



BUS STOP SAFETY AND ACCESSIBILITY STUDY

A STUDY COMMISSIONED BY THE
NEW RIVER VALLEY METROPOLITAN PLANNING ORGANIZATION
AND THE NEW RIVER VALLEY REGIONAL COMMISSION

APPROVED MAY 3RD, 2018

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EXECUTIVE SUMMARY

Purpose

The purpose of the 2018 Radford Transit Bus Stop Safety and Accessibility Study is to develop a bus stop capital improvement prioritization tool. The prioritization tool evaluates the existing conditions of bus stops served by Radford Transit (RT). Recommendations are included as a component of the 2018 study for locations with the most pressing needs.

A working committee consisting of representatives from the City, Radford University, Radford Transit, and the New River Valley Metropolitan Planning Organization utilized the framework of the 2015 New River Valley Bus Stop Safety and Accessibility Study to guide the planning process.

Study Outcomes

Fifty bus stops were evaluated against more than thirty-five criteria during the bus stop assessment process. Once the prioritization of stops was verified by the working committee, the New River Valley Regional Commission developed conceptual planning visualizations and cost estimates for the highest priority locations.

Connectivity to and from the bus stop, constructability, and existing conditions are the leading prioritization factors for RT in 2018. As a result, high priority stops are found on a combination of public and private properties, and include the following:

- 1. Copper Beach Time Check**
- 2. Highland Village**
- 3. Deli Mart West**
- 4. Lot FF**
- 5. Burlington Lot**
- 6. Greenhill Clubhouse**
- 7. Burlington and Fairfax**
- 8. Burlington and Clement**
- 9. Greenhill Time Check**
- 10. The Hub**
- 11. Davis and Wilson**
- 12. Main and Preston**



An example of one of the high priority stops is the Copper Beach Time Check (see above). Each high priority bus stop reviewed includes an associated action plan. These plans are based on the prioritization scoring, and include a concept to illustrate what an improved stop could look like (see Figure 1). An estimated materials cost is also included.

Radford Transit staff can utilize the prioritization tool to monitor and evaluate priority bus stop needs on an as-needed basis. Furthermore, the tool is intended to be updated for use in future studies and to develop system-wide recommendations. Stops ranking higher within the tool potentially yield a higher return on public and private investment.

System-wide recommendations were not developed as a component of this study; however, could include a combination of design and policy improvements. Design components might include providing a level pick-up/drop-off area and improving visibility for bus operators at each location. A policy recommendation might involve stopping if potential riders are flagging down a bus near a scheduled stop.

Suggested next steps for RT and local partners include working collaboratively to pursue funding from a variety of public and private sources. RT also has the opportunity to continue collecting regular input from its operators and stakeholders to keep the prioritization tool up to date. This study recommends an update of the tool at least every five years, or during the regular Transit Development Plan update.

EXECUTIVE SUMMARY (CONTINUED)

FIGURE 1: ACTION PLAN EXAMPLE
Copper Beach Time Check



After

SCORE

The following score represent a normalized sum of needed improvements for each site. The higher the score, the greater the need.

TRANSIT USE	100%
CONNECTIVITY/ ACCESSIBILITY	87%
AMENITIES	81%

Recommendations for this Stop

- Work with property owner for ADA improvements
- Consider crosswalk for improved connectivity
- Install amenities, such as ramps, shelter, and seating

\$11,150

**Estimated Cost :
 (Materials Only)**

TRANSIT SERVICE

Background

Radford Transit was established on August 8, 2011 through a joint partnership between Radford University, Radford City, the Virginia Department of Rail and Public Transportation, and the Federal Transit Administration. The service is professionally operated by NRVCS Transit Services, an agency which also operates Community Transit, a needs-based transportation service in the New River Valley.

Bus Service

Radford Transit serves the City of Radford, Radford University, and Fairlawn as well as several other locations in the New River Valley. A map of the system's routes is shown in Figure 1. The route schedules align with RU's academic calendar, providing "regular" service when school is in session and "city-only" service

in the summer and during school breaks. The current routes are geared to serve RU students, faculty and staff as well as city residents for a variety of needs. The seven routes with 126 stops are specifically designed to serve Radford University (RU)'s campus that city-wide destinations, commercial and shopping services, and a connector to key destinations in Christiansburg and Blacksburg:

- 10/University Express: serves the RU campus including its parking lots and Dedmon Center which is located on the opposite side of Main Street from the main campus. This service operates during the "regular" service only. Frequency varies depending on the time of day, but during school hours, it operates on a 10-minute frequency.

FIGURE 2: RT TRANSIT SYSTEM MAP-RADFORD

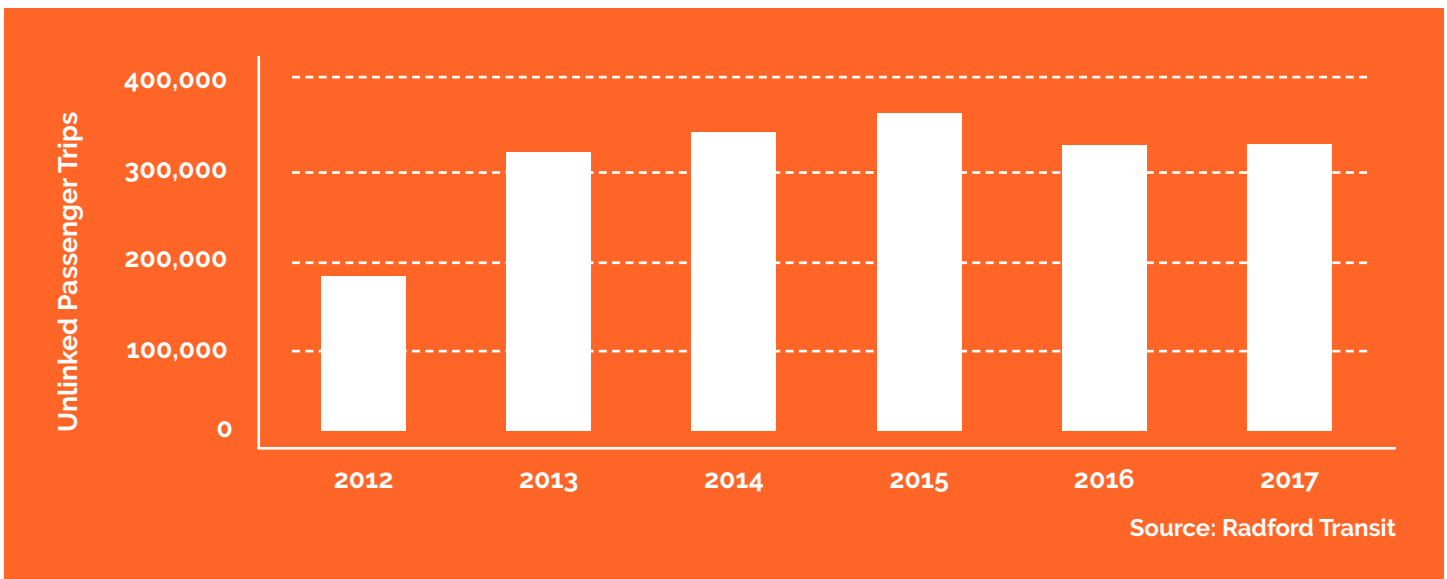


TRANSIT SERVICE (CONTINUED)

- 15/University Highlander: provides service to Radford University's campus, Dedmon Center, Greenhill, Highland Village, and The Hub. This route operates on Saturdays only during Regular Service and Monday through Saturday during City Only Service. It operates year-round at a 30-minute frequency and is a blend of the 10 and 50 routes which do not operate during "city-only" service.
- 20/New River Rapid: connects Radford and the RU campus to the commercial areas in Fairlawn. It operates year-round with an hourly frequency.
- 30-31/Cross City: serves the Radford Recreation Center and main corridors through the city. It operates year-round with an hourly frequency.
- 40/NRV Connect: provides service to stops in Christiansburg and Blacksburg (Christiansburg Aquatic Center, NRV Mall, Squires Student Center). This route operates during "regular" service at an hourly frequency.
- 50/Highlander Circulator: operates service from East Main Street and Burlington Lot to the Radford University campus and the Hub Transfer Center. Operating only during "regular" service, the route runs on a 10-minute frequency.
- 60/South Beech Express: serves the campus and Copper Beech student housing during "regular" service on weekdays. Frequency varies depending on the time of day, but during school hours, it operates at a 15-minute frequency.

Visit www.radfordtransit.com for more details.

FIGURE 3: RIDERSHIP OVER TIME



Ridership

In 2016, Radford Transit's ridership totaled 339,982 (see Figure 2). The most popular route is by far the 10/University Express which serves the RU campus and student housing. Other routes with higher ridership are also student-oriented: the 50/Highlander Circulator and 60/South Beech Express. Lot A and Greenhill

Apartments are the most active stops on these routes. Greenhill is the largest student apartment complex and Lot A is the main campus time check stop. The HUB also sees a great deal of both as the main transfer stop. Route 30/Cross-city is the most popular city route connecting riders to the 20 which serves the Fairlawn shopping centers.

STAKEHOLDER OUTREACH



Working Group

A Working Group was formed to assist with the study process. The Group's purpose was to select bus stop prioritization criteria, review bus stops within the transit system, and check the results of the final analysis. Members of this Working Group were selected from Radford Transit staff and drivers, and representatives from the City of Radford, Radford University, and the New River Valley Metropolitan Planning Organization.

The Working Group met four times in 2017 at the City of Radford Administration Building. At these meetings, the Group discussed and reviewed the progress of the study, and made suggestions based on insight and experience.

Outreach

As part of this study's outreach efforts, preliminary planing concepts were presented to the Radford University Student Government Association to garner feedback from the student body. Radford University student representatives suggested safety improvements should take into account visibility of users at stops, with proper lighting and emergency phones accessible, where possible.

The study was also presented to Radford City Council in December, 2017. The presentation focused on the purpose of the study, bus stop improvement priorities, and draft concepts at select stop locations.

FIGURE 4: WORK SESSIONS AND OTHER MEETINGS



STAKEHOLDER OUTREACH (CONTINUED)

Rider Survey

Radford Transit surveying took place Wednesday, November 15th from 10:00am to 12:00pm and on Friday, November 17th, from 12:00pm to 2:00 pm. This survey engaged 29 total responses with the overwhelming majority of respondents being Radford University students.

Overall, the majority of respondents feel safe at bus stops serviced by Radford Transit, with only four indicating that they sometimes feel safe. The majority of respondents also indicated that they do not have difficulty getting to or from a bus stop serviced by Radford Transit. Finally, the last question asked about proposed bus stop improvements. 86 percent of respondents stated that they would be encouraged to use transit more if improvements were completed. Few respondents indicated that improvements wouldn't make any difference.

Riders feel safe

Riders can access stops easily

Improvements would encourage more use



BUS STOP PRIORITIZATION AND DESIGN

Process

This study leveraged a prioritization exercise to select criteria and rank high priority bus stops. The process for this prioritization is as follows:



BUS STOP PRIORITIZATION AND DESIGN (CONTINUED)

FIGURE 5: PRIORITIZATION CRITERIA

- Transit Use
- Service Hours
- Bus Stop Distance
- Bus Stop Amenities
- Connectivity
- Accessibility
- Safety
- ADA Compliance
- Cost and Constructibility
- Community Support
- Land-use/ Design

FIGURE 6: PRIORITIZATION EXERCISE

Bus Stop Safety and Accessibility Study

Prioritization Exercise
 The New River Valley Metropolitan Planning Organization is conducting a study to identify safety and accessibility needs near Radford Transit (RT) bus stops. Please help us rank and weigh the categories we'll use to prioritize the bus stops.

- Pick the **TOP 5** categories that are most important to you. Assign these to the "Rank" column.
- Assign points to your **TOP 5** categories based on what you think is most important. Assign these points in the "Points" column. The points should total 100.

		Rank	Points	
Transit Use	Boarding and alightings, particularly bicycles and wheelchairs.	[]	[]	What is your role in the community? (Check all that apply) <input type="radio"/> Frequent Rider <input type="radio"/> Commuter <input type="radio"/> Monthly Pass User <input type="radio"/> Radford City Resident <input type="radio"/> Pulaski County Resident <input type="radio"/> Montgomery County Resident <input type="radio"/> C'burg/B'burg Resident <input type="radio"/> Radford University Student <input type="radio"/> Radford University Faculty/Staff <input type="radio"/> Virginia Tech Student <input type="radio"/> Virginia Tech Faculty/Staff <input type="radio"/> Operator <input type="radio"/> Other: _____
Service Hours	Midday and late evening service.	[]	[]	
Bus Stop Distance	Distance to the next closest bus stop.	[]	[]	
Bus Stop Amenities	Benches, shelters, bicycle parking trash receptacles, and lighting.	[]	[]	
Connectivity	Service for multiple bus routes.	[]	[]	
Accessibility	Near by sidewalks, crosswalks, bike facilities, multi-use paths, etc.	[]	[]	
Safety	Crash history (involving bicyclists, pedestrians, and vehicles).	[]	[]	
ADA Compliance	Barriers such as lack of curb ramps and steep slopes.	[]	[]	
Cost & Constructibility	Construction constraints (e.g. slopes, right-of-way, utilities, cost, etc.)	[]	[]	
Community Support	Locations recommended by the community to the City and drivers.	[]	[]	
Land Use/ Design	Local context and mix of residential and commercial land uses.	[]	[]	
Other	Please describe.	[]	[]	
Total		100		

Please use this space or the back of this sheet to provide additional comments.

This study of Radford Transit bus stops is funded through a partnership between the New River Valley Metropolitan Planning Organization and the New River Valley Regional Commission. For more information about this study, please contact the New River Valley Regional Commission at 540-639-9313.

Criteria Definition

Criteria

Additional Comments

Ranking and Point Assignment

User Information

BUS STOP PRIORITIZATION AND DESIGN (CONTINUED)

FIGURE 7: PRIORITIZATION CRITERIA WEIGHTING

Criteria	Weight	Description
Transit Use	10.00%	Boarding and alightings, particularly bicycles and wheelchairs
Service Hours	11.21%	Midday and late evening service.
Bus Stop Distance	5.17%	Distance to the next closest bus stop.
Bus Stop Amenities	9.83%	Benches, shelters, bicycle parking, trash receptacles, and lighting.
Connectivity	11.38%	Service for multiple bus routes.
Accessibility	13.62%	Near by sidewalks, crosswalks, bike facilities, multi-use paths, etc.
Safety	8.59%	Crash history (involving bicyclists, pedestrians, and vehicles).
ADA Compliance	7.41%	Barriers such as lack of curb ramps and steep slopes.
Cost and Constructability	3.34%	Construction constraints (e.g. slopes, right-of-way, utilities, cost, etc.)
Community Support	12.79%	Locations recommended by the community to the City and drivers.
Land use/Design	3.21%	Local context and mix of residential and commercial land uses.
Other	3.45%	Other recommendations.

Design Elements

Recommendations for the high priority stops focus on safety and accessibility improvements. These improvements are related to user comfort, safety, or access. Specifications of these recommended improvements are found in Appendix C.

Bus Stop Types

Based on reports by the American Public Transportation Association and the Transportation Research Board, bus stops can be designated into many types. These bus stop designations are based on both the stop service environment and ridership. Ensuring each bus stop includes the design elements for associated with its type will provide the user with a safe environment. See Appendix D for more information.

For this study, bus stops will be broken down into three types: basic, enhanced, and station/hub (see Table 1).

TABLE 1: BUS STOP TYPES AND ELEMENTS

Service Environment	Design Strategy
Basic	ADA-compliant ramp or access, sign, lighting, contact info, level pad, route and schedule
Enhanced	Same as basic, with bench, shelter, bike racks, and trash receptacle
Station/hub	Same as enhanced, with detailed system map, real-time information

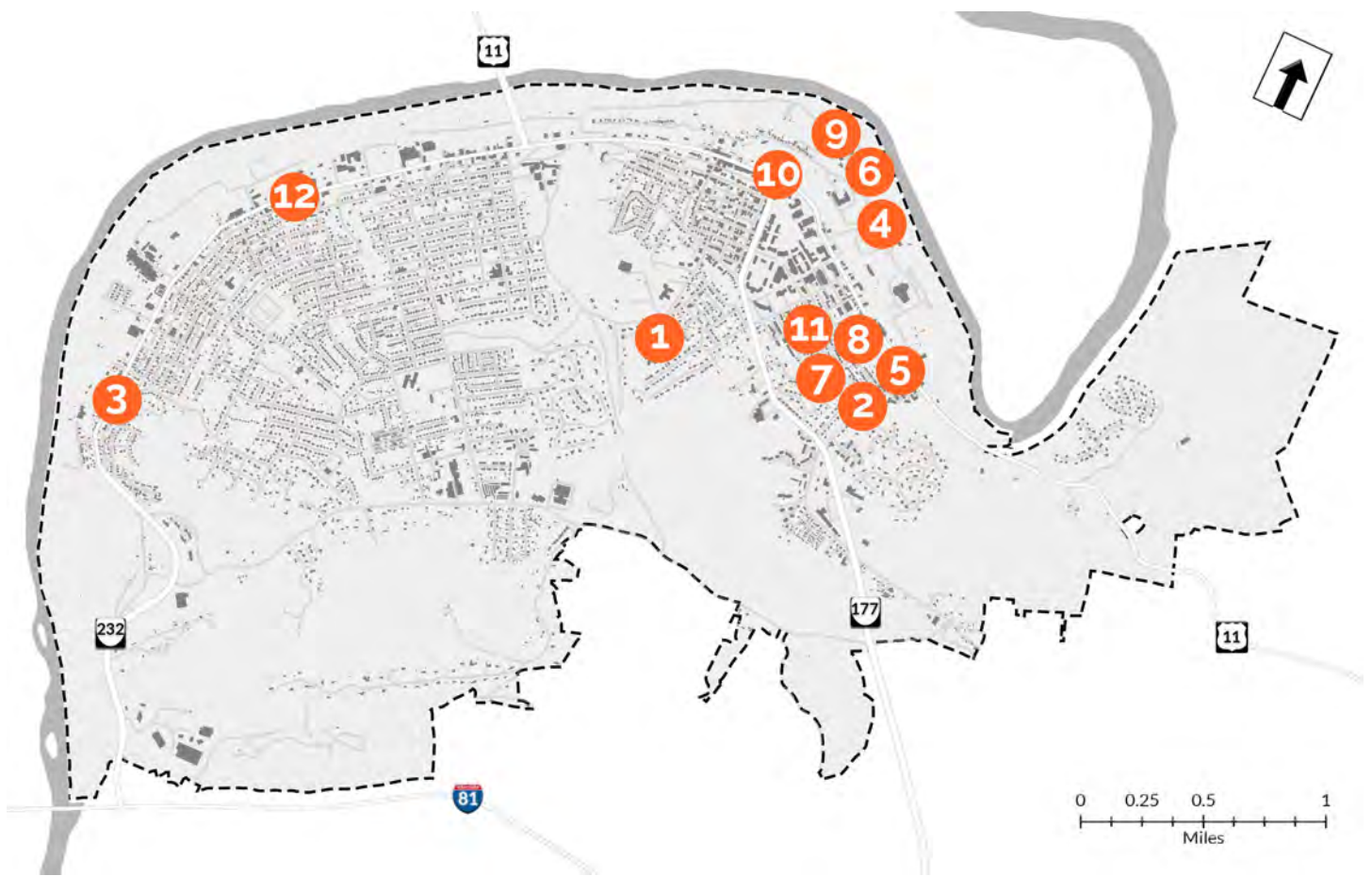
Source: APTA 2010; TCRP 2005

ACTION PLAN

High-Priority Stops and Action Plan

Figure 8 lists and illustrates the twelve high-priority stops selected through the prioritization exercise. Based on these stops, an action plan was developed based on a detailed inventory of each stop. This action plan includes a listing of the prioritization exercise score, a design concept, and suggested recommendations and improvements.

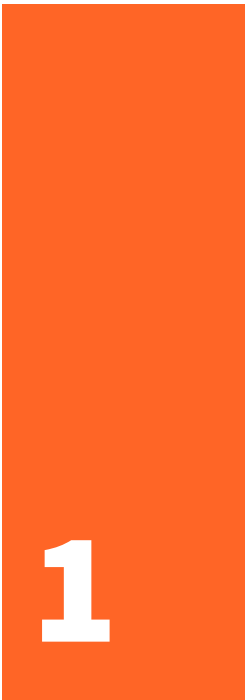
FIGURE 8: HIGH-PRIORITY STOP LOCATIONS



Source: NRVRC

- | | | |
|----------------------------------|---------------------------------|-------------------------------|
| 1 Copper Beach Time Check | 7 Burlington and Fairfax | 9 Greenhill Time Check |
| 2 Highland Village | 8 Burlington and Clement | 10 The Hub |
| 3 Deli Mart West | 5 Burlington Lot | 11 Davis and Wilson |
| 4 Lot FF | 6 Greenhill Clubhouse | 12 Main and Preston |

COPPER BEECH

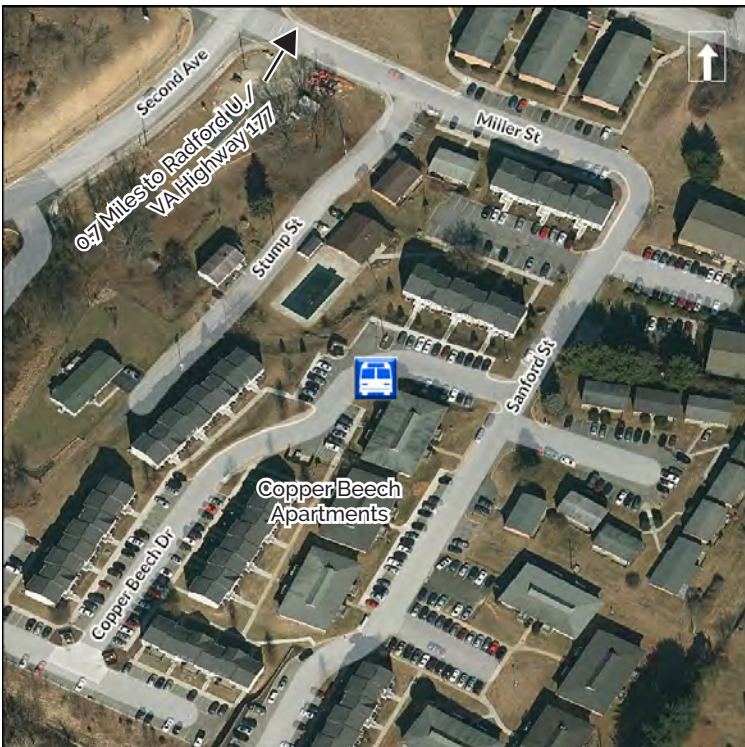


CONTEXT

Copper Beech Time Check (RT Stop #128) is a basic transit stop with high ridership. The stop rests on a slope within the apartment complex, and currently features a bus stop sign with an option for a map or schedule.

SCORE

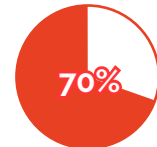
The following scores represent a normalized sum of needed improvements for each site. The higher the score, the greater the need. For more information, please see the Appendix.



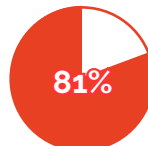
TRANSIT USE



SERVICE TYPE AND LOCATION



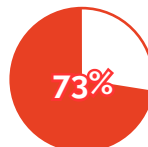
AMENITIES



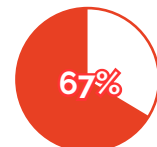
CONNECTIVITY/ ACCESSIBILITY



SAFETY/ADA COMPLIANCE



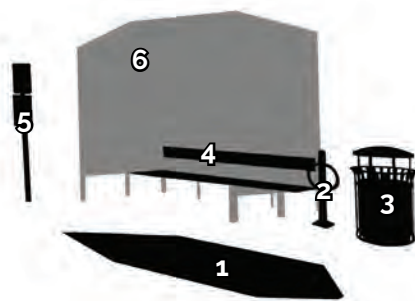
DETAILS/ CONSTRUCTABILITY



COPPER BEECH



AMENITIES



1. ADA COMPLIANT RAMP
2. BIKE RACK
3. TRASH RECEPTACLE
4. SEATING
5. MAP AND SCHEDULE
6. SHELTER WITH LIGHTING

RECOMMENDATIONS

A concrete pad, with an ADA accessible ramp, seating, and shelter with lighting is recommended for this stop. Based on ridership, a bike rack and trash receptacle is also recommended. This stop is also an example of a potential private-public partnership between the transit service and the property owner.

- Work with property owner for ADA improvements
- Consider crosswalk for improved connectivity
- Install amenities, such as ramps, shelter, and seating

Estimated Cost :
(Materials Only)

\$11,150

HIGHLAND VILLAGE

2

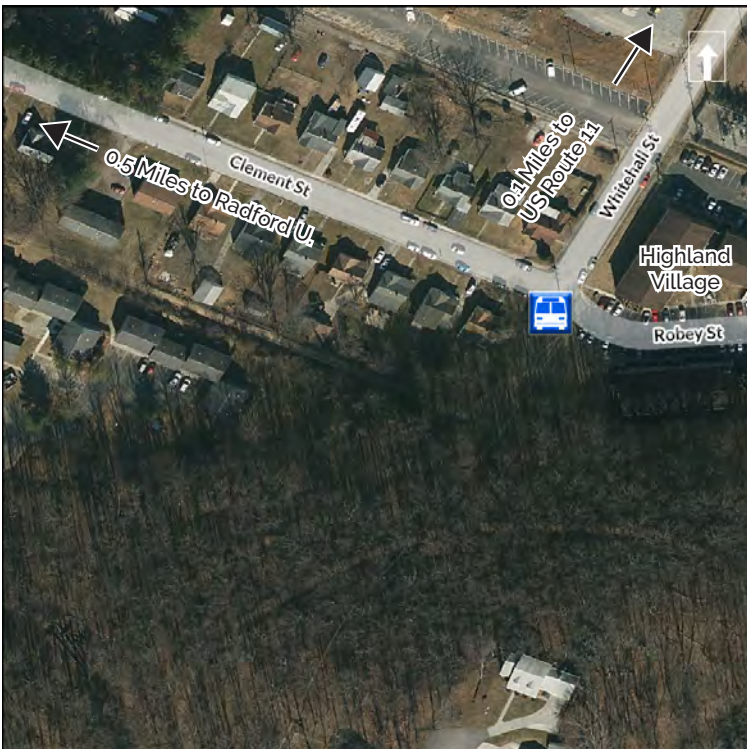


CONTEXT

This stop (RT Stop # 124) services the Highland Village Apartment complex and the surrounding area. The stop has poor visibility, is on a slope, and has few places for users to stand. A fire hydrant is located at the stop. A sign is posted, but visibly impeded by overgrown brush.

SCORE

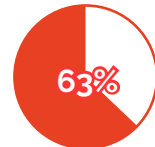
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TRANSIT USE



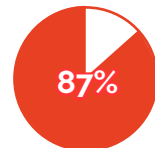
SERVICE TYPE AND LOCATION



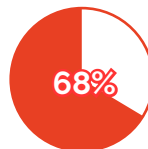
AMENITIES



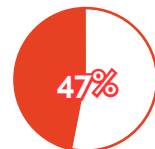
CONNECTIVITY/ ACCESSIBILITY



SAFETY/ADA COMPLIANCE



DETAILS/ CONSTRUCTABILITY

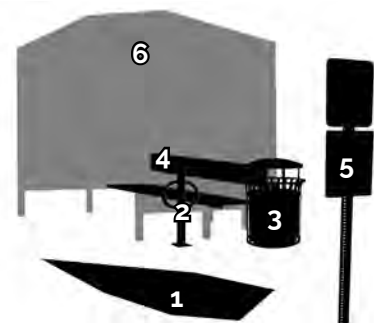


HIGHLAND VILLAGE



CONCEPT

AMENITIES



1. ADA COMPLIANT RAMP
2. BIKE RACKS
3. TRASH RECEPTACLE
4. SEATING
5. MAP AND SCHEDULE
6. SHELTER WITH LIGHTING

RECOMMENDATIONS

A level pad, ADA compliant ramp, shelter with lighting, and seating is recommended. Due to ridership, a bike rack and trash receptacle are also recommended. Grading may be necessary. To ensure visibility, parking restrictions will need to be enforced in front of the stop.

- Enforced parking restrictions in front of stop
- Create connection to Highland Village Apartments
- Install amenities, such as ramps, shelter, and seating

Estimated Cost:
(Materials Only)

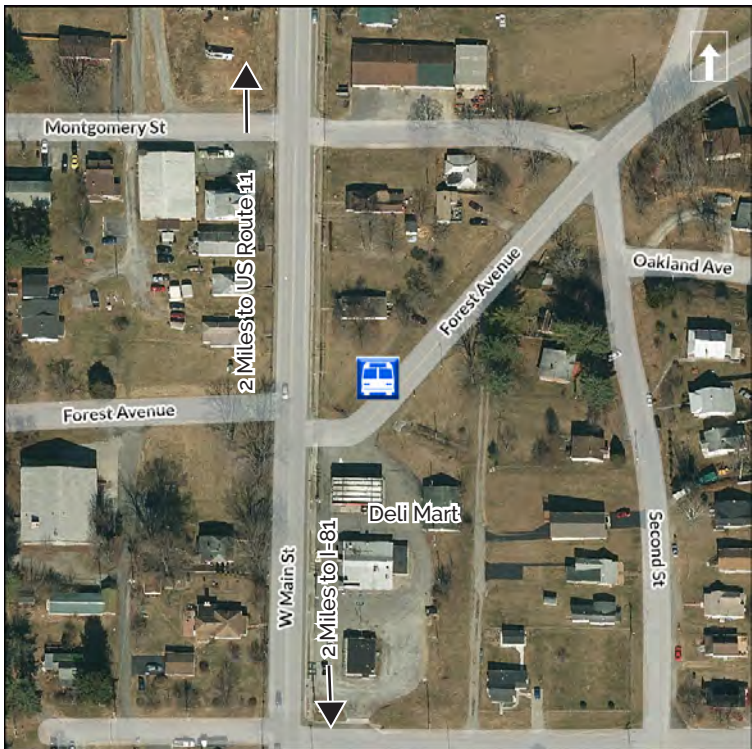
\$12,550

DELI MART WEST



CONTEXT

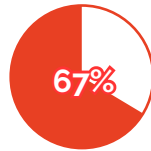
Deli Mart West (RT Stop #38) is a basic stop, and includes a sign, a map, and a schedule. Lighting is provided from across the street. Users stand on the side of the road in grass, with a concrete pad nearby. Overall slope is cambered away from the road.



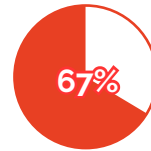
SCORE

The following scores represent a normalized sum of needed improvements for each site. The higher the score, the greater the need. For more information, please see the Appendix.

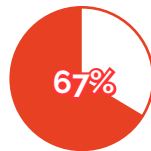
TRANSIT USE



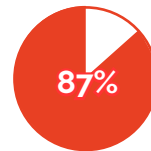
SERVICE TYPE AND LOCATION



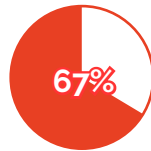
AMENITIES



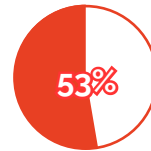
CONNECTIVITY/ ACCESSIBILITY



SAFETY/ADA COMPLIANCE



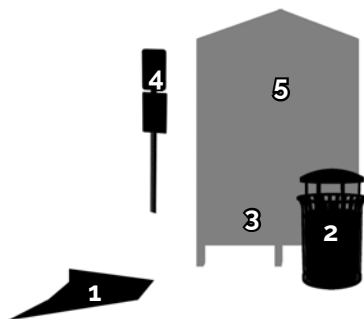
DETAILS/ CONSTRUCTABILITY



DELI MART WEST



AMENITIES



1. ADA COMPLIANT RAMP
2. TRASH RECEPTACLE
3. SEATING
4. MAP AND SCHEDULE
5. SHELTER WITH LIGHTING

RECOMMENDATIONS

This stop would benefit from a level pad, ADA compliant ramp, a shelter with lighting, and a bench. Additionally, a trash receptacle would also be beneficial.

- Consider crosswalk for improved connectivity
- Install amenities, such as ramps, shelter, and seating

Estimated Cost:
(Materials Only)

\$10,000

LOT FF

4

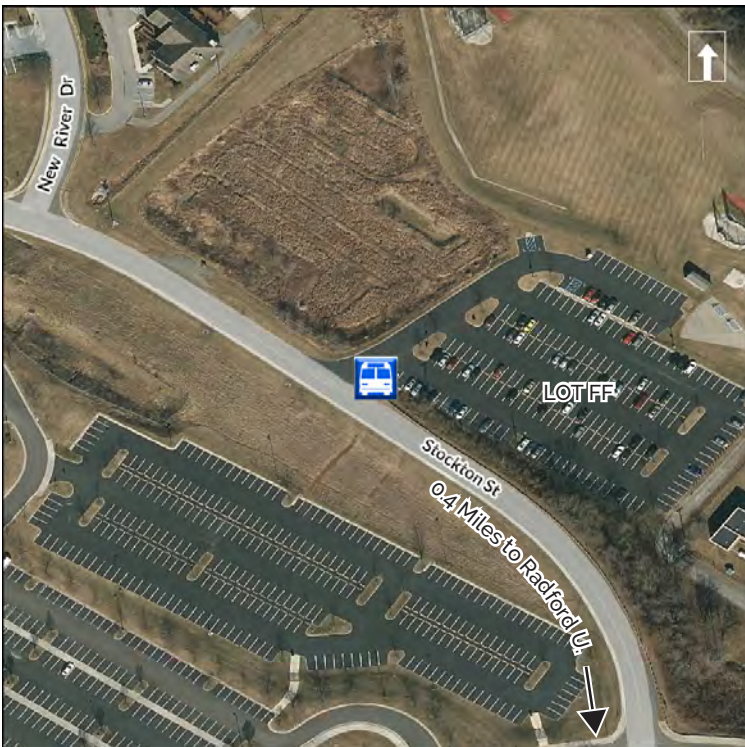


CONTEXT

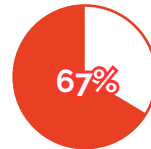
This stop (RT Stop #18) currently features few amenities, but does have a sign and an emergency phone nearby. It is located on a curb, with a sharp slope into a parking lot and brush, leaving few places to stand. A fire hydrant is located at the stop. Lighting is provided by powerline across the street.

SCORE

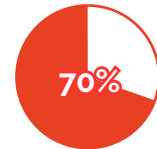
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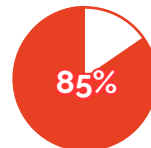
TRANSIT USE



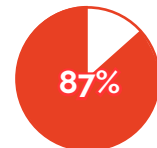
SERVICE TYPE AND LOCATION



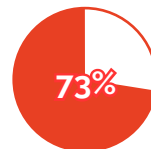
AMENITIES



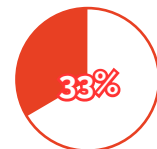
CONNECTIVITY/ ACCESSIBILITY



SAFETY/ADA COMPLIANCE



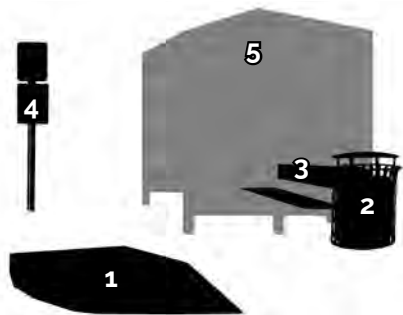
DETAILS/ CONSTRUCTABILITY



LOT FF



AMENITIES



1. ADA COMPLIANT RAMP
2. TRASH RECEPTACLE
3. SEATING
4. MAP AND SCHEDULE
5. SHELTER WITH LIGHTING

RECOMMENDATIONS

Due to pedestrian conflicts with vehicles, steep inclines, and construction limitations, the current bus stop is recommended to be moved north of the entrance into Lot FF. This will also allow for a future crosswalk to the constructed sidewalk on the other side of Stockton Street.

- Install shelter, with seating and lighting
- Construct ADA accessible ramp
- Install map and schedule, and trash receptacle

Estimated Cost:
(Materials Only)

\$7,500

BURLINGTON LOT

5



CURRENT

CONTEXT

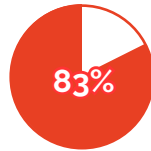
This stop (RT Stop #107) has many amenities, including a large shelter, vending machines, lighting, trash receptacles, and benches. The area is level, and access to the stop is largely unhindered, Line-of-sight is good facing east, but is blocked by the shelter wall to the west.

SCORE

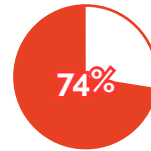
The following scores represent a normalized sum of needed improvements for each site. The higher the score, the greater the need. For more information, please see the Appendix.



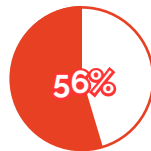
TRANSIT USE



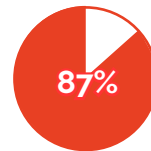
SERVICE TYPE AND LOCATION



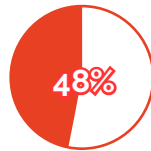
AMENITIES



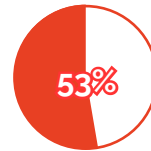
CONNECTIVITY/ ACCESSIBILITY



SAFETY/ADA COMPLIANCE



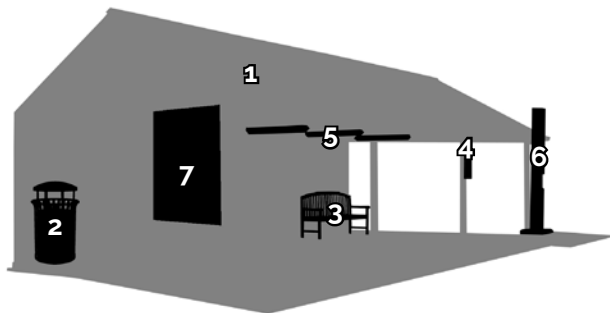
DETAILS/ CONSTRUCTABILITY



BURLINGTON LOT



AMENITIES



1. LARGE SHELTER
2. TRASH RECEPTACLE
3. SEATING
4. MAP WITH SCHEDULE
5. LIGHTING
6. EMERGENCY PHONE
7. WINDOW

RECOMMENDATIONS

This stop features amenities already needed for a stop with high ridership. Due to the level access to the stop, no ADA ramp is required. A window on the shelter is recommended on its western wall for visibility. A larger map and schedule is recommended, along with adjusting the sign 90 degrees to face drivers.

- Create window in shelter for increased visibility
- Add map and schedule
- Adjust sign to face oncoming driver

Estimated Cost:
Materials Only

\$3,700

GREENHILL CLUBHOUSE

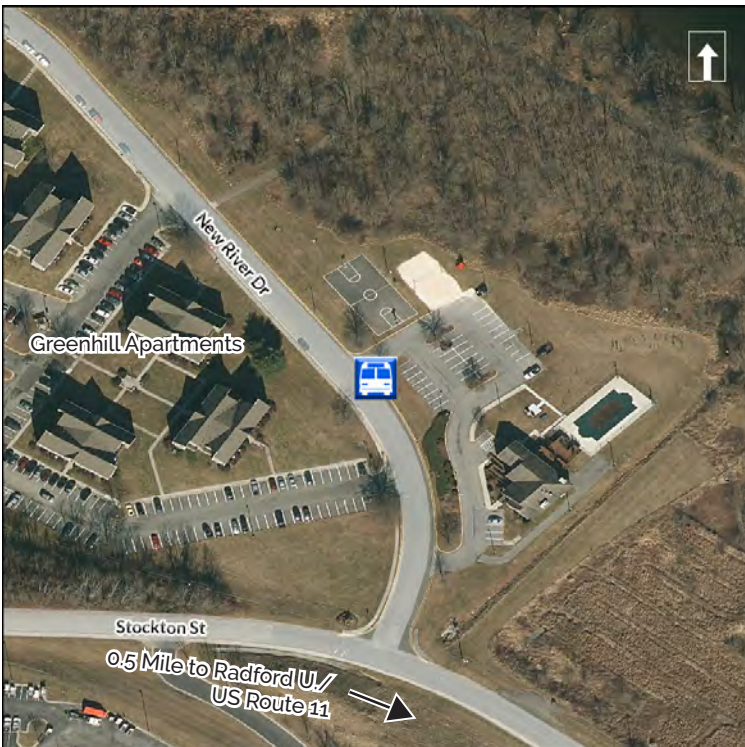


CONTEXT

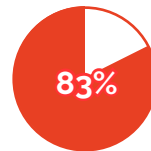
The Greenhill Clubhouse stop (RT Stop #19) is a basic stop, and is across New River Drive from the Greenhill Apartment complex. The stop is a drop-off location, and has level grass as its waiting area. Lighting is provided by the power line.

SCORE

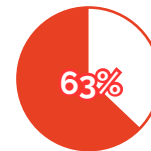
The following scores represent a normalized sum of needed improvements for each site. The higher the score, the greater the need. For more information, please see the Appendix.



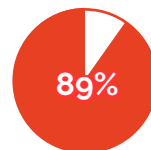
TRANSIT USE



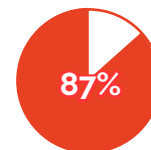
SERVICE TYPE AND LOCATION



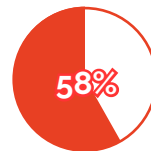
AMENITIES



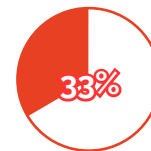
CONNECTIVITY/ ACCESSIBILITY



SAFETY/ADA COMPLIANCE



DETAILS/ CONSTRUCTABILITY

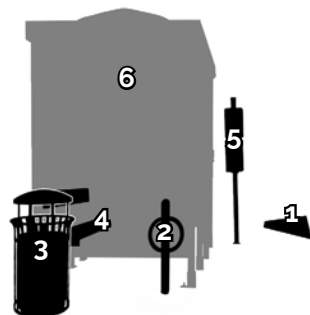


GREENHILL CLUBHOUSE



CONCEPT

AMENITIES



1. ADA COMPLIANT RAMP
2. BIKE RACKS
3. TRASH RECEPTACLE
4. SEATING
5. MAP WITH SCHEDULE
6. SHELTER WITH LIGHTING

RECOMMENDATIONS

A shelter for this stop should be build across from this stop, with a crosswalk connecting both stops. This new shelter should be accompanied by a level pad, seating, a map with schedule, and lighting. Also included should be a trash receptacle and bike rack.

- Connect stop to shelter across street with crosswalk
- Install amenities, such as ramp, shelter, and seating
- Possible consolidation of RT Stop #02

Estimated Cost:
(Materials Only)

\$10,000

BURLINGTON AND FAIRFAX

7

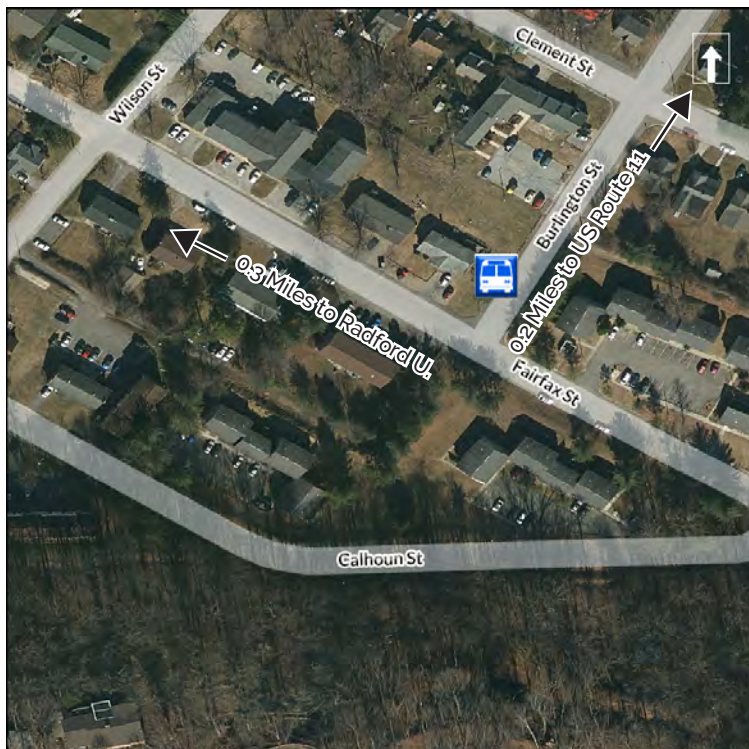


CONTEXT

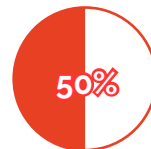
This stop (RT Stop #109) is located southeast of Radford University. It is a basic stop, with users standing on a grass slope away from the road. Users use the road to access the stop, and there is little to no lighting.

SCORE

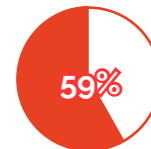
The following scores represent a normalized sum of needed improvements for each site. The higher the score, the greater the need. For more information, please see the Appendix.



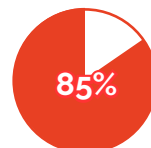
TRANSIT USE



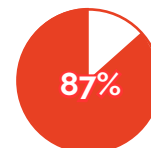
SERVICE TYPE AND LOCATION



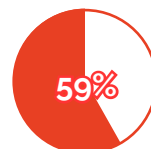
AMENITIES



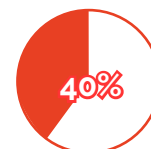
CONNECTIVITY/ ACCESSIBILITY



SAFETY/ADA COMPLIANCE



DETAILS/ CONSTRUCTABILITY

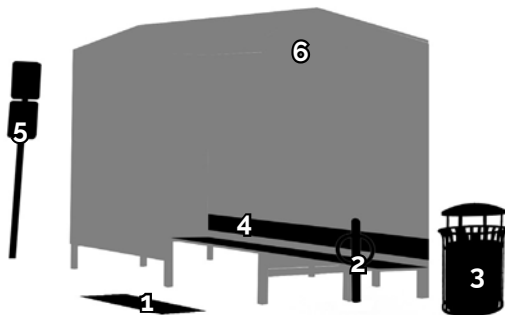


BURLINGTON AND FAIRFAX



CONCEPT

AMENITIES



1. DETECTABLE WARNING DEVICE
2. BIKE RACK
3. TRASH RECEPTACLE
4. SEATING
5. MAP WITH SCHEDULE
6. SHELTER WITH LIGHTING

RECOMMENDATIONS

Basic amenities for this stop would be a level pad, seating, a map with schedule, and a shelter with lighting. Because the stop is level, a detectable warning device is recommended. Due to the type of user and ridership, a bike rack and trash receptacle are recommended.

- Create level pad for stop
- Connect to alternative transportation network
- Install amenities, such as shelter and seating

Estimated Cost:
(Materials Only)

\$12,600

BURLINGTON AND CLEMENT

8

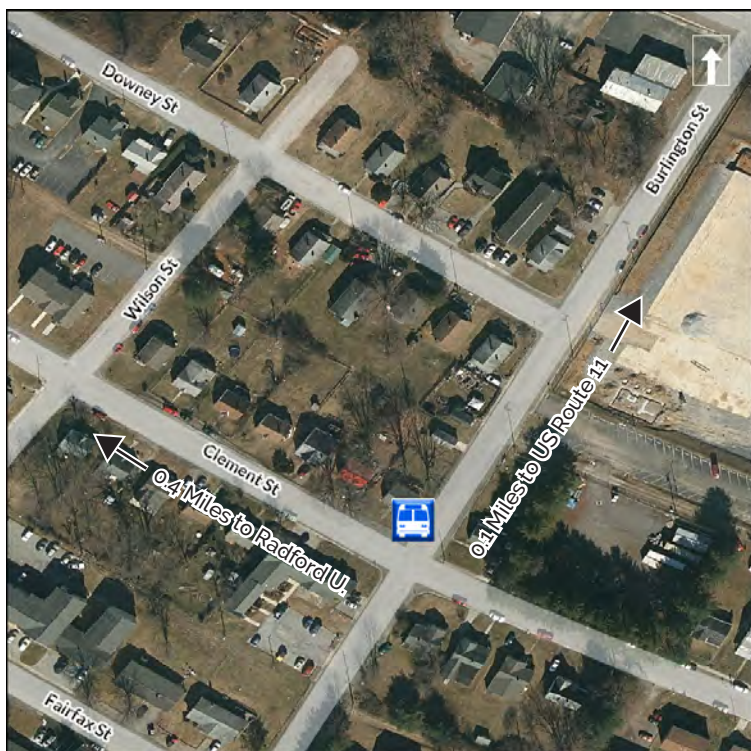


CONTEXT

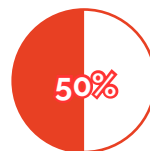
This stop (RT Stop #108) is southeast of Radford University. It is a basic stop, with users standing on grass or on road. Users use the road to access the stop, and light is provided by a streetlight from a powerline across the street.

SCORE

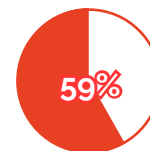
The following scores represent a normalized sum of needed improvements for each site. The higher the score, the greater the need. For more information, please see Appendix.



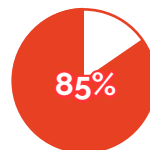
TRANSIT USE



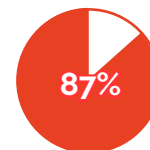
SERVICE TYPE AND LOCATION



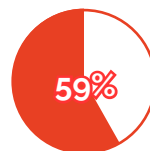
AMENITIES



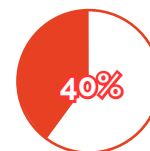
CONNECTIVITY/ ACCESSIBILITY



SAFETY/ADA COMPLIANCE



DETAILS/ CONSTRUCTABILITY

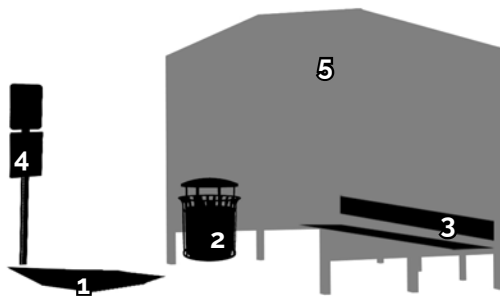


BURLINGTON AND CLEMENT



CONCEPT

AMENITIES



1. ADA COMPLIANT RAMP
2. TRASH RECEPTACLE
3. SEATING
4. MAP AND SCHEDULE
5. SHELTER WITH LIGHTING

RECOMMENDATIONS

Due to its proximity to surrounding property, it is recommended to relocate this stop on the southwest side of Clement Street. Basic amenities for this stop would be a level pad, seating, a map with schedule, and a shelter with lighting. A trash receptacle is also recommended

- Relocate stop southwest of Clement Street
- Connect to alternative transportation network
- Install amenities, such as ramp, shelter, and seating

Estimated Cost:
(Materials Only) **\$10,000**

GREENHILL TIME CHECK

9

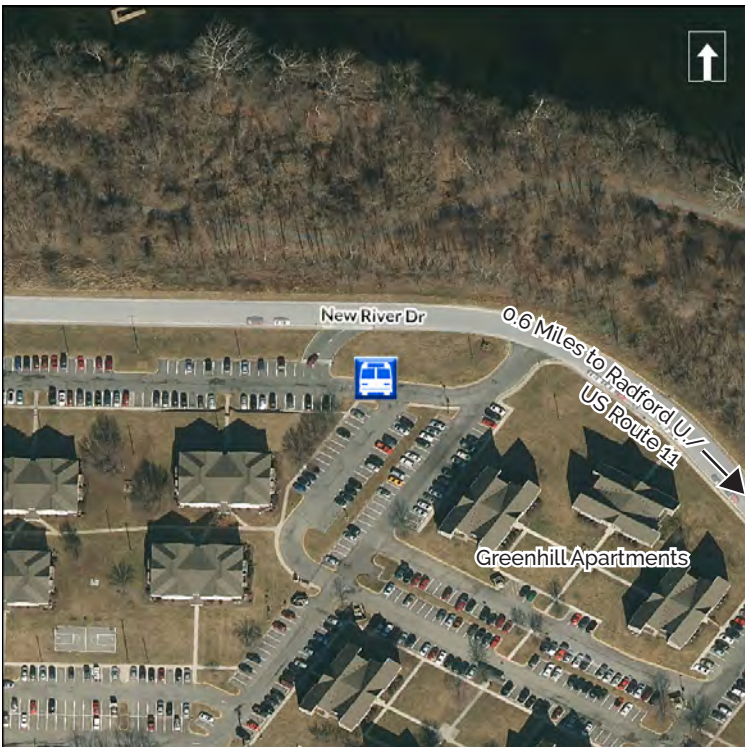


CONTEXT

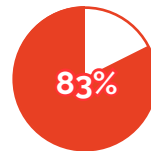
This stop (RT Stop #1) is located in the parking lot of Greenhill Apartment complex, north of Radford University. It has many amenities, such as a shelter, lighting, a trash receptacle, seating, a sign, and a vending machine. The stop is maintained by the owner.

SCORE

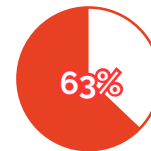
The following scores represent a normalized sum of needed improvements for each site. The higher the score, the greater the need. For more information, please see Appendix.



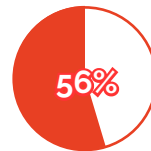
TRANSIT USE



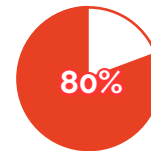
SERVICE TYPE AND LOCATION



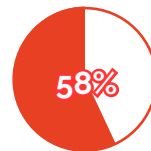
AMENITIES



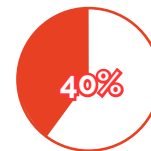
CONNECTIVITY/ ACCESSIBILITY



SAFETY/ADA COMPLIANCE



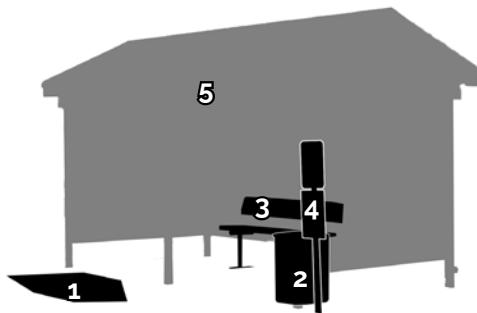
DETAILS/ CONSTRUCTABILITY



GREENHILL TIME CHECK



AMENITIES



1. ADA COMPLIANT RAMP
2. TRASH RECEPTACLE
3. SEATING
4. MAP WITH SCHEDULE
5. SHELTER LIGHTING

RECOMMENDATIONS

Most amenities for this stop have been provided for by the property owner. It is recommended Radford Transit work with the property owner to install an ADA compliant ramp, and adjust the stop sign to face oncoming traffic. A crosswalk connecting the stop to the apartment complex is also recommended.

- Work with property owner for ADA improvements
- Consider crosswalk for improved connectivity
- Install ramp and adjust sign

Estimated Cost:
Materials Only

\$2,000

THE HUB

10

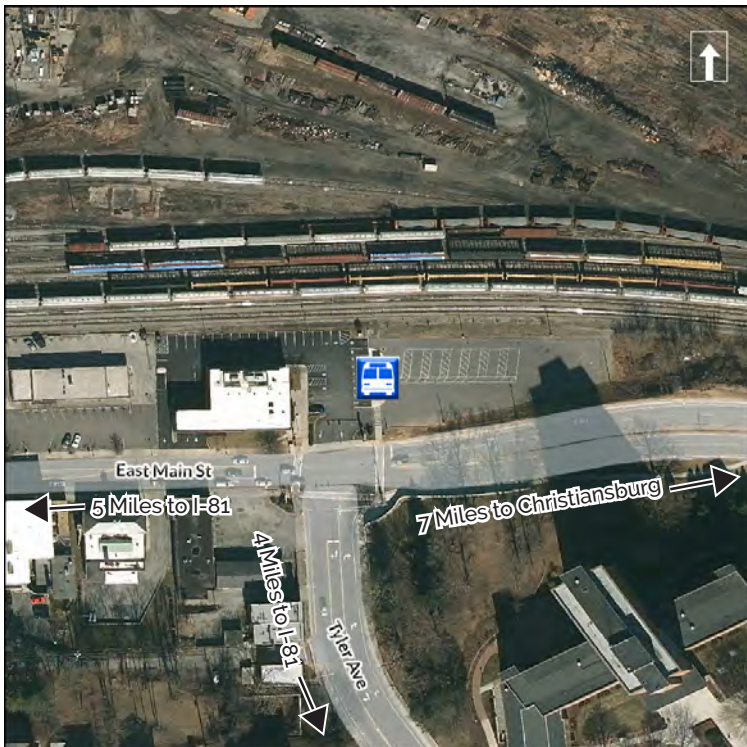


CONTEXT

The Hub (RT Stop #11) is located off of East Main Street and Tyler Avenue, near Radford University. This stop is a staging point for all other routes on the Radford Transit system. The stop features a large shelter, benches, elevated landing, trash receptacle, some external lighting, and an emergency phone.

SCORE

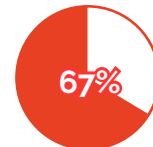
The following scores represent a normalized sum of needed improvements for each site. The higher the score, the greater the need. For more information, please see the Appendix.



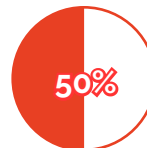
TRANSIT USE



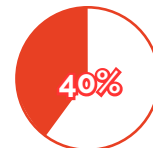
SERVICE TYPE AND LOCATION



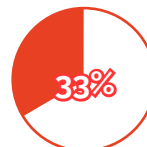
AMENITIES



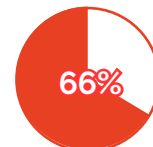
CONNECTIVITY/ ACCESSIBILITY



SAFETY/ADA COMPLIANCE



DETAILS/ CONSTRUCTABILITY

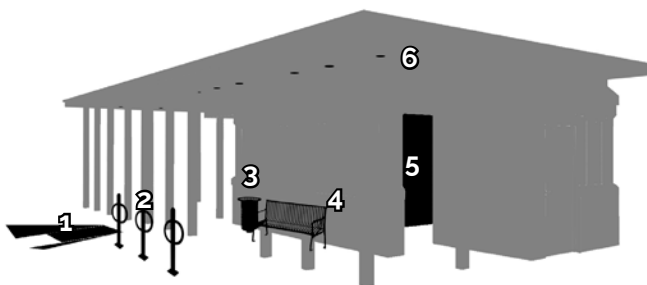


THE HUB



CONCEPT

AMENITIES



1. ADA COMPLIANT RAMP
2. BIKE RACKS
3. TRASH RECEPTACLE
4. SEATING
5. ADA ACCESSIBLE RESTROOM
6. SHELTER LIGHTING

RECOMMENDATIONS

Because of the enhanced nature of The Hub, more substantial improvements are recommended. These improvements set this stop apart as an example of safety and accessibility within the transit system, and elevates the presence of transit within the community.

- Expand covered shelter, with live route updating
- Install ADA accessible restroom facility
- Integrate energy-efficient lighting and recycling

Estimated Cost:
(Materials Only) **\$200,000**

DAVIS AND WILSON

11

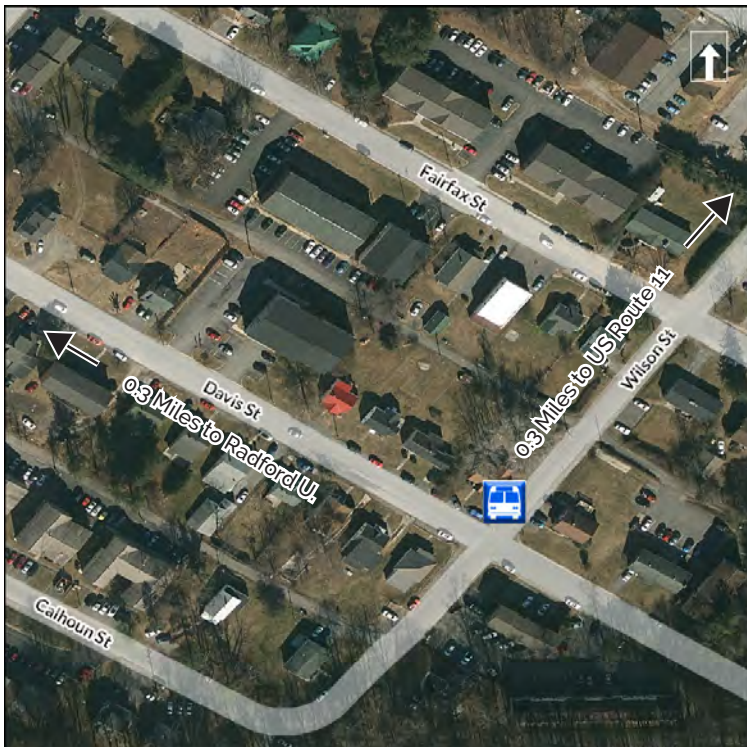


CONTEXT

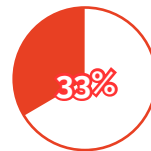
This basic stop is located southeast of Radford University. Users wait on a flat, grass easement, with visibility sometimes hampered by parked cars. Lighting is provided by the powerline pole the sign is attached to.

SCORE

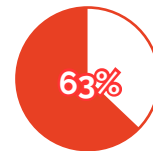
The following scores represent a normalized sum of needed improvements for each site. The higher the score, the greater the need. For more information, please see Appendix.



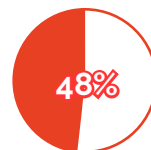
TRANSIT USE



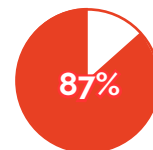
SERVICE TYPE AND LOCATION



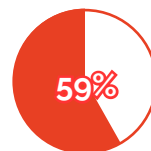
AMENITIES



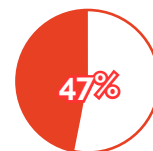
CONNECTIVITY/ ACCESSIBILITY



SAFETY/ADA COMPLIANCE



DETAILS/ CONSTRUCTABILITY

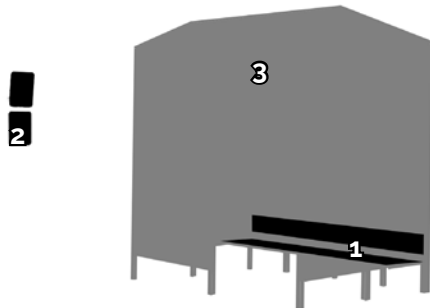


DAVIS AND WILSON



CONCEPT

AMENITIES



1. SEATING
2. MAP AND SCHEDULE
3. SHELTER WITH LIGHTING

RECOMMENDATIONS

This stop would benefit from basic amenities, such as a level pad, map and schedule, seating, and shelter with lighting. It is also encouraged to connect this stop to an alternative transportation network.

- Install amenities, such as shelter and seating
- Connect stop to alternative transportation network

Estimated Cost:

Materials Only

\$6,550

MAIN AND PRESTON

12

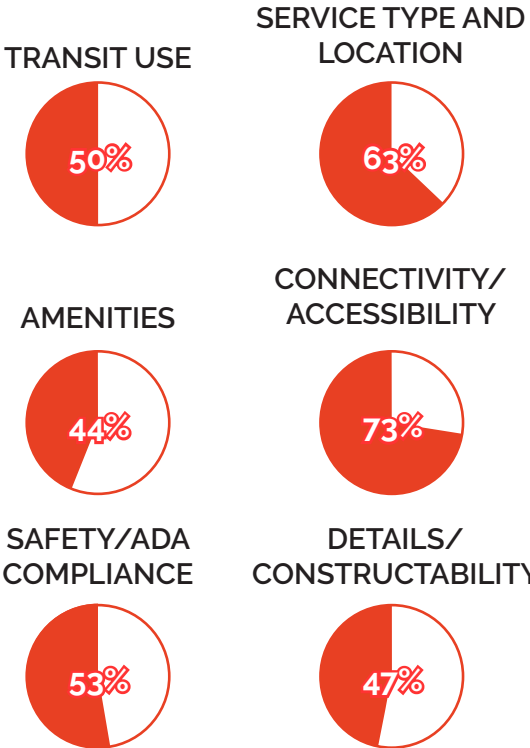
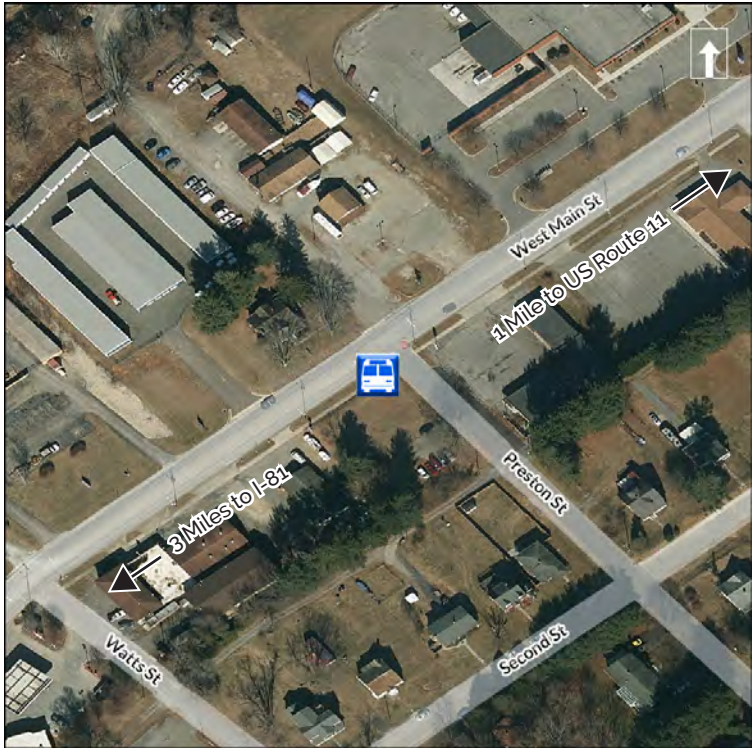


CONTEXT

This stop (RT Stop #42) is located on West Main Street, near Radford Welfare and Social Services. It is a basic stop, and connects to the local sidewalk network. The stop also is next to a grass slope where users wait.

SCORE

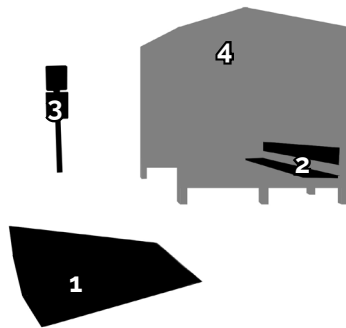
The following scores represent a normalized sum of needed improvements for each site. The higher the score, the greater the need. For more information, please see the Appendix.



MAIN AND PRESTON



AMENITIES



1. ADA COMPLIANT RAMP
2. SEATING
3. MAP AND SCHEDULE
4. SHELTER WITH LIGHTING

RECOMMENDATIONS

An ADA compliant ramp, map and schedule, seating, and shelter with lighting is recommended for this stop. Because of limited space between the road right-of-way and private property, it is recommended a sidewalk be rerouted behind the shelter. A retaining wall may be needed to retain grass slope.

- Install amenities, such as ramp, shelter, and seating
- Reroute sidewalk behind shelter
- Consider retaining wall next to rerouted sidewalk

Estimated Cost:
(Materials Only)

\$11,300

FUNDING SOURCES AND NEXT STEPS

The ultimate outcome of the Bus Stop Safety and Accessibility Study is to move its recommended improvements from planning to design, and construction. To this end, Radford Transit must identify funding sources and establish a timeline for implementation. Funding for bus stop improvements, pedestrian facilities, and bikeways range from local partnerships to federal grants. Existing and potential funding sources are described in detail below.

Federal and State

Transportation Alternatives Set-Aside Program

Working with RT, a working committee was formed to assist with the study process. The purpose of this committee was to bring stakeholders together to discuss and review the progress of the study. Examples of the work the committee includes selecting bus stop prioritization criteria, reviewing bus stops within the transit system, and checking the results of the final analysis. Members of this committee were selected from Radford Transit staff and drivers, and representatives from the City of Radford, Radford University, and the New River Valley Metropolitan Planning Organization.

FTA Urbanized Area Formula Grants (Section 5307)

The Urbanized Area Formula Grants program provides funds to transit agencies for transit capital projects that include improving bicycle routes to transit, bike racks, and bus shelters. MAP-21 dictates that at least 1 percent of allocated Section 5307 funds must be used for Associated Transit Improvements, which include bus shelters, pedestrian facilities, and enhanced access for mobility-impaired transit riders.

DRPT State Aid Grant Programs- Capital Assistance Program

The Virginia Department of Rail and Public Transportation administers the FTA Section 5307 program described above, and also offers a variety of state grants for transit systems, including the Capital Assistance program. The goal of the Capital Assistance program is to support public transportation capital projects necessary to maintain, improve or expand public transportation services. Eligible capital expenses include, but are not limited to, items such as the purchase or lease of new vehicles and equipment, the rehabilitation of vehicles and equipment, the improvement or construction of transit maintenance and operations facilities, the purchase and installation of bus stop signs and shelters, the cost of debt service for major capital projects, real estate/right-of-way acquisition and safety and security equipment. Most projects eligible for capital assistance under FTA guidelines will be eligible for state aid capital assistance.

More information on FTA and DRPT grant programs at www.olga.drpt.virginia.gov.



FUNDING SOURCES AND NEXT STEPS (CONTINUED)



Local

Local Contributions

In FY2016 and FY2017, the City of Radford contributed \$129,358 to support Radford Transit. The proposed funding for FY2018 is \$156,558.

In FY 2017, Radford University contributed \$613,737 to support Radford Transit, an increase from the FY2016 contribution of \$505,943. The proposed funding for FY2017 is \$601,040. These contributions cover operating costs of providing free service to Radford University students, but also include nearly \$70,000 for capital projects.

Radford Transit also receives operations and capital funding from the FTA Section 5307 and DRPT programs described above, totaling over \$1 million in 2016.

Capital Improvement Program

The City of Radford's FY2017 budget for the transit fund included an estimated \$120,965 for bus shelters. Other future capital improvement projects that could support pedestrian safety include:

- Sidewalk- East Main Street- \$54,000
- Sidewalk- Tyler Avenue- \$72,000
- Street/Bikeway connection (westward expansion) - \$4.9 million
- Park Road improvement- \$500,000

Public-Private Partnerships

Many of Radford Transit's bus stops are located near or on private property. Radford Transit can establish partnerships with property owners to implement improvements that would both benefit the property owner and improve safety and accessibility at the bus stop. Additional information may be found in the Blacksburg Transit Route Analysis Partnership Plan dated September 2014. The document includes several examples of partnership models, including university-supported systems.

Next Steps

The Radford Transit Bus Stop Safety and Accessibility Study has initiated a working group consisting of key local partners and developed a prioritization tool tailored specifically for the RT service area. RT and local partners are encouraged to work collaboratively to pursue funding from a variety of public and private sources.

RT has the opportunity to continue collecting regular input from its operators and stakeholders. This study recommends an update of the tool at least every five years, or during the regular Transit Development Plan update.

