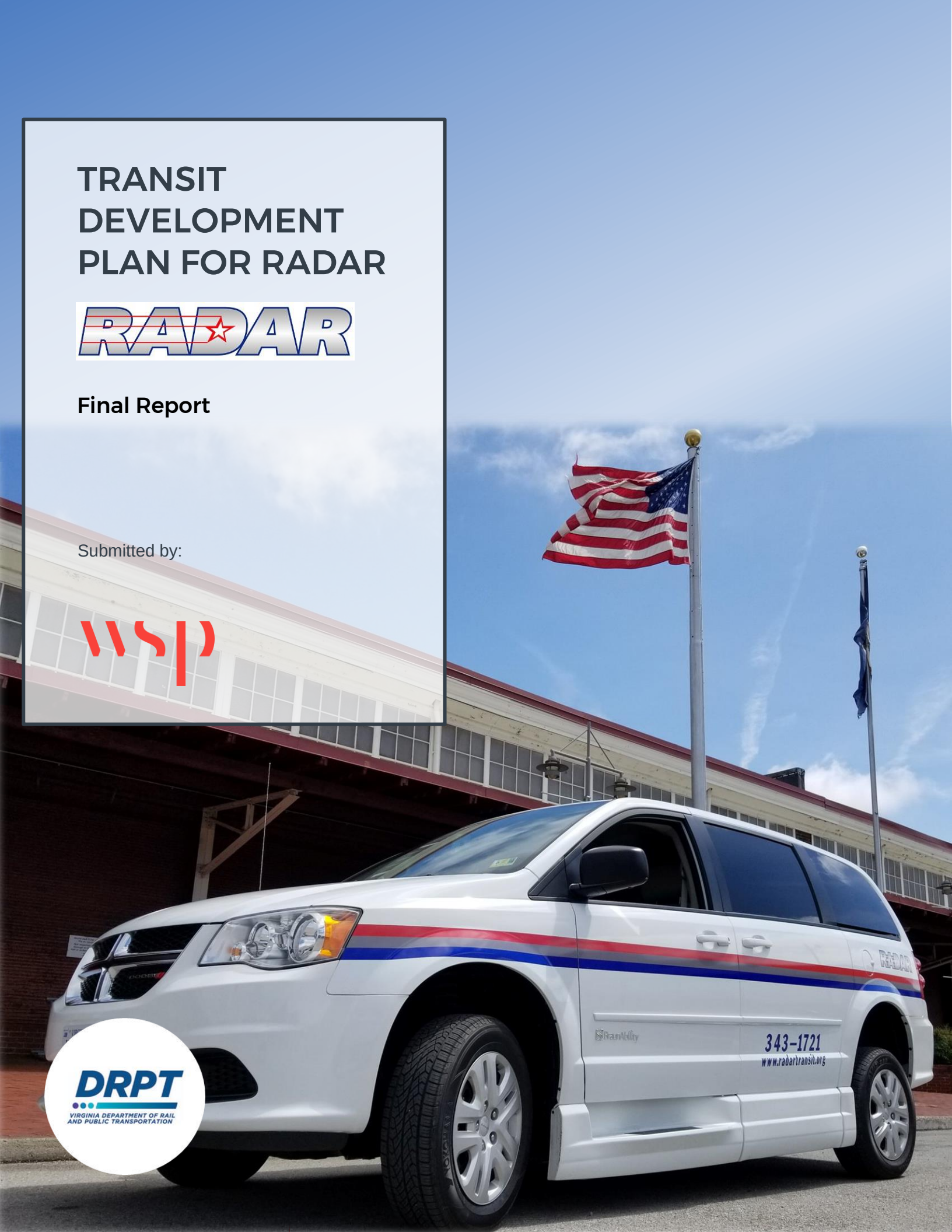
TRANSIT DEVELOPMENT PLAN FOR RADAR

RADAR

Final Report

Submitted by:

wsp



DRPT
VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION

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CHAPTER 1. SYSTEM OVERVIEW

1.1 Introduction

The Virginia Department of Rail and Public Transportation (DRPT) requires that any public transit (bus, rail, or ferry) operator receiving state funding prepare, adopt, and submit an updated Transit Development Plan (TDP) at least every five years. Once updated, the TDP serves as a guiding document for coordinating transit and land use planning to improve local transit service, prepare for growing demand, and invest in the transit system. Community engagement is a pivotal aspect of the TDP process, as it needs to ensure that transit plans are aligned with the priorities, preferences, and concerns of the people who will be affected by them. Involving major customers, stakeholders, and strategic partners is essential for developing a comprehensive plan that addresses the diverse needs of the community. Funding recommendations are equally fundamental for a Transit Development plan. The last RADAR TDP was published in August 2018, covering FY 2018 – FY 2027.

1.2 RADAR Background

The Unified Human Services Transportation Systems, Inc., commonly known as Roanoke Area Dial-A-Ride (RADAR), operates rural public transit and specialized transportation services primarily in the Greater Roanoke Valley. These services are designed for individuals with disabilities or lack the necessary transportation to navigate the region. RADAR offers complementary ADA paratransit services, known as Specialized Transit and Arranged Rides (STAR), to ensure accessibility for all. Committed to providing transportation in a safe, dependable, and courteous manner, RADAR aims to enhance mobility and independence for those in need.

The region contains many roadway corridors including I-81, I-581, US 220, US 460, US 11, US 221, and the Blue Ridge Parkway. Roanoke also serves as a significant rail hub for the Norfolk-Southern Railway. Amtrak's station in Roanoke provides connections to many northeastern cities, while the Roanoke-Blacksburg Regional Airport connects residents to major cities in the eastern half of the United States.

According to the 2022 American Community Survey, RADAR's service area had a total population of 397,914, up slightly from 2018. Amongst individual cities and counties, there was a mix of growth and population decline over the five-year period. Most notable is an overall 6.2 percent increase in population aged 65 and over in the service area during the five-year period. Because seniors make up a large portion of the trips RADAR provides, this shows that there could be a growing need for transportation assistance despite the overall population remaining relatively level. The greatest percentage change in the 65 and older population occurred in Roanoke (9.3%), Clifton Forge (9%) and Iron Gate (21.6%). **Table 1** identifies county and city populations within the service area, as well as the 65+ population within them. Towns are notated by grey, and its populations are included in the county population.

Table 1: Population Change by Jurisdiction in RADAR Service Area

Jurisdiction	2018 Pop.	2022 Pop.	2018-2022 Percentage Change	65+ Pop. 2018	65+ Pop. 2022	2018-2022 Percentage Change
Alleghany County, VA	15,286	15,159	-0.84%	3,561	3,805	6.41%
Franklin County, VA	56,233	54,838	-2.54%	12,520	13,149	4.78%
Henry County, VA	51,588	50,760	-1.63%	11,897	12,389	3.97%
Roanoke County, VA	93,583	96,653	3.18%	19,088	20,967	8.96%
Rockbridge County, VA	22,509	22,673	0.72%	5,600	6,018	6.95%
Buena Vista, VA	6,399	6,639	3.62%	1,176	1,186	0.84%
Covington, VA	5,582	5,722	2.45%	1,202	1,092	-10.07%
Lexington, VA	7,110	7,346	3.21%	1,114	1,075	-3.63%
Martinsville, VA	13,101	13,539	3.24%	2,510	2,401	-4.54%
Roanoke, VA	99,621	99,213	-0.41%	15,805	17,419	9.27%
Salem, VA	25,519	25,372	-0.58%	4,731	4,902	3.49%
Clifton Forge, VA	3,603	3,541	-1.75%	764	840	9.05%
Iron Gate, VA	262	397	34.01%	69	88	21.59%
Rocky Mount, VA	4,747	4,916	3.44%	1,016	1,061	4.24%
Vinton, VA	8,074	8,045	-0.36%	1,618	1,551	-4.32%
Region Total	**396,531**	**397,914**	**0.35%**	**79,204**	**84,403**	**6.16%**

Source: ACS 2018-2022

1.3 History

Roanoke introduced public transportation through the streetcar, which served the area's residents for 60 years. Like many trolleys in the US, Roanoke's trolley system (run by Roanoke Street Railway Company or RR&E) began to shrink with the advent of the automobile and the expansion of suburbs. Roanoke operated about 50 streetcars over 30 miles of track at its peak in 1925. That same year marked the beginning of bus service in Roanoke, run by The Safety Motor Transit Company (SMT), which was acquired by RR&E.

While bus transportation increased ridership, service, and routes up to the 1950s, service and revenue declined in the 1960s. Eventually Roanoke City Lines took over local and regional bus service, but further ridership decline led to its dissolution. In 1975, the Greater Roanoke Transit Company (GRTC), also known as Valley Metro, took over public transportation in the City of Roanoke.

In 1975 GRTC also began RADAR (Roanoke Area Dial-a-Ride), also known as UHSTS, Inc. (Unified Human Services Transportation Systems), out of an increased need to transport seniors, individuals with disabilities, and social service clients.

In 1985, County of Roanoke Transportation (CORTRAN) was formed expanding RADAR's service area. In a nod to its streetcar past, The Star Line Trolley now provides free transportation between Downtown Roanoke and Carilion Roanoke Memorial Hospital.

1.4 Governance

Roanoke Area Dial-a-Ride Board of Directors consists of a minimum of five (5) and a maximum of fifteen (15) members, divided into three classes with as equal a number of Directors as possible. Each Director serves a three-year term. The terms are staggered so that the term of one class of Directors expires each year. The Board of Directors elects new members for the class whose terms are expiring at the first meeting held in each fiscal year. Last appointment was in January 2024. The Board is currently directed by an eight-members and includes the following members (**Table 2**):

Table 2: RADAR Board of Directors

Name	Title
Mr. Frank Boxley III	President
Mr. Brandon Evans	Vice President
Mr. Bill Stephenson	Secretary
Mr. Stebbins Hubard	Treasurer
Mr. Sam Long	Director
Mr. Larry Dickenson	Director
Mr. Scott McCoy	Director
Mr. James Tangiers	Director

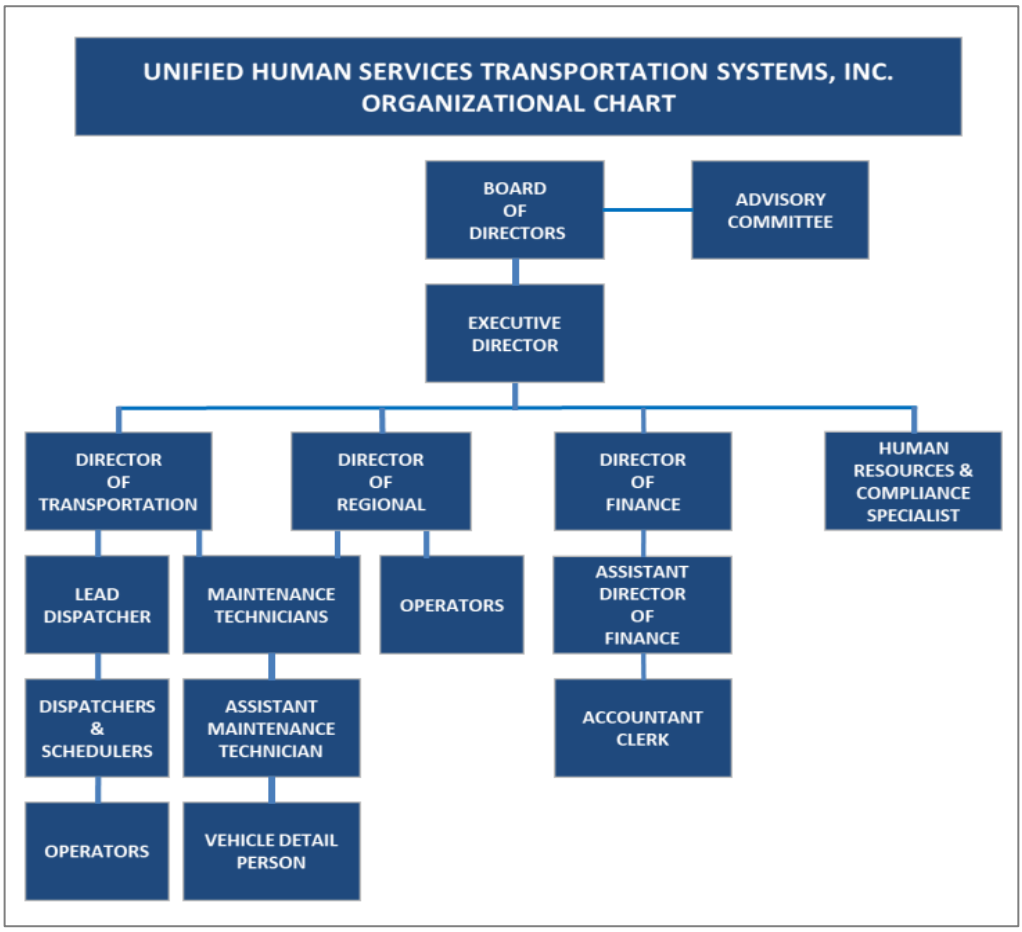
Source: RADAR

1.5 Organizational Structure

Roanoke Area Dial-a-Ride (RADAR) is owned and operated by Unified Human Services Transportation Systems, Inc. (UHSTS). This organization functions as a 501(c)(3) non-profit corporation. The organizational structure and tenure of key staff is detailed in Figure 1. Nathan Sandford was appointed as executive Director, assuming the role in May 2018, he oversees four different departments and three directors. The staff members that support each director are listed on the organizational chart in

Figure 1: Staff Organizational Chart.

Figure 1: Staff Organizational Chart



Source: RADAR

1.6 Transit Services Provided and Areas Served

RADAR currently operates fixed route, deviated fixed route, and demand-response services within Roanoke, Alleghany, Rockbridge, Roanoke, Franklin and Henry counties, including the cities of Martinsville, Lexington, Buena Vista, Covington, and the towns of Collinsville, Ferrum, Clifton Forge, Iron Gate, and Rocky Mount. **Figure 2** displays RADAR's service area and **Table 3** displays the six current transportation services, including the service type, service area, number of routes, and span of service.

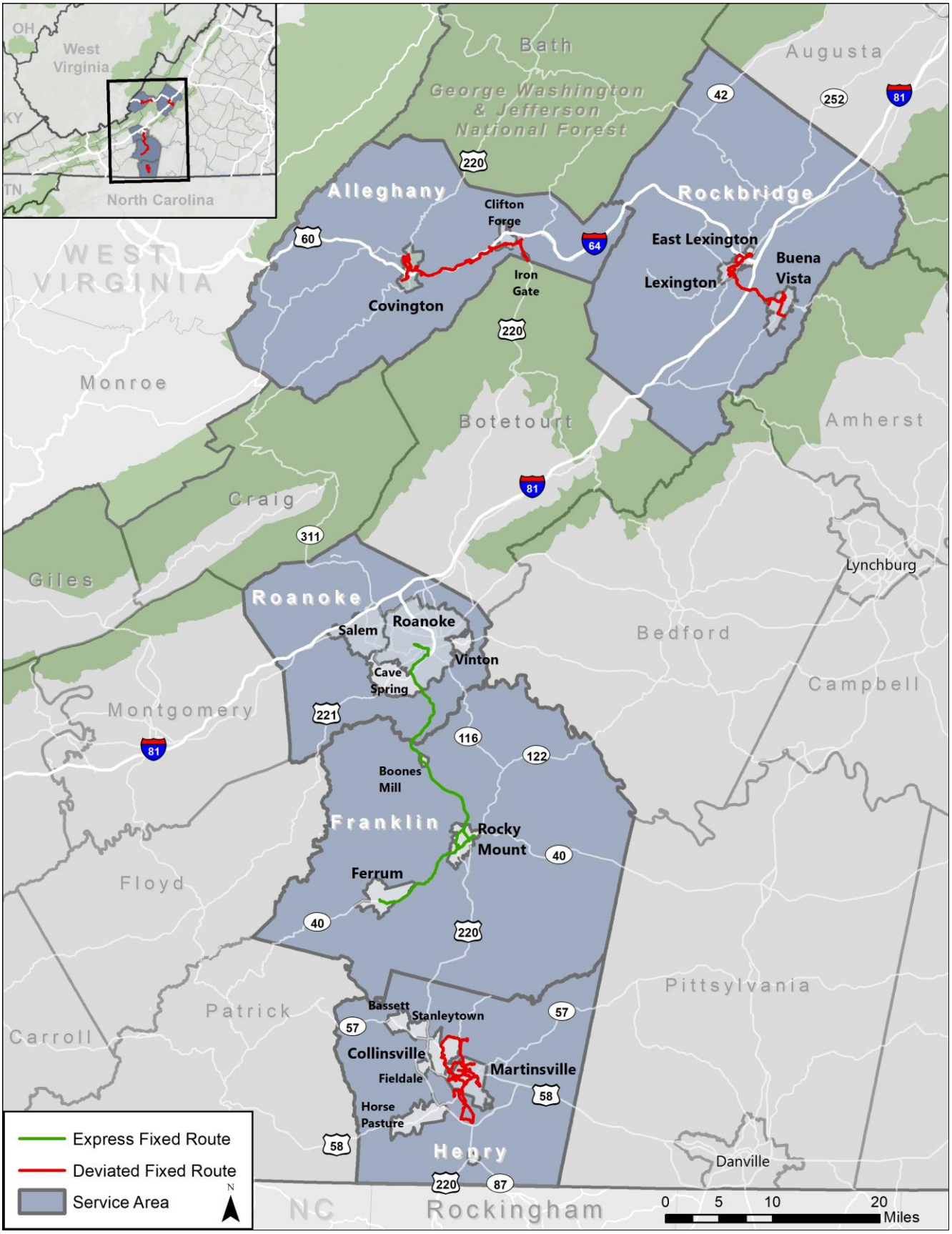
Table 3: RADAR Transit Services

Transportation Service		Service Type	Eligibility	Service Area	Route(s)	Span of Service		
						Day(s)	Times	Headway
Valley Metro STAR		Demand response	ADA certified – any age with disability	City of Roanoke Vinton, Salem	n/a	Weekdays, Saturday	5:45am–8:45pm	n/a
Mountain Express		Deviated Fixed route	General Public and ADA certified – any age with disability	Covington, Clifton Forge, Iron Gate, Alleghany County	1 (¾ mi. deviation if ADA certified)	Weekdays	8am–5pm	90 min.
Maury Express		Deviated Fixed route	General Public and ADA certified – any age with disability	Lexington, Buena Vista, Rockbridge County	1 (¾ mi. deviation if ADA certified)	Weekdays	8am–6pm	60 min.
						Saturday	10am-4pm	
PART	North	Deviated Fixed route	General Public and ADA certified – any age with disability	Henry County, City of Martinsville	3 (¾ mi. deviation if ADA certified)	Weekdays	7:30am–5:30pm	60 min.
	South							
	Martinsville							
Ferrum Express		Fixed-route Express	General Public	City of Roanoke, Rocky Mount, Roanoke County	2 (Fixed route)	Thursdays – Fridays	5pm–11pm	60 min.
						Saturday	1pm–11pm	120 min.

Source: RADAR

Previously, RADAR also provided CORTRAN on-demand service (County of Roanoke Transportation) until January 2021 for the County of Roanoke, the Cities of Roanoke and Salem, and the Town of Vinton; this service is now provided by Via.

Figure 2: RADAR Basemap



1.7 RADAR Transit Services

The Mountain Express

Mountain Express operates one deviated fixed route within Alleghany County, the City of Covington, and the Towns of Clifton Forge and Iron Gate (see **Figure 3**). Service operates Monday through Friday 8:00 a.m. and 5:00 p.m. on 90-minute headways. ADA certified passengers may request the van to deviate from its route to make pickups and drop offs. The distance may not exceed a ¾-mile radius off the route.

Maury Express

Maury Express operates two deviated fixed routes within Rockbridge County, providing service to Lexington and Buena Vista (see **Figure 4**). Service operates on weekdays 8:00 a.m. to 6:00 p.m. and Saturdays 10:00 a.m. to 4:00 p.m. Service operates on 60-minute headways. ADA certified passengers may request the van to deviate from its route to make pickups and drop offs. The distance may not exceed a ¾-mile radius off the route.

Piedmont Area Regional Transport (PART)

PART operates three deviated fixed routes – the Northern County/Collinsville Route (see **Figure 5**), the Martinsville Route (see **Figure 6**), and the Southern County Route (see **Figure 7**). All three routes operate Monday through Friday 7:30 a.m. to 5:30 p.m. on 60-minute headways. Service is provided year-round and only on days when Martinsville schools are in session. ADA certified passengers may request the van to deviate from its route to make pickups and drop offs. The distance may not exceed a ¾-mile radius off the route. PART is currently operating fare-free.

Ferrum Express

RADAR operates a “College Express” fixed route – the Ferrum Express (see **Figure 8**). The Ferrum Express operates Thursday and Friday 5:00 p.m. to 11:00 p.m. between Ferrum College and Rocky Mount, and Saturday 1:00 p.m. to 11:00 p.m. between Ferrum College and Roanoke via Rocky Mount. The Ferrum Express operates within the City of Roanoke, Roanoke County, and Franklin County. The Ferrum Express is currently operating fare-free.

Valley Metro Star

STAR (Specialized Transit Arranged Rides) is a demand-response service (see **Figure 9**) that is managed by Valley Metro (the public transportation provider for the Roanoke Valley) and operated by RADAR within the City of Roanoke, the City of Salem, the Town of Vinton, and within a ¾-mile radius of the fixed routes, a small portion of Roanoke County (see **Figure 10**). Service operates Monday through Saturday 5:45 a.m. to 8:45 p.m. The last scheduled pick-up time is 8:15 p.m. ADA approved passengers are required to reserve a trip 24 hours in advance. Potential customers living in the City of Roanoke, Vinton or Salem can fill out an application on the RADAR website or contact Valley Metro to request an application for the STAR program to be mailed to them.

Figure 3: Mountain Express Service Area

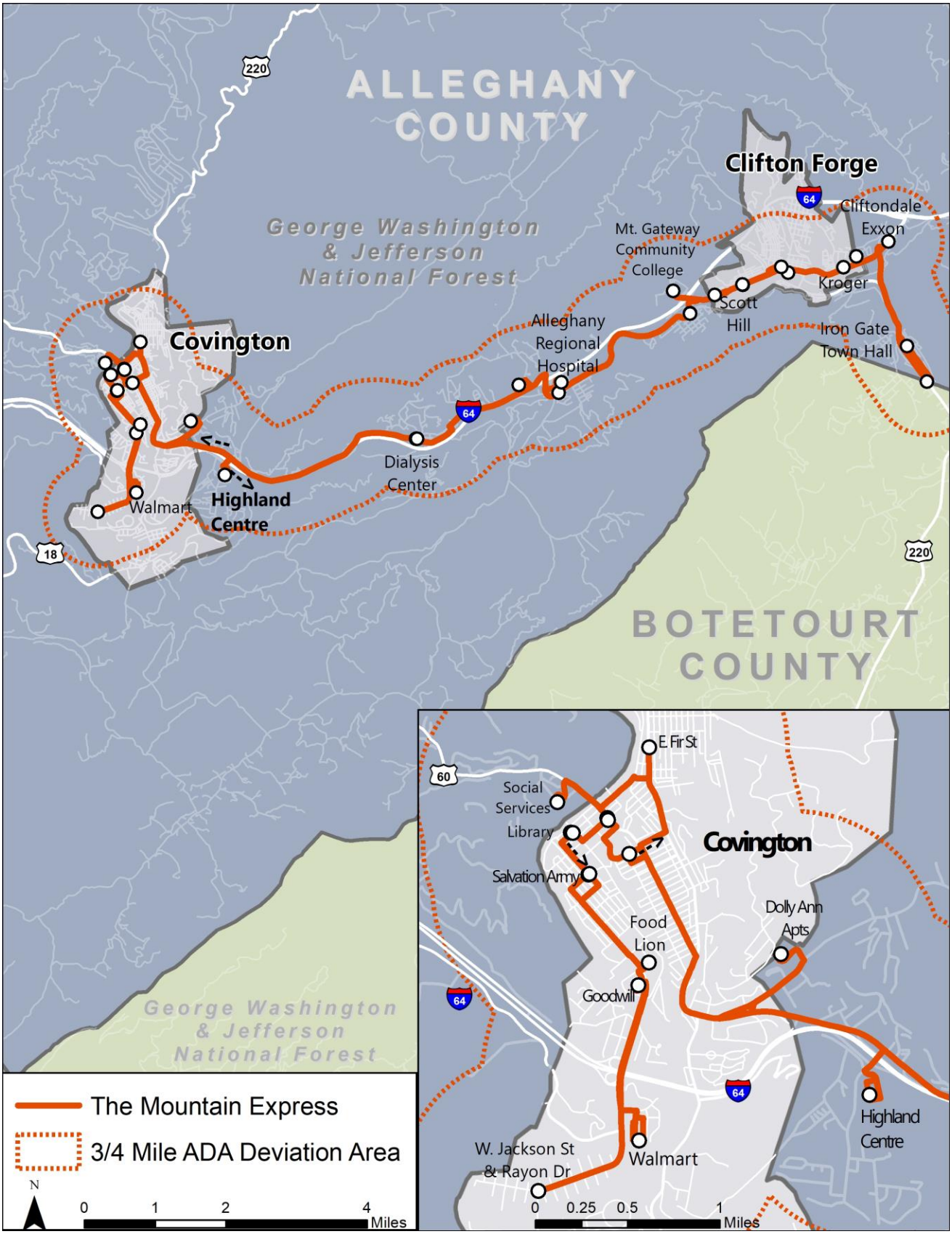


Figure 4: Maury Express Service Area – Lexington / Buena Vista Route

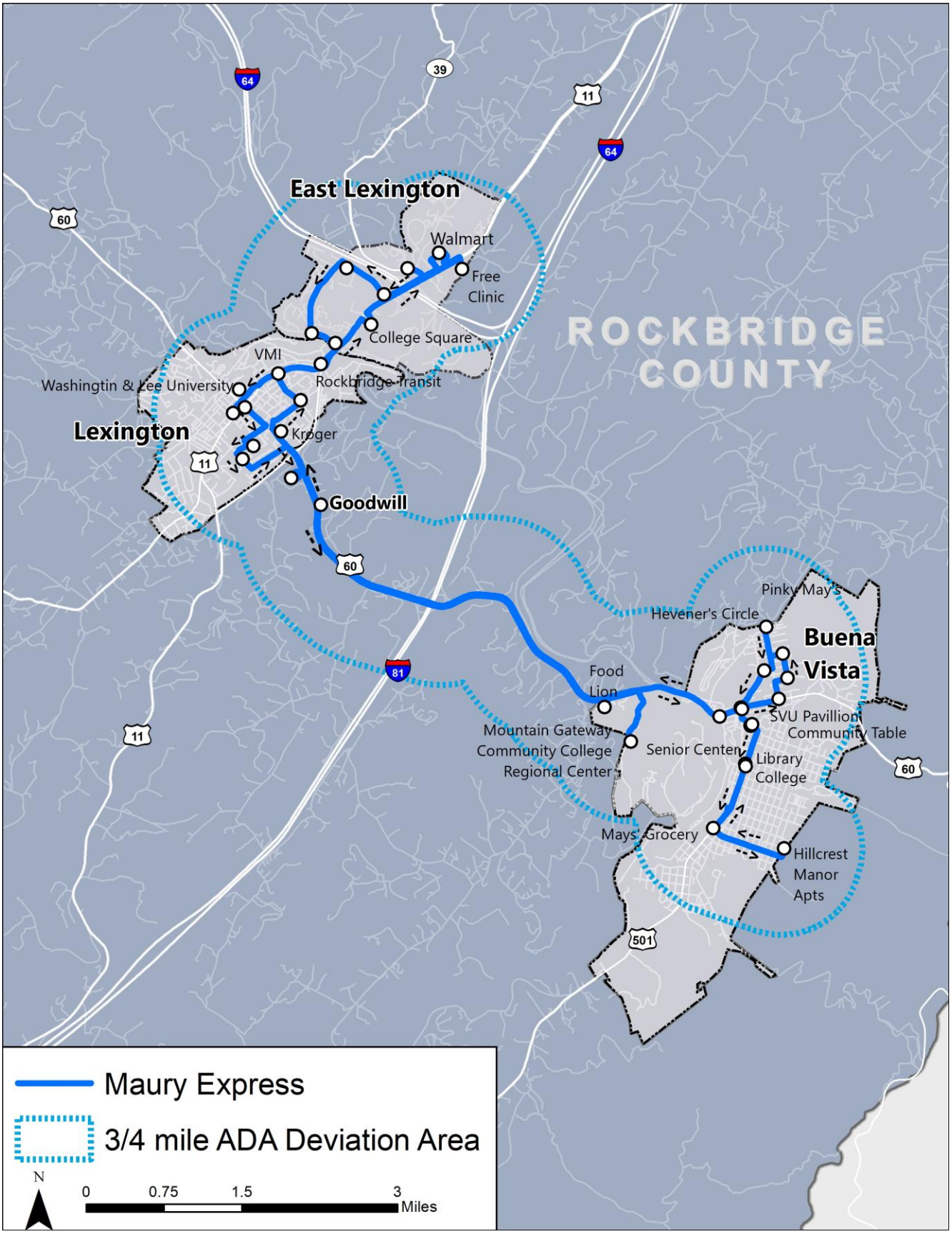


Figure 5: PART – Northern County / Collinsville Route

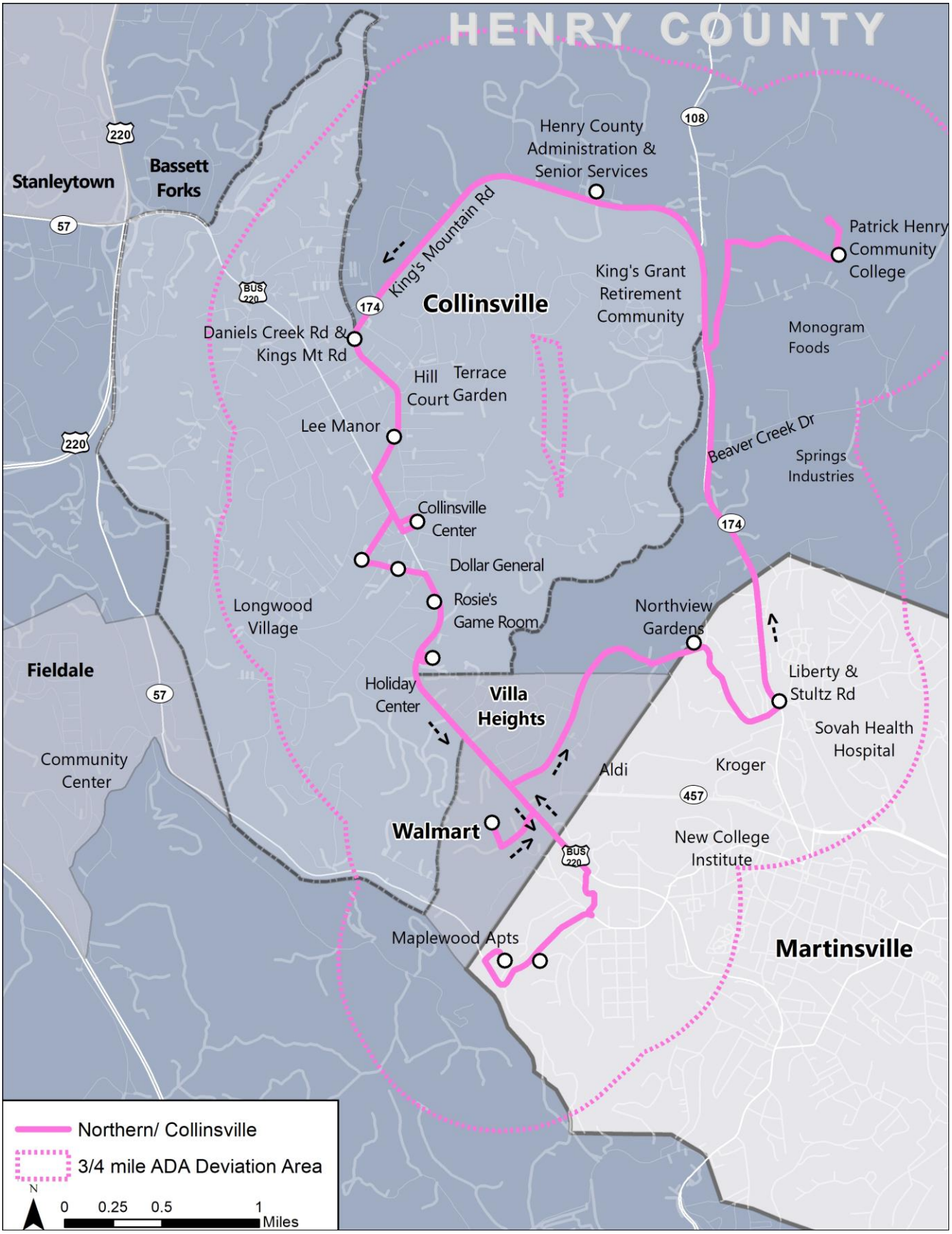


Figure 6: PART – Martinsville Route

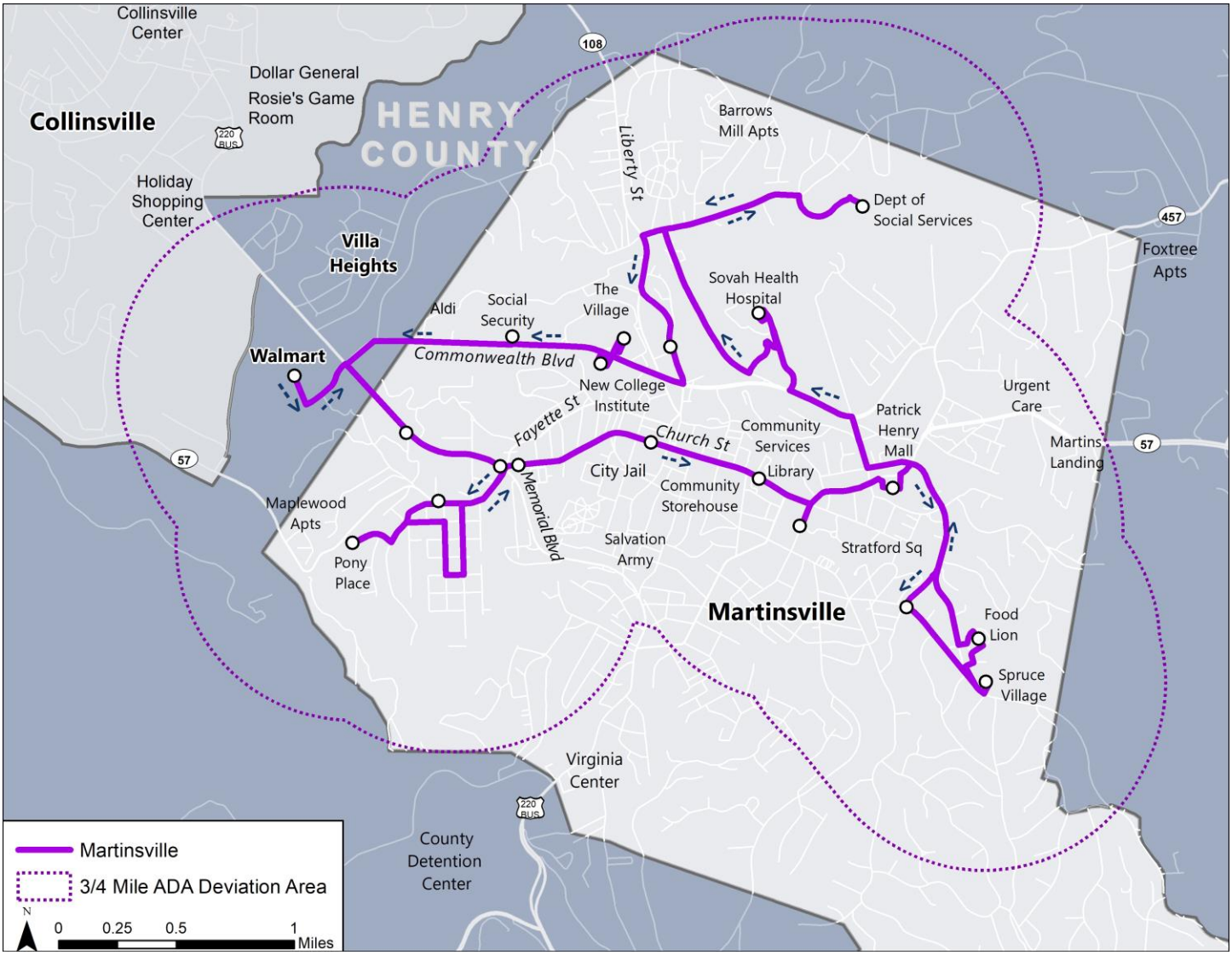


Figure 7: PART – Southern County Route

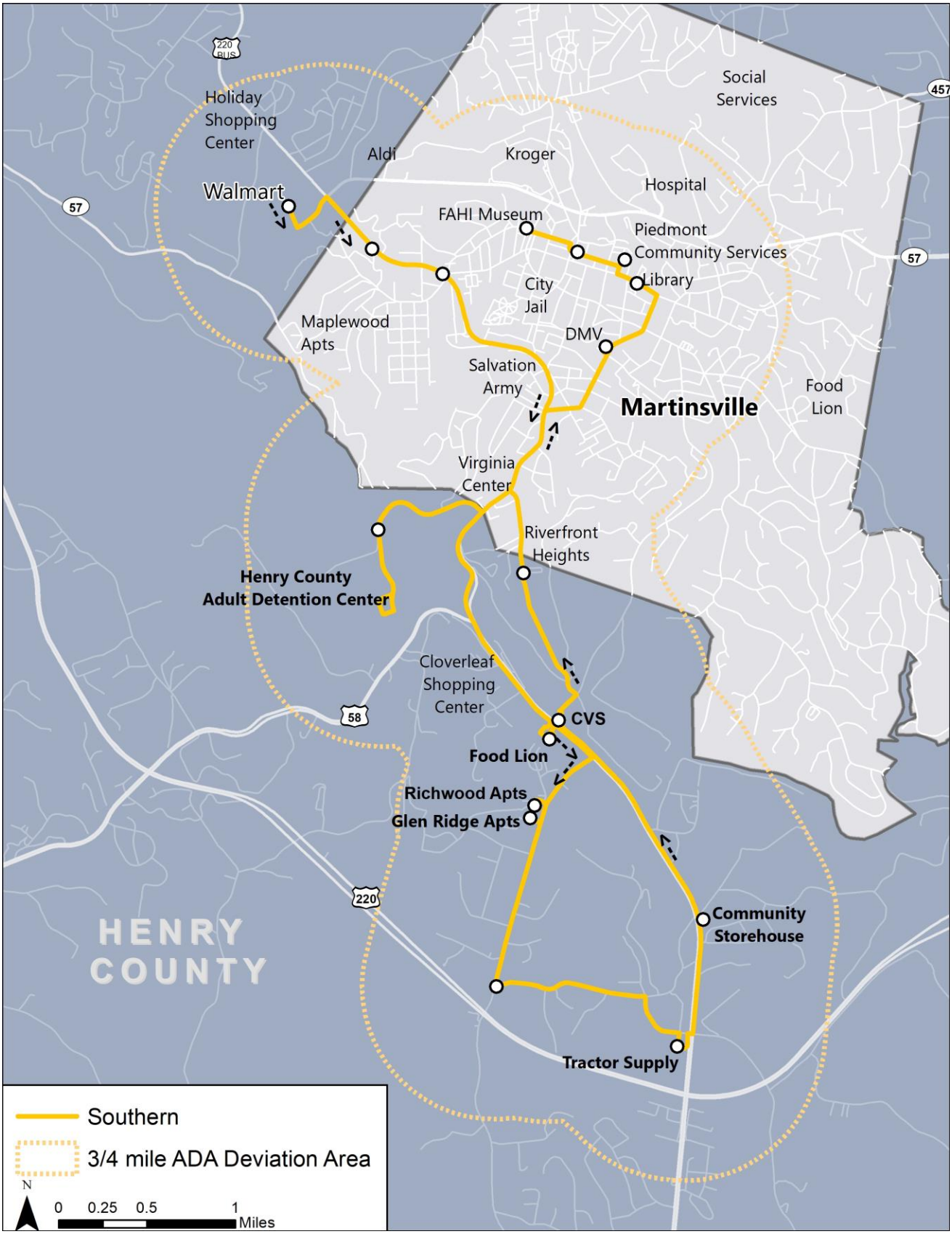


Figure 8: Ferrum Express

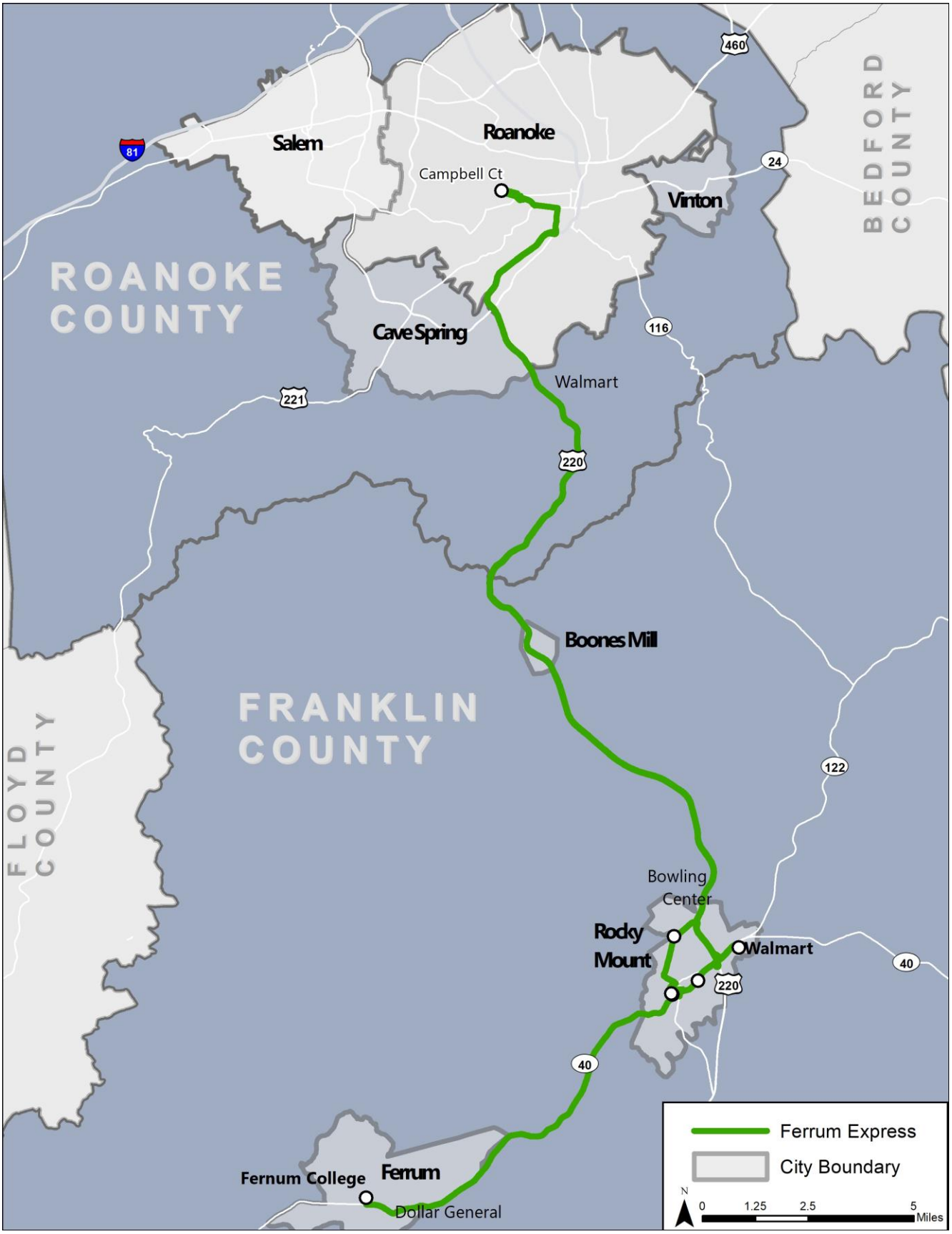


Figure 9: RADAR ADA Paratransit Service Area

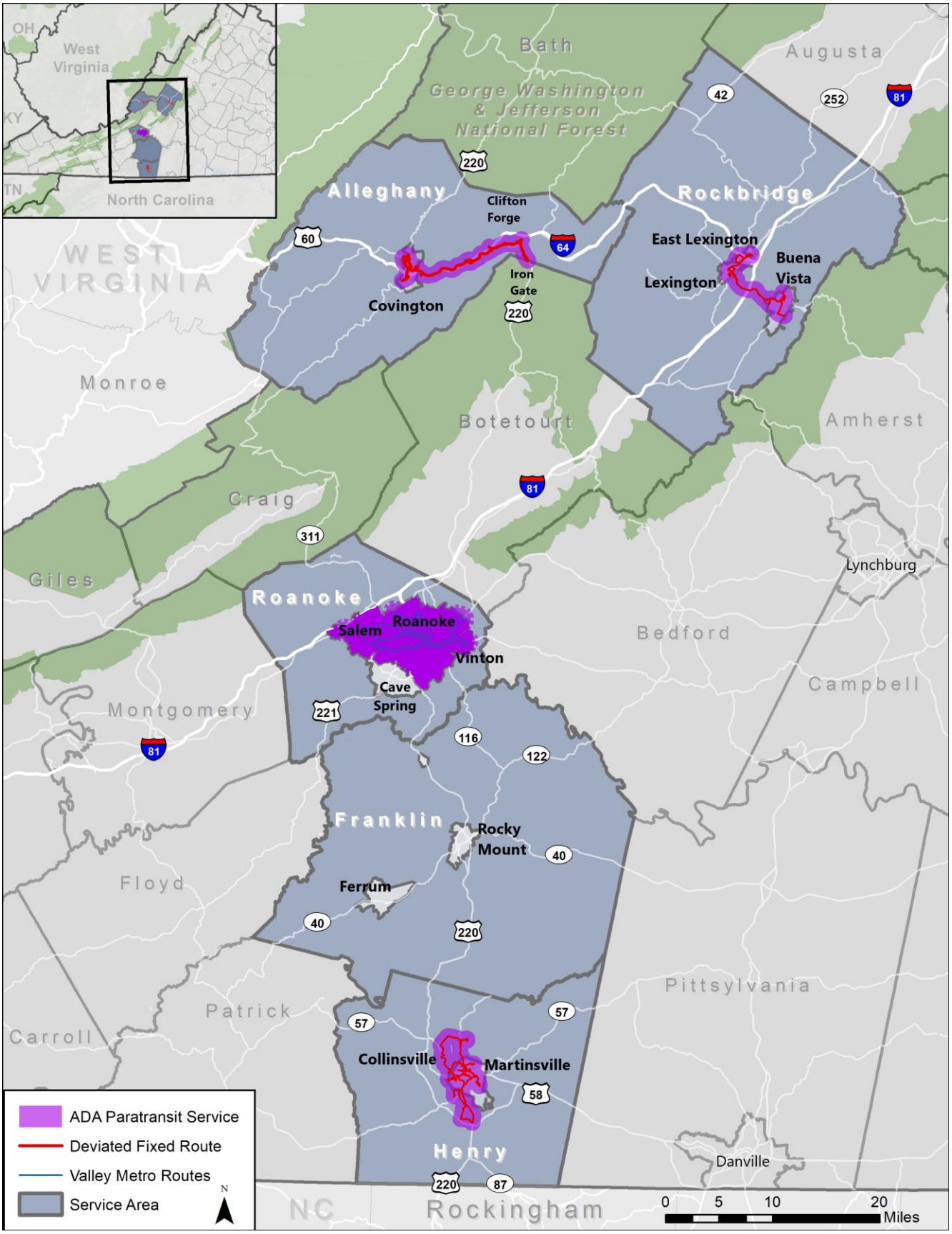
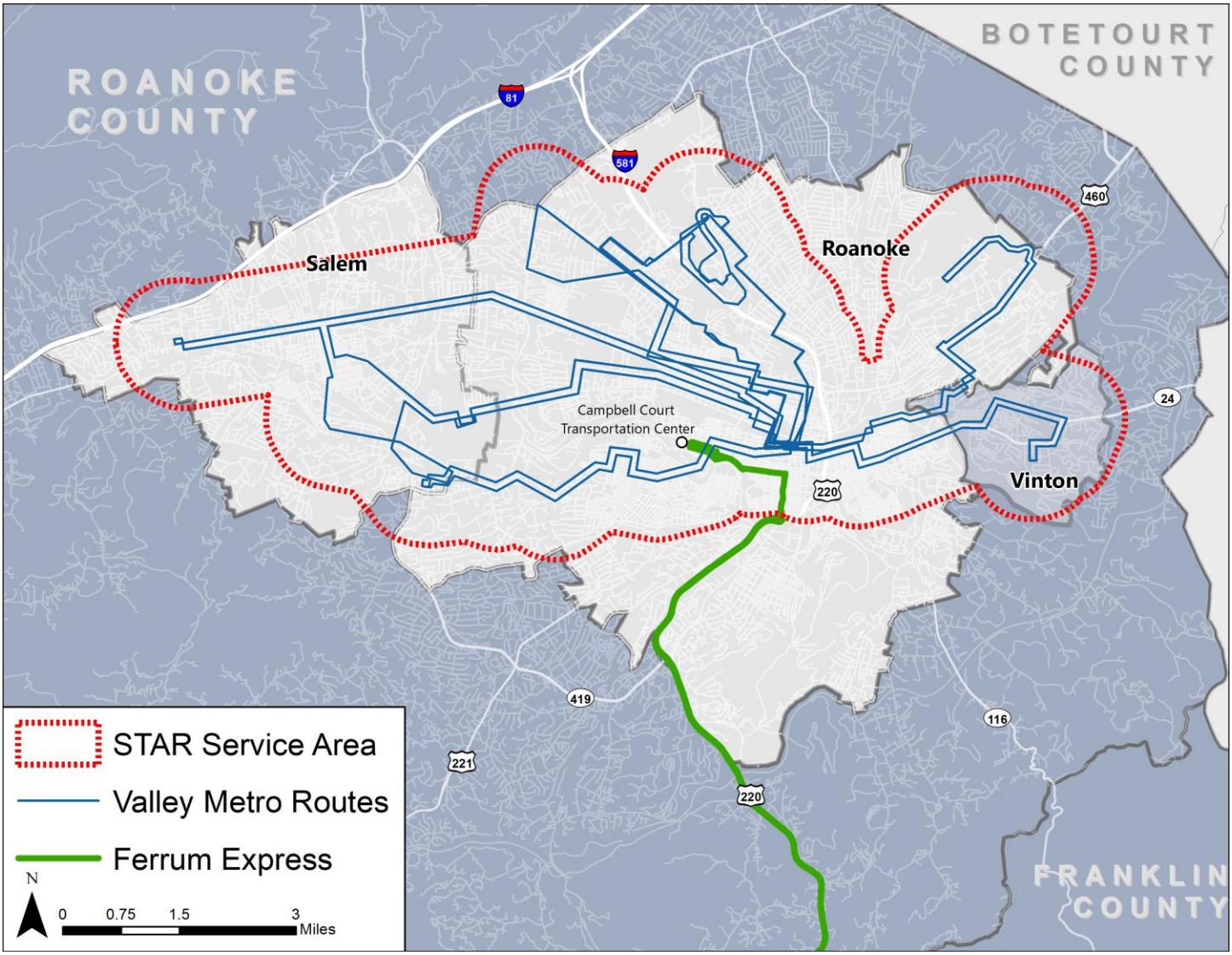


Figure 10: Valley Metro STAR Service Area



1.8 Fare Structure

Table 4 outlines fares that vary depending on the service. Riders paying in cash must have the exact fare for all services. During 2020, all PART services and the Ferrum Express became fare-free.

Table 4: RADAR Fare Structure

Transportation Service		Adults	Seniors & Medicare Card Holders	Students	Children
Valley Metro STAR		One-way trip: $3.50 (Cash only)	One-way trip: $3.50 (Cash only)	n/a	Under 6 free
		Unlimited Monthly Pass: $96		n/a	n/a
Mountain Express		$1.00	n/a	$1.00	Under 6 free
Maury Express		$0.50	n/a	Free	Under 6 free
PART	North County	*Free*			
	South County				
	Martinsville				
Ferrum Express					

Source: RADAR

1.9 Fleet

RADAR currently owns its entire fleet of 65 vehicles. This is a twelve vehicle increase from 2018. The fleet contains 60 cutaways, three vans and two minivans. **Table 5** identifies the VIN, vehicle type, status, current mileage and current condition and year of manufacture. The average age for RADAR's fleet is 6.5 years. For the current conditions category, note that anything below 2.5 is stated by the FTA as needing a replacement. Vehicles between 4.75-5 are in excellent shape, 3.95-4.74 are in good shape, 2.95-3.94 are in adequate shape, 1.95-2.94 are in marginal shape and >.94 is said to be in poor shape. The current condition, status and mileage are as of January 16, 2024. Among the cutaway vehicles, 51 are currently in service and the Americans with Disabilities Act of 1990 (ADA) compliant; eight vehicles are currently out of service and the remaining one is reserved as a spare vehicle. All three passenger vans and two minivans are also active. Appendix A contains the complete listing of RADAR's vehicles with more detailed information on cost and model types. RADAR also owns a non-revenue vehicle (maintenance truck) that was purchased without any agency funds.

Table 5: Fleet Vehicle Inventory

VIN	Asset ID	Type	Current Status	Current Mileage	Current Condition	Year
1FDFE4FSXJDC21073	93	Cutaway	Out of Service	190,572	1.00	2018
1FDEE3FS3JDC37301	135	Cutaway	In Service	129,890	3.00	2018
1FDEE3FS5JDC37302	136	Cutaway	In Service	147,247	3.00	2018
1FDFE4FS1JDC28073	82	Cutaway	Out of Service	141,549	1.00	2018
1FD4E45S48DA81041	80	Cutaway	In Service	285,484	1.00	2008
1FDFE4FS7BDA39400	1134	Cutaway	In Service	252,639	1.00	2011

VIN	Asset ID	Type	Current Status	Current Mileage	Current Condition	Year
1GB6G5BG8D1176599	81	Cutaway	Out of Service	272,921	1.00	2013
1FDFE4FS3EDA60555	1425	Cutaway	In Service	154,743	1.50	2014
1FDFE4FS6EDA60534	1440	Cutaway	In Service	197,918	1.00	2014
1FDFE4FS9EDA60544	1444	Cutaway	In Service	195,460	2.00	2014
1FDFE4FS7EDA05929	1446	Cutaway	Out of Service	200,725	1.00	2014
1FDFE4FS5EDA05931	1403	Cutaway	In Service	235,796	1.50	2014
1FDFE4FS8FDA14477	1504	Cutaway	In Service	228,076	1.00	2015
1FDFE4FS7FDA28032	1508	Cutaway	Out of Service	118,355	1.00	2015
1FDFE4FS4FDA14475	1511	Cutaway	In Service	153,913	2.00	2015
1FDFE4FS6FDA14476	1536	Cutaway	In Service	168,913	4.50	2015
1FDFE4FS9EDB18720	1437	Cutaway	In Service	161,146	1.00	2014
1FDFE4FS8FDA14480	1547	Cutaway	Out of Service	170,323	1.00	2015
1FDFE4FS3EDB18728	1455	Cutaway	In Service	209,945	1.00	2014
1FDFE4FS8EDA83720	71	Cutaway	In Service	217,774	2.50	2014
1FDEE3FS0HDC51473	1743	Cutaway	In Service	147,517	2.00	2017
1FDEE3FS9HDC51472	1707	Cutaway	In Service	118,514	3.40	2017
1FDFE4FS5HDC51513	1782	Cutaway	In Service	153,599	2.00	2017
1FDFE4FS2HDC51498	1778	Cutaway	In Service	103,980	3.00	2017
1FDFE4FS7HDC51500	1779	Cutaway	In Service	194,601	1.50	2017
1FDFE4FS0HDC51516	1781	Cutaway	In Service	144,948	1.50	2017
1FDFE4FS3HDC51512	1780	Cutaway	In Service	172,015	1.50	2017
1FDFE4FS5HDC20858	72	Cutaway	In Service	277,571	1.00	2017
1FDEE3FS7HDC51471	1712	Cutaway	In Service	170,719	2.00	2017
1FDEE3FS1HDC22371	1749	Cutaway	Out of Service	127,943	1.00	2017
1FDEE3FS3HDC22372	1750	Cutaway	In Service	186,614	1.75	2017
1FDEE3FS5HDC22373	1754	Cutaway	In Service	152,255	1.75	2017
1FDFE4FS0GDC46458	92	Cutaway	Out of Service	190,099	1.00	2016
1FDFE4FS4GDC49265	1610	Cutaway	In Service	174,354	1.00	2016
1FDFE4FS0GDC49263	1615	Cutaway	In Service	165,554	1.00	2016
1FDFE4FS8GDC49270	1659	Cutaway	In Service	178,452	1.00	2016
1GB6G5BG8C1182787	1223	Cutaway	Spare	179,434	1.00	2012
1FDFE4FS6HDC78901	133	Cutaway	In Service	196,469	1.00	2018
2C7WDGBG1HR828712	134	Minivan	In Service	70,107	3.50	2017
1FDFE4FS6JDC41627	83	Cutaway	In Service	182,987	1.00	2019
2c7wdgbg8kr664821	137	Minivan	In Service	17,910	4.75	2019
1FDFE4FSXKDC18398	73	Cutaway	In Service	199,785	1.00	2019
1FDFE4FS6KDC18463	74	Cutaway	In Service	195,000	1.00	2019
1FDFE4FS0KDC29961	142	Cutaway	In Service	146,860	2.00	2019
1FDFE4FS5KDC27915	143	Cutaway	In Service	156,745	3.00	2019
1FDFE4FS7KDC27916	144	Cutaway	In Service	170,323	3.00	2019

VIN	Asset ID	Type	Current Status	Current Mileage	Current Condition	Year
1FDFE4FS9KDC27917	145	Cutaway	In Service	146,819	2.50	2019
1FDFE4FS3KDC52800	146	Cutaway	In Service	153,667	2.50	2019
1FDFE4FS5KDC52801	147	Cutaway	In Service	155,456	3.00	2019
1FDFE4FN0MDC17709	94	Cutaway	In Service	100,953	3.50	2021
1FDFE4FN9MDC17711	95	Cutaway	In Service	94,694	3.50	2021
1FDFE4FN4MDC20743	148	Cutaway	In Service	69,287	4.00	2021
1FTBW1X80LKA79266	149	Van	In Service	54,830	4.00	2020
1FDFE4FN7MDC17707	150	Cutaway	In Service	96,466	2.75	2021
1FTBW1X81LKB61877	151	Van	In Service	45,429	4.75	2020
1FTBW1X83LKB61878	152	Van	In Service	43,378	4.75	2020
1FDEE3FN3NDC06890	153	Cutaway	In Service	50,656	4.75	2022
1FDEE3FN4NDC08227	154	Cutaway	In Service	54,032	4.75	2022
1FDEE3FN5NDC06891	155	Cutaway	In Service	49,146	4.75	2022
1FDEE3FN7NDC06889	156	Cutaway	In Service	49,146	4.75	2022
1FTBW1X84MKA75576	157	Cutaway	In Service	29,895	4.75	2021
1FTBW1X86MKA75577	158	Cutaway	In Service	17,463	5.00	2021
1FDFE4FN3RDD23367	159	Cutaway	In Service	776	5.00	2024
1FDFE4FN2RDD30214	160	Cutaway	In Service	3,021	5.00	2024
1GB6G5BG2D1174802	1372	Cutaway	In Service	78,643	2.5	2013

Source: RADAR

1.10 Existing Facilities

RADAR's administrative offices and maintenance facility is located at 2762 Shenandoah Avenue, NW, Roanoke, Virginia, 24017. This over 15,000 sf facility was built on a 3.31-acre site in 2004. The facilities include offices for administrative staff, a lounge area and locker area for RADAR's bus operations staff; a conference room and training room; and a bus maintenance area consisting of four repair bays and one bus wash bay. Bus fueling is done off-site. In February 2024, the facility underwent a State of Good Repair (SGR) assessment. The facilities were all determined to be in good states of repair due to the recent construction and proper maintenance. The administrative/maintenance building and the overall site was deemed in excellent shape. RADAR does not own any passenger facilities such as bus stations, bus stops, or right-of-way.

1.11 Transit Security Program

RADAR's Transit Security Program is committed to ensuring the safety and security of its riders and bus operations, including the drivers. To enhance security, RADAR has equipped all vehicles with advanced camera systems, providing continuous monitoring and recording of onboard activities. This helps in maintaining a safe environment for passengers and staff. Additionally, RADAR conducts comprehensive training for new hires and offers periodic refresher courses to ensure all personnel are well-prepared to handle security and safety concerns effectively. In response to health and safety needs, RADAR has installed plexiglass sneeze guards on all vehicles and provides masks, mess kits, and first aid kits to further

protect both passengers and drivers. These measures collectively reinforce RADAR's dedication to maintaining a secure and safe transit system.

1.12 Intelligent Transportation Systems (ITS) Program

RADAR currently utilizes RouteMatch for the scheduling of all demand-response and deviated fixed route demand trips throughout its service area. RouteMatch software includes computerized scheduling, route optimization, real-time vehicle tracking, and automated dispatching features. However, to enhance their operational efficiency, RADAR is in the process of procuring new automated scheduling software, expected to arrive in the summer 202. This new software aims to be more user-friendly and capable of supporting all service types, including the growing sectors of Micro Transit and partnerships like Modivcare. The new centralized software system is expected to be able to sync with the existing hardware onboard (tablet computers). These have the ability to supply schedules and manifests to operators in real time. Additionally, RADAR employs Fleet Maintenance Pro for fleet management and TransAm for providing vehicle inventory data to the state.

1.13 Data Collection/Fare Collection Process

RADAR collects data both manually and electronically. Each day drivers are given a Driver's Summary Sheet and Manifest created from RouteMatch. Drivers enter passenger trips, revenue hours, and revenue miles into tablets that are located onboard vehicles. At the end of each driver's run, a Driver's Summary Sheet and Manifest are given to dispatch and verified the next day. Once the information is verified, passenger trips, revenue hours, and revenue miles are recorded. This information is recorded daily and monthly. Once the totals are verified back to the source document, RADAR records the data into OLGA.

1.14 Public Outreach

RADAR is actively working to improve its public outreach efforts to better connect with the community and gather valuable feedback. As part of this commitment, this Transit Development Plan has already facilitated improvements in outreach by incorporating both a customer survey and a driver survey. These surveys allowed RADAR to collect direct feedback from customers while also gaining insights from drivers, who provided a unique perspective on customer needs and service quality. This dual approach ensures that RADAR can address areas for improvement and enhance its services to meet the evolving expectations of riders, while also engaging the community more effectively.

1.15 Coordination with Other Transportation Providers

Public Transportation

VALLEY METRO

Valley Metro provides the following fixed route public transportation services throughout the Roanoke Valley region.

Fixed Routes

Valley Metro operates 33 fixed routes (increased from 25 in the last Valley Metro TDP) throughout the Cities of Roanoke and Salem, and the Town of Vinton. Service operates Monday and Saturday. All routes serve the Campbell Court

Transportation Center, which serves as the region's intermodal bus station. Each route has one end point at Campbell Court and the other end point at another location. At 5:45 a.m. buses begin service at their end point and converge towards Campbell Court. Valley Metro fixed route service operates Monday through Saturday.

CORTRAN

Valley Metro administers CORTRAN (County of Roanoke Transportation) rideshare service in partnership with Via (with a limited number of rides), covering the areas of Roanoke County, the Cities of Roanoke and Salem, and the Town on Vinton for eligible Roanoke County residents who are at least 65 years old, or who have a disability. Each one-way trip costs $5.00. The service provided is origin to destination; CORTRAN is not an emergency transportation service. CORTRAN operates Monday through Friday, 7:00 a.m. to 6:00 p.m. This service began in January 2021. Customers may schedule and track rides on the CORTRAN app.

Smart Way Bus and Smart Way Express

The Smart Way Bus is a regional bus service operated by Valley Metro that links the Roanoke Valley to the New River Valley. Smart Way Bus service starts at Campbell Court in Downtown Roanoke and ends at Virginia Tech Squires Student Center.

Star Line Trolley

Valley Metro operates the Star Line Trolley, which connects Downtown Roanoke with the Carilion Roanoke Memorial Hospital via Jefferson Street. The Star Line Trolley operates Monday through Friday, 7:00 a.m. to 7:00 p.m. providing service every 15 minutes. Service is provided every 10 minutes from 10:00 a.m. to 2:00 p.m.

INTERCITY RAIL

The Amtrak station is in downtown Roanoke at 55 Norfolk Avenue SW. One daily roundtrip is offered between Roanoke and Lynchburg (one train departing in the morning and one returning in the afternoon). From Lynchburg, customers can continue northeast to Washington, DC or south towards North/South Carolina or Atlanta, Georgia.

INTERCITY BUS

Virginia Breeze

Intercity bus service is available at Martinsville via the Virginia Breeze Capital Connector line. Martinsville is the first stop on the Capital Connector, with stops including Danville, South Boston, Farmville, Richmond and Washington, D.C. One northbound and one southbound trip is offered every day except in severe weather and other extenuating circumstances. The Capital Connector departs northbound from Martinsville at 6:45 am and arrives southbound at 7:25pm at the Village Shopping Center.

Source: DPRT Virginia Breeze Fact Sheet 2021

BIKE SHARE

Zagster bikeshare program was launched in 2017 in partnership with RIDE Solutions, the City of Roanoke, and Carilion Clinic. This program allows residents and visitors to rent bikes from various stations across the city. The service offers flexible rental options, including hourly rates and annual memberships.

Bikes can be rented using the Zagster mobile app, which facilitates easy access and management of bike rentals. Stations are strategically located at key points, including downtown Roanoke, Grandin Village, Roanoke Memorial Hospital, and several other locations to ensure wide coverage and convenience for users.

OTHER PUBLIC AND SPECIALIZED TRANSIT

Ride Source

Ride Source, forms strategic partnerships with localities, non-profits, businesses, and universities to offer a range of transportation solutions, including fixed routes, corporate event transportation, and custom shuttle packages. They focus on areas lacking sufficient transportation services, aiming to fill gaps and provide essential transit options. While RADAR focuses on providing essential transit services and specialized transportation primarily within the Roanoke Valley, Ride Source extends its services to cover broader transportation needs through partnerships and flexible service offerings. This collaborative approach helps ensure comprehensive transit coverage in the region, addressing both general and specialized transportation needs.

Abbott Trailways

Abbot Trailways, a family-owned and operated motorcoach service based in Roanoke, VA, provides a variety of transportation services including day trips, extended excursions, and custom shuttle packages. While it mainly focuses on charter and tour

services, Abbot Trailways also partners with other transportation organizations such as RADAR to enhance regional transit offerings.

Rockbridge Area Transit Service (RATS)

RATS primarily offers door-to-door transportation services for residents of Rockbridge County, focusing on safe, affordable rides with an emphasis on accommodating individuals with mobility needs. Their fleet includes wheelchair-accessible vans, and they keep fares low through grants and donations from the community. RADAR's current demand response service is only geared towards ADA eligible customers (S.T.A.R). This leaves a service gap for regular customers seeking door-to-door commutes. To address this need, RATS provides on-demand transportation services to residents of the Rockbridge area, significantly enhancing mobility and accessibility for the entire community.

Modivcare

Starting in 2023, Modivcare partnered with RADAR to provide non-emergency medical transportation services. This collaboration is aimed at ensuring that Medicaid beneficiaries and other eligible individuals have reliable access to medical appointments and essential healthcare services. Modivcare coordinates the scheduling and management of these transportation services, while RADAR, leveraging its extensive experience in the Roanoke area, operates the actual transit vehicles. This partnership helps to enhance the accessibility and efficiency of medical transportation for residents who require these services.

Partnerships/Major Customers

INNOVAGE

InnovAge, through its Program of All-Inclusive Care for the Elderly (PACE), collaborates with RADAR to provide comprehensive transportation services for seniors in the Roanoke Valley. InnovAge PACE focuses on delivering healthcare and social services to older adults, allowing them to remain independent and live in their communities rather than moving to nursing facilities. RADAR supports this mission by offering specialized transportation services that ensure PACE participants can access medical appointments, social activities, and other necessary services. This partnership leverages RADAR's extensive experience in providing rural public transit and specialized transit services to enhance the overall care and mobility of InnovAge PACE participants in the region.

LOCAL OFFICE ON AGING

RADAR collaborates closely with the Local Office on Aging (LOA) to provide vital transportation services for seniors. This partnership ensures that older adults, especially those with low incomes or who face mobility challenges, have access to essential transportation for medical appointments, pharmacy visits, grocery shopping, and other critical needs. The transportation services provided by RADAR for LOA include both regular and assisted transportation options, where a Certified Nursing Assistant (CNA) accompanies seniors to and from their appointments, ensuring their safety and well-being throughout the journey.

OTHER MAJOR CUSTOMERS

RADAR provides essential transportation services to several key organizations in the Roanoke area, including Roanoke Memorial Hospital, Lewis-Gale Hospital Salem, and Total Action for Progress (TAP). These institutions rely on RADAR to ensure that patients, staff, and clients have dependable transportation for medical appointments and access to essential services that will help constituents achieve economic and personal independence. Major retail destinations like Walmart and Carilion Riverside also benefit from RADAR services, which help connect employees and customers to these locations.

Additionally, RADAR serves Adult Day Centers in Roanoke and Salem, Friendship Industries, and various local adult and rehabilitation facilities. These services are crucial for providing individuals with disabilities, seniors, and those in rehabilitation with reliable transit options, ensuring they can access vital health care, social services, and community activities. RADAR's role in supporting these organizations underscores its importance in maintaining the mobility and well-being of the community's most vulnerable populations.

CHAPTER 2. GOALS, OBJECTIVES, AND SERVICE DESIGN STANDARDS

2.1 RADAR Mission And Vision

RADAR's mission is to ensure that every resident in the greater Roanoke area has access to public, specialized, and coordinated transportation that is safe, dependable, and cost-effective. Their vision is to become the leading transit provider by prioritizing safety, courtesy, quality, responsiveness, efficiency, and innovation. These guiding principles form the foundation for RADAR's strategic direction, shaping its commitment to enhancing mobility and quality of life for all community members.

In alignment with the Virginia Department of Rail and Public Transportation (DRPT) guidelines for Transit Development Plans (TDPs), RADAR has developed a comprehensive set of goals and objectives for the next five years. These goals are strategically crafted to further the agency's mission and vision by addressing key areas such as service expansion, customer satisfaction, operational efficiency, and technological innovation. By adhering to DRPT's framework, RADAR ensures that its TDP supports both state and local transit priorities, facilitating continuous improvement and long-term sustainability.

2.2 RADAR Goals and Objectives

Goal 1: Provide efficient and effective public transportation services that support the mobility and economic development goals of the community served.

Objective 1.1: *Identify performance metrics to measure performance and establish targets.*

RADAR aims to enhance the efficiency and effectiveness of its public transportation services by establishing key performance metrics. Over the next year, the agency will identify a suite of metrics, including On-Time Performance (OTP), Mean Distance Between Failures (MDBF), customer complaints, and accident rates. These metrics will be reported monthly and used to monitor service performance, setting targets to ensure continuous improvement. By tracking these indicators consistently, RADAR will be better equipped to make informed decisions and implement necessary adjustments, ultimately aligning with the agency's mission to provide safe, dependable, and cost-effective transportation.

Objective 1.2: *Consider replacing services that do not meet performance metric targets with alternative service options (e.g., microtransit, on-demand service).*

In pursuit of optimizing services, RADAR will conduct a microtransit and on-demand service assessment over the next 2.5 years. This assessment will identify areas where traditional services are not meeting performance targets, allowing RADAR to explore and implement alternative service options such as microtransit and on-demand services. These alternatives can offer greater flexibility and efficiency, particularly in areas with lower demand or where traditional routes are underperforming. The results of this assessment will guide the agency in reallocating resources to more efficient service models, ensuring that RADAR continues to meet the evolving needs of the community.

Objective 1.3: *Expand service to meet the demand in underserved areas.*

Recognizing the importance of equitable service distribution, RADAR is committed to expanding its services to better serve underserved areas. Over the next 2.5 years, the agency will complete a comprehensive transit demand assessment to identify areas with unmet transportation needs. This assessment will inform the development of new routes and the expansion of existing services, ensuring that all members of the community have access to reliable transportation options. By addressing gaps in service coverage, RADAR will support the mobility and economic development goals of the region, aligning with its vision of being a leading transit provider in the Greater Roanoke Valley.

Goal 2: Maintain current ridership base while seeking opportunities to increase ridership and serve new markets.

Objective 2.1: *Improve service frequency and availability.*

RADAR aims to enhance service frequency and availability over the next five years by expanding its fleet. This objective will be achieved through active pursuit of funding and grant opportunities that support fleet growth and service expansion every year. By securing additional resources, RADAR will be able to increase the number of vehicles in operation, thereby reducing wait times and improving overall service reliability. This initiative aligns with RADAR's commitment to maintaining a strong ridership base while meeting the growing demand for public transportation in the region. Progress towards this objective will be evaluated annually as the agency continues to apply for and secure necessary funding.

Objective 2.2: *Identify new popular pick-up and drop-off locations.*

To better serve existing and potential riders, RADAR will conduct a comprehensive customer survey over the next 2.5 years. The survey will help identify new popular pick-up and drop-off locations, ensuring that RADAR's services align with rider demand and preferences. By understanding where passengers need to go, RADAR can adjust routes and stop locations to maximize convenience and accessibility. This continuous feedback loop will allow the agency to adapt to changing travel patterns and maintain its position as a reliable transit provider. RADAR should aim to conduct this type of survey once every 2.5 years.

Objective 2.3: *Offer Incentives and Rewards Programs.*

RADAR recognizes the importance of rider retention and will implement new incentives and rewards programs over the next two years to encourage continued use of its services. These programs will include loyalty rewards and promotions aimed at both existing and new riders. By offering these incentives, RADAR hopes to strengthen its ridership base and attract new users. The success of these programs will be assessed annually, with adjustments made as needed to optimize their effectiveness and reach.

Objective 2.4: *Explore the demand for service to neighboring activity centers.*

RADAR will explore the potential demand for extending its services to neighboring activity centers, such as shopping malls, medical facilities, and recreational areas. Each year, RADAR will identify at least one new activity center that could benefit from expanded transit service, ensuring that the agency stays ahead of regional development and meets the needs of its riders.

Goal 3: Maintain strong relationships with area human service transportation providers and neighboring transit programs to maximize mobility options in the region.

Objective 3.1: *Develop transportation contracts with human services providers.*

RADAR seeks to strengthen its partnerships with human service providers by developing transportation contracts that enhance mobility options for vulnerable populations. Over the next year, RADAR aims to sign at least one new contract annually with a partner program. This objective will be achieved through ongoing collaboration and communication with key stakeholders in the human services sector. By formalizing these partnerships, RADAR will ensure that its services remain aligned with the needs of the community, particularly those who rely on coordinated transportation to access essential services. The agency will review progress towards this goal on a quarterly basis, ensuring that new opportunities for collaboration are identified and pursued.

Objective 3.2: *Enhance connectivity by coordinating schedules and service areas with other transit providers in the area.*

To maximize regional mobility options, RADAR will work towards enhancing connectivity by coordinating its schedules and service areas with other transit providers in the region. Over the next year, the agency will conduct a thorough review of neighboring transit providers' schedules and service areas to identify opportunities for improved coordination. This effort will help reduce service overlaps, streamline operations, and make it easier for passengers to transfer between different transit systems. By fostering stronger partnerships with neighboring transit agencies, RADAR will improve the overall efficiency of the regional transit network and expand its service reach. This objective will be evaluated annually as RADAR reviews and refines its collaboration strategies with regional partners.

Objective 3.3: *Meet regularly with area human service agencies and other providers in the region.*

Recognizing the importance of regular communication with human service agencies and other providers in the region, RADAR will establish a quarterly meeting schedule to foster ongoing collaboration. These meetings will provide a platform for discussing shared challenges, identifying service gaps, and exploring new opportunities for partnership. By maintaining regular contact with these key stakeholders, RADAR will ensure that its services continue to meet the evolving needs of the community. This objective is focused on building and sustaining long-term relationships that enhance mobility options for all residents in the region. Progress will be reviewed quarterly, with the goal of maintaining strong, effective partnerships with all relevant organizations.

Goal 4: Strengthen and market a brand identity for RADAR's transit program.

Objective 4.1: *Develop messaging for stakeholders and the public to show the value of public transportation.*

RADAR aims to enhance public awareness and appreciation for its transit services by developing targeted messaging for stakeholders and the general public. Over the next three years, the goal is to increase public transportation usage by 15%. This objective will be achieved through comprehensive communication strategies that highlight the value of public transportation, focusing on its benefits such as cost savings, environmental impact, and community connectivity. By consistently delivering clear and compelling messages, RADAR will foster greater support and ridership from both current and potential users. Progress will be tracked monthly to ensure that the messaging strategy is effectively driving the desired outcomes.

Objective 4.2: *Identify and expand partnerships with local businesses and health organizations.*

To further strengthen its brand identity and expand its reach, RADAR plans to develop and enhance partnerships with local businesses and health organizations. These partnerships are crucial in promoting RADAR's services to a broader audience,

while also creating opportunities for mutually beneficial collaborations. The goal is to increase partnerships by 10% annually, with a focus on fostering long-term relationships that support community mobility. Quarterly reviews of partnership activities and progress will help RADAR identify new opportunities and ensure that these collaborations continue to grow and deliver value.

Objective 4.3: *Create a comprehensive communications and marketing plan.*

RADAR will develop a comprehensive communications and marketing plan that includes a wide range of platforms and channels such as social media, website, e-newsletters, local media, community outreach, and internal communications. This plan will be central to the agency's efforts to build a strong, recognizable brand identity that resonates with the community. By implementing consistent messaging across all channels, RADAR will improve its visibility, engage more effectively with stakeholders, and attract new riders. Monthly reviews of the plan's implementation will ensure that the agency stays on track with its marketing goals and makes any necessary adjustments to optimize outcomes.

Objective 4.4: *Strengthen ties with the community by increasing Public Outreach.*

RADAR is committed to strengthening its connection with the community by increasing public outreach efforts. This objective focuses on gathering valuable feedback from customers to identify unmet transit demands and areas where service improvements can be made. To achieve this, RADAR will host one public outreach event annually. These events will serve as a platform for engaging with riders, understanding their needs, and soliciting input on potential service enhancements.

Goal 5: Responsibly leverage federal and state funds with local funds and fare revenue to ensure the financial viability of the system.

Objective 5.1: *Do necessary due diligence, planning, and budgeting, seeking federal and state grants funding.*

RADAR is committed to ensuring its financial sustainability by actively seeking grant funding opportunities. Over the next year, RADAR will identify a dedicated staff member responsible for conducting due diligence, budgeting, and seeking funding through Federal Transit Administration and the Virginia Department of Rail and Public Transportation (DRPT) programs, and other potential sources. Annual assessments will be conducted to ensure that RADAR's grant-seeking efforts are both strategic and effective in securing the necessary funds to support operations and capital projects

Objective 5.2: *Develop and monitor a multi-year financial plan.*

To strengthen RADAR's financial stability, the agency will develop a comprehensive multi-year financial plan within the next year. This plan will outline long-term financial strategies, including anticipated revenues, expenditures, and funding sources. Quarterly monitoring of the plan will ensure that RADAR remains on track with its financial goals and can adjust as necessary to meet changing financial conditions. This proactive approach will enable RADAR to plan effectively for the future while maintaining financial health and service quality.

Objective 5.3: *Review the fare structure to ensure fares are both affordable for riders and economically sustainable for the system.*

Over the next year, RADAR will conduct a thorough review of its fare structure. The objective is to strike a balance between affordability for riders and economic viability for the system. This review will assess whether current fare levels meet the needs of both the agency and its passengers, considering factors such as operational costs, ridership trends, and equity. By

ensuring that fare policies are fair and sustainable, RADAR can continue to provide accessible transportation while maintaining the financial health of the agency. The fare structure will be reviewed annually to adapt to any necessary changes in the transit environment.

Objective 5.4: *Identify and explore strategies to secure new revenue sources, such as advertising and fundraising.*

In order to diversify and strengthen its revenue streams, RADAR will actively explore new revenue-generating strategies, such as expanding advertising space and launching fundraising initiatives. The goal is to increase advertising revenue by 25% annually through targeted campaigns that leverage RADAR's transit assets, such as its vehicles. Monthly monitoring of these efforts will ensure that RADAR continues to grow its non-fare revenue sources, reducing reliance on traditional funding streams and enhancing overall financial sustainability.

Goal 6: Strengthen infrastructure to maintain viability for the next decade. (IT, staffing, administration, revenue generation)

Objective 6.1: *Implement more efficient and cost-effective automated scheduling management software.*

RADAR aims to modernize its operational infrastructure by transitioning to a more efficient and cost-effective automated scheduling management software system over the next two years. This initiative is designed to streamline operations, reduce manual workloads, and enhance the overall efficiency of service scheduling. The transition will be measured by the successful purchase and implementation of the new software. This upgraded system will support RADAR in improving service reliability by helping monitor data that is currently unavailable or that the agency does not have the resources to collect. The agency is currently in the stage of soliciting proposals for a new Transit Schedule Software, implementation and deployment is expected for Q1 2025.

Objective 6.2: *Explore ability to report real time to provide a better customer experience and improve service reliability.*

To enhance the customer experience and improve service reliability, RADAR will explore and implement real-time reporting capabilities over the next three years. By making real-time scheduling and information available to customers, RADAR will enable passengers to access up-to-date service information, including bus arrival times and service delays. This objective will be measured by the successful purchase and implementation of the necessary software. The availability of real-time data will not only improve customer satisfaction by providing more accurate and timely information but also contribute to more efficient transit operations.

2.3 Service Design Standards

Although this section is called "service performance standards" per DRPT guidelines, these metrics act more like guidelines. While agencies are encouraged to strive towards these benchmarks, their funding and support from DRPT will not be contingent upon achieving these specific targets.

Currently, RADAR does not have established targets for service performance standards. In developing this Transit Development Plan (TDP), a comprehensive review of data from past fiscal years was conducted alongside an analysis of standards from peer agencies and best practices for fixed routes and deviated routes. The goal of this review was to identify appropriate targets and standards that best align with RADAR's unique operational needs and service goals.

It is recommended that these standards be reviewed annually or following any major service changes across the system. This ensures that the performance targets remain relevant and aligned with RADAR's evolving operational context. The primary purpose of these standards is to support RADAR in achieving its broader goals and objectives, particularly Objective 1.1: "Identify Performance Metrics to Measure Performance and Establish Targets." By doing so, RADAR will be better equipped to maintain high service quality and operational efficiency in line with its strategic vision.

Passenger Trips

RADAR's second goal is to maintain its current ridership while actively seeking opportunities to expand its customer base. Like many transit systems, RADAR experienced a significant decline in ridership during the pandemic, and the system is still working towards a full recovery. However, recent data from FY21 to FY23 shows promising growth, with overall ridership increasing by 58%. Based on this upward trend, RADAR should aim to return to its pre-pandemic ridership levels within the next two to three fiscal years. To achieve this, the system will need to increase its ridership by an additional 9%.

When examining ridership by service type, this target appears feasible, particularly for the PART service, which requires only a one percent increase to reach pre-pandemic levels. Once these goals are met, RADAR should focus on maintaining these ridership levels for the remainder of the fiscal years, ensuring the system remains stable while continuing to explore new avenues for growth.

Vehicle Preventive Maintenance

Adhering to preventive maintenance schedules is crucial for transit agencies to ensure the safety, reliability, and longevity of their fleet. Regular maintenance not only helps minimize unexpected breakdowns but also increases the mean distance between failures (MDBF), leading to more consistent and dependable service. Additionally, staying on top of maintenance reduces repair costs and ensures vehicles continue to perform at their best. By following these schedules, agencies also maintain compliance with federal and state regulations, which is essential for safeguarding passengers and delivering high-quality service.

Most of RADAR's fleet consists of cutaway vehicles, along with three vans and two minivans. Ford is the primary manufacturer for both the cutaways and vans, while Braun is the manufacturer of the modified minivans. Preventive maintenance can vary depending on the specific model and usage, but the recommended preventive maintenance schedule for Ford cutaway and van vehicles generally follows the guidelines set for Ford's commercial vehicles. Key maintenance intervals include:

- **Oil and Filter Changes:** Typically recommended every 10,000 miles, 450 engine hours, or 12 months, whichever comes first. However, for severe or extreme usage, such as heavy towing or operation in extreme temperatures, this interval may shorten to as little as 2,500 to 7,500 miles.
- **Tire Rotation and Inspection:** Along with oil changes, it is advisable to rotate tires, inspect tire wear, and measure tread depth every 10,000 miles.
- **Brake System Inspections:** Brake pads, rotors, hoses, and other components should be inspected during each maintenance interval, and brake fluid should be replaced every three years.
- **Cooling System, Exhaust, and Suspension Inspections:** These components should also be checked regularly, with attention to fluid levels and system integrity to ensure optimal vehicle performance.

While the base Ford vehicle maintenance remains similar, BraunAbility vehicles require additional specialized maintenance for their accessibility features. These vehicles come with specialized equipment, such as wheelchair lifts, ramps, and power doors. BraunAbility recommends regular inspections and maintenance of these components, which is not covered in the

standard Ford maintenance schedule. For example, BraunAbility advises that lifts be lubricated, checked for proper operation, and any worn components replaced on a routine basis.

Mean Distance Between Failures

Currently, RADAR is not collecting breakdown data, which is a crucial metric for monitoring fleet performance. However, the new automated scheduling software that RADAR is in the process of procuring will enable the agency to begin tracking these issues once the implementation phase is completed. This new system will provide valuable insights into vehicle reliability and help optimize maintenance schedules. Adhering to on-time preventive maintenance is essential for decreasing the mean distance between failures (MDBF), ensuring that the fleet operates more efficiently and with fewer interruptions.

When considering mean distance between failures (MDBF) per 100,000 miles, rural transit agencies with primarily cutaway vehicles typically aim for a target of around 5 to 10 failures per 100,000 miles. This equates to a vehicle experiencing a mechanical failure approximately every 10,000 to 20,000 miles, which aligns with general industry benchmarks for rural fleets operating cutaway vehicles.

Preventable Accidents

Since FY18, RADAR's annual records for preventable incidents have remained consistently low, with the total number of incidents exceeding twenty only in 2018. While preventable incidents are not a major concern for the system, there is still room for improvement. It is recommended that RADAR set a goal of never exceeding 1.33 preventable accidents per 100,000 revenue miles[1]. This target, based on performance data from the past five years, will help ensure that the current downward trend in preventable accidents continues, contributing to greater safety and reliability across the system.

Customer Complaints

This metric directly supports Objective 4.1, which focuses on developing messaging for stakeholders and the public to highlight the value of public transportation. Positive reviews and satisfied customers are the most effective forms of publicity. Recent feedback shows that most riders appreciate RADAR's service quality and accessibility, particularly its curb-to-curb pickups and affordable fares. However, there is still room for improvement, as some customers have noted that drivers' politeness could be enhanced, and bus conditions could be better. To sustain this positive trend, RADAR should aim to keep customer complaints below 1.93 complaints per 10,000 passenger trips[2], which represents the average rate from FY18 to FY23. This goal will help ensure that service quality remains high and continues to meet customer expectations.

Operating Cost

RADAR currently does not have established standards for operating cost metrics. However, the agency is committed to reducing operational costs as part of its broader goal to "ensure the financial viability of the system." Lowering costs will not only improve RADAR's overall efficiency but also help the agency allocate resources more effectively to maintain and enhance services.

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[1] RADAR does not categorize complaints by specific deviated fixed route service types. Total number of trips used for the calculations obtained from Billing Summaries provided by RADAR and are including all fixed routes, deviated fixed routes and demand response services (including STAR).

[2] RADAR does not categorize complaints by specific deviated fixed route service types. Total number of trips used for the calculations obtained from Billing Summaries provided by RADAR and are including all fixed routes, deviated fixed routes and demand response services (including STAR).

An analysis of data from the past five fiscal years reveals that RADAR's cost per trip has decreased following the COVID-19 pandemic, while the cost per revenue mile and revenue hour, particularly the cost per revenue hour, has increased. This rise could be attributed to the growing number of riders and the increased demand for service deviations to better meet their needs. To enhance efficiency and control operating costs, RADAR should focus on improving the following metrics over the next five years:

Cost per revenue hour:

- **Deviated Fixed Route and Fixed Route:** $62.30 per revenue hour

Cost per revenue mile:

- **Deviated Fixed Route and Fixed Route:** $3.81 per revenue mile

Despite the downward trend in the cost per trip, RADAR should strive to further reduce the current cost of $19.39 per trip to ensure continued financial sustainability and efficiency.

Productivity

Measuring productivity is crucial for transit agencies as it helps assess the efficiency of service delivery and ensures that resources are being utilized effectively to meet rider demand. Productivity is typically calculated by evaluating trips per revenue mile and trips per revenue hour, providing insight into how well the service is performing in relation to the distance traveled and time spent in operation.

Although RADAR does not have established standards for productivity, its overarching goal is to provide efficient and effective transportation services. Over the past five years, system-wide productivity experienced a decline in FY21 due to the impacts of COVID-19, but began to recover in FY22, with a 15% improvement in total trips per revenue mile and a 12% increase in trips per revenue hour. However, when examining productivity by service type, the fixed route service (Ferrum Express) has shown a downward trend over the past five fiscal years, while the deviated fixed route service has seen some recovery in the last two fiscal years as pandemic restrictions eased. RADAR should focus on improving productivity levels moving forward, which can be measured through key metrics below. These targets will be informed by the average performance over the last five fiscal years.

Trips per revenue hour:

- **Deviated Fixed Route:** 3.28 trips per revenue hour
- **Fixed Route:** 0.74 trips per revenue hour

Trips per revenue mile:

- **Deviated Fixed Route:** 0.20 trips per revenue mile
- **Fixed Route:** 0.03 trips per revenue mile

On Time Performance

RADAR currently does not monitor or have established standards for tracking the on-time performance of its service types. Typically, rural transit agencies aim for an on-time performance window of 0 to 5 minutes for fixed and deviated fixed routes. In comparison, some peer agencies in the region set a more stringent target of 0 to 3 minutes. Ideally, RADAR should work

towards aligning its on-time performance goals with these higher standards, particularly for fixed route services, to improve service reliability and meet rider expectations. The rollout of the new scheduling software that RADAR is currently procuring will enable the agency to begin tracking this data and evaluating monthly performance against these targets, helping to ensure continuous improvement.

CHAPTER 3. SERVICE EVALIATION

3.1. Introduction

This chapter documents two important components of the TDP – the evaluation of the current service and the transit needs assessment, both of which contribute to the development of service initiatives and improvements.

The current service evaluation focuses on trend data and current route performance, followed by a review of peer agencies' systems, and survey and stakeholder data and opinions as highlighted in the recent Roanoke Valley Transit Vision Plan (TVP). The transit needs analysis completes the chapter.

3.2. System Overview

RADAR currently offers two types of services: three deviated fixed routes—The Mountain Express, Maury Express, and Piedmont Area Regional Transport (PART)—and one fixed-route, the Ferrum Express. The agency also operates a demand response service (S.T.A.R.), but although operated by RADAR, the service is funded and overseen by Valley Metro. Previously, the agency also used to provide its own demand response service known as CORTRAN, but this service was discontinued in January 2021.

While all three deviated routes provide service during weekdays, the Maury Express also operates on Saturdays. As shown in **Table 6**, the service typically starts at 7:30 or 8:00 AM and ends at 5:30 or 6:00 PM on weekdays. On Saturdays, the Maury Express runs from 10:00 AM to 4:00 PM. The Ferrum Express offers service only on Thursdays, Fridays, and Saturdays. On Thursdays and Fridays, it operates from 5:00 PM to 11:00 PM, and on Saturdays, it runs from 1:00 PM to 12 midnight.

Table 6: Service Span

Transportation Service		Service Type	Span of Service		
			Day(s)	Times	Headway
Valley Metro STAR		Demand response	Weekdays, Saturday	5:45am – 8:45pm	n/a
Mountain Express		Deviated Fixed route	Weekdays	8am – 5pm	90 min.
Maury Express		Deviated Fixed route	Weekdays	8am – 6pm	60 min.
			Saturday	10am – 4pm	
PART	North County	Deviated Fixed route	Weekdays	7:30am – 5:30pm	60 min.
	South County				
	Martinsville				

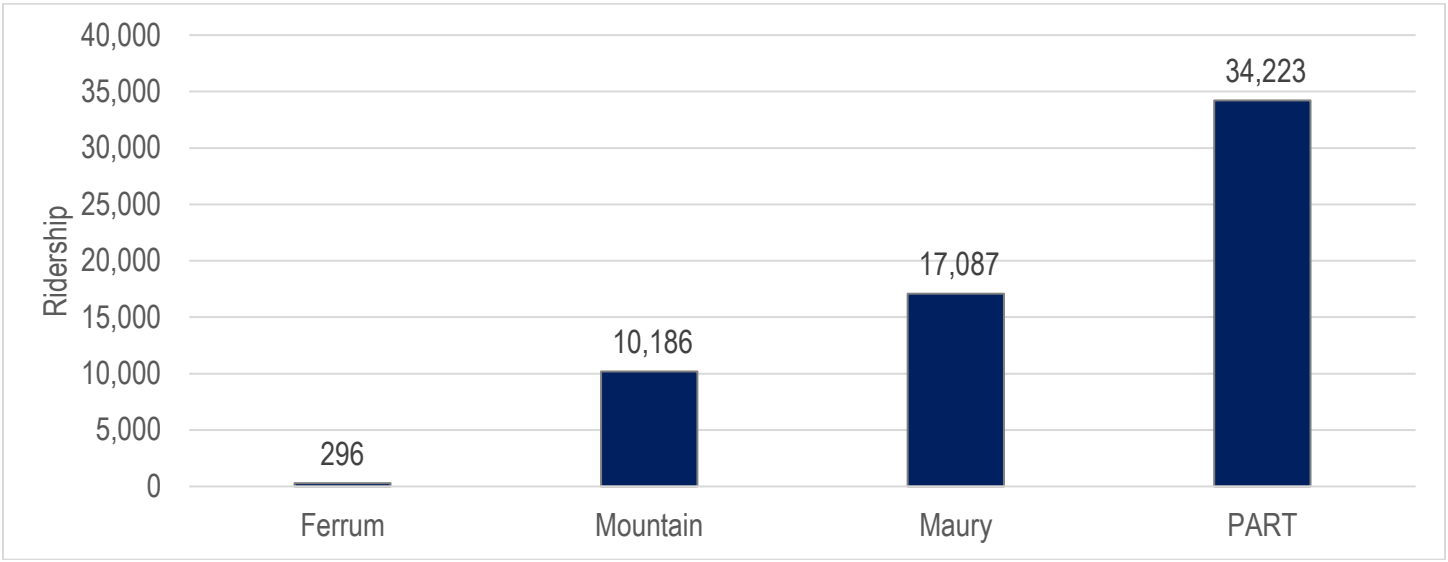
Ferrum Express	Fixed-route Express	Thursdays – Fridays	5pm – 11pm	60 min.
		Saturday	1pm – 12 midnight	120 min.

Note: Service span as of July 2024

3.3. Current Systemwide Performance – FY 2023

Figure 11 illustrates ridership levels for all deviated fixed routes in FY 2023, during which RADAR served a total of 61,792 riders. The PART service accounted for the largest share, with 55 percent of the riders, making it the most utilized deviated fixed route, as it has three different lines. Maury follows, contributing 28 percent of the riders with two lines, while the Mountain route recorded 16 percent of the total ridership with one unique line. Fixed route service (Ferrum Express) made up the smallest portion at 0.5 percent, which can be attributed to its primary purpose of serving Ferrum College, causing ridership to fluctuate significantly with the academic calendar. Combined, these services represent the total ridership for RADAR's deviated fixed routes and fixed route in FY 2023, highlighting the significant reliance on the PART service compared to other routes in the system.

Figure 11: RADAR Ridership by Deviated Fixed Route – FY 2023



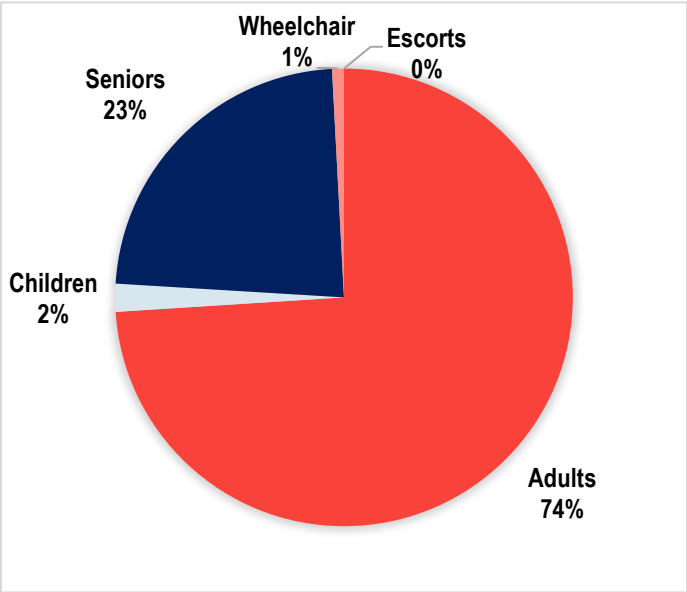
Source: RADAR

By examining various factors such as age, disability status, trip destinations, and other relevant demographic information, this data can offer a clearer picture of who is using RADAR's services across different routes. Understanding these details will help identify potential areas for service improvements and ensure that RADAR's offerings continue to meet the needs of the diverse communities it serves.

Figure 12 breaks down who uses the PART service. Adults make up the majority of the riders at 74 percent, while seniors make up 23 percent of the PART users. Children, Wheelchair users each made up a small portion of the riders. This breakdown is relatively consistent from FY 2018-2023. Although wheelchair users make up only 1 percent of the ridership, it

is crucial to ensure that vehicles are up-to-date and fully ADA compliant, as the consistent presence of this group particularly over the last three fiscal years underscores their ongoing reliance on the service.

Figure 12: PART Ridership Demographic Breakdown – FY 2023



Source: RADAR

Table 7 displays the top destinations for all PART routes in FY 2023. Among all trip destinations, "transfers" to other lines were the most common destination for all three PART lines. After transfers, the local Walmart was the most common destination for all three lines by a notable margin, while grocery competitor Food Lion was a destination 713 times on the South County Route. Three apartment complexes were high destination generators on the county lines, while the Patrick Henry Mall, Martinsville Library and Patrick Henry Community College were other notable destinations between the three lines.

Table 7: Top Six Destinations on PART Routes – FY 2023

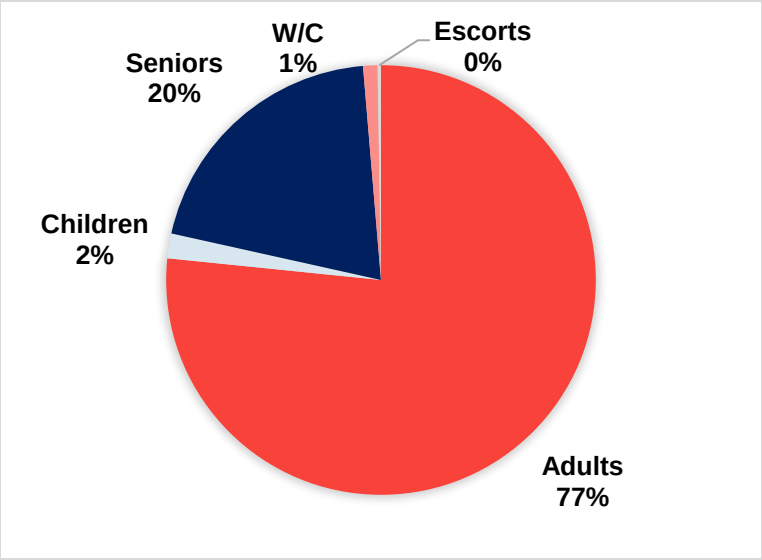
Rank	Destination	Trips
North County		
1	Transfers	2,079
2	Walmart	1,898
3	Maplewood Apartments	1,436
4	Daniels Creek Rd/ Kings Mountain Rd	1,130
5	PHCC	956
6	Wheeler Ave/Ridgecrest Rd	558
South County		
1	Transfers	1,553
2	Walmart	1,440
3	Glenn Ridge Apartments	927
4	DMV	873
5	Food Lion	713
6	Richwood Apartments	567
Martinsville		
1	Transfers	2,916
2	Walmart	2,086
3	Village of Martinsville	1,591
4	Patrick Henry Mall	1,035

5	Martinsville Library	946
6	Fayette St/Roundabout Rd	857

Source: RADAR

Figure 13 provides a demographic breakdown of ridership on the Maury Express. Adults comprise the majority of riders at 77 percent, with seniors accounting for a significant portion at 20 percent. Children, wheelchair users, and escorts together make up just three percent of the total ridership. This demographic distribution closely mirrors that of the PART service. Although wheelchair users represented only one percent of the ridership in FY 2023, historical data shows that this has not always been the case. The proportion of wheelchair riders peaked at eight percent in FY 2021, but this figure dropped to four percent in FY 2022. This downward trend suggests that RADAR should assess its service specifications to determine if any barriers are discouraging customers with disabilities from using the Maury Express and take appropriate steps to address these issues.

Figure 13: Maury Express Ridership Demographic – FY 2023



Source: RADAR

Table 8 shows trip generators for the Maury Express, displayed by the Lexington and Buena Vista lines. Like in the other services, grocery stores Walmart, Food Lion and Kroger were popular destinations. Southern Virginia University, the Buena Vista Library and several shopping centers were popular destinations within the Maury Express too.

Table 8: Top Six Destinations on Maury Express – FY 2023

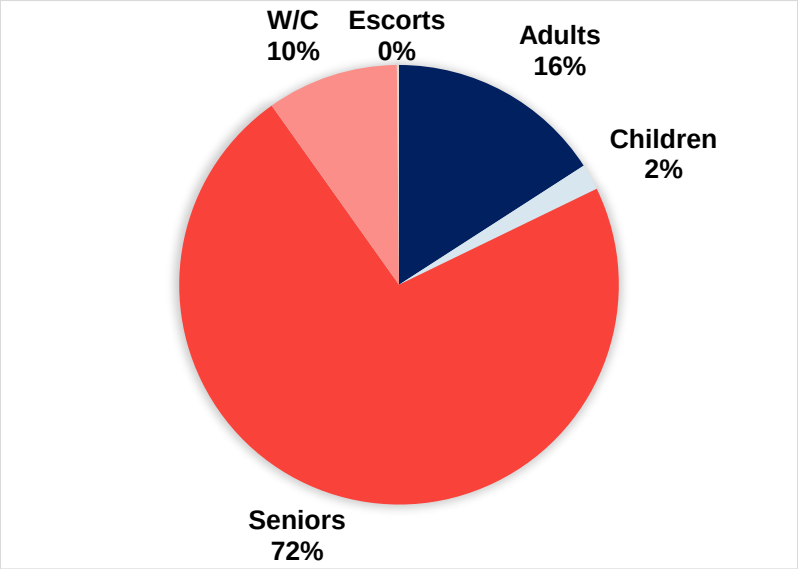
Rank	Destination	Trips
Lexington		
1	Walmart	3,016
2	Willow Springs	1,672
3	Kroger	1,558
4	Houston St	921
5	Stonewall Sq	599
6	Diamond St	506
Buena Vista		
1	Food Lion	732
2	Snr Ct/BV Library	671
3	SVU Pavilion	639
4	E 13th St	595

Rank	Destination	Trips
5	Burger King	541
6	Hillcrest Manor	381

Source: RADAR

Figure 14 provides a demographic breakdown of ridership on the Mountain Express by age and accessibility needs. Seniors constitute the vast majority of riders at 72 percent, followed by adults at 16 percent. Notably, wheelchair users account for ten percent of the total ridership, indicating that additional time may be required at stops to accommodate boarding and safety procedures for these passengers. Children and escorts represent a very small portion of the overall ridership. These figures highlight the importance of tailoring service to meet the needs of seniors and individuals with disabilities, ensuring that safety measures and accessibility are prioritized to serve these key demographic groups effectively.

Figure 14: Mountain Express Ridership Demographic – FY 2023



Source: RADAR

Table 9 displays the most popular Mountain Express destinations during FY 2023. Grocery stores Kroger, Walmart and Food Lion made up half of the top six destinations, showing the need for people to have access to fresh food in the area. Cary St is adjacent to the Family Dollar, so it is possible that is the main draw for that being the most popular stop. Scott Hill Retirement Community makes up a significant number of trips and contributes to the high levels of senior ridership within the Mountain Express.

Table 9: Top Six Destinations on Mountain Express – FY 2023

Rank	Destination	Trips
1	Cary St/Main St	1801
2	Kroger/Clifton Woods	1609
3	Scott Hill	1538
4	Hospital	838
5	Walmart	810
6	Food Lion/Goodwill	798

Source: RADAR

While ridership is a crucial metric for assessing systemwide performance, it is not the sole indicator of a transit system's success. Efficiency and reliability are essential aspects that contribute to building riders' trust and ensuring a high level of service. Consequently, transit agencies must consistently monitor various performance indicators. In addition to tracking

ridership, it is vital to measure metrics such as revenue miles and hours, passenger trips per revenue mile and revenue hour, operating cost per revenue mile, hour, and trip. Safety metrics, including preventable incidents per 100,000 revenue miles and breakdowns per 100,000 revenue miles, as well as customer satisfaction indicators like complaints per 10,000 passenger trips, are also important. By keeping a close eye on these factors, Bay Transit can continue delivering the high-quality service that its customers value.

Table 10 provides a systemwide overview of revenue miles and hours by mode, highlighting that PART services constitute the majority of the service (revenue miles and hours).

*Table 10: System Wide Performance Measurements, FY 2023**

Service Type	Ridership	Revenue Miles	Revenue Hours	Percent of Passenger Trips	Percent of Revenue Miles	Precent of Revenue Hours
PART	34,223	130,858	7,493	55.4%	42.1%	41.0%
Maury	17,087	83,503	5,575	27.7%	26.9%	30.5%
Mountain	10,186	80,423	4,523	16.5%	25.9%	24.7%
Ferrum	296	15,816	696	0.5%	5.1%	3.8%

Source: RADAR

Table 11 presents the FY2023 system-wide performance metrics, emphasizing productivity, cost efficiency, and service quality across various transportation services. The PART service demonstrated the highest productivity, achieving 0.26 passengers per revenue mile and 4.57 passengers per revenue hour. In terms of cost efficiency, PART was the most economical service when measured by cost per trip, though it ranked second to last in terms of cost per revenue mile and was the most expensive service per revenue hour. This higher cost can likely be attributed to the service's three different lines, which offer deviation options for the largest portion of passengers within the system, resulting in longer service times and more complex operations.

Table 11: System Wide Performance Measurements, FY 2023

Service Type	Productivity		Cost Efficiency			Service Quality
	Passenger Trips per Revenue Mile	Passenger Trips per Revenue Hour	Cost per Passenger Trip	Cost per Passenger Revenue Mile	Cost per Passenger Revenue Hour	Speed
PART	0.26	4.57	$15.23	$3.98	$69.58	17
Maury	0.20	3.07	$20.91	$4.28	$64.09	15
Mountain	0.13	2.25	$30.43	$3.85	$68.53	18
Ferrum	0.02	0.43	$38.25	$0.72	$16.26	23

Source: RADAR

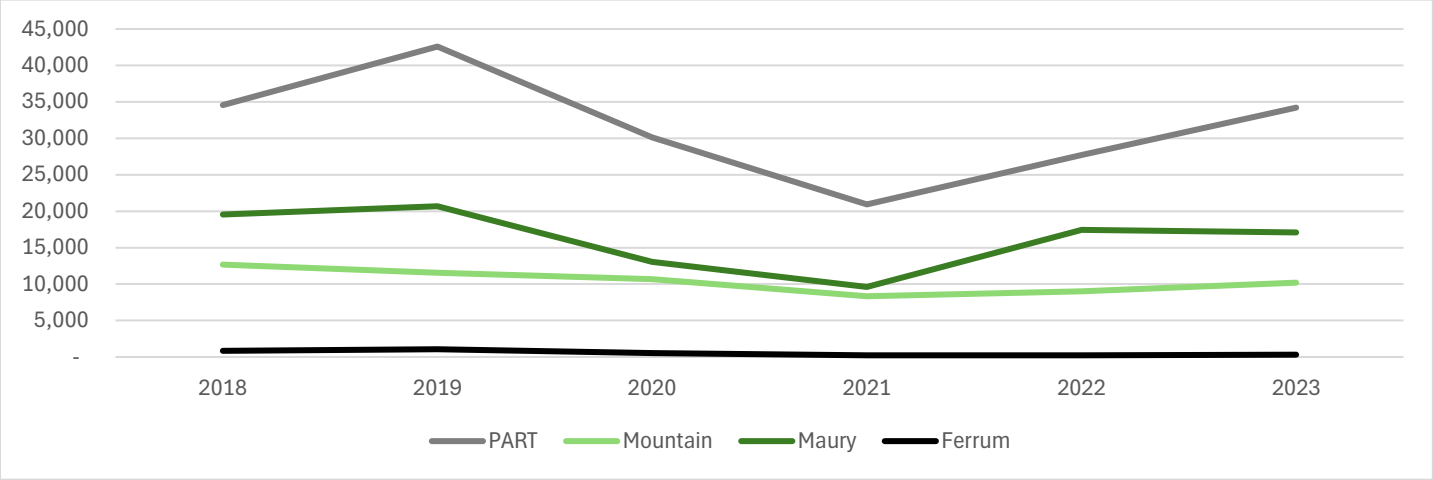
Although RADAR does not disaggregate safety and customer compliance data by individual service types, the agency diligently tracks these metrics annually. In FY2023, RADAR reported 1.58 accidents per 100,000 revenue miles and 1.82 complaints per 10,000 rides. These figures reflect strong overall performance in safety and customer satisfaction. The upcoming section will delve into the trends observed in these key areas, highlighting RADAR's ongoing commitment to maintaining high safety standards and addressing customer concerns.

3.4. Systemwide Performance Trends – FY 2018 to FY 2023

Figure 15 shows ridership levels from FY 2018-2023 for PART's Mountain Express, Maury Express, and Ferrum Express services. PART services (Collinsville, Martinsville, and the Southern route) have consistently been the most popular, peaking in 2019 before rebounding close to FY 2018 levels in FY 2023 (approximately 35,000 riders). The Maury Express follows as the second most utilized service each year, while the Mountain Express has consistently had lower ridership, although its levels remain comparable to the Maury Express. Ridership for both PART services and the Maury Express peaked in FY 2019, before the pandemic led to a significant decline in 2020 due to restrictions.

Ferrum Express, as illustrated in **Figure 15**, was the service most severely impacted by the pandemic in 2020. Ridership in 2018 and 2019 reached 858 and 1,062 trips, respectively, but the pandemic caused a significant drop in service, with a shutdown from April until September 2020. Although ridership levels have increased each year since the pandemic, the recovery has been much slower compared to other services. In FY 2023, Ferrum Express ridership remained at just 28 percent of its peak in FY 2019, highlighting the ongoing challenges in regaining pre-pandemic ridership levels across all services.

Figure 15: Ridership Levels by Service Type – FY 2018 to FY 2023



Source: RADAR

When examining ridership trends over the last three fiscal years, it is clear that ridership across all services has rebounded significantly following the dip caused by the pandemic. Notably, the Maury Express has shown the most substantial proportional increase in riders during this period. **Table 12** highlights the variance in ridership between FY 2021 and FY 2023, capturing the positive recovery trends as the system continues to regain traction post-pandemic.

Table 12: System Wide Ridership, FY 2018 – FY 2023

Service Type	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 21- FY23 Variance
PART	34,543	42,589	30,143	20,931	27,724	34,223	64%
Mountain	12,671	11,561	10,656	8,331	9,016	10,186	22%
Maury	19,552	20,678	13,047	9,607	17,424	17,087	78%
Ferrum	858	1062	533	229	234	296	29%
Total	**67,624**	**75,890**	**54,379**	**39,098**	**54,398**	**61,792**	**58%**

Source: RADAR

Similar to the prior section, the following tables examine fiscal years 2018 to 2023 to identify trends over time for RADAR' system in addition to ridership. Focusing on these years captures the post-pandemic recovery phase and highlights how various factors have evolved. Key metrics such as revenue miles and hours, passenger trips per revenue mile and revenue hour, and operating costs per revenue mile, hour, and trip were analyzed. Additionally, safety metrics, including preventable incidents per 100,000 revenue miles and mean distance between failures, as well as customer satisfaction indicators like complaints per 10,000 passenger trips, were considered. Next section will further break these key metrics down by service type.

Table 13 - Table 15 present system-wide service trends over the last six fiscal years. Overall, RADAR's revenue service has seen a notable increase, with revenue miles growing by 12 percent and revenue hours by 10 percent. The Ferrum service showed the highest increase in both revenue miles and hours from FY 2021 to FY 2023.

All other services also experienced growth in revenue miles, with the Maury Express standing out as the most efficient. Despite a 23 percent increase in revenue miles, the service only saw a two percent rise in revenue hours, indicating a more streamlined route structure. Further analysis reveals that the Maury Express also recorded the highest increase in average speed, with a variance of 20 percent compared to other services. This increase in speed directly impacts the reduction in total revenue hours, further contributing to its efficiency.

*Table 13: System Wide Revenue Miles, FY 2018 – FY 2023**

Service Type	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 21- FY23 Variance
PART	124,771	119,732	125,487	123,799	131,104	130,858	6%
Mountain	82,387	79,315	76,411	75,764	79,009	83,503	10%
Maury	86,848	85,641	69,166	65,278	91,857	80,423	23%
Ferrum	21,624	22,801	16,169	12,549	15,339	15,816	26%
Total	**315,630**	**307,489**	**287,233**	**277,390**	**317,309**	**310,600**	**12%**

Source: RADAR

*Note: Ridership totals provided by RADAR's ridership reports, while Mileage was provided by financial summaries

*Table 14: System Wide Revenue Hours, FY 2018 – FY 2023**

Service Type	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 21- FY23 Variance
PART	7,471	7,372	7,472	7,395	7,519	7,493	1%
Mountain	4,462	4,476	4,406	4,352	4,488	5,575	28%
Maury	5,650	5,969	4,226	4,418	5,577	4,523	2%
Ferrum	765	795	566	473	648	696	47%
Total	**18,348**	**18,612**	**16,669**	**16,637**	**18,233**	**18,287**	**10%**

Source: RADAR

*Note: Ridership totals provided by RADAR's ridership reports, while Mileage was provided by financial summaries

*Table 15: System Wide Average Speed, FY 2018 – FY 2023**

Service Type	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 21- FY23 Variance
PART	17	16	17	17	17	17	4%
Mountain	18	18	17	17	18	15	-14%
Maury	15	14	16	15	16	18	20%
Ferrum	28	29	29	27	24	23	-14%

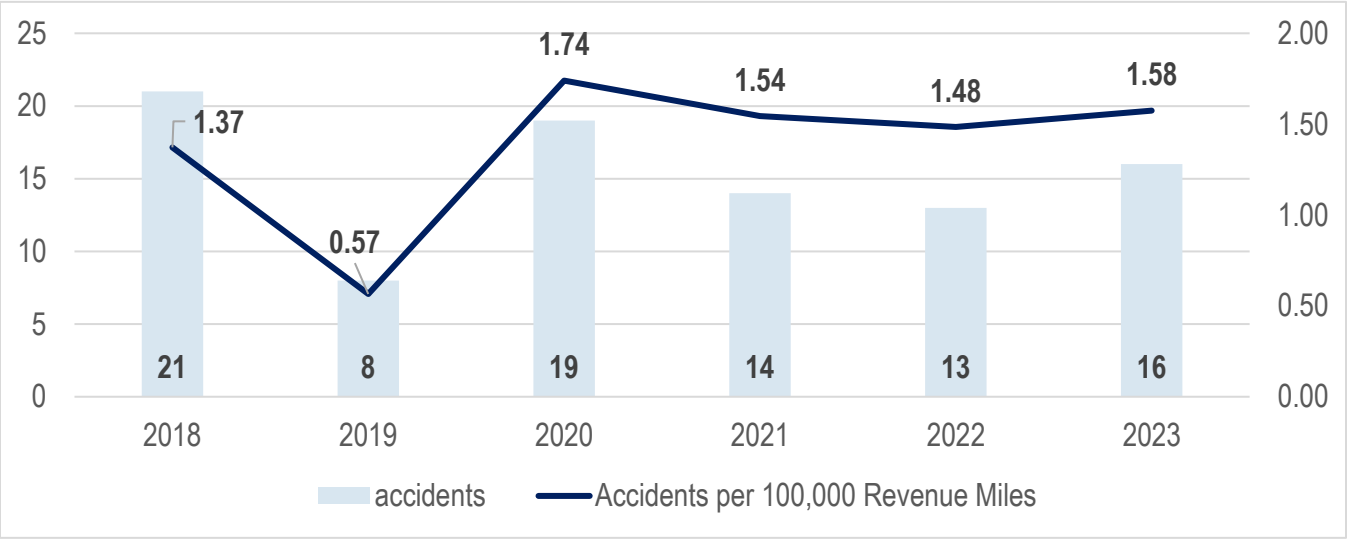
Source: RADAR

Note: Ridership totals provided by RADAR's ridership reports, while Mileage was provided by financial summaries

Prior to the pandemic, the total number of recorded accidents fluctuated, with 2019 standing out as the year with the lowest accident rate. While the accident rate from fiscal years 2021 to 2023 has not yet returned to the levels recorded in 2019 (0.57 accidents per 100,000 revenue miles), it's worth noting that the total number of accidents has remained consistent over the past three fiscal years. Feedback from both the drivers' and customer surveys revealed some concerns, with customers occasionally perceiving RADAR drivers as driving recklessly. In particular, some passengers reported instances of drivers speeding or not adhering to traffic regulations. These faults could potentially explain the current accident rates. **Figure 16** shows accident rates.

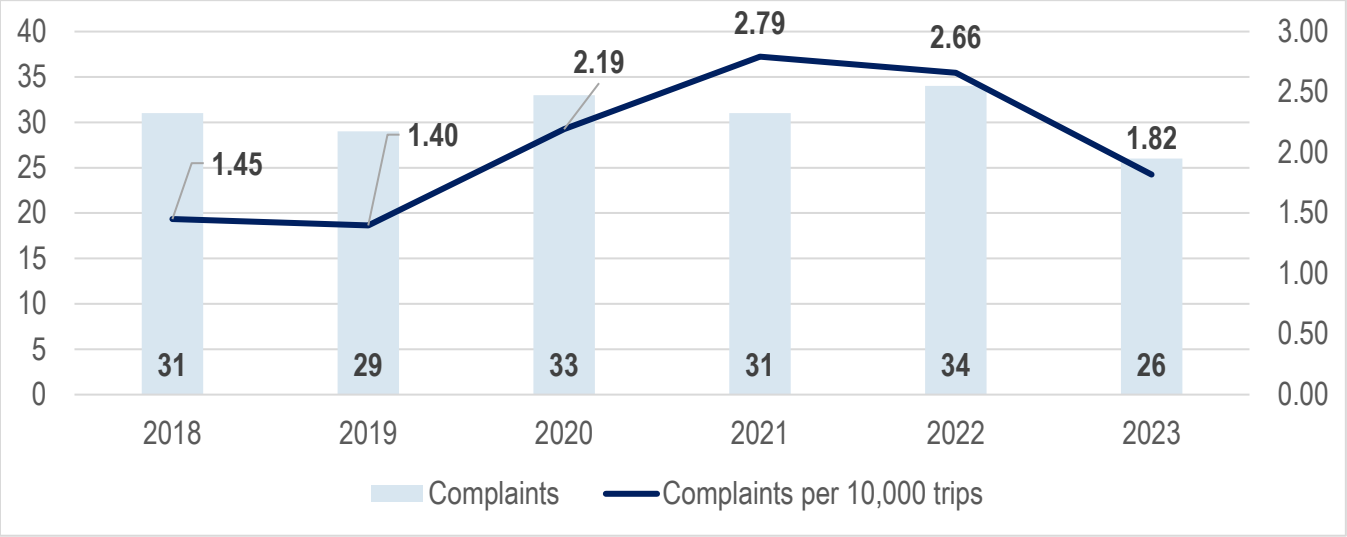
Although accident rates have remained consistent over the past three fiscal years, complaints per 10,000 riders peaked in fiscal year 2021 and have been steadily declining since then. **Figure 17** highlights this positive trend, with complaints decreasing significantly to 1.82 per 10,000 riders in fiscal year 2023. While the total number of complaints is now at its lowest point in the last six fiscal years, the rate has not yet returned to pre-pandemic levels, indicating that there is still room for improvement, particularly in customer service areas related to driver behavior. The following sections will delve deeper into these issues and explore potential areas for improvement.

Figure 16: Accidents per 100,000 Revenue Miles, FY 2018 – FY 2023



Source: RADAR

Figure 17: Complaints per 10,000 Riders, FY 2018 – FY 2023



Source: RADAR

3.5. Systemwide Performance Measures

This section includes detailed provider profiles and performance statistics for each transportation service. Each profile includes a service area description with tables presenting the current service and operating characteristics. **Table 16** displays the performance characteristics by service type for fiscal years 2018 – 2023. Finally, a map is provided for each service displaying the route alignment trip generators when appropriate.

Land uses and trip generators were identified along each of the fixed routes which suggests where transit services may be needed currently or in the future. Trip generator categories include housing (apartments, multi-unit housing or senior homes), medical (hospitals, clinics and related services), education (community colleges or major schools), human services (food pantries, social and community services) and shopping (groceries, shopping centers or big box retailers).

Table 16: Performance Measures RADAR's System - FY 2018 – FY 2023

Metric	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 21- FY23 Variance
Passenger Trips per Rev Mile	0.21	0.25	0.19	0.14	0.17	0.20	41%
Passenger Trips per Rev Hour	3.69	4.08	3.26	2.35	2.98	3.38	44%
Cost per Passenger Trip	$13.18	$12.95	$17.18	$22.51	$20.17	$19.42	-14%
Cost per Passenger Revenue Mile	$2.82	$3.20	$3.25	$3.17	$3.46	$3.86	22%
Cost per Passenger Revenue Hour	$48.59	$52.81	$56.05	$52.90	$60.17	$65.61	24%

Source: RADAR

PART

Table 17 presents performance measures for the PART service as a whole. The increase in passenger trips per revenue mile and per revenue hour had a positive impact on the cost per passenger trip, leading to a 17 percent decrease between fiscal years 2021 and 2023. However, the service became less cost-efficient in terms of revenue miles and revenue hours.

This decline in efficiency could be attributed to the rise in ridership, with more passengers requesting drop-offs at various locations, which in turn increased both the mileage and the time required for these fixed deviated routes.

Table 17: Performance Measures RADAR's System - FY 2018 – FY 2023

Metric	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 21- FY23 Variance
Passenger Trips per Rev Mile	0.28	0.36	0.24	0.17	0.21	0.26	55%
Passenger Trips per Rev Hour	4.62	5.78	4.03	2.83	3.69	4.57	61%
Cost per Passenger Trip	$10.49	$8.64	$13.74	$18.46	$17.63	$15.23	-17%
Cost per Passenger Revenue Mile	$2.90	$3.07	$3.30	$3.12	$3.73	$3.98	28%
Cost per Passenger Revenue Hour	$48.49	$49.90	$55.44	$52.24	$65.02	$69.58	33%

Source: RADAR

LEVEL OF SERVICE

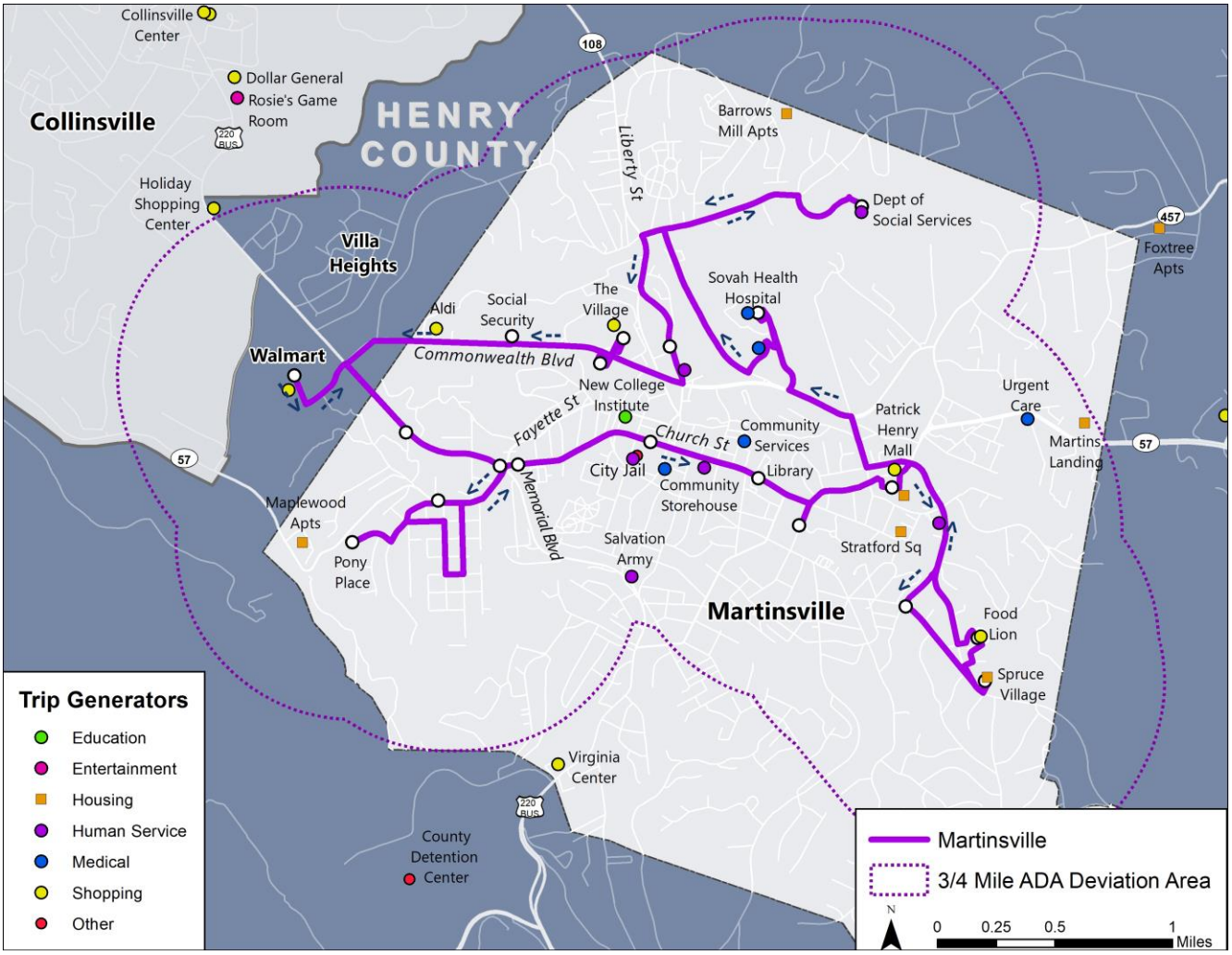
Martinsville Route

The Martinsville route is one of three deviated bus routes operated by PART (Piedmont Area Regional Transit) and managed by RADAR. All three routes operate Monday through Friday 7:30 a.m. to 5:30 p.m. on 60-minute headways. Service is only provided when Martinsville schools are in session. The bus route begins at Walmart and goes east, stopping at residential neighborhoods, major points along Church Street such as the library, and travels east to the Food Lion and Spruce Village Apartments. The bus then returns northwest stopping at the Patrick Henry Mall, the Sovah Health Hospital and Department of Social Services, before heading west to The Village of Martinsville (which includes a Kroger) via Commonwealth Blvd and returning to Walmart. ADA certified passengers may request the van to deviate from its route to make pickups and drop offs. The distance may not exceed a ¾-mile radius off the route. PART is currently operating fare-free. displays the service and operating characteristics to include service span, headways, the number of one-way trips, cycle time, and daily service miles and hours. **Table 18** displays the service and operating characteristics to include service span, headways, the number of one-way trips, cycle time, and daily service miles and hours**. Figure 18** displays the major trip destinations serving along the route.

Table 18: Martinsville Route Service and Operating Characteristics, FY 2024

Service and Operating Characteristics	Weekdays
Service Span	7:30 a.m. - 5:30 p.m.
Frequency (Minutes)	60
One-Way Trips	10
Cycle Time (Minutes)	60
Daily Service Miles	150
Daily Service Hours	10

Figure 18: Martinsville Route Trip Generators



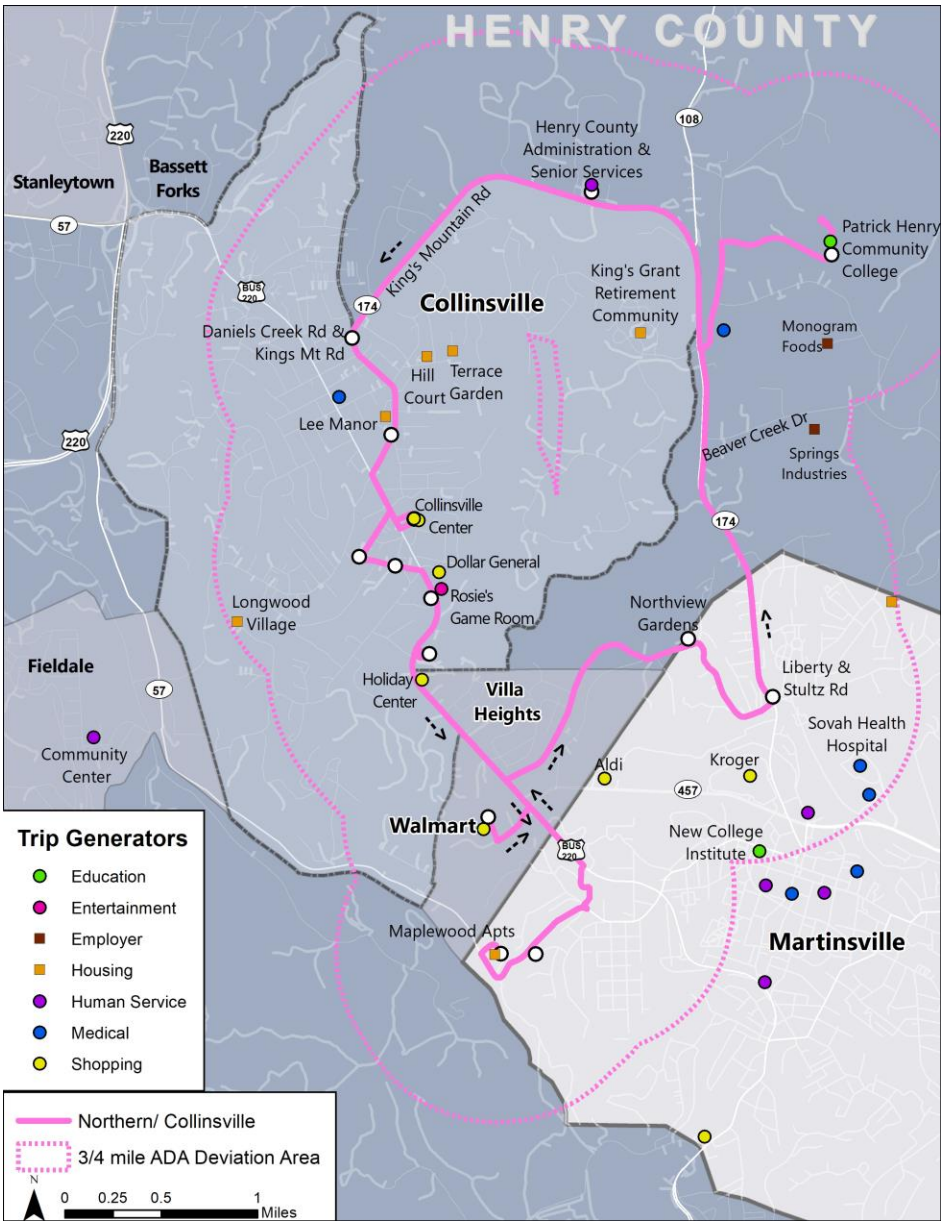
Collinsville Route

The Collinsville Northern route is one of three deviated bus routes operated by PART (Piedmont Area Regional Transit) and managed by RADAR. All three routes operate Monday through Friday 7:30 a.m. to 5:30 p.m. on 60-minute headways. Service is only provided when Martinsville schools are in session. The bus starts its route at Walmart and travels east with the first stop at the Northview Gardens Apartments, then heads north to Patrick and Henry Community College via Kings Mountain Road (State Road 174). The bus continues in a counterclockwise direction along Daniels Creek Road and Virginia Avenue with stops including Collinsville Shopping Center, the Knights Inn and a final stop at Maplewood Apartments in Martinsville before returning to Walmart. ADA certified passengers may request the van to deviate from its route to make pickups and drop offs. The distance may not exceed a ¾-mile radius off the route. PART is currently operating fare-free. **Table 19** displays the service and operating characteristics to include service span, headways, the number of one-way trips, cycle time, and daily service miles and hours. **Figure 19** displays the major trip destinations serving along the route.

Table 19: Collinsville Route Service and Operating Characteristics, FY 2024

Service and Operating Characteristics	Weekdays
Service Span	7:30 a.m. - 5:30 p.m.
Frequency (Minutes)	60
One-Way Trips	10
Cycle Time (Minutes)	60
Daily Service Miles	146
Daily Service Hours	10

Figure 19: Collinsville Route Trip Generators



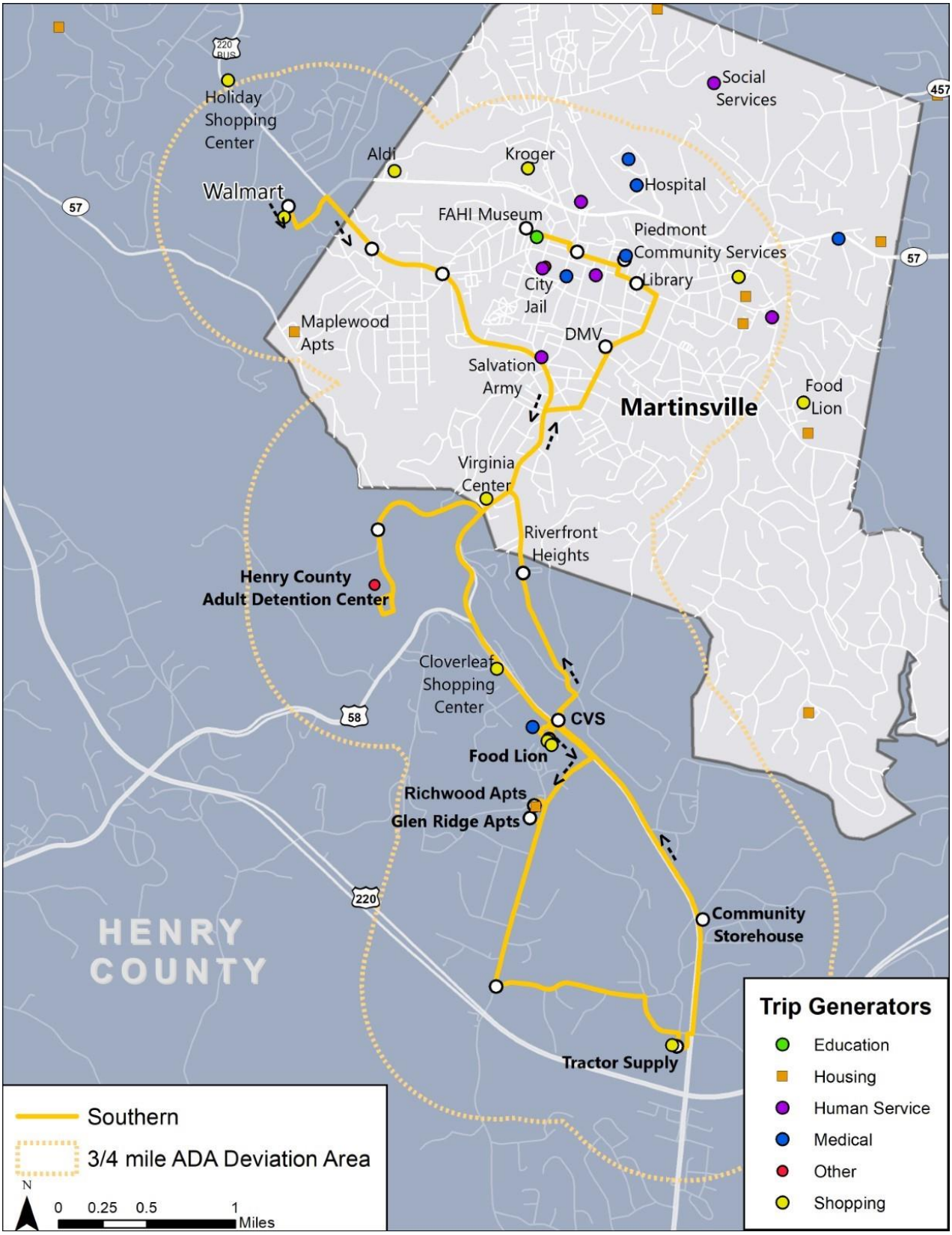
Southern Route

The Southern route is one of three deviated bus routes operated by PART (Piedmont Area Regional Transit) and managed by RADAR. All three routes operate Monday through Friday 7:30 a.m. to 5:30 p.m. on 60-minute headways. Service is only provided when Martinsville schools are in session. The route begins at Walmart and heads southeast, with the first stops including the PCS Recovery Center and Henry County Adult Detention Center via Dupont Road. The bus then heads south on Greensboro Road to the Food Lion and Richwood Apartments. Next, the bus travels in a counterclockwise direction along the Joseph Martin Highway, Fisher Farm Road and Greensboro Road stopping at the Tractor Supply and Community Storehouse, before returning north toward Martinsville, where it stops at the DMV, Piedmont Community Services and Main Street. ADA certified passengers may request the van to deviate from its route to make pickups and drop offs. The distance may not exceed a ¾-mile radius off the route. PART is currently operating fare-free. **Table 20** displays the service and operating characteristics to include service span, headways, the number of one-way trips, cycle time, and daily service miles and hours. **Figure 20** displays the major trip destinations serving along the route.

Table 20: Southern Route Service and Operating Characteristics, FY 2024

Service and Operating Characteristics	Weekdays
Service Span	7:30 a.m. - 5:30 p.m.
Frequency (Minutes)	60
One-Way Trips	10
Cycle Time (Minutes)	60
Daily Service Miles	157
Daily Service Hours	10

Figure 20: Southern Route Trip Generators



Mountain Express

Table 21 highlights key performance metrics over the past six fiscal years, with a focus on the variance from FY 2021 to FY 2023. One positive trend is the 11 percent increase in passenger trips per revenue mile, indicating improved productivity in terms of how efficiently the service is being utilized. However, the number of passenger trips per revenue hour decreased by five percent during the same period, suggesting that while mileage efficiency improved, service routes might need to be reassessed.

On the cost side, the cost per passenger trip has risen slightly by two percent from FY 2021 to FY 2023, reflecting modest cost increases despite the improved mileage efficiency. Additionally, the cost per passenger revenue mile saw a notable increase of 13 percent, which could be attributed to higher operating expenses or increased trip lengths due to route deviations. Interestingly, the cost per passenger revenue hour decreased by three percent, indicating that while the time spent per passenger has become more cost-effective, other factors are driving up overall costs.

Table 21: Performance Measures Mountain Express - FY 2018 – FY 2023

Metric	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 21- FY23 Variance
Passenger Trips per Rev Mile	0.15	0.15	0.14	0.11	0.11	0.12	11%
Passenger Trips per Rev Hour	2.84	2.58	2.42	1.91	2.01	1.83	-5%
Cost per Passenger Trip	$20.91	$26.12	$24.28	$29.81	$30.96	$30.43	2%
Cost per Passenger Revenue Mile	$3.22	$3.81	$3.39	$3.28	$3.53	$3.71	13%
Cost per Passenger Revenue Hour	$59.39	$67.47	$58.74	$57.07	$62.19	$55.60	-3%

Source: RADAR

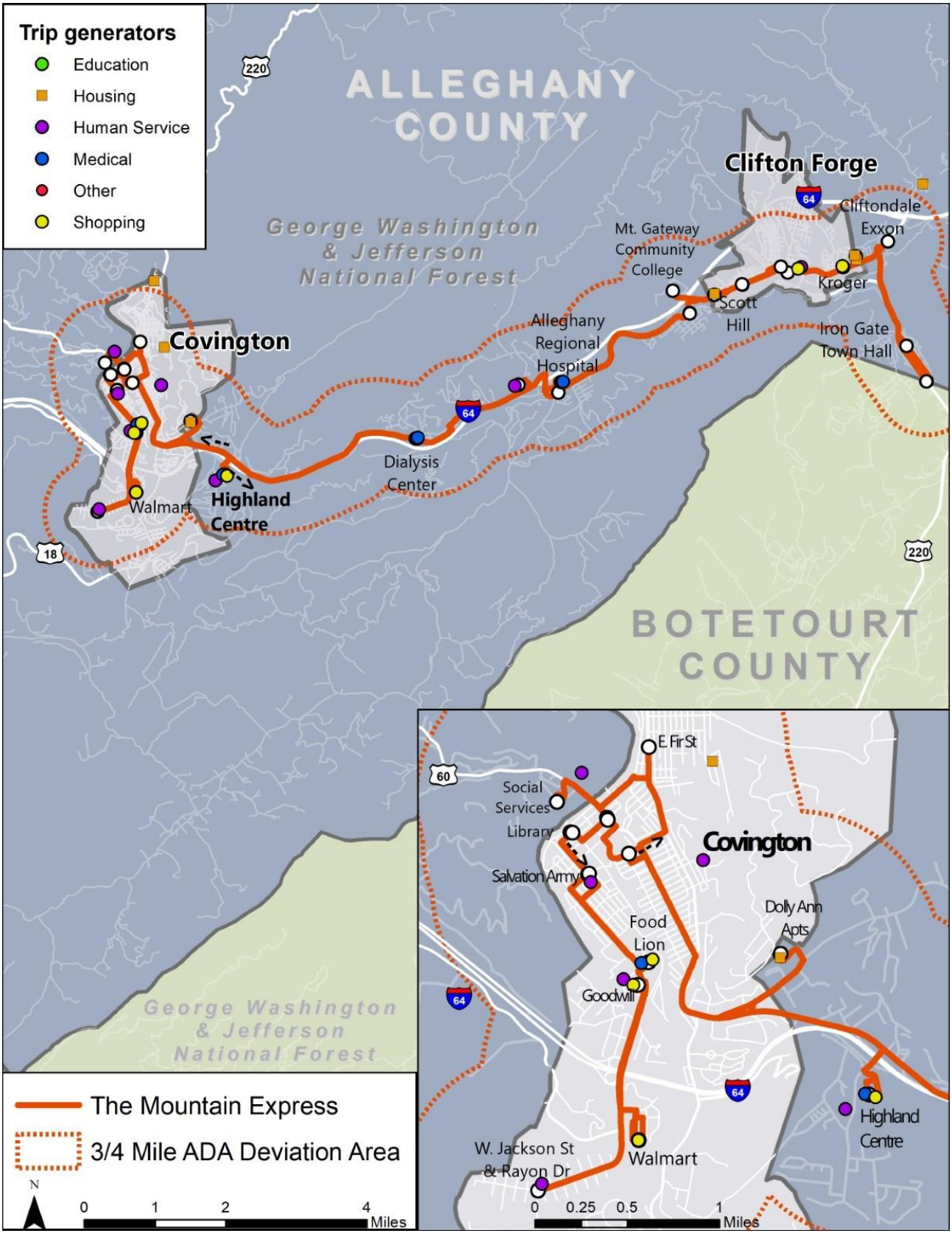
LEVEL OF SERVICE

Mountain Express operates one deviated fixed-route within Alleghany County, the City of Covington, and the Towns of Clifton Forge and Iron Gate. Two buses leave from Highland Centre/DMV, with one bus circulating Covington, stopping at grocers, Wal-Mart and other popular destinations. The second bus travels east, with stops including the Davita Covington Dialysis (halfway to Clifton Forge), Dabney Lancaster Community College, residential areas and Kroger in Clifton Forge, and the Iron Gate Town Hall before returning to Highland Centre. ADA certified passengers may request the van to deviate from its route to make pickup and drop offs. **Table 22** displays the service and operating characteristics to include service span, headways, the number of one-way trips, cycle time, and daily service miles and hours. **Figure 21** displays the major trip destinations serving along the route.

Table 22: Mountain Express Service and Operating Characteristics, FY 2024

Service and Operating Characteristics	Weekdays
Service Span	8:00 a.m. - 5:00 p.m.
Frequency (Minutes)	90
One-Way Trips	12
Cycle Time (Minutes)	90
Daily Service Miles	312
Daily Service Hours	18

Figure 21: Mountain Express Trip Generators



Maury Express

Table 23 illustrates the performance metrics over the past six fiscal years, focusing on the period between FY 2021 and FY 2023. During this time, passenger trips per revenue mile increased significantly by 44 percent, indicating a notable improvement in mileage efficiency. Passenger trips per revenue hour also saw a substantial increase of 74 percent, highlighting more efficient use of time and improved ridership within the same operational hours.

Despite these gains in productivity, the cost metrics tell a different story. The cost per passenger trip decreased by six percent between FY 2021 and FY 2023, which suggests improved cost efficiency on a per-trip basis. However, the cost per passenger revenue mile rose by 36 percent, indicating that while more passengers were served, the cost of covering the distance increased considerably. Additionally, the cost per passenger revenue hour surged by 64 percent, suggesting that the cost of operating services for an hour has escalated, possibly due to increased operational expenses such as fuel, wages, or maintenance.

Table 23: Performance Measures Maury Express - FY 2018 – FY 2023

Metric	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 21- FY23 Variance
Passenger Trips per Rev Mile	0.23	0.24	0.19	0.15	0.19	0.21	44%
Passenger Trips per Rev Hour	3.46	3.46	3.09	2.17	3.12	3.78	74%
Cost per Passenger Trip	$11.35	$12.62	$16.82	$22.18	$17.82	$20.91	-6%
Cost per Passenger Revenue Mile	$2.56	$3.05	$3.17	$3.26	$3.38	$4.44	36%
Cost per Passenger Revenue Hour	$39.28	$43.73	$51.92	$48.23	$55.67	$78.99	64%

Source: RADAR

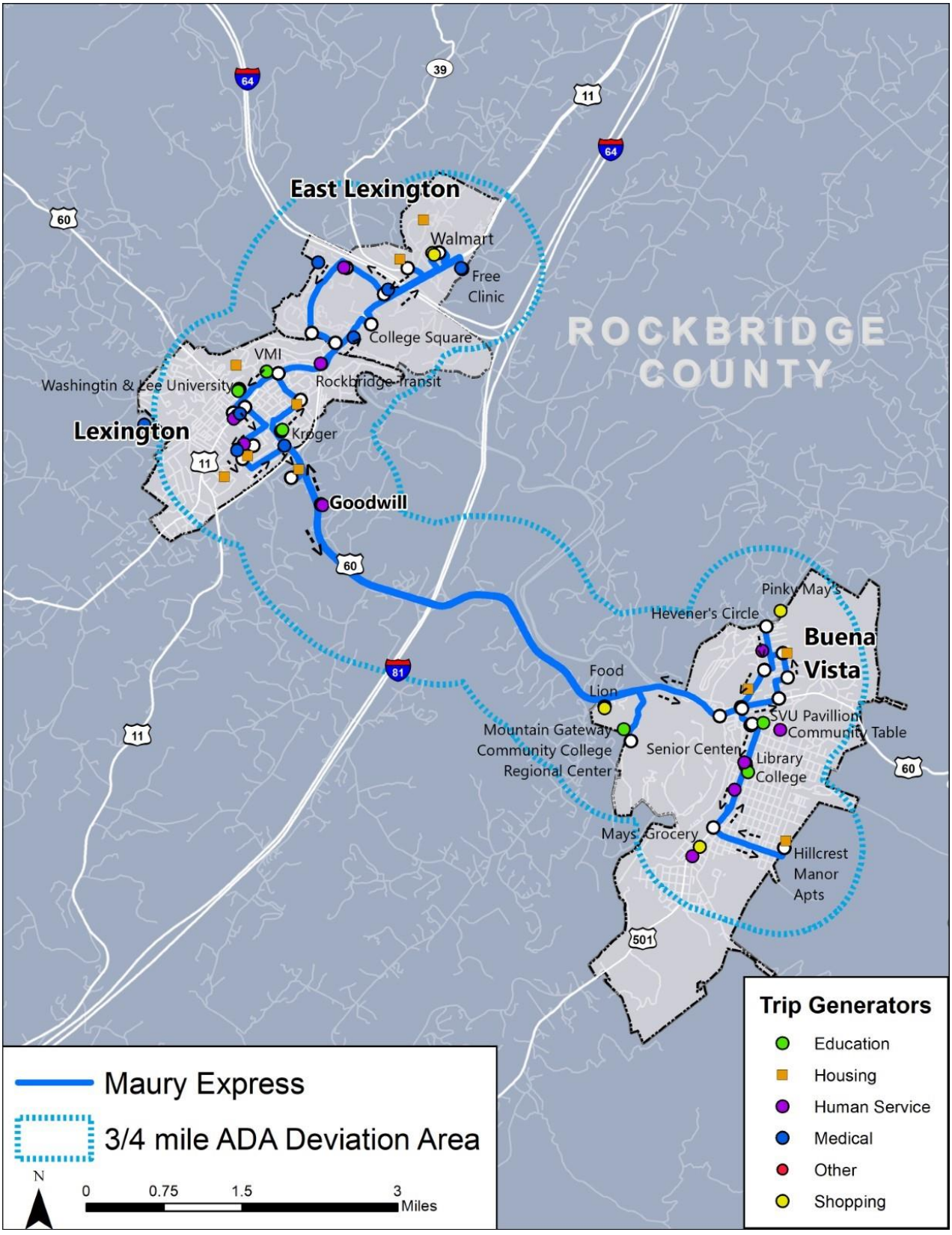
LEVEL OF SERVICE

Maury Express operates two deviated fixed routes within Rockbridge County, providing service to Lexington and Buena Vista. ADA certified passengers may request the van to deviate from its route to make pickup and drop offs. **Table 24** displays the service and operating characteristics to include service span, headways, the number of one-way trips, cycle time, and daily service miles and hours. **Figure 22** displays the major trip destinations serving along the route.

Table 24: Maury Express Service and Operating Characteristics, FY 2024

Service and Operating Characteristics	Weekdays	Saturdays
Service Span	8:00 a.m. - 6:00 p.m.	10:00 a.m. - 4:00 p.m.
Frequency (Minutes)	60	60
One-Way Trips	20	12
Cycle Time (Minutes)	118	118
Daily Service Miles	333	152
Daily Service Hours	20	12

Figure 22: Maury Express Trip Generators



Ferrum Express

Table 25 presents performance metrics for the Ferrum service from FY 2018 to FY 2023, highlighting key trends and variances during this period. Passenger trips per revenue mile showed only a slight improvement of three percent between FY 2021 and FY 2023, indicating limited gains in mileage efficiency. However, passenger trips per revenue hour saw a 12 percent decline during the same period, suggesting that the service struggled with time efficiency, as fewer trips were being completed within the operational hours.

Despite these challenges, Ferrum's cost metrics have shown significant improvement. The cost per passenger trip dropped dramatically by 73 percent between FY 2021 and FY 2023, indicating that the service became more cost-effective in terms of serving individual passengers. Similarly, the cost per passenger revenue mile decreased by 72 percent, while the cost per passenger revenue hour fell by 76 percent. These substantial reductions suggest that despite lower ridership efficiency, the service has made significant strides in reducing operational costs, potentially through optimizing resources or adjusting service levels to better match demand.

Table 25: Performance Measures Maury Express - FY 2018 – FY 2023

Metric	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 21-FY23 Variance
Passenger Trips per Rev Mile	0.04	0.05	0.03	0.02	0.02	0.02	3%
Passenger Trips per Rev Hour	1.12	1.34	0.94	0.48	0.36	0.43	-12%
Cost per Passenger Trip	$49.36	$48.88	$78.56	$141.49	$79.81	$38.25	-73%
Cost per Passenger Revenue Mile	$1.96	$2.28	$2.59	$2.58	$1.22	$0.72	-72%
Cost per Passenger Revenue Hour	$55.36	$65.29	$73.98	$68.50	$28.82	$16.27	-76%

Source: RADAR

LEVEL OF SERVICE

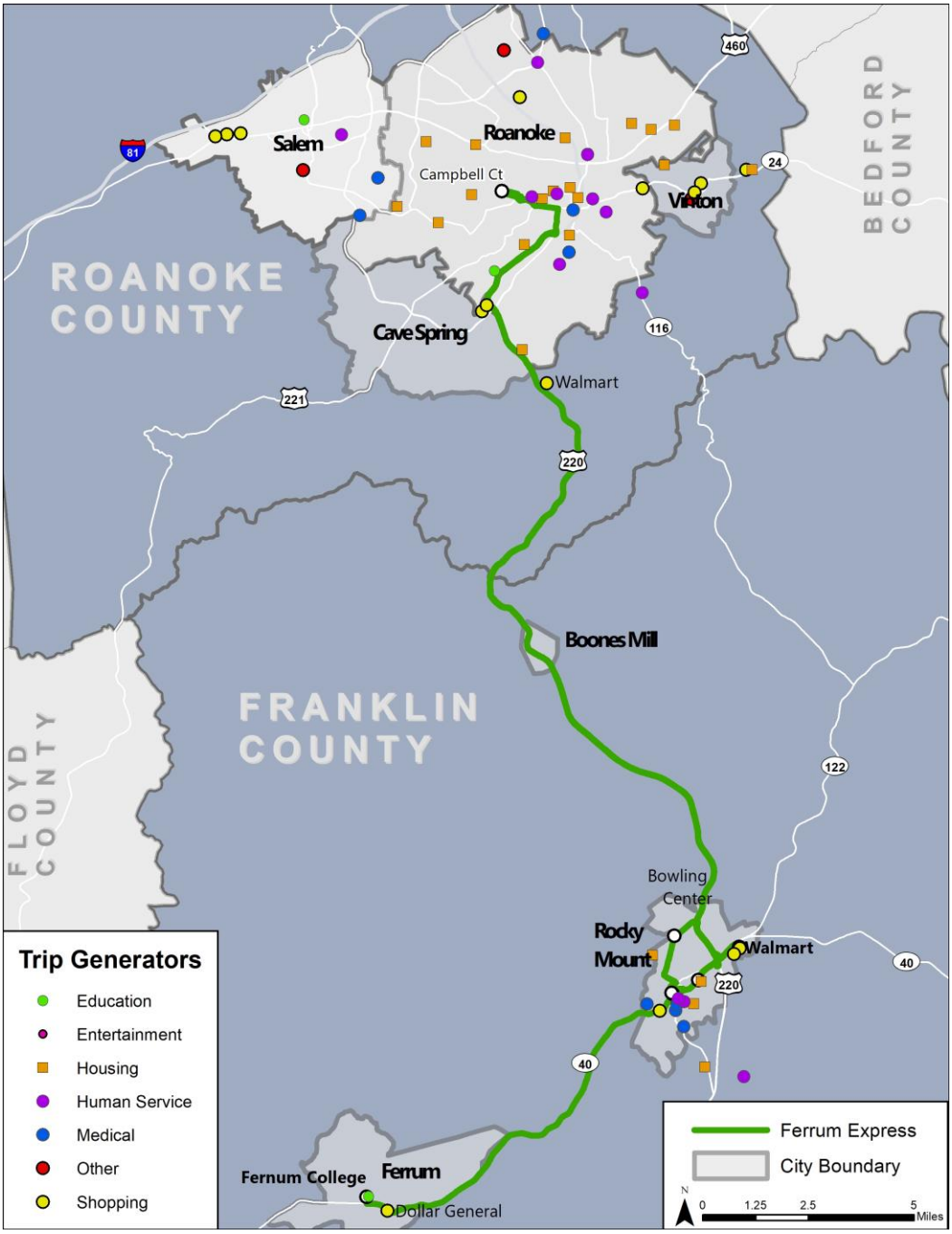
The Ferrum Express operates a fixed route service on Thursday and Friday between Ferrum College, Rocky Mount and Roanoke. The Ferrum Express operates Thursday and Friday, 5:00 p.m. to 11:00 p.m. between Ferrum College and Rocky Mount, and Saturday 1:00 p.m. to 12:00 p.m. between Ferrum College and Roanoke via Rocky Mount. The weekday bus starts at Ferrum College and makes a few stops in Rocky Mount, including the Walmart and the Farmers Market (twice), before returning west to Ferrum. On Saturday, the bus makes the same stops as the weekday bus, but heads north to Roanoke after stopping at Walmart. The last Saturday trip from Roanoke to Ferrum is at 10:00 p.m., while the last trip from Ferrum to Roanoke is at 11:00 p.m. On the return trip, the bus makes a few stops in Rocky Mount before returning to Ferrum. **Table 26** displays the service and operating characteristics to include service span, headways, the number of one-way trips, cycle time, and daily service miles and hours. **Figure 23** displays the major trip destinations serving along the route.

Table 26: Ferrum Express Service and Operating Characteristics, FY 2024

Service and Operating Characteristics	Weekdays	Saturday
Service Span	5:00 p.m. -11:00 p.m.	1:00 p.m. - 12:00 p.m.
Frequency (Minutes)	60	120

Service and Operating Characteristics	Weekdays	Saturday
One-Way Trips	6	6
Cycle Time (Minutes)	60	120
Daily Service Miles	159	415
Daily Service Hours	6	11

Figure 23: Ferrum Express Trip Generators



3.6. Peer Review

As part of the TDP process, a peer review was conducted to gain a snapshot of how RADAR performs to comparable agencies. This analysis helps identify areas in which RADAR is performing better than peers and areas that it is lagging. While RADAR operates both deviated fixed-route and demand-response services, performance was compared with only deviated fixed-route services as their STAR demand response services are managed and reported by another agency (Valley Metro). The agencies identified for comparison and analysis are presented below. Performance data for FY 2022 was used from the National Transit Database for these agencies.

Deviated fixed-route peers reviewed:

- Blackstone Area Bus Service (BABS)
- Four County Transit (FCT)
- Virginia Regional Transit (VRT)

Deviated Fixed-Route Comparison Results

As displayed in **Table 27**, RADAR transports 0.17 trips per mile, the same rate as its peer agency Four County Transit (FCT), but slightly more than Blackstone Area Bus System (BABS) and slightly less than Virginia Rail Transit (VRT). The operating cost per mile ($3.30) is the second highest among the peer agencies. However, the operating cost per trip ($19.25) is the lowest among the group. Among the group, only BABS charged a fare for its deviated fixed routes. **Figure 24** displays the peer agencies and key performance metrics on trips and operating costs.

Table 27: Peer Comparison of FY22 Deviated Fixed-Route Systems

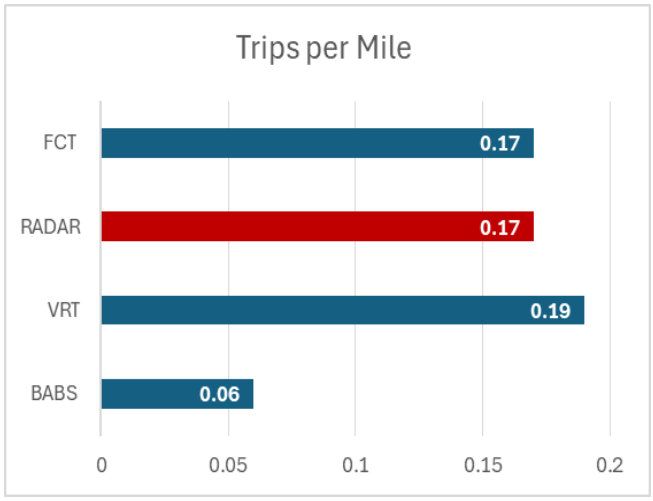
	RADAR*	FCT	VRT - Culpepper**	BABS	Peer Average
Passenger Trips	54,333	106,986	161,937	24,049	61,789
Revenue Miles	317,309	648,176	842,568	414,537	531,357
Revenue Hours	18,233	31,325	55,044	15,570	21,709
Operating Cost	$1,046,185	$2,099,902	$3,573,412	$562,568	$1,820,517
Fare Revenues	$0	$0	0	$25,935	n/a
Trips per Mile	0.17	0.17	0.19	0.06	0.15
Trips per Hour	2.98	3.42	2.94	1.54	2.49
Cost per Trip	$19.25	$19.63	$22.06	$23.39	$20.31
Cost per Mile	$3.30	$3.24	$4.24	$1.36	$3.77
Cost per Hour	$57.37	$67.04	$64.91	$36.13	$56.36
Farebox Recovery Ratio	0%	0%	0	4.61%	n/a
Average Speed (mph)	17.40	20.69	15.31	26.62	20

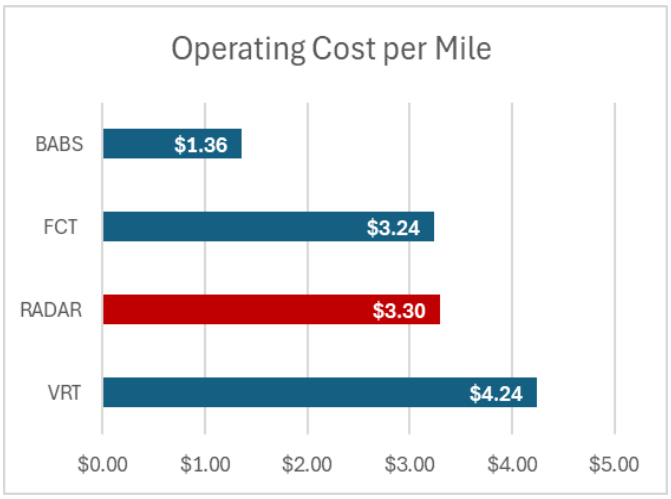
Source: NTD FY 2022

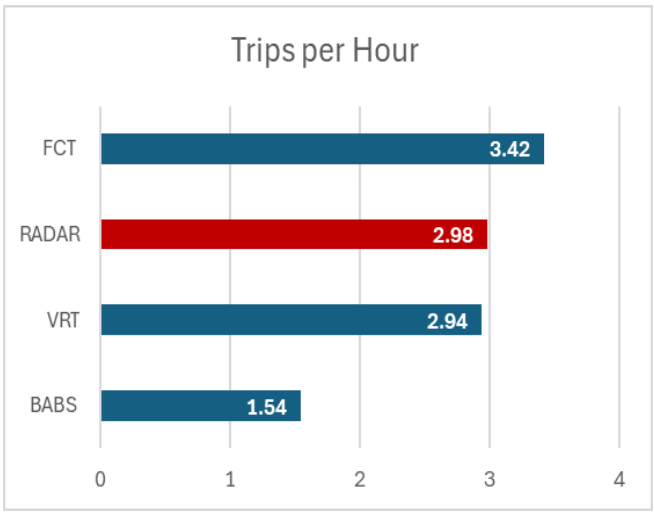
*Includes data for Martinsville & PART routes, the Maury Express, Ferrum Express and Mountain Express.

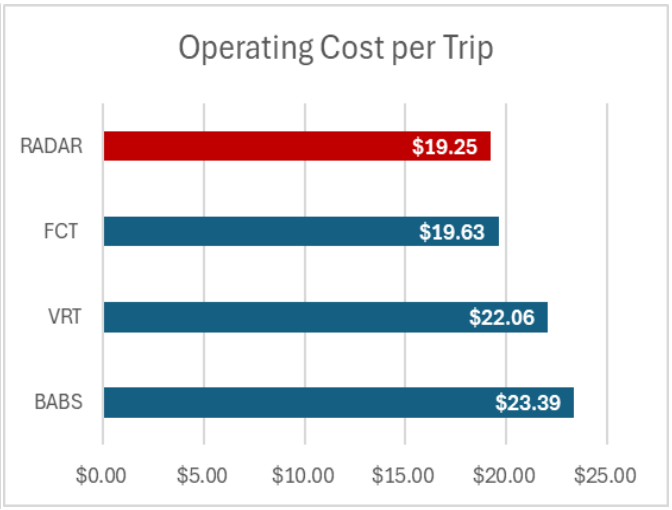
**VRT data includes some demand response and fixed-route service

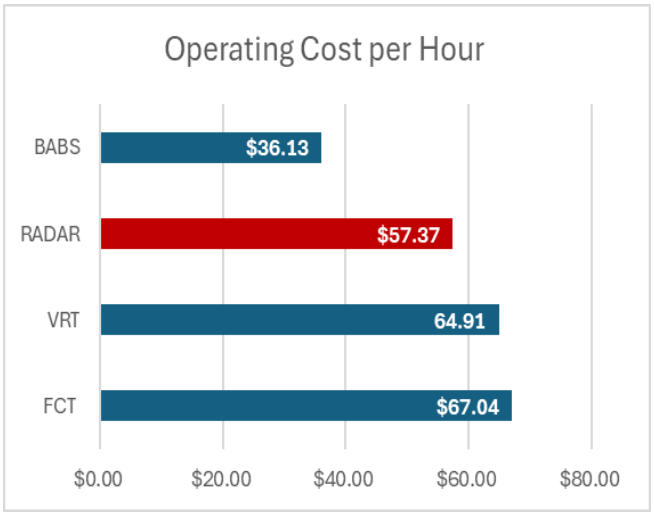
Figure 24: Peer Comparison, Deviated Fixed Route











3.7. RADAR Rider Surveys

An on-board survey of riders was conducted between 07/08/2024 and 07/26/2024 across RADAR services, yielding a total of 70 completed surveys. The survey was created for the Mountain Express, Maury Express, and PART, yielding 24, 14 and 28 surveys, respectively. No surveys were received for the Ferrum Express.

What follows are topline results of this survey effort.

Mode Use

- **Mode of Access:** Almost all riders either walked (89%) or used a used a mobility aid such as cane, walker, or wheelchair (8%) to access the first bus on their trip.
- **Mode of Egress:** About nine in ten riders (88%) said they would travel to their destination by walking after they got off their last bus. The remainder would use a mobility aid (6%), ride with someone (2%) or get to their destination another way (5%).
- **Frequency of Use:** More than one-half of riders use RADAR services one to two days per week (30%) or three to four days a week (26%).
- **Availability of Car:** Nearly nine in ten riders (89%) did not have a car available for the trip during which they completed the survey, which shows their reliance on RADAR services.

RADAR Ratings

- **Overall Satisfaction:** Riders were asked to rate their overall satisfaction with RADAR services on a scale of 1-5, where 5 meant very satisfied and 1 meant very dissatisfied. The majority of riders gave a positive rating (88% giving a four or five).
- **Satisfaction with Attributes of Transit:** The majority of riders expressed high satisfaction with RADAR services across all measures (72% to 97% rating a four to five out of five). At least ***nine in ten riders were satisfied with RADAR services being a low-cost travel option, being easy to understand how to use, and with crowdedness onboard RADAR vehicles*** (97%, 91%, and 90%, respectively). Notably, however, ***fewer than six in ten (56%) were satisfied with RADAR bus stops having adequate shelters***. Also causing a drag on overall satisfaction is lower satisfaction with RADAR communicating delays, cancellations, or changes (72%), being able to request a deviated trip (76%), and RADAR operating when riders say they need to travel (77%).
- **Likelihood to Recommend:** Three in four riders (75%) are promoters of RADAR, being very likely to recommend RADAR to their friends and family. This results in RADAR having a positive Net Promotor Score (NPS) of 57.
- **Transportation Needs:** RADAR received relatively positive ratings when it comes to meeting their riders' transportation needs (79% giving an eight to ten rating out of ten).
- **Comparison to Other Public Transit:** Nearly six in ten riders found RADAR's services to be better than other public transportation that they have used elsewhere (59% rating four to five).

Trip Purpose

- **Common Purposes:** Overall, more than two-thirds (68%) of riders use RADAR services for shopping. More than half of the riders (54%) use the service for medical or mental health needs. This is followed by 37% of riders using the services for personal errands or visiting religious, community, or senior centers and nearly one-third of riders (31%) who commute either to or from work (31%) and/or school (1%).
- **Likelihood to use for New Purpose:** Interestingly, not only is shopping the most common reason for using RADAR, but of the riders who do not currently use RADAR for shopping, over half (55%) would use RADAR for shopping if the option was available. Similarly, using RADAR for medical or mental health needs is the second most common reason for using RADAR and of the riders who do not currently use RADAR for this purpose, 53% would if the option was available.

Demographics/Rider Profile

- The majority of riders identified as female (58%), while 40% identified as male and a small portion (2%) identified as non-binary.
- About half of riders (52%) identified as White, non-Hispanic, with the remaining identifying as People of Color.
- Almost all riders (98%) speak English at home. The remaining primarily speak Spanish at home, or which all reported speaking English not very well.
- More than one-third of riders reported having a disability (38%), with 14% of these individuals using a mobility device (or 5% of all riders).
- The average age of RADAR riders is 52 years old, with more than four in ten (45%) being between the ages of 35-64 years, followed by 32% aged 65 or older and 23% aged 18-34.
- Nearly one-half of the riders (49%) have an annual household income of less than $15,000, resulting in an average income of $16,640 amongst RADAR riders.
- On average, RADAR riders live with one other person.

3.8. Driver Surveys

The RADAR Driver Survey is designed to gather valuable insights from bus operators regarding various aspects of RADAR's services. Six questions were asked to collect feedback from operators on the customer experience and perceived customer needs. 18 survey responses from bus operators were returned.

What customers like the most about RADAR / Frequent complaints:

- **Likes**:
    - Service Convenience: Many customers appreciate the convenience of RADAR's curb-to-curb service, the ability to get to their destinations, and the affordability or free rides offered.
    - Driver Politeness: Numerous respondents highlighted the politeness and professionalism of most RADAR drivers, as well as their ability to converse well with passengers.

  - Daily Accessibility: Customers value the daily availability of the service, which helps them meet personal, shopping, and employment needs.

- **Complaints**:
  - Driver Behavior: Repeated complaints about drivers being late, driving too fast, being rude, or not assisting customers (especially with groceries) were noted. Some respondents also mentioned drivers not following traffic rules or providing poor customer service.
  - Bus Conditions: Issues like poor air conditioning, narrow seats, and loud music were mentioned. Some customers also pointed out that drivers do not adhere to radio etiquette, which affects the overall experience.
  - Scheduling and Communication: Challenges with understanding the bus schedules, contacting bus stations for passes, and confusion about which bus goes where were common concerns.
  - Service Punctuality: Several respondents complained about buses arriving late or too early, as well as the elimination of ride turns, which affected their scheduling.

Locations or destinations needing RADAR service:

- **Commonly Requested Areas:**
  - Roanoke County, Botetourt County, Montgomery County, Bassett, Fincastle, Marina Landing Apartment Complex, Fieldale, and Joseph Martin Highway were among the frequently mentioned locations where service is needed or should be extended.
  - Some respondents requested specific pick-up and drop-off locations, such as schools in Roanoke County and Exxon station in Clifton Forge.
  - There were mentions of extending service to 10th Street in Buena Vista for hikers and questioning the exclusion of Route 18.

Services that should be structured differently:

- **Vehicle Modifications**:
  - Suggestions included adding handrails on transit vans, wider seats, new tablets, better air conditioning, and the inclusion of aides to assist people with disabilities.
- **Service Adjustments**:
  - Respondents recommended restructuring certain aspects of the service, such as implementing double pick-ups, avoiding unnecessary routes (e.g., to Mountain Gateway College without riders), and maintaining bus stops and signage.
  - Specific suggestions also included more education on rules for passengers, avoiding excessive miles, and improving communication systems like the 2-way radios.

Specific times with more passengers

- **Peak Hours:**
    - The surveys indicated that certain times of the day see higher passenger volumes, particularly:
        - Morning: 8 AM to 1 PM, especially on the Cliffhook Ridge route and during the first trips on the Buena Vista route.
        - Afternoon: Peak times include 2 PM to 9 PM, 3 PM to 6 PM, and late afternoon. These times were noted as busy, with increased will-call requests and more passengers on the Clifton Forge route.
        - Evenings: The city and certain areas like North County and Martinsville were mentioned as busier during the evening hours.

Other solutions or thoughts:

- **Service Enhancements:**
    - Customers suggested longer service hours, including extending service to Saturdays, or possibly two Saturdays per month.
    - Recommendations also included improving customer service, maintaining buses in good condition, upgrading bus stop signs, and ensuring that drivers follow proper rules and etiquette.
    - Specific operational suggestions included focusing on customer education regarding fare readiness and seating, maintaining the buses better, and revisiting fare pricing.

3.9. Financial Analysis

Funding Sources

COVID-19 significantly affected RADAR's financial performance in FY2021, particularly in terms of passenger fare revenue and other income sources. Passenger fares, which typically help offset RADAR's operating expenses, accounted for between 0.3% and 0.9% of total operating costs in the last five fiscal years, dropping to zero percent in FY2022. The shortfall in fare revenue has been largely covered by federal, state, and local funding. Over the past five fiscal years, federal funding sources have included FTA Formula Grants for Rural Areas (5311), CARES Act Rural Area Program Funds (5311), and the Enhanced Mobility of Seniors & Individuals with Disabilities (5310) Program. These funding streams have played a critical role in sustaining RADAR's operations during challenging times and will continue to be essential as the agency works towards post-pandemic recovery.

Operating Budget

Table 28 provides RADAR's detailed operating budget and actual expenditures for fiscal years 2019 through 2023. The data reveals a slight decrease in expenses from FY2019 to FY2020, with a 2.5% reduction likely attributed to the slowdown in operations caused by the COVID-19 pandemic. This decrease aligns with a significant drop in total vehicle miles, which fell by 22.4% during the same period. Although overall costs have increased by 2.6% over the past five fiscal years, revenue

mileage has not yet returned to its pre-pandemic levels, indicating that service demand and operational activity are still in the recovery phase.

Table 28: RADAR Operating Budget – FY 2019 – FY 2023

Operating Expenses	FY19	FY20	FY21	FY22	FY23
Operators Wages	$ 2,056,116	$ 2,074,556	$ 2,090,608	$ 2,041,430	$ 2,011,541
Other Salaries & Wages	$ 894,821	$ 876,381	$ 860,329	$ 909,507	$ 939,396
Fringe Benefits	$ 494,038	$ 465,290	$ 473,662	$ 501,668	$ 505,197
Services	$ 16,830	$ 13,478	$ 13,347	$ 31,161	$ 29,214
Fuel and Lube	$ 502,283	$ 368,792	$ 395,392	$ 591,183	$ 558,012
Tires	$ 30,930	$ 20,329	$ 21,072	$ 28,608	$ 36,109
Other Materials & Supplies	$ 84,709	$ 53,781	$ 42,311	$ 82,573	$ 82,243
Utilities	$ 35,964	$ 34,476	$ 35,863	$ 42,267	$ 52,291
Casualty and Liability	$ 44,172	$ 44,972	$ 47,662	$ 56,141	$ 59,948
Taxes	$ 0	$ 0	$ 0	$ 0	$ 0
Miscellaneous	$ 430,957	$ 524,625	$ 561,090	$ 406,236	$ 434,442
Total	**$ 4,590,820**	**$ 4,476,680**	**$ 4,541,336**	**$ 4,690,774**	**$ 4,708,393**
Vehicle Revenue Hours	**88,282**	**68,479**	**54,278**	**56,701**	**59,085**

Source: RADAR

Capital Budget

Table 29 presents RADAR's detailed capital budgets from FY2020 through FY2025 (budgeted). Over the past three fiscal years, a significant portion of RADAR's capital expenditures has been allocated to vehicle-related costs. These expenses encompass both the acquisition of new vehicles for fleet replacement and the costs associated with maintaining and repairing existing vehicles. This focus on vehicle investment underscores RADAR's dedication to sustaining a reliable fleet that ensures safe and efficient transportation services for the community.

Table 29 also provides a comprehensive breakdown of the funding sources allocated to these purposes. In FY2021, most expenses were covered by the FTA CARES Act grant, while funding for the subsequent fiscal years primarily came from FTA 5311 and 5310 grants. Beyond vehicle-related expenditures, RADAR has also invested in critical capital improvements, including the procurement of new automated scheduling and ADP software systems, along with the necessary hardware. Looking ahead to FY2025, the budget includes planned facility renovations, such as flooring replacements and the installation of new equipment, further enhancing RADAR's operational capabilities.

Table 29: RADAR Capital Budget – FY 2020 – FY 2025

FY	Expenditure	Total	Federal	State	Local	Funding Type
2025	Facility Equipment - Mechanical (Boiler)	$ 82,500	$13,200	$66,000	$3,300	FTA 5311
2025	Facility Equipment - Electrical (Lighting at Maintenance Facility)	$13,200	2,112	$10,560	$528	FTA 5311
2025	Facility Equipment - Mechanical (Maintenance Cooling Machine)	$5,990	$958	$4,792	$240	FTA 5311
2025	Rehab/Renovation of Maint. Facility (Floor Replacement)	$61,327	$9,812	$49,062	$2,453	FTA 5311
2025	Rehab/Renovation of Maint. Facility (Bathroom Floor Replacement)	$7,370	$1,179	$5,896	$295	FTA 5311
2025	Replacement - Light-duty, Small-size transit bus or BOC (7)	$1,091,148	$174,584	$872,918	$43,64	FTA 5311
2025	ADP Software - Admin (Accounting Software Replacement)	$75,000	$12,000	$60,000	$3,000	FTA 5311
2024	Replacement - Light-duty, Small-size transit bus or BOC (10)	$1,300,000	$1,040,00	$208,000	$52,00	FTA 5311
2024	Shop Equipment (Vehicle Lifts)	$150,000	$120,000	$24,000	$6,000	FTA 5311
2024	Shop Equipment (Floor Scrubber)	$12,000	$9,600	$1,920	$480	FTA 5311
2024	Replacement paratransit vehicle (1)	$110,000	$88,000	$ -	$22,000	FTA 5310
2024	Replacement paratransit vehicle (1)	$110,000	$88,000	$ -	$22,000	FTA 5310
2023	Replacement paratransit vehicle (2)	$140,000	$112,000	$ -	$28,000	FTA 5310
2023	Two-Post Lift (Garage)	$62,000	$31,000	$28,520	$2,480	FTA 5311
2023	Software Transition	$100,000	$50,000	$46,000	$4,000	FTA 5311
2022	Replacement - Light-duty, Small-size transit bus or BOC (5)	$350,000	$280,000	$56,000	$14,000	FTA 5311
2022	ADP Hardware - Operations (10); replace onboard tablets	$5,000	$4,000	$800	$200	FTA 5311
2022	ADP Hardware - Operations (5); dispatch/scheduling computers	$5,000	$4,000	$800	$200	FTA 5311
2022	ADP Software - Operations; Replacement Scheduling Software	$100,000	$80,000	$16,000	$4,000	FTA 5311
2022	14 Pass. Body on chassis w/wheelchair lift (2)	$130,000	$130,000	$ -	$ -	FTA 5310
2021	Body on Chassis, 4 years/100,000 miles (7)	$490,000	$490,000	$ -	$ -	FTA CARES
2021	ADP Hardware	$17,322	$17,322	$ -	$ -	FTA CARES
2021	Surveillance/Security Equipment	$30,000	$30,000	$ -	$ -	FTA CARES
2021	Replacement Paratransit Vehicle	$130,000	$104,000	$ -	$26,000	FTA 5310
2020	Purchase Replacement Body On Chassis w/Wheelchair Lift (10)	$650,000	$520,000	$104,000	$26,000	FTA 5311
2020	Purchase Computer Hardware	$10,000	$8,000	$1,600	$400	FTA 5311
2020	Purchase Shop Equipment (3)	$21,000	$16,800	$3,360	$840	FTA 5311

FY	Expenditure	Total	Federal	State	Local	Funding Type
2020	Bus Rehab/Renovation of Admin/Main Facility	$45,000	$36,000	$7,200	$1,800	FTA 5311
2020	Bus Rehab/Renovation of Admin/Main Facility	$25,000	$20,000	$4,000	$1,000	FTA 5311
2020	Purchase Shop Equipment	$10,000	$8,000	$1,600	$400	FTA 5311
2020	Purchase Expansion Body on Chassis w/Wheelchair Lift (2)	$130,000	$104,000	$20,800	$5,200	FTA 5311
2020	Replacement Paratransit Vehicle	$130,000	$104,000	$ -	$26,000	FTA 5310

Source: RADAR

3.10. Demographics and Land Use

Comprehensive Plans and Future Land Use

RADAR provides transit to a service area spanning 5 counties: Alleghany, Rockbridge, Roanoke, Franklin and Henry. RADAR offers some deviated fixed-route services in each of these counties, and a fixed-route express service between Ferrum (Franklin County) and Roanoke. Each of these jurisdictions has comprehensive plans that include summaries of existing and planned future land uses. These future land use plans include discussions of planned or desired development that may eventually benefit from transit access. Several cities and towns in this region also have comprehensive plans including the City of Martinsville in Henry County, the Town of Rocky Mount in Franklin County and the City of Roanoke in Roanoke County.

Alleghany County

Alleghany County last adopted its comprehensive plan in 2013, which was updated in 2019. The City of Covington was a partner during the comprehensive planning process but has its own unique implementation plan for its jurisdiction. The towns of Clifton Forge and Iron Gate have their own comprehensive plans as well. A primary goal for Alleghany County is to reverse the population decline of the past several decades (roughly a decline of 1,000 people per decade). Another key goal is ensuring the stability and vitality of neighborhoods and commercial centers; by improving and expanding the variety of the current housing stock to reduce out-migration and encourage in-migration, cultivating infill and/or redevelopment particularly in areas with vacant or dilapidated buildings, and launching a gateway development initiative to enhance key entrances to the County. There are large areas in the County which are identified as “very low development potential” to maintain the rural nature of the valleys and views of the mountain ridge lines, so any development is concentrated in areas with existing infrastructure. The County seeks to revitalize downtown Covington by marketing the core area for economic development and encouraging a vibrant and walkable downtown.

In the future land use map, there are several designated “Rural Communities” situated along major corridors, which will allow for a denser cluster of residential homes and businesses. They are located in the County east of Iron Gate along I-64, and at Callaghan, Falling Spring and Longdale Furnace. “Residential transition” locations are situated outside of Covington and the main towns and zoned to allow for a transition from rural areas into higher density urban environments. “Highway Mixed Use” areas can be found east of Covington and Clifton Forge along I-64 and consist of various commercial, industrial and civic uses. The plan notes the County needs to review existing zoning categories to determine if a County-wide

rezoning will be necessary to complement the future land use map. The County identified the communities of Callaghan, Boiling Springs and Wrightsville as priority areas that will require higher quality housing, infrastructure and utilities.

City of Martinsville

The City of Martinsville, part of Henry County, last adopted its comprehensive plan in 2009 and last updated its plan in 2021 with new versions of the "Transportation Plan" and "Land Use Plan". The comprehensive plan outlines several key challenges for Martinsville, including a high demand for a variety of housing, especially as population demographics change. For example, the summary of population demographics in Martinsville indicates that between 1990 and 2000, there was about a 10 percent decline in persons living in family households, while persons in group quarters such as nursing homes increased significantly by 385 percent. In response to this spike in demand, the City has been building more retirement facilities to accommodate more elderly citizens. In 2006, the New College Institute was established in Martinsville. In 2015, a 52,000 SF facility opened which has attracted hundreds of students and young adults in the western part of Uptown, creating a demand for student housing and middle to upper-middle income residents.

The City is placing a greater emphasis on creating a multimodal transportation network and has designated three Urban Development Areas (UDAs) following the guiding principles of Virginia's statewide transportation plan (VTrans 2045). VTrans provides targeted funding opportunities for Traditional Neighborhood Development (TND), walkable places and alternative means of travel aside from the automobile, which the City has sought funding for. These UDAs are appropriate for higher density development due to their proximity to transportation facilities and public utilities. The three UDAs in the City (pg. 266) are in the western and eastern side of uptown (near the New College Institute campus) and the third UDA encompasses a significant portion of the Fayette Street corridor and surrounding streets, which has been the center of the City's African American community and has also been an economically distressed area. There are also Industrial and Economic Development Areas (IEDA) identified as economic development sites, including one inside the City borders (Rives Road Industrial Site) and five within the County (pg. 173).

The City's updated land use plan notes approximately 18% of the City is composed of commercial and industrial land use, compared to 69% residential, most of which is located outside of the city core. High density residential districts are currently located in the Southside and Westside neighborhoods. There is also a residential transitional district adjacent to more developed areas such as Uptown and City's CBD which permits mixed-use development. However, little, if any, new housing has been developed in the city in recent years, with the redevelopment of the former Henry Hotel as market-rate Uptown housing being the exception. Several former industrial sites are targeted for redevelopment and housing in the West End neighborhood and Sara Lee – Baldwin UDA. The City continues to shift away from a manufacturing and industrial base to a more commercial and service base and has updated some of its zoning code to reflect the growing importance of the Health Care and Social Assistance sector as well as Retail Trade sector.

Franklin County

Franklin County last adopted its comprehensive plan in 2007 and is currently in the process of beginning to update a new plan that will cover the County for the next twenty years (Franklin County 2045). The County and the Town of Rocky Mount (the County Seat) coordinate growth that occurs near the town limits including policies such as extensions of water and sewer services, rezonings, subdivisions and site plan reviews. The County encourages higher density residential

developments and housing projects for populations with special needs close to supporting services and facilities. The small town of Boones Mill is also on Route 220 and is slowly adapting to new residents moving in from outside the County. Ferrum is home to Ferrum College as well as an industrial park developed by the County. Future development will be supported in Ferrum by a fiber optic trunk line. Several villages as well as "Rural Neighborhood Centers" in the County and their corresponding policies and guidelines are also listed in the plan.

Henry County

Henry County last adopted its comprehensive plan in 1995, covering up to 2010. The plan's land use section noted the rapid trend in commercial and residential strip developments, the result of which are places which might lack a unique "sense of place" and are indistinguishable from each other. Suburban sprawl was noted as another trend, which has been complemented by manufactured home developments and the tendency for developers to create large lot subdivisions. The future land use plan includes targeted growth areas to direct development and to divert development from environmentally sensitive areas. These growth areas include Collinsville/Fieldale, Bassett/Stanleytown, Iriswood, Ridgeway, Horspasture and West Bassett.

In the Collinsville area, the Route 220 Business corridor is a designated commercial area and contains the County's most intensive commercial development, including shopping centers and individual commercial sites, including the Walmart near the City limits. However, the corridor has grown in an "haphazard and unplanned manner", resulting in new streets intersecting with the main corridor, curb cuts for each establishment and significant congestion during peak hours. Overall, this area has the highest amount of multi-family housing in the County, with apartments located within suburbs of Collinsville, and smaller complexes in Fieldale, Villa Heights, and off Kings Mountain Road. The land use plan calls for continued medium to high density residential development for much of the area and calls for office and professional land uses along King's Mountain Road. In addition, the plans note the County could improve the area with a landscaping program along the right-of-way, "fix-up" programs for retail properties.

Roanoke County

Roanoke County last adopted its comprehensive plan in 2005. Since then, other plans and studies have been adopted as part of the comprehensive plan, including small area and community studies like the 2021 Oak Grove Center Plan and 2020 Hollins Center Plan. The county plan notes that in 2010 Roanoke County had a diverse housing stock meeting the demands of current and future residents. Land use recommendations include future growth areas identified as "Development" and to a limited extent "Village Centers" which should be built at higher densities and "must be attractive places to live and work". Many design strategies to support growth areas are listed include rezoning to allow for greater densities, neighborhood streets that encourage walking and biking, and infill development that addresses accessory dwellings, frontage requirements, setbacks and parking requirements. The plan also recommends decreased residential density in rural areas, encouraging rural conservation and developing design standards for Rural Village Centers.

Rockbridge County

Rockbridge County last adopted its comprehensive plan in 2016. Currently the county has a draft comprehensive plan, which has not been adopted yet by the city council (plan was recommended to the City Council in July 2024). The draft plan notes the county has two areas where most of its public water and sewer is planned for new development, the Suburban Planning Areas (areas surrounding Lexington, Buena Vista, and the Towns of Glasgow and Goshen) and the Village

Planning Areas (Raphine, Fairfield, and Natural Bridge). The Kerrs Creek and Walkers Creek District house the largest population and housing in the county, with more than 4,000 residents combined. The County does not currently have any major subdivisions platted or under review but is studying the costs and benefits of extending public utility services to the I-81/Route 60 interchange to attract development. In addition, the County is working to seek new economic growth through projects like a regional Artisans and Cultural Center, which would be built near the Raphine exit (205) on I-81. The county's two universities are also anticipating expansions in their master plans. Washington and Lee University are planning additional on-campus housing to reduce vehicle trips.

3.11. Population Trends

Table 30 displays the historical population levels of the cities and counties within the RADAR service area for years 2000, 2010 and 2020. The RADAR service area has grown just two percent from 2000-2020, well behind the twenty-two percent growth the state of Virginia has experienced in that same timeframe. Martinsville's thirteen percent loss over the 20-year period is the highest in the region, while Alleghany County's eighteen percent growth represented the largest in the region during that timeframe. Franklin County's population notably grew by nineteen percent between 2000 and 2010 but dropped 3 percent between 2010 and 2020. Most jurisdictions in the region have stagnant growth levels.

Table 30: Historical Population of RADAR Service Area

Jurisdiction	2000 Population	2010 Population	2020 Population	2000-2010 Percentage Change	2010-2020 Percentage Change	2000-2020 Percentage Change
Virginia	7,078,515	8,001,024	8,631,393	13%	8%	22%
Alleghany County, Virginia	12,926	16,250	15,223	26%	-6%	18%
Franklin County, Virginia	47,286	56,159	54,477	19%	-3%	15%
Henry County, Virginia	57,930	54,151	50,948	-7%	-6%	-12%
Roanoke County, Virginia	85,778	92,376	96,929	8%	5%	13%
Rockbridge County, Virginia	20,808	22,307	22,650	7%	2%	9%
Buena Vista, Virginia	6,349	6,650	6,641	5%	0%	5%
Covington, Virginia	6,303	5,961	5,737	-5%	-4%	-9%
Lexington, Virginia	6,867	7,042	7,320	3%	4%	7%
Martinsville, Virginia	15,416	13,821	13,485	-10%	-2%	-13%
Roanoke, Virginia	94,911	97,032	100,011	2%	3%	5%
Salem, Virginia	24,747	24,802	25,346	0.22%	2%	2%
Region Total	**379,321**	**396,551**	**398,767**	**5%**	**1%**	**6%**

Source: American Community Survey, Five-Year Estimates

Table 31 shows more recent changes in the RADAR service area population. From 2018-2022, the overall region saw a forty-two percent increase in population. Buena Vista (3.62%), Martinsville (3.24%) and Lexington (3.21%) all saw 3 percent or greater population increases, while Franklin County, Roanoke and Salem saw their populations decrease.

Table 31: Recent Population of RADAR Service Area

Jurisdiction	2018 Population	2022 Population	2018-2022 Percentage Change
Virginia	8,413,774	8,624,511	2.50%
Alleghany County, VA	15,286	15,159	-0.84%
Franklin County, VA	56,233	54,838	-2.54%
Henry County, VA	51,588	50,760	-1.63%
Roanoke County, VA	93,583	96,653	3.18%
Rockbridge County, VA	22,509	22,673	0.72%
Buena Vista, VA	6,399	6,639	3.62%
Covington, VA	5,582	5,722	2.45%
Lexington, VA	7,110	7,346	3.21%
Martinsville, VA	13,101	13,539	3.24%
Roanoke, VA	99,621	99,213	-0.41%
Salem, VA	25,519	25,372	-0.58%
Region Total	**396,231**	**397,914**	**0.42%**

Source: American Community Survey, Five-Year Estimates

Finally, **Table 32** shows future population estimates for Virginia and the jurisdictions within RADAR's service area from University of Virginia's Weldon Cooper Center for Public Service Demographic and Workforce Group. Overall, the area is projected to gain just 3,500 residents over the next 30 years. This is much lower than the projected growth throughout Virginia. Roanoke City and County will be the main driver of population growth in the region, while many of the smaller jurisdictions are expected to drop in population in the future.

Table 32: Future Population Estimates for RADAR Service Area

Jurisdiction	2030 Population	2040 Population	2050 Population
Virginia	9,128,002	9,759,371	10,535,810
Alleghany County, VA	13,993	12,805	11,809
Franklin County, VA	52,038	54,813	58,409
Henry County, VA	47,061	42,927	39,436
Roanoke County, VA	100,027	104,046	109,621
Rockbridge County, VA	22,663	23,237	24,158
Buena Vista, VA	6,537	6,584	6,730
Covington, VA	5,434	5,075	4,792
Lexington, VA	7,489	7,602	7,828
Martinsville, VA	12,961	11,818	10,853
Roanoke, VA	101,514	102,529	105,079
Salem, VA	25,519	25,438	25,737
Region Total	**395,236**	**396,551**	**398,767**

3.12. Demographic Factors Influencing Transit Use

Identifying the size and location of segments within the general population that are more likely to use public transportation is important when defining public transportation needs. These demographic factors include autoless households, age, disability status and income. Demographics data for the study area was analyzed at the Census tract level (accounting for population density) to highlight the extent to which people who may need public transportation are served by the current public transportation network.

Autoless Households

Households without a personal vehicle are more likely to depend upon the mobility offered by public transit than households with access to a car. Displaying this segment of the population is important because many land uses in the region are at distances too far for non-motorized travel. As seen in **Figure 25**, the census tracts with moderate to high numbers of autoless households are found in these areas:

- Alleghany County: Covington, Clifton Forge
- Rockbridge County: Lexington, northern half of Buena Vista
- Roanoke County: Many tracts around the City of Roanoke, including City of Salem, Town of Vinton and Cave Springs
- Franklin County: Town of Rocky Mount
- Henry County: Martinsville, parts of Collinsville near Stanleytown and a tract south of Martinsville adjacent to the southern PERT route

Older Adult Population

Individuals ages 65 and older may scale back their use of personal vehicles as they age, leading to a greater reliance on public transportation compared to those in other age brackets. Illustrated in **Figure 26**, census tracts with moderate to high numbers of the older adult population are found in these areas:

- Alleghany County: Southern half of Covington, Clifton Forge
- Rockbridge County: Lexington, northern half of Buena Vista
- Roanoke County: Many tracts around the City of Roanoke, including City of Salem and Town of Vinton
- Franklin County: Town of Rocky Mount
- Henry County: Martinsville and Collinsville

Youth Population

Youths and teenagers, age 10 to 17 years, who cannot drive or are just starting to drive but do not have an automobile available appreciate the continued mobility from public transportation. **Figure 27** illustrates the concentration of youth in the study area. Census tracts with moderate to high numbers of the youth population are found in the following areas:

- Alleghany County: Covington, Clifton Forge
- Rockbridge County: Lexington, southern half of Buena Vista

- Roanoke County: High levels in City of Roanoke, including City of Salem, Town of Vinton, Cave Springs. Many tracts in greater Roanoke with moderate levels
- Henry County: Mostly moderate levels of youth population in tracts surrounding Martinsville and Collinsville.

Individuals with Disabilities

Figure 28 illustrates individuals with disabilities in the study area. Persons with disabilities often rely on public transportation for their transportation needs. Census tracts with moderate to high numbers of the youth population are found in the following areas:

- Alleghany County: Covington, Clifton Forge
- Rockbridge County: Lexington, Buena Vista
- Roanoke County: High levels in City of Roanoke, including Town of Vinton, Cave Springs. Many tracts in greater Roanoke with moderate levels
- Henry County: High levels in the southern half of Martinsville. Moderate levels elsewhere in Martinsville and in Collinsville.

Transit Need Index

Figure 29 illustrates the overall transit need in the study area, which is determined by several factors weighted by the population density of the area, including autoless households, older adults, populations below the poverty level and individuals with disabilities. Census tracts with moderate to high numbers of transit need are found in each county in the following areas:

- Alleghany County: Covington, Clifton Forge
- Rockbridge County: Lexington, northern half of Buena Vista
- Roanoke County: High levels in City of Roanoke, including Town of Vinton, Cave Springs. Many tracts in greater Roanoke with moderate levels
- Franklin County: Town of Rocky Mount
- Henry County: High levels in central Martinsville. Moderate levels elsewhere in Martinsville and in Collinsville.

Population and Jobs Density Index

Figure 30 illustrates both the population and jobs density in the study area. Census tracts with high levels of population and jobs show high potential as origin and destination points for transit trips. Census tracts with moderate to high numbers of transit need are found in the following areas:

- Alleghany County: Covington, Clifton Forge
- Rockbridge County: Lexington, northern half of Buena Vista
- Roanoke County: High levels in City of Roanoke, including Town of Vinton, Cave Springs and City of Salem. Many tracts in greater Roanoke with moderate levels
- Franklin County: Town of Rocky Mount

- Henry County: High levels in central Martinsville. Moderate levels elsewhere in Martinsville.

Job Density

Census tracts with a high level of job density show high potential as destination points for transit trips but might have a lower population density in the same census tract. As seen in **Figure 31**, the census tracts with a moderate to high job density are found in the following areas:

- Alleghany County: Covington, the tract surrounding Clifton Forge
- Rockbridge County: Lexington, the tract between Lexington and Buena Vista, including Buena Vista and south of Buena Vista
- Roanoke County: Moderate to high levels in City of Roanoke and greater Roanoke, including Town of Vinton, Cave Springs, City of Salem and areas north and west of Salem
- Franklin County: Town of Rocky Mount, and the tracts adjacent to US-220 between City of Roanoke and Rocky Mount.
- Henry County: High levels in central Martinsville and census tracts south and north of Martinsville (including Collinsville).

Figure 25: Autoless Households

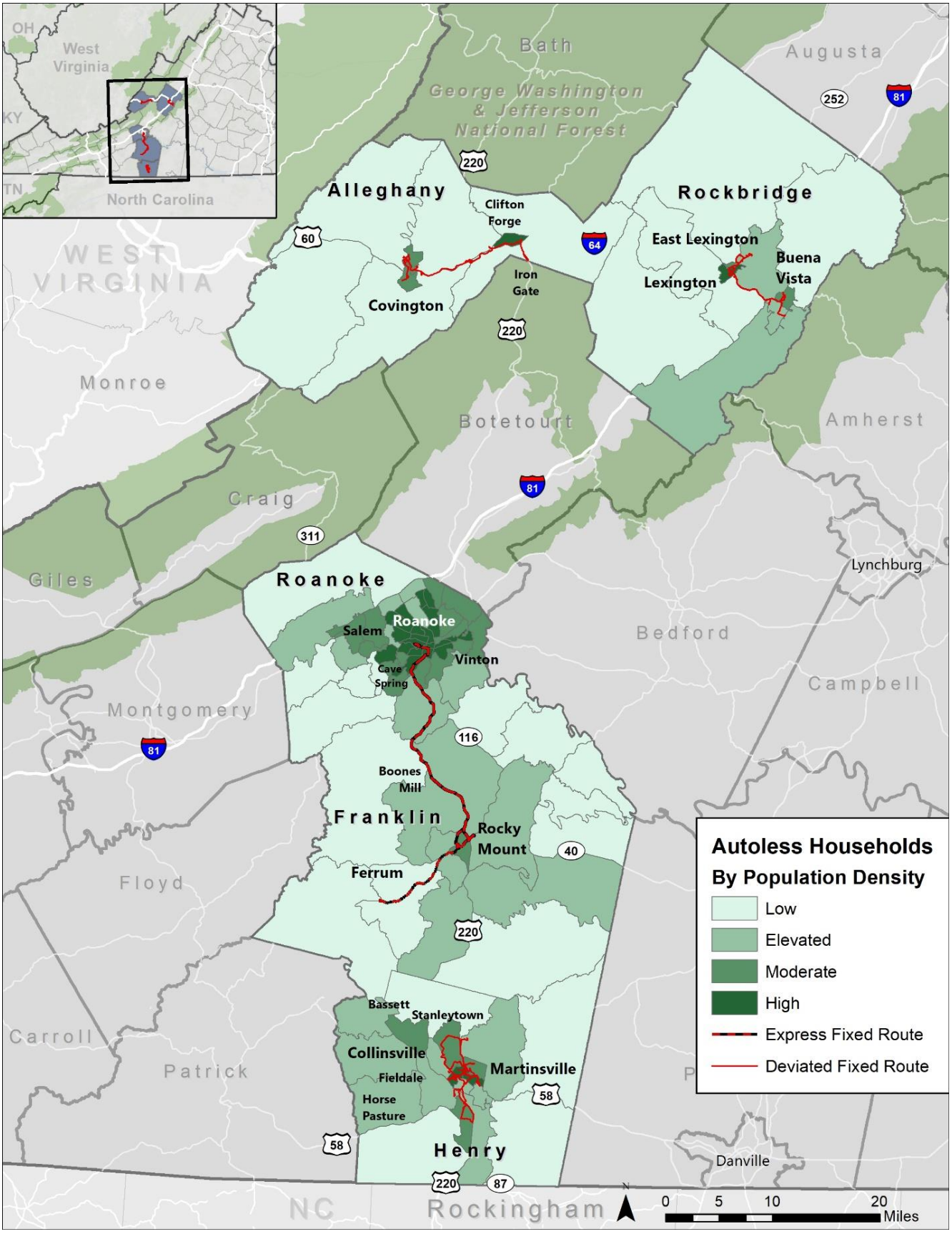


Figure 26: Older Adults (65+)

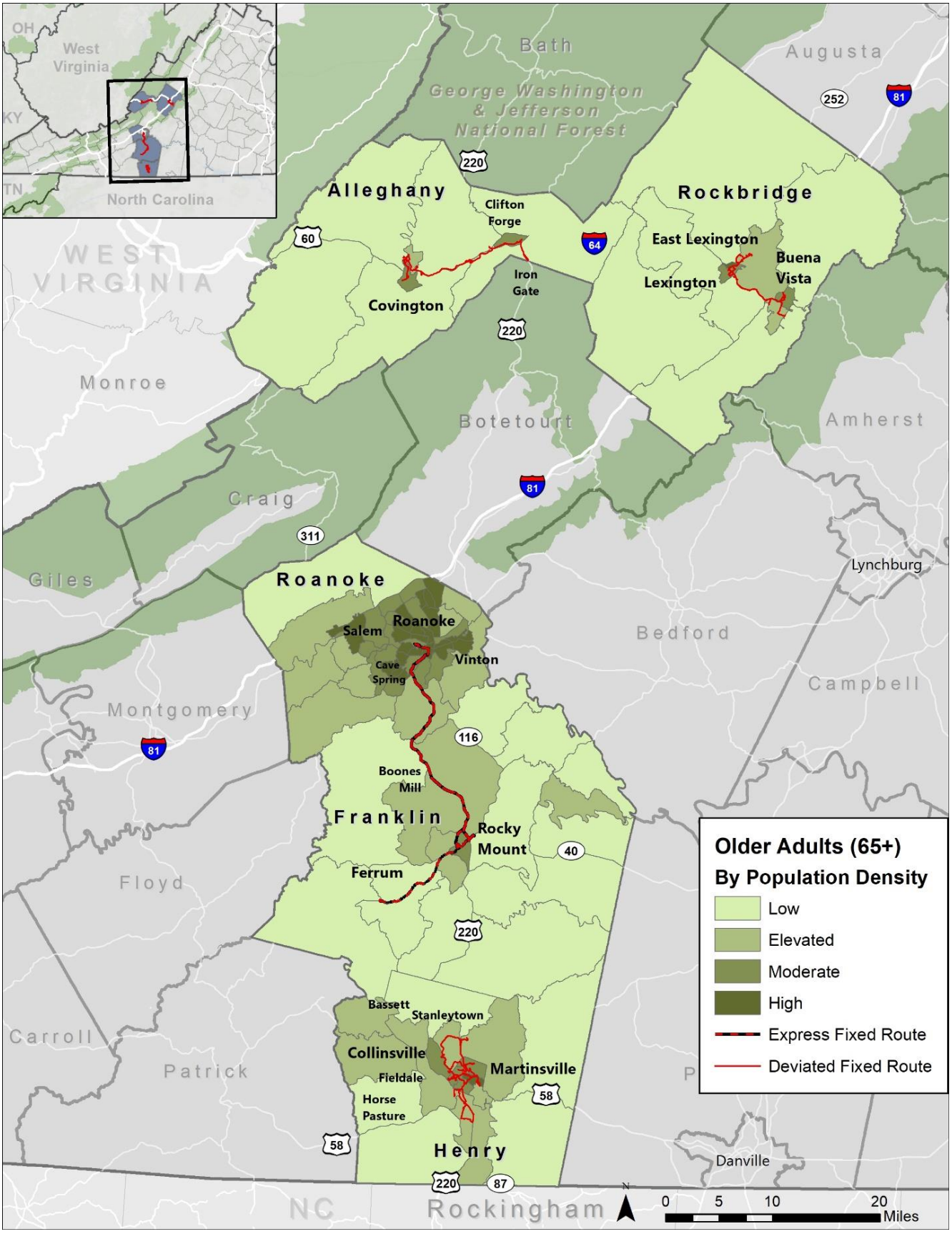


Figure 27: Youth (Age 10-18) Population

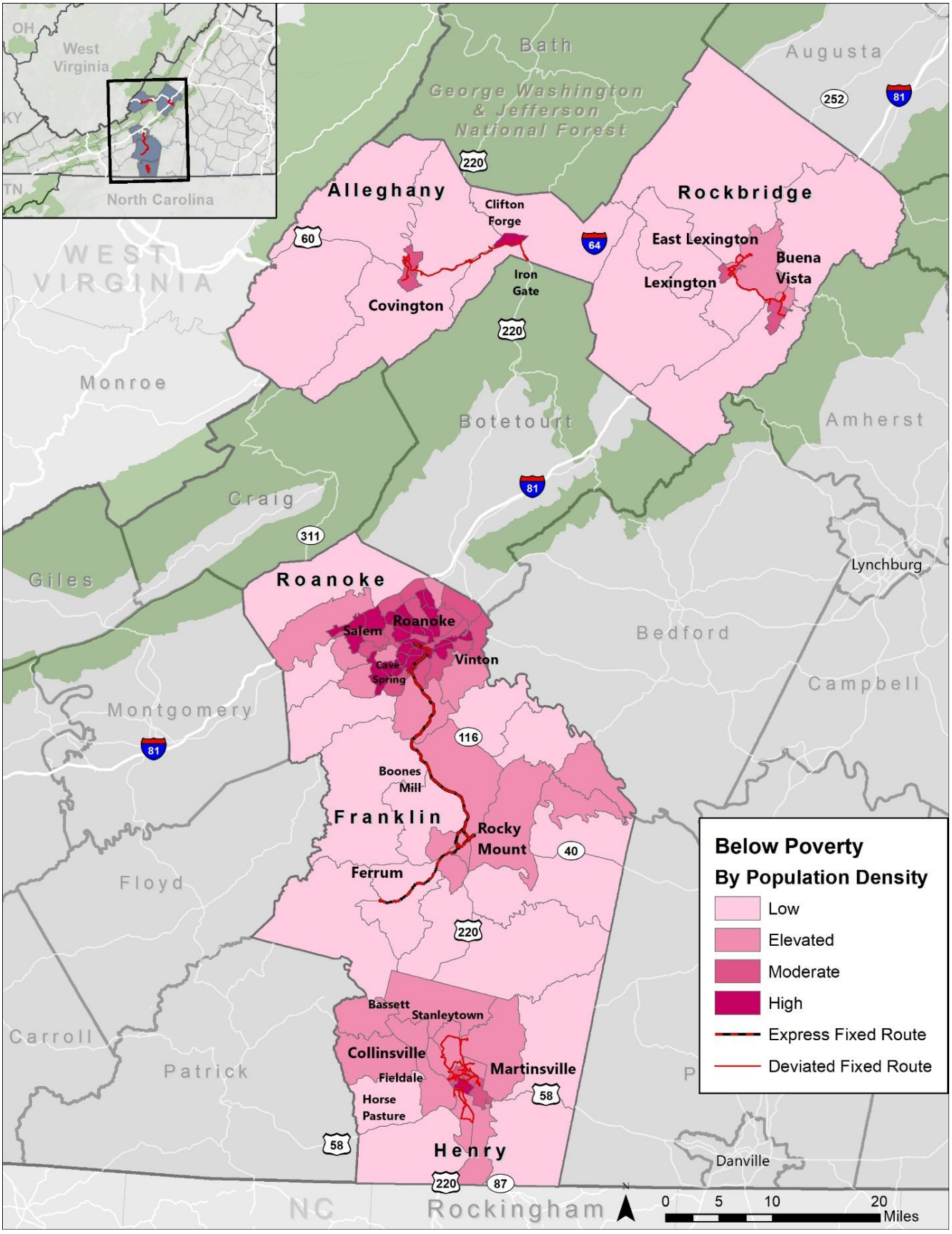


Figure 28: Individuals with Disabilities

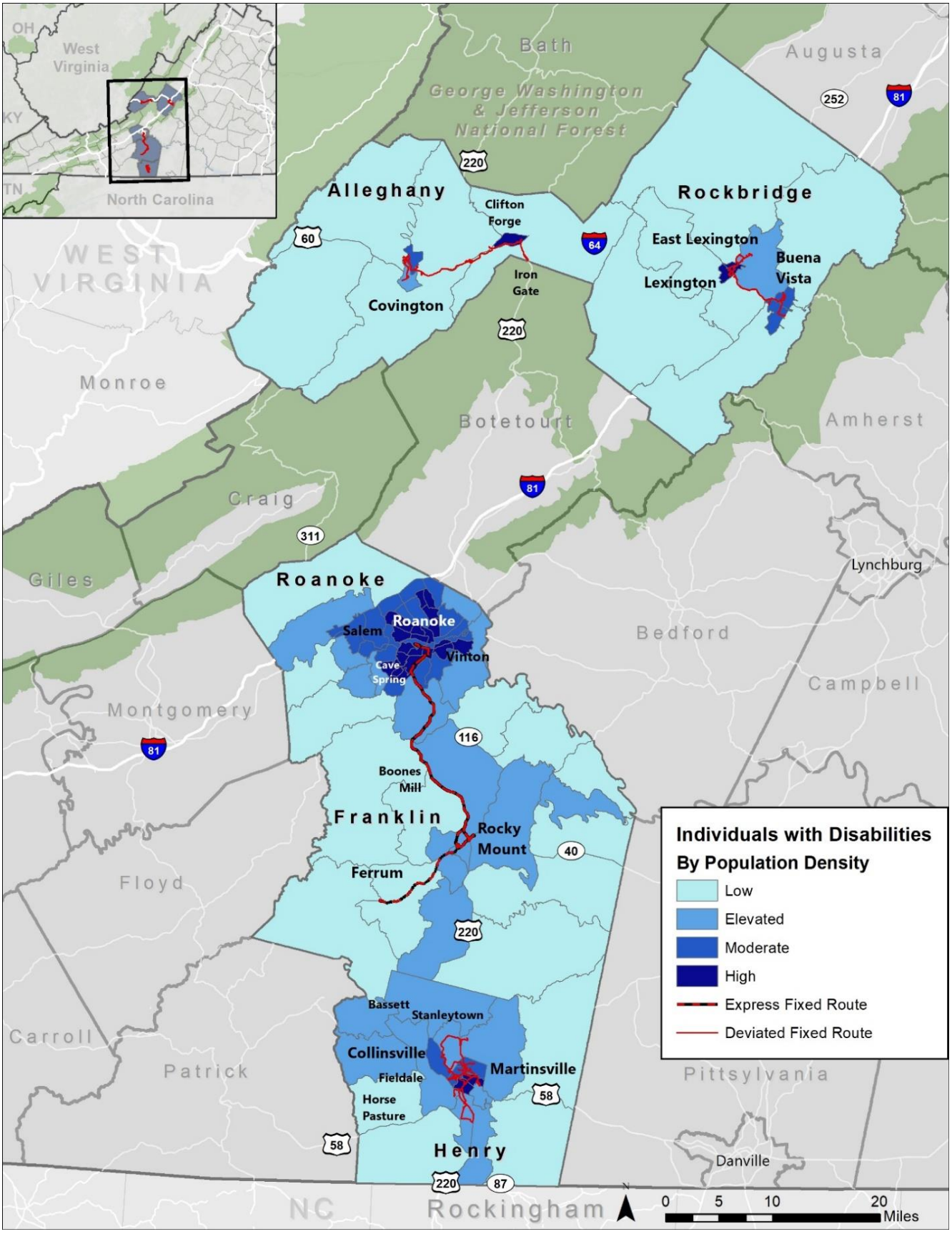


Figure 29: Transit Need Index

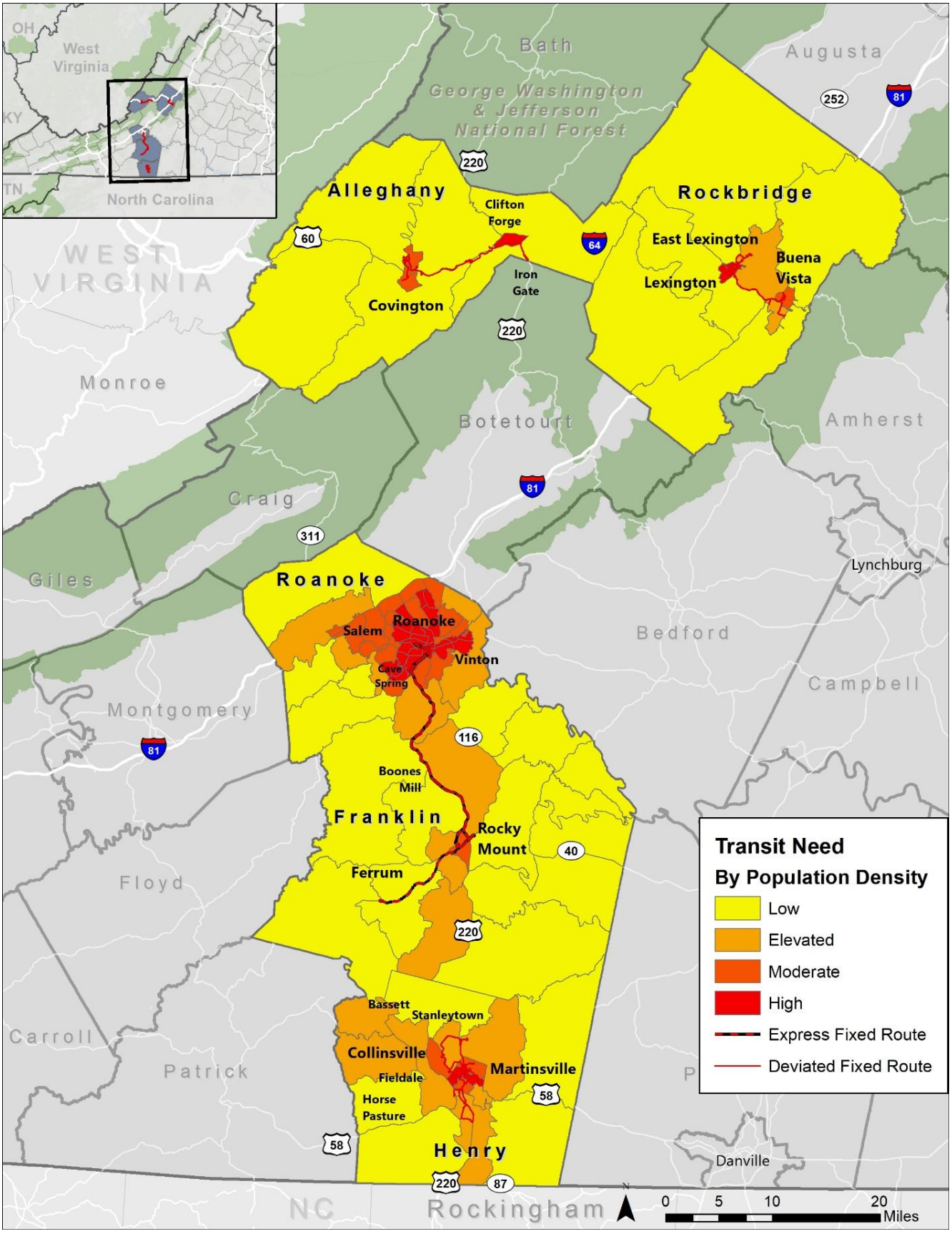


Figure 30: Population and Jobs Density

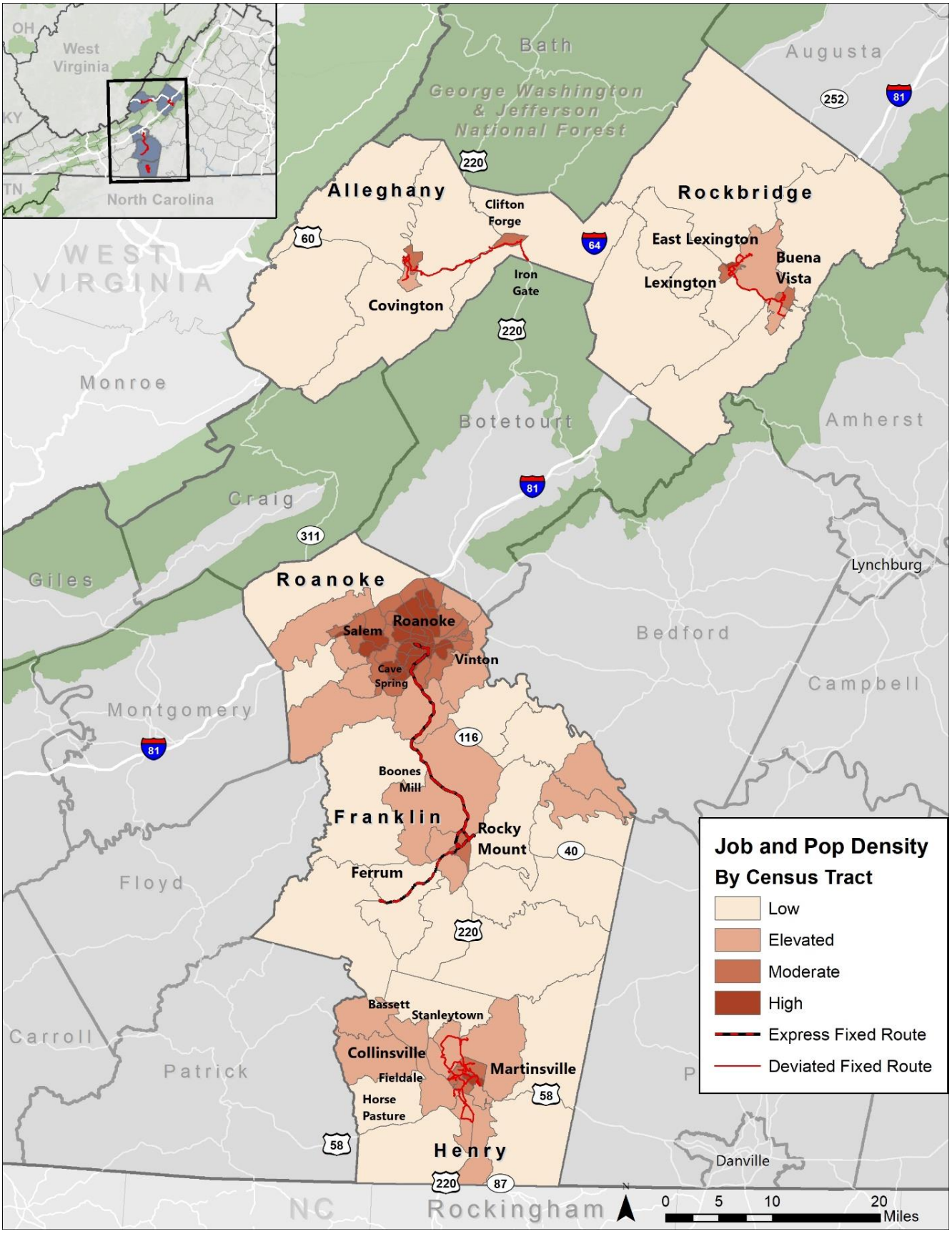
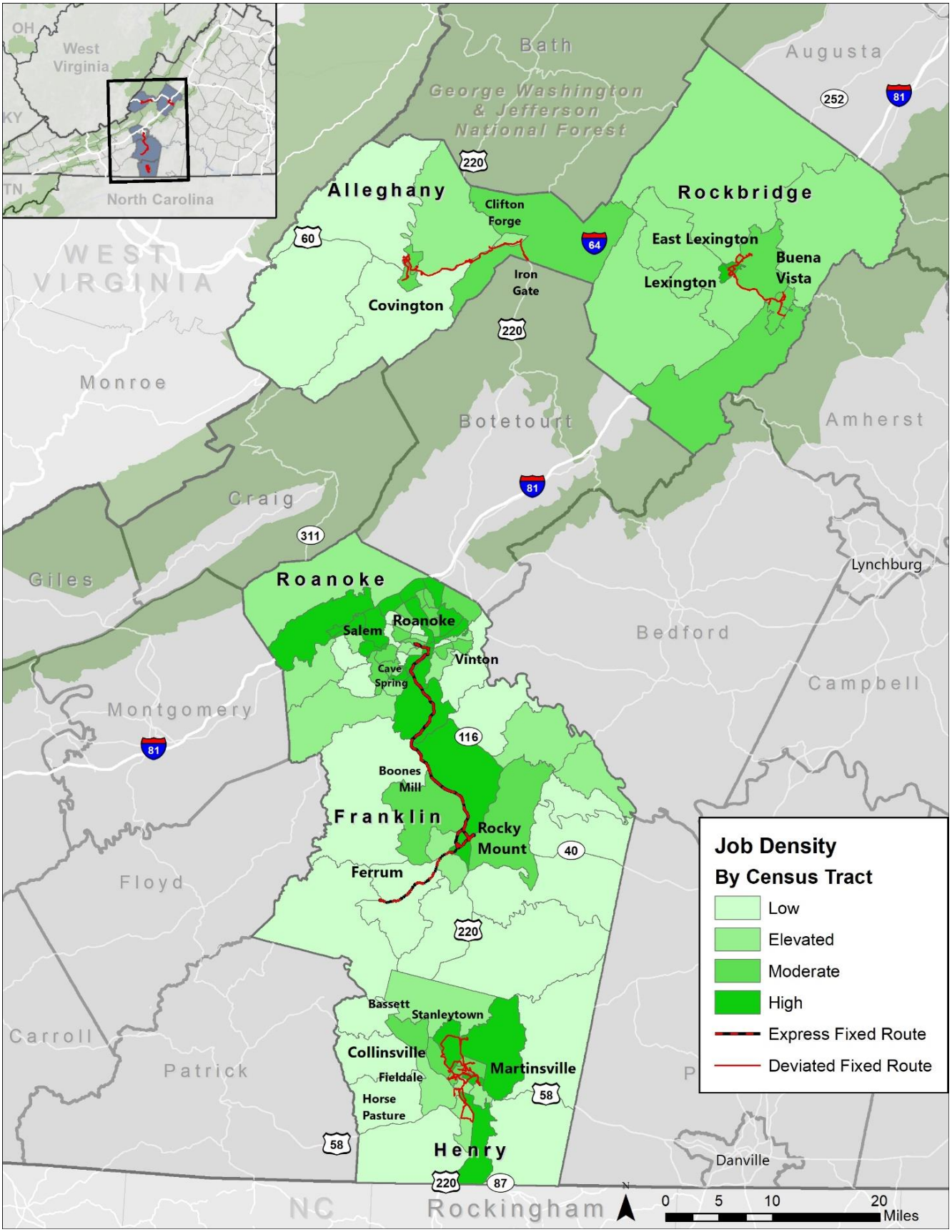


Figure 31: Jobs Density



3.13. Title VI Analysis

Title VI of The Civil Rights Act of 1964 prohibits discrimination based on race, color or national origin in programs and activities receiving federal subsidies. This includes agencies providing federal funding for public transportation. In accordance with Title VI, the following section examines the minority and below poverty populations in the service area. It also summarizes the prevalence of residents with Limited-English Proficiency (LEP) in the service area.

Minority Population

In accordance with Title VI of the Civil Rights Act of 1964, it is important to ensure that areas with an above-average concentration of racial and/or ethnic minorities are not negatively impacted by proposed alterations to existing public transportation services. To determine whether an alteration would have an adverse impact it is necessary to first understand where concentrations of minority individuals reside. **Figure 32** provides a map of the service area showing the census tracts shaded according to whether they have minority populations of above or below the service area average of 24.8 percent while accounting for population density. According to the map, above-average concentrations of minority populations reside around the City of Roanoke, Martinsville, one census tract in Cave Spring, and another in Lexington.

Low-Income Population

This socioeconomic group represents individuals who earn less than the federal poverty level. These individuals face financial hardships that make owning and providing the necessary maintenance of a personal vehicle difficult. For this segment of the population, public transportation may be the more economical choice. **Figure 33** provides a map that shows the census tracts according to whether the poverty rate is above or below the study area average of 7.3 percent while accounting for population density. According to the map, above average concentrations of below poverty individuals reside mostly in the service areas' primary cities and towns, including Covington, Clifton Forge, Lexington, Buena Vista, Roanoke, Salem, Cave Springs, Vinton, Rocky Mount, Martinsville and Collinsville.

Figure 32: Minority Population Percentage Above Study Area Average

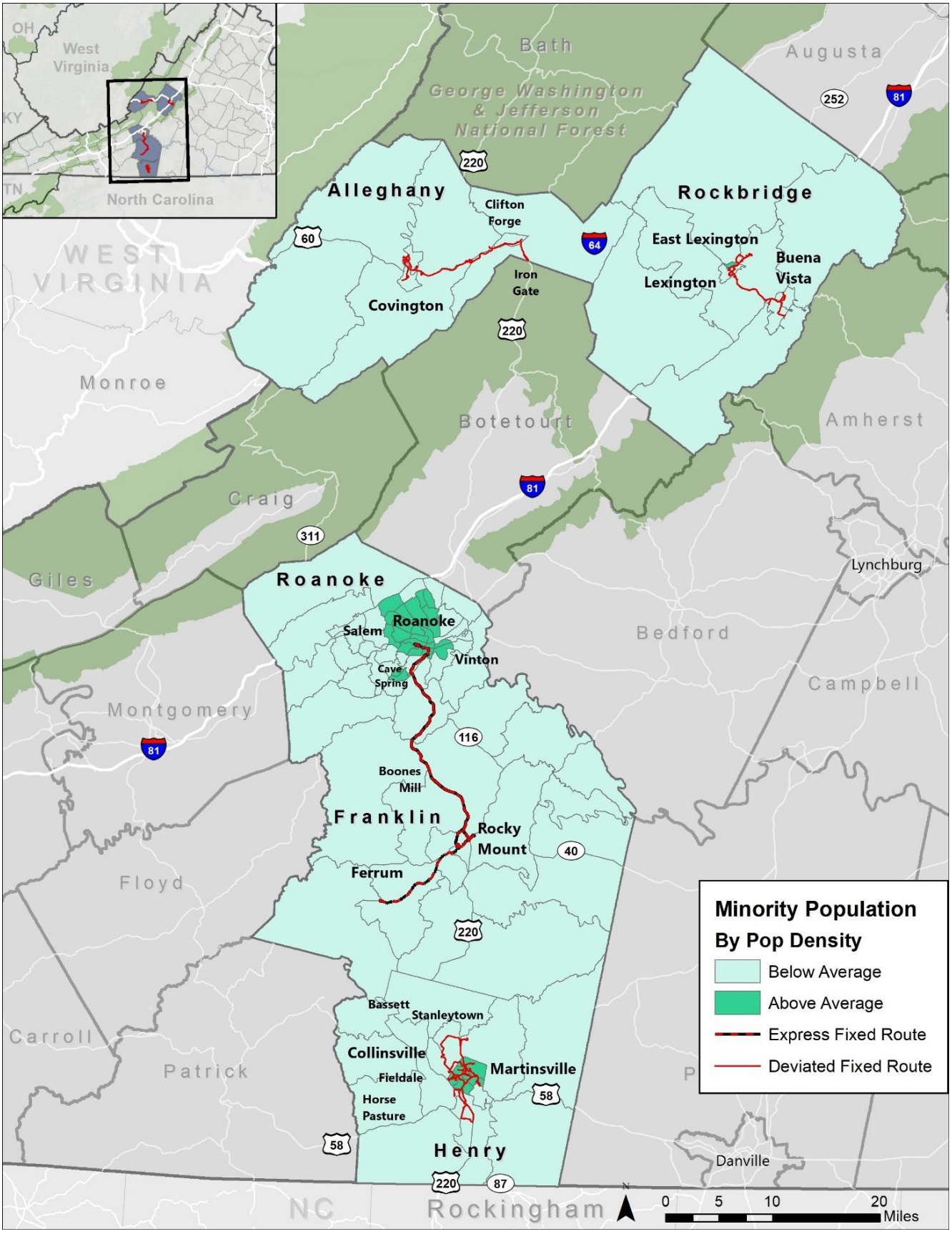
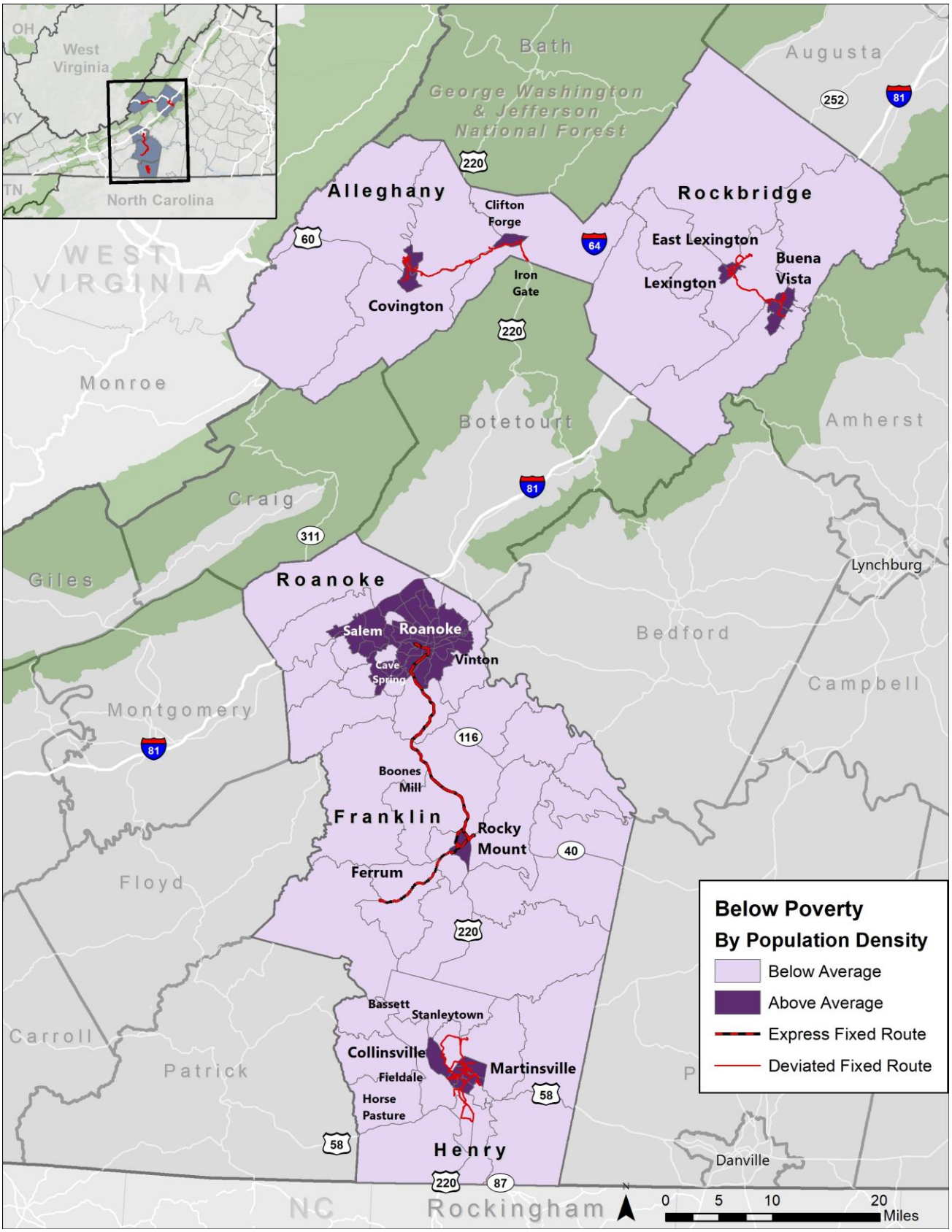


Figure 33: Below Poverty Population Percentage Above Study Area Average



Limited-English Proficiency (LEP)

Ensuring that public transportation is being provided equitably to individuals of diverse socioeconomic backgrounds is essential, but it is also important to recognize the variety of languages that are spoken in the study area so that public information can be disseminated and understood by individuals who speak languages other than English. According to the American Community Survey's five-year estimates for Limited-English Proficiency (LEP data presented in **Table 33**), English is the most predominately spoken language of residents. The City of Roanoke has the highest percentage of non-English speakers (3.6%), closely followed by the City of Martinsville (3.3%) and Lexington (2.7%).

Table 33: Limited-English Proficiency

PDC	Total Population	Population >5 years of age	Foreign Nationality Population	Foreign Nationality Percentage	LEP Population	LEP Percentage
Alleghany County	15,159	14,530	160	1.06%	17	0.12%
Buena Vista	6,639	6,312	40	0.60%	30	0.48%
Covington	5,722	5,373	52	0.91%	32	0.60%
Franklin County	54,838	52,463	1,270	2.32%	589	1.12%
Henry County	50,760	48,502	1,460	2.88%	1,186	2.45%
Lexington	7,346	7,138	338	4.60%	191	2.68%
Martinsville	13,539	12,590	686	5.07%	415	3.30%
Roanoke	99,212	92,836	6,873	6.93%	3,366	3.63%
Roanoke County	96,653	92,250	5,824	6.03%	2,246	2.43%
Rockbridge County	22,673	21,768	597	2.63%	143	0.66%
Salem	25,372	24,360	1,054	4.15%	299	1.23%

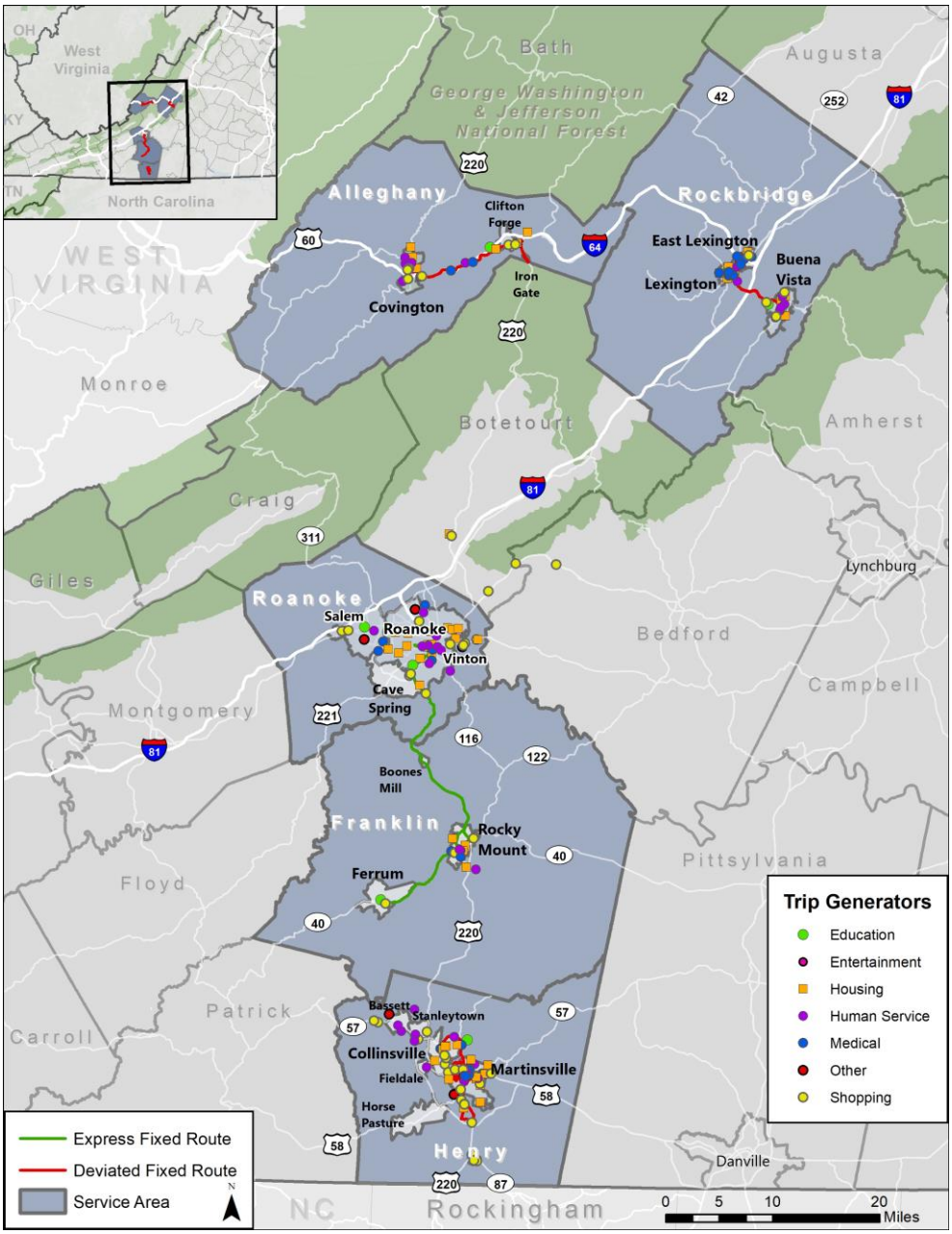
Source: American Community Survey, Five-Year Estimates

Land Use Profile

MAJOR TRIP GENERATORS

Identifying land uses and major or potential trip generators in the study area further indicates where transit services may be needed. Trip generators attract transit demand and include common origins and destinations, such as multi-unit housing, major employers, medical facilities, educational facilities, non-profit and government agencies, and groceries or shopping centers. **Figure 34** displays the RADAR service area with each deviated-fixed route and nearby key trip generators. Individual routes with generators were displayed previously in **Figure 18 – Figure 23.**

Figure 34: Major Trip Generators in the Service Area



EMPLOYMENT TRAVEL PATTERNS

Unsurprisingly, most RADAR service area residents travel to work alone using a car, truck or van. Roanoke city was the only jurisdiction that had more than one percent of its residents use public transportation to commute to work (2.9%) One of the biggest difficulties of implementing strong public transportation within the region is due to the high number of people that commute cross-jurisdictionally. Interestingly, Lexington sees 28 percent of its workers walk to work (**Table 34**).

Table 34: Journey to Work Patterns for Study Area

	Place of Residence							
	Alleghany County		Buena Vista		Covington		Franklin County	
Workers (Age 16+)	6,007		3,056		2,322		23,512	
Employment Location	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
In State of Residence	5605	93.3%	3035	99.30%	2183	94.0%	23089	98.2%
In County	2895	48.2%	1308	42.80%	901	38.8%	13990	59.5%
Outside of County	2709	45.1%	1727	56.50%	1284	55.3%	9099	38.7%
Outside State of Residence	402	6.7%	21	0.70%	139	6.0%	423	1.8%
Means of Transportation to Work	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Car, Truck or Van-drove alone	5412	90.1%	2463	80.60%	2092	90.1%	18739	79.7%
Car, Truck, or Van-carpooled	354	5.9%	186	6.10%	104	4.5%	1716	7.3%
Public Transportation	24	0.4%	0	0.00%	0	0.0%	71	0.3%
Walked	36	0.6%	241	7.90%	28	1.2%	470	2.0%
Taxicab, motorcycle, bike, other	24	0.4%	52	1.70%	9	0.4%	212	0.9%
Worked at Home	156	2.6%	113	3.70%	86	3.7%	2281	9.7%

	Place of Residence							
	Henry County		Lexington		Martinsville		Roanoke	
Workers (Age 16+)	19,464		2,721		5,308		46,368	
Employment Location	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
In State of Residence	18043	92.7%	2721	100.0%	5059	95.3%	46090	99.4%
In County	11386	58.5%	2024	74.4%	2251	42.4%	29305	63.2%
Outside of County	6657	34.2%	697	25.6%	2803	52.8%	16832	36.3%
Outside State of Residence	1421	7.3%	0	0.0%	249	4.7%	278	0.6%
Means of Transportation to Work	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Car, Truck or Van-drove alone	16291	83.7%	1505	55.3%	3896	73.4%	35518	76.6%
Car, Truck, or Van-carpooled	1635	8.4%	60	2.2%	743	14.0%	3292	7.1%

Public Transportation	39	0.2%	0	0.0%	32	0.6%	1345	2.9%
Walked	156	0.8%	786	28.9%	32	0.6%	927	2.0%
Taxicab, motorcycle, bike, other	253	1.3%	16	0.6%	207	3.9%	788	1.7%
Worked at Home	1109	5.7%	354	13.0%	398	7.5%	4498	9.7%

	Place of Residence					
	Roanoke County		Rockbridge County		Salem	
Workers (Age 16+)	46,477		9,969		12,358	
Employment Location	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
In State of Residence	46012	99.0%	9829	98.6%	12210	98.8%
In County	18080	38.9%	4905	49.2%	6439	52.1%
Outside of County	27933	60.1%	4925	49.4%	5771	46.7%
Outside State of Residence	465	1.0%	140	1.4%	148	1.2%
Means of Transportation to Work	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Car, Truck or Van- drove alone	37042	79.7%	7985	80.1%	9602	77.7%
Car, Truck, or Van- carpooled	2742	5.9%	867	8.7%	766	6.2%
Public Transportation	186	0.4%	60	0.6%	62	0.5%
Walked	372	0.8%	90	0.9%	816	6.6%
Taxicab, motorcycle, bike, other	325	0.7%	90	0.9%	74	0.6%
Worked at Home	5810	12.5%	867	8.7%	1050	8.5%

Table 35: Top Ten Employment Destinations for County and City Residents in RADAR Service Areas (Divided into 11 Tables)

Alleghany County		
Place	**Number**	**Percent**
Covington city, VA	1,373	19%
Clifton Forge town, VA	344	5.1%
Roanoke city, VA	335	5.0%
Selma CDP, VA	155	2.3%
Low Moor, CDP, VA	124	1.8%
Lexington city, VA	117	1.7%
Lynchburg city, VA	114	1.7%
Hot Springs CDP, VA	104	1.5%
Daleville CDP, VA	100	1.5%
Salem city, VA	91	1.4%

In Alleghany County, about 19 percent of residents work within Covington city. The next most common destinations are between Clifton Forge and Roanoke city (5% each).

Buena Vista		
Place	**Number**	**Percent**
Buena Vista city, VA	538	19.0%
Lexington city, VA	442	15.6%
Roanoke city, VA	150	5.3%
Glasgow town, VA	114	4.0%
East Lexington CDP, VA	98	3.5%
Lynchburg city, VA	66	2.3%
Stuarts Draft CDP, VA	58	2.0%
Harrisonburg city, VA	46	1.6%
Richmond city, VA	34	1.2%
Staunton city, VA	34	1.2%

Buena Vista keeps 19 percent of its workers in the city, while Lexington also is a frequent destination (15.6%). Larger cities such as Roanoke, Harrisonburg and Richmond also are destinations.

Covington		
Place	**Number**	**Percent**
Covington city, VA	686	27.6%
Roanoke city, VA	131	5.3%
Lynchburg city, VA	58	2.3%
Clifton Forge town, VA	56	2.2%
Hot Springs CDP, VA	48	1.9%
Salem city, VA	42	1.7%
Mallow CDP, VA	40	1.6%
Selma CDP, VA	37	1.5%
Lexington city, VA	28	1.1%
Richmond city, VA	27	1.1%

Covington keeps 27.60 percent of its workers within the city, over 22 percent more than the next largest employment area, Roanoke.

Franklin County		
Place	**Number**	**Percent**
Rocky Mount town, VA	4.338	19.9%
Roanoke city, VA	4,077	18.7%
Salem city, VA	974	4.5%
Cave Spring CDP, VA	668	3.1%
Westlake Corner CDP, VA	487	2.2%
Hollins CDP, VA	478	2.2%
Martinsville city, VA	427	2.0%
Danville city, VA	353	1.6%
Ferrum CDP, VA	215	1.0%
Greensboro city, NC	205	.9%

In Franklin County, the top two commuter destinations are split between Rocky Mount (about 20%) and Roanoke city (19%).

Henry County		
Place	**Number**	**Percent**
Martinsville city, VA	3,275	16.6%
Danville city, VA	1,005	5.1%
Rocky Mount town, VA	752	3.8%
Collinsville CDP, VA	746	3.8%
Roanoke city, VA	632	3.2%
Eden city, NC	302	1.5%
Basset CDP, VA	283	1.4%
Villa Heights CDP, VA	264	1.3%
Fieldale CDP, VA	248	1.3%
Greensboro city, NC	220	1.1%

Henry County residents primarily commute to Martinsville (16.6%) while the second most frequent destination is Danville (5%), about 30 miles east of Martinsville.

Lexington		
Place	**Number**	**Percent**
Lexington city, VA	892	40.3%
Roanoke city, VA	73	3.3%
East Lexington CDP, VA	64	2.9%
Buena Vista city, VA	41	1.9%
Richmond city, VA	30	1.4%
Lynchburg city, VA	28	1.3%
Harrisonburg city, VA	24	1.1%
Staunton city, VA	23	1.0%
Charlottesville city, VA	22	1.0%
Bridgewater town, VA	16	.7%

About 40 percent of Lexington residents work within the city, with just 3 percent of residents commuting to Roanoke city or East Lexington. Just 2 percent of residents commute to Buena Vista.

Martinsville		
Place	**Number**	**Percent**
Martinsville city, VA	1,450	27.3%
Danville city, VA	300	5.7%
Collinsville CDP, VA	165	3.1%
Rocky Mount town, VA	156	2.9%
Roanoke city, VA	146	2.8%
Greensboro city, NC	61	1.2%
Salem city, VA	55	1.0%
Villa Heights CDP, VA	47	.9%
Eden City, NC	41	.8%
Bassett CDP, VA	40	.8%

About 27 percent of Martinsville residents work within the city. Danville is the second-most frequent work destination (5.7%) while the next most frequent work destinations are split between Collinsville and Rocky Mount (3% each).

Roanoke County		
Place	**Number**	**Percent**
Roanoke city, VA	15,051	34.2%
Salem city, VA	5,161	11.7%
Cave Spring CDP, VA	3,190	7.2%
Hollins CDP, VA	2,544	5.8%
Blacksburg town, VA	834	1.9%
Vinton town, VA	701	1.6%
Lynchburg city, VA	592	1.3%
Glenvar CDP, VA	588	1.3%
Daleville CDP, VA	575	1.3%
Christiansburg town, VA	529	1.2%

In Roanoke County, about 34 percent of residents work in Roanoke city, while the next most frequent destinations are Salem (about 12%) and Cave Spring (7%).

Roanoke City		
Place	**Number**	**Percent**
Roanoke city, VA	17,146	42.0%
Salem city, VA	4,085	10.0%
Hollins CDP, VA	2,558	6.3%
Cave Spring CDP, VA	2,156	5.3%
Blacksburg town, VA	575	1.4%
Lynchburg city, VA	504	1.2%
Vinton town, VA	502	1.2%
Daleville CDP, VA	465	1.1%
Glenvar CDP, VA	448	1.1%
Richmond city, VA	363	.9%

In Roanoke city, 42 percent of residents work within the city. Salem city (10%) and Hollins (6.3%) are the next most frequent work destinations.

Rockbridge County		
Place	**Number**	**Percent**
Lexington city, VA	2,043	21.1%
Buena Vista city, VA	535	5.5%
Roanoke city, VA	440	4.5%
East Lexington CDP, VA	407	4.2%
Glasgow town, VA	300	3.1%
Staunton city, VA	188	1.9%
Stuarts Draft CDP, VA	178	1.8%
Lynchburg city, VA	166	1.7%
Fishersville CDP, VA	147	1.5%
Harrisonburg city, VA	113	1.2%

The most frequent work destination for Rockbridge County residents is Lexington city (21%) while 5 percent of residents work in Buena Vista.

Salem		
Place	**Number**	**Percent**
Salem city, VA	2,874	27.2%
Roanoke city, VA	2,795	26.5%
Cave Spring CDP, VA	557	5.3%
Hollins CDP, VA	497	4.7%
Glenvar CDP, VA	208	2.0%
Blacksburg town, VA	145	1.4%
Lynchburg city, VA	119	1.1%
Rocky Mount town, VA	94	.9%
Daleville CDP, VA	93	.9%
Richmond city, VA	91	.9%

For Salem (Roanoke County) residents, about 27 percent work within the city, while Roanoke city has about the same number of commuters (almost 27%).

Overall, most RADAR service area residents commute to work within the primary cities or towns in their counties, with Roanoke city a top destination for many residents. In Henry County and Martinsville residents, Danville (30 miles to the east) is a top commuter destination.

CHAPTER 4. PLANNED IMPROVEMENTS AND MODIFICATIONS

4.1 Introduction

Chapter 4 outlines planned service improvements in response to the opportunities for improvement identified through feedback from RADAR and the service analysis from Chapter 3. Planned improvements are designed to improve performance and quality and expand the availability of RADAR services. This chapter outlines challenges and opportunities that support transit expansion, and outlines service, capital, and policy recommendations.

4.2 Challenges and Opportunities

This section reviews the service opportunities identified in agency goals, the challenges and opportunities identified in the market and service assessments, and key themes from the customer survey.

Service Goals

The following goals for service delivery were identified as part of this TDP process:

- Consider replacing services that do not meet performance metric targets with alternative service options (e.g., microtransit, on-demand service). (1.2)
- Expand service to meet the demand in underserved areas. (1.3)
- Improve service frequency and availability. (2.1)
- Identify new popular pick-up and drop-off locations. (2.2)
- Explore the demand for service to neighboring activity centers. (2.4)

Market Assessment

The population has seen minimal growth in the last two decades, with only a one percent increase from 2010 to 2020 (or about 2,200 people). The counties with the most growth are Roanoke County (five percent), Lexington County (four percent), the city of Roanoke (three percent), Rockbridge County (two percent), and the city of Salem (two percent). All other areas either saw zero growth or a decline in population. The population is not estimated to grow by more than one percent by 2050, and the population is aging. There is a rural transition that is happening where denser clusters of residential homes and businesses are beginning to appear in subdivided former agricultural land in the five counties that RADAR serves.

SERVICE ASSESSMENT

Maury Express:
Ridership is distributed amongst the following geographic distinctions: Lexington (40 percent), Buena Vista (37 percent), Rockbridge (22 percent), Washington & Lee University (fewer than one percent), VMI (one percent).

Lexington: Ridership is still 11 percent below 2019 levels (i.e., pre-COVID levels). Walmart is the most used stop (25 percent), followed by Willow Springs (14 percent), and Kroger (13 percent). The North Lee Highway stop is seeing significantly more ridership than it has in the last six years. Similarly, Lee Chapel, E. Nelson Street, and the hospital have seen a significant increase. Preston Street has significantly less ridership than it did in the previous two years.

Buena Vista: Ridership is still 30 percent below 2019 levels (i.e., pre-COVID levels). The most used stop is the Food Lion (15%), followed by SVU Pavilion (13 percent), Senior Center/Library (13 percent), E. 13th Street (12 percent), and Burger King (11 percent). Locust Avenue and Heveners Lane saw significantly less ridership in 2023 than in previous years.

Mountain Express:
Ridership is still 12 percent below 2019 levels (i.e., pre-COVID levels). Seventy-two percent of riders in 2023 were senior citizens and only two percent were children. Wheelchairs were utilized for 10 percent of 2023 trips. The three most used stops in 2023 were CF Main Street / Save-a-Lot (18%), Kroger/Clifton Woods (16 percent), and Scott Hill (15 percent). These three stops have been the most successful stops for the last three years; however, the Save-a-Lot stop has seen a significant increase in ridership since 2021 when ridership at this stop was lower than usual. The Walmart stop saw eight percent of 2023 ridership. Stop ridership here has been slowly decreasing each year since 2018.

PART:
Twenty-three percent of riders in 2023 were senior citizens and only two percent were children. Ridership is split evenly between Martinsville and Henry County. Transfers account for around 20 percent of trips on all PART services (North County, South County, and Martinsville).

> **North County:** Ridership levels are still 20 percent below 2019 levels (i.e., pre-COVID levels). The highest share of ridership (18 percent) occurs at the Walmart stop. The second highest share of ridership (14 percent) is seen at the Maplewood Apartments stop. The third highest share (11 percent) is seen at the Daniels Creek Road / Kings Mountain Road stop.
>
> **South County:** Ridership levels are still 29 percent below 2019 levels (i.e., pre-COVID levels). The highest share of ridership (17 percent) occurs at the Walmart stop. The second highest share of ridership (11 percent) is seen at the Glen Ridge Apartments stop. The third highest share (ten percent) is seen at the DMV stop.
>
> **Martinsville:** Ridership levels are still 12 percent below 2019 levels (i.e., pre-COVID levels). The highest share of ridership (14 percent) occurs at the Walmart stop. The second highest share of ridership (11 percent) is seen at the Village of Martinsville stop.

CUSTOMER SURVEY

More than two-thirds (68 percent) of riders use RADAR services for shopping. More than half of the riders (54 percent) use the service for medical or mental health needs. Over one-third of all riders (38 percent) reported having a disability. Approximately one-third of all riders (32%) are 65 years old or older. Nearly half of the riders (49 percent) make less than $15,000 annually. Customers suggested longer service hours, including extending service to Saturdays, or possibly two Saturdays per month. Fewer than six in ten riders (56 percent) were satisfied with RADAR bus stops having adequate shelters.

4.3 Transit Service Recommendations

Service recommendations reflect the key takeaways from the service analysis and from stakeholder input. Not every suggestion that was heard during stakeholder engagement is feasible in the horizon of this Transit Development Plan (TDP). The following is a summary list of all service recommendations considered for this project:

Provide transit options to Northern Henry County
- Option 1: Pilot limited deviated fixed route connecting Bassett, Collinsville and Martinsville
- Option 2: Provide limited demand response service for North Henry County

Modify PART Southern route
- Option 1: Remove Adult Detention Center stop, provide service as requested
- Option 2: Remove Tractor Supply, Community Storehouse stop, provide service as requested
- Option 3: Add segment from New College Institute to Village of Martinsville and Aldi

Pilot demand response or microtransit service in Martinsville
- Option 1: Pilot Martinsville demand response or microtransit Zone
- Option 2: Modify Martinsville Route to be more efficient

Expand RADAR service hours to the weekend
- Option 1: Pilot Saturday service for the Mountain Express
- Option 2: Pilot Saturday service for PART routes
- Option 3: Pilot Sunday service for Ferrum Express

Pilot transit options to Roanoke and Botetourt County
- Pilot limited route between Covington, Daleville and Roanoke
- Pilot limited route between Buena Vista, Daleville, and Roanoke

Pilot demand response or microtransit service
- Pilot service in Franklin County
- Pilot service in Lexington and Buena Vista
- Pilot service in Lexington and Buena Vista outside of fixed-route hours

Facilitate collaboration or partnerships with Alleghany, Rockbridge, and Henry County on building low-cost seating, shelters or safe and visible waiting areas at key locations.

Provide Transit Options to Northern Henry County

OPTION 1: PILOT LIMITED DEVIATED FIXED ROUTE CONNECTING BASSETT, COLLINSVILLE AND MARTINSVILLE

Pilot a 12-month PART route between Martinsville and Bassett twice a week. The route would also serve Stanleytown, Bassett Forks, and Collinsville via Virginia Avenue / Route 220. The bus would use Riverside Dr into Bassett and Fairystone Park Hwy on the way to Martinsville. **Table 36** outlines the benefits, costs and considerations for this pilot route **Table 37** outlines its service characteristics. The proposed route is displayed in **Figure 35.**

Table 36: Transit Options to Bassett and Fieldale – Analysis Summary

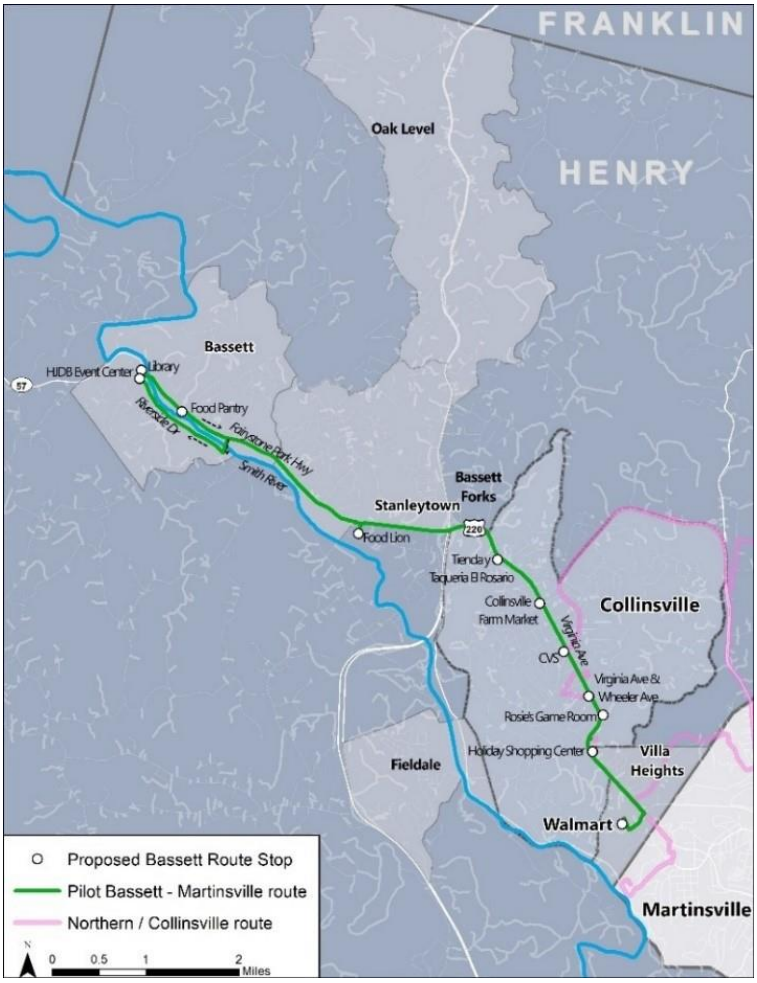
Benefits	Costs and considerations
• Provides transit access in growing area. • One-way trip from Bassett to Martinsville Walmart is about 25-30 minutes.	• Requires 1 vehicle. Cost for operating one vehicle: $*68.06 per hour*. • Vehicle should be utilized when not in service.

Benefits	Costs and considerations
• Increase transfers and ridership to PART routes. • Allows transit-dependent residents to access destinations in Bassett and Collinsville.	• Requires community buy-in and marketing from towns. PART currently operates fare-free, but the pilot can have a fare to offset the cost of the service. • **Estimated Annual Operating Costs (FY25 $): $68,300**

Table 37: Service Characteristics for Bassett - Collinsville Limited Deviated Fixed Route

Route characteristics	
Route miles (per round trip)	17.84 (8.52 miles inbound / 9.32 miles outbound)
Cycle time	60
AM Trips	2 round trips (2 inbound trips / 2 outbound trips)
PM Trips	2 round trips (2 inbound trips / 2 outbound trips)
Vehicles needed	1
Hours proposed (12 months)	1,000

Figure 35: Proposed Bassett – Collinsville – Martinsville route



OPTION 2: PROVIDE LIMITED DEMAND RESPONSE SERVICE TO REPLACE NORTHERN/COLLINSVILLE FIXED ROUTE SERVICE

Implement a 1-year pilot demand response zone twice a week for North Henry County including Collinsville, Patrick & Henry Community College, Patriot Centre Industrial Park, and the Martinsville Walmart. Demand response service will provide some transit access for Collinsville residents to access groceries and small businesses along Virginia Avenue, and the Walmart at the edge of Martinsville, which is a transfer point for the PART Martinsville, Northern and Southern routes. **Table 38** outlines the benefits, costs and considerations for this pilot demand response zone, while **Table 39** outlines the service characteristics. **Figure 36** displays the proposed demand response zone.

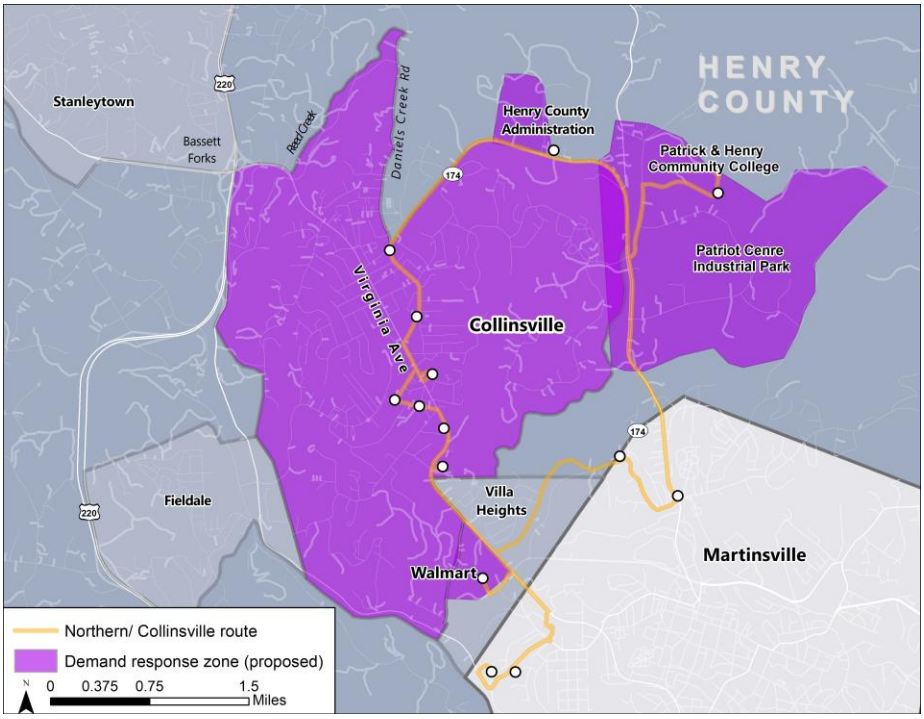
Table 38: Demand Response Service for North Henry County – Analysis Summary

Benefits	Costs and considerations
• Provide door-to-door service to transit dependent residents. • Pilot would generate data for transit needs and considerations for future. • Provides access to Patriot Centre Industrial Park and residential areas currently not served by transit.	• Requires at least 1 small vehicle. • Need call operator and training for service. • Vehicle should be utilized when not in service. • Requires community buy-in and outreach. • **Estimated Annual Operating Costs (FY25 $): $215,133**[1]

Table 39: Service characteristics for Collinsville demand response zone

Service characteristics	
Operating days/week	5 days/week
Span of service	7:30am – 5:30pm
Service area size	10 sq miles
Hours (1 year)	2,500

Figure 36: Demand response zone for North Henry County



Modify PART Southern route

OPTION 1: REMOVE ADULT DETENTION CENTER STOP, PROVIDE SERVICE AS REQUESTED

Remove the fixed-route service to the Henry County Adult Detention Center and replace service with a demand response service as needed. **Table 40** outlines the benefits, costs and considerations for this route change.

Table 40: Replace fixed-route stop to Detention Center - Analysis Summary

Benefits	Costs and considerations
• Reduces trip time by 6-10 minutes. • Reduces fixed-route vehicle miles traveled by 2.2 miles. • Increases customer satisfaction with wait time.	• Requires 1 small vehicle and additional operator to serve Detention Center. • Vehicle should be utilized elsewhere when not serving the Adult Detention Center. • Service to detention center can be provided with a Martinsville demand response or microtransit zone (See **Recommendation 3.1.4**) • **Estimated Annual Operating Cost Savings (FY25 $): $14,400**

OPTION 2: REMOVE TRACTOR SUPPLY, COMM. STOREHOUSE STOP, PROVIDE SERVICE AS REQUESTED

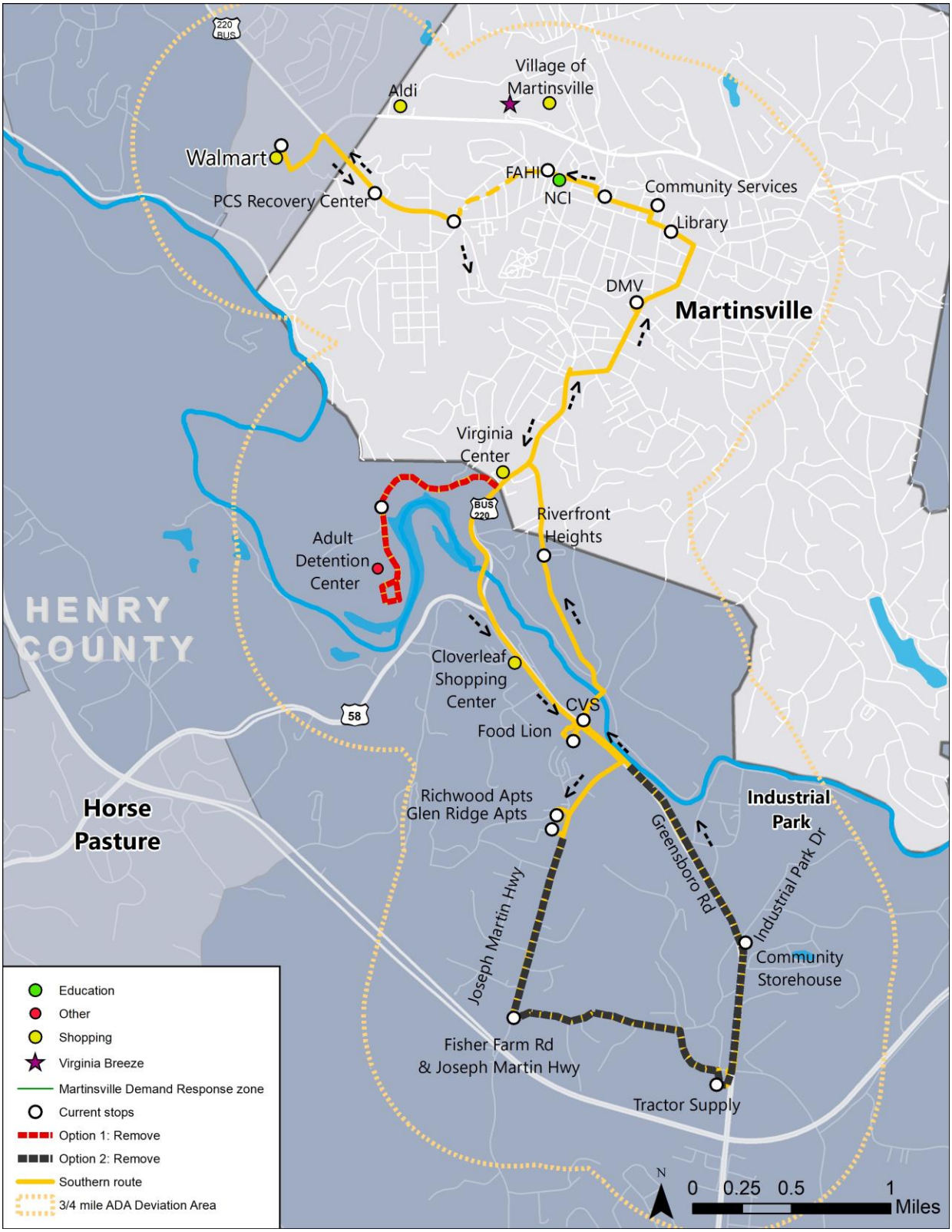
Remove the fixed-route service to the Tractor Supply and Community Storehouse. Providing this service will reduce the overall trip time for Southern route passengers. **Table 41** outlines the benefits, costs and considerations for this route change.

Table 41: Removing Tractor Supply and Community Storehouse stops - Analysis Summary

Benefits	Costs and considerations
• Reduces trip time by 10-15 minutes. • Reduces vehicle miles traveled by 3.3 miles. • Increases customer satisfaction with wait time. • Frees up time to accommodate **Option 3**	• Similar as Option 1. • Service to detention center can still be provided with a demand response or microtransit zone (See **Recommendation 3.1.4**) • **Estimated Annual Operating Cost Savings (FY25 $): $31,800**

Figure 34 displays the Option 1 and 2 route modifications on the PART Southern Route.

Figure 37: Modified PART Southern route (Options 1 & 2)



OPTION 3: ADD SEGMENT FROM NEW COLLEGE INSTITUTE TO VILLAGE OF MARTINSVILLE AND ALDI

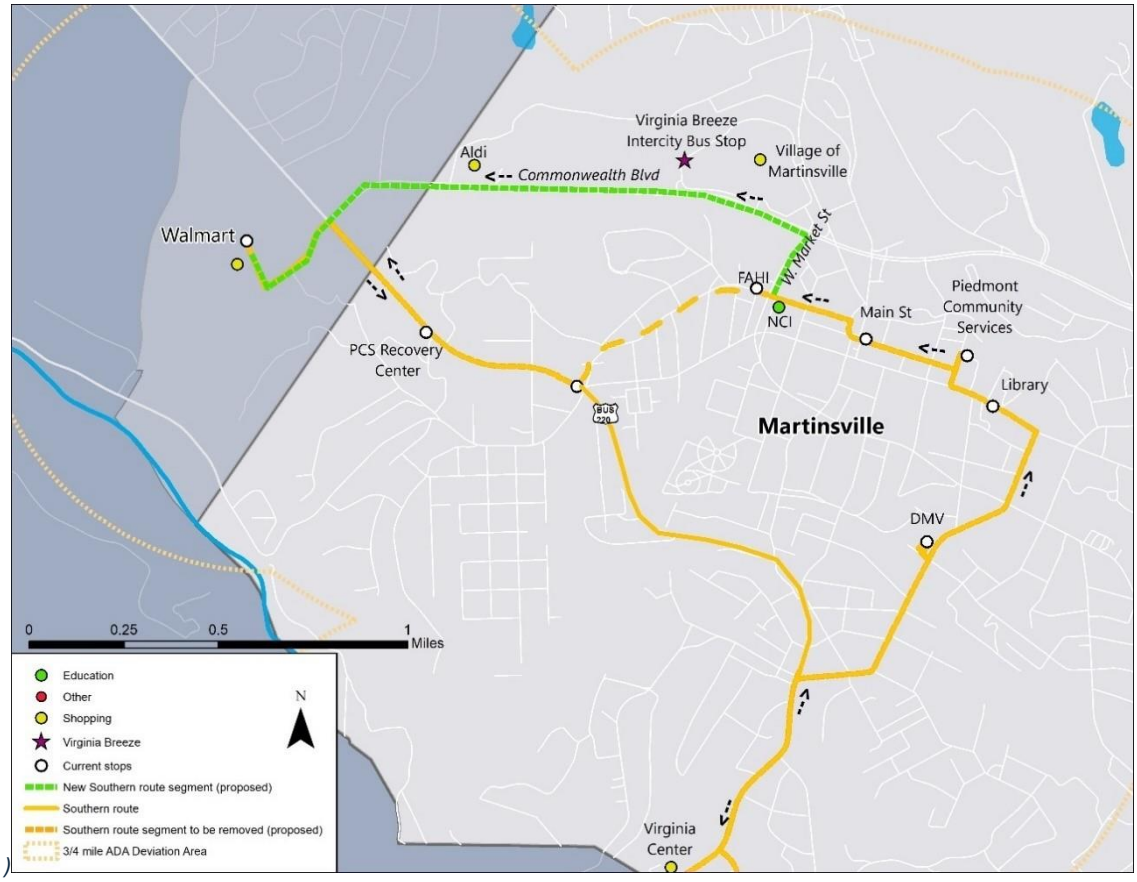
Realign the last segment of the PART Southern Route from the FAHI Museum and Walmart so that the bus stops along Commonwealth Blvd. The bus stop at FAHI Museum will have to be moved from the West Market Street to the New College Institute. This would allow the bus to turn right on West Market Street and turn left on Commonwealth Boulevard where it can stop at the Village of Martinsville shopping center, Aldi, and potentially serve the Virginia Breeze intercity bus stop located at the parking lot behind the Goodwill Center. The Village of Martinsville includes a Kroger and department stores including a Marshalls and Beck. **Table 42** displays the benefits and costs for realigning the end of the PART Southern route.

Figure 38 displays the Southern Route segment addition.

Table 42: Realign Last Segment of PART Southern Route – Analysis Summary

Benefits	Costs and considerations
• Expands access to key shopping, grocery and job destinations. More directly serve NCI campus. • Little change to distance traveled. • Provides another trip option for riders between Village of Martinsville and Walmart. Riders can transfer to Martinsville Route at Village of Martinsville (currently can transfer at Walmart, Library or PCS Recovery Center)	• Little change in cost or time as distance is 0.1 miles longer. • Increases trip time by 5-10 minutes with new stops. • Implementing **Option 1 *or* 2** offsets additional trip time added. • **Estimated Annual Operating Cost increase (FY25 $): $5,800**

Figure 38: New Southern Route Realignment (Option 3)



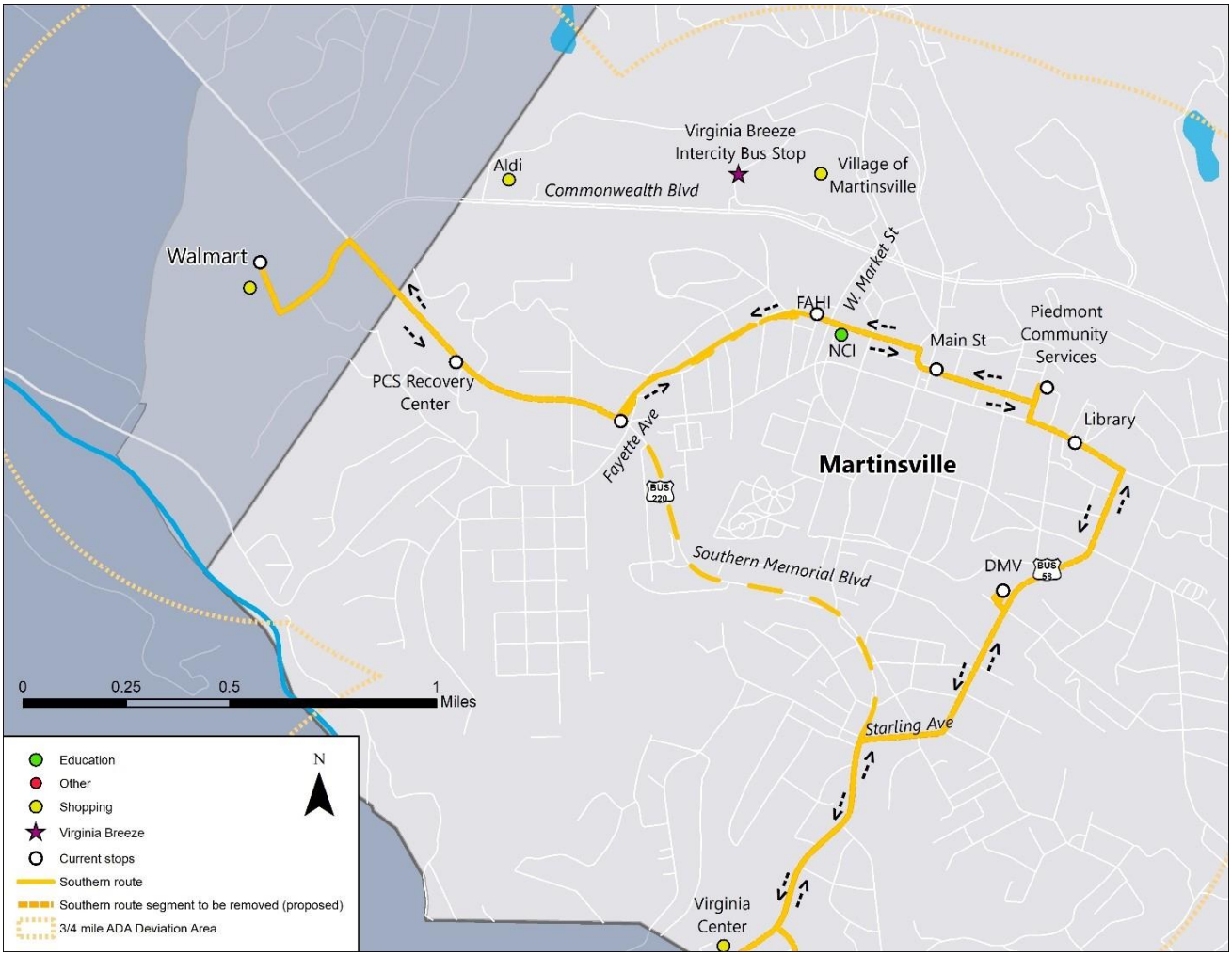
OPTION 4: REMOVE SERVICE ON SOUTHERN MEMORIAL BLVD

Remove the Southern Memorial Blvd (Route 220) segment between the intersection of Fayette Avenue and Southern Memorial and the intersection of Starling Avenue and Southern Memorial. This would replace the PART Southern loop alignment with an out and back alignment, increasing service to stops along Main Street. **Table 43** displays the benefits and costs of removing the Southern Memorial Blvd segment. **Figure 39** displays the Southern Memorial Blvd segment removed on the Southern Route.

Table 43: Summary of Removing Southern Memorial Blvd Segment on the PART Southern Route Analysis

Benefits	Costs and considerations
• Replaces loop with out and back route. • Shortens wait time for riders along Main St or Fayette Blvd. • Riders along Southern Memorial Blvd can still be served within the ¾ mile ADA deviation limit.	• Removes service along Southern Memorial Blvd. • Riders who want a pickup along Memorial Blvd have to be ADA certified. • **Estimated Annual Operating Cost Increase (FY25 $): $5,800**

Figure 39: Remove service on Southern Memorial Blvd (Option 4)



Pilot Demand Response or Microtransit Zone in Martinsville

OPTION 1: PILOT A DEMAND RESPONSE ZONE IN MARTINSVILLE IN PLACE OF THE PART MARTINSVILLE ROUTE.

The proposed pilot demand response zone encompasses the entire city of Martinsville and southern Martinsville which is south of the Smith River, including the Martinsville Industrial Park, Martinsville Speedway and the County's Adult Detention Center. Pilot the zone for 5 days a week in place of the PART Martinsville route. **Table 44** displays the benefits and costs of a Martinsville demand response or microtransit zone while **Table 45** displays its service characteristics. . **Figure 40** displays the proposed Martinsville demand response zone.

Table 44: Summary of Martinsville Demand Response or Microtransit Zone Analysis

Benefits	Costs and considerations
• Provides service in areas of Martinsville that currently have no or limited service including residential areas and industrial park. • Sidewalks in S. Martinsville have limited connectivity. • Can replace Martinsville and Southern Routes.	• High initial investment • Requires 1 vehicles • Transit dependent riders will have to plan ahead to schedule rides • **Estimated Annual Operating Costs (FY25 $): $215,133[2]**

Table 45: Service Characteristics for Martinsville Demand Response or Microtransit Zone

Service characteristics	
Operating days/week	5 days/week
Span of service	7:30am – 5:30pm
Service area size	14 sq. miles
Hours (1-year)	2,500

OPTION 2: PILOT A DEMAND RESPONSE ZONE IN MARTINSVILLE AFTER FIXED-ROUTE HOURS

Pilot a demand response zone in the evening, when the Martinsville fixed route is not running. **Table 46** displays the benefits and costs of the demand response or microtransit zone which operates only after the Martinville route's fixed-route hours while **Table 47** displays its service characteristics. **Figure 40** displays the proposed Martinsville demand response zone.

Table 46: Summary of Martinsville Demand Response or Microtransit Zone Analysis

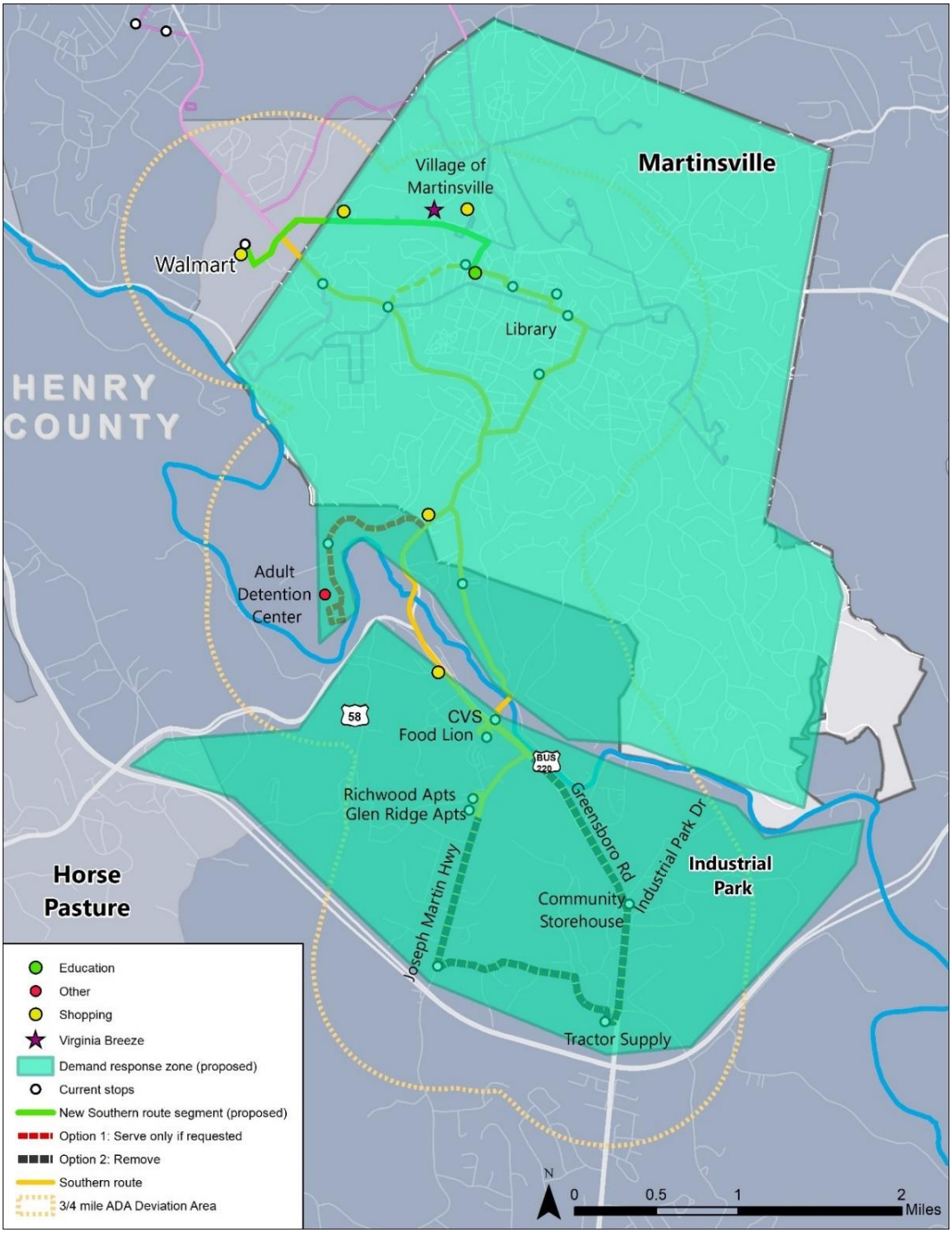
Benefits	Costs and considerations
• Same as Option 1 and Does not replace PART fixed routes • Provides first-last mile service for late shift workers • Provides transit service fixed-route operating hours end for transit-reliant populations	• Same as Option 1 • **Estimated Annual Operating Costs (FY25 $): $67,122[3]**

Table 47: Service Characteristics of limited Martinsville demand response zone

Service characteristics	
Operating days/week	3 days/week

Service characteristics	
Span of service	5:00pm – 10:00pm
Service area size	14 sq. miles
Hours (1-year)	780

Figure 40: Martinsville Demand Response or Microtransit Zone



Expand RADAR service hours to two Saturdays a month

The Mountain Express only operates on weekdays. Currently, the Maury Express, Ferrum Express and Valley Metro STAR (demand response) operate on Saturdays (10:00am - 4:00pm).

OPTION 1: PILOT SATURDAY SERVICE FOR THE MOUNTAIN EXPRESS

Pilot expanding RADAR service hours to two Saturdays a month for Mountain Express between 9:30am – 3:30am. **Table 48** displays the benefits, costs and considerations of Mountain Express Saturday service while **Table 49** displays its service characteristics.

Table 48: Expanding Mountain Express service to Saturdays – Analysis Summary

Benefits	Costs and considerations
• Saturday service will allow more opportunities for residents to use transit when weekdays aren't possible. • It attracts more shoppers and patrons to local destinations and shopping areas. • Supports riders who work on Saturdays.	• Marketing for Saturday service needed. • **Estimated Annual Operating Costs (FY25 $): $17,696**[4]

Table 49: Service Characteristics for Mountain Express Saturday Service

Route characteristics	
Cycle time	90
AM Trips	2
PM Trips	3
Vehicles needed	1
Hours proposed (1 year)	260

OPTION 2: PILOT SATURDAY SERVICE FOR PART ROUTES

The PART routes (Martinsville, Northern, and Southern) operate on weekdays when City of Martinsville schools are open. Pilot expanding RADAR service hours to two Saturdays a month for PART routes between 10:00am – 4:00pm. **Table 50** displays the benefits and costs of expanding RADAR service to Saturdays for the PART routes. **Table 51** displays the service characteristics of Saturday service for each PART route (Martinsville, Northern, Southern).

Table 50: Expanding PART service to Saturdays – Analysis Summary

Benefits	Costs and considerations
• Support transit-dependent college students and year-round Martinsville residents who stay in the area when school is not in session. • Attracts more shoppers and patrons to local destinations and shopping areas. • Supports riders who work on Saturdays.	• For the Martinsville route, Saturday ridership may be particularly low when schools are not in session; marketing for Saturday service to attract new ridership will be important. Skip Department of Social Services (closed on weekends). • For the Northern/Collinsville route, skip the Patrick Henry Community College stop or other destinations not in demand on weekends. • For the Southern route, consider skipping the Community Storehouse, Tractor Supply or other employment destinations. • Marketing for Saturday service needed.

Benefits	Costs and considerations
	• **Estimated Annual Operating Costs (FY25 $): $17,696[5]**

Table 51: Service Characteristics for PART Routes Saturday Service

Route characteristics	Martinsville	Northern	Southern
Cycle time	60	60	60
AM Trips	2	2	2
PM Trips	3	3	3
Vehicles needed	1	1	1
Hours proposed (6 months)	260	260	260

OPTION 3: PILOT SUNDAY SERVICE FOR FERRUM EXPRESS

The Ferrum Express currently operates from 5:00pm -11:00 pm on Thursdays and Fridays and from 1:00pm to 12:00pm on Saturdays (with service to Roanoke). Expanding the operating days to Sundays (10:00am – 6:00pm) will allow Botetourt County residents or students to stay overnight in Roanoke, or take an extended trip from the Roanoke Amtrak station, and take a return bus home on Sunday. **Table 52** displays the benefits and costs of expanding the operating days for the Ferrum Express to Sundays and **Table 53** displays its service characteristics.

Table 52: Benefits and costs of expanding the operating days for the Ferrum Express

Benefits	Costs and considerations
• Support year-round residents of Franklin County including towns of Ferrum and Rocky Mount. • Support longer trips to Roanoke or elsewhere.	• Costs may be high relative to ridership. • Funding and support needed from residents of Franklin County including towns of Ferrum and Rocky Mount. • **Estimated Annual Operating Costs (FY25 $): $6,768[6]**

Table 53: Service Characteristics for Ferrum Express Sunday Service

Route characteristics	
Cycle time	120
AM Trips	1
PM Trips	3
Vehicles needed	1
Hours proposed (1-year)	416

Pilot Transit Options to Roanoke and Botetourt County

OPTION 1: PILOT LIMITED ROUTE BETWEEN ROANOKE AND COVINGTON

A limited pilot route could serve commuters and other riders traveling between Roanoke, Clifton Forge and Covington. Potential stops could include the towns of Daleville and Fincastle in Botetourt County if a rider requests a pickup or to stop.

Table 54 displays the benefits and costs of a pilot Roanoke-Covington route while **Table 55** displays its service characteristics. **Figure 41** displays the proposed pilot route between Roanoke and Covington.

Table 54: Benefits and costs of Pilot route between Roanoke and Covington (via Daleville)

Benefits	Costs and considerations
• Provides transit access for commuters and residents from Covington, Alleghany County and Botetourt County to job opportunities and Amtrak station in Roanoke.	• Costs may be high relative to ridership; costs can be offset with fare. • Operators will need to be recruited. • Buy-in and local funding are likely needed from Botetourt and Alleghany County to sustain service. • Outreach and marketing needed for the route and especially rural towns in Botetourt County to gauge demand. • **Estimated Annual Operating Costs (FY25 $): $103,600**

Table 55: Service Characteristics for Roanoke - Covington Pilot Route

Route characteristics	
Round trip route miles	118.9 (59.1 inbound / 59.8 outbound)
Cycle time	180 minutes
AM Trips	1 Round Trip
PM Trips	1 Round Trip
Vehicles needed	1
Hours proposed (1 year)	1,522

OPTION 2: PILOT LIMITED ROUTE BETWEEN ROANOKE AND BUENA VISTA

A limited pilot route could serve commuters and other riders traveling between Buena Vista, Lexington and Roanoke. Optional stops could include the Town of Buchanan if a rider requests a pickup or to stop. **Table 56** displays the benefits and costs of a pilot Roanoke-Buena Vista route while **Table 57** displays its service characteristics. **Figure 41** displays the proposed pilot route between Roanoke and Buena Vista, with stops in Lexington.

Table 56: Benefits and costs of Pilot route between Roanoke and Lexington (via Daleville)

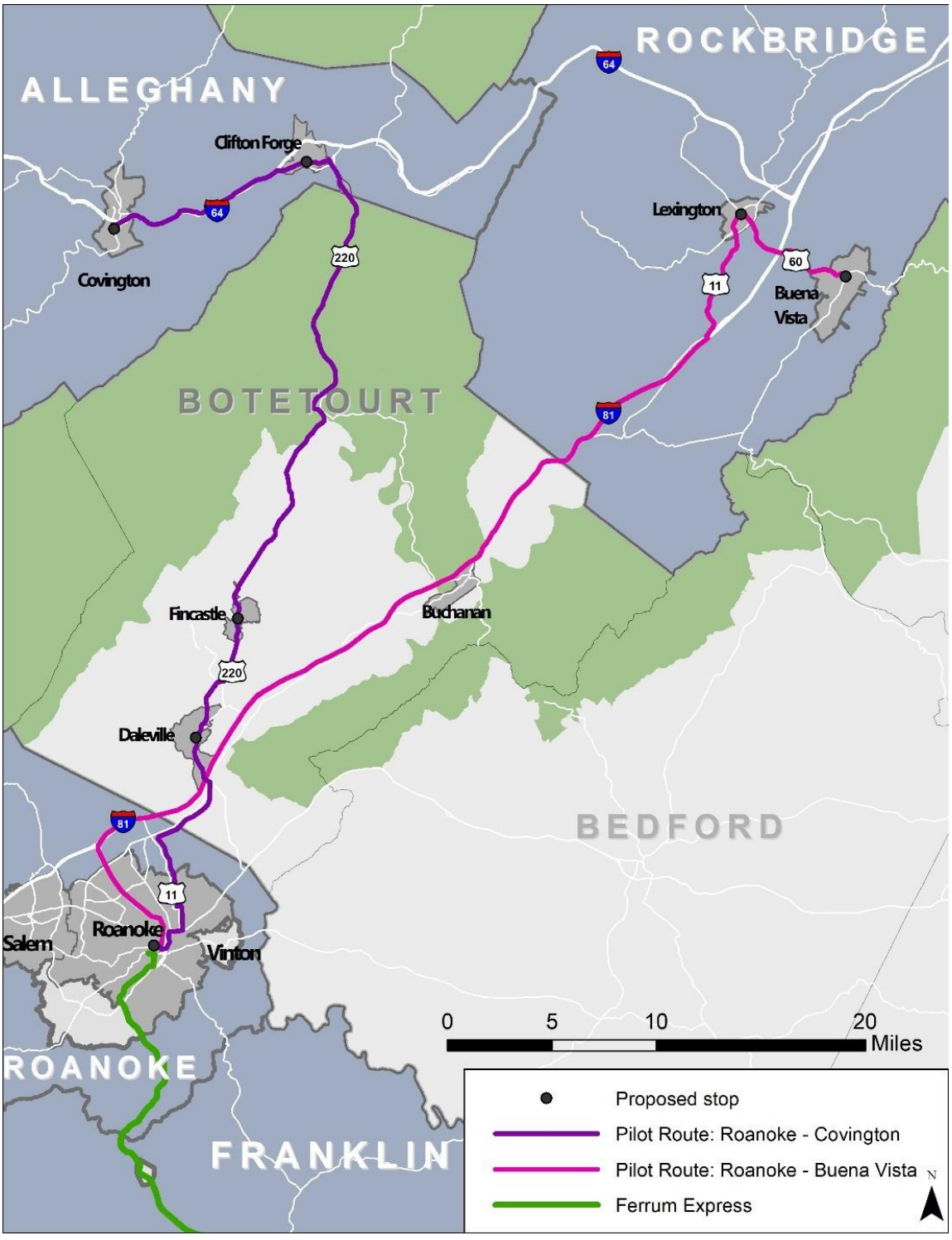
Benefits	Costs and considerations
• Provides transit access for commuters and residents from Lexington, Rockbridge County and Botetourt County to job opportunities and Amtrak station in Roanoke.	• Costs may be high relative to ridership; offset costs with fare. • Operators will need to be recruited. • Buy-in and local funding are needed from Botetourt and Rockbridge County to sustain service. • Outreach and marketing needed for the route and especially rural towns in Botetourt County to gauge demand. • **Estimated Annual Operating Costs (FY25 $): $103,600**

Table 57: Service Characteristics of Roanoke - Buena Vista Pilot Route

Route characteristics	
Round trip route miles	119.8 (59.9 inbound / 59.9 outbound)
Cycle time	180
AM Trips	1 Round Trip

Route characteristics	
PM Trips	1 Round Trip
Vehicles needed	1
Hours proposed (1 year)	1,522

Figure 41: Roanoke to Covington / Buena Vista Pilot Route



Pilot Microtransit or Demand Responsive Services

OPTION 1: EXPLORE DEMAND RESPONSE SERVICE FOR FRANKLIN COUNTY

Implement a 1-year pilot demand response zone three times a week for Franklin County between Ferrum and Rocky Mount. The zone can provide first-last mile service to the Ferrum Express on a Saturday or Sunday as well. **Table 58** displays the benefits and costs of a pilot demand response zone for Franklin County and **Table 59** displays its service characteristics. **Figure 42** displays the proposed Franklin County demand response zone.

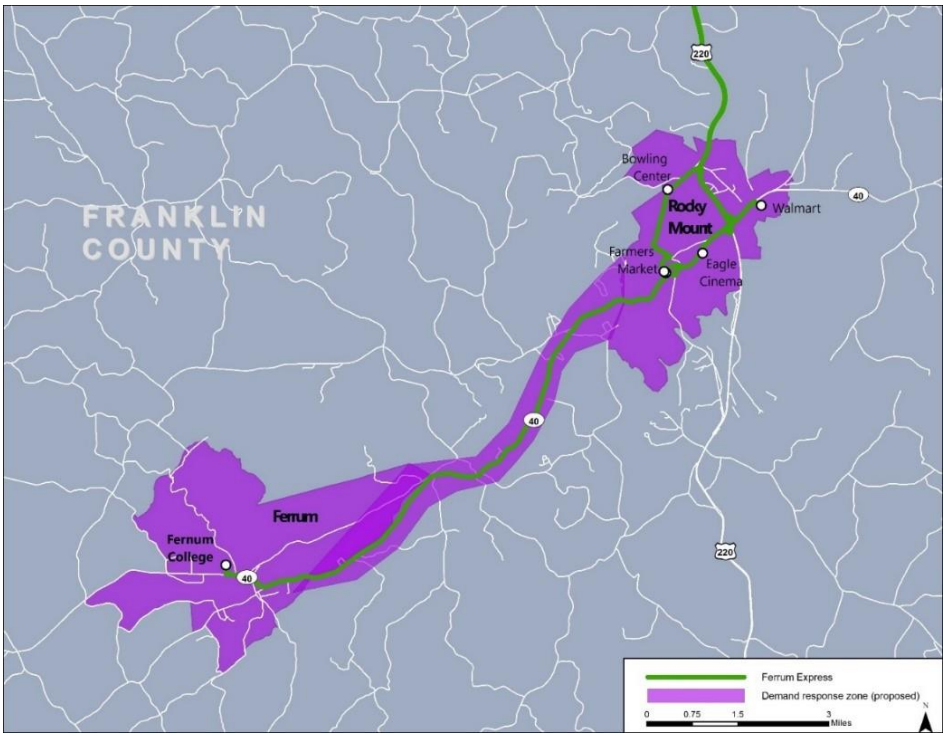
Table 58: Benefits and costs of Demand Response or Microtransit for Franklin County

Benefits	Costs and considerations
• Currently there is very limited transit service offered in Franklin County. • Can serve as first-last-mile connection to/from Ferrum Express. • Provides transit option when Ferrum Express is not running for students and transit-reliant populations.	• High initial investment and cost. • Requires local buy-in and demand. • **Estimated Annual Operating Costs (FY25 $): $80,545**[7]

Table 59: Service Characteristics for Franklin County Demand Response or Microtransit Service

Service characteristics	
Operating days/week	3 days/week
Span of service	2:00pm – 8:00pm
Service area size	16 sq miles
Hours proposed (1 year)	936

Figure 42: Franklin County Demand response or Microtransit Zone



OPTION 2: EXPLORE MICROTRANSIT SERVICE IN LEXINGTON AND BUENA VISTA

Pilot a 1-year microtransit zone serving the city boundaries of Lexington, East Lexington and Buena Vista including part of the ¾ mile ADA deviation area. **Table 60** displays the benefits and costs of a microtransit zone in Lexington and Buena Vista while **Table 61**displays its service characteristics. **Figure 43** displays the proposed microtransit zone.

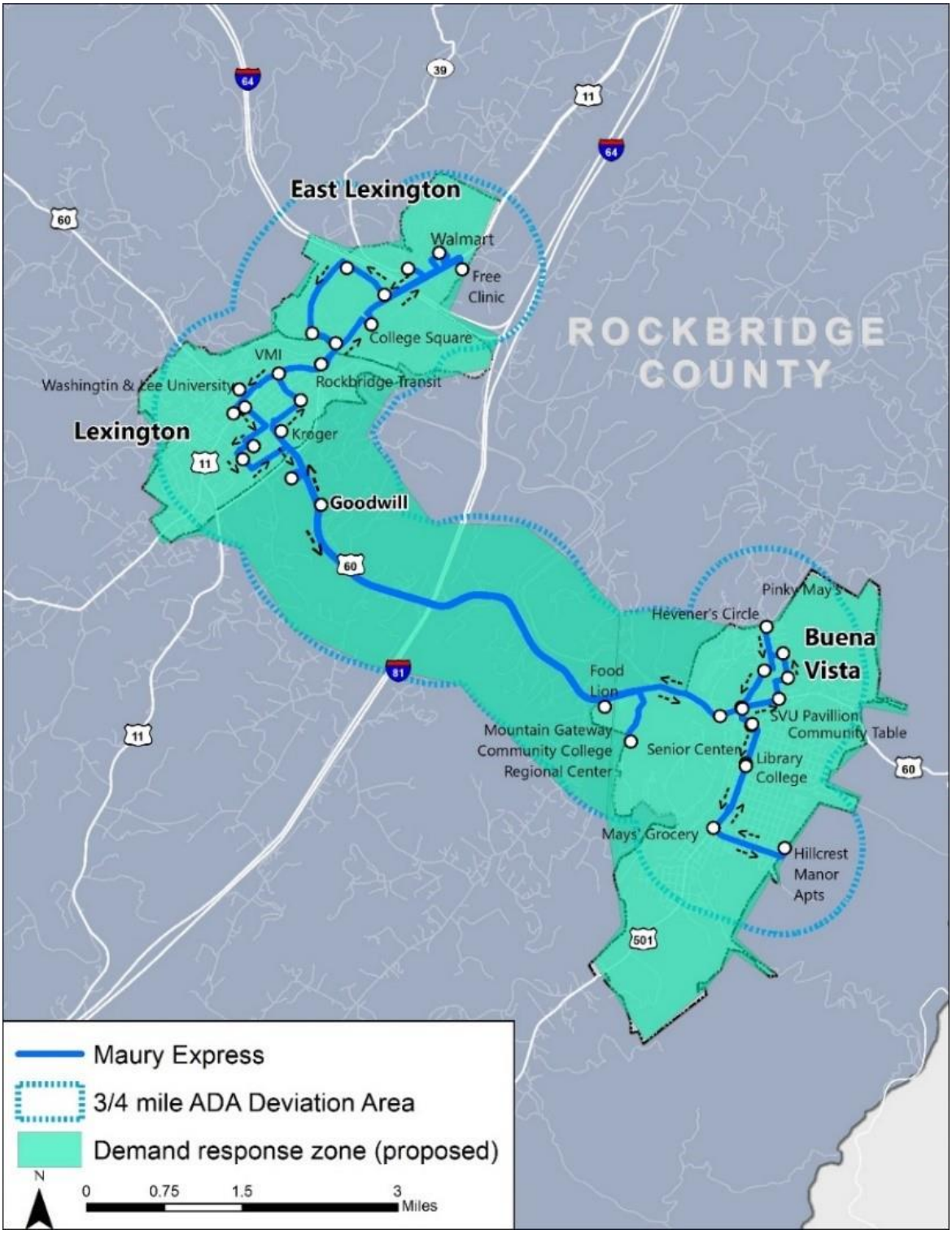
Table 60: Benefits and costs of Microtransit in Lexington and Buena Vista

Benefits	Costs and considerations
• Established ridership on the Maury Express. • Potentially increases long-term trip efficiency and transit costs.	• High initial investment and cost. • Requires local buy-in and demand. Replaces the Maury Express. • **Estimated Annual Operating Costs (FY25 $): $215,133**[8]

Table 61: Service Characteristics for Lexington and Buena Vista Microtransit Service

Service characteristics	
Operating days/week	5 days/week
Span of service	7:30am – 5:30pm
Service area size	15 sq. miles
Hours proposed (1 year)	2,500

Figure 43: Microtransit zone for Lexington and Buena Vista



OPTION 3: EXPLORE MICROTRANSIT SERVICE IN LEXINGTON AND BUENA VISTA OUTSIDE OF FIXED-ROUTE HOURS.

Pilot a 1-year microtransit zone after the Maury Express operating hours, serving the city boundaries of Lexington, East Lexington and Buena Vista including part of the ¾ mile ADA deviation area. This service can provide service for students at the local colleges (Washington & Lee, VMI, SVU) and late-shift workers when Maury Express operating hours end. It can also test the demand for longer microtransit operating hours or specific zones **Table 62** displays the benefits and costs of a microtransit zone in Lexington and Buena Vista while **Table 63** displays its service characteristics. **Figure 43** displays the proposed microtransit zone.

Table 62: Benefits and costs of Microtransit in Lexington and Buena Vista

Benefits	Costs and considerations
• Established ridership on the Maury Express. • Provides transit option for late-shift workers or transit-reliant populations after fixed-route operating hours.	• High initial investment and cost. • Requires local buy-in and demand. • **Estimated Annual Operating Costs (FY25 $): $107,566[9]**

Table 63: Service Characteristics for Lexington and Buena Vista Microtransit Service

Service characteristics	
Operating days/week	5 days/week
Span of service	5:00pm – 10:00pm
Service area size	15 sq. mi
Hours proposed (1 year)	1,250

Facilitate Collaboration or Partnerships with Jurisdictions

RADAR should explore the option to partner with local jurisdictions or organizations, like Alleghany, Rockbridge, and Henry County to build and maintain low-cost seating, shelters, or other amenities that create safe and welcoming waiting areas at high ridership stops **(Table 64**).

Table 64: RADAR Highest Ridership Stops, for Passenger Amenity Consideration

Route	Stop	2023 Annual Ridership
PART - North County	Walmart	1,898
PART - North County	Daniels Creek Rd/Kings Mountain Rd	1,130
PART - North County	Maplewood Apartments	1,436
PART - South County	Walmart	1,440
PART - Martinsville	Walmart	2,086
PART - Martinsville	Village of Martinsville	1,591
PART - Martinsville	Patrick Henry Mall	1,035
Mountain Express	Kroger/Clifton Woods	1,609
Mountain Express	CF Main Street/ Save-a-Lot	1,801
Mountain Express	Scott Hill	1,538

Table 65: Benefits and costs of shelter infrastructure

Benefits	Costs and considerations
• Riders have expressed dissatisfaction with shelters and waiting areas. • Potentially attracts new riders. • Creates visibility for the RADAR system.	• Agreements need to be made for who maintains the shelters and waiting areas.

CHAPTER 5. IMPLEMENTATION PLAN

This Implementation Plan chapter prioritizes strategic enhancements which are aligned with the evolving needs of the community and agency goals. Recommendations from the previous section have been programed into three planning timeframes, short-, mid-, and long-term. Some recommendations have multiple options which have varying costs associated with them, which are outlined in the Financial Plan in the next section. Implementation of any option requires buy-in from the local jurisdictions to help fund and support the optimization of services in their communities. Recommendations are grouped into three timeframes to ensure a structured approach to project prioritization and efficient resource allocation:

Short-Term (1-3 Years): Actions in this phase emphasize projects that can be implemented quickly, leveraging existing funding mechanisms and improving or replacing current services to maximize impact.
Mid-Term (3-5 Years): This phase focuses on building system capacity and fostering flexibility, with initiatives to expand service offerings and strengthen partnerships.
Long-Term (5-10 Years): Long-term projects aim to sustain growth and explore innovative strategies to meet the evolving transit needs of RADAR's service area. These projects will often require additional analysis, partnerships, and the development of sustainable funding sources.

This TDP serves as a guiding framework, suggesting optimal timelines for implementing the outlined recommendations. However, actual implementation will depend on local stakeholder support, available funding, and the results of any required feasibility studies or pilot projects.

Short Term (1-3 years)

Year 1 (FY2026)

- Add Saturday service to Mountain Express Route (no additional vehicle required)
- Add Saturday service to all PART Southern and PART Martinsville Routes (no additional vehicle required)

Year 2 (FY2027)

- Modify PART Southern Route implement all options for a streamlined route (no additional vehicle required)
  - Option 1: Remove Adult Detention Center stop, provide service as requested
  - Option 2: Remove Tractor Supply, Community Storehouse stop, provide service as requested
  - Option 3: Add segment from New College Institute to Village of Martinsville and Aldi
- Add Microtransit service in Martinsville when the PART service does not run (no additional vehicle required)

Year 3 (FY2028)

- Add Sunday service to Ferrum Express (no additional vehicle required)

Mid Term (4-6 years)

Year 4 (FY2029)

- Add Demand Response service to North Henry County to replace PART North County Route (no additional vehicle required)

Year 5 (FY2030)

- Add Demand Response service in the off hours to Buena Vista and Lexington (one additional vehicle required)

Long Term (6-10 years or beyond)

Year 7 (FY2032)

- Pilot limited deviated fixed route connecting Bassett, Collinsville and Martinsville (one additional vehicle required)

Year 8 (FY2033)

- Pilot transit options to Roanoke and Botetourt County (both options are expected to cost the same, one additional vehicle required)
    - Option 1: Pilot limited route between Covington, Daleville and Roanoke
    - Option2: Pilot limited route between Buena Vista, Daleville, and Roanoke

Year 9 (FY2034)

- Pilot Demand Response or Microtransit Service in Franklin County (one additional vehicle required)

CHAPTER 6. FINANCIAL PLAN

6.1 Operating Expenses

The projected costs for this TDP's 10-year planning horizon are based on current operating costs per revenue hour (based on FY23 data), differentiated by service type (e.g., Deviated Fixed Route, Demand Response). These costs are combined with the estimated revenue hours required to implement each recommendation and include an assumed annual cost escalation of 4 percent. The allocation of funding sources is modeled after RADAR's existing structure, which typically consists of 20 percent local funding, 30 percent state contributions, and 50 percent federal funding to address the annual operating deficit (total costs minus revenue).

RADAR should continue to leverage its established partnerships and pursue local support for proposed service enhancements. Potential strategies for local participation may include contributions to vehicle procurement and maintenance, fare subsidies, or operating cost offsets. Recommendations detailed in earlier chapters provide several service options with varying cost implications.

For financial planning purposes, the 10-year plan, summarized in **Table 66**, reflects annual costs based on the most cost-effective option where multiple scenarios exist. For Adjusting PART Southern – it is suggested that RADAR implement all changes, this is subject to buy-in from the city of Martinsville. Adding Saturday service to PART routes is limited to PART Southern and PART Martinsville to account for a later recommendation to replace the PART North County route with demand response service. If RADAR elects not to replace PART North County with demand response service, then additional Saturday service should be considered.

Table 66: Estimated Operating Costs and Funding Required with Expanded Service FY26-FY35

	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35
Revenue Hours										
Demand Response/ Microtransit	42,605	43,385	43,385	45,885	47,135	47,135	47,135	47,135	48,071	48,071
Fixed Route	696	696	1,112	1,112	1,112	1,112	1,112	1,112	1,112	1,112
Deviated Fixed Route	23,378	23,130	23,130	20,630	20,630	20,630	21,630	23,152	23,152	23,152
Operating Costs										
Total Operating Expenses	$5,479,401	$5,752,891	$5,990,620	$6,282,879	$6,665,065	$6,931,668	$7,298,492	$7,732,191	$8,156,121	$8,482,366
Estimated Revenue[10]	$20,267	$20,979	$21,598	$22,359	$23,354	$24,048	$25,003	$26,133	$27,236	$28,086
Deficit	$5,459,134	$5,731,912	$5,969,022	$6,260,520	$6,641,711	$6,907,619	$7,273,489	$7,706,059	$8,128,885	$8,454,280
Funding										
Local (30%)	$1,091,827	$1,146,382	$1,193,804	$1,252,104	$1,328,342	$1,381,524	$1,454,698	$1,541,212	$1,625,777	$1,690,856
State (20%)	$1,637,740	$1,719,574	$1,790,707	$1,878,156	$1,992,513	$2,072,286	$2,182,047	$2,311,818	$2,438,665	$2,536,284
Federal (50%)	$2,729,567	$2,865,956	$2,984,511	$3,130,260	$3,320,855	$3,453,810	$3,636,744	$3,853,029	$4,064,442	$4,227,140

6.2 Capital Expenses: Transit Assets and Facilities

RADAR operates mostly Bus on Chassis (BOC) light and medium duty transit vehicles, or Cutaways, and a few passenger vans. The total fleet size is 57 vehicles, and the average age is seven years old. According to FTA Useful Life Benchmarks (ULB) RADAR vehicle types should be replaced every four years or every 100,000 miles for best performance. The condition of each vehicle and its mileage was assessed in January 2024, the year of this plan preparation (**Table 67**). According to these assessments, 29 vehicles are beyond the mileage ULB of 100,000 miles, and 41 are beyond the age ULB of four years. Additionally, 59 percent of the fleet has a condition score of Marginal or Poor (1-2.9). RADAR should make strides to replace vehicles beyond these benchmarks each year.

The replacement schedule, outlined in the Implementation Plan, assumes that the agency can replace 18 vehicles in FY2026 and that they can replace up to 14 vehicles per year (approximately 25 percent of the fleet). A consistent replacement schedule will ensure that the agency is not overburdened by maintenance costs in any year because of aging or failing vehicles.

Table 67: RADAR In Service Fleet Type, Age, Mileage, and Condition

Asset ID	Type	Year	Age (in 2024)	Mileage (As of 1/24)	Condition (As of 1/24)
80	Cutaway	2008	16	285,484	Poor (1)
72	Cutaway	2017	7	277,571	Poor (1)
1134	Cutaway	2011	13	252,639	Poor (1)
1403	Cutaway	2014	10	235,796	Poor (1.5)
1504	Cutaway	2015	9	228,076	Poor (1)
71	Cutaway	2014	10	217,774	Marginal (2.5)
1455	Cutaway	2014	10	209,945	Poor (1)
73	Cutaway	2019	5	199,785	Poor (1)
1440	Cutaway	2014	10	197,918	Poor (1)
133	Cutaway	2018	6	196,469	Poor (1)
1444	Cutaway	2014	10	195,460	Marginal (2)
74	Cutaway	2019	5	195,000	Poor (1)
1779	Cutaway	2017	7	194,601	Poor (1.5)
1750	Cutaway	2017	7	186,614	Poor (1.75)
83	Cutaway	2019	5	182,987	Poor (1)
1223	Cutaway	2012	12	179,434	Poor (1)
1659	Cutaway	2016	8	178,452	Poor (1)
144	Cutaway	2019	5	170,323	Adequate (3)
1536	Cutaway	2015	9	168,913	Good (4.5)
143	Cutaway	2019	5	156,745	Adequate (3)
147	Cutaway	2019	5	155,456	Adequate (3)
136	Cutaway	2018	6	147,247	Adequate (3)
142	Cutaway	2019	5	146,860	Marginal (2)
145	Cutaway	2019	5	146,819	Marginal (2.5)
1781	Cutaway	2017	7	144,948	Poor (1.5)
135	Cutaway	2018	6	129,890	Adequate (3)

Asset ID	Type	Year	Age (in 2024)	Mileage (As of 1/24)	Condition (As of 1/24)
1707	Cutaway	2017	7	118,514	Adequate (3.4)
1778	Cutaway	2017	7	103,980	Adequate (3)
94	Cutaway	2021	3	100,953	Adequate (3.5)
150	Cutaway	2021	3	96,466	Marginal (2.75)
95	Cutaway	2021	3	94,694	Adequate (3.5)
134	Minivan	2017	7	70,107	Adequate (3.5)
148	Cutaway	2021	3	69,287	Good (4)
149	Van	2020	4	54,830	Good (4)
154	Cutaway	2022	2	54,032	Excellent (4.75)
153	Cutaway	2022	2	50,656	Excellent (4.75)
156	Cutaway	2022	2	49,146	Excellent (4.75)
155	Cutaway	2022	2	49,146	Excellent (4.75)
151	Van	2020	4	45,429	Excellent (4.75)
152	Van	2020	4	43,378	Excellent (4.75)
157	Cutaway	2021	3	29,895	Excellent (4.75)
137	Minivan	2019	5	17,910	Excellent (4.75)
158	Cutaway	2021	3	17,463	Excellent (5)
1610	Cutaway	2016	8	174,354	Poor (1)
1780	Cutaway	2017	7	172,015	Poor (1.5)
1712	Cutaway	2017	7	170,719	Marginal (2)
1615	Cutaway	2016	8	165,554	Poor (1)
1437	Cutaway	2014	10	161,146	Poor (1)
1425	Cutaway	2014	10	154,743	Poor (1.5)
1511	Cutaway	2015	9	153,913	Marginal (2)
146	Cutaway	2019	5	153,667	Marginal (2.5)
1782	Cutaway	2017	7	153,599	Marginal (2)
1754	Cutaway	2017	7	152,255	Poor (1.75)
1743	Cutaway	2017	7	147,517	Marginal (2)

6.3 Fleet Replacement Schedule

Cutaway vehicles have a useful life benchmark of four years. For RADAR to be in a state of good repair, the agency would need to replace about 25 percent of its fleet every year. Considering a steady fleet size to today, that would be around 14 vehicles a year until FY2035 with the addition of new vehicles for the expansion of services.

Table 68: 10-year Vehicle Replacement Schedule (FY26-FY35)

		FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035
Replacement	Cutaway	18*	14	12	11	12	14	12	12	12	15
	Van			2	3			2	3		
Expansion	Cutaway		1			1		1	1	1	
	Van										
Costs ($)	Total	*	2,367,893	1,970,087	1,878,149	2,308,416	2,585,426	2,496,783	2,596,654	2,700,521	3,240,625

*already procured