



Regional Transit Study

New River Valley Metropolitan Planning Organization

Approved: September 1, 2016



*New River Valley
Metropolitan Planning Organization*

September 1, 2016

Resolution accepting the final report prepared by the New River Valley Regional Commission for the Regional Transit Study.

On a motion by Anne McClung, seconded by Mike Barber, and carried unanimously,

WHEREAS, the MPO contracted with the New River Valley Regional Commission (NRVRC) to conduct a Regional Transit Study to evaluate and make recommendations for overlapping and high volume bus stop locations, and

WHEREAS, the study was conducted by the NRVRC and

WHEREAS, a draft final report has been developed by the Regional Commission and reviewed by the TAC, and

WHEREAS, the TAC recommends approval.

NOW, THEREFORE, BE IT RESOLVED, that the New River Valley MPO accepts the final report for the Regional Transit Study.


F. Craig Meadows, Chairman

TABLE OF CONTENTS

Introduction5

 Scope and Method..... 5

Overview of NRV Transit Services.....6

 Transit Providers..... 6

 Blacksburg Transit..... 6

 Radford Transit 6

 Pulaski Area Transit..... 7

 Smart Way (Valley Metro) 7

 District 3 7

 Megabus 7

Findings and Recommendations.....8

 Overlapping Stops..... 8

 High-Volume, Single Provider Stops..... 8

 Conceptual Plans..... 9

 NRV Mall Concept..... 9

 Walmart – Fairlawn Concept 10

Planning and Policy..... 11

 Basic Stop..... 13

 Enhanced Stop 13

 Hub Stop..... 13

Plan Implementation..... 14

 3-year Action Plan14

 6-year Action Plan.....15

NRV Transit System Characteristics 16

Existing.....17

 New River Valley Mall Stop 18

 Exit 118 Park and Ride Stop..... 19

 Squires Student Center Stop 20

 Blacksburg Municipal Building Stop 21

 Walmart – Fairlawn Stop 22

 Andrews Building Southbound (VT CRC) Stop..... 23

| | |
|---|-----------|
| Kroger – Fairlawn Stop..... | 24 |
| Kmart – Christiansburg Stop | 25 |
| Future Overlapping Stops..... | 26 |
| Downtown Blacksburg and Christiansburg Mini-hub(s) | 26 |
| I-81/ Route 8 Park and Ride | 26 |
| New River Valley Medical Center | 27 |
| Virginia Tech Multimodal Transfer Facility | 27 |
| Other Regional Stops..... | 27 |
| Transit System Review..... | 28 |
| Peers..... | 28 |
| Users..... | 29 |
| Bus Rider Survey | 29 |
| Employer Survey | 31 |
| Case Studies..... | 32 |
| Case Study 1 – Attracting Choice Riders | 32 |
| Case Study 2 – Fares..... | 33 |
| Case Study 3 – Enhancing the Presence of Transit..... | 34 |
| Service Environments – Linking Design to Scale | 35 |
| Summary | 36 |
| Appendices | 37 |
| Appendix A1 – Working Committee | 38 |
| Appendix A2 – Project Management Team | 38 |
| Appendix B1 – NRV Mall Concept..... | 39 |
| Appendix B2 – Walmart Concept | 44 |
| Appendix C – Transit Service Proximity Analysis..... | 49 |
| Appendix D – Bus Rider Survey..... | 54 |
| Appendix E – Employer Survey | 59 |
| Appendix F – Components of Design | 60 |
| Appendix G – Peer Review Packet | 61 |

List of Tables

| | |
|---|----|
| Table 1: TRB Service Environment Recommendations..... | 11 |
| Table 2: TRB Amenities vs. Ridership | 12 |
| Table 3: 3-Year Action Plan | 14 |
| Table 4: 6-Year Action Plan | 15 |
| Table 5: Overlapping Stop Demographic Analysis | 26 |
| Table 6: Service Environment Design Strategies | 35 |

INTRODUCTION

The study process was led by the New River Valley Regional Transit Coordinating Council (RTCC). The RTCC was created as a result of a 2010 study on regional transit organization structures by the New River Valley Metropolitan Planning Organization and New River Valley Regional Commission. The RTCC creates more dialog across the region and provides a stronger multi-jurisdictional/multi-system perspective.

In July 2012, the group identified two key priorities for the region's public transportation partners to work on: 1) identify a common technology platform between service providers; and 2) enhance the presence of public transit stops at overlapping service locations. The 2016 Regional Transit Study aims to complete the second strategy identified by the RTCC.

In 2014, the NRV Regional Commission purchased ArcGIS Online and provided a seat for an NRV Metropolitan Planning Organization funded intern. The partnership enabled the region's transit agencies to collaboratively complete the first goal identified by the RTCC. The New River Valley Transit GIS Portal is now available online here: nrvrc.org/nrvmpo/transit/.

Scope and Method

The purpose of this study is to investigate potential enhancements at overlapping and high-volume bus stop locations that could improve the perception of public transportation in the region. Overlapping stops create opportunities to ultimately expand the service area beyond a single community. High-volume stops create opportunities for transit agencies to educate and retain current users. Particular focus is on the physical appearance and accessibility to information about existing public transit services.

Identifying overlapping and high-volume bus stop locations was the first step in the planning process. A project webpage (nrvrc.org/regionaltransitstudy/) provides public access to the draft plan, supporting documents, and other related project information. The RTCC served as the working committee to offer feedback and input on project deliverables and includes a minimum of the following representation: Blacksburg Transit, Radford Transit, Pulaski Area Transit, Smart Way, Town of Blacksburg, Town of Christiansburg, City of Radford, Montgomery County, Pulaski County, Radford University, and Virginia Tech.

A review of local Transit Development Plans and Comprehensive Plans revealed anticipated changes at existing stops and future service overlaps. Case studies of similar systems and subject were compiled for applicability to the circumstances of the region's bus stops.

Two surveys were conducted to solicit community feedback: a rider survey available on-line and through on-site interviews, and an employer survey to gauge the perceived availability of transit service for their employees at home and the work site.

Regional stakeholders participated in a Peer Review event with subject experts who identified their experiences and research in implementing improved transit services and facilities. The final study identifies policy and capital investment strategies. A short-term (3-year) and long-term (6-year) action plan outlines recommendations to elevate public transit as a preferred transportation choice in the New River Valley region.

OVERVIEW OF NRV TRANSIT SERVICES

Transit services are currently provided in the Counties of Montgomery and Pulaski, the City of Radford, and the Towns of Blacksburg and Christiansburg. In 2015, a total of five unique public transit operators had routes/stops that overlapped at eight locations throughout the region.

The following stops serve more than one transit system in the region:

- New River Valley Mall
- Laurel/Sycamore (Kmart)
- Exit 118 Park and Ride
- VT Corporate Research Center
- Kroger Fairlawn
- Walmart Fairlawn
- Blacksburg Municipal Building
- Squires Student Center

Transit Providers

Six transit operators serve stops evaluated in this study – one private and five publicly funded. Below is some general information about the services each provider offers and their respective annual operating budgets.

Blacksburg Transit

www.blacksburg.gov/index.aspx?page=791

FY2016 operating budget: \$6,665,947



Blacksburg Transit (BT) provides a traditional bus system in Blacksburg that operates on a published time schedule of 12 routes with over 300 stops connecting major shopping, educational and residential areas. BT also offers “access for individuals” for those with physical disabilities unable to use a traditional bus system.

In Christiansburg, BT operates two routes: the Explorer route, which offers a traditional scheduled bus stop system; and the Go Anywhere service, which is a call ahead reservation-based service that picks you up and drops you off at a destination of your choice. Lastly, there is a Christiansburg-to-Blacksburg weekday commuter service.

Radford Transit

www.radfordtransit.com

FY2016 operating budget: \$1,390,965



Radford Transit provides public transit to the citizens of Radford, Radford University students, faculty and staff and those who live in the surrounding areas with six routes. It is operated by New River Valley Community Services, through a joint partnership between Radford University, Radford City, the Virginia Department of Rail and Public Transportation, and the Federal Transit Administration.

Pulaski Area Transit

www.pulaskitransit.org

FY2016 operating budget: \$584,403

Pulaski Area Transit (PAT) operates 7 am to 5 pm on Monday thru Friday, and 9 am to 3 pm Saturday. Users can call for a pick-up at or near their location with an approximate wait time of 15 minutes. PAT also runs a demand-response system which requires a 24-hour notice. The system serves Pulaski County with an extended route to the New River Community College campus in Montgomery County.



Smart Way (Valley Metro)

www.smartwaybus.com

FY2016 operating budget: \$7,977,553

Valley Metro is the public transportation provider serving the Roanoke Valley with approximately 30 daily routes. In addition to its traditional bus service, it also provides commuter bus service between the City of Roanoke and the New River Valley with the Smart Way. The service begins in downtown Roanoke at Valley Metro's Campbell Court Transportation Center and ends at the Virginia Tech Squires Student Center. The return route, from the New River Valley to the Roanoke Valley, is the exact reverse.



District 3

www.district-three.org/transit

FY2016 operating budget: \$1,898,172

District Three Public Transit is operated as a Joint-Exercise of Powers entity by the localities of the Mount Rogers Planning District. They provide public transit service in 10 separate locality systems ranging from fixed-loop, demand-response, and deviated-fixed. A New Freedom Bristol-to-Roanoke route along the Interstate 81 corridor from Washington County as far north as the Roanoke Valley, including a stop in the New River Valley, operated until 2015 when the services was discontinued due to lack of funding. The Bristol to Roanoke route ran on Mondays.



Megabus

us.megabus.com/top-routes.aspx

Megabus is a low-cost, express bus service offering city center-to-city center travel purchased via the Internet on coach-style double-decker buses with free wi-fi and at-seat plug ins. They have an undetermined number of routes, listing 18 "popular" routes on their website and claim service to 120 cities. At least seven cities are directly accessible from the NRV's stop in Christiansburg.



FINDINGS AND RECOMMENDATIONS

This section provides an overview of the key findings and recommendations identified through the study process.

Overlapping Stops

Key findings and recommendations for overlapping stops include the following:

- Establish a time check at enhanced and/or hub service environment stops to synchronize arrival/departure times. Improve connectivity and expand service area of regional network and decrease waiting times.
- Ensure that all overlapping stops are handicapped accessible and create connections with surrounding bicycle and pedestrian infrastructure within a half-mile radius.
- Expand existing services for commuters and non-emergency medical trips. Examples might include: a morning connection between the Town of Christiansburg and Radford, and new connections to the Carilion NRV Medical Center.
- Provide a contact phone number for the appropriate transit provider(s) at each stop. The number could direct transit users to a mobility manager that is jointly funded by all service providers, or individual numbers could be incorporated into branding components at each stop.
- Incorporate shelters and passenger information (schedules, route info, etc.) at enhanced and/or hub service environment stops. Convey permanence and create opportunities for others to learn about existing transit services. Additionally, create an area that reduces exposure to poor weather conditions and intense sunlight.

High-Volume, Single Provider Stops

The original intent of this study was to also incorporate high-volume stop locations; however, the need to explore overlapping service strategies became the primary focus. Table 2 (page 11) identifies recommendations that could be applied at high-volume stops. High-volume stop locations will be examined in future bus stop safety and accessibility studies.

Conceptual Plans

NRV Mall Concept

Potential multimodal hub featuring: enhanced pick-up/drop-off area, climate controlled seating areas, interactive information center, large shelter, commuter parking, and connectivity with the Huckleberry Trail. The image (below) illustrates how a multimodal hub could be incorporated between the two existing stops at the NRV Mall and Regal Cinema.



Walmart – Fairlawn Concept

Initiate communication with property owner to develop a more defined transit stop, inclusive of: bus turn-outs, real-time passenger information technology, and interactive information center. The image (below) illustrates how an underutilized area near the side-entrance could be enhanced to provide turnouts for two or more buses.



Planning and Policy

Bus stops are only a single component of attracting and retaining ridership. Service availability, diversity in ridership, connectivity to other modes of transportation, and even bus operators have a role in the quality of a public transportation system. Public transportation systems are heavily subsidized by federal, state, and local tax dollars. As a result, enhancements to the existing services require constant data collection and analysis. For example: each transit agency is responsible for maintaining a Transit Development Plan that outlines services and investments over a constrained six-year planning horizon.

In 2005 the Transportation Research Board released the *Elements Needed to Create High Ridership Transit Systems: Interim Guidebook*.¹ The guide outlines specific types of operating and capital investments recommended for different service environments. Tables 1 and 2 (below) are products of the TRB Guidebook. The recommendations are intended to be used as a starting point when considering transit improvements. Note: each stop is unique and may require certain amenities even if ridership potential is low. As an example, a shelter might be recommended at stops with longer waits.

Table 1: TRB Service Environment Recommendations

| Strategy | Service Environment | | | | |
|--|---------------------|--------------|-------------|-------|--------|
| | large urban* | medium urban | small urban | rural | suburb |
| Increase route coverage | + | + | + | + | + |
| Route restructuring | + | + | + | + | + |
| Improved schedule/route coordination | + | + | + | + | + |
| Increased service frequency | + | + | + | - | + |
| Increased span of service | + | + | + | - | + |
| Improved reliability/on-time performance | + | + | + | - | + |
| Improved travel speed/reduced stops | + | + | - | - | + |
| Targeted services | + | + | + | + | + |
| Passenger facility improvements | + | + | + | - | + |
| New/improved vehicles | + | + | + | - | + |
| Increased security | + | + | + | + | + |
| Increased safety | + | + | + | + | + |

Key: + applicable - not applicable or appropriate *not applicable in NRV

¹ TCRP H-32: Interim Guidebook, 2005. Retrieved: http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_webdoc_32.pdf

The focus of this study is to identify passenger facility improvements that are suitable and most effective at overlapping bus stop locations. Strategies should align with specific transit agency operating goals. For example, goals may include:

- Route coverage: a majority (51%) of households in high density areas should be within a half-mile of existing bus routes
- Travel time: ratio of bus travel time compared to auto travel time should be less than 1.5 (30 minute trip by auto should take no more than 45 minutes by bus)
- Reliability: 90% on-time departures for weekday trips
- Attract and retain ridership: stops with 50 or more daily boardings/alightings should include: level concrete pad, adequate lighting, bus stop sign, route map and schedules, standard shelter, and a trash receptacle

Improving passenger facilities plays a key role in attracting and retaining ridership. The table² (below) provides examples of amenity considerations based on daily ridership.

Table 2: TRB Amenities vs. Ridership

| Amenity | Daily Customer Boarding Activity | | | | |
|--|----------------------------------|----------|-----------|-----------|-------|
| | < 50 | 51 - 100 | 101 - 300 | 301 - 500 | 501 < |
| Level concrete pad | + | + | + | + | + |
| Safe access | + | + | + | + | + |
| Adequate lighting | + | + | + | + | + |
| Bus stop signs | + | + | + | + | + |
| Route map and schedules | + | + | + | + | + |
| Standard shelter | - | + | + | + | + |
| Trash receptacle | - | + | + | + | + |
| Detailed schedule | - | - | + | + | + |
| Larger/multiple shelters | - | - | + | + | + |
| Benches in shelter | - | - | + | + | + |
| System map | - | - | - | + | + |
| Real-time travel information | - | - | - | + | + |
| Potential conversion to transit center | - | - | - | - | + |

Key: + applicable - not applicable or appropriate

The Regional Commission utilized the Transportation Research Board's *Elements Needed to Create High Ridership Transit Systems: Interim Guidebook* in combination with the American Public Transportation Association's 2010 *Recommended Practice for Bus Rapid Transit Stations and Stops*³ to link service environments to existing overlapping stops in the region. Stops were classified in to three service environments: 1) Basic, 2) Enhanced, and 3) Hub.

² TCRP H-32: Interim Guidebook, 2005. WMATA Regional Bus Study, Table 5-7. Retrieved: http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_webdoc_32.pdf

³ APTA Standards Development Program, APTA BTS-BRT-RP-002-10, 2010. Retrieved: <http://www.apta.com/resources/standards/Documents/APTA-BTS-BRT-RP-002-10.pdf>

Basic Stop

Also referred to as a curbside stop, a basic service environment is a designated point located adjacent to an existing bus route. This stop typically has the fewest amenities and is inexpensive and quick to install; however, the stops do not communicate permanence nor do they attract “choice” riders (riders that have other means of transportation). At a minimum, the stops should include branding elements and basic safety/accessibility features. Overlapping stops that could be classified as Basic Stops in the NRV include: Kmart – Christiansburg, Kroger – Fairlawn, Blacksburg Municipal, and the Andrews Building Corporate Research Center (CRC).

Enhanced Stop

The enhanced service environment is similar to a basic stop; however, more passenger amenities are present. This stop is also considered a lower cost and typically features a shelter, passenger information, seating, lighting, and branding elements. Stop features increase the visibility of public transit services and accommodate low to moderate demand. In addition, the amenities require little space when compared to a larger hub. Overlapping stops that could be classified as Enhanced Stops in the NRV include: Walmart – Fairlawn, Exit 118 Park and Ride, NRV Mall, Blacksburg Municipal, and the Andrews Building CRC.

Hub Stop

Also referred to as a transit station, the hub service environment is a substantial facility. The stops create an attractive image for public transit services and convey permanence. In addition, the stops accommodate higher levels of capacity when compared to enhanced and basic stops. Passenger amenities should include handicapped accessibility, lighting, shelter(s), trash receptacles, level boarding, real-time passenger information, and advanced fare collection. The service environments are recommended especially when higher demand is expected, passenger experience is a high priority, where it is desired to protect passengers from weather conditions, or when transit-oriented development is desired or proposed. Overlapping stops that could be classified as Hub Stops in the NRV include: Squires Student Center, NRV Mall, and the Exit 118 Park and Ride.

The NRV Transit System Characteristics section provides a more detailed review and potential strategies for each of the existing overlapping service locations in the region. Service Environments – Linking Design to Scale provides minimum and optimum design recommendations that incorporate user survey feedback and planning/policy guidance.



PLAN IMPLEMENTATION

The New River Valley Regional Transit Coordinating Council (RTCC) met on March 15, 2016 to establish a prioritized short-term and long-term action plan. Each action plan identifies potential partnerships, investments, and policy goals for the next three to six years.

3-year Action Plan

Table 3: 3-Year Action Plan

| ID | Goal | Partners | Complete | Cost |
|----|---|---|---------------|----------------|
| 1 | Establish a time-check at existing higher-volume overlapping stops, synchronizing arrival/departure to meet demand. Establish additional overlapping service stops. Improve connectivity of regional network and decrease waiting times. | Blacksburg Transit, Pulaski Area Transit, Radford Transit, and Smart Way service operators. Towns of Blacksburg, Christiansburg, and Pulaski; Counties of Montgomery and Pulaski; the City of Radford; and Radford University and Virginia Tech | December 2016 | none or low |
| 2 | Ensure that all overlapping stops are handicapped accessible and create connections with surrounding bicycle and pedestrian infrastructure within a ½-mile radius. | Towns of Blacksburg, Christiansburg, and Pulaski; Counties of Montgomery and Pulaski; the City of Radford; Radford University and Virginia Tech; and NRVMP and NRVRC | June 2019 | medium to high |
| 3 | Expand existing services. Examples: Christiansburg and Radford morning connection that features more stops downtown (both locations), and new services to the Carilion NRV Medical Center. | Blacksburg Transit, Pulaski Area Transit, and Radford Transit service operators. Towns of Blacksburg, Christiansburg, and Pulaski; Counties of Montgomery and Pulaski; the City of Radford; Radford University and Virginia Tech; and NRVMP and NRVRC | June 2019 | medium to high |
| 4 | Provide a phone number and schedule at enhanced and hub service environment stops. Provide a phone number at every overlapping stop. | | June 2018 | low to medium |

6-year Action Plan

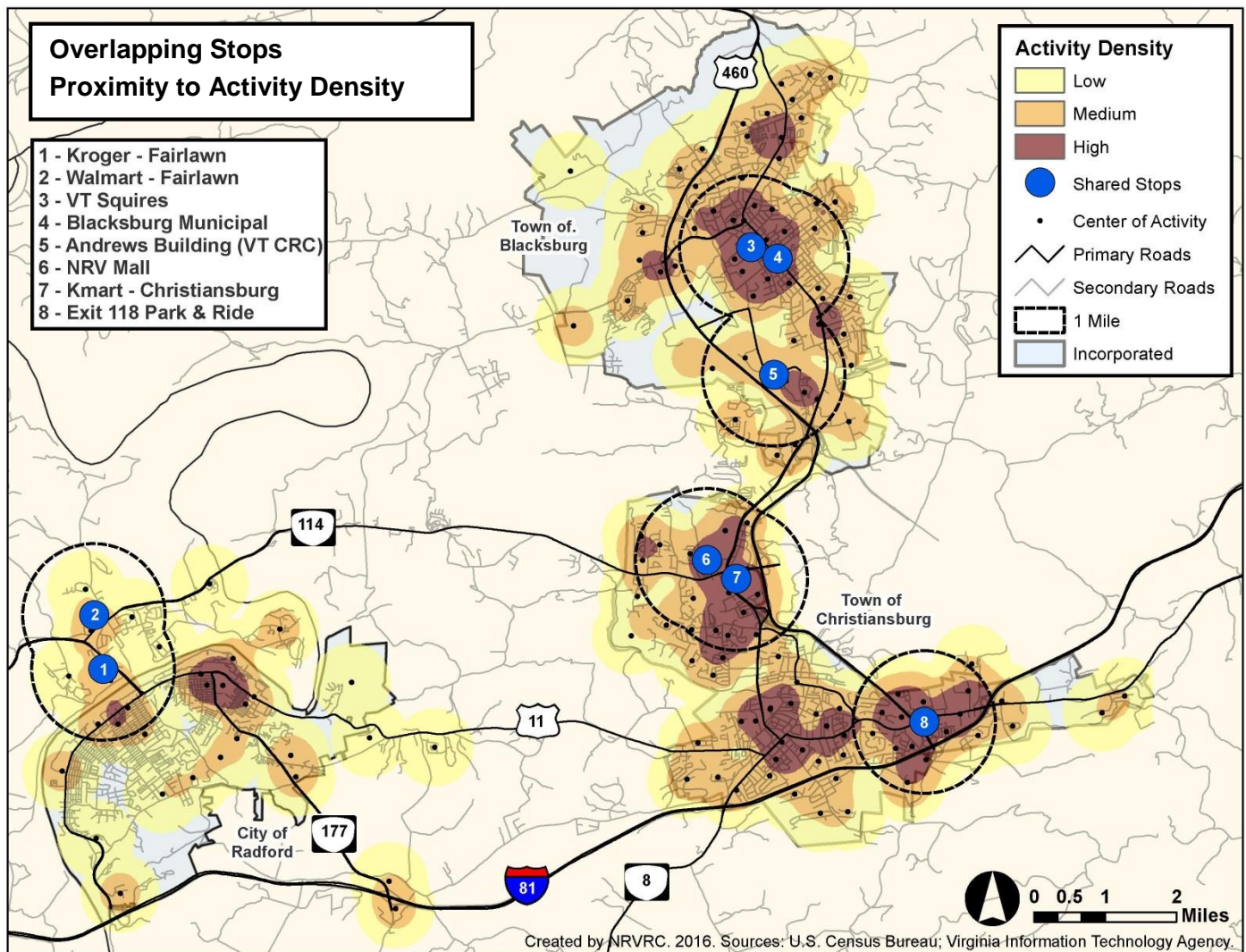
Table 4: 6-Year Action Plan

| ID | Goal | Partners | Complete | Cost |
|----------|---|---|---------------|----------------|
| 1 | Incorporate more amenities (passenger information, seating, shelter, etc.) at enhanced and/or hub service environment stops. Convey permanence and create opportunities for others to learn about existing transit services. Improve and/or create communication between overlapping services. Ability to inform potential user transfers. | Blacksburg Transit, Pulaski Area Transit, and Radford Transit service operators. Towns of Blacksburg, Christiansburg, and Pulaski; Counties of Montgomery and Pulaski; the City of Radford; Radford University and Virginia Tech; and NRVMPPO and NRVRC | June 2020 | low to medium |
| 2 | Construct a regional transit hub at the proposed NRV Passenger Rail Station. | | December 2020 | medium to high |
| 3 | Create rapid commuter bus lines at key times between the universities and the Town of Christiansburg. | | June 2021 | medium to high |
| 4 | Create and/or expand services that provide access to and from affordable housing developments. | | December 2021 | medium to high |
| 5 | Enhance connectivity between NRV services and the Smart Way. | Blacksburg Transit, Pulaski Area Transit, Radford Transit, and Smart Way service operators. Towns of Blacksburg, Christiansburg, and Pulaski; Counties of Montgomery and Pulaski; the City of Radford; and Radford University and Virginia Tech | June 2022 | low to medium |
| 6 | Create a method for transit users to cross services platforms with a single ID and/or fare. | | December 2022 | low to medium |
| 7 | Overlapping service stops get branded and marketed. | | December 2022 | low to medium |
| 8 | Establish a method for bus operators to report user feedback, and evaluate service/amenity improvements. | Blacksburg Transit, Pulaski Area Transit, and Radford Transit service operators. Towns of Blacksburg, Christiansburg, and Pulaski; Counties of Montgomery and Pulaski; the City of Radford; and Radford University and Virginia Tech | December 2022 | none or low |

NRV TRANSIT SYSTEM CHARACTERISTICS

Each transit system is unique and tailored to meet specific community needs. Over time a service is adjusted to meet demands that maximize a system’s ability to serve its customers. Identifying a system’s optimum performance involves understanding where the highest and lowest frequencies of trips are generated, otherwise known as “activity characteristics.” The image (below) illustrates overlapping service locations proximity to activity centers (highest densities of population and employment) in the New River Valley MPO region.

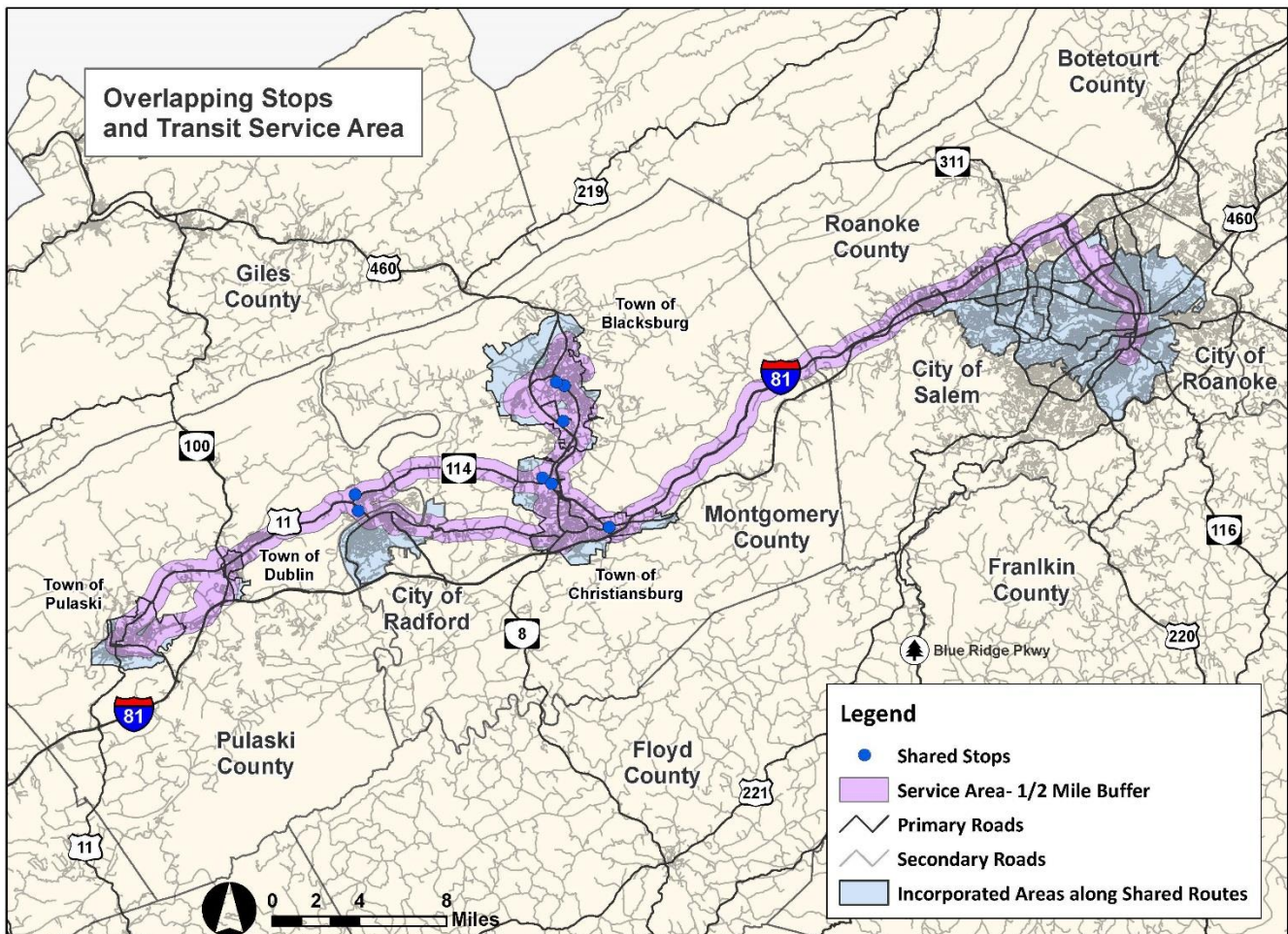
The Virginia Department of Rail and Public Transportation’s *Multimodal Design Guidelines* further define levels of activity as Transect Zones (T1 – T6). The urbanized portions of the New River Valley range from a T1 (less than 2 jobs + population per acre) to a T4 (more than 20 jobs + population per acre). Although centers of activity are not delineated below, T4 zones appear in the darkest color of the heat map; T3 zones appear in light orange; and T2 zones appear in light yellow.



Squires, Blacksburg Municipal Building, NRV Mall, and Kmart stops are all within one mile (biking distance) of five or more T4 zones (highest concentrations of population + employment). Linking these stops with a strong network of bicycle and pedestrian infrastructure would expand the region's multimodal transportation system and may also increase ridership. Exit 118 stop is in close proximity to many T4 zones, but also a combination of more T3 and T2 zones. For stops that are located in predominantly T3/T2 zones, creating a stronger network for pedestrians within a half-mile radius is appropriate. The Virginia Tech Corporate Research Center stop and Kroger and Walmart stops in Fairlawn are also closer to more T3/T2 zones.

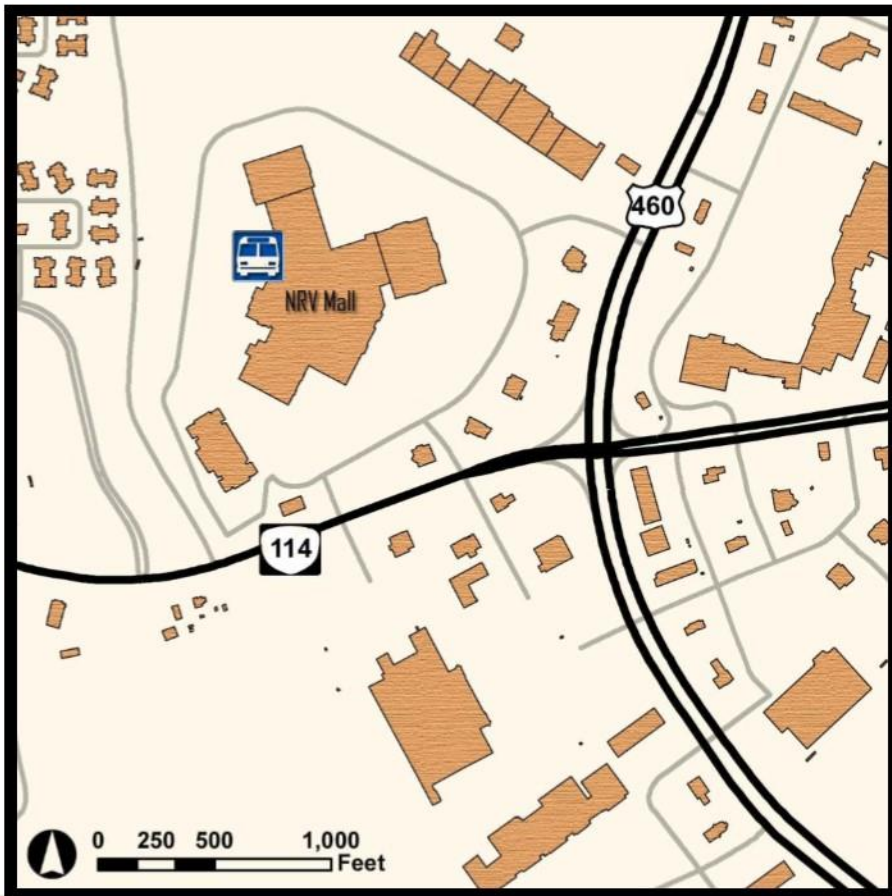
Existing

The reason(s) a person may choose or not use transit is known as a behavioral characteristic. The image (below) illustrates the overlapping stops' potential service area. This section aims to identify potential behavioral characteristics at overlapping service locations and evaluates each stop in more detail, including: route coverage (households within the service area), schedule coordination (ability to transfer from one service to another), information (map of route, schedule, contact info, etc.), accessibility (% of households within a half-mile connected by sidewalk or trail), safety (lighting, waiting area, visibility, etc.), and amenities (shelter, bench, and others based on service environment). Stops are scored high, moderate, or needs improvement in each category.



New River Valley Mall Stop

Enhanced/Hub
SERVICE ENVIRONMENT



| Existing Conditions | | | |
|-----------------------|--|---------------|--|
| Route Coverage | | Accessibility | |
| Schedule/Coordination | | Safety | |
| Transit Information | | Amenities | |

high
 moderate
 needs improvement

Overview

Annual Ridership: more than 40,000

Location: adjacent to VA Primary Route 114 and US Route 460 Business.

Stop Characteristics: the New River Valley Mall serves as a retail and institutional hub for the region, and is served by Blacksburg Transit, Radford Transit, and Pulaski Area Transit. Transit Development Plans (TDP's) identify the New River Valley Mall and the surrounding area as an integral component to regional connections. At the time of survey, there were no lights or seating at this stop. There is a bike rack and trash receptacles towards the entrance of the mall, but none at the stop. A standard 5' sidewalk wraps around the mall and serves as a waiting area for this stop. There is no shelter. Close to Huckleberry Trail but not clear how to get to trailhead. Ample parking.

Overlapping Routes: Blacksburg Transit's Two Town Trolley and 241 Commuter Routes; Radford Transit's Route 40/41; and Pulaski Area Transit's New River Express service.

Schedule: BT: little morning service, making it difficult for commuting to work at the mall or surrounding business. Does run late on Friday and Saturday. RT: Mainly an afternoon route, but does stop earlier on Saturday. PAT: Only 8:50 AM and 1:50 PM.

Short-Term Strategies

Consolidate NRCC and Regal Cinema stops. Initiate communication with new property owners. Explore options for indoor and outdoor seating, real-time passenger information, and educational materials about transit services. Align transit schedules and establish a time-check.

Long-Term Strategies

Potential multimodal hub featuring: enhanced pick-up/drop-off area, climate controlled seating areas, interactive information center, large shelter, commuter parking, and connectivity with the Huckleberry Trail.



Exit 118 Park and Ride Stop

Enhanced/Hub
SERVICE ENVIRONMENT



| Existing Conditions | | | |
|-----------------------|-------------------|---------------|----------|
| Route Coverage | moderate | Accessibility | moderate |
| Schedule/Coordination | needs improvement | Safety | moderate |
| Transit Information | moderate | Amenities | moderate |

■ high
 ■ moderate
 ■ needs improvement

Overview

Annual Ridership: less than 10,000

Location: adjacent to US Route 460 Business and Interstate 81.

Stop Characteristics: the Exit 118 Park and Ride serves the region as both a park and ride lot and as a regional transit stop. Transit Development Plans recognize the Exit 118 Park and Ride as a greater regional connection that extends beyond the New River Valley. Located near the intersection of I-81 and Highway 460, it is strategically located as a crossroads stop. The lot is owned by VDOT and features a number of amenities, including: a larger shelter, benches, and lighting. There is also route information posted, with ample parking specifically for the stop. This stop is currently not connected to trails or sidewalks and is isolated from main road.

Overlapping Routes: Blacksburg Transit's Explorer Route; and two outside transit providers also connect to the stop: The Smart Way and Megabus.

Schedule: BT's Explorer Gold loop arrives at 10:00 AM and the bus leaves at 10:45 AM, so there is a wait. Similar scenario at 2:00/2:40 PM. Does not work well for those trying to commute to Roanoke from this stop in the evening since the last stop time is 6:20 PM and the Smart Way leaves at 6:15 PM. You would have to wait until 7:10 PM for the next one. Megabus departs at four times only, with two times within the 2:00 PM hour, 2:55 AM, and 3:55 AM. There are no other services at this time that would accommodate these early morning departures.

Short-Term Strategies

Construct a kiosk area/information hub that highlights public and private transportation services, and local attractions, particularly within 1/2 mile walking distance from the stop. Align transit schedules and establish a time-check.

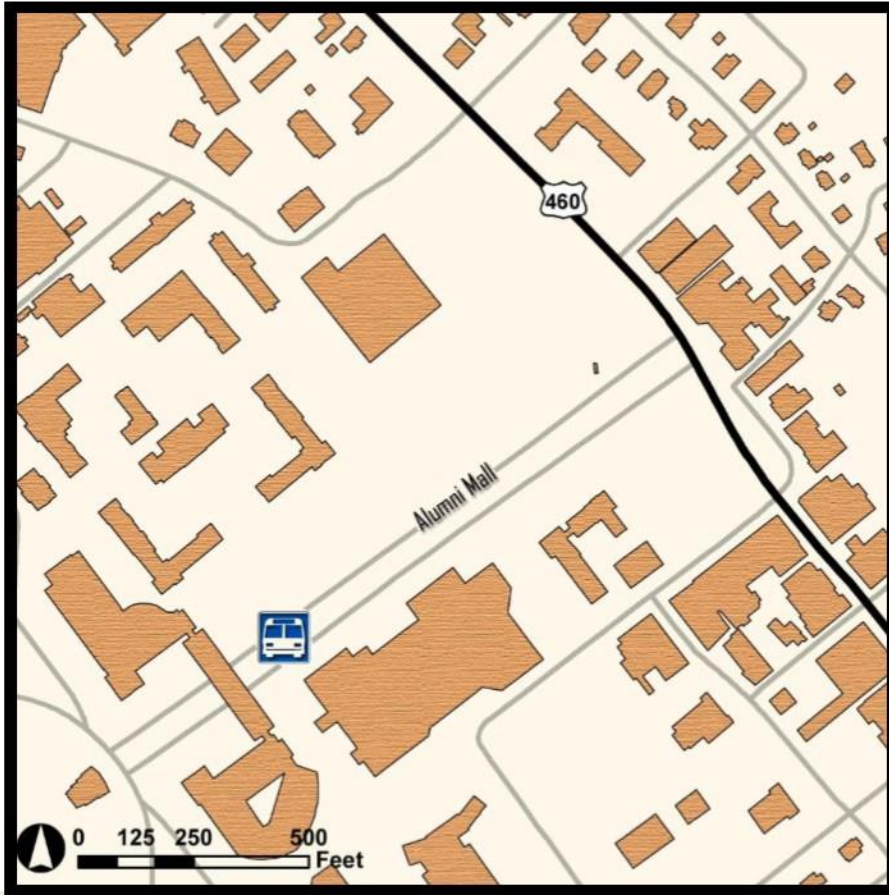
Long-Term Strategies

Install an interactive information center, climate controlled seating areas, indoor restrooms, and charging stations.



Squires Student Center Stop

Hub
SERVICE ENVIRONMENT



| Existing Conditions | | | |
|-----------------------|-------------------|---------------|-------------------|
| Route Coverage | High | Accessibility | Moderate |
| Schedule/Coordination | Moderate | Safety | Moderate |
| Transit Information | Needs Improvement | Amenities | Needs Improvement |

■ high
 ■ moderate
 ■ needs improvement

Overview

Annual Ridership: more than 300,000

Location: adjacent to Alumni Mall and US Route 460 Business.

Stop Characteristics: Squires Student Center currently serves as a regional transit stop for Virginia Tech. It includes two stops, one on either side of Alumni Drive outside the Squires Student Center. This is a high occupancy stop, with the most boardings and alightings of any other stop reviewed. The westbound stop has one shelter, many benches, and route schedules. There is lighting, but no trash receptacles on this side. The eastbound stop has many benches, a shelter, trash receptacles, but no posted schedules. It is close to restroom facilities within the Squires Student Center. Both stops are connected to the campus sidewalk network.

Overlapping Routes: while only the eastbound stop overlaps with other service providers, proximity between the stops prompt analysis of both as one. Most Blacksburg Transit routes stop here; Radford Transit Route 40/41, and The Smart Way.

Schedule: the Smart Way departs at 7:00 AM, while BT's first route departs at 7:10 AM. Otherwise, regular intervals with the Main Street and Harding routes make connections to the Smart Way easier.

Short-Term Strategies

Provide shelters, seating, trash receptacles, and a kiosk area that highlights passenger services. Align transit schedules and establish a time-check.

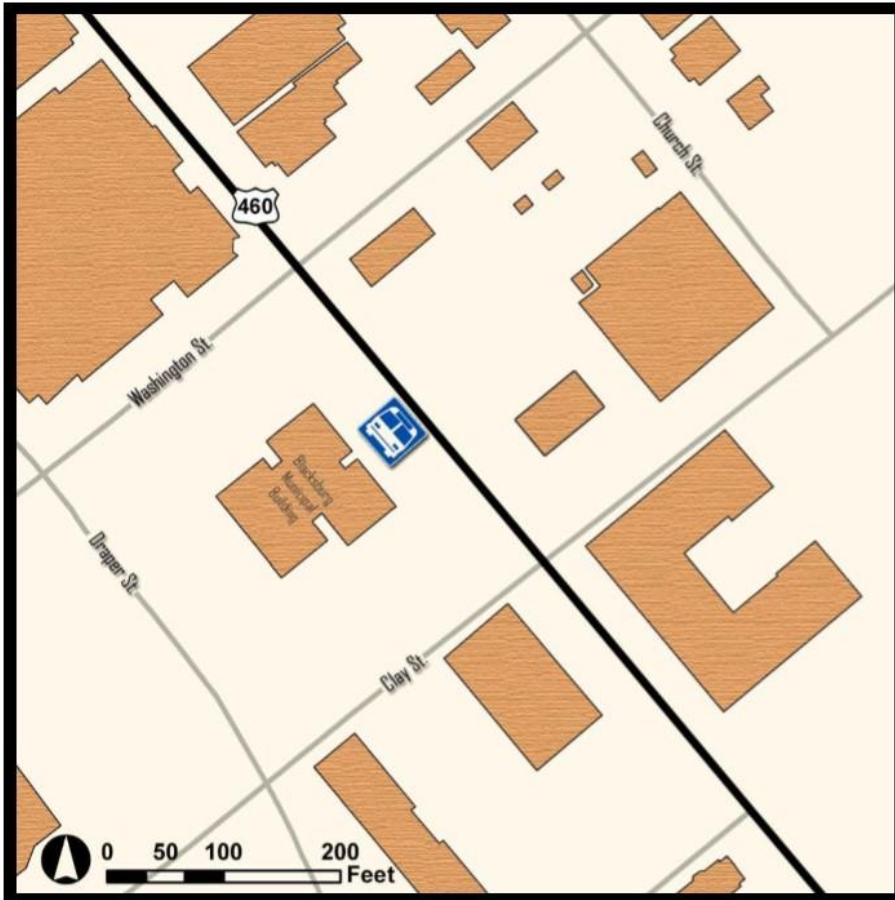
Long-Term Strategies

Relocate overlapping services to the Blacksburg Multimodal Transfer Facility. The new Hub should incorporate bikeshare, and interactive information about alternative transportation and local attractions.



Blacksburg Municipal Building Stop

Basic/Enhanced
SERVICE ENVIRONMENT



| Existing Conditions | | | |
|-----------------------|-------------------|---------------|----------|
| Route Coverage | high | Accessibility | moderate |
| Schedule/Coordination | moderate | Safety | moderate |
| Transit Information | needs improvement | Amenities | moderate |

■ high
 ■ moderate
 ■ needs improvement

Overview

Annual Ridership: less than 10,000

Location: adjacent to US Route 460 Business.

Stop Characteristics: the Blacksburg Municipal Building stop serves downtown Blacksburg. This stop is handicapped accessible, has a shelter, lighting, benches, and a trash receptacle. A route schedule is also available, but only for the Smart Way services.

Overlapping Routes: this stop is currently served by Blacksburg Transit, Radford Transit, and The Smart Way.

Schedule: connection times between RT and BT are good, due to the frequency of the Main Street routes. The Smart Way and the 240 Commuter miss each other by seven minutes in the morning.

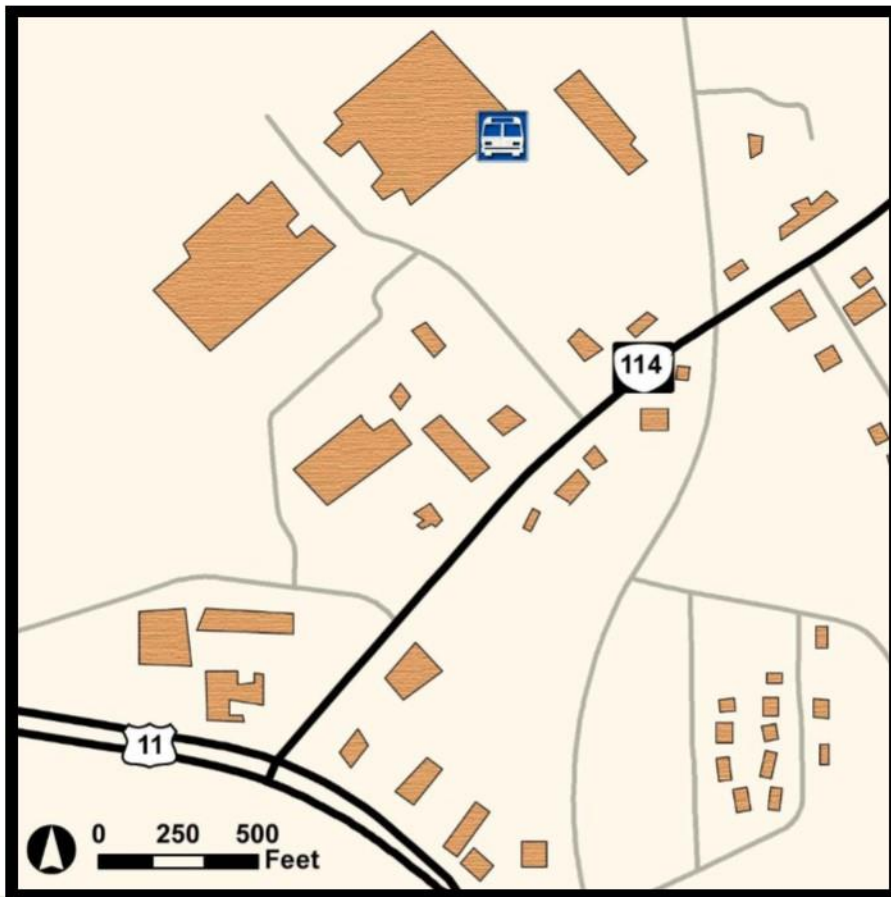


Short-Term Strategies

Incorporate more transit branding elements and construct a kiosk area that highlights passenger services. Align transit schedules and establish a time-check.

Walmart–Fairlawn Stop

Enhanced
SERVICE ENVIRONMENT



| Existing Conditions | | | |
|-----------------------|-------------------|---------------|-------------------|
| Route Coverage | moderate | Accessibility | needs improvement |
| Schedule/Coordination | needs improvement | Safety | moderate |
| Transit Information | needs improvement | Amenities | needs improvement |

■ high
 ■ moderate
 ■ needs improvement

Overview

Annual Ridership: more than 15,000

Location: adjacent to VA Primary Route 114 and US Route 11.

Stop Characteristics: this is a major retail destination stop for the Radford and Pulaski County communities. The stop has no seating or shelter, but is handicapped accessible. It is not near any trash receptacles and has ambient lighting from surrounding buildings and parking lot.

Overlapping Routes: currently, this stop is used by Radford Transit's Route 20 and Route 40; and Pulaski Area Transit's New River Express Route.

Schedule: Route times do not currently align, with differences varying from 10 minutes to over an hour between transfers.

Short-Term Strategies

Incorporate more transit branding elements, provide seating, and install a shelter. Construct a kiosk area that highlights passenger services. Align transit schedules and establish a time-check.

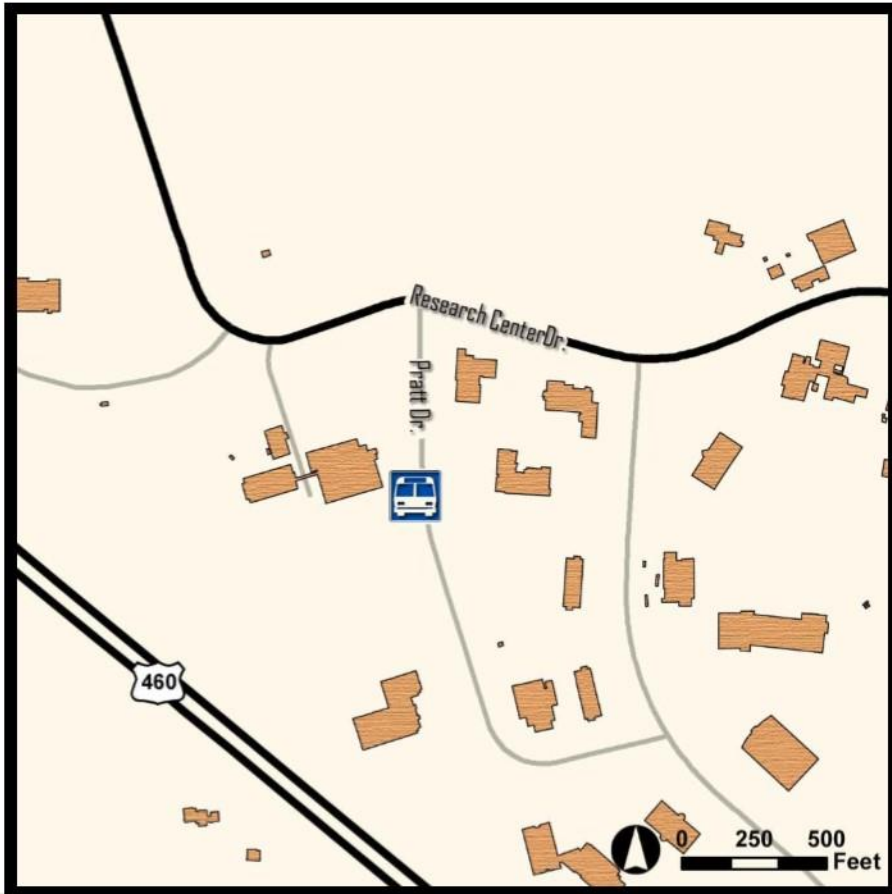
Long-Term Strategies

Initiate communication with property owner to develop a more defined transit stop, inclusive of: bus turn-outs, real-time passenger information technology, and interactive information center.



Andrews Building Southbound (CRC) Stop

Basic/Enhanced
SERVICE ENVIRONMENT



| Existing Conditions | | | |
|-----------------------|-------------------|---------------|----------|
| Route Coverage | moderate | Accessibility | moderate |
| Schedule/Coordination | moderate | Safety | moderate |
| Transit Information | needs improvement | Amenities | high |

■ high
 ■ moderate
 ■ needs improvement

Overview

Annual Ridership: more than 10,000

Location: adjacent to Pratt Drive and Research Center Drive.

Stop Characteristics: the Pratt Drive/Andrews Building stop serves the Corporate Research Center as a regional transit stop. It is one of the few overlapping stops with a pull-out bay for buses. It has a shelter and parking nearby. There is also access to an extensive sidewalk and trail network. Currently, there are no trash receptacles, lighting, or schedules.

Overlapping Routes: this stop is overlapped with services from Blacksburg Transit and the Smart Way.

Schedule: Blacksburg 241 Commuter arrives 12 minutes after the Blacksburg-Roanoke Smart Way bus leaves. Customers have to wait until 8:32AM for the next Smart Way bus. The only other time Blacksburg Transit serves the stop is at 5:35 PM, two minutes after the Roanoke to Blacksburg Smart Way bus leaves.

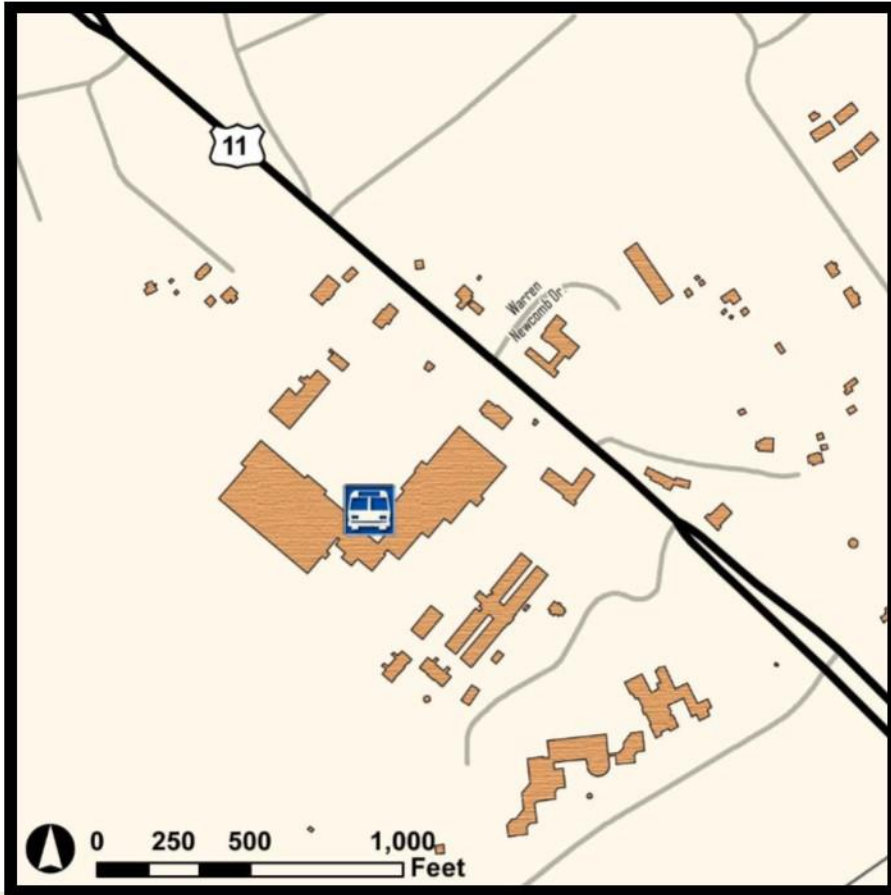
Short-Term Strategies

Add lighting around shelter for improved safety. Incorporate more transit branding elements and passenger information. Align transit schedules and establish a time-check.



Kroger–Fairlawn Stop

Basic
SERVICE ENVIRONMENT



| Existing Conditions | | | |
|-----------------------|-------------------|---------------|-------------------|
| Route Coverage | moderate | Accessibility | needs improvement |
| Schedule/Coordination | needs improvement | Safety | moderate |
| Transit Information | needs improvement | Amenities | needs improvement |

■ high
 ■ moderate
 ■ needs improvement

Overview

Annual Ridership: more than 5,000

Location: adjacent to US Route 11 and Warren Newcomb Drive.

Stop Characteristics: this stop serves the Radford and Pulaski County communities as a major grocery stop, with other amenities surrounding the stop. The stop is located at a plaza within the business complex, where there is both covered and exposed seating. Overhangs from the surrounding buildings provide shelter. There is lighting surrounding the stop from adjacent buildings and parking areas, and there are trash receptacles. The stop is somewhat dirty during the spring and summer due to the birds that perch around the stop. The stop is handicapped accessible and there is no transit schedule at this stop.

Overlapping Routes: Radford Transit's Route 20 and Route 40; and Pulaski Area Transit's New River Express. The two vehicles do not currently stop at the same place – RT stops near the cinema, and PAT stops at the Kroger entrance.

Schedule: for the most part, schedules are not aligned in the morning, but do align at 11:05 AM. Otherwise, there is a 15-30 minute gap between stop times.

Short-Term Strategies

Incorporate more transit branding elements and passenger information. Align transit stops and schedules, and establish a time-check.

Long-Term Strategies

Connect nearby residential neighborhoods and businesses with sidewalks and/or trails, particularly within 1-mile of stop.



Kmart–Christiansburg Stop

Basic
SERVICE ENVIRONMENT



| Existing Conditions | | | |
|-----------------------|-------------------|---------------|-------------------|
| Route Coverage | High | Accessibility | Needs Improvement |
| Schedule/Coordination | Needs Improvement | Safety | Moderate |
| Transit Information | Needs Improvement | Amenities | High |

High Moderate Needs Improvement

Overview

Annual Ridership: less than 5,000

Location: adjacent to Laurel Street and Market Street.

Stop Characteristics: this stop serves the retail areas on the east side of Franklin Street/Business Route 460 in Christiansburg. The stop is well shaded, has a bench, trash receptacle, and lighting. Although it does have a sidewalk to the intersection, it does not connect to a greater sidewalk network. Parking is available in the adjacent parking lot.

Overlapping Routes: this stop is currently being serviced by Blacksburg Transit and the Smart Way.

Schedule: connections to BT's Two Town Trolley line to the Smart Way vary from 12:50 PM through 5:50 PM, with wait times ranging 0-30 minutes. The Explorer Loop also varies in wait time.

Short-Term Strategies

Incorporate more transit branding elements and passenger information. Align transit stops and schedules, and establish a time-check.

Long-Term Strategies

Connect nearby residential neighborhoods and businesses with sidewalks and/or trails, particularly within 1-mile of stop.



The table (below) reviews overlapping stop proximity to key user demographics including: low-income households, households with 1-vehicle or less, and minority, elderly, and limited English speaking proficiency families. The analysis is based on 2014 US Census ACS block group statistics within a half-mile (walking distance) of existing transit routes.

Table 5: Overlapping Stop Demographic Analysis

| Stop ID | Count Housing Units | Demographic Data (shown as percentage of the block group total) | | | | | | | | | |
|--------------------|---------------------|---|-------------------|------|-------------------|---------|-------------------|-------------------|-------------------|-------------|---------------------|
| | | Minority | +/- Project Area* | LEP | +/- Project Area* | Poverty | +/- Project Area* | 1 Vehicle or Less | +/- Project Area* | 65 or Older | % +/- Project Area* |
| NRV Mall | 40,201 | 13.9% | 0.3% | 1.0% | -0.4% | 23.7% | -0.4% | 39.5% | 1.4% | 12.3% | 0.0% |
| Exit 118 | 25,479 | 18.1% | 4.5% | 2.7% | 1.3% | 29.1% | 5.0% | 44.2% | 6.1% | 9.3% | -3.0% |
| VT CRC | 22,057 | 18.8% | 5.2% | 3.0% | 1.7% | 32.0% | 8.0% | 45.9% | 7.9% | 8.7% | -3.5% |
| Squires | 35,169 | 16.9% | 3.2% | 2.1% | 0.7% | 32.0% | 8.0% | 41.0% | 2.9% | 8.9% | -3.3% |
| Municipal Building | 34,973 | 16.9% | 3.2% | 2.1% | 0.8% | 32.1% | 8.1% | 41.1% | 3.0% | 8.9% | -3.3% |
| Kmart | 25,479 | 18.1% | 4.5% | 2.7% | 1.3% | 29.1% | 5.0% | 44.2% | 6.1% | 9.3% | -3.0% |
| Walmart Fairlawn | 24,146 | 11.6% | -2.1% | 0.1% | -1.2% | 20.2% | -3.9% | 37.1% | -1.0% | 14.4% | 2.1% |
| Kroger Fairlawn | 24,146 | 11.6% | -2.1% | 0.1% | -1.2% | 20.2% | -3.9% | 37.1% | -1.0% | 14.4% | 2.1% |
| Totals & Averages | 62,592 | 13.6% | [x] | 1.3% | [x] | 24.0% | [x] | 38.1% | [x] | 12.2% | [x] |

*+/- difference between average of all stops.

Note: currently excludes Smart Way route data for Roanoke County, City of Roanoke, and City of Salem.

Future Overlapping Stops

Downtown Blacksburg and Christiansburg Mini-hub(s)

Blacksburg Transit’s Transit Development Plan (TDP) identifies downtown Blacksburg and Christiansburg as prime locations for a mini-hub. A mini-hub could offer transfer opportunities for multiple local or regional services. Mini-hubs sometimes offer passenger amenities and destination travel at a smaller scale. Blacksburg’s mini-hub would be a component of a larger transit-oriented development. The exact location of this stop has not been determined.

I-81/Route 8 Park and Ride

Though informally used now, Pulaski Area Transit’s TDP identifies developing the I-81/Route 8 Park and Ride as part of a Floyd Commuter Service. Blacksburg Transit also identifies a Floyd Commuter service in their TDP. No infrastructure improvements were recommended, but would be needed in order to support future service. Future land-use for this stop is Business/Commercial.

New River Valley Medical Center

Currently, there is no transit service to the New River Valley Medical Center (NRVMC). Blacksburg Transit's TDP recommends future development of a Plum Creek/NRVMC service. Radford Transit also suggests future scheduled service to NRVMC using an extended Route 20 schedule. No infrastructure is recommended for the development of this site. Future land-use for this area by Montgomery County is as an Urban Development Area, a special designation by the State of Virginia where different types of land-use can take place and specific planning processes must be followed.

Virginia Tech Multimodal Transfer Facility

Blacksburg Transit's largest planned stop is the Virginia Tech Multimodal Transfer Facility. This facility will serve as a central location for all transit service at the Virginia Tech campus, featuring a total of 22 bus bays. A 12,000 square foot, two-story building, will feature many amenities for riders. The facility will also feature paratransit drop-off and pickup, kiss and ride drop off, bikeshare, and bicycle parking/storage. The facility is planned to support up to 5,000 boardings and alightings per day.

This new facility will affect BT, RT, and Smart Way routes. Current overlapping stops may lose regional relevance, such as Squires Student Center. Future land-use for this area is to be Civic.

Other Regional Stops

Both Blacksburg Transit and Pulaski Area Transit TDP's identifies future service to Floyd and Giles Counties. PAT identifies a need for a future Floyd Commuter Service, and a potential new regional stop in Pearisburg. Although BT does not identify specific stops, they do identify the possibility of extending future service to these areas, and could provide connections between services.

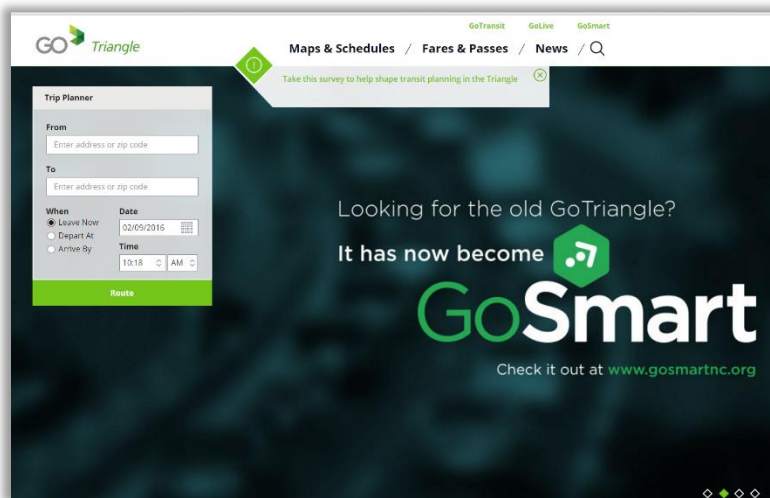


TRANSIT SYSTEM REVIEW

This section highlights feedback received from subject experts, local transit users, and case studies. Subject experts participated in a roundtable discussion and provided a unique perspective from regional services program development and alternative transportation technologies. Local transit user feedback was collected through a public survey and employer survey. A total of three case studies also provide planning concepts that could be applicable in the New River Valley.

Peers

In October 2015, The Regional Transit Coordinating Council was joined by representatives from GoTriangle Transit and the Virginia Tech Transportation Institute (VTTI) for a roundtable discussion about overlapping bus stops. As a Peer Reviewer, each expert was asked to share ideas regarding physical improvements, schedule enhancements, branding/marketing approaches, and educational strategies.



Since 2004, GoTriangle Transit has coordinated services for a 3-county, 2-University region. A total of eight transit providers explored trip planner apps, fare box technologies, and overall consolidation of services. An idea that's recently gained traction is the GoSmart brand, which serves as a springboard for GoTransit, GoVanpool, GoCarpool, GoBike, GoWalk, and more. In addition, focusing on updating Google Transit Feed and providing real-

time arrival departure information at active bus stops has been instrumental to increasing ridership and communication between partners. GoTriangle currently utilizes a \$5 vehicle registration fee, 5% vehicle rental tax, and a half-cent county sales tax in two counties to support alternative transportation programs.

VTTI recently partnered with Blacksburg Transit on a \$1.85M TIGGER grant, focusing on the evaluation of real-time communication technologies. The research team evaluated more than fifteen types of technology, ranging from smartphone applications to touch-screen kiosks. After several experiments and public outreach activities, the research uncovered several challenges to maintaining a smartphone application that is compatible with both android and iOS devices. Additionally, people generally felt uncomfortable approaching and using touch screen kiosks. The final recommendation was to develop a texting application that bridged the gap between smartphones and other devices.

Users

During the public survey period the Commission received countless calls, not to complete the survey, but rather to ask about the bus schedule. Some transit users would offer a suggestion to improve the conditions of the stop, but often declined to take the entire survey. The survey was open during moderate, good, and poor weather conditions – enabling the team to collect a comprehensive assessment of existing bus stop and service conditions.

In general, user feedback was relatively consistent. Existing transit users were looking for real-time service information, good lighting, a place to sit, and some form of protection against extreme weather conditions. User perspectives included:

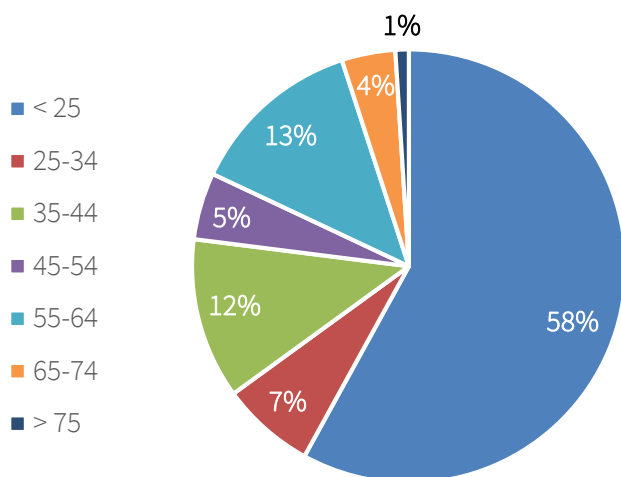
- bigger bus stop signs so that the stops would be easier to locate
- map, schedule, and number to call for trip planning
- shelter for shade and cover from rain/snow
- many users appreciated the bus stops near businesses and heavily populated areas in their community
- providing heated waiting areas at higher volume stops during cooler months
- ability to see a bus approaching the stop, having enough time to prepare for boarding
- alert buttons, similar to on-campus blue-light systems to make passengers feel safer
- approximately 37% of survey respondents estimated their travel time **to work** by bus at less than 15 minutes. Compared to the same trip by car (71%), share a ride (64%), bike (36%), and walk (9%)
- approximately 75% of survey respondents estimated their travel time **to school** by bus at less than 15 minutes. Compared to the same trip by car (95%), share a ride (92%), bike (64%), and walk (34%)

Bus Rider Survey

A survey was conducted to sample the transit user's view of the bus stops, with particular focus on overlapping stops and each system's high-volume stops. The questions, which are included in the Appendix of this report, asked about stop amenities, relative safety and comfort, and the rider's experience of trips to a primary destination.

A total of 806 surveys were collected between April 2015 and February 2016. Responses included Radford Transit (64.3%), Blacksburg Transit (27.1%), Smart Way at (6.7%), and Pulaski Area Transit (1.6%) users. The District 3 service, which was discontinued during the survey period, is represented with less than one percent of responses. The most frequent stop of respondents in each system were: Squires Student Center (BT and Smart Way), New River Community College Main Campus (PAT), and Lot A (RT).

age of survey respondents



In general, riders would like to find the following **amenities** at their bus stop: bus schedules (56%), benches or other seating (45%), shelter (38%) and lighting (37%). Other items receiving attention included: trash can, bike rack, and bus stop sign. Additional suggestions included: better lighting, parking, restrooms, and current bus status (such as a text service or sign with estimated arrival times).

Most riders found their stops to be comfortable (62%), while only 10% are uncomfortable. Physical amenities making passengers feel

comfortable included a shelter, seating, and lighting. Non-tangible features that make the sites comfortable included a stop's location near other activities and destinations, openness and visibility to surroundings, high frequency of service, ease of getting to the stop, and restrooms. Suggestions for making their stops more comfortable included: shelter, seating, lighting, and information on the bus arrival/schedule/route.

While most riders felt comfortable at their stops, **even more felt safe** (74%) and only 4% did not feel safe. These numbers reflect a higher sense of safety than comfort at the bus stops surveyed. What makes the stops feel safe for riders includes proximity to other activity, lighting, open space and visibility to passersby, shelter, and security cameras. A few also noted emergency call features and police presence (patrols) that made stops feel safe. When indicating what could make a stop feel safer, several respondents mentioned an emergency call phone/button as well as lighting/better lighting.

Most ride the bus anywhere from **one to five days a week**. Those riding multiple times each week identify their primary destination as work or school. Interestingly, riders using the bus five days a week list driving as their most frequent additional means of transportation – this suggests these drivers may be “choice” riders, those who would otherwise drive if transit were not available but choose to ride for reasons not related to access to a vehicle. Those riding less than five days a week identified errands and social activities as their primary destination.

Riders were asked to identify their approximate **travel times** to primary destinations by bus, driving, walking, cycling, and sharing a ride. Most riders could reach their destination by bus or car within 30 minutes. People travelling to school estimated travel times of less than 15 minutes by bus, driving and ride sharing. Riders running errands spent less than 30 minutes on the bus, but could reach their destination in less than 15 minutes by car.

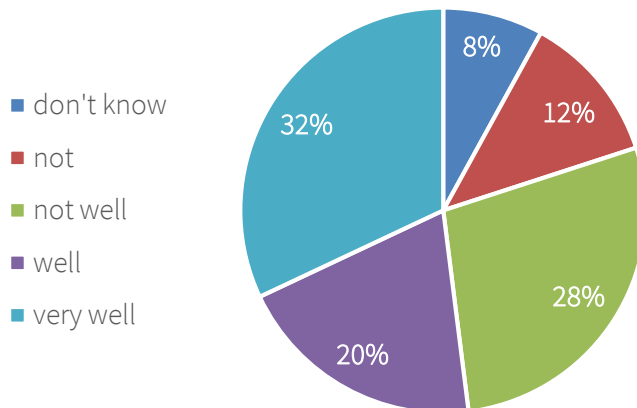
NRV riders choose transit because...

- they save money on gas and car maintenance
- it's good for the environment
- they don't have access to their own car
- it helps reduce congestion
- it reduces stress
- the park and ride lot makes it easier to take the bus
- it's more convenient than trying to find a parking spot
- they can use their bike as part of the trip
- It's cheaper than paying for parking

Employer Survey

An employer survey was deployed to collect general feedback on transit accessibility for employees. Surveys were completed by 24 employers within Blacksburg, Christiansburg, Radford, and Dublin.

how work site is served by transit



Employers were asked which transportation options (other than driving alone) their employees used for commuting. Half of employers estimate that their **employees are carpooling and cycling to work**. Slightly more than a quarter also estimate employees are walking and taking the bus.

Employers overwhelmingly believe the use of **public transit would be important** (56% somewhat and 15% very) to their employees. Those who do not believe their employees are well-served by transit also consistently rate it important to their employees.

Some employer survey respondents noted service is available near the work site, but their employees are often coming from more rural areas where service is not currently available. In these instances, it was suggested that a service geared to work hours serving a central meeting point traveling to the worksite might be of interest to employees.

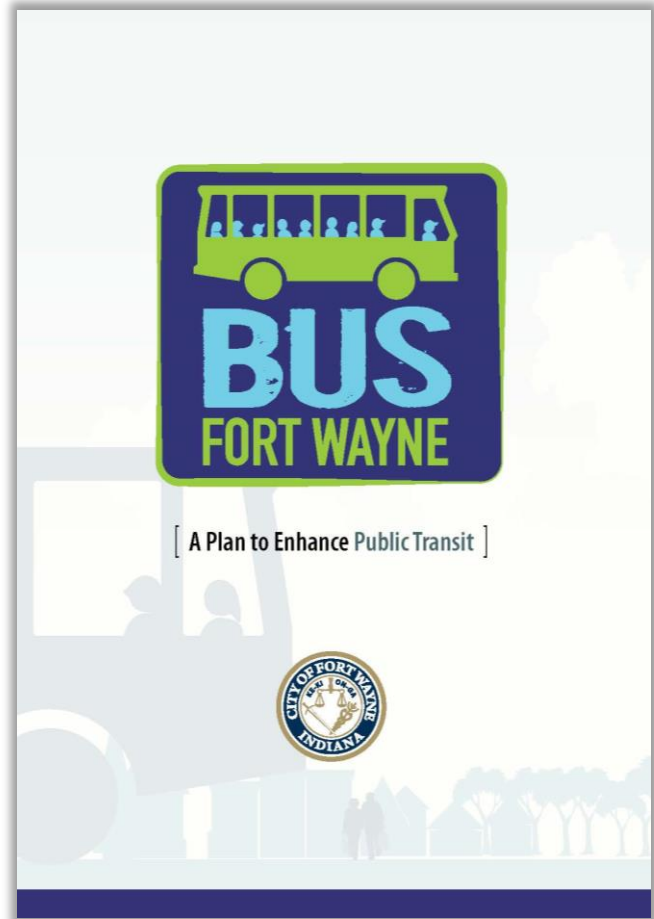
Case Studies

Case Study 1 – Attracting Choice Riders

In 2013, the City of Fort Wayne, Indiana developed a plan to establish public transit as a preferred transportation choice for the Fort Wayne and Allen County community. The primary purpose of the work was to establish goals and policies to guide smart decision making for transit. In general, the existing system primarily served populations who may be considered transit-dependent. One of the key strategies the local stakeholders identified was to attract riders who make a conscious choice to use public transportation instead of their car.

Fort Wayne partners engaged their surrounding community to identify several objectives, including:

- enhancing high-use bus stop locations with amenities and technology to improve the bus riding experience
- evaluate service delivery options to determine cost effective delivery strategies that optimize ridership potential
- expand ridership among transit dependent and choice rider market



Implementation strategies were categorized in to four timing schedules: 1-2 years, 2-5 years, 5-10 years, and continuous. Strategies included: enhancing the ease and ability of transit riders to understand and track bus routes/locations/schedules; conducting routine surveys to measure public sentiment towards services; creating new educational and marketing resources; working directly with employers to encourage transit use; and developing programs that inform youth how to use public transit and get around the community.

The final step involved monitoring services to ensure consistent arrival and departure throughout the fixed route and demand-response system. Additionally, the City and transit operator would work collaboratively to monitor, maintain, and provide safe transit infrastructure, including: ADA ramps, bus stop waiting pads, connecting sidewalks, appropriate lighting, signage, and shelters. For more information visit: www.fwcitilink.com

Case Study 2 – Fares

In reviewing transit systems generally, the study team also reviewed the role of fares. For most transit systems, fares are used to offset the cost of operations, but do not fund the entirety of a system. What is certain in most, if not all, systems is that fares do not recover operating costs. For this reason, a system that is “fare-free” was reviewed.

Cache Valley Transit District (CVTD) is a transit provider of the Cache Valley in northern Utah, a community of 115,000. CVTD provides local, fixed-route, commuter, and paratransit services to the communities within Cache Valley. The Transit District also serves the student body of Utah State University, connecting their campus to different parts of the community. In 2015, it served more than 2 million riders, and received the 2015 Urban Community Transit System of the Year Award from the Community Transportation Association.



Since 1994, CVTD has operated fare-free. A 2012 transit study of the system by an independent transportation planning firm concluded that CVTD should remain fair-free for the following reasons:

- the expenses of collecting the fare is generally greater than the revenue generated from the fare
- charging a fare causes scheduled travel times to be lengthened because of the additional time needed for passenger to deposit the fare
- charging a fare makes it more difficult for CVTD to meet its mission of reducing the dependency on the automobile and supporting efforts to improve air quality, by reducing ridership
- collecting fares creates real and perceived barriers to using public transit, known as “Hassle Factors”
- charging a fare makes it more difficult for CVTD to meet the Envision Cache Valley principle to “Provide a balanced transportation with enhanced public transportation options” by reducing ridership

Benefits noted from being fare-free by CVTD include:

- simplicity of operation, as there is no need for back-end accounting, secure storage of funds, or marketing and distribution of fare media
- short dwell times (no one standing in line to pay, causing bus delays) and avoids disputes between operators and passengers regarding properly paid fares
- there are no capital and maintenance costs associated with fare collection systems and technology

For more information visit: www.cvtdbus.org

Case Study 3 – Enhancing the Presence of Transit

Between 2005 and 2009, several transport measures were implemented in more than 60 European metropolitan areas. The CIVITAS initiative developed twelve policy and advice notes documents to share key lessons learned during the planning, implementation, and operation phases of enhancing the quality of public transportation services. Making public transport more attractive for citizens was the focus topic of the eleventh document.

CIVITAS partners identified several measures to amplify the image, as well as the quality of public transportation, including:

- automatic vehicle location and management tools
- environmentally friendly vehicles
- redeveloping a brand that raises the recognition of the (improved) public system
- offering price schemes, and providing access to other environmentally friendly modes of transportation

The implementation of each strategy had initial costs for equipment, training, and land acquisition. Furthermore, there were several factors that ensured the successful implementation of strategies, including: cooperation between project stakeholders, market research clearly defining requirements and target groups, and political support.

The final step involved evaluating the indicators defined by stakeholders in order to assess the impacts, such as: ridership, social acceptance, and rating of the quality by users. CIVITAS recommends evaluating measures for 6 – 36 months, depending on the scale of investment. The CIVITAS Initiative is a European action that supports cities in the implementation of an integrated sustainable, clean and energy efficient transport policy. For more information visit: www.civitas.eu



SERVICE ENVIRONMENTS – LINKING DESIGN TO SCALE

In 2010, the American Public Transportation Association released a *Recommended Practice for Bus Rapid Transit Stations and Stops*⁴ guidance document. The guidance document is intended to assist transit agencies, local governments, planners, developers, and others interested in developing new and/or enhancing existing transit systems. Furthermore, the guidance document acknowledges the key role that bus stops play in overall transit system’s performance. Examples of good stop design influences the following:

- attract new riders
- promote visibility and facilitate branding of the system
- provide shelter from the weather
- ensure safe accessibility for all, including people with disabilities
- provide passengers with information, including system maps and real-time arrival info
- safe environment that incorporates cameras, lighting, security phones, and fencing
- attractive environment that incorporates landscaping and public art
- ensure ease of access to other modes of transportation

The guide outlines specific design solutions for bus stops based on a number of parameters, including passenger demand, project budget, available right-of-way, and more. In the New River Valley, existing bus stop characteristics have many variables, including ridership, number of intersecting services, proximity to other modes of transportation, and property ownership. However, the region’s stops could be categorized into three simple types of stops: 1) Basic, 2) Enhanced, and 3) Station/Hub. The table (shown below) provides an overview of recommended minimum and optimum applications for each Service Environment.

Table 6: Service Environment Design Strategies

| Service Environment | | Design Strategy | | | | | | | | | |
|---------------------|-------------|-----------------|----------|--------------|-------|---------|--------------|----------------|------------|--------------------|--------------|
| | | branding | lighting | contact info | bench | shelter | alert system | real-time info | time check | enhanced wait area | mode connect |
| minimum | Basic | + | + | + | | | | | | | |
| | Enhanced | + | + | + | + | + | | | + | | |
| | Station/Hub | + | + | + | + | + | + | + | + | | |
| optimum | Basic | + | + | + | + | + | | | | | |
| | Enhanced | + | + | + | + | + | + | + | + | | |
| | Station/Hub | + | + | + | + | + | + | + | + | + | + |

⁴ American Public Transportation Association. “Bus Rapid Transit Stations and Stops.” APTA BTS-BRT-RP-002-10. 1666 K Street, NW, Washington, DC, 20006-1215. October, 2010.



SUMMARY

The 2016 New River Valley Regional Transit Study provides recommendation strategies and application techniques that are targeted towards enhancing the presence of public transit at overlapping service locations. Resources compiled include: planning and policy tools, peer review recap, bus rider and employer surveys, and case studies. In addition, the Regional Transit Coordinating Council developed action plans that include goals for the next three to six years.

Recommendations for overlapping stops included 1) assigning a service environment that links demand to minimum design requirements; 2) synchronizing arrival/departure times to improve connectivity and expand the service area; 3) creating bicycle and pedestrian infrastructure within a ½-mile of stop locations; 4) expanding commuter and non-emergency trip services; and 5) providing more amenities, such as passenger information, shelters, seating, and phone number(s).

The application of each strategy is anticipated to have varying impacts towards attracting and retaining ridership. Several individual communities and regions have implemented similar approaches. The peer review and individual case studies contained in this study provide some insight and lessons learned during the application of specific strategies, approaches to evaluating investments/policy changes, and adapting to public transit user needs.

While this study outlines potential enhancements from a user-based perspective, transit agencies also face challenges with funding and retaining bus operators. The Regional Transit Coordinating Council offers a forum for sharing resources, learning about funding opportunities, and identifying collaborative solutions – ensuring that the quality of public transit continues to be high in the New River Valley.

For additional information about the project, visit: <http://nrvc.org/regionaltransitstudy/>.

APPENDICES

Appendix A1 – Working Committee

The Regional Transit Study was led by the New River Valley Regional Transit Coordinating Council. 2015 Membership included:

- Town of Christiansburg, James Vanhoozier
- Town of Blacksburg, Debbie Swetnam
- Floyd County, Lydeana Martin
- Montgomery County, Emily Gibson
- Pulaski County, Jared Linous
- City of Radford, James Hurt
- Virginia Tech, Debbie Freed
- Radford University, James Perkins
- New River Community College, Tony Nicolo
- Blacksburg Transit, Erik Olsen
- Pulaski Area Transit, Monica Music
- Radford Transit, Brian Booth
- NRV Agency on Aging, Tina King
- NRV Mobility Coordination, Chris Blankenship
- NRV Metropolitan Planning Organization, Dan Brugh
- NRV Regional Commission, Elijah Sharp
- Ride Solutions, Christy Straight
- VA Department of Rail and Public Transportation, Jay Lindsey
- VA Department of Rail and Public Transportation, Neil Sherman

Appendix A2 – Project Management Team

The Regional Transit Study was developed by the New River Valley Regional Commission, under contract to the New River Valley Metropolitan Planning Organization. The project team included:

- Kevin R. Byrd, Executive Director
- Elijah N. Sharp, Director of Planning & Programs
- Michael Gottfredson, Regional Planner
- Zachary D. Swick, Data Systems Manager
- Stephen D. Price, GIS Intern
- Christy Straight, Regional Planner II

Appendix B1 – NRV Mall Concept

This section features larger images of the NRV Mall concept, developed for planning purposes only.

NRV Mall Transit Stop Process

Process:

1. Identify routes for stop
2. Identify type of vehicle
3. Identify how many would use this stop
4. Identify design standards for bus stop
5. Identify the standards for the number of people using this stop

Step 1: Identify future routes for stop

| Routes | RT | PAT | BT |
|--------|----|-------------------|---|
| # | 40 | New River Express | Two Town Trolley, Merrimac/ Hightop/Warmhearth, Christiansburg Commuter |

Step 2: Identify type of vehicle

| Type of Vehicle | RT | PAT | BT |
|--|----|-----|----|
| Body on chassis, 12-14 passenger | | 1 | 1 |
| Medium duty shuttle (26,000 lbs, 30-40 ft) | 1 | | |
| 30' – 40' New Flyer Standard Bus (19,000 – 39,000 lbs) | | | 2 |
| Total | | 5 | |

Step 3. Identify how many people would use the site at maximum buildout

| People | RT | PAT | BT |
|------------------------------|-------------------------------|-----|-------|
| # of Buses | 1 | 1 | 3 |
| Persons per bus | 28 | 14 | 14-42 |
| Total persons riding | 28 | 14 | 98 |
| Estimate max % at stop | 50% | 50% | 50% |
| Estimate # of people at stop | 14 | 7 | 49 |
| Total | Maximum 70 passengers at site | | |

Step 4: Identify design standards for bus stop

| | | | |
|------------------|--------------------------|-----|----|
| Design Standards | RT | PAT | BT |
| Pickup | Curbside/ far side/ bays | | |
| Pad material | Asphalt/ concrete | | |

Step 5: Identify standards for how many people use the stop

| Bus Stop Standards (WMATA 2009) | Enhanced Service Bus Stop | Transit Center |
|--|---------------------------|----------------|
| Bus Stop Sign | Yes | Yes |
| ADA 5' x 8' Landing Pad | Yes | Yes |
| Sidewalk | Yes | Yes |
| Lighting | Yes | Yes |
| Seating | Yes | Yes |
| Expanded boarding/ alighting area (rear door access) | Site Specific | Yes |
| Bus Bay | Site Specific | Yes |
| Shelters | 1 | 2+ |
| Trash Receptacles | Yes | Yes |
| Information Case | Yes | Yes |
| System Map | Yes | Yes |
| Real-time display (LED + audio) | Yes | Yes |
| Interactive Phone System On-site | No | Yes |

An enhanced stop would have a clear, unobstructed, paved boarding area. The boarding area is recommended 8-foot wide (perpendicular to curb) by 5-foot deep (parallel to curb) and connected to a well-lit sidewalk. If there are more than 500 boardings and alightings per day and/or the stop might serve multiple routes, then it would be a Transit Center stop.

This stop should have the following:

1. Stop sign
2. Up to five 5' x 8' ADA landing areas, or up to five sawtooth bus bays at 66' length, or up to five curbside stops at 90-feet each
3. Connection to 5' sidewalk
4. Lighting
5. At least two benches
6. Two shelters
7. Trash receptacle
8. Information board and system map
9. Ability to show real-time information

NRV Mall Transit Stop- Plan View



NRV Mall Transit Stop-Section Elevations

Front View



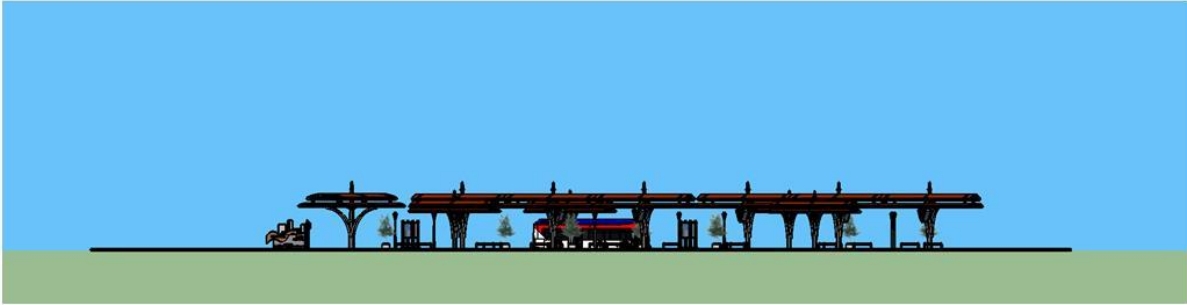
Scale: 1"=30'

Left Side



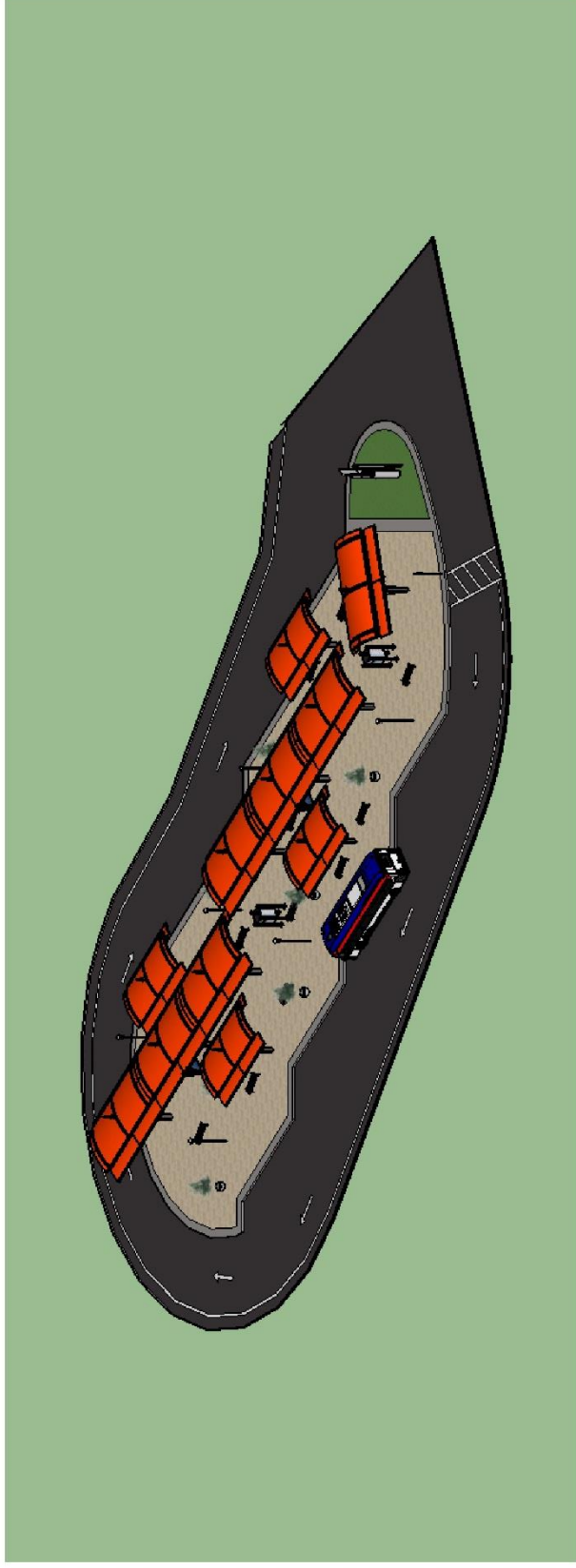
Scale: 1"=60'

Right Side



Scale: 1"=60'

Walmart Transit Stop-Orthogonal View



Scale: 1"=50'

Appendix B2 – Walmart Concept

This section features more detailed images of the Walmart concept, developed for planning purposes only.

Walmart Transit Stop Design Process

Process:

1. Identify routes for stop
2. Identify type of vehicle
3. Identify how many would use this stop
4. Identify design standards for bus stop
5. Identify the standards for the number of people using this stop

Step 1: Identify routes for stop

| Routes | RT | PAT |
|--------|-------------------|--|
| # | 20, 30 (proposed) | New River Express, Draper to Fairlawn, Belspring-Parrott |

Steps 2: Identify type of vehicle

| Type of Vehicle | RT | PAT |
|--|----|-----|
| Body on chassis, 12-14 passenger | 1 | 3 |
| Medium duty shuttle (10000-26000 lbs, 30-40 ft.) | 1 | |
| Total | | 5 |

Step 3: Identify how many people would use this stop at maximum buildout

| People | RT | PAT |
|------------------------------|-------------------------------------|-----|
| # of Buses | 2 | 3 |
| Persons per bus | 12 (possibly 28) | 14 |
| Total persons riding | 24 (56) | 42 |
| Estimate max % at stop | 50% | 50% |
| Estimate # of people at stop | 28 | 21 |
| Total | Maximum 33 to 49 passengers at site | |

Step 4: Identify bus design standards for bus stop

| Design Standards | RT | PAT |
|------------------|--------------------------|-----|
| Pickup | Curbside/ far side/ bays | |
| Pad material | Asphalt/ concrete | |

Step 5: Identify the standards for the number of people using this stop

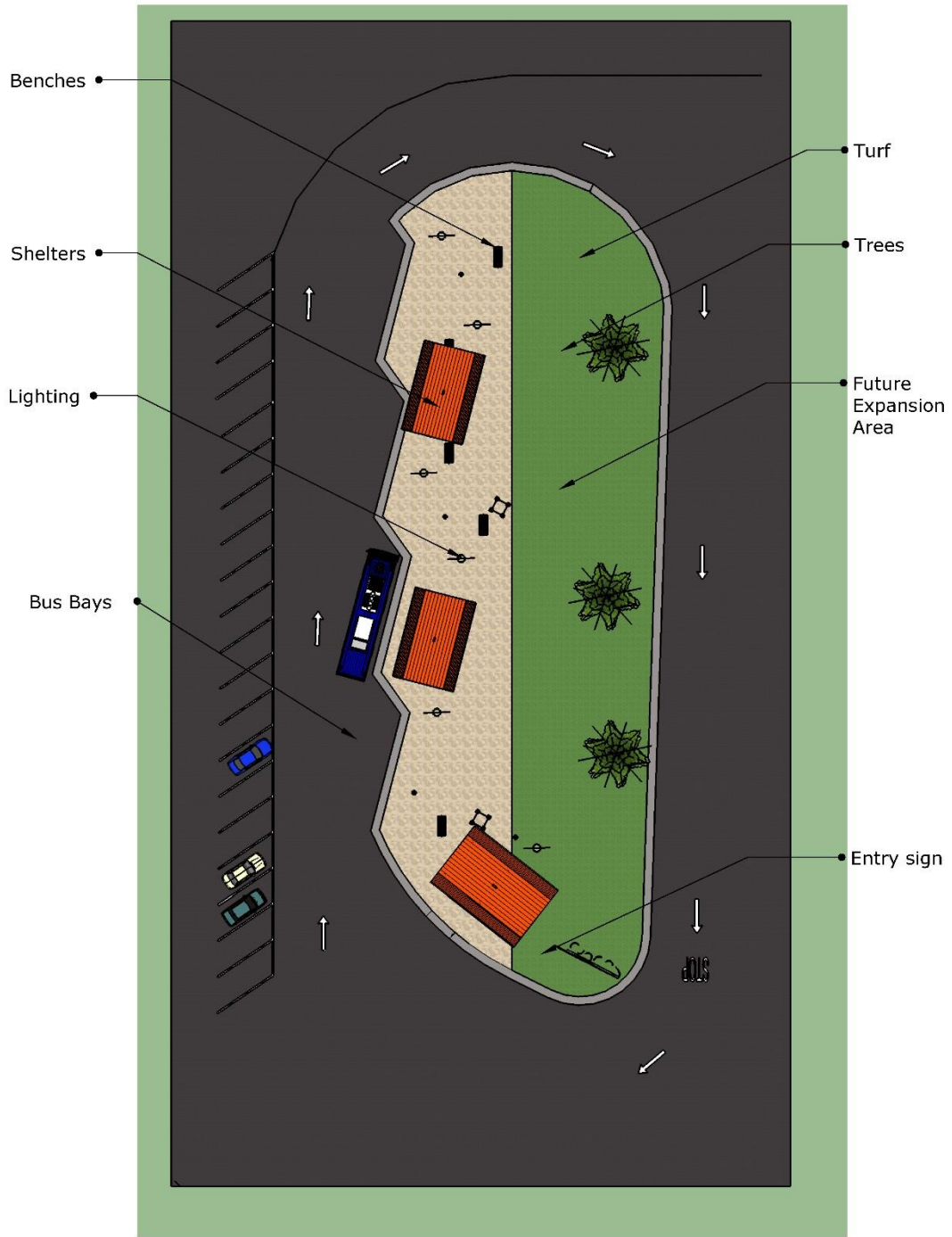
| Bus Stop Standards (WMATA 2009) | Enhanced Service Bus Stop | Transit Center |
|-----------------------------------|---------------------------|----------------|
| Bus Stop Sign | Yes | Yes |
| ADA 5' x 8' Landing Pad | Yes | Yes |
| Sidewalk | Yes | Yes |
| Lighting | Yes | Yes |
| Seating | Yes | Yes |
| Expanded boarding/ alighting area | Site Specific | Yes |
| Bus Bay | Site Specific | Yes |
| Shelters | 1 | 2+ |
| Trash Receptacles | Yes | Yes |
| Information Case | Yes | Yes |
| System Map | Yes | Yes |
| Real-time display (LED + audio) | Yes | Yes |
| Interactive Phone System On-site | No | Yes |

An enhanced stop would have a clear, unobstructed, paved boarding area. The boarding area is recommended 8-foot wide (perpendicular to curb) by 5-foot deep (parallel to curb) and connected to a well-lit sidewalk. If there are more than 500 boardings and alightings per day and/or the stop might serve multiple routes, then it would be a Transit Center stop.

This stop should have the following:

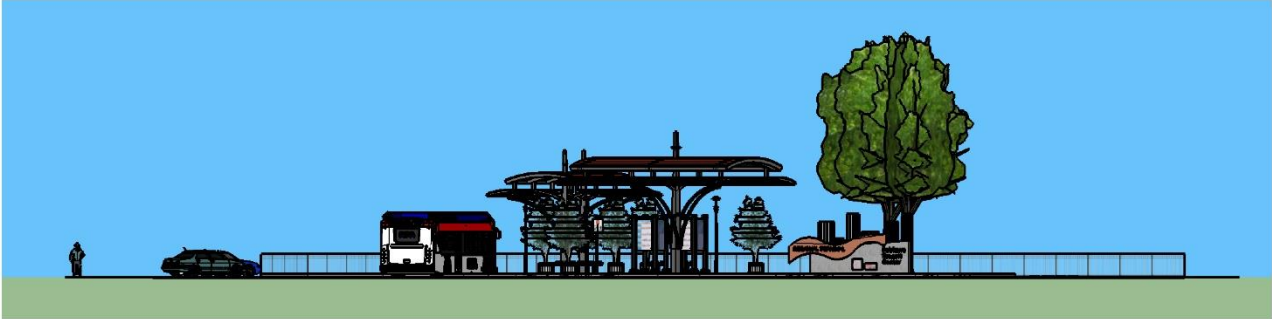
1. Stop sign
2. Up to five 5' x 8' ADA landing areas, or up to five sawtooth bus bays at 66' length, or up to five curbside stops at 90 feet each
3. Connection to 5' sidewalk
4. Lighting
5. At least two benches
6. Two shelters
7. Trash receptacle
8. Information board and system map
9. Ability to show real-time information

Walmart Transit Stop-Plan View



Walmart Transit Stop-Section Elevations

Front View



Scale: 1"=30'

Left Side



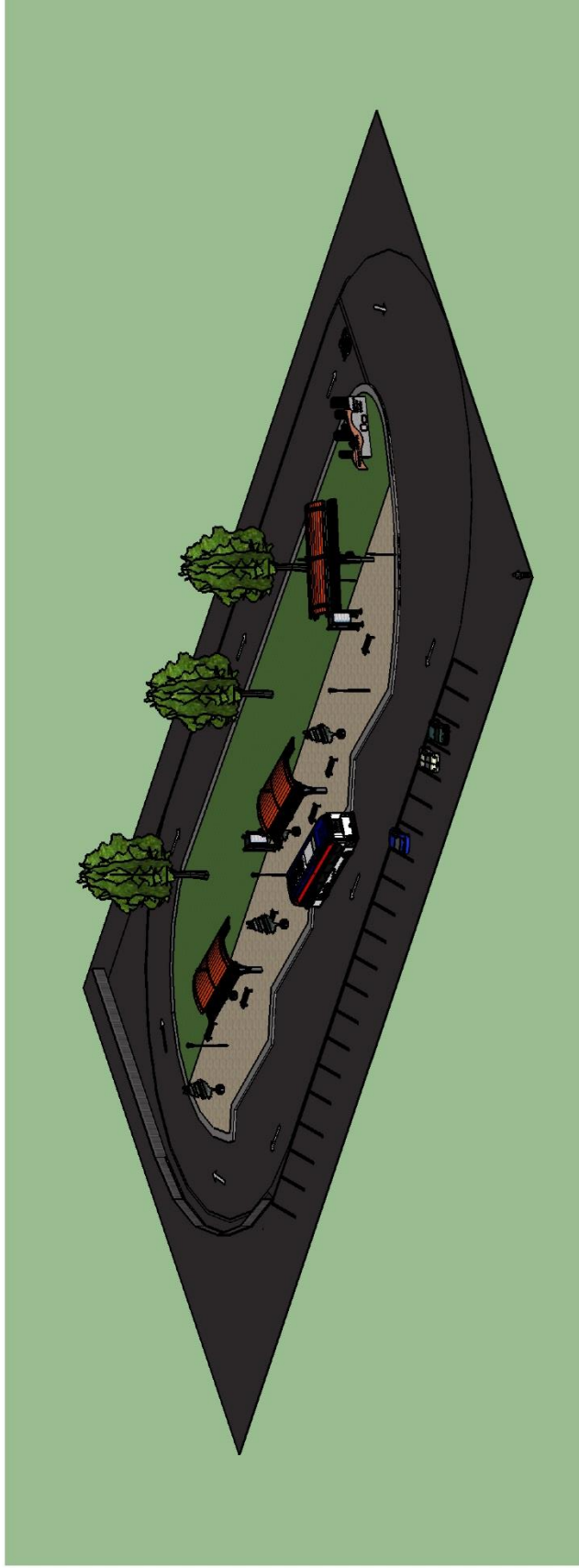
Scale: 1"=60'

Right Side



Scale: 1"=60'

Walmart Transit Stop-Orthogonal View



Scale: 1"=50'

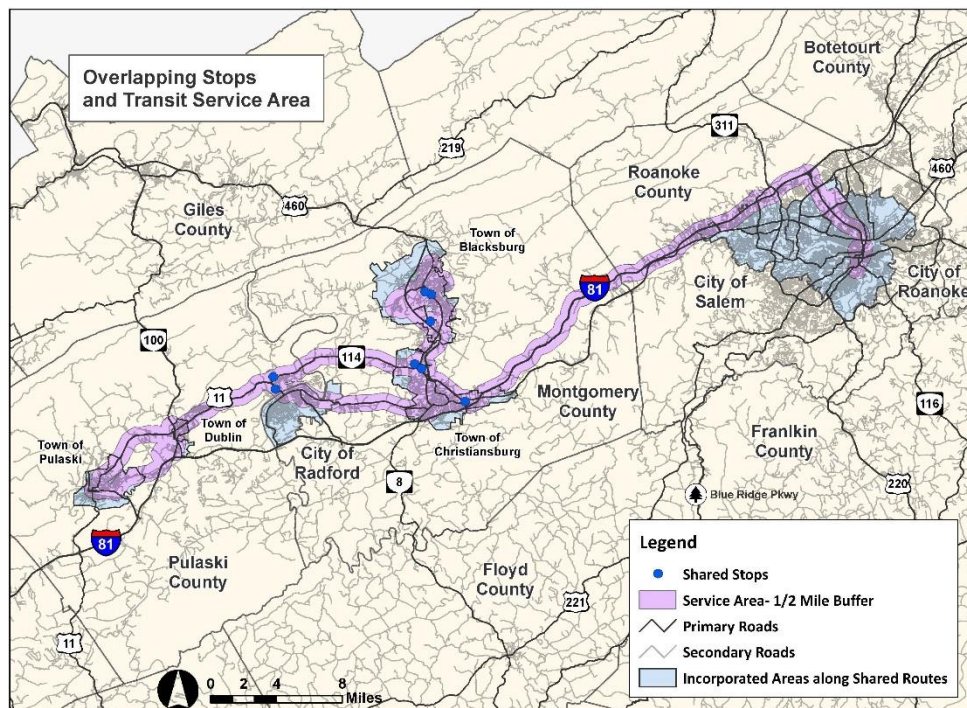
Appendix C – Transit Service Proximity Analysis

This section provides supporting documentation for the Overlapping Stop Demographic Analysis. The analysis was based on 2014 Census ACS block group statistics within a half-mile (walking distance) of existing transit routes. The mapping (pages 49 – 52) corresponds with the data shown in the table (below).

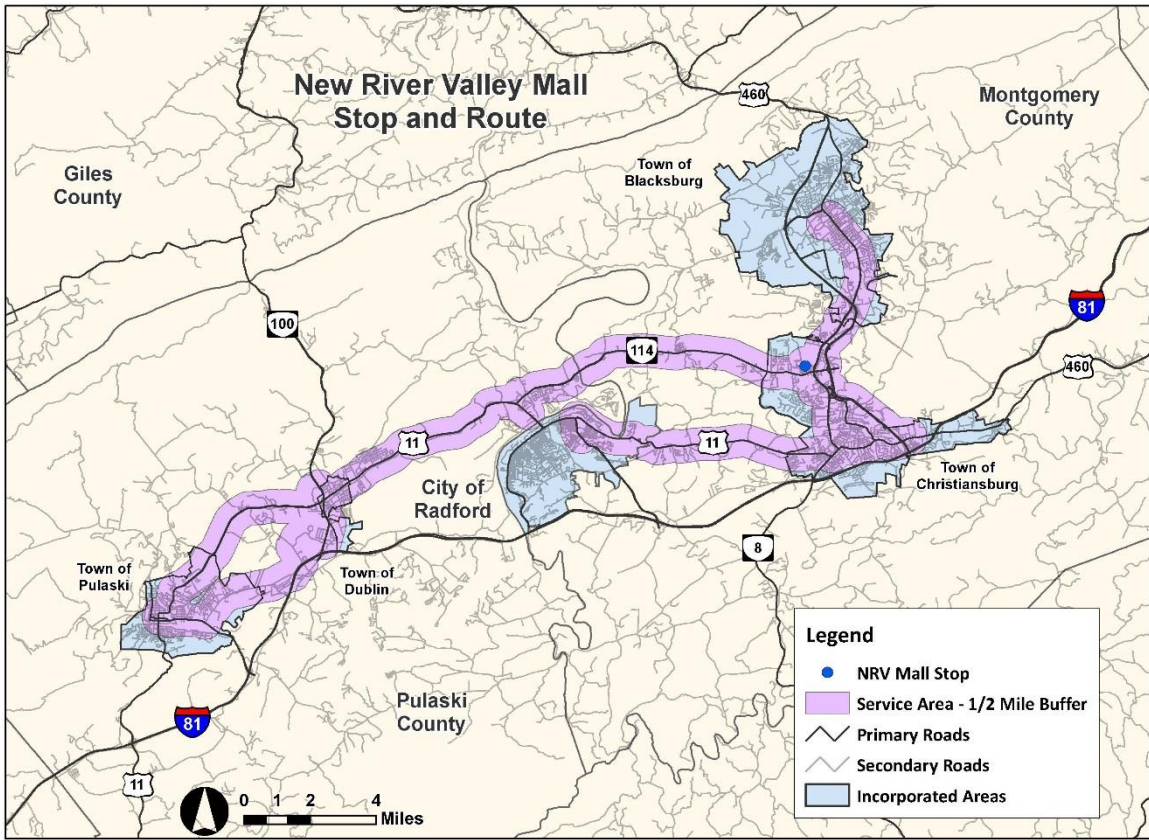
| Stop ID | Count Housing Units | Demographic Data (shown as percentage of the block group total) | | | | | | | | | |
|--------------------|---------------------|---|-------------------|------|-------------------|---------|-------------------|-------------------|-------------------|-------------|---------------------|
| | | Minority | +/- Project Area* | LEP | +/- Project Area* | Poverty | +/- Project Area* | 1 Vehicle or Less | +/- Project Area* | 65 or Older | % +/- Project Area* |
| NRV Mall | 40,201 | 13.9% | 0.3% | 1.0% | -0.4% | 23.7% | -0.4% | 39.5% | 1.4% | 12.3% | 0.0% |
| Exit 118 | 25,479 | 18.1% | 4.5% | 2.7% | 1.3% | 29.1% | 5.0% | 44.2% | 6.1% | 9.3% | -3.0% |
| VT CRC | 22,057 | 18.8% | 5.2% | 3.0% | 1.7% | 32.0% | 8.0% | 45.9% | 7.9% | 8.7% | -3.5% |
| Squires | 35,169 | 16.9% | 3.2% | 2.1% | 0.7% | 32.0% | 8.0% | 41.0% | 2.9% | 8.9% | -3.3% |
| Municipal Building | 34,973 | 16.9% | 3.2% | 2.1% | 0.8% | 32.1% | 8.1% | 41.1% | 3.0% | 8.9% | -3.3% |
| Kmart | 25,479 | 18.1% | 4.5% | 2.7% | 1.3% | 29.1% | 5.0% | 44.2% | 6.1% | 9.3% | -3.0% |
| Walmart Fairlawn | 24,146 | 11.6% | -2.1% | 0.1% | -1.2% | 20.2% | -3.9% | 37.1% | -1.0% | 14.4% | 2.1% |
| Kroger Fairlawn | 24,146 | 11.6% | -2.1% | 0.1% | -1.2% | 20.2% | -3.9% | 37.1% | -1.0% | 14.4% | 2.1% |
| Totals & Averages | 62,592 | 13.6% | [x] | 1.3% | [x] | 24.0% | [x] | 38.1% | [x] | 12.2% | [x] |

*+/- difference between average of all stops.

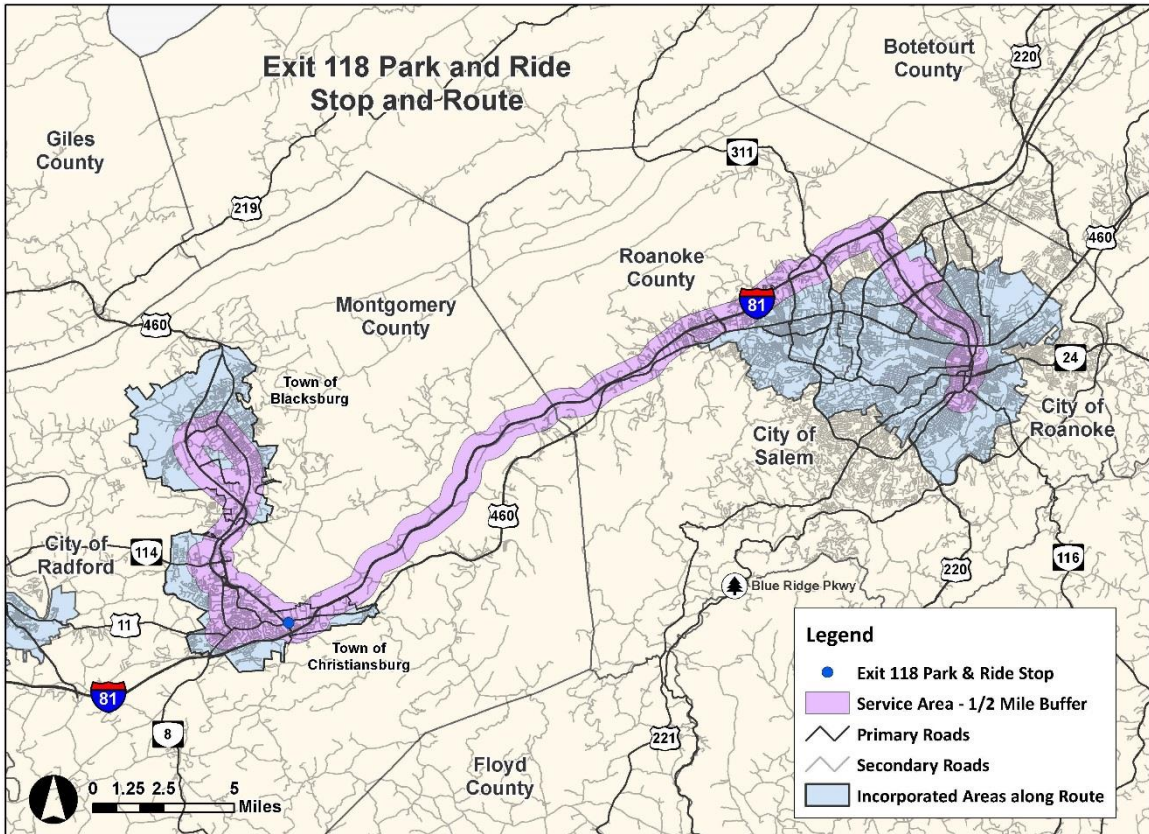
Note: currently excludes Smart Way route data for Roanoke County, City of Roanoke, and City of Salem.



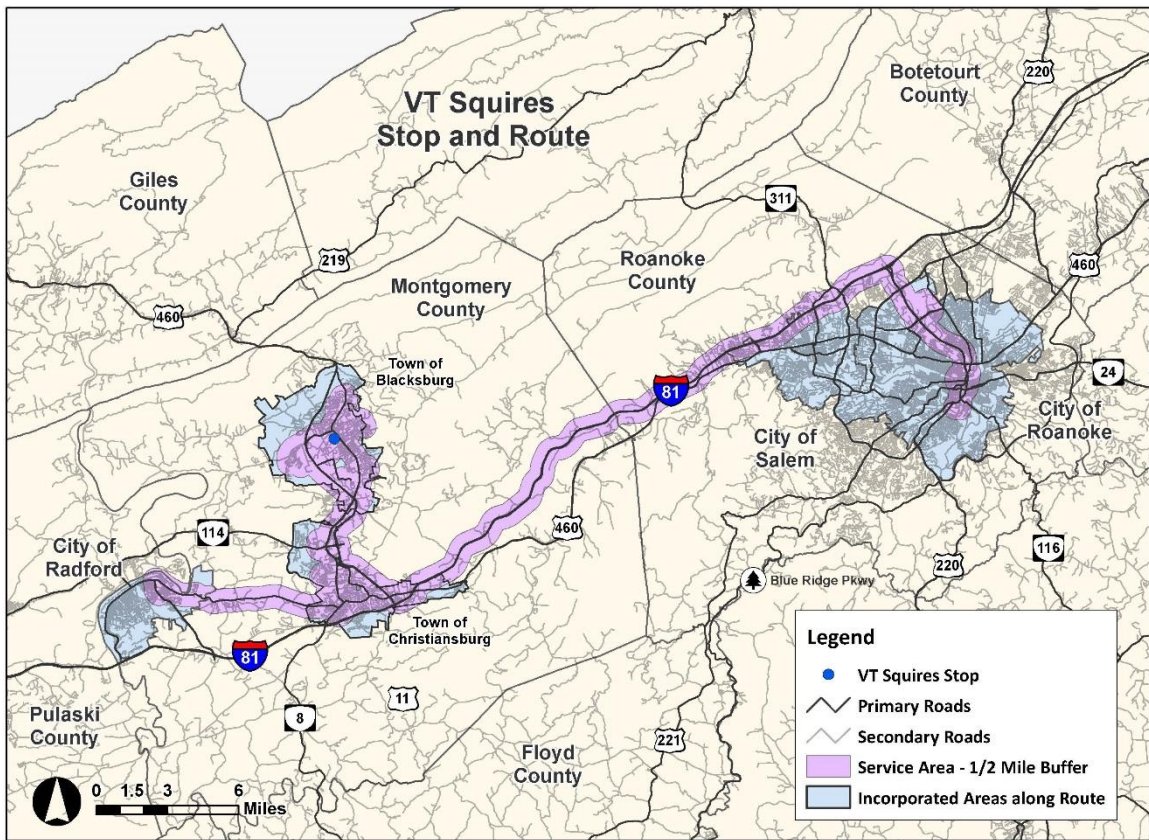
Created by NRVRC, 2016. Sources: U.S. Census Bureau; Virginia Information Technology Agency.



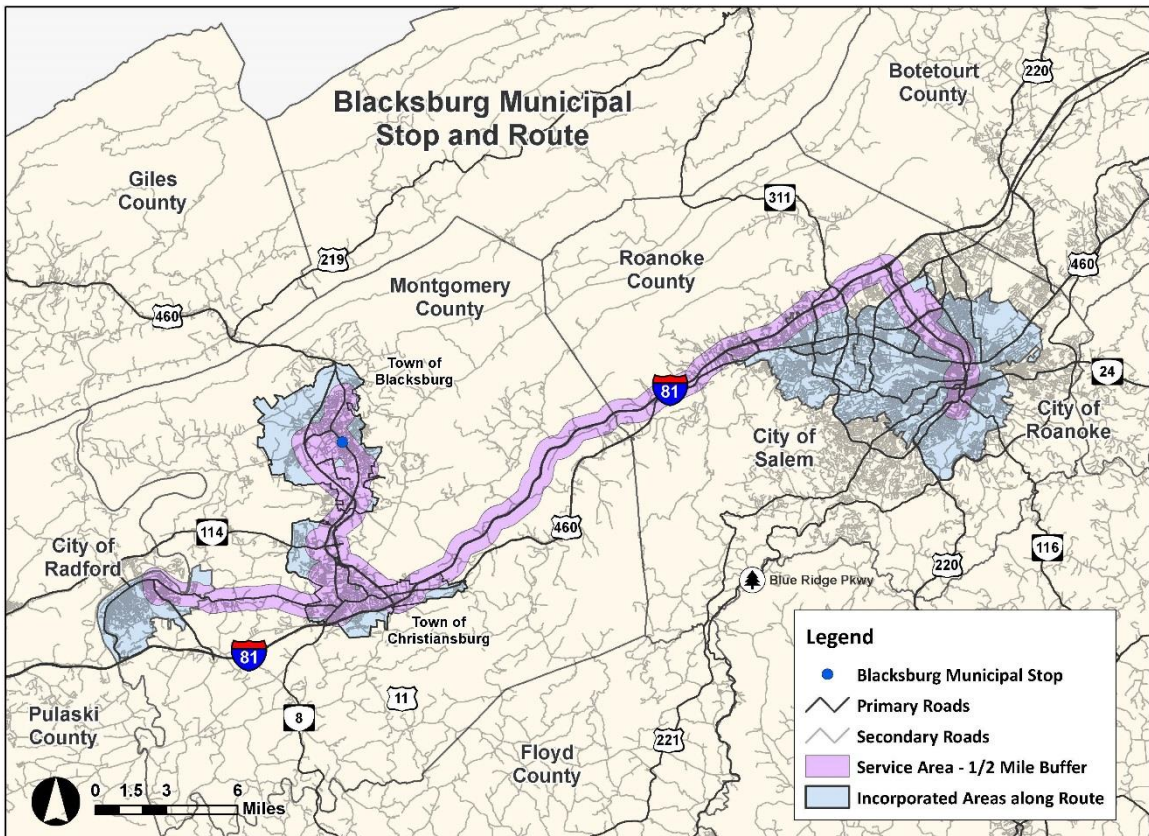
Created by NRVRC, 2016. Sources: U.S. Census Bureau; Virginia Information Technology Agency.



Created by NRVRC, 2016. Sources: U.S. Census Bureau; Virginia Information Technology Agency.



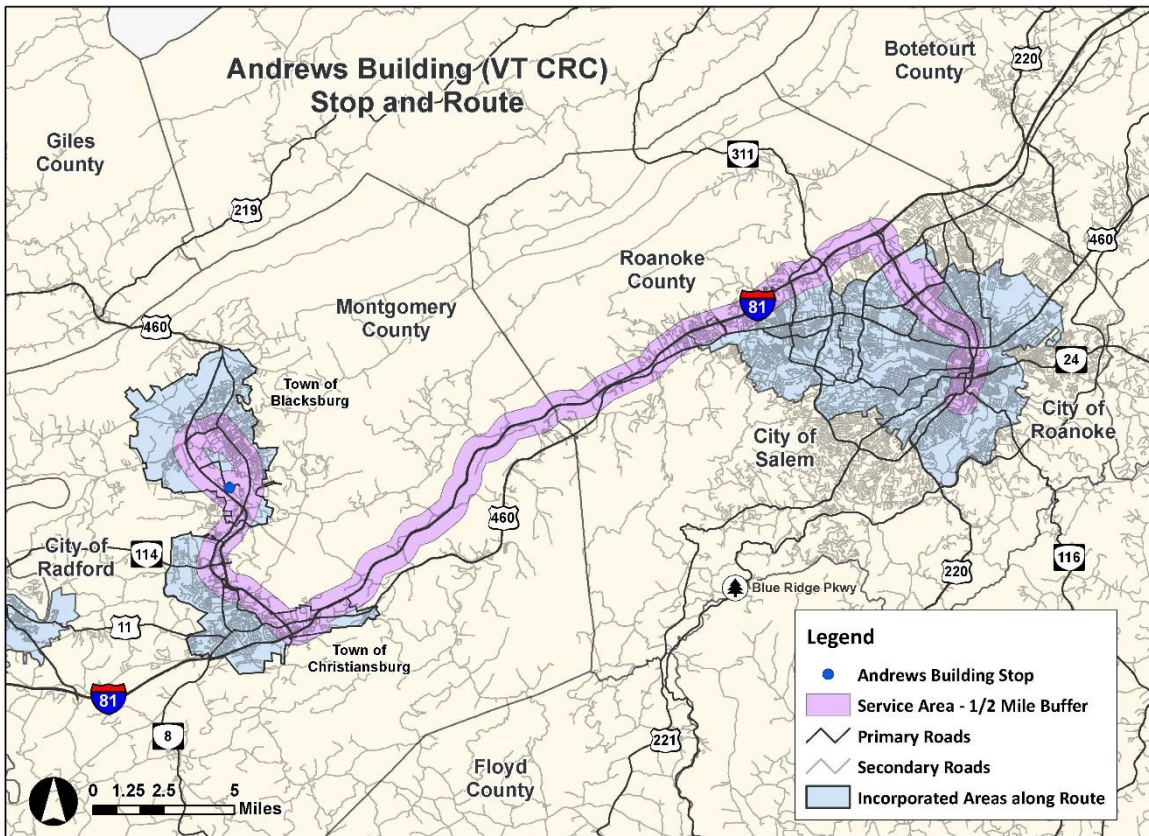
Created by NRVR. 2016. Sources: U.S. Census Bureau; Virginia Information Technology Agency.



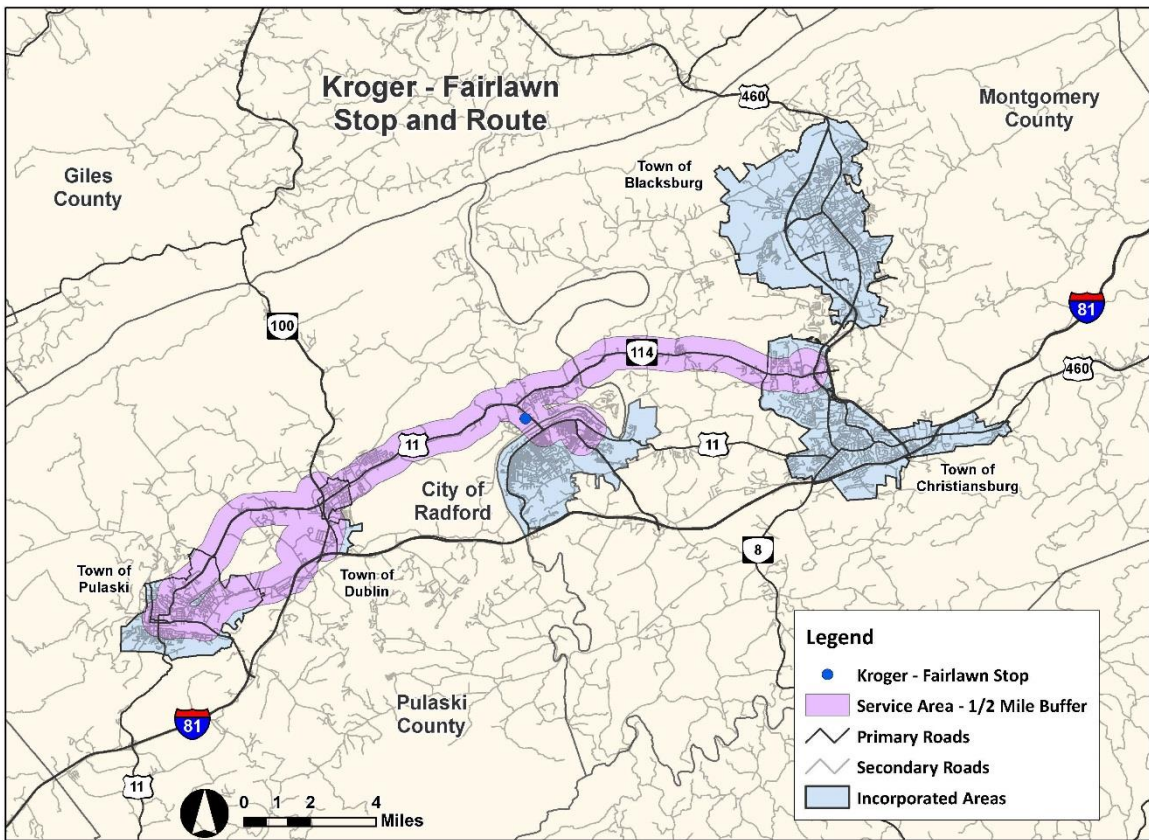
Created by NRVR. 2016. Sources: U.S. Census Bureau; Virginia Information Technology Agency.



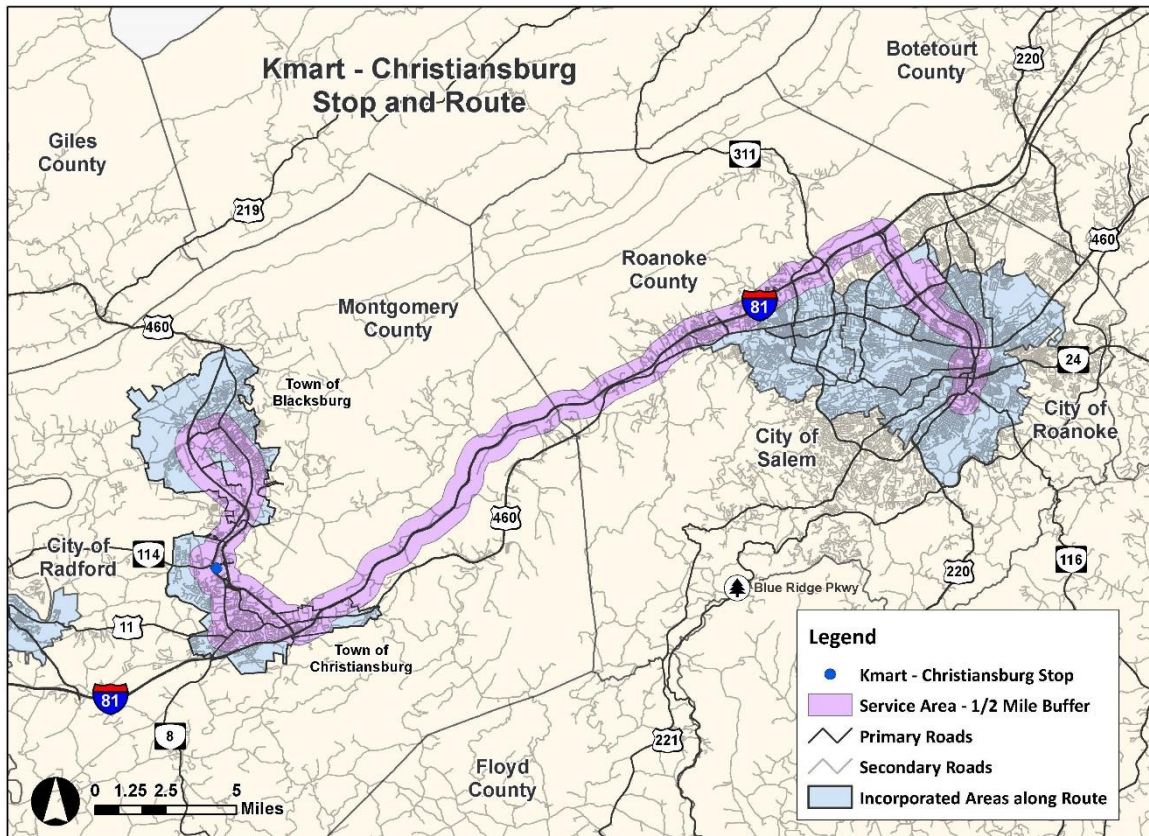
Created by NRVRC, 2016. Sources: U.S. Census Bureau; Virginia Information Technology Agency.



Created by NRVRC, 2016. Sources: U.S. Census Bureau; Virginia Information Technology Agency.



Created by NRVC. 2016. Sources: U.S. Census Bureau; Virginia Information Technology Agency.



Created by NRVC. 2016. Sources: U.S. Census Bureau; Virginia Information Technology Agency.

Appendix D – Bus Rider Survey

The Bus Rider Survey was open from April 2015 to February 2016. Survey notices were placed at overlapping and high-volume bus stops. The notices provided a QR Code and bit.ly link for smart phones to link directly to the survey. Additionally, in-person surveys were completed at overlapping service locations. In total, more than 800 responses were collected. An example of the notice is shown below and the in-person survey follows on subsequent pages.



**Tell us what you think
about your
bus stop.**



**<http://bit.ly/NRVRiderSurvey>
or call (540) 639-9313 x209**



Bus Rider's Survey

Information gathered in this survey will be used to examine improvements for the busiest bus stops used in the region. This study will identify what works and what improvements are needed at bus stops as part of efforts to make using the bus an attractive transportation option.

We appreciate your help in completing this survey. Please note

- Individual responses will remain confidential.
- If you feel uncomfortable with any question, you can skip it.
- The survey will take approximately 5 minutes to complete.

Your Transit System (circle one) Blacksburg / Radford / Pulaski / SmartWay

List Your Most Frequently Used Bus Stop _____

Q1. What conveniences are available at the bus stop?

- Bus schedule
 - Bus stop sign
 - Bench or other seating
 - Shelter
 - Trash can
 - Lighting (after dark)
 - Bike rack
 - Other
- _____

Q2. What conveniences would you like to see at this stop?

- Bus schedule
 - Bus stop sign
 - Bench or other seating
 - Trash can
 - Lighting (after dark)
 - Bike rack
 - Other
- _____

Q3. How comfortable do you feel while waiting for your bus at this stop? Please rate on a scale of 1 to 5, with 1 being completely uncomfortable and 5 being completely comfortable.

What features would make this stop more comfortable?

Q4. How safe do you feel while waiting for your bus at this stop? Please rate on a scale of 1 to 5, with 1 being completely unsafe and 5 being completely safe.

What features would make this stop safer?

Q5. How many days of the week do you use the bus? Indicate with a number from 1 to 7. _____

Q6. What is your primary destination when riding the bus?

- Work
- School
- Errands
- Appointments
- Social activities

Q7. How many minutes does it take to get to your usual destination by each of these means of transportation?

| | Less than 15 minutes | 15-29 minutes | 30-44 minutes | 45-59 minutes | 60 minutes or more |
|--------------|-------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Bus | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Bike | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Walk | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Share a ride | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please specify what "Other" is _____

Q8. Is the bus your primary means of transportation?

- Yes
- No

If you answered no above, what other means of transportation do you use? (Check all that apply)

- Drive
- Bike
- Walk
- Share a ride

Q9. Do you change buses to get to your destination?

- Yes
- No

If you answered yes, how many times do you change buses? _____

How many minutes do you wait when you change buses? _____

Q10. What stops would you use if they were safer or more comfortable? Please tell us what would make those stops better, too.

Q11. Please provide any other comments or additional information we should consider for the study below.

Q12. In what ZIP code is your home located? _____

Q13. What is your age?

- 25 or younger
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75 or older

Q14. Are you female or male?

- Female
- Male

Q15. How much total combined money did all members of your HOUSEHOLD earn last year? This includes income received by members of your HOUSEHOLD that are 18 years of age or older.

- Less than \$10,000
- \$10,000 - \$19,999
- \$20,000 to \$34,999
- \$35,000 to \$49,999
- \$50,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 or more

Q16. Which of the following categories best describes your employment status? (Check all that apply)

- Employed
- Not employed, looking for work
- Not employed, NOT looking for work
- Retired
- Homemaker
- Student
- Unable to work

Q17. Please complete this sentence: I choose transit because

- I don't have access to my own car
- the park and ride lot makes it easier to leave my car and take the bus
- I save money on gas and car maintenance
- I can use my bike as part of my trip
- it's good for the environment
- it helps reduce congestion
- it reduces stress

Your accurate responses are valuable to us in creating safe and useful bus stops. Thank you for participating in this important initiative.

You can submit this survey by mailing or dropping it off to
Christy Straight
New River Valley Regional Commission
6580 Valley Center Drive, Suite 124
Radford, VA 24141

Appendix E – Employer Survey

Employers Transit Service Survey

1. What is your business street address?

Address

Address (continued)

City, Zip Code

2. To the best of your knowledge, which of the following options (other than driving alone) do your employees use to get to work? (You can select more than one.)

- Carpooling
- Taking the bus (Transit)
- Walking
- Cycling

3. To the best of your knowledge, how important would the use of public bus service (transit) be to your employees?

- Very important
- Somewhat important
- Not important

4. Please rate how well your work site(s) is served by bus stops?

- Very well-served (stops within a half-mile of your site and near employees' homes)
- Well-served (stops within walking or cycling distance near your site, probably near your employees' homes)
- Not well-served (no stops within a half-mile of your site and near employees' homes)
- Not served (no stops within walking or cycling distance near your site, probably near your employees' homes)
- Don't know

5. Please provide any comments you may have about transit, including suggestions for improving existing transit services or considerations for new transit services.

We appreciate your help in completing this survey. Information gathered will be used to examine improvements for the busiest bus stops used in the region. If you have any questions about the survey or further discuss transportation options, please contact:

Christy Straight
Regional Planner
New River Valley Regional Commission
phone: 540-639-9313

The bus rider's survey will be open until February 5 to solicit feedback from current bus riders about the most-used stops. That survey can be accessed here: <https://www.surveymonkey.com/r/MPOTransitStudy>. Please feel free to share this link with your employees.

Appendix F – Components of Design

This section provides references to bus stop design resources.

| Name | Publisher | Date Published |
|---|--|----------------|
| APTA BRT Stations and Stops Best Practices | American Public Transportation Association | October 2010 |
| Enhancing the quality of public transport services | CIVITAS | 2010 |
| RTA Bus Stop Design Guidelines | Riverside Transit Agency | August 2015 |
| ESPA Accessible Pathways to Bus Stops and Transit Facilities: A Process Guide | Easter Seals Project ACTION | June 2009 |
| ESPA Accessible Transportation in Rural Areas: An Easter Seals Project ACTION Resource Sheet | Easter Seal Project ACTION | March 2003 |
| Toolkit for the Assessment of Bust stop Accessibility and Safety | Easter Seals Project ACTION | 2014 |
| Rethinking the Suburban Bus Stop: Place-Making in the Suburbs | Airport Corridor Transportation Authority | 2014 |
| TCRP Report 19: Guidelines for the Location and Design of Bus Stops | Transit Cooperative Research Program | 1996 |
| TCRP Web Document 32: Elements Needed to Create High Ridership Transit Systems: Interim Guidebook | Transit Cooperative Research Program | December 2005 |
| Transit Facilities Design Manual | SunLine Transit Agency | December 2006 |

Appendix G – Peer Review Packet

A Peer Review was held on October 5, 2015. Subject experts joined representatives of the Regional Transit Coordinating Council for a roundtable discussion and lunch. A packet was provided to the reviewers ahead of the meeting, to help acclimate them with our area.

NRV Regional Transit Study – Project Overview

In 2010, the New River Valley Metropolitan Planning Organization and New River Valley Regional Commission partnered to develop a transit organization study. The purpose of the work was to evaluate potential opportunities to create new services, establish partnerships, and increase funding competitiveness for transit stakeholders in the region. Through a series of committee meetings, surveys, and one-on-one meetings with individual stakeholders; a Regional Transit Coordinating Council (RTCC) was established.

The RTCC is intended to create more dialog across the region between public transit providers. While the RTCC provides a stronger multi-jurisdictional/multi-system perspective, a disadvantage is that no new revenue sources have been generated. The inaugural meeting of the RTCC was held on July 17, 2012. The group identified two key priorities for the region’s partners to work on: 1) identify a common technology platform between service providers; and 2) enhance the presence of public transit stops at overlapping service locations.

In 2014, the NRV Regional Commission purchased ArcGIS Online and provided a seat for an NRV Metropolitan Planning Organization funded intern. The partnership enabled the region’s partners to work collaboratively to complete the first goal identified by the RTCC. The New River Valley Transit GIS Portal is now available online here: <http://nrvc.org/nrvmpo/transit/>. The 2015 Regional Transit Study aims to complete the second strategy identified by the RTCC.

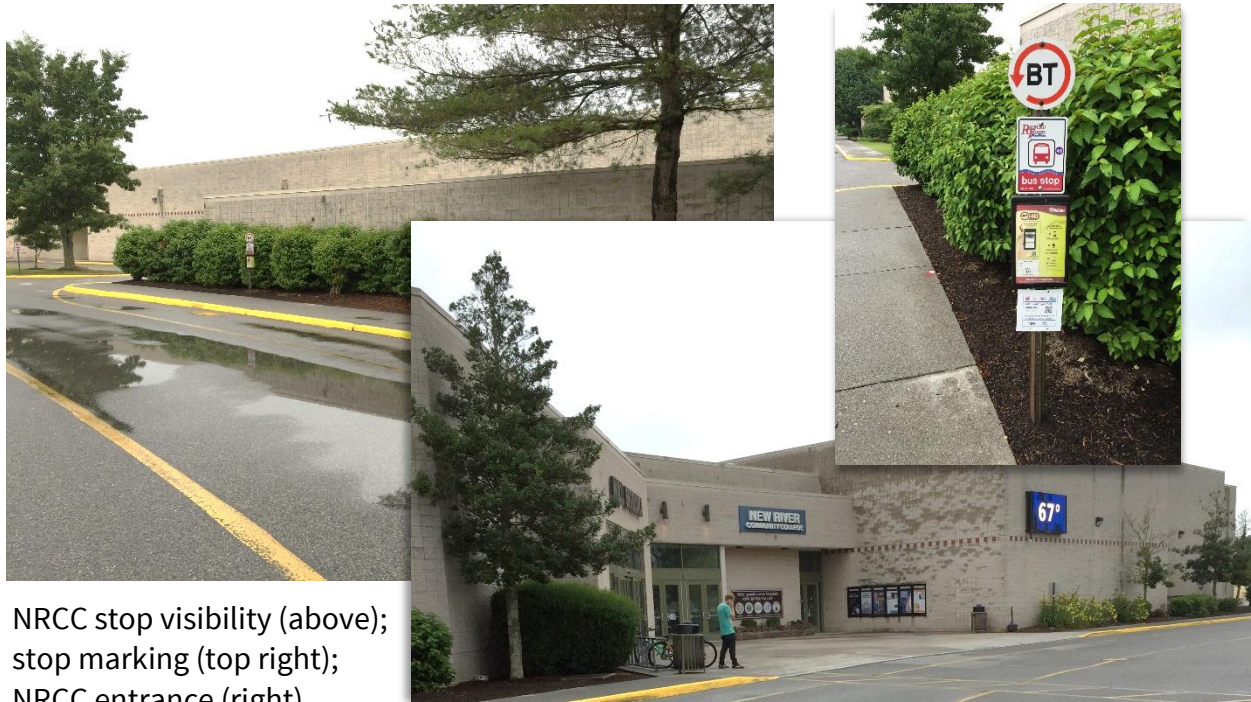
The purpose of the work is to investigate potential enhancements at overlapping and high-volume bus stop locations. Particular focus will be on the physical appearance and accessibility to information about existing public transit services. The final product will outline potential partnerships, investments, and changes that elevate the presence of public transit. Furthermore, identify strategies that elevate public transit as a preferred transportation choice in the New River Valley. A project website is available online here: <http://nrvc.org/regionaltransitstudy/>.

Overlapping Stops

Transit services are currently provided in the Counties of Montgomery and Pulaski and the City of Radford. A total of five unique public transit operators have routes/stops that overlap at nine unique locations throughout the region. For the purpose of this Peer Review, four stops have been selected that reflect the range of amenities/services indicative of stops throughout the region. The following section provides a map, photos, list of service providers, and current schedules.

As a Peer Reviewer, do you have suggestions for physical improvements, schedule enhancements, branding/marketing approaches, and or educational strategies that you would recommend? What is the role of technology in transit and what are consumers receptive to?

NRV Mall (Christiansburg) Stop



NRCC stop visibility (above);
stop marking (top right);
NRCC entrance (right).

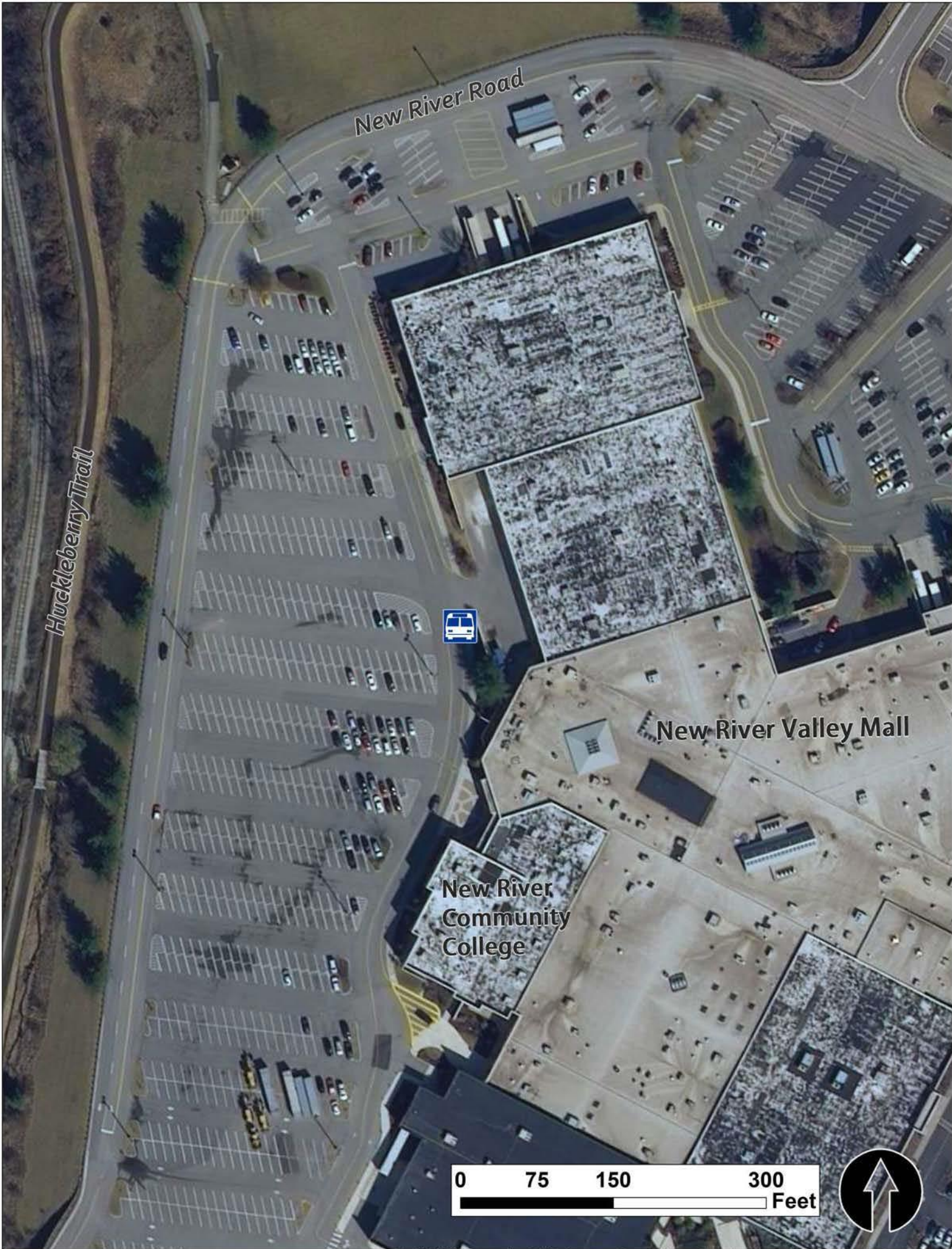
| Time Frame | | Service Provider | | |
|--------------------------|------------|------------------|-----|----|
| | | BT | PAT | RT |
| Monday thru Wednesday | Before 9am | x | x | |
| | 9am -2pm | x | x | |
| | 2pm-5pm | x | | x |
| | After 5pm | x | | x |
| Thursday thru Friday | Before 9am | x | x | |
| | 9am -2pm | x | x | |
| | 2pm-5pm | x | | x |
| | After 5pm | x | | x |
| Saturday | Before 9am | | | |
| | 9am -2pm | x | | x |
| | 2pm-5pm | x | | x |
| | After 5pm | x | | x |
| Sunday | Anytime | x | | |

Annual Boardings: 13,985. This number was calculated by adding together the average April and September 2014 boarding data from BT and RT, multiplying them by 12, then multiplying them by 0.85. $((904+467) \times 12) \times 0.85$. PAT is not included, because they recently began service.

Population + Jobs within ½ mile: 3,845

Population + Jobs within 1 mile: 8,701

Note: Only location where all three NRV service providers overlap. Few stop amenities.



New River Road

Huckleberry Trail



New River Valley Mall

New River
Community
College



Corporate Research Center (Blacksburg) Stop



CRC stop (above);
pedestrian crossing (top
right); parking for 3
(right).

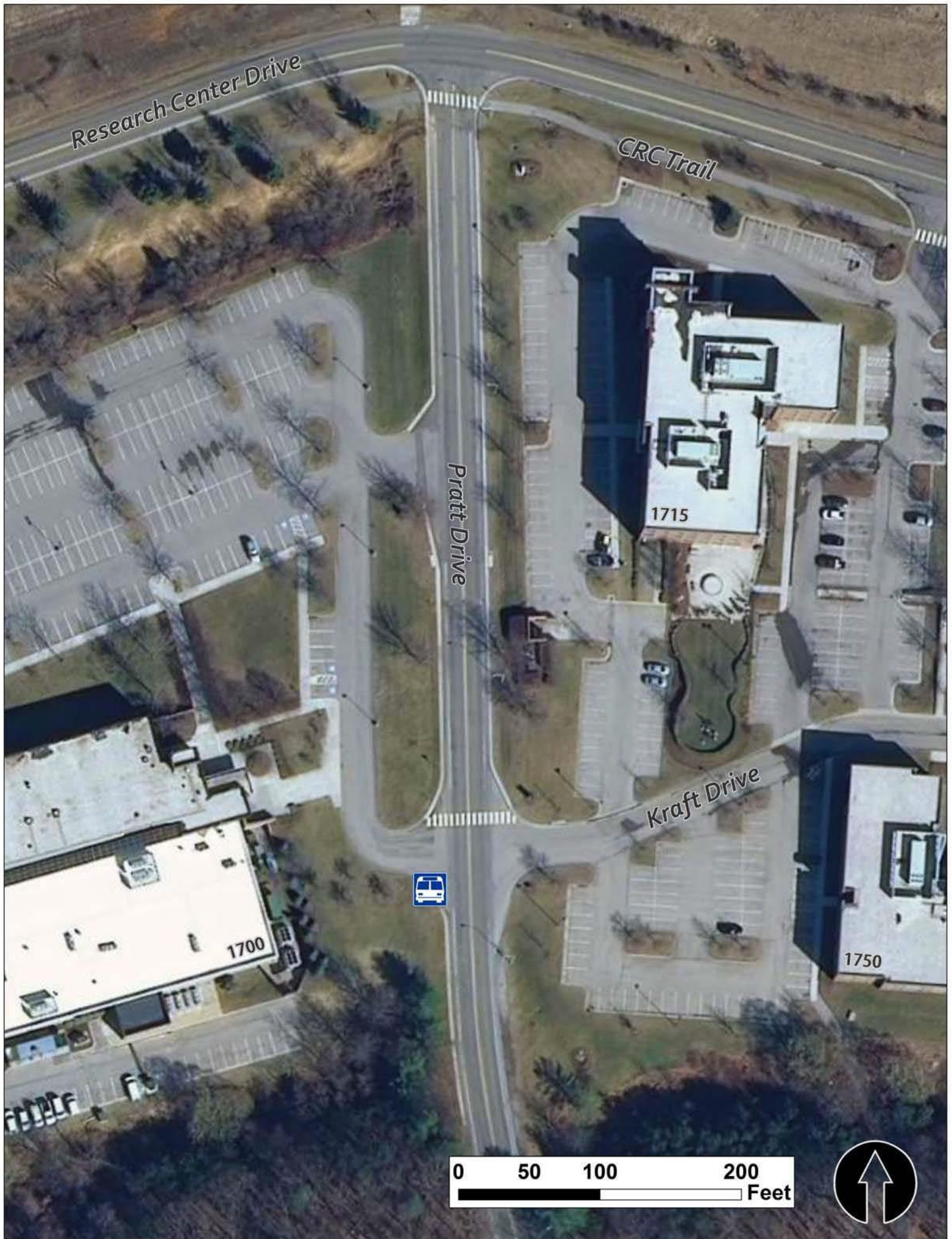
| Time Frame | | Service Provider | |
|-----------------------|------------|------------------|-----------|
| | | BT | Smart Way |
| Monday thru Friday | Before 9am | x | x |
| | 9am -2pm | | x |
| | 2pm-5pm | | x |
| | After 5pm | x | x |
| Saturday | Before 9am | | x |
| | 9am -2pm | | x |
| | 2pm-5pm | | x |
| | After 5pm | | x |
| Sunday | Anytime | | |

Annual Boardings: 1,594. This number was calculated by multiplying the average April and September 2014 boarding data from BT by 12, then multiplying by 0.85, then adding the annual total from The Smart Way. $((135 \times 12) \times 0.85) + 217$.

Population + Jobs within ½ mile: 2,485

Population + Jobs within 1 mile: 6,238

Note: Location where two service providers that originate in a different MPO overlap.



Research Center Drive

CRC Trail

Pratt Drive

Kraft Drive

1715

1700

1750



0 50 100 200 Feet



Walmart (Fairlawn, Pulaski County) Stop



Fairlawn Walmart stop (above); stop visibility (top right).

| Time Frame | | Service Provider | |
|-----------------------|------------|------------------|----|
| | | PAT | RT |
| Monday thru Friday | Before 9am | x | x |
| | 9am -2pm | x | x |
| | 2pm-5pm | x | x |
| | After 5pm | | x |
| Saturday | Before 9am | | |
| | 9am -2pm | | x |
| | 2pm-5pm | | x |
| | After 5pm | | x |
| Sunday | Anytime | | |

Annual Boardings: 9,213. This number was calculated by multiplying the average April and September 2014 boarding data from RT by 12, then multiplying by 0.85, then adding the annual total from PAT. $((813 * 12) * 0.85) + 920$

Population + Jobs within ½ mile: 993

Population + Jobs within 1 mile: 4,603

Note: University and community services overlap at a grocery store.



Walmart Supercenter



King Buffet
SUBWAY
Sal's Jr.

Fulk Drive

Peppers Ferry
Boulevard



Exit 118 Park and Ride (Christiansburg) Stop



Park and Ride Stop (above); stop shelter/information (top right).

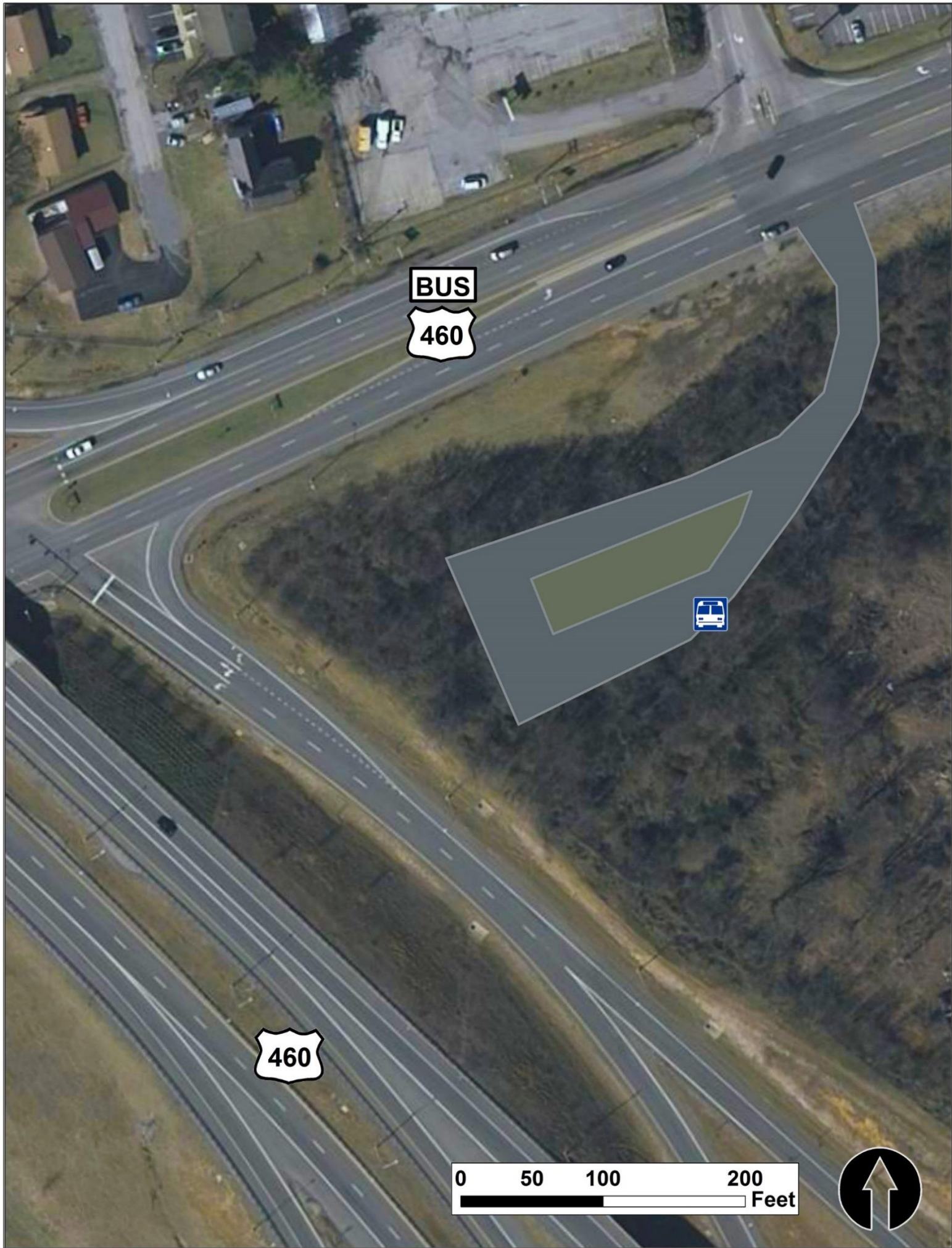
| Time Frame | | Service Provider | | | Private Service |
|--------------------------|------------|------------------|-----------|------------|-----------------|
| | | BT | Smart Way | District 3 | Mega Bus |
| Monday thru Wednesday | Before 9am | x | x | x | x |
| | 9am -2pm | x | x | | |
| | 2pm-5pm | x | x | x | x |
| | After 5pm | x | x | | |
| Thursday thru Friday | Before 9am | x | x | | x |
| | 9am -2pm | x | x | x | |
| | 2pm-5pm | x | x | x | x |
| | After 5pm | x | x | | |
| Saturday | Before 9am | | x | | x |
| | 9am -2pm | | x | | |
| | 2pm-5pm | | x | | x |
| | After 5pm | | x | | |
| Sunday | Anytime | | | | x |

Annual Boardings: 5,538. This reflects The Smart Way only, as the other service providers did not provide us with the ridership data for this stop.

Population + Jobs within ½ mile: 3,845

Population + Jobs within 1 mile: 8,701

Note: Location where services from three different MPO regions overlap. Megabus departures are 3:55am and 2:55pm (BT arrives 55 minutes early, District 3 arrives 45 minutes late, Smart Way arrives 70 minutes early)



BUS

460

460

0 50 100 200 Feet



Transit Providers

This section includes general information about the services each provider offers and annual operating budget.

Blacksburg Transit

(<http://www.blacksburg.gov/index.aspx?page=791>)

FY2016 operating budget: \$6,665,947

BT provides a traditional bus system in Blacksburg that operates on a published time schedule of 12 routes with over 300 stops connecting major shopping, educational and residential areas. BT also offers “Access for individuals” for those with physical disabilities unable to use a traditional bus system. In Christiansburg, BT operates two routes: the Explorer route offers a traditional scheduled bus stop system; the Go Anywhere service is a call ahead reservation-based service which can pick you up at a safe location of your choice and deliver you to your destination. Lastly, there is a Christiansburg-to-Blacksburg weekday commuter service.



Radford Transit

(<http://www.radfordtransit.com>)

FY2016 operating budget: \$ 1,390,965

Radford Transit provides public transit to the citizens of Radford, Radford University students, faculty and staff and those who live in the surrounding areas with six routes. It is operated by NRVCS Transit Services, through a joint partnership between Radford University, Radford City, the Virginia Department of Rail and Public Transportation, and the Federal Transit Administration.



Pulaski Area Transit

(<http://www.pulaskitransit.org>)

FY2016 operating budget: \$ 584,403

Pulaski Area Transit (PAT) operates 7 am to 5 pm, Monday thru Friday service and 9-to-3 Saturday service. Users can call for a pick-up at or near their location with an approximate wait time of 15 minutes. PAT also runs a demand-response system which requires a 24-hour notice.



Smart Way (Valley Metro)

<http://www.smartwaybus.com>

FY2016 operating budget: \$ 7,977,553

Valley Metro is the public transportation provider serving the Roanoke Valley with approximately 30 daily routes. In addition to its traditional bus service, it also provides commuter bus service between Roanoke and the New River Valley with the Smart Way.

The service begins in downtown Roanoke at Valley Metro's Campbell Court Transportation Center and ends at the Virginia Tech Squires Student Center. The route from the New River Valley to the Roanoke Valley is the exact reverse.



District 3

<http://www.district-three.org/transit>

FY2016 operating budget: \$ 1,898,172

District Three Public Transit is operated as a Joint-Exercise of Powers entity by the localities of the Mount Rogers Planning District. They provide public transit service in 10 separate locality systems ranging from fixed-loop, demand-response, and deviated-fixed, as well as the New Freedom Bristol-to-Roanoke route along the Interstate 81 corridor from Washington County as far north as the Roanoke Valley, including a stop in the New River Valley. The Bristol to Roanoke route runs on Mondays.



Megabus

<http://us.megabus.com/top-routes.aspx>

Megabus.com is a low-cost, express bus service offering city center-to-city center travel purchased via the Internet on coach-style double-decker buses with free wi-fi and at-seat plug ins. They have an undetermined number of routes, listing 18 “popular” routes on their website and claim service to 120 cities. At least seven cities are directly accessible from their Christiansburg stop.

NEW RIVER VALLEY 

