

KFH GROUP, INC.

Radford Transit

Final Report

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Prepared for:

**Radford Transit
and the
Virginia Department of Rail and Public Transportation**

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Chapter 1

Overview of Transit System

INTRODUCTION

A Transit Development Plan often referred to as a TDP, serves as a “road map” for public transportation improvements in a community or service area. The Virginia Department of Rail and Public Transportation (DRPT) requires that any public transit (bus,rail,ferry) operator receiving state funding prepare, adopt, and submit a TDP every six years. The TDP outlines the services that Radford Transit intends to implement during the six-year planning horizon estimates what resources will be needed, what funding opportunities are likely to be available, and serves as a management and policy document. DRPT has adopted and updated TDP requirements that form the basis of the planning effort.

History

Radford Transit was established in August 2011 through a joint partnership between the City of Radford and Radford University (RU). The system is operated by New River Valley Community Services (NRVCS). As discussed in more detail in Chapter 3, the establishment of Radford Transit occurred after community stakeholders initiated a transit feasibility study for the City. The 2009 Transit Service Plan for City of Radford/Radford University recommended possible transit alternatives and organizational structures, and advised an application to the Virginia Department of Rail and Public Transportation (DRPT) for S.5311 funding.

Prior to 2011, transportation services in Radford included RU’s Tartan Transit and NRVCS’s Community Transit. Tartan Transit served RU students, faculty, and staff with a campus loop and a city loop. The service was funded primarily through student fees and parking revenue; it dissolved with the formation of Radford Transit. NRVCS continues to operate Community Transit for individuals with disabilities and special needs. Community Transit provides client transportation in Radford, as well as in Floyd, Giles, Montgomery, and Pulaski Counties. Community Transit also provides

transportation through contractual agreements with the City of Radford and other agencies and organizations.

Governance

The City of Radford is the official applicant and recipient of funding for Radford Transit. It has a contract with NRVCS to provide the transit service based on a negotiated rate, as well as having an agreement with RU detailing the school's contribution. The Radford City Council is the ultimate governing body of Radford Transit, as it approves its annual budget.

Currently, a Stakeholder Committee composed of City and University representatives is acting as a policy board for Radford Transit. The committee meets quarterly (or as needed) and includes:

- Josh Baker, Radford Transit General Manager.
- Jim Hurt, City Engineer.
- David Ridpath, City Manager.
- Richard Alvarez, RU CFO and Vice President for Finance and Administration.
- Jo Ann Kiernan, RU Special Assistant to the President (recently retired).
- Jim Quesenberry, RU Director of Policy Compliance and Special Projects.

In addition, a 15 member transit committee was formed during the Transit Service Plan study process. The committee included representatives from the City, RU, NRVCS, New River Community Action, Carilion New River Valley Medical Center, Main Street Radford, and the New River Valley PDC. This committee acts in an advisory role to the Stakeholder Committee, but it has been inactive since the completion of the study in 2009. Radford Transit has expressed interest in reestablishing the committee as part of the TDP process.

Organizational Structure

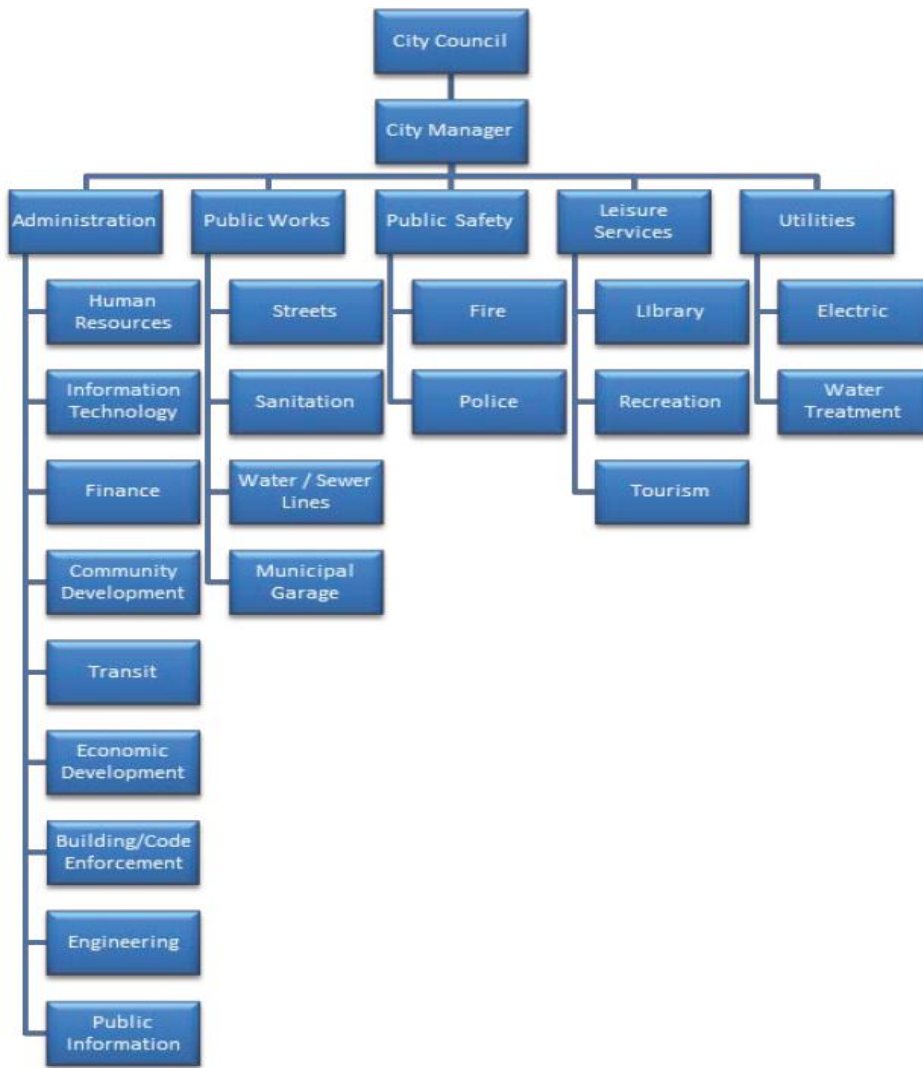
The City of Radford is governed by a five-member City Council that includes the Mayor and Vice Mayor. The City Manager and the City Engineer report to the City Council and are in charge of managing Radford Transit and the NRVCS contract.

The City of Radford and RU have a Memorandum of Understanding (MOU) that sets out how the transit system is operated and evaluated and how costs are shared. The MOU designates "University routes," "City routes," and "University/City shared routes." Each entity is responsible for capital and operating costs based upon those routes and their service hours. The City prepares and submits monthly invoices to RU for its share of operating costs, along with monthly ridership reports. RU and the City share costs related to upgrades of the Radford Transit Hub, while RU is responsible for

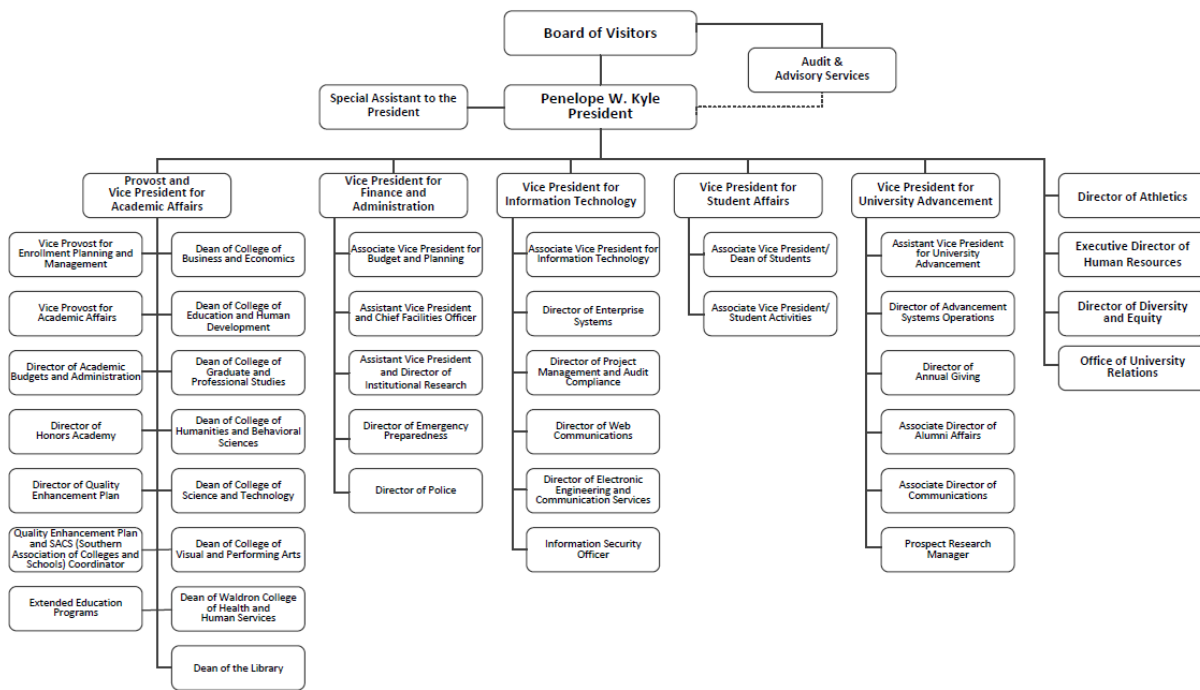
all costs related to Radford Transit’s vehicle tracking technology. Each year the City presents the following fiscal year’s proposed budget to RU for input and comment. The City and RU review and resolve any funding issues at that time. Jim Quesenberry, a member of the Stakeholder Committee who serves under the University Vice-President for Finance and Administration, acts as the point of contact for RU.

Radford Transit is a department of NRVCS, similar to Community Transit. Staff members are shared between the two. Organizational charts for the City of Radford, RU, and NRVCS are presented below.

City of Radford Organizational Chart

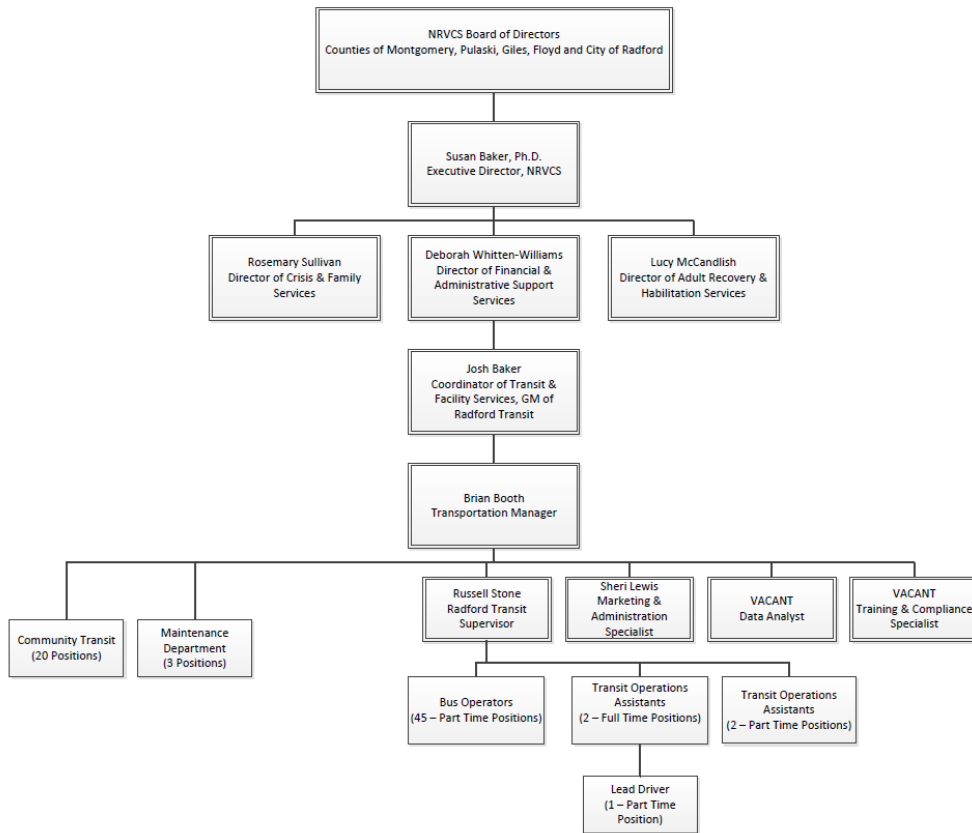


Radford University Organizational Chart



Source: www.radford.edu/content/dam/departments/administrative/human-resources/OrgChart.pdf (Sept. 2012).

NRVCS/Radford Transit Organizational Chart



Transit Services Provided and Area Served

As shown in Figures 1 and 2, Radford Transit currently offers six routes:

- University Express (Route 10- the campus area)
- New River Rapid (Route 20- Fairlawn)
- Cross City (Route 30/31- West Radford)
- NRV Connect (Route 40- Christiansburg, Blacksburg, and the Falling Branch Park & Ride/Megabus transfer)
- Highlander Circulator (Route 50- east campus area)
- South Beech Express (Route 60- Copper Beech Apts., Tyler/ Auburn Avenues).

Operating hours are typically 7:00 a.m. to 10:00 p.m. Mondays through Wednesdays, 7:00 a.m. to 2:30 a.m. on Thursdays, Fridays and Saturdays, and 6:00 p.m. to midnight on Sundays. The Radford Transit schedule also varies with the University calendar; “City Only Service” (Routes 20, 30, and 50 only, no Sundays, or Saturday nights) occurs May through August and during Radford’s winter break. Radford Transit offers ADA fixed route $\frac{3}{4}$ mile deviations, scheduled 24 hours in advance. It also provides pre-scheduled service to the Carilion NRV Medical Center on weekdays from 9:00 a.m. to 6:00 p.m.

Fare structure

One way general public fare is \$1.00, while seniors (65 and over) and children (12 and under) ride free. Exact fare is required when boarding. RU students, faculty, and staff also ride free with a valid university ID card. Free transfer slips are distributed by drivers and are good for one hour. An unlimited ride monthly pass is also available for \$20.00. Currently, Radford Transit does not have transfer agreements with other systems in the region.

Figure 1-1: Radford Transit (System Wide)

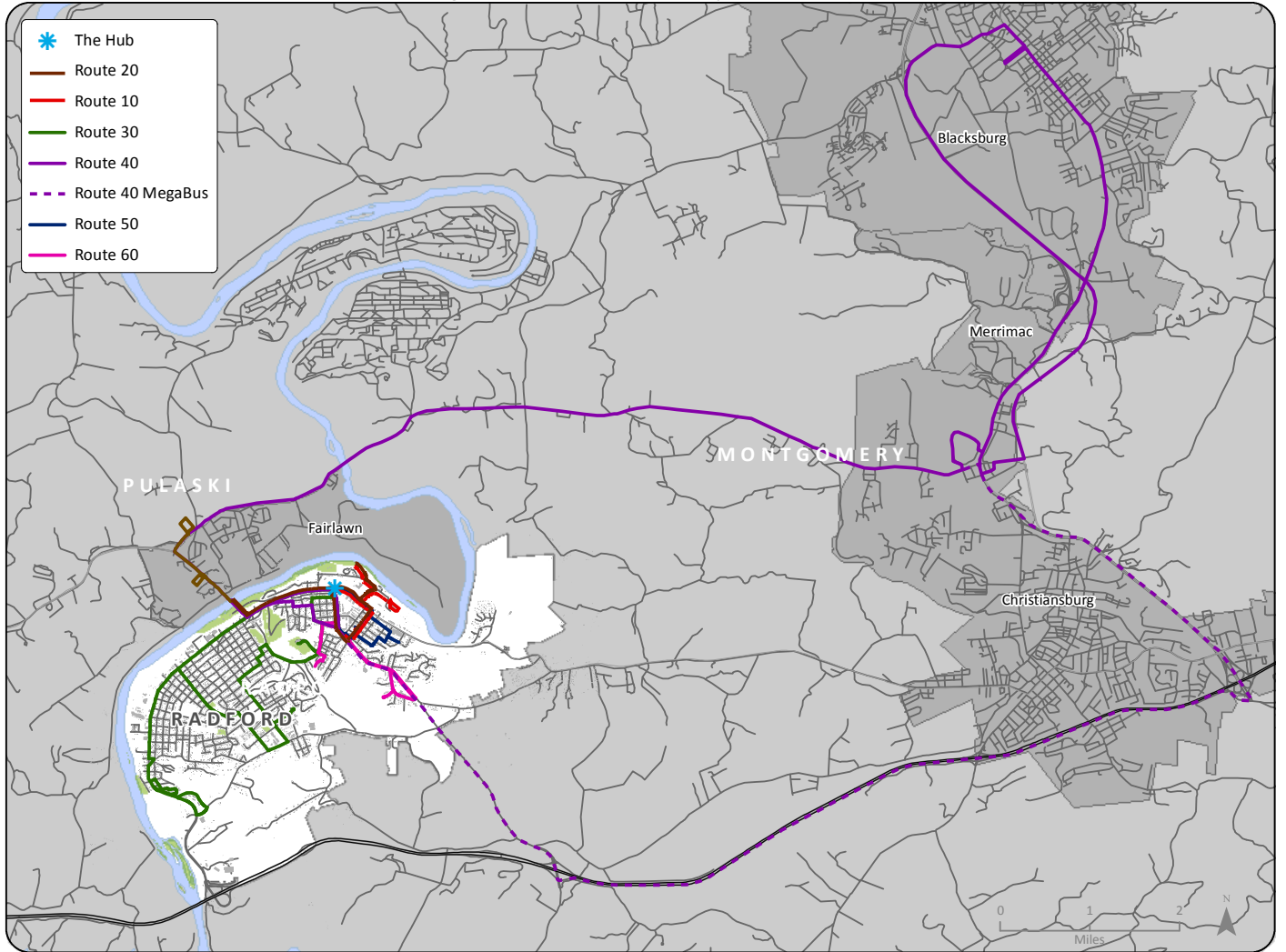
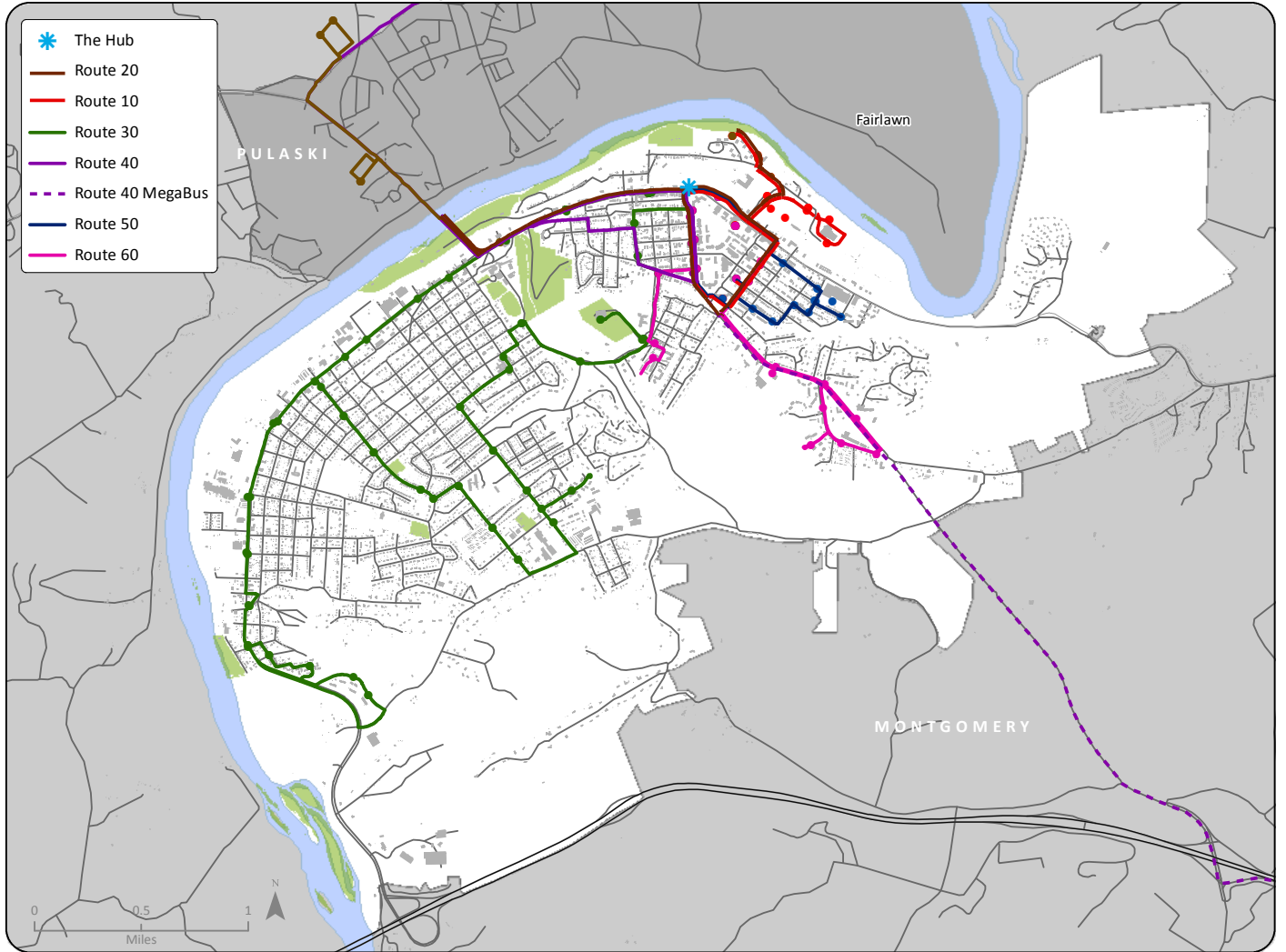


Figure 1-2: Radford Transit Routes and Stops



Fleet

As shown below, the Radford Transit fleet includes twelve body on chassis vehicles and two new flyer transit buses. The vehicles were purchased between July 2011 and January 2013.

Vehicle ID #	Model Year	Make	Lift?	Capacity	Mileage	Status	Estimate Replacement Year
1FD4E4FS8BDA72826	2011	Body on Chassis	Y	12	68,499	Fair	2015
1FD4E4FSXBDA72827	2011	Body on Chassis	Y	12	68,031	Fair	2015
1FD4E4FS1BDA72828	2011	Body on Chassis	Y	12	60,972	Fair	2015
1FD4E4FS3BDA72829	2011	Body on Chassis	Y	12	68,056	Fair	2015
1FD4E4FSXBDA72830	2011	Body on Chassis	Y	12	68,855	Fair	2015
1FD4E4FS7BDA63583	2011	Body on Chassis	Y	12	68,193	Fair	2015
1FD4E4FS9BDA63584	2011	Body on Chassis	Y	12	63,282	Fair	2015
1GB6G5BGXC1183892	2012	Body on Chassis	Y	19	28,799	Good	2016
1GB6G5BGOC1184369	2012	Body on Chassis	Y	19	28,799	Good	2016
1GB6G5BG3C1183541	2012	Body on Chassis	Y	19	26,299	Good	2016
1FDGF5GY8DEA17607	2013	Body on Chassis	Y	26	1,744	Good	2019
1FDGF5GYXDEA17608	2013	Body on Chassis	Y	26	6,132	Good	2019
5FYD2TU162U023813	2002	New Flyer Transit Bus	Y	28	264,418	Fair	2015
5FYD2TU142U023812	2002	New Flyer Transit Bus	Y	28	236,672	Fair	2015

Facilities

The NRVCS Headquarters and Board Administration is located at 700 University City Boulevard in Blacksburg. NRVCS leases a former FedEx property for the Radford Transit Administrative Office, located at 2 Corporate Drive in Radford. NRVCS currently is under a three year lease with two (1-year) extensions available (original lease term ends December 2014). The facility is a two story office building (3,600 square feet) with two attached (6,000 square feet each) garage bays. One of the bays is conditioned for maintenance use; the other is strictly additional parking space and cannot be used for maintenance work. Staff expressed that this facility does not have onsite fueling or sufficient parking, as it was not originally intended for transit operations. The construction of a new facility, possibly co-located with Pulaski Transit, should be explored in this TDP. The development of a dedicated Radford Transit facility is also addressed in DRPT's Six Year Improvement Plan for FY14-19, which has a line item for "Bus Engineering & Design of Admin./Maint. Facility" and identifies \$150,000 in FY2016 and \$100,000 in FY2019.



Exterior of the 2 Corporate Drive facility

There are currently only three shelters for the Radford Transit system, these are located at "The Hub", "Armstrong" lot, and "Greenhill" timecheck stop. Radford Transit, however, does have funds and plans to procure more and install them. There are no transit centers or any other improvements of that type in the service area.



Interior of the 2 Corporate Drive facility



Student boarding at Lot A

Transit Safety and Security Program

NRVCS has both an employee training program and an emergency preparedness plan. Under the training program, all new employees must pass a background and criminal check along with a drug test. In addition to a two-day general employee orientation, new operators complete route specific training sessions and instruction on wheelchair loading, pre/post trip inspection, etc. New operators must be able to obtain a CDL Class B learners permit and must attend defensive driving, first aid/CPR, and diversity training courses.

Under the emergency preparedness plan, the following measures are in place:

- **Communications:** In the event of an emergency or accident, Radford Transit staff and drivers are trained to first call 911. Staff can then use the PA system to disseminate a warning message within the building. Drivers are instructed to utilize two-way radios to reach the office or, if necessary, their personal cell phones. In the event of severe weather or any other shelter-in-place situation, the Radford Recreation Center is the designated safe shelter location.
- **Safety Equipment:** All Radford Transit vehicles are equipped with two-way radios, fire extinguishers, emergency triangles, first aid/bloodborne pathogens kits, and seat belt cutters. Vehicles also have on-board GPS units which include silent alarms.
- **Training:** As noted above, all staff are trained in first aid/CPR and emergency response procedures.
- **System Security:** Staff are instructed to report all suspicious people, objects, and activities, and drivers are required to wear ID badges when operating vehicles or on transit property. Fares are stored in a tamper proof money vault system.

Intelligent Transportation Systems (ITS) program

Radford Transit has a NextBus system that can be accessed by mobile devices and the Radford Transit website. NextBus uses GPS satellite technology to track the exact location of buses and estimate real time arrivals to specific stops. Arrival times are also displayed digitally at the Main Street and Tyler Avenue Transfer Hub. Additionally, five of fourteen vehicles are equipped with on-board cameras.

Public Outreach

Information on Radford Transit's services is posted on its website and explained in detail in the Radford Transit Rider Guide & System Schedule (available to download

at www.radfordtransit.com/how-to-ride.php). In addition, Radford Transit is active on Facebook and Twitter to engage its riders and the general public. The system has offered free ride promotions (e.g. the entire month of January 2013, Election Day 2012). Also during January 2013, riders on the Route 30 Cross City bus could enter to win a weekly prize of a \$25 Walmart gift card.

Chapter 2

Goals, Objectives, and Standards

This section presents goals and objectives for Radford Transit. It also discusses performance standards, which are critical for addressing both the efficiency and effectiveness of the services that Radford Transit provides.

PROPOSED GOALS, OBJECTIVES, AND STANDARDS

It is important that a transit system have specific goals, objectives, and service standards to guide and objectively measure if the system is accomplishing its mission. The mission of Radford Transit is “Making a Difference by Enhancing Lives”.¹ Goals are broad and general, providing policy guidance as to how the transit system’s mission should be accomplished. Objectives provide more specific and tangible direction as to how transit goals can be met.

As part of the 2009 Transit Service Plan process, the City of Radford Public Transit Committee developed the following set of goals and objectives:

Goal: *Connect Radford University students to off-campus destinations outside walking distance and City of Radford residents to area locations and services.*

Objectives:

- Expand transportation services from University to area grocery stores (i.e. Food Lion and Wade’s), restaurants (i.e. Applebee’s and Sal’s), locations in Pulaski County (i.e. Wal-Mart, Kroger, banks), Virginia Tech, Christiansburg, and the Smart Way commuter bus service to Roanoke.
- Implement transportation services to connect City of Radford residents to similar locations, as well as other services (i.e. medical facilities, Department of Social Services offices).
- Identify opportunities to build upon current services operated by Radford University and New River Valley Community Services.

¹ <http://www.radfordtransit.com/inside-rt/>

Goal: Support City of Radford's desire to "go green" and reduce the number of cars on the road and Radford University's to be a "green" campus.

Objectives:

- Explore park-and-ride opportunities, especially for students who live off campus and to limit traffic in downtown Radford.
- Identify appropriate vehicle fleet for serving residential halls.
- Provide sufficient transit services to allow the University to reconsider the car use policy.
- Promote the development of intermodal transportation connections, facilities, and services.

Goal: View transportation services from a regional perspective.

Objectives:

- Provide access to regional destinations (i.e. Carilion New River Valley Medical Center, Virginia Tech, Roanoke).
- Provide transportation connections between the campuses of Radford University, Virginia Tech, and New River Community College.

Goal: Engage and involve the community in the transportation planning process.

Objectives:

- Conduct appropriate outreach activities (i.e. surveys) to gain information on specific needs.
- Keep local elected officials and other key community stakeholders informed of planning process through appropriate outreach activities.

Goal: Identify organizational arrangement options to allow Radford University not to operate transportation services.

Objectives:

- Determine appropriate funding by the University to support an alternative transportation operator.

Goal: Provide easy access to information on available mobility options.

Objectives:

- Maintain central location for information on transportation services and options, including consideration of New River Valley Planning District Commission's mobility manager project.

- Promote awareness and use of all transportation alternatives through marketing and education.

Goal: *Provide transportation services in support of economic development.*

Objectives:

- Provide access to area retailers, restaurants, and other services and locations.
- Provide transportation services that promote downtown Radford.

The goals and objectives above were specific to the 2009 planning process; some are no longer relevant given Radford Transit's establishment and subsequent operations. At the initial meeting with City and University stakeholders and KFH Group staff, the need for update will be considered.

SERVICE STANDARDS

Service standards are benchmarks by which service performance is evaluated. Service standards are typically developed in several categories of service, such as service coverage, passenger convenience, fiscal condition, and passenger comfort. The most effective service standards are straightforward and relatively easy to calculate and understand.

Virginia at this time does not have established statewide performance benchmarks, criteria, or requirements. The following service standards structure was developed for the Harrisonburg Department of Public Transportation (HDPT). Like Radford Transit, HDPT provides fixed-route services to both city residents and a university community (James Madison). Based on Radford Transit's operations to date, the following baseline service standards were proposed:

Category	Measures	Standard
Availability	<p><i>Service Coverage:</i></p> <ul style="list-style-type: none"> • Residential Areas: <ul style="list-style-type: none"> ○ Areas with population densities adequate for fixed-route transit. • Major Activity Centers: <ul style="list-style-type: none"> ○ Employment concentrations. ○ Health centers. ○ Schools and universities. ○ Major shopping centers. ○ Social service/government centers. 	<ul style="list-style-type: none"> • Residential areas with 2,000 persons per sq./mi. • All major activity centers.
Availability	<p><i>Frequency:</i></p> <ul style="list-style-type: none"> • RU Service Headways (non-regional routes). • City Service Headways (weekdays, Sat.). 	<p><i>Frequency:</i></p> <ul style="list-style-type: none"> • Minimum 30 minutes. • Minimum 60 minutes.
Availability	<p><i>Span:</i></p> <ul style="list-style-type: none"> • RU Service Span 7 a.m. to 7:40 p.m. M-Th; 7 a.m. to 2:30 a.m. Fri., Sat.; 6 p.m. to 12 a.m. Sun. • City Service Span 7 a.m. to 7:40 p.m. weekdays, Sat. 	
Loading	Standees for short periods acceptable.	25% of passengers or less.
Bus Stop Spacing	Core area stops per mile. Fringe area stops per mile.	5 to 7 stops. 4 to 5 stops, based on land uses..
Dependability	No missed trips.	95% on-time service (0 to 5 minutes late) -- No trips leaving early.
Productivity (Pass./rev. hour)	RU Service average (trips per revenue hr.). City Service average (trips per revenue hr.).	Review and modify services that fall below current average.
Cost Effectiveness (Cost per trip)	RU Service average. City Service average.	Review and modify services that exceed current average.
Shelters	Boardings per day.	25 or more.
Public Information	Schedules, maps, signage, and website current and accurate.	
Revenue Equipment	Clean and good condition.	

PROCEDURES FOR REVIEWING AND UPDATING GOALS, OBJECTIVES, AND SERVICE STANDARDS

It is recommended that the Public Transit Committee examine Radford Transit's goals, objectives, and service standards on an annual basis, updating them as needed. Updates could be based on changes in mission, actual performance as compared to the objectives, or changes in available resources. This annual review should take place as part of the grant preparation cycle, so that any changes could be included in the annual TDP update.

Chapter 3

System Evaluation and Transit Needs Analysis

INTRODUCTION

This chapter evaluates Radford Transit's current services, identifying areas for improvement in operational performance and any capital needs. It includes a peer review to determine how Radford Transit performs in comparison to other transit agencies in the Commonwealth with similar operating characteristics. It also examines current system use through passenger counts conducted in September 2013.

Another component of the chapter is the transit needs analysis, which draws on demographic data, input from rider and general public surveys, interviews with local stakeholders, and related transportation and land use studies to pinpoint unmet needs and gaps in transportation services. The analyses described below highlights transit needs and issues in the City of Radford and the region that will guide the development of service alternatives in the next phase of the TDP.

SYSTEM EVALUATION

Evaluation of Existing Service

Radford Transit's six routes vary in hours, days, and ridership. Table 3-1 displays the route miles, hours, and ridership for FY 2013. Note that for all routes except the 20, multiple vehicles are designated (i.e. 40 and 41 for the 40 Route).

Route 10, the University Express, is Radford Transit's highest ridership route. It serves the Radford campus, shuttling students between the Greenhill Apartments, the Dedmon Center, and key academic buildings. It does not run when RU is not in session. Three vehicles serve the route at peak times, with 10 minute headways.

Route 20, the New River Rapid, travels between RU and the Fairlawn Walmart. It operates year round, Monday through Saturday, on hourly headways.

The Cross City Route 30/31 serves much of West Radford, connecting to other routes at the Hub. Bi-directional service results in 30-minute frequencies to key stops such as the Willow Woods apartments and the Radford Recreation Center. Of Radford Transit's routes, the 30/31 has the lowest productivity in terms of trips per mile and hour.

Table 3-1: FY 2013 Route Miles and Hours and Ridership

	Revenue Hours	Revenue Miles	Ridership	Trips/Hour	Trips/Mile
10	3,070	25,515			
10 (tripper)	65	518			
11	1,905	15,670			
12	1,614	13,068			
	6,653	54,771	165,461	24.9	3.0
20	3,701	31,502	25,508	6.9	0.8
30	3,837	49,598			
31	3,780	48,570			
	7,616	98,169	22,185	2.9	0.2
40	1,158	23,795			
41	958	19,463			
	2,116	43,258	11,949	5.6	0.3
50	4,068	38,995			
51	1,760	15,126			
	5,828	54,121	66,400	11.4	1.2
60	2,201	23,328			
61	1,636	17,548			
	3,837	40,875	30,640	8.0	0.7

The NRV Connect Route 40 runs Thursdays and Fridays (2:40 p.m. to 1:55 a.m.), Saturdays (10:40 a.m. to 1:55 a.m.), and Sundays (one Megabus run) when RU is in session. It connects Radford, the Megabus stop at the Falling Branch Park & Ride, Christiansburg, and Blacksburg. The 40 also serves the Fairlawn Walmart (after Route 20 service ends in the evening) as the result of a recent route adjustment.

Route 50, the Highlander Circulator, serves RU, specifically the Burlington Lot. On Saturdays, the route extends to Tyler Avenue, covering the area served by Route 60 during the week. Monday to Friday frequencies range from 10 to 20 minutes, while on Saturdays and when RU is not in session frequencies are every half hour. The 50 had the second highest ridership in FY 2013. It only trails Route 10 in terms of trips per mile and hour.

The South Beech Express Route 60 travels between the Copper Beech Apartments, RU, and Tyler/Auburn Avenues. Headways are every 20 to 40 minutes, Monday through Friday when RU is in session.

From a system-wide standpoint (and from the perspective of many stakeholders), Radford Transit has exceeded expectations concerning growth and performance in its first 2.5 years. However, in addition to route by route descriptions, a more systematic and qualitative evaluation of the services is also prudent. This would involve a comparison of several performance measures against the performance standards described in Chapter 2: availability, loading, bus stop spacing, dependability, productivity, cost efficiency, cost effectiveness, shelters, public information, and revenue equipment. The performance standards developed as part of this TDP were based on the system's most recently available data and therefore cannot be applied for this fiscal year. It is recommended that Radford Transit review these standards going forward on at least an annual basis.

Operating Budget

The expenditures and revenues for Radford Transit are included as part of its annual budget. Table 3-2 provides a summary of Radford Transit's operating revenue since for FY 2013. The numbers below were taken from Radford Transit's reimbursement plan submitted to DRPT's Rail and Public Transportation Improvement Program. DRPT approved budgets (from the SYIP- FY 2012, 2013, and 2014) can be found in Appendix A.

Table 3-2: Radford Transit Operating Budget

Operating Budget	FY 2013
Fares	\$19,254.38
Federal	\$541,622.33
State	\$184,151.56
Local	\$357,470.70
Total	\$1,102,498.97

System-wide Performance

As of October 2013, Radford Transit had been in operation for almost 2.5 years. Table 3-3 provides performance data for the most recent fiscal year (FY 2013).

Table 3-3: Radford Transit Performance Data and Measures

Performance Data and Measures	FY 2013
One-Way Passenger Trips	329,946
Revenue Hours	29,751
Revenue Miles	322,696
Operating Expenses	\$1,102,498.97
Farebox	\$19,254.38
Farebox Recovery	1.75%
Passenger Trips/Revenue Hour	11.09
Passenger Trips/Revenue Mile	1.02
Operating Cost/Revenue Hour	\$37.06
Operating Cost/Revenue Mile	\$3.42
Operating Cost/Passenger Trip	\$3.34

Peer Review

When conducting a performance evaluation, it can be helpful to examine peer transit systems that are comparable in size, type of service provided, and service area characteristics. Table 3-4 compares the FY 2012 data for Radford Transit and four

systems: Blacksburg Transit, the City of Harrisonburg, Greater Lynchburg Transit Company, and the Williamsburg Area Transit Authority. Though these systems are all larger and more mature than Radford Transit, they represent models for the future. One function of the peer review is to gauge how Radford Transit's performance may change if it continues to expand.

The data in Table 3-4 indicate that, compared to other systems, Radford Transit's services were still very limited in scope in FY 2012. Though it should be highlighted that Radford Transit's costs per hour and mile are low, displaying the efficiency of the service.

Table 3-4: Peer Comparison of FY 2012 Performance Measures

	Radford Transit	Peer Average	Blacksburg Transit	City of Harrisonburg	Greater Lynchburg Transit Company	Williams- burg Area Transit Authority
Approx. Service Area Pop.	16,400	67,500	57,200	45,300	80,800	86,700
Pop. Density	1,600	1,975	2,100	2,800	1,500	1,500
Passenger Trips	210,990	2,779,469	3,517,813	2,535,828	2,289,352	2,774,884
Revenue Hours	24,665	85,364	87,067	65,375	95,131	93,883
Revenue Miles	263,801	1,011,268	844,838	655,887	1,170,879	1,373,466
Operating Expenses	\$972,590	\$5,684,701	\$5,069,287	\$3,292,330	\$7,049,104	\$7,328,084
Trips/Rev. Hour	8.6	33.2	40.4	38.8	24.1	29.6
Operating Cost/Rev. Hour	\$39.43	\$65.18	\$58.22	\$50.36	\$74.10	\$78.06
Trips/Rev. Mile	0.8	3.0	4.2	3.9	2.0	2.0
Operating Cost/Rev. Mile	\$3.69	\$5.59	\$6.00	\$5.02	\$6.02	\$5.34

Source: DRPT's FY 2012 Transit Performance Data.

Evaluation of Equipment and Facilities

As noted in Chapter 1, Radford Transit's vehicle fleet is composed of twelve body on chassis vehicles and two new flyer transit buses. In addition, Radford Transit purchased two 35' new flyer buses that will start service in early 2014. With 32 seats, rear door alighting, and a maximum capacity of roughly 70, the two new buses will allow for additional capacity on the most crowded routes. Radford Transit is also ordering two 20 passenger body on chassis vehicle for 2014.

As for facilities, Radford Transit staff identified the need for a new and expanded location for administrative and maintenance purposes (included in DRPT's FY14-19 SYIP). Potential improvements to equipment and facilities will be addressed in further detail in Chapter 6, the capital improvement plan of this TDP.

ITS Technologies

Radford Transit currently uses a NextBus system with GPS satellite technology to track bus location and estimate real time arrivals. In addition to the utility of NextBus for riders, an opportunity exists for Radford Transit to collect and use this data to analyze on-time performance. An automated passenger counting (APC) system is another possible technology investment. Currently drivers record boardings by hand. Their run sheets are scanned in and processed manually. The advantage of an APC is that sensors record a boarding or alighting depending on the order in which the two beams are broken. The sensors are enough to provide a gross level of ridership; if stop-level ridership is required geographic information must be provided by a GPS system such as an Automated Vehicle Locator (AVL) program. Data is then downloaded to a computer for analysis.

Review of Title VI Report

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities that receive financial assistance from the federal government. Radford Transit adopted a Title VI Plan in 2012, which is included in Appendix B. This plan outlined policies and procedures to ensure that the system does not discriminate on the basis of race, color, or national origin. Radford Transit will review this plan at least every three years and update as needed.

Federal Transit Administration (FTA) Triennial Review

Prior to its designation in 2012, as part of the Blacksburg Urbanized Area, Radford Transit was not required by FTA to undergo a triennial review (only applicable to S. 5307 recipients). FTA is responsible for conducting oversight activities to help

ensure that recipients of S. 5307 grants use the funds in a manner consistent with their intended purpose and in compliance with regulatory and statutory requirements. To accomplish this, FTA utilizes multiple contractors to conduct oversight reviews of these grantees and ensures that each receives a review at least once every three years; hence, the review is called the Triennial Review.

On/Off Counts and Ridership

Supplementing Radford's performance data, the following section draws on on/off counts conducted by the study team on the last Thursday and Saturday of September 2013. The counts included a stop-by-stop analysis of ridership on the 10 and the 30/31 routes.

In preparation for the on/off counts, the study team reviewed boarding data for all routes that had been collected by Radford Transit drivers on a Tuesday and Friday in April 2013 (see Appendix C). Given this review, as well as feedback from Radford Transit staff concerning crowding and underutilization, only the 10 University Express Route and 30/31 Cross City Route were chosen for full on/off counts. Staff felt focused on/off counts would be the best use of limited project resources.

Figures 3-1 to 3-4 display ridership by stop, and Table 3-5 summarizes the top three highest ridership stops by route and day. Both the map and the table consider ridership to be the total activity at a given stop, or the sum of daily boardings and alightings.¹ On the 10 Route, total activity (boardings and alightings) was 2,268 on Thursday and 168 on Saturday. The busiest stops were Lot A, Greenhill Apartments, New River Drive just to the east of Greenhill, and Waldron Hall. The Dedmon Center also had high activity on Thursday. In contrast, Lot C on Main Street, Lot CC on University Drive, and the University Drive Bridge had the least activity, none at all on Saturday.

On the 30/31 Route, total activity was 208 on Thursday and 134 on Saturday. The busiest stops were the Hub, Jefferies Drive, Willow Woods Apartments, Deli-Mart, and Wades. Twelve stops had no activity both on Thursday and on Saturday. Depicted as grey dots, these included stops along Preston, Wadsworth, and Main Street.²

¹ Two runs on the 10 Route were missed on Thursday 9/26. On counts from Radford Transit drivers were added for these runs, though total activity is slightly understated due to unknown offs.

² Because of road construction, several stops near Park Road were skipped on the 30/31 Route on Saturday 9/28. This potentially impacted low activity in that area.

Figure 3-1: Total Activity by Stop (Thursday), Route 10

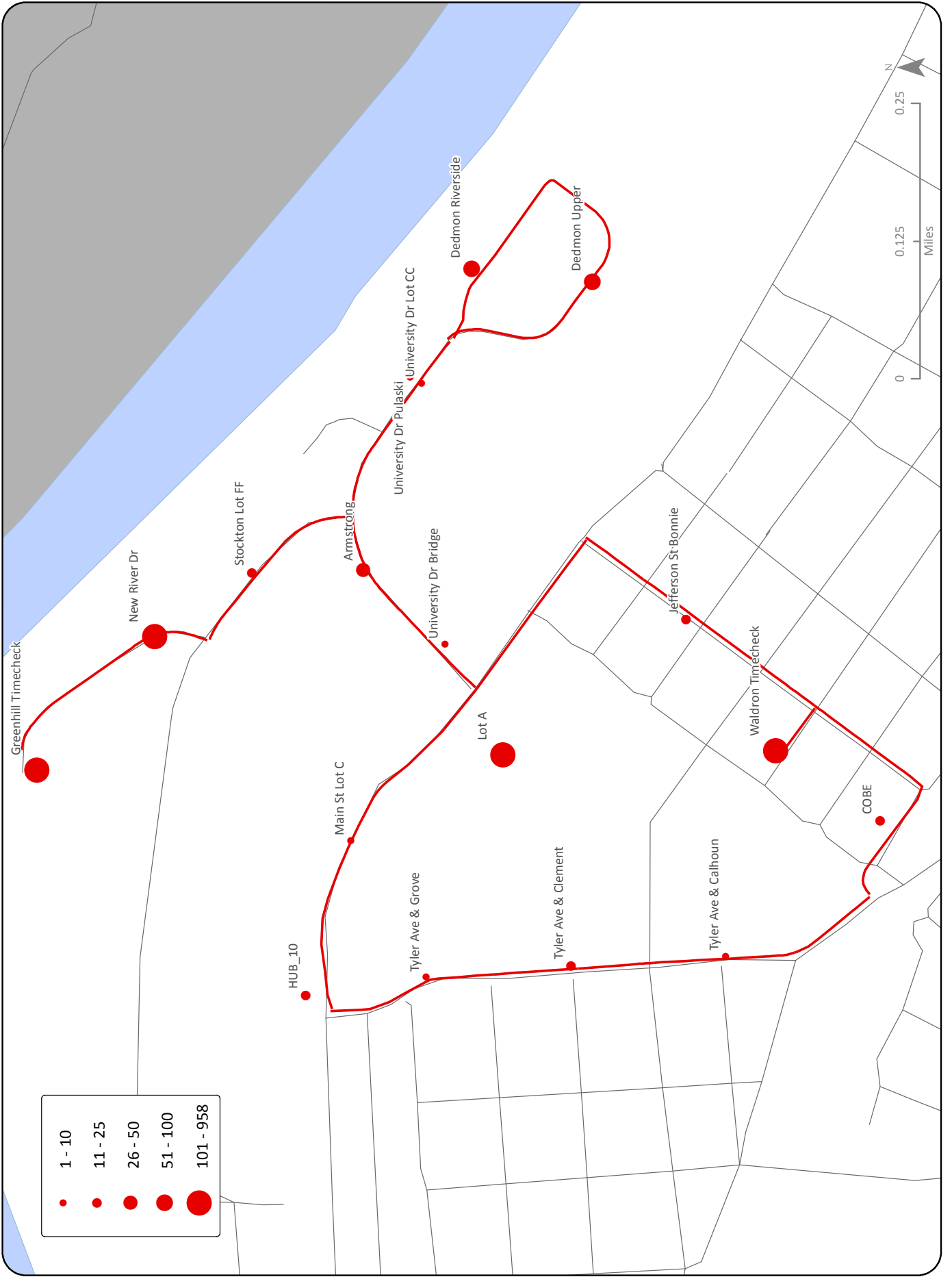


Figure 3-2: Total Activity by Stop (Saturday), Route 10

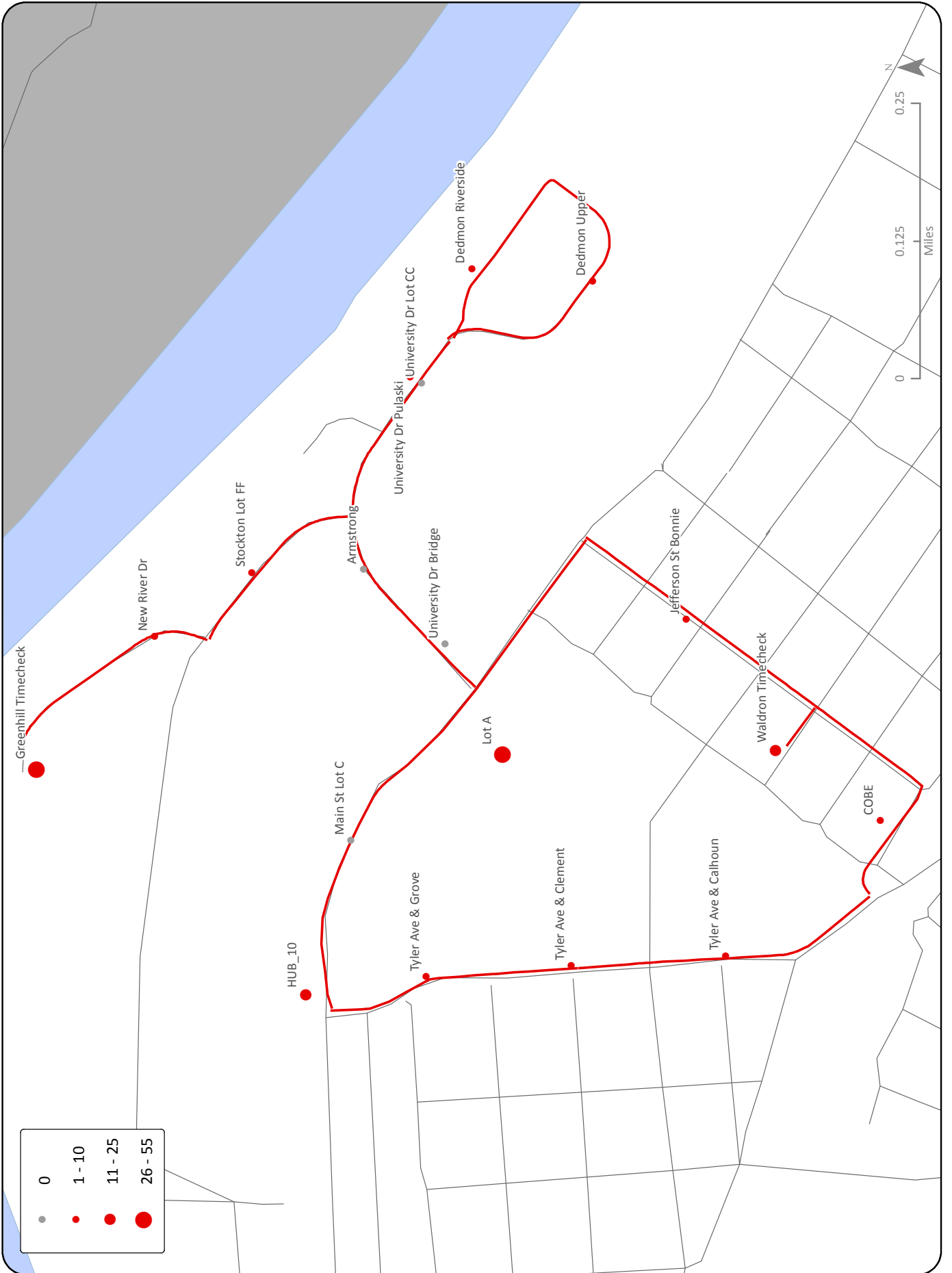


Figure 3-3: Total Activity by Stop (Thursday), Route 30/31

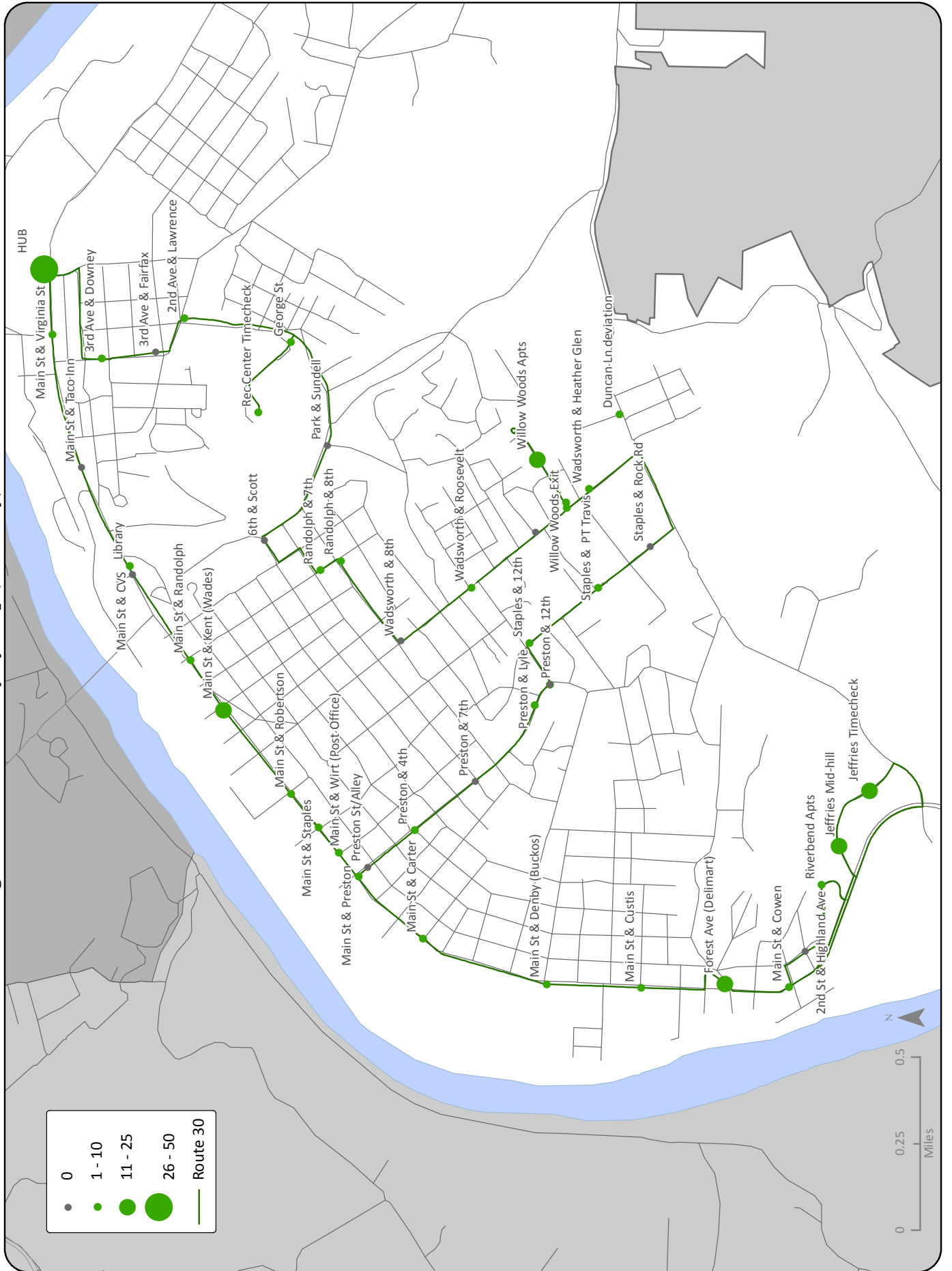


Figure 3-4: Total Activity by Stop (Saturday), Route 30/31

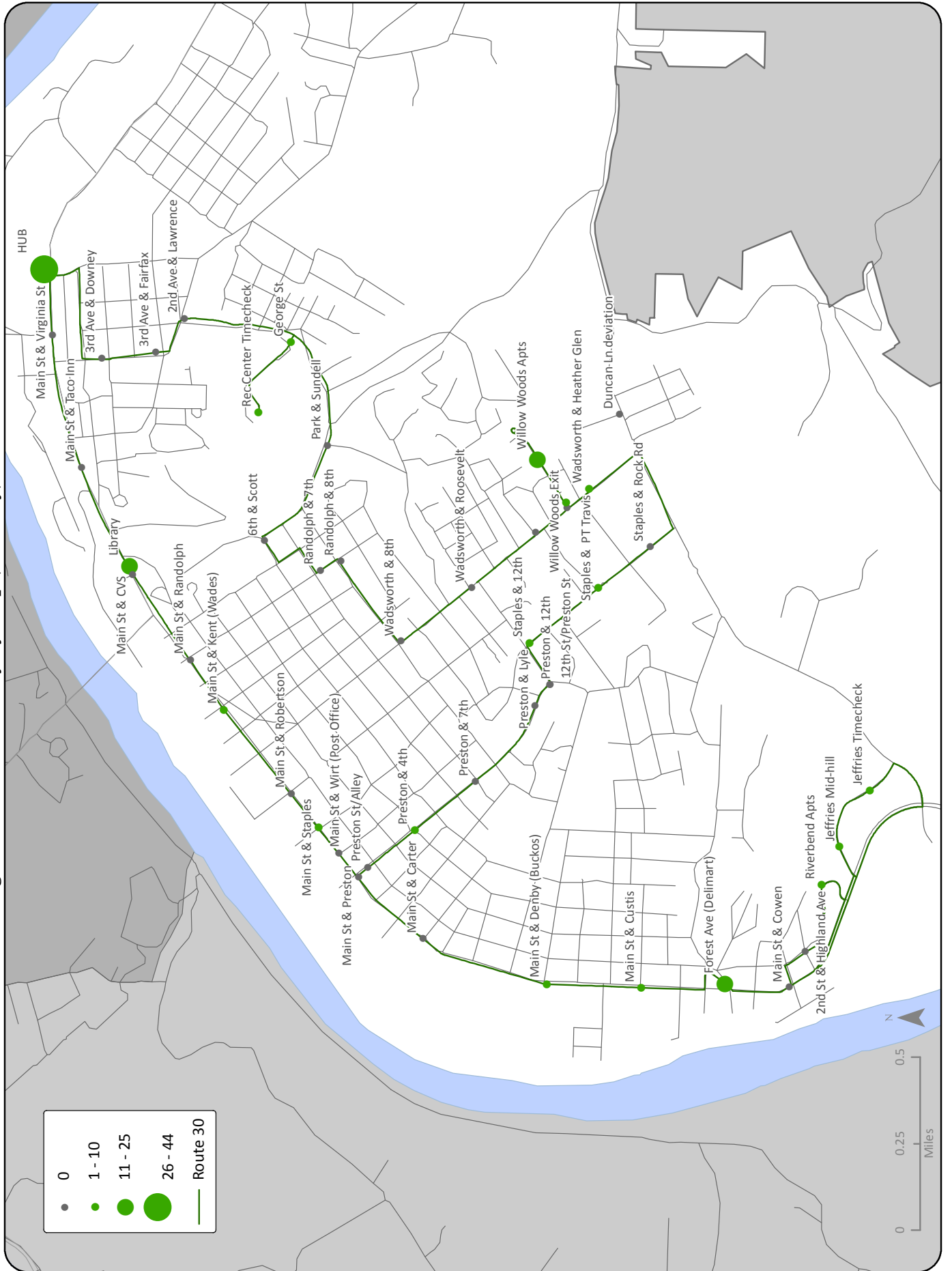


Table 3-5: Greatest Total Daily Activity by Stop, September 2013

Route	Day	Stop	Boardings + Alightings
10 University Express	Thurs.	Lot A	958
10 University Express	Thurs.	Greenhill Apartments (timecheck)	761
10 University Express	Thurs.	New River Drive	179
10 University Express	Sat.	Lot A	55
10 University Express	Sat.	Greenhill Apartments (timecheck)	50
10 University Express	Sat.	HUB	14
30/31 Cross City	Thurs.	HUB	50
30/31 Cross City	Thurs.	Jefferies Drive Mid-hill	15
30/31 Cross City	Thurs.	Jefferies Drive (timecheck)	14
30/31 Cross City	Thurs.	Main Street at Wades	14
30/31 Cross City	Thurs.	Willow Woods Apartments	14
30/31 Cross City	Sat.	HUB	44
30/31 Cross City	Sat.	Willow Woods Apartments	15
30/31 Cross City	Sat.	Deli-Mart	12
30/31 Cross City	Sat.	Main Street at Library	12

An analysis of the passenger load, or the total number of people on the bus after it pulls away from the stop, showed that crowding was only an issue on the Thursday of the on/off counts. Standees occurred at Lot A, Greenhill, New River Drive, Dedmon Upper, Dedmon Riverside, and Armstrong. This occurred multiple times between 7:30 a.m. and 3:20 p.m. However, the number of passengers only approached the approximate maximum capacity (seated and standing) at Lot A and Dedmon during one afternoon run; this particular run was using a 20 seat body on chassis vehicle.

PUBLIC AND STAKEHOLDER INPUT

KFH Group conducted a series of stakeholder interviews in September 2013 in order to gain information on public transportation needs within Radford and the surrounding area. The following section describes these outreach efforts, detailing the perspectives of a wide range of community members.

This section also includes the results of an on-board rider survey, a general public community survey distributed in Radford's utility bills and online through SurveyMonkey.com, and an online survey of RU faculty and staff living in the 24141 zip code. The on-board survey provides insight on current route patronage, rider satisfaction, and potential service improvements. The general public survey provides information concerning typical trip patterns, awareness, and attitudes toward Radford Transit, and need for current or potential transit services. Finally, the faculty and staff survey aims to understand local commuting and the use of Radford Transit by non-students.

Stakeholder Input

An important task within the TDP process was soliciting perspectives on current transit need and suggestions for service improvements from city stakeholders. The stakeholders contacted included representatives of multiple departments (Planning and Zoning, Parks and Recreation, Social Services, and the Sheriff's Office), educational institutions (RU administration, the Virginia Tech Alternative Transportation Center, and the New River Valley Community College), the Radford Chamber of Commerce, and the New River Valley Medical Center. Multiple themes emerged from the conversations.

Current Use/Unmet Needs

Several stakeholders expressed their excitement to have a functioning public transit system in place in Radford. They have received positive feedback from their clients and feel that transit is enhancing the community. For example, individuals who would otherwise not have transportation are able to access the Radford Rec Center on the 30/31 Route. Overall, Radford Transit has exceeded many expectations, particularly in its growth and performance in its first two years.

Stakeholders noted that some Radford residents still struggle to access employment and childcare locations. Despite the low ridership that caused Radford Transit to scale back its service to the Carilion New River Valley Medical Center (NRVMC) to demand response only, stakeholders noted an ongoing need for medical transportation to the facility.

Radford Transit is also a safe and reliable transportation link for students throughout the region. It is especially well utilized by RU students, but Virginia Tech and New River Valley Community College students also take advantage of the service (e.g. Virginia Tech students accessing community college classes at the NRV Mall). Daily, more frequent service between Walmart in Fairlawn (a transfer point for Pulaski Transit) and the NRV Mall is an outstanding need.

Service Strengths and Weaknesses

Overall, stakeholders had a positive impression of the current service, characterizing it as prompt and on-time. Some felt that it has already helped to alleviate traffic congestion on the bridge to Fairlawn during the afternoon rush hour. Another system strength is the close coordination between Radford Transit and the City of Radford. For example, Radford Transit arranges transportation for citywide events like the annual 4th of July celebration. The Radford Planning Department is also considering how Radford Transit can help address the impacts of new growth; developers must now incorporate transit stops and adequate turnarounds into their site plans. A recent example is the West Side Crossing development at Lawrence and 2nd Street.

RU has also become cognizant of the need to account for transit in its master planning. At the time of the construction of the COBE building, for instance, Radford Transit was still a very new system and thus the driveway dimensions of COBE were not built to accommodate large transit vehicles. However, RU is designing new construction like the College of Humanities and Behavioral Sciences with features like bus pull-ins.

The RU administration also noted a service weakness at Lot A. With one lane of traffic and one fire lane, queued Radford Transit vehicles hinder circulation. The situation is an “accident waiting to happen”, as pedestrians and young public school children cross the lot. The addition of larger vehicles to Radford Transit’s fleet will only exacerbate the congestion. Stakeholders agreed that investigating other options for a campus transfer and timecheck point is necessary.

Despite Radford Transit’s growing ridership, a perception remains that the service is geared toward RU students. Stakeholders pointed out that marketing and communication to the general public is a weakness. Not all city residents, especially those in the West End, have embraced transit as a form of transportation. This perception is gradually changing, however, in part through word of mouth.

Possible Improvements

Marketing and outreach to the general public was one suggested service improvement. Radford Transit should do more to market the current services, whether through public service announcements, links on other community websites, or hard copy advertisements at local businesses. To reach city residents unaffiliated with RU, Radford Transit could spotlight stories of different West End area riders.

Related to marketing and outreach is the need for different forms of travel training. This could be as basic as additional information and education on how to read

bus schedules. Radford Transit could make presentations at the various apartment complexes to let residents know about available services. It could initiate travel training programs in addition to those currently done by the Radford Senior Center. All these efforts may attract new riders that would otherwise be unaware of Radford Transit or hesitant to try the service.

Stakeholders also mentioned the need for passenger amenities like covered shelters throughout the West End, as well as the possibility of a bus voucher or pass program for low-income residents.³ Stakeholders recommended more frequent service on existing (city) routes and expanded service to other locations. This included scheduled service to Carilion NRVMC with stops at multiple entrances, a business district route running during lunch hours between RU and the post office on Main Street, additional transportation for sporting events and other special occasions, and daily service between Radford, Fairlawn, Christiansburg, and Blacksburg on the 40 Route. However, any additional service would have to reflect the needs of its ridership base, as to ensure a fair division of costs between the City of Radford and RU.

Radford Transit Surveys

The evaluation of Radford Transit included an on-board rider survey, general public surveys (online, plus hard copy through a utility bill mailing and collection boxes throughout the city), and a RU faculty and staff commuter survey (online only). The surveys targeted different users groups through multiple mediums, with the intent of reaching as many community members as possible.

Taken together, results from all the surveys illustrate a ridership base of both students and city residents. Current riders are generally satisfied with Radford Transit, but would like to see improvements regarding regional service, clearer stop/route information, crowding, and on-time performance. Though many Radford residents are not currently riders, they appreciate Radford Transit as an essential community service and possible transportation option.

Onboard Rider Survey

The onboard rider surveys were distributed by drivers for three weeks during September 2013. A total of 326 completed surveys were collected. The bulk of responses were completed by riders on the 60 South Beech Express Route (30%), followed by the 50 Highlander Circulator Route (21%), and the 40 NRV Connect Route (17%).

³ The City received a grant to install shelters, benches, and new bus sign holders throughout the system in 2013. Six shelters will be located on the RU campus and seven will be located in the broader City.

Of those responding, almost 80 percent were RU students, while about 27 percent said they were City of Radford residents. Only 14 percent noted that they were making a transfer to complete their trip. Most riders stated that their trip purpose was school related, followed by shopping/errands. Most riders boarded the bus at the Hub, Copper Beech, Burlington Lot, Highland Village, or Lot A. Popular destinations were Lot A, Walmart, Waldron Hall, the Radford campus in general, New River Valley Mall, and Virginia Tech's Squires Center.

When asked which improvements would be most useful to them, respondents' top three choices were later evening hours (50%), more frequent service (43%), and more Sunday service (36%). Only 22 percent felt that there were locations they needed to go that RT does not serve. Christiansburg, particularly the Target/Michaels/Barnes & Noble shopping center, stood out as a location lacking service, as well as the New River Valley Medical Center.

Open-ended questions sought to determine what riders like best and least about Radford Transit, and possible improvements in general. Riders like Radford Transit's friendly drivers, its overall convenience, and the fact that it is free for students. The most common responses to what riders like least had to do with frequency and having to wait too long for the bus. Days of service (reduced or none on Sundays/weekends, no #40 service during the week), crowding, and on-time performance (both late and early buses) were other common themes. Comments on possible improvements reiterated the desire for later evening hours (especially on the 20, 30/31, and 60), increased evening frequencies, Sunday service, and expanded days/summer service to Christiansburg.

General Public Survey- Online and Hard Copy

While the onboard rider survey highlights the characteristics and opinions of current riders, information from the general public survey may allow Radford Transit to attract new users.

The general public survey was distributed in multiple ways: as a hard copy insert in Radford's September 2013 utility bills (with instructions to mail the survey back with the utility payment to the City treasurer), and as a hard copy with collection boxes left at the library, post office, Rec Center, Department of Social Services, City Municipal Building, and City Office. The same survey was available online through SurveyMonkey.com. It was publicized on the Radford Transit website, the City of Radford website, and through an all-student/staff email at RU. In total, 483 individuals completed the hard copy surveys and 409 completed the online version.

The vast majority of respondents to the hard copy version were Radford residents who were not necessarily affiliated with RU. About 90 percent said that they were aware of Radford Transit's services, but only about 13 percent currently use the

system. Those that do primarily ride 2 to 5 times per week. Those that do not cited the need to have a car for work or school. However, about three quarters of respondents were open to using Radford Transit if it met their travel needs. Though another frequent explanation for not using Radford Transit was “no service near my home/work/school”, only about 40 percent said that there was need for additional or improved service in the city or surrounding area.

The online version of the general public survey was completed by mainly students and staff of RU. Like the hard copy respondents, over 90 percent were aware of Radford Transit’s services. About 57 percent currently use Radford Transit, mostly 2 to 5 times per week or less than once a week. Of the forty percent who do not use Radford Transit, most cited a lack of service near their origins or destinations, needing a car for work or school, limited hours of operation, and that bus trips take too long. Over 90 percent were open to using Radford Transit if it met their travel needs, and just over half said there was a need for additional or improved service.

The survey results highlighted a strong desire to see more frequent, daily service to Blacksburg/Christiansburg, and more stops (e.g. at the Target and Barnes & Noble shopping center). Online respondents also cited the need for increased regional connectivity (e.g. to Roanoke, Salem, Pulaski, and Dublin) and better connections to Megabus and the Smartway bus. Hard copy respondents specifically noted the need for more stops in Fairlawn (e.g. at Cookout, along Peppers Ferry Road) and service to West Radford (e.g. Rock Road, Forest Avenue, Bissett Park, and Pendleton Street). Some discussed the possibility of being able to flag down the bus anywhere along its route, a suggestion also expressed by certain Radford Transit drivers.

In line with the service suggestions, both the hard copy and online respondents said they most often travel to Fairlawn (e.g. Kroger, and Walmart), RU, Blacksburg/Christiansburg (e.g. NRV Mall), and NRVMC. Wades and Food Lion were also common local destinations.

Other reoccurring themes for improvements to Radford Transit included more benches and shelters, earlier service (hard copy respondents), later night service (online respondents), Sunday service, and more understandable schedules and route information. Many said they did not know Radford Transit works, or that the schedules are confusing.

Making system information more user friendly, for example with a full system map and listed times at non-time points, could help reach new riders who are not currently knowledgeable of how to use the service. Radford Transit seems to focus its marketing to RU students, but could potentially do more to reach City residents. One respondent suggested giving an information packet to all new residents when their utilities are activated.

Many of the open-ended comments reiterated a need for regional connections. One individual wrote: “Public transportation is needed to connect Radford residents with nearby localities such as Dublin (NRCC), Blacksburg (VT), and Christiansburg (mall, Target, Barnes & Noble).” Though some comments were critical of the cost of transit to taxpayers, overall the comments expressed appreciation and great need for the service. Most survey participants view Radford Transit as a source of community and environmental benefits, as well as helping with parking issues at RU. For example:

“[Public transit] is good to have as a backup and one of the reasons I will want to stay in Radford after I graduate.”

“I believe the public transportation services are an important service in our community. With rising fuel costs and unemployment, many residents will rely on this vital service. It is also an important service for older adults and disabled persons.”

“Although I'm not currently using Radford Transit it gives me peace of mind to know it is available if and when there is a need for me to use it.”

Local Commuting Survey

The local commuter survey was distributed by email to RU faculty and staff who live in the 24141 zip code. This targeted, three question survey aimed to understand commuting patterns of non-student who are affiliated with RU. This group could be a source of new ridership for Radford Transit, and would benefit RU as well by easing pressure for parking.

Of the 39 responses, about three quarters drive to campus. The remainder walk or bike, and only a handful say that they ever use transit for their commute. Those that do reported occasional use, usually one to three days per week. When asked to describe the factors that influence their use of Radford Transit for commuting, about half said that certain service changes could convince them to ride. Most cited route coverage or additional stops (e.g. on Forest Avenue in West Radford or the High Meadows neighborhood in East Radford). Others said they needed more information on the schedules before they could ride. Increased service span/frequency and more direct routes without the need for transfers could also encourage transit use.

Stakeholder Summary

The stakeholder input described above provides the following insight into unmet needs and priorities for potential system improvements:

- Address congestion and safety issues in Lot A.

- Explore daily, year round, more frequent service between Radford, Blacksburg, and Christiansburg on the 40 Route.
- Add stop locations in Fairlawn and Christiansburg.
- Expand morning and evening hours (e.g. the 20, 30/31, and 60 Routes).
- Improve transfers to Megabus and the Smartway bus, enhancing regional connectivity to Roanoke and beyond.
- Consider reinstating scheduled service to NRVMC.
- Increase service frequency during off peak hours or on routes with headways exceeding 10 minutes.
- Offer additional Sunday service (e.g. on the 50 Route).
- Increase route coverage in West Radford, or consider flag stops.
- Increase system marketing and outreach, especially to non-RU city residents. Conduct travel training in the community and assess schedule readability.
- Address current crowding issues and anticipate future growth in ridership.
- Continue efforts to install bus shelters, benches, and clearly marked signage.

NEEDS ANALYSIS

The following section provides an assessment of transit needs based on demographic analysis, land use patterns, and major transit origins and destinations. Specifically, it describes a general population profile for the City of Radford, identifies and evaluates underserved population subgroups, and reviews the demographic characteristics pertinent to a Title VI analysis. The chapter then develops a land use profile based on Radford's major trip generators and commuting patterns.

Population Characteristics and Trends

As of 2010, the United States Census Bureau reported that the City of Radford's population was 16,408 (see Table 3-6). This was a slight increase from the 2000 population of 15,859 (2.5 %), after a slight decrease between 1990 and 2000. Neighboring Montgomery County's population increased over the past decade (12.9%), as did the population of the entire New River Valley region (7.9%). Pulaski County, in contrast, saw about a 1 percent decrease between 2000 and 2010.

Projections developed by the Weldon Cooper Center for Public Service estimate that Radford will grow by about 15 percent over the next 30 years (from 16,408 in 2010 to 19,318 in 2040, see Table 3-7). This is slightly less than the New River Valley overall (about 19 percent). Radford's population will remain relatively young, with only eight to nine percent of residents sixty-five years or older. This is compared to thirteen percent in all of the New River Valley in 2010, rising to 18 percent by 2040.

Table 3-6: Population Characteristics

	1990	2000	2010	1990-2000	2000-2010	1990-2010
	Population	Population	Population	% Change	% Change	% Change
NRV PDC	152,720	165,146	178,237	8.1%	7.9%	16.7%
Montgomery Co.	73,913	83,629	94,392	13.1%	12.9%	27.7%
Pulaski Co.	34,496	35,127	34,872	1.8%	-0.7%	1.1%
Radford	15,940	15,859	16,408	-0.5%	3.5%	2.9%
Blacksburg	34,590	39,573	42,620	14.4%	7.7%	23.2%
Christiansburg	15,004	16,947	21,041	12.9%	24.2%	40.2%

Source: United States Census Bureau, American FactFinder.

Table 3-7: Age Divisions and Population Forecasts

	2010		2020		2030		2040	
	Pop.	%	Forecast	%	Forecast	%	Forecast	%
Radford	16,408	-	17,392	-	18,392	-	19,318	-
0-19 yrs.	4,390	27%	5,080	29%	5,080	28%	5,469	28%
20-64 yrs.	10,636	65%	10,734	62%	11,572	63%	12,082	63%
65+ yrs.	1,382	8%	1,579	9%	1,740	9%	1,767	9%
Montgomery Co.	94,392	-	105,293	-	116,278	-	127,338	-
0-19 yrs.	23,938	25%	25,934	25%	28,353	24%	31,264	25%
20-64 yrs.	61,226	65%	66,303	63%	71,640	62%	78,173	61%
65+ yrs.	9,228	10%	13,056	12%	16,285	14%	17,901	14%
Pulaski County	34,872	-	35,655	-	36,580	-	37,436	-
0-19 yrs.	7,566	22%	7,053	20%	6,904	19%	7,100	19%
20-64 yrs.	21,075	60%	20,436	57%	20,005	55%	19,648	52%
65+ yrs.	6,231	18%	8,166	23%	9,672	26%	10,687	29%
NRV PDC	178,237	-	192,063	-	205,845	-	219,419	-
0-19 yrs.	43,625	24%	45,789	24%	47,902	23%	51,725	24%
20-64 yrs.	11,969	7%	116,142	60%	121,728	59%	128,441	59%
65+ yrs.	22,643	13%	30,133	16%	36,215	18%	39,254	18%

Sources: United States Census Bureau, American FactFinder.
Virginia Employment Commission, Weldon Cooper Center for Public Service
(www.vawc.virginia.gov/gsipub/index.asp?docid=359).

RU has a significant influence on growth and demographics in the City. RU serves approximately 8,600 undergraduate (90 percent) and 960 (10 percent) graduate students through seven colleges. Located in the northeastern part of the City, the campus consists of 191 acres, including fifteen residence halls. About a third of all students live on-campus, and the RU website states that another 50 percent live within walking distance. RU is the City’s largest employer and a major economic generator. According to the State Council of Higher Education (<http://research.schev.edu/>), RU enrollment is projected to increase by about ten percent (about 945 students) over the next five years.

School Year	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Actual/ Projected Enrollment	9,573	9,886	10,122	10,273	10,395	10,518

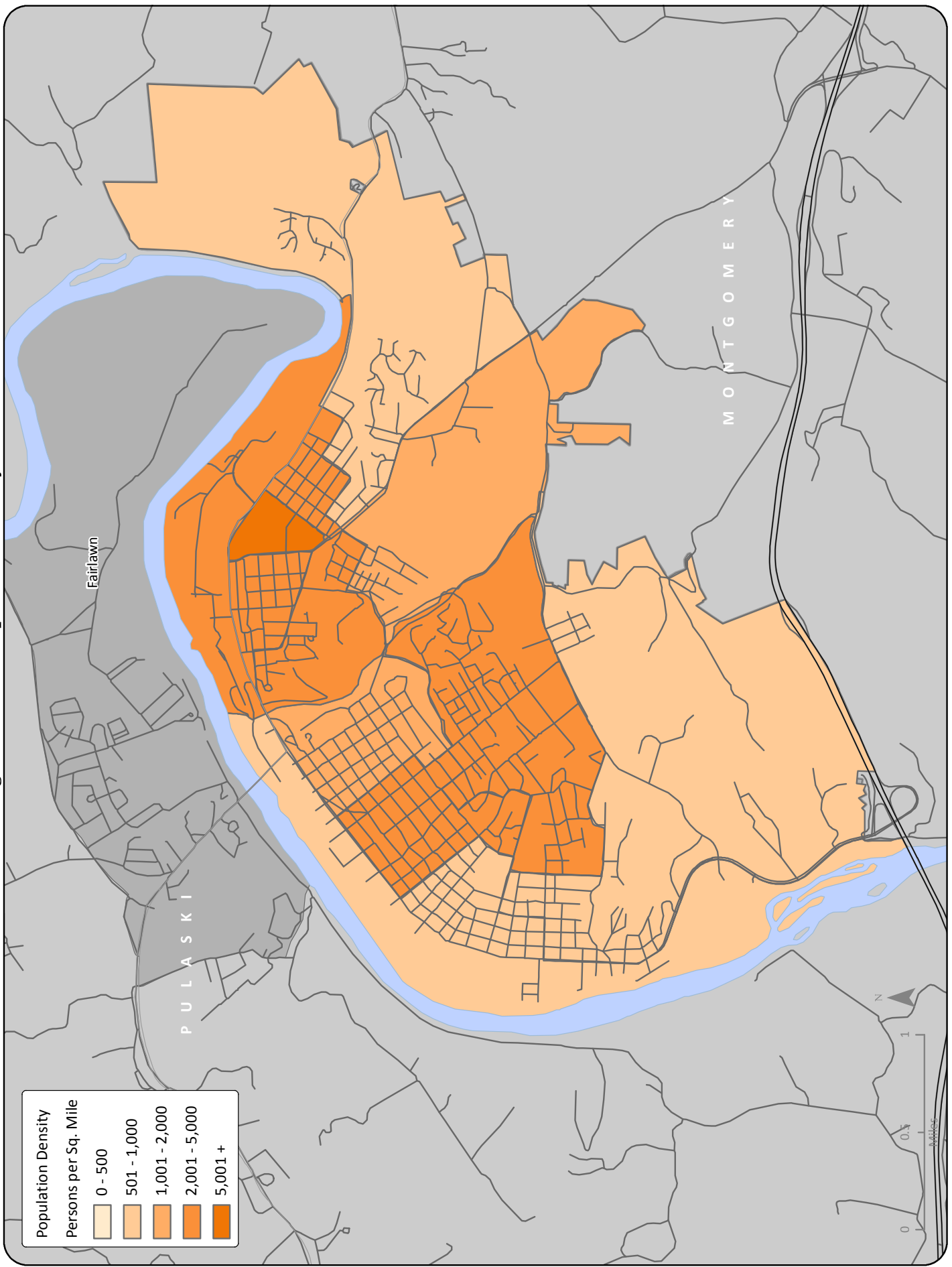
The New River Community College (NRCC) is another educational institution influencing activity and travel patterns in the region. NRCC had 3,354 full time equivalent students in 2011-2012, and a total of 8,042 students (www.vccs.edu/Research/an1112.html). The college has two main campus locations, one in Dublin in Pulaski County and one at the New River Valley Mall in Christiansburg. Currently a stop for Radford Transit’s Route 40, the Mall site features 14 classrooms, a science lab, two auditoriums, testing and conference rooms, and office spaces. NRCC’s game technology, computer aided drafting and design, and information technology networking programs are based at this site. According to stakeholders, NRCC is growing and the Mall site actually accommodates more students and classes than the original Dublin location (roughly 60 percent versus 40 percent).

Population Density

Population density is often an effective indicator of the types of public transit services that are most feasible within a study area. While exceptions exist, an area with a density of 2,000 persons per square mile will generally be able to sustain frequent, daily fixed-route transit service. Conversely, an area with a population density below this threshold but above 1,000 persons per square mile may be better suited for demand-response or deviated fixed-route services.

Figure 3-5 portrays Radford’s population density by Census block group. The block group made up of the RU campus has by far the highest population density, followed by the adjacent block groups in the northern and center sections of the City. Overall, Radford has a population density of about 1,600 persons per square mile.

Figure 3-5: 2010 Population Density



Transit-Dependent Populations

Public transportation needs are defined in part by identifying the relative size and location of those segments within the general population that are most likely to be dependent on transit services. These include individuals who may not have access to a personal vehicle or are unable to drive themselves due to age or income status. Determining the location of transit dependent populations allows for an evaluation of current transit services and the extent to which they meet community needs.

Transit Dependence Index (TDI)

The TDI is an aggregate measure that utilizes recent data from the American Community Survey (ACS) five-year estimates and the United State Decennial Census to display relative concentrations of transit dependent populations. Five factors make up the TDI calculation, as shown in the following formula:

$$\text{TDI} = \text{PD} * (\text{AVNV} + \text{AVE} + \text{AVY} + \text{AVBP})$$

- PD: population per square mile
- AVNV: amount of vulnerability based on no vehicle households
- AVE: amount of vulnerability based on elderly populations
- AVY: amount of vulnerability based on youth populations
- AVBP: amount of vulnerability based on below-poverty populations

In addition to population density (PD), the factors above represent specific socioeconomic characteristics of City residents. For each factor, individual block groups are classified according to the prevalence of the vulnerable population relative to the City average. The factors are then plugged into the TDI equation to determine the relative transit dependence of each block group (very low, low, moderate, high, or very high). Figure 3-6 displays the overall TDI rankings for Radford. The block group to the northwest of West Rock Road and Park Road has a classification of high, while the adjacent block group to the north and the block group along East Main west of Tyler Street have a TDI classification of moderate.

Transit Dependence Index Percent (TDIP)

The TDIP provides a complementary analysis to the TDI measure. It is nearly identical to the TDI measure with the exception of the population density factor. The TDIP for each block group in the study area is calculated with the following formula:

$$\text{TDIP} = \text{DVNV} + \text{DVE} + \text{DVY} + \text{DVBP}$$

- DVNV: degree of vulnerability based on autoless households
- DVE: degree of vulnerability based on elderly populations

- DVY: degree of vulnerability based on youth populations
- DVBP: degree of vulnerability based on below-poverty populations

By removing the population per square mile factor, the TDIP measures degree rather than amount of vulnerability. The TDIP represents the percentage of the population within the block group with the above socioeconomic characteristics, and it follows the TDI's five-tiered categorization of very low to very high. However, it differs in that it does not highlight the block groups that are likely to have higher concentrations of vulnerable populations only because of their population density. As shown in Figure 3-7, the same block groups with a high TDI classification also have the highest TDIP classification.

Autoless Households

Households without at least one personal vehicle are more likely to depend on the mobility offered by public transit than those households with access to a car. Although autoless households are reflected in both the TDI and TDIP measures, displaying this segment of the population separately is important when many land uses are at distances too far for non-motorized travel. Figure 3-8 displays the relative number of autoless households in Radford.⁴ Again, the greatest numbers occur to the northwest of West Rock Road and Park Road and along East Main west of Tyler Street.

Senior Adult Population

A second socioeconomic group analyzed by the TDI and TDIP indices is the senior adult population. Individuals 65 years and older may scale back their use of personal vehicles as they age, leading to greater reliance on public transportation compared to those in other age brackets. Figure 3-9 displays the relative concentration of senior adults in Radford. The block groups classified as high or very high are located in the center of Radford between West Rock Road and West Main.

Individuals with Disabilities

Due to changes in Census and American Community Survey reporting, the 2000 Census currently provides the most recent data available to analyze the prevalence and geographic distribution of individuals with disabilities. Though this information is dated, it is still important to consider; those with disabilities may be unable to operate a personal vehicle and thus be more likely to rely on public transportation. In Radford,

⁴ The classification scheme of "very low" to "very high" (for autoless households, senior adults, and individuals with disabilities) depicts each block group relative to the City average. It is important to note that a block group classified as "very low" can still have a significant number of potentially transit dependent persons; "very low" in this scheme only means below the City average. At the other end of the spectrum, "very high" means a number greater than twice the City average.

Figure 3-6: Transit Dependence Index

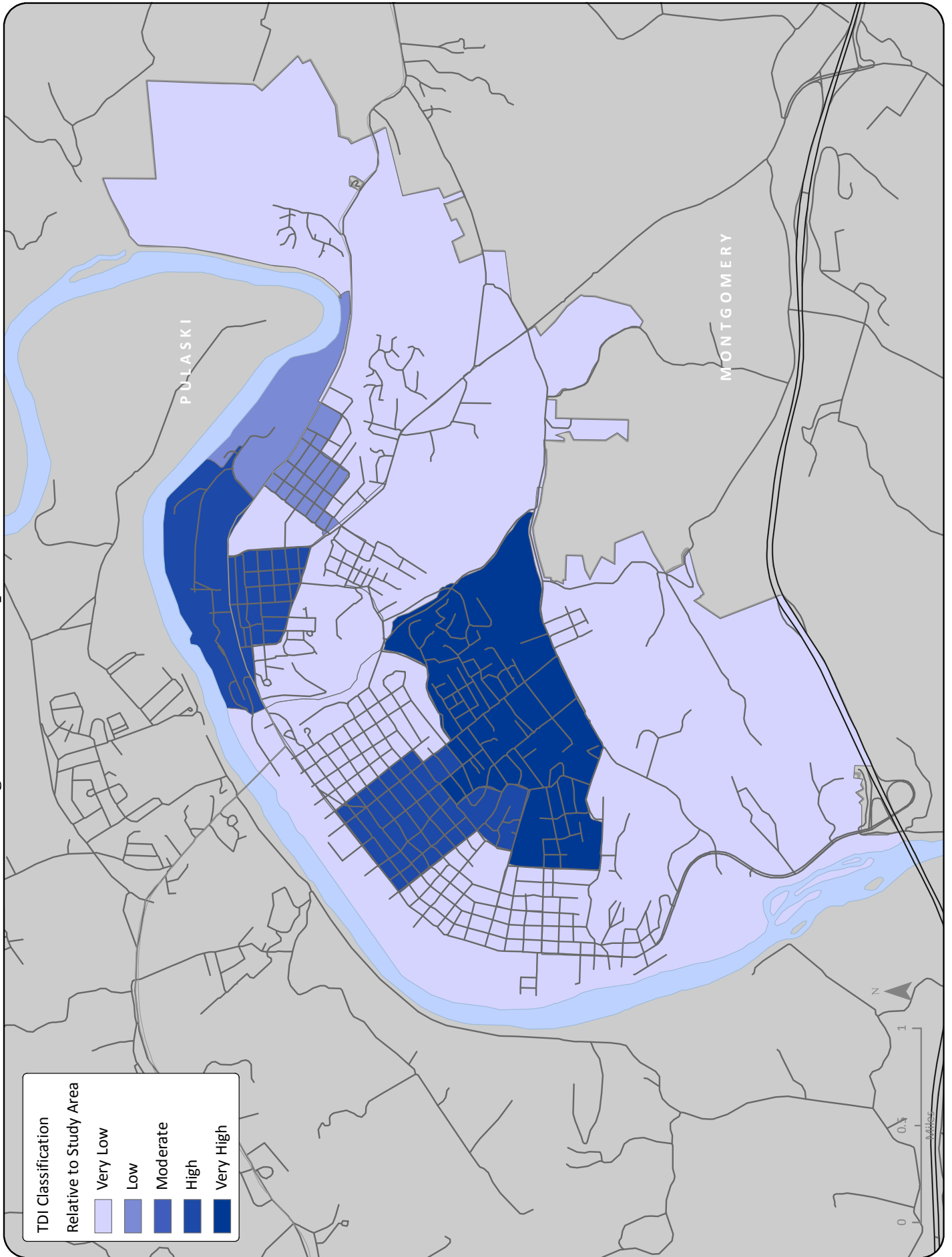


Figure 3-7: Transit Dependence Index Percentage

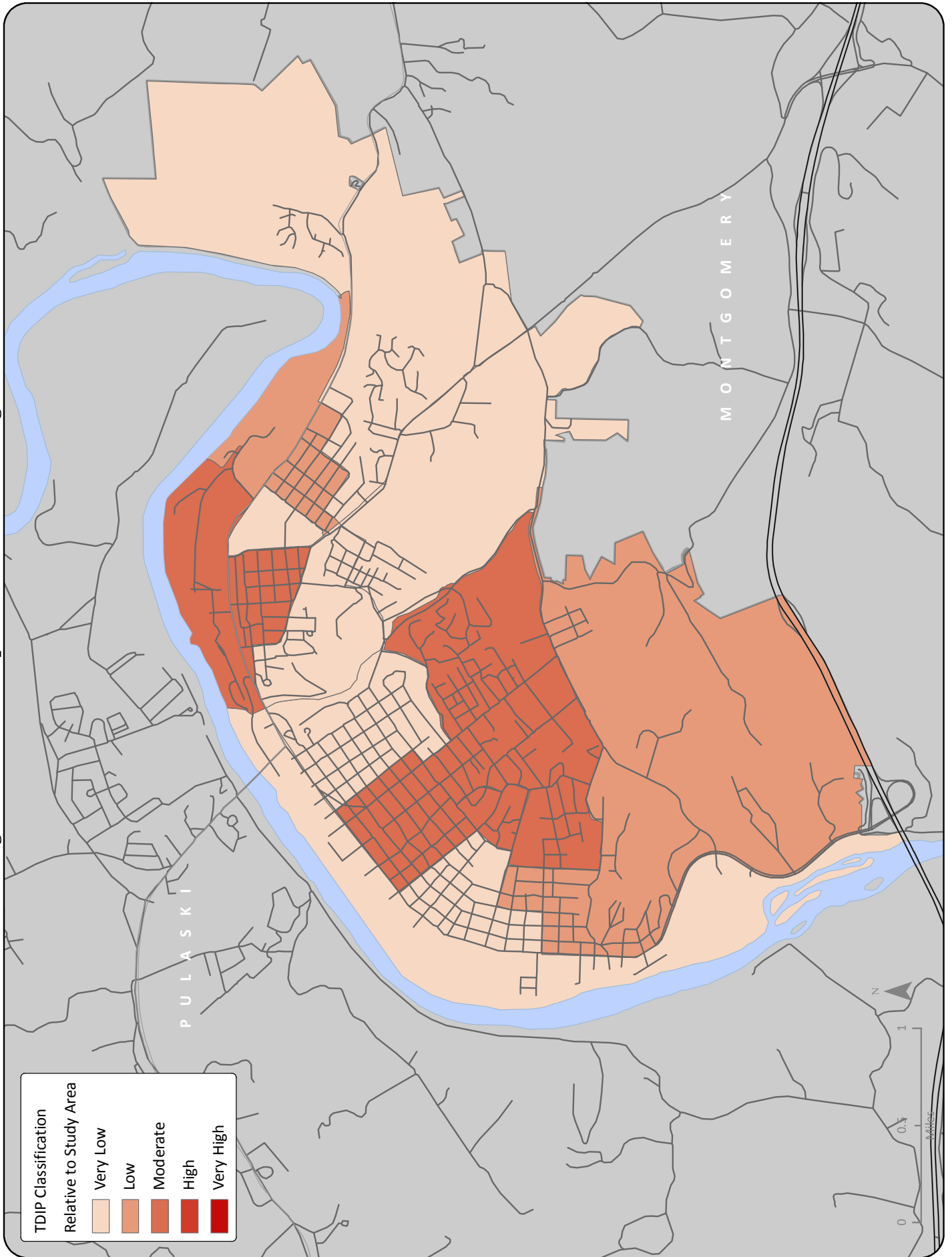


Figure 3-8: Autoless Households

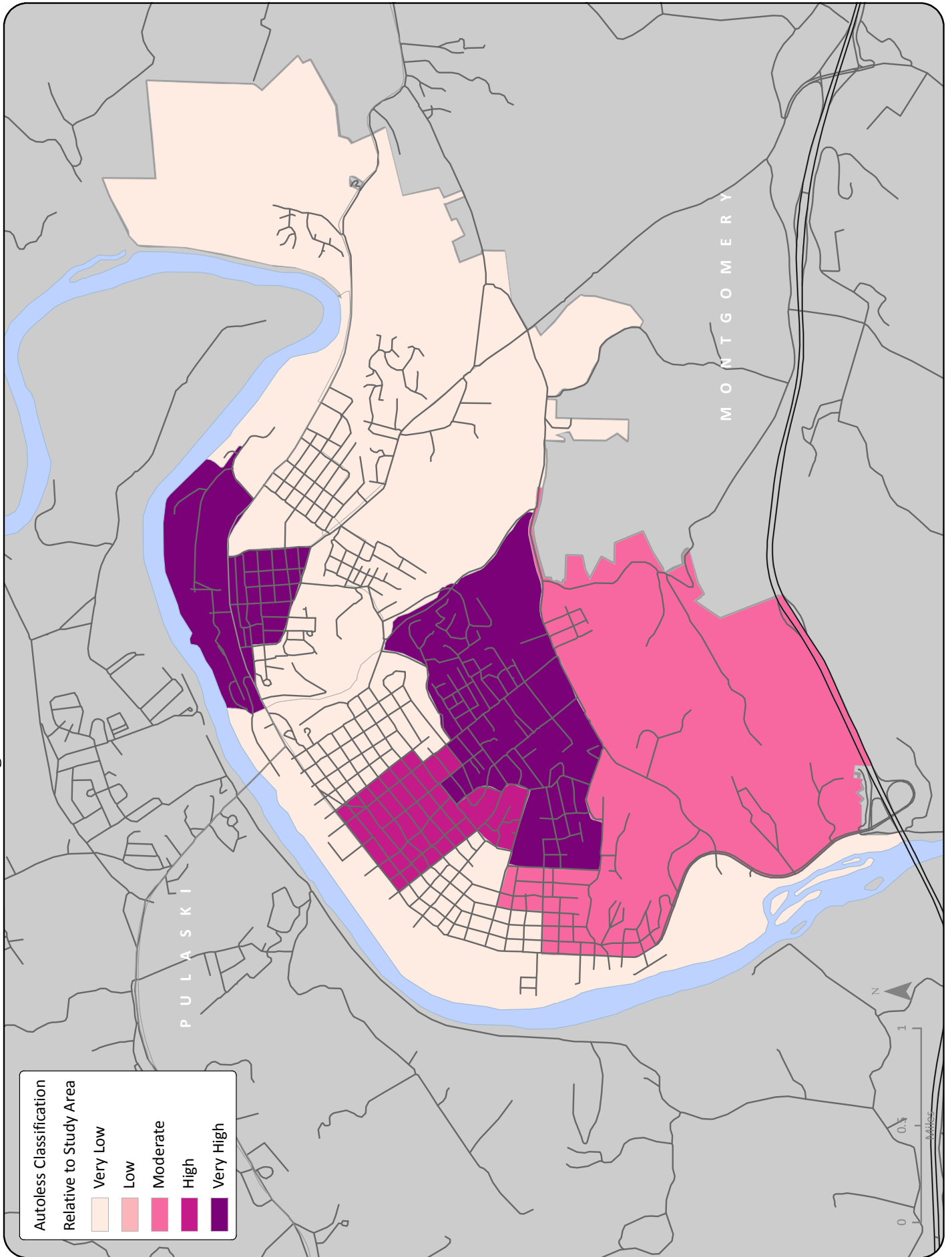
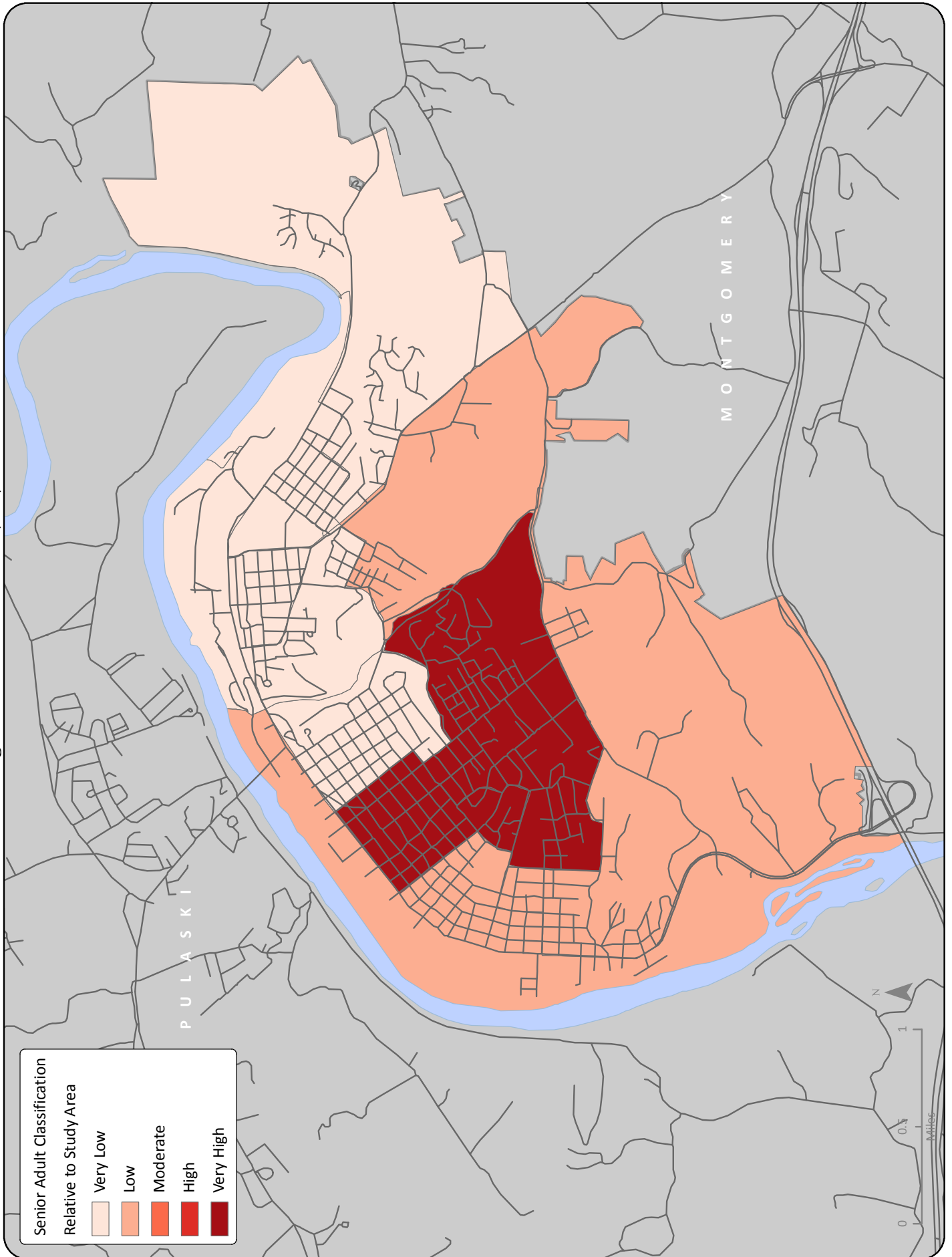


Figure 3-9: Senior Adults (65+)



the area surrounding the RU campus is classified as having the highest number of disabled individuals (Figure 3-10).

Title VI Analysis

As part of the Civil Rights Act of 1964, Title VI prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving federal subsidies. This includes agencies providing federally funded public transportation. In accordance with Title VI, the following section examines Radford's minority and below poverty populations. It then summarizes the prevalence of residents with Limited-English Proficiency (LEP).

Minority Population

It is important to ensure that areas with an above average percentage of racial and/or ethnic minorities are not negatively impacted by any proposed alterations to existing public transportation services. Figure 3-11 depicts the City of Radford based on the percentage of minority persons per block group. Out of 11 total block groups, 5 have a minority population above the City average (13%). These are generally located in the southwestern portion of Radford.

Low-Income Population

The second socioeconomic group included in the Title VI analysis represents those individuals who earn less than the federal poverty level. These individuals face financial hardships that make the ownership and maintenance of a personal vehicle difficult, and thus they may be more likely to depend on public transportation. Figure 3-12 depicts the percentage of below-poverty individuals per block group. Out of 11 total block groups, 3 have a below-poverty population above the City average (34%). These block groups cover the eastern portion of Radford. It is important to note that no data on poverty is available for the block group covering the RU campus; the Census and ACS exclude those living in college dorms from the "poverty universe".

Limited-English Proficiency

In addition to providing public transportation for a diversity of socioeconomic groups, it is also important to serve and disseminate information to those of different linguistic backgrounds. As shown in Table 3-8, Radford residents predominately speak English (about 92 percent). This is slightly less than neighboring Pulaski County and slightly more than Montgomery County. Spanish, Asian languages, and African languages are the most common in Radford. Of those households where a non-English language is spoken, most are also able to speak English "very well". Less than three percent of the total Radford population speaks English "not well" or "not at all", making the need for resources to address the LEP population relatively low.

Figure 3-10: Individuals with Disabilities

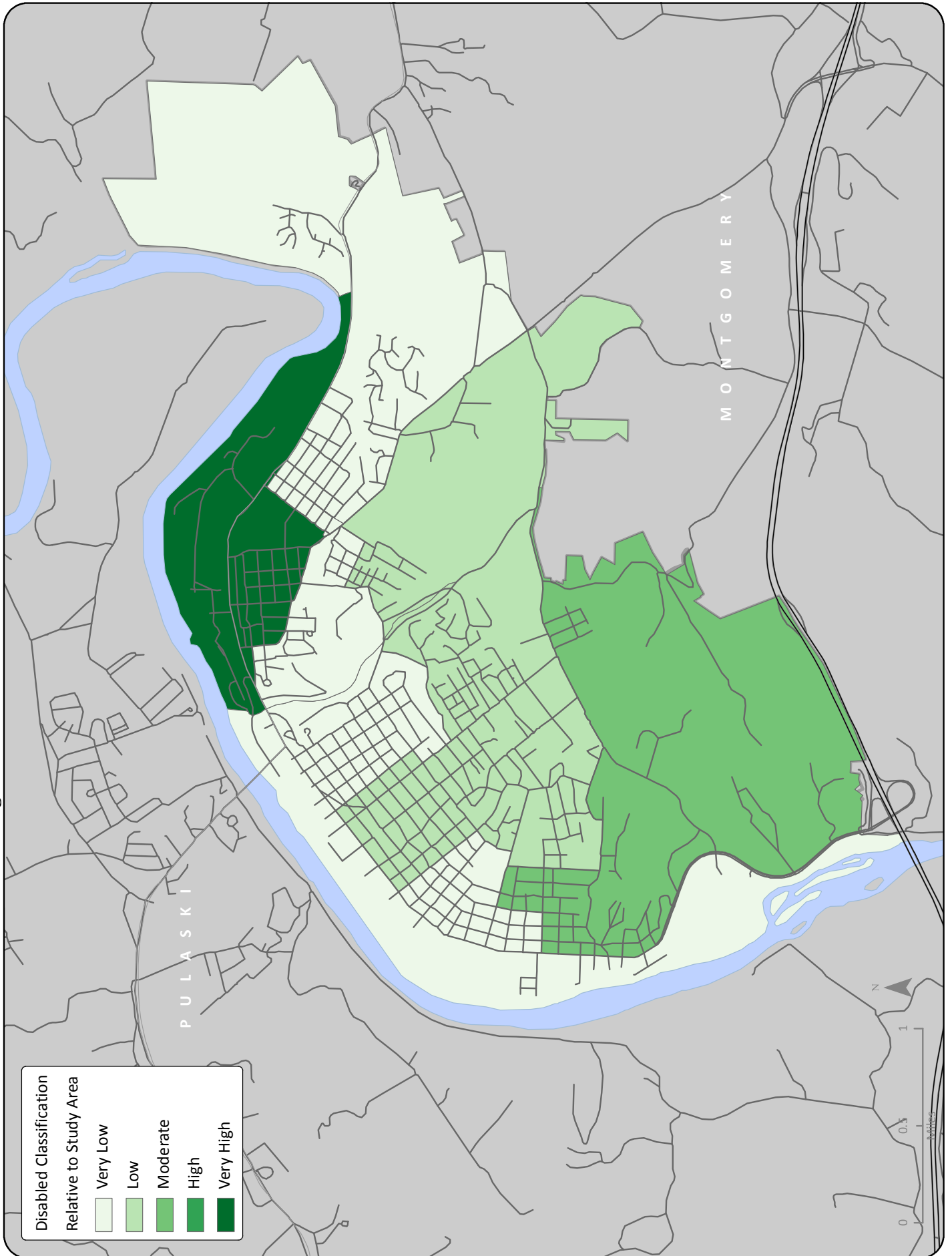


Figure 3-11: Minority Percentage

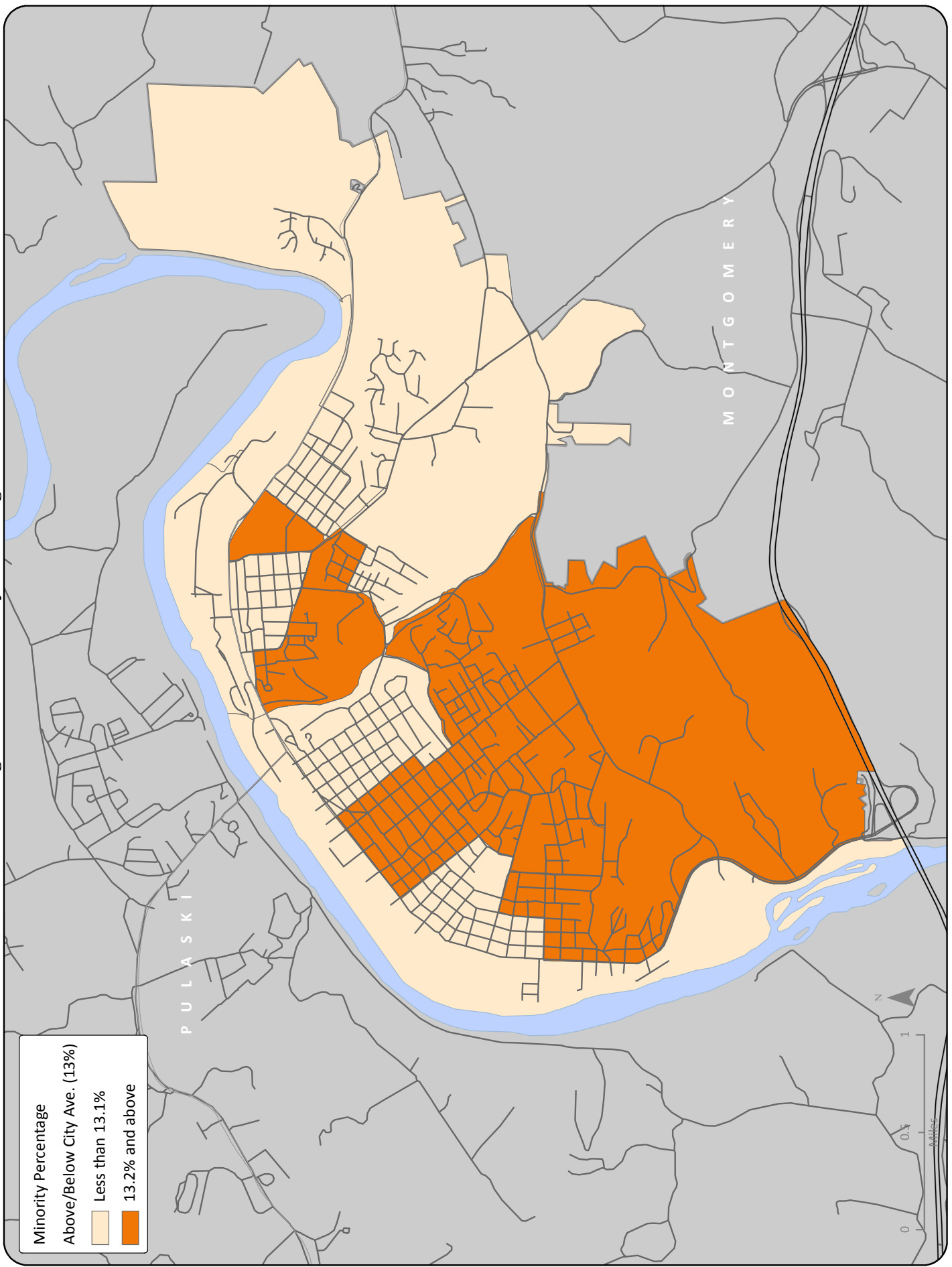


Figure 3-12: Below Poverty Percentage

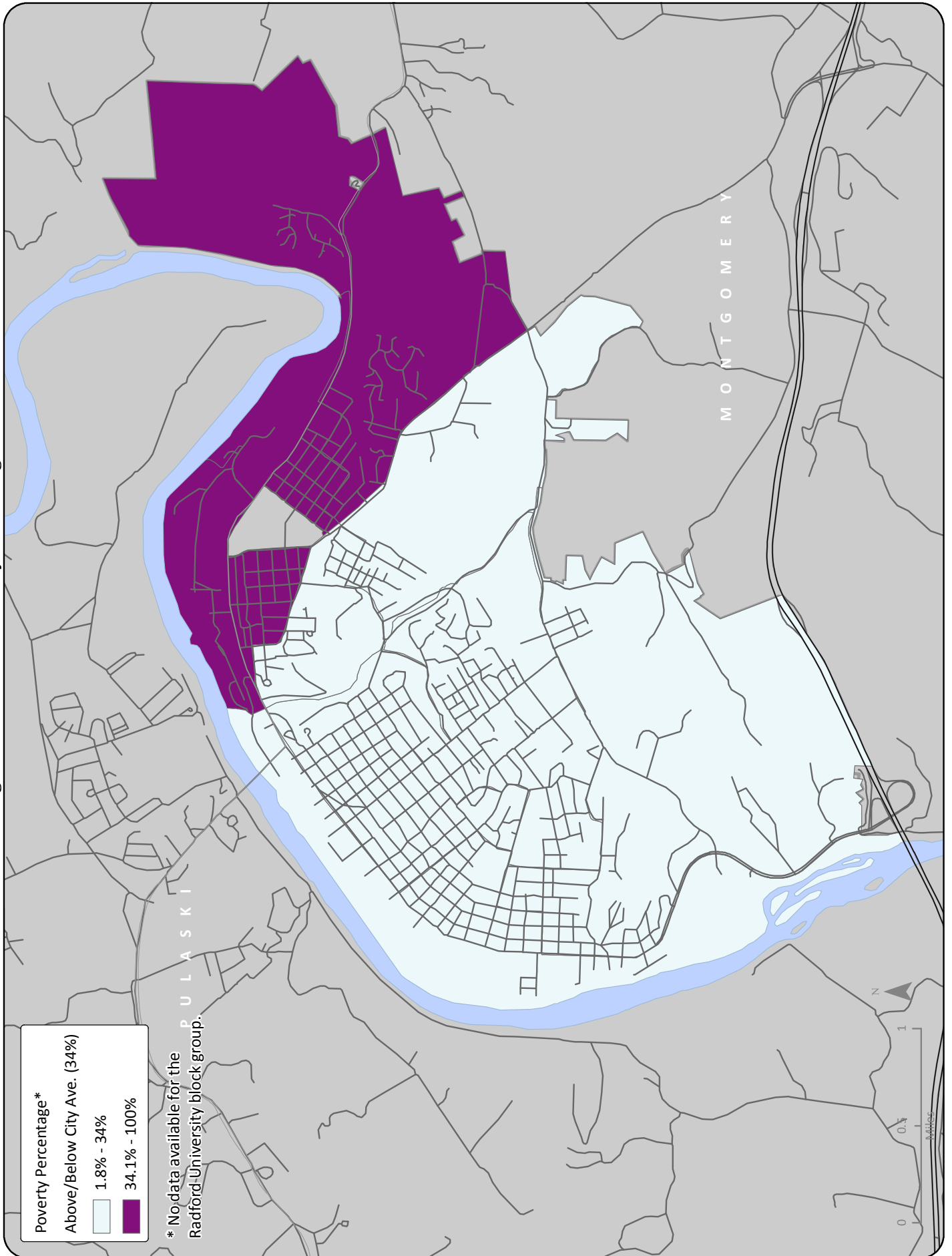


Table 3-8: Radford Limited English Proficiency

Place of Residence	Radford		Montgomery Co.		Pulaski Co.	
Population Five Years and Older	15,846		89,185		33,085	
Language Spoken at Home:	#	%	#	%	#	%
a) English	14,588	92.1%	79,934	89.6%	32,377	97.9%
b) Spanish	318	2.0%	1,724	1.9%	341	1.0%
c) Other Indo-European languages	322	2.0%	3,556	4.0%	181	0.5%
d) Asian/Pacific Island languages	384	2.4%	3,292	3.7%	164	0.5%
e) Other languages	234	1.5%	679	0.8%	22	0.1%
Speak non-English at Home	1,258	7.9%	9,251	10.4%	708	2.1%
Ability to Speak English:						
"Very Well" or "Well"	837	66.5%	8,573	92.7%	581	82.1%
"Not Well" or "Not at All"	421	33.5%	678	7.3%	127	17.9%
"Very Well" or "Well" (of total pop.)	837	5.3%	8,573	9.6%	581	1.8%
"Not Well" or "Not at All" (of total pop.)	421	2.7%	678	0.8%	127	0.4%

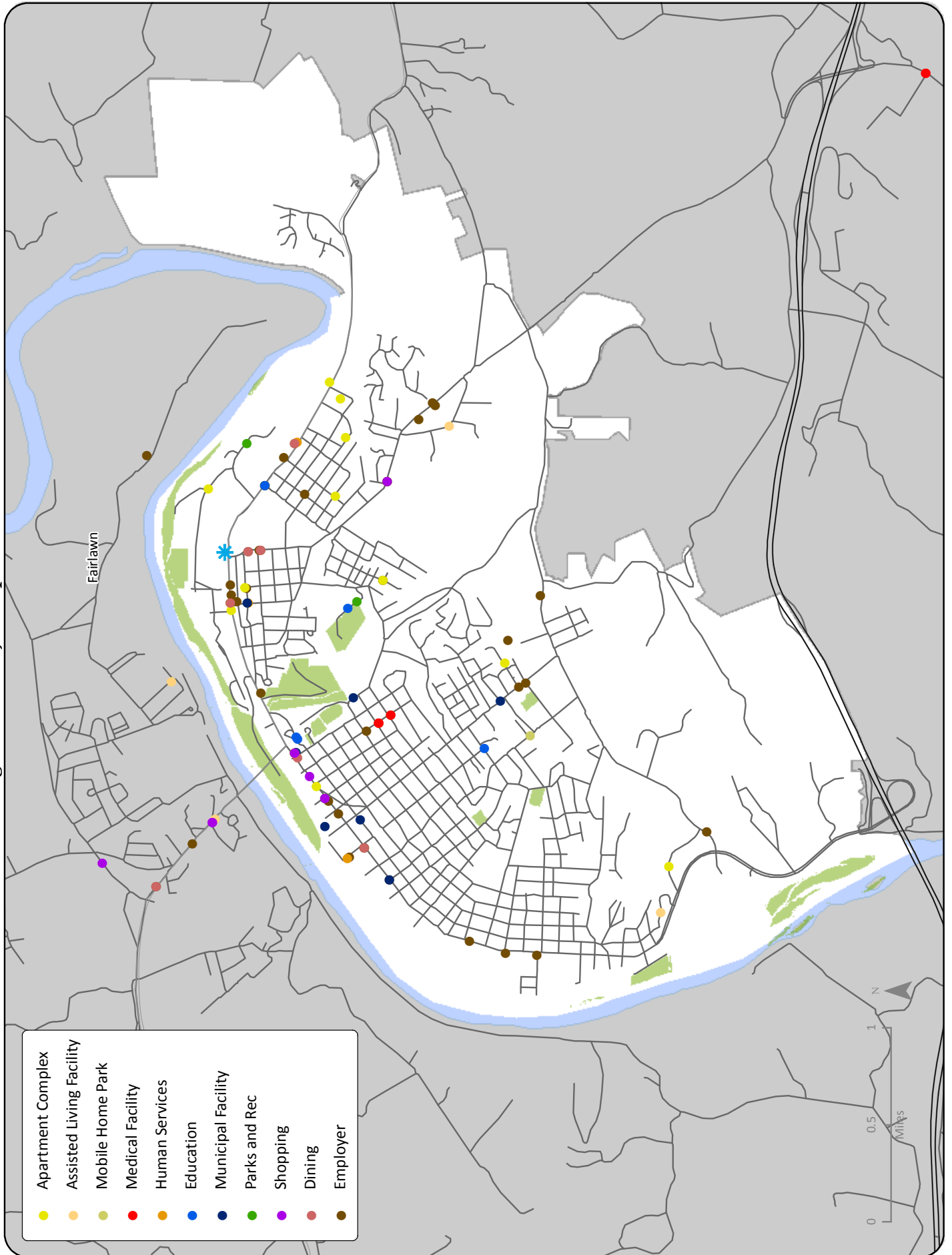
Source: American Community Survey, Five-Year Estimates (2007-2011), Table B16004.

LAND USE ANALYSIS

Identifying major trip generators in Radford complements the above demographic analysis by indicating where transit services may be most needed. Trip generators attract transit demand and include common origins and destinations like multi-unit housing, major employers, medical facilities, educational facilities, non-profit and governmental agencies, and shopping centers. Trip generators are mapped in Figure 3-13 and are listed by type in Appendix D.

The majority of trip generators within Radford are located on East and West Main Streets. This includes a cluster of shopping, dining, employers, and municipal facilities between Robertson and Walker on West Main and between 3rd Avenue and the Radford Campus on East Main. The trip generators largely correspond to the block groups within the city with the highest population densities, and almost all fall along a Radford Transit route. Outside of Radford, shopping, dining, housing, and places of employment continue into Fairlawn on Route 11. Further away are facilities like the Carilion New River Valley Medical Center, about five miles south of the City; additional medical facilities are located in Roanoke and Salem. Other regional destinations include the New River Valley Mall in Christiansburg and Virginia Tech in Blacksburg.

Figure 3-13: Major Trip Generators



Travel Patterns

In addition to considering Radford’s major employers, it is also important to take into account the commuting patterns of residents and workers. According to ACS five-year estimates for 2007-2011, 42 percent of Radford residents 16 years and older work at locations within the City. As shown in Table 3-9, about 55 percent of Radford residents work in other Virginia counties.

Table 3-9: Journey to Work Travel Patterns

Place of Residence:	Radford		Montgomery Co.		Pulaski Co.	
Workers 16 Years and Over	6,550		43,513		14,813	
Location of Workplace	#	%	#	%	#	%
In State of Residence	6,350	97%	43,000	99%	14,622	99%
a) In County of Residence	2,719	42%	34,925	80%	8,785	59%
b) Outside County of Residence	3,631	55%	8,075	19%	5,837	39%
Outside State of Residence	200	3%	513	1%	191	1%
Means of Transportation to Work	#	%	#	%	#	%
Car, Truck, or Van- drove alone	4,860	74%	32,369	74%	12,795	86%
Car, Truck, or Van- carpoled	788	12%	4,523	10%	1,330	9%
Public Transportation	92	1%	1,347	3%	27	0%
Walked	637	10%	1,898	4%	128	1%
Taxicab, motorcycle, bicycle, or other	17	0%	763	2%	180	1%
Worked at Home	156	2%	2,613	6%	353	2%

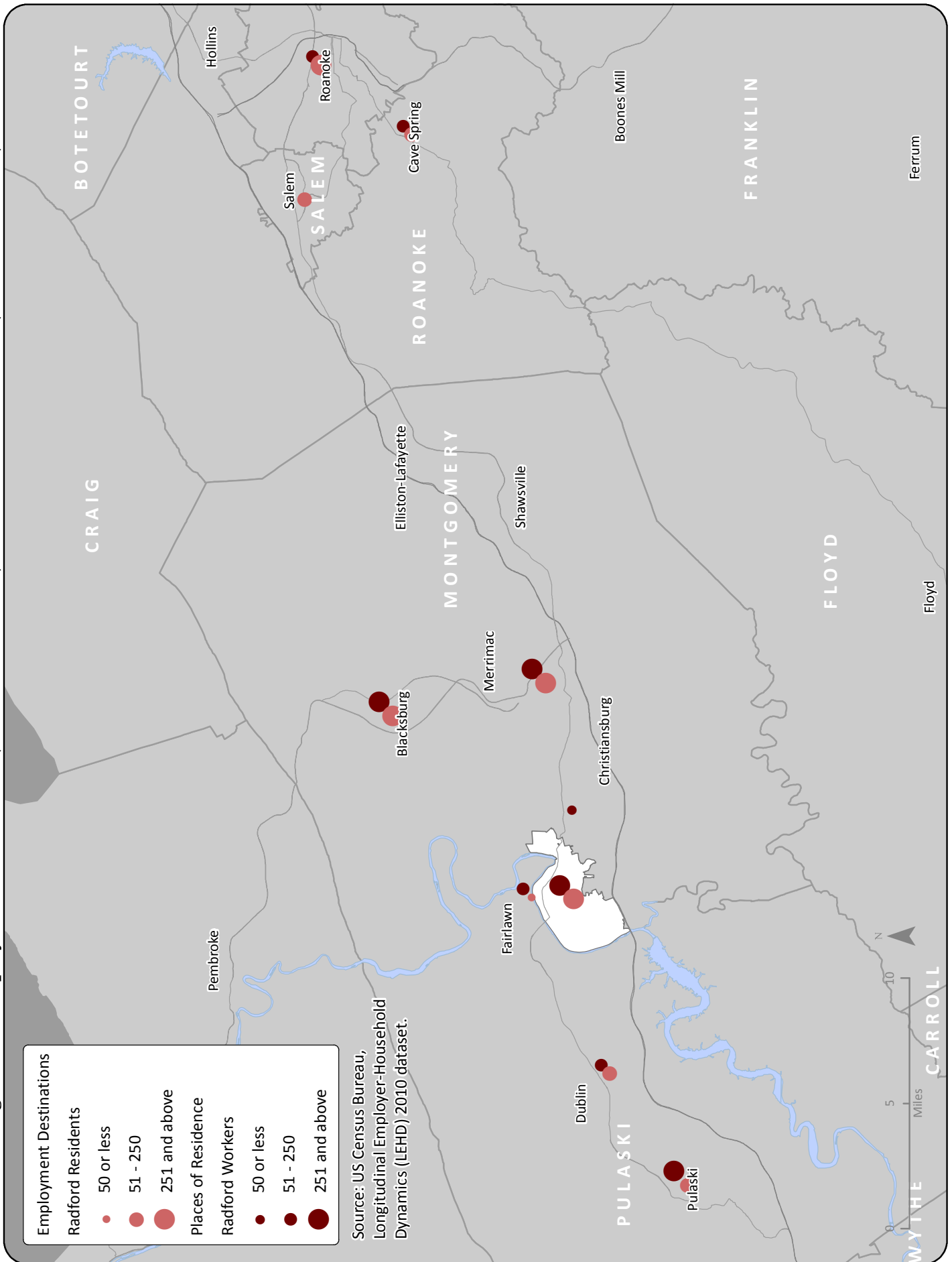
Source: ACS, Five-Year Estimates (2007-2011), Table B08130.

Another source of data that provides an understanding of employee travel patterns is the United States Census Bureau’s Longitudinal Employer-Household Dynamics (LEHD) 2010 dataset. LEHD draws on federal and state administrative data from Censuses, surveys, and administrative records. As shown in Figure 3-14, the top five employment destinations for Radford residents are Radford itself (1,529 workers), Blacksburg (585 workers), Christiansburg (487 workers), Roanoke (272 workers), and Pulaski (137 workers). Other destinations include Salem, Dublin, and Cave Spring. For those who work in Radford but live elsewhere, the most common places of residence are Christiansburg, Blacksburg, Pulaski, and Fairlawn.

Demographic Summary

This section analyzed the demographic characteristics of the City of Radford with an emphasis on transit-dependent populations. The TDI and TDIP indicated that

Figure 3-14: Employment Destinations (Radford Residents) and Places of Residence (Radford Workers)



Radford's greatest concentrations of transit-dependent persons are located in the western-center portion of the City, as well as near the RU campus. The assessment of major trip generators in comparison with existing transit service found that many important origins and destinations are along Radford Transit routes and have some level of regular service.

Review of Previous Plans and Studies

The 2009 Transit Service Plan for City of Radford/Radford University (described in more detail below) included an extensive documentation of land use and transportation planning efforts in and around Radford. It described and analyzed the following:

- Radford University Campus Master Plan 2008-2018 (2009)
- Employment Mobility Study (2009)
- Blacksburg Transit Report on Transit Services to Radford University (2009)
- A History of Bus Service in Radford, Virginia (2009)
- Pulaski County Comprehensive Plan (2009)
- City of Radford Comprehensive Plan 2030 (2008)
- New River Valley Coordinated Human Service Mobility Plan (2008)
- Blacksburg 2046 (2007)
- Town of Christiansburg Comprehensive Plan (2007)
- Radford University-Roanoke Higher Education Center Transit Survey (2006)
- Montgomery County, 2025 (2004)
- Radford Area Including Fairlawn 2020 Transportation Plan (2001)

Taken together, these documents draw attention to several land use and transportation issues that will continue to be relevant during the TDP process:

- RU is planning significant new construction over the next five years, including a multi-modal transit mall along Fairfax Street.
- A lack of convenient on-campus parking is perceived as a major issue.
- Commuters to RU are primarily coming from Blacksburg and Christiansburg (faculty/graduate students) and Dublin and Pulaski (staff).
- The RU campus is compact and walkable, but many feel unsafe walking off-campus at night.
- Demand is growing multi-unit housing and for senior housing options.
- Redevelopment opportunities in the City of Radford that could impact future land use and transportation include the Foundry Site off of West Main Street, multiple nodes along the West Main Street Corridor, the Radford Industrial

Center at I-81 exit 105, student-oriented retail and infill development along East Main Street, and the West End Village Center across from Bissett Park.

- From the Montgomery County perspective, transit goals include encouraging service that connects Blacksburg, Christiansburg, and Radford, as well as evaluating service to/from those locations and the villages of Belview, Elliston-Lafayette, Plum Creek, Prices Fork, Riner, and Shawsville.

Transit Service Plan for City of Radford/Radford University (December 2009)

The 2009 Transit Service Plan identified Radford's public transportation needs and existing transportation services, proposed transit alternatives, reviewed possible organizational structures, and detailed funding options.⁵ The Plan was the result of a request to DRPT from community stakeholders; at the time, transportation services in Radford were limited to RU's Tartan Transit and NRVCS's specialized Community Transit services.

The needs assessment section of the Plan highlighted stakeholder concerns about traffic, congestion, and parking. It also confirmed community support and general agreement on the need for transit. Survey responses from Radford residents and RU students noted a preference for service to Fairlawn and Christianburg, particularly for shopping. Residents tended to prioritize downtown service, while students, faculty, and staff prioritized connection to Blacksburg and Virginia Tech.

The service alternative section of the Plan analyzed seven possible routes, grouped into four different service packages. Organizationally, the Plan discussed the option of the City of Radford as applicant for federal and state funding in the short-term. Longer-term organization options included creating a new Transportation District, Service District, or Regional Transit Authority.

In terms of coverage, the routes recommended in the final chapter of the Plan closely match Radford Transit's current service. However, rather than two routes serving western Radford as proposed (the Plan's Route 1A and 2C), current Route 30 covers this area, following West Main, Preston Street, and Staples Street instead of making a larger loop on Pendleton Street, 8th Street, and Rock Road. In addition, the proposed weekday service to Carilion NRV Medical Center (the Plan's Route 1A) instead currently requires pre-scheduled requests. As the Plan recommended for short-

⁵ As of May 2013, the Transit Service Plan for City of Radford/Radford University can be accessed here: <http://drpt.virginia.gov/activities/files/Transit%20Service%20Plan%20for%20City%20of%20Radford-Radford%20University-12-2009-FINAL.pdf>.

term organization, the City of Radford applies to DRPT for funding and has an agreement with the University regarding its contribution and other conditions.

Regional Transit Organization Study (April 2012)

Adopted by the New River Valley PDC and the Blacksburg-Christiansburg-Montgomery Area MPO, the Regional Transit Organization Study builds on the 2009 Transit Service Plan by evaluating long-term public transit organizational models (Transportation District, Service District, and Regional Transit Authority).⁶

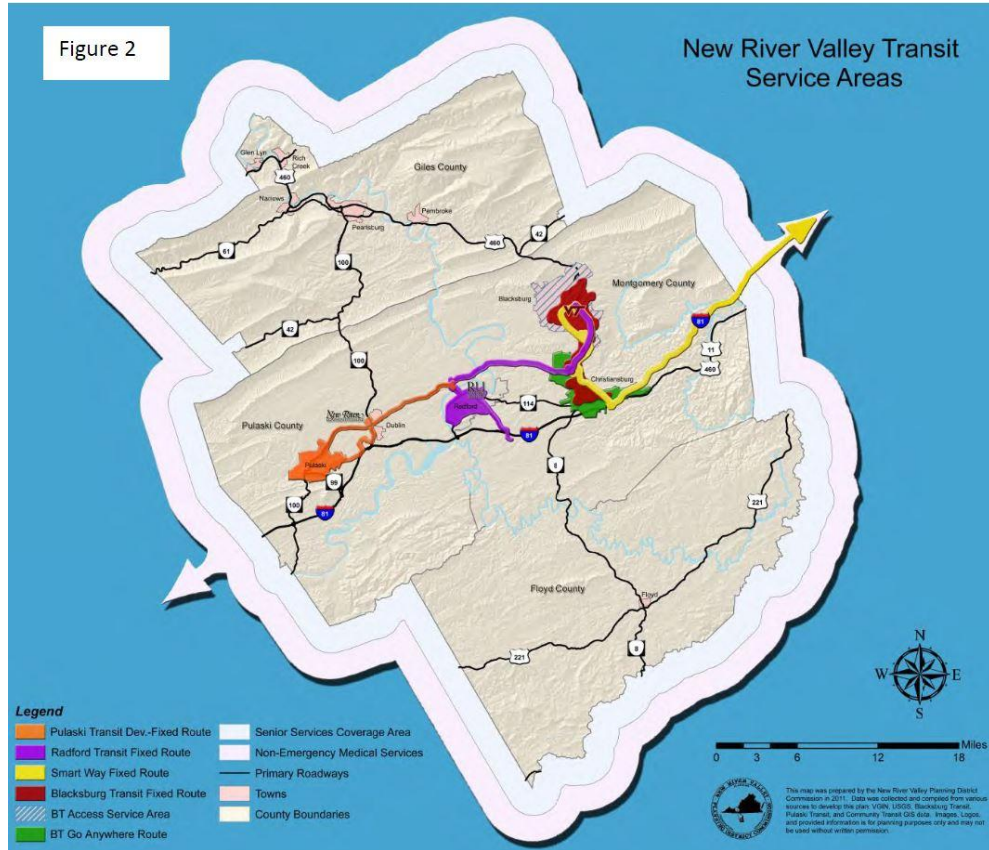
New River Valley communities are currently organized under a local government jurisdiction model: towns, cities, and counties enter into agreements with providers and funding partners and serve as the primary applicant for funding. Under a Transportation District, multiple jurisdictions would enter into a service agreement together. A Service District would function similarly, with the added ability to generate revenue through taxes with the district boundary. Finally, a Regional Transportation Authority would require enabling legislation and could include local partners like universities and organizations rather than only local governments.

The Study begins by documenting existing services in the New River Valley, provided by Blacksburg Transit, Community Transit, Pulaski Area Transit, and Valley Metro. Exhibit 3-1 depicts current services. Developing a regional transit model and coordinating these services could potentially allow for a more efficient use of existing resources. The model could also recognize both local governments and private entities as partners, critical given the role of institutions like RU and Virginia Tech in the region.

The study recommended the creation of a Regional Transit Coordinating Committee (RTCC), which occurred in April 2012. This group is the first step towards establishing a more robust regional transit structure, and will be working on issues that may impact the TDP or vice versa. Its stated purpose is “to facilitate regional dialogue, coordinate planning efforts, and to inform transit partners”.

⁶ As of May 2013, the Regional Transit Organization Study is available here: <http://www.nrvpdc.org/Transportation/2011RegTransitStudy.pdf>.

Exhibit 3-1



Source: Regional Transit Organization Study, p8.

Mobility Resource Manual (2010)

A publication of the New River Valley Planning District Commission, the Mobility Resource Manual was intended to be a comprehensive resource for those seeking transit within the New River Valley. It documents eight services: Blacksburg Transit (BT), BT’s Christiansburg service, BT Access, Pulaski Area Transit, New River Valley Senior Services, Med-Ride, Community Transit, and Smart Way. The Manual could be a resource for a mobility manager in the future, or disseminated to the general public through an interactive website.

New River Valley Metropolitan Planning Organization (MPO) Bicycle and Pedestrian Master Plan (in progress)

The New River Valley MPO is in the process of developing a bicycle and pedestrian network that will compliment and connect to public transit services, including Radford Transit. The boundary for the Master Plan includes the City of Radford, the Towns of Blacksburg and Christiansburg, and parts of Montgomery and Pulaski Counties. Scheduled for completion by June 2014, the Master Plan will identify current pedestrian, bicycle, and transit activity and prioritize pedestrian and bicycle facility improvements. Existing multi-modal facilities include the six mile Huckleberry Trail between the New River Valley Mall and downtown Blacksburg. In Radford, the three mile Radford Riverway runs through Bisset and Wildwood Parks, connecting the City with RU.

Chapter 4

Service and Organizational Alternatives

This chapter provides a series of service and organizational alternatives that meet Radford Transit’s identified transit needs. The alternatives are based on the analysis of current services and on input from riders, residents, and other community stakeholders, as documented in Chapters 1-3.

Listed below, the alternatives are categorized as short/mid-term or long-term. The short/mid-term alternatives incur minimal to moderate costs, allowing for implementation during the TDP’s six-year planning horizon. In contrast, the long-term alternatives are “vision” projects. Depending on changing state and federal funding, these projects may be more appropriate for implementation at a later date. The alternatives are designed to serve as a starting point for discussion, to be modified based on additional input from the Radford Transit Stakeholder Committee.

Short/Mid-term

- Fairfax Street Transfer/Time Check,
- 30/31 Route Adjustments,
- Fare Free Service,
- Increased Marketing and Outreach,
- Technology,
- Additional Staffing for the City of Radford,
- More Stops in Fairlawn and Christiansburg,
- Sunday Service,
- Extended Evening Hours; and
- Increased Frequency.

Long-term

- Daily Service to Christiansburg and Blacksburg,
- Enhanced Service- 30 Route; and
- Scheduled Service to NRVMC.

Each alternative is detailed in this section and includes:

- A summary of the service alternative,
- Potential advantages and disadvantages,
- An estimate of the annual operating costs, the net deficit, and the local share,
- An estimate of the capital costs; and
- Likely ridership impacts.

It should be noted that these alternatives are designed to serve as a starting point and can be modified as needed based on input from Radford Transit and other stakeholders. In addition, the cost information associated with individual routes is based solely on the hourly service fee data provided by Radford Transit and the City of Radford, which means the study team assigned costs on a per unit basis when contemplating expansions. For simplicity, a local match percentage was applied for Radford University and the City of Radford shared routes:

- Route 20 – Radford University 20% and City of Radford 13%
- Route 40 – Radford University 29% and City of Radford 4%
- Route 50 – Radford University 24% and City of Radford 9%

This does overstate the incremental cost of minor service expansion, as there are likely to be some administrative expenses that would not be increased with the addition of a few service hours. The cost estimates will be refined during the alternatives discussion in regard to possible cost implications.

The cost estimates were calculated using Radford Transit's FY 2014 operating statistics for the month of September 2013 (service fee plus fixed monthly fee) since the New Flyer buses were added to the service operation. These larger buses have a higher hourly operating cost. Thus, an operating cost per hour of \$35.00 was applied when evaluating the cost of all the new proposed services.

SHORT/MID-TERM ALTERNATIVES

Short/Mid-Term Alternative: Fairfax Street Transfer/Time Check

Currently Lot A on the RU campus is Radford Transit's busiest stop. It serves as a transfer point and/or a time check for every route except the 30/31. However, multiple stakeholders expressed concern that the current Lot A configuration causes congestion and safety hazards. The location will only become more problematic with the addition of larger vehicles to the Radford Transit fleet.

This alternative establishes a new campus transfer/time check at Fairfax Street in the heart of campus. Fairfax Street through campus currently functions as a pedestrian and parking area, featuring decorative paving, a landscaped clock tower circle, and parking areas DD, EE, and JJ. However, it was originally a through street open to traffic. RU administration indicated that the apartments at the intersection of Fairfax and Jefferson Street are slated for demolition, creating an opportunity to reconstruct Fairfax as a center for transit-pedestrian activity.

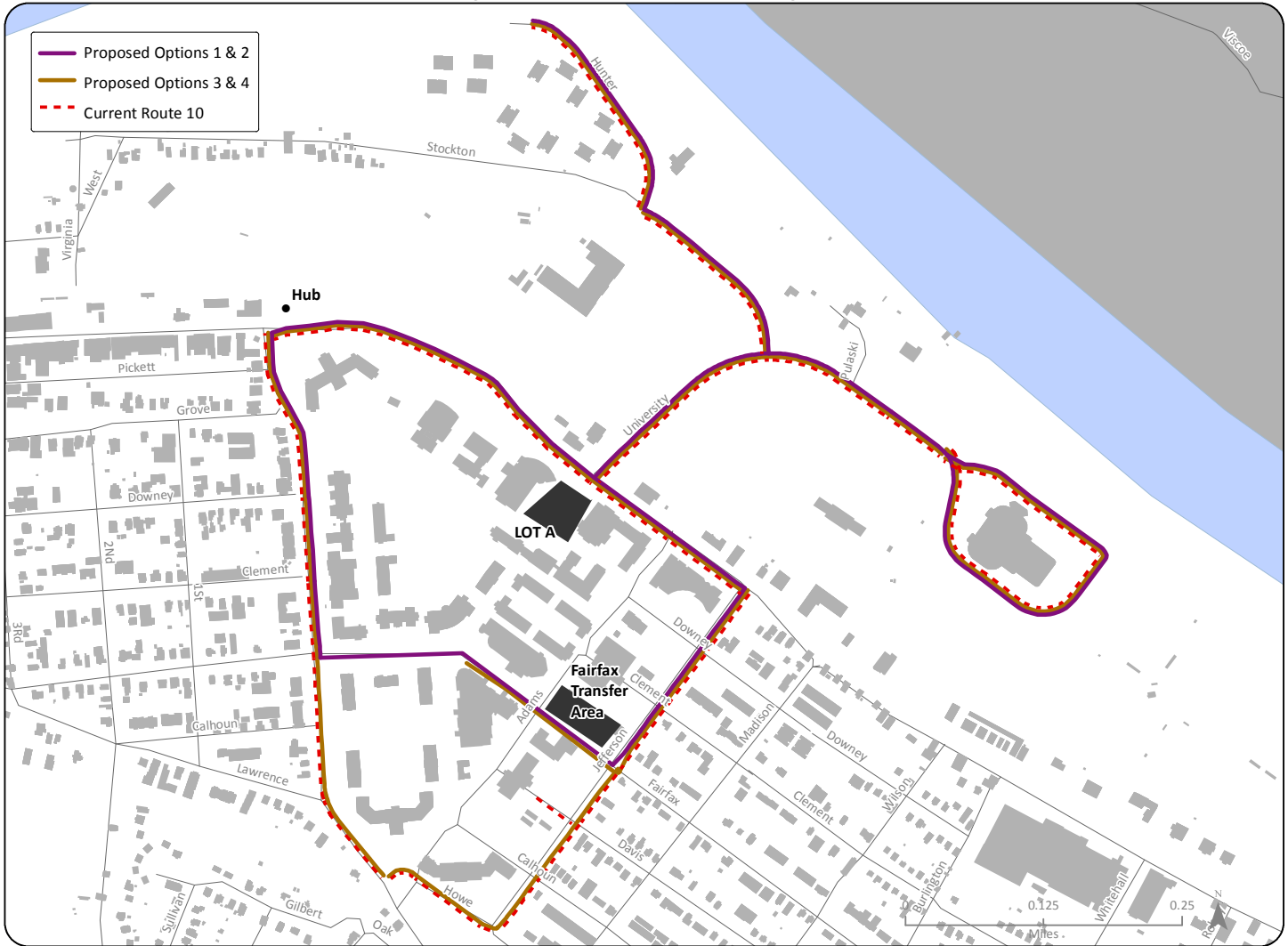
This alternative has several sub-alternatives:

1. Create a transfer/time check at Fairfax Street for all routes except the 30/31; Design Fairfax Street for one-way westbound transit traffic, spanning Jefferson Street to Tyler Avenue (with vehicles bypassing the COBE building). Maintain Lot A as a stop only for Route 10. See Figure 4-1.
2. Option 1, with Lot A eliminated as a stop for all routes.
3. Create a transfer/time check at Fairfax Street for all routes except the 30/31; Design Fairfax Street for two-way transit traffic from Jefferson Street, with a turnaround at the current circle. This alternative would not be a through street fully connecting Jefferson Street to Tyler Avenue. Maintain Lot A as a stop only for Route 10. See Figure 4-1.
4. Option 3, with Lot A eliminated as a stop for all routes.
5. Maintain the current routing for the 10, including a stop at Lot A. Create a transfer/time check at the proposed Fairfax Street location for Routes 20, 40, 50, and 60.

Advantages

- Addresses a high priority service improvement identified by the RU administration, the City of Radford, and Radford Transit staff.
- Reduces congestion at Lot A.
- Creates a vehicle staging area with additional space for large vehicles.
- Brings Radford Transit to the heart of the RU campus, potentially increasing convenience for students and promoting the visibility of the system.

Figure 4-1: Route 10 Proposed Changes



Disadvantages

- By opening Fairfax Street along its entire length, Options 1 and 2 eliminate direct service to the front of the COBE building and the rest of the southwestern campus perimeter. However, the proposed Fairfax Street stop is situated centrally within the campus allowing a manageable walking distance to the southwestern campus buildings.
- Option 3 and 4 use the Fairfax circle as a vehicle turnaround and for two-way traffic, necessitating a wider dedicated space (possibly at the expense of parking and sidewalks).
- All options require RU to undertake significant construction/renovations.
- Eliminating or minimizing the use of Lot A makes student access to adjacent buildings less convenient.
- In addition to impacting Route 10, the alternative requires minor adjustments to Routes 20, 40, 50, and 60.

Expenses

- The only expense would be on the part of RU, for the construction of the new transfer/time check area. However, Radford Transit would need to revise and reprint its maps and schedules.

Ridership

- Establishing a Fairfax Street transfer/time check is unlikely to have an immediate impact on ridership. However, it would provide more curb space for larger and/or additional vehicles. This may allow Radford Transit to expand its vehicle capacity and more easily serve additional riders in the future.

Short/Mid-Term Alternative: 30/31 Route Adjustments

The 30/31 Route currently lags behind Radford Transit's other routes in terms of passenger trips per hour. Though it is critical for the mobility of Radford residents, especially those in the West End, the 30/31 is a candidate for refinement. Riders can travel bi-directionally at 20-40 minute headways, but many must transfer at the Hub to complete their trips. The onboard rider survey showed that 54% of riders on the 30/31 transferred. This percentage is much higher than on other routes, which ranged from 3% to 18%. Most 30/31 riders named either Walmart or locations along Main Street (e.g. Wades) as their destination.

This alternative adjusts the 30/31 route to create more direct trips for riders and reduce the need to transfer at the Hub. It has two sub-alternatives, both that split the 30/31 into two segments:

1. Segment 1 of Option 1 travels from Jeffries Drive to Main Street, crosses the bridge to Fairlawn/Walmart, stops at the Hub, and then returns to Jeffries. Segment 2 starts at Jeffries, travels along Rock Road, stops at the Willow Woods apartments, the Rec Center, and the Hub, then return to Jeffries Drive by the same route. Riders could transfer between the two segments at the Hub. See Figure 4-2.
2. Segment 1 of Option 2 starts at Jeffries Drive, travels along Main Street to the Hub, stops at the Rec Center, and then returns to the Hub and Jeffries along the same route. Segment 2 begins at Willow Woods, travels along several neighborhood streets, and then proceeds along Main Street and across the bridge to Fairlawn/Walmart before returning to Willow Woods. The two segments would meet for transfers at Wades. See Figure 4-3.

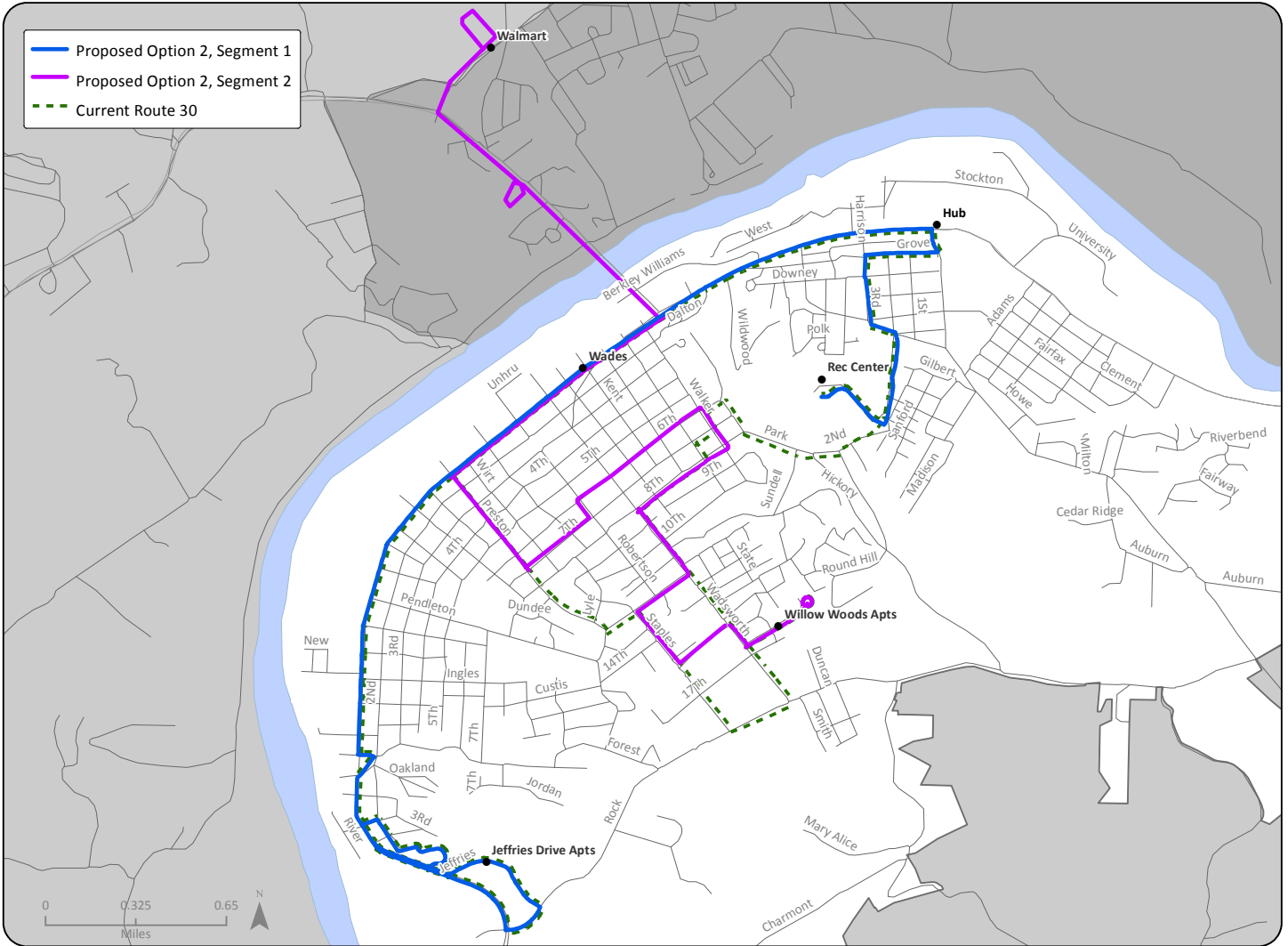
Advantages

- Responds to rider travel patterns as documented in onboard surveys.
- Option 1 provides direct service to Fairlawn for those coming from Jeffries Drive. Option 2 does the same for those at Willow Woods.
- More convenient, direct routing could boost overall ridership and help attract new city riders.
- Uses data from on/off counts to maintain service to the highest ridership stops on the current 30/31 Route.

Disadvantages

- Option 1 may increase the need for transfers by those traveling to or from Willow Woods. These riders would no longer have a one seat ride to destinations along Main Street (e.g. Wades). Option 1 also eliminates service on a 1 mile stretch of Preston Street.
- Option 2 may increase the need for transfers by those traveling to or from Willow Woods. These riders would no longer have a one seat ride to the Rec Center, or to RU. Option 2 also eliminates service on short stretches of Park Road and Staples Street.
- Radford Transit would need to update its maps and schedules, and conduct an education campaign to notify riders of the route adjustments.

Figure 4-3: Route 30/31 Proposed Changes



Expenses

- The route adjustments are cost-neutral in terms of operating cost. Both segments in Options 1 and 2 would be about 12 miles roundtrip and take an hour to complete.
- Schedule re-design and printing would incur minimal costs.

Ridership

- The route adjustments may result in a slight increase in ridership over time, due to a more direct and convenient ride between many places in West Radford and Fairlawn. However, this is difficult to predict given that some ridership loss may occur due to new transfer requirements for some riders.

Short/Mid-Term Alternative: Fare Free Service

In FY 2013, seven percent of Radford Transit's riders paid a full fare. About 84 percent rode for "free" with an RU ID, as did those under 12 and over 65 (about 2 percent). The farebox revenue came to just over \$19,000, about 2 percent of the total operating budget. This alternative proposes that Radford Transit implement fare free service for all riders. The City of Radford would have to provide the additional (and relatively nominal) revenue, similar to RU's current underwriting of its students and staff. Fare free service would boost ridership on city-oriented routes, addressing a concern voiced by multiple stakeholders.

Ridership tends to increase as fares decrease, a relationship known as demand elasticity. Previous research calculates demand elasticity as -.3 to -.4, meaning that a 10% decrease in fares results in a 3% to 4% increase in ridership.¹ Thus, a 100% decrease in fares (in Radford Transit's case, from \$1 to free), may lead to a 40% increase in ridership. Some studies have put the increase in ridership due to fare free service closer to 50%.² In Altavista, Virginia, the Altavista Community Transit System (ACTS) has offered fare free service every summer, enabled by an anonymous donation. ACTS experienced an increase in average ridership by about 80%. Advance Transit in Vermont is a system that went fare free and as a result ridership quadrupled. Assuming

¹ Hanly, M., and Dargay, J. (1999). Bus Fare Elasticities: A Literature Review. Report to the Department of the Environment, Transport and the Regions.

² Perone, Jennifer (Oct. 2002). Advantages and Disadvantages of Fare-Free Transit Policy. National Center for Transportation Research. NCTR Report 473-133. www.dot.state.fl.us/research-center/Completed_Proj/Summary_PTO/FDOT_BC137_38_FF_rpt.pdf.

that riders paid a fare for about 10% of the 329,946 FY 2013 trips, Radford Transit could conservatively estimate an increase of 13,000 trips if it instituted free fares.

Advantages

- Would increase ridership on Radford Transit's lower performing routes, drawing new riders and making residents more aware of available services.
- Offers additional mobility for residents, especially those individuals whose financial situation would have caused them to not otherwise make the trip.

Disadvantages

- Places a small additional financial burden on both Radford University and the City of Radford (see expenses below).
- May attract disruptive riders who jeopardize service quality and/or deter existing passengers from riding.
- Ridership may be more closely tied to issues of frequency, reliability, and travel time than the cost of fares.
- Some may perceive free fares as an additional and unjustified tax burden on all Radford residents to benefit a much smaller segment of the population.

Expenses

- Using FY2013 figures, Radford University would pay an additional \$4,150 and the City of Radford would pay \$2,204.

Ridership

- Free fares could generate between 13,000 and 26,000 additional passenger trips annually.

Short/Mid-Term Alternative: Increased Marketing and Outreach

Stakeholder input revealed that Radford Transit can do more to publicize the system to city residents and make riding the bus easier for newer riders. Although Radford Transit is well known among RU students, many other residents are still unsure of how to use the system.

This alternative proposes continued and increased marketing and public outreach efforts. Radford Transit could pursue this alternative through public service announcements, local newspaper, television, and radio advertisements, links on local websites, and hard copy advertisements at local businesses. Radford Transit could give an information packet to all new residents when their utilities are activated. Staff could conduct travel training presentations at various apartment complexes or in cooperative with the Radford Senior Center.

Radford Transit should also consider updating its schedules. Multiple general public survey respondents said that the current schedules are confusing. Only time check stops are listed, making it difficult to estimate when the bus might arrive at intervening locations. Though additional stop times may not always align with actual operations, listing more locations will still offer an at-a-glance estimate for riders. Schedule updates will also serve the Radford population that lacks easy access to the internet or a smartphone. The changes would complement Radford Transit's robust NextBus feature, which provides real time information (by phone or online) and a live map of bus locations. However, NextBus is geared to immediate trips, not advanced planning.

Advantages

- More understandable schedules and route information makes the system user-friendly for all interested community members and potential riders.
- Addresses a need expressed through general public surveys.
- Increases public awareness/visibility of Radford Transit within the city and the region.

Disadvantages

- Potential costs for increased advertising and brochure reprints.
- Radford Transit staff may have limited time to devote to marketing and outreach.

Expenses

- Marketing costs are typically estimated at 2% of the annual operating budget, which would be about \$22,000 annually, which is in line with Radford Transit's current line item budget for Advertising and Promotional Media. Radford Transit should ensure that it spends this dedicated amount on an annual basis.

Ridership

- Increased marketing and information aimed at the general public may result in greater ridership over time.

Short/Mid-Term Alternative: Technology

In considering transit technology applications, it is important to understand a system's existing organizational structure, how it executes its functions, and its organizational (personnel and equipment) capacity to implement any new transit technology. Prior research explains methods that transit organizations can use to conduct such a process for considering potential transit technology applications. *Transit*

Cooperative Research Program Report 84, Volume 8 - Improving Public Transportation Technology Implementations and Anticipating Emerging Technologies (Report 84³) is a useful reference tool for this type of undertaking. Generally, the specificity of the need identified by the organization and how it aligns with the organization's mission proves effective in identifying relevant technology options.

New technology is exciting and useful when applied correctly, however the report cited above also includes discussion about how the transit industry has had some difficulty in effective implementation of new transit technologies. Consisting of survey information received from participating agencies, the report offers a useful database of obstacles transit systems faced during their experiences in implementing transit technology.

That said, this alternative explores Radford Transit purchasing Automatic Passenger Counters (APC) to count passengers as they board and alight a vehicle at a stop. Data is then downloaded to computers to support reporting and planning tasks.

Advantages

- APC technology will assist Radford Transit in collecting data to evaluate routes and provide accurate ridership figures by stop.
- It will relieve bus drivers of this responsibility and allow them to focus on other bus operations.
- Unlike schedule checkers, APC units can potentially collect ridership for every single trip operated, if they are installed on 100% of the bus fleet.

Disadvantages

- Initial capital costs and annual maintenance costs.
- APC units, while accurate, are sometimes not as accurate as manual collection (APC units collect accurate information 80 - 95% of the time while manual collection is generally accurate 90 - 95% of the time).
- A full manual count, which can include substantial costs, is likely to be needed to calibrate the APC system.
- Administrative staff time requirements to manage and assess the data may increase.

³ Burt, Matthew W.; Cluett, Chris; Schweiger, Carol; Coogan, Matthew A.; and Easley, Richard B. *Improving Public Transportation Technology Implementations and Anticipating Emerging Technologies*, Vol. 8. Transit Cooperative Research Program Report 84 (2008).

Expenses

- APC units cost about \$10,000 per bus; if additional AVL equipment is needed to allow for collection of stop level data than the cost will increase.
- This cost does not include the development and installation of any software needed to analyze the APC data. That amount could be as high as \$250,000.

Ridership

- Actual ridership will not change though NTD reported ridership may change. NTD is currently calculated by a sampling methodology that uses a formula to expand the sample data to represent the system ridership (i.e. it is not a 100% count) and if the randomly selected trips include several that have very low or very high ridership the monthly ridership total will be distorted. Complete data collected through the use of an APC system would reduce potential sampling error.

Short/Mid-Term Alternative: Additional Staffing for the City of Radford

The City of Radford is the official applicant and recipient of funding for Radford Transit. Currently, the City Engineer handles grant administration and other budgetary functions for the system. This is in addition to non-transit related responsibilities that demand constant (and nearly full-time) attention.

This alternative proposes hiring an additional staff member for grant administration. With the transition from FTA's S. 5311 program to S. 5307, the City will only face more complex reporting requirements. The new staff could take on responsibilities that were previously DRPT's purview under S. 5311. The position could also assist Radford Transit with marketing and public outreach, leading the effort to increase ridership by city residents not affiliated with RU.

Advantages

- Adds capacity, allowing City staff to maintain manageable workloads.
- Ensures compliance with state and federal reporting requirements.
- Better serves current and potential riders through additional outreach.

Disadvantages

- The only disadvantage is additional cost to the transit program. The City of Radford and RU may be hesitant to support this position financially.

Expenses

- A full-time staff member is likely to earn about \$35,000 annually, plus fringe benefits, which were 35% in FY13.

Ridership

- Additional city administrative capacity is unlikely to directly increase ridership. However, it could result in slight increases over time if the new staff conducts marketing and public outreach duties.

Short/Mid-Term Alternative: More Stops in Fairlawn and Christiansburg

Fairlawn and Christiansburg are key destinations for current Radford Transit riders. Respondents to both the onboard rider survey and the general public survey noted that the Valley View Crossing shopping center in Christiansburg (Target, Michaels, Barnes & Noble, just south of the NRV Mall) and the Cookout/Wendy's in Fairlawn (just north of Kroger) are locations that lack sufficient service. Though these places are close in distance to current stops, the hostile pedestrian environment discourages riders from accessing them by foot.

This alternative proposes additional stops along the 20 and 40 Routes. In order to avoid delay or undue impact to the current schedule, the 20 Route could serve Cookout/Wendy's on request, possibly only in the southbound direction. Riders traveling northbound from Radford and wishing to get off would only have to wait a short time, since the 20 Route turns around at Walmart.

Adding a stop at Valley View Crossing in Christiansburg is more complicated. Radford Transit adjusted the 40 Route in August 2013, adding service to the Fairlawn Walmart after 7:40 p.m. and eliminating service to the Christiansburg Kmart. This streamlined route minimizes delays and avoids traffic at the 114/460 interchange. If Radford Transit wanted to serve Valley View Crossing, it could possibly do so in the afternoons only, when the route would not need additional time to stop at Walmart.⁴

Advantages

- Addresses specific service requests by survey respondents.
- Increases the utility of Radford Transit for riders trying to access local employment and shopping destinations.

⁴ The Town of Christiansburg is in the process of extending the multi-use Huckleberry Trail from its current terminus at the NRV Mall. Plans call for a bridge across Route 114, completed in 2014. Though not a substitute for transit service, the trail would allow riders to more easily navigate the distance between the NRV Mall stop and Valley View Crossing (when/if a transit option is unavailable).

Disadvantages

- Additional stops would minimize schedule buffer time and could jeopardize on-time performance, particularly on the 40 Route.
- Adjusting the 40 Route in a short time frame after the recent route changes could cause rider confusion and annoyance.

Expenses

- If added to current routes, the additional stops would be cost-neutral.
- Brochure re-design and printing would incur minimal costs.

Ridership

- The additional stops may result in a slight increase in ridership over time, due to more convenient service.

Short/Mid-Term Alternative: Sunday Service

Radford Transit's Sunday service is currently limited to the 10 Route (every thirty minutes from 5:50 p.m. to 11:50 p.m., primarily serving students returning from Lot CC) and one Megabus pickup on the 40 Route. However, onboard surveys confirmed that Sunday service was one of the improvements that would be most useful to riders. Reduced or no Sunday service is a feature of Radford Transit that riders like the least. RU student representation also noted that Sunday service to the Highland Village Apartments near the Burlington Lot is a request.

This alternative proposes several options for Sunday service in the short/mid-term, most matching current Saturday service. Because of an uncertain funding situation, some of these options may be more realistic in the long-term, especially those that are partially funded by the City of Radford. Although implementing the options together would allow for transfers and result in the greatest system-wide benefit, each option can also stand alone:

- Route 10, 11:50 a.m. to 11:50 p.m. (6 additional hours per week, ~30 weeks/year)
- Route 20, 10:00 a.m. to 7:40 p.m. (10 additional hours per week, year round)
- Route 40, 10:40 a.m. to 10:40 p.m. (12 additional hours per week per vehicle, ~30 weeks/year)
- Route 50, 10:20 a.m. to 8:00 p.m. (10 additional hours per week, year round)

Advantages

- Addresses a need articulated by riders and the public.
- Offers additional mobility for Radford Transit users, facilitating errands and other social/recreational trips.

Disadvantages

- Extended/additional hours would increase annual operating expenses.
- Sundays may not be as productive (passengers/hour) as current services.

Expenses

- New Sunday service for all of the above options would cost about \$53,900 in operating expenses (using a \$35/hour rate).

Route 10	\$6,300
Route 20	\$17,500
Route 40	\$12,600
Route 50	\$17,500
Total	\$53,900

- The estimated share by RU would be about \$13,500, and the estimated share by the City of Radford would be almost \$4,500.
- No additional capital would be required, but Radford Transit may need to replace existing vehicles quicker given the additional revenue miles per year.

Ridership

- Sunday service for all the above options would generate about 18,000 additional passenger trips annually.

Short/Mid-Term Alternative: Extended Evening Hours

Radford Transit’s routes have varied hours, with most beginning at 7 a.m. on weekdays and running anywhere from 7:40 p.m. (the 20 and 30/31) to 2:40 a.m. (the 10). Survey respondents expressed a desire for later evening hours, especially on the 20, 30/31, and the 60. Onboard survey riders named later evening hours as their highest priority service improvement.

By extending evening service, riders would have more opportunities to work, run errands, and travel to and from the RU campus. Key destinations stay open later than Radford Transit currently runs (e.g. Walmart- 24hrs, Food Lion and Kroger- 12 a.m., Wades- 10 p.m.). Extended hours on select routes would also allow for greater overall mobility by allowing riders to transfer into the evening/night. Riders can now take the 40 Route to Fairlawn once the 20 Route stops at 7:40 p.m., but, barring changes to the 40 Route, this is only possible Thursday through Saturday.

The following options involve weekday service on the 20, 50, and 60 Routes (see long term alternatives section for the 30/31 Route). Taken together, they would result in

1,300 additional annual service hours. In the future, Radford Transit could also consider extending evening (and morning) hours on Saturdays for the 20 and 50 Routes.

- Route 20, extended from 7:40 to 10:40 p.m. (15 additional hours per week)
- Route 50, extended from 10:10 to 11:10 p.m. (5 additional hour per week)
- Route 60, extended from 9:40 to 10:40 p.m. (5 additional hour per week, ~30 weeks/year)

Advantages

- Addresses the highest priority improvement requested by current riders.
- Offers additional mobility for Radford Transit users, facilitating shift employment, shopping, and social/recreational trips.

Disadvantages

- Extended hours would increase annual operating expenses.
- If later evening service experiences sparse ridership, this could lower Radford Transit's performance.

Expenses

- Three additional evening hours on the 20 Route (750 hours annually) would cost about \$26,250 per year in operating expenses, while one additional hour on the 50 and 60 Routes (250 hours annually and about 150 hours annually) would cost about \$8,750 and \$5,250.
- The estimated share by RU would be just over \$9,000, and the estimated share by the City of Radford would be \$4,200.
- No additional capital would be required, but ACTS may need to replace existing vehicles quicker given the additional revenue miles per year.

Ridership

- Extending service for 3 hours on the 20 Route would generate about 3,800 additional passenger trips annually (assuming three quarters of the FY 2013 trip/hour rate of 6.9). Extending service for 1 hour on the 50 and 60 Routes would generate about 2,100 and 900 additional passenger trips annually (assuming ridership per hour would be 75 percent of the FY 2013 trip/hour rates of 11.4 and 8.0).

Short/Mid-Term Alternative: Increased Frequency

Forty-three percent of Radford Transit riders named more frequent service as a priority service improvement. When asked what they like the least, riders' most common response had to do with frequency and having to wait too long for the bus. This alternative addresses rider concerns by proposing increased frequency for those routes with the greatest headways.

Riders enjoy 10 minute frequencies for much of every weekday on the 10 Route. This is not the case on Saturdays and Sundays for the 10 Route (every 30 minutes), Monday through Saturday on the 20 Route (hourly), Saturdays/city service days on the 50 Route (every 30 minutes), or weekdays on the 60 Route (every 20 minutes until 6:00 p.m., then every 40 minutes). The 30/31 Route also has 30 minute bi-directional headways, but changes to that route will be discussed under the long term alternatives section. Radford Transit can consider the following frequency adjustments:

- Route 10, doubled from 30 minutes to 15 minutes on Saturdays and Sundays (~30 weeks per year)
- Route 20, doubled from 1 hour to 30 minutes (year round)
- Route 50, doubled from 30 minutes to 15 minutes on city service weekdays (~22 weeks per year) and Saturdays (year round)
- Route 60, doubled from 20 minutes to 10 minutes between 7:10 a.m. and 6:00 p.m. and from 40 minutes to 20 minutes from 6:00 p.m. to 9:40 p.m. (~30 weeks per year)

Advantages

- Improves access to destinations during off peak hours and days.
- Reduced wait time makes Radford Transit more convenient and easy to use.
- Increasing frequency is a major factor that could attract new riders.
- Could address capacity issues as ridership grows.

Disadvantages

- Doubling the service frequency essentially doubles operating costs since an additional vehicle and driver are required.
- Increasing frequency would likely reduce productivity in the short-term (i.e., existing trips would be distributed over multiple vehicles). It would take time to build additional ridership.

Expenses

- The incremental operating costs to double frequencies and implement additional vehicles would cost the following annually:

Route 10 (Saturdays)	\$15,750
Route 10 (Sundays)	\$6,300
Route 20 (weekdays)	\$68,250
Route 20 (Saturdays)	\$17,500
Route 50 (city weekdays)	\$45,500
Route 50 (Saturdays)	\$17,500
Route 60 (M-F)	\$78,750
Total	\$249,550

- Additional body on chassis vehicles would cost about \$130,000 each in capital expenses. Additional New Flyer buses would cost about \$365,000 each.
- The estimated share of the increase in operating costs by RU would be about \$65,500, and the estimated share by the City of Radford would be \$16,800 (assuming that federal and state funding remains at current percentages).

Ridership

- Increasing service frequency for all the options above is projected to generate about 60,000 additional trips per year. This estimate reflects three-quarters of the current service productivity (passenger trips per hour), since ridership does not necessarily increase at the same rate as service.

LONG-TERM ALTERNATIVES

Long-Term Alternative: Daily Service to Christiansburg and Blacksburg

While Sunday service to Christiansburg and Blacksburg on the 40 Route is included as a short/mid-term alternative, Radford Transit should also consider daily, full day service. The public outreach process indicated strong interest in increased service between Radford, Blacksburg, and Christiansburg. This included service seven days per week, service throughout the day on weekdays (as opposed to 2:40 p.m. onwards), and service during RU’s summer and semester breaks.

This alternative proposes that the 40 Route operate daily, with extended hours. Radford Transit could begin by matching current Saturday hours (10:40 a.m. to 2:40 a.m.) on Thursdays and Fridays. Based on ridership and funding, Sundays through Wednesdays could be added. Again, conditional on ridership and funding, service could expand to the “city only” service weeks (when the University is not in full session) as well (an additional 22 weeks). Three morning hours (from 7:40 a.m.) could be added, making the 40 Route a possibility for commuters.

To offer a greater span of service on the 40 Route but remain cost neutral, Radford Transit could also consider reducing service frequency. It could run one vehicle on the 40 Route every other hour, Tuesday to Friday from 2:40 p.m. to 2:40 a.m. and Saturdays and Sundays 10:40 a.m. to 2:40 a.m. Students and residents may prioritize the span of days over hourly frequencies.

Advantages

- Additional days and hours responds to service requests by current riders and the general public.
- Vastly improves regional connectivity, linking Radford to the New River Valley and beyond.
- Better accommodates those traveling to Christiansburg and Blacksburg for work or school, along with social/recreational trips.

Disadvantages

- Additional days and hours increases annual operating expenses. This alternative would also require capital expenses.

Expenses

- The incremental operating costs to operate additional hours and days would cost the following annually:

Current service year round	\$54,320
Thurs/Fri. to match current Sat.	\$16,800
Sun.- Wed. 2:40 p.m. to 2:40 a.m.	\$100,800
Sun.- Wed. 10:40 a.m. to 2:40 a.m.	\$134,400
Mon.- Fri. 7:40 a.m. to 10:40 a.m.	\$31,500

- Additional medium duty body on chassis vehicles would cost about \$130,000 each in capital expenses. Radford Transit would also need to replace existing vehicles more quickly if they were used for this service, due to additional revenue miles per year.
- The estimated share by RU would be \$98,000, and the estimated share by the City of Radford would be \$13,500.

Ridership

- This alternative could generate anywhere from 2,000 additional trips annually (beginning at 10:40 a.m. on Thursdays and Fridays) to 18,000 additional trips annually (10:40 a.m. to 2:40 a.m. service throughout the week).

Long-Term Alternative: Enhanced Service- 30 Route

Stakeholder feedback indicated that many of the service improvements discussed under short/mid-term alternatives section (e.g. extended hours, Sunday service) are also important for the 30/31 Route. However, the City of Radford contributes the entire local match for the 30/31, leading the study team to believe that these improvements are more realistic for the long-term. This alternative proposes the following options:

- Extended weekday/Saturday evening hours from 8:00 to 11:00 p.m. (18 additional hours per week per vehicle)
- Extended weekday/Saturday morning hours from 6:00 a.m. (5 additional hours per week per vehicle, 4 additional Saturday hours per vehicle)
- Sunday service from 10:00 a.m. to 8:00 p.m. (10 additional hours per week per vehicle)

Advantages

- Extended hours and Sunday service address a need articulated by current riders and community stakeholders.
- Offers additional mobility for employment, medical, and shopping trips, specifically for riders who live in the West End.
- Ensures benefits of service to all Radford residents, not only those affiliated with RU.

Disadvantages

- Extended hours and Sunday service would increase annual operating expenses.
- Later, earlier, and/or Sunday service may not be as productive (passengers/hour) as current services.

Expenses

- Three additional evening hours on the 30/31 Route (1,800 hours annually) would cost about \$63,000 per year in operating expenses. One additional morning hour (900 hours annually) would cost about \$31,500. Sunday service (1,000 hours annually) would cost about \$35,000.
- The share by the City of Radford would be about \$42,750.
- No additional capital would be required, but ACTS may need to replace existing vehicles quicker given the additional revenue miles per year.

Ridership

- Extending service for 3 hours would generate about 3,900 additional passenger trips annually (assuming three quarters of the FY 2013 trip/hour

rate of 2.9). Extending service by 1 hour or offering Sunday service would both generate about 2,000 additional trips.

Long-Term Alternative: Scheduled Service to NRVMC

Located approximately five miles from downtown Radford at the intersection of I-81 and Route 177, the New River Valley Medical Center (NRVMC) is a major trip generator. Survey respondents cited it as one of their most frequent destinations, and community stakeholders noted an ongoing need for medical transportation to the facility. Prior to February 2012, NRVMC was a stop on the 20 Route. However, low ridership caused Radford Transit to switch to demand response only. Now riders must make a reservation 24 hours in advance for trips leaving from the Hub. Radford Transit makes approximately 50 trips per month to NRVMC (grouped if possible).

This alternative proposes that Radford Transit implement scheduled service to NRVMC. The facility could again be a stop on an extended 20 Route, with an additional vehicle in order to maintain hourly headways. As NRVMC is a large complex, the route would need to stop at multiple hospital entrances to best serve riders. Radford Transit should consider this alternative in light of ridership trends to NRVMC over time. Demand by both city residents and students may increase in the future as plans for new development surrounding NRVMC proceed.

Advantages

- Provides a regularly scheduled transit option for NRVMC patients and employees (food service workers, housekeeping staff, etc.).
- A partnership with NRVMC (possibly for a sponsored route) could help offset the increase in operating costs.

Disadvantages

- New service would increase annual operating expenses.
- Would require staff time to build a funding partnership with NRVMC.
- The City of Radford may prefer to continue its current financial arrangement for demand response trips (\$25 per passenger).
- Much of the route between Auburn Avenue and NRVMC has little opportunity for ridership.

Expenses

- Assuming the service would operate at the current Route 20 hours (Monday to Friday, 7:00 a.m. to 7:40 p.m. and Saturday 10:00 a.m. to 7:40 p.m.), the NRVMC service would mean 3,701 additional service hours per year, costing around \$129,500 annually in operating expenses.

- An additional 20 passenger body on chassis vehicle would cost about \$130,000 in capital expenses. The service would add just over 35,000 revenue miles annually (for service Monday through Saturday, 9 to 12 round trips per day).
- The estimated share by RU would be \$25,900, and the estimated share by the City of Radford would be \$16,850.

Ridership

- Assuming ridership slightly below to the current Route 20 (5 trips/hour, 30% less than the current ridership level per/hour), service to NRVMC would generate about 18,500 additional trips annually.

Chapter 5

Operations Plan

This chapter describes the service improvements and expansions that the Radford Transit Stakeholder Committee has recommended for implementation over the TDP's six-year timeframe. These service recommendations address the operating issues and transportation needs identified in Chapter 3. This operations plan focuses on service recommendations for which Radford Transit reasonably anticipates local funding to be available. The operational improvements and service characteristics of expansion projects are described below, while the next chapter outlines the capital needs associated with these service recommendations. The operating and capital costs associated with each service project are provided in Chapter 7 as the Financial Plan.

GROWING RADFORD TRANSIT TO SERVE THE COMMUNITY - SERVICE PROJECTS

Since the transit system started in August 2011, Radford Transit has evolved into the current operation that offers six local/regional routes serving the City and University Radford Transit currently operates 7:00 a.m. to 10:00 p.m. Mondays through Thursdays, 7:00 a.m. to 2:30 a.m. on Fridays and Saturdays, and 6:00 p.m. to midnight on Sundays. The Radford Transit schedule also varies with the RU calendar; "City Only Service" occurs May through August and during RU's winter break. Radford Transit offers ADA fixed route ¾ mile deviations, scheduled 24 hours in advance. It also provides prescheduled service to the Carilion NRV Medical Center on weekdays from 9:00 a.m. to 6:00 p.m.

After reviewing the service alternatives proposed in Chapter 4, the Transit Stakeholders Committee recommended several improvements and new services to address operational issues and meet needs identified by the community. This chapter details the specific projects broken down into financially constrained and vision categories. While the former follow a six-year timeline, the latter are indeterminate, as the years of possible implementation are unknown. The TDP recognizes current financial constraints, most notably the S. 5307 regional funding allocation, while

allowing Radford Transit to adapt to changing circumstances and consider accelerated implementation during its yearly reviews. The recommendations are divided into short- and mid-term based on the Transit Stakeholder Committee's prioritization of the projects. The details concerning each service proposal are described below.

Short-Term Projects

The following projects are recommended for implementation in the first three years of the TDP. These projects were identified as short-term because they are cost neutral or incur minimal costs, given the potential benefits achieved.

30/31 Route Adjustments

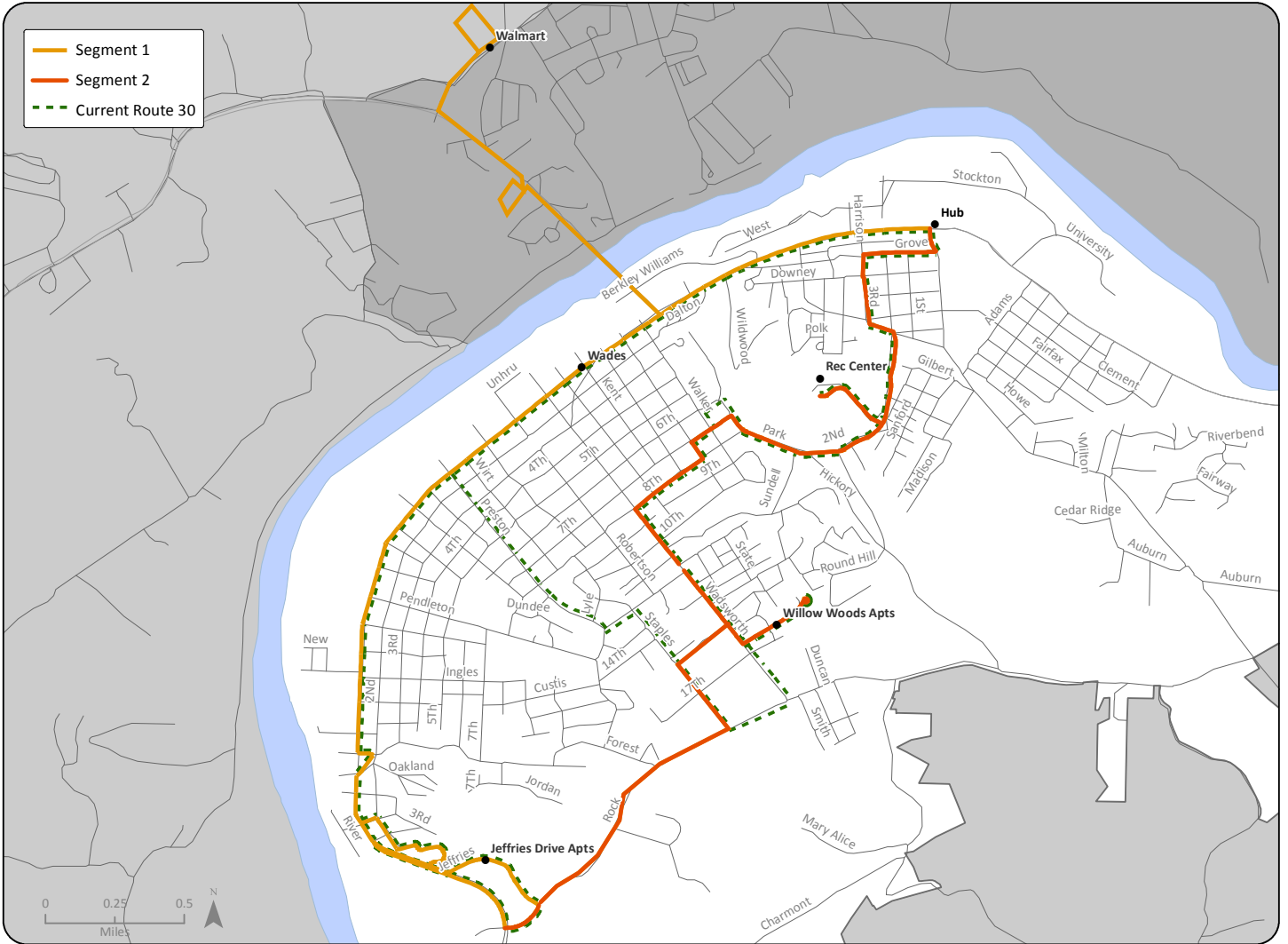
The 30/31 Route currently lags behind Radford Transit's other routes in terms of passenger trips per hour. Though it is critical for the mobility of Radford residents, especially those in the West End, the 30/31 is a candidate for refinement. Riders can travel bi-directionally at 20-40 minute headways, but many must transfer at the Hub to complete their trips. The onboard rider survey showed that 54% of riders on the 30/31 transferred. This percentage is much higher than on other routes, which ranged from 3% to 18%. Most 30/31 riders named either Walmart or locations along Main Street (e.g. Wades) as their destination.

Shown in Figure 5-1, this project involves minor adjustments to Route 30/31 to address timing issues and increase the efficiency, safety, and directness of the route, as well as reduce the need to transfer at the Hub. Specifically, this alternative splits the 30/31 into two segments:

- Segment 1 would travel from Jeffries Drive to Main Street, crossing the bridge to Fairlawn/Walmart, stopping at the Hub, and then returning to Jeffries.
- Segment 2 would start at Jeffries, then travel along Rock Road, make stops at the Willow Woods apartments, the Rec Center, and the Hub, and then return to Jeffries Drive by the same route. Riders could transfer between the two segments at the Hub.

This new service design addresses rider travel patterns documented in Chapter 4. It also provides direct service to Fairlawn for passengers boarding at Jeffries Drive and along Main Street, while continuing to provide residents along Wadsworth Street direct service to RU. The roundtrip route length for each route segment is around 12 miles and would stay at hourly headways.

Figure 5-1: Route 30/31 Proposed Changes



Fairfax Street Transfer/Time Check

This project establishes a new campus transfer/time check at Fairfax Street close to the heart of campus (see Figure 5-2). Although it is listed as a short-term project, the timeframe will need to be fluid based on RU's construction schedule. This alternative involves the following:

- Creating a transfer/time check at Fairfax Street (roughly positioned at the current Lot JJ) for all routes except the 30/31.
- Having buses turn right off of Jefferson Street on an access road between Clement Street and Fairfax Street, making another left onto a cross street/alley, and then left onto Fairfax Street.
- Depending upon the design, staging buses on both Fairfax Street and the access road between Clement Street and Fairfax Street to ensure enough room during the transfer time points.

A new RU campus transfer stop was an issue/improvement identified by all of the key stakeholders (RU, City of Radford, and Radford Transit). The driving impetus behind this change is the growing concern with maneuvering and staging buses at Lot A.

More Stops in Fairlawn and Christiansburg

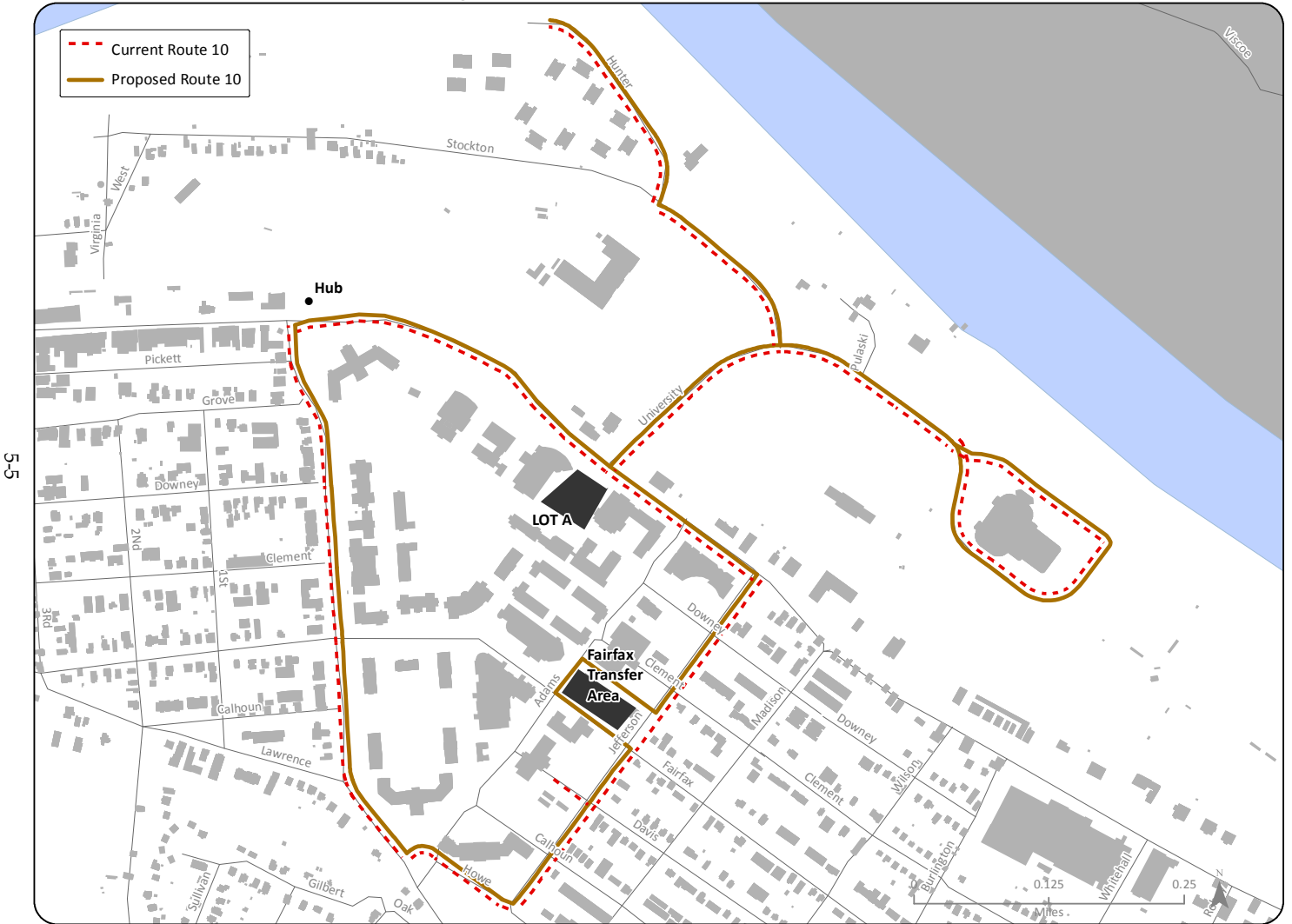
This project adds additional stops along the 20 and 40 Routes in Fairlawn and Christiansburg. The proposed stops are for locations that lack sufficient service and where the pedestrian pathway is precarious. It specifically adds stops:

- On the 20 Route to serve Cookout/Wendy's on request in the southbound direction only.
- On the 40 Route to serve Valley View Crossing shopping center (Target, Michaels, and Barnes & Noble) in the afternoons only prior to when the route stops at Walmart.

Technology - Passenger Counters

It is recommended that Radford Transit purchase tablets that will serve as on-bus passenger data counters. Passenger data management software and licenses will need to be purchased and incorporated into both the vehicle tablets and operations center computers. This technology offers both sophistication and ease of use to count passengers by type as they board at each stop. Data is then downloaded to computers to support reporting and planning tasks.

Figure 5-2: Fairfax Street Transfer/Time Check



Fare Free Service

This project supports fare free service for all riders on Radford Transit. Fare free service would boost ridership on city-oriented routes, addressing a concern voiced by multiple stakeholders. As explained earlier, ridership tends to increase as fares decrease, a relationship known as demand elasticity. Additionally, the magnitude of potential revenue loss is minimal, especially when coupled with the benefits in terms of not having to do counting/accounting of small amounts of cash revenue. This project was discussed with DRPT to address concerns that fare free service would adversely affect performance standard-based state funding. DRPT communicated that farebox recovery is not a prime factor for this funding, and that ridership actually holds a higher standing in the review of performance standards.

Daily Service to Christiansburg and Blacksburg with Connections to Roanoke

This project enhances the 40 Route by expanding it to operate daily, with extended hours. By adding additional days and hours to this route, it directly responds to service requests voiced by current riders and the general public. Additionally, it significantly improves both the City's and RU's regional connectivity. By adding daily morning and afternoon/early evening hours the 40 Route evolves into a viable option for commuters—providing a car free option for those traveling to school or work (in addition to the current social/recreational trips) from Christiansburg/Blacksburg, as well as a daily connector to Roanoke via the Smart Way Bus. The enhanced 40 Route would operate 1,080 additional service hours:

- Monday – Friday from 7:00 a.m. to 10:00 a.m., 15 additional hours per week, 630 hours annually.
- Monday – Wednesday from 4:00 p.m. to 9:00 p.m., 15 additional hours per week, 450 hours annually.

Mid-Term Projects

The following projects are recommended for implementation in years four through six of the TDP. These projects were identified as mid-term because they require additional resources.

Extended Evening Hours

As noted earlier in the report, onboard survey riders named later evening hours as their highest priority service improvement. Survey respondents specifically conveyed their desire for later evening hours on the 20, 30/31, and the 60. By extending evening service, riders would have more opportunities to work, run errands, and travel to and from the RU campus.

The following options involve weekday service solely on the 20, 50, and 60 Routes. Taken together, they would result in 1,150 additional annual service hours:

- **Route 20** - 3 hours each weekday (15 additional hours per week equating to 750 hours annually).
- **Route 50** - 1 hour each weekday (5 additional hour per week equating to 250 hours annually).
- **Route 60** - 1 hour each weekday (5 additional hour per week, ~30 weeks/year, equating to 150 hours annually).

Sunday Service

The initial growth of Radford Transit focused on weekday and Saturday service, but now that there are more riders depending on it to meet their mobility needs, there is increased interest in Sunday service. This project proposes several options for Sunday service and should be implemented according to need and rider potential. Most of the service options match current Saturday service. Each option can operate independently; however, implementing the options together (1,900 additional service hours) would allow for transfers and result in the greatest system-wide benefit:

- **Route 10** - 6 additional hours per week, ~30 weeks/year, 180 hours annually.
- **Route 20** - 10 additional hours per week, year round, 500 hours annually.
- **Route 40** - 12 additional hours per week per vehicle, ~30 weeks/year, 720 hours annually.
- **Route 50** - 10 additional hours per week, year round, 500 hours annually.

Increased Frequency

When questioned on what they like least about transit, riders almost universally say waiting too long for the bus. Increasing the frequency on each route may address this concern. Specifically, this project targets those routes with the greatest headways. Again, each route can be modified independently, but all the proposed improvements add up to a total of 8,430 additional service hours:

- **Route 10** – doubled from 30 minutes to 15 minutes on Saturdays (~30 weeks per year), 450 hours annually.
- **Route 10** – doubled from 30 minutes to 15 minutes on Sundays (~30 weeks per year), 180 hours annually.
- **Route 20** – doubled from 1 hour to 30 minutes on weekdays (year round), 3,250 hours annually.
- **Route 20** – doubled from 1 hour to 30 minutes on Saturdays (year round), 500 hours annually.
- **Route 50** – doubled from 30 minutes to 15 minutes on city service weekdays (~22 weeks per year), 1,300 hours annually.
- **Route 50** – doubled from 30 minutes to 15 minutes on city service Saturdays (year round), 500 hours annually.
- **Route 60** – doubled from 20 minutes to 10 minutes in the morning and 20 minutes in the evening (~30 weeks per year), 2,250 hours annually.

Planned Service Levels

Table 5-1 summarizes the levels of service planned for the recommendations described above. The TDP identifies an implementation year for each project for planning purposes, but actual implementation may be impacted by the availability of funding, partnerships with other jurisdictions or organizations, and other changes in circumstance that arise.

Table 5-1: Planned Levels of Service

Year of Planned Deployment	Service Project	Annual Revenue Hours	Annual Revenue Miles
EXISTING SERVICE/ROUTE ADJUSTMENTS			
Existing ¹	Current Radford Transit Routes	29,751	322,696
1	30/31 Route Adjustments	No change	No change
2	Fairfax Street Transfer/Time Check	No change	No change
2	Technology – Passenger Counters	No change	No change
3	Fare Free Service	No change	No change
3	Daily Service to Christiansburg and Blacksburg	1,080	22,075
EXPANSION SERVICE			
4	Extended Evening on the 20, 50, and 60 Routes ²	1,150	10,300 ³
5	Sunday Service on 10, 20, 40, and 50 Routes ²	1,900	25,100 ³
6	Increased Frequency on 10, 20, 50, and 60 Routes ²	8,430	77,800 ³

Notes:

¹Existing service based on FY 2013

²Expansion service could be added for all of the routes listed (as reflected in the table) or broken out by individual routes as warranted by demand. This could occur based on limited funding where expansion would focus on routes with highest ridership.

³Calculated miles based on vehicles average mph for that route

Vision Projects

The following proposals describe vision projects that the Radford Transit Stakeholder Committee supports but which would require funding beyond amounts assumed to be available under the financially-constrained scenario. These address needs identified during public outreach efforts.

Enhanced Service - 30/31 Route

Beyond the 30/31 Route service redesign in the financially constrained plan, Radford Transit could expand evening and Saturday hours, and add Sunday service. This expansion includes the following options:

- Weekday/Saturday evening hours from 8:00 to 11:00 p.m. – 18 additional hours per week per vehicle, 1,800 hours annually.
- Weekday/Saturday morning hours starting at 6:00 a.m. – 5 additional hours per week per vehicle, 4 additional Saturday hours per vehicle, 900 hours annually.
- Sunday service from 10:00 a.m. to 8:00 p.m. – 10 additional hours per week per vehicle, 1,000 hours annually.

Scheduled Service to NRVMC

This project provides scheduled service to the New River Valley Medical Center (NRVMC), located approximately five miles from downtown Radford. Radford Transit would provide scheduled service Monday through Saturday as a stop on an extended 20 Route. The route would need to stop at multiple hospital entrances to best serve riders.

- Service would operate at the current Route 20 hours – Monday to Friday, 7:00 a.m. to 7:40 p.m. and Saturday 10:00 a.m. to 7:40 p.m., 3,701 additional hours annually.

Facility Improvements

Radford Transit has identified that the current Radford Transit Administrative Office and maintenance facility is at capacity. This facility does not have onsite fueling or sufficient parking, as it was not originally intended for transit operations. Continued system growth will further the need for a more conducive administrative and maintenance facility. It is recommended that Radford Transit request technical assistance from DRPT to undertake a feasibility study to explore options so that the system can support its transit maintenance and storage needs over the next six years.

This capital project is discussed in further detail in the Chapter 6 Capital Improvement Program.

Organizational Projects

The following organizational projects include recommended changes that affect the way that transit is guided, administered, and/or managed in Radford. It is recommended that the City of Radford and Radford Transit implement these organizational projects in the short-term.

Additional Staffing for the City of Radford

The City of Radford is the official applicant and recipient of funding for Radford Transit. As noted earlier in the report, the City Engineer handles grant administration and other budgetary functions for the system. This is in addition to non-transit related responsibilities that demand constant (and nearly full-time) attention.

This project proposes hiring an additional staff member dedicated to transit program grant administration and oversight. With the transition from FTA's S. 5311 program to S. 5307, the City will only face more complex reporting requirements. The new staff could take on responsibilities that were previously DRPT's purview under S. 5311. This position may begin as part-time if funds are limited, and then transition into a full-time position. Overall roles of this position would include:

- Overseeing current contract with NRVCS, and working on future contracts that go out for bid.
- Preparing appropriate federal, state, and local reports.
- Working with the contractor on service planning and implementation of new services.
- Overseeing the bus stop installation and maintenance effort.
- Serving as a liaison to the community and to market current services and build ridership.
- Assisting the Radford Transit Stakeholder Committee.
- Participating in discussions on land use and new development to provide a transit perspective.

Increased Marketing and Public Information

This project involves increasing marketing efforts and public information available about Radford Transit. Radford Transit currently uses several methods of public outreach including a rider brochure, the Radford Transit website, information on the RU website, social media links, and the local news to educate riders and the general public about Radford Transit services. Radford Transit drivers are also valuable resources in providing suggestions to improve the service. Radford Transit should continue these public outreach efforts in addition to new marketing efforts, such as providing an information packet to all new residents when their utilities are activated. Staff could conduct travel training presentations at various apartment complexes or in cooperation with the Radford Senior Center. While current riders are able to find information about Radford Transit, there is a sense that a large part of the “City” community still does not know about the service that Radford Transit offers.

Since the City Engineer only spends part of his time managing Radford Transit operations, he has limited time and expertise to focus on boosting transit marketing. It is recommended that the City Engineer (or new Transit Manager if hired) continue to work in coordination with Radford Transit staff in identifying ways to build partnerships with community organizations and improve public outreach. Strong marketing efforts will be particularly important if Radford Transit aims to continue its growth as a regional transit provider in the future.

Even if organizations and businesses do not have employees or patrons who currently ride Radford Transit, it is important to generate community support for the public service that Radford Transit provides. Good marketing and public information efforts help achieve this goal. Marketing efforts should highlight that many members of the community experience a higher quality of life with Radford Transit services. Seniors, individuals with disabilities, and residents who do not have a car are able to live independently because of Radford Transit. Radford Transit helps residents access jobs and students attend classes. Radford Transit also provides an important alternative to those who might choose to use transit in the future, especially if gas prices continue to rise.

In terms of public information, Radford Transit should continue to maintain accurate information about its routes, schedules, fares, and ADA policy on its website and rider brochures.

Update of the Rider Brochure and Bus Schedule

Radford Transit's rider brochure should be updated to reflect service improvements, whether it be the 30/31 Route modifications, shown in Figure 5-1, or the revised routes serving the Fairfax Street Transfer, shown in Figure 5-2.

It is recommended that Radford Transit update its schedules, as riders noted that the current schedules are confusing. Only time check stops are listed, making it difficult to estimate when the bus might arrive at intervening locations. Though additional stop times may not always align with actual operations, listing more locations will still offer an at-a-glance estimate for riders.

Partnership and Coordination Opportunities

Since Radford Transit is a relatively new system that plans to continue growing, it is important to emphasize and promote the community's support for transit services. Radford Transit receives multiple benefits from developing community partnerships, including:

- Increasing the outlets to share information about Radford Transit and attract new riders, where increased ridership also boosts performance measures;
- Finding potential funding partners, especially to implement services that travel beyond City boundaries; and
- Demonstrating to City leaders, who determine local funding for Radford Transit, that the community values public transportation services.

Businesses can work with Radford Transit to promote local economic development activities, while service organizations can ensure that their customers have the most up to date information on transit services. It is recommended that Radford Transit continue to engage the New River Valley Metropolitan Planning Organization (NRV-MPO) and the New River Valley Planning District Commission regarding transit improvements, and to stay involved with transportation planning in the region.

Chapter 6

Capital Improvement Program

This chapter of the TDP describes the major capital projects (vehicles, facilities, and equipment) needed to support the provision of public transportation for the six-year period covered by this TDP. It outlines the capital infrastructure projects needed to implement the service recommendations described in the Operating Plan. The Capital Improvement Program (CIP) provides the basis for Radford Transit's requests to DRPT for federal and state funding for capital replacement, rehabilitation, and expansion projects. The recommendations in the CIP are projects for which Radford Transit reasonably anticipates local funding to be available. The recommendations for different types of capital projects including vehicles, facilities, passenger amenities, tools and equipment, and technology upgrades are described below. The descriptions identify the capital projects already programmed in Radford Transit's existing CIP, as well as additional projects recommended in the TDP. The costs associated with these capital projects are provided in the next chapter with the Financial Plan.

VEHICLE REPLACEMENT AND EXPANSION PROGRAM

This section presents the details of the vehicle expansion and replacement plan including vehicle useful life standards, characteristics of the new vehicles, and estimated costs. A vehicle expansion and replacement plan is necessary to maintain a high quality fleet and dispose of vehicles beyond their useful life. This plan is especially important since Radford Transit is a young transit system and will soon be replacing vehicles (its original buses) for the first time. The capital plan for the vehicles was developed by applying FTA/DRPT vehicle replacement standards to the current vehicle fleet inventory, which was presented in Chapter 1.

Useful Life Standards

The FTA/DRPT vehicle replacement standards are shown in Table 6-1. The standards indicate that different types of vehicles have different expected lifespans. The builders of these vehicles are required to designate the projected life-cycle when the

vehicles are submitted for testing by the FTA, and the vehicles are designed to meet these standards. If vehicles greatly exceed the expected life, the consequent maintenance costs for over-age vehicles can significantly increase operating costs. In addition, the reliability of vehicles generally declines as they age, particularly after their design life is exceeded. This decrease in vehicle reliability also affects operating costs and impacts the quality of service for passengers.

Table 6-1: DRPT’s Vehicle Useful Life Policy

Vehicle Type	Useful Life
Van	Minimum of 4 Years or 100,000 Miles
Body on Chassis Vehicle	Minimum of 4 Years or 100,000 Miles
Light Duty Bus	Minimum of 4 Years or 150,000 Miles
Supervisory Vehicle	Minimum of 4 Years or 100,000 Miles
Transit Coach	Minimum of 12 Years

Source: DRPT’s Section 5311 State Management Plan (April 2009).

Vehicle Plan – Baseline Estimate

Radford Transit currently operates twelve body-on-chassis (BOC) vehicles and two heavy duty transit buses, so the bulk of the vehicles are eligible for replacement after four years of service or 100,000 miles. This standard was applied to the existing fleet to develop a baseline estimate of capital needs for the next six years to maintain current service levels (though BOC vehicles are being replaced with medium duty Seven-year buses). Table 6-2 portrays Radford Transit’s existing vehicle inventory with the estimated years the vehicles should be replaced, given current service levels. Based on the vehicles’ average annual mileage, and the large number of vehicles needing to be replaced, it is recommended that Radford Transit replace seven vehicles in FY 2015, three vehicles in FY 2016, and two vehicles in FY 2017.

This recommendation differs from the capital projections in DRPT’s FY 2014 Six-Year Improvement Program (SYIP), which the Commonwealth Transportation Board updates annually. This proposed adjusted schedule reflects Radford Transit’s daily demands, which the current fleet struggles to handle. Phasing out BOC vehicles and replacing them with medium duty buses will increase the capacity and useful life of the fleet.

**Table 6-2: Radford Transit's Vehicle Inventory with Replacement Years
Baseline Estimate**

Vehicle Identification Number (VIN)	Model Year	Model	Seating Capacity	Wheelchair Lift	Condition	Mileage	Average Annual Mileage	Estimated Replacement Year
1FDDE4FS8BDA72826	2011	Body on Chassis	12	Y	Fair	68,499	28,305	2,015
1FDDE4FSXBDA72827	2011	Body on Chassis	12	Y	Fair	68,031	28,112	2,015
1FDDE4FS1BDA72828	2011	Body on Chassis	12	Y	Fair	60,972	25,195	2,015
1FDDE4FS3BDA72829	2011	Body on Chassis	12	Y	Fair	68,056	28,122	2,015
1FDDE4FSXBDA72830	2011	Body on Chassis	12	Y	Fair	68,855	28,452	2,015
1FDDE4FS7BDA63583	2011	Body on Chassis	12	Y	Fair	68,193	28,179	2,015
1FDDE4FS9BDA63584	2011	Body on Chassis	12	Y	Fair	63,282	26,150	2,015
1GB6G5BGXC1183892	2012	Body on Chassis	19	Y	Good	28,799	20,281	2,016
1GB6G5BGOC1184369	2012	Body on Chassis	19	Y	Good	28,799	20,281	2,016
1GB6G5BG3C1183541	2012	Body on Chassis	19	Y	Good	26,299	18,520	2,016
1FDGF5GY8DEA17607	2013	Body on Chassis	26	Y	Good	1,744	4,152	2,019
1FDGF5GYXDEA17608	2013	Body on Chassis	26	Y	Good	6,132	14,600	2,019
5FYD2TU162U023813	2002	New Flyer Transit Bus	28	Y	Fair	264,418	23,154	2,015
5FYD2TU142U023812	2002	New Flyer Transit Bus	28	Y	Fair	236,672	20,724	2,015

Vehicle Plan - Recommended Services

The plan for vehicle replacement and expansion taking into account the recommended service projects is shown in Table 6-3. This table estimates vehicle needs based on the service projects' planned years of implementation described in Chapter 6. Actual vehicle needs may change depending on the years that Radford Transit actually implements the service projects. Based on both the TDP's recommended service projects and the capital projections in the SYIP, the plan recommends that Radford Transit purchase expansion vehicles in FY 2017, FY 2019, and FY 2020. This assumes that Radford Transit implements the new scheduled daily service to Christiansburg/Blacksburg and increases the frequency on the 10, 20, 50, and 60 Routes.

Table 6-3: Vehicle Replacement and Expansion for Service Recommendations

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Total
Number of Vehicles							
Replacement	7	3	2	0	2	0	14
Expansion	0	0	2	0	2	4	8
Total Vehicles	7	3	4	0	4	4	22

When removing vehicles from service, Radford Transit will follow DRPT guidelines as described in the S. 5311 State Management Plan (since the current fleet was purchased using S. 5311 funds). Before disposition may occur, Radford Transit must ensure that any S. 5311 funded vehicle has met DRPT’s useful life criteria. Radford Transit must send its disposition request to DRPT, which will grant approval or disapproval for disposition. DRPT may offer the vehicles to other S. 5311 recipients that are in need. Otherwise, Radford Transit may dispose of the vehicles and use the proceeds to support transportation services.

Vehicle Characteristics

Input collected during the TDP process indicated the current type of vehicle that Radford Transit uses no longer is sufficient for the community needs, except on the 30/31 Route. BOC vehicles are suitable for navigating neighborhood streets, but cannot keep up with the demands that are produced by RU’s student population ridership. Therefore, Radford Transit will order replacement and expansion buses that are >30-foot and 30-foot medium duty vehicles for “local” RU services, and 40-foot medium duty buses for the “regional” service. The new vehicles will have an expected life of 7 to 10 years, depending upon the vehicles manufacturer’s guidelines.

In the future Radford Transit may consider vehicle size and seating capacity based on service levels for each route. If ridership continues to grow such that the existing buses regularly have high passenger loads including standees, Radford Transit should continue to evolve its fleet to larger vehicles.

Estimated Costs

Table 6-4 summarizes the estimated costs for each new replacement or expansion vehicle within the TDP timeframe, based on the cost of vehicles listed in the FY 2014 SYIP. These cost estimates were used to develop the capital budget, which is included with the Financial Plan in the next chapter.

Table 6-4: Estimated Costs of New Vehicles

Fiscal Year	Estimated Cost of Vehicle		
	>30-FT	30-FT	40-FT
2015	\$130,000	\$400,000	\$500,000
2016	\$130,000	\$400,000	\$500,000
2017	\$138,125	\$425,000	\$512,500
2018	\$138,125	\$425,000	\$512,500
2019	\$145,000	\$450,000	\$525,000
2020	\$145,000	\$450,000	\$525,000

Potential funding sources for the replacement and expansion vehicles include FTA S. 5307 funds, the DRPT’s Mass Transit Trust Fund and Mass Transit Capital Fund, and local funds.

Non-Revenue Vehicles

While Tables 6-2 and 6-3 addressed the replacement and expansion of revenue vehicles, it is worth noting that Radford Transit anticipates purchasing two non-revenue support vehicles, in FY 2017 and 2018 respectively. The FY 2017 vehicle is for a shift change van and the FY 2018 vehicle is an operations support vehicle that includes road supervision functions.

FACILITIES

Radford Transit’s fleet will continue to increase within the timeframe of the TDP, including the support vehicles purchased in FY 2017 and FY 2018. Radford Transit has identified that its current rented facility is at capacity. Therefore, it is recommended that Radford Transit request technical assistance from DRPT for a facility feasibility study so that Radford Transit can establish a dedicated administrative and maintenance facility that can, provide on-site fueling, maintenance and repair; provide secure storage for the entire fleet; and that has capacity to accommodate potential future growth. It is important to note that Radford will require such a facility no matter what regional transit organizational structure develops in the long run. A Radford owned facility would minimize the deadhead cost which is crucial in lessening the cost of operating the service, and ensure the investment in capital is maintained and stored in a proper manner.

While the Radford Transit staff and drivers have not identified additional needs for administrative space in the short-term, Radford Transit could refer to other local Virginia maintenance facilities as models in this process. For example, Bay Transit’s

Middle Peninsula Regional Transit Facility is currently under construction. When complete, it will be a two-story building just under 20,000 square feet with office/administrative space and two maintenance bays capable of servicing four buses at a time. There will be additional space to house dispatching and scheduling operations, and a large training room area that will be available for staff training and for limited use by public and local government organizations.¹

PASSENGER AMENITIES

Another capital project is the installation of ADA accessible bus shelters with benches at the highest use bus stops, which was a need identified by the Radford Transit Stakeholder Committee and riders. Radford Transit is currently installing shelters, benches, and new bus sign holders throughout the system (six shelters will be located on the RU campus and seven will be located in the broader City). Additional passenger shelters should be purchased in FY 2016 and FY 2019 as identified in the SYIP to support growth of the system.

EQUIPMENT

There are a few recommendations for equipment within the TDP timeframe. Specifically, Radford Transit needs a bus washer, vehicle lift tire equipment, preventive maintenance equipment, shop fork lift, heavy tire balancer/tire mount machine, and maintenance spare parts. These capital purchases are already programmed in the SYIP.

TECHNOLOGY

The only technology project recommended within the TDP planning horizon is the purchase of on-bus passenger counters/tablets and passenger data management software/licenses for FY 2015. This new technology would further enhance the existing NextBus system that incorporates GPS satellite technology to track bus location and estimate real time arrivals at any stop in the system.

¹ Source: Bay Transit website - <http://baytransit.org/new-gloucester-transit-facility/>.

Chapter 7

Financial Plan

INTRODUCTION

This chapter provides a financial plan for funding existing and proposed Radford Transit services for the TDP's six-year planning period. The financial plan addresses both operations and capital budgets, focusing on financially constrained project recommendations. The budgets were constructed with the information that is currently available, including the Commonwealth Transportation Board's FY 2014 Six-Year Improvement Program, the FY 2014 DRPT grant, and Radford Transit's FY 2013 budget.

Due to the growth in population as identified in the 2010 Census, the City of Radford is now included in in New River Valley Metropolitan Planning Organization (NRV MPO) metropolitan urbanized area. The growth of the MPO area resulted in a significant shift for transit funding in the region; where previously Blacksburg Transit was the only transit operator in the region eligible for federal S.5307 funding, the expanded MPO area resulted in Radford Transit also being eligible for federal S.5307 funding. Radford Transit was previously funded under the federal S. 5311 program, designated for rural areas, which it can no longer utilize.

The increase in funding for the urbanized area resulting from the addition of the City of Radford did not result in as much funding as the region was previously receiving under the S.5307 program and the S.5311 program combined. In Federal FY2013, the first year of the funding shifts for the New River Valley, the S.5307 designated funding for the region was \$1,914,239. Compared to the previous federal allocation levels of \$1,535,368 (federal S.5307 funds, Blacksburg Transit) and \$780,999 (federal S.5311 funds, Radford Transit), the financial impact to the region of "urbanizing" would be a loss of just over \$400,000 in federal financial assistance. This could represent a loss of up to \$800,000 in service, given that federal funds for operating assistance require a 50 percent local match. The NRV MPO conducted a *New River Valley S.5307 Transit Funding Study* to tackle this issue. The study committee's consensus going forward was that the FTA S.5307 allocation for the region should be split according to the FTA formula that considers population and population density. This allocation will occur over a three-year phase-in from the current allocation to the new allocation presented in Table 7-1. This phase-in period will allow Radford

University more time to raise the student transportation fee to offset the decrease in federal funding.

Table 7-1: FTA Section 5307 Funding Allocation for the NRV Transit Providers

Year	Blacksburg Transit Allocation	% of Total	Radford Transit Allocation	% of Total	Total S. 5307 Allocation
Current Allocation	\$1,273,484	66%	\$647,306	34%	\$1,920,790
1 st Year	\$1,344,553	70%	\$576,237	30%	\$1,920,790
2 nd Year	\$1,440,593	75%	\$480,198	25%	\$1,920,790
3 rd Year	\$1,517,424	79%	\$403,366	21%	\$1,920,790

The state funding percentage was based on historical funding ratios for transit programs in the Commonwealth, but the estimates for state funding are most likely on the conservative side. Guidance from DRPT indicated that, with the passing of a new transportation funding program in the Commonwealth, in the near-term state funding for transit may increase.

It should be noted that there are currently a number of unknown factors that will likely affect transit finance in this area over the course of this planning period, including the future economic condition of the region and the Commonwealth of Virginia, and the availability of local match for the federal and state funds. The exact revenue available each year will be dependent upon the availability of funding from the federal Section 5307 program, the Commonwealth Transportation Fund, and local sources.

OPERATING EXPENSES AND FUNDING SOURCES

Table 7-2 provides a financial plan for operation of Radford Transit's services under the financially constrained six-year plan, and Table 7-3 presents the financial plan for operations under the vision plan. As discussed in the Operations Plan (Chapter 5), the short-term projects in the financially constrained plan projects are moderate in scope, reflecting the current economic climate and the current funding partnerships that provide the local match. The mid-term projects further extend the budget, but include flexibility in terms of which projects are pursued and options within each project to reduce costs if necessary. The top half of Table 7-2 summarizes the annual revenue hours of service for the existing Radford Transit routes as well as the service projects recommended as part of the financially constrained plan. The bottom half of the table provides operating cost estimates and funding sources associated with these service projects. The assumptions used in developing the operating cost estimates are included as footnotes and described below.

Table 7-2: Radford Transit TDP Financial Plan for Operations - Financially Constrained

Projects ¹	Base	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Projected Incremental Annual Revenue Hours							
<i>Current Level of Service</i>	29,751	29,751	29,751	29,751	29,751	29,751	29,751
30/31 Route Adjustments		-	-	-	-	-	-
Fairfax Street Transfer/Time Check		-	-	-	-	-	-
Technology - Passenger Counters		-	-	-	-	-	-
Fare Free Service		-	-	-	-	-	-
Daily Service to Christiansburg & Blacksburg		-	-	1,080	1,080	1,080	1,080
Total Transit Revenue Hours	29,751	29,751	29,751	30,831	30,831	30,831	30,831
Projected Operating Expenses							
<i>Cost Per Revenue Hour</i> ²	\$ 45.53	\$ 46.90	\$ 48.30	\$ 49.75	\$ 51.24	\$ 52.78	\$ 54.36
<i>Current Level of Service</i>	\$ 1,354,543	\$ 1,395,179	\$ 1,437,035	\$ 1,480,146	\$ 1,524,550	\$ 1,570,287	\$ 1,617,395
30/31 Route Adjustments	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Fairfax Street Transfer/Time Check	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Technology - Passenger Counters	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Fare Free Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Daily Service to Christiansburg & Blacksburg	\$ -	\$ -	\$ 53,731	\$ 55,343	\$ 57,003	\$ 58,714	\$ 58,714
Total Projected Operating Expenses	\$ 1,354,543	\$ 1,395,179	\$ 1,437,035	\$ 1,533,877	\$ 1,579,893	\$ 1,627,290	\$ 1,676,109

¹ Implementation years are estimated - subject to funding availability. Base revenue hours estimated from FY 2013 data; costs came from FY 2014 SYIP.

² The hourly rates for subsequent years were increased by 3% annual inflation rate.

**Table 7-2: Radford Transit TDP Financial Plan for Operations - Financially Constrained
(continued)**

Anticipated Funding Sources	Base	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Federal							
Section 5307 ¹	\$ 647,306	\$ 576,237	\$ 480,198	\$ 403,366	\$ 413,450	\$ 423,786	\$ 434,381
Subtotal, Federal	\$ 647,306	\$ 576,237	\$ 480,198	\$ 403,366	\$ 413,450	\$ 423,786	\$ 434,381
State							
Formula Assistance ¹	\$ 160,187	\$ 229,809	\$ 235,554	\$ 241,443	\$ 247,479	\$ 309,349	\$ 317,083
Additional funding in FY 2014 Mid-Year ²	\$ 64,017						
Subtotal, State	\$ 224,204	\$ 229,809	\$ 235,554	\$ 241,443	\$ 247,479	\$ 309,349	\$ 317,083
Local							
Local Contribution	\$ 453,033	\$ 549,718	\$ 681,134	\$ 874,068	\$ 903,964	\$ 879,155	\$ 909,645
Revenues - Farebox ³	\$ 15,000	\$ 24,416	\$ 25,148	\$ -	\$ -	\$ -	\$ -
Advertising ⁴	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000
Total Local	\$ 483,033	\$ 589,133	\$ 721,282	\$ 889,068	\$ 918,964	\$ 894,155	\$ 924,645
Total Projected Operating Revenues	\$ 1,354,543	\$ 1,395,179	\$ 1,437,035	\$ 1,533,877	\$ 1,579,893	\$ 1,627,290	\$ 1,676,109

¹ Federal and State formula assistance assumes a 2.5% growth (per DRPT guidance).

² The FY 2014 Mid-Year state funding represents additional funding allocated to Radford Transit given the new transportation funding program.

³ The FY 2014 Base amount came from the FY 2014 SYIP. For FY 2015 and FY 2016, amounts were estimated based on the FY 2013 farebox recovery rate of 1.75%.

⁴ The FY 2014 advertising amount came from the FY 2014 SYIP. For FY 2015 and on the same advertising revenue was assumed.

As Table 7-2 indicates, the Base Year represents the FY 2014 SYIP; except for the current revenue hours (used FY 2013 data). The projected cost per revenue hour and operating costs to maintain the current level of service in subsequent years are based on a 3% annual inflation rate. While the costs for service alternatives in Chapter 4 had been estimated based on Radford Transit’s FY 2014 operating statistics for the month of September 2013 (service fee plus fixed monthly fee), the financial plan uses the fully allocated operating cost per hour (estimated at \$45.53 for FY 2014) when evaluating the cost of all the new proposed services.

Under anticipated funding sources, the FTA S. 5307 allocated funds will be applied and then held constant after the third year phase in has occurred. Farebox revenue came from the FY 2014 SYIP, though will cease after FY 2016 when the plan assumes fare free service for the entire system. The DRPT funding for FY 2014 has been updated to reflect additional state funding, available starting in July 2013, as a result of the Commonwealth’s new transportation funding program. However, the state share of total operating revenues from FY 2015 and on was estimated based on historical funding levels, at about 15% of the net deficit. DRPT is not committing to the funding for FY 2015 and beyond. Specific funding amounts are determined during the annual SYIP adoption and budget cycle. With the new transportation funding program, the actual state amounts may be higher, but the formula was still being finalized at the time of the TDP. In each year of the financial plan, the total projected operating expenses account for inflation associated with maintaining the current level of service as well as service expansions. Both federal and state funds are shown to increase with inflation. The funding source amounts for FY 2015 – FY 2016 are based on net operating deficits calculated with a farebox recovery rate of 1.75%. Based on FY 2013 data, this farebox recovery rate provides conservative estimates of farebox revenue during the two-year TDP timeframe when being collected.

Table 7-2 indicates that the annual operating expenses for Radford Transit are projected to be about \$1,395,000 in the first year of the TDP planning period (FY 2015). Over the six-year period the Radford Transit operating budget will grow to just over \$1,675,000 including inflation at 3% per year and additional service expansions of daily a.m. and p.m. service to Christiansburg and Blacksburg, which Radford Transit will implement if warranted by demand or pending funding partnerships. The total local dollar contribution (including revenue and advertising) for operations is projected to increase 91%, from \$483,033 to \$924,645.

Table 7-3 details the three projects in the vision plan, which is not constrained to reflect the availability of funding. If one assumes that the vision project is implemented, the total annual budget for transit service would grow by \$182,117 (in FY 2013 dollars). The cost is calculated in constant FY 2014 dollars due to the undetermined timeline associated with the project.

Table 7-3: Radford Transit TDP Financial Plan for Operations - Vision

Projects ¹	Base Year ²	Vision
Projected Incremental Annual Revenue Hours		
<i>Current Level of Service</i>	29,751	2,815
Enhanced Service - 30/31 Route		
Weekday/Saturday Evening Hours from 8:00 to 11:00 p.m.		1,800
Weekday/Saturday Morning Hours Starting at 6:00 a.m.		900
Sunday Service from 10:00 a.m. to 8:00 p.m.		1,000
Scheduled Service to NRVMC		
Monday to Friday, 7:00 a.m. to 7:40 p.m. and Saturday 10:00 a.m. to 7:40 p.m.		300
Total Transit Service Hours	29,751	6,815
Projected Operating Expenses³		
<i>Cost Per Revenue Hour</i>	\$ 45.53	\$ 45.53
<i>Current Level of Service</i>	\$ 1,354,543	\$ 1,354,543
Enhanced Service - 30/31 Route		
Weekday/Saturday Evening Hours from 8:00 to 11:00 p.m.		\$ 81,953
Weekday/Saturday Morning Hours Starting at 6:00 a.m.		\$ 40,976
Sunday Service from 10:00 a.m. to 8:00 p.m.		\$ 45,529
Scheduled Service to NRVMC		
Monday to Friday, 7:00 a.m. to 7:40 p.m. and Saturday 10:00 a.m. to 7:40 p.m.		\$ 13,659
Total Projected Operating Expenses	\$ 1,354,543	\$ 1,536,660

¹ Implementation year is undetermined. Implementation will be based on funding availability.

² Base revenue hours estimated from FY 2013 data; costs came from FY 2014 SYIP.

³ Assumes constant FY 2014 dollars due to undetermined timeline for implementation.

**Table 7-3: Radford Transit TDP Financial Plan for Operations - Vision
(continued)**

Anticipated Funding Sources	Base Year	Vision
Federal		
Federal Funding ¹	\$ 647,306	\$ 647,306
Subtotal, Federal	\$ 647,306	\$ 647,306
State		
Formula Assistance	\$ 160,187	\$ 160,187
Additional funding in FY 2014 Mid-Year ²	\$ 64,017	\$ 64,017
Subtotal, State	\$ 224,204	\$ 160,187
Local		
Local Contribution	\$ 468,033	\$ 714,167
Revenues - Farebox ³	\$ 15,000	\$ 15,000
Advertising	\$ 15,000	\$ 15,000
Total Local	\$ 483,033	\$ 729,167
Total Projected/Proposed Operating Funds/Revenues	\$ 1,354,543	\$ 1,536,660

¹ All available Section 5307 funds have been allocated and accounted for.

² The FY 2014 Mid-Year state funding represents additional funding allocated to Radford Transit given the new transportation funding program, though additional funding may become available based on performance it is not assumed in this anticipated funding source table.

³ Assumes the new service will be fare free.

VEHICLE PURCHASE EXPENSES AND FUNDING SOURCES

Table 7-4 offers the financial plan for vehicle replacement over the six-year period. The plan includes a total of fourteen replacement vehicles, eight expansion vehicles, and two support vehicles. As discussed in Chapters 5 and 6, this plan includes a modest need to increase the size of the fleet if additional service is added. The funding split is based on the Commonwealth's Transit Service Delivery Advisory Committee's (TSDAC) tiered capital allocation methodology, which applies the State share to the total cost. State funding is based on proposed federal share of 80%, local match of 4%, with the balance funded by the state. The amount of state funding varies depending on the type of capital project. The capital budget for vehicle replacement and expansion (considered "Tier 1" capital projects) is shown in Table 7-4. Under TSDAC's recommendation for "Scenario B", the state match may be as high as 68% of the non-federal portion of vehicle costs for FY 2015, and 64%, for the subsequent years.

For replacement vehicles, DRPT guidance suggested the funding ratios be applied to the net cost of the replacement vehicle (total cost minus the revenue anticipated from selling the original vehicle). The anticipated revenue from vehicle disposition was estimated based on the experiences of peer systems.

Table 7-4: Radford Transit Capital Budget for Tier 1, Replacement and Expansion Vehicles, under Scenario B

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Number of Vehicles						
Replacement	7	3	2	0	2	0
< 30-ft. Bus	3	3	0	0	2	0
30-ft. Bus	4	0	2	0	0	0
40-ft. Bus	0	0	0	0	0	0
Expansion	0	0	2	0	2	4
< 30-ft. Bus	0	0	0	0	0	0
30-ft. Bus	0	0	2	0	0	4
40-ft. Bus	0	0	0	0	2	0
Support Vehicle	0	0	1	1	0	0
Van	0	0	1	0	0	0
SUV	0	0	0	1	0	0
Total Vehicles	7	3	5	1	4	4
Vehicle Costs¹						
Replacement	\$ 1,990,000	\$ 390,000	\$ 850,000	\$ -	\$ 290,000	\$ -
Expansion	\$ -	\$ -	\$ 850,000	\$ -	\$ 1,050,000	\$ 1,800,000
Support Vehicle	\$ -	\$ -	\$ 60,000	\$ 45,000	\$ -	\$ -
Total Projected Vehicle Costs	\$ 1,990,000	\$ 390,000	\$ 1,700,000	\$ 45,000	\$ 1,340,000	\$ 1,800,000
Anticipated Revenue from Vehicle Disposition²	\$ 71,400	\$ 30,600	\$ 20,400	\$ -	\$ 20,400	\$ -
Projected Net Vehicle Costs	\$ 1,918,600	\$ 359,400	\$ 1,679,600	\$ 45,000	\$ 1,319,600	\$ 1,800,000
Anticipated Funding Sources³						
Federal	\$ 1,534,880	\$ 287,520	\$ 1,343,680	\$ 36,000	\$ 1,055,680	\$ 1,440,000
State	\$ 306,976	\$ 57,504	\$ 268,736	\$ 7,200	\$ 211,136	\$ 288,000
Local	\$ 76,744	\$ 14,376	\$ 67,184	\$ 1,800	\$ 52,784	\$ 72,000
Total Vehicle Funding	\$ 1,918,600	\$ 359,400	\$ 1,679,600	\$ 45,000	\$ 1,319,600	\$ 1,800,000

Notes:

¹ Costs estimates came from the FY 2014 SYIP.

² The anticipated revenue from disposing the original vehicles was estimated based on the disposition experiences of peer transit systems (estimated revenue of 17% of original vehicle's purchase price - used \$60,000).

³ DRPT guidance suggested applying the federal, state, and local shares to the net costs (accounting for revenue from selling the original vehicles) for replacement vehicles. State funding was based on proposed federal share of 80%, local match of 4%, with the balance funded by the state. Additionally, 80% federal funding beyond FY 2016 is not guaranteed.

OTHER CAPITAL EXPENSES AND FUNDING SOURCES

The financial plans for infrastructure facilities (considered “Tier 2” capital projects), including bus shelters, and other capital equipment (considered “Tier 3” capital projects) are provided in Tables 7-5 and 7-6, respectively. Passenger amenities, bus shelters, bus stop signs, and bus stop signage enhancements that were the only identified high need Tier 2 capital projects.

Under TSDAC’s recommendation for “Scenario B”, the state match is applied to the non-federal and local portion of the project cost: as high as 34% in FY 2015 and 33% in FY 2016 and beyond for infrastructure facilities and as high as 17% for other capital projects.

The financial plan for facilities, equipment, and other capital is provided in Table 7-6. These expenses are those associated with passenger amenity and information improvements, as well as tools and routine computer upgrades. A number of Tier 3 other capital needs were specified, including:

- ADP Hardware,
- ADP Software,
- Shop Equipment,
- Bus Washer,
- Administrative/Maintenance Facility Feasibility Study,
- Vehicle Lift Tire Equipment & PM Equipment,
- Spare Bus Parts,
- Shop Fork Lift,
- Architectural Planning & Design for Administrative/Maintenance Facility; and
- Construction of Administrative/Maintenance Facility.

TOTAL CAPITAL EXPENSES OVER TDP TIMEFRAME

Table 7-7 presents a summary of the total capital program categorized by tier. Under each tier, the projects are listed by fiscal year. Projects are determined every year based on small urban statewide need. Total projected capital expenses and capital revenue are displayed covering the TDP timeframe.

Table 7-5: Radford Transit Capital Budget for Tier 2, Infrastructure Facilities, under Scenario B

Projects ¹	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Bus Stop Signage & Enhancements	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ -
Bus Shelters	\$ -	\$ -	\$ -	\$ -	\$200,000	\$ -
Bus Stop Signs	\$ -	\$ -	\$ -	\$ -	\$ 6,750	\$ -
Total Projected Non-Vehicle Capital Expenses	\$ -	\$ 10,000	\$ -	\$ -	\$206,750	\$ -
Anticipated Funding Sources						
Federal	\$ -	\$ 6,300	\$ -	\$ -	\$130,253	\$ -
State ²	\$ -	\$ 3,300	\$ -	\$ -	\$ 68,228	\$ -
Local ³	\$ -	\$ 400	\$ -	\$ -	\$ 8,270	\$ -
Total Projected Non-Vehicle Capital Revenue	\$ -	\$ 10,000	\$ -	\$ -	\$ 206,750	\$ -

¹ Costs of most capital projects are based on costs in the FY 2014 SYIP.

² State funding was based on applying the state share of 34% in FY 2015 and 33% after that to the total cost for Tier 2 projects under Scenario B.

³ Minimum 4% local share requirement applied.

Table 7-6: Radford Transit Capital Budget for Tier 3, Other Capital, under Scenario B

Projects ¹	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
ADP Hardware	\$ 128,000	\$ -	\$ -	\$ -	\$ -	\$ -
ADP Software	\$ 144,000	\$ -	\$ -	\$ -	\$ -	\$ -
Shop Equipment	\$ 52,000	\$ -				
Bus Washer	\$ -	\$ 75,000	\$ -	\$ -	\$ -	\$ -
Admin./Maint. Facility Feasibility Study	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ -
Vehicle Lift Tire Equipment & PM Equipment	\$ -	\$ 103,000	\$ -	\$ -	\$ -	\$ -
Spare Bus Parts	\$ -	\$ 50,000	\$ -	\$ 50,000	\$ -	\$ -
Shop Fork Lift	\$ -	\$ -	\$ 110,000	\$ -	\$ -	\$ -
Architectural Planning & Design for Admin./Maint. Facility	\$ -	\$ -	\$ -	\$ 500,000	\$ -	\$ -
Construction of Admin./Maint. Facility	\$ -	\$ -	\$ -	\$ -	\$ 3,000,000	\$ -
Total Projected Non-Vehicle Capital Expenses	\$ 324,000	\$ 378,000	\$ 110,000	\$ 550,000	\$ 3,000,000	\$ -
Anticipated Funding Sources						
Federal	\$ 259,200	\$ 302,400	\$ 88,000	\$ 440,000	\$ 2,400,000	\$ -
State ²	\$ 14,256	\$ 16,632	\$ 4,840	\$ 24,200	\$ 132,000	\$ -
Local ³	\$ 50,544	\$ 58,968	\$ 17,160	\$ 85,800	\$ 468,000	\$ -
Total Projected Non-Vehicle Capital Revenue	\$ 324,000	\$ 378,000	\$ 110,000	\$ 550,000	\$ 3,000,000	\$ -

¹ Costs of capital projects are based on costs in the FY 2014 SYIP.

² State funding was based on applying the state share of 17% to the total cost for Tier 3 projects under Scenario B.

³ Minimum 4% local share requirement applied.

Table 7-7: Radford Transit Capital Budget

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Tier 1 - Vehicle Costs						
Replacement	\$ 1,990,000	\$ 390,000	\$ 850,000	\$ -	\$ 290,000	\$ -
Expansion	\$ -	\$ -	\$ 850,000	\$ -	\$ 1,050,000	\$ 1,800,000
Support Vehicle	\$ -	\$ -	\$ 60,000	\$ 45,000	\$ -	\$ -
Total Projected Vehicle Costs	\$ 1,990,000	\$ 390,000	\$ 1,700,000	\$ 45,000	\$ 1,340,000	\$ 1,800,000
Anticipated Revenue from Vehicle Disposition	\$ 71,400	\$ 30,600	\$ 20,400	\$ -	\$ 20,400	\$ -
Projected Net Vehicle Costs	\$ 1,918,600	\$ 359,400	\$ 1,679,600	\$ 45,000	\$ 1,319,600	\$ 1,800,000
Tier 2 - Infrastructure Facilities						
Bus Stop Signage & Enhancements	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ -
Bus Shelters	\$ -	\$ -	\$ -	\$ -	\$ 200,000	\$ -
Bus Stop Signs	\$ -	\$ -	\$ -	\$ -	\$ 6,750	\$ -
Total Projected Non-Vehicle Capital Expenses	\$ -	\$ 10,000	\$ -	\$ -	\$ 206,750	\$ -
Tier 3 - Other Capital						
ADP Hardware	\$ 162,000	\$ -	\$ -	\$ -	\$ -	\$ -
ADP Software	\$ 162,000	\$ -	\$ -	\$ -	\$ -	\$ -
Shop Equipment	\$ 52,000	\$ -	\$ -	\$ -	\$ -	\$ -
Bus Washer	\$ -	\$ 75,000	\$ -	\$ -	\$ -	\$ -
Admin./Maint. Facility Feasibility Study	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ -
Vehicle Lift Tire Equipment & PM Equipment	\$ -	\$ 103,000	\$ -	\$ -	\$ -	\$ -
Spare Bus Parts	\$ -	\$ 50,000	\$ -	\$ 50,000	\$ -	\$ -
Shop Fork Lift	\$ -	\$ -	\$ 110,000	\$ -	\$ -	\$ -
Architectural Planning & Design for Admin./Maint. Facility	\$ -	\$ -	\$ -	\$ 500,000	\$ -	\$ -
Construction of Admin./Maint. Facility	\$ -	\$ -	\$ -	\$ -	\$ 6,000,000	\$ -
Total Projected Non-Vehicle Capital Expenses	\$ 376,000	\$ 378,000	\$ 110,000	\$ 550,000	\$ 6,000,000	\$ -
TOTAL PROJECTED CAPITAL EXPENSES	\$ 2,294,600	\$ 747,400	\$ 1,789,600	\$ 595,000	\$ 7,526,350	\$ 1,800,000
Anticipated Funding Sources						
Federal	\$ 1,835,680	\$ 597,920	\$ 1,431,680	\$ 476,000	\$ 6,021,080	\$ 1,440,000
State	\$ 367,136	\$ 119,584	\$ 286,336	\$ 95,200	\$ 1,204,216	\$ 288,000
Local	\$ 91,784	\$ 29,896	\$ 71,584	\$ 23,800	\$ 301,054	\$ 72,000
TOTAL PROJECTED CAPITAL REVENUE	\$ 2,294,600	\$ 747,400	\$ 1,789,600	\$ 595,000	\$ 7,526,350	\$ 1,800,000

Notes:

- Costs of capital projects are based on costs in the FY 2014 SYIP.
- The anticipated revenue from disposing the original vehicles was estimated based on the disposition experiences of peer transit systems (estimated revenue of 17% of original vehicle's purchase price - used \$60,000).
- 80% federal funding beyond FY 2016 is not guaranteed.
- DRPT guidance suggested applying the federal, state, and local shares to the net costs (accounting for revenue from selling the original vehicles) for replacement vehicles. State funding for all tiers is based on proposed federal share of 80%, local share 4%, with the balance funded by the state.

Chapter 8

TDP Monitoring and Evaluation

As described in the introduction in Chapter 1, this TDP serves as a “road map” for public transportation improvements that should be reviewed and updated to reflect any changes in community priorities, funding availability, or other factors that may impact Radford Transit services. Several analyses regarding Radford Transit operations, service performance, community transportation needs, and service alternatives have been completed as part of the TDP process, including the following tasks:

- Detailed documentation and analysis of current public transportation services;
- A peer review showing the service and financial characteristics of transit programs similar in scope to Radford Transit;
- A transit needs analysis, including demographic analysis, land use analysis, a review of relevant planning documents, stakeholder interviews, and rider surveys;
- The development of service and organizational alternatives;

While Chapters 5 and 6 detailed the recommended operations and capital projects, respectively, and Chapter 7 provided the financial plan for these recommendations, it is important to remember that the TDP is a planning document. The plan is modest in nature, but does include some growth. The financially constrained projects included in this TDP are attached to particular years, but all of the projects are contingent on future funding. This TDP may need to be updated during the six-year planning period to reflect funding availability. This TDP will need to be approved by Radford Transit Stakeholder Committee and then formally adopted by the Radford City Council.

This chapter describes the processes that are recommended to periodically monitor and evaluate the progress that Radford Transit has made in implementing the TDP. Such processes include integrating TDP projects with relevant planning documents, monitoring service performance, and submitting an annual update to DRPT. Monitoring and evaluation efforts are particularly important to ensure that Radford Transit is meeting the goals, objectives, and standards that were described in Chapter 2.

COORDINATION WITH OTHER PLANS AND PROGRAMS

Chapter 3 included the review of various transportation and land use plans developed by the New River Valley Planning District Commission, NRV MPO, the City of Radford, and the University of Radford. The purpose of this review was to ensure that the TDP is consistent with local and regional transportation goals and efforts. Likewise, should relevant plans be updated in the coming years, Radford Transit staff or Radford Transit Stakeholder Committee representatives should seek to participate in such efforts to ensure that projects recommended in this TDP are included in these area plans and studies, where fitting. Many of the Radford Transit Stakeholder Committee members are also involved as advisors or participants with other community groups. This involvement is a good way for Radford Transit Stakeholder Committee members to promote Radford Transit service expansions that may impact new or updated transportation and land use plans in the region. Another benefit of such coordination efforts is increased awareness of Radford Transit services, which serves the system's goal to better market existing transit services.

Radford Transit Stakeholder Committee members have been proponents of public transportation service in Radford since before Radford Transit even started, when advocating for the 2009 *Transit Service Plan for City of Radford/Radford University*. The Radford Transit Stakeholder Committee has played an important role in guiding Radford Transit through its first years of development and providing input to the TDP process. As mentioned in previous chapters, at the state level, Radford Transit should ensure that the recommended projects from this TDP are incorporated into the public transportation element of the DRPT State Transportation Improvement Program (STIP).

SERVICE PERFORMANCE MONITORING

Chapter 2 included a number of proposed service standards for Radford Transit, the purpose of which was to develop some objective measurements that the system can use to monitor transit service performance in the future and make performance-based service planning decisions. It is recommended that the Radford Transit monitor performance monthly, comparing performance to the same month of the previous year (to account for seasonal variations), and comparing trends in monthly data to address all performance standards outlined in Table 2-1. Radford Transit should also determine annual performance measures to include in the update to DRPT.

Should any services fail to meet the performance standards for two consecutive quarters, Radford Transit should review the specific route or service and identify strategies to improve performance, or update the performance standards as warranted by changes in circumstance. It is recommended that Radford Transit develop different

performance standards if it implements new types of service, which perform considerably differently than its deviated fixed route service.

The results of this regular monitoring should be shared with the Radford Transit Stakeholder Committee when it meets, with the Radford City Council at least annually, and with DRPT through the annual TDP update.

ANNUAL TDP MONITORING

This TDP recommends that Radford Transit engage in several different monitoring activities on an annual basis, which will be reported to DRPT in an annual TDP update. Whereas the service performance monitoring described above helps Radford Transit determine whether it is meeting its goals to deliver service that is cost-effective and safe, it is also important to evaluate the extent to which Radford Transit is meeting its goals to provide service that is reliable and user-friendly and enables Radford residents to be independent and engaged in the community. Effective approaches to collect data for such monitoring efforts include conducting public meetings and surveys on an annual basis.

DRPT guidance currently requires that grantees submit an annual TDP update letter that describes the progress that has been made toward implementing the adopted TDP. While the TDP has planned for the implementation of service improvements in particular years, the actual implementation may slip to future years if the proposed funding arrangements do not come to fruition or community priorities change. This TDP may need to be updated during the six-year planning period to reflect such changes. Radford Transit's annual update to DRPT should document the results of the activities described above and include the following elements:

- Operating statistics for the 12-month period, including the ridership attributed to any new proposals implemented as a result of the TDP.
- Any changes to system goals, objectives, or service standards.
- A description of any service or facility improvements that have been implemented during the 12-month period.
- An update to the TDP recommendations to identify additional projects, deferment of projects to later years, or elimination of projects.
- Updates to the financial plan to more accurately reflect current funding scenarios.

Appendix A:
DRPT Approved Budgets, FY 2012, 2013, and 2014

Blacksburg Transit (cont'd)**Transportation Management Project**

<u>Budget Items</u>	<u>Amount</u>	<u>Fund Source</u>
Community Partnership Ridership Program- Phase 2	16,350	
Hybrid Electric Bus Branding Program- Phase 2	28,000	
Revenues	1,350	
Federal Funds	0	
State Funds	34,400	
Local Assistance	8,600	

City of Radford**Operating Budget**

<u>Expenses</u>	<u>Amount</u>	
Operating Expenses	972,590	
<u>Income</u>	<u>Amount</u>	<u>Fund Source</u>
Operating Revenues	30,158	Fares and Other
Federal Funds	471,216	FTA Section 5311
State Funds	169,779	Operating Assistance
Local Funds	301,437	Local General Funds
Total	972,590	

Giles Health & Family Center**FTA5310 Capital Budget**

<u>Capital Items</u>	<u>Cost</u>	<u>State Funds</u>	<u>Federal Funds</u>	<u>Fund Source</u>
15 Pass. body on chassis w/ wheelchair lift	50,000	0	40,000	FTA 5310 / 2012
Total Expense	50,000			
Total Federal Funds	40,000			
Total State Funds	0			
Local Assistance	10,000			

Goodwill Industries Of The Valleys**FTA5310 Capital Budget**

<u>Capital Items</u>	<u>Cost</u>	<u>State Funds</u>	<u>Federal Funds</u>	<u>Fund Source</u>
14 Pass. body on chassis w/ wheelchair lift	50,000	0	40,000	FTA 5310 / 2012
Total Expense	50,000			
Total Federal Funds	40,000			
Total State Funds	0			
Local Assistance	10,000			

Greater Roanoke Transit Company**Operating Budget**

<u>Expenses</u>	<u>Amount</u>	
Operating Expenses	7,957,876	
<u>Income</u>	<u>Amount</u>	<u>Fund Source</u>
Operating Revenues	1,898,796	Fares and Other
Federal Funds	2,505,536	FTA Section 5307
State Funds	1,230,822	Operating Assistance
Local Funds	2,322,722	Local General Funds
Total	7,957,876	

Operating Budget (Rural)

<u>Expenses</u>	<u>Amount</u>	
Operating Expenses	933,456	
<u>Income</u>	<u>Amount</u>	<u>Fund Source</u>
Operating Revenues	250,686	Fares and Other
Federal Funds	341,385	FTA Section 5311
State Funds	139,328	Operating Assistance
Local Funds	202,057	Local General Funds
Total	933,456	

City of Radford

Operating Budget

<u>Expenses</u>	<u>Amount</u>	
Operating Expenses	1,576,998	
<u>Income</u>	<u>Amount</u>	<u>Fund Source</u>
Operating Revenues	15,000	Fares
Operating Revenues	15,000	Advertising
Federal Funds	780,999	FTA Section 5311
State Funds	318,257	Operating Assistance
Local Funds	447,742	Local General Funds
Total	1,576,998	

Capital Budget

<u>Capital Items</u>	<u>Cost</u>	<u>State Funds</u>	<u>Federal Funds</u>	<u>Fund Source</u>
Purchase Expansion Bus 35-ft (2)	750,000	82,500	600,000	Flexible STP
Purchase Support Vehicles (2)	53,000	5,830	42,400	Flexible STP
Purchase Passenger Shelters (Bus Shelters)	124,500	13,695	99,600	Flexible STP
Purchase Shop Equipment	60,000	6,600	48,000	Flexible STP
Purchase Spare Parts, ACM Items	10,000	1,100	8,000	Flexible STP
Purchase ADP Software	117,516	12,927	94,013	Flexible STP
Total Expense	1,115,016			
Total Federal Funds	892,013			
Total State Funds	122,652			
Local Assistance	100,351			

Giles Health & Family Center

FTA5310 Capital Budget

<u>Capital Items</u>	<u>Cost</u>	<u>State Funds</u>	<u>Federal Funds</u>	<u>Fund Source</u>
5 Pass. minivan with ramp	80,000	0	64,000	FTA Section 5310
Total Expense	80,000			
Total Federal Funds	64,000			
Total State Funds	0			
Local Assistance	16,000			

Greater Roanoke Transit Company

Operating Budget - Rural

<u>Expenses</u>	<u>Amount</u>	
Operating Expenses	945,039	
<u>Income</u>	<u>Amount</u>	<u>Fund Source</u>
Operating Revenues	297,376	Fares
Federal Funds	323,832	FTA Section 5311
State Funds	102,689	Operating Assistance
Local Funds	221,142	Local General Funds
Total	945,039	

Operating Budget

<u>Expenses</u>	<u>Amount</u>	
Operating Expenses	8,005,683	
<u>Income</u>	<u>Amount</u>	<u>Fund Source</u>
Operating Revenues	1,865,676	Fares
Operating Revenues	125,000	Advertising
Federal Funds	2,507,599	FTA Section 5307
State Funds	1,529,747	Operating Assistance
Local Funds	1,977,661	Local General Funds
Total	8,005,683	

City of Radford

Operating Budget

<u>Expenses</u>	<u>Amount</u>	
Operating Expenses	1,354,543	
<u>Income</u>	<u>Amount</u>	<u>Fund Source</u>
Operating Revenues	15,000	Fares
Operating Revenues	15,000	Advertising
Federal Funds	647,306	FTA Section 5307
State Funds	160,187	Operating Assistance
Local Funds	517,050	Local General Funds
Total	1,354,543	

Capital Budget

<u>Capital Items</u>	<u>Cost</u>	<u>State Funds</u>	<u>Federal Funds</u>	<u>Fund Source</u>
Purchase ADP Hardware - Electronic Signage (11)	55,000	6,050	44,000	Flexible STP
Purchase Radios (20)	15,000	1,650	12,000	Flexible STP
Purchase ADP Hardware - IT Training Equipment (2)	14,000	1,540	11,200	Flexible STP
Expansion 19-Passenger BOC (2)	184,000	29,440	147,200	Flexible STP
Purchase Support Vehicles (1)	50,000	5,500	40,000	Flexible STP
Total Expense	318,000			
Total Federal Funds	254,400			
Total State Funds	44,180			
Local Assistance	19,420			

Giles Health & Family Center

FTA 5310 Capital Budget

<u>Capital Items</u>	<u>Cost</u>	<u>State Funds</u>	<u>Federal Funds</u>	<u>Fund Source</u>
15 Pass. body on chassis w/ wheelchair lift (1)	52,000	0	41,600	FTA Section 5310
Total Expense	52,000			
Total Federal Funds	41,600			
Total State Funds	0			
Local Assistance	10,400			

Greater Roanoke Transit Company

Operating Budget - Rural

<u>Expenses</u>	<u>Amount</u>	
Operating Expenses	971,695	
<u>Income</u>	<u>Amount</u>	<u>Fund Source</u>
Operating Revenues	299,005	Fares
Federal Funds	336,345	FTA Section 5311
State Funds	142,994	Operating Assistance
Local Funds	193,351	Local General Funds
Total	971,695	

Operating Budget

<u>Expenses</u>	<u>Amount</u>	
Operating Expenses	7,628,859	
<u>Income</u>	<u>Amount</u>	<u>Fund Source</u>
Operating Revenues	1,931,950	Fares
Operating Revenues	126,180	Advertising
Non-State Funds	220,000	Interest, Parking, Rental Income
Federal Funds	1,833,710	FTA Section 5307
State Funds	1,322,047	Operating Assistance
Local Funds	2,194,972	Local General Funds
Total	7,628,859	

Capital Budget

<u>Capital Items</u>	<u>Cost</u>	<u>State Funds</u>	<u>Federal Funds</u>	<u>Fund Source</u>
Purchase Shop Equipment (1)	17,000	1,870	13,600	FTA 5339 / 2013
Bus Construction Storage Facility (1)	495,445	54,499	396,356	FTA 5309 / 2009
Purchase ADP Hardware (25)	90,000	9,900	72,000	FTA 5339 / 2013
Purchase ADP Software (2)	20,000	2,200	16,000	FTA 5339 / 2013
Purchase Transit Enhancements (1)	30,561	3,362	24,449	FTA 5307 / 2013
Total Expense	653,006			
Total Federal Funds	522,405			
Total State Funds	71,831			
Local Assistance	58,770			

MPO RSTP Project

	<u>Cost</u>	<u>State Funds</u>	<u>Federal Funds</u>
Bus Replacement for Smart Way Commuter Service - 2007 Freightliner	560,000	112,000	448,000

Appendix B:
Radford Transit Title VI Plan



Title VI Plan and Procedures

Title VI of the Civil Rights Act of 1964

Radford Transit

July 13th 2012

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I. INTRODUCTION

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving Federal financial assistance. Specifically, Title VI provides that "no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." (42 U.S.C. Section 2000d).

Recipients of public transportation funding from FTA and the Virginia Department of Rail and Public Transportation (DRPT) are required to develop policies, programs, and practices that ensure that federal and state transit dollars are used in a manner that is nondiscriminatory as required under Title VI.

This document details how *Radford Transit* incorporates nondiscrimination policies and practices in providing services to the public. **Radford Transit's** Title VI policies and procedures are documented in this plan and its appendices and attachments. This plan will be updated periodically (at least every three years) to incorporate changes and additional responsibilities that arise.

II. POLICY STATEMENT AND AUTHORITIES

Title VI Policy Statement

Radford Transit is committed to ensuring that no person shall, on the grounds of race, color, national origin, as provided by Title VI of the Civil Rights Act of 1964 and the Civil Rights Restoration Act of 1987 (PL 100.259), be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity, whether those programs and activities are federally funded or not.

The Radford Transit Title VI Manager is responsible for initiating and monitoring Title VI activities, preparing required reports, and other responsibilities as required by Title 23 Code of Federal Regulations (CFR) Part 200, and Title 49 CFR Part 21.

Signature of Authorizing Official

Date

Authorities

Title VI of the 1964 Civil Rights Act provides that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving federal financial assistance (refer to 49 CFR Part 21). The Civil Rights Restoration Act of 1987 broadened the scope of Title VI coverage by expanding the definition of the terms “programs or activities” to include all programs or activities of Federal Aid recipients, sub recipients, and contractors, whether such programs and activities are federally assisted or not.

Additional authorities and citations include: Title VI of the Civil Rights Act of 1964 (42 U.S.C. Section 2000d); Federal Transit Laws, as amended (49 U.S.C. Chapter 53 et seq.); Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601, et seq.); Department of Justice regulation, 28 CFR part 42, Subpart F, “Coordination of Enforcement of Nondiscrimination in Federally-Assisted Programs” (December 1, 1976, unless otherwise noted); U.S. DOT regulation, 49 CFR part 21, “Nondiscrimination in Federally-Assisted Programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964” (June 18, 1970, unless otherwise noted); Joint FTA/Federal Highway Administration (FHWA) regulation, 23 CFR part 771, “Environmental Impact and Related Procedures” (August 28, 1987); Joint FTA/FHWA regulation, 23 CFR part 450 and 49 CFR part 613, “Planning Assistance and Standards,” (October 28, 1993, unless otherwise noted); U.S. DOT Order 5610.2, “U.S. DOT Order on Environmental Justice to Address Environmental Justice in Minority Populations and Low-Income Populations,” (April 15, 1997); U.S. DOT Policy Guidance Concerning Recipients’

Responsibilities to Limited English Proficient Persons, (December 14, 2005), and Section 12 of FTA's Master Agreement, FTA MA 13 (October 1, 2006).

Annual Nondiscrimination Assurance to the Virginia Department of Rail and Public Transportation (DRPT)

As part of the Certifications and Assurances submitted to the DRPT with the Annual Grant Application and all Federal Transit Administration grants submitted to the VDRPT, **Radford Transit** submits a Nondiscrimination Assurance which addresses compliance with Title VI as well as nondiscrimination in hiring (EEO) and contracting (DBE), and nondiscrimination on the basis of disability (ADA). In signing and submitting this assurance, **Radford Transit** confirms to VDRPT the agency's commitment to nondiscrimination and compliance with federal and state requirements.

III. ORGANIZATION AND TITLE VI PROGRAM RESPONSIBILITIES

Radford Transit's Transportation Manager is responsible for ensuring implementation of the agency's Title VI program. Title VI program elements are interrelated and responsibilities may overlap. The specific areas of responsibility have been delineated below for purposes of clarity.

Overall Organization for Title VI

- The **Title VI Manager** and **Josh Baker-Coordinator of Transit and Facilities** are responsible for coordinating the overall administration of the Title VI program, plan, and assurances, including complaint handling, data collection and reporting, annual review and updates, and internal education.
- **Sheri Lewis-Marketing Specialist** is responsible for public outreach and involvement. This includes development and implementation of the Limited English Proficiency (LEP) plan. Those responsible for this area also coordinate with those who are responsible for service planning and delivery.
- **Brian Booth- Operations Supervisor/** responsible for service planning and delivery. This includes analysis of current services, analysis of proposed service and fare changes, and environmental justice. Those responsible for this area also coordinate with those who are responsible for service planning and delivery.

Detailed Responsibilities of the Title VI Manager

The Title VI Manager is responsible for supervising the other staff assigned with Title VI responsibilities in implementing, monitoring, and reporting on Radford Transit's compliance with Title VI regulations. In support of this, the Title VI Manager will:

- Identify, investigate, and eliminate discrimination when found to exist.
- Process Title VI complaints received by **Radford Transit**, in accordance with the agency's Nondiscrimination Complaint Procedures (presented below).
- Periodically review the agency's Title VI program to assess if administrative procedures are effective, staffing is appropriate, and adequate resources are available to ensure compliance.

Annual Review of Title VI Program

Each year, in preparing for the Annual Report and Updates, the Title VI Manager and Liaison(s) will review the agency's Title VI program to assure implementation of the Title VI plan. In

addition, they will review agency operational guidelines and publications, including those for contractors, to verify that Title VI language and provisions are incorporated, as appropriate.

Title VI Clauses in Contracts

In all procurements requiring a written contract, **Radford Transit**'s contract will include the federal non-discrimination clauses. The Title VI Manager will work with the City of Radford.

IV. PROCEDURES FOR NOTIFYING THE PUBLIC OF TITLE VI RIGHTS AND HOW TO FILE A COMPLAINT

Radford Transit includes the following language on all printed information materials, on the agency's website, in press releases, in public notices, in published documents, and on posters on the interior of each vehicle operated in passenger service:

[Sample language: insert you agency's actual language:]

The Radford Transit is committed to ensuring that no person is excluded from participation in, or denied the benefits of its transit services on the basis of race, color or national origin, as protected by Title VI of the Civil Rights Act of 1964.

For additional information on Radford Transit's nondiscrimination policies and procedures or to file a complaint, please visit the website at www.radfordtransit.com or contact;

*Davin Lewis
Transportation Manager
2B Corporate Dr
Radford VA 24141*

Instructions for filing Title VI complaints are posted on the agency's website and in posters on the interior of each vehicle operated in passenger service, and are also included within *Radford Transit's* Riders Guide/ System Schedule.

If you believe you have been subjected to discrimination under Title VI based on your race, color, national origin, or any aspect of this policy, you may file a complaint up to 180 days from the date of the alleged discrimination.

The complaint should include the following information:

- *Your name, address, and how to contact you (i.e., telephone number, email address, etc.)*
- *How, when, where, and why you believe you were discriminated against.*
- *The location, names and contact information of any witnesses.*

The complaint may be filed in writing to:

*Davin Lewis
Transportation Manager
2B Corporate Drive
Radford VA, 24141*

V. PROCEDURES FOR HANDLING, TRACKING, RESOLVING AND REPORTING INVESTIGATIONS/COMPLAINTS AND LAWSUITS

Any individual may exercise his or her right to file a complaint with Radford Transit if that person believes that s/he or any other program beneficiaries have been subjected to unequal treatment or discrimination in the receipt of benefits/services or prohibited by non-discrimination requirements. Radford Transit will report the complaint to DRPT within three business days (per DRPT requirements), and make a concerted effort to resolve complaints locally, using the agency's Nondiscrimination Complaint Procedures, as described below. All Title VI complaints and their resolution will be logged as described under "Data collection" and reported annually (in addition to immediately) to DRPT.

Should any Title VI investigations be initiated by FTA or DRPT, or any Title VI lawsuits be filed against Radford Transit the agency will follow these procedures:

Sample Nondiscrimination Complaint Procedures

Overview

These procedures apply to all complaints filed under Title VI of the Civil Rights Act of 1964 as amended, and the Civil Rights Restoration Act of 1987, relating to any program or activity administered by Radford Transit as well as to sub-recipients, consultants, and/or contractors. Intimidation or retaliation of any kind is prohibited by law. These procedures do not deny the right of the complainant to file formal complaints with other state or federal agencies, or to seek private counsel for complaints alleging discrimination. These procedures are part of an administrative process that does not provide for remedies that include punitive damages or compensatory remuneration for the complainant. Every effort will be made to obtain early resolution of complaints at the lowest level possible. The option of informal mediation meeting(s) between the affected parties and the Title VI Manager may be utilized for resolution. The Title VI Manager will make every effort to pursue a resolution to the complaint. Initial interviews with the complainant and the respondent will request information regarding specifically requested relief and settlement opportunities.

Procedures

1. Any individual, group of individuals, or entity that believes they have been subjected to discrimination on the basis of race, color, or national origin may file a written complaint with Radford Transit's Title VI Manager. The complaint is to be filed in the following manner:
 - a. A formal complaint must be filed within 180 calendar days of the alleged occurrence.
 - b. The complaint shall be in writing and signed by the complainant(s).
 - c. The complaint should include:
 - the complainant's name, address, and contact information

- (i.e., telephone number, email address, etc.)
 - the date(s) of the alleged act of discrimination (if multiple days, include the date when the complainant(s) became aware of the alleged discrimination and the date on which the alleged discrimination was discontinued or the latest instance).
 - a description of the alleged act of discrimination
 - the location(s) of the alleged act of discrimination (include vehicle number if appropriate)
 - an explanation of why the complainant believes the act to have been discriminatory on the basis of race, color, and national origin
 - if known, the names and/or job titles of those individuals perceived as parties in the incident
 - contact information for any witnesses
 - indication of any related complaint activity (i.e., was the complaint also submitted to DRPT or FTA?)
- d. The complaint shall be submitted to the Radford Transit Title VI Manager at:

**2B Corporate Dr
Radford VA 24141**

- e. Complaints received by any other employee of Radford Transit will be immediately forwarded to the Title VI Manager.
- f. In the case where a complainant is unable or incapable of providing a written statement, a verbal complaint of discrimination may be made to the Title VI Manager. Under these circumstances, the complainant will be interviewed, and the [*customer communications manager*] will assist the complainant in converting the verbal allegations to writing.
2. Upon receipt of the complaint, the Title VI Manager will immediately:
 - a. notify DRPT (no later than 3 business days from receipt)
 - b. ensure that the complaint is entered in the complaint database
 3. Within 3 business days of receipt of the complaint, the Title VI Manager will contact the complainant by telephone to set up an interview.
 4. The complainant will be informed that they have a right to have a witness or representative present during the interview and can submit any documentation he/she perceives as relevant to proving his/her complaint.
 5. If DRPT has assigned staff to assist with the investigation, the Title VI Manager will offer an opportunity to participate in the interview.
 6. The alleged discriminatory service or program official will be given the opportunity to respond to all aspects of the complainant's allegations.
 7. The Title VI Manager will determine, based on relevancy or duplication of evidence, which witnesses will be contacted and questioned.
 8. The investigation may also include:
 - a. investigating contractor operating records, policies or procedures
 - b. reviewing routes, schedules, and fare policies
 - c. reviewing operating policies and procedures
 - d. reviewing scheduling and dispatch records

- e. observing behavior of the individual whose actions were cited in the complaint
9. All steps taken and findings in the investigation will be documented in writing and included in the complaint file.
 10. The Title VI Manager will contact the complainant at the conclusion of the investigation, but prior to writing the final report, and give the complainant an opportunity to give a rebuttal statement at the end of the investigation process.
 11. At the conclusion of the investigation and within 60 days of the interview with the complainant, the Title VI Manager will prepare a report that includes a narrative description of the incident, identification of persons interviewed, findings, and recommendations for disposition. This report will be provided to the CEO, the DRPT, and, if appropriate, **Radford Transit's** legal counsel.
 12. The Title VI Manager will send a letter to the complainant notifying them of the outcome of the investigation. If the complaint was substantiated, the letter will indicate the course of action that will be followed to correct the situation. If the complaint is determined to be unfounded, the letter will explain the reasoning, and refer the complainant to DRPT in the event the complainant wishes to appeal the determination. This letter will be copied to DRPT.
 13. A complaint may be dismissed for the following reasons:
 - a. The complainant requests the withdrawal of the complaint.
 - b. An interview cannot be scheduled with the complainant after reasonable attempts.
 - c. The complainant fails to respond to repeated requests for additional information needed to process the complaint.
 14. DRPT will serve as the appealing forum to a complainant that is not satisfied with the outcome of an investigation conducted by **Radford Transit**. DRPT will analyze the facts of the case and will issue its conclusion to the appellant according to their procedures.

VI. STAFF TRAINING RELATED TO THE TITLE VI PROGRAM

Information on the **Radford Transit**'s Title VI program is disseminated to agency employees, contractors, and beneficiaries, as well as to the public, as described in the "public outreach and involvement" section of this document, and in other languages when needed according to the LEP plan.

Radford Transit's employees will receive training on Title VI policies and procedures upon hiring and upon promotion. This training will include requirements of Title VI, *Radford Transit*'s obligations under Title VI (LEP requirement included), required data that must be gathered and maintained and how it relates to the Annual Report and Update to DRPT, and any findings and recommendations from the last DRPT compliance review.

In addition, training will be provided when any Title VI-related policies or procedures change (agency-wide training), or when appropriate in resolving a complaint (which may be for a specific individual or for the entire agency, depending on the complaint).

Title VI training is the responsibility of the Transportation Manager and the Supervisors of Radford Transit.

VII. LANGUAGE ASSISTANCE PLAN FOR PERSONS WITH LIMITED ENGLISH PROFICIENCY (LEP)

SAMPLE PLAN FOR SERVING PERSONS WITH LIMITED ENGLISH PROFICIENCY (LEP)

Introduction and Legal Basis

LEP is a term that defines any individual not proficient in the use of the English language. The establishment and operation of an LEP program meets objectives set forth in Title VI of the Civil Rights Act and Executive Order 13116, Improving Access to Services for Persons with Limited English Proficiency (LEP). This Executive Order requires federal agencies receiving financial assistance to address the needs of non-English speaking persons. The Executive Order also establishes compliance standards to ensure that the programs and activities that are provided by a transportation provider in English are accessible to LEP communities. This includes providing meaningful access to individuals who are limited in their use of English. The following LEP language implementation plan, developed by *Radford Transit* based on FTA guidelines.

As required, **Radford Transit** developed a written LEP Plan (below). Using 2010 and American Community Survey (ACS) Census data, **Radford Transit** has evaluated data to determine the extent of need for translation services of its vital documents and materials.

LEP persons can be a significant market for public transit, and reaching out to these individuals can help increase their utilization of transit. Therefore, it also makes good business sense to translate vital information into languages that the larger LEP populations in the community can understand.

Assessment of Needs and Resources

The need and resources for LEP language assistance were determined through a four-factor analysis as recommended by FTA guidance.

Factor 1: Assessment of the Number and Proportion of LEP Persons Likely to be Served or Encountered in the Eligible Service Population

The agency has reviewed census data on the number of individuals in its service area that have limited English Proficiency, as well as the languages they speak.

U.S. Census Data – American Community Survey (2006-2010)

Data from the U.S. Census Bureau’s American Community Survey (ACS) were obtained through www.census.gov by **Radford Transit**’s service area. The agency’s service area includes a total of **16,414** persons with 1.4% of persons with Limited English Proficiency (those persons who indicated that they spoke English “not well,” and “not at all” in the 2006-2010 ACS Census).

Information from the 2006-2010 ACS also provides more detail on the specific languages that are spoken by those who report that they speak English less than very well. Languages spoken at home by those with LEP are presented below. These data indicate the extent to which translations into other language are needed to meet the needs of LEP persons.

• Spanish	355	2.3%
• Indo-European	322	2.1
• Asian and Pacific Island Languages	94	0.6
• Other Languages		

It is noted that there are relatively low number of LEP persons in the service area - no language is spoken by over 5% or a total of 1,000 persons in the LEP population.

Factor 2: Assessment of Frequency with Which LEP Individuals Come Into Contact with the Transit Services or System

Radford Transit reviewed the relevant benefits, services, and information provided by the agency and determined the extent to which LEP persons have come into contact with these functions through the following channels:

- Contact with transit vehicle operators;
- Calls to Radford Transit’s customer service telephone line;
- Visits to the agency’s headquarters;
- Access to the agency’s website ;

We will continue to identify emerging populations as updated Census and American Community Survey data become available for our service area. In addition, when LEP persons contact our agency, we attempt to identify their language and keep records on contacts to accurately assess the frequency of contact.

Information from Community Organizations that Serve LEP Persons (Optional?)

To supplement the Census, education, and labor department data, **Radford Transit** conducted community outreach to the following organizations that work with LEP populations. *[List those contacted, which may include any of the following:]*

- *School systems;*
- *Community organizations;*
- *State and local governments;*
- *Religious organizations;*
- *Legal aid entities.*

Factor 3: Assessment of the Nature and Importance of the Transit Services to the LEP Population

Based on past experience serving and communicating with LEP persons and interviews with community agencies, *[as well as questionnaires or direct consultations with LEP persons (if applicable, e.g. through focus groups or individual interviews facilitated/interpreted by a community agency)]*, we learned that the following services/routes/programs are currently of particular importance LEP persons in the community.

The following are the most critical services provided by Radford Transit for all customers, including LEP persons.

- Safety and security awareness instructions
- Emergency evacuation procedures
- Public transit services, including reduced fare application process
- Services targeted at low income persons
- *[any other critical services]*

Factor 4: Assessment of the Resources Available to the Agency and Costs

Costs

The following language assistance measures currently being provided by Radford Transit

- *[List these along with associated costs. Include costs associated with translating documents, contracting with language interpreters, producing pictographs, installing multilingual technology, and other language assistance measures your agency is taking or plans to implement. Also estimate the number of staff and percentage of staff time that is associated with providing language assistance.]*

We anticipate that these activities and costs will increase as follows.

Based on the analysis of demographic data and contact with community organizations and LEP persons, **Radford Transit** has determined that the following additional services are ideally needed to provide meaningful access:

- *[List and provide general cost estimates. For example, information may need to be translated into additional languages, additional oral or written language services should be provided, or that existing language assistance needs to be made available on a more widespread basis. Cost estimates can be based on price quotes from translating and interpreting firms or based on experiences of similar transit agencies that have implemented the assistance measures.]*

Resources

The available budget that could be currently be devoted to additional language assistance expenses is This amount is likely to *[be stable/decrease/increase]* over time.

Radford Transit has also requested the following additional grant funding for language assistance.

In addition, in-kind assistance may be available through *[community organizations, other city or county departments, other transit agencies who may be able to partner for language assistance services.*

Your agency may have access to language assistance products that have been developed and paid for by local, regional, or state government agencies and may also have bilingual staff that could provide language assistance on an ad hoc or regular basis. These resources should be inventoried and taken into consideration as part of your assessment of total resources available.

Your agency may already have, or be able to establish arrangements with qualified community volunteers to provide written or oral language translation. Although these volunteers may be willing to provide their services free of charge, your agency will need to verify that they can provide competent interpretation service and train them on their role within the agency. These should be inventoried as potential or confirmed resources.

Other potential cost saving measures include telephonic and video conferencing interpretation services, translating vital documents posted on Web sites, pooling resources and standardizing documents to reduce translation needs, centralizing interpreter and translator services to achieve economies of scale.]

Feasible and Appropriate Language Assistance Measures

Based on the available resources, the following language assistance measures are feasible and appropriate for our agency at this time:

- *Utilizing the language department at Radford University to assist with language communication barriers.*

LEP Implementation Plan

Through the four-factor analysis, **Radford Transit** has determined that the following types of language assistance are most needed and feasible:

- *Translation of vital documents into Spanish. These documents include:*
 - *System Map and Ride Guide*

Staff Access to Language Assistance Services

Agency staff who come into contact with LEP persons can access language services by *[describe procedures, such as offering the individual a language identification flashcard, having a supply of translated documents on hand, transferring a call to bilingual staff, having a telephone menu allowing the customer to pre-select their language]*. All staff will be provided with a list of available language assistance services and additional information and referral resources (such as community organizations which can assist LEP persons). This list will be updated at least annually.

Responding to LEP Callers

Staff who answer calls from the public respond to LEP customers as follows: *[describe, indicate language translation line if used, availability of bilingual staff. Include trip scheduling procedures for LEP persons]*.

Responding to Written Communications from LEP Persons

The following procedures are followed when responding to written communications from LEP persons: *[describe, indicate language translation services if used, availability of bilingual staff]*.

Responding to LEP Individuals in Person

The following procedures are followed when an LEP person visits our customer service and administrative office: *[describe, indicate use of language*

identification flashcard if needed, availability of bilingual staff, use of language translation services if appropriate].

The following procedures are followed by operators when an LEP person has a question on board a **Radford Transit** vehicle: *[describe, indicate use of language identification flashcard if needed, availability of bilingual operating staff, availability of translated information on board vehicles, referral to telephone assistance, volunteer translation assistance from fellow passengers, etc.].*

Staff Training

As noted previously, all **Radford Transit** staff are provided with a list of available language assistance services and additional information and referral resources, updated annually.

All new hires receive training on assisting LEP persons as part of their sensitivity and customer service training. This includes:

- A summary of the transit agency's responsibilities under the DOT LEP Guidance;
- A summary of the agency's language assistance plan;
- A summary of the number and proportion of LEP persons in the agency's service area, the frequency of contact between the LEP population and the agency's programs and activities, and the importance of the programs and activities to the population;
- A description of the type of language assistance that the agency is currently providing and instructions on how agency staff can access these products and services; and
- A description of the agency's cultural sensitivity policies and practices.

Also, all staff who routinely come into contact with customers, as well as their supervisors and all management staff, receive annual refresher training on policies and procedures related to assisting LEP persons.

[Describe addition training courses or resources provided to staff, such as tuition assistance for language courses at a local community college, training manuals/CDs/DVDs/online courses available to staff, instruction in basic phrases needed in the operating environment, etc.]

Providing Notice to LEP Persons

LEP persons are notified of the availability of language assistance through the following approaches: *[List items such as:*

- *following our Title VI policy statement included on our vital documents.*
- *on our website, with links to translations of vital documents in other languages.*
- *through signs posted on our vehicles and in our customer service and administrative offices.*
- *through ongoing outreach efforts to community organizations, schools, and religious organizations.*
- *use of an automated telephone menu system in the most common languages encountered.*
- *including the LOTS' language translation line on all materials.*
- *staffing a table with bilingual staff at community service events of interest to LEP groups.*
- *sending translated news releases and public service announcements about the availability of translated information to newspapers and broadcast media that target local LEP communities.]*

LEP persons will also be included in all community outreach efforts related to service and fare changes.

Monitoring/updating the plan

This plan will be updated on a periodic basis (at least every three years), based on feedback, updated demographic data, and resource availability.

As part of ongoing outreach to community organizations, **Radford Transit** will solicit feedback on the effectiveness of language assistance provided and unmet needs. In addition, we will conduct periodic *[surveys, focus groups, community meetings, internal meetings with staff who assist LEP persons, review of updated Census data, formal studies]* of the adequacy and quality of the language assistance provided, and determine changes to LEP needs.

In preparing the triennial update of this plan, Radford Transit will conduct an internal assessment using the Language Assistance Monitoring Checklist provided in the FTA's "Implementing the Department of Transportation's Policy Guidance Concerning Recipients' Responsibilities to Limited English Proficient (LEP) Persons: A Handbook for Public Transportation Providers." *[This checklist attached at the end of this sample plan.]*

Based on the feedback received from community members and agency employees, Radford Transit will make incremental changes to the type of written and oral language assistance provided as well as to their staff training and community outreach programs. The cost of proposed changes and the available resources will affect the enhancements that can be made, and therefore Radford Transit will attempt to identify the most cost-effective approaches.

As the community grows and new LEP groups emerge, Radford Transit will strive to address the needs for additional language assistance.

VIII. PUBLIC OUTREACH AND INVOLVEMENT

Public outreach and involvement applies to and affects Radford Transit's mission and work program as a whole, particularly agency efforts and responsibilities related to **Radford Transit's** service planning. The overall goal of Radford Transit's public outreach and involvement policy is to secure early and continuous public notification about, and participation in, major actions and decisions by Radford Transit. In seeking public comment and review, Radford Transit makes a concerted effort to reach all segments of the population, including people from minority and low-income communities, persons with limited English Proficiency and organizations representing these and other protected classes. Radford Transit utilizes a broad range of public outreach information and involvement opportunities, including a process for written comments, public meetings after effective notice, settings for open discussion, information services, and consideration of and response to public comments.

Public Outreach Activities

Radford Transit takes the following steps to ensure that minority, low-income, and LEP members of the community have meaningful access to public outreach and involvement activities, including those conducted as part of the planning process for proposed changes in services, fares, and facilities development.

- Publishing public notices within local newspapers of general circulation as well as those targeted at minority, low income and LEP persons and on the agency's website.

Public notices are issued to:

- announce opportunity to participate or provide input in planning for service changes, fare changes, new services, and new or improved facilities (early in the process)
 - announce the formal comment period on proposed major service reductions and fare increases with instructions for submitting comments including a public hearing (or opportunity for a public hearing with instructions for requesting a hearing if this is the LOTS' local policy) (at the end of the planning process)
 - announce impending service and fare changes (after plan has been finalized)
 - announce intent to apply for public transit funding from DRPT, and to announce the formal comment period on the proposed program of projects, with a public hearing (or opportunity for one) (annually in advance of submitting the ATP)
- Posting public notices as described above at major passenger/public facilities and in all vehicles.
 - Sending news releases to news media (newspapers, radio, television, web media) of general interest as well as those targeted at minority and LEP persons, as well as community-based organizations that serve persons protected under Title VI and which publish newsletters.

- Sending public service announcements (PSAs) to news media of general interest as well as those targeted at minority, low income and LEP persons, as well as community-based organizations that serve persons protected under Title VI and which publish newsletters.
- Conducting in-person outreach upon request at public meetings, community-based organizations, human service organizations which assist low income and LEP persons, places of worship, service organization meetings, cultural centers, and other places and events that reach out to persons protected under Title VI. The availability of **Radford Transit** staff for such speaking engagements is posted on the agency's website.
- Conducting periodic customer satisfaction surveys which are distributed to passengers on vehicles.

The above activities are the responsibility of the **Transportation Manager**.

PROCEDURES FOR ENSURING EQUITY IN SERVICE PROVISION

Radford Transit is required to plan and deliver transportation services in an equitable manner. This means the distribution of service levels and quality is to be equitable between minority and low income populations and the overall population.

Service Standards and Policies

Radford Transit has reviewed its services and policies to ensure that those services and benefits are provided in an equitable manner to all persons.

Service Standards

The agency has set standards and policies that address how services are distributed across the transit system service area to ensure that that distribution affords users equitable access to these services.

The following system-wide service standards are used to guard against service design or operations decisions from having disparate impacts. All of Radford Transit's services meet the agency's established standards; thus it is judged that services are provided equitably to all persons in the service area, regardless of race, color or national origin.

- **Vehicle load** -Vehicle load is expressed as the ratio of passengers to the total number of seats on a vehicle at its maximum load point. The standard for maximum vehicle load is 23 passengers, all of Radford Transit services meet this standards
- **Vehicle headway** -Vehicle headway is the amount of time between two vehicles traveling in the same direction on a given route. A shorter headway corresponds to more frequent service. The standard for vehicle headways is 5 minutes, all of Radford Transit's services meet this standards
- **On-time performance** -On-time performance is a measure of runs completed as scheduled. This criterion first must define what is considered to be "on time." The standard for on-time performance is 95%, all of Radford Transit's services meet this standards
- **Service availability** - Service availability is a general measure of the distribution of routes within a transit provider's service area or the span of service. The standard for service availability is all of Radford Transit services meet this standard.

Service and Operating Policies

The Radford Transit's service and operating policies also ensure that operational practices do not result in discrimination on the basis of race, color, or national origin.

- **Distribution and Siting of Transit Amenities** -Transit amenities refer to items of comfort, convenience, and safety that are available to the general riding public. Radford Transit has a policy to ensure the equitable distribution of transit amenities across the system. This policy applies to seating (i.e., benches, seats), bus shelters and canopies, (c) provision of information, Intelligent Transportation Systems (ITS), waste receptacles (including trash and recycling). Passenger amenities are sited based on:
 - **Vehicle assignment** - Vehicle assignment refers to the process by which transit vehicles are placed into service and on routes throughout the system. **Radford Transit** assigns vehicles with the goal of providing equitable benefits to minority and low income populations. Vehicles are assigned with regard to service type (fixed-route, demand-response, or a hybrid type) and ridership demand patterns (routes with greater numbers of passengers need vehicles with larger capacities). For each type of assignment, newer vehicles are rotated to ensure that no single route or service always has the same vehicle. The **Transportation Manager** reviews vehicle assignments on a monthly basis to ensure that vehicles are indeed being rotated and that no single route or service always has the old or new vehicles.

Monitoring Title VI Complaints

As part of the complaint handling procedure, the Title VI Manager investigates possible inequities in service delivery for the route(s) or service(s) about which the complaint was filed. Depending on the nature of the complaint, the review examines span of service (days and hours), frequency, routing directness, interconnectivity with other routes and/or fare policy. If inequities are discovered during this review, options for reducing the disparity are explored, and service or fare changes are planned if needed.

In addition to the investigation following an individual complaint, the Title VI Manager periodically reviews all complaints received to determine if there may be a pattern. At a minimum, this review is conducted as part of preparing the Annual Report and Update for submission to the DRPT.

Fare and Service Changes

Radford Transit follows its adopted written policy for the public comment process for major service reductions and fare increases. With each proposed service or fare change, **Radford Transit** considers the relative impacts on, and benefits to, minority and low income populations, including LEP populations. All planning efforts for changes to existing services or fares, as well as new services, have a goal of providing equitable service.

IX. DATA COLLECTION AND REPORTING PROCEDURES

Data collection

To ensure that Title VI reporting requirements are met, Radford Transit maintains:

- A log and database of Title VI complaints received. The investigation of and response to each complaint is tracked within the database.
- A log of the public outreach and involvement activities undertaken to ensure that minority and low-income people had a meaningful access to these activities. The agency maintains the following records related to public outreach and involvement:
 - Paper files with copies of materials published or distributed for each planning project and service/fare change, as well as all news releases, public service announcements, surveys, and written summaries of in-person outreach events.
 - A log/database of public outreach and involvement activities, including dates, planning project or service/fare change supported (if applicable), type of activity, LEP assistance requested/provided, target audience, number of participants, and location of documentation within paper files.

Annual Report and Triennial Updates

Annual Reporting

As a subrecipient providing service in an area with less than 200,000 population, Radford Transit submits an annual report to the DRPT that documents any Title VI investigations/complaints/lawsuits during the preceding 12 months.

Triennial Reporting

Every three years, the **Radford Transit** submits to DRPT, a complete list of the investigations/complaints/lawsuits received in the prior three years, a summary of the public outreach and involvement activities undertaken to ensure that minority and low-income people had a meaningful access to these activities, and any updates to this Title VI plan.

Updates to the Title VI Plan

As noted above, every three years, the Radford Transit submits to DRPT an update to this Title VI Plan. The triennial Title VI update includes the following items, or a statement to the effect that these items have not been changed since the previous submission, indicating date.

- A copy of any compliance review report for reviews conducted in the previous three years, along with the purpose or reason for the review, the name of the organization that performed the review, a summary of findings and recommendations, and a report on the status or disposition of the findings and recommendations
- Radford Transit's Limited English Proficiency (LEP) plan
- Radford Transit's procedures for tracking and investigating Title VI complaints
- A complete list of Title VI investigations, complaints or lawsuits filed with the Radford Transit since the last submission
- A copy of Radford Transit's agency's notice to the public that it complies with Title VI and instructions on how to file a discrimination complaint

X. Environmental Justice (for All Construction Projects)

For new construction and major rehabilitation or renovation projects where National Environmental Policy Act (NEPA) documentation is required, **Radford Transit** will integrate an environmental justice analysis into the NEPA documentation for submission to DRPT.

Appendix C: Boarding Data, April 2013

Route 10 University Express	Tuesday 4/23/13	Friday 4/26/13
Lot A to Green Hill	588	363
University Dr./Armstrong	1	0
University Dr. Lot CC	9	9
Dedmon 1	42	7
Dedmon 2/Lot z	28	6
University Dr/Pulaski Ave	0	0
Stockon St/Lot FF	2	0
New River Dr./Clubhouse	7	3
New River TC	414	349
New River Dr. Clubhouse	73	27
Armstrong	10	3
Lot A to Waldron	8	11
Jefferson St/Bonnie	0	13
Waldron Timecheck	30	20
COBE	20	20
Tyler Ave/Calhoun St.	8	1
Tyler Ave/Clement St.	13	2
Tyler Ave/Grove Ave	11	4
The HUB (Flag)	3	3
Main St./Lot C	0	2
	1,267	843

Route 20 New River Rapid	Tuesday 4/23/13	Friday 4/26/13
The HUB	48	34
Main St./Downtown	1	1
Main St./Taco Inn	0	0
Main St./CVS	4	2
Kroger Plaza	5	4
Walmart Timecheck	38	39
Fulk Dr.	3	0
Kroger Plaza	5	2
Main St./Library	5	8
Main St./ Across Taco Inn	0	0
Main St/Downtown	0	0
Tyler Ave/Grove Ave	0	0
Tyler Ave/Clement St	0	0
Tyler Ave/Calhoun St	0	0
Jefferson St./Davis St.	0	0
Jefferson St/Downey St.	0	0
Lot A	6	0
	115	90

Route 30 Cross City	Tuesday 4/23/13	Friday 4/26/13
The HUB	13	10
Main St/Downtown	0	0
Main St/Taco Inn	0	0
Main St/CVS	0	1
Main St/Randolph	1	4
Main St/Kent St/Wades	3	1
Main St/Robertson St.	0	0
Main St/Wirt St/Post Office	0	3
Main St/Carter St	2	0
Main St/Denby St/Buckos	0	0
Main St/Custis St	1	0
Forest Ave/Delimart	1	3
Main St/Cowan St	0	3
Jeffries Dr 1	1	2
Jeffries Dr Timecheck	7	2
Midkiff Ln	1	0
2nd St/Highland Ave	0	0
Main St/Cowan St	0	0
Forest Ave/Delimart	2	2
Main St/Curtis St	0	0
Main St/Denby St/Buckos	0	0
Main St/Carter St	0	1
Main St/Preston	1	1
Preston St/4th	0	1
Preston St/7th	1	0
Preston St/ Lyle St	0	0
Preston St/ 12th St	1	0
Staples St/12th St/McCarg	0	0
Staples St/ PT Travis Ave	0	0
Staples St/ 17th St	1	1
Wadsworth St/Heather Glen	3	1
Allen Ave/Willow Woods	8	2
Allen Ave/Wadsworth St	0	0
Wadsworth St/Sheppard Ave	1	0
Wadsworth St/Roosevelt Ave	1	1
Wadsworth St/18th St	0	1
8th St/Randolph St.	0	0
Randolph St/7th St	1	0
6th St/Scott St	0	0
Park Road/Sundell Dr	0	0
George St	0	0
Rec Center Timecheck	1	0

Route 30 Cross City	Tuesday 4/23/13	Friday 4/26/13
George St	0	1
2nd Ave/Lawrence St	0	0
3rd Ave/Fairfax St	0	0
3rd Ave/Downey St/Vec	0	0
Main St/Downtown	0	0
	51	41

Route 31 Cross City	Tuesday 4/23/13	Friday 4/26/13
The HUB	16	8
Main St/Downtown	0	0
3rd Ave/Downey St/VEC	0	0
3rd Ave/Fairfax St	0	0
Lawrence St/2nd	0	0
George St	0	0
Rec Center Timecheck	0	1
George St	0	0
Park Rd/Sundell	0	0
6th St/Scott St	1	0
Randolph St/8th St	2	4
Wadsworth St/8th St	0	0
Wadsworth St/Roosevelt Ave	0	0
Wadsworth St/ Sheppard Ave	0	0
Allen Ave/Willow Woods	0	7
Allen Ave/Wadsworth St	0	0
Wadsworth St/Heather Glen	0	0
Staples/17th St	2	1
Staples/PT Travis Ave	2	2
Staples St/ 12th St	0	0
12th St/ Preston St	0	0
Preston St/Lyle	0	0
Preston St/7th	0	0
Preston St/4th St	0	0
Preston St/Main St	0	0
Main St/Carter St	0	0
Main St/Denby St/Buckos	6	0
Main St/Custis St	0	0
Forest Ave/Delimart	1	0
Main St/Cowan St/Riverview	0	0
Jeffries Dr 1	0	0
Jeffries Dr Timecheck	1	9
Midkiff Ln	1	9
2nd St/Highland	0	0
Main St/Cowan St/Riverview	0	0

Route 31 Cross City	Tuesday 4/23/13	Friday 4/26/13
Forest Ave/Delimart	0	4
Main St/Custis St	0	0
Main St/Denby St/Buckos	0	0
Main St/Carter St	0	0
Main St/Preston St/DSS	2	1
Main St/Staples St	0	0
Main St/Robertson St	1	0
Main St/Kent/Wades	1	0
Main St/Randolph St	0	1
Main St/Library	0	0
Main St/ Across Taco Inn	0	0
Main St/Downtown	0	0
	36	47

Route 40 NRV Connect	Friday 4/26/13
The HUB	60
Main St./Downtown	0
Main St. Taco Inn	0
Main St. CVS	0
Falling Branch (2:40 Only)	0
Regal Cinema	0
NRV Mall Timecheck	6
Kmart/Laurel St. (A)	2
Squires Center TC	30
Bburg Municipal Bldg.	0
Kmart/Laurel St. (8)	0
Regal Cinema	0
NRV Mail Timecheck	14
Main St./ Library	0
3rd Ave/ Fairfax St	0
Tyler Ave/ Calhoun St.	1
Tyler Ave/ Clement St.	0
Tyler Ave/ Grove Ave	0
	113

Route 50 Highlander Circulator	Tuesday 4/23/13	Friday 4/26/13
Lot A Timecheck	134	90
Main St/Madison St	1	0
Main St/Burlington St	0	1
Burlington St/Clement St	1	0
Clement St/Whitetail St	4	11
Burlington Lot	202	123

Route 50 Highlander Circulator	Tuesday 4/23/13	Friday 4/26/13
Burlington St/Clement St	8	7
Burlington St/Fairfax St	16	19
Fairfax St/Wilson St	6	1
Calhoun St/Wilson St	2	13
Calhoun St/Madison St	2	3
Waldron Hall	33	25
COBE	11	13
Tyler Ave/Calhoun St	3	1
Tyler Ave/Clement St.	3	2
Tyler Ave/ Grove Ave	4	0
The Hub	12	6
Main St/Lot C	0	0
	442	315

Route 60 South Beech Express	Tuesday 4/23/13	Friday 4/26/13
Lot A to Ridgewood	4	10
The Bonnie	7	1
Waldron Hall	3	6
Food Lion	5	5
Auburn Ave/ Cedar Ridge	5	3
Ridgewood Lane	3	1
Auburn Ave/ CVilla	2	0
Auburn Ave/ Tyler Ave	1	0
Best Western	2	2
Tyler Ave/ Auburn Ave	3	5
Tyler Ave/ Milton Ave	1	0
Jefferson St./ Davis St.	0	0
Jefferson St./ Clement St.	0	2
Lot A Timecheck	47	46
The HUB	44	7
Tyler Ave/ Grove Ave	0	1
Tyler Ave/ Clement Ave	4	0
Miller St. Entrance	12	2
Copper Beech (Timecheck)	56	34
Miller St. Exit	25	23
2nd Ave/ Lawrence St.	8	3
Tyler Ave/ Calhoun St.	0	0
Tyler Ave /Clement St.	0	0
Tyler Ave/Grove Ave	0	0
The HUB	0	4
Main St./Lot C	3	0
	235	155

Appendix D: Trip Generators

Type	Name	Address	City
Apartment	Hunters Ridge Apartments	1 Hunters Rd	Radford
Apartment	Copper Beech Townhomes	406 Sanford St	Radford
Apartment	Scottish Hills Apartments	601 Calhoun St	Radford
Apartment	Highland Village Apartments	400 Robey St	Radford
Apartment	Willow Woods Apartments	222 Allen Ave	Radford
Apartment	Red Coat Manor Apartments	1210 Grove Ave	Radford
Apartment	Fairfax Village Apartments	332 Fairfax St	Radford
Apartment	New River Garden Apartments	300 Jeffries Dr	Radford
Apartment	Cedar Valley Apartments	1300 E Main St	Radford
Apartment	Norwood Station Apartments	123 E Main St	Radford
Apartment	Central Depot Apartments	303 W Main St	Radford
Assisted Living	Ridgewood Place Senior	109 Ridgewood Ln	Radford
Assisted Living	Fairlawn Manor	6599 Annie Akers Rd	Fairlawn
Assisted Living	Riverbend Apartments	108 Midkiff Ln	Radford
Assisted Living	Wheatland Hills Retirement	7486 Lee Hwy	Fairlawn
Mobile Home Park	Rustic Village Mobile Home	1500 Staples St	Radford
Mobile Home Park	Eagleview Mobile Home Park	6441 Belspring Rd	Fairlawn
Human Services	City of Radford DSS	10 Robertson St	Radford
Human Services	VA Employment Commission	206 3rd Ave	Radford
Human Services	Radford-Fairlawn Daily Bread	501 E Main St	Radford
Medical Facility	Carilion Roanoke Memorial	1906 Belleview Ave SE	Roanoke
Medical Facility	Carilion Radford Center	700 Randolph St	Radford
Medical Facility	Carilion Clinic Saint Albans	2900 Lamb Cir	Christiansb
Medical Facility	Carilion New River Valley	2900 Lamb Cir	Christiansb
Medical Facility	New River Valley Pediatrics	202 8th St	Radford
Medical Facility	Radford Nursing and Rehab	700 Randolph St	Radford
Medical Facility	Lewis-Gale Medical Center	1900 Electric Rd	Salem
Medical Facility	Veterans Affairs Medical Center	1970 Roanoke Blvd	Salem
Municipal Facility	Chamber of Commerce	200 3rd Ave	Radford
Municipal Facility	Public Library	30 W Main St	Radford
Municipal Facility	Radford Armory	301 Scott St	Radford
Municipal Facility	Glencoe Museum	600 Unruh Dr	Radford
Municipal Facility	City of Radford Municipal	619 2nd St	Radford
Municipal Facility	Radford Fire and Rescue	1500 Wadsworth St	Radford
Municipal Facility	Radford Post Office	901 W Main St	Radford
Dining	Applebee's	33 W Main St	Radford
Dining	BT's Restaurant	218 Tyler Ave	Radford
Dining	Hardee's	7353 Lee Hwy	Radford

Type	Name	Address	City
Dining	Macado's	510 E Main St	Radford
Dining	Sal's Restaurant & Pizzeria	709 W Main St	Radford
Dining	Sharkey's	1202 E Main St	Radford
Dining	Sonic Drive-In	113 W Main St	Radford
Dining	Subway	310 Tyler Ave	Radford
Shopping	CVS Pharmacy	31 W Main St	Radford
Shopping	Medicine Shoppe	243 W Main St	Radford
Shopping	Kroger Supermarket	7480 Lee Hwy	Fairlawn
Shopping	Wade's Foods	401 W Main St	Radford
Shopping	Food Lion	1200 Tyler Ave	Radford
Shopping	Kroger	7480 Lee Hwy	Fairlawn
Shopping	Wal-Mart Supercenter	7373 Peppers Ferry	Fairlawn
Shopping	New River Valley Mall	782 New River Rd	Christiansb
Parks and Rec	Dedmon Center	101 University Dr	Radford
Parks and Rec	Radford Recreation Center	200 George St	Radford
Education	Belle Heth Elementary	151 George St	Radford
Education	Dalton Intermediate	60 Dalton Dr	Radford
Education	McHarg Elementary	700 12th St	Radford
Education	Radford High School	50 Dalton Dr	Radford
Education	Radford University	801 E Main St	Radford
Education	Roanoke Higher Ed Center	108 N Jefferson St	Roanoke
Employer	Radford University	801 E Main St	Radford
Employer	Kollmorgen Corporation	203 W Rock Rd	Radford
Employer	Radford University	801 E Main St	Radford
Employer	City of Radford	20 Robertson St	Radford
Employer	Hoffman Enclosures Inc	1120 W Rock Rd	Radford
Employer	Grede Radford LLC	1701 W Main St	Radford
Employer	Pyrotechnique by Grucci	114 Peppers Ferry Rd	Radford
Employer	Radford City School Board	1612 Wadsworth St	Radford
Employer	Wackenhut Services Inc	107 3rd Ave	Radford
Employer	U.S. Department of Defense	Constitution Rd	Radford
Employer	Radford Nursing & Rehab	700 Randolph St	Radford
Employer	Harvey Chevrolet Corporation	1500 Tyler Ave	Radford
Employer	Sharkey's Wing & Rib Joint	1202 E Main St	Radford
Employer	Wades Supermarkets Inc	401 W Main St	Radford
Employer	New River Valley Pediatrics	202 8th St	Radford
Employer	Radva Corporation	604 17th S	Radford
Employer	Macado's Inc.	510 E Main St	Radford
Employer	Bridgewater College Bookstore	Dalton Hall, Fairfax St	Radford
Employer	Goodwill Industries	103 Duncan Ln	Radford

Type	Name	Address	City
Employer	Food Lion	1200 Tyler Ave	Radford
Employer	Third Security LLC	1881 Grove Ave	Radford
Employer	Applebees	33 W Main St	Radford
Employer	BT's	218 Tyler Ave	Radford
Employer	Postal Service	901 W Main St	Radford
Employer	New River Community Action	1093 E Main St	Radford
Employer	New River Heating & Air	91 Ingles St	Radford
Employer	Virginia Employment	703 E Main St	Richmond
Employer	Best Western Radford	1501 Tyler Ave	Radford
Employer	Copper Beech Townhomes	406 Sanford St	Radford
Employer	Intrepid USA Inc	520 W Main St	Radford
Employer	New River Valley PDC	6580 Valley Center Dr	Radford
Employer	River City Grill	103 3rd Ave	Radford
Employer	Wilco Hess	7455 Lee Hwy	Radford
Employer	Hardee's	7353 Lee Highway	Radford
Employer	Women's Resources Center	1217 Grove Ave	Radford
Employer	FedEX Ground	3996 Pepperell Way	Dublin
Employer	VA Division of Community	6900 Atmore Dr	Richmond
Employer	Cooks Clean Center	426 W Main St	Radford
Employer	CVS Pharmacy	31 W Main St	Radford
Employer	Drs. Hilton & Graham	1151 E Main St	Radford
Employer	Price Williams Realty Inc	600 E Main St	Radford
Employer	Waco Inc.	1520 W Main St	Radford
Employer	7 Eleven	300 Tyler Ave	Radford
Employer	Subway	310 Tyler Ave	Radford
Employer	Sonic Drive In	709 W Main St	Radford
Employer	Sal's Pizza	709 W Main St	Radford
Employer	Bahama Inn & Suites Inc	1450 Tyler Ave	Radford
Employer	Shentel Management Company	1200 Tyler Ave	Radford
Employer	Compass Two LLC	E Main St	Radford
Employer	Family Practice Clinic Inc	600 Randolph St	Radford

Employment Data Source: VA Employment Commission, Quarterly Census of Employment and Wages, 2012 Quarter 3. www.vawc.virginia.gov/gsipub/index.asp?docid=427