow	Route 6 Orange	Total Board-ings	% of Board-ings
6:25 AM	11	13	17	16	17	21	93	**5%**
7:25 AM	17	18	36	45	24	52	191	**11%**
8:25 AM	21	22	42	11	28	47	169	**10%**
9:25 AM	18	22	43	14	24	36	156	**9%**
10:25 AM	26	23	37	8	19	30	142	**8%**
11:25 AM	19	13	40	11	17	30	129	**8%**
12:25 PM	18	16	42	9	15	37	136	**8%**
1:25 PM	21	30	37	19	17	39	162	**9%**
2:25 PM	21	25	35	12	18	34	144	**8%**
3:25 PM	20	17	33	15	21	27	131	**8%**
4:25 PM	17	22	21	11	19	37	125	**7%**
5:25 PM	8	9	27	6	15	26	91	**5%**
6:25 PM	7	3	7	3	11	12	42	**2%**
Total	**222**	**229**	**414**	**178**	**242**	**424**	**1,708**	**100%**

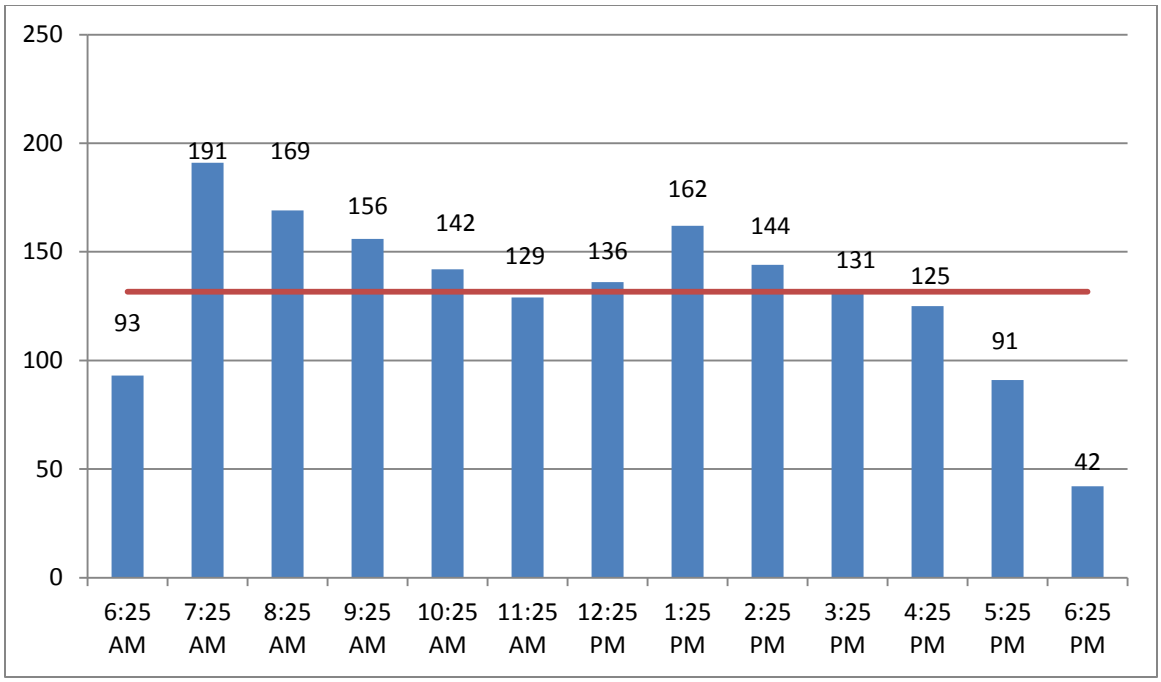


Figure 2.12 GREAT Daily Boardings by Time Period

System wide Performance Measures

As part of the evaluation of service, it is important to assess ridership performance. Performance indicators may include cost per passenger trip, cost per mile, passenger per revenue hour, passenger per mile, farebox recovery ratio, and others. The National Transit Database requires reporting by four categories: passenger per revenue mile, passenger per revenue hour, cost per passenger trip, and farebox recovery. While this is reported to the NTD on an annual basis, it is important that this data be reported on a route-by-route basis monthly. This gives GREAT the ability to not only track the actual performance of each route, but to identify trends and make any route modifications.

An essential function of the GREAT study is to thoroughly evaluate the performance of the routes making up a transit system. By examining the GREAT system from a variety of different angles—economic, historic trends, ridership, etc.—it is possible to isolate both the best and poorest performing routes. This information is invaluable in making decisions on how to improve GREAT service. In a climate where every resource available to a transit agency is precious, GREAT must find ways to increase support for the most successful services, which will have the largest impact on its riders, and ways to improve the underperforming services to minimize their potential drain on the system.

In any transit system, there will be routes that are winners and losers in both financial and ridership terms; not every route can operate at a high level of productivity with a strong farebox recovery, nor should it. Robust system service coverage often means offering routes capable of connecting riders to less popular destinations. This evaluation of route performance in the GREAT study provides the information necessary to strike the

appropriate balance between the needs of riders, operational concerns, and funding restraints to maximize the efficiency and effectiveness of the bus system. GREAT system wide performance measures are shown in **Table 2.14**.

Table 2.14 GREAT FY2012 System wide Performance Measures

Route	Ridership	Rev Hours	Rev Miles	Cost per Route	Pass/Hr	Pass/Mile	Cost/Trip	Farebox Recovery	Subsidy per Pass Trip
Route 1-Blue	65,750	3,817	42,080	$262,952	17.23	1.56	$4.00	14%	$3.43
Route 2 -Red	79,219	3,817	54,211	$262,952	20.75	1.46	$3.32	17%	$2.74
Route 3-Green	113,795	3,742	51,558	$257,655	30.41	2.21	$2.26	27%	$1.66
Route 4-Purple	49,352	3,742	59,719	$257,655	13.19	0.83	$5.22	10%	$4.68
Route 5-Yellow	84,613	3,817	45,871	$262,952	22.17	1.84	$3.11	20%	$2.49
Route 6-Orange	116,915	3,817	54,211	$262,952	30.63	2.16	$2.25	28%	$1.61
System	**509,644**	**22,752**	**307,650**	**$1,567,118**	**22.40**	**1.66**	**$3.07**	**19%**	**$2.48**

Several performance measures were used to rank how well the system is operating from a financial standpoint. These measures were used to analyze individual route performance. This allowed for a ranking of the routes by each of the measures.

- Passengers per Revenue-Hour
- Passengers per Revenue-Mile
- Operating Cost per Passenger Trip

As shown in **Table 2.15** the passengers per revenue hour, system wide average is approximately 22.40. The routes displayed above the bold line, Route 6-Orange and Route 3-Green rank above the system wide average. The second performance measure of passengers per revenue mile, shown in **Table 2.16,** system wide average is approximately 1.66. The table illustrates three routes, Route 3-Green, Route 6-Orange, and Route 5-Yellow ranking above the system wide average score.

Table 2.17 illustrates the cost per passenger trip. GREAT has a system wide average of $3.07 cost per passenger trip. Two routes, Route 6-Orange and Route 3-Green have a lower cost per passenger trip than the average. In addition, the system wide farebox recovery ratio for GREAT is 19 percent as shown in **Table 2.18**. Three routes, Route 6-Orange, Route 3-Green and Route 5-Yellow, have a higher farebox recovery ratio than the system wide average. The subsidy per revenue hour and subsidy per passenger trip were also calculated for GREAT services, as shown in **Table 2.19**. System wide subsidy per revenue hour is $55.46.

Three routes had a lower subsidy than the average – Route 6-Orange, Route 3-Green and Route 5-Yellow. As shown in **Table 2.20**, the average subsidy per passenger trip for the system is $2.48. Two routes, Route 6-Orange and Route 3-Green, had subsidies lower than the average.

Table 2.15 Passengers/Revenue Hour

Route	Pass/Hr	Rank
Route 6 -Orange	30.63	1
Route 3-Green	30.41	2
Route 5-Yellow	22.17	3
Route 2- Red	20.75	4
Route 1-Blue	17.23	5
Route 4 -Purple	13.19	6
System	**22.40**	

Table 2.16 Passengers/Revenue Mile

Route	Pass/Mile	Rank
Route 3-Green	2.21	1
Route 6-Orange	2.16	2
Route 5-Yellow	1.84	3
Route 1-Blue	1.56	4
Route 2-Red	1.46	5
Route 4-Purple	0.83	6
System	**1.66**	

Table 2.17 Cost/Trip

Route	Cost/Trip	Rank
Route 6-Orange	$2.25	1
Route 3-Green	$2.26	2
Route 5-Yellow	$3.11	3
Route 2-Red	$3.32	4
Route 1-Blue	$4.00	5
Route 4-Purple	$5.22	6
System	**$3.07**	

Table 2.18 Farebox Recovery

Route	Farebox Recovery	Rank
Route 6-Orange	28%	1
Route 3-Green	27%	2
Route 5-Yellow	20%	3
Route 2-Red	17%	4
Route 1-Blue	14%	5
Route 4-Purple	10%	6
System	**19%**	

Table 2.19 Subsidy per Revenue Hour

Route	Subsidy/Rev Hour	Rank
Route 6-Orange	$49.35	1
Route 3-Green	$50.48	2
Route 5-Yellow	$55.31	3

Route	Subsidy/Rev Hour	Rank
Route 2-Red	$56.88	4
Route 1-Blue	$59.12	5
Route 4-Purple	$61.68	6
System	**$55.46**	

Table 2.20 Subsidy per Passenger Trip

Route	Subsidy/per Pass Trip	Rank
Route 6-Orange	$1.61	1
Route 3-Green	$1.66	2
Route 5-Yellow	$2.49	3
Route 2-Red	$2.74	4
Route 1-Blue	$3.43	5
Route 4-Purple	$4.68	6
System	**$2.48**	

The above performance measures were used to evaluate each route and develop a composite score based upon system wide averages. Each of these indicators was expressed as a percentage of system average. The scores for each measure were expressed as either greater than 100 percent of system average, at system average, or a percentage below system average. Then, each of the six scores were added and divided by six to calculate a final composite score for each route. The composite score gives the route a ranking, meaning GREAT routes with the highest percentage scores in relation to system average are the best performers and the lower ranking routes are, from a productivity perspective, poorer performing routes. **Table 2.21** provides a sketch of the entire system and helps to define the route network for purposes of the GREAT study. Route 6-Orange and Routes 3-Green have much higher composite scores than average, showing that they are operating at a very efficient rate.

Table 2.21 Composite GREAT System wide Performance Measures

Route	Pass/ Hr	Pass/ Mile	Cost/ Trip	Farebox Revenue	Farebox Recovery	Subsidy/ Rev Hour	Subsidy per Pass Trip	Comp Score	Rank
Route 6 - Orange	30.63	2.16	$2.25	$74,588	28%	$49.35	$1.61	107.72	1
Route 3 - Green	30.41	2.21	$2.26	$68,762	27%	$50.48	$1.66	107.50	2
Route 5 – Yellow	22.17	1.84	$3.11	$51,843	20%	$55.31	$2.49	84.70	3
Route 2 – Red	20.75	1.46	$3.32	$45,840	17%	$56.88	$2.74	77.73	4
Route 1 – Blue	17.23	1.56	$4.00	$37,282	14%	$59.12	$3.43	71.14	5
Route 4 – Purple	13.19	0.83	$5.22	$26,866	10%	$61.68	$4.68	55.30	6
System	**22.40**	**1.66**	**$3.07**	**$305,182**	**19%**	**$55.46**	**$2.48**	**100.00**	

Route Transfers

The onboard surveys included the question of whether passengers transferred to/from another bus for their specific trip. **Approximately 70 percent of all recorded trips did include a transfer.** Route 6-Orange and Route 3-Green essentially run much of the same roadways but in opposite directions. This creates an artificial relationship that led many respondents to state that they "transferred" between Route 6-Orange and Route 3-Green when most likely it was a separate trip in the opposite direction.

Major Hubs, Park-n-Rides, and Transfer Facilities

Identifying major hubs, park-n-rides, and transfer areas is an essential element to consider in future planning efforts that can serve to streamline connectivity between transit routes and offer enhanced connectivity to major passenger origins and destinations. The existing GREAT system does not provide a major transit hub but does provide a downtown Transfer Point serving all six of GREAT's routes. Other major transfer points which provide timed transfers between routes in the GREAT system include:

- The Greenville Mall

- The Hospital
- Pitt Community College

The City of Greenville is looking for potential sites in the downtown area to build the Greenville Transportation Activity Center (GTAC). The proposed GTAC would be central facility where all local and regional transportation services are located. This would include GREAT and ECUSTA buses, PATS vans, Amtrak, Connector buses, Greyhound buses, taxis, airport and/or hotel shuttles and even future rail.

Ridership Activity by Bus Stop

As noted earlier, a ride check survey of the fixed-route system was conducted as part of this study's work effort. Stop level ridership (boardings and alightings) recorded for each route was aggregated to develop a system wide assessment of ridership activity by stop. The survey was conducted on a Tuesday, Wednesday, and Saturday on 100 percent of GREAT's routes. The survey was conducted from 6:25AM to 6:25PM. All of the trips on each route were surveyed.

Boarding and alighting activity was highest on Reade Street near the downtown Transfer Point, and at PCC. Ridership activity at Reade Street accounts for almost 54 percent of total boardings. Other high activity bus stop locations included major shopping, medical, and educational destinations in the area. GREAT has approximately 282 designated bus stops in the City of Greenville. **Table 2.22** presents the top 20 busiest bus stop boarding locations for GREAT fixed-route services. These are the key stop locations that should be given highest consideration for passenger amenities (passenger shelters, benches and sidewalk access).

The majority of these high boarding and alighting stops coincide well with GREAT's identified major transfer points.

Stop level ridership (boardings and alightings) recorded for each route was aggregated to develop a system wide assessment of ridership activity by stop. **Figure 2.13** illustrates system wide ridership activity by stop.

Table 2.22 Top 20 Busiest Bus Stops

	Street Name	Nearest Cross Street	Average Weekday Boardings	Saturday Boardings
1	Reade Street	-	549	76
2	Reedy Branch Rd	PCC	77	2
3	Hooker Road	-	72	27
4	Dr Fulford Road	PCC	71	0
5	10th Street	Verdant Drive	23	13
6	Cotanche Street	Reade Circle	23	0
7	Greenville Boulevard	Frontgate/Kristen Drive	22	20
8	Hooker Road	Sedgefield Drive	20	3
9	Hooker Road	Arlington Boulevard	19	10
10	10th Street	Heath Street	19	6
11	Myrtle Street	Manhattan Avenue	17	12
12	Reade Circle	-	15	6
13	10th Street	-	14	1
14	Hooker Road	-	14	8
15	Stantonsburg Road	-	13	9
16	Dexter Street	-	12	3
17	Greenville Square	Greenville Square	11	0
18	Jackson Avenue	-	11	2
19	Smythewyck Drive	-	11	5
20	Government Circle	Health Drive	11	0

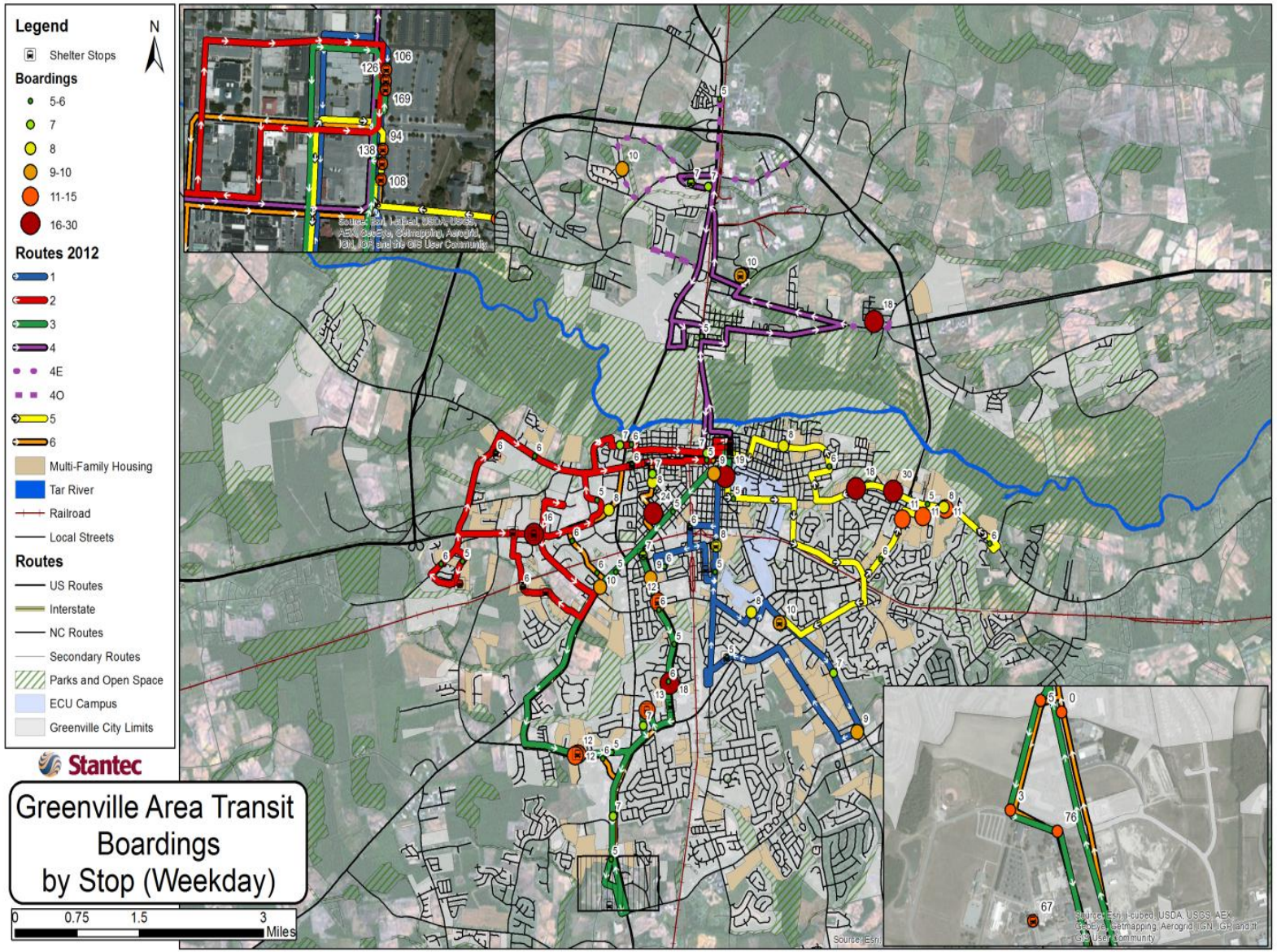


Figure 2.13 System wide Boardings

Key Findings

A series of primary themes have been distilled from the various data analyzed and field observations:

- Service Frequency - The low frequency of GREAT routes reduces the spontaneous use of the system. Service frequencies must be increased and complex route patterns removed to encourage more spontaneous use of the system and also draw potential riders to use transit more regularly.
- Bus Stops – The ride check analysis completed for this GREAT indicates that the highest stop level ridership is occurring at Reade Street Transfer Point, Reedy Branch Road at PCC, and Hooker Road near Wal-Mart, Dr. Fulford Road near PCC, Sam's Club, and on 10th Street and Verdant Drive. These locations should be given highest priority in developing passenger amenity improvements. Other locations that exhibit high boardings and alightings may be considered as well. Bus stop shelter and shade were listed as a service quality concern in the customer survey conducted as part of this study. Although ranked by customers as meeting service quality standards, continued improvements to shelter and other amenities is a priority for improving customer service quality.
- Route Productivity – The ride check analysis completed for this study shows good route productivity on a system wide level, averaging over 22 passenger trips per hour. Routes 6, 3, and 5 perform best. Not surprisingly, these routes also report the most transfer activity. These three top-performing routes carry 62 percent of total system wide ridership.
- The routes with the best operating ratios correspond closely with the highest levels of ridership.

There is much that current GREAT fixed route service is doing right, and future recommendations seek to preserve those elements. Namely, GREAT maintains a weekday system wide average of over 22 passenger trips per revenue-hour, a good value for a key performance indicator. Productivity in some of the key corridors, like Reade Street, and Reedy Branch Road are particularly performing well. But underscoring the myriad of data and analysis are the demographics of GREAT's riders that represent a ridership base that is highly transit dependent. This base is less sensitive to deficiencies in service levels or reliability, especially when it comes to work trips.

Non-riders are not so immune. Many of them have a choice in transportation options, and GREAT simply does not provide service that is direct enough, frequent enough, or close enough to make it competitive, even though most non-riders say they are willing to try transit under the right circumstances. In order to attract new riders to GREAT and increase usage among current riders, GREAT must continue to increase service as revenues become available and maintain its current strengths.

PARATRANSIT SERVICE AGREEMENT BETWEEN GREAT/PATS

History

Pitt Area Transit System (PATS) was developed to be the coordinated transportation system. January, 1989, NCDOT Public Transportation Division recommended that PATS serve as a regional provider for all paratransit service in Pitt County, including the ADA required transportation for the City of Greenville. In the same month, the Pitt County Commissioners and City of Greenville officials drafted a working agreement whereby PATS would deliver demand responsive transportation to all the eligible individuals in Greenville, NC, who could not reasonably use fixed route buses to meet their transportation needs, as required under the prevailing American Disability Act of 1990 as amended. GREAT has a seat on the Pitt County Transportation Advisory Board.

Provisions

The agreement specifies service would be delivered on a curb-to-curb basis during the same days and hours that GREAT operates its fixed route service. Callers requesting other than fixed route bus service/information are redirected to PATS for booking and scheduling. GREAT certifies individuals who are eligible to ride under the ADA paratransit rules. PATS assumed the task of verifying eligibility of the riders either at the time of boarding and providing monthly trip information to GREAT. Financial reconciliation passes both ways via PATS deducting cash fares charged by GREAT from the monthly bill, and reporting the number of trips made using cash and the number of trips made using passes sold by GREAT for this service. GREAT reimburses PATS for the net difference on a monthly basis.

In the agreement, PATS guarantees that they will meet all Federal Transit Administration requirements, as they pertain to provision of GREAT's complementary ADA paratransit service. PATS also agrees to comply with FTA's Drug and Alcohol program, and provide a copy of its Drug and Alcohol Program Policy and copies of annual reports. A Certification of Insurance was to be provided to GREAT annually. PATS and GREAT concurred that any administrative or service issues may be resolved between The PATS Director and the GREAT Transit Manager. This was essentially the extent of the written agreement provisions between PATS and GREAT – simple and long standing with details left up to the two transit directors to iron out. The PATS/GREAT agreement has been continuously renewed every year since 1989 under this simple arrangement.

Eligibility

Conditions for dispatching a curb-to-curb paratransit trip:

- If a person is unable to get on, ride and get off a GREAT fixed route bus as a result of a mental and or physical impairment.
- If a passenger has other impairment related conditions like limited vision, hearing or disorientation, which prevents the individual to get to or from a GREAT bus stop.
- If a passenger trip requires a fully accessible fixed route bus (i.e. low floor with ramp or wheelchair accessible) but no such vehicle is available.

The first two conditions require some sort of assessment to verify the conditions prevent the individual from using fixed route bus. GREAT has developed an application form to help make this determination. The application forms have to be signed by an authorized professional who has first-hand knowledge of the conditions. GREAT staff follows up with a personal visit to assess the "actual functional abilities" of the applicant.

The origin and destination of the trip must be within the ¾ mile buffer on either side of the regular fixed route bus service – this is the service limits specified by the Federal ADA requirements. The curb-to-curb service can be arranged anywhere within the service area but the rider would have to arrange for the transportation that brings them from outside to inside the ADA service area.

MODULE 3

Performance Standards and Measures

Summary: This section provides information regarding the GREAT system's proposed, suggested, and existing performance standards and measures.

Proposed Service Performance Standards and Measures

A transit system like GREAT must be able to respond to constant change, whether there is ridership and operational growth or a decline in service funding. While it is normal to experience fluctuations in ridership and service delivery, data must be available in order to objectively justify any system modifications. This data, commonly referred to as "service performance standards and measures," is essential to understanding and communicating the performance of the system and individual routes.

Effective service performance measures, and accompanying agency-identified service performance standards and goals, ensure that:

- Stakeholders and riders have a clear understanding of what the performance goals for the system, a route, or a 'family' of routes (service types).
- Precise information is collected on the performance of the system and routes which is more informative than just ridership numbers.
- Technical staff is provided with the guidance when evaluating the system or routes.
- Changes to the system or routes utilize objective standards which justify and support the changes.
- Protect the interests of the transit provider from subjective requests for system or route changes that may not have a justifiable reason.

Performance Points of View

Service performance standards and measures are evaluated from many points of view, as customers, the community, and the transit agency may value the various measures in different manners.

Customer

For customers, important service performance standards and measures fall under one of two categories: 1) transit service or 2) comfort and convenience. The availability of transit service and the relative comfort and convenience of the service must satisfy the needs of customers before transit is considered as an option for a given trip.

Transit Service

Transit service is, at its most basic level, the availability (or unavailability) of service and includes the following:

- Spatial availability – Where is service provided? How do customers access the service?

- Temporal availability – What days and hours is the service provided?
- Information availability – Do customers know about the service provided? Do customers know how to use the service provided?
- Capacity availability – Is passenger space available on the service provided?

Comfort and Convenience

Acceptable comfort and convenience levels may differ between customers, and includes the following items (that are fully or partially under the control of the transit agency):

- Service delivery – How well does the agency provide service on a regular basis? Is the agency meeting customer expectations?
- Travel time – How long does a transit trip take? How does this travel time compare to other modes?
- Safety and security – Do passengers feel adequate lighting and bus stop amenities are provided at major bus stop locations? Do passengers feel safe exiting the bus and traveling to their final destination?
- Maintenance – Does the agency have spare buses available to maintain service levels if a transit vehicle breaks down? Are the vehicles clean and free of vandalism?

Community

Service performance standards and measures evaluated by the community may be identified as either 1) benefits or 2) impacts. Most benefits are directly related to accompanying impacts, so it is up to individual communities to identify acceptable trade-offs between the various benefit and impacts.

Benefits

Benefits are typically measured as they relate to the provision of transportation to persons within the community; especially community members without ready access to a private automobile (seniors, persons with disabilities, etc.) include the following:

- Reduction of air pollution
- Travel when an automobile is not available
- Parking congestion mitigation
- Reduction of traffic congestion

- Job accessibility for those who are economically disadvantaged

Impacts

Impacts are typically measured by relation to the negative aspects of providing transportation to persons with the community. Impacts, which may be easier to quantify than benefits, include the following:

- The amount of taxes directly or indirectly paid for transit service
- The visual attractiveness or unattractiveness of public facilities
- Loud noise or diesel fumes from buses
- The perception of waste or inefficiency of bus service
- Empty buses

Agency

Service performance measures evaluated by the agency include those that are important to customers and the community, along with others that identify the success (or lack of success) of the agencies mission—fundamentally to provide transit service and be an asset to customers and the community, and include the following:

- Operational efficacy – Is the agency doing the right thing to meet the demand for transit service?
- Operational efficiency – Is the agency doing things correctly to provide transit service given system constraints (staff, budget, etc)?
- Organizational performance – How well is the service working? What improvements are desirable? What actions should be taken to improve the service?

Suggested Performance Standards and Measures

Based on conversations with customers, community members, key stakeholders, and agency staff, and a review of industry standards and the ability of GREAT to quantifiably measure their performance in these areas in comparison to their transit agency peers, the following service performance standards and measures are recommended for GREAT. These performance standards and measures were chosen with the end goal of providing a safe, efficient, and attractive system that will increase ridership by more efficiently and effectively serving major activity centers and concentrations of residential and employment locations within the City. The standards and measures provide an ability to evaluate how well the agency is performing and tie investment decisions in the GREAT system to improvements in performance that serve passengers and community needs. These improvements to performance will also equate to improvements in cost effectiveness and efficiency in the system, with greater ridership gains, increased farebox recovery potential,

and safer, more streamlined services that both connect people to their destinations in the most cost effective manner possible and encourage use of fixed-route services over more costly provisions of paratransit service for disabled users.

These performance standards and measures represent both national standards for efficiency and effectiveness and evaluation of the system in comparison to GREAT's peer transit agencies. Although performance standards and measures are defined individually in the following sections, it should be understood that these performance standards and measures are interrelated. As such, descriptions have been provided as appropriate within each of these descriptions to indicate how other performance standards and measures listed may be impacted by changes in one specific performance standard or measure.

Benchmarks established represent proposed improvements and recommendations included in this study, and should not be construed as static factors. As transportation, funding, and route demands are dynamic factors, it is recommended that these performance standards and measures and benchmarks be reviewed on an annual basis for any needed updates based on current conditions and national, state, and local trends.

It should be noted that the recommended service performance standards and measures will only be effective if they are:

- Clear and understandable
- Reliable and credible
- Include a variety and number of quantitative and qualitative measures (inter-related)
- Directly linked to agency and community goals
- Developed with customer, community, key stakeholder, and agency staff input

Passenger

Service Coverage – Service coverage is one of the most important factors in evaluating transit service. This performance standard and measure targets how well the transit system serves the community by evaluating the percentage of the community served (service area coverage compared to total City area). The Transit Capacity and Quality Level of Service Manual provides nationally recognized performance measures to evaluate service coverage based a quantifiable A through F rating scale, as shown in **Table 3.1** below.

The existing coverage is 69 percent today, equating to LOS D. It should be noted that given the large service area to be covered, conservation boundaries, and the existing land use densities and distances between major origins and destinations in the City, the GREAT system is currently performing quite well in terms of this standard. The ability to provide service coverage is heavily dependent on land uses that either makes transit easier or more difficult to serve, and therefore establishing a Benchmark of LOS C for the GREAT system

provides a blueprint for the future that can reasonably be accommodated given existing land uses and conservation boundaries.

This service standard may be used by GREAT staff in concert with other measures of land use and capital investment that affect the ability to meet and improve upon this performance target. Some of the land use and capital investment factors that may affect the ability of GREAT to meet or improve this performance benchmark and which should be monitored in reviewing this performance measure include:

- The measure of the population in the City that is located within a quarter-mile of transit. This distance is a general rule of thumb for reasonable walking distance to transit. Sidewalk accessibility also lends to the walkability to transit service, as does lighting availability and general topography and weather conditions.
- Level of connectivity to and from transit routes to bicycle and pedestrian pathways. The Federal Transit Administration has identified that suitable bicycle connections to transit are generally within three to five miles. Other considerations are whether bicycle facilities are provided at major origins and destinations and on buses to support bicycles accessing transit.
- The location of areas within the City that contain densities which are transit supportive. This is generally considered to be three dwelling units per acre. GREAT staff may also consider reviewing net densities in areas of concentrated growth where origins and destinations may be clustered given the land use designations within the City of Greenville.
- Where access to transit by walking or bicycling is not feasible due to land use configurations, collocating of park-n-rides to better serve potential customers. These facilities should be carefully identified and based on existing ridership, population, and areas of heavy congestion where transit may serve to support the existing roadway capacity by providing additional mobility options.

Table 3.1 Service Coverage Target Performance Measures

LOS	% Transit Service Area Covered	Comments
A	90.0-100.0%	Virtually all major origins & destinations served
B	80.0-89.9%	Most major origins & destinations served
C	70.0-79.9%	About ¾ of higher-density areas served
D	60.0-69.9%	About two-thirds of higher-density areas served
E	50.0-59.9%	At least ½ of the higher-density areas served
F	<50.0%	Less than ½ of higher-density areas served

Source: *Transit Capacity and Quality of Service Manual, 2nd Edition.*

Existing GREAT Service and Proposed Benchmarks	
GREAT Service Area	18.03 square miles
City of Greenville	26.3 square miles
Existing Coverage	**69% of total square miles**
	LOS D
BENCHMARK	**LOS C (70.0-79.9%)**

Service Frequency – How often service is offered and the wait time for passengers is also one of the most important factors determining whether someone will use transit service and has a direct effect on ridership and the economic vitality of the City since the GREAT system is largely responsible for providing service to passengers that use it for access to their jobs. Targets for service headways are also provided in the Transit Capacity and Quality Level of Service Manual and provide quantifiable measures of how well the GREAT system is performing.

Currently, GREAT operates at headway of 60 minutes, or LOS E. Reaching a system wide average of 21 to 30 minutes (LOS D) is a long term performance goal and an increase in operating revenues will be the primary impetus for this performance standard to be met. More realistically, making incremental improvements to service headways as funding becomes available, particularly prioritizing high performing routes with higher ridership demands will be the most reasonable path for justifying these improvements in service over time. **Table 3.2** below provides further information on these national standards.

Table 3.2 Service Frequency Target Performance Measures

LOS	Avg. Headway (min)	veh/h	Comments
A	<10	>6	Passengers do not need schedules
B	10-14	5-6	Frequent service, passengers consult schedules
C	15-20	3-4	Maximum desirable time to wait if bus/train missed
D	21-30	2	Service begins to be attractive to choice riders
E	31-60	1	Service attractive to transit dependent riders
F	>60	<1	Service unattractive to all riders

Source: *Transit Capacity and Quality of Service Manual, 2nd Edition.*

Route	Peak Headway	Existing	Goal
Route 1 –Blue	60 minute	60	30

Route	Peak Headway	Existing	Goal
Route 2 – Red	60 minute	60	30
Route 3 –Green	60 minute	60	30
Route 4- Purple	60 minute	60	30
Route 5 – Yellow	60 minute	60	30
Route 6 – Orange	60 minute	60	30

There are no objective national measures available that will provide a defined measure of ridership gains that can be expected from improving frequency. This is because each transit system has unique economic and demographic factors shaping the community profile, and as such, different levels of transportation demands. That being said, one of the ways in which GREAT can monitor how effective increasing frequencies is on their routes is to closely monitor how the changes in service frequency impact agency productivity performance measures (discussed later in this section) such as passenger trips per mile and passenger trips per hour and cost efficiency and effectiveness targets. This comparative measure will allow GREAT to not only review increases in ridership gained from frequency increases, but also how these ridership gains are impacting service effectiveness and cost efficiency. When route frequencies are enhanced along routes where there is greater potential for serving a number of major activity generators and concentrated residential communities, the greatest increases in service productivity and cost efficiency are expected as a result of the increases frequency.

In addition, to justify increases in service frequency there should be a correlation between the proposed improvement and ridership demand thresholds. Reviewing service frequency enhancements in relation to ridership demands and benchmarks (discussed later in this section) on a periodic basis (quarterly) can help establish baselines for making such recommendations. Additional justification for improvements to service frequency may also involve periodic driver questionnaires or on-board surveys that help substantiate whether the needed improvement on high performing routes is increased frequency or increased service spans (times of day and hours of day the service runs).

Service Span – The service span measures the number of hours in the day that a service is offered and directly relates to meeting passenger demands and how likely it is that someone will use the service. Enhancing frequency and span of service share the benefit of providing system flexibility and promote use of the transit system. The more choices customers have in selecting travel times at times of day that they need, the greater the potential for utilizing the transit service as a viable alternative transportation mode.

The Transit Service and Quality Level of Service Manual provide LOS performance standards for span of service. Currently, the GREAT system wide average is a LOS D, or averaging a span of service of 12.58 hours per day. Proposed benchmarks are shown in **Table 3.3**. Incremental improvements prioritizing span of service enhancements to the top performing routes are recommended as funding becomes available and as service is determined to be warranted by ridership, on-board surveys, and other service evaluation justifications.

Table 3.3 Service Span Target Performance Measurements

LOS	Hours of Service	Comments
A	19-24	Night or "owl" service provided
B	17-18	Late evening service provided
C	14-16	Early evening service provided
D	12-13	Daytime service provided
E	4-11	Peak hour service only or limited midday service
F	0-3	Very limited or no service

Source: *Transit Capacity and Quality of Service Manual, 2nd Edition.*

Route	Schedule	Existing Daily Hrs	Existing LOS	LOS Benchmark
Route 1 –Blue	6:25a-7:00p	12.58	D	C
Route 2 – Red	6:25a-7:00p	12.58	D	C
Route 3 –Green	6:25a-7:00p	12.58	D	C
Route 4- Purple	6:25a-7:00p	12.58	D	C
Route 5 – Yellow	6:25a-7:00p	12.58	D	C
Route 6 – Orange	6:25a-7:00p	12.58	D	C

Stop Accessibility – This measure is a qualitative assessment of Americans with Disabilities Act (ADA) compliance and modal access to stops (bicycle, pedestrian, and automobile). Increasing stop accessibility may better serve existing riders in providing a safe and accessible system. It may also help to convert more costly paratransit trips to more cost effective fixed route services. The GREAT system currently has 283 bus stops within the system. An assessment of ADA accessibility is needed to identify existing and benchmark targets for accessibility and should be a priority to better monitor service provision and provide safe and accessible stops in the City. Once established, benchmarks for this performance standard may be set to improve stop accessibility over time.

Although no national standards are provided for stop accessibility, a similar LOS standard to other measures within the Transit Capacity and Quality Level of Service Manual are provided in **Table 3.4** and can serve to frame existing coverage and any proposed improvements that are needed to enhance how well GREAT is meeting stop accessibility grades.

Table 3.4 Stop Accessibility Target Performance Measures

LOS	% Accessible Bus Stops	Comments
A	90.0-100.0%	Virtually all bus stops are accessible
B	80.0-89.9%	Most bus stops are accessible
C	70.0-79.9%	About ¾ of bus stops are accessible

LOS	% Accessible Bus Stops	Comments
D	60.0-69.9%	About two-thirds of bus stops are accessible
E	50.0-59.9%	At least ½ of the bus stops are accessible
F	<50.0%	Less than ½ of bus stops are accessible

Note: Based on and consistent with other similar performance targets listed in the Transit *Capacity and Quality of Service Manual, 2nd Edition.*

Customer Satisfaction – Customer satisfaction can be measured through a variety of indicators, and is typically measured through on-board survey instruments. For the purposes of this study, passengers were provided an on-board survey and asked to rate the quality of service provided by GREAT. The response categories included very poor (1), poor (2), fair (3), good (4), and very good (5). Each category was given a numerical value from one to five, and the average response was then calculated for each attribute. An average score of 3.0 or higher would indicate meeting or exceeding service quality perceptions for that particular attribute. The base year findings conducted for this study may be used to compare with future customer satisfaction survey responses. This information may also be used to identify service quality improvements that can help achieve this performance measure. As such, a benchmark of 4.0 or greater has been set for maintaining and enhancing service quality in the future. As shown in **Table 3.5**, the existing survey data, improvements warranted to meet these benchmarks could include improvements to bus speed/frequency and stop amenities.

Table 3.5 Customer Satisfaction Target Performance Measures

	Customer Satisfaction - Onboard Survey Questions	2012 Avg Score	Target
1	How often the buses run on this schedule	4.0	**>=4.0**
2	How courteous was the bus driver during your trip	4.5	**>=4.0**
3	How directly does this route go to your destination	4.1	**>=4.0**
4	How is the length of time your trip takes	3.8	**>=4.0**
5	How on-time is this bus running today	4.2	**>=4.0**
6	How safe did you feel today while waiting for your bus	4.3	**>=4.0**
7	How was the shade or shelter where you waited	3.4	**>=4.0**
8	How clean was this bus today	4.3	**>=4.0**
9	Your overall satisfaction with GREAT	4.2	**>=4.0**

Community

Activity Generators – Providing transit services within an acceptable walking distance of major activity generators within the Community is an important measure of how well the service is meeting community service needs. These activity generators include major retail centers, hospitals as well as colleges and universities. The Transit Capacity and Quality Level of Service standards for service coverage apply to these more specific points of location as well and are used to evaluate service access in the community to these important destinations and establish benchmarks for performance. **Table 3.6** provides LOS rankings for reaching these major destinations and existing and established benchmarks for performance. Existing access to these destinations was determined using geographic information systems (GIS) data to identify whether bus stops are located within a quarter-mile radius of major destinations. This radius is a national standard rule of thumb for acceptable walking distances to transit, entailing an approximate distance equal to a five minute walk.

It should be noted that in some cases, reaching all major destinations is not possible. Reasons for this may include increased costs for establishing new or extended services and land uses that do not currently support enhanced transit services due to distances between major points of interest or lack of sufficient ridership gains to support costs of service enhancements. As this performance is monitored, it is recommended that as specific locations are identified that are not served by transit stops, GREAT staff review and outline the reasons that services have not been established in these areas. When activity center locations are identified which do meet transit supportive land use densities and which are currently not served, GREAT staff should develop cost estimates for extending service to these locations. As updates to the study occur, GREAT staff may also consider modifying ridership surveys to include important destinations where the need for extensions of service can be further justified. This will help GREAT staff to identify existing rider priorities for extensions of service and help monitor newly arising activity generators for proactive planning of the transit system. Other activity generators not included at this time, such as serving regional parks, may be considered as future updates to performance measures are made. The addition of these measures will need to be reviewed by GREAT staff to identify priority parks to be served based on local knowledge and community desires. The desirability of this service should be reviewed with representatives for communities within the City and with consideration to future marketing plans for the GREAT service.

Table 3.6: Thresholds and Benchmarks for Activity Generator Proximity

LOS	% Bus Stops Accessible (.25 Miles)	Comments
A	90.0-100.0%	Virtually all major origins & destinations served
B	80.0-89.9%	Most major origins & destinations served
C	70.0-79.9%	About ¾ of higher-density areas served

LOS	% Bus Stops Accessible (.25 Miles)	Comments
D	60.0-69.9%	About two-thirds of higher-density areas served
E	50.0-59.9%	At least ½ of the higher-density areas served
F	<50.0%	Less than ½ of higher-density areas served

Activity Generator	Total City	Stops Total Within .25 Mile	% Stop Coverage	Existing LOS	Benchmark LOS
Major Retail	11	11	100%	A	A
Hotels	17	17	100%	A	A
Major Hospitals	2	2	100%	A	A
Major Libraries	6	6	100%	A	A
Colleges/Universities	3	3	100%	A	A

Comments regarding the existing coverage noted above include:

- **Major Retail:** All major retail centers contain a stop within a quarter mile of existing transit service.
- **Major Hotels:** All major hotels contain a stop within a quarter mile of existing transit service.
- **Major Hospitals:** All major hospitals contain a stop within a quarter mile of existing transit service.
- **Major Libraries:** Library coverage was determined using the most recent City of Greenville GIS data on libraries in the City.
- **Colleges/Universities:** These include East Carolina University (ECU) Miller Motte College, and Pitt Community College (PCC), which are all inside of the existing GREAT service.

Agency

Ridership – Ridership is one of the most common performance measures used across the nation at multiple levels -- transit agencies, state DOTs, local and City governments, MPOs, etc. Ridership refers to the number of passenger trips provided by a particular agency. No national standards exist for ridership due to the subjective nature of what type of service is provided, along with how much service is provided based upon available revenues. As such, the accepted transit practice standard for reviewing this measure is to compare ridership to historical trends and to review against peer transit agencies and averages. Peer transit agencies for GREAT identify systems with enough similar performance characteristics to warrant useful comparisons. **Table 3.7** provides peer transit agency information from the 2011 National Transit Database (NTD). Peer averages indicate that an appropriate short term benchmark for ridership is approximately 369,393 passenger trips, which GREAT exceeds.

In addition to ridership, the service area population was used as a secondary factor to develop an understanding of passenger trips provided. The City of Greenville is slightly below the average service area population, but well above the peer average for passenger trips per service area population which is a great measure of the systems performance.

Table 3.7 Ridership Target Performance Measures

Peer Counties	Ridership	Service Area Population	Passenger Trips per Service Area Population
City of Danville Mass Transit System	240,031	48,411	5.0
City of Dubuque	337,714	58,000	5.8
Ohio Valley Regional Transportation Authority	400,453	61,725	6.5
Greenville Area Transit	**454,432**	**84,554**	**5.4**
City of Concord	384,317	214,881	1.8
Metropolitan Transit Authority of Black Hawk County	456,938	107,666	4.2
Michiana Area Council of Governments	311,864	142,692	2.2
PEER AVERAGE/BENCHMARK	**369,393**	**102,561**	**3.6**

Source: *2011 NTD data.*

Productivity – The productivity performance measure focuses primarily on internal utilization of resources and related efficiency. The following vehicle utilization measures are used for the City of Greenville:

- Passenger trips per revenue vehicle hour, and
- Passenger trips per revenue vehicle mile.

These measures are commonly used across the nation as a basis to understand how productive the transit agency routes and system are working. The accepted transit practice standard for reviewing this measure is to compare the system-wide performance measures against peer transit agencies and averages. **Table 3.8** provides peer transit agency information from the 2011 NTD. Peer averages indicate that an appropriate short term benchmark for evaluating cost efficiency is 27.75 passengers per hour and 0.78 passengers per revenue mile.

Table 3.8 Productivity Target Performance Measures

Peer Counties	Passengers per Rev Hour	Passengers per Rev Mile
City of Danville Mass Transit System	13.66	0.87
City of Dubuque	13.92	1.08
Ohio Valley Regional Transportation Authority	7.23	0.57
Greenville Area Transit	**27.75**	**2.03**
City of Concord	12.28	0.67
Metropolitan Transit Authority of Black Hawk County	12.36	0.81
Michiana Area Council of Governments	8.31	0.48
PEER AVERAGE/BENCHMARK	**11.79**	**0.78**

Source: *2011 NTD data.*

Individual route targets were set for the GREAT routes, based upon the existing GREAT averages and rules of thumb used by transportation professionals across the nation for transit agencies. It is a generally held rule of thumb that a productivity measure over 10 passengers per hour is an approximate threshold for running fixed-route service. **Table 3.9** provides passenger per hour and passenger per mile for GREAT fixed-route services. All six GREAT routes are above the threshold.

Table 3.9 Productivity Target Performance Measures

Route	Pass/Hr	Rank
Route 6 -Orange	30.63	1
Route 3 -Green	30.41	2
Route 5 –Yellow	22.17	3
Route 2 – Red	20.75	4
Route 1 – Blue	17.23	5
Route 4 –Purple	13.19	6
System	**22.40**	

Source: *FY2012 GREAT data.*

Route	Pass/Mile	Rank
Route 3 -Green	2.21	1
Route 6 - Orange	2.16	2
Route 5 –Yellow	1.84	3
Route 1 – Blue	1.56	4
Route 2 – Red	1.46	5
Route 4 –Purple	0.83	6
System	**1.66**	

Source: *FY2012 GREAT data.*

Cost Efficiency – Cost efficiencies refer to costs per unit of service and is often measured in terms of cost per revenue hour and cost per revenue mile. No national standards exist that would identify optimal ratios for these measures since cost widely varies based on service areas covered and variations in service provider costs. As such, the accepted transit practice standard for reviewing this measure is to compare these performance measures against peer transit agencies and averages. Peer transit agencies are defined in the City's study and are updated periodically to identify systems with enough similar performance characteristics to warrant useful comparisons. **Table 3.10** provides peer transit agency information from the 2011 NTD. Peer averages indicate that an appropriate short term benchmark for evaluating cost efficiency is $73.76 per revenue hour and $4.91 per revenue mile.

Since this 2011 NTD was released, GREAT has effectively reduced their costs per revenue hour from $83.62 reported for 2011 to $68.88 according to the most recent financial data collected. In addition, system wide averages for cost per revenue mile have also decreased since the 2011 data was reported, from $6.10 in 2011 to $5.09 currently. This indicates strong cost efficiency for the GREAT in terms of peers and the peer average and should be monitored as natural increases in pricing occur or as these costs no longer meet or exceed the peer average.

The table below also provides similar existing performance measures by route. As evidenced in the table, the cost per revenue hour remains stable at $83.62. There are two factors affecting the total cost per revenue mile for GREAT. The first is the number of revenue hours operated, which determines total costs per route. The second factor is revenue miles, which relates to the length of the route. Monitoring these measures therefore requires a balancing of meeting community transit needs and the costs of providing those services. Increases in services will increase costs and this is the very reason that peer group averages provide useful information in determining how much cost is determined to be too much for improving transit service in a community. However, if investments are made with attention to making shorter, more efficient trips by creating greater system connectivity (e.g. hubs, park-n-rides, enhanced route integration), greater cost efficiency may be realized.

Table 3.10 Cost Efficiency Target Performance Measures

Peer Counties	Cost/Rev Hr	Cost/Rev Mi
City of Danville Mass Transit System	$55.54	$3.55
City of Dubuque	$73.20	$5.67
Ohio Valley Regional Transportation Authority	$71.28	$5.65
Greenville Area Transit	**$83.62**	**$6.10**
City of Concord	$80.94	$4.43
Metropolitan Transit Authority of Black Hawk County	$79.98	$5.24
Michiana Area Council of Governments	$69.88	$4.05
PEER AVERAGE/BENCHMARK	**$73.76**	**$4.91**

Source: *2011 NTD data.*

Route	Ridership	Rev Hours	Rev Miles	Cost Per Route	Cost/ Hr	Cost/Rev Mi
Route 1 – Blue	65,750	3,817	42,080	$262,952	$68.89	$6.25
Route 2 – Red	79,219	3,817	54,211	$262,952	$68.89	$4.85
Route 3 -Green	113,795	3,742	51,558	$257,655	$68.85	$5.00
Route 4 –Purple	49,352	3,742	59,719	$257,655	$68.85	$4.31
Route 5 –Yellow	84,613	3,817	45,871	$262,952	$68.89	$5.73
Route 6 -Orange	116,915	3,817	54,211	$262,952	$68.89	$4.85
System Totals	**509,644**	**22,752**	**307,650**	**$1,567,118**	**$68.88**	**$5.09**

Source: *FY2012 GREAT data.*

Cost Effectiveness – Cost effectiveness measures provide a measure of how well a system is performing given operational costs. This is largely related to two factors: costs per route and ridership. Again, these measures are relative to the areas served and types of service provided, and as such peer comparisons are used to identify how well the GREAT system as a whole is performing in comparison to like systems. In relationship to its peers, GREAT is

exceeding the peer average benchmark of $6.26 currently providing a rate of $3.07 cost/trip (as shown in **Table 2.11**). Costs per trip by route are also provided here for additional detailed data on the GREAT system. Because these variations are largely related to the route specific services offered, no benchmarks are made by route.

As with cost efficiency measures, this measure has two dynamic variables that must be considered in evaluating performance. Enhancements to service will require additional operational costs; however, are also expected to increase ridership. The question to be answered in considering how to improve performance for this measure will therefore require a balancing between how much ridership is anticipated to be gained from improvements to services versus the additional costs anticipated for the improvement.

Table 3.11 Cost Effectiveness Target Performance Measures

Peer Counties	**Cost/Trip**
City of Danville Mass Transit System	$4.07
City of Dubuque	$5.26
Ohio Valley Regional Transportation Authority	$9.86
Greenville Area Transit	**$3.07**
City of Concord	$6.59
Metropolitan Transit Authority of Black Hawk County	$6.47
Michiana Area Council of Governments	$8.41
PEER AVERAGE/BENCHMARK	**$6.26**

Source: *2011 NTD data.*

Route	**Ridership**	**Cost per Route**	**Cost/Trip**
Route 1 – Blue	65,750	$262,952	$4.00
Route 2 – Red	79,219	$262,952	$3.32
Route 3 -Green	113,795	$257,655	$2.26
Route 4 –Purple	49,352	$257,655	$5.22
Route 5 –Yellow	84,613	$262,952	$3.11
Route 6 -Orange	116,915	$262,952	$2.25
System	**509,644**	**$1,567,118**	**$3.07**

Source: *FY2012 GREAT data.*

Summary of Proposed Performance Standards and Measures

Overall, using the proposed service performance standards and measures included in Section 1.1.2 above, the GREAT system is performing reasonably well. The GREAT service currently covers 69% of the total square miles in the City. According to national performance standards, this equates to a LOS D. Given the distances between specific locations within the City where service is not currently provided, this performance is considered to be meeting its target. The benchmark set for service coverage in the City is therefore set at LOS C, or coverage between 70.0% - 79.9% of the City. This target may be monitored to determine whether transit supportive densities exist, to identify rapidly growing areas emerging in the City, to review land use configurations and capital investments that may be needed to better serve the covered areas, and as funding allows for service improvements to extend coverage.

Service frequency and span of service (or times of day) when transit service are offered also impacts how effective the service is in attracting riders. The major recommendation is to prioritize improving service frequency from 60 to 30 minutes in the long term. The average headway (frequency) for the system overall is 60 minutes, a LOS E, and targets to improve service include a long term goal of improving this service performance to LOS D, or less than 60 minutes. This will depend upon available funding and demands for service, and can best be achieved through incremental upgrades to service frequency on the best performing routes in the GREAT system. Span of service for the system is currently averaging 12.58 hours per day, or LOS D, and may also be reviewed periodically to determine ways to improve this performance measure incrementally on high performing routes. Achieving a benchmark of 14 hours of service per day for the system as a whole (LOS C) is a long term goal for the GREAT system, and was determined based on LOS and FTA criteria for service spans that can help GREAT obtain additional funding into the future to improve services.

Stop accessibility, measured in terms of ADA compliance, ensures a more efficient fixed route service and can serve to attract riders from more costly paratransit services to the GREAT system. GREAT should develop a work program to identify bus stop accessibility to the over 283 bus stops in the GREAT system. As the existing stop accessibility is determined, GREAT staff can establish acceptable benchmarks for any improvements needed to existing bus stops in terms of amenities, shelters, and other capital improvements needed such as sidewalks. Establishing priorities for improvements to this performance measure can also help improve customer satisfaction measures that are measured as part of periodic on-board surveys.

Customer satisfaction with the service, mentioned earlier, is measured through regular on-board surveys. At this time, GREAT service is meeting or exceeding customer perceptions of service (measured as a 3.0 or better). Future benchmarks have established a performance target of 4.0 or better (customers perceptions averaging as “good” or “very good”) to improve customer perception of the GREAT system. Based on existing data, greatest gains in this measure may be achieved through enhanced bus shelter amenities (shade and shelter), and improving on-time performance and service frequencies.

Ensuring that the GREAT system services major activity generators in the City is an important measure of meeting community needs for the service. This includes reviewing accessibility to bus stops within a quarter mile to attractors such as major retail centers, hotels, hospitals, libraries, and colleges. In most cases, GREAT services are offered at over 90 percent of these identified locations (LOS A). It is recommended that this performance be reviewed in coordination with future marketing plans and economic and land use plans in the City that will impact decisions on where service enhancements are needed in the future.

Agency performance measures review how well the GREAT organization, including agency staff and the contractor are performing and are based on a number of measures: vehicle reliability, ridership, system productivity, and cost effectiveness and efficiency. Peer comparisons are used to identify how well the agency is performing compared with like transit agencies and because transit system sizes and services vary tremendously across the nation. In terms of vehicle reliability, GREAT is exceeding their peer average benchmark, reflecting the good condition of the GREAT vehicles and maintenance performed on those vehicles. Continuing maintenance programs and schedules for replacements of buses is recommended to maintain this good performance.

With regard to ridership performance, GREAT is performing slighting below average in terms of the average service area population that is being served and below average on the number of passenger trips per service area population. This is likely the result of current headways for all of the GREAT routes being at 60 minutes. Also, the GREAT's service population is significantly lower than several of the peer systems which may cause have higher ridership due to serving a greater service population. As revenues become available, GREAT should continue to decrease existing headways, which will result in additional ridership gains.

How well GREAT utilizing its existing resources, through measures of passenger trips per revenue hour and revenue mile, help identify how productive the existing system is performing. Peer averages for these measures indicate that passengers served per revenue mile is meeting the peer average benchmark, while the passengers served per revenue mile are slighting below peer averages. This is likely due to the distances traveled between destinations in the City and existing land uses. Streamlining services to enhance connectivity between routes and developing more localized hubs in growing areas of the City may provide ways of maximizing this performance measure over time. Route modification recommendations in this report are consistent with this point of view and have re-routed routes as appropriate to help address this performance measure and increase overall route productivity.

Other factors that may be considered in future evaluations of GREAT's performance are Vehicle Reliability (the number of vehicle system failures), and on-time performance (how often the service is late).

Finally, cost effectiveness and cost efficiency measures have been established to monitor how well the GREAT system is performing in comparison to its peer transit agencies and to establish targets for improvements. Average peer comparisons for costs per revenue hour indicate that $73.76 per revenue hour is a reasonable benchmark for the GREAT system.

GREAT has improved on this performance over time to now to operate at $68.88 per revenue hour, above the peer average standard. In terms of cost per revenue mile, GREAT is on track with the peer benchmark of $4.91 per revenue mile, currently operating at $5.09 per revenue mile. In terms of cost effectiveness, GREAT's average cost per trip for the system is $3.07, significantly better the peer average of $6.26.

MODULE 4

Needs Assessment

Summary: This section provides information regarding the peer analysis of the GREAT system and the on-board survey analysis.

Peer Analysis

A standard peer analysis was conducted using the raw data from the 2011 National Transit database annual reports. While NTD reports are not perfect, the administration of the organization goes to great lengths to generate standardized data, specifically to ascertain a global picture of service delivery generated by the Federal Transit Administration subsidy of the public transit industry. This standardized information also allows the participating systems to compare their transit system performance against other transit systems. For the Greenville Area Transit comparison the prime indicators used were:

1) Annual budget between $1 - $6 million (GREAT 2011 O&M budget was $1,369,407),
2) Similar area of coverage and population density,
    a. Average population of peers = 105,400, GREAT = 84,554
    b. Average population density of peers = 2,416, GREAT= 2,097
3) Number of vehicles in the fleet range from 9 to 21,
4) Annual passenger trips
    a. Average passenger trips of peers = 683,201
    b. Average passenger trips of GREAT = 379,021

Like many of the smaller transit systems in North Carolina, GREAT filed for a NTD reporting exemption, so the full set of comparative data is not readily available. Therefore the Consultant utilized the data from the NCDOT annual Operating Statistics Report of 2011 and data collected from the Transit Manager during the site visit of April 17, 2013.

Some interesting notes on how small the transit service was compared to the peer systems - the GREAT fleet of nine vehicles is small for a City of 84,554 people and provides the least number of revenue hours out of the dozen peer agencies. The GREAT operating and maintenance budget of $1.37 million is also the lowest in the peer group. Some key takeaways are presented below.

Danville (VA) Transit serves population of 48,500 with same equipment as GREAT (84,500).

GREAT has a healthy 19% ratio of cost recovery coming from fare collection box, which is third highest in the peer group.

Two forms of peer analysis were shared with the steering committee at the 4/22/2013 Steering Committee meeting. The source of the second peer analysis was a comparative tool called "College Prowler", which allowed a comparison of Greenville with other college towns.

Table 4.1 Cost Effectiveness Target Performance Measures

Company Name	Location	ST	Mode Code	Service Type	admin FTEs	Avg Fare	FareRecov	maint/FTEs	maint/ops	maint/RevMI	ops/ FTEs	ops/PAXmi	ops/PAX	ops/RevHr
Greenville Area Transit	Greenville	NC	MB	DO			19.1%						$2.38	$55.14
High Point Transit	High Point	NC	MB	DO		0.55	18.7%		$0.00	0			$2.94	$74.00
Asheville Transit System	Asheville	NC	MB	DP	3.74	0.60	18.3%	9.73	$19.89	1.19	52.21	1	$3.29	$79.41
Fayetteville Area System of Transit	Fayetteville	NC	MB	DP	4.83	0.60	18.1%	8.35	$20.53	1.13	48.72	1.07	$3.35	$64.38
City of Danville Mass Transit System	**Danville**	**VA**	MB	**DO**	**0.41**	**0.85**	**23.6%**	**1.04**	**$12.82**	**0.4**	**10.9**	**0.75**	$3.60	$49.23
Davenport Public Transit	Davenport	IA	MB	DP	0.00	0.33	8.3%	5.79	$18.33	1.21	30.48	0.97	$3.98	$89.58
Coast Transit Authority	Gulfport	MS	MB	DO	7.62	0.86	16.6%	7.79	$22.11	0.86	50.67	0.73	$5.20	$59.15
City of Dubuque	Dubuque	IA	MB	DO		0.34	6.4%		$0.00	0			$5.26	$73.20
Metropolitan Transit Authority of Black Hawk County	Waterloo	IA	MB	DO	2.00	1.07	19.4%	3.05	$17.50	0.78	20.48	5.37	$5.51	$68.07
Michiana Area Council of Governments	South Bend	IN	MB	DO		0.77	13.6%		$49.20	1.34		0.85	$5.64	$46.83
City of Concord	Concord	NC	MB	DO		0.49	7.4%		$0.00	0			$6.59	$80.94
Ohio Valley Regional Transportation Authority	Wheeling	WV	MB	DO	4.13	0.99	12.1%	7.23	$20.83	0.97	26.82	3.02	$8.16	$58.99

SOURCE: National Transit Database – FTIS Format, plus Greenville Transit Monthly Report

Because East Carolina University is of such importance to the economy of the City of Greenville, another town peer analysis on College Towns with similar characteristics to Greenville/ECU was performed. A search engine called "College Prowler" was used to create this analysis. While this is not a statistically sound database, based on the fact that it is populated with students' self-evaluations (voluntary submissions), it has hundreds of thousands of inputs from more than 1,500 institutions of secondary education on how students rate various criteria. Among these are the perception of safety on campus and in town, attitudes about availability of shopping, perception of parking availability, and even a grade for variety of off-campus dining.

CAMPUS PROWLER Setting:	Iowa State Small city Iowa City IA	ECU Small city Greenville NC	W.Georgia Town Carrollton GA	Marshall Small city Huntington VA	Ole Miss Rural Oxford MS
city population	68,947	86,017	24,388	49,138	18,916
Full-Time Undergrads	17,476	21,459	8,131	9,693	13,204
Male Undergrads	48%	42%	40%	44%	47%
Out-of-State Tuition	$22,198	$15,311	$15,226	$12,996	$13,050
Room & Board	$8,750	$8,220	$7,168	$8,458	$6,550
P/T student rank	191	111	277	253	367
parking leniency rank	820	1,199	1,268	1,169	1,269
"go green" rank	236	464	1,258	996	n/a
campus safety rank	1,235	1,265	1,251	1,122	67
safest town rank	705	1,249	1,204	1,161	52
shopping centers rank	263	1,097	1,234	479	712
friendly townies rank	44	603	633	905	87
affordable town rank	514	68	483	575	173
exciting nightlife rank	17	95	753	251	89
cultural attractions	263	1,169	1,297	1,100	188
off-campus food price	658	72	114	377	517
off campus food types	79	373	1,184	320	205
off campus housing	334	42	80	565	84
off campus parking	1,276	1,201	102	1,065	282
on campus parking	1,284	1,068	1,231	760	1,264
park permit cost	1,236	1,216	92	791	965
best campus transit	47	55	56	930	195
TRANSPORT	A	B	B	C+	A
PARKING	C-	C	B	B	C+

Of those schools that were the same size as ECU, perception of safety on campus and in town ranked low. If students are concerned about on-campus safety, they may also be reluctant to use the City Bus.

- Greenville was considered one of the most affordable towns for off-campus housing (68 out of 1,500).
- The availability of shopping ranked lower for ECU students than any of the other 4 campuses.
- The variety of off campus dining ranked high in Greenville.

All three of these observations appear to be market opportunities for GREAT. On- as well as off-campus parking was limited in Greenville, creating a positive atmosphere for using transit. ECU Transit was given a solid "B" for access to transit.

The peer analysis conclusions will be incorporated into the performance report card.

Ridership Survey

The Greenville Area Transit (GREAT) contains 6 routes that fan out across the city, including two routes (the #6 and #3) that take transit users to the edge of the Town of Winterville, while serving Pitt Community College (PCC) (NOTE: mileage traveled outside the city limits was arranged under a special contract agreement). P.C.C. is currently one of GREATs primary destinations. The addition of the P.C.C. campus destination and the fact that the Greenville area has grown 3.1% between April 2010 and July 2012[1] produced an average of 1,709 passenger trips per day for GREAT in 2012. After accounting for round trips and multiple destinations, the 1,709 passenger trips per day might equate to roughly 800 unique individual riders. The survey conducted in late April of 2013 will show these riders to be highly dependent on the GREAT fixed route transit system.

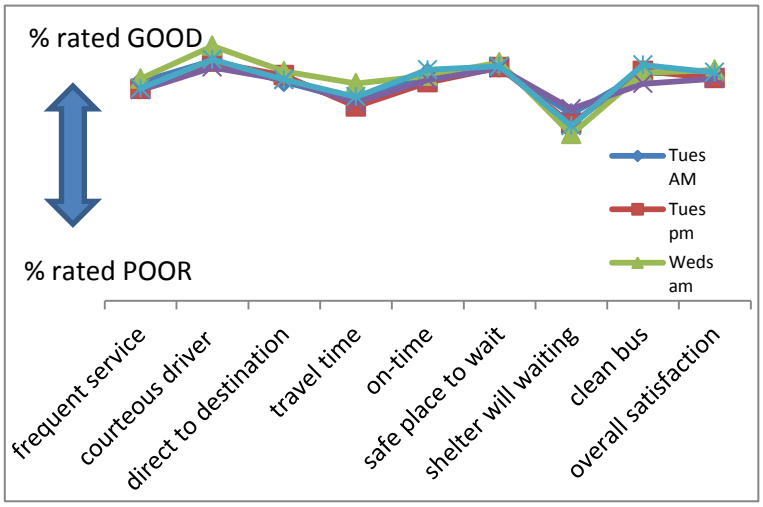


Figure 4.1: Average daily trips by route derived from GREAT fare collection data summary 2012.

Survey Response

With the assistance of the East Carolina University Transit Director, who assembled a team of surveyors, the consultant was able to administer the survey before the P.C.C. Spring 2013 college session ended. Surveys were handed to transit riders to observe trends among users, assemble a profile of the riders, capture a future vision, and measure satisfaction among the sample population.

Riders were surveyed on a series of questions to determine when, why, how, and where the riders use GREAT Transit. Surveys were distributed to rider's en route and 553 completed surveys were collected. As the survey was being collected on two weekdays and one Saturday, we observed that those who filled out the survey once did not bother to fill out the survey a second time, therefore we feel confident that the survey results represent more than 33% of the actual GREAT rider population (287 Tuesday, 101 Wednesday and 165 on Saturday compared with an estimated 800 unique daily riders).

Regular Ridership

These regular riders are living where they can walk (90%), ride bicycles (2%) or even wheelchairs (1%) to and from the bus stops, while a few riders need to be dropped off or picked up by their friends and family with cars (6%) to complete their trip. These 800 or so regular riders use the system more than 4 days a week (70%).

A full 42% of the respondents reported that they have been using the transit system for more than five years and with the group that has used transit for two to five years - a full 77% of the ridership can be considered semi-permanent users.

CARS ARE NOT AN OPTION

- 9% of the respondents said that they did not drive, 13% had no valid driver license,
- 25% said they had no car available for "this trip" and another 20% said that they did not own cars.

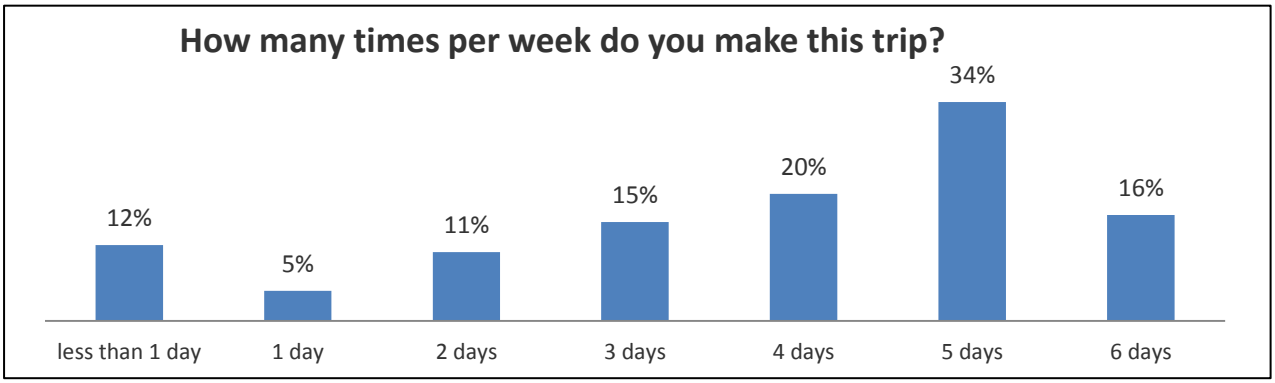


Figure 4.2: High frequency of transit use

Meeting riders where they live.

According to the survey results the zip codes users live in are: 27828, 27834, 27858, and 28590. As shown in the adjacent figure 3, almost three quarters of the riders (72%) live in zip code 27834, e.g. west of the railroad tracks. Almost a quarter (24%) live in zip code of 27858; the east side of the city and towards the south. Winterville's zip code is 28590 and makes up the only other significant portion of the ridership (4.5%). The 27828 zip code is for the Farmville area, only 0.3% of users came from this location, but this does seem to indicate some need for regional bus service.

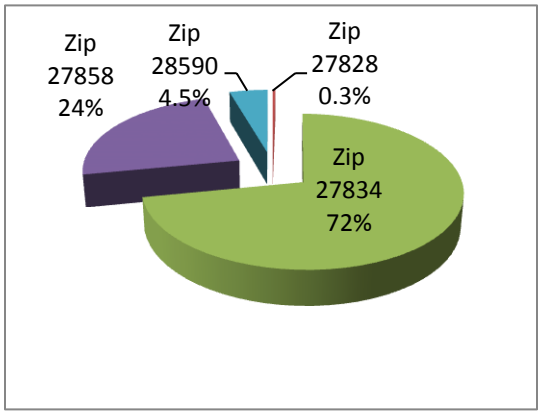


Figure 4.3: Residence by Zip

Profile of riders

The ridership is fairly evenly split between male (44%) and female (56%) population. The ridership is high among the 19-24 age groups - presumable because of the high number of young people attending P.C.C. and Miller-Motte. The middle age group of 25-34 year olds is most likely workers, though some may still be attending college and working at the same time. Ridership drops-off dramatically with those above the age of 64 years old.

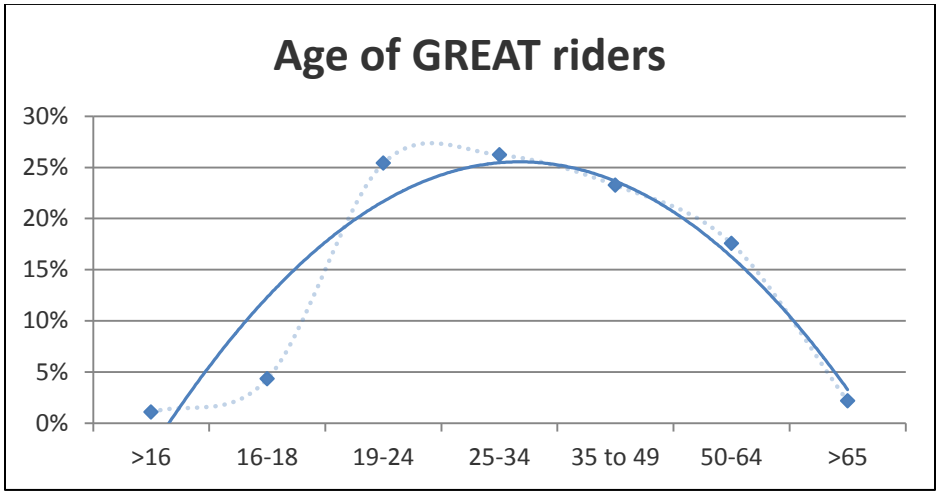


Figure 4.4: Age profile of the survey respondents, sample=370 surveys.

In comparison to the ethnic population of Greenville there are more African American riders (78.4%) than their proportion in the City population (37%). Below is a table showing the comparison of riders to the general population. Caucasians tend to ride at about the same rate as do Asians; low ridership in proportion to their population in the City.

Table 4.1: Comparison of GREAT riders to the City of Greenville, NC population

Race/ Ethnicity	Black/ African American	White/ Caucasian	American Indian	Asian	Hispanic/ Latino	2 or more races
Transit Riders	78.4%	14.5%	1.7%	0.6%	2.8%	2.0%
Greenville	37.0%	54.8%	0.4%	2.4%	3.8%	2.2%
Percent Difference	41.4%	-40.3%	1.3%	-1.8%	-1.0%	-0.2%

Income has high correlation with propensity to ride transit, especially in Small Urban areas. The mean household income level in NC in 2011 was $46,291, whereas for the City of Greenville the income level was much lower at $33,786 in 2011. People living in poverty are

twice as common in the City of Greenville (31.4%), as those in poverty throughout North Carolina (16.1%). According to the responses provided in the survey, at least 58% of riders live in poverty, as they made less than $10,000 in 2012. The Census has a complex method for establishing a poverty threshold, which requires knowing family size and the age; however the lowest level of income threshold for poverty was $10,700 in 2011 and that was for a single senior, who is assumed to have some social service benefits in addition to an income. The Census method puts a family of three making less than $20,000 into the near poverty category. A full 83% of the transit survey respondents claimed that they made less than $20,000 in 2012, leaving only 17% of the transit ridership making a modest wage/income (see chart below).

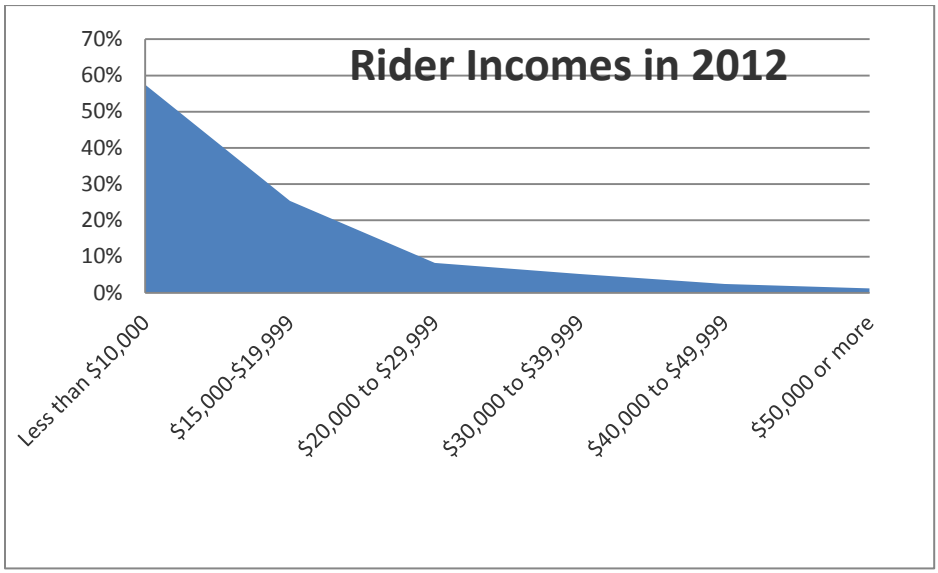


Figure 4.5: Annual Income of GREAT riders (sample response = 327)

Reason for Travel

With the strong sample size (estimated at more than 33% of all riders), we feel that the surveys are indicative of ridership destination and purpose for travel. As would be expected in a small city, work is **the most common trip purpose (32%). However a full 21% of respondents were taking the transit to get to or from College/Tech School** (Miller-Motte, East Carolina University, and PITT Community College); almost all (92.6%) were en route to PITT Community College, about 1% were ECU, and the rest were Miller-Motte and or other technical programs.

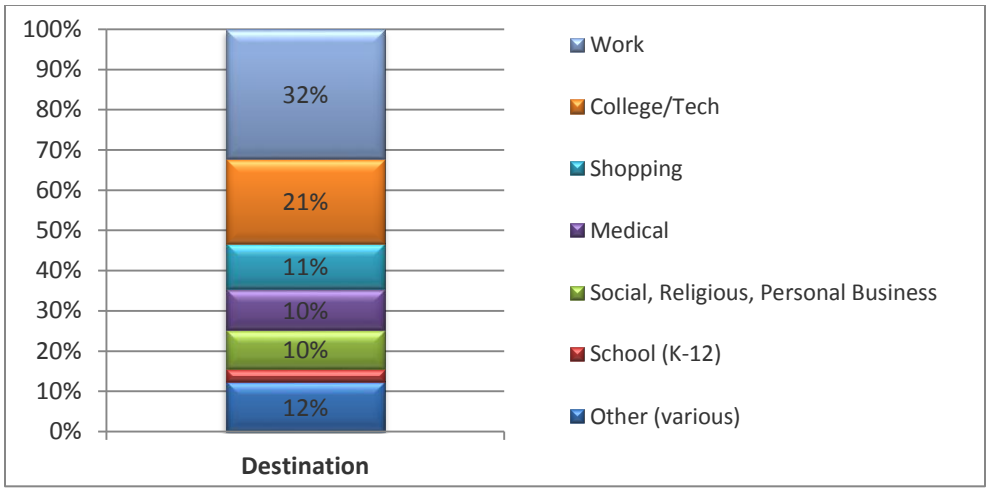


Figure 4.6: The chart shows both where riders were going to and from on their trip - but excludes home end trips. Survey sample = 443

It should be noted from figure 2 above that as many people are using the bus to go shopping as are conducting their personal business or visiting doctors. This means the riders are prone to use transit for all of their trip needs and re-enforces the idea that the riders are transit dependent.

The need to transfer from one bus to another to make a single trip

According to the survey results, more than 70% of all the weekday passengers require a transfer from one bus to another to get to their destination. The matrix below shows the transfers both to-and-from other bus routes made by the surveyed riding population who changed buses to complete their trip.

The Route #6 and #3 essentially run much of the same roadways but in opposite directions. This creates an artificial relationship that led many respondents to state that they "transferred" between Route #6 and #3, when most likely it was a separate trip in the opposite direction. The Route #6 riders connect from the east and west of downtown at the same rate; 18% transferred to/from the Routes #2 and 18% transferred to/from Route #5. In contrast, the Route #3 riders are equally connected to the Route #1 and #2 on the weekday, but much more connected to the Route #2 on weekends. The Route #3 does not have the same strong transfer pattern to the Route #5 as does the Route #6.

The Route #5 and #2 serve the east and west of downtown respectively and carry about the same number of riders each day (e.g. 300+). Both routes interact heaviest with the Route #3 followed by Route #1. The Route #2 appears not to be a self-sufficient route as it requires transfer 92% of the time to complete a trip. Many are using the Route #2 to reach the Vidant Hospital from all parts of town, including those riding the Route #4 from across the river.

The Route #1 is most interdependent on the Route #3 and #2 respectively. The rest of the activity is minor except the Saturday transfer between the Route #1 and the Route #5.

Table 4.2: Transfer matrix from GREAT on-board survey data

Weekday	to/fro 1	to/fro 2	to/fro 3	to/fro 4	to/fro 5	to/fro 6	sample
on rte 1	0	30	49	8	7	14	114
on rte 2	10	0	17	10	5	1	44
on rte 3	7	7	0	2	5	3	31
on rte 4	2	4	7	0	0	2	17
on rte 5	7	4	8	1	0	3	38
on rte 6	15	26	35	13	30	0	140
Saturday	to/fro 1	to/fro 2	to/fro 3	to/fro 4	to/fro 5	to/fro 6	sample
on rte 1	0	6	2	0	5	0	20
on rte 2	7	0	5	0	2	2	20
on rte 3	6	10	0	3	3	0	28
on rte 4	3	3	4	0	3	1	16
on rte 5	12	4	6	3	0	5	34
on rte 6	5	8	17	1	4	0	46
Combined	to/fro 1	to/fro 2	to/fro 3	to/fro 4	to/fro 5	to/fro 6	sample
on rte 1	0	36	51	8	12	14	134
on rte 2	17	0	22	10	7	3	64
on rte 3	13	17	0	5	8	3	59
on rte 4	5	7	11	0	3	3	33
on rte 5	19	8	14	4	0	8	72
on rte 6	20	34	52	14	34	0	186

Weekday	to/fro 1	to/fro 2	to/fro 3	to/fro 4	to/fro 5	to/fro 6
on rte 1		> 25%	> 25%			
on rte 2	20-24%		> 25%	20-24%		
on rte 3	20-24%	20-24%				
on rte 4		20-24%	> 25%			
on rte 5	18-19%		20-24%			
on rte 6		18-19%	> 25%		20-24%	
Saturday	to/fro 1	to/fro 2	to/fro 3	to/fro 4	to/fro 5	to/fro 6
on rte 1		> 25%			> 25%	
on rte 2	> 25%		> 25%			
on rte 3	20-24%	> 25%				
on rte 4	18-19%	18-19%	> 25%		18-19%	
on rte 5	> 25%		18-19%			
on rte 6			> 25%			
Combined	to/fro 1	to/fro 2	to/fro 3	to/fro 4	to/fro 5	to/fro 6
on rte 1		> 25%	> 25%			
on rte 2	> 25%		> 25%			
on rte 3	20-24%	> 25%				
on rte 4		20-24%	> 25%			
on rte 5	> 25%		18-19%			
on rte 6		18-19%	> 25%		18-19%	

The transfer activity from and to Route #4 is oriented heavily to the Route #3 on weekdays and more spread out between the Route #1,2, and 3 on Saturdays.

Pitt Community College Transfers

The data showed a trend between those riding the Route #1 who transferred to Route #6 to get to and from PITT Community College. There are 90 respondents who can be documented as either going to or coming from PCC. **A full 73% of the people destined for PCC must make at least one transfer to get to campus**; of which, more than half (53%) transfer from Routes #1, while 20% transfer from Route #2 and #5.

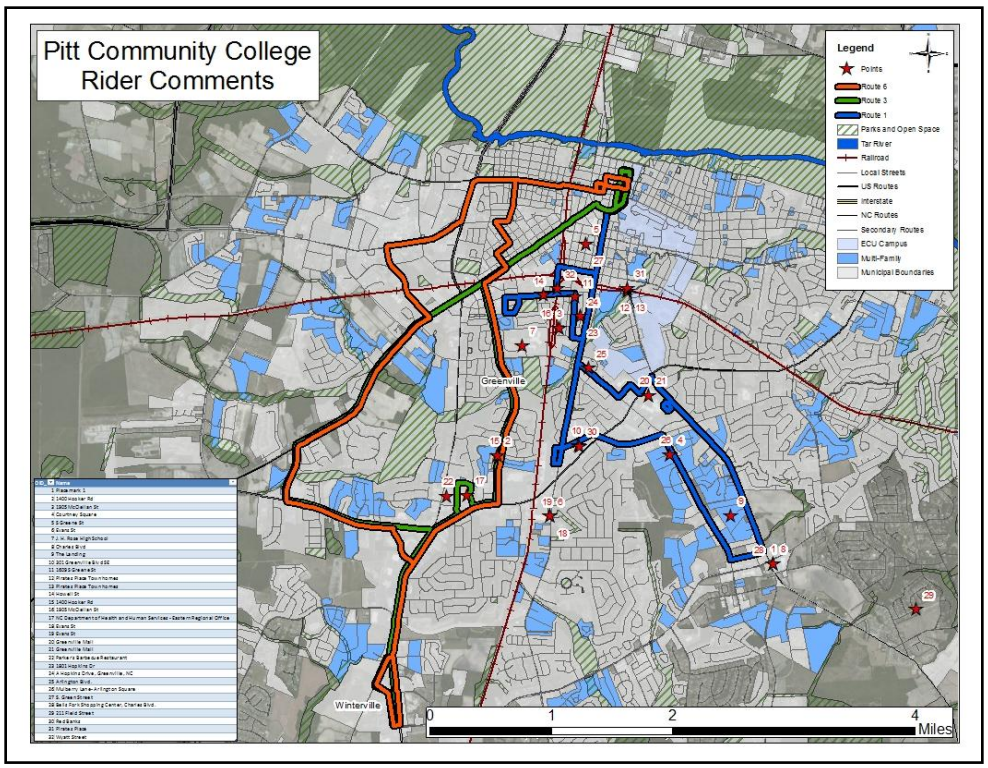


Figure 4.7: Each star represents a point where the riders of Route 1 were going to or coming from PITT Community College.

About ½ of the college bound trips on Route #6 can be made without a transfer, but all of the Route #3 trips appear to require transfers. Again we see the strong interdependence of the Route #1 with both the Routes #3 and #6.

Table 4.8: All college Trips

College Trip Purpose	Transfer to Route 3	Transfer to Route 6
Route 1	48%	31%
Route 2	26%	3%
Route 4	6%	5%
Route 5	20%	12%

Almost all of the college destined riders (90%) are able to walk from their home to a bus stop and from the bus to their classrooms. The other 10% are equally split between those who drive to the bus stop and those being dropped off or picked up at bus stops. 88% of the people that ride the bus to campus today either: don't drive, don't have a license, or don't

have a car available for the trip – they ride out of necessity not convenience. If there was no bus service available the college/tech customers said they would try to get rides from friends (39%), walk (22%), but many just wouldn't try to get to campus (16%).

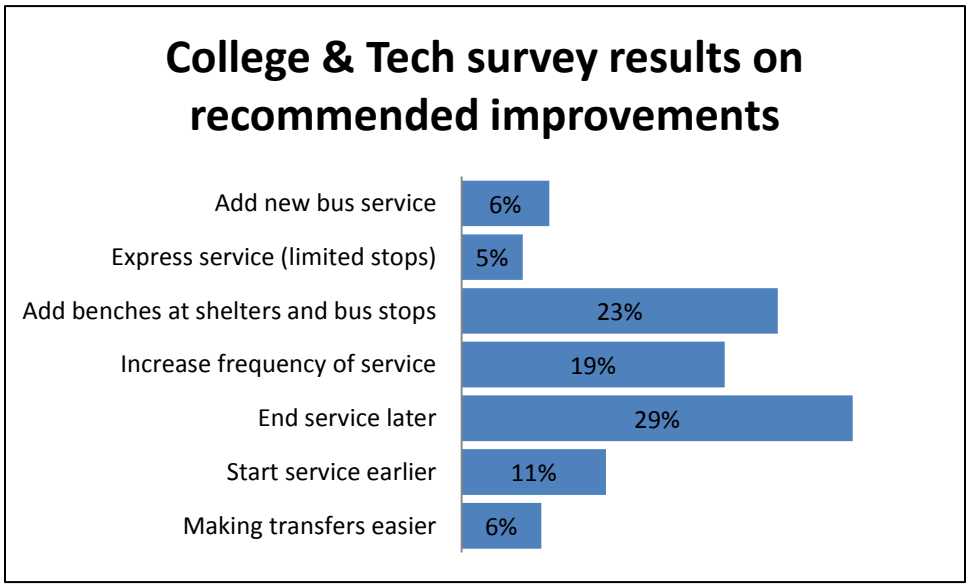


Figure 4.9: College/Tech students support evening service, amenities, and better frequency

Clearly, **College and Technical School riders want late night service, shelters and benches and more than one bus every hour.**

Customer Satisfaction

There was a high satisfactory level for the question, 'How directly does this route go to your destination?' Of the responses documented on the survey, 48% of the respondents said their overall satisfaction with GREAT was 'Very Good' and not far behind at 32% were respondents who said it was 'Good'.

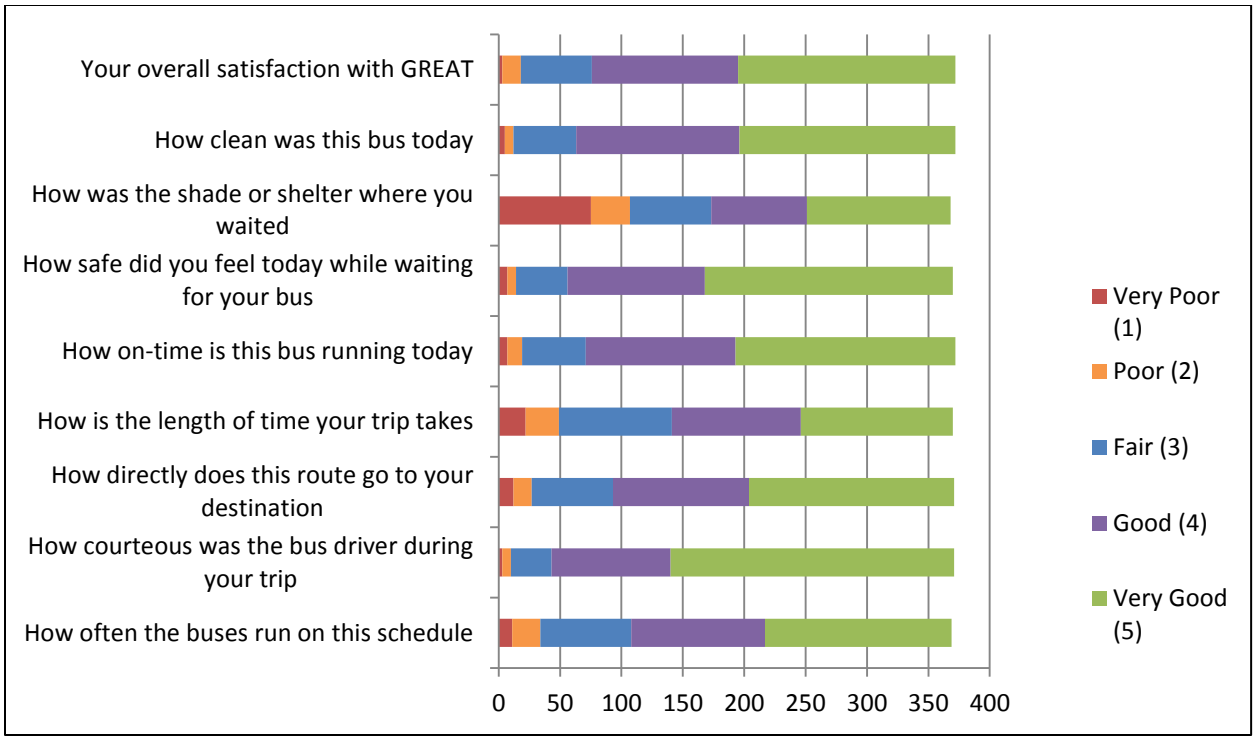


Figure 4.10: Summary of all responses to riders' opinion about the quality of service.

40% or more of all patrons rated all of the above areas of service as "good" (4) or "very good" (5) with the exception of lack of shelter where they waited. The courteousness of the drivers received the highest overall rating. There was little difference in the rating during any of the periods surveyed; morning, evening, and or Saturdays (see below).

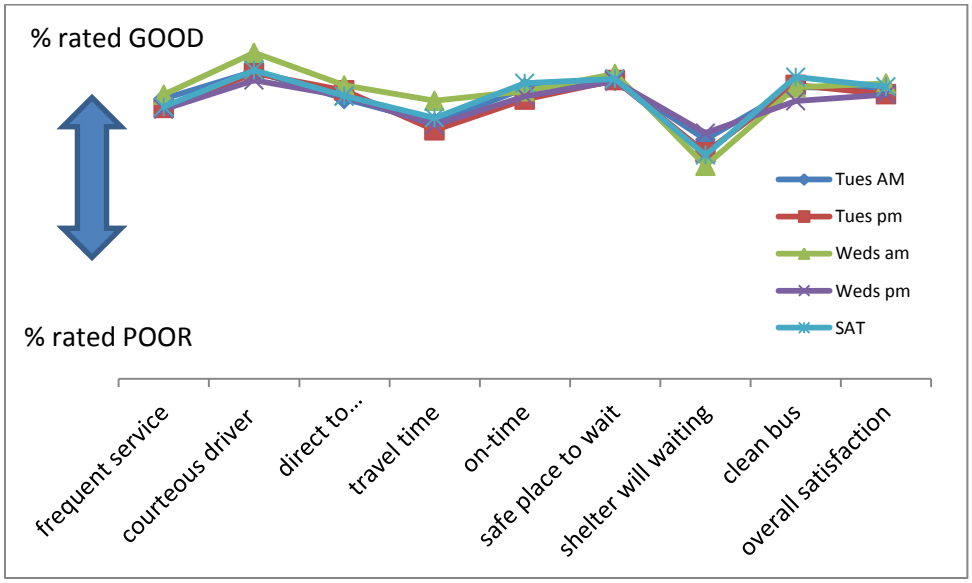


Figure 4.11: Satisfaction of GREAT across the collection periods

Similarities and differences between Weekday and Saturday riders

In general there were only a few differences found between the weekday riders and the Saturday riders, which could well go back to the observation that many of the riders are frequent riders and even their work week might include a Saturday. In the figure below shows how the Saturday riders are six day a week riders while weekday riders were mostly five day a week riders and that many of those who ride just one day a week are likely Caucasians in the 50-64 year old group, who are riding for shopping, social and/or personal business trips. Profiling this subgroup may be a worthwhile marketing strategy.

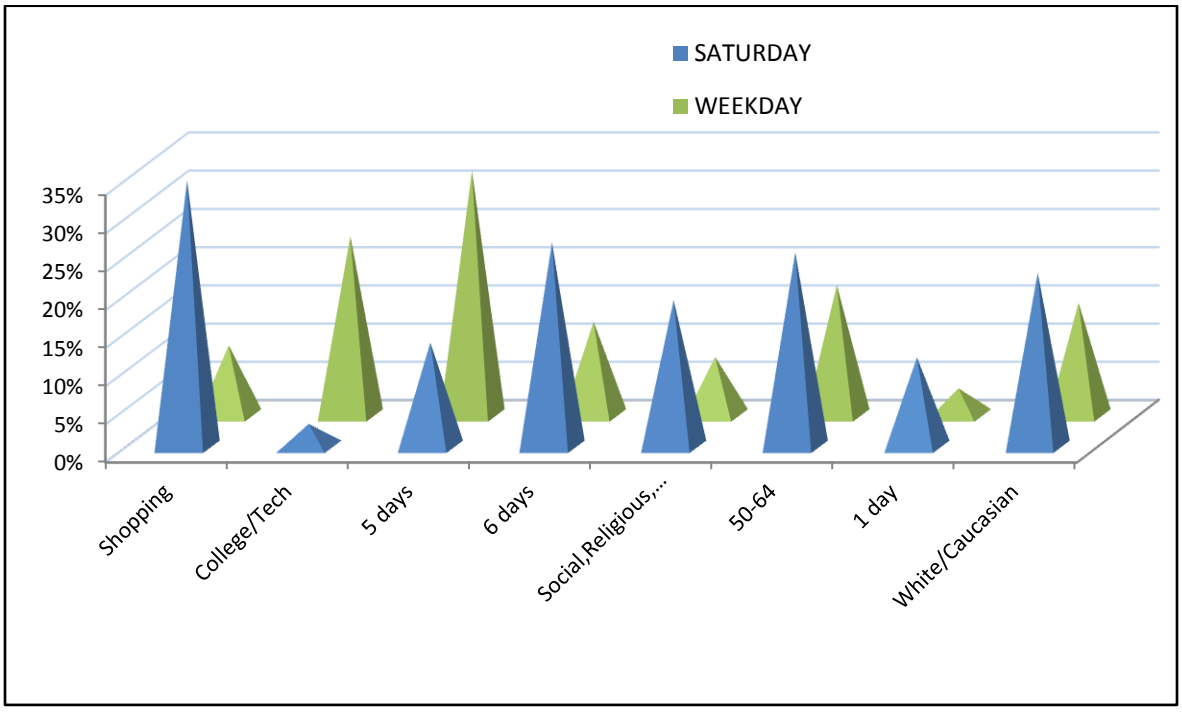


Figure 4.12: largest differences in Weekday and Saturday responses

Conclusions

During the Short Range Transit Planning period - GREAT should continue to serve the needs of the current riders who depend heavily on the transit service that is provided today, which means most of the current neighborhoods and major attractions need to be served. Any future service improvements should consider the impacts on the need to make additional transfers, as most trips are already burdened with delays due to transfer time during their regular commute/trip making. The raw survey data could be further mined to explore particular market segments that were not representative of the broader population, i.e. the Asian market, Caucasians riding on Saturdays, etc.

After several years of resounding success, **now is the perfect time to reevaluate the service arrangement with Pitt County Community College**. While the College students are generally

satisfied with the quality of the service, they also indicated that there was room for improvement, specifically by providing move evening service, more shelters and benches and more frequent service.

MODULE 5

Service Alternatives

Summary: This section provides information regarding the different service alternatives for the GREAT system, and the public feedback on alternatives to consider.

Service Alternatives

This section presents a range of service alternatives for GREAT's fixed route transit service. The alternatives were developed based on existing performance of the routes and feedback from the GREAT staff, drivers, passengers, and the general public. **Table 5.1**, from the Operational Performance Memo, will be used as GREAT's current system wide performance and to forecast GREAT's future performance. All forecast information will be developed for individual routes and the entire system.

Table 5.1 System wide Performance Measures

Route	Ridership	Rev Hours	Rev Miles	Cost per Route	Pass/Hr	Pass/Mile	Cost/Trip	Farebox Recovery	Subsidy per Pass Trip
Route 1-Blue	65,750	3,817	42,080	$262,952	17.23	1.56	$4.00	14%	$3.43
Route 2 -Red	79,219	3,817	54,211	$262,952	20.75	1.46	$3.32	17%	$2.74
Route 3-Green	113,795	3,742	51,558	$257,655	30.41	2.21	$2.26	27%	$1.66
Route 4-Purple	49,352	3,742	59,719	$257,655	13.19	0.83	$5.22	10%	$4.68
Route 5-Yellow	84,613	3,817	45,871	$262,952	22.17	1.84	$3.11	20%	$2.49
Route 6-Orange	116,915	3,817	54,211	$262,952	30.63	2.16	$2.25	28%	$1.61
System	**509,644**	**22,752**	**307,650**	**$1,567,118**	**22.40**	**1.66**	**$3.07**	**19%**	**$2.48**

Alternative 1: Status Quo

The first alternative, Status Quo, involves no change in the service that is provided today.

Assumptions:

- Increase ridership per historic trend
- Increase cost per forecasted inflation

Alternative 2: Adjusted Route Changes

This section includes an assessment of the existing routes where small changes made, without requiring additional resources.

Assumptions:

- Increase ridership per addition/removal of stops
- Increased cost per forecasted inflation

Alternative 3: Night Service

The third alternative for GREAT to consider is extending evening service hours. Alternative 3A would extend weekday hours from 7:00 PM to 10 PM. Alternative 3B would extend Saturday hours from 6:00 PM to 9:00 PM.

Assumptions:

- Increase buses and drivers
- Increase revenue hours
- Increase ridership per existing rates and temporal shift.
- Increase cost per additional revenue hours

Alternative 4: Increased Headway

Alternative 4 is to increase headway from 1 hour to 30 minutes on GREAT routes. Service hours would remain the same as existing for Monday through Saturday**.**

Assumptions:

- Increase buses and drivers
- Increase revenue hours
- Increase ridership per exiting rates
- Increase cost per additional revenue hours

Alternative 5: Express Service

Alternative 5 is Express Service for select destinations. The service would be operated Monday through Friday, with two morning peak trips, one mid-day trip, and two afternoon peak trips. Alternative 5A would add express service to PCC. Alternative 5B would add express service to Pitt County Council of Aging.

Assumptions:

- Increase buses and drivers
- Increase revenue hours
- Increase ridership per existing service
- Increase cost per additional revenue hours

GREAT Bus Routing Alternatives – Public Open House Sessions

On Wednesday August 14 the preliminary ideas for changes to the GREAT bus routes, which are a result of the on-going Short Range Transit Plan (SRTP) Study, were made available for public review and comment. The presentation boards were displayed in the Goess Student Center on the campus of PCC from 9am to 1pm. The displays were also presented at Sheppard Memorial Public Library between 2pm and 6pm. There were a variety of responses and comments from both riders and non-riders about the route changes for the GREAT bus as well as local news coverage on the event. Approximately 60 people provided comments at the two sessions.

Possible Improvements

During the Public Open House Sessions, the public was given an opportunity to interact with project consultants by rating possible improvements in the GREAT Bus system. The improvements included route modifications, changes in the bus passes and information, hours and frequency, and possible collaboration with the colleges and local community. The public was given stickers to indicate if they like, dislike, or are unsure of the improvements.

Passes & Information

Possible Improvements	Like	Dislike	Unsure
Ticket Machines	9		1
Month Passes	9		
Semester Passes for PCC Students	12		
Schedules & Maps at all stops		1	
More Shelters & Benches	14		

Hours & Frequency

Possible Improvements	Like	Dislike	Unsure
Sunday Service	10		1
Extended Saturday Hours	10		1
Extend Weekday Hours till 10pm	23		1
Special Event & Holiday Service	1		
30 Min Frequency on all Routes	23		

Collaboration

Possible Improvements	Like	Dislike	Unsure
Miller Motte College – New Route Service			
Vidant Medical Center – Enhance Mutual Stops/Service	1		

Possible Improvements	Like	Dislike	Unsure
ECU – Enhance Mutual Stops/Service	2		1
Elderly Community – Serve Nutrition Sites	4		
City of Greenville – Develop Zoning Ordinances that require new development to contribute towards identified transit corridors			

Route Alternatives Comments/Suggestions

The public was presented with 3-4 modifications for each route. The following comments and suggestions were recorded.

Route 1

- Multiple people want Route 1 extended to the Pitt County Council on Aging on 4551 County Home Road.
- Connection to PCC for 8:00 am classes
- Added service to Fire Tower Road

Route 2

- Keep existing service or Route 2 or 3 because it services a nursing home on Spring Forest Rd.
- Consider doubling the routes

Route 3

- Additional service on Memorial Drive
- Keeping service along Hooker Road
- Additional transfer point for Routes 3 and 6
- Option 1 received four likes and two dislikes
- Option 2 received one like
- Option 3 received one like
- Existing received two likes

Route 4

- Add bus stops to major plants/factories north of the river
- Add bus shelters to the trailer parks along route 4
- Option 2 received three likes
- Option 3 received two likes

Route 5

- The owner of an apartment complex near Brooke Valley Country Club wants service near the complex.

- Add store side bus stop at the Food Lion
- Option 2 received four likes.
- Option 3 received three dislikes
- Option 4 received three dislikes
- Coordinate Route 1 and 5 transfers at the mall. Route 5 usually arrives before Route 1 and leaves before Route 1 arrives so the passengers have to wait an hour to catch the service again.

Route 6

- Keep multiple routes to Wal-Mart
- Express Route 6 Service from downtown
- Existing Route 6 service received five likes
- Option 3 received two dislikes

Additional Comments, Concerns, and Suggestions

Passes and Information

- Providing ticket sales at PCC
- Ability to buy tickets in advance

Hours and Frequency

- Earlier start and finish times for service
- Providing ticket sales at PCC
- Earlier service to Wal-Mart
- Providing more time for students to catch the bus at PCC, complaints about the bus leaving too soon from bus stop
- Synchronizing bus service with hospital shift hours
- 30 minute headway on certain routes
- Sunday Morning service to provide access to religious ceremonies
- Multi-directional service on all routes
- Service along Fire Tower Rd Corridor30 minute service to PCC

Collaboration

- Senior Citizens /Nutrition Center
- Consider creating access to VA from bus stops
- Possible connection to Bethel, Ayden, Winterville, and Farmville
- Express service to Winterville and Farmville
- PATS park and ride service
- Consolidate service within Pitt County

Other

- Adding benches to all stops
- Additional buses
- GREAT fare only makes up 1/8 of the budget, consider making GREAT free?

- Americans with Disabilities Act (ADA) accessibility

Summary

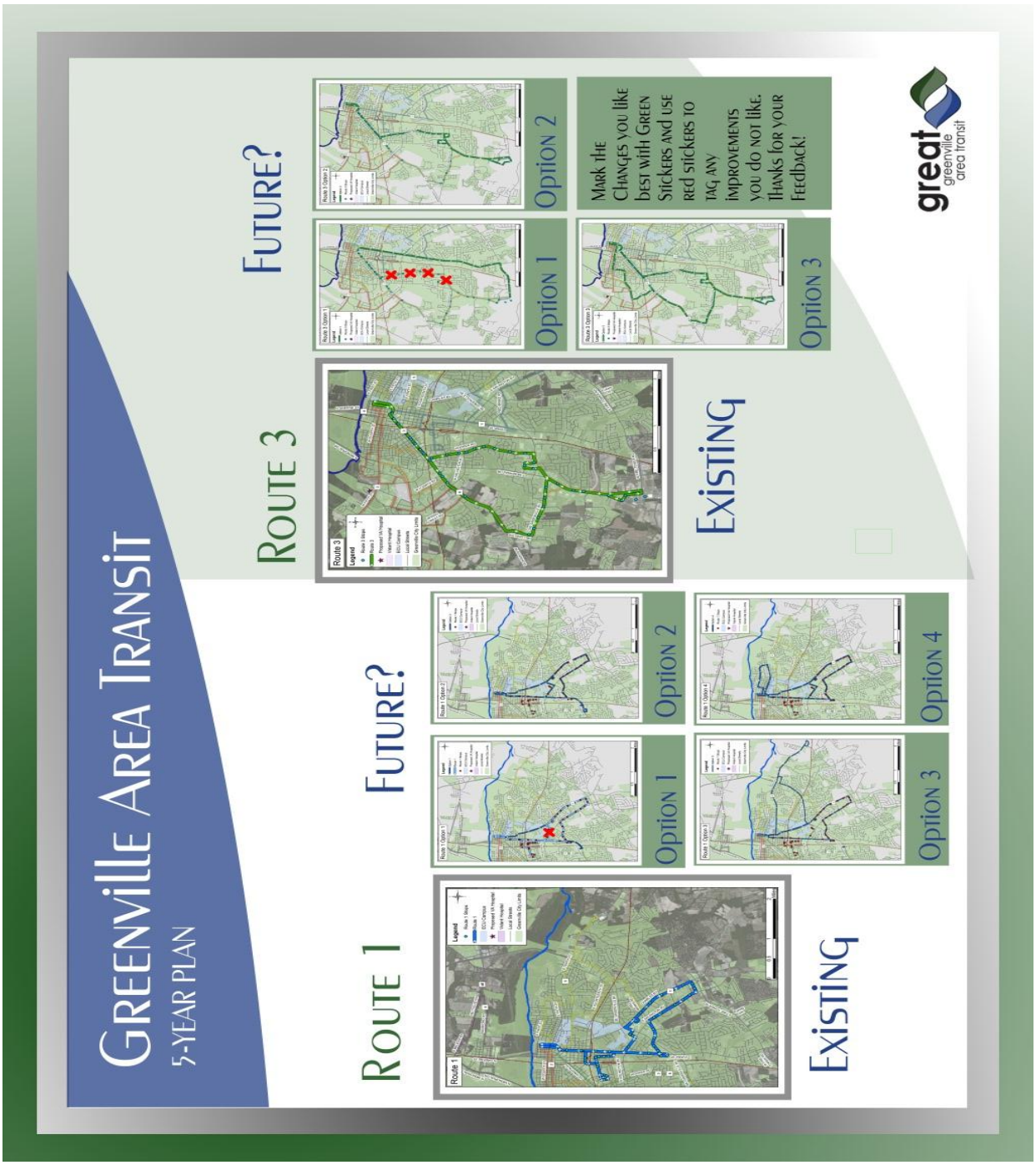
Based on the input received at the public meetings, the potential changes that received the highest positive comments are ranked as follows:

1. Extend weekday hours until 10:00 PM
2. 30 minute frequency on all routes
3. More shelters and benches
4. Semester passes for PCC students

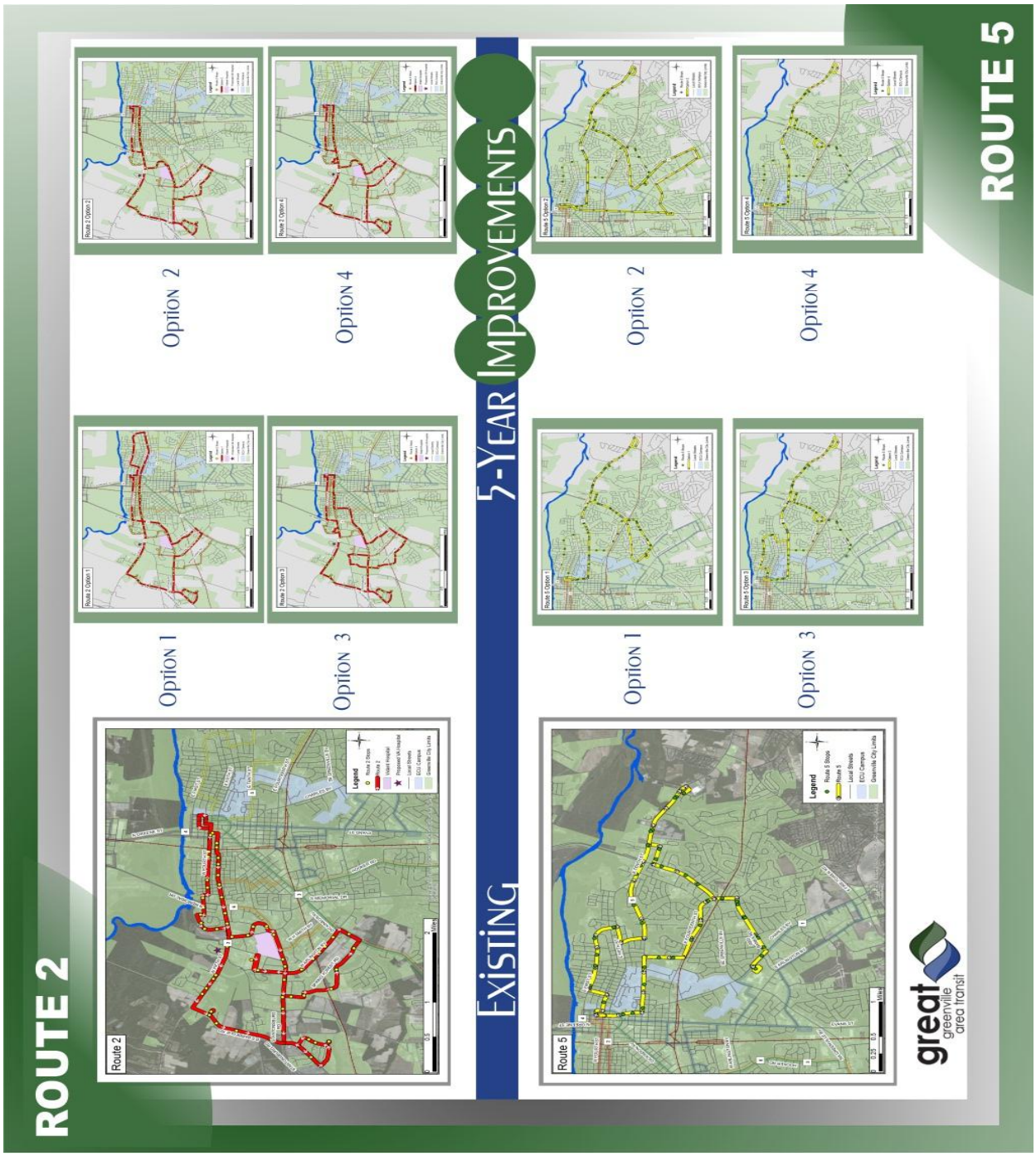
Display Boards and Public Open House Pictures

Board 1

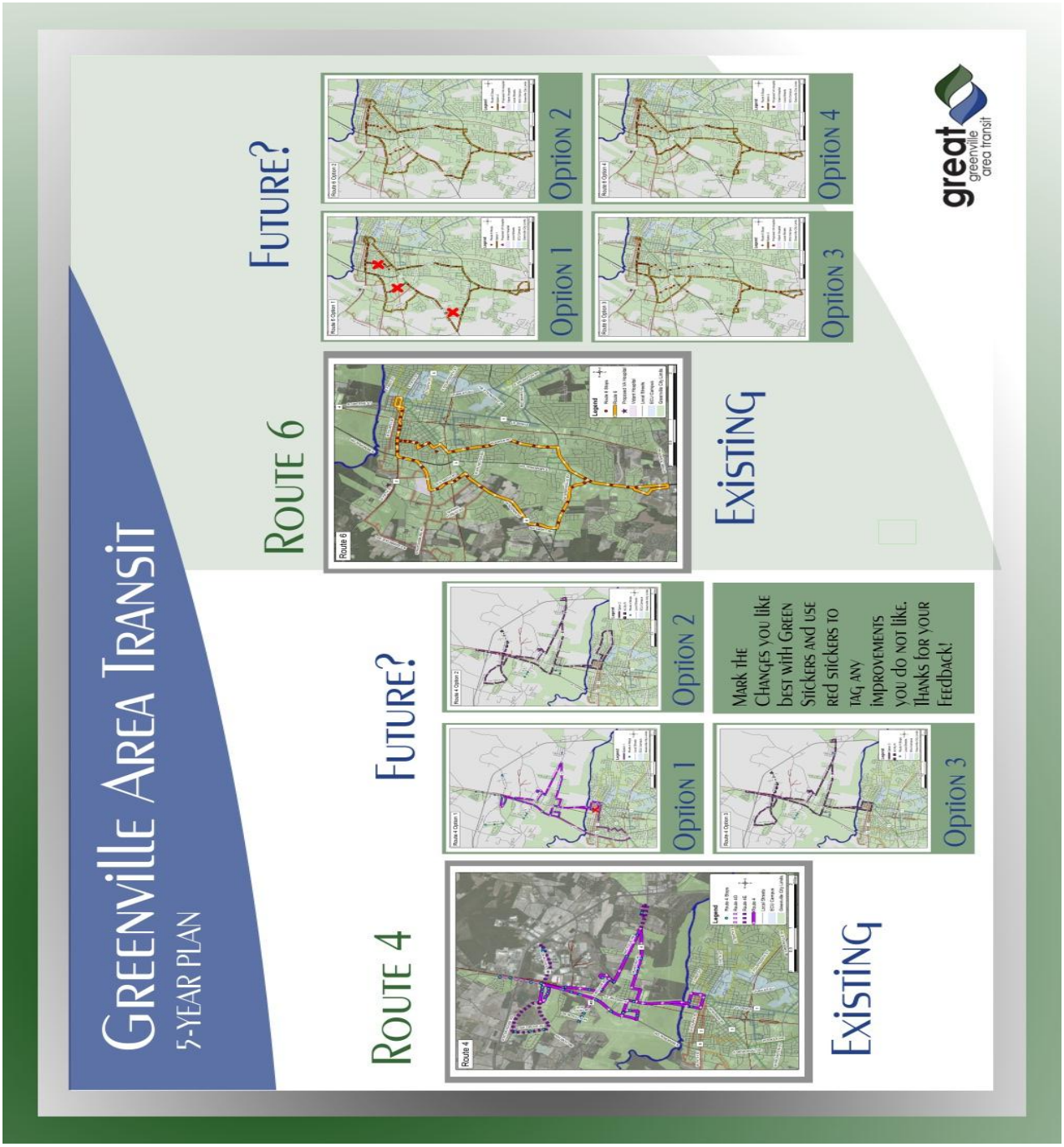
Route 1 & Route 3



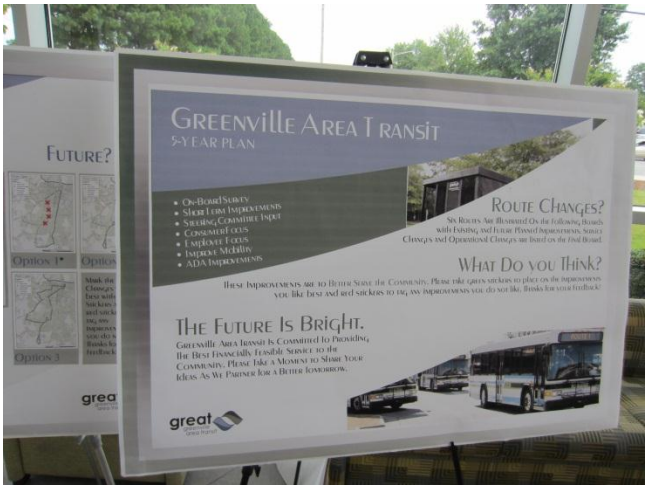
Route 2 and Route 5

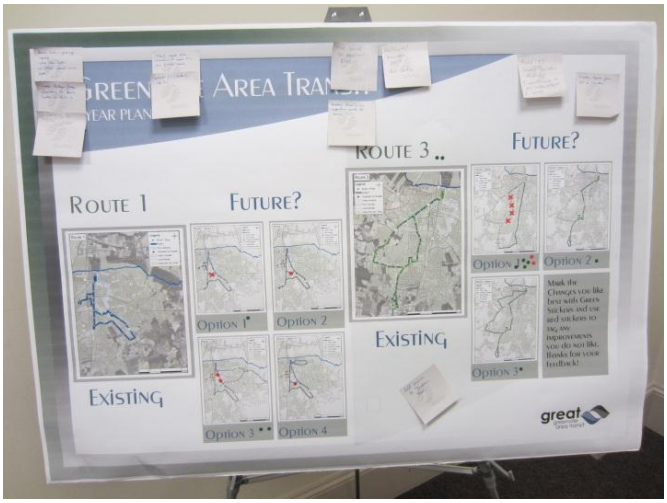


Route 4 and Route 6



Possible Improvements


Greenville Area Transit
5-Year Plan
Route Changes?
What Do You Think?
The Future Is Bright.
Future?


Route 1
Future?
Route 3
Future?
Existing


Route 2
Existing
5-Year Improvements
Route 5


Greenville Area Transit
5-Year Plan
Route 4
Future?
Route 6
Future?
Existing
Existing


Greenville Area Transit
5-Year Plan
Route 4
Future?
Route 6
Future?
Existing
Existing


Passes & Information
Hours & Frequency
Collaboration
Possible Improvements
Possible Improvements
Which are most important to y

MODULE 6

Financial Assessment

Summary: This section provides information regarding the current financial status of the GREAT system as well as some information about future funding opportunities.

Background

The North Carolina Department of Transportation (NCDOT) Public Transportation Division requires the Small Urban Transit Systems in North Carolina to submit an annual report of their operating performance called OpStats. Greenville Area Transit (GREAT) has adopted the OpStats method for data reporting and the federally required Uniform Public Transportation Accounting System format for financial reporting. This section provides a snapshot of the historical operating costs and funding trends for the fixed route and ADA/Complementary Paratransit Service.

Past Trends: Fixed Route

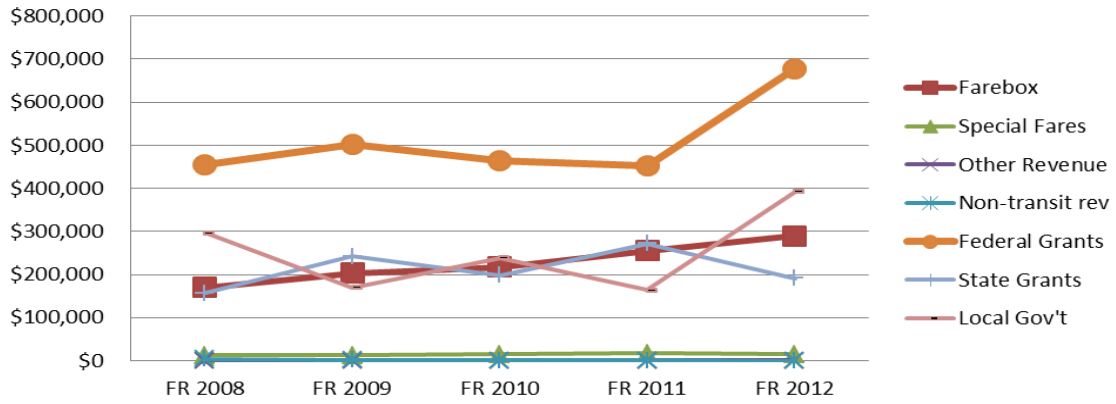
Fixed route operating and maintenance costs increased 35% between 2011 and 2012, which is 10 times the annual rate of increase in cost over the previous three years. This change is due not only to – 20% for new route. **Table 6.1** illustrates the fixed route operating budget for the past four years.

Table 6.1: Fixed Route Operations Finance Balance Sheet

Fixed Route	2008	2009	2010	2011	2012
Ops Expenses	($1,095,990)	($1,133,370)	($1,135,665)	($1,162,307)	($1,567,118)
Fare Box	$170,054	$203,661	$217,339	$255,024	$289,599
Special Fares	$12,313	$12,348	$15,078	$17,754	$14,666
Other Revenue	$138	$779	$216	$258	$917
Non-transit rev	$4,289	$1,438	$61	$104	$0
Federal Grants	$454,709	$503,100	$464,967	$452,785	$677,712
State Grants	$157,454	$242,645	$198,897	$271,790	$191,727
Local Gov't	$297,033	$169,399	$239,107	$164,592	$392,496

Source: OpStats

This increase in spending was made possible due to increased funding from the federal operating assistance grants, increased funding from the local government, and higher farebox collection. The farebox collection program is growing at an average rate of 14% per year; creating a healthy 18% recovery of expenses through fares. **Figure 6.1** illustrates the rise in federal, local government and farebox revenues.



Source: OpStats

Figure 6.1: FIXED ROUTE OPERATIONS FUNDING

Past Trends: ADA/ Complementary Paratransit Service

The ADA/Complementary Paratransit service is delivered by the Pitt County Area Transit System (PATS) on a contractual basis. The cost of this service increased over the last four years by 46%. The largest increase in cost was between 2008 and 2009 (81% increase). **Table 6.2** provides more detail.

> *"System expenses increased due to increase in paratransit service area covered with the addition of the fifth fixed route; an increase in usage and an increase in the cost per mile by the service provider. Total revenue increased due to increase in ridership and a major increase in pass sales".*

Table 6.2: ADA/Paratransit Service Operations Finance Balance Sheet

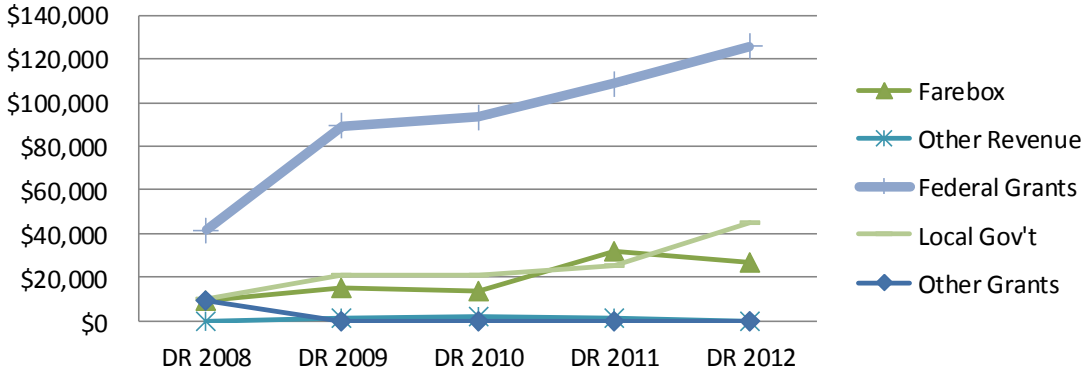
ADA Service	2008	2009	2010	2011	2012
Ops Expenses	($69,914)	($126,419)	($130,406)	($167,886)	($197,485)
Fare Box	$8,990	$14,762	$13,807	$32,187	$27,110
Special Fares	$0	$0	$0	$0	$0

ADA Service	2008	2009	2010	2011	2012
Other Revenue	$0	$1,630	$2,102	$1,508	$0
Non-transit rev	$0	$0	$0	$0	$0
Federal Grants	$41,384	$89,325	$93,279	$108,559	$125,721
State Grants	$0	$0	$0	$0	$0
Local Gov't	$10,346	$20,702	$21,218	$25,632	$44,653
Other Grants	$9,194	$0	$0	0	$0

Source: OpStats

The most dramatic changes in funding came primarily from the increase in local funding ($10K to $44K) and federal operating assistance ($41K to $125K). It is important to note that the Section 5307 funds assigned to ADA assistance are done so at the discretion of the Transit Agency. Any increases in Section 5307 ADA service require a comparable reduction in other eligible Section 5307 spending categories.

Figure 6..2 illustrates the rise in federal and local government funding for ADA and Paratransit service.



Source: OpStats

Figure 6.2: ADA/ PARATRANSIT SERVICE OPERATIONS FUNDING SOURCES

Summary of past trends

The historical trends in both fixed route and paratransit services provide some important insight, though the future operating costs will not be projected based on this information alone. Future operating costs will take into account the current needs, demands, and infrastructure of the town and surrounding areas.

Recent operations

The most recent data recorded by GREAT administration during routine monthly reporting is presented below. The most recent full year of data available was the period between 7/1/12 and 6/30/13. The consultant team analyzed and expanded some of the data (i.e. separating fixed route and demand response trips) to calculate the most up-to-date performance measure indicators and adopted these metrics as the "fully allocated" cost figures for use in the baseline and projected cost tables.

Table 6.2: Annual Service Operations and unit cost by service type

Annual Fixed Route service numbers	**from 7/1/12 to 6/1/13**		**Fully Allocated Cost**	**Fully allocated**	**Net cost after fares**
Full Fare trips	**369,219**		Passenger- fixed route trip	$3.32	$2.66
1/2 Fare trips	**43,658**		Miles - fixed route trip	$6.15	$4.93
Transfer trips	**106,800**		Hours - fixed route trip	$83.47	$66.93
Free trips	**22,354**				
ECU trips	**1,251**		Passenger- paratransit trip	$13.92	n/a
Total Trips	**543,282**		Miles - paratransit trip	$1.77	n/a
Annual fixed route operating expense	**$1,803,436**		Hours - paratransit trip	$18.51	n/a

In FY 2014, the GREAT system's annual budget to operate the system and purchase hardware is $2,235,800. This budget period starts on July 1, 2013. This figure (**Figure 6.3**) includes all administrative expenses, operational expenses, and capital items. If Routine Capital, which covers parts for buses, radios, shelters, etc., is removed from the annual budget, then the operating budget remains at $1,891,200, i.e. similar to the existing trend cited in the table above.

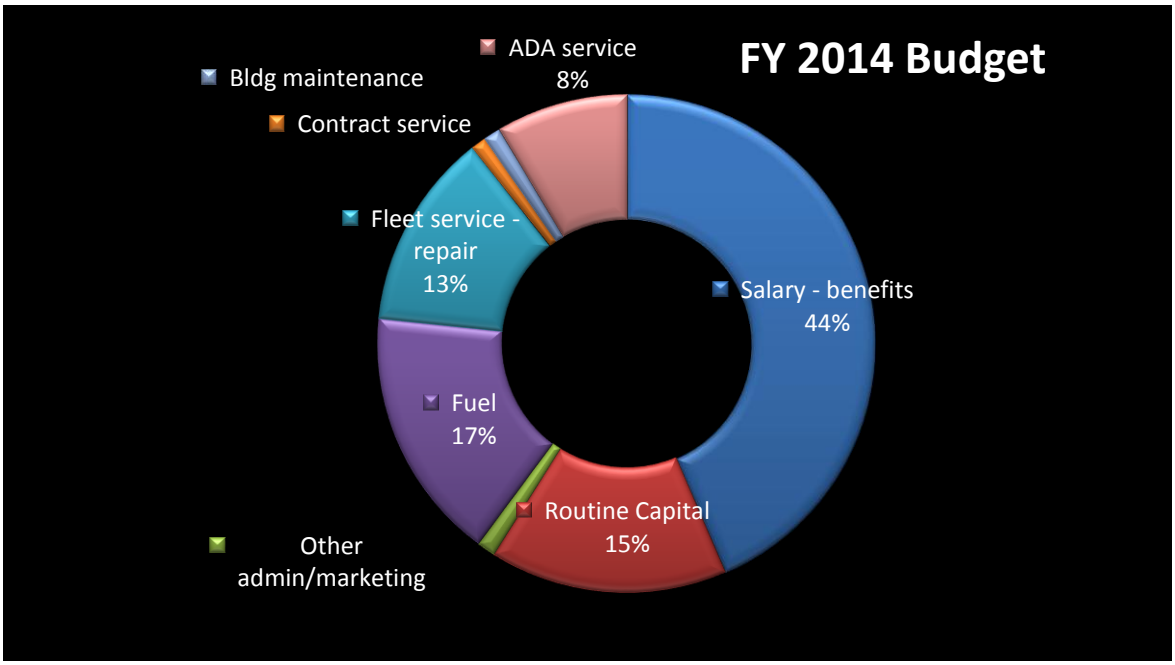


Figure 6.3: FY 2014 BUDGET

Checks and balances based on State and federal funding priorities

Another control number for the forecasts are the Federal Transit Administration (FTA) MAP-21 apportionments for federal FY 2013 and FY 2014, upon which the GREAT, FY 2014 budget is based. The Section 5307 formula funds make up the bulk of the GREAT transit systems' allocation ($1,656,041) and can be used for operating purposes at a 50% federal and 50% local share. ADA service expenses are funded at an 80% federal and 20% local share, while preventive maintenance and routine capital purchases are also funded at an 80% federal and 20% local share. The specific funds available for capital improvements have been re-designated by FTA as Section 5339. GREAT's apportionment of Section 5339 is $173,967 per year for both 2013 and 2014.

A third and separate FTA federal assistance program that supports transportation services in the Greenville Urban Area MPO area is targeted at the elderly and persons with disabilities (entitled Section 5310). In prior years, this was a discretionary program administered by NCDOT. However, this program was converted to a formula program under MAP-21. The 5310 allocation for the Greenville Urban Area MPO in federal FY 2013 is $1,331,845, though it is uncertain as to how these funds will be administered. Social service agencies tend to be

the typical applicants, but GREAT is also an eligible recipient. Until further notice is given, transit agencies have been advised to assume that section 5310 appropriations for fiscal year 2014 will be the same as 2013.

This information, coupled with the mandated inclusion of projects in the State Transportation Improvement Program (STIP), gives a high level spending projection for GREAT over the next 5 years with some level of fiscal constraint. The forecasted STIP (as amended per MPO resolution 7/9/2011) came very close to predicting the final MAP-21 Section 5307 formula funds allocation (MAP-21 = $1,650,000 annually, while STIP for 2014 = $1,690,000). The Greenville MPO did well to stay within this financial constraint when prioritizing the distribution. Note that this STIP does not list Section 5339 or 5310, as these funds were competitive discretionary grants in prior years.

Table 6.3: Forecasts for the State Transportation Improvement Program

GOAL	Transit	STIP#	WORK PROGRAM	%	C/O	FTA	match	2014	2015	2016	2017	2018
mobility	GREAT	TP-5107	Planning Assistance - 5303	80%	Cap	5303	US	$27	$27	$27	$27	$27
health	GREAT	TO-4726	Operating Assistance	50%	Ops	5307	US	$540	$540	$540	$540	$540
health	GREAT	TG-5107C	Operating Assistance - ADA Paratransit Service	80%	Ocap	5307	US	$120	$120	$120	$120	$120
health	GREAT	TG-5107B	Preventive maintenance - ADA	80%	Ocap	5307	US	$59	$59	$59	$59	$59
health	GREAT	TG-5107B	Preventive maintenance - Fixed Route	80%	Ocap	5307	US	$481	$481	$481	$481	$481
health	GREAT	TG-4767	Routine Capital - Bus stop, shelter, bench, shop equip., spare part, engine, farebox, service vehicle, etc	80%	Cap	5307	US	$481	$481	$481	$400	$481
mobility	GREAT	TP-5107A	Planning Assistance - 5 year plan	80%	Cap	5307	US				$80	
safety	GREAT	TS-5112	Safety & Security	100%	Cap	5307	US	$11	$11	$11	$11	$11
								$1,692	$1,692	$1,692	$1,691	$1,692
mobility	GREAT	TP-5107	Planning Assistance - 5303	10%	Cap	5303	STAT	$3	$3	$3	$3	$3
health	GREAT	TO-4726	Operating Assistance	100%	Ops	SMAP	STAT	$275	$275	$275	$275	$275
mobility	GREAT	TP-5107A	Planning Assistance - 5 year plan	10%	Cap	5307	STAT				$10	
mobility	GREAT	TP-5107	Planning Assistance - 5303	10%	Cap	5303	L	$3	$3	$3	$3	$3
health	GREAT	TO-4726	Operating Assistance - Fixed Route	50%	Ops	5307	L	$540	$540	$540	$540	$540
health	GREAT	TG-5107C	Operating Assistance - ADA Paratransit Service	20%	Ocap	5307	L	$30	$30	$30	$30	$30
health	GREAT	TG-5107B	Preventive maintenance - ADA	20%	Ocap	5307	L	$15	$15	$15	$15	$15
health	GREAT	TG-5107B	Preventive maintenance - Fixed Route	20%	Ocap	5307	L	$120	$120	$120	$120	$120
health	GREAT	TG-4767	Routine Capital - Bus stop, shelter, bench, shop equip., spare part, engine, farebox, service vehicle, etc	20%	Cap	5307	L	$120	$120	$120	$100	$120
mobility	GREAT	TP-5107A	Planning Assistance - 5 year plan	10%	Cap	5307	L				$10	
safety	GREAT	TS-5112	Safety & Security	100%	Cap	5307	L	$4	$4	$4	$4	$4

The only line item that appears to be slightly out of balance in both the STIP and the GREAT 2014 budget is the money needed to maintain the required ADA services. According to the 2012 OpStats report, $197,500 was needed for ADA operations out of the total $1,764,600 system-wide operating expenses, or 11% of the operating fund total. With this in mind, the following table is provided to redistribute the sources of funds to achieve the $1,892,000 operating budget in a slightly modified manner. The consultant settled on a 6% increase over the FY2012 ADA operating expense, which is more consistent with the trend line. Table 6.4 also displays the updated final FTA apportionment amounts and the latest figures for the State contribution for operating assistance (gross State Maintenance Assistance Program is projected to decline by 2%).

Table 6.4: Baseline revenues for FY2014 (modified with STIP and MAP21 FTA allocations)

Fixed Route	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012		FY 2014
	7/1/07-6/30/08	7/1/08-6/30/09	7/1/09-6/30/10	7/1/10-6/30/11	7/1/11-6/30/12		7/1/13-6/30/14
Ops Expenses	($1,095,990)	($1,133,370)	($1,135,665)	($1,162,307)	($1,567,118)		($1,682,000)
Farebox	$170,054	$203,661	$217,339	$255,024	$289,599		$300,000
Special Fares	$12,313	$12,348	$15,078	$17,754	$14,666		$15,000
Other Revenue	$138	$779	$216	$258	$917		$0
Non-transport	$4,289	$1,438	$61	$104	$0		$0
Federal Grants	$454,709	$503,100	$464,967	$452,785	$677,712		$756,000
State Grants	$157,454	$242,645	$198,897	$271,790	$191,727		$200,000
Local Gov't	$297,033	$169,399	$239,107	$164,592	$392,496		$411,000

ADA Service	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012		FY 2014
Ops Expenses	($69,914)	($126,419)	($130,406)	($167,886)	($197,485)		($210,000)
Farebox	$8,990	$14,762	$13,807	$32,187	$27,110		$35,000
Other Revenue	$0	$1,630	$2,102	$1,508	$0		$0
Federal Grants	$41,384	$89,325	$93,279	$108,559	$125,721		$134,000
State Grants	$0	$0	$0	$0	$0		$0
Local Gov't	$10,346	$20,702	$21,218	$25,632	$44,653		$41,000
Other Grants	$9,194	$0	$0	0	$0		$0
FIXED + ADA expenses					($1,764,603)		($1,892,000)

Using the suggested federal support cited above for fixed route and paratransit operating expenses leaves approximately $766,000 in Section 5307 funds to be applied towards capital expenditures, which will more than meet the listed FY2014 budgeted capital needs, but will not be enough to meet all the unfunded capital needs. The table below (**Table 6.5**) lists the unfunded needs listed in the STIP; this does not include the Routine Capital items budgeted for $344,000 in FY 2014.

Table 6.5: Unfunded Capital items listed in the STIP

STIP#	UNFUNDED PROJECTS	2014	2015	2016	2017	2018
TA-4965	Replacement Bus	$2,400		$600	$1,200	
TA-4773	Expansion Bus	$1,200	$1,200	$1,200	$1,200	$1,200
TT-5208	Technology - vehicle tracking, passenger	$250	$50	$50	$250	

STIP#	UNFUNDED PROJECTS	2014	2015	2016	2017	2018
	info, data communications, etc.					
TD-4716	Facility - Intermodal Center - design, acquire, construct	$8,182				
	subtotal unfunded needs	$12,032	$1,250	$1,850	$2,650	$1,200

Baseline for the next five years – same level of service as in FY 2014

Based on the data provided and the subsequent analysis (above), the consultant created a forecast for GREAT transit service at the same level of service as proposed for FY 2014. One adjustment to the 2014 base year is an inflation factor of 2.6% on operating costs. This rate is derived from the Bureau of Labor Statistics annual data[2] ending in May of 2013, which specifically measures changes in transportation service costs. The Consumer Price Index for capital costs only shows a 1% inflation rate. The consultant introduces a similar 1% increase in fare revenue starting in year 2015 that is compounded through 2018.

The exercise of creating a reasonable baseline is intended to compare two scenarios. The first is to run the system at the status quo and the second is to expand coverage and service hours, which will require additions to the baseline budget.

Table 6.6 shows the program that could be delivered under the "expected" revenue forecast, with both the State and Federal dollars remaining constant in FY2014 and FY2015, but then beginning to rise to account for inflation. The baseline scenario uses the Federal Transit Administration Section 5307 and 5339 funds as a control to temper expectations, with the combination of these two program grants providing just under $2M by FY2018. The associated Local Government share of the 'no growth' scenario increases from $529,500 in 2014 to $621,600 by FY2018, with GREAT providing the same basic level of transit services as it delivered in 2013.

In order to provide service with the proposed improvements and in accordance with the proposed schedule outlined below, GREAT will need to solicit other funding sources. Some of these funding sources are outlined in the following section.

[2] The Consumer Price Index (CPI) is a measure of the average change in prices over time of goods and services purchased by households. The Chained CPI for All Urban Consumers (C-CPI-U) covers approximately 88% of wage earners, unemployed, retirees and others not in the labor force.

Table 6.6: Programs delivered under expected revenue format

Fixed Route		FY 2014	FY 2015	FY 2016	FY 2017	FY 2018		ASSUMPTIONS
Ops Expenses	share	($1,682,000)	($1,725,732)	($1,770,601)	($1,816,637)	($1,863,869)	102.6%	ops inflation transport costs CPI
Farebox		$300,000	$300,000	$303,000	$306,030	$309,090	101.0%	unimproved service
Special Fares		$15,000	$15,000	$15,000	$15,000	$15,000		
Other Revenue		$0	$0	$0	$0	$0		
Non-transit rev		$0	$0	$0	$0	$0		
Federal Grants	**50%**	$756,000	$756,000	$775,656	$795,823	$816,514	102.6%	new transportation bill tags CPI
State Grants	**SMAP**	$200,000	$200,000	$200,000	$200,000	$200,000		
Local Gov't	**balance**	$411,000	$454,732	$476,945	$499,784	$523,264		
ADA Service								
Ops Expenses	share	($210,000)	($215,460)	($221,062)	($226,810)	($232,707)		
Farebox		$35,000	$35,000	$35,000	$35,000	$35,000		
Special Fares		$0	$0	$0	$0	$0		
Other Revenue		$0	$0	$0	$0	$0		
Non-transit rev		$0	$0	$0	$0	$0		
Federal Grants	**80%**	$134,000	$134,000	$137,484	$141,059	$144,726	102.6%	new transportation bill tags CPI
State Grants		$0	$0	$0	$0	$0		
Local Gov't	**20%**	$41,000	$46,460	$48,578	$50,751	$52,981		
Capital Costs								
Routine Capital	share	($250,000)	($252,500)	($255,025)	($257,575)	($260,151)	101.0%	capital inflation vehicle costs CPI
Federal Grants	**80%**	$200,000	$275,040	$282,191	$289,528	$297,056	102.6%	new transportation bill tags CPI
Local Gov't	**20%**	$50,000	-$22,540	-$27,166	-$31,953	-$36,905		
Replace Vehicles	share	($750,000)	($757,500)	($765,075)	($772,726)	($780,453)		
Federal Grants	**83%**	$622,500	$628,725	$645,072	$661,844	$679,052	102.6%	new transportation bill tags CPI
State Grants	**8%**	$60,000	$60,600	$61,206	$61,818	$62,436		share by policy 1/2 non federal
Local Gov't	**9%**	$67,500	$68,175	$58,797	$49,064	$38,965		
Technology	share	($100,000)	($101,000)	($102,010)	($103,030)	($104,060)		
Federal Grants	**80%**	$80,000	$80,800	$82,901	$85,056	$87,268	102.6%	new transportation bill tags CPI
State Grants	**10%**	$10,000	$10,100	$10,201	$10,303	$10,406		share by policy 1/2 non federal
Local Gov't	**10%**	$10,000	$10,100	$8,908	$7,671	$6,387		
SUMMARY								
BUDGET	share	($2,942,000)	($2,971,420)	($3,001,134)	($3,031,146)	($3,061,457)	note:	consumer price index - CPI
Farebox		$335,000	$335,000	$338,000	$341,030	$344,090		12 mos ending 5/13
Special Fares		$15,000	$15,000	$15,000	$15,000	$15,000		
Other Revenue		$0	$0	$0	$0	$0		
Non-transit rev		$0	$0	$0	$0	$0		
Federal Grants		$1,792,500	$1,874,565	$1,923,304	$1,973,310	$2,024,616		
State Grants		$270,000	$270,700	$271,407	$272,121	$272,842		
Local Gov't		$529,500	$579,467	$593,228	$607,269	$621,597		
5307+5339	**control**	$1,830,008	$1,830,008	$1,877,588	$1,926,406	$1,976,492	102.6%	new transportation bill tags CPI
		-$37,508	$44,557	$45,715	$46,904	$48,124		

GREAT Financial Analysis: Future Funding Possibilities

Part of the process of creating the 5-year plan for the Greenville Area Transit (GREAT) system is to select future service alternatives for possible implementation as funding sources become available, based on public input. While the GREAT budget already includes federal and state funding, including funds falling under 5307 (Urbanized Area Formula Funding), these funding sources are unlikely to cover alternatives such as increased headways, service expansion, and/or extended Saturday service. In order to implement these types of service improvements, alternative funding opportunities will need to be identified.

Transportation for Elderly Persons or Person with Disabilities (5310)[3]

One possible new funding source is the 5310 Formula Grant. This grant provides formula funding to States to aid private nonprofit groups in supplying the transportation needs of persons with disabilities and the elderly. This funding only applies if the transportation services for these vulnerable groups are lacking, unavailable, or inappropriate to meet their needs. Funds are provided to States based on the population of persons with disabilities and the elderly within that State and are only dedicated to funding capital expenses. The local match for this grant is 20 percent.

There is a small amount of 5310 money that is specifically reserved for small urban use at the discretion of the transit provider. This funding could be used for any alignment that shows high rates of use by the elderly and/or persons with disabilities. GREAT would need to find the local matching funds.

In order for GREAT to use the State Elderly and Disabled Transportation Assistance Program (EDTAP) funding as the local matching funds, GREAT could provide service to the Council on Aging under a "contract using public provider service" agreement. The route would have to serve destinations and services that cater to the elderly and people with disabilities, such as Vidant Hospital, the VA, downtown, and shopping amenities, and would be open to the public. North Carolina was one of the few states approved to use 5310 funds for operating purposes, up to 50 percent of their total allocation for operations.

Local Partnerships

In terms of enhancing stops and facilities, GREAT could consider a closer partnership with the Eastern Carolina University bus system. For shared stops, one possible arrangement would be that GREAT provides the shelter, while ECU would install everything and provide maintenance for the facility. A similar arrangement between GREAT and the Vidant Medical Center bus system might also be possible.

[3] USDOT FTA. (2013). *Transportation for Elderly Persons and Persons with Disabilities*. Retrieved from http://www.fta.dot.gov/grants/13093_3556.html.

Downtown Shuttle

With possible funding through the 5310 grant, a downtown shuttle operation could be considered for Greenville. Oxford, North Carolina (Franklin County), was successful in developing a shuttle using 5310 funds on the grounds that more than ½ of the daily riders were eligible elderly and persons with disabilities. The shuttle did serve the Senior Center that was located in Oxford. Depending on interest, downtown merchants could also contribute some funding to help bring people to the city center. A higher percentage of local matching funds may be necessary to strengthen the grant proposal for this service.

Motor Vehicle Fee

Some North Carolina counties assess motor vehicle fees to help support the transit system. The main support for this type of fee is based on the fact that a small fee can have a huge impact on the type, quality, and frequency of service provided. Every county in North Carolina is eligible to charge a fee of up to seven dollars on motor vehicle registrations, though the exact amount of the fee is at the discretion of the county commissioners. Proceeds from any such fee must be dedicated to providing transit service in that county. For the GREAT service, considering a population-based assessment of transit service provisions as well as providing indicators of how the transit system is likely to grow both in Greenville and in Pitt County could provide some evidence to support the need for an increased motor vehicle fee.

Sales Tax/Bond Referendum

Another way to support local service increases is to allow the voting public to use the ballot to support transit. Funds generated through this type of measure must be used as dedicated funds for local matches, essentially serving as guaranteed funds for the transit service.

The North Carolina House of Representatives Bill 148 / Session Law 2009-527 allows counties to levy a ¼ cent sales tax subject to approval by voters. Again, county commissioners must approve the measure in order for it to appear on the ballot (Damien Graham, personal communication, November 10, 2013).

Bus Advertising

Lastly, selling advertising, either as bus wraps, within the bus, and/or at bus shelters, can be another way to generate revenue for increased bus service. This will not generate as much funding, but can supplement existing funding sources and does have the advantage of not being constrained by federal, state, or local funding requirements.

MODULE 7

Implementation

Summary: This section provides information regarding the GREAT system's future action plan and the order of implementation for system improvements.

Which Improvements are most important?

During the public outreach process, Greenville citizens provided a great deal of information regarding what changes they would like to see in the system, covering topics such as passes and information, hours and frequency, collaboration, and routing alternatives. As summarized in the Service Alternatives section, the information provided by transit riders and other stakeholders yielded some important conclusions for prioritization. Extending weekday hours until 10:00 PM, increasing frequency to 30 minutes on all routes, establishing protocols to supply more shelters and benches, providing semester passes, and a few minor route changes were among the top ranking improvements.

The steering committee also provided some important feedback on how to prioritize and implement potential system improvements. Using polling software, the consultant team solicited information from the steering committee regarding their first and second priorities. The first question asked "Which alternative is the MOST important?" The results of this polling exercise are included below (**Figure 7.1**).

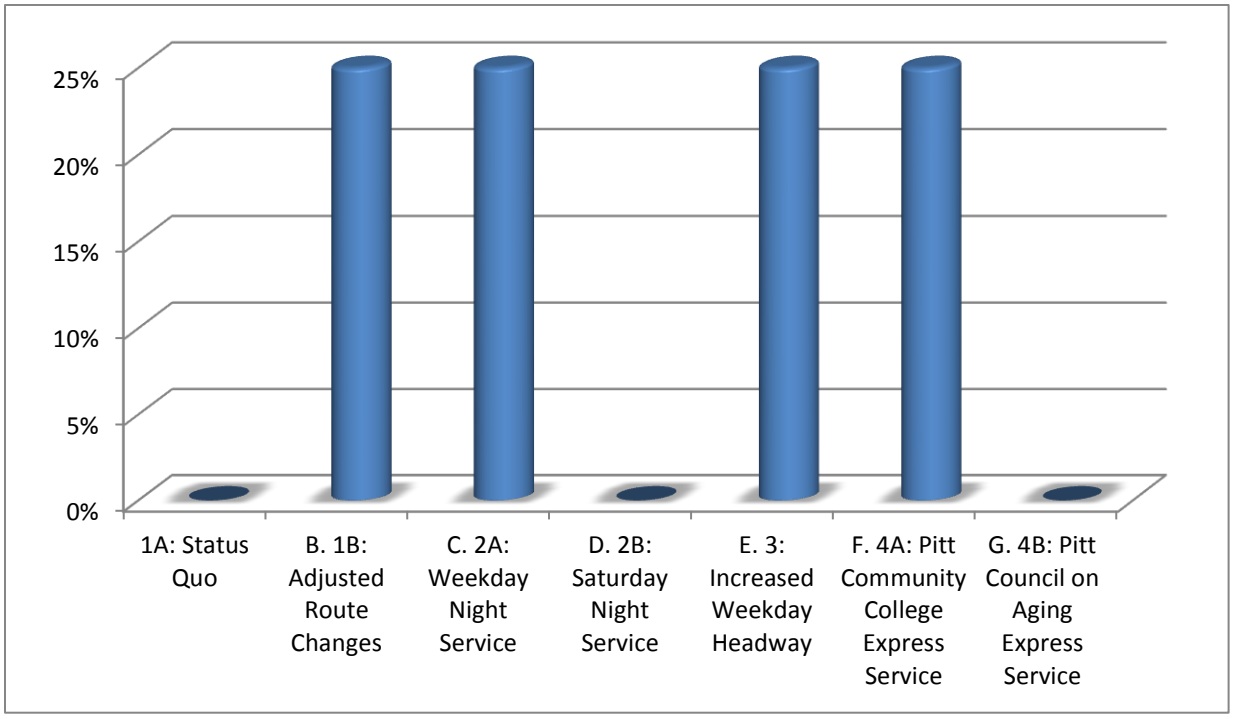


Figure 7.1: First priority GREAT system improvements

The steering committee selected four potential improvements with the vote split into equal increments across each of these improvements. Our second question (**Figure 7.2**) posed "Which alternative is the SECOND MOST important?

Taken together, these questions clearly demonstrate the Steering Committee's priorities. They indicated that the adjusted route changes as well as the Pitt Community College Express Service are the most important improvements to the system, while weekday night service and increased weekday headways are also important.

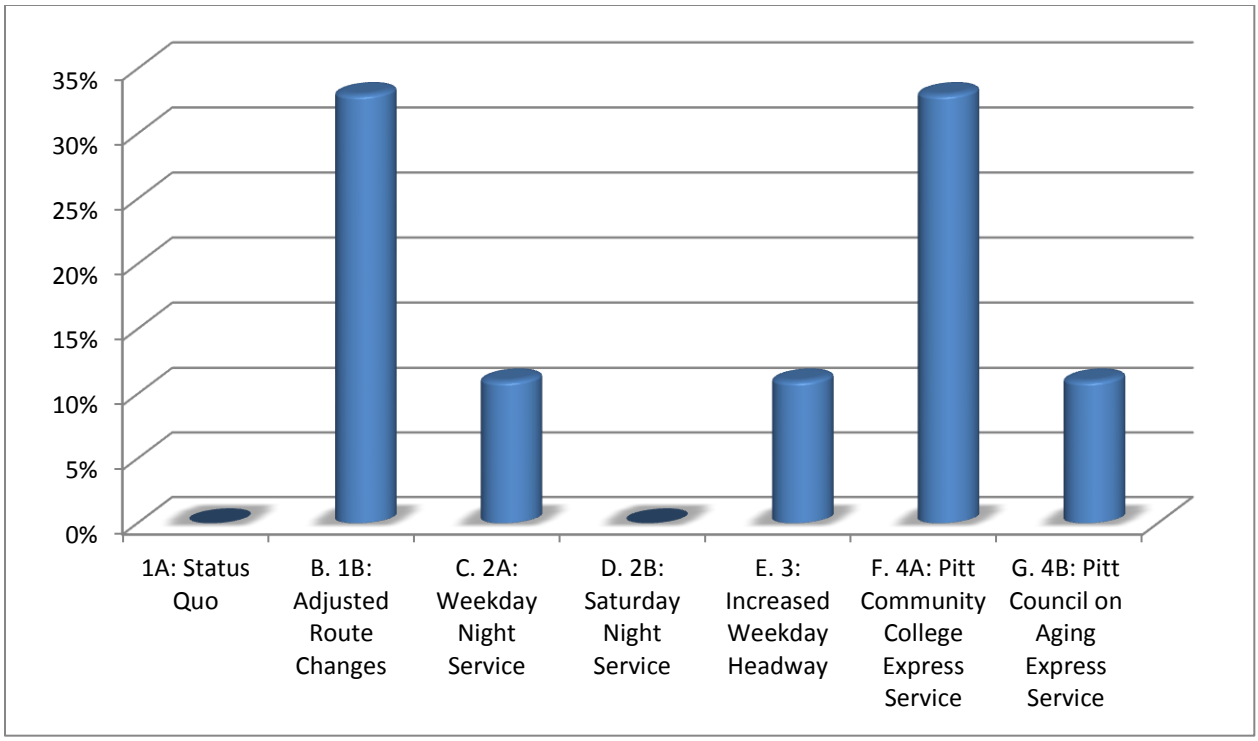


Figure 7.2: Second priority GREAT system improvements

Finally, the last polling question asked "Which alternative is least important?"

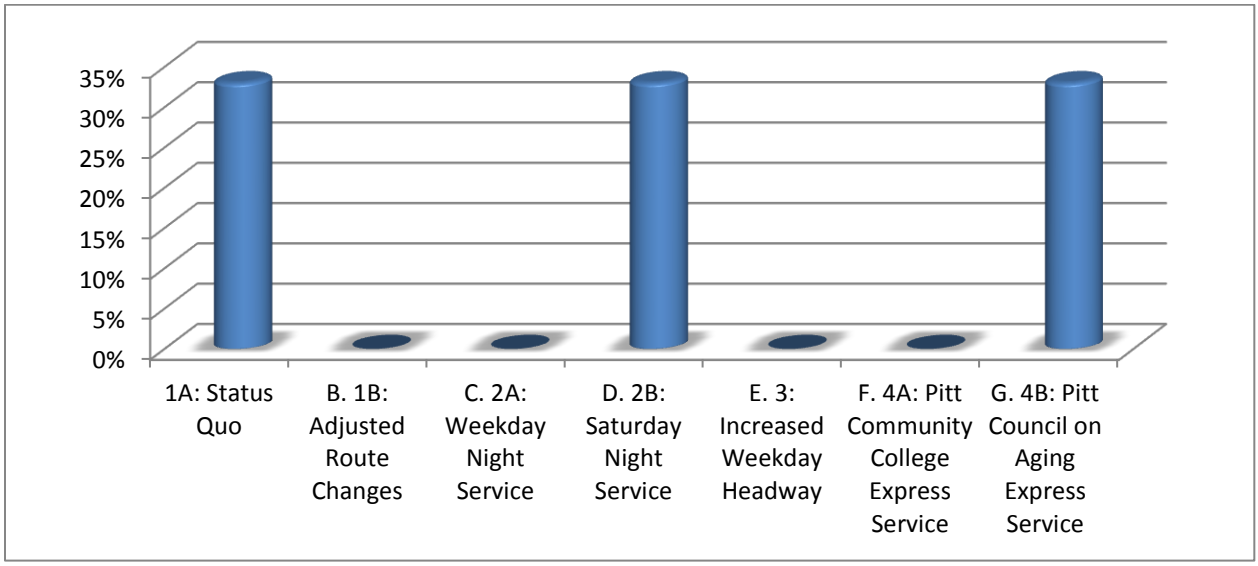


Figure 7.3: Least important GREAT system improvements

As expected, maintaining the status quo for the system, implementing Saturday night service, and providing service to the Pitt Council on Aging as an express route were not considered to be major priorities for the system.

Final Route Map

With the Steering Committee's input, the preferred routing alternatives map was finalized with approval of the Transit Director and presented to the committee. It is included in **Figure 7.4** below.

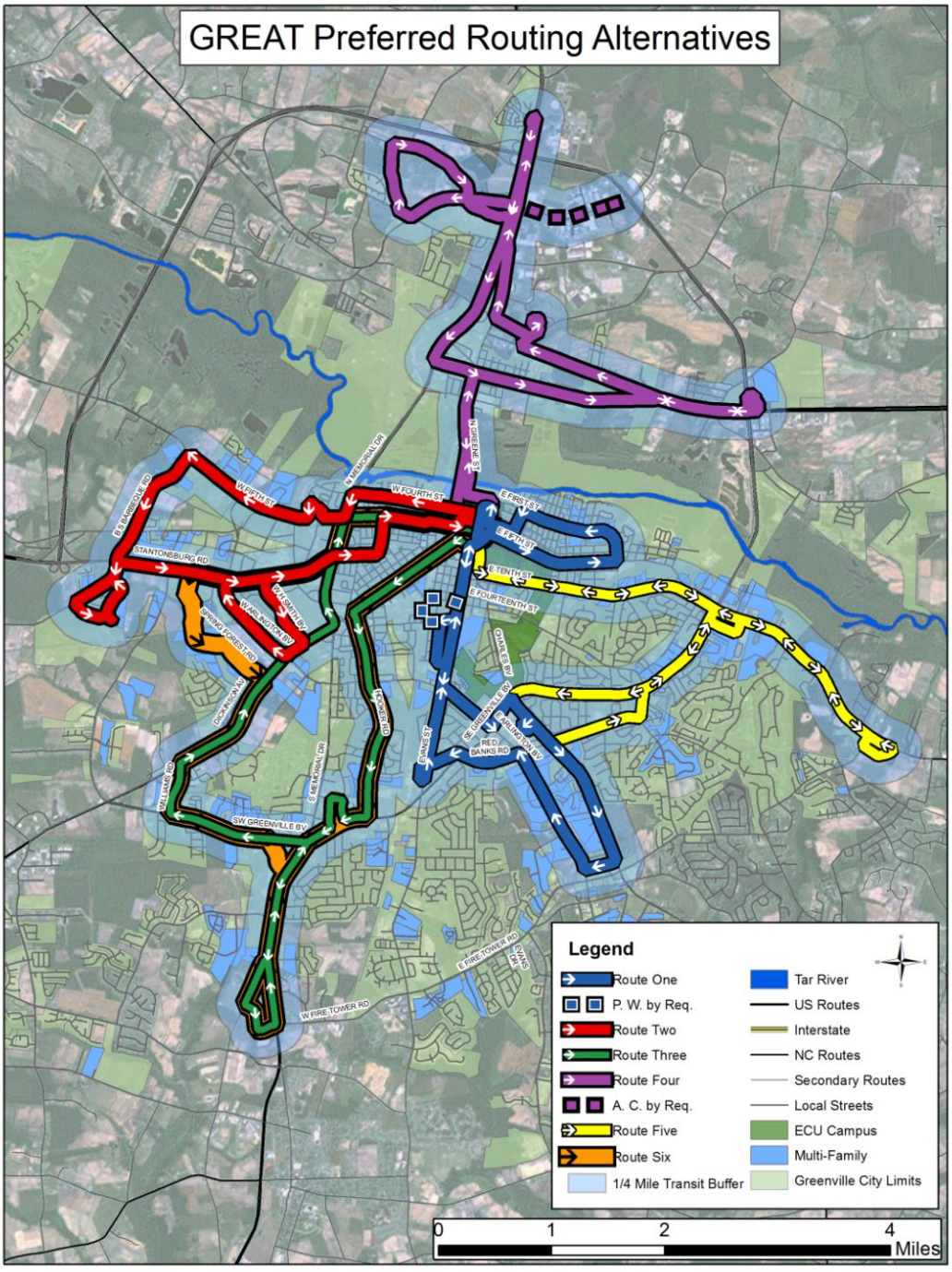


Figure 7.4: Final Route Map

Implementation Timeline

With the polling results in mind, the following implementation timeline was created and presented to the Steering Committee at the final meeting. The timeline follows the recommendations of the Steering Committee and prioritizes the adjusted route changes and the PCC Express services in Fiscal Year (FY) 1.

Table 7.1: GREAT Implementation Plan (Alternatives)

Alternative	FY0	FY1	FY2	FY3	FY4	FY5
Status Quo	X					
Adjusted Route Changes		X	X	X	X	X
Weekday Night Service 7:00 PM to 9:00 PM			X	X	X	X
Weekday Night Service 9:00PM to 10:00 PM						X
Saturday Night Service 6:00 PM to 9:00 PM						X
Increased Headway Service: Route 3 and Route 6				X	X	X
Increased Headway Service: Route 5 and Route 2					X	X
Increased Headway Service: Route 1 and Route 4						X
Pitt Community College Weekday Express Service		X	X	X	X	X

Alternative	FY0	FY1	FY2	FY3	FY4	FY5
Pitt County Council on Aging Weekday Express Service			X	X	X	X

Increasing service from 7:00 PM to 9:00 PM and providing service to the Pitt County Council on Aging are scheduled to be implemented during FY 2, while increased headway service on routes 3 and 6 are scheduled for FY 3. Increased headways on routes 5 and 2 and on routes 1 and 4 are scheduled for implementation during FY 4 and FY 5, respectively. Providing longer Saturday night service is also schedule for implementation in FY 5.

Table 7.2: GREAT Implementation Plan (Ridership)

Alternative	FY0	FY1	FY2	FY3	FY4	FY5
Status Quo	509,644					
Adjusted Route Changes		530,030	551,231	573,280	596,211	620,059
Weekday Night Service 7:00 PM to 9:00 PM			23,296	46,592	69,888	72,684
Weekday Night Service 9:00PM to 10:00 PM						11,648
Saturday Night Service 6:00 PM to 9:00 PM						6,989
Increased Headway Service: Route 3 and Route 6				29,908	59,817	89,725
Increased Headway Service: Route 5 and Route 2					29,908	59,817
Increased Headway Service: Route 1 and Route 4						29,908

Alternative	FY0	FY1	FY2	FY3	FY4	FY5
Pitt Community College Weekday Express Service		32,500	33,800	35,152	36,558	38,020
Pitt County Council on Aging Weekday Express Service			7,800	8,112	8,436	8,773
Total Ridership	**509,644**	**562,530**	**616,127**	**693,044**	**800,818**	**937,623**

As indicated in Figure 7.6, these proposed system changes are likely to have implications on ridership. Providing express service to PCC supplies the most profound change to ridership, while increasing headways and extending service will also increase ridership substantially. Figure 7.7 provides information about the cost of providing these improvements.

Table 7.3: GREAT Implementation Plan (Cost)

Alternative	FY0	FY1	FY2	FY3	FY4	FY5
Status Quo	22,752					
Adjusted Route Changes		22,752	22,752	22,752	22,752	22,752
Weekday Night Service 7:00 PM to 9:00 PM			3,120	3,120	3,120	3,120
Weekday Night Service 9:00PM to 10:00 PM						1,560
Saturday Night Service 6:00 PM to 9:00 PM						936

Alternative	FY0	FY1	FY2	FY3	FY4	FY5
Increased Headway Service: Route 3 and Route 6				6,676	6,676	6,676
Increased Headway Service: Route 5 and Route 2					6,676	6,676
Increased Headway Service: Route 1 and Route 4						6,676
Pitt Community College Weekday Express Service		1,300	1,300	1,300	1,300	1,300
Pitt County Council on Aging Weekday Express Service			780	780	780	780
Total Revenue Hours	**22,752**	**24,052**	**27,952**	**34,628**	**41,304**	**50,476**
Cost per Revenue Hour	**$68.88**	**$70.95**	**$73.08**	**$75.27**	**$77.53**	**$79.86**
Total Cost	**$1,567,158**	**$1,706,489**	**$2,042,732**	**$2,606,450**	**$3,202,299**	**$4,031,013**

The proposed route changes are revenue neutral improvements, while the other improvements do add an increased cost to provide service to the GREAT System's finances.

Increasing headways constitutes the largest cost increase for any one improvement. Overall, the costs to provide these improvements to the GREAT system will nearly double the operating budget of the service between FY 0 and FY 5. During this same timeframe, ridership will increase by 85 percent.

Action Plan

The final implementation plan can be summarized more concisely using the terms "Near-Term", "Mid-Term", and "Long-Term" (**Table 7.4**).

Table 7.4: Action Plan

Action Item	Timeline
Minor Route Modifications	**Near-Term**
Install New Shelters	**Near-Term**
Pitt Community College Express Service	**Near-Term**
Weekday Night Service	**Mid-Term**
Council on Aging Connection	**Mid-Term**
Increased Weekday Headway	**Long-Term**
Saturday Night Service	**Long-Term**

As mentioned earlier in this document, soliciting funding from other sources will likely be necessary to fully implement all of the proposed improvements. However, providing express service to PCC and making small route changes can likely be accomplished without a massive operational investment. As ridership continues to increase and new funding sources are identified, the other improvements will likely follow.

Appendix

Title VI Policy

Summary: This section summarizes the new Title VI Policy for the GREAT Service.

GREAT Title VI Policy Compliance

A clear and concise beneficiaries bill of rights

Greenville Area Transit (GREAT) provides a Notification of Rights, which notifies transit users and the general public of GREAT's commitment to ensuring that no individual is excluded from using transit services. The exact language from Title VI of the Civil Rights Act of 1964 is referenced in this notification. The GREAT service further commits to ensuring that "no person is excluded from participation in, or denied the benefits of its transit services and that fares, routing, scheduling, and quality of transportation services are provided without discrimination on the basis of race, color, or national origin […]."[4]

A method of recording complaints and documentation of any complaints

Noted with the actual text of the Title VI of the Civil Rights Act of 1964 on the GREAT Notification of Rights, information is provided regarding the appropriate avenues to take in order to file a complaint with the Federal Transit Administration. Additionally, the notification provides the contact information for the Transit Manager, who is available to provide further information or if someone feels that they have been discriminated against by the transit service.

Adequate access to Limited English Proficiency (LEP) services

While GREAT's Notification of Rights does not cover LEP specifically, this topic is addressed in detail in the Greenville Urban Area Metropolitan Planning Organization's (GUAMPO) Title VI policy.[5] A discussion of the specific factors that constitute "reasonable steps" to ensure meaningful access to information and services for LEP individuals is presented. The four factors are 1) the number and proportion of LEP persons in the eligible service area, 2) the frequency with which LEP persons encounter MPO programs, 3) the importance of the service provided by MPO programs, and 4) the resources available and overall cost to the MPO. These flexible factors allow LEP persons critical access to important services, while also avoiding placing undue burdens on smaller, less-well funded organizations. The GUAMPO Title VI policy addresses each of these factors in turn and concludes that a) there is a small LEP population, b) providing multi-language translations of plans and documents would be cost-prohibitive, and c) all efforts will be made to accommodate LEP persons when practical and in consideration of available funding. An LEP Implementation Plan is also provided.

Board of Directors process for approval of the Title VI Program

The process of evaluating each of the four factors mentioned earlier and assessing the number and proportion of LEP persons, the frequency with which LEP persons encounter MPO programs, the importance of the service provided by the MPO programs, and the resources available to the MPO and the cost constitute a process for approval of the Title VI program. The MPO acknowledges that demographic shifts may occur and that the Title VI policy will be updated periodically. This will occur with regular updates of the Public Involvement Plan.

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[4] Greenville Area Transit. (2012). *Notification of Rights: Title VI of the Civil Rights Act of 1964*.
[5] Greenville Urban Area Metropolitan Planning Organization. (2008). *The Greenville Urban Area MPO Title VI Plan.*

A checklist plus a complete set of the new Title VI assurances

GUAMPO provides more detail regarding the Title VI policy in their Public Involvement Plan.[6] They pledge to reach out to members of the low-income, disadvantaged, and minority communities and to hold open house meetings at the library to allow for easy access. All meetings and workshops will be held in ADA-compliant venues during hours when transit and paratransit services are available.

[6] Greenville Urban Area Metropolitan Planning Organization. (2008). *The Greenville Urban Area MPO Public Involvement Plan*.


ROUTE 2
ROUTE 3
ROUTE 1