

# Roanoke Valley Transportation PLANNING ORGANIZATION

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## Roanoke Valley TRANSIT VISION PLAN

*Approved September 22, 2016*

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### PART 1: Introduction

## Acknowledgements

### RVTPO POLICY BOARD

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|-------------------------------|---|
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| Janet Scheid                  | Vinton Town Council                                       |
| Jitender Ramchandani          | Virginia Department of Rail and Public<br>Transportation  |
| Bill Thomasson                | Bedford County Board of Supervisors                       |

### Non-Voting Members:

|                   |   |
|-------------------|---|
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| Ryan Long         | Federal Transit Administration                  |
| J. Lee E. Osborne | Roanoke Valley-Alleghany Regional<br>Commission |

### TRANSPORTATION TECHNICAL COMMITTEE

|  |  |
|--|--|
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| <i>Benjamin W. Tripp,<br/>Vice Chair</i> | <i>City of Salem</i>                                     |
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| Liz Belcher                              | Roanoke Valley Greenway Commission                       |
| Nick Britton, AICP                       | Virginia Department of Rail and Public<br>Transportation |
| Dan Brugh                                | New River Valley Metropolitan Planning<br>Organization   |
| Chris Chittum, AICP                      | City of Roanoke  |
| Michael Gray                             | Virginia Department of Transportation                    |
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| David Holladay                           | Roanoke County   |
| Mark Jamison, PE                         | City of Roanoke  |
| Diana Lewis, AAE                         | Roanoke-Blacksburg Regional Airport                      |
| Melinda Payne                            | City of Salem  |
| Kevin Price                              | Greater Roanoke Transit Company                          |
| Karla Turman                             | Town of Vinton   |
| Tori Williams                            | Roanoke County   |
| Greg Zody, AICP                          | Bedford County   |

**STEERING COMMITTEE**

|                       |   |
|-----------------------|---|
| Jim Adkins            | Unified Human Services Transportation Systems, Inc.   |
| Curtis Andrews        | Unified Human Services Transportation Systems, Inc.   |
| Josh Baumgartner      | Roanoke Chamber                                       |
| Nick Britton          | Virginia Department of Rail and Public Transportation |
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| Megan Cronise         | Roanoke County  |
| Elaine Engleman       | Local Office on Aging                                 |
| Kim English           | Freedom First Credit Union                            |
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| Stephanie Harper      | Virginia Department of Health                         |
| Jeremy Holmes         | Ride Solutions  |
| Chris Lawrence        | Town of Vinton  |
| Eileen Lepro          | New Horizons Healthcare                               |
| Jay Lindsey           | Virginia Department of Rail and Public Transportation |
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| Carl Palmer           | Greater Roanoke Transit Company                       |
| Angela Penn           | TAP   |
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| Bill Poe              | Downtown Roanoke Inc.                                 |
| Kevin Price           | Greater Roanoke Transit Company                       |
| Suzanne Renegar       | Virginia Department of Health                         |
| Naomi Siodmok         | Roanoke County  |

|                 |                                      |
|-----------------|--------------------------------------|
| Sherman Stovall | City of Roanoke                      |
| Doloris Vest    | Botetourt County Chamber of Commerce |
| Tori Williams   | Roanoke County                       |
| Tina Workman    | Downtown Roanoke Inc.                |
| Greg Zody       | Bedford County                       |

**REGIONAL COMMISSION**

|                                  |   |
|----------------------------------|---|
| Cristina D. Finch, AICP, LEED AP | Director of Transit, Pedestrian, and Bicycle Planning<br>Roanoke Valley Transit Vision Plan Project Manager |
| Bryan W. Hill, AICP              | Regional Planner III  |
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**FOURSQUARE INTEGRATED TRANSPORTATION PLANNING**

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| David L. Miller, PTP    | Vice President / Project Manager |
| Jessica S. Alvarez, PTP | Senior Transportation Planner    |
| Katie List              | Transportation Planner           |
| Alexandra Cohen         | Transportation Analyst           |

**MICHAEL BAKER INTERNATIONAL**

|               |         |
|---------------|---------|
| Chris W. Chop | Planner |
|---------------|---------|

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## 1.0 WHAT IS TRANSIT?

**Transit** is the act of moving people from one place to another.

**Public transportation** is a system of trains, buses, etc. that is paid for or run by the government for use by the general public.

*Like roads, electricity, water, and broadband, public transportation is a key element of the Roanoke Valley's infrastructure, providing a vital transit service needed for our region to function properly.*

Riding public transportation, along with driving, walking, and bicycling, are the fundamental components that create a multimodal transportation system. This interconnected network allows people to move around the Valley between places where they live, work, learn, play, exercise, eat, socialize, and receive personal care without needing to rely solely on a personal vehicle.

The ability for people to move around easily and freely contributes significantly to people's ability to live well in the Roanoke Valley. Public transportation is for everyone! Some choose to use it for many trips, others choose to use it once in a while; others decide every time they take a trip to use another mode. To all, that is the beauty of choice. Even if public transportation is not something everyone uses, everyone benefits from its existence.

Given that the provision of transit services is a community investment, it is very important for citizens and decision-makers alike to understand the goals of the investment, the desired outcomes, and the associated costs of the strategies to achieve those goals.

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### 1.1 What is a Transit Vision Plan?

The Roanoke region's transit services and public transportation network have largely remained unchanged for 25 years. Knowing that a comprehensive analysis of the existing transit network was

overdue, the Roanoke Valley Transportation Planning Organization initiated a multi-year planning process in 2013. The planning process was designed for regional stakeholders to reflect on the past, evaluate current transit services, identify common values and goals, and to explore opportunities for the improvement and expansion of the Roanoke Valley's transit system. Over the next three years, citizens were provided a forum to voice their ideas about the transit system. Experts were also consulted to review the collected data and generate recommendations on the development of an improved regionalized transit system. Unveiled in the spring of 2016, the draft Roanoke Valley Transit Vision Plan provides a substantive conceptual framework for regional policymakers to consider as they prioritize resources to meet the evolving multimodal transportation needs of the region.

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### 1.2 Transit Vision Plan Goals

The Transit Vision Plan becomes one element of the region's Constrained Long-Range Multimodal Transportation Plan (CLRMTP). As one element of the CLRMTP, the Transit Vision Plan accomplishes the following functions:

- ▲ RECORD THE REGION'S VISION, GOALS, AND STRATEGIES FOR IMPROVING THE TRANSIT MODE OF TRANSPORTATION IN THE ROANOKE VALLEY AS IDENTIFIED THROUGH INPUT FROM CITIZENS AND LOCAL LEADERS
- ▲ SERVE AS A RESOURCE GUIDE FOR TRANSIT SERVICE PLANNING IN THE ROANOKE VALLEY
- ▲ ENCOURAGE LOCAL GOVERNMENTS TO INCORPORATE TRANSIT-SUPPORTIVE DEVELOPMENT AND INFRASTRUCTURE IN LOCAL ORDINANCES, POLICIES, PLANS, AND RELATED GUIDING DOCUMENTS
- ▲ IDENTIFY AND MAP ALL EXISTING AND PROPOSED TRANSIT SERVICES

- ▲ IDENTIFY AND MAP LOCATIONS WHERE TRANSIT SERVICES ARE NEEDED AND DESIRED
- ▲ PROVIDE STRATEGIES FOR ACCOMPLISHING THE NEEDED SERVICES IN A REASONABLE TIMEFRAME
- ▲ SUGGEST WAYS TO MEASURE THE REGION’S PROGRESS IN ACCOMPLISHING ITS VISION.

With this Plan as a foundation, regional transportation decision-makers, transit operators, engineers, designers, planners, development reviewers, inspectors, and infrastructure maintenance staff will work to build and maintain the envisioned regional transit network so that regional services will improve greatly as current services and investments are adapted to create a more livable Roanoke Valley.

## 2.0 A LIVABLE ROANOKE VALLEY

A few years ago, many people in the community participated in an initiative to envision a more Livable Roanoke Valley. Through that process the strongest elements of our community were identified as well as areas that needed more support. The overarching Vision for the community is displayed below.

### OUR VISION FOR THE FUTURE

We are living the dream. Beautiful mountains. Clean rivers and streams. People who care. The Roanoke Valley is filled with promise. To make the most of these opportunities, we will work to provide quality education, access to healthcare, work and career opportunities, responsible stewardship of the environment, and greater regional cooperation. As we strive to fulfill our promises, we will be the destination for individuals, families and businesses who share our same dream.

It is with this Vision in mind that all subsequent plans are developed including this Transit Vision Plan. Transit is a key element to helping many people “live the dream”.

Guiding principles for enhancing livability are outlined in the Plan. These guiding principles remind us of our common values for people of all races, ages, abilities, and income levels surrounding our environment, health, equality, quality of life, diversity, culture, economic vitality, adaptability to change, collaborative spirit, investment in shared infrastructure, and educational opportunities.

### LIVABILITY GUIDING PRINCIPLES

- Protect the beauty and ecology of the Roanoke Valley.
- Provide a healthy and equitable quality of life for all of our citizens.
- Celebrate the diversity of our region and its contribution to our culture.
- Embrace both our traditions and new innovations to create economic vitality.
- Anticipate and adapt to change with responsible leadership.
- Build on the assets of our local communities to strengthen our regional collaboration.
- Invest in regional infrastructure improvements that meet the communities' needs of the 21st century.
- Promote excellence in education, job training, and a culture of lifelong learning.

The Livable Roanoke Valley Plan outlines four goals:

- ▲ **ECONOMIC DEVELOPMENT:** CREATE JOBS, INCREASE INCOMES AND GROW BUSINESSES TO IMPROVE THE QUALITY OF LIFE FOR ALL RESIDENTS OF THE ROANOKE REGION.
- ▲ **WORKFORCE DEVELOPMENT:** PROVIDE ACCESS TO JOB TRAINING AND EDUCATIONAL ADVANCEMENT BY FOSTERING A CULTURE OF LIFELONG LEARNING FOR PEOPLE OF ALL AGES AND ABILITIES.
- ▲ **HEALTHY ROANOKE VALLEY:** MOBILIZE COMMUNITY RESOURCES TO IMPROVE ACCESS TO CARE, COORDINATION OF SERVICES, AND PROMOTE A CULTURE OF WELLNESS.
- ▲ **NATURAL ASSETS:** WORK COLLABORATIVELY TO PRESERVE THE HISTORIC, CULTURAL, AND NATURAL ASSETS OF THE REGION

In developing the Transit Vision Plan these goals played a key role and were reflected upon specifically looking at how transit helps the community achieve each one.

The Transit Vision Plan is one way that the work started under Livable Roanoke Valley continues. Through a focused look at this one element of life, transit, that helps so many people accomplish their own personal goals for health, income, knowledge, and helps our community thrive sustainably, the hope is that this Transit Vision Plan will provide the needed guidance to move the community forward to become a more livable place for the people who live here today and those yet to come.

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## 2.1 Transit and Livability

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Transit plays a key role in enabling a region to grow strongly and sustainably. Continued investment in transit-, bicycle- and pedestrian-friendly environments along with bikesharing, carsharing, and ridesourcing will further enhance the Roanoke region's efforts to promote active lifestyles and be an outdoor community and destination. Investment in a range of mobility options will also play a crucial role in attracting and retaining a younger, more diverse workforce. Recent surveys have shown that Millennials prefer environments that are mixed-use and walkable with multiple transportation options.<sup>1</sup>

The development of a more transit-oriented environment would coincide with the Roanoke Valley's outdoor character, its vision for economic development, and attracting and retaining a diverse workforce that seeks mobility options. For such reasons, the active-oriented lifestyle coincides with transit-oriented growth. Transit, biking, and walking along with bikesharing, carsharing, and ridesourcing (e.g. Uber and Lyft), all work together in a way which appeals to people who desire a less auto-dependant lifestyle. While the auto-oriented lifestyle is one that many people have grown up with and continue to desire, there are a growing number of people who would enjoy the opportunity to live a more active-oriented lifestyle, which transit helps to provide.

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<sup>1</sup> See American Planning Association, [Investing in Place for Economic Growth and Competitiveness: A Research Summary](#), May 2014. Available [https://planning-org-uploaded-media.s3.amazonaws.com/legacy\\_resources/policy/polls/investing/pdf/pollinvestingreport.pdf](https://planning-org-uploaded-media.s3.amazonaws.com/legacy_resources/policy/polls/investing/pdf/pollinvestingreport.pdf); David Goldberg, "Survey: To recruit and keep millennials, give them walkable places with good transit and other options," [Transportation for America](#), April 22, 2014. Available <http://t4america.org/2014/04/22/survey-to-recruit-and-keep-millennials-give-them-walkable-places-with-good-transit-and-other-options/#.U1bQ6ZuN7Gg.twitter><http://t4america.org/2014/04/22/survey-to-recruit-and-keep-millennials-give-them-walkable-places-with-good-transit-and-other-options/>

## 3.0 ROANOKE VALLEY TRANSIT VISION AND GOALS

The Roanoke Valley is a livable community with a growing economy and recognized for its outstanding quality of life. As such, the residents and employees of the Roanoke Valley envision a community where transit provides an easy and timely way for people to get to their destination.

### 3.1 Regional Uses of Transit

The TPO Policy Board recognizes the importance of transit in the Roanoke Valley's transportation system and envisions the following primary functions of regional transit:

- ▲ TO SPUR ECONOMIC DEVELOPMENT
- ▲ TO PROVIDE CONNECTIONS BETWEEN OTHER TRANSPORTATION MODES
- ▲ TO UNLOAD CONCENTRATED TRAFFIC AT SPECIAL EVENTS
- ▲ TO REDUCE TRAFFIC, ASSOCIATED AIR POLLUTION, AND ACCIDENTS
- ▲ TO PROVIDE ACCESS TO JOBS
- ▲ TO SIMPLIFY GETTING FROM POINT A TO POINT B
- ▲ TO SHOWCASE CREATIVITY THROUGH PUBLIC ART
- ▲ TO PROVIDE PEOPLE WHO HAVE NO OTHER OPTIONS WITH A WAY TO GET AROUND

### 3.2 Regional Vision for Transit

As the region's decision-makers and citizens work together to develop a more livable community, they envision transit in the Roanoke Valley will:

- ▲ SERVE A GREATER PART OF THE REGION THAN IT DOES NOW
- ▲ SERVE PEOPLE WHO DO NOT DRIVE AS WELL AS PEOPLE WHO DRIVE BUT PREFER TRANSIT FOR SOME TRIPS
- ▲ BE PART OF AN INTEGRATED MULTIMODAL TRANSPORTATION SYSTEM AND COMPLEMENT OTHER MODES OF TRANSPORTATION
- ▲ BE SAFE
- ▲ BE COMPLIANT WITH THE AMERICANS WITH DISABILITIES ACT OF 1990
- ▲ BE CONVENIENT
- ▲ BE FREQUENT WHERE IT MAKES SENSE
- ▲ BE DEPENDABLE
- ▲ BE AFFORDABLE TO RIDERS
- ▲ BE COST-EFFECTIVE IN THAT THE SERVICES PROVIDED JUSTIFY THE COST
- ▲ BE COMPETITIVE WITH OTHER MODES IN TRAVEL TIME
- ▲ BE AN EMPLOYEE BENEFIT
- ▲ BE ENVIRONMENTALLY-FRIENDLY VIA THE VEHICLES AND FUELS USED
- ▲ HELP VISITORS BECOME BETTER ACQUAINTED WITH THE REGION
- ▲ SHARE THE COST OF PROVIDING SERVICES AND AMENITIES BY ESTABLISHING PUBLIC-PRIVATE PARTNERSHIPS WITH BUSINESSES



- ▲ USE NEW TECHNOLOGY TO MAKE RIDING TRANSIT EASIER FOR RIDERS

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### 3.3 Regional Goals for Transit

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The above vision will take regional cooperation and investment to accomplish. From this vision, five goals for transit have been established.

- ▲ GOAL #1: CAPITALIZE ON THE COMMUNITY'S INVESTMENT IN TRANSIT TO ENRICH THE ECONOMY OF THE ROANOKE VALLEY.
- ▲ GOAL #2: UTILIZE TRANSIT TO SUPPORT PEOPLE'S ABILITY TO LIVE HEALTHY LIFESTYLES.
- ▲ GOAL #3: SUSTAIN THE ROANOKE VALLEY'S NATURAL ENVIRONMENT BY EMBRACING TRANSIT ON A PERSONAL AND COMMUNITY LEVEL.
- ▲ GOAL #4: PROVIDE INFRASTRUCTURE TO SUPPORT PEOPLE'S ABILITY TO SAFELY USE TRANSIT.
- ▲ GOAL #5: IMPROVE THE MOBILITY OF RESIDENTS, EMPLOYEES, AND VISITORS THROUGHOUT THE ROANOKE VALLEY BY PROVIDING SEAMLESS CONNECTIONS WITH OTHER TRANSPORTATION MODES AND ENABLING PEOPLE TO GET AROUND WITHOUT THE NEED FOR A PERSONAL VEHICLE.

The Roanoke Valley Transit Vision Plan has been developed within the context of this vision and these goals.

## 4.0 PLAN DEVELOPMENT

The Roanoke Valley Transit Vision Plan was a three-year effort that began in July 2013 and sought to evaluate transit to a level of detail and public input that had never been undertaken before. In 2012, the Roanoke Valley urbanized area became classified by the federal government as a Transportation Management Area due to its population in the urban area surpassing 200,000 residents, a number which is significant, particularly as federal funding structures are concerned, to distinguish smaller urban areas from larger ones. The change required the Roanoke Valley decision-makers to begin thinking about transit, and specifically our investment in public transportation compared to the value that transit brings to our community, in ways that were not required previously. Ultimately, the need to plan and fund transit services collectively with a common vision will strengthen the community.

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### 4.1 Study Area

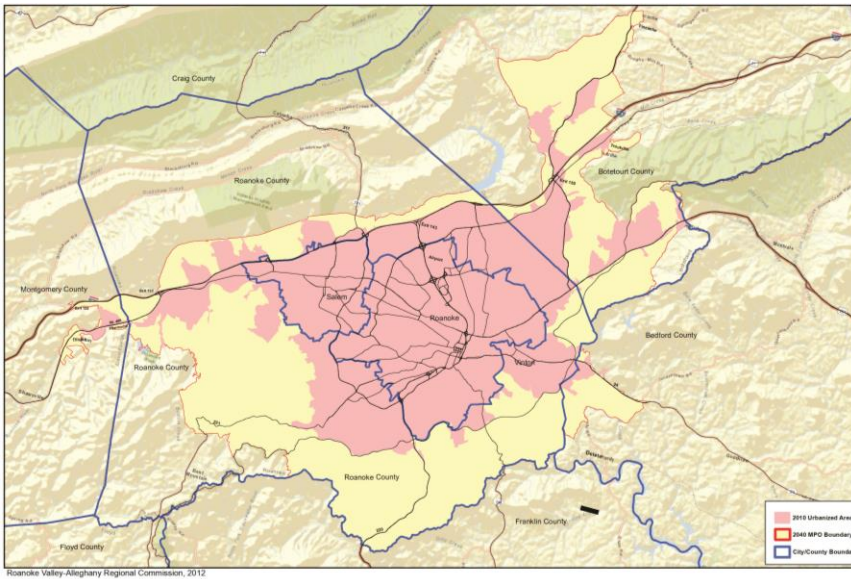
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The Transit Vision Plan covers the Roanoke Valley Transportation Planning Organization (RVTPO) 2040 Study Area which includes the Roanoke Census Defined Urbanized Area<sup>2</sup> and the contiguous geographic area(s) likely to become urbanized within the 25-year forecast period covered by the Constrained Long-Range Multimodal Transportation Plan. Localities within the RVTPO Study Area include the cities of Roanoke and Salem, the towns of Fincastle, Troutville, and Vinton, and portions of Bedford, Botetourt, Montgomery, and Roanoke counties. The following figure shows the TPO Study Area boundary (yellow), Roanoke 2010 Urbanized Area (pink), and the jurisdictional boundaries (blue).

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<sup>2</sup> An Urbanized Area is a statistical geographic entity, designated by the Census Bureau, consisting of a central core and adjacent densely settled territory that together contain at least 50,000 people, generally with an overall population density of at least 1,000 people per square mile.

Figure 4.1-1 | Roanoke Valley TPO 2040 Study Area Boundary



## 4.2 Roles and Responsibilities

Many people have been involved in the Plan’s development. The Plan itself was funded through a grant from the Virginia Department of Rail and Public Transportation and local matching funds provided by the RVTPO and Valley Metro. The roles and responsibilities of key groups are described below.

### *Roanoke Valley Transportation Planning Organization Policy Board*

The RVTPO Policy Board is made up of elected representatives from each member local government as well as the Greater Roanoke Transit Company, the Virginia Department of Rail and Public Transportation, the Virginia Department of Transportation and other non-voting representatives. The Policy Board is responsible for approving federal funding for transit projects

consistent with the region’s program of projects. As such, the Policy Board is the lead agency responsible for setting the regional transit vision from which subsequent transit development plans and program of projects can be developed. In June 2015, the Policy Board voted to establish a steering committee to guide the continuation of the Plan’s development through the recommendations phase.

### *Transit Vision Plan Steering Committee*

The Transit Vision Plan Steering Committee was recommended to be established by the RVTPO Transportation Technical Committee and approved by the RVTPO Policy Board. The purpose of the Committee was to gather a diverse group of stakeholders who represent a variety of community interests to advise and guide the Plan’s development through the recommendations phase. The RVTPO Policy Board approved an initial list of proposed organizations to be represented on the steering committee. The steering committee was assembled and began meeting in September 2015 until the Plan’s completion.

### *Roanoke Valley-Alleghany Regional Commission Staff*

The Regional Commission, because it provides the staff for the RVTPO, took the role of facilitating the Transit Vision Plan’s development as well as many technical aspects including conducting the initial technical analysis, developing and analyzing surveys, organizing public engagement, translating the Plan’s recommendations into network scenarios for use in the Constrained Long-Range Multimodal Transportation Plan’s development, and presenting the Plan to interested stakeholders.

### *Michael Baker/Foursquare Integrated Transportation Planning Consultant Staff*

Assistance from a transit consultant was sought to bring an outside expert perspective on transit, assess the needs of our

region, analyze the existing services, and provide recommendations based on the community's values, goals and vision. Michael Baker Inc. and Foursquare Integrated Transportation Planning provided that expertise and supported the effort in its third and last year of the process to further engage the public and make recommendations.

#### *Project Management Team*

A project management team guided the Plan's development progress. Team members included representatives from the Regional Commission, Michael Baker/Foursquare Integrated Transportation Planning, Valley Metro, and the Virginia Department of Rail and Public Transportation. The team met frequently and at times weekly via conference call to coordinate the Plan's activities.

#### *Local Transit Operators*

Valley Metro, RADAR, and Botetourt County, as operators of local transit services, each participated in the Plan's development and were instrumental in providing ridership data and administering surveys to their customers.

#### *Transportation Technical Committee and Citizens Advisory Committee*

The Transportation Technical Committee (TTC) was instrumental in the initial work for the plan by contributing to the regional values and vision statements for transit. The TTC also worked to identify regional multimodal centers and districts. These key planning tools are used to guide regional and local plans and investments to support public transportation, biking, and walking in places where they should be commonly used transportation choices.

The TTC and the Citizens Advisory Committee were kept abreast throughout the Plan's development and were given

opportunities to provide feedback on the Plan's recommendations prior to its approval.

#### *Local Government Staff*

Local government staff was very supportive during the Transit Vision Plan's development. Staff shared information about local plans that identify transit needs; they helped to spread the word about public input opportunities whether they were in person or online. Staff also assisted with arranging opportunities to speak with their local Planning Commission, City Council, or Board of Supervisors.

#### *Citizens*

Citizens played a key role through the Plan's development. The Plan is ultimately for the citizens, and it was essential to engage citizens throughout the Plan's development. At each step in the process, they had an opportunity to shape the Plan and the community's vision for transit by sharing their values, stating their needs and the needs of others, communicating their desires about a Livable Roanoke Valley, and indicating how transit contributes to those desires.

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## 4.3 Plan Timeline

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The Plan's development included the following activities that began in July 2013 and concluded in summer 2016.

### **JULY 2013 - JUNE 2014**

Valley Metro and Regional Commission staffs conduct bus route surveys in conjunction with the National Transit Database survey effort to determine level of bus stop activity.

### **SEPTEMBER - DECEMBER 2013**

Initial Public Engagement / General Public Survey conducted in conjunction with the Roanoke Valley Pedestrian Vision Plan.

### **SEPTEMBER 2013**

TTC Review/Comment of Public Involvement Plan

TPO and TTC group activities on transit values answering the questions:

*Values: Is public transit important to our community (the MPO region), why/why not?*

*If it is important, what should public transit be used for in our community?*

*Vision: What do we want the future to be?*

*Goals: What are some broad statements of the desired outcomes for public transit?*

Staff attended and administered the general public survey in conjunction with Downtown Roanoke Plan public meeting and Senior Citizen Coordinating Council Open House.

### **OCTOBER 2013**

TPO and TTC review values and vision statements; Update on Public Involvement; Introduction to DRPT's Multimodal System Design Guidelines; Review Map of Existing Activity Density; Discussion of Multimodal Centers and Districts.

### **NOVEMBER 2013**

TTC: Group Mapping Exercise: Place Dots on Large Maps Indicating Existing and Emerging Multimodal Centers and Districts.

TPO: Bus tour showcasing Valley Metro and RADAR dispatch, scheduling, maintenance, and operations facilities.

### **DECEMBER 2013**

TTC: Review Multimodal Center Typology; Activity on Defining Roanoke Valley Multimodal Centers and Districts.

### **JANUARY 2014**

TPO and TTC: Summary of Completed General Public Survey (471 responses); Update on the development and review of Multimodal Centers and Districts.

Staff receives RADAR trips and customer data for 2012-2013 and begins processing and analyzing the information.

### **FEBRUARY 2014**

TTC: Review Draft Maps of Regional Multimodal Centers and Districts.

### **MARCH 2014**

TPO and TTC: Review Final Draft Multimodal Centers and Districts

### **JUNE 2014**

Valley Metro riders are surveyed; 1,894 paper surveys are returned; staff begins processing surveys and analyzing feedback.

### **JANUARY 2015**

TPO approves Multimodal Centers and Districts to guide long-range transportation planning;

TPO approves Roanoke Valley Pedestrian Vision Plan, which includes regional pedestrian infrastructure improvements needed to support transit accessibility.

### **JULY 2015**

TTC reviews the draft Technical Report to the Transit Vision Plan (TVP).

### **AUGUST 2015**

TTC reviews the draft Technical Report to the TVP a second time Part 3: The Existing Conditions Technical Report to the TVP on survey and data analysis is approved by the RVTPO Policy Board.

### **SEPTEMBER 2015**

Michael Baker/Foursquare Integrated Transportation Planning is hired to provide technical assistance during the recommendations development phase of the plan;

Transit Vision Plan Steering Committee is formed and meets for the first time; Members share why they want to be part of the Committee, review the background and purpose of the Plan, and hear about the region's current transit services.

### **OCTOBER 2015**

TPO is updated on the progress of the Transit Vision Plan. Steering Committee reviews the content of the Technical Report; and reflects on the questions:

*Why is Transit Important to Me?*

*How will I benefit from improved transit services?*

*Who in the region is responsible for doing what in order to develop a robust transit community?*

*What can I do personally and what can my organization do to improve transit in the Roanoke Valley?*

### **NOVEMBER 2015**

First round of public open house workshops are held to identify desired connections and preferences on transit tradeoffs.

Steering Committee met and reflected on the roles and responsibilities of groups to develop a robust transit community;

reviewed information on transit propensity; reviewed current stakeholder/public outreach; provided additional input to the public's feedback on where service is needed and for whom; where evening and Sunday service is needed; and where service is needed for all day vs. commute to/from work.

Staff briefed the Roanoke County Planning Commission and the Transportation Advocacy Committee at the Roanoke Chamber.

### **DECEMBER 2015**

Steering Committee meets to review the draft recommendations.

### **JANUARY 2016**

TPO is updated on the progress of the Transit Vision Plan;

Steering Committee meets to review and discuss the Plan's goals, strategies, desired outcomes and performance measures;

Second round of public open house workshops are held to share the draft recommendations.

### **FEBRUARY 2016**

TTC is briefed on the Transit Vision Plan's progress and draft recommendations are shared.

Focus Group meetings are held.

### **MARCH 2016**

Steering Committee meets to review the revised draft recommendations.

### **APRIL 2016**

Steering Committee reviews the first draft Transit Vision Plan document.

Staff briefs various local government Boards, Councils and Planning Commissions on the plan and its draft recommendations.

## MAY 2016

Regional Commission holds its Annual Open House where the public is invited to review and ask question about the draft Transit Vision Plan.

Steering Committee reviews the draft Executive Summary.

TTC reviews the draft Transit Vision Plan.

TPO is updated on the Plan's development and draft recommendations.

Public has the opportunity to comment on the Draft Plan.

## JUNE 2016

Steering Committee and TTC review the Final Draft Plan.

## 5.0 MEDIA COVERAGE HIGHLIGHTS

The development of the Transit Vision Plan received great support from the local media which did an excellent job conveying the significance of the Plan to the region's future, educating the public, and soliciting public input.

From the beginning, WSL10 featured work being undertaken as part of the Transit Vision Plan on a TV broadcast and their online news feed. The October 29, 2013 broadcast advertised the public survey.

### Survey to help make Roanoke Valley more walking & public transit friendly

*Posted: Oct 29, 2013 4:17 PM EST  
Updated: Nov 12, 2013 4:17 PM EDT*

By Katie Love, Reporter - [bio](#) | [email](#)

Leaders with the Roanoke Valley Alleghany Regional Commission need your help finding ways to make the area more friendly for walkers and public transportation users.

They're asking people in Roanoke, Salem, Vinton, and Bedford, Botetourt, Montgomery and Roanoke counties to take a survey.

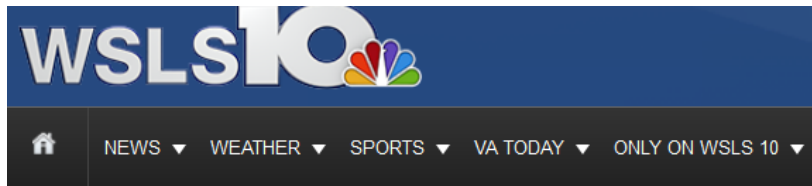
The survey is part of the Regional Pedestrian and Transit Vision Plans.

The goal is to make walking and public transit easier to use.

"We are now considered a large urban area by state standards," regional planner, Cristina Finch says. "So, as we try to plan for the future as our region continues to grow, we need to start thinking about how people get around our region, not just about driving."

The survey has 25 questions. You can take it [here](#).

A WSL10 broadcast in April 2016 highlighted the draft Plan and its recommendations.



## Roanoke looks at new transit plan



By Bethany Teague - New River Valley Reporter

Published: April 4, 2016, 10:45 pm | Updated: April 4, 2016, 11:52 pm

*ROANOKE (WSLS 10) – Public transportation could soon be changing for the Roanoke Valley.*

*The Roanoke Valley Alleghany Regional Commission is working on a plan to expand transit services in the coming years.*

*Goals include providing Sunday service, as well as late night hours.*

*Residents have also asked for expanded routes to places like Carilion clinics, Tanglewood and Valley View malls and the DMV.*

*The commission hopes to have a draft plan out by next month.*

*Several Roanoke city council members said they are in favor of expanded service, but the surrounding jurisdictions should contribute money.*

*Roanoke Vice-Mayor David Trinkle said, “We need more transit. We need more routes. We need longer hours. We need Sunday service. These are a lot of things that we all hear about and we all want, but there is a cost associated with that.”*

*The commission has not yet established how much the plan will cost, or who will pay for it.*

*A final transit plan is due out in June.*

WFIR radio on multiple occasions conducted interviews with staff which was used to educate citizens and encourage public participation.

Jeff Sturgeon at the Roanoke Times shared the news about the first round of public open house workshops with readers in his article about the Plan on October 23, 2015.

## THE ROANOKE TIMES

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## Public meeting set to discuss future of transit in the Roanoke Valley

Story

Comments

Print Font Size:

Posted: Friday, October 23, 2015 3:37 pm

By Jeff Sturgeon [jeff.sturgeon@roanoke.com](mailto:jeff.sturgeon@roanoke.com) 981-3251

*The Roanoke Valley Transportation Planning Organization, which is staffed by the Roanoke Valley-Alleghany Regional Commission, is summoning area residents to a forum next month on transit.*

*The reason? “The Roanoke Valley is not like it was 25 years ago, nor will it be like it is today in 25 years,” the group says.*

*The organization is preparing a groundbreaking study of transit in the valley. Analysts have run surveys and crunched data, and on Nov. 5 the organization invites residents to speak up. A transit vision plan will result that will shape future investment in transit upgrades.*

*During earlier surveys, residents favored the primary public transit service, the Valley Metro bus system, and said they want more from it. In general, more transit services are needed. The public meeting is intended to detail when, how often, for whom. The broad topic of transit also covers walking and biking.*

*“The Roanoke Valley has a tremendous opportunity to create a robust regional transit network that will better meet the needs of people today and in the years to come. When planned well and with the right investments, transit can be a catalyst to a better future for people and for business,” according to event planners.*

*Two gatherings are scheduled for Nov. 5:*

*3 to 5 p.m. at Campbell Court, 31 Campbell Ave. S.W.*

*7 to 9 p.m. at the Brambleton Center, 3738 Brambleton Ave.*

*Information is available from Cristina Finch at the commission, 343-4417.*

Matt Chittum at the Roanoke Times reported on a staff presentation of the draft plan to Roanoke City Council in April 2016.

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## Roanoke council hears plan for a better bus system, but wary of cost

Story Comments

Print Font Size: - +

Posted: Monday, April 4, 2016 5:45 pm | Updated: 5:49 pm, Mon Apr 4, 2016.

By Matt Chittum [matt.chittum@roanoke.com](mailto:matt.chittum@roanoke.com) 981-3331

*Roanoke City Council members got a look Monday at a new vision for the Valley Metro bus system, nodded approvingly, and immediately asked, “Who is going to pay for it?”*

*The Roanoke Valley Transit Vision Plan was put together during a two-and-a-half-year process by the region’s Transportation Planning Organization, a group consisting of local government appointees and staffed by the Roanoke Valley-Alleghany Regional Commission.*

*The report calls for a first phase of improvements that includes Sunday transit, extended hours, extending service to new locations such as the Department of Motor Vehicles office on Valleypark Drive and along Virginia 419, and increasing the frequency of buses to key locations like Virginia Western Community College, Melrose Avenue and Tanglewood and Valley View malls.*

*Subsequent phases call for keeping the system’s hub downtown but adding express lines and connections to the Carilion Clinic complex, Lewis-Gale Medical Center, Hollins, Vinton, Cave Spring and downtown Salem.*

*As soon as Cristina Finch, transit planning and programming manager for the regional commission, finished her presentation, the skepticism poured out.*

*“Somebody’s got to pay for it,” Councilman Court Rosen said. His question: Who?*

*“That’s yet to be determined,” Finch said. She noted the plan is a vision, with more study to follow, [including identifying funding sources](#).*

*Finch added that she believes if the region values the plan, partners in the transit system will find a way to pay for it. The Greater Roanoke Transit Co., or Valley Metro, currently receives an annual subsidy of \$1.8 million from the city.*

*That pointed Rosen to central issue: Only two of the 19 entities on the steering committee for the plan actually contribute money to Valley Metro, he said.*

*“If they’re going to provide opinions for what transit should look like, they should also be willing to pay for it,” Rosen said.*

*Finch said she had presented the plan to only one local government so far, but she predicted, “That’s going to be a common theme.”*

*It certainly was during the remainder of the discussion.*



*“This is not a problem that’s operating in a vacuum,” said Councilwoman Anita Price. “It requires a team approach.”*

*“The bottom line is, where’s the money?” said Councilman Sherman Lea.*

*Lea echoed a comment from Rosen that improvements to the bus system have become a political topic lately, apparently referring to a discussion during the Citizens Convention Roanoke City Council Candidates Forum on Thursday. Candidates offered up many of the ideas contained in the report.*

*Only one, Michelle Dykstra, offered a means of funding: increasing ridership, especially by changing the impression that public transit is only for low-income residents and encouraging young professionals to ride, too.*

*“I think people need to know, we are talking,” Lea said. “We are working towards a solution.”*

*Councilman Ray Ferris, along with Rosen, cited expanded ridership as a key part of increasing funding for the bus system. More income makes the city’s subsidy of Valley Metro go farther, he said.*

*But he, too, addressed the lack of financial support from other local governments.*

*A member of the TPO, Ferris said at meetings other members speak earnestly about the need to expand service. He noted that of the 10 new locations for suggested new service in the plan presented Monday, seven are outside the city of Roanoke.*

*But, “no one gets the checkbooks out.”*

*Yet, he said, for that to change, it’s going to take constituents in other localities telling their local government that it’s a priority.*

*“We can’t bully our neighbors into this. They have to recognize it something their constituents want,” he said.*

*Vice Mayor David Trinkle was slightly more optimistic.*

*“I hope a report like this will bring more people to the table,” he said.*

*Trinkle suggested that some aspects of the plan that are confined to the city could be tackled without outside help. And perhaps some*

*key changes — especially important new routes, for example — could be taken on piecemeal.*

*“Hopefully our regional partners can come to the table and experiment a little bit,” he said.*

## THE ROANOKE TIMES

roanoke.com

### Roanoke Valley-Alleghany Regional Commission includes Botetourt County in future plans

Story

Comments

Print Font Size

Posted: Monday, May 2, 2016 6:00 pm

Cathy Benson [Cathy.benson@roanoke.com](mailto:Cathy.benson@roanoke.com) 540-981-3140

*The Roanoke Valley-Alleghany Regional Commission has included Botetourt in future plans. The Roanoke Valley Transit Vision Plan was detailed in a presentation to the Botetourt County Board of Supervisors at the April 26 meeting. Christina Finch of the committee gave a PowerPoint presentation.*

*Some of the key points include environmental sustainability, economic and workforce development and health as well. The future plan shows how Botetourt County will be connected by transportation to the Roanoke Valley in the future. Finch referred to it as a multimodal plan. The committee has been working on it for three years, Finch said. They have had 4,000 pieces of information submitted.*

*Botetourt Supervisors are interested in a park and ride as well as a mass transit system that could take residents between Botetourt and Roanoke.*

*Using Route 460 from Botetourt County to downtown Roanoke was appealing as was using Route 11 out of north Roanoke and Hollins into Botetourt County.*

*Looking further into the future, in the next 12 to 25 years, a proposed plan to increase the frequency of express commuter services and expand into the Salem area from Botetourt are among some of the long-term goals. The commission is looking for sponsorship and assistance from key business and stakeholders.*

*“Over time,” Finch said, we will seek more partnerships.” She mentioned all new developments should consider transit. “We need to support a livable Roanoke Valley,” she told the supervisors.*

The Roanoke Tribune included advertisements for the November and January public open house workshops.

**ROANOKE VALLEY TRANSIT VISION PLAN**  
**Your Input is Important!**

Please join us at one of the following public workshops, or see the website below, to provide input on the future of transit in the Roanoke Valley.

**THURSDAY, NOVEMBER 5, 2015**

|   |           |   |
|---|-----------|---|
| <b>3:00-5:00 PM</b>   | <b>OR</b> | <b>7:00-9:00 PM</b>   |
| Campbell Court - 2 <sup>nd</sup> Floor<br>Downtown Roanoke<br>(Enter at 31 Campbell Ave., SW) |           | Brambleton Center<br>3738 Brambleton Ave., Rke, VA<br>(Entrance off of Valley Forge Ave.) |

Both locations are wheelchair accessible.  
For more information, visit [www.rvarc.org/transit](http://www.rvarc.org/transit) or contact Cristina Finch at [cfinch@rvarc.org](mailto:cfinch@rvarc.org) or (540)343-4417.

**ROANOKE VALLEY TRANSIT VISION PLAN**  
**Your Input is Important!**


Come to this public workshop and review draft recommendations for the future of transit in the Roanoke Valley. Refreshments will be served.

**THURSDAY, JANUARY 21, 2016**

|   |           |   |
|---|-----------|---|
| <b>12:00-2:00 PM</b>  | <b>OR</b> | <b>5:00-7:00 PM</b>   |
| Campbell Court - 2 <sup>nd</sup> Floor<br>Downtown Roanoke<br>(Enter at 31 Campbell Ave., SW) |           | Vinton Library<br>300 S. Pollard St., Vinton, VA<br>(Entrance off of Valley Forge Ave.) |

Both locations are wheelchair accessible.  
For more information, visit [www.rvarc.org/transit](http://www.rvarc.org/transit) or contact Cristina Finch at [cfinch@rvarc.org](mailto:cfinch@rvarc.org) or (540)343-4417.

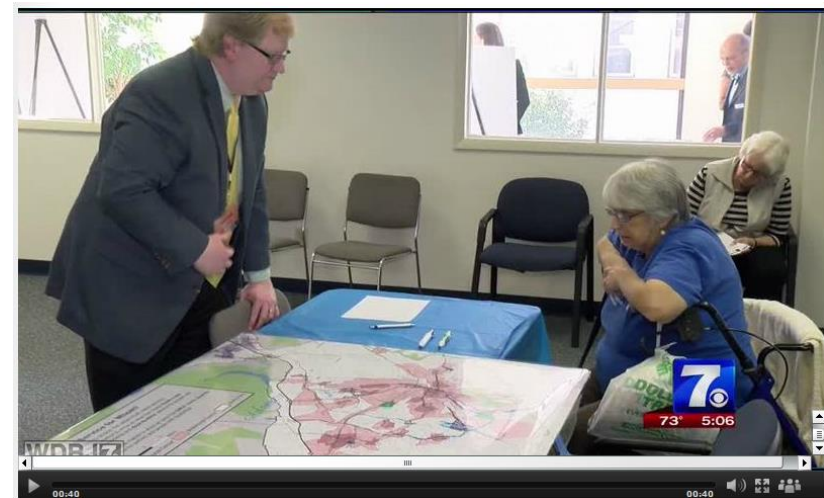
WDBJ7 reported from the first public open house workshop on November 4, 2016 and advertised the second event taking place that evening.

**MUST SEE** 

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**Roanoke Valley leaders want your transportation input**

POSTED: 07:00 PM EST Nov 04, 2015 | UPDATED: 06:06 PM EST Nov 05, 2015



*Planners say they need your input to shape the transit services we'll see in the future.*

**TRANSCRIPT:**

*(What) services do you use? And what improvements would you like to see? The Roanoke Valley transportation planning organization is working on a new long-range plan that should be complete next summer. Planners say they need your input to shape the transit services we'll see in the future. Cristina Finch: this plan is really focusing in on how we make the Roanoke Valley a more livable Roanoke Valley, and in particular how can we use our transit investments to help us in the areas of economic development, health and natural assets. Planners held a public workshop this afternoon in Downtown Roanoke. Another is scheduled tonight from 7 to 9 at the Brambleton center in Roanoke.*

WDBJ7 in January 2016 reported on the second public open house workshop and shared with citizens their opportunity to provide input through the online forum.

## Leaders want feedback on potential bus changes



Christian Heilman, [cheilman@wdbj7.com](mailto:cheilman@wdbj7.com)

POSTED: 09:14 PM EST Jan 29, 2016 | UPDATED: 01:16 AM EST Jan 30, 2016

ROANOKE, Va. -

*Local transit leaders are looking to make it easier to get around the Roanoke Valley. Now, they want your help.*

*The Roanoke Valley-Allegheny Regional Commission is behind a short and long-term plan to fix some common complaints with bus service.*

*Clifton Stewart rides the bus and thinks bus service could use a little work, especially in the northern part of the city.*

*"I wonder why. What's wrong with the rest of the city? What about the DMV? I might want to go out there one day and get my license," Stewart said.*

*Ozell Jones, who also rides the bus, said, "The DMV is terrible because you have about a mile and a half walk either direction."*

*They're not alone. Cristina Finch with the Roanoke-Alleghany Regional Commission says people want bus service to reach places like the DMV.*

*Cristina Finch, Roanoke-Alleghany Regional Commission, said, "Folks all over the region have been saying they need service to a variety of different places."*

*"I'd like to see a Sunday route because I'm pretty much stuck on Sunday," said Jones. "I can't go anywhere. No distance."*

*For the past two years, the commission has been collecting data and information from riders. They created a six-year vision plan to expand transportation in the Roanoke Valley. Now, they're asking for everyone's help.*

*Finch said, "So at this point, we're trying to make sure we've heard the public correctly and that we haven't missed anything."*

*Their recommendations include new stops and Sunday service. They want people to vote and give their feedback on their trips now, that way, they might be a little better in the future.*

*The commission will complete the plan this summer and then hand it over to Valley Metro and Radar.*

You can look at the suggestions and give your feedback by [visiting this website](#).

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WDBJ7's news anchor Kimberly McBroom in February 2016 did a special report on transportation challenges experienced by people with disabilities and highlighted the Transit Vision Plan and citizen's opportunity to provide feedback.

### Transportation can be difficult for people with disabilities in the Roanoke Valley



Kimberly McBroom, [kmcbroom@wdbj7.com](mailto:kmcbroom@wdbj7.com)

POSTED: 05:58 PM EST Feb 29, 2016 | UPDATED: 07:21 PM EST Feb 29, 2016

ROANOKE, Va. -

*Heading to an evening movie, attending Sunday services, or even going to work might sound routine to you and me. For people with disabilities, it's part of normal life they often have to miss.*

*Many of them say a lack of available public transportation is putting more limits on them, than their disability itself.*

*Michele Via spends a lot of time waiting. A form of glaucoma severely limits her eyesight.*

*She often relies on RADAR buses to take her to a Tuesday computer class at New Vision in Roanoke.*

*Valley Metro and RADAR buses don't run on Sundays, or late in the evenings.*

*For Via and others like her, those travel limits are the equivalent of having a curfew.*

*"If there's a program going on, I feel like I have to be home by 8:00. I mean, I feel like I'm a little child," says Via.*

*Diane Decker hears stories like these all the time.*

*She's the leader of the Roanoke Alliance for the Visually Enabled, or RAVE.*

*Decker says it's sometimes a challenge just getting group members back and forth from their meetings.*

*"By the time our meetings over at 8:30 p.m., the systems will have stopped running. So, they can't get a ride home through any kind of public mean," says Decker.*

*Stephen Grammer is also a longtime advocate for the disabled. He has cerebral palsy, and is a graduate of Partners in Policymaking. Grammer's a regular at Roanoke city transportation meetings, and is vocal about his need for better transportation to get to more jobs and volunteer opportunities.*

*Roanoke Valley leaders say they are aware of the need for more access to public transportation, but like most things, it comes down to money.*

*The Roanoke Valley Alleghany Regional Commission is working on a transit vision plan that'll be part of a long- range transportation plan for the next 25 years*

*People can offer their comments and suggestions online. [Click here to fill out a survey for the Roanoke Transit Vision plan community.](#)*

*Along with public input, local leaders also have to look at usage and demand.*

*Roanoke City Council member Bill Bestpitch says, "If you're sending a big bus around to pick up one or two people, that's not really cost- efficient."*

*Bestpitch suggests that riders be vocal and persistent about their needs.*

*"If you only say something one time, somebody may think well, it's not really that significant. But if the same request is repeated, then I think that gets more attention," he says.*

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Virginia First, WFXR News – Fox, also reported on the public's opportunity to provide input to the Draft Plan before it is finalized. On Monday, May 16 Reporter Paris Holmes shared that citizens have until May 27 to provide input before the Plan is finalized in June.



## Region's new transit plan almost ready, Officials asking for public feedback

Changes are soon coming to the region's public transit system.

[Read Story](#)

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### ROANOKE, Va

*Changes are soon coming to the region's public transit system.*

*For the last 2 1/2 years the Roanoke Valley-Allegheny Regional Commission have been putting together a vision plan to expand bus services. Now, they want the public's final input to make sure they got it right.*

*The commission is asking for the input of transit users like Toby Shannon. Shannon has been riding Valley Metro for about 4 years. He's happy, but there are things he would change.*

*"They have one bus...Bus 91.. And it's always packed coming in and out...it's like they need two buses," said Toby Shannon, Valley Metro user.*

*From the outside looking in--it may not seem like a big deal, but for Shannon it's dangerous.*

*"They fight and fuss when they're jammed in like that and you have to stand up and hold the hand rails they've gotten new buses to try and accommodate that but when the capacity for the bus is 45 and you got 60 to 65 maybe 70 people on that bus line that's not safe with children and handicapped," said Shannon.*

*Shannon's complaint is not the only one.*

*"We've received over 4000 pieces of information from people," said Christina Finch of the Roanoke Valley-Allegheny Regional Commission.*

*For over 2 years, the Roanoke Valley Allegheny Regional Commission says they've heard the issues of commuters like Shannon. Now, they say they have a final plan in place to address commuter concerns.*

*"The recommendation in the transit vision plan includes expanding*

*the service area for the valley metro fixed routes, increasing the hours of services, increasing the service frequencies," said Finch.*

*The plan addresses areas like Hollins, where there are recommendations to add service that will connect Plantation Road to Green Ridge Recreation Center to the DMV. Also, according to the plan people may no longer need to ride all the way downtown to transfer buses.*

*"Downtown Roanoke will continue to be the largest place for transfers in the region but smaller transit transfer facilities can develop over time as new services are added to the regional system," said Finch.*

*Finch says there are short and long term recommendations, and what's required in each determines how long and how much it's going to take.*

*The plan also addresses the needs of senior citizens and people with disabilities. It should be incorporated in the next 6 to 12 years. [Click here for more information on the plan and to submit a survey.](#)*

*The deadline for the public's input is May 27th.*

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## 6.0 PLAN COMPONENTS

The Roanoke Valley Transit Vision Plan includes the following components:

- ▲ EXECUTIVE SUMMARY
- ▲ PART 1: INTRODUCTION
- ▲ PART 2: BACKGROUND AND EXISTING CONDITIONS
- ▲ PART 3: EXISTING CONDITIONS TECHNICAL REPORT: SURVEYS AND DATA ANALYSIS
- ▲ PART 4: PREFERENCES AND DEMAND
- ▲ PART 5: RECOMMENDATIONS
- ▲ PART 6: IMPLEMENTATION STRATEGIES AND PERFORMANCE MEASURES

The future holds many uncertainties particularly with regard to technology, changing workforce needs, and personal interests and desires. For these reasons, the Transit Vision Plan reflects the needs and desires of life as we know it today and anticipate it for the future. The intent is for the Plan to be updated when significant new information about the future unfolds or when enough of the Plan's recommendations have been accomplished or attempted and determined to not satisfy the anticipated need.

The Roanoke Valley Transit Vision Plan showcases information from the past, imparts current data, and presents trends to consider as transit services are planned, modified, and provided in the coming years. Ultimately, the Plan provides recommendations for how to restructure the Roanoke Valley's transit services to provide the robust system needed to support the region's economy and people's lifestyles.

The Plan's development process benefitted from the input of many citizens, stakeholders from many organizations, local and state technical staff, and local decision-makers along with technical assistance from a specialized transit consultant team. The

combination of many local perspectives defined the region's values towards transit along with how the vision and goals for transit play into the much larger vision of a Livable Roanoke Valley. The expertise of the consultants and regional technical staff enabled the community's desires and needs combined with travel and demographic data to develop clearly stated specific recommendations.

However, with growing uncertainty in federal and state transit funding sources, additional analysis on the prioritization of these recommendations with the region's other transportation infrastructure priorities will be needed. Moving forward, stakeholders should consider the creation of a working regional group consisting of leaders from local jurisdictions. The first priority of the stakeholder group would be to develop a regional governance model that would build upon the current structure for the Greater Roanoke Transit Company (GRTC) by taking into account those jurisdictions being served. Working in conjunction with the Roanoke Valley Transportation Planning Organization and GRTC, the regional stakeholder group would be positioned to oversee an operational analysis of the recommendations contained in the Transit Vision Plan, ensure their alignment with the multimodal transportation goals of participating localities, explore potential funding options and scenarios for implementation, and engage the business community and other transit stakeholders in future transit planning.



# Roanoke Valley Transportation PLANNING ORGANIZATION

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## Roanoke Valley TRANSIT VISION PLAN

*Approved September 22, 2016*

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PART 2: Background and Existing Conditions

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## 1.0 HISTORICAL TRANSIT PERSPECTIVE

There is a significant amount of transit history in the Roanoke Valley. Most people think of transit as motorized buses but its predecessor, in the Roanoke Valley as in many larger and/or comparably sized areas, was the railway streetcar.

On May 2, 1887, the Roanoke Street Railway Company was formed. The company was franchised by the City of Roanoke in early 1888 with initial service consisting of four mule-pulled cars and two miles of track. The mule service steadily grew. During the next year, 1889, another company provided service from Roanoke to both Vinton and Salem. This new service utilized steam dummy engines (made to look like passenger cars) and extended rail lines by another eight and a half miles.

*Figure 1.0-1 | Following the use of mule-pulled passenger rail lines, steam dummy engines were used during the early expansion of the Roanoke Street Railway Company*



In February 1892, under a different company, the first electric railway car system in Roanoke began. In 1898, the Roanoke Railway and Electric Company (RR&E) was formed—at the beginning of a period of great expansion.

The early 1900's saw various improvements to the system, including: multiple service extensions, the installation of double tracks, and the modernization of steam and hydroelectric plants.

The year 1925 was seen as the height of RR&E's electric car service in Roanoke, with 50 cars in operation and 30 miles of track.

### 1.1 Streetcar Decline and Rise of Bus Service

It was also in 1925 that the first bus service, the Safety Motor Transit Company (SMT) was formed. The SMT was formed from a group of previous RR&E employees calling themselves Jitneys, who formed an association to operate a bus system which was in direct competition with RR&E. The service was initiated with seven routes (in Roanoke City), and 23 total miles of routes. SMT operated until 1928, when its revenues could simply no longer maintain the existing bus fleet, and was then acquired by RR&E.



Figure 1.1-1 | An example of the Jitney buses which were commonplace in the Teens and early 1920's in Roanoke



Beginning with the Great Depression in 1929, Roanoke's streetcar industry slowly declined. RR&E gradually transitioned its streetcar fleet to motor buses, until its complete demise in 1948, with the abandonment of the last two lines and the sale of all streetcars.

Bus transit service was booming in the Roanoke Valley from the 1940's-50's, with increased routes, service hours and ridership. Despite the boom in transit ridership, a 1959 *Roanoke Area Urban Transit Study* showed that 25 percent of all transit riders ceased riding the bus in Roanoke. Compared to other urban areas, the decrease was not as severe.

By 1969, it was reported in the *Roanoke Valley Area Thoroughfare and Functional Plan* that 20 percent of shoppers and employees in downtown Roanoke utilized public

transportation to get to their destination. Another company, Roanoke City Lines, continued local and regional bus service.

Following years of financial turmoil Roanoke City Lines dissolved, and in 1975 the Greater Roanoke Transit Company (GRTC, also known as Valley Metro) was formed. Valley Metro is overseen by a Board of Directors and is owned, in its entirety, by the City of Roanoke.

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## 1.2 Significant Regulatory Changes

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In 1962, the Federal-Aid Highway Act mandated all metropolitan areas of 50,000 or more to regionally coordinate transportation planning between all localities, where service occurred, in a manner utilizing the 3C planning process: Cooperative, Comprehensive and Continuing. This type of cooperation, albeit mandated from the federal government, gave rise to Metropolitan Planning Organizations (MPOs) which became responsible for carrying out the federally mandated 3C transportation planning process. Although the Roanoke Valley Area Metropolitan Planning Organization (RVAMPO) was not established until 1979, the Cities of Roanoke and Salem; Roanoke and Botetourt Counties; and the Town of Vinton began regional long-range comprehensive transportation planning in 1963.

In 1965, the Older Americans Act was signed into law creating the National Aging Network, which structured federal, state, and local funding and support systems for portions of an area's population aged 60 and above. In the Roanoke Valley, the Local Office on Aging is a product of the Older Americans Act and is an advocate for quality transportation services for the elderly.

In 1969, the Fifth Planning District Commission (PDC) was formed as a result of the Virginia Area Development Act, which sought to promote regionalism and cooperation among local governments. Regional transportation was just one of many areas that the PDC would facilitate. The Fifth PDC (which changed its name to the Roanoke Valley-Alleghany Regional Commission in 1988) would later become the lead staffing agency to the RVAMPO.

Other significant federal legislation and regulations include the 1990 Americans with Disabilities Act (ADA) which provided sweeping changes for the riddance of discrimination against persons with disabilities. Following the ADA legislation, in 1991, were regulations from the U.S. DOT to stop discrimination with regard to transportation.

In 2012, the Roanoke Valley experienced another significant regulatory change when the urbanized area population as of the 2010 Census rose past the 200,000 person threshold and the MPO region was classified as a “Transportation Management Area”. The change brought the MPO new responsibilities and privileges particularly in its decision-making authority over some federal transportation funds allocated to the region. In 2014, the MPO adopted the business name of the Roanoke Valley Transportation Planning Organization to better communicate its purpose to the public.

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### 1.3 Reflections on the Past

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During the development of this Plan, several personal interviews were held with various current and past transportation officials, in order to obtain a better understanding of the operations, perceptions, challenges and shortcomings of bus transit in the Roanoke Valley. Information was provided from William Callahan and Steve Mancuso, two former Valley Metro general managers; Curtis Andrews, current executive director of RADAR; and Beverly T. Fitzpatrick, Jr., the executive director of the Virginia Museum of Transportation.

Fitzpatrick remembered riding the bus as a child when it was the Safety Motor Transit Company (SMT). He emphasized his childhood perception of the bus being safe to ride and how it was essential for going downtown to shop and work. SMT ran service to Glenvar, Clearbrook, Stewartsville and other portions of Roanoke County. Service to Salem had been sporadic over the years. During the height of the service, there were 100 buses. The public image of bus transit service was good, especially when new, air conditioned buses with comfortable seating were purchased in the early 1980’s.

Curtis Andrews recounted that RADAR service began in 1975, due to an influx of requests for bus service from elderly, disabled, and social service related clients. The service began in four areas of Roanoke, one day a week, with one of the vehicles being lift-equipped. Ridership has steadily increased over the years. CORTRAN (County of Roanoke Transportation) service began in 1985, serving Roanoke County residents with two vans. In 1990, the Americans with Disabilities Act was passed by

Congress, and the following year, RADAR service was extended to serve the growing client base.

*Figure 1.3-1 | Photo of an original vehicle used for CORTAN service*



During the late 1970's before his employment with Valley Metro, William Callahan was in Roanoke and observed the bus system at that time. He noted that the operation had deteriorated, with a mixture of old and new buses, although the staff and drivers kept a high appearance of professionalism. Callahan began his tenure with Valley Metro in 1980, in the wake of a 1970's labor strike that created a separate city school bus system. Memories of the strike were still evident in Callahan's first few years, and it was a source of poor driver morale and animosity. This, naturally, became the public perception—that drivers were typically disagreeable and unhappy.

In terms of growth of the Valley Metro system, Callahan noted there was no significant growth or decline in bus ridership from 1980-1986. The bus fleet did not grow during the period, except for routine replacement which included updating all buses with air-conditioning. During Callahan's tenure at Valley Metro, service extended into Salem to the V.A. Hospital and to Tanglewood Mall. There was a limited employment service to Vinton, running four to five trips per day. There was another service between Salem and Roanoke, running two to three trips per day.

Steve Mancuso related his memories of transit service in the Valley, as executive director of Valley Metro from 1986 to 1997, describing it mainly as a Roanoke City system without any regional components or characteristics. Mancuso noted that there had been an effort to create a transportation district commission, which would have been funded by a per gallon tax on fuel. Ridership, Mancuso noted, steadily increased during his tenure with bus service provided throughout the City of Roanoke and to Salem and Vinton. The Valley Metro fleet remained relatively steady, however the service was revamped by extending evening service from 7:30 to 9:30 p.m. and improved bus frequency (varying routes of 20, 30 and 60 minutes). Until the routes were changed to allow 30 minutes out and 30 minutes back, passengers had long waits for transfers. This "Figure-8" configuration reduced the number of passenger transfers. During this period, the fare increased from \$.75 to \$1.00.

*Figure 1.3-2 | Buses load and unload at the Campbell Court Transportation Center*



Campbell Court Transportation Center in downtown Roanoke became the main transfer point for all Valley Metro buses in 1983. Previously, bus transfers occurred along downtown streets. Callahan, who directed Valley Metro during the planning phases of the project, opined that the City of Roanoke viewed this as an urban development project, as downtown during this time was not safe and vacant buildings peppered the landscape. The City purchased the land on Campbell Avenue as its 10% match for access to public transit conversion funds.

Dave Morgan was the general manager of Valley Metro following Steve Mancuso until 2009. Morgan facilitated the partnership between the New River Valley and the Roanoke Valley to initiate the regional Smart Way Commuter bus service which began in July 2004 and has been a successful option for commuters between the two regions ever since. In July 2007, Morgan initiated a “Students Ride Free” program and by December of that year student ridership registered an average of more than 1,000 student trips per day. Morgan also initiated the Star Line

Trolley service between downtown Roanoke and Carilion Roanoke Memorial Hospital in November 2008.

Carl Palmer became the General Manager of Valley Metro in 2009. Unfortunately, as a result of behavior concerns with students, the “Students Ride Free” program was altered to require students to pay half-fare resulting in a decrease in the number of students who ride the bus. Discussions regarding passenger rail picked up at this time, and under Palmer’s leadership, the Smart Way Connector service began operating between Roanoke and Lynchburg’s Amtrak station in July 2011. This initiative was a first step in an attempt to demonstrate the demand for passenger rail in Roanoke. The long-awaited announcement for Amtrak’s extension to Roanoke came in 2013 as part of Governor McDonnell’s Transportation Bill, HB2313. Amtrak service will begin in Roanoke in 2017.

Mr. Palmer continues to lead the organization through adjustments in transit’s funding structure as the Roanoke Valley has changed status with regard to federal transportation funding. Palmer stresses the importance of thoughtful development practices that consider transit in their planning. Palmer has been a huge supporter of this regional Transit Vision Plan effort, and hopes to see transit’s services and service area expand as a result of this planning effort.

## 2.0 TRANSIT IN THE ROANOKE VALLEY TODAY

Today, transit is provided in the Roanoke Valley via multiple providers. Where a person lives determines the type of transit options that are available to them. A summary of service availability is provided in the table.

*Table 2.0-1 | Regional Transit Service Availability*

| Locality                 | For Anyone | Only For Older Adults | For Anyone with a Disability |
|--------------------------|------------|-----------------------|------------------------------|
| <b>Bedford County</b>    | No         | Yes, age 60 and over  | Yes                          |
| <b>Botetourt County</b>  | No         | Yes, age 55 and over  | Yes                          |
| <b>Montgomery County</b> | No         | Yes, age 60 and over  | Yes                          |
| <b>Roanoke County</b>    | Yes        | Yes, age 60 and over  | Yes                          |
| <b>City of Roanoke</b>   | Yes        | No                    | Yes                          |
| <b>City of Salem</b>     | Yes        | No                    | Yes                          |
| <b>Town of Vinton</b>    | Yes        | No                    | Yes                          |

As shown in the table, in Bedford, Botetourt, and Montgomery Counties, public transportation options are provided only for residents who meet the age or disability criteria. Like these counties, Roanoke County elects to provide transportation services for people based on age and disability though small portions of Roanoke County also have public transportation service available for anyone.

In the City of Salem, City of Roanoke, and the Town of Vinton there are public transportation options in many parts of the locality that are available to anyone regardless of age or ability.

The following sections discuss the current public transportation services provided.

### 2.1 Fixed-Route Transit

The Greater Roanoke Transit Company (d/b/a Valley Metro) provides fixed-route transit services in the Roanoke Valley as well as select regional intercity services discussed later in this chapter. The fixed-route system operates as a hub and spoke style network with Campbell Court in Downtown Roanoke as the hub where all routes converge to facilitate transfers. The routes are the spokes that have one endpoint at Campbell Court and the other endpoint (often referred to as the end-of-the-line) somewhere else in the region.

Buses begin service at 5:45 a.m. at their respective end-of-the-line with the first convergence of routes at Campbell Court at 6:15 a.m. The buses proceed in this ebb and flow manner with hourly transfer opportunities at Campbell Court on the :15 of each hour with the last transfers taking place at 8:15 p.m. All fixed-route buses terminate service at 8:45 p.m. at their respective end-of-the-line.

Peak service provides extra buses that enable service every 30 minutes on many routes for a few hours in the morning and late afternoon. Morning peak service begins at the end-of-the-line at 6:15 a.m. arriving in Campbell Court at 6:45 a.m. The last peak outbound from Campbell Court is at 8:45 a.m. with service terminating at the end-of-the-line at 9:15 a.m. Afternoon peak service begins at 3:45 p.m. in Campbell Court and reaches the end-of-the-line at 4:15 p.m. The afternoon peak service terminates in Campbell Court at 6:45 p.m.

The following table lists the route numbers for hourly and peak services.

*Table 2.1-1 | Fixed-Route Numbers*

|                       | Outbound Route numbers   | Inbound route numbers  |
|-----------------------|--|--|
| <b>15</b>             | 11, 15, 21, 25, 31, 35, 41, 51,  | 12, 16, 22, 26, 32, 36, 42, 52,  |
| <b>Hourly Routes</b>  | 55, 61, 65, 71, 75, 85, 91   | 56, 62, 66, 72, 76, 86, 92   |
| <b>11 Peak Routes</b> | Route 81 and all of the above inbound routes except 31, 35, 41, 61, 91 | Route 82 and all of the above inbound routes except 32, 36, 42, 62, 92 |

The next map (Figure 2.1-1) shows the frequency of fixed-route service between the current areas served. Valley Metro operates fixed-route service in winter weather as long as road conditions permit safe operation of the vehicles. Due to some streets not being suitable for bus travel in winter weather, routes are modified and referred to as snow routes.

*Figure 2.1-2| Buses Transport People during Snow Events*



All hourly and peak routes operate during snow events on snow routes. The network of Valley Metro snow routes is provided in Figure 2.1-3.

Figure 2.1-1 | Hourly Fixed-Route Network

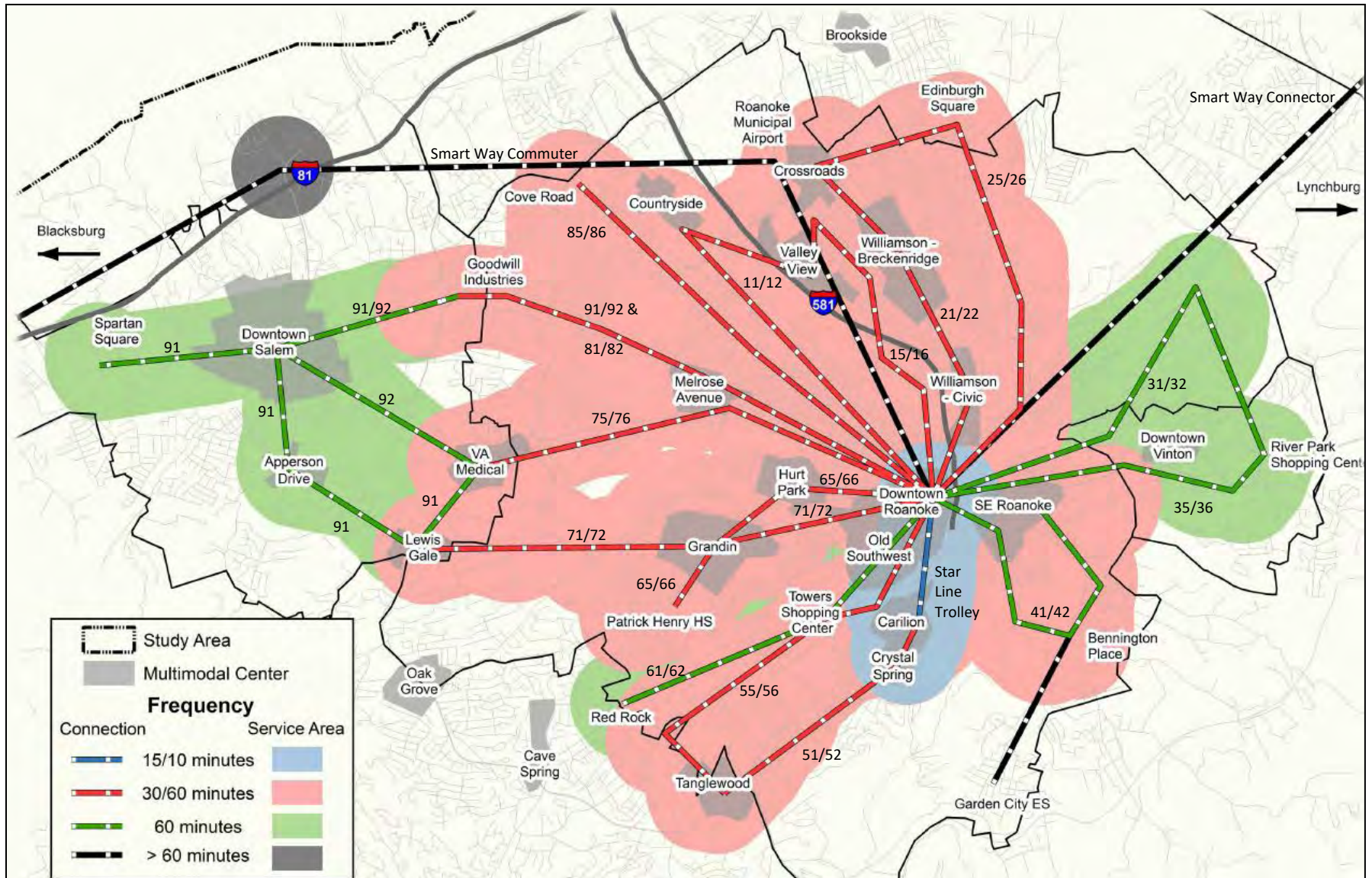
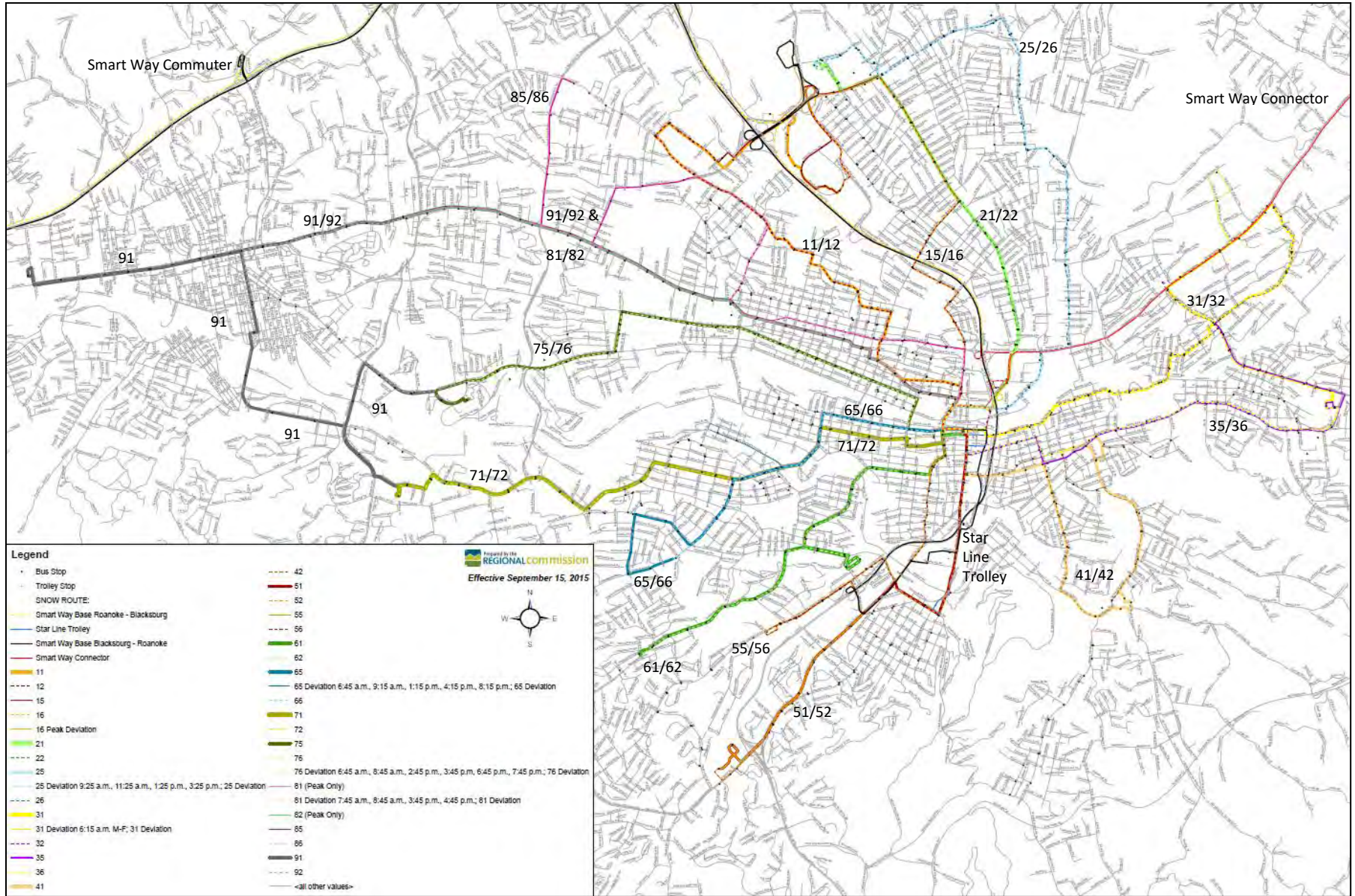


Figure 2.1-3 | Valley Metro Snow Routes

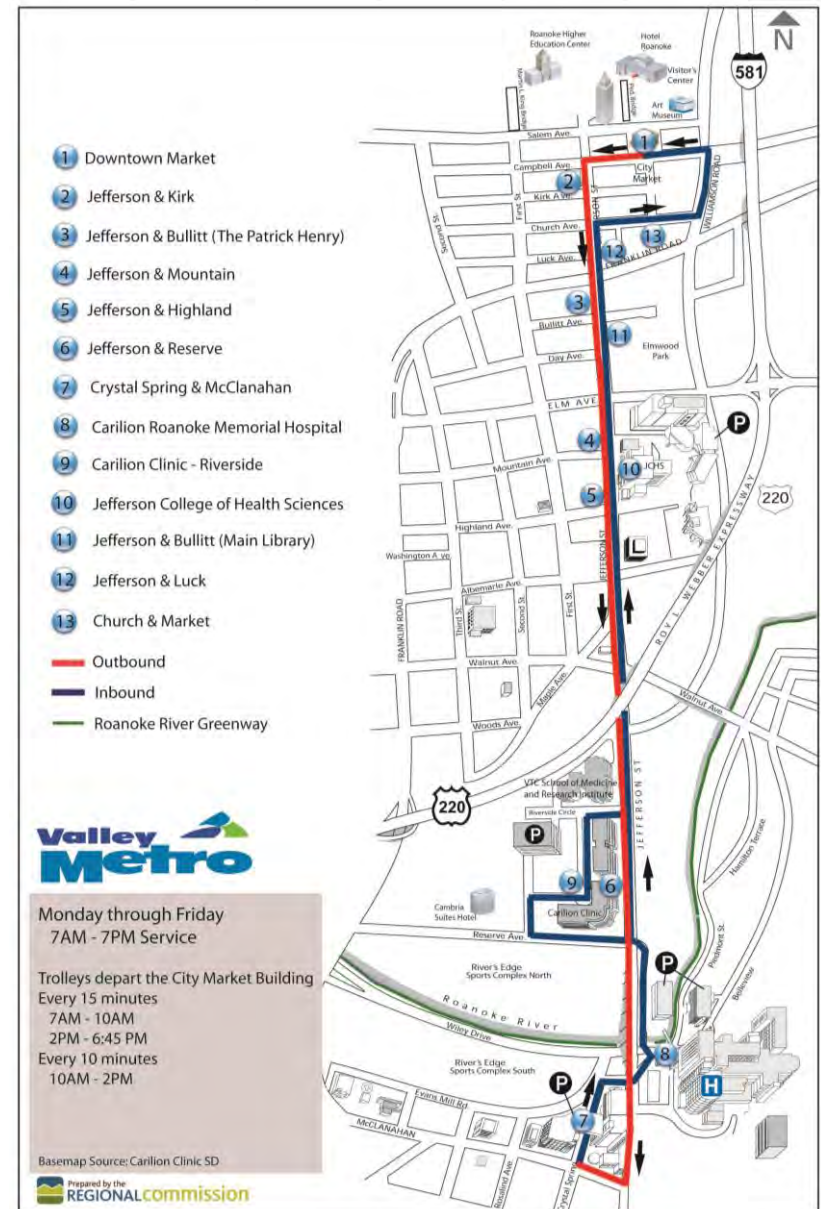




## 2.2 Star Line Trolley

The Star Line Trolley service is a joint effort funded primarily with federal and state funds along with a couple local partners: Carilion, Downtown Roanoke Inc., and the City of Roanoke. The Star Line Trolley features a historic appearance with wooden bench interior seating and a decorative exterior and has been operating since November 2008. The Trolley connects Downtown Roanoke to Carilion via Jefferson Street and operates every 15 minutes between 7:00 a.m. – 10:00 a.m. and 2:00 p.m. - 7:00 p.m. and every 10 minutes between 10:00 a.m. and 2:00 p.m. The Star Line Trolley provides the most frequent service currently available in the Roanoke Valley throughout the service area shown in the following map.

Figure 2.2-1 | Map of Star Line Trolley Service



## 2.3 Services for Older Adults and People with Disabilities

Several different services exist for senior citizens and people with disabilities in the region as described in the following sections.

### 2.3.1 Bedford County Ride Program

In Bedford County, the Central Virginia Alliance for Community Living, Inc. (CVACL) provides non-emergency medical transportation services through its Bedford Ride program. People who are age 60 and over or anyone with a disability and who are living at home, have no means to transport themselves, and have no one available in the community to assist them to and from essential services may use this service for a fee. The cost may depend on their income and medical expenses. Essential services include medical appointments, pharmacies, and grocery stores. Transportation to preapproved individuals is available generally from Monday thru Friday, 8:30 a.m. – 3:00 p.m. depending on availability of space on schedules, volunteer drivers and vehicles.

### 2.3.2 Botetourt County Senior Van Service

Public transportation in Botetourt County originally began through the Botetourt Improvement Associate and is now provided by the County's Parks, Recreation and Tourism Department. The objective of the Senior and Accessible Van Service is to improve the quality of life for Botetourt County residents that are age 55 and older or have a qualifying disability. In 2012, a total of 1,396 participants (760 seniors and 636 people with disabilities) used the service.

Due to the elevating costs for vehicles, rates were increased in January 2015 to raise revenues for new vehicles. Rates are \$6 for in-town medical appointments, \$15 for personal enrichment trips, and \$12.00 for trips taken by people in wheelchairs. Rates are a voluntary recommended donation, and no customer is refused service due to lack of ability to pay. The previous rate increase for this service took place in 2009. Transportation is available to Botetourt residents Monday through Friday from 8:00 a.m. to 5:00 p.m. for trips to destinations in Botetourt County, Roanoke County, the City of Roanoke, the City of Salem, and the Town of Vinton.

### 2.3.3 Montgomery County Public Transportation

The New River Valley (NRV) Senior Services, a private non-profit organization, provides transportation in Montgomery County and has operated since 1976. Several programs are available to residents.

The Med-Ride Program utilizes volunteers to transport clients and is available to residents in Montgomery County who have no transportation or cannot afford public transportation. The program operates on a sliding scale (considering income and expenses) with a minimum \$5 fee per trip. There is no age limit and funding is provided by the Carilion Foundation, area United Ways, the Trollinger Trust Fund, the Community Foundation and the C.E. Richardson Foundation.

Local governments provide funding for people with disabilities to receive transportation services. Riders pay a fee based on their monthly income. Transportation is also provided for non-emergency medical purposes including dialysis and cancer treatments, and Medicaid is accepted as a payment source.

Rides are arranged via Logisticare and provided by NRV Senior Services.

#### 2.3.4 Local Office on Aging Taxi Vouchers

The Local Office on Aging has been successful in receiving federal funds (FTA 5310) to support taxi vouchers for people 60 years of age and older in the City of Roanoke, Roanoke County, the City of Salem, and Town of Vinton. The taxi vouchers are used primarily to support non-emergency medical trips.

#### 2.3.5 Logisticare

Logisticare provides non-emergency medical transportation for Medicaid recipients. Routine trips require five-day notice and new standing orders require two-day notice. For public transportation tickets, Logisticare requires seven-day advanced notice. Federal transit funding is not used to provide this service.

#### 2.3.6 Private Shuttles

Many senior living centers provide private shuttles for their residents to access medical, shopping, and entertainment destinations. In addition, some churches provide bus service for members of their congregations who live within a given proximity of the church. Such privately-operated services greatly reduce the public responsibility to care for the transportation needs of fellow citizens.

#### 2.3.7 S.T.A.R. Service

Valley Metro contracts with Unified Human Services Transportation Systems, Inc. Roanoke Area Dial-A-Ride (RADAR) to provide transportation for people with disabilities who are unable to use the fixed-route transit service, regardless of their

age or income level. This type of service is referred to nationally as paratransit and locally is called Specialized Transit – Arranged Rides (S.T.A.R.) service.

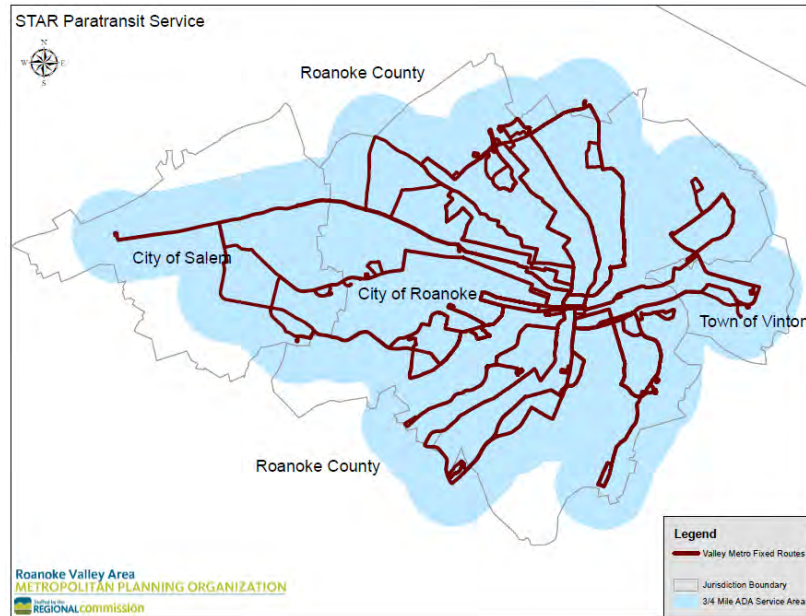
*Paratransit (American Public Transportation Association) is a mode of transit service (also called **demand response** or **dial-a-ride**) characterized by the use of passenger automobiles, vans or small buses operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations. The vehicles do not operate over a fixed route or on a fixed schedule. The vehicle may be dispatched to pick up several passengers at different pick-up points before taking them to their respective destinations and may even be interrupted en route to these destinations to pick up other passengers.*

S.T.A.R. service is available to people during the same times and days as the fixed-route service, Monday–Saturday from 5:45 a.m.–8:45 p.m. Paratransit is mandated by the federal government within  $\frac{3}{4}$  mile of any fixed-route transit service; this does not include services like the Smart Way where stops are spaced far apart. The Cities of Salem and Roanoke, and the Town of Vinton elect to expand the S.T.A.R. service to cover their entire locality. In Roanoke County, beyond the S.T.A.R. service, a similar CORTRAN service exists for County residents (see section 2.3.7). The Town of Vinton, because it is also part of Roanoke County, benefits from having both services available to its residents. S.T.A.R. customers are able to travel to any destination within the service area for a flat fare. The S.T.A.R. service area is shown in the following figure.

Fares for S.T.A.R., because it is a paratransit services based on the extent of fixed-route bus service, are capped at twice the maximum fixed-route fare. S.T.A.R. fares are currently \$3.00 per trip or \$96 for an unlimited monthly ride pass.

S.T.A.R. transportation services are available unless Valley Metro operates on Snow Routes in which case S.T.A.R. services are suspended until normal routes resume. During such times, S.T.A.R. service may be provided for a portion of a day.

Figure 2.3.7-1 | S.T.A.R. Service Area

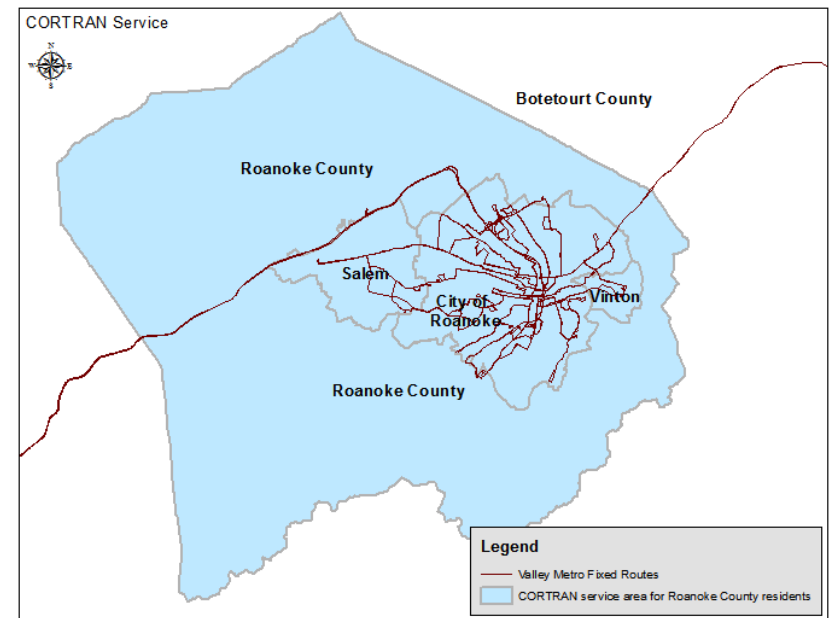


### 2.3.8 County of Roanoke Transportation (CORTAN)

Roanoke County provides public transportation services for its residents age 60 and over or residents of any age with a disability. As long as a resident meets one of these criteria, they are eligible for the service, regardless of income level or, if they are 60+, their ability.

The service is called CORTAN (County of Roanoke Transportation) and, like the S.T.A.R. service, is also provided by RADAR. CORTAN customers are able to travel to destinations within Roanoke County, the City of Roanoke, Salem and Vinton as shown in the following figure.

Figure 2.3.8-1 | CORTAN Service Area



CORTAN began operating in 1985 initially in four areas with service one day a week for each area using one accessible

vehicle. The need for the service has grown, and it now operates in all parts of the County Monday-Friday from 7:00 a.m. – 6:00 p.m. Transportation services are not available when Roanoke County schools are closed in the winter due to weather. Roanoke County sets the fare for CORTRAN which is currently \$4 per trip.

Confusion sometimes exists among the public between the S.T.A.R. and CORTRAN programs and their service areas because they are both provided with the same RADAR vehicles so in appearance there is no obvious difference.

Customers who live in the parts of Roanoke County with access to both S.T.A.R. and CORTRAN often use S.T.A.R. because the fare is \$1 less. The local funding subsidy in these cases is covered by the City of Roanoke rather than Roanoke County.

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## 2.4 Services for Students

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Just as there are specialized transit services for seniors or people with disabilities, there are specialized transit services provided in the Roanoke Valley specifically for children and teenagers for the sole purpose of providing them and their parents with a transportation option to get to school. School bus services are provided by each local school system at no cost to students or their families. Bus services are provided to students regardless of how close they live to the school, their family income, or the presence of infrastructure that would enable them to safely walk or ride a bicycle to school. School systems and local governments share the same service area. Operating public schools consume a large percentage of local budgets; however, this Plan did not examine the details of student bus ridership,

number of buses needed to provide the services in each locality, or the related expenses.

Another transit service for students is provided at the college level. Arrangements for students attending Virginia Western Community College (VWCC) or Virginia Tech-Carilion School of Medicine have been made to provide them with free transit options via Valley Metro. VWCC pays for Valley Metro trips taken by their students when classes are in session; Virginia Tech pays for Smart Way fares for Medical students and faculty. Virginia Tech also provides a fare-free shuttle between Blacksburg and Virginia Tech-Carilion School of Medicine for their students and faculty.

Hollins University contracts with RADAR to provide a free express service for the students, faculty, and staff between the University, the Valley View area, and Center in the Square. The service operates hourly on Thursday/Friday evenings between 4:00 p.m. – 11:00 p.m. and hourly on Saturdays between 11:00 a.m. – 11:00 p.m. Services are not open to the general public.

Ferrum College also contracts with RADAR to provide a similar service called the Ferrum Express. This service is open to the general public for free connecting Ferrum, the Rocky Mounty Farmers Market, Eagle Cinema, Rocky Mount Wal-Mart, and the Bowling Alley on Thursday and Friday evenings between 5:00 p.m. – 11:00 p.m. The service includes service to Downtown Roanoke on Saturdays between 1:00 p.m. – 11:00 p.m.

These college services are shown on the following brochures.

Figure 2.4-1 | Hollins Express

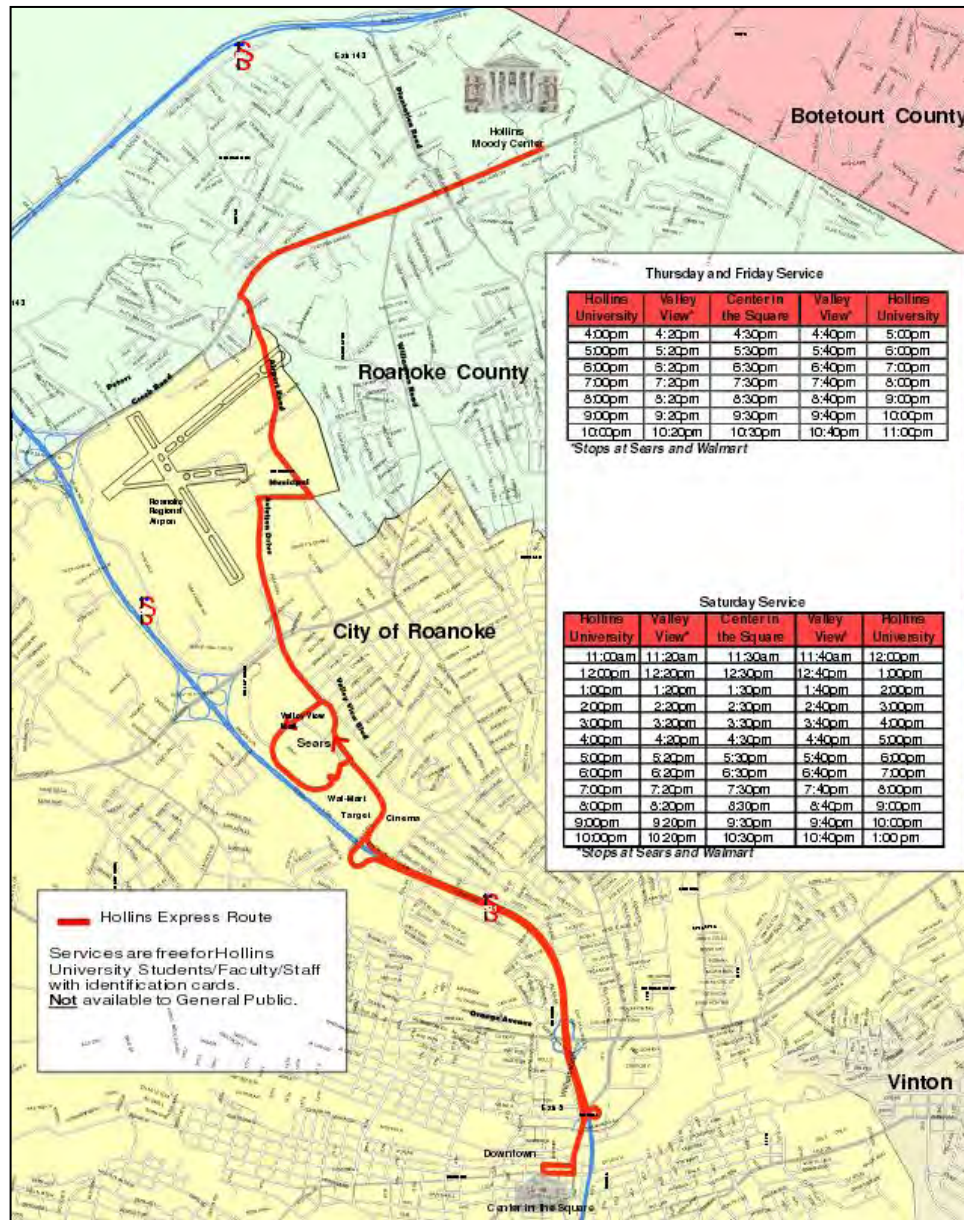


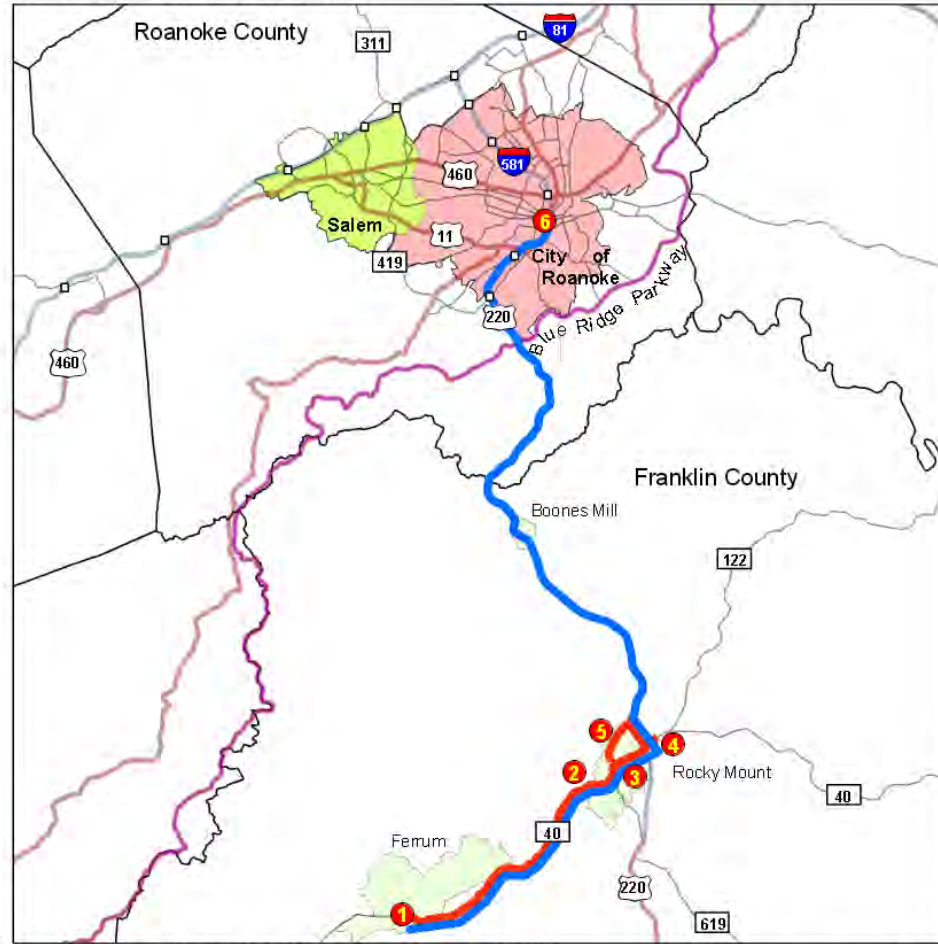
Figure 2.4-2 | Ferrum Express

● **Bus Stops**

- 1: Ferrum
- 2: Rocky Mount Farmers Market
- 3: Eagle Cinema
- 4: Rocky Mount Wal-Mart
- 5: Bowling Alley
- 6: Campbell Court  
Transportation Center (Saturday Only)



**THE FERRUM EXPRESS SERVICE MAP**



**Schedules**

| Thursday and Friday Route | Ferrum     | Farmers Mrkt | Eagle Cinema | Wal-Mart   |
|---------------------------|------------|--------------|--------------|------------|
|                           | 5:00 p.m.  | 5:15 p.m.    | 5:20 p.m.    | 5:25 p.m.  |
|                           | 6:00 p.m.  | 6:15 p.m.    | 6:20 p.m.    | 6:25 p.m.  |
|                           | 7:00 p.m.  | 7:15 p.m.    | 7:20 p.m.    | 7:25 p.m.  |
|                           | 8:00 p.m.  | 8:15 p.m.    | 8:20 p.m.    | 8:25 p.m.  |
|                           | 9:00 p.m.  | 9:15 p.m.    | 9:20 p.m.    | 9:25 p.m.  |
|                           | 10:00 p.m. | 10:15 p.m.   | 10:20 p.m.   | 10:25 p.m. |

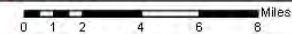
| Thursday and Friday Route | Wal-Mart   | Bowling Alley | Farmers Mrkt | Ferrum     |
|---------------------------|------------|---------------|--------------|------------|
|                           | 5:25 p.m.  | 5:35 p.m.     | 5:40 p.m.    | 6:00 p.m.  |
|                           | 6:25 p.m.  | 6:35 p.m.     | 6:40 p.m.    | 7:00 p.m.  |
|                           | 7:25 p.m.  | 7:35 p.m.     | 7:40 p.m.    | 8:00 p.m.  |
|                           | 8:25 p.m.  | 8:35 p.m.     | 8:40 p.m.    | 9:00 p.m.  |
|                           | 9:25 p.m.  | 9:35 p.m.     | 9:40 p.m.    | 10:00 p.m. |
|                           | 10:25 p.m. | 10:35 p.m.    | 10:40 p.m.   | 11:00 p.m. |

| Saturday Route | Ferrum     | Farmers Mrkt | Eagle Cinema | Wal-Mart   | Roanoke    |
|----------------|------------|--------------|--------------|------------|------------|
|                | 1:00 p.m.  | 1:15 p.m.    | 1:20 p.m.    | 1:25 p.m.  | 2:00 p.m.  |
|                | 3:00 p.m.  | 3:15 p.m.    | 3:20 p.m.    | 3:25 p.m.  | 4:00 p.m.  |
|                | 5:00 p.m.  | 5:15 p.m.    | 5:20 p.m.    | 5:25 p.m.  | 6:00 p.m.  |
|                | 7:00 p.m.  | 7:15 p.m.    | 7:20 p.m.    | 7:25 p.m.  | 8:00 p.m.  |
|                | 9:00 p.m.  | 9:15 p.m.    | 9:20 p.m.    | 9:25 p.m.  | 10:00 p.m. |
|                | 11:00 p.m. | 11:15 p.m.   | 11:20 p.m.   | 11:25 p.m. | 12:00 p.m. |

| Saturday Route | Roanoke    | Wal-Mart   | Eagle Cinema | Farmers Mrkt | Ferrum     |
|----------------|------------|------------|--------------|--------------|------------|
|                | 2:00 p.m.  | 2:35 p.m.  | 2:40 p.m.    | 2:45 p.m.    | 3:00 p.m.  |
|                | 4:00 p.m.  | 4:35 p.m.  | 4:40 p.m.    | 4:45 p.m.    | 5:00 p.m.  |
|                | 6:00 p.m.  | 6:35 p.m.  | 6:40 p.m.    | 6:45 p.m.    | 7:00 p.m.  |
|                | 8:00 p.m.  | 8:35 p.m.  | 8:40 p.m.    | 8:45 p.m.    | 9:00 p.m.  |
|                | 10:00 p.m. | 10:35 p.m. | 10:40 p.m.   | 10:45 p.m.   | 11:00 p.m. |

The Ferrum Express is a free service that is open to the public.  
For service changes due to inclement weather please call 540/365-5555 or visit [www.ferrum.edu/weather/](http://www.ferrum.edu/weather/).  
For connection information to Valley Metro and Smart Way bus services, please contact 800/368-7005.

Prepared by the staff of the Roanoke Valley-Alleghany Regional Commission, July 2005



## 2.5 Intercity Bus Transportation

Three operators (Greyhound, Megabus, and Valley Metro) provide intercity bus transportation to and from the Roanoke Valley. Intercity bus service is long-distance public transportation connecting major destinations with few or no stops in between.

### 2.5.1 Greyhound

Greyhound provides intercity bus transportation from the Campbell Court Transportation Center in Downtown Roanoke to destinations as shown in the following network map. Access to Greyhound is available by Valley Metro fixed-route buses and Smart Way Commuter buses. Greyhound is a valuable service to citizens in the Roanoke Valley providing affordable long-distance transportation options. Information about Greyhound trip schedules can be found on the website at [greyhound.com](http://greyhound.com).

Figure 2.5.1-1 | Greyhound Services



### 2.5.2 Megabus

Megabus also provides a valuable long-distance travel option for citizens in the Roanoke Valley. Megabus is a low-cost, express bus service that offers trips from the Exit 118B Christiansburg Park and Ride Lot to Washington DC, Knoxville, and Atlanta. Megabus connections to points beyond are available from these cities. Citizens from the Roanoke Valley can access the service using the Smart Way Commuter bus which also provides service to Exit 118B from multiple locations within the Roanoke Valley. Information about Megabus trip schedules can be found on the website at [megabus.com](http://megabus.com). Connecting schedule information via the Smart Way service can be found on [smartwaybus.com](http://smartwaybus.com).



### 2.5.3 Smart Way Base

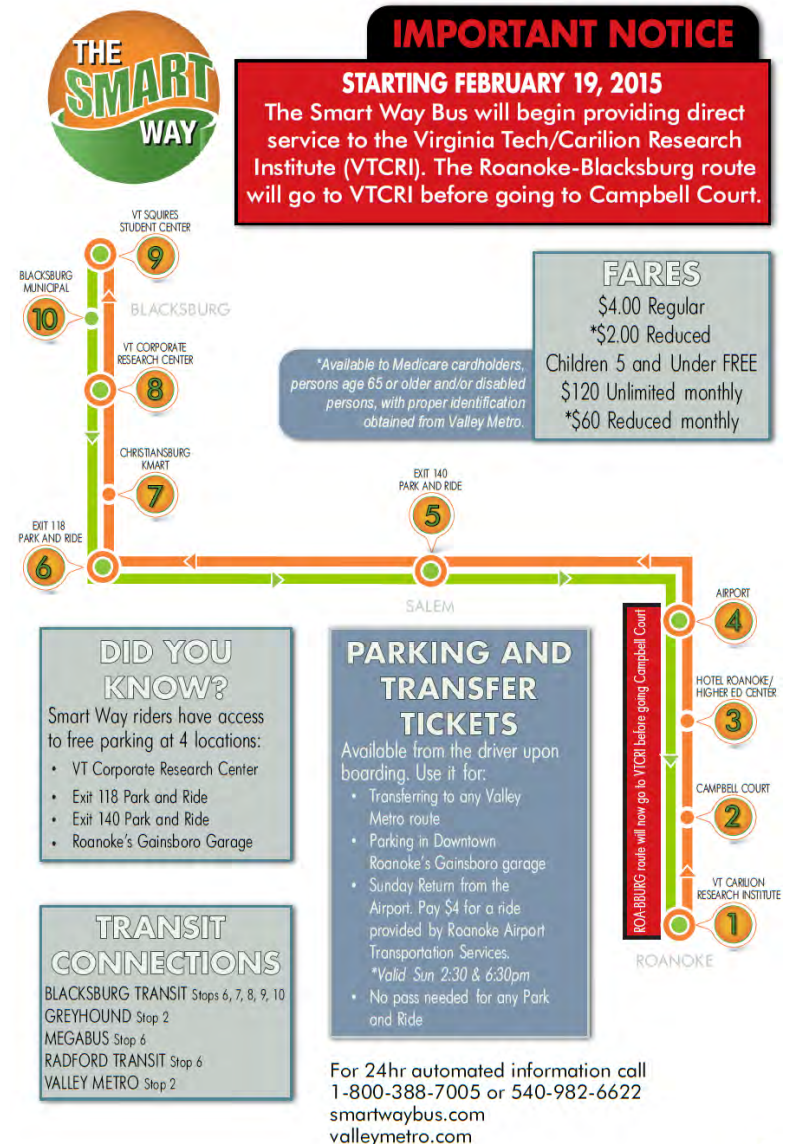
The Smart Way Base Commuter connects the Roanoke Valley and the New River Valley Monday through Saturday. Stops include the following locations:

- ▲ VIRGINIA TECH CARILION RESEARCH INSTITUTE
- ▲ CAMPBELL COURT IN DOWNTOWN ROANOKE
- ▲ ROANOKE HIGHER EDUCATION CENTER
- ▲ ROANOKE-BLACKSBURG REGIONAL AIRPORT
- ▲ EXIT 140 PARK AND RIDE
- ▲ EXIT 118B PARK AND RIDE
- ▲ CHRISTIANSBURG KMART
- ▲ CORPORATE RESEARCH CENTER
- ▲ VIRGINIA TECH SQUIRES STUDENT CENTER
- ▲ BLACKSBURG MUNICIPAL BUILDING

Service is provided via a 45' commuter coach with luggage storage available. As noted by the stops, several places along the route are available for park and ride access to the Smart Way. In Downtown Roanoke, the Gainsboro Garage provides free parking for Smart Way users.

The Smart Way is the only transit service currently available to the Roanoke-Blacksburg Regional Airport. The following maps show the Smart Way stops and the following tables show the current Smart Way schedule.

Figure 2.5.3-1 | Smart Way Stops and Connections





### 2.5.4 Smart Way Connector

The Smart Way Connector provides a link between the New River Valley, the Roanoke Valley, and Bedford to the Kemper Street Amtrak station in Lynchburg. The service began in July 2009 with the purpose of providing connecting service to passenger rail. The Connector bus operates every day of the year and stops at the following locations:

- ▲ VIRGINIA TECH-SQUIRES STUDENT CENTER
- ▲ I-81 EXIT 118B PARK AND RIDE
- ▲ I-81 EXIT 140 PARK AND RIDE
- ▲ CAMPBELL COURT IN DOWNTOWN ROANOKE
- ▲ ROANOKE BERGLUND CENTER
- ▲ BEDFORD WELCOME CENTER
- ▲ KEMPER STREET STATION – LYNCHBURG AMTRAK

The Connector bus has provided a much desired service and its success helped prove the need to extend passenger rail service to Roanoke. Initial ridership expectations of 19 passengers per day (RVARC Bus Connector Staff Report 2009) were greatly surpassed with the Connector bus carrying an average of 35 passengers per day in its first full month of service (August 2011). After five years of service, the estimate was 47 passengers per day. However, less than four years after service initiation, the Connector is averaging 55 passengers per day.

When Amtrak service is extended to Roanoke in 2017, there will no longer be a need for passenger rail connector service between Roanoke and Lynchburg to meet the current Northeast Regional morning departures and evening arrivals in Lynchburg.

A connecting service will still be needed between Blacksburg and Roanoke.

Thus far, there has been no expressed need to provide a bus connector service for the Crescent train service in Lynchburg.

This is likely due to the late night departures and early morning arrivals that lessen the regional demand for this service.

Given the success of the current Northeast Regional train, a second Northeast Regional train to Lynchburg has been contemplated. If a second train is provided, depending on the schedule, there may be sufficient demand to provide Connector bus service to meet that train's departures and arrivals.

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## 2.6 Amtrak Passenger Rail

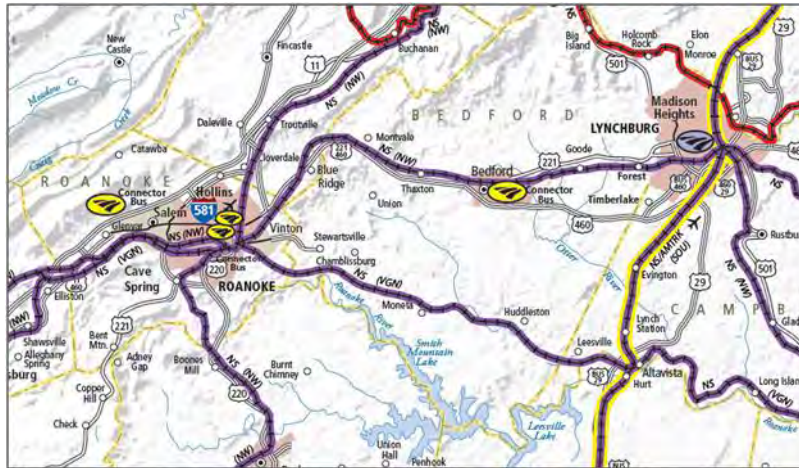
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Since 1979 Roanoke citizens have longed to bring passenger rail service back to the Star City. In February 2013, the Virginia General Assembly passed HB 2313, which changed the way transportation was funded in the Commonwealth. The bill enabled the expansion and growth of intercity passenger rail service including the extension of Amtrak from Lynchburg to Roanoke. The announcement was made official on August 9, 2013 in a News Release from the Governor's Office. The news was met with great excitement and some surprise. While having passenger rail service return to Roanoke has been a desire for a long time, as of the last Long Range Transportation Plan in 2012, there was still no train arriving for the foreseeable future. The 2013 transportation bill was the catalyst to make the service a reality.

The timing has also worked out. Norfolk Southern had been working with the Virginia Department of Rail and Public

Transportation to add freight capacity and upgrading signals to its rail yard in Downtown Roanoke thus improving the efficiency of freight operations. Working in a side track and platform for passenger rail was a relatively simple add-on.

Figure 2.6-1 | Excerpt from Official Virginia State Railroad Map, 2012



In the map above, the yellow Amtrak symbols represent where there is connecting bus service to an Amtrak station which is marked with a grey Amtrak symbol. In order to achieve passenger rail service extension, improvements to the tracks on the Norfolk Southern VGN (Virginian Railway) line between Altavista and Roanoke were made to accommodate double-stack trains. By making those improvements, more freight trains could use the VGN tracks making room for passenger service on the Norfolk Southern NW (Norfolk and Western Railway) line.

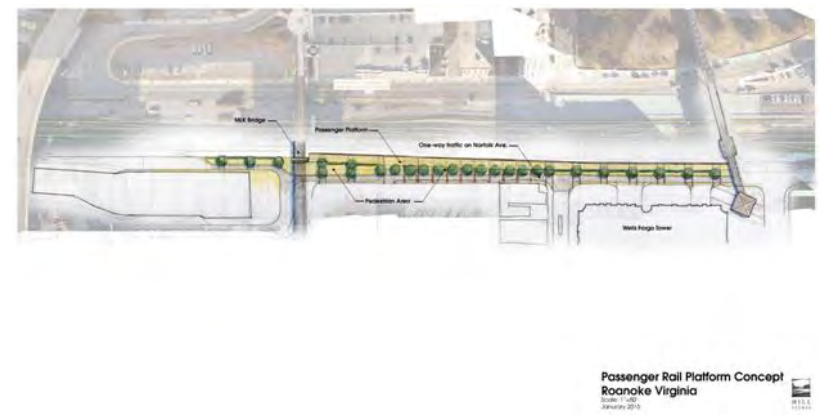
The following pictures show a concept for Amtrak in Downtown Roanoke. Since their rendering, the Virginia Department of Rail and Public Transportation, in working with Norfolk Southern, Amtrak, and the City of Roanoke, has determined that providing

a high platform to ease passenger boarding/alighting, particularly for people with disabilities, is feasible and will be constructed.

Figure 2.6-2 | Passenger Rail Platform Typical Section



Figure 2.6-3 | Passenger Rail Platform Concept



▲ ANTICIPATED TRAIN DEPARTURE TIMES:

- Around 6:15 a.m. Monday through Friday
- Around 8:35 a.m. on Saturdays and Sundays

▲ ANTICIPATED TRAIN ARRIVAL TIMES:

- Around 10:00 p.m. Sunday through Friday
- Around 9:00 P.M Saturdays

In 2013, the City of Roanoke and Valley Metro applied for and received Regional Surface Transportation Program funds to study the future needs of passengers given the Amtrak platform location as well as the future needs of Valley Metro's downtown transfer hub, Campbell Court. Wendel Architects was hired to conduct the study which recommends a new intermodal transportation center be constructed on land adjacent to the Amtrak platform between Salem Avenue and Norfolk Avenue, Jefferson Street and the MLK Pedestrian Bridge that would accommodate transfers between intercity buses, local buses, passenger rail, passenger drop-off and pick-up, short- and long-term parking, taxis, bikes, and pedestrians. More information about the Study is provided in the Local Plans Review section of this Plan.

## 3.0 FARE STRUCTURES AND EXISTING FUNDING SOURCES

Possibly the greatest challenge to any transit project is securing the funding for operating the service as well as purchasing the necessary vehicles and equipment. One source of funding comes from the fares charged to people who use the service. Fares are typically less for seniors, people with disabilities and for children. Otherwise, fares are the same for any person regardless of personal income or any other distinction. Fares are charged for transit services in the following manner.

**Valley Metro Fixed-Route:**

- ▲ \$1.50, FREE TRANSFERS TO OTHER VALLEY METRO FIXED-ROUTE WITHIN THE HOUR
- ▲ \$0.75 DISCOUNT FARE FOR MEDICARE CARD HOLDERS, PEOPLE 65 AND OVER, OR PEOPLE WITH DISABILITIES
- ▲ \$0.75 FOR STUDENTS 11-18 YRS.
- ▲ FREE FOR CHILDREN 10 AND UNDER
- ▲ \$48 FOR A 31-DAY UNLIMITED PASS
- ▲ \$24 DISCOUNT 31-DAY UNLIMITED PASS
- ▲ \$14 FOR A 7-DAY UNLIMITED PASS
- ▲ \$7 DISCOUNT 7-DAY UNLIMITED PASS
- ▲ \$20 FOR A 15-RIDE PASS
- ▲ \$10 DISCOUNTY 15-RIDE PASS
- ▲ \$5 UNLIMITED RIDE 24-HOUR PASS
- ▲ \$2.50 DISCOUNT UNLIMITED RIDE 24-HOUR PASS

**Starline Trolley:**

- ▲ FREE

**S.T.A.R. Paratransit:**

- ▲ \$3.00 PER TRIP
- ▲ \$96 UNLIMITED MONTHLY PASS

**CORTRAN Seniors/Disabled:**

- ▲ \$4.00 PER TRIP

**Botetourt Seniors/Disabled:**

- ▲ \$6 MEDICAL TRIPS
- ▲ \$12.00 WHEELCHAIR ACCESS
- ▲ \$15.00 PERSONAL ENRICHMENT TRIPS

**School Bus:**

- ▲ FREE

**Ferrum Express:**

- ▲ FREE

**Greyhound and Megabus:**

- ▲ VARIES BY DESTINATION

**Smart Way Commuter:**

- ▲ \$4.00, FREE TRANSFER TO VALLEY METRO FIXED-ROUTE
- ▲ \$120 BASIC 31-DAY UNLIMITED RIDE PASS
- ▲ \$60 DISCOUNT BASIC 31-DAY UNLIMITED RIDE PASS
- ▲ \$54 BASIC 15-RIDE PASS
- ▲ \$27 DISCOUNT BASIC 15-RIDE PASS
- ▲ \$10 FOR 24-HOUR UNLIMITED RIDE PASS
- ▲ \$5 DISCOUNT 24-HOUR UNLIMITED RIDE PASS

**Smart Way Connector:**

- ▲ \$4.00 PER TRIP

Revenue generated from fares only covers a portion (approximately 23%) of the funding needed to operate the service. For the S.T.A.R. service, approximately 13% of the service cost is covered by fares. Thus, additional funds must be secured in order to provide any public transit service.

Funding sources may be used for expenses related to operating the service including drivers, capital expenses to buy equipment such as vehicles, or both. The Federal Government through the Federal Transit Administration (FTA) provides a substantial portion of the existing funding for public transportation through formulas as does the Commonwealth of Virginia through the Commonwealth Transportation Board and the Virginia Department of Rail and Public Transportation.

The following are the three primary formula-based federal funding sources:

- ▲ FTA SECTION 5307 (OPERATING AND CAPITAL)
- ▲ FTA SECTION 5339 (CAPITAL)

### ▲ FTA SECTION 5310 (OPERATING AND CAPITAL)

In addition, there are other funding sources for capital expenses available by competitive selection of projects. The following are the competitive funding sources:

- ▲ HB2
- ▲ REGIONAL SURFACE TRANSPORTATION PROGRAM
- ▲ TRANSPORTATION ALTERNATIVES PROGRAM

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## 3.1 FTA Section 5307

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This funding source is called the Urbanized Area Formula Funding program (49 U.S.C. 5307) which makes Federal resources available to urbanized areas for transit capital and operating assistance and for transportation related planning.

Provided directly to Valley Metro as the region's Designated Recipient, Section 5307 funds are determined based on a formula that takes into account these factors:

- ▲ URBANIZED AREA'S TOTAL POPULATION
- ▲ POPULATION DENSITY (PEOPLE PER SQUARE MILE)
- ▲ MILES OF FIXED-ROUTE TRANSIT SERVICE PROVIDED
- ▲ MILES TRAVELED BY BUS PASSENGERS

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## 3.2 FTA Section 5339

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This funding source is called the Bus and Bus Facilities Program (49 U.S.C. Section 5339) which provides Federal resources to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities. Like 5307, these funds are provided to Valley Metro as the region's Designated Recipient and the amount is based on the same factors as Section 5307. In FY 2014, Valley Metro received \$273,764 from FTA in Section 5339 funds along with a state match of \$29,973.

Given that most of Valley Metro's transit vehicles cost around \$400,000, the amount available each year is not sufficient to cover even one bus every year. To provide its service, Valley Metro currently has 37 buses (35' long) in addition to other specialized service vehicles. Each of those vehicles has a lifespan of 12 years. Mathematically, this funding source alone is not sufficient to sustain the vehicle capital needs of the transit services provided.

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## 3.3 FTA Section 5310

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This funding source is called the Enhanced Mobility of Seniors and Individuals with Disabilities Program (49 U.S.C Section 5310) which provides Federal resources "for the purpose of assisting private nonprofit groups in meeting the transportation needs of the elderly and persons with disabilities when the transportation service provided is unavailable, insufficient, or inappropriate to

meetings these needs”<sup>1</sup>. 5310 funds have most commonly been used to support regional RADAR services via the CORTRAN and S.T.A.R. programs. Most recently, under MAP-21, this program now provides funding for both capital and operating expenses.

The amount provided to the Roanoke urbanized area is based on a formula that considers the number of elderly individuals and individuals with disabilities in the urbanized area. In FY2016, \$221,623 was available to the Roanoke area.

The Virginia Department of Rail and Public Transportation (VDRPT) is the Designated Recipient of these funds for the Roanoke area. Grant requests are made through VDRPT by eligible recipients on an annual basis.

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### 3.4 State Funding

The Virginia Commonwealth Transportation Board provides transit operating assistance through the Department of Rail and Public Transportation. The amount that each transit agency receives is also based on a formula that is based on performance according to an allocation methodology that was approved in 2013 and includes the following performance metrics:

- ▲ NET COST PER PASSENGER (50%)
- ▲ TOTAL OPERATING COSTS LESS DEPRECIATION RELATED TO TRANSIT ASSETS AND ANY OPERATING INCOME DERIVED FROM A SOURCE OTHER THAN TAXPAYERS DIVIDED BY RIDERSHIP
- ▲ CUSTOMERS PER REVENUE HOUR (25%)

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<sup>1</sup> "Enhanced Mobility of Seniors & Individuals with Disabilities - 5310." *Federal Transit Administration: Enhanced Mobility of Seniors & Individuals with Disabilities - 5310*. FTA, n.d. Web. 26 Mar. 2016.

- ▲ RIDERSHIP DIVIDED BY REVENUE HOURS
- ▲ CUSTOMERS PER REVENUE MILE (25%)
- ▲ RIDERSHIP DIVIDED BY REVENUE MILES
- ▲ TRANSIT SYSTEM SIZING
- ▲ BASED EQUALLY ON THE MOST RECENT ANNUAL RIDERSHIP AND MOST RECENT AUDITED OPERATING COST AVAILABLE NET OF DEPRECIATION, PROJECTS FUNDED IN OTHER DRPT PROGRAMS, AND NON-TRANSIT RELATED EXPENSES

Given that half of the funding is based on number of customers, the formula stresses the Commonwealth’s value of providing services that generate high ridership as opposed to providing services that provide coverage to most areas regardless of the number of people who might use the service.

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### 3.5 Local Funding

In order to be eligible to receive federal and state funding, a local contribution must be part of the complete funding package. In the Roanoke Valley, the City of Roanoke, the City of Salem, and the Town of Vinton support public transportation provided through Valley Metro and the S.T.A.R service. Roanoke County, Botetourt County, Bedford County, and Montgomery County each provide local funds to support senior and disabled trips for their residents. Local partnerships have also been established with Downtown Roanoke Inc. and Carilion Clinic to provide funding for the Star Line Trolley. The Smart Way Commuter service is supported by the Towns of Blacksburg and Christiansburg, Montgomery County, and the Virginia Institute of Technology. Various partnerships also occur between Valley Metro and local businesses or residential areas to provide improvements to bus stops.



Additional revenue is generated locally through the rental of property owned by Valley Metro at Campbell Court as well as through advertising sold on the inside and outside of buses.

The amount and percent of funding from various sources over the last 10 years is shown in the following tables. The figures in this table do not reflect the Commonwealth's new operations funding allocation methodology which began in FY14 with a transition period. The new performance metrics will still be in a transition period in FY15 and will be fully operational in FY16. The percentages shown in FY13 and previously reflect a funding allocation methodology that was based on the transit agency's total operating cost relative to the total operating costs statewide for all transit providers. The new methodology aims to improve the effectiveness of public transportation funding.

*Table 3.5-1 | Valley Metro Funding Amount by Source for All Services*

| Fiscal Year  | Federal   | State     | Roanoke   | Local   | Operating Revenue | Other Revenue | Loss      | Actual    |
|--------------|-----------|-----------|-----------|---------|-------------------|---------------|-----------|-----------|
| <b>FY 05</b> | 2,028,002 | 990,356   | 1,017,000 | 70,945  | 1,357,631         | 411,444       | 9,234     | 5,884,612 |
| <b>FY 06</b> | 2,169,284 | 1,127,219 | 1,193,161 | 76,757  | 1,610,130         | 473,990       | 4,648     | 6,655,189 |
| <b>FY 07</b> | 2,484,634 | 1,227,575 | 1,330,414 | 157,511 | 1,660,818         | 460,964       | (382,182) | 6,939,735 |
| <b>FY 08</b> | 2,624,073 | 1,255,844 | 1,316,071 | 165,970 | 1,938,194         | 429,057       | (344,488) | 7,384,722 |
| <b>FY 09</b> | 2,716,178 | 1,365,532 | 1,387,323 | 286,518 | 1,950,233         | 351,228       | (120,040) | 7,936,972 |
| <b>FY 10</b> | 2,766,527 | 1,072,412 | 1,112,953 | 300,687 | 1,904,502         | 326,866       | (87,566)  | 7,571,514 |
| <b>FY 11</b> | 2,717,922 | 1,142,458 | 1,178,593 | 294,704 | 2,003,662         | 302,269       | (449,300) | 8,088,908 |
| <b>FY 12</b> | 2,768,557 | 1,404,369 | 1,648,504 | 361,735 | 2,131,742         | 351,026       | (98,520)  | 8,764,553 |
| <b>FY 13</b> | 2,824,369 | 1,717,273 | 1,649,666 | 415,819 | 2,141,808         | 246,174       | 127,788   | 8,867,321 |
| <b>FY 14</b> | 2,729,241 | 2,137,899 | 1,594,438 | 352,183 | 2,195,833         | 296,919       | 96,910    | 9,209,605 |

*Table 3.5-2 | Valley Metro Funding Percentage by Source for All Services*

| Fiscal Year  | % Federal | % State | % City of Roanoke | % Local | % Operating Revenue | % Other Revenue |
|--------------|-----------|---------|-------------------|---------|---------------------|-----------------|
| <b>FY 05</b> | 34.46%    | 16.83%  | 17.28%            | 1.21%   | 23.07%              | 6.99%           |
| <b>FY 06</b> | 32.60%    | 16.94%  | 17.93%            | 1.15%   | 24.19%              | 7.12%           |
| <b>FY 07</b> | 35.80%    | 17.69%  | 19.17%            | 2.27%   | 23.93%              | 6.64%           |
| <b>FY 08</b> | 35.53%    | 17.01%  | 17.82%            | 2.25%   | 26.25%              | 5.81%           |
| <b>FY 09</b> | 34.22%    | 17.20%  | 17.48%            | 3.61%   | 24.57%              | 4.43%           |
| <b>FY 10</b> | 36.54%    | 14.16%  | 14.70%            | 3.97%   | 25.15%              | 4.32%           |
| <b>FY 11</b> | 33.60%    | 14.12%  | 14.57%            | 3.64%   | 24.77%              | 3.74%           |
| <b>FY 12</b> | 31.59%    | 16.02%  | 18.81%            | 4.13%   | 24.32%              | 4.01%           |
| <b>FY 13</b> | 31.85%    | 19.37%  | 18.60%            | 4.69%   | 24.15%              | 2.78%           |
| <b>FY 14</b> | 29.63%    | 23.21%  | 17.31%            | 3.82%   | 23.84%              | 3.22%           |

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### 3.6 Regional Surface Transportation Program

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As a result of the Roanoke urbanized area becoming a Transportation Management Area, the Roanoke Valley Transportation Planning Organization (RVTPO) undertook the responsibility of determining the use of federal surface transportation funds, RSTP funds, designated for the region. The amount of funds the region receives is based on population based on its relative share of the total population among all urbanized areas with over 200,000 people. Since the RSTP program began in FY 2013, the amount available to the region for allocation each year has been around \$4 million. Because the Roanoke Valley is a Transportation Management Area (TMA), which denotes a greater population and tax base, more responsibility is placed on local sources to support transit. Using some of the RSTP funds, the RVTPO has supported bus replacements for the region's transit services.

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### 3.7 Transportation Alternatives Program

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Similar to RSTP funds, the Roanoke Valley Transportation Planning Organization receives some Transportation Alternatives (TA) program funds to allocate to regional projects on a competitive basis. The total amount available to the RVTPO has been around \$250,000 each year. The RVTPO has funded active transportation (bike/walk) projects that support access to transit.

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### 3.8 HB2

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House Bill Two (HB2) was signed into Virginia law in 2014. This Bill initiated an objective scoring process to determine which new capital projects in the Commonwealth would receive transportation funding each year. The process is very competitive and transit capital investments compete with all other transportation capital projects. The first round using the new scoring process will be complete in June 2016.

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### 3.9 Six-Year Improvement Program / Transportation Improvement Program

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All federal and state funding for transit operating and capital projects are identified in the Commonwealth Transportation Board's Six-Year Improvement Program (SYIP). In developing the SYIP, each year, local governments and transit agencies work with citizens, transportation agencies, and other stakeholders to identify the projects that will help the localities, the region, and the Commonwealth achieve its goals. All projects receiving state or federal funding are listed in the SYIP.

Another document, the Transportation Improvement Program (TIP) is a four-year financial program that lists the transportation projects within the RVTPO region that will utilize federal funds. The TIP reflects the projects and priorities identified in the RVTPO Long-Range Transportation Plan. The TIP is approved by the RVTPO Policy Board every three years but amendments and adjustments occur continuously as new projects are added or existing projects are modified.

## 4.0 RELATED PLANS, STUDIES AND LOCAL ORDINANCES

Many other state, regional, and local plans, studies and ordinances have been adopted over the years that reference the value of transit or the need for additional transit services or infrastructure in the Roanoke Valley. These documents are listed below, and their content regarding transit is shared in the following sections. Table 4.0-1 provides a quick reference of the documents and the key elements they address.

- ▲ VTRANS 2040
- ▲ VTRANS 2040: VIRGINIA MULTIMODAL TRANSPORTATION PLAN 2025 NEEDS ASSESSMENT
- ▲ MULTIMODAL SYSTEM DESIGN GUIDELINES
- ▲ LIVABLE ROANOKE VALLEY PLAN
- ▲ DOWNTOWN ROANOKE INTERMODAL TRANSPORTATION STUDY
- ▲ RVTPO CONSTRAINED LONG RANGE TRANSPORTATION PLAN
- ▲ RVTPO CONGESTION MANAGEMENT PROCESS PLAN
- ▲ RVTPO BUS STOP ACCESSIBILITY STUDY
- ▲ RVTPO PEDESTRIAN VISION PLAN
- ▲ RVTPO BIKEWAY PLAN
- ▲ RVTPO PASSENGER RAIL STUDY
- ▲ RVTPO PLANNING FOR ELDERLY AND DISABLED MOBILITY STUDY
- ▲ AGE WAVE STUDY: DEMOGRAPHIC ANALYSIS OF THE ROANOKE VALLEY-ALLEGHANY REGION OF VIRGINIA
- ▲ COORDINATED HUMAN SERVICES MOBILITY PLAN
- ▲ ROUTE 419 CORRIDOR STUDY
- ▲ BEDFORD COUNTY ZONING ORDINANCE
- ▲ BEDFORD COUNTY TRAFFIC IMPACT STUDY GUIDELINES
- ▲ MONTGOMERY COUNTY 2025 COMPREHENSIVE PLAN
- ▲ MONTGOMERY COUNTY 2025: ELLISTON AND LAFAYETTE VILLAGE PLAN
- ▲ MONTGOMERY COUNTY ZONING ORDINANCE
- ▲ ROANOKE, VIRGINIA COMPREHENSIVE PLAN VISION 2001-2020
- ▲ ZONING ORDINANCE OF THE CITY OF ROANOKE, VIRGINIA
- ▲ GLENVAR COMMUNITY PLAN
- ▲ HOLLINS AREA PLAN
- ▲ ROANOKE COUNTY, VIRGINIA 2005 COMMUNITY PLAN
- ▲ COMPREHENSIVE PLAN OF THE CITY OF SALEM, VIRGINIA
- ▲ VINTON AREA CORRIDORS PLAN
- ▲ ROANOKE VALLEY CONCEPTUAL GREENWAY PLAN
- ▲ RVARC RURAL TRANSPORTATION PROJECT PRIORITIES
- ▲ 2035 RURAL LONG-RANGE TRANSPORTATION PLAN

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### 4.1 VTRANS 2040

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Preparations have also begun to form the next Statewide Vision and Multimodal Transportation Plan, VTRANS 2040. This plan will be developed by the Secretary of Transportation’s Office of Intermodal Planning and Investment in conjunction with the state’s transportation modal agencies. VTrans 2040 specifically considers needs in regions throughout the state and seeks to identify projects that will meet those needs. Looking forward in

the same timeframe, 25 years from now to the year 2040, the content of this Transit Vision Plan serves as input into the Roanoke Valley 2040 Constrained Long-Range Multimodal Transportation Plan and VTrans 2040.

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## 4.2 VTRANS 2040: Virginia Multimodal Transportation Plan 2025 Needs Assessment

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The Needs Assessment is a key component of VTrans 2040 in that it identifies deficiencies within the existing transportation network at the local and regional levels and aggregates them to a statewide perspective. Needs are identified within three areas:

- Corridors of Statewide Significance (COSS)
- Regional Networks
- Urban Development Areas (UDA)

Identifying what the deficiencies are within each of these areas is essential to identifying projects to address the need. In order for a project to receive capital funding through the HB2 process and receive any state or federal funding, it must meet a need identified in this assessment.

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## 4.3 Multimodal System Design Guidelines

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In October 2013, the Virginia Department of Rail and Public Transportation adopted Multimodal System Design Guidelines (MMSDG) that was developed for all places in the Commonwealth to use locally and regionally for the purpose of creating multimodal transportation networks. As recommended in the MMSDG, and in preparation for the Roanoke Valley's next Constrained Long-Range Multimodal Transportation Plan, the

RVTPO Transportation Technical Committee identified regional multimodal centers and districts that were based on activity density. The number of people living and working in a given area determines its activity density. These multimodal centers and districts identify where in the region multimodal transportation (specifically walking, biking, and taking transit) is most likely to occur and where related infrastructure is most needed. The foundation of these areas is their walkability. The RVTPO Policy Board approved the regional multimodal center and district boundaries in January 2015.

The MMSDG go a step further to outline six corridor types: Multimodal Through Corridor, Transit Boulevard, Boulevard, Major Avenue, Avenue, and Local Street. Draft multimodal corridors for the RVTPO study area will be finalized once this Transit Vision Plan is complete and the transit corridors can be overlaid onto pedestrian and bicycle corridors to fully understand the multimodal transportation network.

These multimodal concepts have contributed to the understanding of additional regional transit service needs and have reinforced feedback provided by the public.

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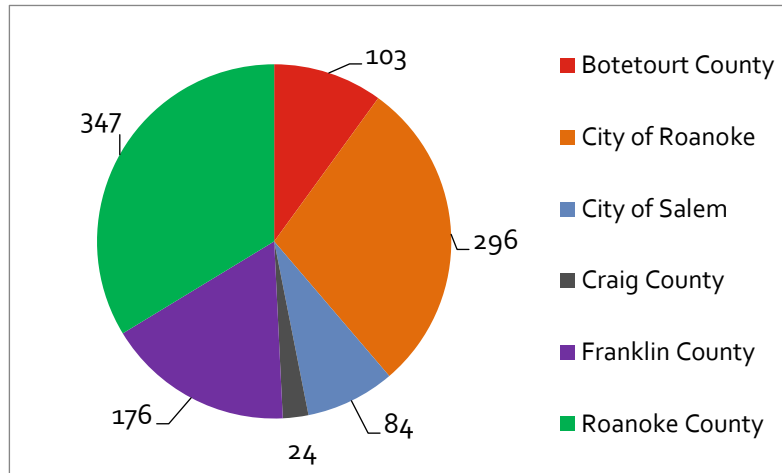
## 4.4 Livable Roanoke Valley Plan

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As mentioned in Part 1, The Livable Roanoke Valley (LRV) Plan (adopted 2014) is the overarching plan guiding the efforts of this Transit Vision Plan. The LRV Plan outlines a Vision for the Future, Livability Guiding Principles, Goals, Strategies and Actions. The Transit Vision Plan has been developed within the LRV framework acknowledging that transit is a tool for helping the community accomplish its livability vision and goals.

A statistically valid survey was conducted for the LRV Plan in which 1,030 people participated throughout the Roanoke Valley.

Figure 4.1-1 | Regional Distribution of Livable Roanoke Valley Survey Participants



When asked if providing public transportation for more citizens is a “top priority”, 45% of respondents said yes; 43% said providing passenger rail is a top priority. Improving the mobility of travelers and the workforce is included as a key action toward a Livable Roanoke Valley.

#### 4.5 Downtown Roanoke Intermodal Transportation Study, 2015

The Downtown Roanoke Intermodal Transportation Study analyzed the current and future needs associated with transit and passenger rail in Downtown Roanoke. At the request of the City of Roanoke and Valley Metro, the study was funded by the RVTPO using RSTP funds in 2013. Wendel Architects and their team of consultants were hired to do the study. The team had

completed similar work for a new station being planned for Blacksburg and more recently completed a similar study for a proposed intermodal station in Bedford.

The public was involved in the Study, participating in two public meetings held at Campbell Court at the beginning and draft recommendation stages.

Figure 4.5-1 | Intermodal Study Public Meeting Advertisement



Come out to Campbell Court (31 Campbell Ave, SW) on Monday, August 17th anytime between 4:00 - 7:00 p.m. Wendel Architects and City staff will be on hand to discuss the draft of the Intermodal Transportation Study. You can read the report on the City's web page: [http://www.roanokeva.gov/.../\\$FILE/Roanoke%20Intermodal%20Stu...](http://www.roanokeva.gov/.../$FILE/Roanoke%20Intermodal%20Stu...)

[www.roanokeva.gov](http://www.roanokeva.gov)

ROANOKEVA.GOV

The Study, which was finalized in November 2015, recommends a new intermodal station be constructed across from the current transfer center within the block bounded by Norfolk Avenue, Salem Avenue, the MLK Bridge, and Jefferson Street.

The new facility location is based primarily on the fixed location of the passenger rail platform, the availability of land next to the platform, the need to provide connections between passenger rail and regional and local transit services, as well as the need to continue providing local transit to serve Downtown Roanoke.

As a regional icon, which many residents and visitors will utilize on their way to/from the Roanoke Valley or in the course of their day-to-day travels, the alternatives for the recommended facility

show welcoming buildings, amenities, and travel spaces with attractive modern designs, ample space for pedestrian movement, and easy transferring between transportation modes and vehicles.

The sketches below show some of the design alternatives. The recommendations show design options that would enable bicycles to be loaded onto and off of buses from their regularly assigned location in the station. Some design alternatives suggest using the existing Campbell Court facility as well as a new site adjacent the platform; other design alternatives suggest accommodating all travel activities on the new site leaving the Campbell Court facility available for future redevelopment.

*Figure 4.5-2 | Downtown Roanoke Intermodal Station Options*



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## 4.6 Constrained Long-Range Transportation Plan, 2011

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The Roanoke Valley Constrained Long-Range Transportation Plan from 2011 highlighted the need for transit service to become a more important part of the long-range planning process in order to provide the broadest range of transportation alternatives and mobility options to the region. The Plan includes the following related goals/objectives/strategies:

**Goal Six:**

- Anticipate transportation needs of retiring Baby Boom population in projects selected for CL RTP 2035.

**Objective:** Target future areas that are projected to have a concentration of “carless households in retirement age ranges.

- Strategy: Investigate feeder system (e.g. taxi, jitney-style, or other paratransit feeder system) that targets concentrations of “future carless households” to the current fixed route transit system. Integrate concept into regional transit development plan by 2012.
- Strategy: Investigate bicycle sharing/renting systems that could serve as a transit feeder system. Integrate concept into regional bicycle plan by 2010.

**Objective:** Investigate daily bus service between Roanoke Valley and Smith Mountain Lake to connect retired lake residents with regional airport and other transportation connections.

The Plan acknowledges the need to utilize technology and real-time information to communicate with riders. Additionally, the Plan specifically recommends the consideration of 15 minute peak service on overcrowded routes such as those to Valley View

Mall or adding a PM Peak shuttle or express bus that services only Campbell Court and Valley View.

The Plan’s Vision List of Projects includes Transit and Transit Accessibility Improvements to support bus shelters, bus pullouts, bus stop accessibility, and other transit enhancements. Where new park and ride lots are proposed, evaluation of the need to include bus shelters is recommended.

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## 4.7 RVTPO Congestion Management Process Plan, 2014

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The Roanoke Valley Transportation Planning Organization (RVTPO) became a Transportation Management Area (TMA) MPO as a result of Census 2010. As such, this plan is the first ever Congestion Management Process (CMP) Plan for the RVTPO Study Area. Since the RVTPO TMA Study Area is relatively small, 210,111 in population, compared to large metropolitan areas, conventional definitions of congestion and conventional congestion reduction strategies may not always apply to the RVTPO. In the CMP Plan, 10 Areas of Emphasis were identified and transit strategies developed for each area.

**Congestion Management Plan Transit Strategies**

**Area of Emphasis #1 – Elm Avenue and I-581**

- Consider developing a park and ride lot and commuter transit service to serve commuters from the east. Possible locations could be the East Vinton Plaza or the River Park Shopping Center in Vinton.
- Evaluate current Valley Metro routes 35 and 36 to determine if any modifications in the routes could reduce traffic congestion from Vinton and Roanoke County via VA Route 24.



- Evaluate Valley Metro routes 41 and 42, which cross the Elm Avenue bridge, to determine if any changes could increase the number of passengers; and reduce SOV trips across Elm Avenue by making a more direct instead of roundabout route and increasing service frequency.
- Also consider the possibility of rerouting this transit route to eliminate the Elm Avenue congested interchange area in order to save running time spent in traffic and avoid the bus being late to make transfers due to traffic congestion.
- Consider the possibility of the bus entering downtown through less congested streets. As shown in the Bus Stop Activity Index Map, there are four bus stops within a quarter-mile radius of the interchange that all experienced low activity during the 2010-2011 National Transit Database Survey.

Area of Emphasis #2 – Hollins to Hershberger

- Beginning in 2013, RVAMPO staff embarked on the development of the *Regional Transit and Pedestrian Vision Plans*. More specifically, the transit vision plan will investigate: the existing transit network; perceived deficiencies in the current system; gaps in regional transit service; and potentially recommend extensions to service. From the first of September to December 31, 2013, RVAMPO planners have administered a *Regional Pedestrian and Transit Vision Plans Survey* online, through social media, neighborhood and civic groups, senior living facilities, etc. Responses will be analyzed in 2014 and incorporated into the vision plans, illustrating the public vision for transit and walking in the region. During this process, the region will explore what the best form of transit is for the Hollins CDP and identify long-term sustainable funding that will support successful transit services to its residents, visitors, and employees.
- An additional goal of the Transit Vision Plan is to encourage a conversation with regional decision-makers about funding for a transit system that will better serve the Roanoke region

specifically, in this case, to the Hollins to Hershberger congestion management Area of Emphasis.

- Valley Metro routes 25 and 26 currently have transit stops on Hershberger Road and on Plantation Road, south of Hershberger. As transit routes are amended in the future to better serve the Roanoke area, recommendations from the Hollins Area Plan (and accompanying community surveys), the *Plantation Road Corridor Study*, and the future *Regional Transit Vision Plan* (anticipated adoption in 2014), will make the case for fixed-route transit for: Plantation Road between I-81 and Hershberger Road; Williamson Road from Hershberger to Hollins University; Valleypointe Parkway; and Peters Creek Road.

Area of Emphasis #3 – Salem

- In December 2012, Valley Metro streamlined the transit service provided by routes 81 and 82 (in Roanoke) and routes 91 and 92 (in Salem), combining them into one continuous service and eliminating the need for a transfer at Goodwill opposite Lakeside Plaza. At this time, the service was extended to the Salem Walmart (West Main Street and Turner Road). The route currently provides a straight line service from Campbell Court to the Salem Walmart; however, on the return, the route veers south on S. College Avenue providing service to Lewis Gale, the VA Hospital, and the Salem Civic Center before returning to East Main Street and heading to Campbell Court.
- In order for this transit line to be a viable alternative and to reduce single-occupant vehicle use in the corridor, the route would ideally provide continuous return service from Salem Walmart to Campbell Court with a separate route created for service to the Hospitals and Civic Center. Such an adjustment requires additional funds to provide this service and is being explored in the ongoing regional transit visioning process (2013-2014).

- Without the improvements implemented in December 2012, discussed above, routes 91 and 92 were already experiencing high ridership and adding more riders could create congestion on the buses. An additional strategy to address this concern is to increase the frequency of this route from every 60 to every 30 minutes as well as increasing the size of the transit vehicle, which is currently 35-feet long (Valley Metro and the Transit Vision Plan will explore these options).
- Several businesses and residential areas beyond the Salem Walmart are also in need of transit service, and extending fixed-route service would reduce vehicle trips on West Main Street. A route adjustment to extend routes 91/92 to Ritchfield Retirement Center may be the answer. Early responses from the Regional Transit Vision Plan public outreach efforts have shown a need for this extension of service.

Area of Emphasis #4 – Cave Spring Corners

- The Virginia Statewide Transit / TDM Plan Update released by the Virginia Department of Rail and Public Transportation in 2012 identifies the Cave Spring Census-Designated Place (CDP) as an existing medium urban area. Roanoke City, Salem City, and the Town of Vinton also are classified as existing medium urban areas; however, unlike these areas, the Cave Spring CDP does not have the same level of transit service.
- Some transit services have been tried in Roanoke County in the past and not continued for reasons such as lack of funding or ridership. Current plans such as the Route 419 Corridor Study indicate a desire for transit in the Cave Spring CDP. To support these recommendations, a 2012 technical memorandum to the VA Statewide Transit / TDM Plan Update provides data that gives evidence to the need and demand for public transit services in that Cave Spring CDP could take the form of fixed-route, circulator, Urban Bus

Rapid Transit, Commuter/Express Bus, and/or Regional Bus Rapid Transit.

- The region needs to revisit the conversation with regional decision-makers about funding for a transit system that will better serve the Roanoke region, specifically in this case to the Cave Spring congestion management Area of Emphasis.

Area of Emphasis #5 –Route 419/U.S. 220

- While Tanglewood Mall itself is a big trip generator, many trips simply pass through the area on the way to another destination. Transit strategies to alleviate congestion along Route 419 in the Tanglewood area need to consider the many directions in which trips are approaching and passing through this congested area.
- Trips coming from or going towards Franklin Road North and Ogden Road already have the option of transit service. However, trips from Route 419 North, I-581/U.S. 220 North and South do not have an option of transit service.
- Therefore, the ability of transit to alleviate traffic congestion given the current transit network is very limited in the Tanglewood area and providing new transit services along the corridors mentioned would help.
- However, additional transit service should not simply be added to the current transit system. Such efforts have been tried in the past and have not succeeded in part because the addition of new service in this area will require a comprehensive look at the entire network, how it operates, and the types of services that should be added (local, commuter express, etc.) as opposed to piecemeal additions here and there.
- The following map shows the current bus stops and routes in the Tanglewood/Route 419 area. Activity at existing bus stops was determined through a National Transit Database survey in 2010-2011. Given that Tanglewood Mall is currently considered to be at the end-of-the-line, the last stop itself experiences relatively high activity; however, the

stops along Route 419 do not. To go from Tanglewood/419 to the northern part of the system takes one-hour; and it takes half an hour to get into Campbell Court and another half an hour to get to Valley View Mall, for example. Driving takes approximately 10-15 minutes.

- In order for transit to be a reasonable alternative for people, service from one end of the network to the other needs to be competitive. While it would not be expected that taking transit would be as fast as driving, travel times could be improved by using express services or more direct routes. Changes to the routes in the future should also consider the time of day service is needed at Tanglewood Mall given the operating hours of its businesses.

Area of Emphasis #6 – Apperson and Route 419

- Limited transit service exists around Apperson Drive and Route 419. One-way transit service connects Lewis Gale Medical Center to the VA Hospital. A transfer between route 91 and route 72 enables people traveling from Salem to go into Roanoke and vice-versa. However, most of the traffic congestion at this intersection is caused by vehicles passing through. Transit service needs to be improved in other places that will have a resulting positive effect on managing traffic congestion at Apperson Drive and Route 419. Transit can be improved to provide two-way connections and missing links to employment and retail centers. The City of Roanoke, the City of Salem, Roanoke County and Valley Metro could enter into discussions on the provision of transit service for the entire Route 419/Electric Road corridor. Examples of potential service could include the use of varying sized buses to provide specialized trips for commuters into downtown Roanoke, or to commercial centers in Salem and Roanoke County.
- Multimodal transit, pedestrian and car/vanpool interactions could be facilitated by the development of a new multimodal park and ride lot/multimodal transfer center

near Downtown Salem and Roanoke College. This would allow for downtown workers, college faculty and students to park once and walk, bike or take transit for other trips. This concept may be further explored in the ongoing regional pedestrian and transit vision planning process anticipated to be completed by July 2014.

- As a complement to the aforementioned concept; and in order to service long-distance commuters between the Roanoke and New River Valleys, The Route 419 Corridor Plan specifically recommends extending the Smart Way Bus service to include the Orange Market Park and Ride lot (on Route 419, off I-81 at exit 140), with an accessory location near East Main Street in Salem. Such a commuter service extension would make transit a real option for people who live in Christiansburg/Blacksburg and work at places such as Roanoke College, the VA Hospital, and Lewis Gale Medical Center.

Area of Emphasis #7 – Route 24/Vinton

- The existing transit service in Vinton is somewhat circuitous. Service along Route 24 varies from two-way to one-way, where inbound service is provided via Bedford Road and Cleveland Road. This one-way inbound service, makes it difficult for residents who live in that corridor to take the bus to Lake Drive Plaza. Two-way service is preferred over one-way service to get the combined effect of being able to travel in both directions to and from a destination. Routes in Vinton should be evaluated to consider using transit to alleviate congestion on Route 24 by making short local trips easier to accomplish on public transit.
- The majority of traffic on Route 24 in the morning and the afternoon results mainly from commuters from Roanoke, Bedford or Franklin counties accessing jobs west of Vinton. Existing transit service is time-consuming for regional commuters because of the number of local stops. Regional transit commuter services as well as park-and-ride lots

should be explored to determine if the availability of such services would encourage people to not use a single-occupant vehicle to commute to work thus reducing the number of vehicles on Route 24 and improving traffic congestion.

*Area of Emphasis #8 – Orange Avenue/Challenger Corridor*

- As shown in the bus stop activity index map, public transit service in the Orange Ave/Challenger Corridor is limited. A short section between Kimball Avenue and Hollins Road is used to provide north-south service between Campbell Court and Crossroads Shopping Center. Similarly a section between Gus Nicks Boulevard and King Street provides access to some businesses on Orange Avenue for people traveling from Vinton and less directly, from Downtown Roanoke. At a minimum, morning and afternoon commuter transit service should be explored that is direct and express from the Bonsack area into Downtown Roanoke. Regular fixed-route transit service to the businesses near the U.S. 220/U.S. 460 intersection should also be explored.
- Several businesses within the Blue Hills Industrial Park have repeatedly expressed interest in all-day public transit service for their employees, and this service should be explored with the City of Roanoke, Valley Metro, and the businesses.
- Like the configuration shown in the picture, when Orange Avenue is widened to six-lanes, consideration should be given to providing a morning and afternoon restriction on the right-lane for turning movements, public transit, and high occupancy vehicles.

*Area of Emphasis #9 – I-81 Exit 150 and U.S. 11*

- Currently, no transit services exist for people that need to commute to a job without the use of a personal vehicle. Transit service in Botetourt County is limited to van services for medical or shopping trips for senior citizens and disabled persons and is provided by the County's parks and

recreation department. The Botetourt County 2010 Comprehensive Plan recommends developing transportation systems that shorten vehicle trips, and are focused around receptive mixed-use, population and growth centers, with an overall goal of lessening congestion. Broader transit services in Botetourt County should be explored.

- Specifically, Botetourt County should explore development of a commuter transit service that provides connections from areas with commercial centers and large residential developments, such as those in Daleville.
- It is not possible for people without personal vehicles in the Roanoke Valley who do not live in Botetourt County to travel to places in Botetourt County because services such as those provided for senior citizens and people with disabilities are limited to Roanoke County, the Cities of Roanoke and Salem, and the Town of Vinton. A regionally integrated public transit service should be established to enable such mobility at least within the urban areas of the region.

*Area of Emphasis #10 – Grandin Road and Brandon Avenue*

- As shown in the bus stop activity index map, transit service exists on portions of Brandon Avenue and Grandin Road, but they are not continuous, so their usefulness and ability to substitute for personal vehicle trips is limited. The current north-south transit service (Routes 65/66) on Grandin Road is limited because it stops at Patrick Henry High School, which is an unnecessary endpoint on weekends and evenings when there are few school activities. These routes also are circuitous between the high school and Campbell Court in that they loop through neighborhoods such as Norwich, Raleigh Court along Maiden Lane, and Hurt Park. The fact that it takes 30 minutes to travel from Patrick Henry High School to Downtown Roanoke will deter most choice riders given that the alternative, driving, takes 10 minutes. Routes 65/66 should be evaluated in the context of the greater transit network to see if they can be made less

- circuitous and if Patrick Henry High School is still a good end point for this transit line.
- Similarly, routes 71/72 cover a portion of Brandon Avenue from Lewis Gale Medical Center to Carlton Road. However, people who want to continue towards Towers Shopping Center or Carilion Roanoke Memorial Hospital must first go into Downtown Roanoke and then back out. A continuous east-west route between Lewis Gale Medical Center and Carilion Roanoke Memorial Hospital should be evaluated within the context of modifications made to the greater transit system. Such a route would have greater opportunities for replacing some single vehicle trips along Brandon Avenue.

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#### 4.8 Bus Stop Accessibility Study, 2013

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The Bus Stop Accessibility Study (BSAS) was conducted to identify ways to make it safer and easier for pedestrians to get to and from bus stops and to make bus stops themselves easier and safer to use, particularly for pedestrians with disabilities. The BSAS developed an original methodology to compare the activity of bus stops across the system using National Transit Database survey data including the number of boarding and alightings at each stop and the number of times the bus passed the stop during the survey period.

The Study also analyzed paratransit trips were analyzed to identify the more frequent pick-up locations, the existence of fixed-route transit nearby, and where applicable, the types of infrastructure improvements needed to enable a person with a disability to use the fixed-route transit service. Field visits were conducted at 30 of the most active bus stops and recommendations provided for improving their accessibility. Campbell Court, because it is the only transfer hub, is naturally

the most active stop in the system. The Study discusses the challenges pedestrians, especially those with disabilities, face when transferring between buses at Campbell Court and looks to the Downtown Roanoke Intermodal Transportation Study to provide recommendations on how to improve the transfer experience.

The BSAS recommendations as well as the bus stop activity index are tools that can help decision-makers prioritize improvements to bus stops. The Bus Stop Accessibility Study was recognized by the Federal Highway Administration and the Federal Transit Administration in 2015 with a Transportation Planning Excellence Award.

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#### 4.9 Roanoke Valley Pedestrian Vision Plan, 2015

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The region's first plan to promote walking as a more widely chosen form of transportation was adopted by the Roanoke Valley Transportation Planning Organization in 2015. The Roanoke Valley Pedestrian Vision Plan delves into the land use and development practices as well as infrastructure investments that are needed to create safe and attractive walking environments where people will feel comfortable accomplishing their daily tasks with ease.

The Plan highlights that walking is the fundamental basis for multimodal transportation as it is a component in every trip, regardless of the other modes used. Where pedestrian systems are lacking, transit services will also be limited in their use. The Plan identifies where pedestrian improvements are needed throughout the Roanoke Valley and specifically highlights 200 locations where improvements to transit accessibility are

needed. Many of the needed improvements may be relatively low-cost such as adding ADA curb ramps and crosswalks; others may be more substantial such as adding pedestrian refuge islands and crossing signals. The Pedestrian Vision Plan notes the local priority preferences as provided by local staff and prioritizes the regional significance of pedestrian projects based on their location near dense activity centers where walking to get from one place to another is likely due to proximity.

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#### 4.10 Bikeway Plan for the Roanoke Valley Area Metropolitan Planning Organization, 2012 Update

The region's Bikeway Plan was updated in 2012 and reflects on the importance of connecting bicycle transportation with transit to facilitate greater mobility options for people. The Plan cites where bicycle facilities have been incorporated at Campbell Court and on buses. The Bikeway Plan identifies many proposed priority and vision locations in need of bicycle accommodations that would support connections between bus stops and final destinations.

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#### 4.11 RVTPO Passenger Rail Study, 2008

Connect Roanoke to Lynchburg via passenger rail; bus connector service to passenger rail service in Lynchburg and Clifton Forge.

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#### 4.12 RVTPO Planning for Elderly and Disabled Mobility Study, 2005

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**Section 5: Recommendations and Next Steps - Increase Knowledge and Use of Existing Transportation Options**

Educational campaigns to encourage public transportation use; increase investment in public transportation systems to expand and improve services for the elderly.

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#### 4.13 Age Wave Study: Demographic Analysis of the Roanoke Valley-Alleghany Region of Virginia, 2013

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**Recommendations: Needs**

- Improve options and coordination of transportation services for the elderly.
- Enhance regional cooperation for age related service providers.
- Identify increased funding for existing age related service providers

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#### 4.14 Coordinated Human Service Mobility Plan, 2013

The Coordinated Human Service Mobility Plan was approved in 2013 for the Roanoke-Valley Alleghany (Planning District Commission 5) region which extends from Franklin County to Alleghany County. The Plan reviews the transportation needs of individuals with disabilities, older adults, and people with low incomes. The Plan provides strategies for meeting those needs and prioritizes transportation services for funding and implementation. The recommendations of this plan are the basis of funding requests through the FTA 5310 program. The following strategies are identified as ways to meet unmet needs in transportation services.

- Continue to support capital and operating needs of coordinated human

- service/public transportation providers.
- Support new mobility management and coordination programs among public transportation providers and other human service agencies providing transportation.
- Expand availability of demand-response service and specialized transportation services to provide additional fixed-route transit or targeted shuttle services for older adults, people with disabilities, veterans, and people with lower incomes.
- Provide flexible transportation options and more specialized transportation services or one-to-one services through the use of volunteers.
- Provide targeted shuttle services to access employment opportunities.
- Expand outreach and information on available transportation options in the region.
- Establish a ride/car-sharing program for long-distance medical transportation and other trip purposes.
- Implement new public transportation services and operate existing public transit services on a more frequent basis.
- Expand access to taxi and other private transportation operators.
- Roanoke Valley – Alleghany Regional Commission (PDC 5) Coordinated Human Service Mobility Plan 30
- Establish or expand programs that train customers, human service agency staff, medical facility personnel, and others in the use and availability of transportation services.
- Bring new funding partners to public transit/human service transportation.
  
- Various potential projects are listed for each strategy with ideas on how they can be implemented.

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#### 4.15 Route 419 Corridor Study, 2010

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In the summer of 2008, the Roanoke Valley Area Metropolitan Planning Organization (RVAMPO) and the Salem District of the Virginia Department of Transportation (VDOT) agreed to cooperatively develop a multimodal transportation plan for the Route 419 Corridor. Through the Virginia Multimodal Grant Program and VDOT on-call consultant contracts, the firms of Kimley-Horn and Associates and the Renaissance Planning Group were contracted to support the planning process.

Study Area Description - Route 419 is a 9.5-mile, 4-lane divided state highway that extends west from the US 220 Expressway in southern Roanoke County, along the limits of the City of Roanoke, then northwest through the City of Salem, and terminating just north of I-81. The corridor is fronted by a variety of land uses, including commercial, residential, and industrial.

Vision and Goals - The vision and goals of the Route 419 Multimodal Corridor Plan are based on analysis of existing conditions, comments from local officials and citizens, as well as priorities of the Commonwealth of Virginia.

##### ***Executive Summary***

Route 419 will provide safe and efficient mobility for drivers, pedestrians, bicyclists, and transit riders, while providing adequate access to businesses and residential areas.

##### ***Executive Summary: Recommended Improvements – Multimodal Improvements – Transit Service***

Establish commuter transit service along the entire length of Route 419. Extend the route of the Smart Way to serve the Orange Market Park and Ride and extend Valley Metro routes 61 and 62 to service the Cave Spring Corners area.

##### ***Recommendations: Transit Service - Routing***

Bus service should operate along the length of Route 419 between the intersection with Route 311 at its northern terminus and the southern terminus at Tanglewood mall.

There are a few sites along 419 that are very close to multimodal access, but are not currently serviced directly by transit. These sites are the Orange Market Park and Ride Lot and the intersection with U.S. 221.

**Recommendations: Transit Service - Match Capacity with Demand**

Transit service along 419 should operate as a limited bus service aimed at commuters in order to maintain a proper cost to revenue ratio. With the low density, auto oriented landscape, and lower rates of transit-dependent populations around 419, it is unlikely that bus service along the corridor would be used adequately for non-work related trips.

In order to further streamline the cost to revenue ratio, a smaller bus will be used to match bus capacity with rider demand. In this regard, 40 foot standard buses will not be utilized along Route 419, instead small buses with 30 seats or less will be used.

**Recommendations: Transit Service - Operation**

The new route should also coordinate transfer times with the other transit services operating in the area. In particular, transfer points currently exist at the intersection with 460 where service is provided by Valley Metro routes 81, 82, 91, and 92.

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#### 4.16 Bedford County Zoning Ordinance

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**Sec. 30-67-1 (c)(6) - PD-1 Planned development district.**

**Purpose.** Public transit options as viable alternatives to the automobile by allowing building types, densities and land use groupings that support transit.

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#### 4.17 Bedford County Traffic Impact Study Guidelines

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**Contents Narrative – F) Future Conditions w/Development.** The applicant may incorporate projected new approach and turn lanes, and pedestrian, transit, and paratransit transportation modes to be provided by the applicant or otherwise assured to the County through approved site plan, subdivision plans, rezonings, or special use permits.

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#### 4.18 Montgomery County 2025 Comprehensive Plan

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**Transportation Resources: Goals**

**TRN 3.0 Mass Transit:** Create a better mass transit system (rail, bus, trolley, carpool) that allows for mobility of all citizens.

**TRN 3.2 Future Service:** Encourage the provision of a mass transit service in commercial areas and between jurisdictions and between MSAs (Blacksburg and Roanoke) to alleviate congestion and decrease the number of personal car trips.

**TRN 3.2.2 Valley Metro Service:** Establish clear benchmarks to measure the success or failure of Valley Metro’s demonstration project for express bus service between Blacksburg and downtown Roanoke.

**TRN 3.3 Villages and Public Transportation:** Evaluate the provision of public transportation between the six villages (which includes Elliston) and the urban centers (Christiansburg, Blacksburg and Radford).



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#### 4.19 Montgomery County 2025: Elliston and Lafayette Village Plan

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***The Villages of Elliston and Lafayette: The Plan***

**ELV 11.0: Transportation** - Develop a safe, orderly, and efficient mixed modal transportation network of roads, bikeways, and walkways in Elliston, Lafayette, and the Elliston Lafayette Village Expansion Area to serve the varied needs of village and village expansion area residents.

**Action Steps:** Work with other transportation authorities and departments to develop mass transit connections between the two villages, the New River Valley and the Roanoke Valley.

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#### 4.20 Montgomery County Zoning Ordinance

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***Sec. 10-32. - PUD-TND Planned Unit Development-Traditional Neighborhood Development District.***

f. Public transit as a viable alternative to the automobile by organizing appropriate building densities.

***Sec. 10-32.1. - Traditional Neighborhood Development Infill District.***

(1) The objectives of the TND-Infill District are to:

e. Make public transit a viable alternative to the automobile by organizing appropriate building densities.

***Sec. 10-41. - Supplemental district regulations. (1) Accessory uses and structures.***

(b) Residential accessory uses and structures shall be limited to the following and to any other use or structure the zoning administrator determines to be similar in scope, size and impact

as those listed herein, and are in compliance with all other provisions of this chapter:

19. Bus shelter or bus stand.

***Sec. 10-41. - Supplemental district regulations. (1) Accessory uses and structures.***

(c) Commercial and industrial accessory uses and structures shall be limited to the following and to any other use or structure the zoning administrator determines to be similar in scope, size and impact as those listed herein, and are in compliance with all other provisions of this chapter:

9. Bus shelter or bus stand.

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#### 4.21 Roanoke, Virginia Comprehensive Plan Vision 2001-2020

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***Chapter 3.4 – Infrastructure: Transportation, Technology, Utilities – Policies: Policy Approach – Transportation (second paragraph)***

The public transit system is an important element of an urban transportation plan and should provide access to employment nodes, recreation, and cultural venues, as well as retail and commercial areas. As Roanoke becomes more economically diversified, the traditional pattern with downtown as the hub may need to be expanded to include east/west and north/south routes linked directly to employment or retail nodes.

***Chapter 3.4 – Infrastructure: Transportation, Technology, Utilities –***

***Policies IN P1. Regional transportation planning.***

Roanoke will participate in regional transportation planning through the MPO to appropriately develop regional plans that support compact urban development, discourage sprawl, and emphasize multimodal forms of transportation that prioritize facilities for bicycles, pedestrians, rail, and transit as well as

accommodate automobiles. Cooperative planning on the local, regional, and state levels should include design features that maintain or improve connectivity of streets while maintaining neighborhood integrity and minimizing negative visual and noise impacts.

**IN P2. Transportation system.**

Roanoke will provide a transportation system that is an integrated, multimodal network of automobile, bicycle, pedestrian, and transit facilities. Interconnected street systems should be encouraged in new development and be maintained in existing development. New roadways through existing urban areas should be designed to minimize impact on the City's urban fabric and complement Roanoke's neighborhoods.

**IN P3. Land use and transportation plans.**

Transportation and land use planning will be integrated to promote compact urban development and reduce the frequency and length of automobile trips. Bicycle facilities and pedestrian improvements will be a fundamental part of land use and transportation planning. Future commercial development along arterial roads will be focused at major intersections rather than strip commercial development along corridors.

**IN P4. Parking.**

Roanoke will encourage on-street parking wherever possible and discourage excessive surface parking lots. Maximum parking standards for development outside of downtown will be established. Off-street parking will be encouraged to the side or rear of buildings. Carpooling, park-&-ride lots, and transit will be encouraged to reduce parking demand.

**Chapter 3.4 – Infrastructure: Transportation, Technology, Utilities – Actions – Transit System**

**IN A11.** Develop programs to increase the ridership of Valley Metro.

**IN A12.** Encourage employers to establish motor pools for work-related trips during the day so employees can walk or bike to work.

**IN A13.** Continue programs that provide public transportation to disabled citizens; consider expansion of service to employment and medical centers.

**IN A14.** Explore streetcars or other mass transit systems.

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## 4.22 Zoning Ordinance of the City of Roanoke, Virginia

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**Sec. 36.2-652. - Minimum parking (c).**

Reduction for proximity to public transit. Where a nonresidential use is located within one thousand two hundred (1,200) feet of a public transit route, the total number of required off-street parking spaces, unassigned to specific persons, may be reduced to eighty (80) percent of that otherwise required as set forth in Table 652-2.

**Sec. 36.2-314. - Purposes of multiple purpose districts (c).**

The purpose of the CG District is to permit motor vehicle dependent uses that are generally developed as single use developments on individual lots, subject to landscaping, access, and signage standards. Such development is generally characterized by individual curb cuts, access drives, and signage. It is intended that this district be applied primarily along heavily traveled arterial streets, with an emphasis on clustering such development at major intersections. While recognizing the motor vehicle traffic generated by the uses permitted in this district, it is the intent of the regulations of the district to encourage and recognize pedestrian access and public transit forms of transportation by locating parking to the side and rear of buildings and minimizing conflict through landscaping and signage standards. The uses permitted in this district generally

require a high volume of traffic along the frontage of the establishment and include horizontally oriented buildings. Such permitted uses include general retail establishments, offices, service establishments, motor vehicle related sales and service, eating establishments, and entertainment uses. The CG District is also intended to accommodate travel-oriented uses such as hotels, motels, and gasoline stations.

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## 4.23 Glenvar Community Plan

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### **8.4.4.3 Transit Extension**

Currently, the closest Valley Metro stop is at Spartan Square in the City of Salem. Roanoke County should consider expanding public transit service into the Glenvar Community. Extending bus routes along West Main Street (Route 11/460) to Daugherty Road would provide access to job opportunities and an alternative mode of transportation for the residents of Richfield Retirement Community.

Roanoke County should consider a Smart Way Bus Stop near the Center for Research and Technology and Exit 132.

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## 4.24 Hollins Area Plan, 2008

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As a component of the Roanoke County Comprehensive Plan, the Hollins Area Plan provides information related to existing services and future transit needs. The Plan notes the area is served by CORTRAN and by Valley Metro in the Hershberger Road/Plantation Road/Edinburg Square area and by the Hollins Express. The Plan notes that “RADAR operated a ‘red line’ bus service along Williamson Road and Plantation Road mainly designed to provide transportation from the City of Roanoke into Roanoke County for employees who worked in the Hollins area. This service was funded by the Job Access & Reverse Commute

program and was discontinued due to underutilization after approximately 18 months in early 1997.”

The Plan cites the need for multimodal accommodations in general throughout the Hollins area to provide citizens with more transportation options. Specifically, the Plan includes the following transit recommendations:

### **4.7.1 Transit Extension**

- In light of commercial growth along the Plantation Road corridor including Gander Mountain, Camping World and Tractor Supply in addition to existing employment and institutional destinations including Wachovia, ITT, Double Envelope and Hollins University, the provision of van service to the Hollins area may be viable for workers and students. The Job Access and Reverse Commute program is still considered to be the best option among available programs. 14 to 20 passenger vans could be utilized to shuttle patrons to and from work and school locations with run hours determined by shift changes. Federal dollars account for half of such a program’s funding and local or private funding would provide the other 50 percent for the operation under Job Access and Reverse Commute.

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## 4.25 Roanoke County, Virginia 2005 Community Plan

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### **Chapter 4 – Community Facilities, Goal C, i, b. Strategy: Traffic Management Strategies –**

- Endorse shuttle transit service from fringe parking areas to urban centers or major destinations
- Advocate public transit, working with Valley Metro and RADAR

**Chapter 7 – Planning Area Analysis, County-Wide  
Neighborhood Themes and Concerns, Public Facilities, Regional  
Cooperation Themes –**

Maintain and improve the intergovernmental cooperation among the localities within the Valley. Expansion of these cooperative efforts should include transit and development procedures.

4.26 Comprehensive Plan of the City of Salem,  
Virginia

**Chapter IV Goals, Objectives and Strategies: V. Land Use and  
Community Appearance**

Objective: Reprogram underutilized major corridors for higher intensity uses. Strategy: Develop transit and streetscape plans for particular corridors to encourage pedestrian traffic and commercial activity.

4.27 Vinton Area Corridors Plan

**Chapter 8 – Goals, Recommendations and Implementation  
Strategies, 8.8.9 Valley Metro –**

The County should evaluate the need to extend the current Valley Metro bus routes serving the Town of Vinton to Eastern Roanoke County. Extending the bus routes along Washington Avenue (Route 24) in Roanoke County would ensure access to commercial centers, increase ridership, provide an alternative mode of transportation for the aging population and link Eastern Roanoke County into the Valley's aspiring multimodal transportation network.

4.28 Roanoke Valley Conceptual Greenway  
Plan, 2007 Update

**Goal 1: Transportation**

- Provide corridors that bicyclists, pedestrians and others can use to get from one place to another as an alternative to motor vehicle use.

**Objective:**

- Provide connections between mass transit sites and make arrangements for safe storage of greenway system users' bicycles (or other belongings) while they are using the transit system.

4.29 RVARC Rural Transportation Project  
Priorities, 2012

US 220 widening in Botetourt and Alleghany Counties; increase Amtrak to daily service in Clifton Forge; rural demand response public transportation throughout region; improve/expand park-and-ride facilities in Roanoke, Botetourt, and determine demand for region; construction of bridges in Botetourt County, along with roadway improvements; various other roadway improvements throughout region.

4.30 RVARC 2035 Rural Long-Range  
Transportation Plan

Expand Valley Metro service outside of the Cities of Roanoke and Salem; complete a feasibility study on developing a regional service between Bedford, Lynchburg, and Roanoke; feasibility study for demand response service from Clifton Forge in Roanoke Valley and New Castle into Roanoke Valley; feasibility

study for express service from Fincastle to Roanoke; focus on key freight corridors; expand/add park-and-ride.

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#### 4.31 RCIT/Blue Hills Transportation Survey Analysis Report

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Per the request of businesses in the Roanoke Centre for Industry and Technology (RCIT) Business Park, a study was done to better understand the transportation interests of employees at businesses within RCIT. The report also addresses the identified need of businesses that the lack of transit service to the Park hinders their ability to hire employees. The report was complete in February 2014 and supported the initiation of the route 31X demonstration project in January 2016.

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#### 4.32 Bonsack Area Public Transit Survey Analysis Report

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A follow-up survey to the RCIT/Blue Hills Transportation Survey Analysis was requested as Botetourt County and Roanoke County became involved in conversations about a potential service along Route 460 East. The purpose of the report is to identify from local businesses their interest and need of transit services. Several businesses indicated their desire for service to recruit employees that otherwise would be challenged to get to work. One business even mentioned that a couple employees would walk from the Route 460/King St. stop to work in Bonsack. The report was completed in December 2014.

Table 4.0-1: Local Plan Review Matrix

|   |                                     | BLUE BOX: YES, WHITE BOX: NO     |                                 |                           |   |   |                            |                               |  |                         |                           |  |
|---|-------------------------------------|----------------------------------|---------------------------------|---------------------------|---|---|----------------------------|-------------------------------|--|-------------------------|---------------------------|--|
| <u>DOCUMENT</u>   | <u>LOCALITY / ENTITY</u>            | <u>ALTERNATIVE TO AUTOMOBILE</u> | <u>BUILDING TYPES/DENSITIES</u> | <u>DEVELOPMENT REVIEW</u> | <u>ENCOURAGE PROVISION OF TRANSIT SERVICE</u> | <u>LAND USE TRANSPORTATION COORDINATION</u> | <u>ALLOWS FOR MOBILITY</u> | <u>MULTIMODAL CONNECTIONS</u> | <u>PROVISION OF TRANSIT MODES BY APPLICANT</u> | <u>ZONING ORDINANCE</u> | <u>COMPREHENSIVE PLAN</u> |  |
| <b>VTRANS 2040</b>  | Commonwealth of Virginia            | Blue                             | Blue                            | White                     | Blue  | Blue  | Blue                       | Blue                          | White  | White                   | White                     |  |
| <b>VTRANS 2040: Virginia Multimodal Transportation Plan 2025 Needs Assessment</b> | Commonwealth of Virginia            | Blue                             | Blue                            | White                     | Blue  | Blue  | Blue                       | Blue                          | White  | White                   | White                     |  |
| <b>Multimodal System Design Guidelines</b>  | VA Dept. of Rail and Public Transp. | Blue                             | Blue                            | White                     | Blue  | Blue  | Blue                       | Blue                          | White  | White                   | White                     |  |
| <b>Livable Roanoke Valley Plan</b>  | RVARC                               | Blue                             | White                           | White                     | Blue  | White                                       | Blue                       | Blue                          | White  | White                   | White                     |  |
| <b>Downtown Roanoke Intermodal Transportation Study, 2015</b>                     | City of Roanoke/ Valley Metro       | Blue                             | White                           | White                     | Blue  | Blue  | Blue                       | Blue                          | White  | White                   | White                     |  |
| <b>Constrained Long Range Transportation Plan</b>                                 | RVTPO                               | Blue                             | White                           | White                     | Blue  | Blue  | Blue                       | Blue                          | White  | White                   | White                     |  |
| <b>Congestion Management Process Plan</b>   | RVTPO                               | Blue                             | White                           | White                     | Blue  | Blue  | Blue                       | Blue                          | White  | White                   | White                     |  |
| <b>Bus Stop Accessibility Study, 2013</b>   | RVTPO                               | Blue                             | White                           | White                     | Blue  | White                                       | White                      | White                         | White  | White                   | White                     |  |
| <b>Pedestrian Vision Plan, 2015</b>   | RVTPO                               | Blue                             | Blue                            | White                     | Blue  | Blue  | Blue                       | Blue                          | White  | White                   | White                     |  |
| <b>Bikeway Plan, 2012</b>   | RVTPO                               | Blue                             | White                           | White                     | Blue  | Blue  | Blue                       | Blue                          | White  | White                   | White                     |  |
| <b>Passenger Rail Study, 2008</b>   | RVTPO                               | Blue                             | White                           | White                     | Blue  | White                                       | Blue                       | White                         | White  | White                   | White                     |  |
| <b>Planning for Elderly and Disabled Mobility, 2005</b>                           | RVTPO                               | White                            | White                           | White                     | Blue  | White                                       | Blue                       | White                         | White  | White                   | White                     |  |
| <b>Age Wave Study: Demographic Analysis of the</b>                                | RVARC                               | White                            | White                           | White                     | Blue  | White                                       | Blue                       | White                         | White  | White                   | White                     |  |



| BLUE BOX: YES, WHITE BOX: NO   |  |                                  |                                 |                           |   |   |                            |                               |  |                         |                           |
|--|--|----------------------------------|---------------------------------|---------------------------|---|---|----------------------------|-------------------------------|--|-------------------------|---------------------------|
| <u>DOCUMENT</u>  | <u>LOCALITY / ENTITY</u>                       | <u>ALTERNATIVE TO AUTOMOBILE</u> | <u>BUILDING TYPES/DENSITIES</u> | <u>DEVELOPMENT REVIEW</u> | <u>ENCOURAGE PROVISION OF TRANSIT SERVICE</u> | <u>LAND USE TRANSPORTATION COORDINATION</u> | <u>ALLOWS FOR MOBILITY</u> | <u>MULTIMODAL CONNECTIONS</u> | <u>PROVISION OF TRANSIT MODES BY APPLICANT</u> | <u>ZONING ORDINANCE</u> | <u>COMPREHENSIVE PLAN</u> |
| <b>RCIT/Blue Hills Transportation Survey Report</b>  | City of Roanoke, Valley Metro                  | Blue                             |                                 |                           | Blue  |   | Blue                       | Blue                          |  |                         |                           |
| <b>Bonsack Area Public Transit Survey Analysis Report</b>                                      | Botetourt County, Roanoke County, Valley Metro | Blue                             |                                 |                           | Blue  |   | Blue                       | Blue                          |  |                         |                           |
| <b>Route 419 Multimodal Corridor Plan, 2010</b>  | Roanoke County                                 | Blue                             |                                 |                           | Blue  |   |                            | Blue                          |  |                         |                           |
| <b>Bikeway Plan for the Roanoke Valley Area Metropolitan Planning Organization 2012 Update</b> | RVTPO  | Blue                             |                                 |                           | Blue  |   | Blue                       | Blue                          |  |                         |                           |
| <b>Glenvar Community Plan, 2012</b>  | Roanoke County                                 | Blue                             |                                 |                           | Blue  |   | Blue                       | Blue                          |  |                         |                           |
| <b>Hollins Area Plan, 2008</b>   | Roanoke County                                 | Blue                             |                                 |                           | Blue  | Blue  | Blue                       | Blue                          |  |                         |                           |
| <b>Roanoke County, VA 2005 Community Plan</b>  | Roanoke County                                 | Blue                             |                                 |                           | Blue  | Blue  | Blue                       | Blue                          |  |                         | Blue                      |
| <b>Comprehensive Plan of the City of Salem, VA, 2012</b>                                       | City of Salem                                  | Blue                             | Blue                            | Blue                      | Blue  | Blue  | Blue                       | Blue                          |  |                         | Blue                      |
| <b>Vinton Area Corridors Plan, 2010</b>  | Town of Vinton                                 | Blue                             |                                 |                           | Blue  |   | Blue                       | Blue                          |  |                         |                           |
| <b>2007 Update to the Conceptual Greenway Plan for the Roanoke Valley</b>                      | RVARC  | Blue                             |                                 |                           | Blue  |   | Blue                       | Blue                          |  |                         |                           |





## 5.0 LAND DEVELOPMENT AND PUBLIC TRANSPORTATION

The way in which local governments permit land to be developed plays a significant role in people's ability and willingness to take public transportation. Land in the Roanoke Valley developed prior to the automobile-oriented development boom of the mid-20<sup>th</sup> century generally features these transit-friendly characteristics:

- ▲ CONNECTED STREETS
- ▲ BUILDINGS CLOSE TO EACH OTHER
- ▲ BUILDINGS CLOSE TO THE STREET
- ▲ DENSITY - MORE PEOPLE ACCOMMODATED IN A GIVEN AREA
- ▲ SIDEWALKS
- ▲ TREES PROVIDING SHADE ALONG SIDEWALKS
- ▲ BUILDING FRONT DOORS CONNECTED BY A SIDEWALK TO A SIDEWALK ALONG THE STREET
- ▲ PARKING NEXT TO OR BEHIND BUILDINGS

These characteristics contribute to an environment where transit is easily accessible to people because pedestrian infrastructure is present and connects destinations to transit stops, walking to/from transit stops feels comfortable and safe, and walking distances are minimized.

It is unrealistic to expect that all parts of the Roanoke Valley will be retrofitted or newly developed to be transit-accessible places. However, where transit service may be needed or desired in the future, a place for buses to stop to pick-up/drop-off people, or turn around must be considered. Places and streets designed

with cul-de-sacs are particularly challenging because they prohibit connectivity, increase inefficiency in service provision, and may not physically allow a bus to turn around.

*Local governments have a great responsibility to make conscious decisions about the land developments they are permitting within their boundaries; it is critical to guide the types of development, where they are located, their design and configuration on a site, and if they include transit access and pedestrian/bicycle connections to existing or proposed transit.*

In the Roanoke Valley, much land has already been developed at low densities with the intent that people should only drive to get to and from those locations. Trying to retrofit these areas to provide transit, pedestrian, and bicycle infrastructure is an expensive and difficult task. Unfortunately, adding such infrastructure to an automobile-oriented development may meet multimodal transportation and safety goals, but often results in an environment that is still less transit-friendly than if the location were developed with transit access in mind from the beginning.

In the example shown in **Figures 5.0-1 and 5.0-2**, two types of development exist along the same street. Both developments feature sidewalks and decorative lighting, yet the level of comfort for people to use transit in these places varies greatly. The reason is solely due to the land development patterns. The buildings in **Figure 5.0-1** are closer to the sidewalk with front

doors accessible from the main sidewalk. The road is narrower thus easier to cross; more opportunities for crossing the street at signalized locations exists; and, vehicle parking exists on-street, next to, or behind buildings.

In contrast, the buildings in **Figure 5.0-2** are located farther from the sidewalk, and parking lots are built in between sidewalks and buildings. The road is wider and designed primarily for the movement of vehicles with no on-street parking. There are fewer places to cross the street and crossing the street takes more time and feels less comfortable.

**Figure 5.0-1** clearly shows a place that was developed for people while the environment in **Figure 5.0-2** was developed for cars. People's interest and comfort level for using public transportation is greater in an environment that is built for them to comfortably walk as opposed to an environment that is built for cars. In environments built for cars, the provision of public transportation requires transit vehicles to travel longer distances to reach destinations and often utilize off-street transit stops to provide safe or convenient access to destinations. Providing transit services in environments designed for cars results in higher cost to provide the service and generally lower ridership.

Environments built for people to easily walk between nearby destinations lend themselves naturally to being transit-friendly environments. Providing public transportation in pedestrian and bicycle friendly environments results in greater ridership for less cost.

*Figure 5.0-1 | East Main Street, Salem*



*Figure 5.0-2 | West Main Street, Salem*



New developments within the Roanoke Valley urban area are being designed and constructed for people, acknowledging that people enjoy walking to places. The following picture shows how the Daleville Town Center, a mixed-use development in Botetourt County, is being developed for people and marketed for its walkability.

*Figure 5.0-3 | New mixed-use development designed for people walking, Daleville*



The City of Roanoke, as part of its zoning process, requires new commercial buildings to be constructed near the street with parking to the side or rear, making the business easily accessible to people from their car or from the sidewalk. One example is the New Horizons building recently constructed on Melrose Avenue shown in the following figure.

*Figure 5.0-4 | New development easily accessible by multiple modes, Roanoke*



During the site's development, City staff worked with the developer to ensure that pedestrian connections (via a sidewalk and a staircase) were made from the building's front door to the main sidewalk which also connects to a sheltered bus stop. The

parking was conveniently located to the side of the building. The result is an attractive business, visible to passersby, that is easy to access via many modes of transportation.

## 5.1 Activity Density

As part of a long-range planning exercise, the desire to make some parts of the Roanoke Valley friendlier for multimodal transportation (i.e. walking, taking public transportation, and biking) led to a review of the density of people throughout the region. Where dense activity exists, many people live or work in close proximity, and the opportunity to provide a well-used transit service is greater. The distance between where people reside or work and where they need or want to go is related to people's ability to walk which is a critical factor in people's interest in using public transportation.

To help identify the areas in the region where multimodal transportation is desirable either currently or in the future, the concept of activity density (number of residents + employees per acre) was mapped. **Figure 5.1-1** shows the regional activity density, which is low to moderate overall. Much of the Roanoke Valley is low density with 10 or fewer people per acre. State guidance indicates that most people, as part of their daily activities, are unwilling to walk more than roughly 10 minutes to get from one place to another. Given the existing low density in many of these areas, it is not likely that people would choose to walk to get somewhere due to the longer travel distances, which is where public transportation becomes very useful.

The map shows what is known intuitively, that Downtown Roanoke has the greatest activity density in the region. Using this activity density concept, along with local knowledge, the

local technical staff determined Multimodal Centers and Districts per the following definitions:

- ▼ MULTIMODAL DISTRICT: ANY PORTION OF A CITY OR REGION WITH LAND USE CHARACTERISTICS THAT SUPPORT MULTIMODAL TRAVEL, SUCH AS HIGHER DENSITIES AND MIXED USES, AND WHERE IT IS RELATIVELY EASY TO MAKE TRIPS WITHOUT NEEDING A CAR AS GAUGED BY THE NUMBER OF BUS ROUTES AVAILABLE AND SAFE WALKING OR BIKING PATHS – EITHER CURRENTLY OR PROPOSED IN THE FUTURE.
- ▼ MULTIMODAL CENTER: A SMALLER AREA OF EVEN HIGHER MULTIMODAL CONNECTIVITY AND MORE INTENSE ACTIVITY, ROUGHLY EQUIVALENT TO A 10-MINUTE WALK OR A ONE-MILE AREA.

A focus on these areas that demonstrate higher concentrations of residents and employees in close proximity guides the recommendations for improving the pedestrian network. Connecting multimodal centers and districts with public transportation would enable people to travel farther without a personal vehicle. **Figures 5.1-2 and 5.1-3** show the region's multimodal centers and districts. The legend in **Figure 5.1-3** indicates an intensity classification for Multimodal Centers from P1 (Rural or Village Center) to P-6 (Urban Core). The definitions of these classifications are available in DRPT's Multimodal System Design Guidelines.

Figure 5.1-1 | Snapshot of Regional Activity Density

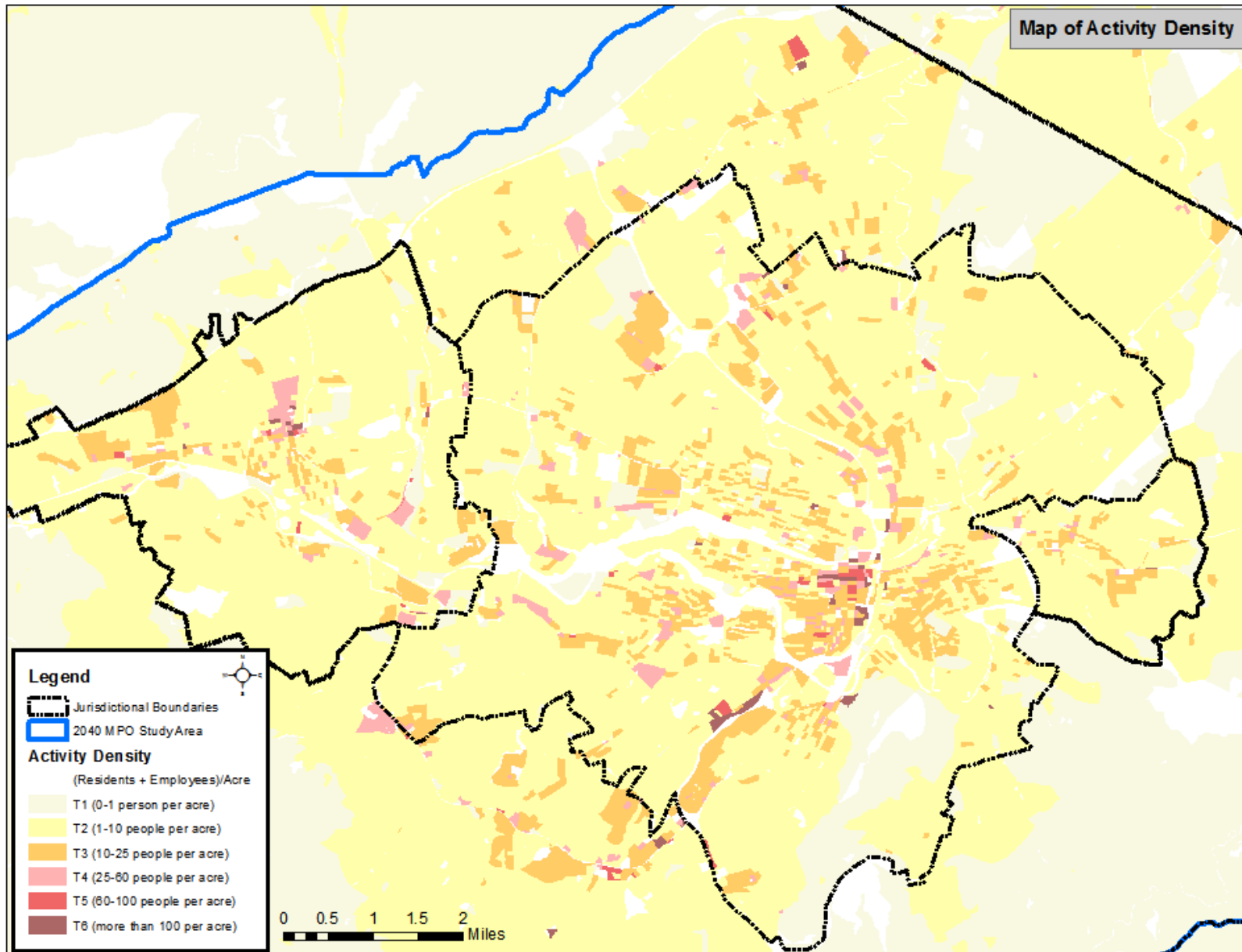


Figure 5.1-2 | Snapshot of Regional Multimodal Centers and Districts

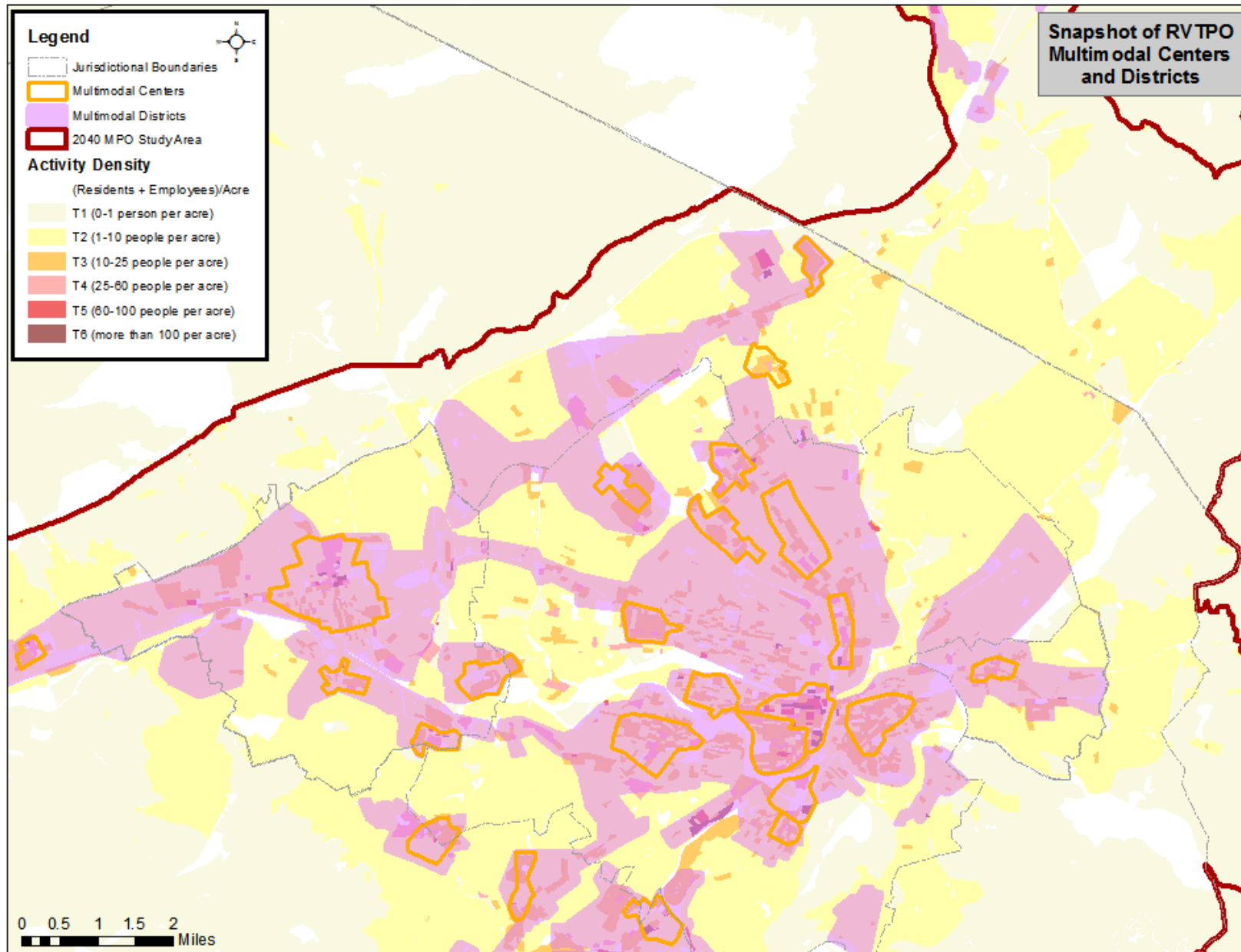
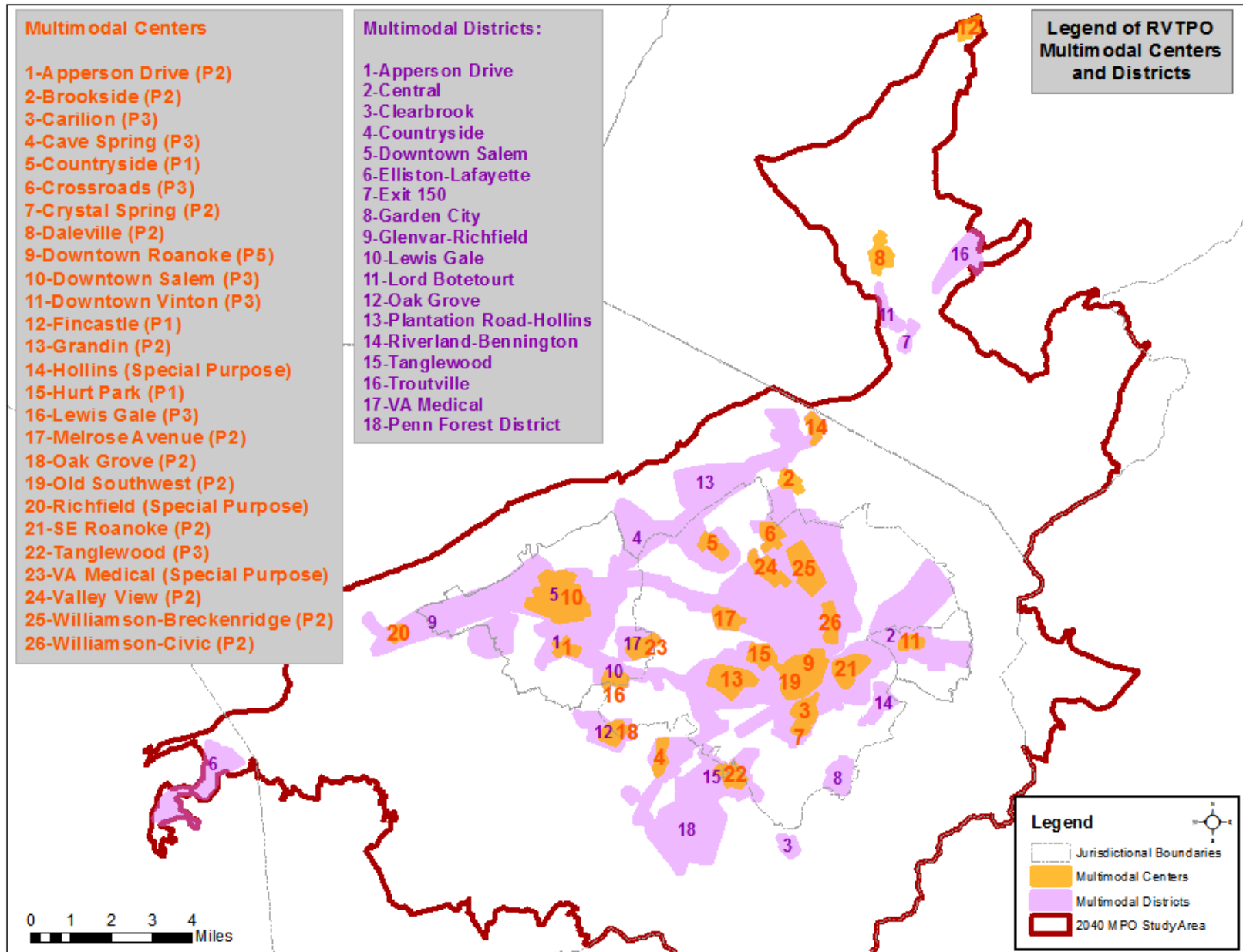


Figure 5.1-3 | Legend of Regional Multimodal Centers and Districts





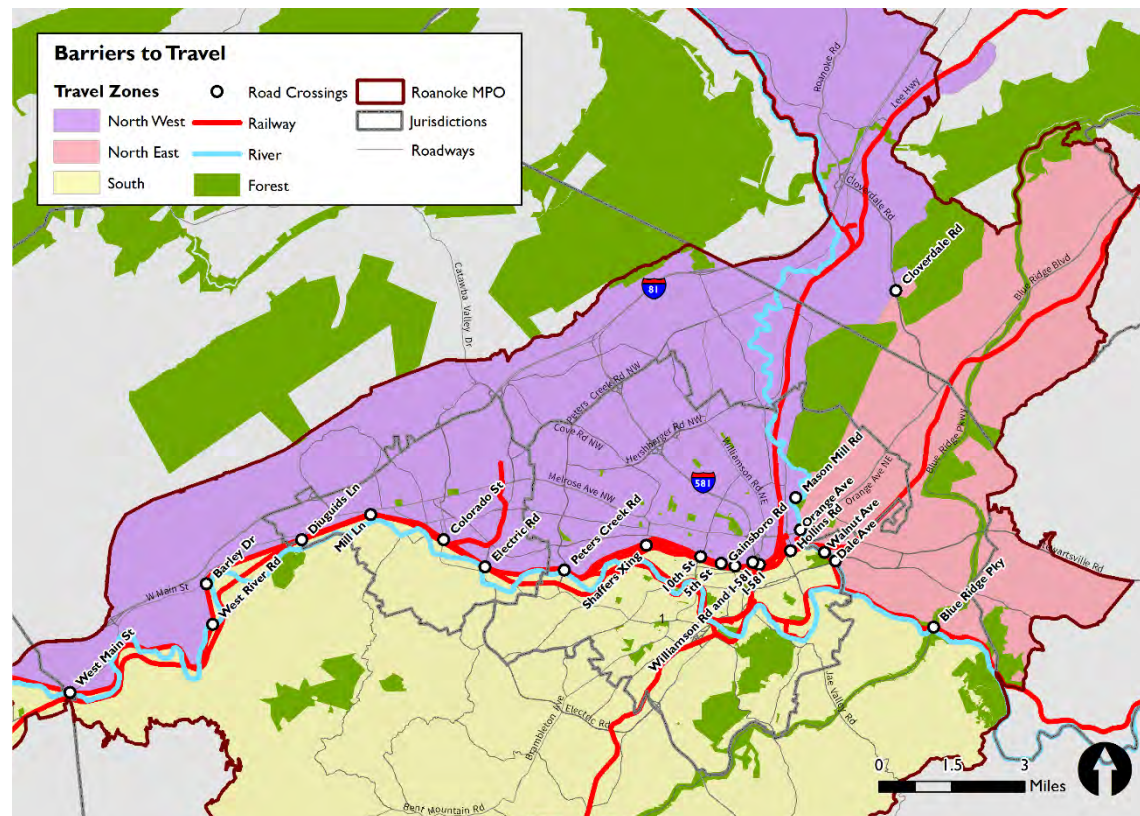
## 6.0 ROADWAY NETWORK CONSIDERATIONS

The Roanoke Valley is blessed to have many beautiful natural features such as the Roanoke River, Mill Mountain, Read Mountain, and many creeks. The region also has many railroads which, along with the natural features, create barriers to traveling from one part of the region to the next for buses and cars. Figure 6.0-1 shows where road crossings exist to physically enable getting between three regional zones: South, North West,

and North East. As seen in the map, many circles converge in or near Downtown Roanoke. Much traffic naturally flows through Downtown Roanoke, as the center of the region, and where it is physically possible to get from one zone to another.

The following sections review in more detail additional roadway considerations or changes in the roadway network that have occurred since the last major fixed-route network restructuring. These considerations may be useful when developing future transit service options.

Figure 6.0-1 | Barriers to Travel Map



## 6.1 At-grade Railroad Crossings

The railroad is the foundation for Roanoke’s existence; as such, many railroads and railroad crossings exist throughout the Valley. Efficient public transportation service is greatly facilitated by using roads where bridges have been constructed over railroads. Just like personal vehicles, buses can be delayed at railroad at-grade crossings. This affects buses ability to maintain their schedule and rider’s ability to make timely transfers. Whenever possible, buses should be routed onto bridges to avoid delays cause by trains traveling through at-grade roadway crossings.

Valley Metro currently utilizes many bridges to avoid schedule delays due to trains stopping traffic and buses at railroad crossings. However, there are still some bus routes that cross train tracks:

### ▲ 8<sup>TH</sup> STREET NEAR WALNUT STREET IN VINTON

- ACTIVE RAILROAD
- AFFECTS ROUTES 31/32

*The closest alternate bridge crossing would be through Downtown Vinton to Gus Nicks Boulevard.*

### ▲ TWO TRACKS ON CAMPBELL AVENUE SE NEAR 3<sup>RD</sup> STREET

- ONE ACTIVE RAILROAD; ONE INFREQUENTLY USED RAILROAD.
- PRIMARILY AFFECTS ROUTE 31/32; POTENTIALLY AFFECTS ALL BUSES GOING TO/FROM THE VALLEY METRO ADMINISTRATION BUILDING AND MAINTENANCE GARAGE

*The closest alternate bridge crossing is Elm Avenue.*

### ▲ FRANKLIN ROAD NEAR 3<sup>RD</sup> STREET

- ACTIVE RAILROAD
- AFFECTS ROUTES 35/36

*The closest alternate bridge crossing is Elm Avenue.*

### ▲ 24<sup>TH</sup> STREET RAILROAD TUNNEL (SCHAFFER’S CROSSING)

- ACTIVE RAILROAD
- ALTHOUGH THIS IS NOT AN AT-GRADE CROSSING, THE TUNNEL ITSELF IS NARROW AND DOES NOT ALLOW SUFFICIENT WIDTH FOR VALLEY METRO BUSES TO PASS UNDER THE RAILROAD TRACKS. NEARBY BUS ROUTES 65/66 TURN AROUND AT 18TH STREET RATHER THAN CONTINUING THROUGH THE TUNNEL.

### ▲ MAIN STREET NEAR KESSLER MILL ROAD

- INACTIVE RAILROAD
- AFFECTS ROUTES 91/92

*There are no nearby alternate bridge routes.*

### ▲ OLD JEFFERSON STREET NEAR RESERVE AVENUE

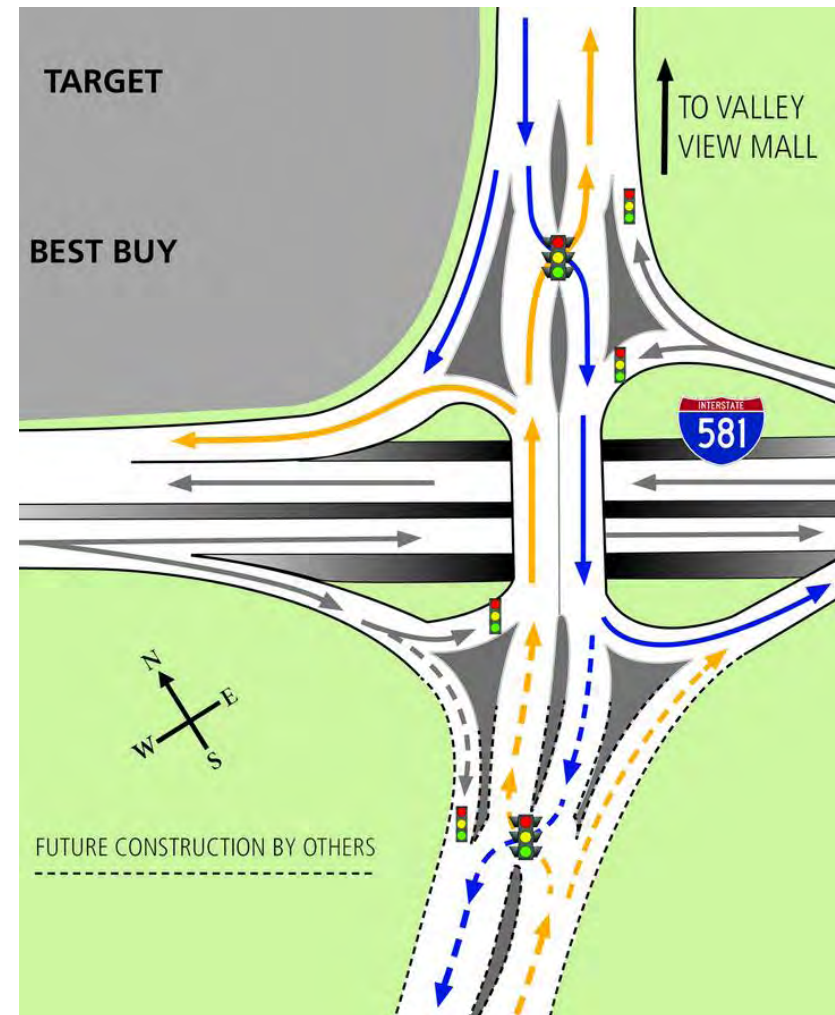
- ACTIVE RAILROAD
- AFFECTS THE TROLLEY
- DUE TO THE TROLLEY STOP BEING LOCATED ON OLD JEFFERSON STREET IN FRONT OF ROANOKE CARILION MEMORIAL HOSPITAL, TROLLEYS MUST CROSS THE RAILROAD TRACKS NEAR RESERVE AVENUE.

*The closest alternate bridge crossing is Jefferson Street which would necessitate the relocation of the trolley stop one block away from the current location onto Jefferson Street.*

## 6.2 Valley View Interchange

Valley View Boulevard at I-581 will be a complete interchange by Fall 2016. Until this time vehicles on I-581 south have not been able to exit onto Valley View Boulevard nor have vehicles on Valley View Boulevard been able to travel north onto I-581. In addition, the City of Roanoke is seeking state and federal funding to complete Valley View Boulevard from the interchange with I-581 to roads in the neighborhoods next to Hershberger and Cove Roads. This missing link will open up land on the west side of I-581 for new development. The City has been undergoing planning exercises for how that land, referred to as Evans Spring, would ideally be developed. Depending on the future land use and development intensity, direct transit service to this area may be needed in the future.

Figure 6.2-1 | Valley View Interchange Project Map



### 6.3 Aviation Drive and Towne Square Boulevard Intersection

In July 2011, Towne Square Boulevard, which previously terminated at Sam's Club, was connected to Aviation Drive. This connection enables easier movements between the Towne Square/Crossroads shopping area, the airport, and Valley View Mall. Presently two bus routes from Campbell Court terminate at the Kroger shopping center at Towne Square Boulevard and Rutgers Street and two routes return to Campbell Court via Williamson Road and via Plantation Road/Hollins Road. A potential opportunity exists to better connect the Towne Square shopping area and Valley View Mall due to this new roadway connection. The roadway improvement also creates the opportunity for a local transit connection to the Roanoke-Blacksburg Regional Airport, which is now a short drive from the closest transit routes.

*Figure 6.3-1 | Aviation Drive prior to Intersection Improvements*



*Google Earth photography April 30, 2011*

*Figure 6.3-2 | Aviation Drive post Intersection Improvements*



*Google Earth October 24, 2011*

### 6.4 Peters Creek Road Extension

In the mid-1990's, Peters Creek Road was extended from Melrose Avenue to Brandon Avenue. New development has been directed to front connecting streets rather than on the extension of Peters Creek Road itself. This portion of Peters Creek Road is a good connector but lacks the adjacent activity that would itself demand transit service.

*Figure 6.4-1 | Peter's Creek Road Prior to Extension*



*Google Earth Photography April 2, 1996*

*Figure 6.4-2 | Peters Creek Road Post Extension*



*Google Earth Photography September 16, 2003*

## 6.5 2<sup>nd</sup> Street/Gainsboro Road and Wells Avenue

The 2<sup>nd</sup> Street/Gainsboro Road bridge over the railroad in Downtown Roanoke, the connection of the bridge to Orange Avenue and the extension of Wells Avenue to Gainsboro Road was also a development in the mid-1990's. The bridge and connections eliminated a railroad crossing and made it much easier for all vehicles, including buses, to get into and out of Downtown Roanoke.

*Figure 6.5-1 | 2<sup>nd</sup> Street prior to bridge construction*



*Google Earth photography March 23, 1995*

*Figure 6.5-2 | 2<sup>nd</sup> Street post bridge construction*



*Google Earth photography December 30, 2002*

## 6.6 Special Events in Downtown Areas

Traditional downtown areas, such as Downtown Roanoke, Downtown Salem, and Downtown Vinton, are key hubs of daily and special event activity for the region. Access into and out of downtowns are easily accomplished via many routes due to their grid street network. The higher density of activity and the presence of sidewalks make public transportation an easy option for people traveling to downtowns.

Operational challenges exist for any vehicle including buses, whenever streets are closed. For special events often held in downtown areas, disruptions to transit operations affect the ability to provide consistent, reliable, and timely service. Although the transit operators have learned to adapt to roadway network changes during special events, identifying ways to

minimize the need to alter transit operations on a regular basis or the extent of the service alterations should be pursued.

#### 6.6.1 Downtown Salem

In Downtown Salem, Main Street is the primary transit corridor, and no other alternate corridor would be preferred for daily transit service. During special events, Main Street may be closed between Thompson Memorial Avenue and 4<sup>th</sup> Street. Such closures are relatively few throughout the year and transit service is easily adjusted on those days by utilizing nearby streets. The grid street network of Downtown Salem enables this easy adjustment.

#### 6.6.2 Downtown Vinton

In Downtown Vinton, S. Pollard Street is the main street through town connecting Virginia Avenue and Washington Avenue. S. Pollard Street between Virginia Avenue and Washington Avenue as well as Washington Avenue between Vale Avenue and Bypass Road are sometimes closed for special events. Buses are able to avoid Pollard Street by staying on Hardy Road. Closing Washington Avenue would also require using Hardy Road though the use of it is a much longer detour.

#### 6.6.3 Downtown Roanoke

All transit routes currently converge in Downtown Roanoke where transfers between routes are facilitated at the Campbell Court Transfer Station. Buses travel into and out of the Station from Campbell Avenue and Salem Avenue. The streets used for special events in Downtown Roanoke are shown in blue in the following map. Each of these streets is a transit corridor: Jefferson Street, Franklin Road, Campbell Avenue, and Salem Avenue. Closing these streets in Downtown Roanoke alters

transit operations; however, sufficient alternate routes exist due to the grid street nature of Downtown Roanoke to continue services.

The biggest challenge to transit operations during special event street closures is the altering of the ingress and egress of buses from Campbell Court that causes significant disruption inside the transfer station due to buses not being able to drop off or pick up customers at their usual platform location. Because all buses must enter from Campbell Avenue and exit onto Salem Avenue, all the buses end up facing the same way. The normal operation is for buses next to each other to be facing in opposite directions so that the passenger door opens to a boarding platform. When buses in Campbell Court are oriented in the same direction, less than two feet may exist between buses and passengers must squeeze between buses in order to board/alight buses and transfer routes. The challenge is compounded when facilitating transfers for people with disabilities because it is not possible to deploy the lift ramp with such limited space.

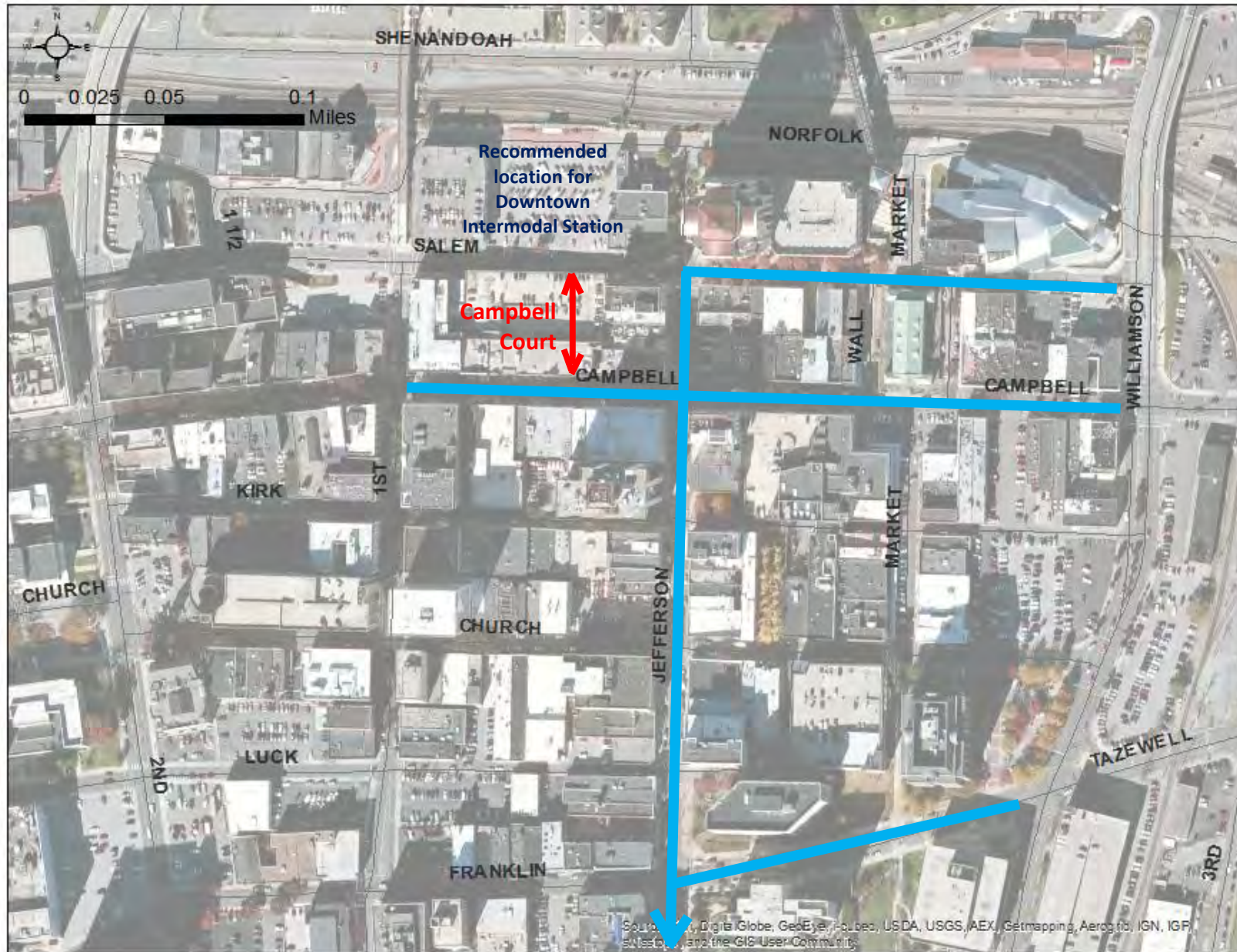
Special events and road closures will continue to be a common occurrence in Downtown Roanoke. Significant improvements to passenger boarding/alighting and consistency in transit transfer operations during special events is needed for transit to be a more attractive option for people going to special events or traveling throughout the region during special events in Downtown Roanoke.

As mentioned previously, the Downtown Roanoke Intermodal Transportation Study recommends relocating Campbell Court to a new facility on property on the north side of Salem Avenue between the MLK Bridge and Jefferson Street. Unlike the current facility, the layout options for the recommended new

facility would enable all buses to enter/exit the facility the same way regardless of any special event street closures. ADA accessibility during transfers would be maintained and consistency of bus service and bus placement within the transfer facility would be accomplished at all times. Some buses traveling to the facility would still need to use an alternate street during special events; but as stated, there are sufficient alternate routes in Downtown Roanoke to continue reliable transit service while providing a transportation option for people attending special events.



Figure 6.5.3-1 | Downtown Roanoke Streets used for Special Events



## 7.0 INTERACTION BETWEEN TRAVEL MODES

The following sections relate transit to other primary transportation modes: pedestrian, bicycle, cars, passenger rail, air transportation, and intercity bus.

### 7.1 Transit - Pedestrian

Transportation investments in pedestrian infrastructure are vital for enabling people to use transit. A transit stop that is disconnected from pedestrian infrastructure to provide access to it will have limited usefulness.

Adequate pedestrian facilities, such as sidewalks, landing pads, and curb ramps enable people to ride public transit because they allow people to physically access bus stops and wait for the bus in a safe location. Without pedestrian facilities, some people will access the bus stop even under poor conditions; other people will instead drive their car, call for paratransit services, depend on another person for a ride, or not travel at all.

Paratransit services support people with disabilities who cannot use the fixed-route system. These services are very costly because the service can only support a few trips per hour when compared with fixed-route service. However, it is impractical to

*A 10-minute walk is generally the maximum that people will practically walk in the course of daily activities.*

suggest that people with disabilities try using the fixed-route service when they cannot physically get there in a safe way. Fixed-route service provides the option of freedom and mobility on one's own schedule that paratransit service does not allow, which is the main motivation for people to choose fixed-route over paratransit. Many bus stops are not accessible due to lack of infrastructure. An investment in pedestrian access to the region's bus stops is needed as noted particularly in the 2013 Bus Stop Accessibility Study.

*Figure 7.1-1 | Lifts on buses benefit people with disabilities as they move around the region on Valley Metro*



People are more likely to choose riding public transit when they feel safe walking to the bus stop, crossing the street, and waiting for the bus. Pedestrian amenities at transit stops such as benches or shelters are essential because they make riding

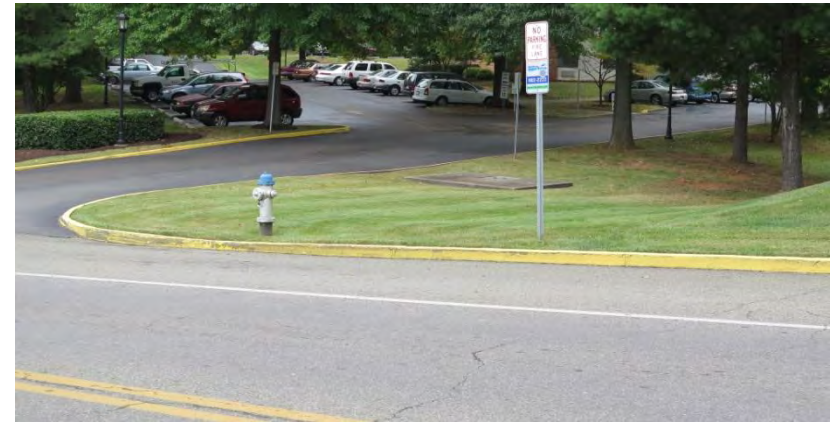
public transit a more comfortable and enjoyable experience. In some places where benches are not provided, people have resorted to building one themselves as shown in next figure.

*Figure 7.1-2 | Makeshift pedestrian facilities at bus stops*



The next figure shows a bus stop in front of Edinburgh Square, a retirement community in North Roanoke County. The location is one of many bus stop pairs in the region that lack adequate facilities including sidewalk connections, landing pads and curb ramps.

*Figure 7.1-3 | Bus Stop at Edinburgh Square, Roanoke County*



In many places throughout the region, crosswalks are striped at un-signalized locations often specifically for crossings near schools or churches. To facilitate an integrated multimodal system, crosswalks to bus stops or to connect bus stop pairs – as in two bus stops located across the street from each other – should also be provided. Where crosswalks are marked, curb ramps are also needed. The next picture shows a crosswalk in a residential area near a school and at a bus stop in need of a curb ramp.

*Figure 7.1-4 | School Crossing, 9th Street and Montrose Avenue, City of Roanoke*



The figure below shows the need to connect pedestrian accommodations given that the curb ramps are located at the corner and the crosswalk is midblock in front of the church. A bus stop is also present in front of the church.

*Figure 7.1-5 | Church Crossing, Washington Avenue near N. Poplar Street, Vinton*



New pedestrian accommodations constructed next to bus stops should always consider accessibility, per the Americans with Disabilities Act (ADA), and incorporate landing pads at the bus stop. Such additions are a small increase in the overall cost of a project and can be accomplished easily during construction. The

next figure shows a new sidewalk that will entail additional work to make the bus stop accessible because the space between the sidewalk and the curb at the bus stop was not paved and no curb ramp was installed to accommodate wheelchairs crossing at the intersection.

*Figure 7.1-6 | Wise Avenue bus stop–pedestrian access coordination, City of Roanoke*



Along streets where transit service is provided and on-street parking exists, a common conflict is the ability for a pedestrian to get from the bus stop onto the bus without having to walk between or around parked cars. If the bus stop does not generate sufficient activity, it may be preferable to relocate the bus stop and provide the space for parking. However, where bus stops generate activity, and it makes sense to have them in a particular location, parking must be removed to allow people with disabilities to use the bus stop. Anywhere a bus stop exists, adequate space must be provided for the bus to pull up to and depart the bus stop. The following picture shows a trolley stop in Downtown Roanoke that is inaccessible to people with disabilities because of the on-street parking barrier that prevents the trolley from pulling up to the curb to pick up passengers.

Figure 7.1-7 | On-street parking blocks access to trolley stop



The use of bus loading/unloading signs show the type of signage that reserves on-street space for transit vehicles and could help more people's ability to use transit in Downtown Roanoke.

Figure 7.1-8 | Bus Loading/Unloading Signage on Campbell Avenue





As mentioned previously, a valuable resource for identifying the improvements needed at bus stops is the Bus Stop Accessibility Study completed by the Regional Commission in September 2013. The Study reviewed the most active bus stops based on their Bus Stop Activity Index, a factor of ridership and frequency of usage, as well as bus stops that were near high activity paratransit pick-up locations and recommended pedestrian improvements. There are nearly 900 bus stops in the region. The Regional Pedestrian Vision Plan notes a couple hundred locations where relatively low-cost improvements are needed to enable pedestrian accessibility to transit.

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## 7.2 Transit - Bicycle

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The ability to take a bicycle onto a transit vehicle extends the distance people can travel more than simply traveling by transit or by bicycle. Valley Metro's 2006 model buses were the first to feature bike racks. Subsequently, Valley Metro installed bike racks on the older buses as well. Bike racks on buses are now a standard feature. With the exception of the trolleys, a bicycle can be placed on any Valley Metro bus, including the longer distance Smart Way buses, for no additional fee. The process to put a bicycle on a bike rack is fairly simple, and bike racks can carry two bicycles at one time. When the bike rack is in use, buses entering Campbell Court must use a specialized bus lane as opposed to their normally designated bus lane. When Campbell Court was opened in 1983, the design and space configuration did not account for the future need of buses with bike racks. The additional length that the bike rack adds to the bus presents space challenges when buses are maneuvering through Campbell Court. Riders wanting to place a bicycle on a bus at Campbell Court must wait for buses ahead of theirs to depart before placing their bicycle on the bike rack.

*Figure 7.2-1 | The 2006 model Valley Metro buses were the first to feature bicycle racks*



*Figure 7.3-1 | A Smart Way bus serves riders at the Berglund Center Park and Ride Lot*



### 7.3 Transit - Cars

People transfer between cars to transit and vice-versa in several places throughout the region. Smart Way riders commonly transfer between cars and transit when using the Smart Way Commuter bus or the Smart Way Connector bus. Free parking is provided to transit riders at the Exit 140 Park and Ride lot, the Gainsboro Garage, and the Berglund Center. People also often park their cars in a Carilion parking facility in Downtown Roanoke or near Roanoke Carilion Memorial Hospital and take the trolley to their final destination. In addition, people have the opportunity to be dropped off at any of the nearly 900 transit stops in the region.

During special events at the Berglund Center, Valley Metro often provides shuttles from parking garages in Downtown Roanoke. Likewise, for events at the Salem Civic Center, overflow parking is provided at GE and people ride a shuttle to the event.

The Exit 140 Park and Ride lot and the bus stop it contains are currently under design for improvements. The design will better facilitate multimodal connections by incorporating a bus shelter, sidewalks, bicycle parking, and enabling two buses to be present at one time. The improvements being made to Exit 140 provide a good example for how to develop other park and ride lots and transit transfer facilities.

### 7.4 Transit - Passenger Rail Transportation

The greatly anticipated return of passenger rail service to Roanoke will add another component of multimodal transportation to the Roanoke Valley. The location of the passenger rail platform along Norfolk Avenue between the MLK and Market Pedestrian Walkway Bridges and its proximity to the region's transportation hub, Campbell Court, enables the

opportunity for people to easily transfer between passenger rail and transit. Such an opportunity may be favorable to passengers as an inexpensive option over long-term parking fees.

*Figure 7.4-1 | Passengers in Lynchburg board the Smart Way Connector headed to Bedford/Roanoke/New River Valley*



Passenger rail inherently will generate long-term parking needs as passengers leave their cars to travel on the train. Space is valuable in Downtown Roanoke near the boarding platform. Many parking lots and garages already exist nearby, and the demand for space by employees of downtown businesses will continue to exist. The proximity of transit will provide people with an alternative to connect with the train, thus reducing the space needed to store cars for extended periods of time in Downtown Roanoke.

## 7.5 Transit - Air Transportation

The Roanoke-Blacksburg Regional Airport is currently accessible via the Smart Way Commuter bus that connects Downtown Roanoke, Christiansburg, and Blacksburg. Many citizens have noted a need for a better local transit connection as well given that the nearest stop is currently a 1/3-mile away at the Kroger on Towne Square Boulevard. Residents and employees would benefit from a direct stop at the airport. In addition, visitors traveling to the Roanoke Valley may desire a car-free visit. Being able to access key destinations in the Roanoke Valley via transit would enable that possibility.

## 7.6 Transit - Intercity Bus Transportation

Intercity bus transportation via the Smart Way Commuter Bus provides connections with regional destinations such as Downtown Roanoke, Christiansburg and Blacksburg. Other services such as Megabus or Greyhound enable people to travel farther distances. The connection between local transit and services such as the Smart Way are essential because they provide seamless public transportation to jobs, education, shopping, etc. that people in the Roanoke Valley and New River Valley may use on a daily basis. Co-locating these local and regional services, as they are today at Campbell Court, enables their convenient use for daily trips.

Transit connections are also currently possible with Megabus via the Smart Way at the I-81 Exit 118B park-n-ride lot and with Greyhound at Campbell Court. Megabus travels along the I-81 corridor between Knoxville and Washington D.C. and stopping at Exit 118 enables minimal deviation off its main route and



facilitates transfers with local Blacksburg Transit, Radford Transit, and Smart Way routes.

*Figure 7.6-1| Passengers switch buses at the Megabus station in Washington D.C.*



Greyhound benefits from the interconnectedness with all local transit at Campbell Court. However, unlike the local transit services or the Smart Way, Greyhound is not commonly used by people for their daily trips. Therefore, like the Megabus service, it is not essential that Greyhound be located in Downtown Roanoke though it is important that Greyhound be accessible via local transit in the Roanoke Valley.

# Roanoke Valley Transportation PLANNING ORGANIZATION

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## Roanoke Valley TRANSIT VISION PLAN

*Approved September 22, 2016*

*(This Technical Report was originally approved on August 27, 2015.)*

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### PART 3: Technical Report on Preliminary Surveys and Data Analysis

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## 1.0 INTRODUCTION

The input of many people is needed to make a plan that will best reflect the needs and desires for the future of transit services in the Roanoke Valley. Much effort was placed into obtaining a wide variety of input from many sources. Specifically, this report will review the results of surveys and data analyzed from six sources:

- ▲ VALLEY METRO EMPLOYEE SURVEY
- ▲ VALLEY METRO RIDER ORIGIN/DESTINATION SURVEY
- ▲ VALLEY METRO BUS BOARDINGS/DEBOARDINGS SURVEY
- ▲ GENERAL PUBLIC SURVEY
- ▲ RADAR CUSTOMER AND TRIP DATABASES
- ▲ BOTETOURT COUNTY SENIOR AND ACCESSIBLE VAN PROGRAM RIDERSHIP DATA

Through these sources a wide range of data and information has been obtained, analyzed, and summarized with the findings provided in the following sections. This information provides a factual foundation for proceeding with the Plan's development by identifying citizen's values around transit, a regional vision for transit, transit-related goals to work toward, and the formation of transit recommendations which will all be covered in subsequent parts of this plan.

## 2.0 VALLEY METRO EMPLOYEE SURVEY

A survey for Valley Metro employees was made available during the period between June 5 and June 20, 2014. Of the 90 employees, 27 responded to the survey questions listed below.

1. WHAT IS THE MOST FREQUENT CUSTOMER COMPLAINT ABOUT THE TRANSIT SYSTEM?
2. PLEASE LIST ANY LOCATIONS WHERE THERE IS CURRENTLY NO BUS SERVICE AND YOU THINK THERE SHOULD BE SERVICE.
3. PLEASE LIST ANY ROUTES THAT ARE RUSHED TO ACCOMPLISH WITHIN THE AVAILABLE TIME. FOR THESE ROUTES, PLEASE INDICATE THE REASON WHY IT FEELS RUSHED SUCH AS ROUTE LENGTH IS TOO LONG, TRAFFIC CONGESTION, DELAYS TURNING AT AN INTERSECTION, ETC.
4. PLEASE LIST ANY ROUTES THAT SHOULD BE STRUCTURED DIFFERENTLY AND WHAT CHANGES YOU RECOMMEND.
5. PLEASE LIST ANY ROUTES THAT EXPERIENCE CROWDING AND AT WHAT TIME OF DAY.
6. PLEASE LIST ANY ROUTES THAT GENERALLY EXPERIENCE VERY LOW RIDERSHIP AND AT WHAT TIME OF DAY.
7. PLEASE LIST ANY OTHER RECOMMENDATIONS YOU HAVE FOR PUBLIC TRANSPORTATION IN THE GREATER ROANOKE VALLEY REGION. ATTACH ADDITIONAL SHEETS IF NECESSARY.

A summary of the responses is provided in the following sections.

## 2.1 The Most Frequent Customer Complaint about the Transit System

Employees were asked to reflect on customers' most frequent complaint about the transit system. Their responses concerned these general topics:

- ▼ HOURS OF OPERATION
- ▼ NETWORK STRUCTURE
- ▼ SERVICE DELIVERY
- ▼ TRAVEL TIME
- ▼ SERVICE AREA
- ▼ FARES
- ▼ COMFORT

### 2.1.1 Hours of Operation

- ▲ NEED SERVICE PAST 8:15 P.M. UNTIL 11 P.M. OR 12:00 P.M. OR 12:45 A.M.
- ▲ NEED HALF-HOUR SERVICE FROM 9:45 A.M. – 6:45 P.M.
- ▲ NEED SUNDAY SERVICE 8:00 A.M. – 4:00 P.M.
- ▲ NEED EARLIER SERVICE IN ORDER TO COMMUTE TO WORK.
- ▲ FIRST TWO WEEKS OF EACH MONTH ARE BUSIEST AND NEED 30 MINUTE SERVICE 2:30-7:30P.M.

### 2.1.2 Network Structure

- ▲ HAVING TO RIDE HALF AN HOUR IN THE WRONG DIRECTION (TOWARDS DOWNTOWN) TO GET THE BUS THEY NEED.

### 2.1.3 Service Delivery

- ▲ BUSES ARE OFTEN LATE
- ▲ TRANSFERS ARE OFTEN MISSED
- ▲ DOWNTOWN EVENTS MAKE BUSES LATE

### 2.1.4 Travel Time

- ▲ TRAVEL TIME IS TOO LONG, SHOULDN'T TAKE AN HOUR TO GET FROM ONE END TO ANOTHER; SHOULD BE 30 MINUTES

### 2.1.5 Service Area

- ▲ NEED SERVICE TO CLEARBROOK WALMART, 460, DMV, TARGET

### 2.1.6 Fares

- ▲ ELIMINATE TRANSFER PASSES AND CHARGE A FARE FOR EVERY BOARDING
- ▲ FARE IS TOO HIGH
- ▲ SHOULD NOT HAVE TO SHOW AN ID

### 2.1.7 Comfort

- ▲ BUSES ARE TOO HOT/TOO COLD

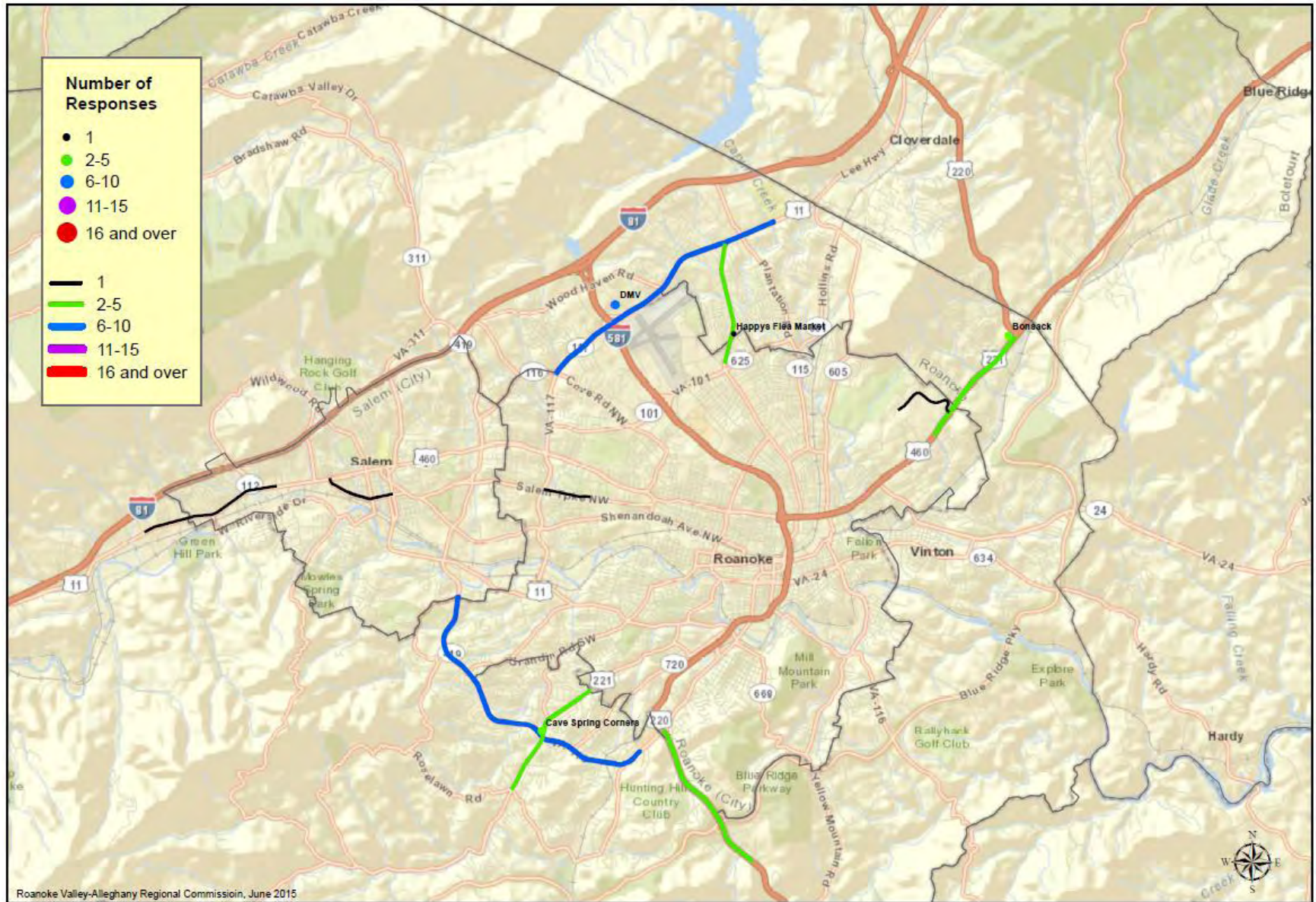
## 2.2 Locations Where Transit Service is Needed

When asked about where transit service is needed, employees listed the following locations:

- ▲ 220 TO CLEARBROOK WALMART
- ▲ 419 CORRIDOR FROM FRANKLIN ROAD/TANGLEWOOD TO LEWIS GALE TO SALEM (LAKESIDE PLAZA)
- ▲ 460 – BLUE HILLS DRIVE INDUSTRIAL PARK
- ▲ 460-BONSACK – KROGER AREA AND WALMART AREA
- ▲ BRAMBLETON SOUTH OF RED ROCK TO MEDICAL OFFICES
- ▲ BRAMBLETON AT 419, CAVE SPRING CORNERS
- ▲ CAVE SPRING AREA
- ▲ DMV
- ▲ FERRUM COLLEGE
- ▲ FRANKLIN COUNTY
- ▲ HAPPY’S FLEA MARKET
- ▲ PETERS CREEK CORRIDOR TO INCLUDE DMV/WILLIAMSON ROAD TO HOLLINS CORRIDOR
- ▲ PETERS CREEK ROAD FROM COVE ROAD TO WILLIAMSON ROAD
- ▲ ROUTE 11 NEEDS A STOP AT COVE AND SHERMAN
- ▲ ROANOKE COUNTY
- ▲ ROCKY MOUNT
- ▲ MAIN STREET IN SALEM – ALL STOPS SHOULD HAVE A PAIRED STOP ACROSS THE STREET, ESPECIALLY GOODWIN AVENUE AND KROGER SPARTAN SQUARE
- ▲ MORE OF SALEM
- ▲ SALEM TURNPIKE FROM WESTWOOD BLVD. TO PETERS CREEK ROAD
- ▲ WEST MAIN STREET FROM TURNER ROAD TO GARMAN ROAD (ATLAS LOGISTICS/KROGER WAREHOUSE)
- ▲ WEST 4<sup>TH</sup> FROM MAIN STREET TO COLORADO STREET
- ▲ WILLIAMSON ROAD TO PETERS CREEK ROAD
- ▲ WILLIAMSON ROAD FROM HERSHBERGER ROAD TO PETER’S CREEK ROAD

These locations are shown on the following map according to the number of employees that mentioned each location.

Figure 2.2-1: Map of Transit Recommendations from Valley Metro Employees



## 2.3 Routes that are Rushed to Accomplish within the Available Time

Employees provided the following feedback regarding why certain routes were difficult to accomplish within the available time.

| ROUTE          | FEEDBACK   |
|----------------|--|
| 11             | Regular and peak – poorly retimed traffic signals have added too much time, rough pavement and tight quarters through McDowell and Madison also use more time.   |
| 12             | William Fleming during school times<br>Lights/school bus getting out of CC (Campbell Court) 10 min. late<br>Block 3 – the lights catch you wrong and you are down by 5-10 minutes<br>Lift use<br>Too many stops on Ferncliff<br>Traffic signal at Cove Rd.   |
| 11/12<br>15/16 | Light timing<br>Many people with bags  |
| 15/16          | Increase in parked vehicles along Greenland Avenue making navigation difficult, more difficult with other vehicles.  |
| 16 Peak        | Thirlane Road service to Celebration Center (Taylor Learning Academy) has minimal ridership (if any) most days and servicing it makes it difficult to return to Campbell Court on-time (Used by 2 people)<br>Valley View Mall routes are rushed as it is, and with Valley Court added it is even harder, ridership is very |

|       |  |
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|       | poor at Valley Court.  |
| 25/26 | <b>Peak</b> stoplight and traffic<br>Severely delayed by signals at Orange Ave. and Hollins Road.<br>Traffic backups on Hershberger Road at Williamson Road.<br>26-Traffic backs up at Airport Road and Williamson. Left turn from Williamson to Hershberger is often blocked, and short timed. Often takes two or three complete light cycles to make this left turn. |
| 41/42 | Roadwork on Elm Avenue<br>Time it takes to exit Food Lion lot and Jamestown.<br>Going to Garden City<br>Driving into neighborhoods, Piggly Wiggly shopping center traffic backup   |
| 75    | Length of run, where it goes, roadwork<br>Last timepoint at Center and 5 <sup>th</sup> should be moved closer (7 stoplights, 2 that have left turns)<br>Elderly people – workers at VA, apartments on route  |
| 85/86 | Route is too long for time provided<br>Securing wheelchairs<br>Too many twists and turns.<br>Hard to get out of Golfside onto Cove making a left turn.<br>Need to cut Forest Park neighborhood   |
| 91/92 | Too congested with passengers often standing.<br>92 from VA Medical Center to Campbell Court due to congestion, length, lights<br>Heavy ridership on Melrose Avenue<br>Heavy ridership at Elizabeth Arden<br>Route too long<br>Lights  |



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|  | Congestion   |
| All routes   | - traffic increases<br>- duration<br>- due to ridership buses held sometimes until :20 or later  |
| Additional feedback not associated with a particular route | Mall routes<br>Valley View Mall – high ridership<br>Valley View Walmart – many customers<br>VA Hospital – too long due to route and congestion |

## 2.4 Routes that should be Structured Differently

Valley Metro employees provided feedback on routes they felt should be structured differently.

| <u>ROUTE</u> | <u>FEEDBACK</u>   |
|--------------|---|
| 11           | Need mall express bus just to malls – no neighborhoods<br>Should bypass Valley View – mall service replaced by direct shuttle to and from transfer station<br>Delete Routt Road and Ferncliff Avenue, could be serviced by Route 85 and 86 on Cove Road at Routt, and a re-routed 11 and 12 on Hershberger at Ferncliff. A three block walk is no worse than service to other apartments. |
| 12           | Eliminate stops on Ferncliff Avenue and set-up routes 11 and 15 so they both arrive at Walmart at the same time.<br>Need mall express bus just to the malls – no neighborhoods.   |

|    |  |
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| 15 | Need mall express bus just to the malls – no neighborhoods.<br>Should bypass Valley View – mall service replaced by direct shuttle to and from transfer station.   |
| 16 | Need mall express bus just to the malls – no neighborhoods.<br>Peak, delete Valley Court. Replace with a Route 12 stop on Hershberger Road.<br>Stop service to Celebration Station (Taylor Learning Center)<br>Perhaps consider a stop at Target   |
| 21 | Still overcrowded  |
| 22 | Still overcrowded  |
| 25 | Reset the light at Orange and Hollins, so that both turn lanes changed, then the straight lanes, it would be some relief. The signals used to be set this way. Also, have 25 cross Williamson Road and follow 22 route to Kroger instead of using Airport Road. That intersection has gotten very congested.   |
| 26 | Stay on Plantation - eliminate loop.<br>Should not service Preston/Oliver loop due to low ridership, :05 and :35 timepoint relocated to Kimball near Member One.   |
| 31 | Look into need to go into Statesman  |
| 41 | Stop going into Food Lion - very low ridership. Go into Jamestown outbound on right turns.<br>Would like to take the bus from inside Jamestown<br>Run buses every 30 minutes from 12:15-7:15 p.m. six days a week. Stop going to Kenwood Loop. Pickup on outside at Jamestown, not inside. Pickup on outside of Piggly Wiggly, not inside. One stop at ? apartments, place it in the middle. |

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|    | 12-9 should not service Garden City but every 3 hours due to low ridership, 12:15, 3:15, 6:15 trips  |
| 51 | Follow hourly route – eliminate South Roanoke<br>Should bypass Tanglewood Mall – mall service replaced by direct shuttle to and from transfer station.   |
| 52 | Follow hourly route – eliminate South Roanoke  |
| 55 | Should bypass Tanglewood Mall – mall service replaced by direct shuttle to and from transfer station.  |
| 61 | This route needs a peak hour   |
| 62 | Leaving EOL (End-of-the-line), should take left Fleetwood, left Harris, left Brambleton, as it is easier to enter Brambleton, also Fleetwood can be narrow due to parked cars.   |
| 65 | Look into need to do Norwich.  |
| 66 | Can keep straight on Salem Avenue instead of making a right on 8th, then a left on Campbell because the 72 is already servicing the area.  |
| 71 | Eliminate Malvern/Carlton Loop, bus stop on Edgewood is sufficient.<br>Going through the neighborhood should be upon request because you barely pick up or drop off in that area.<br>Too many stops between the Courthouse and Kirk YMCA   |
| 72 | Eliminate Malvern/Carlton Loop, bus stop on Edgewood is sufficient.  |
| 85 | Continue on Hershberger to Cove - don't do Westside to Melrose.<br>No left on Westside, stay straight on Hershberger to Peters Creek.<br>Take out Forest Park neighborhood and keep bus straight on Cove. This would cut time to help run. |
| 86 | No left on Westside, stay straight on Hershberger to Peters Creek.   |

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| 91      | Redo run<br>Move to Lane 7<br>Still overcrowded<br>Needs a bigger bus – too many people<br>Right 6 <sup>th</sup> Street Left Colorado – > Traffic Congestion<br>Route should bypass Wal-Mart & continue to right on McDaniel, left on Andrew, left on Hawley, left on Main (EOL). A small shuttlebus can run the current South Salem route & connect with Main Street bus. |
| 92      | Move to Lane 7 in Campbell Court<br>Still overcrowded<br>Needs a bigger bus – too many people.<br>Change 40 TP (time-point) to 35 TP<br>Route becomes Main St. from West Salem to Melrose, 11 <sup>th</sup> , Moorman and Gilmer – South Salem service replaced by a shuttle.  |
| Trolley | Expand trolley service throughout downtown   |

## 2.5 Routes that Experience Overcrowding and at What Time of Day

Employees noted which routes experienced overcrowding and on which days and times.

| <u>ROUTE</u> | <u>FEEDBACK</u>   |
|--------------|---|
| 11           | Mid-morning hours<br>12:15-7:15 p.m.<br>10:15 a.m. Saturdays can be very crowded  |
| 12           | 2-6 p.m.<br>11:00 a.m. - 6:00 p.m.<br>12:15 p.m. – 7:15 p.m.  |
| 15           | 2-6 p.m.<br>Every hour<br>11:00 a.m. - 6:00 p.m.<br>Mid-morning hours<br>12:15 p.m. – 7:15 p.m.<br>12:00 p.m. – 6:00 p.m. |
| 16           | 12:15 p.m. – 7:15 p.m.  |
| 21           | 12:00 p.m. – 3:30 p.m.<br>Until the peak comes on<br>Every hour<br>All day<br>Inbound (Route 22) and outbound (Route 21)  |
| 22           | 12:00 p.m. – 3:30 p.m.  |
| 41           | 12:15 p.m. until the end of the day   |
| 42           | 12:15 p.m. until the end of the day   |
| 51           | Mid-morning hours   |
| 55           | Mid-morning hours   |

|    |  |
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| 56 | 12:00 p.m. – 6:00 p.m.   |
| 61 | 12:00 p.m. – 3:30 p.m.<br>12:00 p.m. – 6:00 p.m.   |
| 75 | 2:45 p.m. and 3:45 p.m. at VA Hospital<br>3-5 p.m.<br>6-9 a.m.   |
| 91 | All day every day<br>Early morning<br>Mid-morning hours<br>Most times<br>10:00 a.m. – 12:00 p.m.<br>11:15 a.m. until the end of the day<br>5:00 p.m.<br>3:00 p.m. – 6:00 p.m.<br>Every trip from 8:15 a.m. on, outbound to Wal-Mart, then nearly empty |
| 92 | All day every day<br>Most times<br>Every trip from 8:30 a.m. on, from College Avenue to Campbell Court<br>10:00 a.m. – 12:00 p.m.<br>11:15 a.m. until the end of the day<br>3:00 p.m. – 6:00 p.m.<br>2-4 p.m.  |

No responses about crowding were given for the following routes:

25, 26, 31, 32, 35, 36, 52, 65, 66, 71, 72, 76, 81, 82, 85, 86, Trolley, SmartWay

## 2.6 Routes that Experience Very Low Ridership and at What Time of Day

Employees noted which routes experience very low ridership and on which days and times. Note that peak service is provided on select routes Monday through Friday from 6:15 a.m. – 9:15 a.m. and 3:45 p.m. – 6:45 p.m.

| <u>ROUTE</u> | <u>FEEDBACK</u>   |
|--------------|---|
| 11           | Most peak routes<br>All peak service!   |
| 16           | Valley Court – 4:15 p.m.<br>Valley Court for Peaks (no one rides)   |
| 25           | Peak, never more than 10 riders.  |
| 26           | Peak, rarely more than 5 riders.  |
| 41           | Around 7:15 p.m.  |
| 42           | Around 7:15 p.m.  |
| 51           | 6:00 p.m. – 9:00 p.m.   |
| 52           | Daily 6:15 a.m. Peak. Many days return to Campbell Court with no customers. Most days 1 or 2 customers at most. |
| 65           | Peak, rarely more than 10 riders.   |
| 71           | Very light in AM Peak service   |
| 72           | Rarely over 20 riders in AM peak service. Last trip PM peak is usually 1 or 2 riders.                           |
| 81           | Very light in AM peak service   |
| 82           | Last trip in PM peak is usually 1 or 2 riders.  |
| 85           | Peak hours<br>Any time of day.<br>6:15 a.m. – 5:15 p.m.   |

|    |   |
|----|---|
| 86 | 7:15 a.m. – 6:15 p.m.   |
| 91 | 7:15 trip<br>The vast majority of ridership is on the Main Street corridor. The bus is almost empty at all other times. |
| 92 | The vast majority of ridership is on the Main Street corridor. The bus is almost empty at all other times.              |

No responses about very low ridership were given for the following routes:

12, 15, 21, 22, 55, 56, 61, 62, 66, 75, 76, Trolley, SmartWay

## 2.7 Other Recommendations for Public Transportation in the Greater Roanoke Valley Region

Employees provided the following feedback on other general recommendations for public transportation in the region.

|   |   |
|---|---|
| 1 | Response to question on routes that experience crowding: All hourly buses and shift changes. Peaks are a big help. New terminal not in the heart of downtown.   |
| 2 | Response about which routes should be structured differently and any recommendations:<br>Peak routes - the time should be later coming in to work, which will help with buses being overcrowded.<br><br>To leave out of Campbell Court on time so we will return on time. |
| 3 | Half-hour buses have low ridership. Change the hour of service to help out with high volume of riders at the times needed.  |
| 4 | Response to question about low ridership: They are all full to me except during the peak hours.   |

|    |   |
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|    | People want to go out into the County on Williamson Road and Cave Spring sides.   |
| 5  | Response to question about low ridership: Most routes are full in the p.m.<br><br>More service out in the County.   |
| 6  | Open the County up!   |
| 7  | I think a lot of the routes should be re-evaluated for the time. There are more riders, traffic changes, the fact there are more people with wheelchairs and needing the lift which takes time. Also, a lot of people that would like to see us running until 11:00 or 12:00 at night due to work schedules. Would like to see peak buses run longer and have peaks for all the runs. |
| 8  | Response to question about low ridership: Hourlys are full, except on peak routes.<br><br>More hours in service.  |
| 9  | Answer to low ridership question:<br><br>Peak routes have low ridership almost every time I pass a peak bus.<br><br>Stagger times of arrival at Campbell Court and make routes like Salem used to be. Feeder buses from Campbell Court to loop routes out away from Campbell Court.   |
| 10 | Consider bringing back Sunday service and extending peak service.   |
| 11 | Leave times set as they are.  |
| 12 | Raise the fare.   |

|    |  |
|----|--|
| 13 | I think the buses should be running every 30 minutes, especially the malls (maybe have a small express bus that serves nothing but Valley View and Tanglewood, [11, 12; 15, 16; 51, 55; 52, 56] no side streets, straight from Campbell Court to malls via freeway). The 91 Melrose needs to keep a 30 minute bus running to busy a/ run in afternoon until around 7:30 p.m., malls the same time 1:15-7:15 p.m. full need to have a shuttle-like service for handicapped riders. Make Campbell Avenue buses only so the lights work with us all others stay out when we're leaving. Find us somewhere else to be [than Campbell Court]. |
| 14 | All peak service buses are wasted running during AM times. They should be run from 11:45 am to 6:45 pm when ridership is at its busiest.   |
| 15 | The ability for customers to purchase the Valley Metro ID at Campbell Court rather than going to the property would be a big help. I think a number of our customers can't read, many times I have been asked by a customer where a bus is located in Campbell Court when they are on it or next to it, we should have a large reference board at Campbell Court with pictures of some destinations on each route to help these people. I believe when people are in Campbell Court on the platforms and when entering buses headphones should not be allowed.   |
| 16 | Later Hours----> so that our passengers whom staff our hospitals and nursing homes and etc. can arrive to their posts at a more reasonable time frame. IE: working 11pm-7am they have to wait 2 hours outside in God knows what conditions and dangers.  |
| 17 | There is a need for a thirty minute service from 11am-7pm. Change the peak service to accommodate this.  |
| 18 | I currently drive the Salem and Vinton routes. The Vinton buses are generally only late when delayed by trains. The 91/92 is often late, and generally from delays caused by traffic congestion, heavy ridership, and frequent lift use while  |

on the US-460 corridor. The section through southern Salem is usually driven with a near-empty bus. My suggestion would be to have the full-size bus on 91/92 serve only the US-460 corridor (Melrose & Main Street) and request funding from City of Salem for a small shuttlebus, like our current vehicles 1201 & 1202, to loop around southern Salem and bring passengers to the main bus route.

While I have no personal experience with the "mall routes" within the last three years, the same approach could be used (probably with full-size buses) to shuttle passengers directly between Tanglewood and Valley View Malls and Campbell Court. The buses serving the neighborhoods currently on the 11/16, 15/12, 51/56 and 52/55 routes could then be driven much more safely and with less crowding.

In addition, the current Peak service in the morning is under-utilized for nearly all routes. If our funding remains at its current level, the service hours could be effectively redirected to the period from 11AM to 2PM, when Campbell Court is packed with riders and hourly drivers are attempting to switch each other out for lunch. Half-hour service at that time would ease the burden on everyone, much more so than in the early morning.

Ultimately, I believe the one-hour cycle for all buses to meet to transfer customers will no longer be viable, as we experience more and more traffic congestion and road construction; the switch to a staggered arrival cycle at a more open location(s) for passenger transfer will be inevitable. We can only hope that the areas currently resistant to using our services will see the need for public transit, and that local government will work with us to a greater extent.

19 System needs to be restructured to current conditions. The routes are basically 26 years old. Traffic and ridership have

changed considerably in that time. Traffic signals seem to have been reset to slow traffic down, apparently part of the "traffic calming" idea? Buses are spending much more time at red lights.

Virtually every route is more pushed for time than ever before, trying to keep schedules. We no longer have a time "cushion" to deal comfortably with construction, fender benders, or even lift customers. A two minute delay can mean missing the Campbell Court connection with other buses.


Various ideas for rescheduling Peak service have been rumored. Currently, the last hour of 5:45 - 6:45 PM sees very light ridership. If afternoon peak service began at 2:45 PM instead of 3:45 PM, ridership is heavier at that time. The shift could then end at 5:50 PM instead of the current 6:50 PM. The same length of service would benefit more riders, and be more cost effective. Peak drivers would also have an extra hour for sleep, a safety benefit. Peak service currently has the shortest time frame between shifts, as compared to the regular routes.

## 3.0 VALLEY METRO RIDER SURVEY

On June 24, 2014, a paper survey was made available to all passengers on all buses operated by Valley Metro with the exception of the Smart Way Connector. A total of 1,895 surveys were returned. The survey instrument, which was printed front-back and two to an 8.5 x11 page on cardstock paper is shown below. Valley Metro offered riders an incentive for completing the survey. For people who provided their name and phone number, used only for the incentive purpose, five survey cards were drawn and the respondents each received a free monthly pass.

Figure 3.0-1: Valley Metro Rider Survey Card

Please help Valley Metro plan future services. Complete one survey card for each trip you make today, and return it to any driver by tomorrow. Thank you!



### RIDER SURVEY CARD

|  |  |
|--|--|
| 1. Time: _____ AM or PM      Date: _____   |  |
| 2. I am on: <input type="checkbox"/> BUS ROUTE # _____ or <input type="checkbox"/> TROLLEY or <input type="checkbox"/> SMARTWAY  |  |
| 3. The place I am <b>COMING FROM</b> is:<br><small>(List the Home or Business Address or Name or Street Intersection)</small>  | Location of this place:<br><input type="checkbox"/> City of Roanoke<br><input type="checkbox"/> City of Salem<br><input type="checkbox"/> Town of Vinton<br><input type="checkbox"/> Roanoke County<br><input type="checkbox"/> Other: _____ |
| 4. Does this trip require a transfer? <input type="checkbox"/> Yes, I will also use route _____ <input type="checkbox"/> No  |  |
| 5. The place I am <b>GOING TO</b> is:<br><small>(List the Home or Business Address or Name or Street Intersection)</small>   | Location of this place:<br><input type="checkbox"/> City of Roanoke<br><input type="checkbox"/> City of Salem<br><input type="checkbox"/> Town of Vinton<br><input type="checkbox"/> Roanoke County<br><input type="checkbox"/> Other: _____ |
| 6. From door to door, how long will this trip take? _____  |  |
| 7. Trip purpose: <input type="checkbox"/> Work <input type="checkbox"/> School <input type="checkbox"/> Medical <input type="checkbox"/> Shopping <input type="checkbox"/> Social <input type="checkbox"/> Other: _____  |  |
| 8. Please check <b>ONE</b> main reason why public transit is important to you.<br><input type="checkbox"/> Because I am not able to drive. <input type="checkbox"/> It is cheaper than driving.<br><input type="checkbox"/> Because I don't have another way to get around. <input type="checkbox"/> It is good for the environment.<br><input type="checkbox"/> It is my only way to get to work and keep my job. <input type="checkbox"/> Other: _____ |  |

OVER →

9. Please list the top location that should be better connected to the bus system.

10. What is the most important message you want to share with decision-makers?

|   |  |   |  |   |
|---|--|---|--|---|
| 11. What is your age?   | <input type="checkbox"/> Under 18  | <input type="checkbox"/> 18-45              | <input type="checkbox"/> 46-64             | <input type="checkbox"/> 65 +                   |
| 12. Do you have a disability?   | <input type="checkbox"/> No  | <input type="checkbox"/> Yes                |  |   |
| 13. Do you own a car?   | <input type="checkbox"/> No  | <input type="checkbox"/> Yes                |  |   |
| 14. How often do you ride Valley Metro?   | <input type="checkbox"/> About every day   | <input type="checkbox"/> Once or twice/week | <input type="checkbox"/> 1-3 times a month | <input type="checkbox"/> Less than once a month |
| 15. Which of the following describes your current employment status? (Check all that apply) | <input type="checkbox"/> Employed full-time  | <input type="checkbox"/> Student            | <input type="checkbox"/> Retired           |   |
|   | <input type="checkbox"/> Employed part-time  | <input type="checkbox"/> Unemployed         | <input type="checkbox"/> Homemaker         |   |
| 16. What is your approximate total family income in a year?                                 | <input type="checkbox"/> Under \$10,000  | <input type="checkbox"/> \$30,000—\$49,999  |  |   |
|   | <input type="checkbox"/> \$10,000—\$19,999   | <input type="checkbox"/> \$50,000—\$74,999  |  |   |
|   | <input type="checkbox"/> \$20,000—\$29,999   | <input type="checkbox"/> \$75,000 or more   |  |   |
| 17. How would you classify yourself?  | <input type="checkbox"/> African American <input type="checkbox"/> Caucasian/White <input type="checkbox"/> Hispanic/Latino <input type="checkbox"/> Asian <input type="checkbox"/> Other: _____ |   |  |   |

Thank you! Complete the information below to enter to win a free monthly pass.

Name: \_\_\_\_\_ Phone Number: \_\_\_\_\_

## 3.1 Race, Age, Disability, Vehicle Ownership

A common question on transit surveys is for a person to identify their race classification. Most respondents (45%) were African American; 39% were Caucasian/White; 13% did not provide a response. Less than five-percent of respondents indicated “Other” which may include a combination of races. The results are shown in the following table.

Table 3.1-1: Rider Survey: Race Classification

| <u>RACE CLASSIFICATION</u> | <u>RESPONSE PERCENT</u> | <u># RESPONDENTS</u> |
|----------------------------|-------------------------|----------------------|
| African American           | 44.9%                   | 850                  |
| Caucasian/White            | 38.8%                   | 736                  |
| Hispanic/Latino            | 1.3%                    | 25                   |
| Asian                      | 2.2%                    | 42                   |
| Other                      | 4.5%                    | 85                   |
| Question unanswered        | 13%                     | 242                  |
| <b>Total Surveys:</b>      |                         | <b>1,895</b>         |

Another common question is to inquire about the respondent’s age. Four age brackets were provided as options. The respondent age breakdown is listed below.

- Under 18      2%
- 18-45        53%
- 46-64        38%
- 65+          7%

Riders with disabilities made up 25% of the people who completed the survey; 75% of riders indicated they had no disability.

Most respondents (84%) indicated they do not own a car.

### 3.2 Ridership Frequency and the Importance of Transit

The following table shows how frequently the riders use Valley Metro of which 74% of respondents said they use transit about every day.

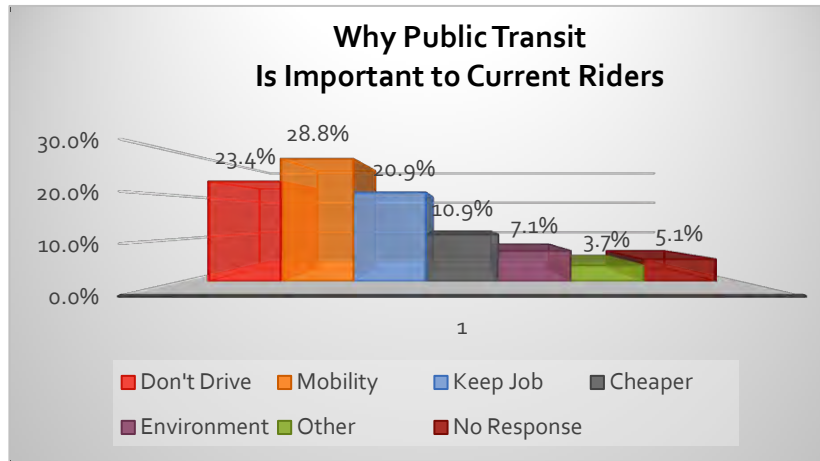
Table 3.2-1: Rider Survey: Use Frequency

|                                     | <u>PERCENT</u> | <u># PEOPLE</u> |
|-------------------------------------|----------------|-----------------|
| No Response                         | 13%            | 142             |
| Used transit less than once a month | 2%             | 42              |
| Used transit 1-3 times per month    | 4%             | 78              |
| Used transit once or twice a week   | 12%            | 230             |
| Used transit about every day        | 74%            | 1,403           |
| <b>Total People Surveyed</b>        |                | <b>1,895</b>    |

As shown in the following figure, when asked why public transit is important, 28% responded “Because I don’t have another way to get around” and 23% responded “Because I am not able to drive”. For 20% of the survey group, transit is the only way to get to work and keep their job.



Figure 3.2-1: Why Public Transit is Important to Current Riders



*Don't Drive = "Because I am not able to drive."*

*Mobility = "Because I don't have another way to get around."*

*Keep Job = "It is my only way to get to work and keep my job."*

*Cheaper = "It is cheaper than driving."*

*Environment = "It is good for the environment."*

*Other = Riders had the option to fill in their own reason*

### 3.3 Employment Status and Family Income

The following table shows how the respondents identified their employment status. In some cases, a person may have indicated multiple responses such as that he or she is a student and employed part-time.

Table 3.3-1: Rider Survey: Employment Status

| <u>EMPLOYMENT STATUS</u> | <u>PERCENT</u> | <u># RESPONSES</u> |
|--------------------------|----------------|--------------------|
| Employed full-time       | 43%            | 814                |
| Employed part-time       | 20%            | 380                |
| Student                  | 9%             | 162                |
| Unemployed               | 12%            | 234                |
| Retired                  | 10%            | 189                |
| Homemaker                | 3%             | 63                 |
| Question unanswered      | 7%             | 126                |

A range of total family income was provided and shown in the following table. Most respondents (711 people) have a family income under \$10,000/year, and 71% earned less than \$20,000/year. Six-percent of respondents (6%) have annual family income of \$50,000 or more.

Table 3.3-2: Rider Survey: Annual Family Income

| <u>ANNUAL FAMILY INCOME</u> | <u>RESPONSE PERCENT</u> | <u># RESPONDENTS</u> |
|-----------------------------|-------------------------|----------------------|
| Under \$10,000              | 41%                     | 711                  |
| \$10,000-\$19,999           | 30%                     | 506                  |
| \$20,000-\$29,999           | 15%                     | 253                  |
| \$30,000-\$49,999           | 8%                      | 145                  |
| \$50,000-\$74,999           | 3%                      | 57                   |
| \$75,000 or more            | 3%                      | 45                   |
| Question unanswered         | 9%                      | 178                  |
|                             | <b>Total Surveys:</b>   | <b>1,895</b>         |

### 3.4 Trip Origins and Destinations, Transfers, Travel Time and Trip Purpose

The primary goal of the survey was to identify where people are coming from and going to, their trip origins and destinations. Riders had the opportunity to complete a survey for each trip made that day. The following maps show the origins and destinations of trips taken on that day.

Survey responders noted 640 unique addresses for trip origins of which the top 20 are listed in the following table.

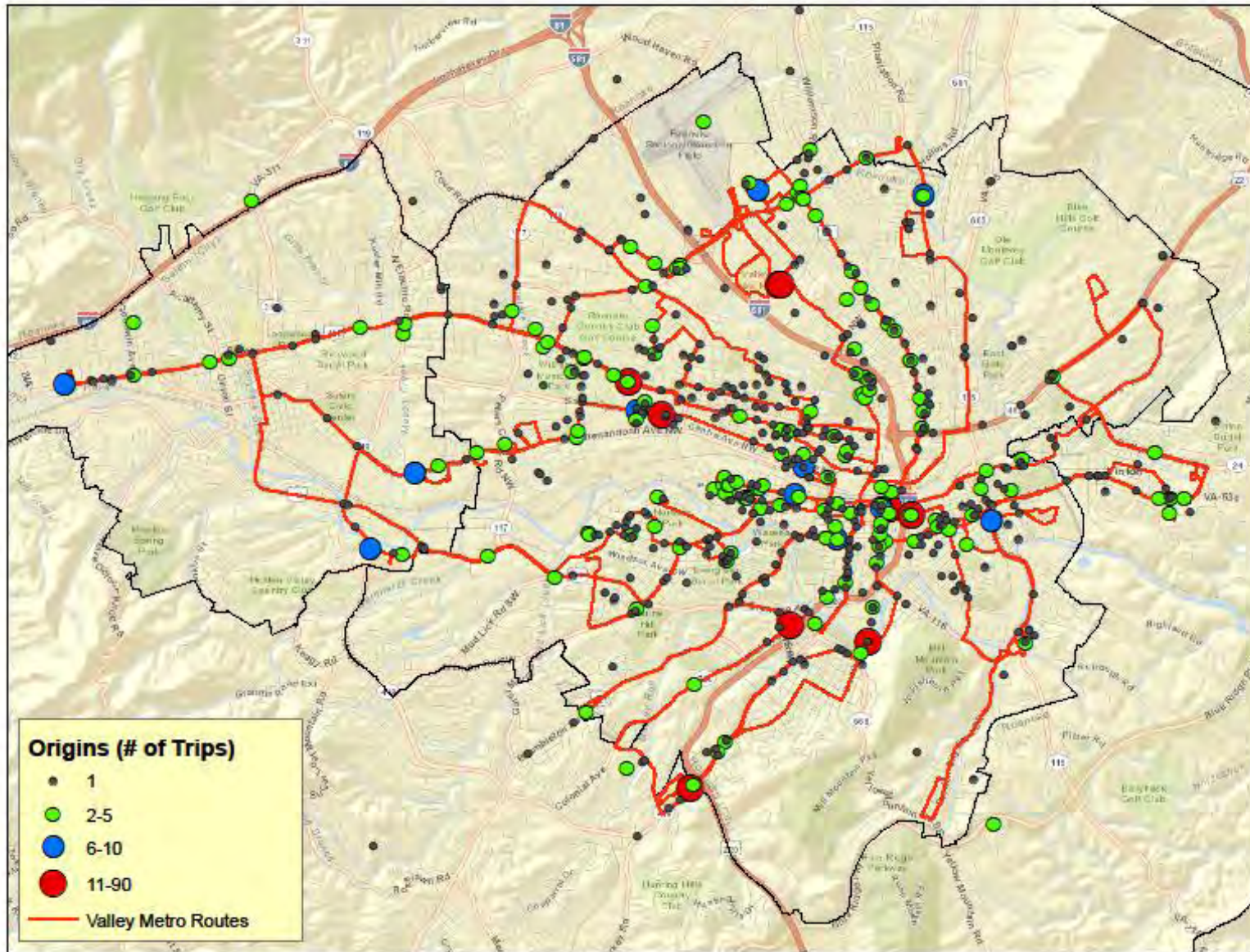
Table 3.4-1: Top 20 Trip Origins

| <u>TOP 20 TRIP ORIGINS</u>         | <u>ORIGIN ADDRESS</u>    | <u># PEOPLE</u> |
|------------------------------------|--------------------------|-----------------|
| Downtown Roanoke                   | 17 Campbell Ave SW       | 83              |
| Roanoke Carilion Memorial Hospital | 1906 Belleview Ave SE    | 41              |
| Towers Shopping Center             | 2207 Colonial Ave        | 22              |
| Walmart at Valley View             | 4807 Valley View Blvd NW | 22              |
| Melrose Ave NW                     | Melrose Ave NW           | 22              |
| Williamson Rd NW                   | Williamson Rd NW         | 18              |
| Tanglewood Area                    | 4420-A Electric Rd       | 16              |
| Downtown Roanoke                   | 213 Market St SE         | 14              |
| Rescue Mission                     | 402 4th St SE            | 13              |
| Shenandoah Ave NW                  | Shenandoah Ave NW        | 13              |
| Valley View Area                   | 4802 Valley View Blvd NW | 12              |
| Lansdowne Housing Complex          | 2624 Salem Turnpike NW   | 11              |

|                           |                       |    |
|---------------------------|-----------------------|----|
| Melrose Towers            | 3038 Melrose Ave NW   | 11 |
| Staunton Ave NW           | Staunton Ave NW       | 11 |
| Hunt Ave NW               | Hunt Ave NW           | 10 |
| 9th Street SE             | 9th Street SE         | 9  |
| Valley Metro Admin Office | 1108 Campbell Ave SE  | 8  |
| VA Medical Center         | 1970 Roanoke Blvd     | 8  |
| CEI Roanoke               | 4411 Plantation Rd NE | 8  |
| McDowell Ave NW           | McDowell Ave NW       | 8  |

The full spectrum of trip origins is show in the following map.

Figure 3.4-1: Origins for Trips Taken by Fixed-Route Transit

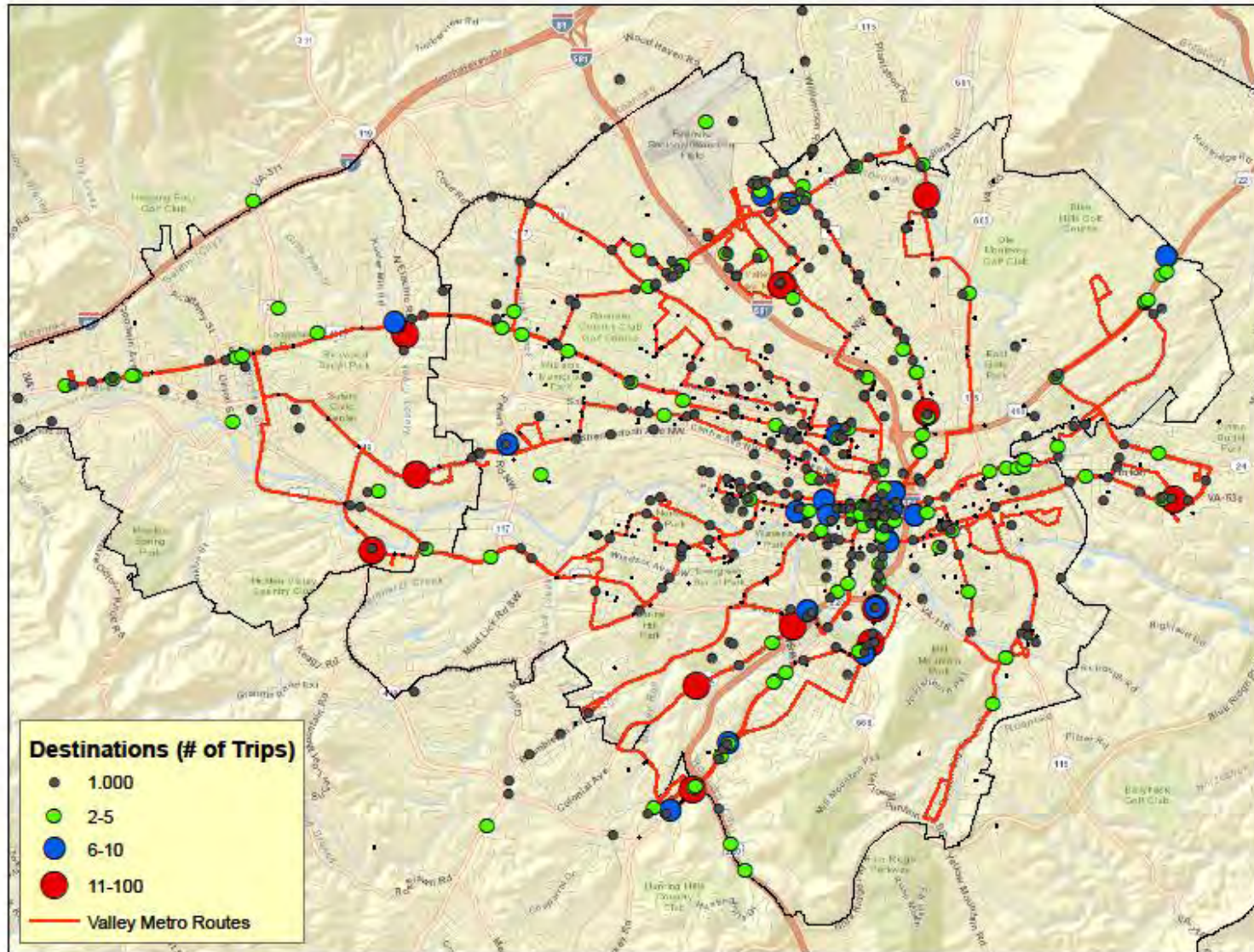


Of the 429 unique destinations noted by respondents, the top twenty are listed below and all are shown in the following map.

*Table 3.4-2: Top 20 Trip Destinations*

| <b><u>TOP 20 TRIP DESTINATIONS</u></b>          | <b><u>DESTINATION ADDRESSES</u></b>                 | <b><u># PEOPLE</u></b> |
|---|---|------------------------|
| Downtown Roanoke - Campbell Court               | 17 Campbell Ave SW                                  | 94                     |
| Roanoke Carilion Memorial Hospital              | 1906 Belleview Ave SE                               | 68                     |
| Valley View Area                                | 4802 Valley View Blvd NW                            | 53                     |
| VA Medical Center                               | 1970 Roanoke Blvd                                   | 51                     |
| Towers Shopping Center                          | 2207 Colonial Ave                                   | 37                     |
| Walmart at Valley View                          | 4807 Valley View Blvd NW                            | 29                     |
| Carilion Administrative Services Building       | 213 S Jefferson St                                  | 21                     |
| Tanglewood Area                                 | 4420-A Electric Rd                                  | 19                     |
| Lewis Gale Medical Center                       | 1900 Electric Rd                                    | 18                     |
| Melrose Avenue NW                               | Melrose Ave NW                                      | 16                     |
| Roanoke Social Services Department - Civic Mall | 1510 Williamson Rd NE                               | 15                     |
| Virginia Western Community College              | 3094 Colonial Ave                                   | 15                     |
| Lakeside Plaza                                  | 161 S Electric Rd                                   | 14                     |
| CEI Roanoke                                     | 4411 Plantation Rd NE                               | 14                     |
| Salem   | Salem   | 14                     |
| Carilion Clinic                                 | 3 Riverside Cir                                     | 13                     |
| Williamson Rd NW                                | Williamson Rd NW                                    | 13                     |
| Kroger in Vinton                                | 915 Hardy Rd  | 12                     |
| Virginia Tech                                   | Virginia Polytechnic Institute and State University | 11                     |
| Franklin Rd SW                                  | Franklin Rd SW                                      | 10                     |

Figure 3.4-2: Destinations for Trips Taken by Fixed-Route Transit



The shortest travel distance between people's trip origin and destination is displayed with a linear path analysis in the following figures. Areas where many lines cross indicate where transfer locations may be most convenient. In the following figures, the lines are the same indicating trip origin to destination; the first figure shows only the origins as dots, the second figure shows only the destinations as dots.

*Figure 3.4-3: Linear Path Analysis: Origins of Trips taken on Valley Metro on June 24, 2014*

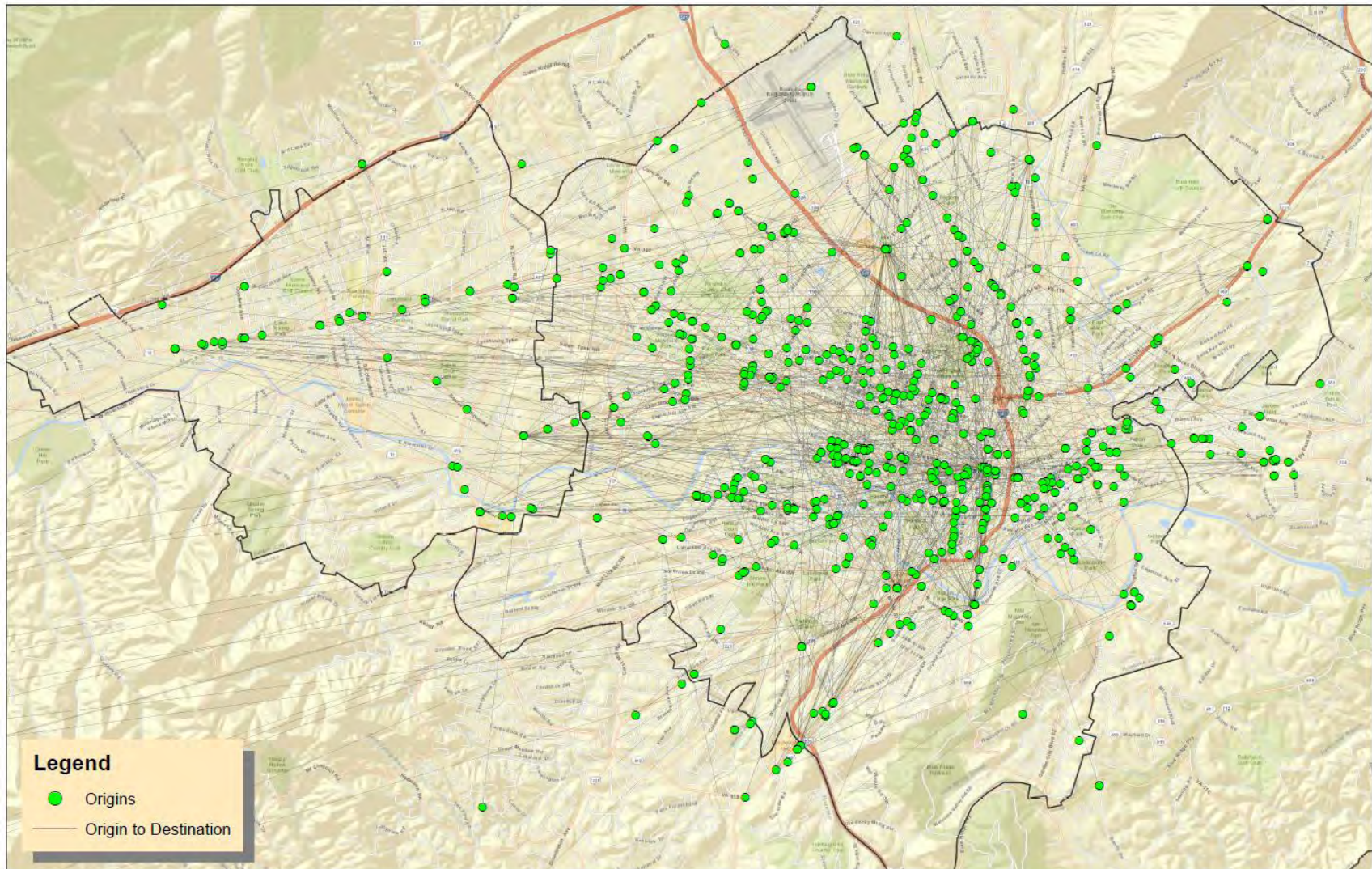
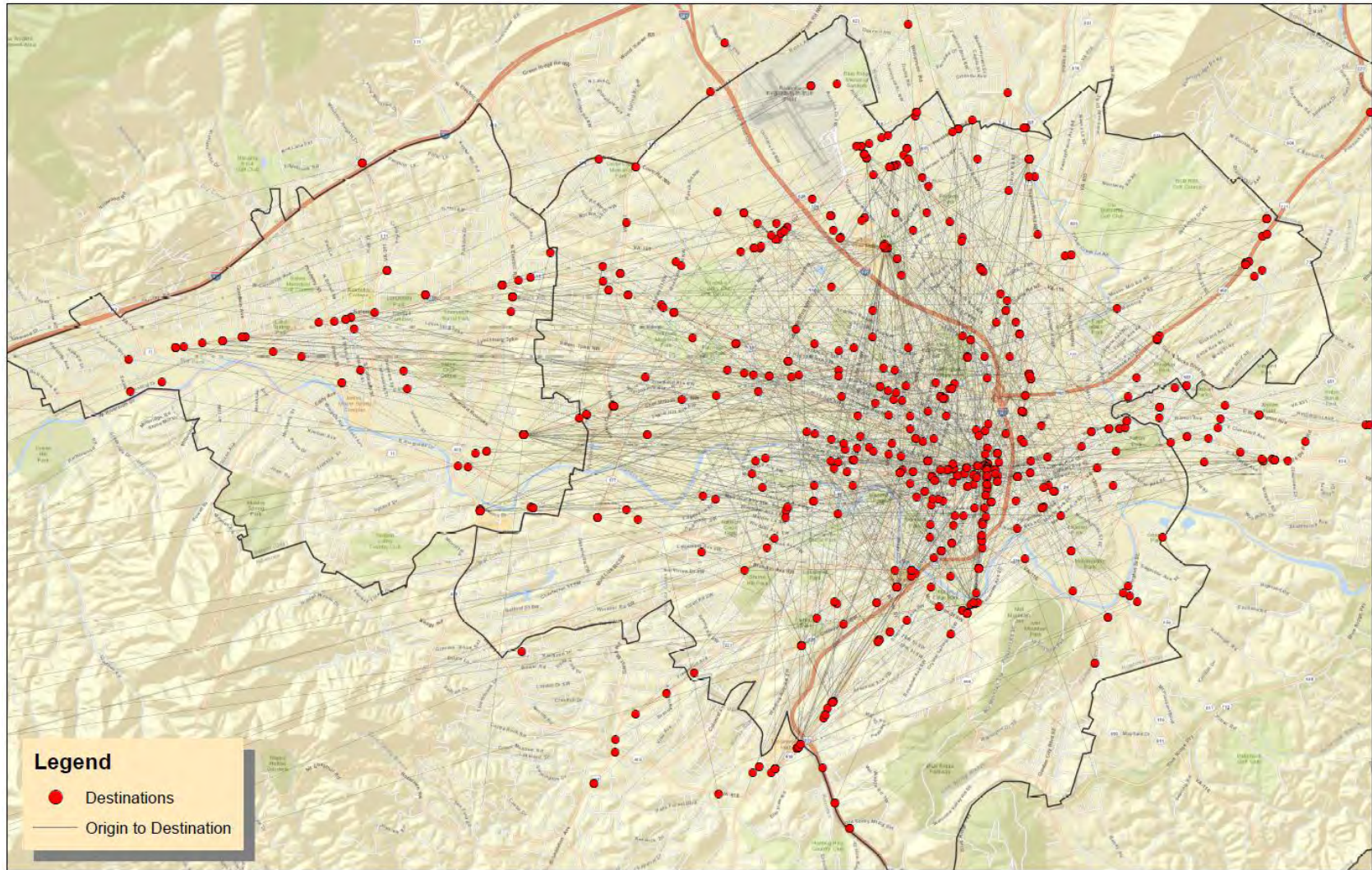


Figure 3.4-4: Linear Path Analysis: Destinations of Trips taken on Valley Metro on June 24, 2014



Transfers were required for 53% of trips surveyed; 42% of trips did not require a transfer and 5% did not answer. Respondents were asked how long their trip would take. Of the 67% that answered the question, their trip times are listed below.

|            |     |                    |
|------------|-----|--------------------|
| Trip time: | 51% | 30 minutes or less |
|            | 39% | 31 - 60 minutes    |
|            | 10% | 60+ minutes        |

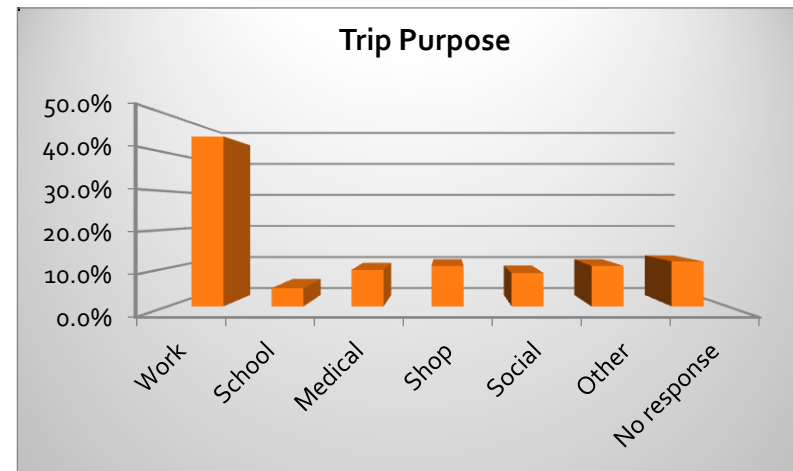
In general, the people who indicated that their trip would take more than an hour were traveling on the Smart Way bus or across the region.

From looking at the origin and destination maps, the area surrounding Downtown Roanoke demonstrates the largest hub of activity. Valley View Mall and the VA Medical Center also show a concentration of trip origins and destinations. Linear patterns also emerge where many trips either start or end including Jefferson Street, Williamson Road and East/West Main Street.

Also interesting to note from the maps is that some people are traveling a great distance beyond the extent of the fixed-route system to access destinations such as the DMV, businesses along Brambleton Avenue, Electric Road and U.S. 220 South.

The following chart demonstrates passenger responses to the question regarding their trip purpose. The greatest single reason that people ride public transit in the Roanoke Valley is for jobs.

Figure 3.4-5: Rider Survey: Trip Purpose



### 3.5 Recommendations for Locations Needing a Better Connection to Transit

The following table provides a list of places that current riders think should be better connected in the transit network. The number one location is the DMV, which is approximately two miles from the nearest bus stop at Peters Creek Road and Cove Road and not accessible by sidewalks.

The second location is Salem, which has transit throughout the City. However, to go from western Salem to Roanoke requires traveling to Lewis Gale and the VA Medical Center. The extra time and length of the ride may be the reason why many people indicated Salem needs to be better connected to the transit system. The trip from Roanoke to western Salem is a direct route without the extra stops at Lewis Gale and the VA Medical Center.

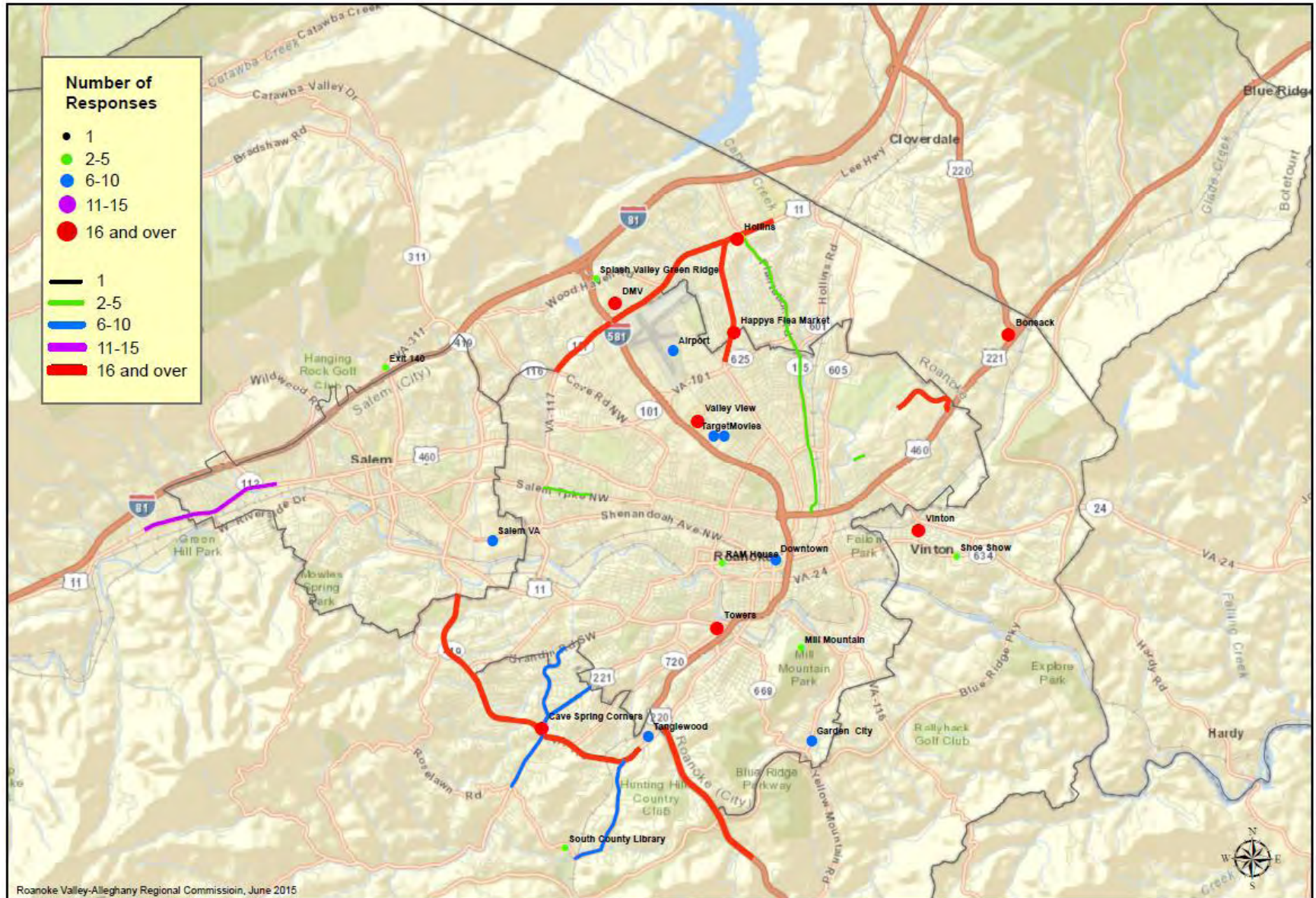


Riders also noted a need for better connections within Roanoke County in general and specifically Bonsack, Peters Creek Road, Electric Road, Hollins, and Williamson Road as well as a better connection to Valley View, Vinton, and Blue Hills Drive.

*Table 3.5-1: Rider Survey: Top Locations Needing to be Better Connected to the Bus System*

| <b>VALLEY METRO RIDER SURVEY - JUNE 24, 2014</b> |  |               |
|--|--|---------------|
| <b>RANK</b>                                      | <b>TOP LOCATION BETTER CONNECTED TO TRANSIT SYSTEM</b> | <b>PEOPLE</b> |
| 1  | DMV  | 147           |
| 2  | Salem (general)  | 74            |
| 3  | Roanoke County (general)                               | 55            |
| 4  | Bonsack  | 44            |
| 5  | Peters Creek Rd  | 39            |
| 6  | Electric Road  | 31            |
| 7  | Cave Spring/Corners                                    | 30            |
| 7  | Williamson Road  | 30            |
| 9  | Hollins  | 27            |
| 10   | Blue Hills Drive                                       | 25            |
| 10   | Happy's Flea Market                                    | 25            |
| 10   | Valley View  | 25            |
| 10   | Vinton   | 24            |
| 14   | Towers   | 19            |
| 15   | 220 beyond Tanglewood                                  | 18            |
| 16   | Salem-West Main-Glenvar                                | 15            |
| 17   | Hershberger Rd   | 13            |
| 18   | Melrose  | 12            |
| 19   | Garden City  | 10            |

Figure 3.6-1: Map of Recommendations from Valley Metro Riders



### 3.6 Most Important Message to Decision Makers

Riders were asked to list the most important message they would like to share with decision makers. Some key messages include:

*“I am proud to be a passenger.”*

*“I work almost every day. Valley Metro gets me there.”*

*“Public transit is an asset. Expansion is necessary!!”*

The top message was a request for additional services in many forms but most commonly for later evening service and Sunday service. Many people simply wanted to let decision makers know that Valley Metro is a great service, they do a great job, and say thank you for providing the service. A general summary of their responses are listed in the following table with some additional details in the next sections.

Table 3.6-1: Rider Survey: Message to Decision Makers

| VALLEY METRO RIDER SURVEY - JUNE 24, 2014 |   |              |
|---|---|--------------|
| RANK                                      | MOST IMPORTANT MESSAGE TO DECISION MAKERS | PEOPLE       |
| 1   | Additional Service                        | 368          |
| 2   | Sunday Service                            | 240          |
| 3   | Great Service                             | 214          |
| 4   | Bus Conditions                            | 71           |
| 5   | Consider the Needs of Others              | 52           |
| 6   | Timeliness                                | 42           |
| 7   | Thank you!                                | 32           |
| 8   | Improve Communication                     | 32           |
| 9   | Transit Stop Accessibility                | 27           |
| 10  | Decision Making                           | 23           |
| 11  | Fares                                     | 18           |
| 12  | Amenities                                 | 15           |
| 13  | Driver Training                           | 12           |
| 14  | Ride the Bus                              | 8            |
| 15  | Service Changes                           | 5            |
| 16  | Fun                                       | 3            |
| 17  | Better Bus Terminal                       | 3            |
| 18  | Safety                                    | 2            |
| 19  | Good for the Environment                  | 2            |
| 20  | Driver salary                             | 1            |
|   | <b>Grand Total</b>                        | <b>1,170</b> |

### 3.6.1 Additional Service

Riders made more than 600 references to the need for additional service and of those, 240 mentions were for Sunday service. Many people referenced buses being overcrowded and the need for larger buses, additional buses, or more frequent service to accommodate the passengers. Additional service requires additional funding for transit, which was requested of Decision Makers. Among the most important messages to Decision Makers are these service requests:

- ▲ SUNDAY SERVICE (**240 MENTIONS**)
- ▲ LATER SERVICE UNTIL 10 OR 11PM
- ▲ EXTENDED PEAK HOUR
- ▲ PEAK SERVICE IN SALEM
- ▲ PEAK SERVICE IN VINTON
- ▲ PEAK SERVICE ON 61/62, 35 AND 41
- ▲ EARLIER BUS SERVICE
- ▲ TRANSFER AT KEY INTERSECTION INSTEAD OF ONLY AT CAMPBELL COURT
- ▲ MORE FREQUENCY IN NORWICH
- ▲ ROUTES 11 AND 15
- ▲ CONNECT 71 AND 91 AT LEWIS GALE
- ▲ ROUTE 31 TO VINTON LIBRARY
- ▲ ROUTE 41- KENWOOD BLVD – HOURLY SERVICE
- ▲ GARST MILL ROAD
- ▲ MELROSE AVENUE
- ▲ WILLIAMSON ROAD
- ▲ SALEM TURNPIKE
- ▲ UNION STREET, SALEM
- ▲ PETERS CREEK ROAD UP TO WILLIAMSON ROAD
- ▲ 419 CROSSTOWN ROUTE
- ▲ BRANDON AVENUE CROSSTOWN ROUTE
- ▲ VALLEY VIEW MOVIE THEATER
- ▲ TARGET
- ▲ SOUTH COUNTY LIBRARY
- ▲ DMV
- ▲ WILLIAMSON ROAD DOLLAR GENERAL, MAXWAY AND KROGER
- ▲ BLUE HILLS DRIVE INDUSTRIAL PARK
- ▲ BONSACK
- ▲ ROUTE 91 EXPRESS
- ▲ CARILION CLINIC – RIVERSIDE
- ▲ SALEM – DIRECT SERVICE FROM WESTERN SALEM TO ROANOKE
- ▲ ROANOKE COUNTY
- ▲ FURTHER INTO VINTON
- ▲ HOURLY SERVICE IN GARDEN CITY
- ▲ MORE ROUTES
- ▲ INCREASE SERVICE FREQUENCY
- ▲ BUSES EVERY 15 OR 30 MINUTES

- ▲ EXPANDED SERVICE AREA
- ▲ WEEKEND TROLLEY SERVICE
- ▲ MORE BUS STATIONS
- ▲ TO JOBS IN THE COUNTY
- ▲ TRANSFER ROUTES TO AVOID ALL BUSES GOING TO CAMPBELL COURT
- ▲ CONNECT SMART WAY AND VALLEY METRO SERVICE AT THE SALEM PARK AND RIDE
- ▲ DAILY SMART WAY BLACKSBURG – ROANOKE AMTRAK
- ▲ DIXIE CAVERNS
- ▲ TROLLEY ROUTE EXTENSION
- ▲ SMART WAY TO NATURAL BRIDGE, VA
- ▲ EXTRA SMART WAY BUS AT 4:30 OR 5:00 PM
- ▲ ROUTES THAT EXTEND FARTHER TO ELIMINATE LONG WALKS FROM THE LAST STOP
- ▲ CRC SMART WAY SERVICE ON SNOW DAYS
- ▲ MARTINSVILLE/COLLINSVILLE
- ▲ HOLIDAYS
- ▲ STOP ON 5<sup>TH</sup> STREET AND RUTHERFORD AVE.
- ▲ REINSTATE STOPS THAT HAVE BEEN REMOVED

### 3.6.2 Great Service

Many riders wanted to let Decision Makers know that Valley Metro is an excellent service with courteous staff, that the bus is reliable and the price is good. Riders acknowledge that the bus system is an asset and a vital part of transportation in the

community, and it is vital for many to get around. As one rider stated, “Without the bus, life would suck!” Riders encourage Valley Metro employees and Decision Makers to keep doing a good job.

Riders state that Valley Metro is a well-running bus system. “I feel comfortable in the bus because in the bus everybody is good” remarked one respondent. Riders ask Decision Makers to keep the buses running; it “feels like a metropolitan city with service.”

### 3.6.3 Thank you

For many riders their most important message to Decision Makers was “Thank you”. Without asking for anything, gratitude was what they wanted to convey. One rider’s statement sums up the value of the service to people and how much they appreciate it.

*“Being able to ride the bus is literally what my life depends on. Thank you!”*

## 4.0 VALLEY METRO SURVEY OF BOARDINGS AND ALIGHTINGS

The National Transit Database (NTD) is the Nation's main source for information and statistics on the transit systems in the United States. The Federal Transit Administration collects the data and uses it to apportion funding based on formulas that are data-driven. Every three years, RideSolutions and the Regional Commission assist Valley Metro with conducting a ridership survey on all Valley Metro routes. Using a random sampling method, the survey's purpose is to record unlinked passenger trips (all boardings) and passenger miles.

In the July 1, 2010 – June 30, 2011 survey, in order to make the survey more useful for planning purposes, surveyors captured additional information such as where bikes board/alight and where the lift is used. The survey process was refined using a standardized stop description for the July 1, 2013 – June 30, 2014 survey. The description is the road name that the bus stops on, the direction of travel, and the nearest cross street or landmark such as Williamson NB at Carver. In addition, the survey in 2010 was conducted solely on an outbound or inbound section of a trip whereas the 2013 survey was conducted during the full outbound to inbound roundtrips. As such, staff conducted 434 route surveys in 2010-2011 and 276 roundtrip or 552 route surveys in 2013-2014. An example of each survey instrument used is provided on the next page.

Although the NTD Survey was not conducted for the purpose of obtaining statistically valid bus stop level activity analysis, the NTD Survey data is helpful in answering the question, which are the most active and least active stops in the transit system? To

answer this question, RVARC staff developed the following variables and calculated the values for each bus stop surveyed. Based on professional knowledge of the system, the sample data identifies trends that make intuitive sense. However, additional data should be consulted before making permanent service changes or adjustments to stop locations.

*Figure 4.0-1: Passengers Board a Bus at Valley View Walmart*



*Figure 4.0-2: A Passenger Boards a Bus at Fresenius Medical Care - Friendship Manor on Hershberger Road*



Figure 4.0-3: 2010-2011 and 2013-2014 Survey Trip Sheets

| SURVEY TRIP SHEET |  | Trip ID       | Bus Number       | Bus Type               |
|-------------------|--|---------------|------------------|------------------------|
|                   |  | M5116         | 0614             | Valley Metro           |
|                   |  | Date: 5/24/11 | Route Number: 51 | (circle one) Smart Way |

| Stop Description      | Odometer | Passengers Boarded | Passengers Deboarded | Passengers On Board | Bikes Boarded | Bikes Deboarded | Lift Used |
|-----------------------|----------|--------------------|----------------------|---------------------|---------------|-----------------|-----------|
| Campbell Court        | 107.11   | 12                 |                      | 12                  |               |                 |           |
| Patrick Henry Hotel   | 114      |                    | 1                    | 11                  |               |                 |           |
| J.Ferguson & Mountain | 1.6      |                    | 2                    | 9                   |               |                 |           |
| J.Ferguson & Walnut   | 1.8      |                    | 1                    | 8                   |               |                 |           |
| Carrollton RMH        | 2.8      |                    | 1                    | 7                   |               |                 |           |
| Franklin & Roberts    | 4.1      | 2                  | 1                    | 8                   |               |                 |           |
| Franklin & Kmart      | 4.9      | 1                  | 1                    | 8                   |               |                 |           |
| Franklin & Ironside   | 5.0      |                    | 1                    | 7                   |               |                 |           |
| Franklin & Applemont  | 5.2      |                    | 1                    | 6                   |               |                 |           |
| Kroger                | 5.7      |                    | 1                    | 5                   |               |                 |           |
| Tanglewood, EOL       | 6.0      | 4                  |                      | 10                  |               |                 |           |

Surveyor: *Ann Bohn* Start Time: \_\_\_\_\_ End Time: \_\_\_\_\_

2010-2011

| SURVEY TRIP SHEET                                 |                    | Surveyor:            | Date:                     | Bus Number:            | Start Time:    |               |                 |           |
|---|--------------------|----------------------|---------------------------|------------------------|----------------|---------------|-----------------|-----------|
|   |                    | Valley Metro         | Trip ID:                  | Survey Route: 85 -- 86 | End Time:      |               |                 |           |
| Stop Description                                  | Passengers Boarded | Passengers Deboarded | Total # Passengers On Bus | Arrival Time           | Departure Time | Bikes Boarded | Bikes Deboarded | Lift Used |
| Campbell Court                                    |                    |                      |                           |                        |                |               |                 |           |
| 2nd NB at Salem                                   |                    |                      |                           |                        |                |               |                 |           |
| Gainsboro NB at Loudon                            |                    |                      |                           |                        |                |               |                 |           |
| Gainsboro NB at Patton                            |                    |                      |                           |                        |                |               |                 |           |
| Gainsboro NB at Harrison (Our Lady of the Valley) |                    |                      |                           |                        |                |               |                 |           |
| Gainsboro NB at Madison                           |                    |                      |                           |                        |                |               |                 |           |
| Orange WB at 3 1/2 Street                         |                    |                      |                           |                        |                |               |                 |           |
| Orange WB at 5th                                  |                    |                      |                           |                        |                |               |                 |           |

2013-2014

In 2010, there were 777 bus stops surveyed with activity, and in 2013, there were 933 bus stops surveyed with and without activity. In 2010, surveyors did not record inactive stops. Part of the difference reflects the use of the standardized stop names with all stops being listed on the survey form in 2013 rather than the surveyors writing down the names of stops with activity during the 2010 survey. The 2013 survey also included the Trolley and the Smart Way Connector which were not part of the 2010 survey.

During the 2013 survey, 80% of bus stops experienced some activity (747 of 933 stops) and 20% of bus stops experienced no activity (186 of the 933 stops). In the 2010 survey, because surveyors only noted the stops with activity, and some locations could not be precisely identified, the rate of stop usage would likely be similar to 2013.

The lift was used for passengers unable to maneuver the steps in the bus 21 times in the 2013 survey and 42 times in the 2010 survey. Bicycles were loaded onto the bus four times in the 2013 survey and 16 times in the 2010 survey.

## 4.1 Average Stop Usage

Description: The average number of people who got on and off the bus at a specific bus stop over the survey period.

Formula:

$$\text{Average Stop Usage} = \frac{\text{total boardings + deboardings at a bus stop}}{\text{total number of times the bus route was surveyed}}$$

Example Location: Williamson NB at Carver

Calculation: Average Stop Usage =  $\frac{2 + 10}{16} = .75$

Therefore, when the bus passed, an average of 0-1 people got on or off at this stop.

There were 135 stops in 2013 and 112 stops in 2010 with an average stop usage of 1 person or more. Oftentimes, a bus may stop at a given location only a few times, passing the stop many times during the survey period. However if a large number of people got on or off the bus those few times, the average stop usage was high.

## 4.2 Stop Frequency

Description: How often the bus stopped at a specific bus stop over the survey period.

Formula:

$$\text{Stop Frequency} = \frac{\text{number of times the bus stopped at a bus stop}}{\text{total number of times the bus route was surveyed}}$$

Example Location: Williamson NB at Carver

Calculation: Stop Frequency =  $\frac{7}{16} = 0.44 = 44\%$

Hence, the bus stopped at this location 44% of the time it passed by.



The following table shows the stops where the bus stopped to pick-up or drop-off passengers every time it went by.

Table 4.2-1: Stop Frequency

|   | <u>2013 STOP FREQUENCY</u> | <u>2010 STOP FREQUENCY</u> |
|---|----------------------------|----------------------------|
| Seibel SB at Nicholas                     | 100%                       | 44%                        |
| Red Rock NB at Brambleton (Shell Station) | 100%                       | 64%                        |
| VT Squires Student Center                 | 86%                        | 100%                       |
| Lake Drive Plaza Big Lots (Hardy Road)    | 93%                        | 100%                       |
| Spartan Square Kroger                     | 38%                        | 100%                       |
| Ferncliff SB at Hoback                    | 43%                        | 100%                       |

Overall, there were 28 stops in 2013 and 22 stops in 2010 where the bus stopped at least 75% of the time to pick-up or drop-off a passenger, and 125 of stops in 2013 and 128 stops in 2010 were serviced at least 50% of the time.

### 4.3 Bus Stop Activity Index

Description: A measure used to gauge overall activity at a bus stop and compare activity among bus stops across the transit system, regardless of the number of times the bus route was surveyed.

Formula:

|  |
|--|
| <p>Bus Stop Activity Index =<br/>Stop Usage * Stop Frequency</p> |
|--|

With two years of stop level boarding and alighting sample data, and minimal changes to the stops and overall fixed-route network, it is possible to make comparisons.

Example Location: Williamson NB at Carver

Calculation: .75 \* 44% = .33

With an average stop usage less than 1 and a stop frequency less than 50%, the resulting activity index is also low.

The following tables show the top 25 most active bus stops in the 2010 and 2013 surveys.

Table 4.3-1: 25 Most Active Bus Stops in 2013-2014 Survey

|    | <u>2013 DATA - STANDARDIZED BUS STOP DESCRIPTION</u>       | <u>2013 ACTIVITY INDEX</u> | <u>2010 ACTIVITY INDEX</u> |
|----|--|----------------------------|----------------------------|
| 1  | Seibel SB at Nicholas                                      | 20.000                     | 0.027                      |
| 2  | Campbell Court   | 9.121                      | 8.763                      |
| 3  | Squires Student Center                                     | 8.204                      | 8.133                      |
| 4  | Valley View Ring Road SB at Walmart                        | 5.158                      | 6.847                      |
| 5  | Towne Square Kroger  | 4.038                      | 1.540                      |
| 6  | Towers Shopping Center Kroger                              | 3.595                      | 2.208                      |
| 7  | Red Rock NB at Brambleton (Shell station)                  | 3.417                      | 0.752                      |
| 8  | Jefferson SB at Kirk                                       | 3.341                      | Not surveyed               |
| 9  | Crossroads Shopping Center Driveway WB at Work Force/Kmart | 2.744                      | 2.438                      |
| 10 | Campbell WB at Wall (City                                  | 2.641                      | Not                        |

|    | Market Building)                                    |       | surveyed |
|----|---|-------|----------|
| 11 | Williamson SB at Compton                            | 2.603 | 1.040    |
| 12 | Lake Drive Plaza Big Lots (Hardy Road)              | 2.587 | 4.500    |
| 13 | Tanglewood Mall at AC Moore                         | 2.521 | 1.467    |
| 14 | Williamson NB at Compton                            | 2.424 | 0.742    |
| 15 | Crossroads Shopping Center Driveway WB at Firestone | 2.238 | 0.563    |
| 16 | Colonial SB at VWCC Pedestrian Overpass             | 2.100 | 2.118    |
| 17 | Valley View Mall SB at Sears                        | 1.976 | 2.066    |
| 18 | Elm WB at 5th                                       | 1.910 | 0.145    |
| 19 | Elm EB at 8th                                       | 1.875 | 2.180    |
| 20 | Roanoke Memorial Hospital                           | 1.854 | 0.857    |
| 21 | Salem Turnpike EB at 30th                           | 1.837 | 0.781    |
| 22 | Salem Avenue WB at 8th                              | 1.750 | 0.969    |
| 23 | Salem Turnpike EB at 24th                           | 1.735 | 1.480    |
| 24 | Melrose WB at 35th                                  | 1.702 | 1.278    |
| 25 | East Main WB at Lakeside Plaza (Goodwill)           | 1.587 | 7.256    |

The stops that were not surveyed in 2010 that appear in the 2013 Top 25 list are on the trolley route which was not part of

the 2010 survey. Other notable changes include the Seibel SB at Nicholas stop, which was surveyed only twice but had 40 passengers board/alight during those two surveys which made it the highest ranked bus stop.

Speculations can be made about other changes in activity index such as the Red Rock NB at Brambleton (Shell Station) activity increase may be attributable to more people living or working in Roanoke County accessing transit via this stop.

Roanoke Memorial Hospital's stop increased in activity because the 2013 survey accounted for trolley ridership in addition to the fixed-route.

The East Main WB at Lakeside Plaza (Goodwill) stop decreased in activity significantly because the Salem routes (91/92) and the Roanoke routes on Melrose Avenue (81/82) were streamlined to avoid the need for all passengers to board and alight the bus when traveling between Salem and Roanoke. The result of this route improvement reflects the true activity at the East Main WB at Lakeside Plaza (Goodwill), which is still a very active stop. As seen in the following table which reflects the 2010 Top 25 Most Active Bus Stops, the Goodwill Transfer Center had ranked 3<sup>rd</sup> most active stop at that time.

Table 4.3-2: 25 Most Active Bus Stops in 2010-2011 Survey

|    | <u>2010 DATA -<br/>STANDARDIZED STOP<br/>DESCRIPTION</u>   | <u>2010<br/>ACTIVITY<br/>INDEX</u> | <u>2013<br/>ACTIVITY<br/>INDEX</u> |
|----|--|------------------------------------|------------------------------------|
| 1  | Campbell Court   | 8.763                              | 9.121                              |
| 2  | VT Squires Student Center                                  | 8.133                              | 8.204                              |
| 3  | East Main at Goodwill Transfer Center                      | 7.256                              | 1.587                              |
| 4  | Valley View Ring Road SB at Walmart                        | 6.847                              | 5.158                              |
| 5  | Lake Drive Plaza Big Lots (Hardy Road)                     | 4.500                              | 2.587                              |
| 6  | Spartan Square Kroger                                      | 4.500                              | 0.508                              |
| 7  | Roanoke Regional Airport                                   | 2.933                              | 0.383                              |
| 8  | Hunt EB at 8th   | 2.844                              | 0.841                              |
| 9  | Salem Turnpike WB at Delta                                 | 2.587                              | 1.061                              |
| 10 | Fernclyff SB at Hoback                                     | 2.500                              | 0.490                              |
| 11 | Crossroads Shopping Center Driveway WB at Work Force/Kmart | 2.438                              | 2.744                              |
| 12 | Tazewell EB at 4th   | 2.406                              | 1.276                              |
| 13 | Towers Shopping Center Upper Lot                           | 2.243                              | 0.935                              |
| 14 | Towers Shopping Center Kroger                              | 2.208                              | 3.595                              |
| 15 | Elm EB at 8th  | 2.180                              | 1.875                              |

|    |  |       |       |
|----|--|-------|-------|
| 16 | Colonial SB at VWCC Pedestrian Overpass          | 2.118 | 2.100 |
| 17 | Valley View Mall SB at Sears                     | 2.066 | 1.976 |
| 18 | Hardy WB at Bedford                              | 2.000 | 0.663 |
| 19 | VA Hospital Private Road Stop 2                  | 1.951 | 0.436 |
| 20 | Burrell SB at Whitten                            | 1.875 | 0.190 |
| 21 | Melrose EB at Victoria (Melrose Towers)          | 1.791 | 0.774 |
| 22 | Elm EB at 5th                                    | 1.744 | 0.938 |
| 23 | Towne Square Kroger                              | 1.540 | 4.038 |
| 24 | Tazewell WB at I-581 Bridge                      | 1.540 | 0.568 |
| 25 | Campbell WB at Norfolk (Valley Metro Admin Bldg) | 1.500 | 0.551 |

The activity at the bus stop at Spartan Square Kroger may also have decreased due to the bus route now servicing the Salem Walmart, which ranked 27<sup>th</sup> in the 2013 Activity Index. The decrease in activity at the airport stop may simply be a function of timing – when the randomly selected surveys were conducted versus the timing of flights.

The following maps show the distribution of activity among stops in the fixed-route network for the survey periods 2010-2011 and 2013-2014.

Figure 4.3-1: Bus Stop Activity Index 2013-2014

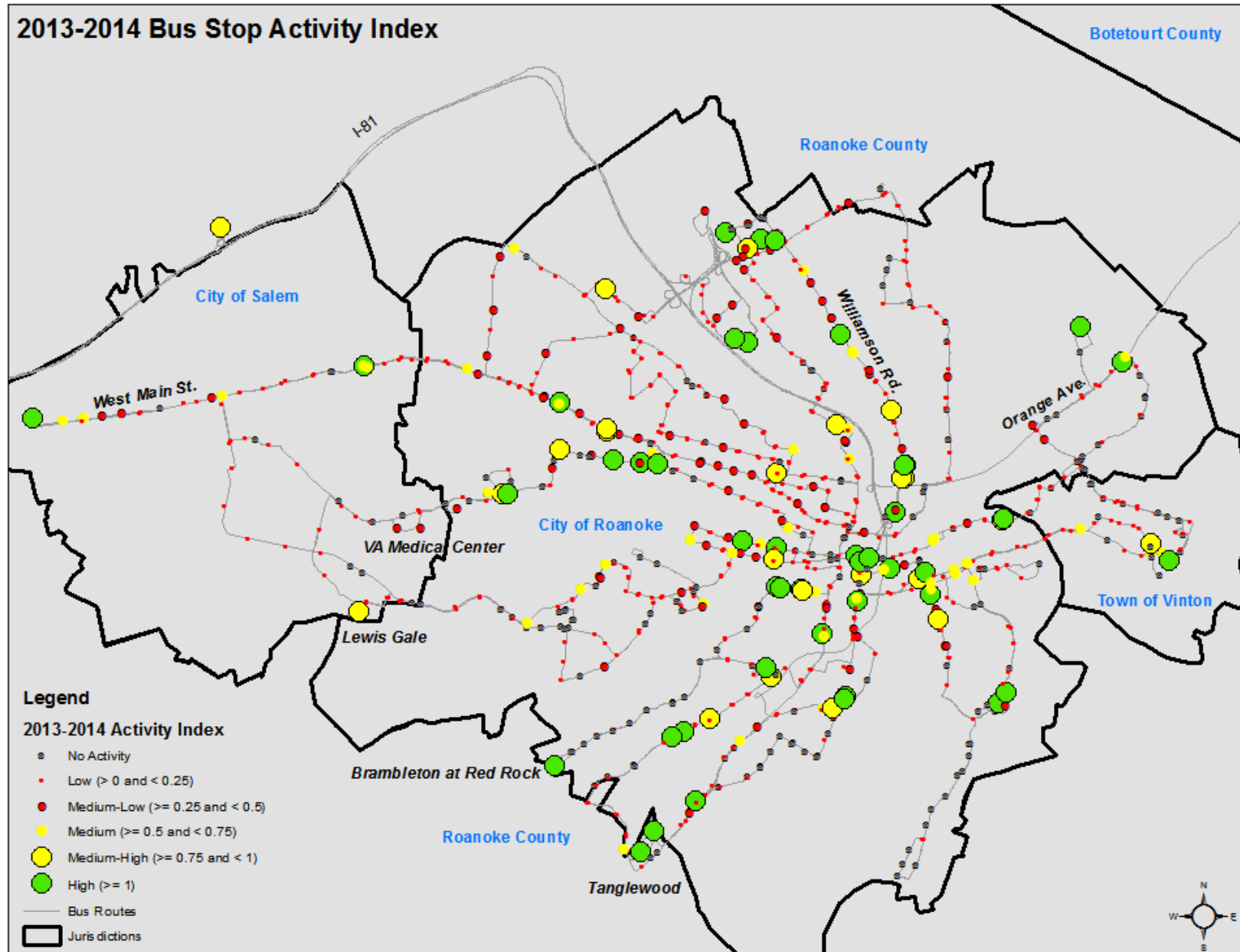
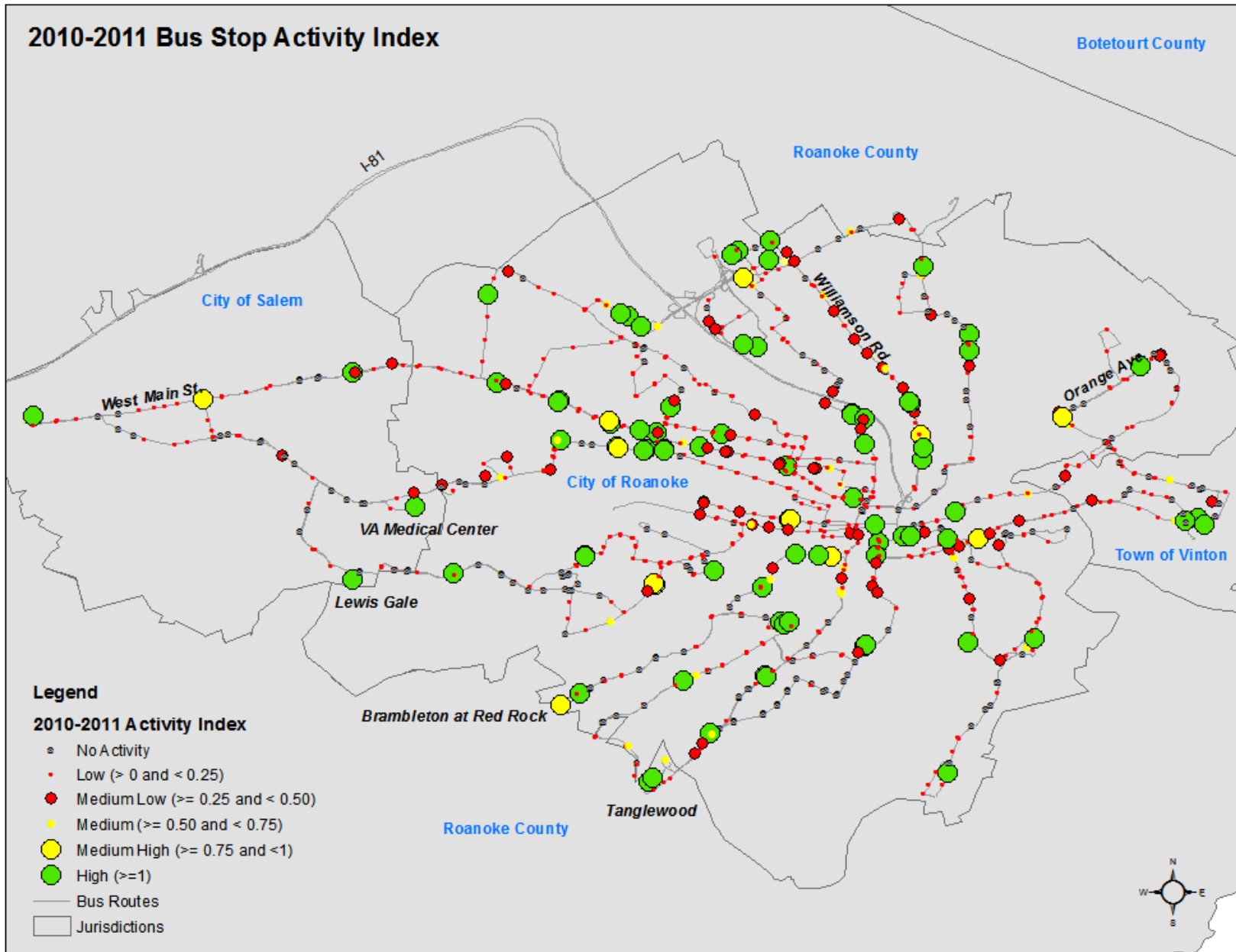


Figure 4.3-2: Bus Stop Activity Index 2010-2011



The following table shows the number of stops in each activity grouping.

*Table 4.3-3: Comparison of Number of Active Stops between 2010-2011 and 2013-2014*

| <u>BUS STOP<br/>ACTIVITY INDEX</u> | <u>BUS STOP<br/>ACTIVITY<br/>LEVEL</u> | <u>2010-2011<br/>NUMBER OF STOPS</u>  | <u>2010-2011<br/>PERCENT OF<br/>TOTAL STOPS</u> | <u>2013-2014<br/>NUMBER OF STOPS</u> | <u>2013-2014<br/>PERCENT OF<br/>TOTAL STOPS</u> |
|------------------------------------|--|---|---|--------------------------------------|---|
| 0                                  | No Activity                            | Not Surveyed (162<br>estimated)   | 17%   | 186                                  | 20%   |
| >0 and < 0.25                      | Low                                    | 593   | 63%   | 537                                  | 57%   |
| >= 0.25 and < 0.50                 | Medium Low                             | 77  | 8%  | 94                                   | 10%   |
| >= 0.50 and < 0.75                 | Medium                                 | 38  | 4%  | 48                                   | 5%  |
| >= 0.75 and < 1                    | Medium High                            | 17  | 2%  | 23                                   | 2%  |
| >= 1                               | High                                   | 52  | 5%  | 45                                   | 5%  |
|                                    | <b>Total</b>                           | <b>777 surveyed<br/>939 estimated total<br/>stops at the time of<br/>the survey</b> |   | <b>933</b>                           |   |

## 5.0 GENERAL PUBLIC SURVEY

As part of the Roanoke Valley Pedestrian and Transit Vision Plans development process, a general public survey was administered over a three-month period from October – December 2013. The public at large was encouraged to complete the survey and a total of 471 people responded.

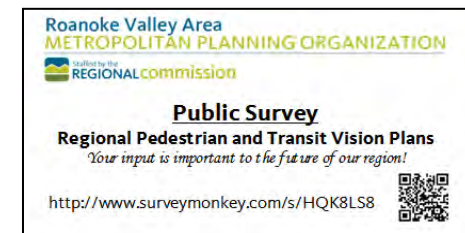
### 5.1 Public Survey Outreach

The following organizations were communicated with electronically, and each communicated with their constituents about the online survey opportunity.

- ▲ BLUE RIDGE BICYCLE CLUB
- ▲ BLUE RIDGE INDEPENDENT LIVING CENTER (NEWSLETTER, FACEBOOK, DISABILITY ADVOCATES EMAIL DISTRIBUTION LIST)
- ▲ BLUE RIDGE INTER-AGENCY COUNCIL ON HOMELESSNESS
- ▲ ROANOKE REGIONAL CHAMBER OF COMMERCE TRANSPORTATION COMMITTEE
- ▲ CITY OF ROANOKE (MYROANOKE EMAIL LIST, ECONOMIC DEVELOPMENT BIZNEWS, DOWNTOWN PLAN FACEBOOK PAGE, PLANNING DEPARTMENT WEBPAGE)
- ▲ CITYWORKS(X)PO FACEBOOK, TWITTER
- ▲ COUNCIL OF COMMUNITY SERVICES NON-PROFIT E-NEWSLETTER
- ▲ ROANOKE VALLEY GREENWAY COMMISSION
- ▲ KIWANIS CLUB
- ▲ LOUDON-MELROSE/SHENANDOAH WEST TRANSFORMATION PLAN CONSULTANT

- ▲ REGIONAL BICYCLE ADVISORY COMMITTEE
- ▲ ROANOKE CHAPTER OF INTERNATIONAL MOUNTAIN BIKING ASSOCIATION
- ▲ ROANOKE REGIONAL HOUSING NETWORK
- ▲ ROANOKE VALLEY-ALLEGHANY REGIONAL COMMISSION (WEBSITE, FACEBOOK)
- ▲ RIDESOLUTIONS (MEMBER LIST, WEBSITE, FACEBOOK)
- ▲ ROANOKE COUNTY (COMMUNITY DEVELOPMENT E-NEWSLETTER, PLANNING SERVICES FACEBOOK)
- ▲ SENIOR NETWORKING GROUP EMAIL LIST

Additionally, business cards with the web address of the survey were delivered to the following locations including senior living and rehabilitation centers.



#### **Pheasant Ridge Nursing Rehab**

4435 Pheasant Ridge Rd., Roanoke, VA 24014

#### **Brandon Oaks Retirement Village**

3804 Brandon Ave., SW, Roanoke, VA 24018

#### **Friendship Health and Rehab Center and Friendship Retirement Community**

327 Hershberger Rd, #1, Roanoke, VA 24012

**Salem Health and Rehab Center**

1945 Roanoke Blvd., Salem, VA 24153

**Our Lady of the Valley**

Jefferson Street across from St. Andrew's Catholic Church

**Emeritus Senior Living**

1127 Persinger Rd., SW, Roanoke, VA 24015

**Emeritus at Cave Spring**

3585 Brambleton Ave., Roanoke, VA 24018

**Summerville at Ridgewood Gardens**

2001 Ridgewood Dr., Salem, VA 24153

**Hermitage in Roanoke (formerly Roanoke United Methodist Home)**

1009 Old Country Club Rd., Roanoke, VA 24017

**Edinburgh Square Retirement Community**

129 Hershberger Rd., NW, Roanoke, VA 24012

**Magnolia Ridge Residential Care & Assisted Living**

1007 Amherst St., SW, Roanoke, VA 24015

**Elm Park Estates**

4230 Elm View Road, Roanoke, VA 24018

**Hamilton Haven of Roanoke**

2720 Cove Rd., NW, Roanoke, VA 24017

**Candis Home For Adults**

1619 Hanover Ave., NW, Roanoke, VA 24017

**Local Office on Aging**

706 Campbell Ave., SW, Roanoke, VA 24016

**Kirk Family YMCA**

520 Church Avenue, SW, Roanoke, VA 24016

**Melrose Towers**

3038 Melrose Ave., NW, Roanoke, VA 24017

**Jamestown Place**

1533 Pike Lane, SE, Roanoke, VA 24014

**Morningside Manor**

1020 13th St., SE, Roanoke, VA 24013

Paper surveys were made available at the following libraries:

1. South County Library
2. Glenvar Library
3. Hollins Library
4. Vinton Library
5. Salem Library
6. Gainsboro Library
7. Jackson Park Library
8. Melrose Library
9. Raleigh Court Library
10. Williamson Road Library


A copy of the survey instrument can be found in the following figure.



Figure 5.1-1: Regional Pedestrian and Transit Vision Plans Survey Instrument

### Regional Pedestrian and Transit Vision Plans Survey

If you need additional accommodations in order to complete this survey, please contact Cristina Finch at 540-343-4417 or cfinch@rvarc.org. You may also take the survey online at: <http://www.surveymonkey.com/s/HQK8LS8>.



**Roanoke Valley Area  
METROPOLITAN PLANNING ORGANIZATION**  
affiliated by the  
**REGIONAL commission**

- In what locality do you reside?**

|   |   |
|---|---|
| <input type="checkbox"/> Bedford County         | <input type="checkbox"/> Botetourt County |
| <input type="checkbox"/> Montgomery County      | <input type="checkbox"/> Roanoke County   |
| <input type="checkbox"/> City of Roanoke        | <input type="checkbox"/> City of Salem    |
| <input type="checkbox"/> Town of Vinton         |   |
| <input type="checkbox"/> Other (please specify) |   |
- What is your residence zip code?**
- In what locality do you work?**

|   |   |
|---|---|
| <input type="checkbox"/> Not applicable, I don't work | <input type="checkbox"/> Bedford County   |
| <input type="checkbox"/> Montgomery County            | <input type="checkbox"/> Botetourt County |
| <input type="checkbox"/> City of Roanoke              | <input type="checkbox"/> Roanoke County   |
| <input type="checkbox"/> Town of Vinton               | <input type="checkbox"/> City of Salem    |
| <input type="checkbox"/> Other (please specify)       |   |
- What is your work zip code?**
- What is your age?**

|                                   |                                |                                  |                                |
|-----------------------------------|--------------------------------|----------------------------------|--------------------------------|
| <input type="checkbox"/> Under 18 | <input type="checkbox"/> 18-25 | <input type="checkbox"/> 26-35   | <input type="checkbox"/> 36-45 |
| <input type="checkbox"/> 46-55    | <input type="checkbox"/> 56-65 | <input type="checkbox"/> Over 65 |                                |
- Do you own a car?**
- Do you have a mobility disability and/or use a wheelchair, scooter, or other mobility device?**
- Do you think local governments should allocate more money to construct/improve pedestrian facilities?**
- Please share why you think walkability is or is not important to the Roanoke Valley.**
- How would you classify your walking (or rolling if you use a wheelchair or mobility scooter) ability in terms of the following?**

|                                    | Days |   |   |     |   |     |
|------------------------------------|------|---|---|-----|---|-----|
|                                    | 0    | 1 | 2 | 3-4 | 5 | 6-7 |
| To get to work/school              |      |   |   |     |   |     |
| To get something to eat            |      |   |   |     |   |     |
| To get to stores/do errands        |      |   |   |     |   |     |
| To get to medical appointments     |      |   |   |     |   |     |
| To exercise                        |      |   |   |     |   |     |
| To visit friends or go out for fun |      |   |   |     |   |     |
- On average, how many DAYS per week do you walk (roll) for the following reasons?**
- Please list the top three locations where "regionally significant" pedestrian accommodations are most needed (not local neighborhood streets). Include specific street segments and/or intersections for reference.**
- Do you think local governments should allocate more money to improve public transit services?**
- Please share why you think public transit is or is not important in the Roanoke Valley.**

- In the past year, have you used public transit (such as Valley Metro, Smart Way, RADAR)?**  
 Yes  No
- What public transit service did you use?**

|   |
|---|
| <input type="checkbox"/> Valley Metro local fixed routes                                      |
| <input type="checkbox"/> Starline Trolley   |
| <input type="checkbox"/> Smart Way Commuter Bus   |
| <input type="checkbox"/> Smart Way Commuter Bus to Amtrak                                     |
| <input type="checkbox"/> RADAR – STAR service (City of Roanoke, Salem, and Vinton residents). |
| <input type="checkbox"/> RADAR – County of Roanoke (CORTRAN) service                          |
| <input type="checkbox"/> Other (please specify)   |
- In the past year, how often did you use public transit?**

|   |
|---|
| <input type="checkbox"/> Less than once a month |
| <input type="checkbox"/> 1-3 times per month    |
| <input type="checkbox"/> Once or twice a week   |
| <input type="checkbox"/> About every day        |
- On average, how many DAYS per week do you use public transit for the following reasons?**

|                                    | Days |   |   |     |   |     |
|------------------------------------|------|---|---|-----|---|-----|
|                                    | 0    | 1 | 2 | 3-4 | 5 | 6-7 |
| To get to work/school              |      |   |   |     |   |     |
| To get something to eat            |      |   |   |     |   |     |
| To get to stores/do errands        |      |   |   |     |   |     |
| To get to medical appointments     |      |   |   |     |   |     |
| To exercise                        |      |   |   |     |   |     |
| To visit friends or go out for fun |      |   |   |     |   |     |
- If you use public transit to get to work, please indicate the main reason by checking the appropriate box below.**

|   |
|---|
| <input type="checkbox"/> Not applicable; I don't use public transit to get to work. |
| <input type="checkbox"/> It is my only way to get to work.                          |
| <input type="checkbox"/> The cost of parking my car is too much.                    |
| <input type="checkbox"/> It is environmentally-friendly.                            |
| <input type="checkbox"/> Other (please specify)                                     |
- What factor(s) discourage you from using public transit? Select all that apply.**

|  |
|--|
| <input type="checkbox"/> Not Applicable: I frequently use public transit.    |
| <input type="checkbox"/> The bus doesn't come near my home.                  |
| <input type="checkbox"/> The bus doesn't go where I need to go.              |
| <input type="checkbox"/> The bus doesn't come often enough for me to use it. |
| <input type="checkbox"/> The bus ride to where I need to go is too long.     |
| <input type="checkbox"/> I don't understand how the bus system works.        |
| <input type="checkbox"/> I worry about my personal safety.                   |
| <input type="checkbox"/> Other (please specify)                              |
- If it were convenient and affordable, would you consider using public transit?**

|  |
|--|
| <input type="checkbox"/> Not Applicable: I currently use public transit. |
| <input type="checkbox"/> Yes <input type="checkbox"/> No                 |
- List the top three activity centers or destinations you feel should be better connected via the public transit network. Include specific street segments and/or intersections for reference.**
  - 
  - 
  -
- What one public transit or pedestrian accommodation, service or idea is so important that you would be disappointed if it were not included in the final plan?**
- What is the most important message you would like to share with decision-makers about walking?**
- What is the most important message you would like to share with decision-makers about public transit?**
- Please list any other comments or suggestions about walking or public transit.**

Thank you for completing this survey! Please send to:  
 Fax: 540-343-4416  
 E-mail: [cfinch@rvarc.org](mailto:cfinch@rvarc.org)  
 Mail: P.O. Box 2569, Roanoke, VA 24010

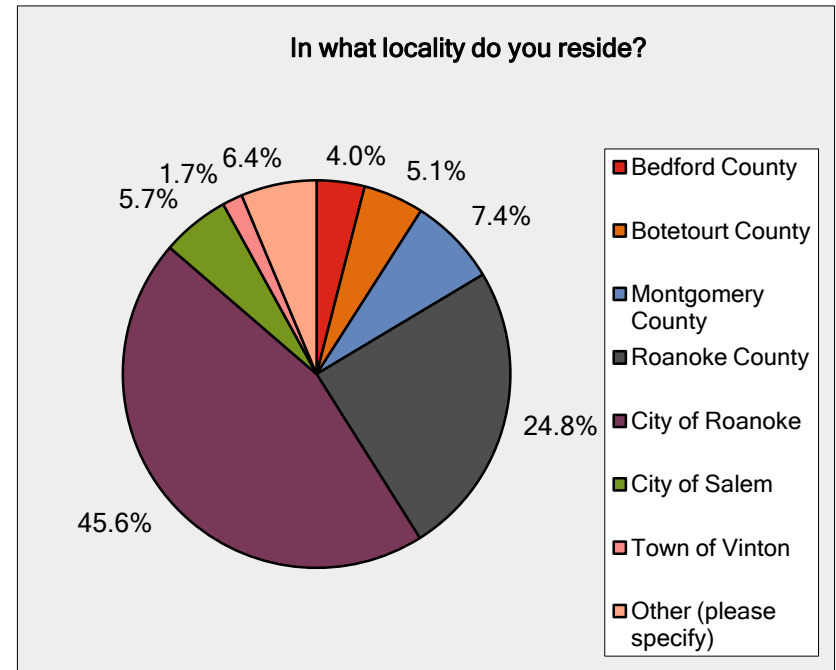
## 5.2 Place of Residence

Respondents were asked where they reside. Most respondents (46%) resided in the City of Roanoke, 32% in Roanoke County and others as shown in the following table and figure. The response rate for each locality as compared to the percent of its population in the urbanized area is shown in the following table.

Table 5.2-1: Public Survey: Locality of Residence

| LOCALITY                 | % of Current MPO Population | Response Percent | Response Count |
|--------------------------|-----------------------------|------------------|----------------|
| Bedford County           | 0.2%                        | 4.0%             | 19             |
| Botetourt County         | 5.7%                        | 5.1%             | 24             |
| Montgomery County        | 0.3%                        | 7.4%             | 35             |
| Roanoke County           | 32.0%                       | 24.8%            | 117            |
| City of Roanoke          | 46.2%                       | 45.6%            | 215            |
| City of Salem            | 11.8%                       | 5.7%             | 27             |
| Town of Vinton           | 3.9%                        | 1.7%             | 8              |
| Other (please specify)   |                             | 6.4%             | 30             |
| Alleghany County         |                             | 0.2%             | 1              |
| Blacksburg               |                             | 0.4%             | 2              |
| Christiansburg           |                             | 0.8%             | 4              |
| Craig County             |                             | 0.4%             | 2              |
| Ferrum                   |                             | 0.2%             | 1              |
| Franklin County          |                             | 1.7%             | 8              |
| Giles County             |                             | 0.2%             | 1              |
| Lynchburg                |                             | 0.2%             | 1              |
| Overseas                 |                             | 0.2%             | 1              |
| Pulaski                  |                             | 0.4%             | 2              |
| Radford                  |                             | 0.4%             | 2              |
| West Virginia            |                             | 0.2%             | 1              |
| <b>answered question</b> |                             |                  | <b>470</b>     |
| <b>skipped question</b>  |                             |                  | <b>1</b>       |

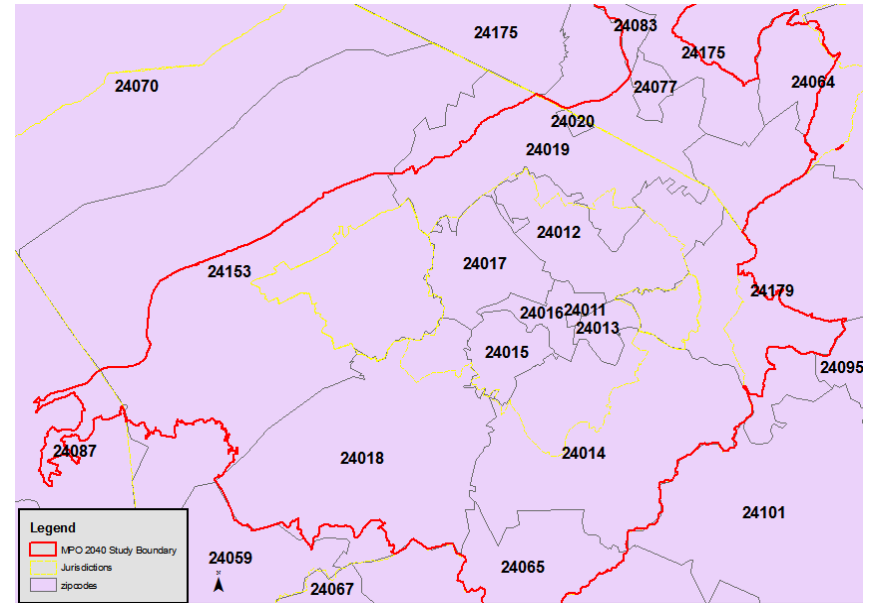
Figure 5.2-1: Public Survey: Locality of Residence



In addition to locality, respondents listed their zip code with the most responses coming from residents in 24018 Southwest Roanoke County (17%) and 24015 Southwest City of Roanoke (15%). The number of respondents by zip code is listed in the following table.

Table 5.2-2: Public Survey: Residential Zip Code

| Responses | Zip Code |
|-----------|----------|
| 82        | 24018    |
| 72        | 24015    |
| 47        | 24014    |
| 37        | 24153    |
| 28        | 24019    |
| 24        | 24016    |
| 22        | 24012    |
| 19        | 24060    |
| 17        | 24073    |
| 16        | 24179    |
| 13        | 24013    |
| 13        | 24017    |
| 11        | 24020    |
| 9         | 24175    |



Zip Codes with 5 or fewer responses:

|       |       |       |
|-------|-------|-------|
| 24064 | 20189 | 24162 |
| 24011 | 24059 | 24426 |
| 24121 | 24065 | 24503 |
| 24151 | 24066 | 24551 |
| 24523 | 24070 | 24740 |
| 24083 | 24088 | 27204 |
| 24101 | 24092 |       |
| 24077 | 24122 |       |
| 24087 | 24127 |       |
| 24095 | 24128 |       |
| 24149 | 24134 |       |
| 24174 | 24141 |       |
| 24301 | 24143 |       |

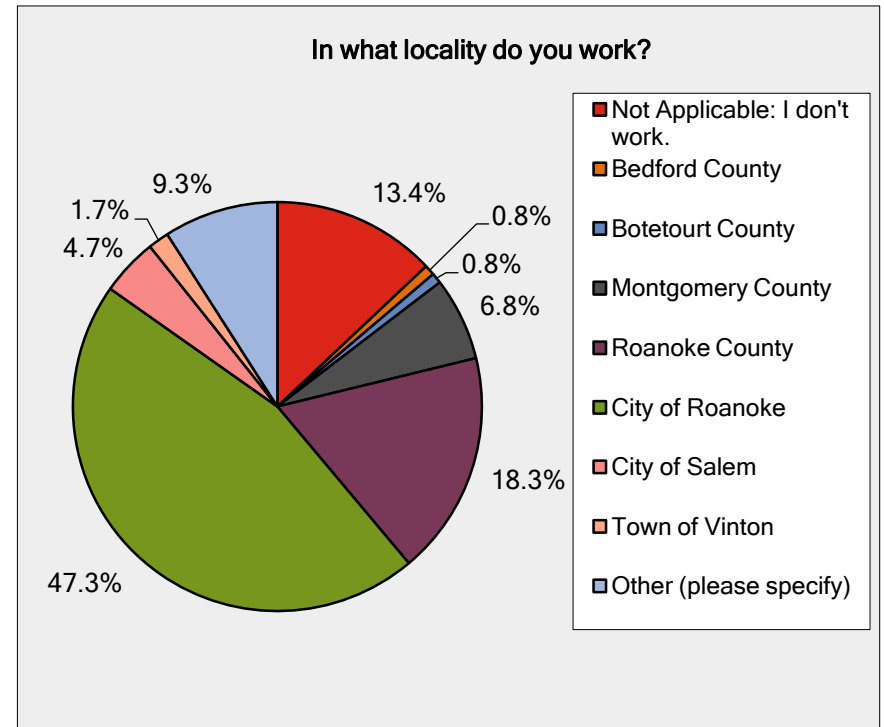
### 5.3 Place of Work

In addition to where people live, people were asked in which locality they worked. Most people indicated they work in the City of Roanoke (47%) followed by Roanoke County (18%) and people who do not work (13%). The full list of respondents' place of work is provided in the following table and chart.

Table 5.3-1: Public Survey: Place of Employment

| Job Location                        | Response Percent | Response Count |
|-------------------------------------|------------------|----------------|
| Not Applicable: I don't work.       | 13.4%            | 63             |
| Bedford County                      | 0.8%             | 4              |
| Botetourt County                    | 0.8%             | 4              |
| Montgomery County                   | 6.8%             | 32             |
| Roanoke County                      | 18.3%            | 86             |
| City of Roanoke                     | 47.3%            | 223            |
| City of Salem                       | 4.7%             | 22             |
| Town of Vinton                      | 1.7%             | 8              |
| Other (please specify)              | 9.3%             | 44             |
| <i>At Home</i>                      | 0.8%             | 4              |
| <i>All</i>                          | 0.6%             | 3              |
| <i>Various states</i>               | 0.2%             | 1              |
| <i>Overseas</i>                     | 0.2%             | 1              |
| <i>Alleghany County</i>             | 0.2%             | 1              |
| <i>Town of Blacksburg</i>           | 0.8%             | 4              |
| <i>City of Radford</i>              | 0.8%             | 4              |
| <i>Craig County</i>                 | 0.2%             | 1              |
| <i>Town of Dublin</i>               | 0.2%             | 1              |
| <i>Franklin County</i>              | 0.2%             | 1              |
| <i>Town of Hillsville</i>           | 0.2%             | 1              |
| <i>City of Lynchburg</i>            | 0.6%             | 3              |
| <i>Floyd County</i>                 | 0.2%             | 1              |
| <i>New River Valley</i>             | 0.2%             | 1              |
| <i>Town of Rocky Mount</i>          | 0.4%             | 2              |
| <b>Total Job Location Responses</b> |                  | <b>471</b>     |

Figure 5.3-1: Public Survey: Job Location



In addition to the locality where people are employed, people listed the zip code of their employment. As seen in the following table, survey responders work all over the region, with 20% working in the 24011 and 24016 zip codes in Downtown Roanoke; 11% in the 24019 North Roanoke County and Botetourt County area; 10% in 24018 Southwest Roanoke County.

Table 5.3-2: Public Survey: Place of Employment Zip Code

| Responses | Zip Code |
|-----------|----------|
| 50        | 24019    |
| 49        | 24011    |
| 45        | 24018    |
| 43        | 24016    |
| 38        | 24012    |
| 26        | 24153    |
| 19        | N/A      |
| 17        | 24014    |
| 16        | 24061    |
| 14        | 24020    |
| 13        | 24060    |
| 12        | 24015    |
| 11        | 24179    |
| 9         | 24013    |
| 9         | 24017    |

Zip codes with 5 or fewer responses:

|        |       |
|--------|-------|
| 24073  | 20189 |
| 24042  | 24005 |
| 24142  | 24022 |
| 24151  | 24038 |
| 24502  | 24043 |
| 24001  | 24070 |
| 24010  | 24083 |
| 24077  | 24084 |
| Varies | 24106 |
|        | 24120 |
|        | 24121 |
|        | 24127 |
|        | 24343 |
|        | 24422 |
|        | 24523 |

## 5.4 Age

Survey responders were asked to select their age bracket. Most respondents fell within the 45-55 age range (23%) followed closely by 56-65 (21%) then 36-45 (20%) years of age.

To compare the response rate by age obtained from the Valley Metro rider survey in which 53% of respondents fell within the 18-45 age bracket and 38% within the 46-65 age bracket, for the public survey 44.5% of respondents fell within both the 18-45 and 46-55 age brackets.

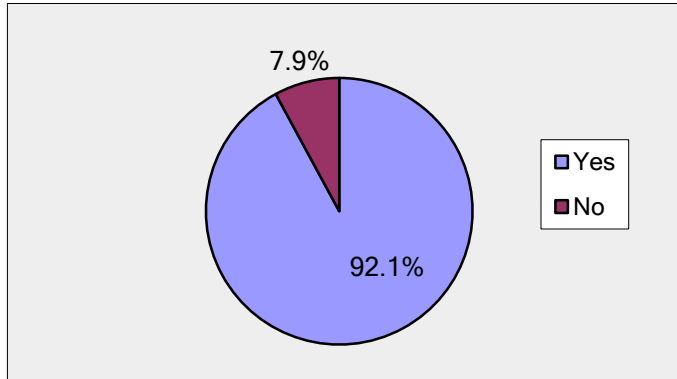
Table 5.4-1: Public Survey: Age

| Age Bracket                     | Response Percent | Response Count |
|---------------------------------|------------------|----------------|
| under 18                        | 0.0%             | 0              |
| 18-25                           | 7.7%             | 36             |
| 26-35                           | 16.4%            | 77             |
| 36-45                           | 20.5%            | 96             |
| 46-55                           | 23.0%            | 108            |
| 56-65                           | 21.5%            | 101            |
| over 65                         | 10.9%            | 51             |
| <b><i>answered question</i></b> |                  | <b>469</b>     |
| <b><i>skipped question</i></b>  |                  | <b>2</b>       |

## 5.5 Vehicle Ownership and Personal Mobility

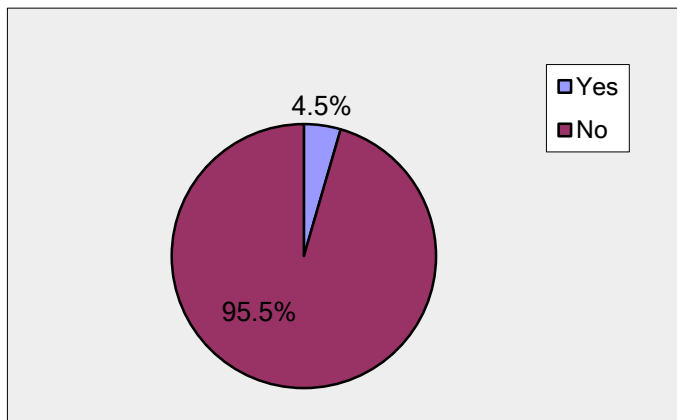
Most respondents (92%) stated they own a car.

Figure 5.5-1: Public Survey: Vehicle Ownership



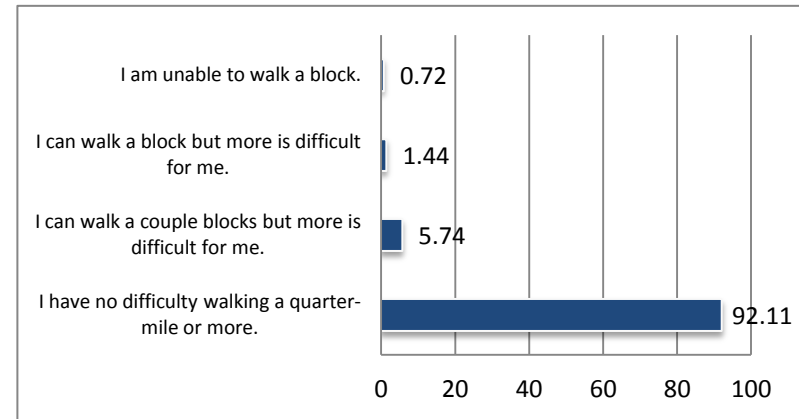
When asked if they have a physical disability that impairs their mobility such as if they use a wheelchair, a scooter, or other mobility device, 95% stated they do not.

Figure 5.5-2: Public Survey: Mobility Disability



Survey responders answered how far they are able to walk (or roll if they are using a wheelchair). The majority have no difficulty traveling a quarter-mile or more on their own. The following figure lists the percent of respondents in each category.

Figure 5.5-3: Public Survey: Ability to Travel



## 5.6 Ridership Frequency

As shown in the table below, 36% of survey responders said they had used public transit in the last year with most of those being less than once a month. Most respondents (51%) indicated they had not used public transit at all.

*Table 5.6-1: Public Survey: Transit Use Frequency*

|   | <b>PERCENT</b> | <b># PEOPLE</b> |
|---|----------------|-----------------|
| Have not used public transit in the last year | 51%            | 242             |
| No Response                                   | 13%            | 60              |
| Used transit less than once a month           | 21%            | 98              |
| Used transit 1-3 times per month              | 7%             | 32              |
| Used transit once or twice a week             | 4%             | 19              |
| Used transit about every day                  | 4%             | 20              |
| <b>Total People Surveyed</b>                  |                | <b>471</b>      |

## 5.7 Investment and Importance of Transit

Although most of the respondents do not ride transit regularly in the Roanoke Valley, 69% shared their thoughts on the importance of transit in the Roanoke Valley. The top responses overwhelmingly reflect that transit adds to the livability of the Roanoke Valley and that transit benefits the environment. Respondents also appreciate that transit helps to reduce traffic, provides access to jobs, goods, and services, especially for people who do not own cars.

*Table 5.7-1: Public Survey: Why Transit is Important in the Roanoke Valley*

| <b>CATEGORY</b>                              | <b># RESPONSES</b> |
|--|--------------------|
| Livability                                   | 74                 |
| Environment                                  | 74                 |
| Traffic reduction                            | 62                 |
| Accessibility to jobs, goods, services, etc. | 56                 |
| For people who don't own cars                | 54                 |
| Personal finances                            | 38                 |
| Economic growth                              | 22                 |
| For people who don't drive                   | 21                 |
| Parking reduction                            | 13                 |
| Health                                       | 4                  |
| Tourism                                      | 3                  |
| Safer than cars                              | 1                  |
| <b>Total</b>                                 | <b>422</b>         |

Although most of the respondents are not currently transit riders, their feedback indicates that people of all ages in the Valley (whether or not they themselves use transit) appreciate the benefits that transit brings to the community. Twenty-five percent of respondents were 35 years or younger with 65% between 36 and 65 years of age. Trends around the nation show that younger generations in particular are choosing to not purchase cars and prefer to travel using other means including transit. As people age their capacity to drive often weakens. A person's ability to not own a car and live comfortably is one measure of a community's livability.

The following table lists the locations respondents felt should be better connected to the fixed-route transit system the corresponding map shows these recommended locations.

*Table 5.7-2: Public Survey: Top Locations that should be Better Connected via the Public Transit Network*

| <b>RANK</b> | <b>LOCATION</b>         | <b># RESPONDENTS</b> |
|-------------|-------------------------|----------------------|
| 1           | Airport                 | 22                   |
| 2           | Bonsack                 | 22                   |
| 3           | Hollins Area/University | 21                   |
| 4           | Roanoke County          | 20                   |
| 5           | Cave Spring Corners     | 17                   |
| 6           | Downtown Roanoke        | 14                   |
| 7           | Electric Rd             | 14                   |
| 8           | Blue Hills Drive        | 13                   |
| 9           | Valley View Area/Mall   | 13                   |
| 10          | DMV                     | 12                   |
| 11          | Plantation Rd           | 9                    |
| 12          | Libraries               | 8                    |
| 13          | Salem                   | 7                    |
| 14          | Civic Centers           | 6                    |
| 15          | Daleville               | 6                    |
| 16          | Greenways               | 6                    |
| 17          | Peters Creek Rd         | 6                    |
| 18          | Clearbrook              | 5                    |
| 19          | Tanglewood Mall         | 5                    |
| 20          | Towers                  | 5                    |
| 21          | Botetourt Co.           | 5                    |

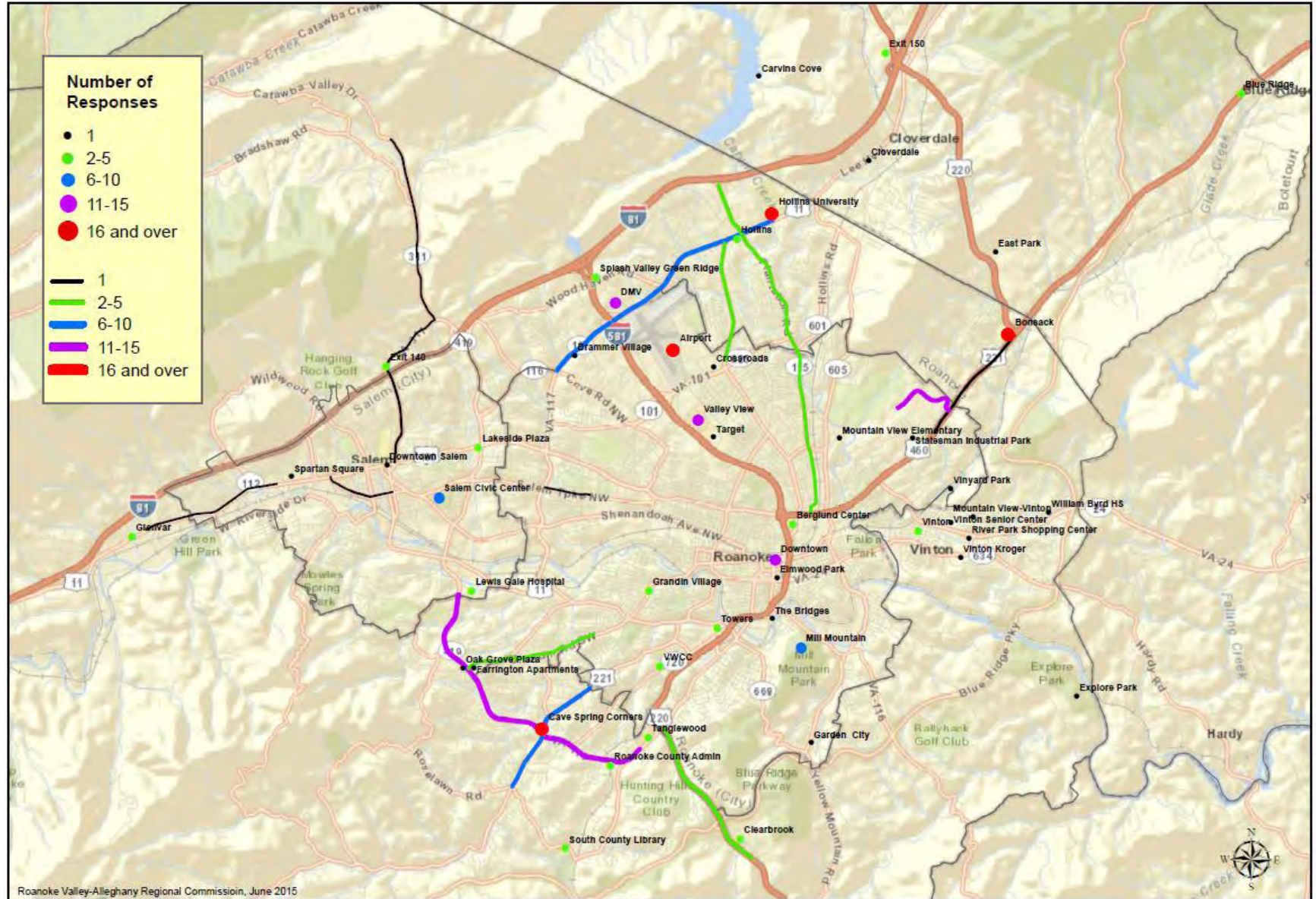
|    |                |   |
|----|----------------|---|
| 22 | Brambleton Ave | 5 |
| 23 | Hospitals      | 5 |

The top five locations recommended by the general public for improved transit connections are the Airport, Bonsack, Hollins University, Roanoke County in general, and Cave Spring Corners.

Even though many respondents are not current riders, 84% of respondents noted that they would like to see local governments allocate more money to improve transit services. If public transportation were convenient and affordable, 80% of respondents said they would use the service.



Figure 5.7-1: Public Survey: Locations Needing a Better Connection to Public Transit



## 5.8 Most Important Transit Idea

The public was asked what one transit idea is so critical it should not be left out of the Plan. People’s responses are provided in the following groups:

- ▲ GENERAL FEEDBACK
- ▲ AMTRAK
- ▲ DOWNTOWN TRANSFER CENTER
- ▲ HOURS OF SERVICE
- ▲ FARES
- ▲ ADDITIONAL SERVICE
- ▲ SYSTEM EFFICIENCY
- ▲ VEHICLES
- ▲ AMENITIES

### 5.8.1 General Feedback

- ▼ NO REGIONAL DIVIDES FOR BUSES AND RADAR
- ▼ EXPAND REACH OF RADAR
- ▼ MAKE THE SYSTEM MORE EFFICIENT
- ▼ BUS TRANSPORTATION TO ALL RESIDENTS
- ▼ KEEP IN MIND LOWER-INCOME AREAS
- ▼ DECISION MAKERS REQUIRED TO USE PUBLIC TRANSPORTATION FOR A MONTH
- ▼ SAFETY

- ▼ RETHINK THE ENTIRE BUS SYSTEM AND CREATE A LONG RANGE PLAN THAT ADDRESSES CHANGING DEMOGRAPHICS

### 5.8.2 Amtrak

- ▼ PASSENGER RAIL (AMTRAK) AND ACCESS TO IT
- ▼ A FIXED ROUTE LIGHT RAIL TROLLEY AS THE CENTERPIECE OF THE SYSTEM
- ▼ TRAIN FROM NEW RIVER VALLEY
- ▼ SMART WAY TO AMTRAK
- ▼ BEGIN PLANNING NOW FOR FUTURE LIGHT RAIL LINES CONNECTING TOWNS IN THE REGION E.G. ROANOKE-BLACKSBURG
- ▼ TRAIN SERVICE OUT OF ROANOKE TO LYNCHBURG/RICHMOND
- ▼ CONNECTION OF AMTRAK LOCATION TO VALLEY VIEW AND SOUTH ROANOKE LOCATIONS
- ▼ DEDICATED BIKE/PEDESTRIAN ACCOMMODATIONS RELATED TO AMTRAK SERVICE

### 5.8.3 Downtown Transfer Center

- ▼ I REALLY LIKE THE WAY THAT THE BUS LINES CONNECT ON A SCHEDULE THAT MINIMIZES WAIT TIME; HOWEVER, I FIND THE CAMPBELL COURT LOCATION TO BE BORDERLINE CREEPY. A MORE OPEN, INVITING SETTING WOULD BE MUCH MORE APPEALING.
- ▼ A CENTRALLY LOCATED TRANSIT CENTER IS IMPORTANT, BUT THE CURRENT LOCATION ON CAMPBELL AVE CREATES A HOLE IN THE STREETScape AND A BARRIER TO PEDESTRIAN MOVEMENT ALONG CAMPBELL AVE. I WILL BE DISAPPOINTED

IF A NEW LOCATION IS NOT CONSIDERED, WITH A MULTI-MODAL LOCATION WITH THE NEW TRAIN STATION BEING MY PRIMARY SUGGESTION

- ▼ MOVING THE BUS TERMINAL
- ▼ BUS LOADING SHELTER ON THE STREET CAMPBELL OR SALEM FOR EASY ON/OFF SERVICE
- ▼ MEDICAL FACILITIES SHOULD BE LOCATED ADJACENT TO THE BUS STATION IN THE DOWNTOWN AREA
- ▼ EXTENDED TRANSIT SERVICE IN THE EXTERIOR AREAS INTO THE DOWNTOWN HUB FOR FURTHER TRANSIT

#### 5.8.4 Hours of Service

- ▼ LATER HOURS ON WEEKDAYS AND WEEKENDS
- ▼ MORE FREQUENT BUS SERVICE
- ▼ BUS SERVICE ON SUNDAYS
- ▼ MORE BUSES THAT COME AROUND MORE FREQUENCY
- ▼ GIVE MORE FREQUENT STOPS IN AREAS WHERE PEOPLE USE TRANSIT MORE OFTEN.
- ▼ MORE TIMES IN CHRISTIANSBURG TO CATCH THE BUS TO ROANOKE
- ▼ EXPANSION OF HOURS FOR STARLINE TROLLEY SERVICE INCLUDING WEEKEND SERVICE EVEN IF FARES WERE INTRODUCED FOR EXPANDED HOURS
- ▼ BUS SERVICE UNTIL 10PM
- ▼ EXTENDED EVENING HOURS FOR SMART WAY BUS

#### 5.8.5 Fares

- ▼ REDUCED OR ELIMINATED BUS FARES
- ▼ FREE BUS SERVICE ON THE WEEKENDS
- ▼ MORE FREE TRANSPORTATION LIKE THE TROLLEY
- ▼ FREE RIDES WITHIN A DESIGNATED RADIUS OF DOWNTOWN ROANOKE SO DOWNTOWN RESIDENTS AND SHOPPERS COULD HOP ON AND OFF AT ANY STOP

#### 5.8.6 Additional Service

- ▼ WHERE IT GOES, IT SEEMS TO WORK WELL . . . JUST NEED TO EXPAND
- ▼ BETTER BUS SERVICE IN BEDFORD COUNTY
- ▼ BUS SERVICE SPREAD OUT OVER A LARGER AREA (LIKE FRANKLIN COUNTY)
- ▼ BUS TO KROGER IN VINTON
- ▼ ADDITIONAL TROLLEY BETWEEN JEFFERSON CENTER TO THE MARKET AREA
- ▼ BUS TRANSPORTATION TO HOLLINS
- ▼ PLANTATION ROAD SERVICE
- ▼ CONNECT THE BRIDGES DEVELOPMENT ON JEFFERSON STREET TO TOWERS SHOPPING CENTER, THE MEDICAL SCHOOL AND DOWNTOWN VIA THE TROLLEY
- ▼ IMPROVE ACCESS TO MAJOR EMPLOYMENT CENTERS SUCH AS HOLLINS/PLANTATION AND BLUE HILLS
- ▼ CONTINUE THE SMART WAY CONNECTION BETWEEN ROANOKE AND THE NEW RIVER VALLEY

- ▼ EXTENSION OF SERVICE OUT 460, 220, AND 221
- ▼ BUS SERVICE BETWEEN ROCKY MOUNT AND ROANOKE
- ▼ SMART WAY BUS STOP AT I-81 EXIT 128 (ELLISTON/IRONTO)
- ▼ SOME PUBLIC TRANSIT FOR BOTETOURT COUNTY
- ▼ PUBLIC TRANSIT ON ROUTE 419 IN ROANOKE COUNTY AND ITS FEEDER ROADS WITH A DIRECT CONNECTION TO THE AIRPORT AND VALLEY VIEW MALL
- ▼ PUBLIC TRANSIT ALONG THE ENTIRETY OF ROUTE 419
- ▼ A BUS STOP AT HOLLINS UNIVERSITY
- ▼ ADDITIONAL ROUTES TO THE AIRPORT, MILL MOUNTAIN, AND CLEARBROOK
- ▼ SMART WAY CONNECTION TO RADFORD TRANSIT AT I-81 EXIT 118 OR TO RADFORD UNIVERSITY
- ▼ BUS SERVICE TO CONNECT SUBURBAN AND RURAL COMMUNITIES TO URBAN ROANOKE AND SALEM AREAS
- ▼ SMART WAY STOP AT LITTON REEVES OR THE COLLISEUM, MOST OF THE CAMPUS EXTENSION WENT THAT DIRECTION
- ▼ GRANDIN ROAD INTERSECTING ROUTE 419
- ▼ CONNECTION TO THE AIRPORT
- ▼ BUS SERVICE CONNECTING SW CITY/COUNTY (419 CORRIDOR) TO DOWNTOWN ROANOKE
- ▼ BUS SCHEDULE FOR CAVE SPRING CORNER SHOPPING CENTER TO AND FROM DOWNTOWN AND TO SEVERAL SW COUNTY LOCATIONS

### 5.8.7 System Efficiency

- ▼ A STUDY OF WHERE PEOPLE WHO NEED/WANT PUBLIC TRANSIT LIVE AND WHERE THEY NEED TO GO
- ▼ OFFER END TO END POINT ROUTES THAT RUN LESS FREQUENTLY BUT EARLIER AND LATER WITH FEWER STOPS (SIMILAR TO THE MEGABUS MODEL OF CITY TO CITY) FOR QUICK EFFICIENT WAY TO GET ACROSS THE AREA
- ▼ ROUTES NEED TO BE EASY TO USE WITHOUT HAVING TO TRANSFER DOWNTOWN
- ▼ DIRECT CONNECTION FROM WESTERN SALEM TO ROANOKE TRANSIT OPTIONS IN ROANOKE COUNTY
- ▼ SMALLER BUSES TO SAVE ENGERGY COMING AT LEAST EVERY HALF HOUR DURING THE DAY
- ▼ CHANGING BUS ROUTES, SCHEDULES AND DAYS BUSES RUN – SUCH AS ON SUNDAYS
- ▼ MORE FREQUENCY WHEN PEOPLE ARE GOING TO AND GETTING OFF FROM WORK SO THAT PEOPLE WITHOUT TRANSPORTATION HAVE REASONABLE OPTIONS FOR GETTING TO WORK ON TIME AND PICKING UP KIDS, ETC. INSTEAD OF HAVING TO WAIT JUST BECAUSE THEY DON'T OWN A CAR
- ▼ TRANSIT FROM SUBURBS TO THE CITIES AND CIVIC CENTERS
- ▼ CREATE A BUS ROUTE(S) THAT INTERSECTS THE OTHER BUS ROUTES TO SHORTEN TRIP TIMES BY AVOIDING A NECESSARY TRIP INTO CAMPBELL COURT
- ▼ TROLLEY CIRCULATION BETWEEN THE CORE NEIGHBORHOOD COMMERCIAL DISTRICTS AND DOWNTOWN

### 5.8.8 Vehicles

- ▼ ELECTRIC BUSES
- ▼ CITY SHUTTLES
- ▼ SMALLER BUSES
- ▼ TAXI
- ▼ SMALLER MORE EFFICIENT BUSES WITH MORE ROUTES

### 5.8.9 Amenities

- ▼ GREATER AND SAFER MOBILITY FOR DISABLED
- ▼ ACCESSIBLE BUSES FOR WHEELCHAIRS
- ▼ WAYFINDING SIGNAGE DOWNTOWN
- ▼ CONSIDER BIKES AND TRANSIT
- ▼ BETTER PLANNED TRANSIT STOPS WITH BETTER ACCOMMODATIONS
- ▼ ADDING TRASH CANS AND RECYCLING TRASH CANS AT BUS STOPS
- ▼ (ON-BOARD BUS) INTERNET
- ▼ MORE SEATING
- ▼ DISPENSE CHANGE
- ▼ BETTER TRANSIT SIGNS
- ▼ COVERED BUS STOPS
- ▼ A MOBILE APP WITH ROUTES AND CONNECTIONS
- ▼ BUS SHELTERS (AT LEAST A CONCRETE SLAB TO STAND ON)

- ▼ BUS SHELTERS TO PROVIDE PROTECTION FROM BAD WEATHER AND BENCHES

## 5.9 Most Important Message to Decision Makers

Lastly, the public was asked about the most important message they would like to share with decision makers. The top responses, shown in the next table, indicate the need to add service followed by improve the current service.

*“You can't build your way out of road congestion. More lanes mean more driving. We shouldn't make it easier to drive around the Roanoke Valley. We should make it easier to ride the bus.”* – Survey Respondent

*“The availability of public transit was one of the reasons we moved from Salem to Roanoke.”*

– Survey Respondent

*“Public transit makes Roanoke more attractive to employers and employees who might consider moving to Roanoke.”*

– Survey Respondent

Table 5.8-1: Public Survey: Most Important Message to Decision Makers

| <b>CATEGORY</b>                   | <b># RESPONSES</b> |
|-----------------------------------|--------------------|
| Service Addition                  | 65                 |
| Improved Service                  | 47                 |
| Livability                        | 28                 |
| Marketing                         | 18                 |
| Funding                           | 15                 |
| Environment                       | 13                 |
| Economy                           | 9                  |
| Amenity Addition                  | 6                  |
| Parking                           | 6                  |
| Rail                              | 6                  |
| Frequency                         | 4                  |
| Pedestrian Access                 | 4                  |
| Fares                             | 3                  |
| Good like it is                   | 2                  |
| Regional Transportation Authority | 2                  |
| Technology Integration            | 2                  |
| Fare                              | 1                  |
| Land Development                  | 1                  |
| Transit not needed                | 1                  |
| <b>Grand Total</b>                | <b>233</b>         |

## 6.0 RADAR TWO-YEAR DATA ANALYSIS RESULTS

Unified Human Services Transportation Systems Inc. (RADAR) provides origin to destination transit services for people with disabilities within ¼ mile of fixed-route transit via Valley Metro’s Specialized Transit Arranged Rides (STAR) program. STAR customers reside within the following localities: City of Roanoke (42.56 square miles), City of Salem (14.44 sq. mi.), Town of Vinton (3.16 sq. mi.), and Roanoke County (250.52 sq. mi.).

RADAR also provides public transit via the County of Roanoke Transportation (CORTRAN) program for people age 60 and over or anyone with a disability who lives in Roanoke County or the Town of Vinton.

Two years worth of trip data was studied for both programs covering January 2012 through December 2013. The purpose of the data analysis was to provide factual information about trips taken in the Roanoke Valley by seniors and people with disabilities in order to make informed recommendations and plans for future services and service improvements.

RADAR provided data in two databases, Customers Database and Trips Database, which contained the following information.

Table 6.1-1: Content of RADAR Databases

| <u>DATABASE</u> | <u># RECORDS</u> | <u>CONTENT</u>   |
|-----------------|------------------|--|
| Customer        | 14,745           | Customer ID number<br>Active Customer<br>Radar ID<br>Address<br>Phone Number<br>Birth date<br>Elderly<br>Mobility Type<br>Funding Source<br>Service<br>Attendant Count   |
| Trips           | 218,199          | Trip ID<br>Trip Date<br>Day of Week<br>Radar ID<br>Pick Up Address<br>Pick Up Zip<br>Drop Off Address<br>Drop Off Zip<br>Service<br>Funding Source<br>Estimated Trip Distance<br>Mobility Type<br>Trip Purpose |

The Customers Database contained customers beyond those who took a trip during the two-year trip period. As such, the customers who did take a trip during this period were identified as “Active” customers, and the ones who did not take a trip during this period were identified as “Inactive” customers. In the Customer Database, there were 2,612 customers identified by unique RADAR IDs that took trips during the two-year period. Analysis of the Trips Database identified an additional 189 people with unique RADAR IDs that also took trips but had inadvertently been deleted from the Customer Database. Hence, the Customer Database information provided in the following analysis is based on 2,612 active customers and the Trips Database analysis is based on 2,801 active customers during the two-year period.

## 6.1 Customers Database

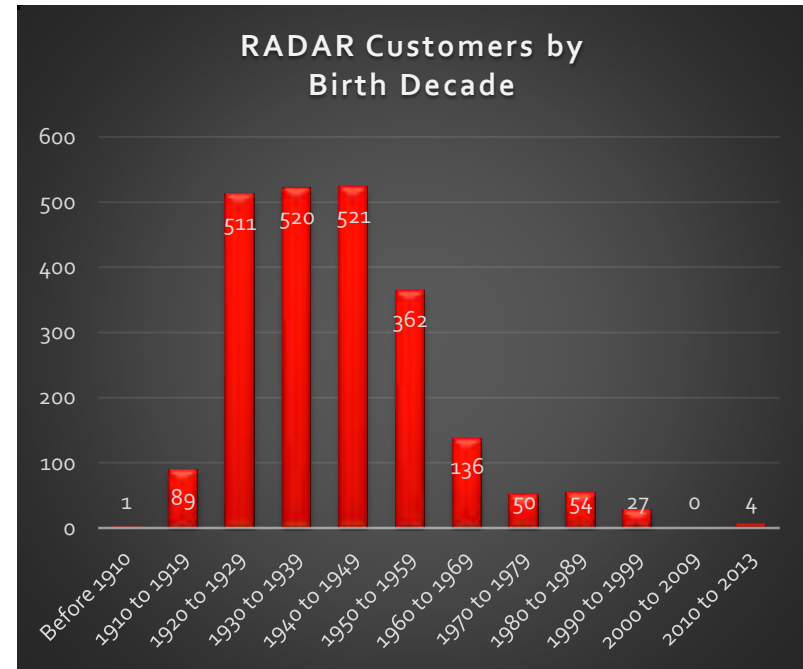
Of the active customers, some were registered both for STAR and CORTRAN service as the breakdown below shows.

- ▲ 1,418 STAR CUSTOMERS
- ▲ 1,218 CORTRAN CUSTOMERS
- ▲ 24 CUSTOMERS USED BOTH CORTRAN AND STAR
- ▲ 2,612 UNIQUE CUSTOMERS

### 6.1.1 Age

The majority of customers that used RADAR during 2012-2013 were born between 1920 and 1949 (ages 64 through 93). The average age of a rider was 70.

Figure 6.1-1: RADAR Customers by Birth Decade



There were 2,612 active RADAR customers between 2012 and 2013. However, 337 customers had missing information for their birth date so they are listed as Unknown in the following table.



Table 6.1-2: RADAR Customers: Age

| <u>AGE RANGE</u> | <u>BIRTH DECADE</u> | <u># CUSTOMERS</u> | <u>% CUSTOMERS</u> |
|------------------|---------------------|--------------------|--------------------|
| Over 103         | Before 1910         | 1                  | 0%                 |
| 94-103           | 1910 to 1919        | 89                 | 3%                 |
| 84-93            | 1920 to 1929        | 511                | 20%                |
| 74-83            | 1930 to 1939        | 520                | 20%                |
| 64-73            | 1940 to 1949        | 521                | 20%                |
| 54-63            | 1950 to 1959        | 362                | 14%                |
| 44-53            | 1960 to 1969        | 136                | 5%                 |
| 34-43            | 1970 to 1979        | 50                 | 2%                 |
| 24-33            | 1980 to 1989        | 54                 | 2%                 |
| 14-23            | 1990 to 1999        | 27                 | 1%                 |
| 4-13             | 2000 to 2009        | 0                  | 0%                 |
| 0-3              | 2010 to 2013        | 4                  | 0%                 |
|                  | Unknown             | 337                | 13%                |
|                  | <b>Grand Total</b>  | <b>2,612</b>       |                    |

### 6.1.2 Mobility Type

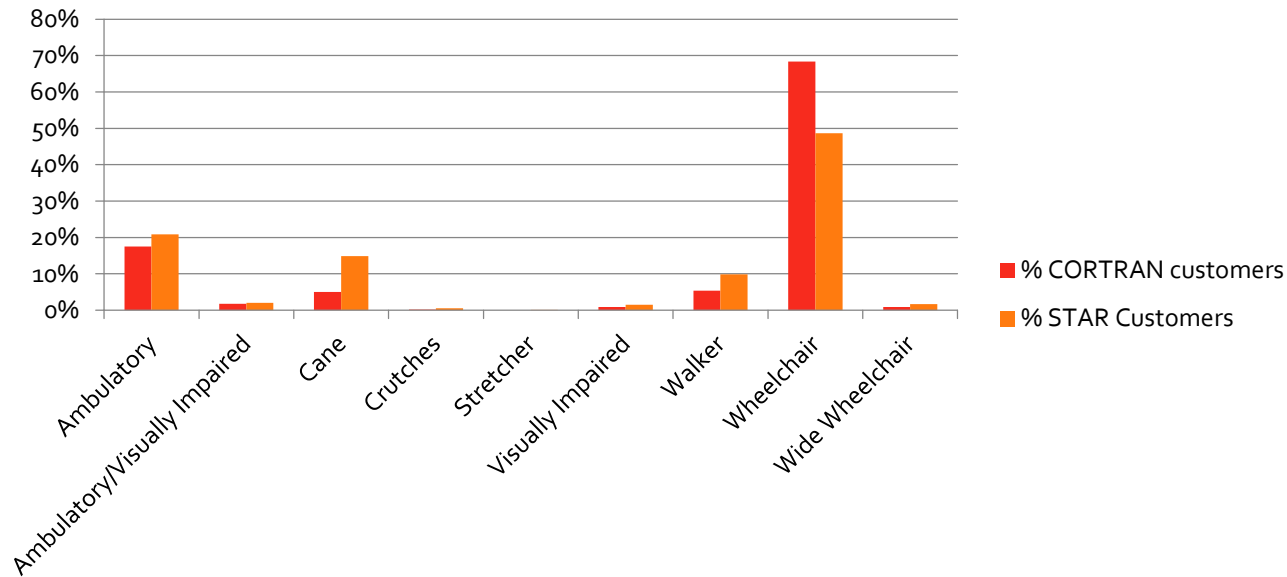
In order to coordinate rides using the vehicles available, RADAR records people’s mobility. Depending on the vehicle used, two to three regular wheelchairs can usually be accommodated. The time to board/deboard a passenger in a wide wheelchair is more than for a regular wheelchair and often more time-consuming to properly secure/unsecure on the bus. Oftentimes wide wheelchair customers need to be scheduled on a bus without other passengers in wheelchairs so there is room to maneuver the customer on the bus.

Many customers on both CORTRAN AND STAR use a wheelchair: 68% of CORTRAN customers and 49% of STAR customers. For both services, about 20% of customers are ambulatory in that they do not require the assistance of any mobility aide. The following table and chart lists the documented mobility of the customers.

Table 6.1-3: RADAR Customers: Mobility Type

| <u>MOBILITY TYPE</u>         | <u>UNKNOWN SERVICE</u> | <u># CORTAN CUSTOMERS</u> | <u>% CORTAN CUSTOMERS</u> | <u># STAR CUSTOMERS</u> | <u>% STAR CUSTOMERS</u> | <u>TOTAL</u> | <u>% OF TOTAL</u> |
|------------------------------|------------------------|---------------------------|---------------------------|-------------------------|-------------------------|--------------|-------------------|
| Ambulatory                   | 3                      | 210                       | 17%                       | 293                     | 21%                     | 506          | 19%               |
| Ambulatory/Visually Impaired | 0                      | 21                        | 2%                        | 28                      | 2%                      | 49           | 2%                |
| Cane                         | 1                      | 60                        | 5%                        | 208                     | 15%                     | 269          | 10%               |
| Crutches                     | 0                      | 2                         | 0%                        | 7                       | 0%                      | 9            | 0%                |
| Stretcher                    | 0                      | 0                         | 0%                        | 1                       | 0%                      | 1            | 0%                |
| Visually Impaired            | 0                      | 11                        | 1%                        | 21                      | 1%                      | 32           | 1%                |
| Walker                       | 1                      | 65                        | 5%                        | 138                     | 10%                     | 204          | 8%                |
| Wheelchair                   | 2                      | 822                       | 68%                       | 683                     | 49%                     | 1,507        | 58%               |
| Wide Wheelchair              | 0                      | 11                        | 1%                        | 24                      | 2%                      | 35           | 1%                |
| <b>Total</b>                 | <b>7</b>               | <b>1,202</b>              | <b>100%</b>               | <b>1,403</b>            | <b>100%</b>             | <b>2,612</b> | <b>100%</b>       |

Figure 6.1-2: Percent of RADAR Customers by Mobility Type



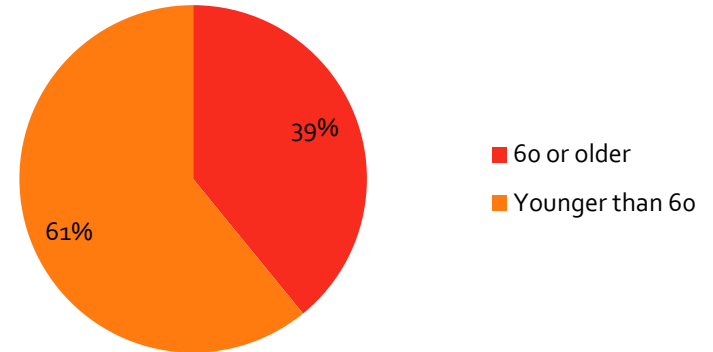
### 6.1.3 Elderly

CORTRAN service is available to Roanoke County residents who are age 60 and over or any County resident that has a disability. STAR service is only available to people with disabilities; therefore this question is not relevant to STAR service.

Table 6.1-4: RADAR Customers: Elderly

| <u>ELDERLY?</u>               | <u># OF CORTRAN CUSTOMERS</u> | <u>% OF CORTRAN CUSTOMERS</u> |
|-------------------------------|-------------------------------|-------------------------------|
| <b>False (No)</b>             | <b>470</b>                    | <b>39%</b>                    |
| Ambulatory                    | 148                           | 31%                           |
| Ambulatory/ Visually Impaired | 14                            | 3%                            |
| Cane                          | 44                            | 9%                            |
| Crutches                      | 2                             | 0%                            |
| Visually Impaired             | 9                             | 2%                            |
| Walker                        | 35                            | 7%                            |
| Wheelchair                    | 209                           | 44%                           |
| Wide Wheelchair               | 9                             | 2%                            |
| <b>True (Yes)</b>             | <b>732</b>                    | <b>61%</b>                    |
| Ambulatory                    | 62                            | 8%                            |
| Ambulatory/ Visually Impaired | 7                             | 1%                            |
| Cane                          | 16                            | 2%                            |
| Visually Impaired             | 2                             | 0%                            |
| Walker                        | 30                            | 4%                            |
| Wheelchair                    | 613                           | 84%                           |
| Wide Wheelchair               | 2                             | 0%                            |
| <b>Total</b>                  | <b>1,202</b>                  |                               |

Figure 6.1-3: Percent of CORTRAN Customers 60 years or older



Most CORTRAN customers (61%) are age 60 and over. Of those customers, most use a wheelchair (84%); few customers age 60 and over are ambulatory (8%). Customers younger than 60 constitute 39% of all CORTRAN customers; of those customers, 44% use a wheelchair and 31% are ambulatory. Ambulatory simply means the person can walk. To be qualified for CORTRAN service, people under 60 years of age must have some documented disability whether it is physical or mental.

### 6.1.4 Funding Sources

All customers contributed toward the expense of the transportation service. CORTRAN customers paid \$4.00 per trip. STAR customers either used a monthly paratransit pass at \$96/month or paid \$3.00 per trip. The expense of providing transportation using specialized services greatly exceeds the fare contribution from the passenger. As a result, government subsidies were provided to cover the expense of the trip. It is important to note that the same customer may have had trips

subsidized from multiple sources depending, for example, on the purpose or origin or destination of the trip.

### STAR 8260

The City of Roanoke, the City of Salem, and the Town of Vinton subsidize paratransit trips for citizens with disabilities who reside within ¼-mile of fixed-route transit which traverses the three localities and portions of Roanoke County.

- ▲ ALL STAR CUSTOMERS TOOK TRIPS THAT WERE SUBSIDIZED BY THEIR RESPECTIVE LOCAL GOVERNMENT WITH THE EXCEPTION OF STAR CUSTOMERS IN ROANOKE COUNTY WHICH DOES NOT CONTRIBUTE TOWARDS STAR SERVICE EXPENSES.

### Jobs Access Reverse Commute

**Jobs Access Reverse Commute (JARC)** was a federal program authorized under SAFETEA-LU to “transport welfare recipients and eligible low-income individuals to and from jobs and activities related to their employment, including transportation projects that facilitate the provision of public transportation services from urbanized areas and rural areas to suburban employment locations.” The JARC program was repealed by MAP-21 in 2012. RADAR expects the remaining funds it has received via this program will be fully consumed by 2017. The activities that were funded via JARC are eligible to receive funding under the Urbanized Area Formula Grant (Section 5307) and Formula Grants for Rural Areas (Section 5311).

- ▲ FUNDS FROM JARC SUBSIDIZED TRIPS FOR 111 OR 9% OF CORTRAN CUSTOMERS AND 257 OR 18% OF STAR CUSTOMERS.

### New Freedom

**New Freedom** was also a federal program authorized under SAFETEA-LU to “reduce barriers to transportation services and expand the transportation mobility options available to people with disabilities beyond the requirements of the ADA of 1990.” The program was repealed under MAP-21. Activities previously funded under New Freedom are eligible to receive funding via Formula Grants for the Enhanced Mobility of Seniors and Individuals with Disabilities (Section 5310).

- ▲ FUNDS FROM NEW FREEDOM SUBSIDIZED TRIPS FOR 997 OR 82% OF ALL CORTRAN CUSTOMERS AND 588 OR 41% OF ALL STAR CUSTOMERS.

### Urban CORTRAN

**CORTRAN 7030** refers primarily to the urban area of Roanoke County in which the County pays the total cost of the service beyond the passenger fare.

- ▲ ROANOKE COUNTY SUBSIDIZED URBAN TRIPS TAKEN BY 768 CUSTOMERS WHICH IS 63% OF ALL CORTRAN CUSTOMERS.

### Rural CORTRAN

**CORTRAN Section 18 7032** refers to the rural portion of Roanoke County in which mainly federal funds (Section 5311) are used to subsidize the trip cost along with a small contribution from Roanoke County.

- ▲ RURAL FEDERAL TRANSPORTATION FUNDS AND ROANOKE COUNTY SUBSIDIZED RURAL TRIPS FOR 197 OR 10% OF CORTRAN CUSTOMERS.

A Summary of the above information is provided in the following table.

Table 6.1-5: RADAR Funding Sources

| <b>FUNDING SOURCE</b>                                  | <b># CUSTOMERS</b> | <b>% CUSTOMERS</b> |
|--|--------------------|--------------------|
| CORTRAN 7030 (Urban - Roanoke County)                  | 768                | 63%                |
| CORTRAN SECT 18 7032 (Rural - FTA 5311/Roanoke County) | 197                | 16%                |
| CORTRAN 7034 (JARC)                                    | 111                | 9%                 |
| CORTRAN 7033 (New Freedom)                             | 997                | 82%                |
| <b>CORTRAN TOTAL Customers</b>                         | <b>1,218</b>       |                    |
| STAR 8260 (City of Roanoke, City of Salem, Vinton)     | 1418               | 100%               |
| STAR 8264 (JARC)                                       | 257                | 18%                |
| STAR 8263 (New Freedom)                                | 588                | 41%                |
| <b>STAR TOTAL Customers</b>                            | <b>1,418</b>       |                    |

Figure 6.1-4: Source of Funding Subsidy for CORTRAN Customers

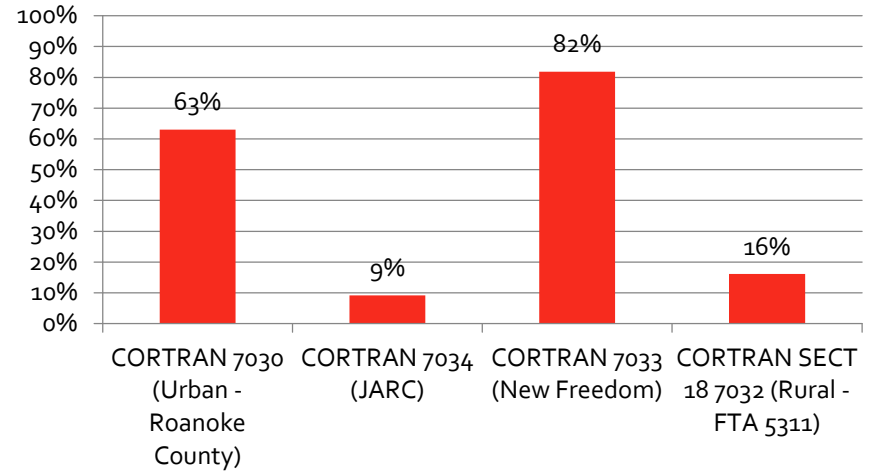
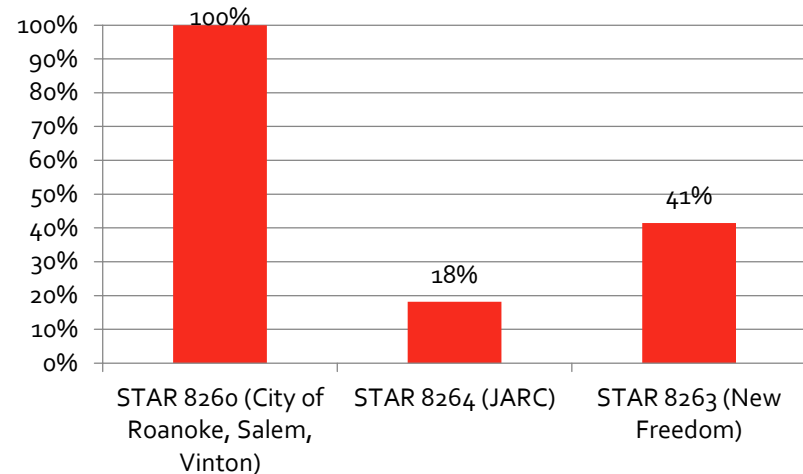


Figure 6.1-5: Source of Funding Subsidy for STAR Customers



## 6.2 Trips Database

Over the course of the two-year period between January 2012 and December 2013, 2,801 customers logged a total of 218,199 trips. Of those trips, 165,275 were on STAR and 52,924 on CORTRAN.

*Table 6.2-1 Number of RADAR Trips by Service*

| <b>SERVICE</b> | <b># TRIPS</b> | <b>% OF TOTAL TRIPS</b> |
|----------------|----------------|-------------------------|
| CORTRAN        | 52,924         | 24.25%                  |
| STAR           | 165,275        | 75.75%                  |
| <b>Total</b>   | <b>218,199</b> | <b>100.00%</b>          |

### 6.2.1 Trip Distance

By analyzing the trip distance, the average CORTRAN trip distance was 6.1 miles; the average STAR trip distance was 4.03 miles. A logged trip distance of “0” indicates that a bus was scheduled to pick up a passenger and the passenger was not there at the indicated date and time to take the trip. These trips still incur a cost and are referred to as “No Shows”. No Shows accounted for 9% (4,754) of CORTRAN trips and 7% (10,980) of STAR trips. The number of trips by trip distance is listed in the following table and chart.

Table 6.2-2: Number of CORTRAN Trips by Trip Distance

| MILEAGE RANGE | # TRIPS | % OF CORTRAN TRIPS |
|---------------|---------|--------------------|
| Unknown       | 199     | < 1%               |
| 0 (No Shows)  | 4,754   | 9%                 |
| >0<1          | 1,103   | 2%                 |
| 1<2           | 1,443   | 3%                 |
| 2<3           | 4,308   | 8%                 |
| 3<4           | 5,062   | 10%                |
| 4<5           | 5,956   | 11%                |
| 5<6           | 4,644   | 9%                 |
| 6<7           | 5,107   | 10%                |
| 7<8           | 4,916   | 9%                 |
| 8<9           | 2,835   | 5%                 |
| 9<10          | 5,127   | 10%                |
| 10<11         | 1,614   | 3%                 |
| 11<12         | 2,049   | 4%                 |
| 12<13         | 1,278   | 2%                 |
| 13<14         | 620     | 1%                 |
| 14<15         | 78      | < 1%               |
| 15<16         | 225     | 0%                 |
| 16<17         | 621     | 1%                 |
| 17<18         | 754     | 1%                 |
| 18<19         | 140     | < 1%               |
| 19<20         | 47      | < 1%               |
| 20<21         | 18      | < 1%               |
| 21<22         | 4       | < 1%               |
| 22<23         | 10      | < 1%               |

|              |               |             |
|--------------|---------------|-------------|
| 23<24        | 7             | < 1%        |
| 24<25        | 0             | 0%          |
| 25<26        | 2             | < 1%        |
| 26<27        | 2             | < 1%        |
| 27<28        | 1             | < 1%        |
| <b>TOTAL</b> | <b>52,924</b> | <b>100%</b> |

Figure 6.2-1: Percent of CORTRAN Trips by Trip Distance

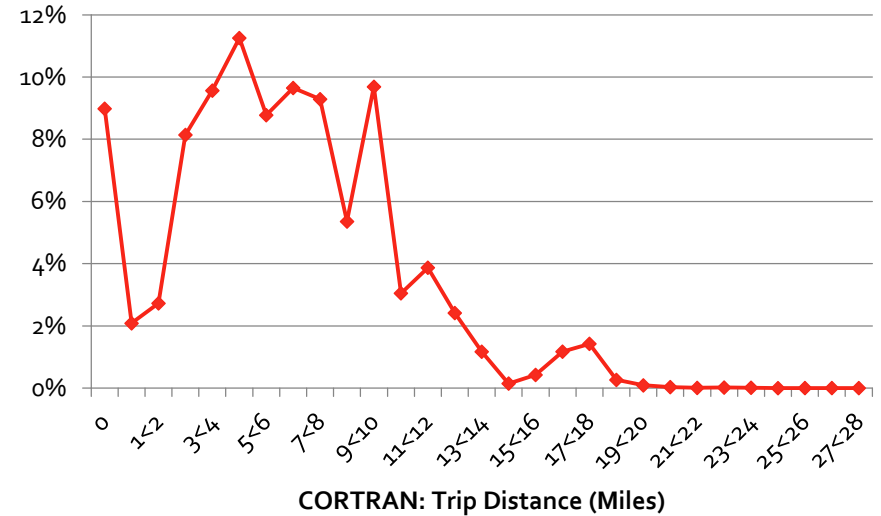
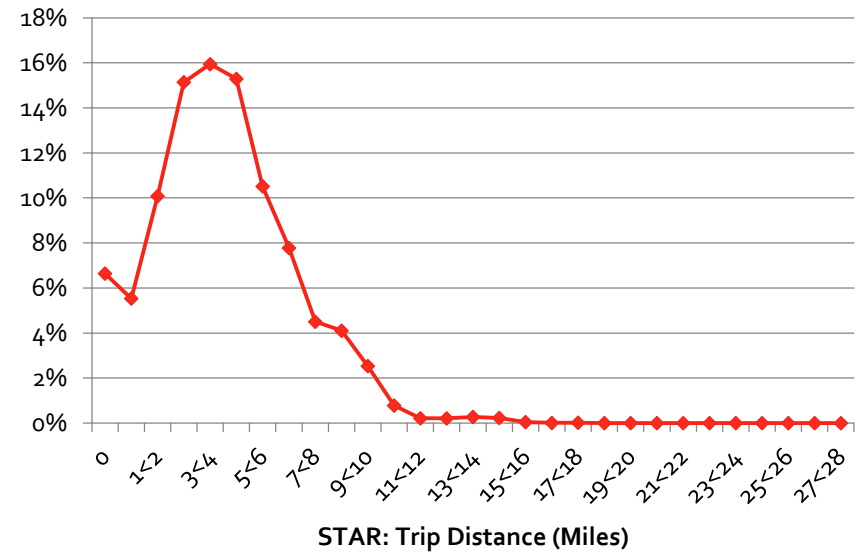


Table 6.2-3: Number of STAR Trips by Trip Distance

| <u>MILEAGE RANGE</u> | <u># TRIPS</u> | <u>% OF STAR TRIPS</u> |
|----------------------|----------------|------------------------|
| Unknown              | 251            | < 1%                   |
| 0 (No Shows)         | 10,980         | 7%                     |
| >0<1                 | 9,148          | 6%                     |
| 1<2                  | 16,663         | 10%                    |
| 2<3                  | 25,024         | 15%                    |
| 3<4                  | 26,346         | 16%                    |
| 4<5                  | 25,268         | 15%                    |
| 5<6                  | 17,381         | 11%                    |
| 6<7                  | 12,854         | 8%                     |
| 7<8                  | 7,440          | 5%                     |
| 8<9                  | 6,783          | 4%                     |
| 9<10                 | 4,188          | 3%                     |
| 10<11                | 1,290          | 1%                     |
| 11<12                | 355            | < 1%                   |
| 12<13                | 348            | < 1%                   |
| 13<14                | 452            | < 1%                   |
| 14<15                | 378            | < 1%                   |
| 15<16                | 76             | < 1%                   |
| 16<17                | 13             | < 1%                   |
| 17<18                | 31             | < 1%                   |
| 18<19                | 0              | 0%                     |
| 19<20                | 4              | < 1%                   |
| 20<21                | 0              | 0%                     |
| 21<22                | 0              | 0%                     |
| 22<23                | 0              | 0%                     |

|              |                |             |
|--------------|----------------|-------------|
| 23<24        | 2              | < 1%        |
| 24<25        | 0              | 0%          |
| 25<26        | 0              | 0%          |
| 26<27        | 0              | 0%          |
| 27<28        | 0              | 0%          |
| <b>TOTAL</b> | <b>165,275</b> | <b>100%</b> |

Figure 6.2-2: Percent of STAR Trips by Trip Distance





### 6.2.2 Trips by Day of the Week

The number of CORTRAN trips taken did not vary greatly by day of the week. CORTRAN service is available during weekdays only; the days with the most riders were Monday, Wednesday, and Friday.

The number of trips taken on STAR was much less on Saturdays than on weekdays. During the week, fewer trips were taken on Monday and trips tended to increase as the week progressed with the most number of trips being taken on Fridays. In general, the difference in the number of trips during the week by day of the week was relatively small.

Figure 6.2-3: Percent of CORTRAN Trips by Day of the Week

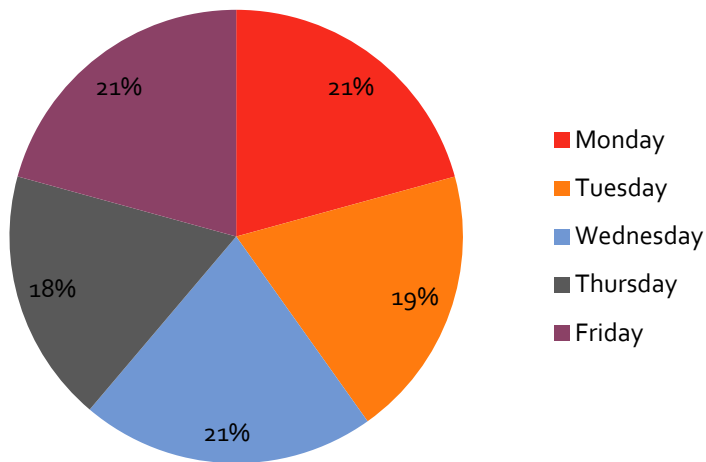
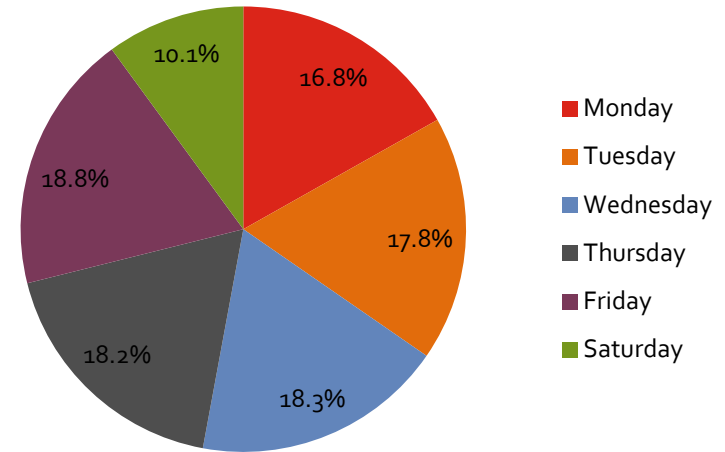


Figure 6.2-4: Percent of STAR Trips by Day of the Week



### 6.2.3 Trips by Mobility Type

Most trips taken on CORTRAN and STAR were made by people who are ambulatory (40%) followed by people in wheelchairs (25%) as shown in the following table. Customers in wheelchairs make up 58% of RADAR customers and took 25% of the trips. Ambulatory customers made up 19% of RADAR customers and took 40% of the trips. The distribution of trips by mobility type is shown in the following table.

Table 6.2-4: Number of Trips by Mobility Type

| <u>MOBILITY TYPE</u>         | <u># TRIPS ON CORTRAN</u> | <u>CORTRAN</u> | <u># TRIPS ON STAR</u> | <u>STAR</u> | <u>TOTAL NUMBER</u> | <u>TOTAL PERCENT</u> |
|------------------------------|---------------------------|----------------|------------------------|-------------|---------------------|----------------------|
| Ambulatory                   | <b>23,748</b>             | 44.87%         | <b>63,374</b>          | 38.34%      | <b>87,122</b>       | 39.93%               |
| Ambulatory/Visually Impaired | <b>1,848</b>              | 3.49%          | <b>6,565</b>           | 3.97%       | <b>8,413</b>        | 3.86%                |
| Cane                         | <b>5,699</b>              | 10.77%         | <b>22,974</b>          | 13.90%      | <b>28,673</b>       | 13.14%               |
| Crutches                     | <b>12</b>                 | 0.02%          | <b>1,195</b>           | 0.72%       | <b>1,207</b>        | 0.55%                |
| Visually Impaired            | <b>2,486</b>              | 4.70%          | <b>9,144</b>           | 5.53%       | <b>11,630</b>       | 5.33%                |
| Walker                       | <b>4,717</b>              | 8.91%          | <b>17,061</b>          | 10.32%      | <b>21,778</b>       | 9.98%                |
| Wheelchair                   | <b>12,566</b>             | 23.74%         | <b>43,012</b>          | 26.02%      | <b>55,578</b>       | 25.47%               |
| Wide Wheelchair              | <b>1,848</b>              | 3.49%          | <b>1,950</b>           | 1.18%       | <b>3,798</b>        | 1.74%                |
| Total                        | <b>52,924</b>             | 100.00%        | <b>165,275</b>         | 100.00%     | <b>218,199</b>      | 100.00%              |

### 6.2.4 Trips by Trip Purpose

People used RADAR to travel for a variety of reasons including education, employment, medical, nutrition, recreation, and shopping. Most people using both CORTRAN and STAR traveled for medical purposes (41%) followed by recreation (29%). Trips taken for employment made up 16% of all trips. Very few trips were taken for education, shopping or nutrition purposes. The following tables show the number of trips and percent of trips by trip purpose for each service.

Table 6.2-5: Number of Trips by Trip Purpose

|              | <u>EDUCATION</u> | <u>EMPLOYMENT</u> | <u>MEDICAL</u> | <u>NUTRITION</u> | <u>RECREATION</u> | <u>SHOPPING</u> | <u>PURPOSE UNKNOWN</u> | <u>GRAND TOTAL</u> |
|--------------|------------------|-------------------|----------------|------------------|-------------------|-----------------|------------------------|--------------------|
| CORTRAN      | 960              | 9,431             | 26,428         | 183              | 11,530            | 845             | 3,547                  | 52,924             |
| STAR         | 3,308            | 26,604            | 62,916         | 1,843            | 52,898            | 5,621           | 12,085                 | 165,275            |
| <b>Total</b> | <b>4,268</b>     | <b>36,035</b>     | <b>89,344</b>  | <b>2,026</b>     | <b>64,428</b>     | <b>6,466</b>    | <b>15,632</b>          | <b>218,199</b>     |

Table 6.2-6: Percent of Trips by Trip Purpose

|                    | <u>EDUCATION</u> | <u>EMPLOYMENT</u> | <u>MEDICAL</u> | <u>NUTRITION</u> | <u>RECREATION</u> | <u>SHOPPING</u> | <u>PURPOSE UNKNOWN</u> | <u>TOTAL</u>   |
|--------------------|------------------|-------------------|----------------|------------------|-------------------|-----------------|------------------------|----------------|
| CORTRAN            | 1.81%            | 17.82%            | 49.94%         | 0.35%            | 21.79%            | 1.60%           | 6.70%                  | 100.00%        |
| STAR               | 2.00%            | 16.10%            | 38.07%         | 1.12%            | 32.01%            | 3.40%           | 7.31%                  | 100.00%        |
| <b>Grand Total</b> | <b>1.96%</b>     | <b>16.51%</b>     | <b>40.95%</b>  | <b>0.93%</b>     | <b>29.53%</b>     | <b>2.96%</b>    | <b>7.16%</b>           | <b>100.00%</b> |

As shown in the following table, the number of trips taken by customer mobility type, 21% of medical trips were taken by customers in wheelchairs; 18% of medical trips were taken by ambulatory customers.

Table 6.2-7: Number of Trips Taken by Trip Purpose and Mobility Type

|                            | <u>EDUCATION</u> | <u>EMPLOYMENT</u> | <u>MEDICAL</u> | <u>NUTRITION</u> | <u>RECREATION</u> | <u>SHOPPING</u> | <u>TOTAL</u>   |
|----------------------------|------------------|-------------------|----------------|------------------|-------------------|-----------------|----------------|
| <b>CORTRAN</b>             | <b>960</b>       | <b>9,431</b>      | <b>26,428</b>  | <b>183</b>       | <b>11,530</b>     | <b>845</b>      | <b>49,377</b>  |
| Ambulatory                 | 429              | 6744              | 8461           | 75               | 5994              | 404             | 22,107         |
| Ambulatory/Visual Impaired | 1                | 570               | 602            | 12               | 535               | 53              | 1,773          |
| Cane                       | 152              | 39                | 2903           | 25               | 2053              | 142             | 5,314          |
| Crutches                   | 0                | 0                 | 11             | 0                | 0                 | 0               | 11             |
| Visually Impaired          | 231              | 1097              | 552            | 0                | 404               | 0               | 2,284          |
| Walker                     | 2                | 53                | 3841           | 9                | 675               | 37              | 4,617          |
| Wheelchair                 | 143              | 340               | 9644           | 53               | 1663              | 154             | 11,997         |
| Wide Wheelchair            | 2                | 588               | 414            | 9                | 206               | 55              | 1,274          |
| <b>STAR</b>                | <b>3,308</b>     | <b>26,604</b>     | <b>62,916</b>  | <b>1,843</b>     | <b>52,898</b>     | <b>5,621</b>    | <b>153,190</b> |
| Ambulatory                 | 749              | 16736             | 19712          | 819              | 18160             | 2297            | 58473          |
| Ambulatory/Visual Impaired | 62               | 1756              | 292            | 345              | 3634              | 309             | 6398           |
| Cane                       | 278              | 1843              | 10272          | 110              | 7608              | 911             | 21022          |
| Crutches                   | 5                | 570               | 456            | 7                | 98                | 2               | 1138           |
| Visually Impaired          | 240              | 3476              | 602            | 145              | 3977              | 324             | 8764           |
| Walker                     | 152              | 127               | 8077           | 80               | 6408              | 529             | 15373          |
| Wheelchair                 | 1822             | 2090              | 22424          | 313              | 12373             | 1160            | 40182          |
| Wide Wheelchair            | 0                | 6                 | 1081           | 24               | 640               | 89              | 1840           |
| <b>Total</b>               | <b>4,268</b>     | <b>36,035</b>     | <b>89,344</b>  | <b>2,026</b>     | <b>64,428</b>     | <b>6,466</b>    | <b>202,567</b> |

The Adult Care Center in Salem generated more than two-times the number of trips than any other location served by RADAR (13,829 trips). The next most popular pick-up location was the VA Medical Center in Salem which generated 6,119 trips. Dialysis and other medical centers also generated many RADAR trips. Clearview Manor in Vinton was the residential center that most generated trips, followed by Friendship Retirement Community in Roanoke County and the City of Roanoke.

Table 6.2-8: Highest RADAR Pick-Up Locations

| <u>PLACE</u>   | <u>LOCALITY</u> | <u>PICK-UP ADDRESS</u>    | <u>CORTRAN</u><br><u>TRIPS</u> | <u>STAR</u><br><u>TRIPS</u> | <u>TOTAL</u>   |
|--|-----------------|---------------------------|--------------------------------|-----------------------------|----------------|
| Adult Care Center  | Salem           | 2321 Roanoke Blvd         | 6,071                          | 7,758                       | 13829          |
| VA Medical Center  | Salem           | 1970 Roanoke Blvd         | 807                            | 5,312                       | 6119           |
| Northwest Dialysis   | City of Roanoke | 1326 7th St Ne            | 606                            | 2,654                       | 3260           |
| Lewis Gale Physicians  | Salem           | 1802 Braeburn Dr          | 857                            | 1,890                       | 2747           |
| Fresenius Medical Care Friendship Manor Inc                  | Roanoke County  | 331 Hershberger Rd Nw     | 3                              | 2,698                       | 2701           |
| Fresenius Medical Care Roanoke                               | Salem           | 2021 Apperson Dr          | 593                            | 1,951                       | 2544           |
| Clearview Manor  | Vinton          | 1150 Vinyard Rd           | 93                             | 2,351                       | 2444           |
| Carilion Clinic  | City of Roanoke | 3 Riverside Cir           | 704                            | 1,403                       | 2107           |
| Towers Shopping Center                                       | City of Roanoke | 614 Brandon Ave Sw        | 536                            | 1,525                       | 2061           |
| Valley View  | City of Roanoke | 4870 Valley View Blvd Nw  | 128                            | 1,857                       | 1985           |
| Fresenius Medical Care BMA-Crystal Spring                    | City of Roanoke | 404 McClanahan St Sw      | 104                            | 1,877                       | 1981           |
| Walmart  | Salem           | 1841 W Main St            | 64                             | 1,675                       | 1739           |
| YMCA   | Salem           | 1126 Kime Ln              | 387                            | 1,264                       | 1651           |
| Friendship Retirement Community                              | Roanoke County  | 327 Hershberger Rd        | 1,200                          | 380                         | 1580           |
| Lewis Gale Medical Center                                    | Salem           | 1900 Braeburn Dr          | 790                            | 750                         | 1540           |
| Veterans Care Center   | City of Roanoke | 1945 Roanoke Blvd         | 13                             | 1,513                       | 1526           |
| Goodwill Industries  | City of Roanoke | 2520 Melrose Ave Nw       | 5                              | 1,398                       | 1403           |
| Stratford Park   | City of Roanoke | 3780 Stratford Park Dr Sw | 0                              | 1,316                       | 1316           |
| Fairington Apartments  | City of Roanoke | 4930 Grandin Rd Sw        | 1                              | 1266                        | 1267           |
| Melrose Towers   | City of Roanoke | 3038 Melrose Ave Nw       | 56                             | 1,169                       | 1225           |
| Roanoke Valley Workforce Center                              | City of Roanoke | 1351 Hershberger Rd Nw    | 426                            | 793                         | 1219           |
| Friendship Retirement Community                              | City of Roanoke | 320 Hershberger Rd        | 64                             | 1,075                       | 1139           |
| All Star Bingo   | City of Roanoke | 3435 Melrose Ave Nw       | 292                            | 806                         | 1098           |
| Lakeside Plaza   | Salem           | 161 Electric Rd           | 39                             | 1,032                       | 1071           |
| <b>2012-2013 Total including all other pick-up addresses</b> |                 |                           | <b>52,924</b>                  | <b>165,275</b>              | <b>218,199</b> |

Figure 6.2-5: Number of Pick-Ups by Address on Both STAR and CORTAN (zoomed in)

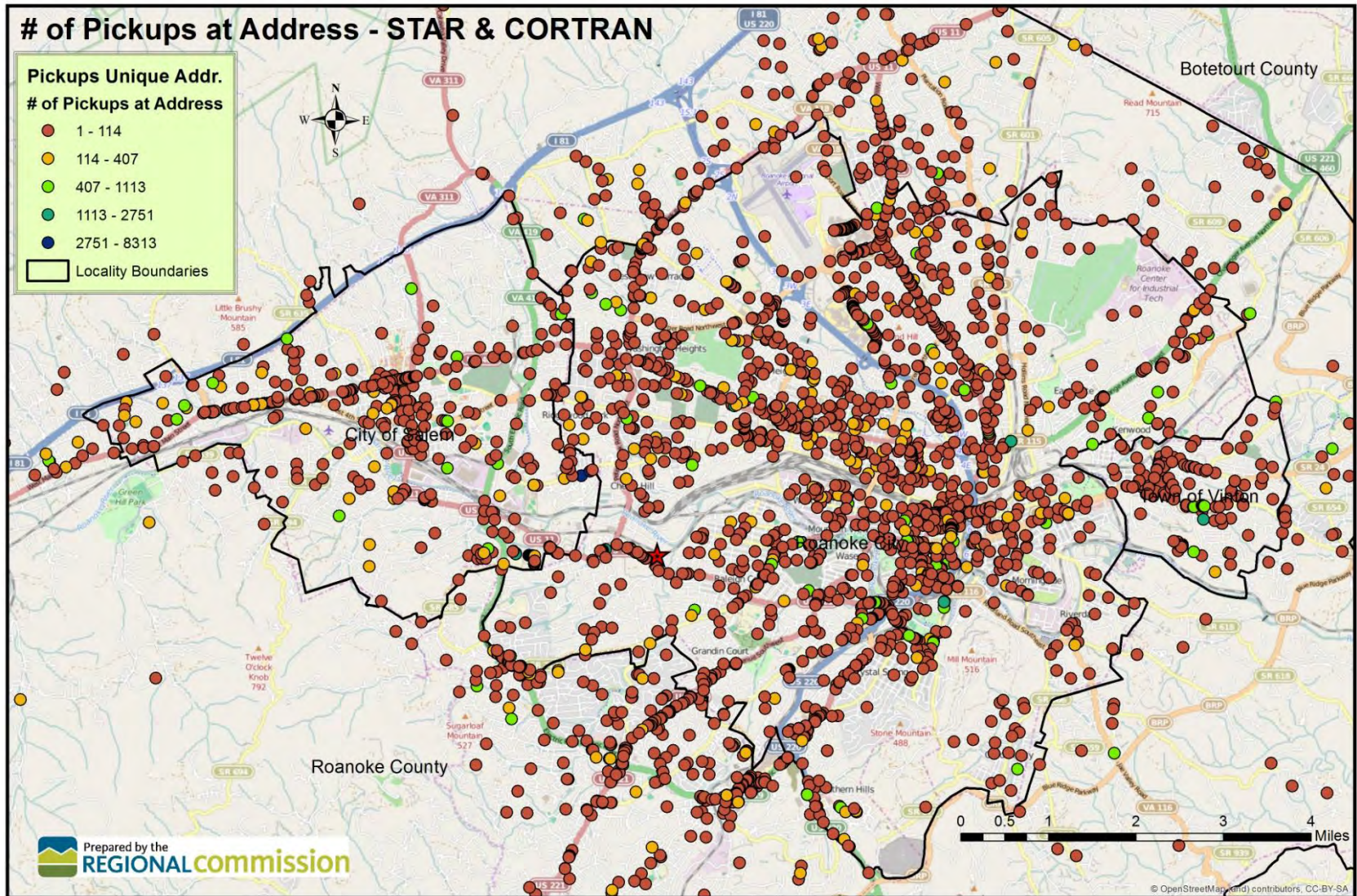
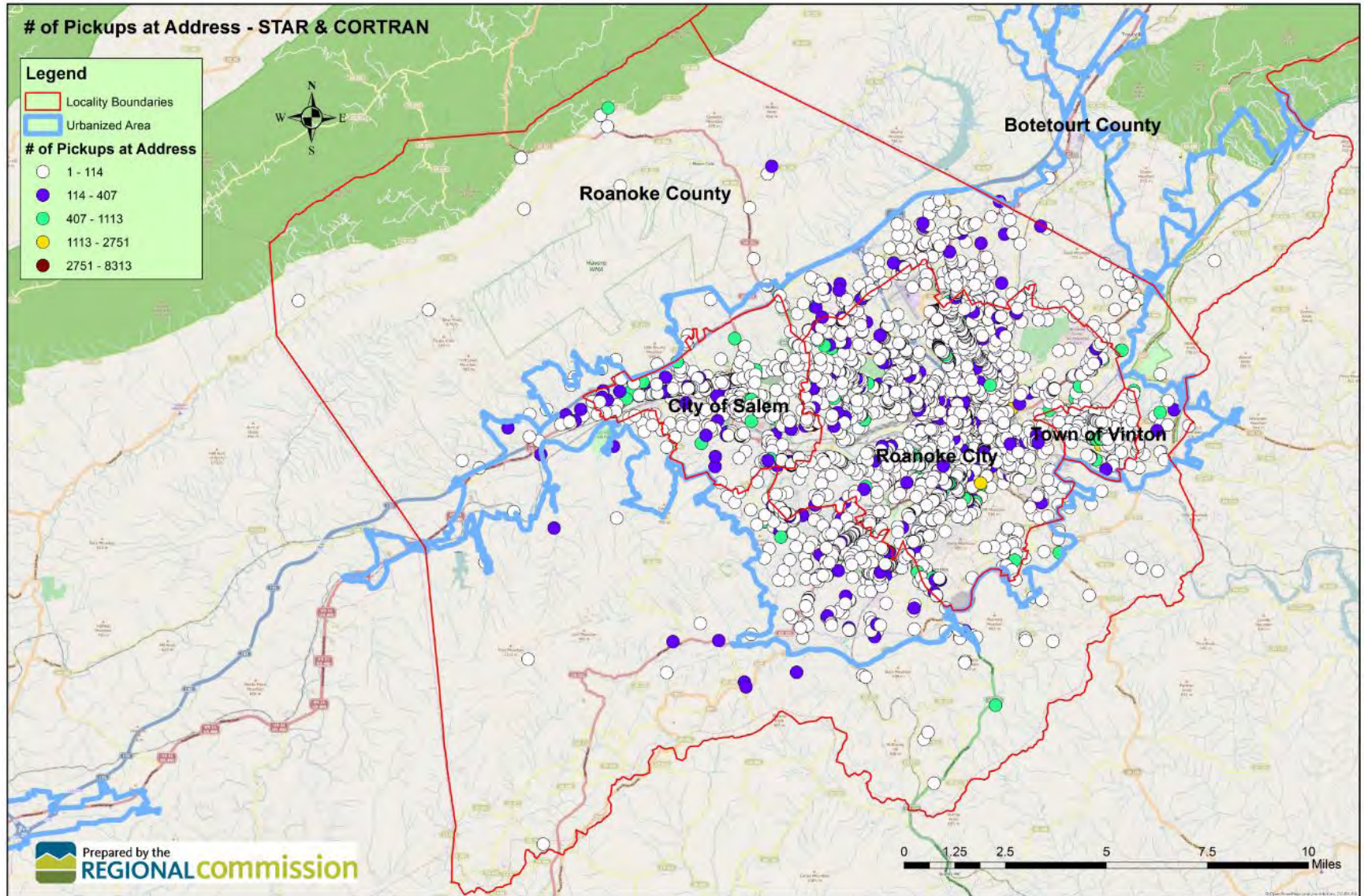


Figure 6.2-6: Number of Pick-Ups by Address on Both STAR and CORTAN (zoomed out)



The most popular drop-off locations are very similar to the pick-up locations as shown in the following table.

Table 6.2-9: Highest RADAR Drop-Off Locations

| <u>PLACE</u>                                | <u>LOCALITY</u> | <u>DROP-OFF ADDRESS</u>   | <u>CORTRAN TRIPS</u> | <u>STAR TRIPS</u> | <u>TOTAL</u> |
|---|-----------------|---------------------------|----------------------|-------------------|--------------|
| Adult Care Center                           | Salem           | 2321 Roanoke Blvd         | 5,162                | 8,313             | 13,475       |
| VA Medical Center                           | Salem           | 1970 Roanoke Blvd         | 710                  | 5,179             | 5,889        |
| Northwest Dialysis                          | City of Roanoke | 1326 7th St Ne            | 534                  | 2,587             | 3,121        |
| Fresenius Medical Care Friendship Manor Inc | Roanoke County  | 331 Hershberger Rd Nw     | 2                    | 2,751             | 2,753        |
| Clearview Manor                             | Vinton          | 1150 Vinyard Rd           | 93                   | 2,396             | 2,489        |
| Lewis Gale Physicians                       | Salem           | 1802 Braeburn Dr          | 670                  | 1,807             | 2,477        |
| Fresenius Medical Care Roanoke              | Salem           | 2021 Apperson Dr          | 562                  | 1,790             | 2,352        |
| Carilion Clinic                             | City of Roanoke | 3 Riverside Cir           | 636                  | 1,444             | 2,080        |
| Fresenius Medical Care BMA-Crystal Spring   | City of Roanoke | 404 Mc Clanahan St Sw     | 108                  | 1,902             | 2,010        |
| Valley View                                 | City of Roanoke | 4870 Valley View Blvd Nw  | 156                  | 1,637             | 1,793        |
| Friendship Retirement Community             | Roanoke County  | 327 Hershberger Rd Nw     | 1,277                | 406               | 1,683        |
| Walmart                                     | Salem           | 1841 W Main St            | 68                   | 1,606             | 1,674        |
| Towers Shopping Center                      | City of Roanoke | 614 Brandon Ave Sw        | 507                  | 1,113             | 1,620        |
| YMCA  | Salem           | 1126 Kime Ln              | 319                  | 1,246             | 1,565        |
| Veterans Care Center                        | City of Roanoke | 1945 Roanoke Blvd         | 9                    | 1,545             | 1,554        |
| Lewis Gale Medical Center                   | Salem           | 1900 Braeburn Dr          | 593                  | 793               | 1,386        |
| Stratford Park                              | City of Roanoke | 3780 Stratford Park Dr Sw | 0                    | 1,312             | 1,312        |
| Melrose Towers                              | City of Roanoke | 3038 Melrose Ave Nw       | 62                   | 1,244             | 1,306        |
| Goodwill Industries                         | City of Roanoke | 2520 Melrose Ave Nw       | 6                    | 1,293             | 1,299        |
| Fairington Apartments                       | City of Roanoke | 4930 Grandin Rd Sw        | 2                    | 1,264             | 1,266        |
| Roanoke Valley Workforce Center             | City of Roanoke | 1351 Hershberger Rd Nw    | 428                  | 793               | 1,221        |
| Planet Fitness                              | City of Roanoke | 672 Brandon Ave Sw        | 1                    | 1,197             | 1,198        |
| Friendship Retirement Community             | City of Roanoke | 320 Hershberger Rd Nw     | 62                   | 1,081             | 1,143        |
| Virginia Western Community College          | City of Roanoke | 3095 Colonial Ave Sw      | 358                  | 774               | 1,132        |



| <u>PLACE</u>  | <u>LOCALITY</u> | <u>DROP-OFF ADDRESS</u> | <u>CORTRAN TRIPS</u> | <u>STAR TRIPS</u> | <u>TOTAL</u>   |
|---|-----------------|-------------------------|----------------------|-------------------|----------------|
| All Star Bingo  | City of Roanoke | 3435 Melrose Ave Nw     | 290                  | 797               | 1,087          |
| Kroger  | Salem           | 1477 W Main St          | 378                  | 687               | 1,065          |
| Lakeside Plaza  | Salem           | 161 Electric Rd         | 35                   | 1,007             | 1,042          |
| Blue Ridge Village  | City of Roanoke | 2744 Melrose Ave Nw     | 43                   | 965               | 1,008          |
| <b>2012-2013 Grand Total including all other drop-off addresses</b> |                 |                         | <b>52,924</b>        | <b>165,275</b>    | <b>218,199</b> |

The following map shows the distribution of drop-offs around the region.

Figure 6.2-7: Map of Number of Drop-Offs by Address on Both STAR and CORTAN (zoomed in)

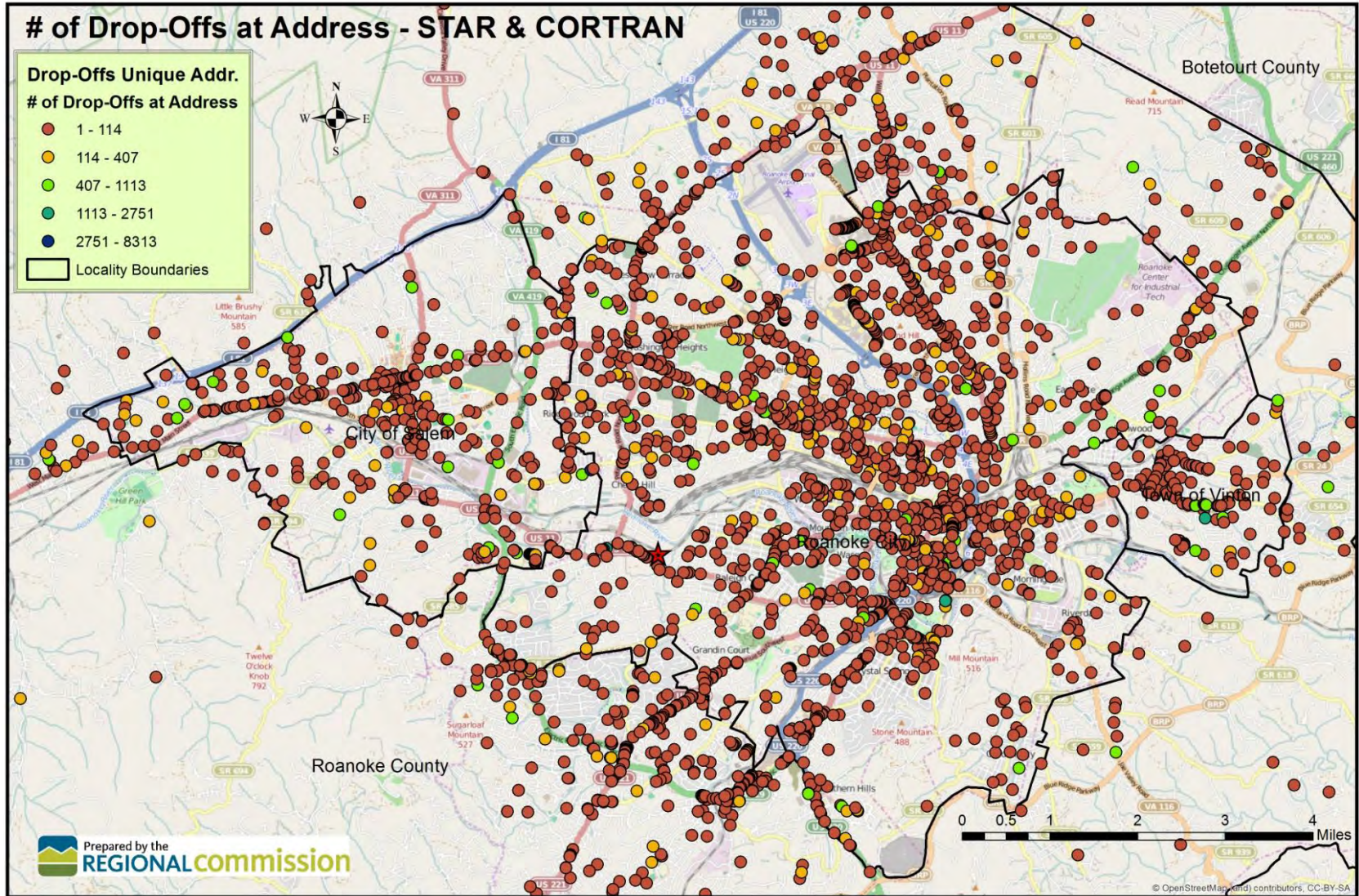
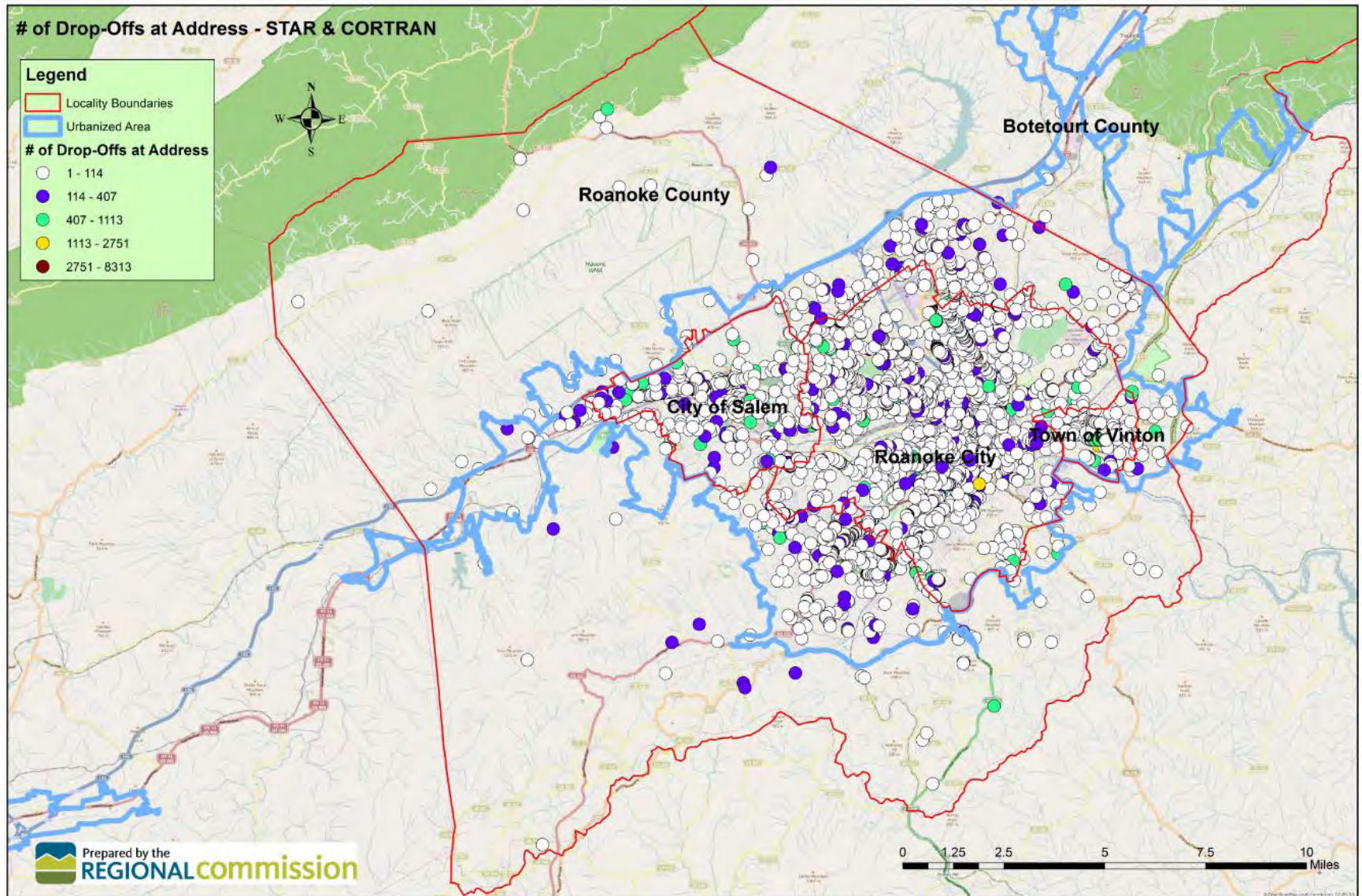


Figure 6.2-8: Map of Number of Drop-Offs by Address on Both STAR and CORTAN (zoomed out)



**6.2.4.1 Adult Care Center Highlight**

With the Adult Care Center in Salem being the largest RADAR trip generator in the region, further analysis was conducted for this location. CORTAN and STAR trips were analyzed separately, and the following maps show the respective service pick-ups and drop-offs.

Figure 6.2-9: Map of CORTAN Trips from Pick-Up Locations to the Adult Care Center (zoomed in)

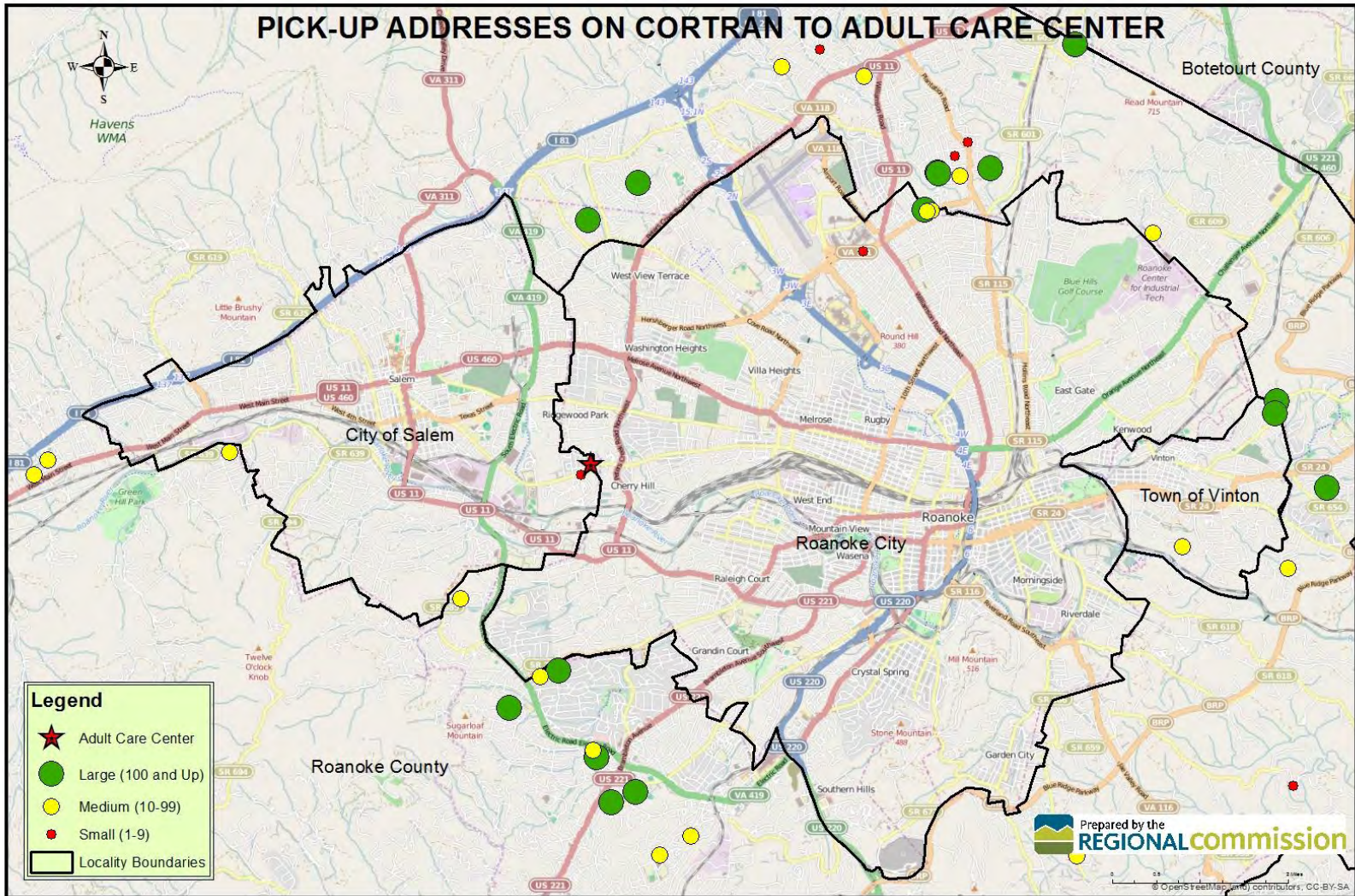


Figure 6.2-10: Map of CORTAN Trips from Pick-Up Locations to the Adult Care Center (zoomed out)

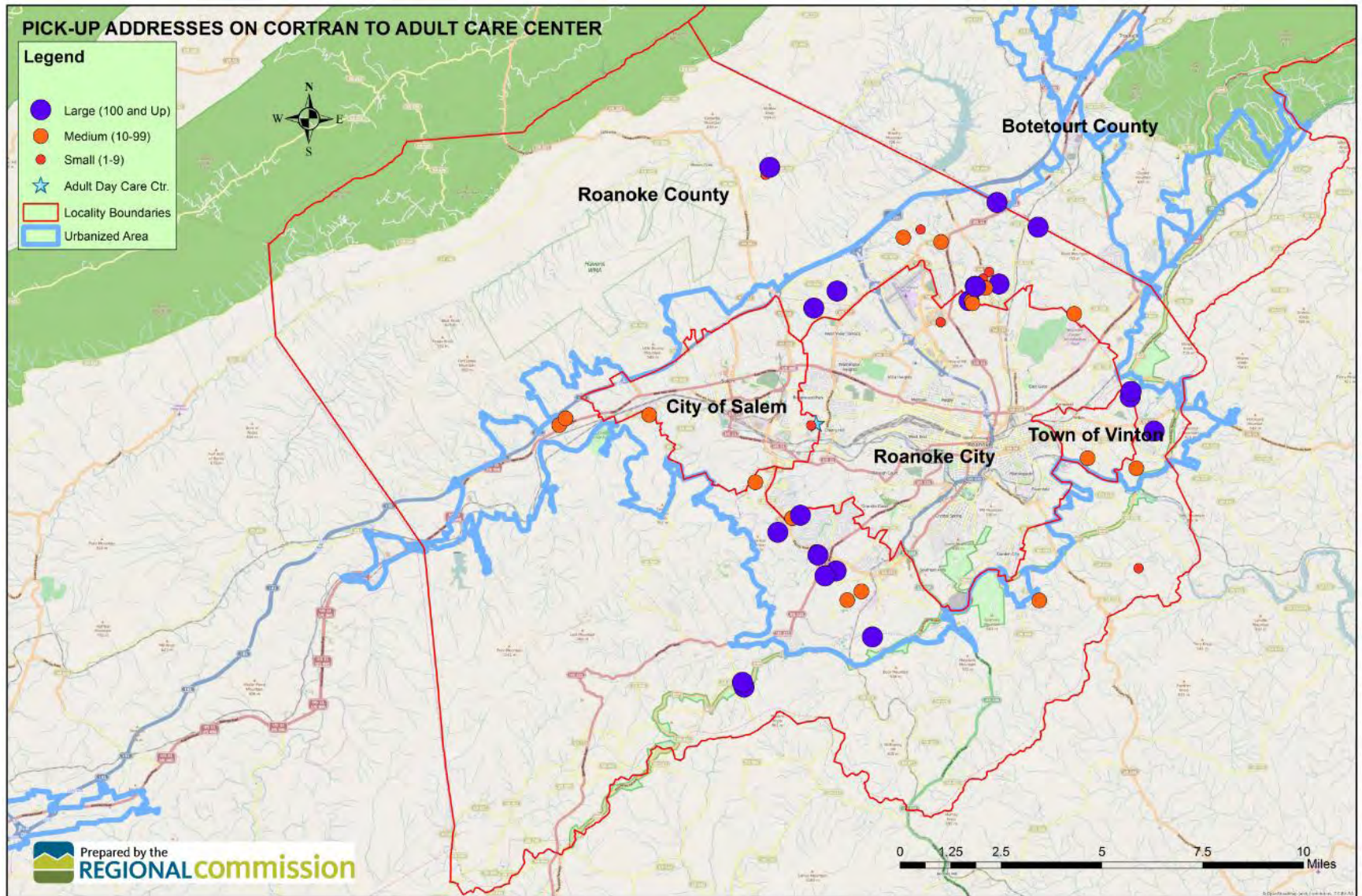


Figure 6.2-11: Map of STAR Trips from Pick-Up Locations to the Adult Care Center

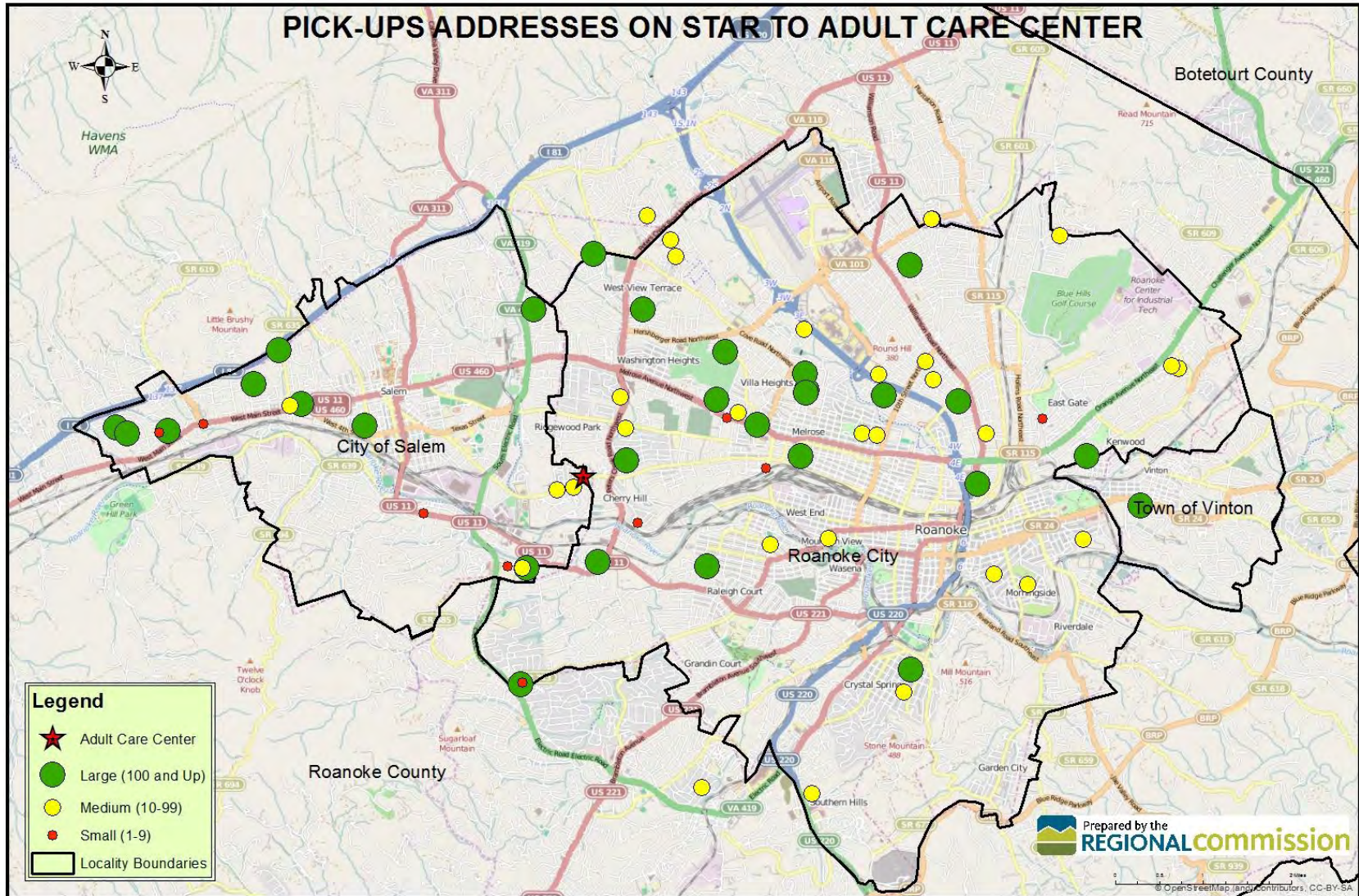


Figure 6.2-12: Map of CORTRAN Trips from Adult Care Center to Drop-Off Locations (zoomed in)

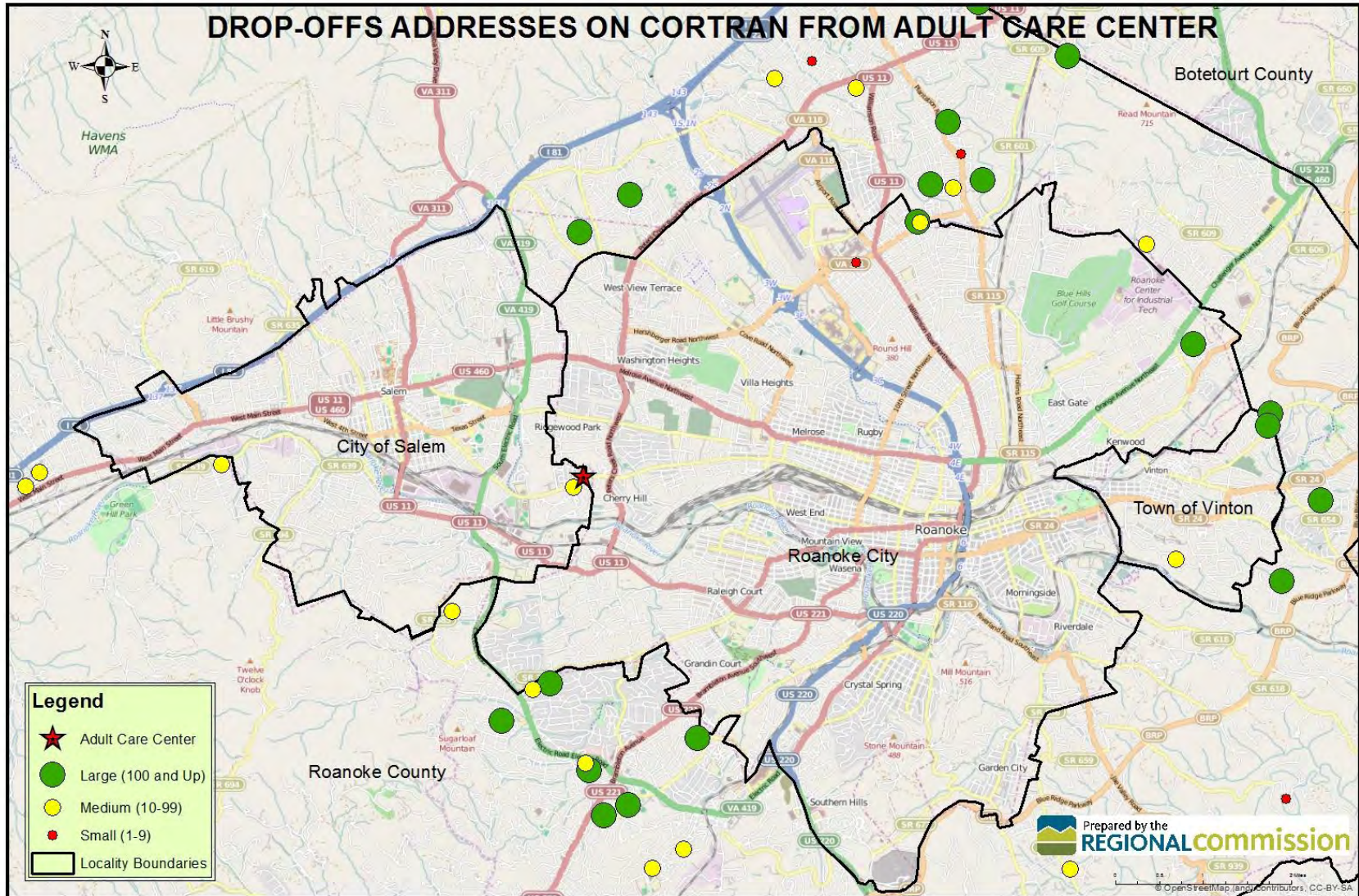


Figure 6.2-13: Map of CORTRAN Trips from Adult Care Center to Drop-Off Locations (zoomed out)

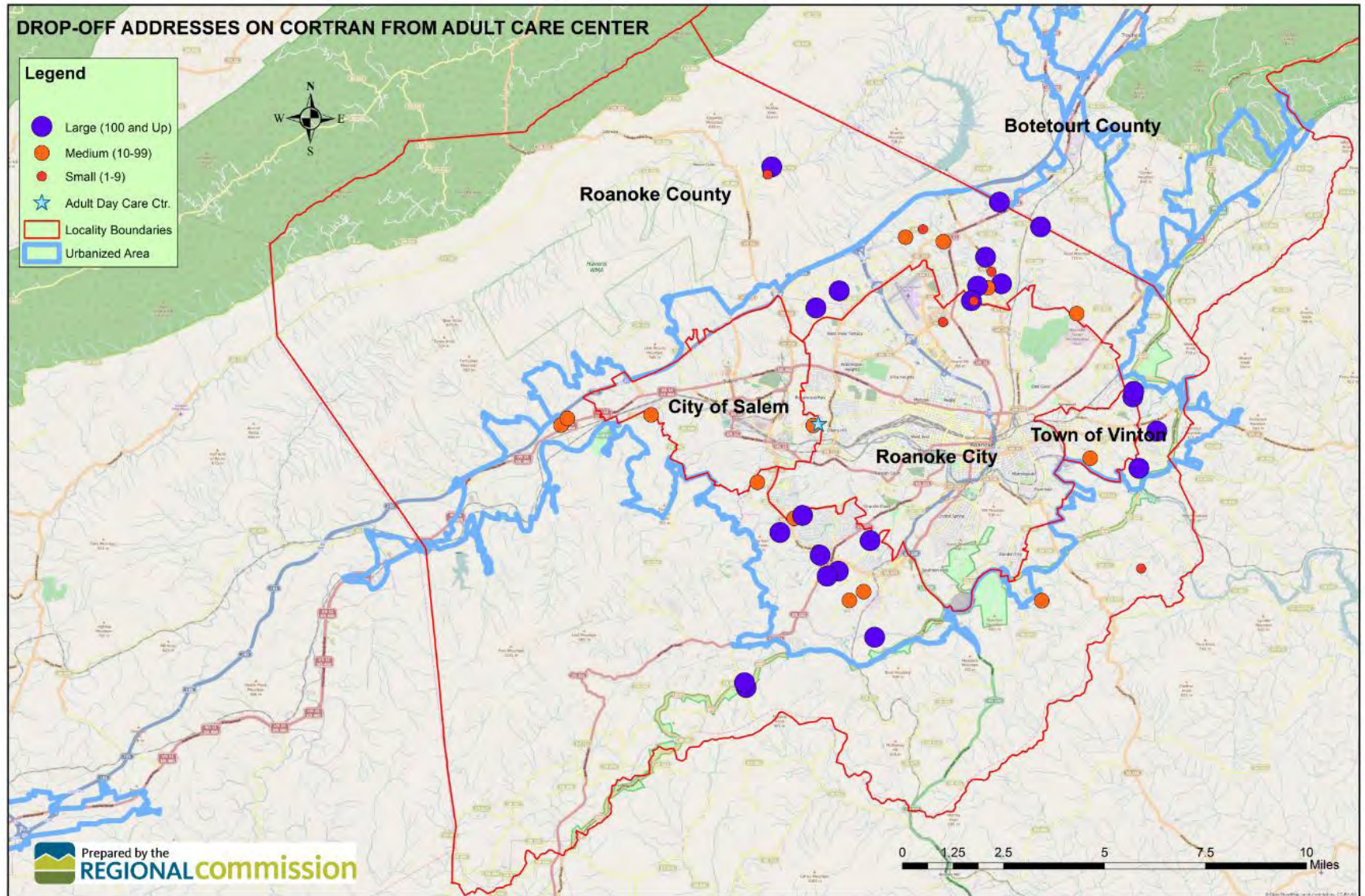
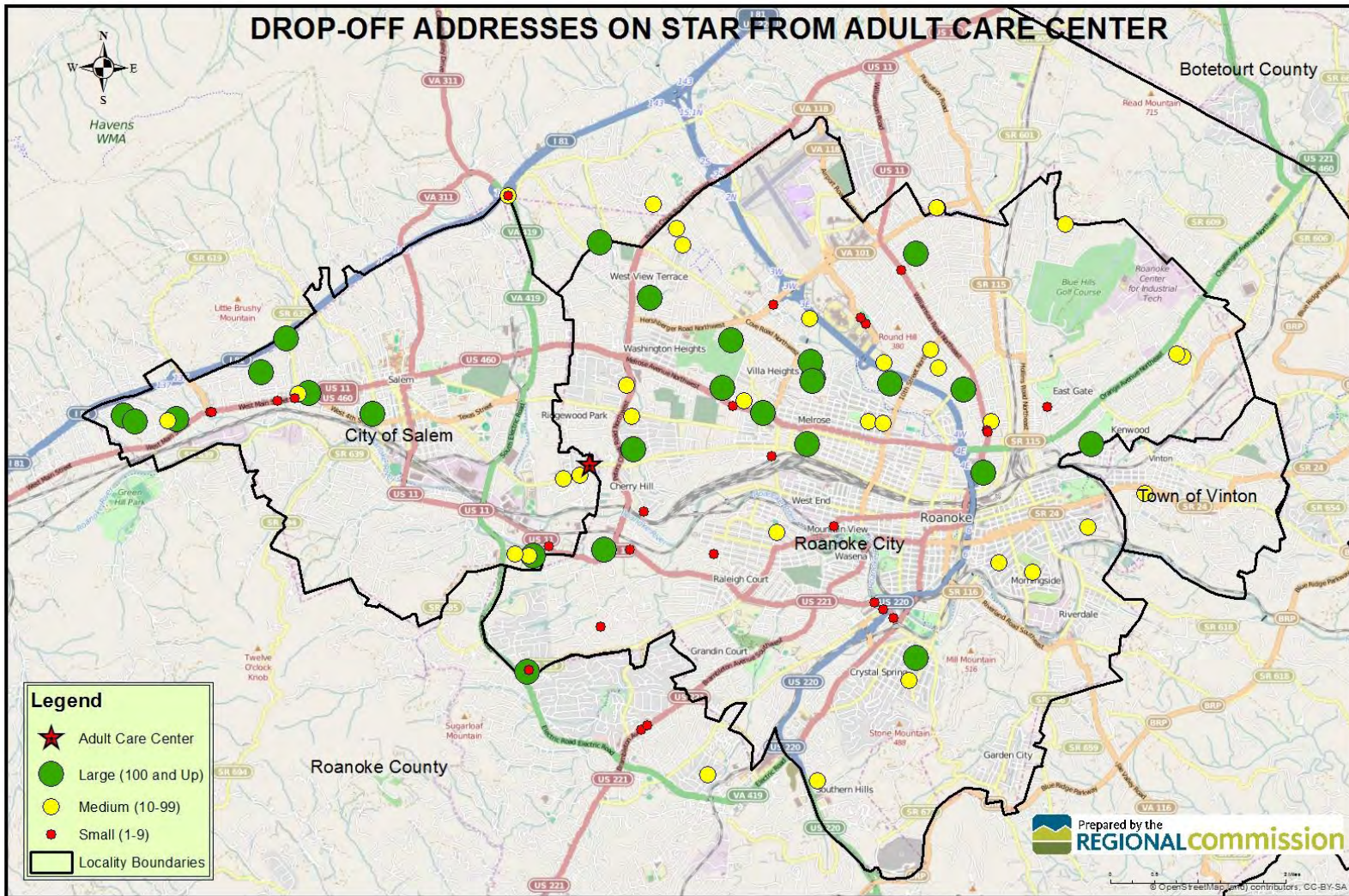




Figure 6.2-14: Map of STAR Trips from Adult Care Center to Drop-Off Locations

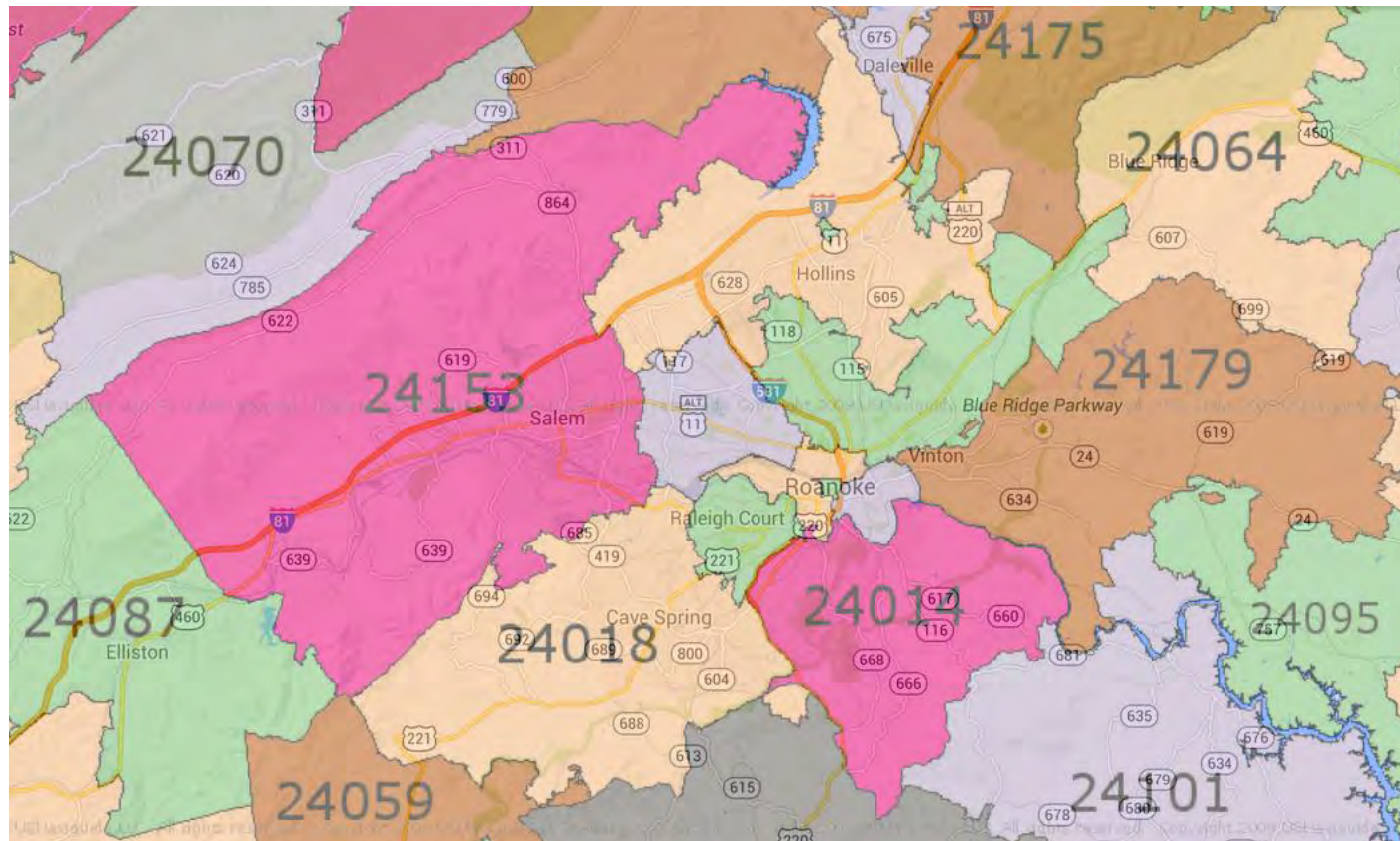


The maps associated with the Adult Care Center indicate that many trips are generated by relatively few customers compared to the many dots seen on the maps of all origins and destinations. The Adult Care Center provides daytime care for dependent adults. Services are available from Monday – Friday from 7:00 a.m. – 6:00 p.m. Participants register to attend a minimum of two days per week up to five days per week.

### 6.2.5 Trips by Zip Code

Trips were also analyzed by the zip code in which they originated and the zip code of the destination. A map of the region's zip codes is shown below. The two highest trip generators (Adult Care Center and the VA Medical Center) are located in Salem in the 24153 zip code; this is why along with other smaller trip generators, 24153 is the highest trip generating zip code with 28% of all RADAR trips going to or coming from 24153. As seen in the map, the 24153 zip code is the largest in the region. However, as shown in the previous maps, the origins and destinations of most trips in 24153 are from within the City of Salem limits and the Richfield Retirement Community area of Roanoke County.

Figure 6.2-15: Map of Zip Codes for the Roanoke Valley



Zip Code information on this map as of January, 2010. Source: USNaviguide LLC. Household counts as of 2008 estimate. Source: [US Census Bureau](#). County data as of 2009. Source: [Census Tiger program](#).

The following tables and graphs show the number and percent of pick-ups and drop-offs that occurred within each zip code.

Table 6.2-10: Number of RADAR Pick-Ups by Zip Code

| <u>PICK-UP ZIP CODE</u> | <u>% OF TRIPS</u> | <u>TOTAL</u>   | <u>CORTRAN TRIPS</u> | <u>STAR TRIPS</u> |
|-------------------------|-------------------|----------------|----------------------|-------------------|
| 24011                   | 1%                | 1,587          | 68                   | 1,519             |
| 24012                   | 17%               | 36,978         | 6,924                | 30,054            |
| 24013                   | 3%                | 5,711          | 355                  | 5,356             |
| 24014                   | 8%                | 16,443         | 3,842                | 12,601            |
| 24015                   | 6%                | 12,349         | 514                  | 11,835            |
| 24016                   | 8%                | 16,512         | 2,949                | 13,563            |
| 24017                   | 12%               | 26,481         | 1,415                | 25,066            |
| 24018                   | 10%               | 21,055         | 10,218               | 10,837            |
| 24019                   | 4%                | 8,461          | 7,062                | 1,399             |
| 24059                   | 0%                | 32             | 32                   | 0                 |
| 24065                   | 0%                | 36             | 36                   | 0                 |
| 24070                   | 0%                | 685            | 685                  | 0                 |
| 24081                   | 0%                | 2              | 2                    | 0                 |
| 24101                   | 0%                | 3              | 0                    | 3                 |
| 24153                   | 28%               | 61,681         | 15,380               | 46,301            |
| 24179                   | 5%                | 10,183         | 3,442                | 6,741             |
| <b>TOTALS</b>           | <b>100%</b>       | <b>218,199</b> | <b>52,924</b>        | <b>165,275</b>    |

Figure 6.2-16: Percent of Total Trips by Pick-Up Zip Code

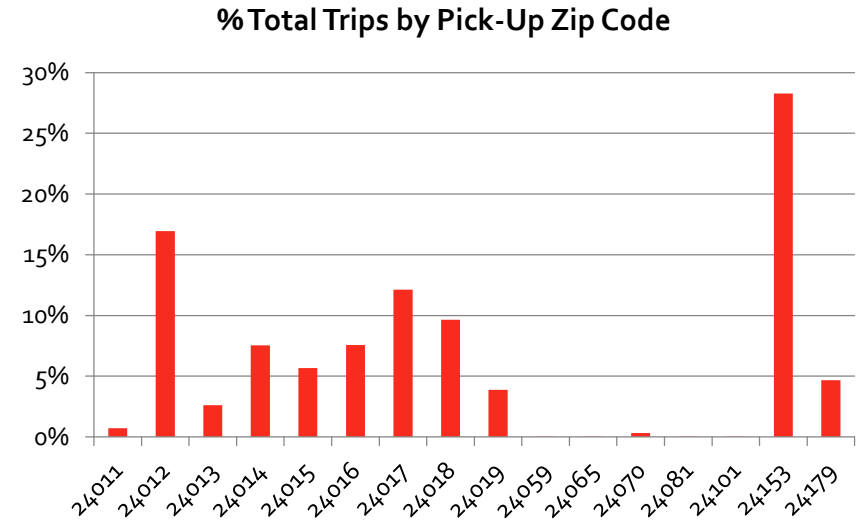
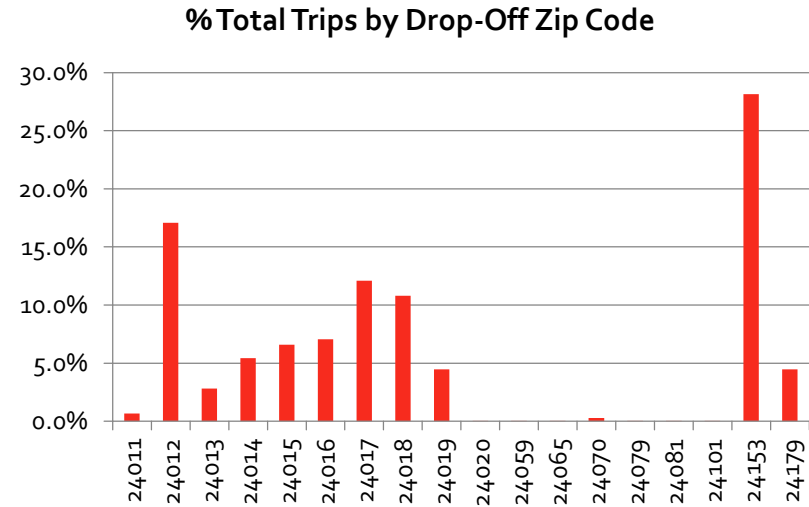


Table 6.2-11: Number of RADAR Drop-Offs by Zip Code

| <u>DROP-OFF ZIP CODE</u> | <u>% OF TRIPS</u> | <u>TOTAL TRIPS</u> | <u>CORTRAN TRIPS</u> | <u>STAR TRIPS</u> |
|--------------------------|-------------------|--------------------|----------------------|-------------------|
| 24011                    | 0.7%              | 1,463              | 87                   | 1,376             |
| 24012                    | 17.1%             | 37,267             | 7,294                | 29,973            |
| 24013                    | 2.8%              | 6,148              | 476                  | 5,672             |
| 24014                    | 5.4%              | 11,878             | 3,086                | 8,792             |
| 24015                    | 6.6%              | 14,398             | 1,373                | 13,025            |
| 24016                    | 7.0%              | 15,373             | 2,379                | 12,994            |
| 24017                    | 12.1%             | 26,414             | 1,439                | 24,975            |
| 24018                    | 10.8%             | 23,593             | 10,757               | 12,836            |
| 24019                    | 4.5%              | 9,743              | 8,031                | 1,712             |
| 24020                    | 0.0%              | 12                 | 12                   | 0                 |
| 24059                    | 0.0%              | 36                 | 36                   | 0                 |
| 24065                    | 0.0%              | 92                 | 92                   | 0                 |
| 24070                    | 0.3%              | 639                | 639                  | 0                 |
| 24079                    | 0.0%              | 1                  | 0                    | 1                 |
| 24081                    | 0.0%              | 1                  | 1                    | 0                 |
| 24101                    | 0.0%              | 4                  | 0                    | 4                 |
| 24153                    | 28.1%             | 61,387             | 14,112               | 47,275            |
| 24179                    | 4.5%              | 9,750              | 3,110                | 6,640             |
| <b>TOTALS</b>            | <b>100%</b>       | <b>218,199</b>     | <b>52,924</b>        | <b>165,275</b>    |

Figure 6.2-17: Percent of Total Trips by Pick-Up Zip Code



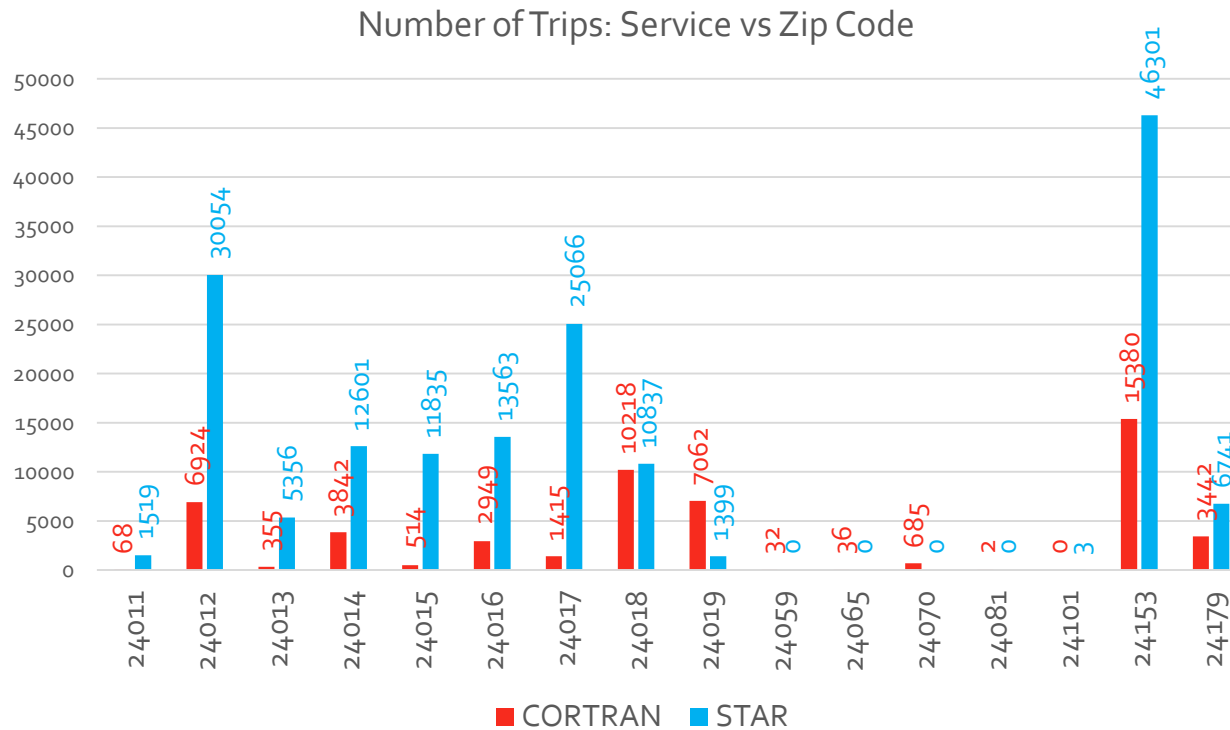
After 24153, the next highest zip code trip generator is 24012 with 17% of all trips starting or ending in the 24012 zip code. Additionally, 24153 is the highest generator of trips with an origin and a destination in the same zip code followed by 24012. The following table is a matrix with the trip origin zip code in the column on the left and the trip destination zip code in the row across the top. By matching up the origin zip code with a destination zip code, the number of trips that went from one zip code to the other is provided.

Table 6.2-12: Matrix of Pick-up Zip Code vs. Drop-off Zip Code

| PICK-UP ZIP CODE IN LEFT COLUMN; DROP-OFF ZIP CODE IN TOP ROW |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |        |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
|   | 24011 | 24012 | 24013 | 24014 | 24015 | 24016 | 24017 | 24018 | 24019 | 24020 | 24059 | 24065 | 24070 | 24079 | 24081 | 24101 | 24153 | 24179 | TOTAL  |
| 24011   | 22    | 227   | 46    | 467   | 113   | 98    | 229   | 161   | 21    |       |       |       |       |       |       |       | 185   | 18    | 1587   |
| 24012   | 206   | 10020 | 1303  | 1692  | 3641  | 3219  | 4721  | 2966  | 1856  |       |       |       | 145   |       |       |       | 6110  | 1099  | 36978  |
| 24013   | 52    | 1339  | 85    | 613   | 182   | 469   | 470   | 305   | 90    |       |       |       |       |       |       |       | 1487  | 619   | 5711   |
| 24014   | 436   | 2456  | 703   | 1285  | 2477  | 989   | 2205  | 1878  | 274   |       | 1     | 1     | 21    |       |       | 3     | 2898  | 816   | 16443  |
| 24015   | 175   | 2917  | 143   | 764   | 1908  | 1135  | 1027  | 1819  | 395   |       |       |       |       |       |       |       | 1894  | 172   | 12349  |
| 24016   | 143   | 3772  | 474   | 776   | 1130  | 1374  | 2137  | 1676  | 387   |       |       |       | 407   |       |       |       | 3078  | 1158  | 16512  |
| 24017   | 177   | 5054  | 543   | 1833  | 1250  | 2245  | 3826  | 1733  | 1198  |       |       | 1     | 31    |       |       |       | 8406  | 184   | 26481  |
| 24018   | 98    | 2635  | 550   | 1027  | 1504  | 1374  | 1598  | 4076  | 697   | 12    | 16    | 1     | 14    |       |       |       | 6880  | 573   | 21055  |
| 24019   | 19    | 1603  | 75    | 260   | 279   | 409   | 1151  | 437   | 647   |       |       |       | 2     |       |       |       | 3140  | 439   | 8461   |
| 24059   |       |       |       | 1     |       |       |       | 15    |       |       |       |       |       |       |       |       | 16    |       | 32     |
| 24065   |       |       |       |       |       |       | 3     | 2     |       |       |       |       |       |       |       |       | 31    |       | 36     |
| 24070   | 1     | 213   |       | 52    | 13    | 342   | 2     | 38    |       |       |       |       |       |       |       |       | 24    |       | 685    |
| 24081   |       | 1     |       |       |       |       |       |       |       |       |       |       |       |       |       |       | 1     |       | 2      |
| 24101   |       | 1     |       |       |       |       |       | 1     |       |       |       |       |       |       |       |       |       | 1     | 3      |
| 24153   | 117   | 5984  | 1524  | 2496  | 1692  | 2593  | 8859  | 7625  | 3320  |       | 19    | 89    | 19    | 1     | 1     | 1     | 25044 | 2297  | 61681  |
| 24179   | 17    | 1045  | 702   | 612   | 209   | 1126  | 186   | 861   | 858   |       |       |       |       |       |       |       | 2193  | 2374  | 10183  |
| Total   | 1463  | 37267 | 6148  | 11878 | 14398 | 15373 | 26414 | 23593 | 9743  | 12    | 36    | 92    | 639   | 1     | 1     | 4     | 61387 | 9750  | 218199 |

The following two graphs show the number of trips taken on CORTRAN or STAR by zip code.

Figure 6.2-18: Number of Trips by Service and Zip Code



### 6.2.6 Trips by Funding Source

Federal funding programs for transit changed in MAP-21 and are still to be determined for the next federal transportation legislation. MAP-21 incorporated JARC-funded activities into traditional urban (Section 5307) and rural (Section 5311) funding without adding funds to the respective formulas. Activities previously funded via New Freedom were identified in MAP-21 to instead be funded through Section 5310 funding. The Roanoke Valley receives a designated amount of Section 5310 funds each year for transportation services for seniors and people with disabilities.

As shown in the following table, Roanoke County subsidized 42% of CORTRAN trips. Federal sources through JARC, New Freedom and Rural transportation (Section 5311) funded 58% of CORTRAN trips. Of those trips, 19% were subsidized with JARC funds which will be completely spent by the year 2017.

The City of Roanoke, City of Salem, and the Town of Vinton subsidized 121,004 trips during the two-year period, which is 73% of all STAR trips. Subsidy for the remaining trips came from JARC and New Freedom funds. Similar to CORTRAN, JARC funds subsidized 20% of STAR trips.

Table 6.2-13: Number of Trips by Funding Source (as scheduled)

|  | <u>CORTRAN</u> |            | <u>STAR</u>    |            | <u>TOTAL</u>   |            |
|--|----------------|------------|----------------|------------|----------------|------------|
| Funding Sources                                      | # of Trips     | % of Trips | # of Trips     | % of Trips | # of Trips     | % of Trips |
| CORTRAN 7030 (Roanoke County – Urban)                | <b>22,414</b>  | 42.35%     | <b>0</b>       | 0.00%      | <b>22,414</b>  | 10.27%     |
| CORTRAN 7034 (JARC)                                  | <b>10,284</b>  | 19.43%     | <b>0</b>       | 0.00%      | <b>10,284</b>  | 4.71%      |
| CORTRAN 7033(NEW FREEDOM)                            | <b>12,126</b>  | 22.91%     | <b>0</b>       | 0.00%      | <b>12,126</b>  | 5.56%      |
| CORTRAN SECT 18 7032 (Rural FTA 5311/Roanoke County) | <b>8,100</b>   | 15.30%     | <b>0</b>       | 0.00%      | <b>8,100</b>   | 3.71%      |
| ROANOKE COUNTY                                       | <b>0</b>       | 0.00%      | <b>7</b>       | 0.00%      | <b>7</b>       | 0.00%      |
|  |                |            |                |            |                |            |
| STAR 8260 (City of Roanoke, City of Salem, Vinton)   | <b>0</b>       | 0.00%      | <b>121,004</b> | 73.21%     | <b>121,004</b> | 55.46%     |
| STAR 8264 (JARC)                                     | <b>0</b>       | 0.00%      | <b>34,064</b>  | 20.61%     | <b>34,064</b>  | 15.61%     |
| STAR 8263 (New Freedom)                              | <b>0</b>       | 0.00%      | <b>10,200</b>  | 6.17%      | <b>10,200</b>  | 4.67%      |
| <b>Total</b>   | <b>52,924</b>  | 100.00%    | <b>165,275</b> | 100.00%    | <b>218,199</b> | 100.00%    |



Table 6.2-14: Number of Trips by Funding Source (actual trips completed and billed)

|  | <u>CORTRAN</u> |            | <u>STAR</u>    |            | <u>TOTAL</u>   |            |
|--|----------------|------------|----------------|------------|----------------|------------|
| Funding Sources                                      | # of Trips     | % of Trips | # of Trips     | % of Trips | # of Trips     | % of Trips |
| CORTRAN 7030 (Roanoke County – Urban)                | <b>19,383</b>  | 44.82%     | <b>0</b>       | 0.00%      | <b>19,383</b>  | 10.80%     |
| CORTRAN 7034 (JARC)                                  | <b>8,511</b>   | 19.68%     | <b>0</b>       | 0.00%      | <b>8,511</b>   | 4.74%      |
| CORTRAN 7033(NEW FREEDOM)                            | <b>4,509</b>   | 10.43%     | <b>0</b>       | 0.00%      | <b>9,509</b>   | 2.52%      |
| CORTRAN SECT 18 7032 (Rural FTA 5311/Roanoke County) | <b>10,846</b>  | 25.08%     | <b>0</b>       | 0.00%      | <b>10,846</b>  | 6.04%      |
| ROANOKE COUNTY                                       | <b>0</b>       | 0.00%      | <b>7</b>       | 0.00%      | <b>7</b>       | 0.00%      |
|  |                |            |                |            |                |            |
| STAR 8260 (City of Roanoke, City of Salem, Vinton)   | <b>0</b>       | 0.00%      | <b>102,609</b> | 75.28%     | <b>102,609</b> | 57.15%     |
| STAR 8264 (JARC)                                     | <b>0</b>       | 0.00%      | <b>27,864</b>  | 20.45%     | <b>27,864</b>  | 15.52%     |
| STAR 8263 (New Freedom)                              | <b>0</b>       | 0.00%      | <b>5,834</b>   | 4.28%      | <b>5,834</b>   | 3.25%      |
| <b>Total</b>   | <b>43,249</b>  | 100.00%    | <b>136,307</b> | 100.00%    | <b>179,556</b> | 100.00%    |

The differences between Table 6.2-13 and Table 6.2-14 reflects the number of trips scheduled but then canceled over the two-year period. The differences in the total trips show that 82% of scheduled trips are completed as planned; the same percentage is true for either CORTRAN or STAR service individually.

The following charts and the following tables and information reflect the trips as scheduled, not the actual number completed and billed.

Figure 6.2-19: Percent of CORTRAN and STAR Trips by Funding Source

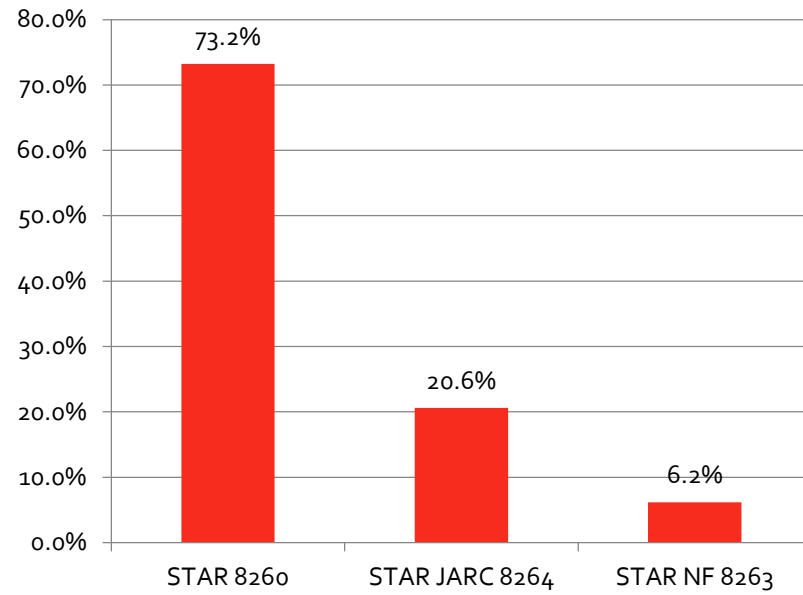
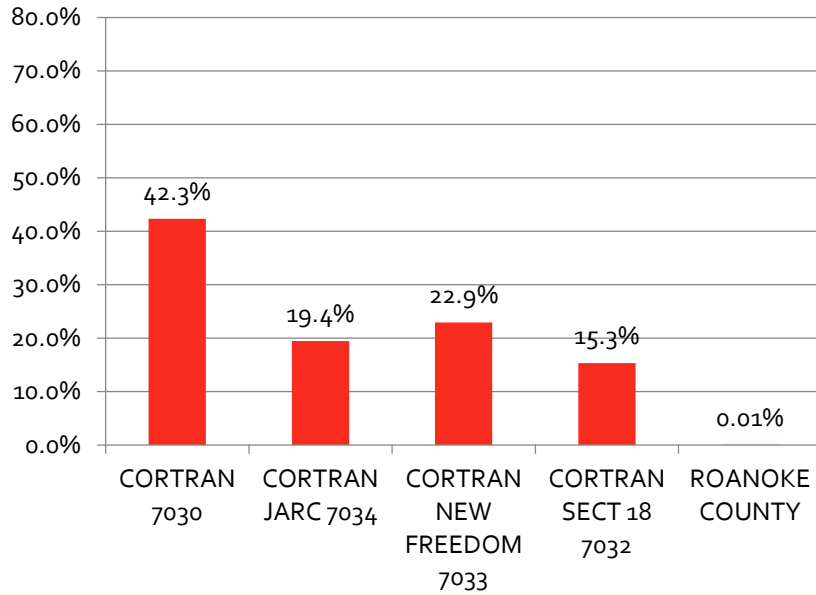


Table 6.2-15: Trips by Mobility Type and Funding Source

|  | <u>AMBULATORY</u> | <u>AMBULATORY/<br/>VISUAL IMPAIRED</u> | <u>CANE</u> | <u>CRUTCHES</u> | <u>VISUALLY<br/>IMPAIRED</u> | <u>WALKER</u> | <u>WHEEL<br/>CHAIR</u> | <u>WIDE WHEEL<br/>CHAIR</u> | <u>TOTAL</u> |
|--|-------------------|--|-------------|-----------------|------------------------------|---------------|------------------------|-----------------------------|--------------|
| CORTRAN 7030<br>(Roanoke<br>County –<br>Urban)                 | 40.96%            | 1.80%                                  | 16.69%      | 0.04%           | 4.43%                        | 8.73%         | 24.60%                 | 2.76%                       | 100.00%      |
| CORTRAN 7034<br>(JARC)   | 64.95%            | 8.03%                                  | 1.72%       | 0.00%           | 6.80%                        | 1.86%         | 5.80%                  | 10.85%                      | 100.00%      |
| CORTRAN<br>7033(NEW<br>FREEDOM)                                | 34.42%            | 4.08%                                  | 5.71%       | 0.03%           | 0.68%                        | 18.33%        | 36.63%                 | 0.11%                       | 100.00%      |
| CORTRAN SECT<br>18 7032<br>(Roanoke<br>County - Rural)         | 45.85%            | 1.53%                                  | 13.43%      | 0.00%           | 8.79%                        | 4.28%         | 24.86%                 | 1.25%                       | 100.00%      |
| ROANOKE<br>COUNTY  | 0.00%             | 0.00%                                  | 0.00%       | 0.00%           | 42.86%                       | 0.00%         | 57.14%                 | 0.00%                       | 100.00%      |
|  |                   |  |             |                 |                              |               |                        |                             |              |
| STAR 8260<br>(City of<br>Roanoke, City<br>of Salem,<br>Vinton) | 34.95%            | 3.37%                                  | 14.93%      | 0.58%           | 4.19%                        | 12.46%        | 28.18%                 | 1.34%                       | 100.00%      |
| STAR 8264<br>(JARC)  | 52.70%            | 5.92%                                  | 10.13%      | 1.44%           | 11.96%                       | 3.06%         | 14.69%                 | 0.11%                       | 100.00%      |
| STAR 8263<br>(New<br>Freedom)                                  | 30.75%            | 4.61%                                  | 14.32%      | 0.00%           | 0.00%                        | 9.25%         | 38.28%                 | 2.78%                       | 100.00%      |
| Total  | 39.93%            | 3.86%                                  | 13.14%      | 0.55%           | 5.33%                        | 9.98%         | 25.47%                 | 1.74%                       | 100.00%      |

Table 6.2-16: Trips by Trip Purpose and Funding Source

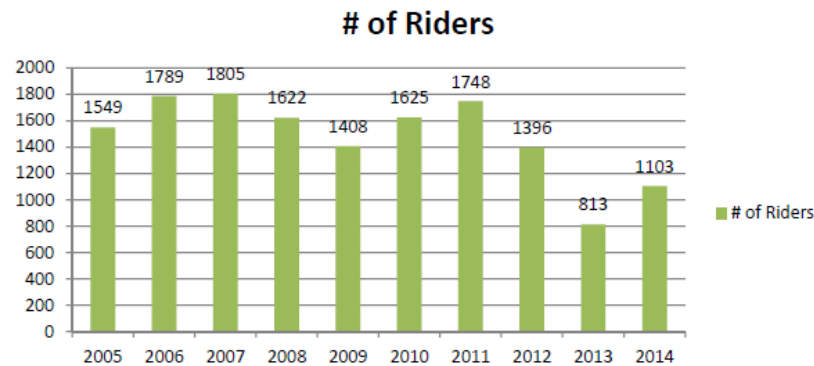
|  | <u>EDUCATION</u> | <u>EMPLOYMENT</u> | <u>MEDICAL</u> | <u>NUTRITION</u> | <u>RECREATION</u> | <u>SHOPPING</u> | <u>PURPOSE UNKNOWN</u> | <u>TOTAL</u>   |
|--|------------------|-------------------|----------------|------------------|-------------------|-----------------|------------------------|----------------|
| CORTRAN 7030 (Roanoke County – Urban)              | 209              | 1,062             | 12,912         | 110              | 6,253             | 591             | 1,277                  | <b>22,414</b>  |
| CORTRAN 7034 (JARC)                                | 442              | 7,667             | 724            | 11               | 368               | 24              | 1,048                  | <b>10,284</b>  |
| CORTRAN 7033(NEW FREEDOM)                          | 226              | 557               | 8,224          | 26               | 2,264             | 100             | 729                    | <b>12,126</b>  |
| CORTRAN SECT 18 7032 (Roanoke County - Rural)      | 83               | 145               | 4,568          | 36               | 2,645             | 130             | 493                    | <b>8,100</b>   |
| ROANOKE COUNTY                                     |                  | 1                 | 1              |                  | 3                 | 2               |                        | <b>7</b>       |
|  |                  |                   |                |                  |                   |                 |                        |                |
| STAR 8260 (City of Roanoke, City of Salem, Vinton) | 974              | 4,146             | 54,879         | 1,681            | 45,638            | 4,811           | 8,875                  | <b>121,004</b> |
| STAR 8264 (JARC)                                   | 2,319            | 22,062            | 2,685          | 95               | 4,155             | 523             | 2,225                  | <b>34,064</b>  |
| STAR 8263 (New Freedom)                            | 15               | 395               | 5,351          | 67               | 3,102             | 285             | 985                    | <b>10,200</b>  |
| <b>Total</b>                                       | <b>4,268</b>     | <b>36,035</b>     | <b>89,344</b>  | <b>2,026</b>     | <b>64,428</b>     | <b>6,466</b>    | <b>15,632</b>          | <b>218,199</b> |

## 7.0 BOTETOURT COUNTY SENIOR AND ACCESSIBLE VAN PROGRAM

Botetourt County, through its Parks, Recreation and Tourism Department, provides transportation for residents that are 55 years and older or residents of any age with a qualifying disability. Transportation is provided to destinations throughout the Roanoke Valley. Van service is provided Monday – Friday and does not operate on holidays.

The following graph shows the number of participants annually from 2005-2014.

Figure 7.0-1 Botetourt County Number of Annual Riders



In general, the service has been provided with one or two drivers each year. The following explanations indicate why certain years had less ridership than others.

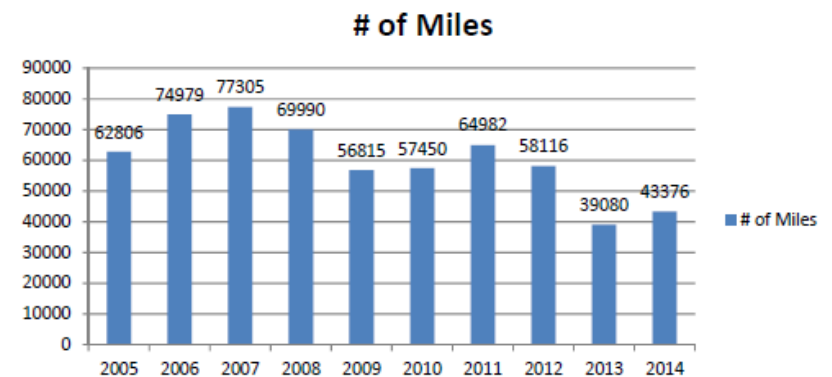
- ▲ 2005-JUNE 2012- ONE 40HR PER WEEK DRIVER AND ONE 32HR PER WEEK DRIVER WERE BUDGETED YEARS 2005-JUNE 2012.

- ▲ 2009-POLICY CHANGE WAS MADE TO REDUCE OVERALL DAILY TRAVEL TO LESS THAN A 10 HOUR DAY PER DRIVER AND A REDUCTION TO NO MORE THAN ONE ENTERTAINMENT TRIP PER WEEK.
- ▲ 2013- ONLY ONE 40HR DRIVER WAS EMPLOYED DURING CALENDAR YEAR.
- ▲ 2014- ONE 40HR DRIVER AND ONE 20HR DRIVER PER WEEK WERE EMPLOYED.

In 2012, of the 1,396 total participants, 636 customers used the accessible van service (45%) and 760 were senior participants (55%).

The following graph shows the number of miles driven each year. The distance traveled reflects the changes in trips made over the years.

Figure 7.0-2: Botetourt Program: Miles Traveled



## 8.0 COMMON VALUES AND CONCLUSIONS

The Roanoke Valley is not like it was 25 years ago and will not be like it is today in 25 years, and neither should its public transit system. Most Roanoke Valley citizens value public transit even if they do not use the service. Many people feel that transit contributes to a community's livability through economic growth by enabling businesses to access workers, shoppers, clients, and patients and likewise to enable employees to get to work, people to shop, and patients and clients to access medical and personal services.

The following statements indicate the community's values regarding transit. They were developed using input from the general public and Valley Metro transit riders as obtained from the public surveys described in the previous sections as well as input from the Transportation Technical Committee members and TPO Policy Board members.

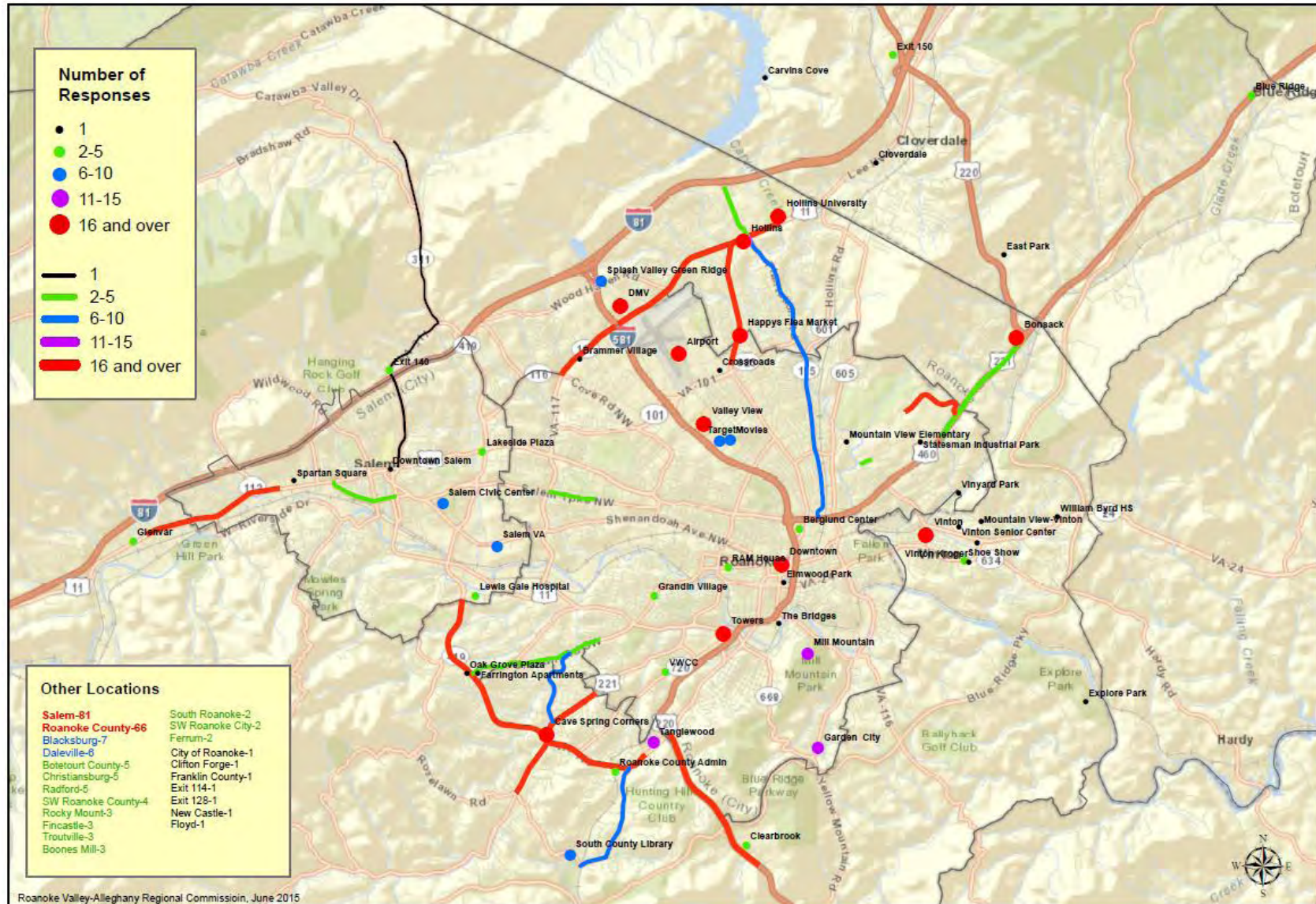
1. TRANSIT IS IMPORTANT FOR PEOPLE WHO HAVE NO OTHER WAY TO GET AROUND.
2. TRANSIT IS IMPORTANT FOR PEOPLE WHO PREFER TO RIDE RATHER THAN DRIVE; IT GIVES PEOPLE A CHOICE.
3. TRANSIT IS IMPORTANT TO PROMOTE ECONOMIC DEVELOPMENT AND URBAN GROWTH.
4. TRANSIT IS IMPORTANT FOR THE ENVIRONMENT:
  - A. IT REDUCES THE NUMBER OF VEHICLES ON THE ROAD, THUS REDUCING VEHICLE EMISSIONS AND AIR POLLUTION.

- B. IT REDUCES THE NEED FOR PARKING, AS SUCH, IMPERVIOUS SURFACES AND STORM WATER RUNOFF IS REDUCED.
5. TRANSIT IS IMPORTANT TO GET PEOPLE FROM PARKING AREAS TO SPECIAL EVENTS.
6. TRANSIT IS IMPORTANT FOR PEOPLE TO SAVE MONEY.
7. TRANSIT IS IMPORTANT FOR THE COMMUNITY TO SAVE MONEY BECAUSE IT REDUCES THE NEED FOR ADDITIONAL ROAD CONSTRUCTION.
8. TRANSIT IS IMPORTANT BECAUSE IT REDUCES TRAFFIC ON ROADS AND THUS REDUCES ACCIDENTS AND THE NEED FOR ROADWAY MAINTENANCE.
9. TRANSIT IS IMPORTANT BECAUSE REGULAR BUS COMMUTERS BECOME ACQUAINTED AND HAVE THE OPPORTUNITY TO MAKE NEW FRIENDS.
10. TRANSIT IS IMPORTANT TO PROVIDE PEOPLE ACCESS TO JOBS, RETAIL, SERVICES, AND EDUCATION.
11. TRANSIT IS IMPORTANT BECAUSE IT ALLOWS PEOPLE TO BE SELF-RELIANT, INDEPENDENT, AND FREE.

People commonly acknowledge that not everyone drives, that all drivers do not want to drive for all trips, and that not all drivers should be driving, so providing other ways for people to travel is essential. Because walking, biking, carpooling, telecommuting, ridesharing, and ridehailing cannot collectively satisfy the travel options people need, public transit is therefore an integral part of this community's infrastructure.

One final map shows the combined input from the general public, current Valley Metro riders, and Valley Metro employees showing where service is needed.

Figure 8.0-1: Map of All Transit Recommendations Combined



An extraordinary amount of transit data has been collected, analyzed and summarized for the Roanoke Valley in this document. It is unlikely that this amount of information from so many perspectives for the same general time period will be available again. The purpose of such an intense technical effort was to provide the region with a strong foundation as it embarks upon envisioning how best to utilize transit in its future economic pursuits, environmental sustainability efforts, and social responsibilities.

The next phase of the planning process will continue to be led by the Regional Commission and be guided by a Roanoke Valley Transit Vision Plan steering committee with assistance from a technical consultant. The Roanoke Valley has a tremendous opportunity to create a robust regional transit network that will better meet the needs of people today and in the years to come. When planned well and with the right investments, transit can be a catalyst to a better future for people and for business.



# Roanoke Valley Transportation PLANNING ORGANIZATION

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## Roanoke Valley TRANSIT VISION PLAN

*Approved September 22, 2016*

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### PART 4: Preferences and Demand

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## 1.0 INTRODUCTION

For any city or region developing recommendations it is critical that they be based on an objective data-driven analysis supported by a robust public engagement plan. This section describes the four contributing elements that were utilized to develop the recommendations in Part 5 including:

- Public input and feedback;
- Transit Propensity;
- Model Analysis; and,
- Gap Analysis.

The process to develop the recommendations started and ended with public input and feedback. The first events focused on obtaining input on both the type and location of transit service the public wanted. It is also important to understand the public's preferences in regards to transit service. This was accomplished through a trade-off survey. The trade-off preference survey provides critical feedback on how the system can be designed in a cost effective manner tailored to the community preferences, because generally it is not affordable to provide everyone exactly what they want with local transit service.

This was supported by a Transit Propensity analysis. This analysis utilizes the latest available census data to identify areas throughout the Roanoke Valley region that have a need and are viable for new or additional transit services. The census data is used to create four propensity indices that focus on where people live, where commuters live, locations of where people work and locations where people make non-work trips.

This data is then compared to information on trips in the region from the regional travel model. The VDOT Regional Travel Model was developed to estimate and forecast travel flows throughout

the Roanoke Valley region. Within this project, it was used as a source of origin-destination data and was analyzed to understand residents travel patterns within the region.

Finally, all of this information was combined and used to identify two types of gaps that exist in the system: service area gaps and service connection gaps.

- Service area gaps are identified through the public input and propensity analysis. They are locations where service is needed and not currently provided, or is provided at an insufficient level.
- Service connection gaps are identified through the public input and model analysis. They are connections between areas that are not being served by transit. In other words, places people want to travel to and from that currently are not connected with transit.

The details of each of these elements that were used to develop the recommendations are described in the remainder of Part 4.

## 2.0 PUBLIC INPUT ON CONNECTIONS AND PREFERENCES

This section provides an overview of the second phase of public outreach efforts conducted in the fall 2015 to determine what places in our region should be connected as well as people's preferences on a number of criteria that help shape a transit system.

Two public outreach workshops were held on November 5, 2015 to inform the public about the prior input received, while also providing an opportunity for input on the needed connections, timing, frequency, and appropriateness of different types of transit services. The same information was asked of the general public via an online survey that was advertised widely throughout the Roanoke Valley. Information about needed connections was also provided through the first phase of public outreach efforts through the general public survey and the Valley Metro rider survey summarized in Part 3. A separate survey regarding transit service preferences was also administered on Valley Metro buses in December 2015.

The November 2015 public outreach workshops were held at Campbell Court and the Brambleton Center and were advertised in a local newspaper, online (social media, website, email), through signage outside Campbell Court and along major roadways, and on-board Valley Metro and RADAR buses. Approximately 74 people attended the two public workshops, 180 people provided input via the online survey, and 804 people completed the preferences survey on-board the buses.

The public comments, pertaining to transit preferences and types of service, were included as part of the overall transit system evaluation.

Figure 2.0-1 | Roadside sign advertises public meeting



Figure 2.0-2 | RVARC Facebook Video Post Advertising Public Workshops, October 30, 2015



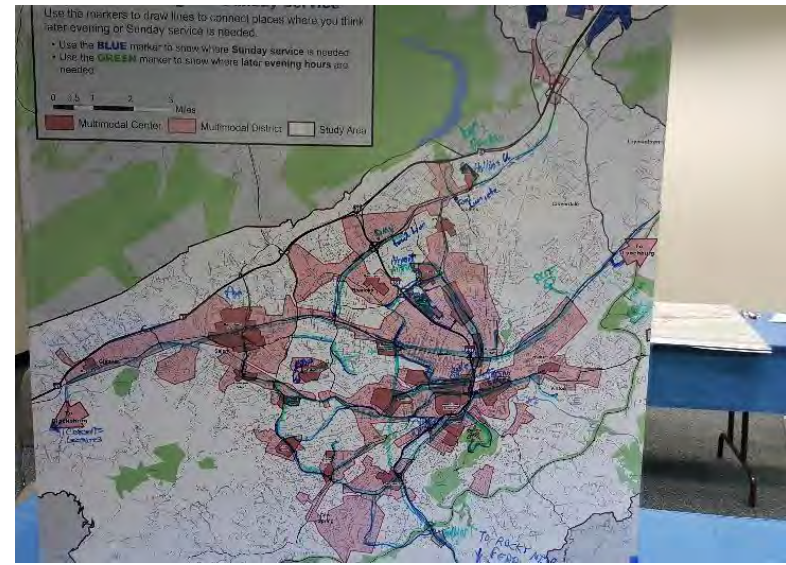
The following sections highlight the input received through these outreach initiatives.

## 2.1 Needed Connections

Public workshop attendees participated in three separate (but connected) interactive mapping activities.

- ▲ **FIXED ROUTE AND DOOR-TO-DOOR SERVICE:** PARTICIPANTS USED MARKERS TO INDICATE ON THE REGIONAL MAP WHERE FIXED ROUTE AND DOOR-TO-DOOR TRANSIT IS NEEDED. CURRENT TRANSIT SERVICES WERE NOT INDICATED ON THE MAP ENABLING PARTICIPANTS TO CONSIDER THE REGION AS A WHOLE WITHOUT BEING INFLUENCED BY THE NOTATIONS OF CURRENT ROUTES AND SERVICES.
- ▲ **SUNDAY AND EVENING SERVICE:** BOTH SUNDAY AND EVENING SERVICES WERE IDENTIFIED AS NEEDS BY MANY PEOPLE IN PREVIOUS SURVEYS. PARTICIPANTS USED MARKERS TO INDICATE ON THE REGIONAL MAP WHERE SUNDAY AND EVENING SERVICE IS NEEDED.
- ▲ **ALL DAY AND COMMUTER SERVICE:** PARTICIPANTS USED MARKERS TO INDICATE ON THE REGIONAL MAP WHERE FREQUENT ALL-DAY AND COMMUTER SERVICES ARE NEEDED.

Figure 2.1-1 | Public Workshop Interactive Mapping Activity



During the interactive mapping activity, public workshop attendees identified needs in the following areas:

▲ **ALL DAY TRANSIT SERVICE (Figure 2.1-2)**

- Tanglewood to Lewis Gale Medical Center
- Downtown Roanoke to Downtown Salem
- Downtown Roanoke to Hollins Area
- Hollins Area to VA Medical Center
- Downtown Salem to Downtown Vinton
- Downtown Salem to Glenvar
- Tanglewood to Clearbrook
- Downtown Roanoke to Cave Spring
- Downtown Roanoke to Blacksburg
- Cloverdale to Roanoke Centre for Industry and Technology

▲ **COMMUTER TRANSIT SERVICE (Figure 2.1-3)**

- Glenvar to Blacksburg
- Downtown Roanoke to Exit 150/Lord Botetourt
- Downtown Roanoke to Hollins District
- Downtown Roanoke to VA Medical Center to Glenvar
- Downtown Roanoke to Valley View to DMV
- Downtown Roanoke to Tanglewood to Cave Spring
- Service to Troutville and Daleville

▲ **EVENING TRANSIT SERVICE (Figure 2.1-4)**

- Downtown Roanoke to Crossroads to Hollins
- Downtown Roanoke to Tanglewood
- Tanglewood to Clearbrook
- Tanglewood to Cave Spring to Lewis Gale Hospital
- Downtown Roanoke to Downtown Salem
- Downtown Roanoke to Downtown Vinton
- Downtown Salem to Melrose
- Lewis Gale Hospital to Downtown Salem

- Lewis Gale Hospital to Grandin to Downtown Roanoke

▲ **SUNDAY TRANSIT SERVICE (Figure 2.1-5)**

- Downtown Roanoke to Downtown Salem
- Downtown Salem to Lewis Gale Hospital to Virginia Western Community College
- Downtown Roanoke to Crossroads to Valley View
- Downtown Roanoke to SE Roanoke/Bennington St.
- Service to Troutville, South County Library, and Towers Shopping Center



Figure 2.1-2 | All Day Service Transit Needs

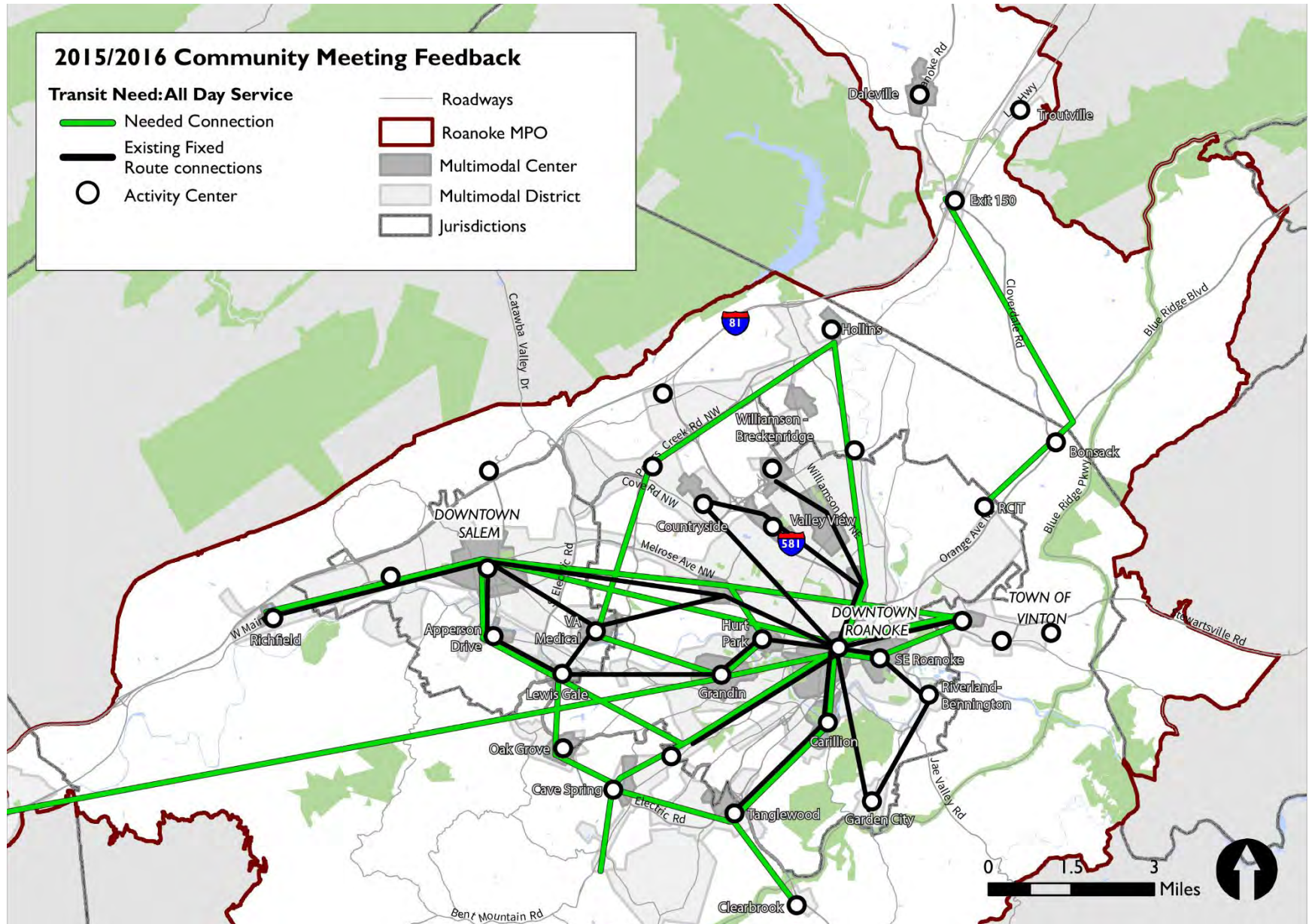


Figure 2.1-3 | Commuter Service Transit Needs

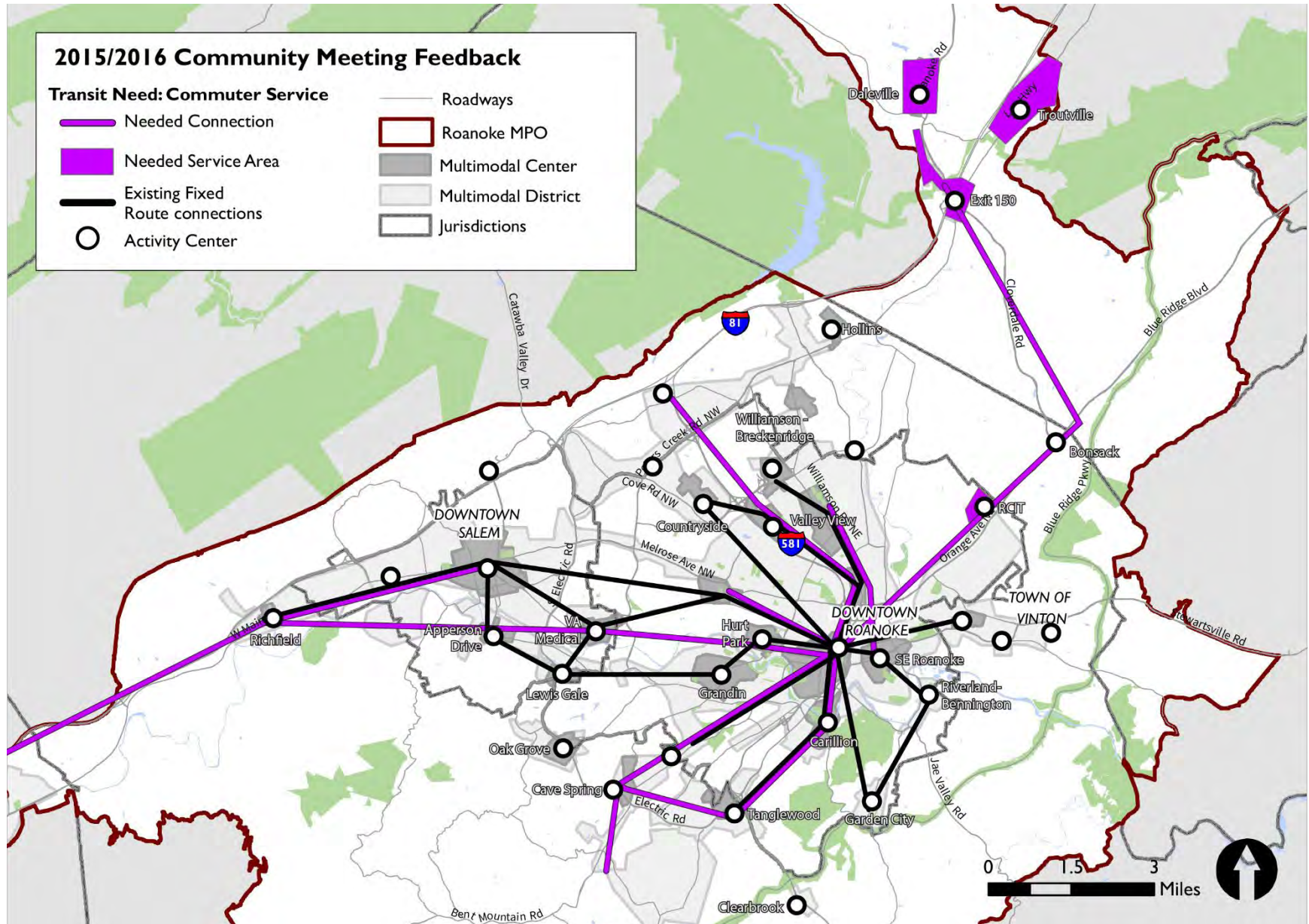


Figure 2.1-4 | Evening Service Transit Needs

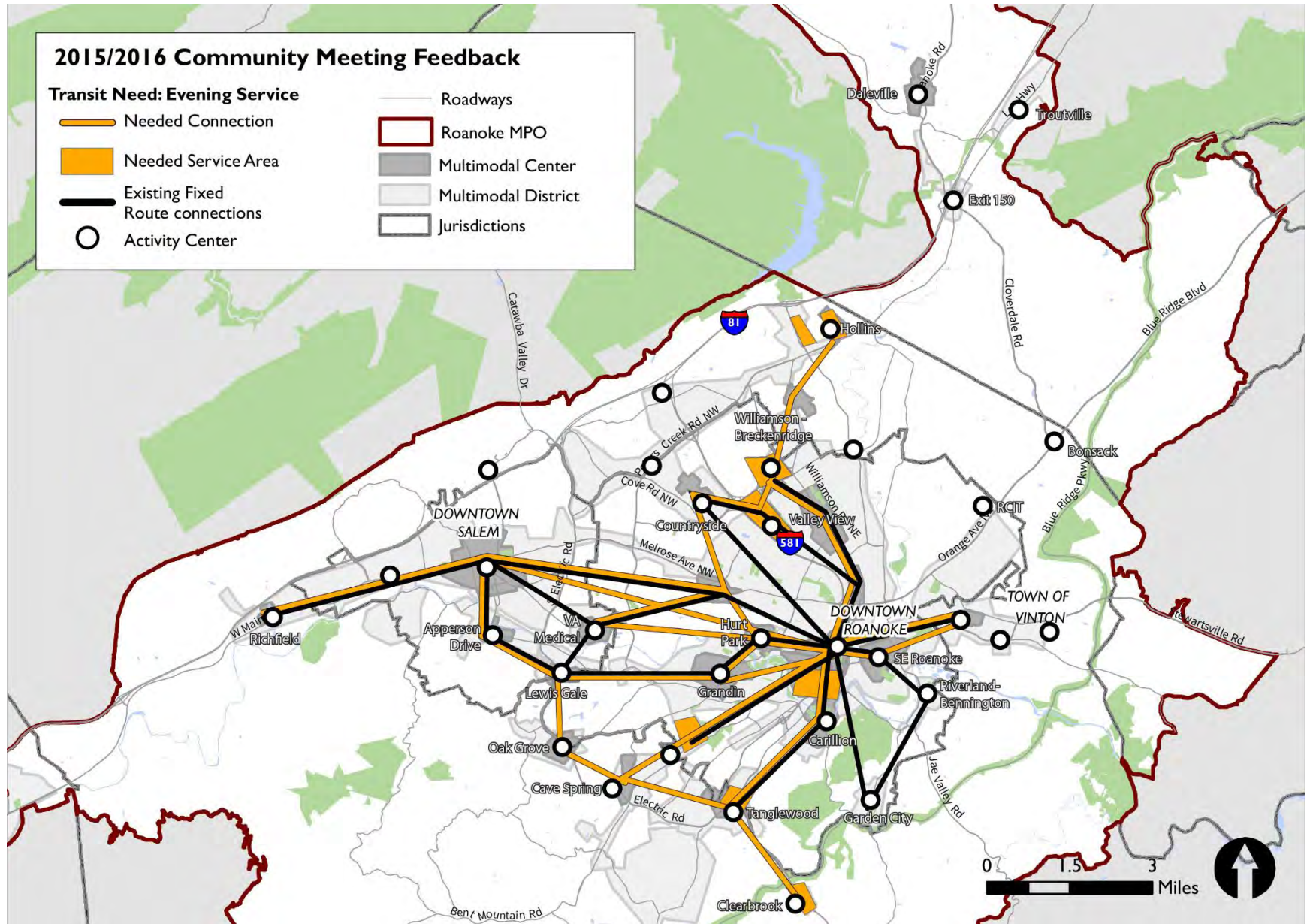
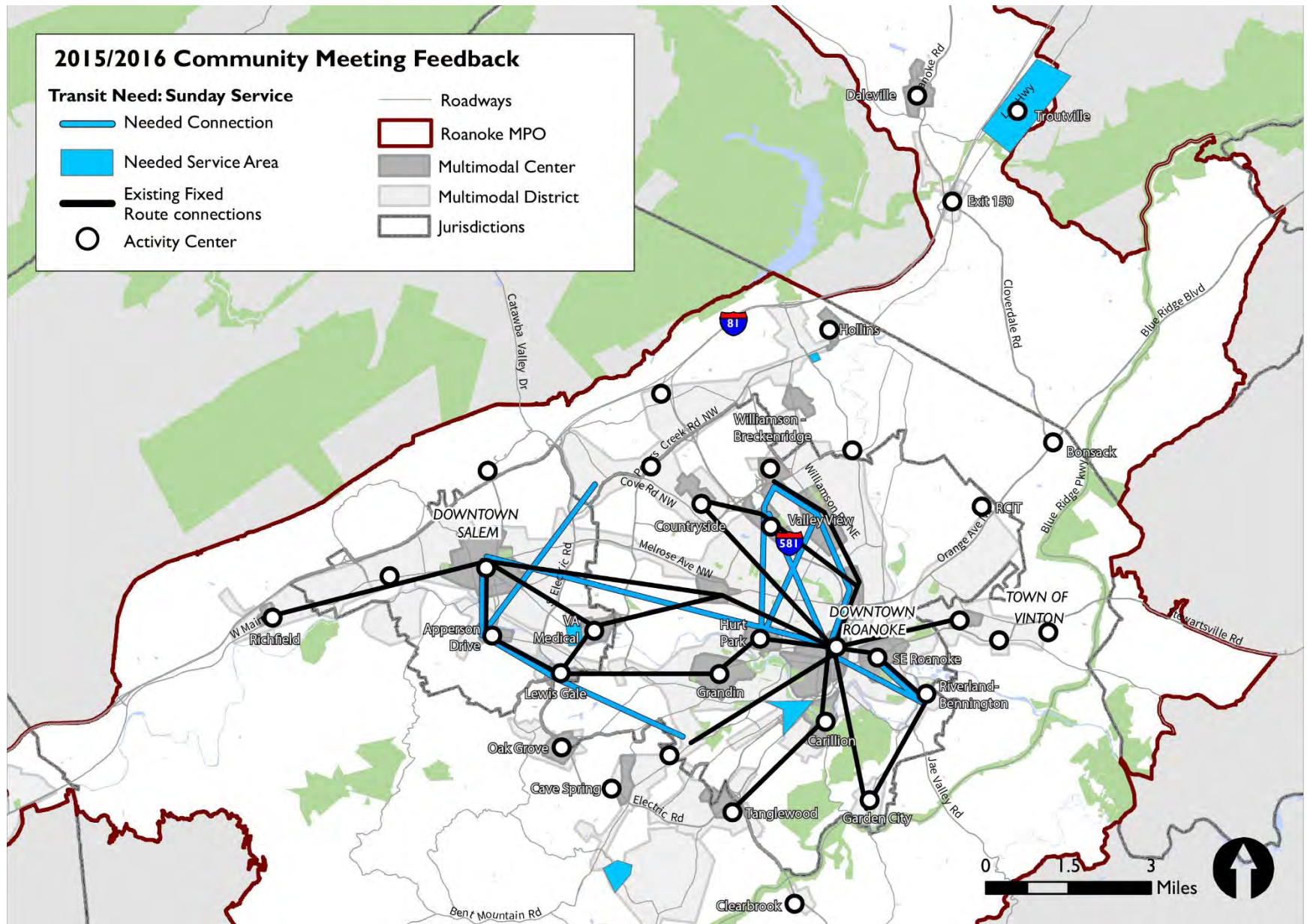


Figure 2.1-5 | Sunday Service Transit Needs



As mentioned, a web survey was also used to help identify where specific types of services are needed, such as door-to-door service, evening service, Sunday service, and commuting service. Because participants were unable to draw connections on a map, questions guided their answers. For example, one question asked: “Which areas should offer a DIRECT CONNECTION for all residents AND DOOR-TO-DOOR service for seniors and people with disabilities?” (List up to five areas). The number of responses corresponds to a variety of destinations where transit service may be needed and are highlighted in the following table.

Table 2.1-1 | Web Survey Results on Connections

| Topic/Question  | Number of Responses |
|---|---------------------|
| Which areas should offer a DIRECT CONNECTION for all residents AND DOOR-TO-DOOR service for seniors and people with disabilities? | 334                 |
| Which areas ONLY need DOOR-TO-DOOR service for seniors and people with disabilities?  | 155                 |
| Which areas should be connected with EVENING service?   | 263                 |
| Which areas should be connected with SUNDAY service?  | 206                 |
| Which areas should be connected with ALL DAY service?   | 193                 |
| Which areas should be connected with COMMUTE TO/FROM WORK (6-9am, 3-6pm) service?   | 208                 |

In addition, a word cloud offers one way to visualize the range of areas listed by the public. The word cloud is an illustrative

example of which areas should offer a direct connection for all residents AND door-to-door service for seniors and people with disabilities. The more frequently a word is found, the larger it appears in the word cloud.

Figure 2.1-6 | Word Cloud Visualization of Web Survey Results



The web survey was open for approximately one month and received 180 responses. The following is a brief summary of the demographic input received through the web survey:

- ▲ THE MEDIAN AGE OF RESPONDENT WAS 53
- ▲ 62% OF RESPONDENTS LIVE IN THE CITY OF ROANOKE
- ▲ 51% TAKE TRANSIT, AT LEAST “ONCE IN A WHILE”

## 2.2 Transit Preferences

A transit preferences survey was a key component of the workshops, the web survey, and the on-board survey, all of which took place in November and December of 2015. Trade-off preference surveys allow the system to be designed in a cost effective manner tailored to the community preferences, because generally it is not affordable to provide everyone exactly what they want with local transit service. In all, approximately 889 people participated in a transit preferences exercise, in which participants were asked to indicate their transit preferences on six different questions/topics:

- ▲ **LOCAL SERVICE VERSUS REGIONAL SERVICE** – IDENTIFIED WHETHER PEOPLE PREFERRED MORE TRANSIT SERVICE WITHIN THE ROANOKE VALLEY OR CONNECTING THE ROANOKE VALLEY WITH OTHER REGIONS (SUCH AS BLACKSBURG AND LYNCHBURG).
- ▲ **SHORT WALK VERSUS FREQUENT SERVICE** – IDENTIFIED IF PEOPLE PREFERRED BUS STOPS THAT WERE CLOSER, WITHIN NEIGHBORHOODS, WITH LESS FREQUENT SERVICE OR BUS STOPS FARTHER AWAY, ALONG MAIN CORRIDORS, WITH MORE FREQUENT SERVICE.
- ▲ **WORK TRIP-FOCUSED SERVICE VERSUS ALL DAY SERVICE** – IDENTIFIED IF PEOPLE PREFERRED MORE SERVICE DURING TIMES WHEN PEOPLE ARE GOING TO OR COMING HOME FROM WORK, OR IF THEY PREFERRED SERVICE DURING THE DAY AND EARLY EVENING, TO BETTER ACCESS SHOPPING, MEDICAL, AND SOCIAL TRIPS.
- ▲ **TRANSFER CONNECTIONS VERSUS ONE-SEAT RIDE CONNECTIONS** – IDENTIFIED IF PEOPLE WOULD PREFER TO TRANSFER IF THEIR BUS RAN MORE FREQUENTLY OR A DIRECT CONNECTION TO THEIR DESTINATION, EVEN IF THEY HAD TO WAIT LONGER FOR THEIR BUS.

- ▲ **LARGER SERVICE AREA COVERAGE VERSUS HIGHER RIDERSHIP** – IDENTIFIED IF PEOPLE PREFERRED EVERYONE TO HAVE EQUAL SERVICE, EVEN AREAS WITH FEWER PEOPLE AND FEWER JOBS, OR TO FOCUS SERVICE WHERE THE MOST PEOPLE WOULD RIDE, WITH LESS OR NO SERVICE WHERE FEWER PEOPLE LIVED OR WORKED.
- ▲ **PRIORITY FOR TRANSIT OR FOR CARS** – IDENTIFIED IF PEOPLE PREFERRED PRIORITY FOR TRANSIT (AND CARS WITH TWO OR MORE PEOPLE) DURING CONGESTED TRAVEL TIMES, SO THAT THEY CAN RUN FASTER AND MORE RELIABLY, OR TO RUN TRANSIT IN MIXED TRAFFIC, MAKING RELIABLE OPERATIONS DIFFICULT, WHILE PRESERVING AS MUCH ROAD SPACE AS POSSIBLE FOR CARS.

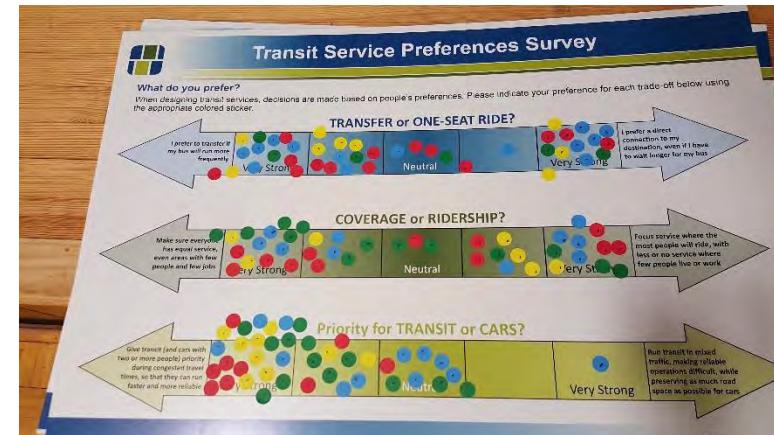
The transit preferences survey results below reflect the input received from the November 5, 2015 public meeting and the associated online engagement activities.

- ▲ IN GENERAL, THE PARTICIPANTS (INCLUDING ALL VENUES) PREFER:
  - More transit service **within the Roanoke Valley**. Approximately 62 percent of respondents *prefer or strongly prefer* more local service while 26 percent *prefer or strongly prefer* more transit service between the Roanoke Valley and other regions (12 percent are *neutral*).
  - **Work-focused service** rather than all-day service. Over half of respondents (51 percent) *prefer or strongly prefer* more transit service during the times people are going to or coming home from work (14 percent are neutral, 34 percent *prefer or strongly prefer* all day service).
  - **More frequent service**. Nearly 56 percent *prefer or strongly prefer* more frequent service even if

it means transferring buses (25 percent are neutral and 20 percent *prefer or strongly prefer* direct connections even if it means less frequent service).

- **Maximize coverage.** Approximately 61 percent *prefer or strongly prefer* that everyone has equal service, even areas with few jobs and few people (16 percent are neutral and 23 percent *prefer or strongly prefer* to focus service where the most people will ride).
- **Priority for transit** (and cars with more than one person) over single-occupancy vehicles. Approximately one-half of respondents (51 percent) *prefer or strongly prefer* transit to have priority (26 percent are neutral, 23 percent *prefer or strongly prefer* that transit run in mixed traffic).
- Overall the workshop participants were relatively split on the topic of **short walk or frequent service.** 31 percent *prefer or strongly prefer* a short walk to the bus even if the bus comes less often, 31 percent are neutral (the largest group of neutral respondents on the six topics), and 34 percent *prefer or strongly prefer* more frequent service even if it means walking a little more.



Figure 2.2-1 | Public Workshop Transit Preference Activity



A similar survey was also distributed on Valley Metro buses in order to gauge rider perceptions on the same series of transit preferences. 804 people responded to the on-board transit survey; 6% of respondents were over 65, 42% were aged 46-65, 19% were 36-45, 31% were 19-35; and 3% of riders were under 18. In reporting whether the rider had a disability, 117 or 23% of respondents indicated “yes” and 401 or 77% indicated “no”.

Figure 2.2-2 | Rider Preferences Survey

Dear Riders: A Transit Vision Plan for the Roanoke Valley is currently under development. We need your help to plan the future of transit. Please complete one survey, and return it to any driver or Information Officer at Campbell Court by tomorrow. For more information about the Plan, or to complete a more detailed survey, visit [www.nvare.org/transit](http://www.nvare.org/transit). Thank you!

**Preferences Survey**

Please let us know your preference by checking one box per question.

**1. LOCAL or REGIONAL?**

I prefer more transit service within the Roanoke Valley. I prefer more transit service between the Roanoke Valley and other regions.

|             |        |         |        |             |
|-------------|--------|---------|--------|-------------|
| Very Strong | Strong | Neutral | Strong | Very Strong |
|-------------|--------|---------|--------|-------------|

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I prefer a short walk to my bus stop, even if the bus comes less often. I prefer the bus to come more often, even if I have to walk a little more.

**2. SHORT WALK or FREQUENT SERVICE?**

|             |        |         |        |             |
|-------------|--------|---------|--------|-------------|
| Very Strong | Strong | Neutral | Strong | Very Strong |
|-------------|--------|---------|--------|-------------|

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I prefer more transit service during the times when people are going to or coming home from work. I prefer more transit service during the day and early evening to better access shopping, medical, and social trips.

**3. WORK TRIP-FOCUSED or ALL DAY SERVICE?**

|             |        |         |        |             |
|-------------|--------|---------|--------|-------------|
| Very Strong | Strong | Neutral | Strong | Very Strong |
|-------------|--------|---------|--------|-------------|

\*\*\*\*\*  
Questions 4, 5 and 6, TURN OVER →  
\*\*\*\*\*

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I prefer to transfer if my bus will run more frequently. I prefer a direct connection to my destination, even if I have to wait longer for my bus.

**4. TRANSFER or ONE-SEAT RIDE?**

|             |        |         |        |             |
|-------------|--------|---------|--------|-------------|
| Very Strong | Strong | Neutral | Strong | Very Strong |
|-------------|--------|---------|--------|-------------|

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Make sure everyone has equal service, even areas with few people and few jobs. Focus service where the most people will ride, with less or no service where few people live or work.

**5. COVERAGE or RIDERSHIP?**

|             |        |         |        |             |
|-------------|--------|---------|--------|-------------|
| Very Strong | Strong | Neutral | Strong | Very Strong |
|-------------|--------|---------|--------|-------------|

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During busy travel times, give buses priority on roads, even if it reduces space for cars. All vehicles should have equal opportunity on the roads, even if buses are also caught in traffic.

**6. Priority for TRANSIT or CARS?**

|             |        |         |        |             |
|-------------|--------|---------|--------|-------------|
| Very Strong | Strong | Neutral | Strong | Very Strong |
|-------------|--------|---------|--------|-------------|

What is your age?     Under 18     18-35     36-45     46-65     Over 65

Do you have a disability?     Yes     No

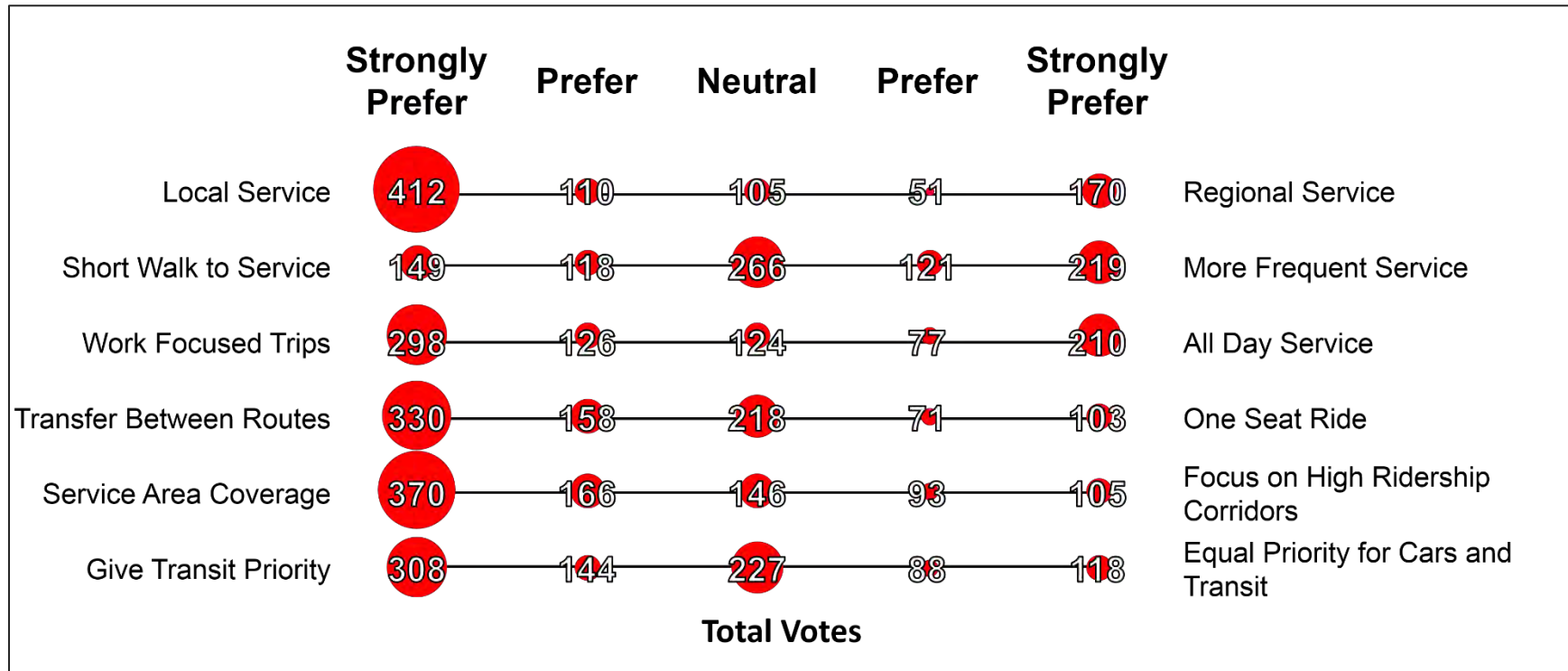
Complete the information below to enter to win a monthly pass. Thank you for completing the survey!

Name: \_\_\_\_\_ Phone: \_\_\_\_\_ Email: \_\_\_\_\_

- ▲ 63% OF RESPONDENTS INDICATED THAT THEY STRONGLY PREFER MORE LOCAL TRANSIT SERVICE. 23% STRONGLY PREFERRED MORE REGIONAL TRANSIT SERVICE, AND 14% WERE NEUTRAL ON THE QUESTION.
- ▲ 31% OF RESPONDENTS INDICATED THAT THEY STRONGLY PREFER A SHORT WALK TO THE BUS IF IT COMES LESS FREQUENTLY TO 36% WHO STRONGLY PREFER GREATER FREQUENCY IF IT REQUIRES MORE WALKING. 32% WERE NEUTRAL ON THE QUESTION.
- ▲ 56% OF RESPONDENTS INDICATED THAT THEY STRONGLY PREFER MORE TRANSIT SERVICE DURING TIMES WHEN PEOPLE TRAVEL TO AND FROM WORK, TO 29% WHO STRONGLY PREFER MORE SERVICE DURING THE DAY AND EVENING HOURS FOR SHOPPING, MEDICAL AND SOCIAL TRIPS. 15% WERE NEUTRAL ON THE QUESTION.
- ▲ 59% OF RESPONDENTS INDICATED THAT THEY STRONGLY PREFER A TRANSFER IF THE BUS RUNS MORE FREQUENTLY TO 15% WHO STRONGLY PREFER A DIRECT CONNECTION THAT MIGHT REQUIRE A LONGER WAIT. 26% WERE NEUTRAL ON THE QUESTION.
- ▲ 65% OF RESPONDENTS INDICATED THAT THEY STRONGLY PREFER THAT EVERYONE HAS EQUAL SERVICE, EVEN AREAS WITH FEW PEOPLE AND JOBS, TO 16% WHO STRONGLY PREFER A FOCUSED SERVICE WHERE THE MOST PEOPLE RIDE AND WITH LESS OR NO SERVICE WHERE FEW PEOPLE LIVE OR WORK. 19% WERE NEUTRAL ON THE QUESTION.
- ▲ 49% OF RESPONDENTS INDICATED THAT THEY STRONGLY PREFER PRIORITY GIVEN TO BUSES ON ROADS EVEN IF IT REDUCES SPACE FOR CARS, TO 24% WHO STRONGLY PREFER THAT ALL VEHICLES SHOULD BE GIVEN EQUAL OPPORTUNITY ON THE ROADS EVEN IF BUSES ARE ALSO CAUGHT IN TRAFFIC. 27% WERE NEUTRAL.



Figure 2.2-2 | Transit Preferences Survey Results



The dot sizes are scaled based on the number of responses. \*Note: in many cases, on-board respondents selected more than one response (example: selecting “very strong” on both ends of the transit preferences spectrum). These types of responses are not included in this public outreach summary, but were factored into the overall transit analysis

## 3.0 TRANSIT PROPENSITY ANALYSIS

A Transit Propensity analysis was used to identify areas throughout the Roanoke Valley that have a need and are viable for new or additional transit services. The four propensity indices developed focus on where people live, where commuters live, locations where people work and locations where people make non-work trips.

### 3.1 Residential Propensity

The residential propensity analysis uses 2010-2014 American Community Survey data. Variables such as number of households and people identify where high densities of population can be found to support transit. Other factors including age, vehicle ownership and disability also play into the analysis. The analysis found a propensity for transit in many of the medium density areas in Roanoke County including, Hollins and West Park (NW Roanoke County). Additionally, the communities around Vinton and Downtown Roanoke such as Old Southwest and Loudon-Melrose have a higher residential propensity for transit (**Figure 3.1-1**).

| Category          | Measurement                   | Source        |
|-------------------|-------------------------------|---------------|
| <b>Population</b> | Total Population              | 2010-2014 ACS |
|                   | Population Density            |               |
| <b>Households</b> | Total Households              | 2010-2014 ACS |
|                   | Household Density             |               |
| <b>Age</b>        | Total Seniors (>65 years old) | 2010-2014 ACS |
|                   | Seniors Density               |               |
|                   | Seniors Percent of Population |               |

| Category                         | Measurement                  | Source        |
|----------------------------------|------------------------------|---------------|
| <b>Vehicle Ownership</b>         | Total Youth (<18 years old)  | 2010-2014 ACS |
|                                  | Youth Density                |               |
|                                  | Youths Percent of Population |               |
|                                  | Total Zero-Car Households    |               |
|                                  | Percent Zero-Car Households  |               |
|                                  | Zero-Car Household Density   |               |
| <b>Persons with Disabilities</b> | Total One-Car Households     | 2010-2014 ACS |
|                                  | Percent One-Car Households   |               |
|                                  | One-Car Household Density    |               |
|                                  | Total Disabled Persons       |               |
|                                  | Disabled Persons Density     |               |

### 3.2 Commuter Propensity

The Commuter Propensity is used to identify where persons with jobs reside. The labor force category identifies where persons eligible for work or those who are currently employed live, and the commute mode category incorporates where commuters reside.

The Commuter Propensity depicts areas outside of the current service area where there is a high concentration of residents who make trips to work, including Hollins, Beacon Hills (North Roanoke County) as well as Grandin and the Williamson Rd corridor, as shown in **Figure 3.2-1**. Outside of the existing transit service area, there is also a collection of moderately high propensity block groups centered on Cave Spring.

| Category           | Measurement             | Source        |
|--------------------|-------------------------|---------------|
| <b>Labor Force</b> | Labor Force Size        | 2010-2014 ACS |
|                    | Labor Force Density     |               |
|                    | Employed Persons        |               |
|                    | Employed Person Density |               |
|                    | Percent Employed        |               |

| Category            | Measurement               | Source        |
|---------------------|---------------------------|---------------|
| <b>Commute Mode</b> | Total Commuters           | 2010-2014 ACS |
|                     | Commuter Density          |               |
|                     | Total Transit Commuters   |               |
|                     | Percent Transit Commuters |               |
|                     | Transit Commuter Density  |               |

### 3.3 Work Propensity

The Work Propensity is used to identify areas where employment centers are located. The employment category factors in the number of employees and density of employees by location.

The Work Propensity analysis resulted in a high density of employment centers and jobs in and around the downtowns of Roanoke, Vinton and Salem, as shown in **Figure 3.3-1**. Additionally, the region has many other high propensity job centers outside the downtown areas. These are comprised of areas with hospitals, universities, malls, and large business parks including: Carilion Roanoke Memorial Hospital; Salem VA Medical Center; and Lewis-Gale Medical Center; Hollins University; Tanglewood Mall; Valley View Mall/Roanoke-Blacksburg Regional Airport; and, Bonsack. Outside the existing transit service areas there was a chain of high propensity block groups along Electric Rd connecting Tanglewood Mall, Cave Spring, and Lewis Gale, as well as the area around Cloverdale/Hollins University.

| Category          | Measurement               | Source   |
|-------------------|---------------------------|--|
| <b>Employment</b> | Total Number of Employees | 2014 Longitudinal Employer-Household Dynamics (LEHD) |
|                   | Density of Employees      |  |

### 3.4 Non-Work Propensity

The Non-Work Propensity is used to identify where typical non-work transit trips are made, which commonly include retail, medical, and school trips. The retail, medical, school, and public administration categories use the number/density of employees as measurements based on the assumption more workers correlate to more general utilization at a location.

The Non-Work Propensity analysis resulted in a high propensity of activity spread out across the region (**Figure 3.4-1**). The downtowns of Roanoke, Salem and Vinton as well as the two regional malls are hubs for retail and recreational activity; as a result, these areas were found to have a high Non-Work Propensity. Similarly, the area south of Downtown Roanoke that houses Carilion Roanoke Memorial Hospital and the area to the southeast of Downtown Salem that contains both Salem VA Medical Center and Lewis-Gale Medical Center were the region's largest medical attractors. The educational jobs were fairly dispersed throughout the region because of the public school system but the Colleges and Universities, like Hollins University, Virginia Western Community College, Roanoke College, Jefferson College of Health Sciences, and the Roanoke Higher Education Center, tended to have the highest concentration of these activities. Outside the existing transit service area there was a moderately high propensity in Bonsack and Daleville for Non-

Work trips. These areas also operate as commercial and retail hubs for their communities.

| Category                     | Measurement  | Source                  |
|------------------------------|--|-------------------------|
| <b>Retail</b>                | Number of Restaurant/Retail Jobs                       | 2014 LEHD by NAICS Code |
|                              | Restaurant / Retail Job Density                        |                         |
|                              | Number of Recreation Jobs<br>Recreation Jobs Density   |                         |
| <b>Medical</b>               | Number of Medical Jobs<br>Medical Jobs Density         | 2014 LEHD by NAICS Code |
|                              |  |                         |
| <b>School</b>                | Number of Educational Jobs<br>Educational Jobs Density | 2014 LEHD by NAICS Code |
| <b>Public Administration</b> | Number of Public Administration Jobs                   | 2014 LEHD by NAICS Code |
|                              | Public Administration Job Density                      |                         |

Figure 3.1-1 | Residential Propensity Map

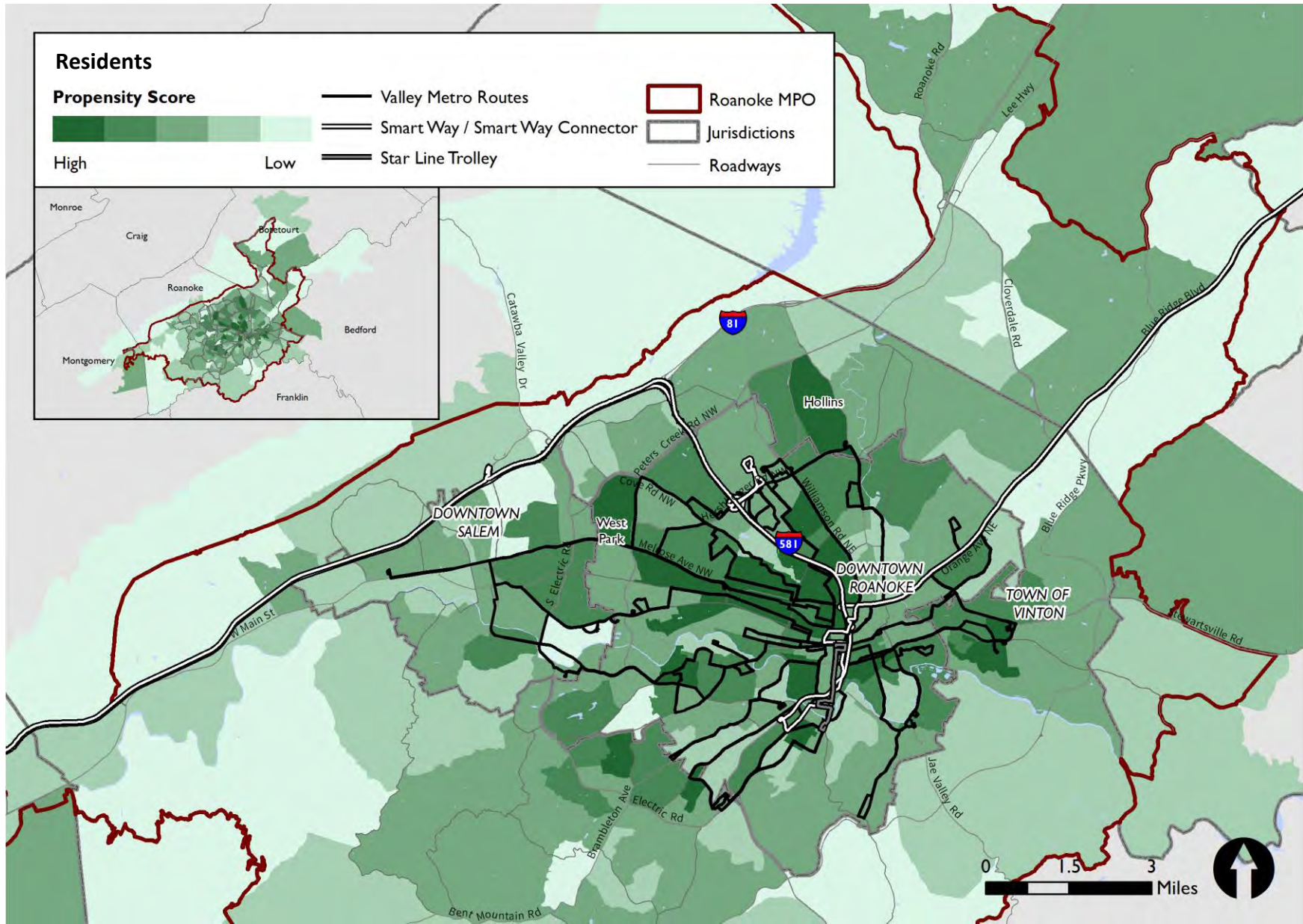


Figure 3.2-1 | Commuter Propensity Map

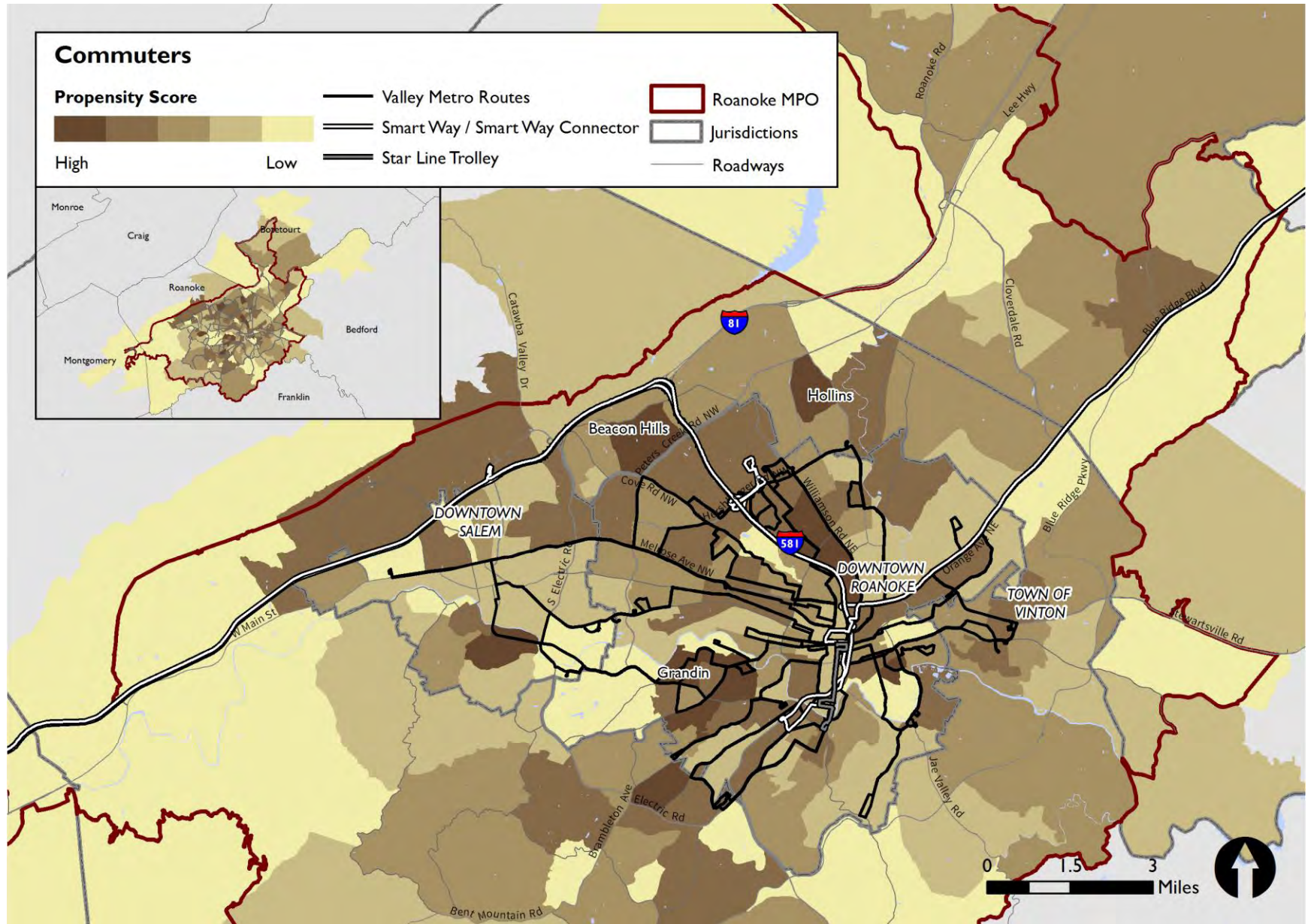


Figure 3.3-1 | Work Propensity Map

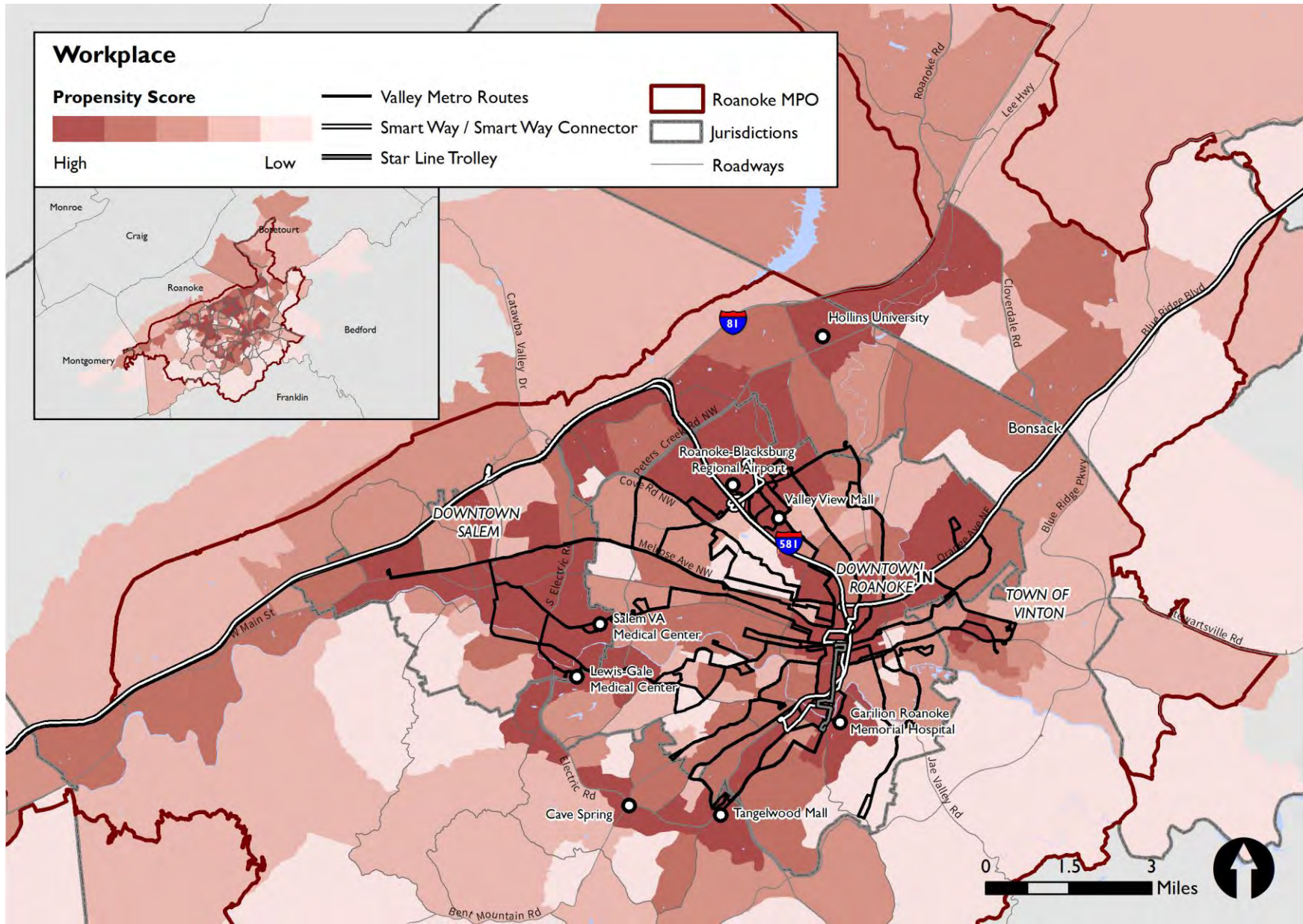
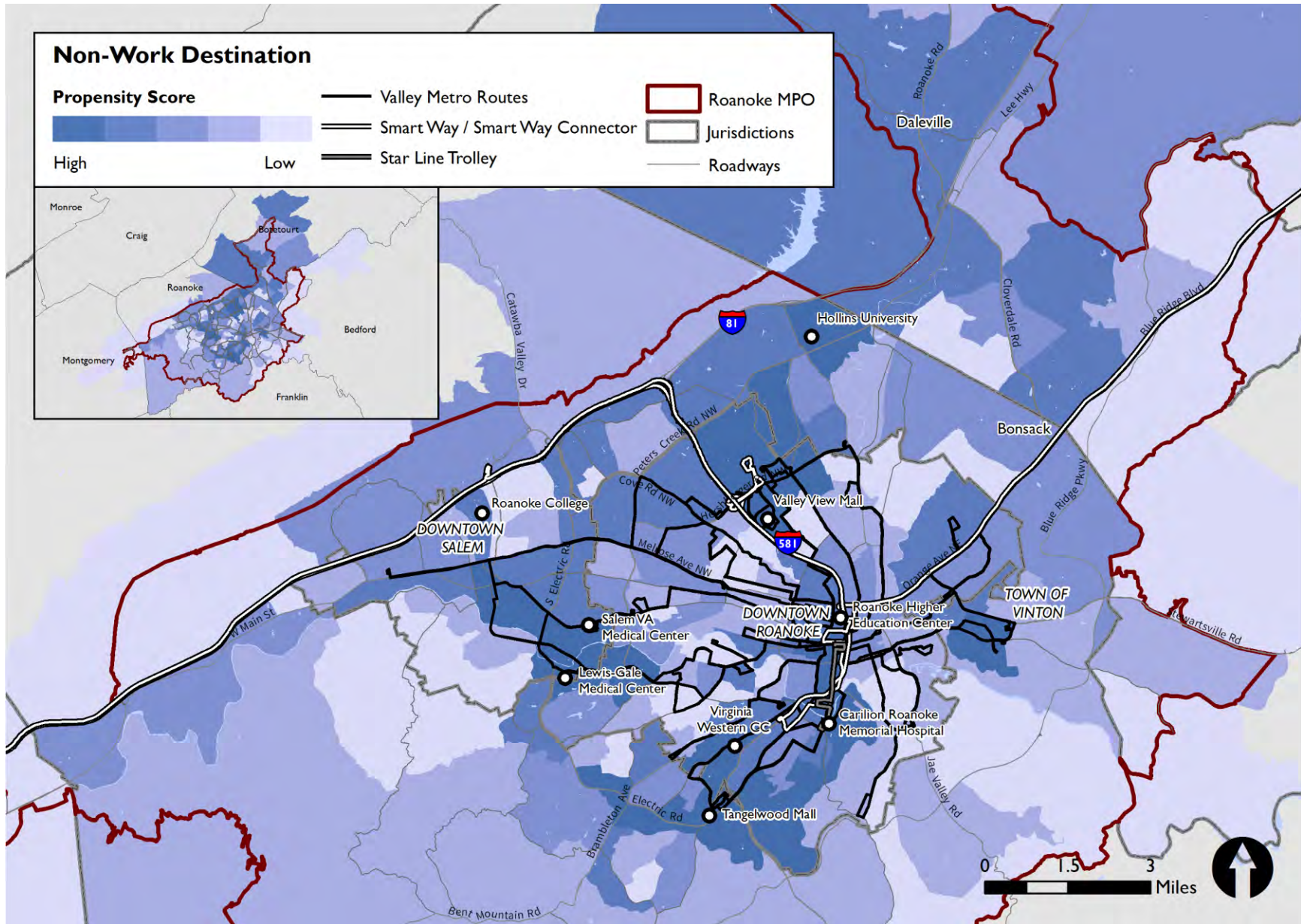


Figure 3.4-1 | Non-Work Propensity Map





## 4.0 REGIONAL TRAVEL DEMAND ANALYSIS

The VDOT Regional Travel Model was developed to estimate and forecast travel flows throughout the Roanoke Valley region. Within this project, it was used as a source of origin-destination data and was analyzed to understand residents travel patterns within the region.

The travel model data is broken out by different trip types which include home-based work, home-based other, home-based school, and non-home based trips. All of the trip types were combined to establish a baseline for travel throughout the day. Additionally, the home-based work trips were analyzed separately to visualize how the travel patterns differ in the peak hours.

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### 4.1 Base Year (2005) Flows

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The analysis of the base year (2005) model data found clusters of high volume flows, of all the different trip types, within three different zones on the fringe of the existing service area (**Figure 4.1-1**). The largest of these zones was centered on Valley View Mall. These flows from the mall were connecting with many of the surrounding residential communities and other large attractors such as Hollins University, Walmart, and the Crossroads/Roanoke-Blacksburg Regional Airport area. Similarly, there was another cluster of trip flows in the southern zone of the Roanoke Valley region, around Tanglewood Mall. The final zone was along U.S. 460 East (Orange Avenue/Challenger Avenue), with high volume trip connections between Downtown Roanoke, Bonsack, and Blue Ridge.

The home-based work trip flows showed high volumes of travel in many of the same clusters as the other trip types, but were primarily connecting with Downtown Roanoke. In total, there were 17 high volume home-based work trip flows between Downtown Roanoke and the surrounding areas include Vinton, Hollins, Bonsack, Garden City, Oak Grove, Cave Spring, and Valley View. Despite the radial travel pattern in the region, there were a few notable connections where high volumes of home-based work trips were made not connecting with Downtown Roanoke. These pairs were between, Valley View and Bonsack, Valley View and Grandin, and Valley View and Tanglewood.

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### 4.2 Forecasted Year (2035) Flows

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The analysis of the forecasted model year, 2035, showed a similar regional travel pattern for both home-based work and all the other trip types see **Figure 4.2-1**. The most notable changes are the growth in the number of home-based work trips between the areas along U.S. 460 East and a new cluster of home-based work trips connecting with Carilion Roanoke Memorial Hospital. Preliminary data from an ongoing update of the regional travel demand model was reviewed. Differences between the two models were not significant as to require adjustments to any of the recommendations developed as part of this plan.

Figure 4.1-1 | Travel Model Flows (2005) Map

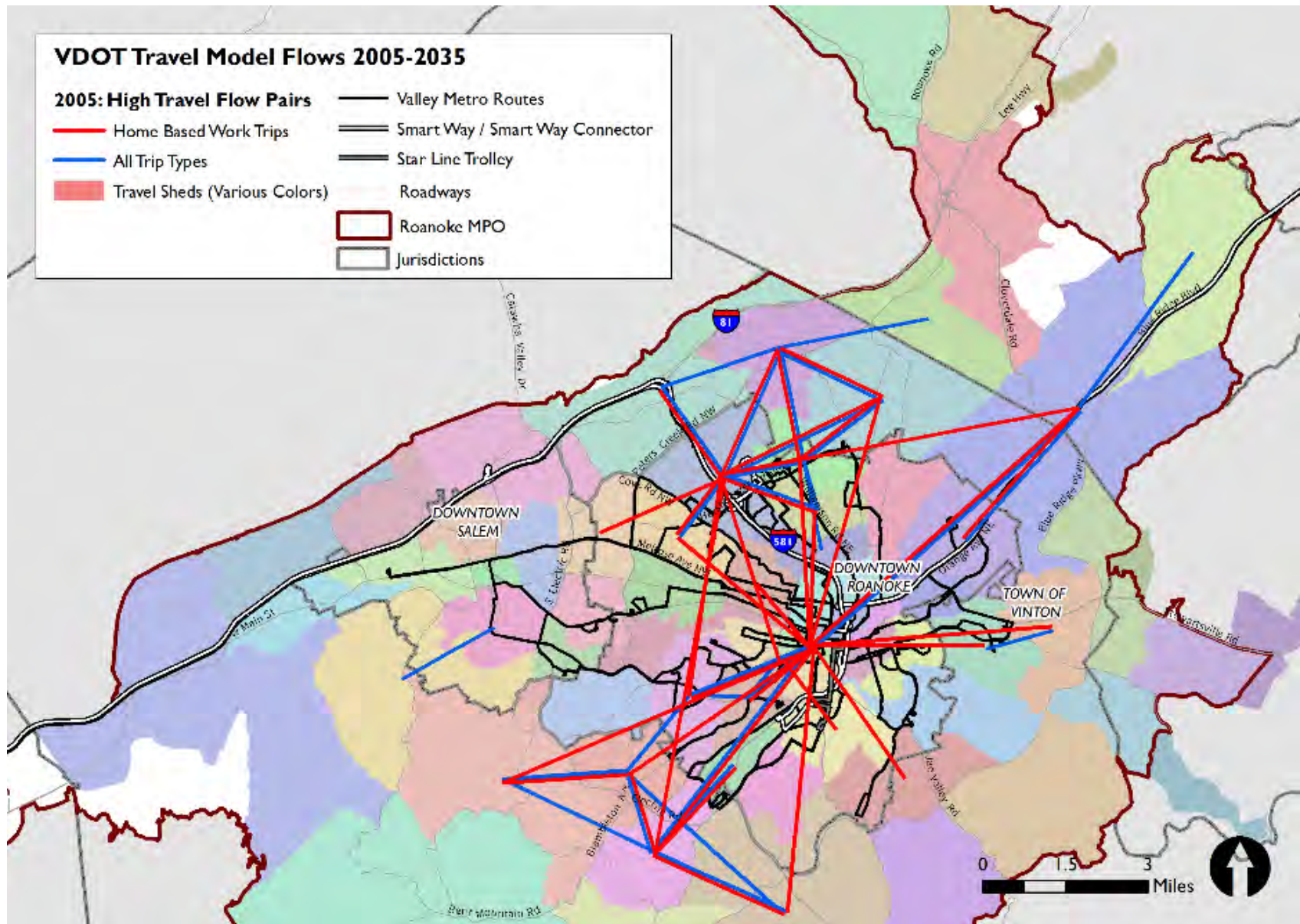
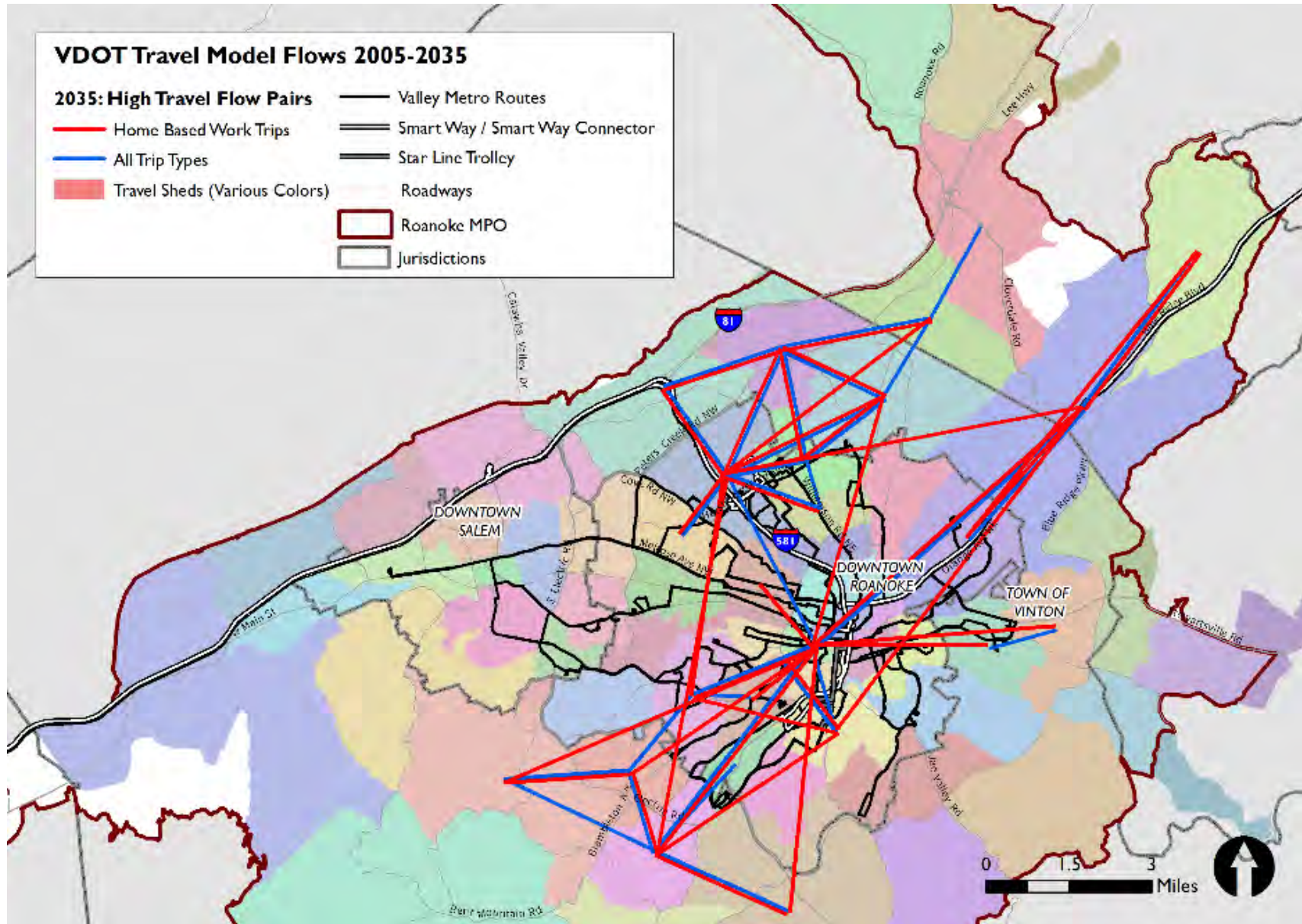


Figure 4.2-1 | Travel Model Flows (2035) Map



## 5.0 GAP ANALYSIS

A comparison of existing services against various transit needs analyses were reviewed and identified gaps throughout the system.

### 5.1 Service Area Gaps

The transit propensities were combined to illustrate where there are service gaps or areas where there is no transit where it is needed.

The Commuter and Work propensities were merged to create a Peak Hour Service Propensity (**Figure 5.1-1**), this propensity identifies the major areas where people are either beginning their typical work trip or ending it. The Peak Hour Service Propensity is generally focused on typical work travel hours, 6:15 AM – 9:15 AM and 3:15 PM – 7:15 PM.

The analysis of the Peak Hour Service Propensity found numerous areas outside the existing transit system that have a high peak hour propensity score without any peak hour service, including the Hollins area, Hollins University, Daleville, the Electric Rd corridor, and the communities north of the Roanoke–Blacksburg Regional Airport. The analysis also found areas that were underserved by existing transit, receiving less than 30 minute frequency in the peak hour. The underserved areas include Salem, Downtown Vinton, and the Roanoke Centre for Industry and Technology.

The Residential and Non-Work propensities were combined to make an All Day Service Propensity (**Figure 5.1-2**). This propensity is focused on identifying areas that need transit throughout the day.

The analysis of the All Day Service identified service gaps in the transit system within the Hollins area, Hollins University, Clearbrook, and Cave Spring.

### 5.2 Frequent Service Corridor Analysis

Using all four propensity analyses, a Frequent Service Corridor Propensity was created that identified the corridors that already have strong transit-supportive land use characteristics. Upon adoption of appropriate land use policies, as described in **Part 6: Implementation Strategies**, these corridors could foster greater transit-supportive land uses. This analysis identified the following frequent service corridors (**Figure 5.2-1**):

- ▲ DOWNTOWN ROANOKE – DOWNTOWN SALEM
- ▲ DOWNTOWN ROANOKE – DOWNTOWN VINTON
- ▲ DOWNTOWN ROANOKE – HOLLINS
- ▲ DOWNTOWN ROANOKE – SOUTH ROANOKE COUNTY – TANGLEWOOD

While this analysis primarily considered existing land uses and development patterns, there are other less developed corridors in future growth areas. Local governments have the opportunity to shape how these places are developed over time. Such places that could be further developed with a strong emphasis on transit-oriented development include:

- ▲ DOWNTOWN SALEM – GLENVAR/RICHFIELD
- ▲ GREENFIELD/DALEVILLE-EXIT 150-BONSACK
- ▲ HOLLINS-TROUTVILLE
- ▲ THE ROUTE 220 BUSINESS/419 CORRIDOR FROM CARILION TO I-81

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### 5.3 Service Connection Gaps

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Missing connections in the existing transit service were identified by comparing the high volume travel flows from VDOT Regional Travel Model data to the existing transit network.

As shown in **Figure 5.3-1**, the majority of the connection gaps are outside of the existing service area and include Daleville, Hollins University, and the DMV to Valley View/Airport area.

Additionally, there is a service gap between Oak Grove, Cave Spring, Tanglewood Mall and Clearbrook at the end of Routes 55/56 and 61/62.

Within the transit service area there are connection gaps between Valley View and Bonsack, Valley View and Grandin, and Valley View and Tanglewood.

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### 5.4 Public Feedback Gaps

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The 2015/2016 Vision Plan Public Outreach analysis highlighted the connections important to the community and identified some of the potential gaps in the system (**Figure 5.4-1**).

Many communities, like Bonsack, Daleville, and the Starkey Rd. area, have no transit options but expressed a desire to commute to larger activity centers. The public also expressed a need for all day service to the VA Medical Center/Lewis Gale Medical Center area from the north and south, along Peters Creek and Electric Roads, respectively. Current service to the Medical Centers is provided through east and west connections. Finally, students at Hollins University expressed the need for all day service, particularly to Downtown Roanoke and evening service to Valley View Mall.

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### 5.5 System Structure (Pulse or Non-Pulse)

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Presently, the Valley Metro local bus system operates on a pulse system where all of the routes, except the Star Line Trolley, start service around the region, are timed to meet in Downtown Roanoke at the Campbell Court Transfer Center, and then travel radially back out into the region.

This System Structure analysis examined whether the current pulse system makes more sense than a direct (non-pulse) network which would not force a transfer at Campbell Court. To begin this analysis, the pros and cons of each type of system were considered as shown in the following table.

Table 5.5-1 | Pulse System versus Direct (Non-Pulse) Network

|                       | Pros  | Cons  |
|-----------------------|---|---|
| <b>Pulse System</b>   | <ul style="list-style-type: none"> <li>• Allows for more coverage through the region</li> <li>• Less transfer time between routes</li> <li>• More access across the system</li> <li>• Single central hub results in less infrastructure</li> <li>• Relatively lower costs to cover more area</li> </ul> | <ul style="list-style-type: none"> <li>• Large number of trips are forced to transfer</li> <li>• Less attractive to the average rider</li> <li>• Individual route distances are limited by the need to meet scheduled transfer times</li> </ul>       |
| <b>Direct Network</b> | <ul style="list-style-type: none"> <li>• Direct connections between destinations people want to go</li> <li>• More convenient for riders with beginning and end of trip on the line</li> <li>• More attractive to prospective riders</li> </ul>   | <ul style="list-style-type: none"> <li>• Higher costs due to increase in routes and service frequencies needed to sustain the network</li> <li>• Longer direct routes may provide less coverage overall and as a result less accessibility</li> </ul> |

The potential for going away from a pulse system was evaluated using the travel flows from the VDOT Regional Travel Model. The volume of travel between the service areas of each route was calculated to understand how people moved across the system. The analysis found that over 50 percent of trips go to or through Downtown Roanoke and over 40 percent of individual trips are internal to the route they start on.

Upon further analysis, the region’s current Valley Metro service can be compared to the three geographic travel zones first mentioned in **Part 2: Background and Existing Conditions**. The routes within a zone all have a moderately high volume of travel

within the group, but had limited interaction with the routes that fell outside their zone, see **Table 5.5-2**. The individual routes fall into the following zones:

- ▲ **NORTH-WEST:** 11/12, 15/16, 21/22, 25/26, 75/76, 81/82, 85/86
- ▲ **NORTH-EAST:** 31/32, 35/36, 41/42
- ▲ **SOUTH:** 51/52, 55/56, 61/62, 65/66, 71/72

This travel pattern is largely due to natural and built features that divide the Roanoke Valley, see **Figure 5.5-1**. The barriers identified have limited locations where they can be crossed. Both the Roanoke River and the railroad tracks pass through Downtown Roanoke; breaking the street grid and dividing the region into the north and south. To the northeast of Downtown, the Read Mountain Preserve further subdivides the northern region.

For many Valley Metro routes these barriers force them to travel through the Downtown of Roanoke, even if they were designed to provide a direct connection to another zone.

Therefore based on the nature of the barriers and the flow patterns of travel throughout the region, it was concluded that for the foreseeable future a centralized hub in Downtown Roanoke continues to be the most appropriate approach for the transit system in the Roanoke Valley.

Table 5.5-2 | Valley Metro Route Travel Patterns

|              |       | Destination Route |        |        |        |       |        |        |        |        |        |        |        |        |        |        | Downtown | # Through Downtown | # Internal |
|--------------|-------|-------------------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------------------|------------|
|              |       | 11/12             | 15/16  | 21/22  | 25/26  | 31/32 | 35/36  | 41/42  | 51/52  | 55/56  | 61/62  | 65/66  | 71/72  | 75/76  | 81/82  | 85/86  |          |                    |            |
| Origin Route | 11/12 | 11,947            | 9,634  | 10,645 | 9,895  | 4,107 | 4,777  | 4,808  | 5,150  | 5,427  | 3,953  | 5,161  | 4,904  | 5,499  | 6,278  | 9,858  | 4,384    | 42,671             | 11,957     |
|              | 15/16 | 9,634             | 17,862 | 10,300 | 9,867  | 3,078 | 3,516  | 3,478  | 3,708  | 3,948  | 2,828  | 3,635  | 3,405  | 3,778  | 4,542  | 7,574  | 3,170    | 30,765             | 17,862     |
|              | 21/22 | 10,645            | 10,300 | 22,997 | 13,170 | 4,137 | 4,748  | 4,668  | 4,841  | 5,011  | 3,513  | 4,217  | 3,816  | 4,021  | 4,615  | 7,519  | 4,099    | 39,049             | 22,997     |
|              | 25/26 | 9,895             | 9,867  | 13,170 | 28,108 | 4,379 | 4,884  | 4,654  | 4,817  | 4,906  | 3,380  | 3,980  | 3,605  | 3,736  | 4,183  | 6,899  | 4,362    | 38,966             | 28,108     |
|              | 31/32 | 4,107             | 3,078  | 4,137  | 4,379  | 9,926 | 7,486  | 5,213  | 4,325  | 4,248  | 2,826  | 2,968  | 2,580  | 2,276  | 2,054  | 3,515  | 3,356    | 43,849             | 9,926      |
|              | 35/36 | 4,777             | 3,516  | 4,748  | 4,884  | 7,486 | 13,981 | 6,434  | 5,591  | 5,541  | 3,728  | 3,811  | 3,287  | 2,793  | 2,365  | 4,098  | 3,989    | 53,127             | 13,981     |
|              | 41/42 | 4,808             | 3,478  | 4,668  | 4,654  | 5,213 | 6,434  | 14,480 | 7,413  | 7,148  | 4,436  | 4,391  | 3,804  | 2,996  | 2,440  | 4,195  | 4,091    | 43,960             | 14,480     |
|              | 51/52 | 5,150             | 3,708  | 4,841  | 4,817  | 4,325 | 5,591  | 7,413  | 26,392 | 14,050 | 6,635  | 6,157  | 5,387  | 3,658  | 2,938  | 4,683  | 4,065    | 43,775             | 26,392     |
|              | 55/56 | 5,427             | 3,948  | 5,011  | 4,906  | 4,248 | 5,541  | 7,148  | 14,050 | 31,136 | 8,320  | 7,536  | 6,659  | 4,257  | 3,300  | 4,981  | 4,599    | 46,216             | 31,136     |
|              | 61/62 | 3,953             | 2,828  | 3,513  | 3,380  | 2,826 | 3,728  | 4,436  | 6,635  | 8,320  | 12,018 | 5,963  | 5,442  | 3,383  | 2,572  | 3,716  | 3,382    | 31,429             | 12,018     |
|              | 65/66 | 5,161             | 3,635  | 4,217  | 3,980  | 2,968 | 3,811  | 4,391  | 6,157  | 7,536  | 5,963  | 14,375 | 7,531  | 4,915  | 3,887  | 5,229  | 4,070    | 32,234             | 14,374     |
|              | 71/72 | 4,904             | 3,405  | 3,816  | 3,605  | 2,580 | 3,287  | 3,804  | 5,387  | 6,659  | 5,442  | 7,531  | 18,086 | 5,284  | 4,320  | 5,440  | 3,657    | 29,057             | 18,086     |
|              | 75/76 | 5,499             | 3,778  | 4,021  | 3,736  | 2,276 | 2,793  | 2,996  | 3,658  | 4,257  | 3,383  | 4,915  | 5,284  | 10,566 | 5,192  | 6,394  | 3,086    | 22,448             | 10,567     |
|              | 81/82 | 6,278             | 4,542  | 4,615  | 4,183  | 2,054 | 2,365  | 2,440  | 2,938  | 3,300  | 2,572  | 3,887  | 4,320  | 5,192  | 12,395 | 7,303  | 2,825    | 15,921             | 12,395     |
|              | 85/86 | 9,858             | 7,574  | 7,519  | 6,899  | 3,515 | 4,098  | 4,195  | 4,683  | 4,981  | 3,716  | 5,229  | 5,440  | 6,394  | 7,303  | 18,577 | 4,184    | 25,657             | 18,576     |

Low Volume of Trips

Medium Volume of Trips

High Volume of Trips

Route pair that requires travel through Downtown Roanoke.

Figure 5.1-1 | Peak Hour Service Gap Map

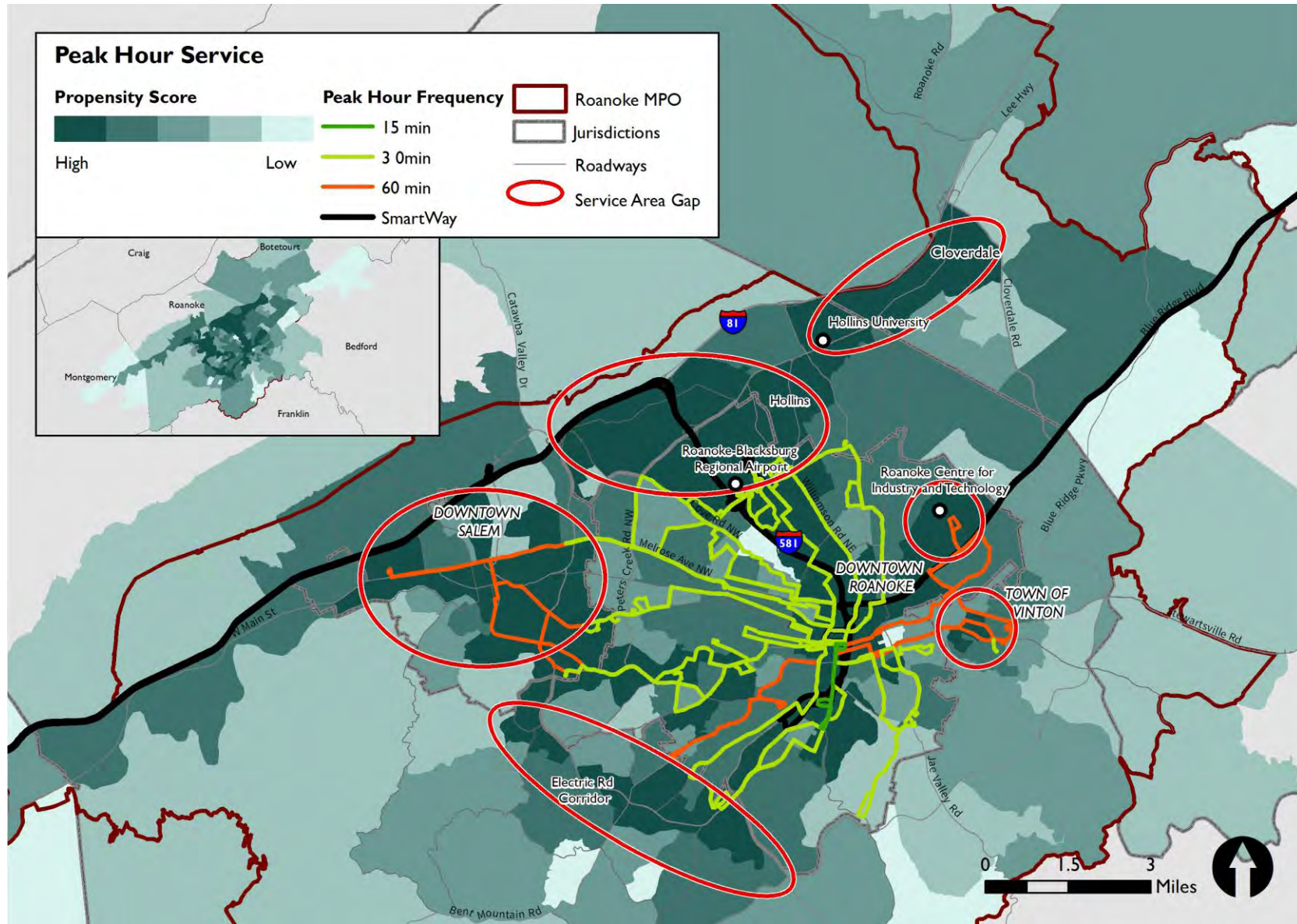




Figure 5.1-2 | All Day Service Gap Map

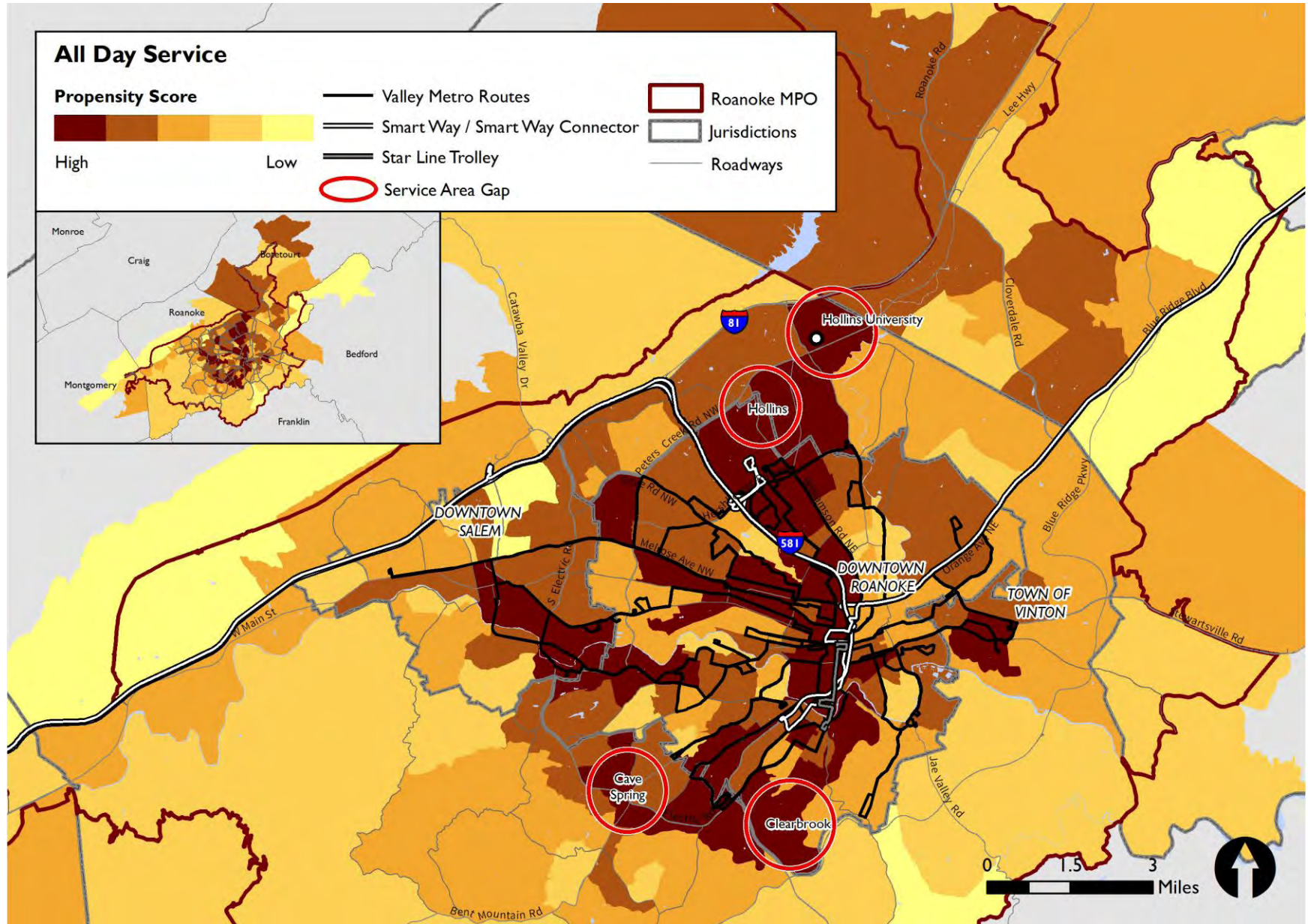


Figure 5.2-1 | Frequent Corridor Map

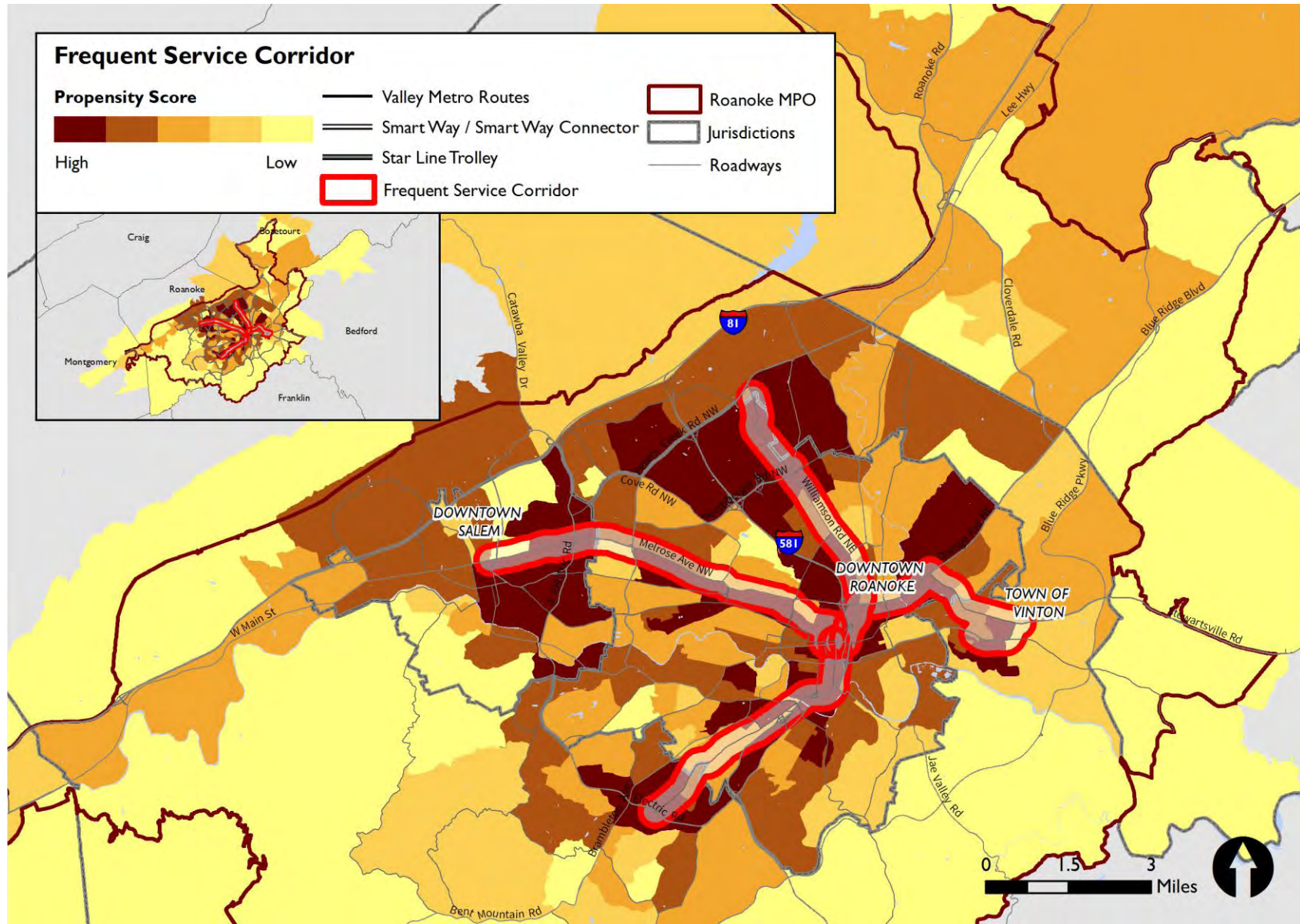


Figure 5.3-1 | Service Connection Gap Map

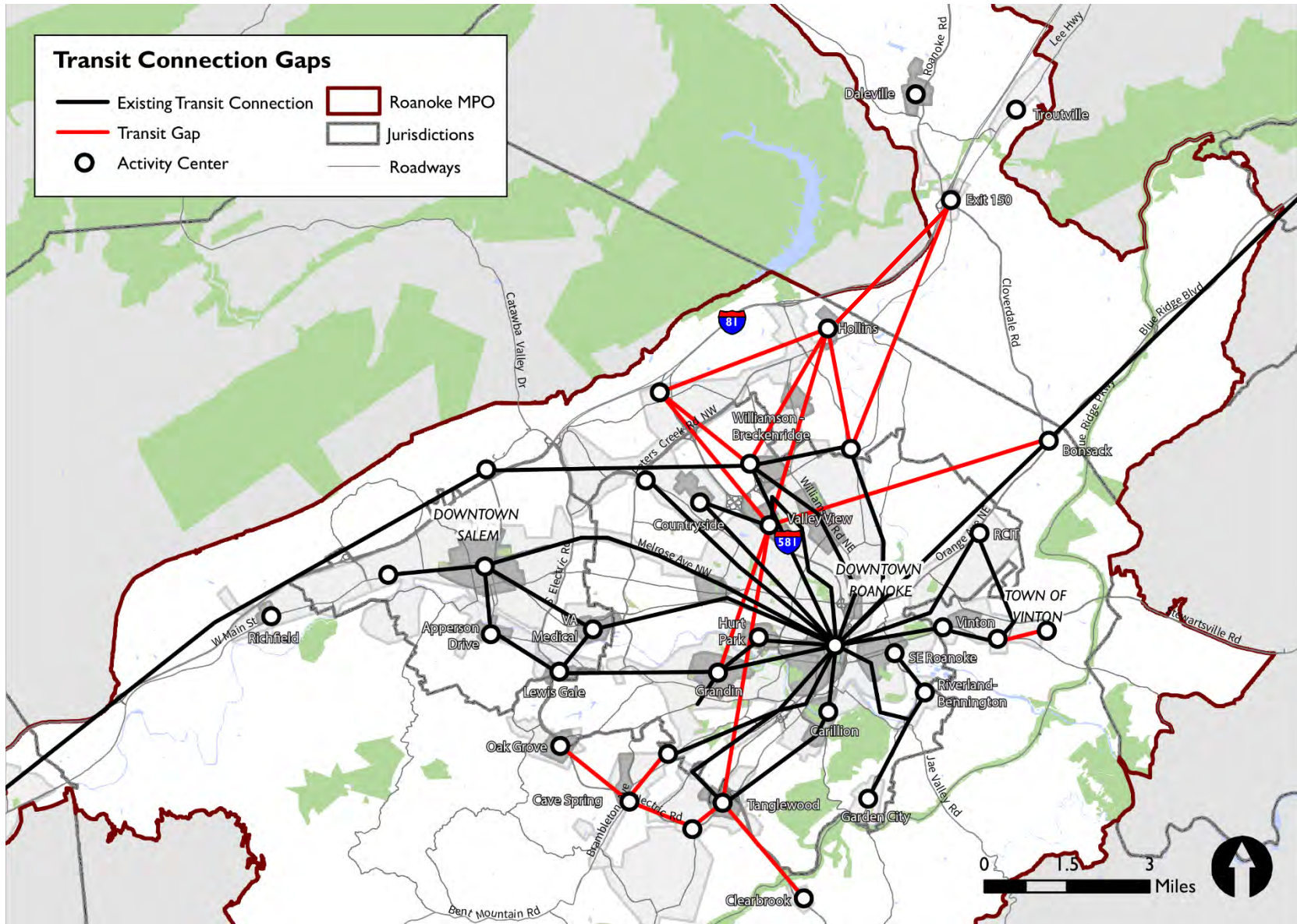
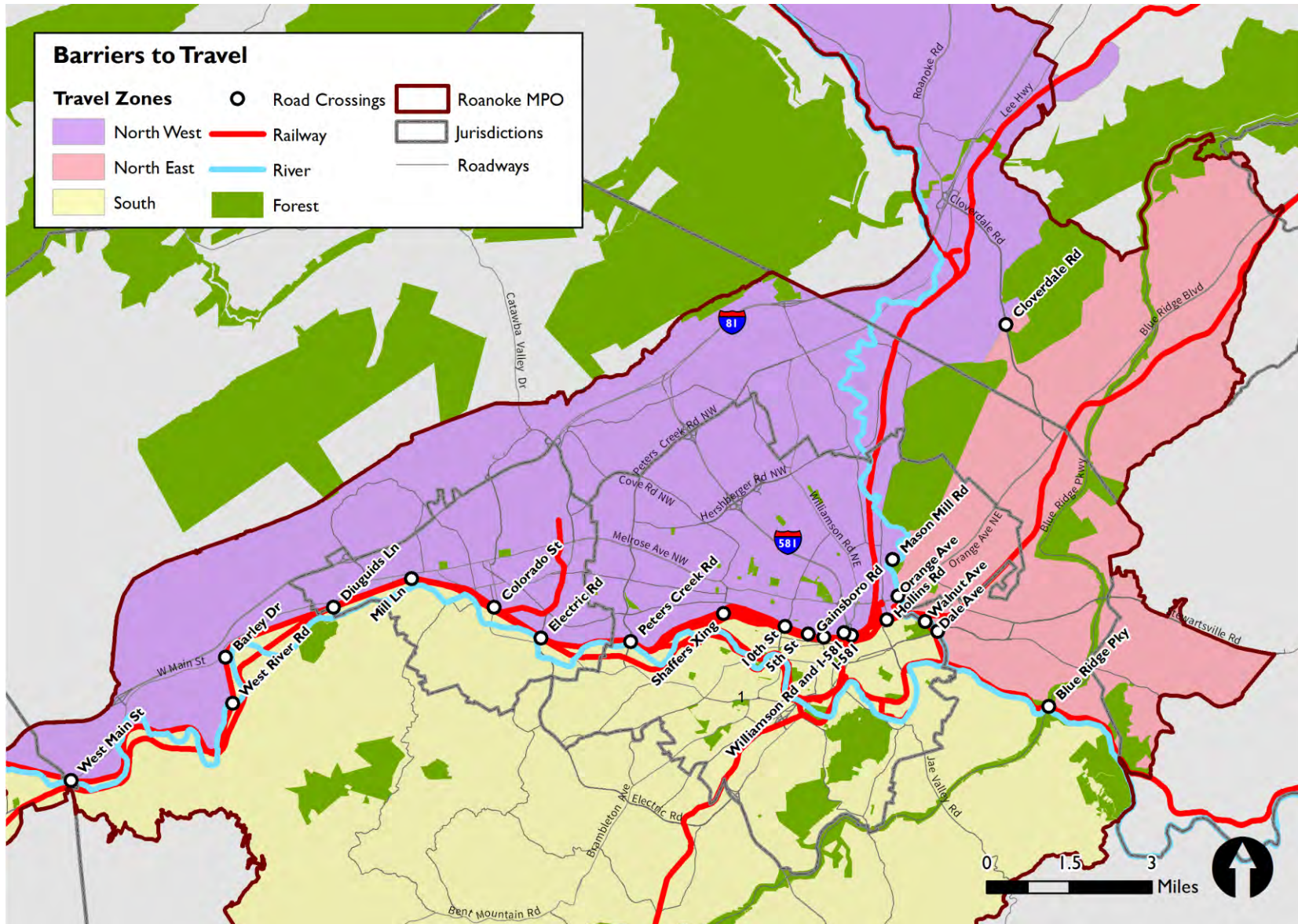




Figure 5.5-1 | Barriers to Travel Map



# Roanoke Valley Transportation PLANNING ORGANIZATION

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## Roanoke Valley TRANSIT VISION PLAN

*Approved September 22, 2016*

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### PART 5: Recommendations

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## 1.0 REFLECTIONS ON THE PAST AND THE CURRENT STATE OF TRANSIT SERVICE IN THE ROANOKE VALLEY

A majority of this plan has focused around Valley Metro fixed-route services, their current extent, and where additional connections are needed. The system today provides basic service coverage across most of the City of Roanoke, Town of Vinton, and the City of Salem with a pulse based system. The service model has thus far been designed to provide uniform coverage to as many areas as possible within the confines of financially contributing local governments. The associated limited funding and constrained services means that the current frequency of routes is low and the span of service hours is limited to first shift and daytime and early evening services.

The resulting service, though essential to the region, is limited in its ability to meet the needs of residents and provide a true transportation choice for more people. The lack of convenience, including long waits due to infrequent service and required transfers, means that the system is not attractive to many people thus leading them to use other transportation modes and is difficult to use for people who use it regularly.

Outside of the current Valley Metro service area, other transit services are limited to seniors and people with disabilities. As a result many commuters do not have access to any transit service, and employment sites outside Roanoke City, Salem, and Vinton are not accessible via transit. This is a hardship on both employees and employers: the former looking for options to get

to work, and the latter needing to find employees who can get to their job site.

The recommendations of the Transit Vision Plan are designed to address a broad range of challenges facing the Roanoke Valley and will help the region realize the goals of the Livable Roanoke Valley plan. The recommendations described in this plan were developed to promote economic opportunity and a greater quality of life for all Roanoke Valley residents by creating a system that better meets the needs of the entire Roanoke Valley. This would be accomplished by adding new services to access new locations and providing more frequent service and operations for longer hours, thus making transit more convenient and attractive to a larger number of residents and visitors.

The Roanoke Valley Transit Vision Plan recommendations focus on improving existing and creating new enhanced bus services that will connect key destinations with a more frequent network across the region. Enhancing local and commuter bus services will provide additional support to the region's workforce, and help attract and retain businesses that are focused on providing a high quality of life for their employees. The recommendations will vastly increase the number and variety of destinations that are accessible via transit, giving people new options for getting to shopping, restaurants, services, recreation, education, social, and cultural destinations. In short, the recommendations of the Transit Vision Plan will help make the Roanoke Valley more livable, by stitching together the fabric of life that makes it such a desirable place to live, work, and play.

## 2.0 BASIS FOR DEVELOPING RECOMMENDATIONS

Recommendations were based upon four different inputs:

- Service Gap Analysis
- Service Connection Analysis
- Frequent Corridor Analysis
- Public Input

These inputs were analyzed individually and compared against the existing service to determine where the need and demand for transit service exists throughout the Roanoke Valley region. Once compiled they were prioritized, based upon another round of public input, and placed into priority timeframes of short-, medium-, and long-term recommendations. The initial timeframe of six years was intended to correspond with the next phase of this planning process which is creating the six-year Transit Development Plans for Valley Metro and for RADAR.

All of the recommendations were then translated into potential network scenarios including route additions, reallocation of services, and route extensions for the purposes of developing cost estimates and input to the 2016 update to the regional VDOT Travel Model currently under development. With each change, service for people with disabilities would follow given that paratransit service is required within  $\frac{3}{4}$  mile of any fixed-route transit service.

**It is important to note that these are conceptual scenarios estimating how the recommendations could be implemented though other possibilities exist.**

The following sections describe the third phase of public engagement that was utilized to refine the proposed recommendations. Public outreach in this phase included the following strategies:

- ▲ PUBLIC WORKSHOPS
- ▲ ONLINE ENGAGEMENT
- ▲ SURVEY ON VALLEY METRO BUSES
- ▲ SURVEY ON RADAR BUSES
- ▲ SURVEY ON BOTETOURT SENIOR AND ACCESSIBLE VANS

These sections are followed by the recommendations themselves. The other analyses used to develop recommendations are described in Part 4.

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### 2.1 Public Workshops: January 21, 2016

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Two public outreach workshops were held on January 21, 2016 to review draft recommendations. The workshops were held at Campbell Court and the Vinton Library and were advertised in a local newspaper, online (social media, website, email), through signage outside Campbell Court and along major roadways, and on-board Valley Metro and RADAR buses. Approximately 28 people participated in the January workshops.

Figure 2.1-1 | Workshop Participants Learn about Draft Recommendations



The January workshop attendees participated in a transit investment exercise where they were asked to hypothetically assign existing and future funding resources to the recommendations. The results were tallied and used to help refine the potential phasing of improvements. The recommendations with the highest amount of votes (stickers for existing and future funding) include:

- Additional connections to Roanoke DMV
- New route(s) connecting Tanglewood, Cave Spring, Oak Grove, Lewis Gale, and Downtown Salem
- Longer hours of fixed-route service
- New Sunday fixed-route service (Routes 15/16, 35/36, 55/56, 91/92)
- New connection to Daleville

## 2.2 Online Engagement

In addition to traditional public workshops, citizens were offered the opportunity for digital input via an interactive community forum.

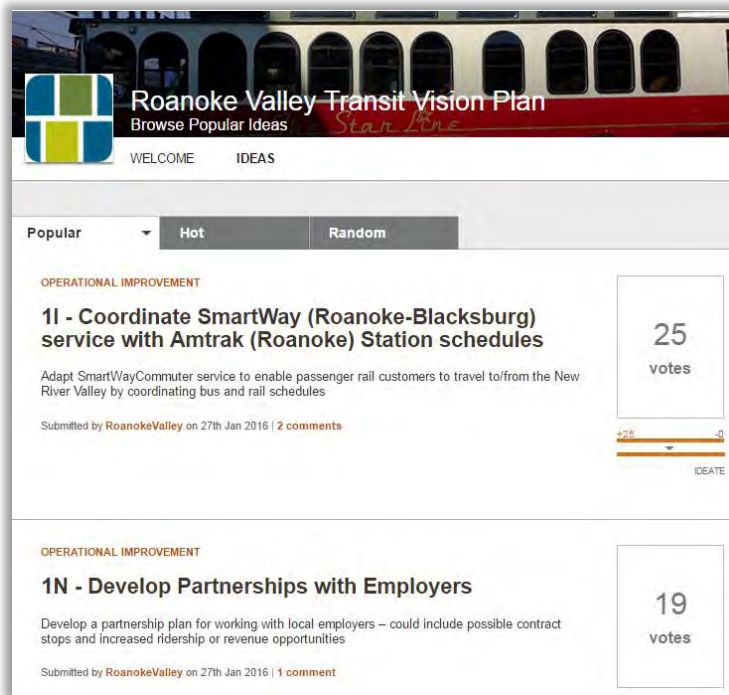
An online community forum was developed in January 2016 and provided participants with an opportunity to vote and comment on the proposed recommendations (**Figure 1.2-1**). The forum provided an online alternative to the January 21 public workshops and remained open until mid-March 2016.

Approximately 71 users visited the site, providing 23 comments and casting 440 votes on the draft recommendations. The highest ranked recommendations by votes were:

- Coordinate SmartWay (Roanoke-Blacksburg) service with Amtrak (Roanoke) Station schedules (25 votes, 2 comments)
- Develop Partnerships with Employers (19 votes, 1 comment)
- Bus Arrival Real-time Information (19 votes)
- New route(s) connecting Tanglewood, Cave Spring, Oak Grove, Lewis Gale, and Downtown Salem (19 votes, 1 comment)
- Additional Connection to Cave Spring Corners (17 votes)



Figure 2.2-1 | IDEAScale Online Forum Screenshot



After viewing the “welcome screen”, the online forum participants could vote or comment on the draft recommendations. In all, 440 votes were cast.

## 2.3 Valley Metro Draft Recommendations Survey

Valley Metro riders were asked to provide their input on the usefulness of the draft recommendations to themselves personally as well as from their perspective of the needs of other people. The survey was distributed by Valley Metro operators on the buses on February 17, 2016; citizens had the opportunity

to return the survey by February 19. A total of 1500 surveys were distributed and 501 were returned. For each timeframe, the results are shown in the following tables.

The results of the survey helped to inform the timeframe for implementing the recommendations. The additional recommendations listed also provided insight into other needs that had not yet been incorporated into the Plan.

A copy of the survey instrument is provided in the following figures.

Table 2.3-1 | Valley Metro Riders' Responses to Short-Term Recommendations by % and # Respondents

|  | <u>VERY USEFUL TO ME</u> |     | <u>SOMEWHAT USEFUL TO ME</u> |     | <u>VERY USEFUL TO OTHER PEOPLE</u> |     | <u>SOMEWHAT USEFUL TO OTHER PEOPLE</u> |     |
|--|--------------------------|-----|------------------------------|-----|------------------------------------|-----|--|-----|
|  | %                        | #   | %                            | #   | %                                  | #   | %                                      | #   |
| 1A: Hourly to DMV  | 65%                      | 321 | 19%                          | 91  | 52%                                | 256 | 9%                                     | 43  |
| 1B: Hourly/Peak to Airport                               | 40%                      | 196 | 32%                          | 158 | 45%                                | 221 | 18%                                    | 88  |
| 1C: Peak between Downtown Roanoke and Vinton             | 57%                      | 279 | 24%                          | 117 | 46%                                | 226 | 13%                                    | 63  |
| 1D: Hourly between Dtown Roanoke & RCIT/Blue Hills Drive | 39%                      | 191 | 32%                          | 158 | 44%                                | 214 | 19%                                    | 92  |
| 1E: Hourly to Cave Spring Corners                        | 41%                      | 203 | 31%                          | 154 | 42%                                | 206 | 21%                                    | 102 |
| 1F: Hourly peak to Oak Grove                             | 34%                      | 169 | 31%                          | 153 | 41%                                | 199 | 21%                                    | 101 |
| 1G: Hourly bet. Salem & SmartWay, I-81 Exit 140 P&R      | 45%                      | 223 | 27%                          | 134 | 45%                                | 220 | 15%                                    | 76  |
| 1H: Hourly to Glenvar/Richfield                          | 34%                      | 169 | 34%                          | 168 | 40%                                | 198 | 21%                                    | 104 |
| 1K: Express bet. East Park, Bonsack & Roanoke            | 43%                      | 209 | 29%                          | 141 | 41%                                | 202 | 20%                                    | 96  |
| 1L: Sunday service on rte. 15/16, 35/36, 55/56 and 91/92 | 72%                      | 354 | 14%                          | 68  | 51%                                | 251 | 8%                                     | 39  |
| 1S: Trolley between Carilion and Towers Shopping Center  | 64%                      | 316 | 19%                          | 93  | 48%                                | 238 | 9%                                     | 42  |

The total number of people who provided input on the short-term recommendations was 491.

Table 2.3-2 | Valley Metro Riders' Responses to Medium-Term Recommendations by % and # Respondents

|  | <u>VERY USEFUL TO ME</u> |     | <u>SOMEWHAT USEFUL TO ME</u> |     | <u>VERY USEFUL TO OTHER PEOPLE</u> |     | <u>SOMEWHAT USEFUL TO OTHER PEOPLE</u> |     |
|--|--------------------------|-----|------------------------------|-----|------------------------------------|-----|--|-----|
|  | %                        | #   | %                            | #   | %                                  | #   | %                                      | #   |
| Connect Salem to the Airport/Crossroads/Valley View and Hollins  | 55%                      | 264 | 25%                          | 118 | 43%                                | 205 | 13%                                    | 61  |
| Connect Tanglewood/Cave Spring/Oak Grove/Lewis Gale/Salem        | 55%                      | 261 | 24%                          | 116 | 42%                                | 202 | 12%                                    | 57  |
| Peak service to Salem  | 54%                      | 258 | 22%                          | 103 | 42%                                | 199 | 14%                                    | 65  |
| Hourly between northwest Roanoke County and Hollins area         | 48%                      | 228 | 27%                          | 127 | 41%                                | 193 | 16%                                    | 78  |
| Hourly/Peak between Bonsack-RCIT/Blue Hills Dr.-Downtown Roanoke | 44%                      | 208 | 27%                          | 130 | 42%                                | 201 | 15%                                    | 72  |
| 30-minute all day on routes 15/16, 21/22, 35/36, 55/56, 75/76    | 65%                      | 309 | 18%                          | 88  | 43%                                | 203 | 11%                                    | 50  |
| Later evening service - WORK                                     | 71%                      | 337 | 11%                          | 54  | 41%                                | 194 | 7%                                     | 31  |
| Later evening service - SOCIAL                                   | 48%                      | 227 | 10%                          | 49  | 31%                                | 149 | 6%                                     | 29  |
| Later evening service - SHOPPING                                 | 51%                      | 241 | 11%                          | 50  | 33%                                | 157 | 6%                                     | 29  |
| Later evening service - AMTRAK CONNECTION                        | 40%                      | 190 | 10%                          | 47  | 27%                                | 127 | 5%                                     | 23  |
| Earlier morning service - WORK                                   | 65%                      | 311 | 17%                          | 83  | 40%                                | 191 | 10%                                    | 46  |
| Earlier morning service - AMTRAK CONNECTION                      | 39%                      | 185 | 14%                          | 65  | 27%                                | 128 | 8%                                     | 36  |
| Hourly between Lewis Gale, Towers Shopping Center, Carilion      | 58%                      | 274 | 21%                          | 102 | 44%                                | 209 | 12%                                    | 58  |
| Peak between Cave Spring and Downtown Roanoke                    | 45%                      | 214 | 28%                          | 133 | 39%                                | 186 | 19%                                    | 92  |
| Hourly to A Porters Haven in Vinton                              | 34%                      | 164 | 33%                          | 156 | 37%                                | 175 | 23%                                    | 110 |

The total number of people who provided input on the medium-term recommendations was 476.

Table 2.3-3 | Valley Metro Riders' Responses to Long-Term Recommendations by % and # Respondents

|  | <u>VERY USEFUL TO ME</u> |     | <u>SOMEWHAT USEFUL TO ME</u> |     | <u>VERY USEFUL TO OTHER PEOPLE</u> |     | <u>SOMEWHAT USEFUL TO OTHER PEOPLE</u> |     |
|--|--------------------------|-----|------------------------------|-----|------------------------------------|-----|--|-----|
|  | %                        | #   | %                            | #   | %                                  | #   | %                                      | #   |
| Hourly to Daleville/Botetourt County   | 36%                      | 165 | 33%                          | 149 | 41%                                | 186 | 24%                                    | 108 |
| Hourly to Clearbrook/220 Walmart area, Roanoke County  | 53%                      | 243 | 23%                          | 106 | 42%                                | 193 | 17%                                    | 78  |
| Hourly to South County Library   | 37%                      | 169 | 32%                          | 147 | 38%                                | 173 | 24%                                    | 109 |
| Hourly to East Vinton/East Roanoke County/William Byrd High School   | 40%                      | 182 | 32%                          | 148 | 41%                                | 188 | 21%                                    | 94  |
| Hourly/Peak between Hollins area and VA Medical Center/Lewis Gale via Peters Creek Road  | 50%                      | 228 | 28%                          | 129 | 43%                                | 199 | 16%                                    | 73  |
| Peak with Limited Stops: Glenvar/Richfield - Downtown Salem - Downtown Roanoke   | 51%                      | 234 | 28%                          | 127 | 42%                                | 194 | 16%                                    | 75  |
| High frequency corridors w/15-minute peak, 30-minute midday/evening: Downtown Roanoke - Downtown Salem, Downtown Roanoke - Downtown Vinton, Downtown Roanoke - Hollins, and Downtown Roanoke - Tanglewood/South Roanoke County | 67%                      | 309 | 18%                          | 84  | 44%                                | 200 | 12%                                    | 53  |

The total number of people who provided input on the medium-term recommendations was 458.

Figure 2.3-1 | Sample Valley Metro Survey (front)

Dear Valley Metro Riders:

The future of transit in the Roanoke Valley is being planned now! Please review these draft recommendations and check the appropriate boxes to indicate how useful you think the recommendation will be to you and to other people.

To participate in an online discussion about the recommendations, visit: <http://roanoketransitvision.ideascale.com/>



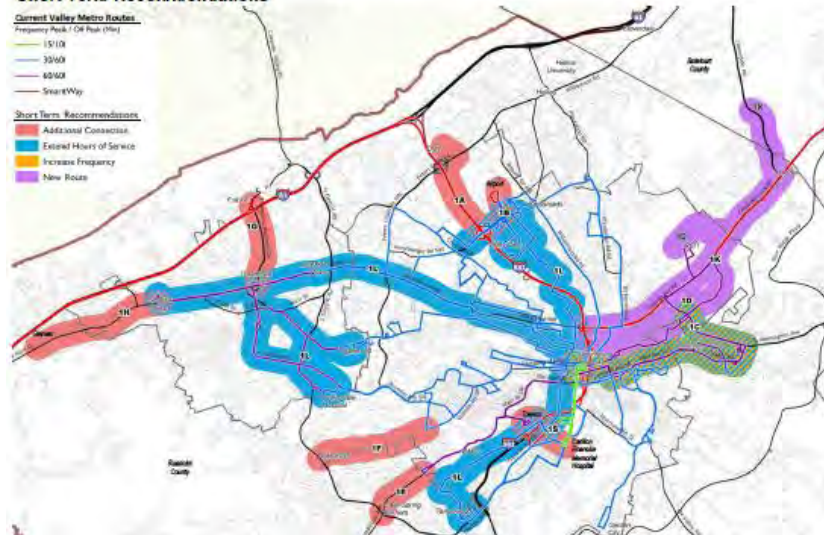
More information about the plan is available at [www.rvarc.org/transit](http://www.rvarc.org/transit). If you have questions or need assistance completing this form, please call Cristina Finch at (540) 343-4417. Please return surveys to Campbell Court or to any Bus Operator by Friday, February 19. Thank you for your time!



**Short Term Recommendations**

**Current Valley Metro Routes**  
Frequency Peak / Off Peak (Off)  
15/10  
35/30  
65/60  
SmartWay

**Short Term Recommendations**  
Add/Extend Connection  
Extend Hours of Service  
Increase Frequency  
New Routes



| Short Term Recommendations:<br>New services<br>for the next 6 years | Useful to<br>ME:         |                          | Useful to<br>OTHER<br>PEOPLE: |                          |
|---|--------------------------|--------------------------|-------------------------------|--------------------------|
|   | Very                     | Some-<br>what            | Very                          | Some-<br>what            |
| 1A: Hourly to DMV   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| 1B: Hourly/Peak to Airport  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| 1C: Peak between Downtown<br>(Dtown) Roanoke and Vinton             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| 1D: Hourly between Dtown<br>Roanoke and RCIT/Blue Hills Drive       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| 1E: Hourly to Cave Spring Corners                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| 1F: Hourly/Peak to Oak Grove  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| 1G: Hourly between Salem and<br>Smart Way, I-81 Exit 140 P-n-R Lot  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| 1H: Hourly to Glenvar/Richfield                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| 1K: Express between East Park,<br>Bonsack and Roanoke               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| 1L: Sunday service on routes 15/16,<br>35/36, 55/56, and 91/92      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| 1S: Trolley between Carilion and<br>Towers Shopping Center          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |

Figure 2.3-2 | Sample Valley Metro Survey (back)

| Medium Term: Next 6-12 years  | Useful to<br>ME:         |                          | Useful to<br>OTHER<br>PEOPLE: |                          |
|---|--------------------------|--------------------------|-------------------------------|--------------------------|
|   | Very                     | Some-<br>what            | Very                          | Some-<br>what            |
| Connect Salem to the Airport/Crossroads/Valley View and Hollins   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Connect Tanglewood/Cave Spring/Oak Grove/Lewis Gale/Salem   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Peak service in Salem   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Hourly between northwest Roanoke County and Hollins area  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Hourly/Peak between Bonsack-RCIT/Blue Hills Dr-Dtown Roanoke  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| 30-minute all day on routes 15/16, 21/22, 35/36, 55/56, 75/76   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Later evening service (Circle purpose: work / social / shopping / Amtrak connection)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Earlier morning service (Circle purpose: work / Amtrak connection)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Hourly between Lewis Gale, Towers Shopping Center, Carilion   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Peak between Cave Spring and Dtown Roanoke  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Hourly to A Porters Haven in Vinton   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Long Term: Next 12-25 years   |                          |                          |                               |                          |
| Hourly to Daleville, Botetourt County   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Hourly to Clearbrook/220 Walmart area, Roanoke County   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Hourly to South County Library  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Hourly to East Vinton/East Roanoke County/William Byrd High School  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Hourly/Peak between Hollins area and VA Medical Center/Lewis Gale via Peters Creek Rd.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| Peak with Limited Stops: Glenvar/Richfield - Dtown Salem - Dtown Roanoke  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |
| High frequency corridors w/15-minute peak, 30-minute midday/evening:<br>Dtown Roanoke - Dtown Salem, Dtown Roanoke - Dtown Vinton, Dtown<br>Roanoke - Hollins, and Dtown Roanoke - Tanglewood/South Roanoke Co. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>      | <input type="checkbox"/> |

What is your **home** zip code? \_\_\_\_\_

Which locality do you **live** in?  City of Roanoke  Roanoke County  Vinton  Salem  
 Other \_\_\_\_\_

What is your **work** zip code? \_\_\_\_\_

Which locality do you **work** in?  City of Roanoke  Roanoke County  Vinton  Salem  
 Other \_\_\_\_\_  I am not currently employed

Do you own a car?  Yes  No

Please list any comments or additional recommendations: \_\_\_\_\_

Surveys that are fully completed will be eligible to win a 31-day pass. Thank you for your time!

Name: \_\_\_\_\_ Phone: \_\_\_\_\_ Email: \_\_\_\_\_

## 2.4 RADAR Survey

RADAR customers in the Roanoke Valley include users of STAR (complementary paratransit service to Valley Metro) and/or CORTAN (County of Roanoke Transportation). At public meetings or via online public surveys, citizen feedback indicated a need for expanded hours and additional service area coverage. Thus, a survey for both services was administered together to better understand the user’s need for more services and inquire about their interest in pursuing alternative ways to get around the Valley. Bus operators distributed the surveys over a two-week period in March 2016. Customers had the opportunity to return the survey to an operator or mail it in; some needed assistance in completing the survey which was provided either on the telephone by staff or in person by an operator. In total, 112 surveys were received. The following table shows the breakdown of customer’s residential locality.

*Table 2.4-1 | RADAR Survey – Customer’s Locality of Residence*

|                          | Percentage of Responses | Total Responses |
|--------------------------|-------------------------|-----------------|
| <b>City of Roanoke</b>   | 55.7%                   | 59              |
| <b>Roanoke County</b>    | 29.2%                   | 31              |
| <b>Vinton</b>            | 7.5%                    | 8               |
| <b>Salem</b>             | 7.5%                    | 8               |
| <b>Botetourt County</b>  | < 1%                    | 1               |
| <b>Answered Question</b> |                         | <b>106</b>      |
| <b>Skipped Question</b>  |                         | <b>6</b>        |

The next table shows the responses to “In which locality does the customer work?”

*Table 2.4-2 | RADAR Survey – Customer’s Locality of Employment*

|                                    | Percentage of Responses | Total Responses |
|------------------------------------|-------------------------|-----------------|
| <b>City of Roanoke</b>             | 21.8%                   | 22              |
| <b>Roanoke County</b>              | 5.9%                    | 6               |
| <b>Vinton</b>                      | 1.0%                    | 1               |
| <b>Salem</b>                       | 7.9%                    | 8               |
| <b>I am not currently employed</b> | 63.4%                   | 64              |
| <b>Answered Question</b>           |                         | <b>101</b>      |
| <b>Skipped Question</b>            |                         | <b>11</b>       |



Customers indicated that they are not currently employed due to a disability or retirement. The survey is shown in **Figure 2.4-1** followed by a summary of the responses received.

Figure 2.4-1 | RADAR Customer Survey

Dear Customer:



The future of transit in the Roanoke Valley is being planned now, and your input is important! Please see the survey questions on the back of this form.

To find out more information about the Transit Vision Plan visit the project website at <http://www.rvarc.org/transit> or participate in an online discussion at <http://roanoketransitvision.ideascale.com/>

Please note, if Valley Metro fixed-route service expands in the future, services for people with disabilities would also be provided within 3/4 mile of those routes. In addition to the recommendations for enhancing Valley Metro service, there is a recommendation to regionalize services for people with disabilities to eliminate barriers to traveling between localities in the Roanoke Valley.

Please provide your feedback on the back side of this comment form. If you have questions or need assistance completing this form, please contact Cristina Finch at (540) 343-4417 or [cfinch@rvarc.org](mailto:cfinch@rvarc.org). **Please mail completed surveys to 313 Luck Ave. SW Roanoke, VA 24015 or give it to any driver by March 11.** Thank you for your time!

**1. Please check which additional services you would like beyond the services that are currently available to you.**

Service to a place beyond the current service area. List the location here: \_\_\_\_\_

Later evening service

Saturday service

Sunday service

Other: \_\_\_\_\_

**2. Given that taxpayers pay an average \$18-30 per trip in addition to the \$3-4 customer contribution, would you be willing to pay more for additional services?**

No  Yes If yes, how much more would you be willing to pay? \$\_\_\_\_\_

**3. Would you be open to exploring additional transportation options such as**

A.) Valley Metro fixed-route service if it was available near you?  No  Yes

B.) Flexible-same day service to Valley Metro fixed-routes?  No  Yes

C.) Zoned fares dependent on pick-up and drop-off locations?  No  Yes

**4. What is your home zip code?** \_\_\_\_\_

**5. Which locality do you live in?**  City of Roanoke  Roanoke County  Vinton  Salem  Other \_\_\_\_\_

**6. What is your work zip code?** \_\_\_\_\_

**7. Which locality do you work in?**  City of Roanoke  Roanoke County  Vinton  Salem  Other \_\_\_\_\_  I am not currently employed

Additional Service Interests

Of the RADAR customers that responded, 78% indicated they desire additional services.

Table 2.4-3 | RADAR Survey – Interest in Service beyond the Current Service Area

|  | Percentage of Responses | Total Responses |
|--|-------------------------|-----------------|
| Service to a place beyond the current service area | 54.5%                   | 48              |
| Other  | 15.9%                   | 14              |
| <b>Answered Question</b>                           |                         | <b>88</b>       |
| <b>Skipped Question</b>                            |                         | <b>24</b>       |

Responses to “Service to a place beyond the current service area” and “Other” include:

- ▲ BEDFORD COUNTY
- ▲ BLACKSBURG
- ▲ BOTETOURT COUNTY
- ▲ DALEVILLE
- ▲ FRANKLIN COUNTY
- ▲ LYNCHBURG
- ▲ MILL MOUNTAIN
- ▲ RADFORD
- ▲ ROANOKE COUNTY (BRAMBLETON AREA, HOLLINS, HOLLINS LIBRARY, FRIENDSHIP MANOR, POSTAL DRIVE, RESTIN, BONSACK, BONSACK WALMART, CLEARBROOK WALMART, BETWEEN LEWIS GALE AND TANGLEWOOD MALL)
- ▲ ROCKY MOUNT
- ▲ TROUTVILLE

- ▲ RURAL AREA
- ▲ ALL OVER THE ROANOKE VALLEY
- ▲ SMITH MOUNTAIN LAKE AREA
- ▲ ADDITIONAL DR. OFFICES

Citizens also noted the following desires:

- ▲ THE ABILITY FOR CITY OF SALEM AND CITY OF ROANOKE RESIDENTS TO TRAVEL INTO ROANOKE COUNTY
- ▲ SERVICE TO SPECIAL EVENTS AFTER 6:30 P.M.
- ▲ THE ABILITY TO STOP DURING A TRIP TO GET SOMETHING TO EAT (*WITHOUT HAVING TO SCHEDULE AN EXTRA TRIP IN ADVANCE*)
- ▲ CORTRAN PASSES
- ▲ EARLIER MORNING SERVICE FOR AN EARLY WORK SCHEDULE
- ▲ EARLIER BUS SERVICE TO THE AIRPORT

RADAR customers also provided feedback about need for later evening, Saturday, and Sunday services as shown in the following table.

*Table 2.4-4 | RADAR Survey – Need for expanded hours*

|                 | Later Evening | Saturday  | Sunday    |
|-----------------|---------------|-----------|-----------|
| City of Roanoke | 20            | 10        | 28        |
| Roanoke County  | 14            | 20        | 16        |
| Salem           | 1             | 1         | 2         |
| Vinton          | 2             | 2         | 5         |
| Not provided    | 2             | 1         | 1         |
| <b>Totals</b>   | <b>39</b>     | <b>34</b> | <b>52</b> |

Of the three timeframes, providing service on Sundays is the most needed service expansion overall. Roanoke County does

not currently have any Saturday service, which is why Roanoke County customers ranked it their highest service need.

In the City of Roanoke, City of Salem, and Vinton, service ends at 8:45 p.m. making it challenging for customers to go out in the evening or access evening jobs. The challenge is compounded for Roanoke County citizens where service ends at 6:00 p.m.

Willingness to pay more for additional services

Customers were asked if they would be willing to pay more for additional service given that taxpayers pay an average of \$18-30 per trip (one-way) in addition to the \$3-4 customer contribution. Almost all the respondents (104 people) shared their feelings: 54% said “yes” and 46% said “no”. Of the respondents who said they would be willing to pay more the following is a breakdown of how much more.



Table 2.4-5 | Additional amount RADAR customers are willing to pay

| Amount | # of Respondents |
|--------|------------------|
| \$1    | 9                |
| \$2    | 9                |
| \$3    | 4                |
| \$4    | 3                |
| \$5    | 8                |
| \$6    | 2                |
| \$7    | 1                |
| \$10   | 1                |
| \$15   | 1                |

Openness to Exploring additional transportation options

Customers were asked if they would be open to exploring additional transportation options.

- ▲ OPTION A: VALLEY METRO FIXED-ROUTE SERVICE IF IT WAS AVAILABLE NEAR YOU?
- ▲ OPTION B: FLEXIBLE-SAME DAY RADAR SERVICE TO VALLEY METRO FIXED-ROUTES?
- ▲ OPTION C: ZONED FARES DEPENDENT ON PICK-UP AND DROP-OFF LOCATIONS?

Option A would more likely be of interest to Roanoke County since the other localities have dedicated fixed-route services.

Through other public involvement, citizens have shared that having to make reservations at least a day in advance for transportation may not always be possible, and they would like the option of having a same-day notification transportation option. Thus, Option B inquires about citizen interest in same-

day service that would provide access to Valley Metro fixed-routes instead of the door-to-door origin-to-destination service which requires a 24-hour reservation for scheduling purposes.

Option C aims at gauging customer interest in zone-based fares. This would only apply to areas outside of the ¾-mile fixed-route bus system which, by federal law, caps fares within the service area at twice the fixed-route fare. Customer responses to the options are shown in the following table. In total, 103 customers contributed responses.

Table 2.4-6 | RADAR Survey – Interest in Additional Transportation Options

| Locality                | Option A  |           | Option B  |           | Option C  |           |
|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|                         | No        | Yes       | No        | Yes       | No        | Yes       |
| <b>Botetourt County</b> | 1         | 0         | 0         | 0         | 0         | 1         |
| <b>City of Roanoke</b>  | 23        | 22        | 18        | 27        | 24        | 23        |
| <b>Roanoke County</b>   | 9         | 17        | 6         | 19        | 13        | 7         |
| <b>City of Salem</b>    | 3         | 3         | 3         | 4         | 3         | 3         |
| <b>Town of Vinton</b>   | 2         | 4         | 2         | 4         | 4         | 3         |
| <b>Unknown</b>          | 2         | 2         | 2         | 1         | 2         | 0         |
| <b>Total</b>            | <b>40</b> | <b>48</b> | <b>31</b> | <b>55</b> | <b>46</b> | <b>37</b> |

Notable results include that in Roanoke County and the Town of Vinton more respondents than not are interested in Valley Metro fixed-route service if it were available near them as well as same-day RADAR service to access Valley Metro fixed-routes. Roanoke County and Town of Vinton respondents were not as

interested in the zoned-based fares as they are currently able to access any location in Salem, Vinton, Roanoke City or County for a flat \$4 fare.

City of Roanoke and City of Salem respondents were split on their interest to use Valley Metro if it were closer to them; lack of interest is likely due to disability. They were also split on their interest in zoned-based fares. This is likely tied to their need to go beyond the current service area; customers who need to go further are likely willing to pay more for that benefit. There was also a strong interest among City of Roanoke customers, in particular, in same-day flexible service to Valley Metro fixed-routes.

## 2.5 Botetourt Senior and Accessible Van Survey

In cooperation with the Botetourt County Parks and Recreation department, staff administered a survey targeting the Senior and Accessible Van riders asking about their trip origin and destination, trip purpose, the usefulness of certain recommendations derived from the development of this Plan, and the possible exploration of additional transportation options.



In the survey, which was conducted during a two-week period from March 11-25, 2016, there were eight respondents. Of those eight, seven were aged 55 and over, with four of the seven over 65. Six people indicated they have a disability and three said they own a car.

Next, the survey inquired of respondents their trip origin, destination and trip purpose. The origins of respondents included Blue Ridge, Daleville, Eagle Rock, Fincastle and

Troutville. The destinations included Carilion (Crystal Spring), the Bonsack area of Roanoke County, Daleville (bank and grocery stores), Lewis Gale in Salem, and various stores in Troutville and Daleville. Six of the eight respondents (75%) identified that their trip purpose was medically related, while the remaining two or 25% were designated as shopping trips.

Figure 2.5-1 | Botetourt Senior/Access Van Users Survey

Dear Customer:  
The future of transit in the Roanoke Valley is being planned now, and your input is important! If you have questions or need assistance completing this form, please contact Cristina Finch at (540) 343-4417 or cfinch@rvarc.org. **Please mail completed surveys to 313 Luck Ave. SW Roanoke, VA 24015 or give it to any driver by March 25.** To find out more information about the Transit Vision Plan visit the project website at [rvarc.org/transit](http://rvarc.org/transit). Thank you for your time!

1. What is your age?  Under 18  18-45  46-55  55-65+  65+

2. Do you have a disability?  No  Yes

3. Do you own a car?  No  Yes

4. For the following, list the Home Address or Business Address/Name or Street Intersection:  
The place I am COMING FROM is: Daleville  
The place I am GOING TO is: Crystal Springs / Carilion

5. Trip purpose:  Work  School  Medical  Shopping  Social  Other: \_\_\_\_\_

| Transit Recommendations:   | Useful to ME:            |                                     |                          | Useful to OTHER PEOPLE:  |                                     |                          |
|--|--------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
|  | Very                     | Some what                           | Not at all               | Very                     | Some what                           | Not at all               |
| <b>Next 6-12 years:</b> Provide a morning and afternoon commuter express bus service between the Daleville area, the Hollins area, and Downtown Roanoke. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <b>Next 12-25 years:</b> Provide an hourly all-day bus route between the Daleville area, Hollins area, and Downtown Roanoke.                             | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Provide an hourly all-day bus between Troutville, Hollins area, VA Medical Center, and Lewis Gale.   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

6. Would you be open to exploring additional transportation options such as  
A.) Valley Metro fixed-route service if it was available near you?  No  Yes  
B.) Flexible-same day service to Valley Metro fixed-routes?  No  Yes  
C.) Zoned fares dependent on pick-up and drop-off locations?  No  Yes

7. Please list any comments or additional recommendations:  
would be up for Riding BUS TRAYS

Thank you for your time and input!

In response to specific draft recommendations for Botetourt County, citizens provided the following feedback.

Recommendation in the next 6-12 Years:

*Provide a morning and afternoon commuter express bus service between the Daleville area, Hollins area, and Downtown Roanoke.*

Table 2.5-1 | Botetourt Survey – Recommendation for Next 6-12 Years

| Response                           | Count    |
|------------------------------------|----------|
| Useful to Me--VERY                 | 1        |
| Useful to Me--SOMEWHAT             | 7        |
| Useful to Me--NOT AT ALL           | 0        |
| Useful to Other People—VERY        | 0        |
| Useful to Other People—SOMEWHAT    | 7        |
| Useful to Other People--NOT AT ALL | 0        |
| <b>Total Respondents</b>           | <b>8</b> |

Recommendation in the next 12-25 Years:

*Provide an hourly all-day bus route between the Daleville area, Hollins area, and Downtown Roanoke.*

Table 2.5-2 | Botetourt Survey - Recommendation for Next 12-25 Years

| Response                        | Count |
|---------------------------------|-------|
| Useful to Me--VERY              | 1     |
| Useful to Me--SOMEWHAT          | 7     |
| Useful to Me--NOT AT ALL        | 0     |
| Useful to Other People—VERY     | 0     |
| Useful to Other People—SOMEWHAT | 7     |

| Response                           | Count    |
|------------------------------------|----------|
| Useful to Other People--NOT AT ALL | 0        |
| <b>Total Respondents</b>           | <b>8</b> |

*Provide an hourly all-day bus between Troutville, Hollins area, VA Medical Center, and Lewis Gale.*

Table 2.5-3 | Botetourt Survey - Recommendation for hourly all-day bus service

| Response                           | Count    |
|------------------------------------|----------|
| Useful to Me--VERY                 | 1        |
| Useful to Me--SOMEWHAT             | 7        |
| Useful to Me--NOT AT ALL           | 0        |
| Useful to Other People—VERY        | 0        |
| Useful to Other People—SOMEWHAT    | 7        |
| Useful to Other People--NOT AT ALL | 0        |
| <b>Total Respondents</b>           | <b>8</b> |

All respondents indicated that the above referenced recommendations would be useful to them, and seven of eight felt that they would be useful to others.

Finally, the respondents were asked if they would be open to the possibility of exploring additional transportation options. Those options and the responses are as follows in **Table 2.5-4**.

Table 2.5-4 | Botetourt Survey – Interest in exploring additional transportation options

|  | No         | Yes        | Total Responses |
|--|------------|------------|-----------------|
| <b>A) Valley Metro fixed-route service if it was available near you?</b> | 50%<br>(4) | 50%<br>(4) | 8               |
| <b>B) Flexible same-day service to Valley Metro fixed-routes?</b>        | 50%<br>(4) | 50%<br>(4) | 8               |
| <b>C) Zoned fares dependent on pick-up and drop-off locations?</b>       | 50%<br>(4) | 50%<br>(4) | 8               |

Half of the Botetourt survey respondents would be interested in Valley Metro fixed-route service if it was available nearby, flexible same-day service to Valley Metro fixed routes, as well as zoned fares dependent on pick-up and drop-off locations.

## 2.6 Focus Groups/Local Government Involvement

Throughout the course of the planning process focus group meetings were held to engage key stakeholder groups in the development of the recommendations. Meetings were held and presentations were given to the following groups:

- ▲ ROANOKE REGIONAL CHAMBER, TRANSPORTATION COMMITTEE, *NOVEMBER 12, 2015*
- ▲ ROANOKE COUNTY PLANNING COMMISSION, *NOVEMBER 16, 2015 AND APRIL 19, 2016*
- ▲ (X)PO WEDNESDAY, GRANDIN CO-LAB, *JANUARY 27, 2016*

- ▲ RAVE (ROANOKE ALLIANCE FOR THE VISUALLY ENABLED), *FEBRUARY 17, 2016*
  - ▲ HOUSING AUTHORITY - *MELROSE TOWERS, FEBRUARY 25, 2016 AND LANSDOWNE, FEBRUARY 29, 2016*
  - ▲ BOTETOURT COUNTY PLANNING COMMISSION, *APRIL 4, 2016*
- In addition to the focus groups, local governments reflected on the draft recommendations and provided feedback which led to the final recommendations. Local government staff participated in the Steering Committee and the Transportation Technical Committee. Local elected officials provided input through the Roanoke Valley Transportation Policy Board. In addition, notable meetings with local Councils and Boards are listed below.
- ▲ VINTON TOWN COUNCIL, *MARCH 15, 2016*
  - ▲ ROANOKE CITY COUNCIL, *APRIL 4, 2016*
  - ▲ BOTETOURT COUNTY BOARD OF SUPERVISORS, *APRIL 26, 2016*

## 3.0 SHORT-TERM RECOMMENDATIONS (2016-2022)

The short-term recommendations propose a significant expansion to the existing transit service area to provide basic service coverage to some areas and improved quality of service where it would benefit greater ridership levels. **Figure 3.0-1** illustrates the fixed-route short-term recommendations. In this phase, service is recommended for many places where critical connections to employment and residential areas are needed, including the North Roanoke County/Hollins/Plantation Road area, Electric Road Corridor, Glenvar, Salem/I-81 Exit 140, Bonsack, and the Roanoke Centre for Industry and Technology.

Additionally, the short-term recommendations make improvements to the existing services including increasing frequency, increasing the span of service, adding weekend service and adding new routes within the existing service area.

These recommendations collectively significantly improve the access and quality of service for the residents and employers of the Roanoke Valley region. As shown in **Table 3.0-1**, the short-term recommendations would benefit many people with new service to over 16,000 residents and 14,000 jobs while improving the quality of service for over 50,000 residents and jobs.

*Table 3.0-1 | Short-Term Benefits*

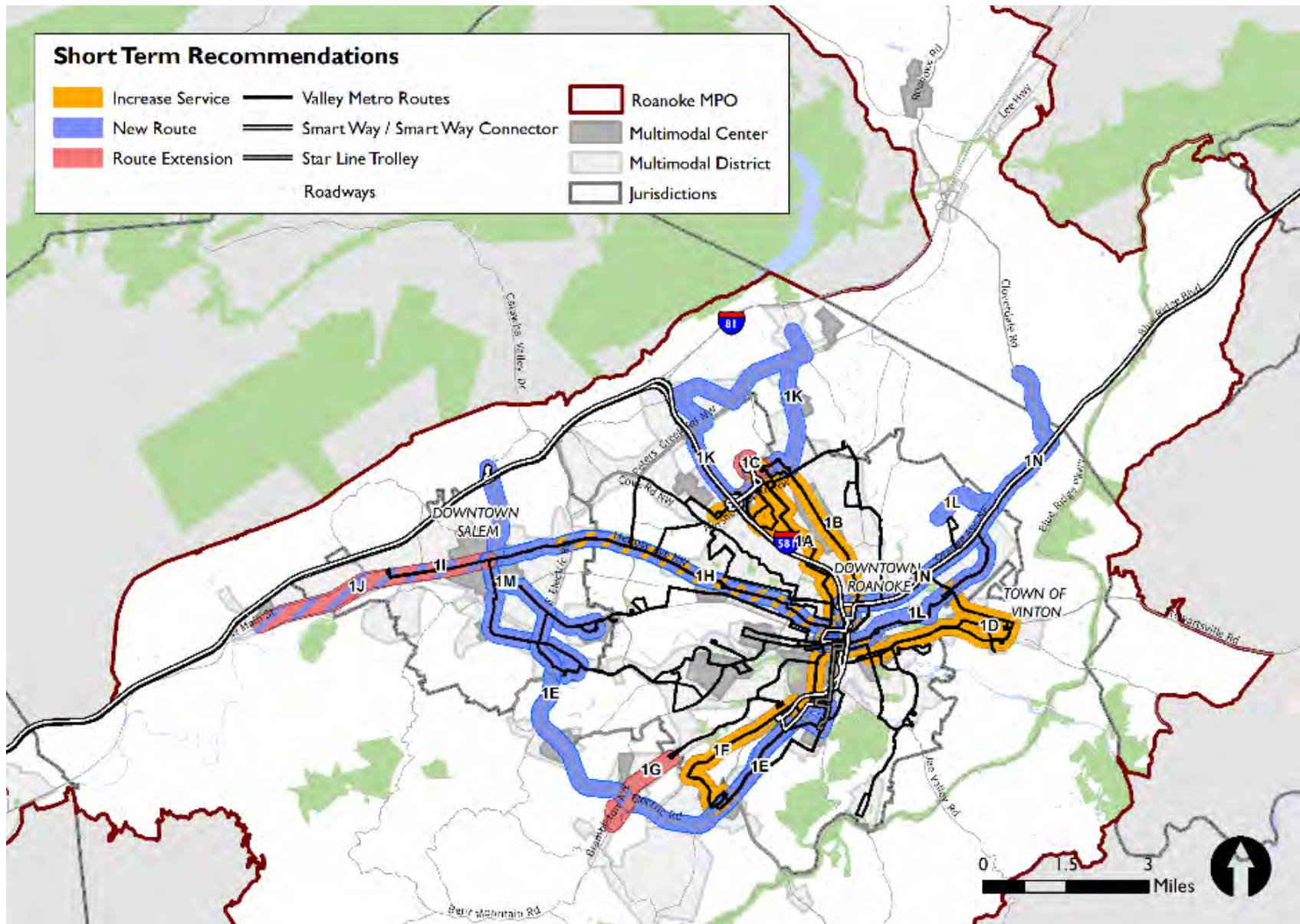
| Metric     | Existing Service Area | Short Term Service Area | Improved Service <sup>1</sup> | Percent Growth in Population Served | Percent Improved Service <sup>2</sup> |
|------------|-----------------------|-------------------------|-------------------------------|-------------------------------------|---------------------------------------|
| Population | 90,254                | 106,561                 | 58,414                        | 118%                                | 65%                                   |
| Jobs       | 65,224                | 80,012                  | 54,301                        | 123%                                | 83%                                   |
| Households | 39,315                | 46,375                  | 25,784                        | 118%                                | 66%                                   |

The short-term recommendations address the transit service needs that should be addressed within the next six years (2016-2022). The majority of these recommendations will feed into the 2017 Transit Development Plan, where a phasing and implementation plan will be further developed.

<sup>1</sup> Includes areas being served by existing routes that have recommendations for increased span or frequency, or a new route overlaid.

<sup>2</sup> Percent of existing service area population receiving improved service.

Figure 3.0-1 | Conceptual Short-Term Recommendations Map



### 3.1 New Routes

**Recommendation 1E: Create a new route that eliminates a missing transit connection between Salem and Carilion and that connects the communities and businesses of the 419 corridor**

The Carilion area continues to grow exponentially and is the single-largest employer in the Roanoke Valley. Tanglewood Mall is being sold and redevelopment opportunities abound. The Route 419 Corridor Study recognizes the significant growth in travel occurring in the corridor. Transit can help ease travel on Route 419/Route 220 Business and provide people with a new way to get to and from places along the corridor between Salem and Carilion.

Routes 51/52 currently connect Downtown Roanoke, Carilion, and Tanglewood. Utilize the Starline Trolley for the Downtown Roanoke to Carilion connections and consolidate Routes 51/52 into new Routes 4/5 connecting Carilion, Tanglewood, Cave Spring, Oak Grove, Lewis Gale, and Downtown Salem. Also, add Sunday service.

This recommendation is based upon results from public input, as well as through the residential, workforce, and commuter propensity analyses, and trip flow analysis. It is also a recommendation in the Route 419 Corridor Study and supported by the City of Salem’s Comprehensive Plan.

Table 3.1-1 | Recommendation 1E - Routes 51/52

|                     |                     | Current Routes 51/52 | Proposed Routes 4/5 |
|---------------------|---------------------|----------------------|---------------------|
| Days of Service     |                     | Mon-Sat              | Mon-Sun             |
| Frequency (minutes) | M-F Peak            | 30                   | 30                  |
|                     | M-F Midday/ Evening | 60                   | 60                  |
|                     | Saturday            | 60                   | 60                  |
|                     | Sunday              | ---                  | 60                  |

**Recommendation 1I: Provide a convenient express connection between Glenvar/Richfield, Downtown Salem, and Downtown Roanoke for workers and residents to improve access to employment and key activity centers**

A prime corridor for dense development due to its linear connectivity, Route 460 West connects many key shopping, employment, and residential areas between Glenvar and Downtown Roanoke. Downtown Salem is poised for growth with the adoption of a new Downtown Plan in 2016. Roanoke College, Glenvar Library, and the Salem Library are all located on this route and each play a strong role in the community. Green Hill Park and the Roanoke River Greenway would become accessible via transit and a short walk or bike ride down Diuguigs Lane.

Create a new express route in Roanoke County and Salem (Routes 911/922) that in conjunction with the existing 91/92 will enable peak 30-minute service between Glenvar/Richfield, Downtown Salem, and Electric Road, with closed-door express service from Electric Road to Downtown Roanoke.

This recommendation is based upon results from the workforce and commuter propensity analyses and trip flow analysis. The recommendation is also supported by the Glenvar Community Plan, Roanoke County’s 2005 Community Plan, the City of Salem’s Comprehensive Plan, the Roanoke Valley-Alleghany Regional Commission’s Age Wave Study, and the RVTPO’s Planning for Elderly and Disabled Mobility Study.

Table 3.1-2 | Recommendation 1I - Routes 911/922

|                     |                     | Current Routes 85/86 | Proposed Routes 85/96 | Proposed Routes 911/922 |
|---------------------|---------------------|----------------------|-----------------------|-------------------------|
| Days of Service     |                     | Mon-Sat              | Mon-Fri               | Mon-Fri                 |
| Frequency (minutes) | M-F Peak            | 30                   | 60                    | 60                      |
|                     | M-F Midday/ Evening | 60                   | 60                    | ---                     |
|                     | Saturday            | 60                   | 60                    | ---                     |
|                     | Sunday              | ---                  | ---                   | ---                     |

**Recommendation 1K: Implement a new circulator connecting the activity centers of Crossroads, Hollins/Plantation Road, the DMV and other key locations in North Roanoke County**

The Exit 146/Plantation Road area is the second largest employment center in the Roanoke Valley. Nearby Hollins University is a hub of activity with a large student population eager to be better connected with the regional transit system. The DMV was the most requested addition to the transit system, and many businesses nearby as well as the Green Ridge Recreation Center and Hollins Library would benefit from being transit accessible.

Create a new weekday-only circulator (Route 1) providing a one-way hourly loop connecting key North Roanoke County activity centers to the Crossroads Shopping Area.

This recommendation is based upon public input, the results of the workforce and commuter propensity analyses, and the trip flow analysis. The City of Roanoke Comprehensive Plan, Vision 2001-2020, the Roanoke County 2005 Community Plan, the Hollins Area Plan, and the RVTPO Congestion Management Process Plan also support this recommendation.

Table 3.1-3 | Recommendation 1K - Route 1

|                     |                     | Current | Proposed |
|---------------------|---------------------|---------|----------|
| Days of Service     |                     | N/A     | Mon-Fri  |
| Frequency (minutes) | M-F Peak            | ---     | 60       |
|                     | M-F Midday/ Evening | ---     | 60       |
|                     | Saturday            | ---     | ---      |
|                     | Sunday              | ---     | ---      |

**Recommendation 1L: New peak hour service between the Roanoke Centre for Industry and Technology and Downtown Roanoke to improve access to key employment sites for area residents**

Create a new peak service (Route 311) connecting Downtown Roanoke to RCIT/Blue Hills (note: six-month trial service began in January 2016 via the 31X).

This recommendation is based upon results from public input, as well as through the workforce propensity analysis and Home-Based Work trip flow analysis. A survey of RCIT tenants was completed in 2014 which also indicated great need and desire among RCIT employers to provide the service. The



recommendation is also supported by the City of Roanoke’s Comprehensive Plan, Vision 2001-2020.

Table 3.1-4 | Recommendation 1L - Route 311

|                            |                      | Current            | Proposed |
|----------------------------|----------------------|--------------------|----------|
| Days of Service            |                      | (in trial service) | Mon-Sat  |
| <b>Frequency (minutes)</b> | M-F Peak             | 60                 | 60       |
|                            | M-F Midday/ Evening  | ---                | ---      |
|                            | Saturday (Peak Only) | ---                | 60       |
|                            | Sunday               | ---                | ---      |

**Recommendation 1M: Connect Salem and its key destinations with the Smart Way Commuter regional service using a new circulator**

Regional Smart Way Commuter service is so close to Salem’s key activity centers, but walking/biking are only options for some people in some weather. A transit connection between Salem and the Exit 140 Park and Ride Lot would make the Smart Way Commuter service a more attractive option for people traveling between the New River Valley and Salem.

Concurrent with recommendation 1I, create a new hourly circulator (Route 93) connecting Downtown Salem, Lewis Gale, and the VA Medical Center to the I-81 Exit 140 Park and Ride Lot. Incorporate service to the Rt. 311/Rt. 419 Park and Ride Lot, Lakeside Plaza, and nearby businesses and residential areas in Salem and Roanoke County along 419 during peak working hours. During special events, incorporate service to the Salem Civic Center.

This recommendation is based upon feedback received through public input and the Steering Committee, results of the workforce and commuter propensity analyses and the trip flow

analysis. This recommendation is supported by the City of Salem’s Comprehensive Plan and the Route 419 Corridor Study.

Table 3.1-5 | Recommendation 1M - Route 93

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| Days of Service            |                     | N/A     | Mon-Sat  |
| <b>Frequency (minutes)</b> | M-F Peak            | ---     | 60       |
|                            | M-F Midday/ Evening | ---     | 60       |
|                            | Saturday            | ---     | 60       |
|                            | Sunday              | ---     | ---      |

**Recommendation 1N: Improve access to employment sites in Bonsack - Eastern Roanoke County, Botetourt County, and Downtown Roanoke with a new peak hour service**

A transit connection to the Bonsack area was one of the general public’s highest priorities. A mutually beneficial new express, limited-stop peak service route (Route 3111) is recommended to service the EastPark Commerce Center, Bonsack area businesses, and Downtown Roanoke. Connecting with local transit in Downtown Roanoke, employees can expressly access destinations in Eastern Roanoke County and Botetourt County. Likewise, residents from Blue Ridge, Bonsack and Bedford can commute into Downtown Roanoke and make local connections via this transit service. A new park and ride lot accessible to this new transit service around Rt. 220 Alternate/Route 460 is recommended for citizens traveling westbound to Downtown Roanoke and destinations beyond.

This recommendation is based upon feedback received from public input and the trip flow analysis. The 2014 Bonsack Area Business Survey, the Roanoke County 2005 Community Plan, the

Roanoke Valley-Alleghany Regional Commission Rural Transportation Priorities 2012, and the RVTPO Congestion Management Process Plan all support this recommendation.

Table 3.1-6 | Recommendation 1N - Route 3111

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| <b>Days of Service</b>     |                     | N/A     | Mon-Fri  |
| <b>Frequency (minutes)</b> | M-F Peak            | ---     | 75       |
|                            | M-F Midday/ Evening | ---     | ---      |
|                            | Saturday            | ---     | ---      |
|                            | Sunday              | ---     | ---      |

### 3.2 Route Extension/Realignment

**Recommendation 1C: Improve job access and regional connectivity with an all-day connection and additional peak service to Roanoke-Blacksburg Regional Airport**

A local connection to the airport was one of the general public’s highest priorities. The Roanoke-Blacksburg Regional Airport is currently only accessible via the Smart Way Commuter service which has limited service times to the airport and limited connectivity with local routes via Campbell Court. The recent Towne Square Boulevard/Aviation Drive roadway improvement project enables an easy connection between Crossroads and the airport that previously was not possible.

Extend Routes 21/26 to Roanoke-Blacksburg Regional Airport.

This recommendation is based upon results from public input, as well as through the results of the workforce and non-work propensity analyses and the Home-Based Work trip flow analysis.

Table 3.2-1 | Recommendation 1C - Routes 21/26

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| <b>Days of Service</b>     |                     | Mon-Sat | Mon-Sat  |
| <b>Frequency (minutes)</b> | M-F Peak            | 30      | 30       |
|                            | M-F Midday/ Evening | 60      | 60       |
|                            | Saturday            | 60      | 60       |
|                            | Sunday              | ---     | ---      |

**Recommendation 1G: Create new access to the Cave Spring activity center for area residents and connect the community with Downtown Roanoke via an all-day connection**

A worn path is present along the west side of Brambleton Avenue from Cave Spring to where the bus picks up/drops off passengers near the Roanoke County/City of Roanoke line. There are medical offices, shopping destinations, residential areas, and jobs that generate the foot traffic between these destinations and the Red Rock bus stop.

By adjusting the alignment of Routes 61/62 to reach Colonial Avenue/Brambleton Avenue in Cave Spring, the major destinations can be made accessible with transit service. This recommendation includes the removal of the 61/62 Towers Shopping Center connection given that the 55/56 also services Towers. Removing the 61/62 connection to Towers enables the recommendation to be accomplished using existing vehicles and providing a straight-line direct connection between Cave Spring and Downtown Roanoke.

This recommendation is based upon feedback received through public input and the Steering Committee, and the results of the

residential, workforce, commuter and non-work propensity analyses, and the Home-Based Work trip flow analysis. The Roanoke County 2005 Community Plan and Route 419 Corridor Study support this recommendation.

Table 3.2-2 | Recommendation 1G - Routes 61/62

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| Days of Service            |                     | Mon-Sat | Mon-Sat  |
| <b>Frequency (minutes)</b> | M-F Peak            | 60      | 60       |
|                            | M-F Midday/ Evening | 60      | 60       |
|                            | Saturday            | 60      | 60       |
|                            | Sunday              | ---     | ---      |

**Recommendation 1J: Create more convenient access within Salem and connect Glenvar/Richfield to the regional transit system by providing a 7-day service for residents/ employees**

As mentioned previously, Salem recently adopted a new Downtown Plan and increasing trips to Downtown Salem will be realized as new businesses open and redevelopment occurs. Beyond Salem there are many businesses that would benefit from transit accessibility including the proposed end-of-the-line, Richfield Retirement Center. Like recommendation 1I, this service would greatly benefit the many residential areas and businesses with easy direct service between popular destinations in Glenvar, Salem, and Downtown Roanoke.

Realign Routes 91/92 to extend to Glenvar/Richfield, reassign the Lewis Gale and VA Medical Center connections to recommendation 1M, and add Sunday service.

This recommendation is based upon feedback received from public input and the Steering Committee, as well as through the

non-work propensity analysis. The Glenvar Community Plan, Roanoke County’s 2005 Community Plan, the City of Salem Comprehensive Plan, the RVARC Age Wave Study, and the RVTPO Planning for Elderly and Disability Mobility Study support this recommendation.

Table 3.2-3 | Recommendation 1J - Routes 91/92

|                            |                    | Current | Proposed |
|----------------------------|--------------------|---------|----------|
| Days of Service            |                    | Mon-Sat | Mon-Sun  |
| <b>Frequency (minutes)</b> | M-F Peak           | 60      | 60       |
|                            | M-F Midday/Evening | 60      | 60       |
|                            | Saturday           | 60      | 60       |
|                            | Sunday             | ---     | 60       |

### 3.3 Other Service Changes

**Recommendation 1A: Improve mobility and access between Valley View and Downtown Roanoke by adding greater midday/evening service frequency and Sunday service**

The Valley View Mall area is a popular destination and increasing service frequency and hours of service would greatly benefit citizens shopping and employees working until stores close which are later than current bus operations that end at 8:45 p.m.

Add Sunday service to Routes 15/16; increase midday/ evening frequency between Valley View and Downtown Roanoke to every 30 minutes.

This recommendation is based upon feedback received from public input and the Steering Committee, as well as through the non-work propensity analysis. The City of Roanoke’s Comprehensive Plan supports this recommendation.

Table 3.3-1 | Recommendation 1A - Routes 15/16

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| Days of Service            |                     | Mon-Sat | Mon-Sun  |
| <b>Frequency (minutes)</b> | M-F Peak            | 30      | 30       |
|                            | M-F Midday/ Evening | 60      | 30       |
|                            | Saturday            | 60      | 60       |
|                            | Sunday              | ---     | 60       |

**Recommendation 1B: Improve convenience by connecting two key activity centers with enhanced midday and evening service between Crossroads Shopping Area, Williamson Road, and Downtown Roanoke**

The Crossroads Shopping Area and Williamson Road corridor to Downtown Roanoke are busy with activity throughout the day. Expanding service between these key destinations would make transit more convenient to more residents. Increase midday/evening frequency to every 30 minutes on Routes 21/22.

This recommendation is based upon results of the non-work propensity analysis and is supported by the City of Roanoke’s Comprehensive Plan, Vision 2001-2020 and the RVTPO’s Congestion Management Process Plan.

Table 3.3-2 | Recommendation 1B - Routes 21/22

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| Days of Service            |                     | Mon-Sat | Mon-Sat  |
| <b>Frequency (minutes)</b> | M-F Peak            | 30      | 30       |
|                            | M-F Midday/ Evening | 60      | 30       |
|                            | Saturday            | 60      | 60       |
|                            | Sunday              | ---     | ---      |

**Recommendation 1D: Enhance activity and improve connectivity in and between Vinton and Downtown Roanoke by adding peak and Sunday service**

Development in Downtown Vinton and Downtown Roanoke continues to grow with new businesses and residential options in two of the most transit-friendly places in the region. Adding Sunday service and 30-minute peak service to Routes 35/36 would better connect these two expanding activity centers while providing better mobility to residents who want to enjoy a car-light lifestyle. Access to the new Vinton Library, the Lakedrive Plaza shopping center and residential areas in both Vinton and SE Roanoke would greatly improve.

This recommendation is based upon feedback received through public input and the Steering Committee, as well as through the residential and non-work propensity analyses. The Vinton Area Corridors Plan, the RVTPO Congestion Management Process plan, and the City of Roanoke’s Comprehensive Plan, Vision 2001-2020, support this recommendation.

Table 3.3-3 | Recommendation 1D - Routes 35/36

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| Days of Service            |                     | Mon-Sat | Mon-Sun  |
| <b>Frequency (minutes)</b> | Peak                | 60      | 30       |
|                            | M-F Midday/ Evening | 60      | 60       |
|                            | Saturday            | 60      | 60       |
|                            | Sunday              | ---     | 60       |

**Recommendation 1F: Improve convenience by enhancing midday and evening service between Tanglewood Mall, Virginia Western Community College, Towers Shopping Center, and Downtown Roanoke**

Exciting new growth and development is taking place at Virginia Western Community College and Downtown Roanoke and is just now being envisioned for a significant redevelopment of the Tanglewood area. Improving transit service between these key destinations will improve access between them for more people.

Add Sunday service and increase midday/evening frequency to every 30 minutes for Routes 55/56.

This recommendation is based upon feedback received from public input and the Steering Committee, as well as through the non-work propensity analysis. The City of Roanoke’s Comprehensive Plan, Vision 2001-2020, the RVTPO’s Congestion Management Process Plan, and the Route 419 Corridor Study also support this recommendation.

Table 3.3-4 | Recommendation 1F - Routes 55/56

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| Days of Service            |                     | Mon-Sat | Mon-Sun  |
| <b>Frequency (minutes)</b> | M-F Peak            | 30      | 30       |
|                            | M-F Midday/ Evening | 60      | 30       |
|                            | Saturday            | 60      | 60       |
|                            | Sunday              | ---     | 60       |

**Recommendation 1H: Improve convenience and jobs access by enhancing midday and evening service between Goodwill Salem/Lakeside Plaza and Downtown Roanoke while improving regional connectivity**

Ridership between Goodwill Salem/Lakeside Plaza and Downtown Roanoke is the greatest of any routes in the system. Providing 30 min. service throughout the day would ease overcrowding on buses, particularly as other destinations in the region become accessible with 30 min. service.

Create 30-minute frequency on the Melrose Avenue corridor by increasing midday/evening frequency of Routes 81/82 to every 30 minutes.

This recommendation is based upon public input, current overcrowding on buses, and the results from the non-work propensity analysis. Both the City of Salem and City of Roanoke’s Comprehensive Plans support this recommendation along with the RVTPO’s Congestion Management Process Plan.

Table 3.3-5 | Recommendation 1H - Routes 81/82

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| Days of Service            |                     | Mon-Fri | Mon-Fri  |
| <b>Frequency (minutes)</b> | M-F Peak            | 30      | 30       |
|                            | M-F Midday/ Evening | 60      | 30       |
|                            | Saturday            | ---     | ---      |
|                            | Sunday              | ---     | ---      |

***Recommendation 1O: Greatly increase the convenience and attractiveness of transit service in the valley by expanding the hours of service***

Aside from adding Sunday services, expanding the hours of service, particularly later in the evening, were the public's highest service priorities.

Expand Valley Metro hours of service from 15 hours a day to 18 hours a day; determine optimal morning/evening span changes for employment shifts, as well as new passenger rail connections. This recommendation is for all Valley Metro bus routes though key destinations may be initiated first.

This recommendation is based upon feedback received from public input and the Steering Committee. This recommendation is supported by the Livable Roanoke Valley Plan.

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### 3.4 Additional Recommendations

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***Recommendation 1U: Pursue a partnership among local governments for public transportation service to increase and improve transit service and funding***

Paramount to the implementation of this Roanoke Valley Transit Vision Plan is the establishment of a true regional collaborative partnership among the local governments to make unified decisions about the direction of public transportation in the region.

Develop a collaborative partnership at a minimum between Roanoke County, Botetourt County, the City of Salem, the Town of Vinton, and the City of Roanoke for fixed-route service provision. Other partners such as Montgomery County and

Bedford County may also benefit from being included due to their presence in the Roanoke Valley transportation management area.

The Livable Roanoke Valley Plan supports this recommendation.

***Recommendation 1P: Coordinate transit services with Amtrak (Roanoke) Station schedules to increase regional connectivity and the convenience of longer trips***

Adapt the Smart Way Commuter service to enable passenger rail customers to travel to/from the New River Valley by coordinated bus and rail schedules.

Along with the increase in local service span (Recommendation 1O), further evaluate the potential local routes that would benefit Roanoke Valley citizens and businesses with local transit connections to/from Amtrak service. Transit connections from park-and-ride lots around the region would provide people with an alternative to storing their personal vehicle long-term in Downtown Roanoke. As the region grows and becomes more of a tourist destination, the ability for people to travel to/from the Roanoke Valley without the need to use or rent a car will be an attractive quality.

The Livable Roanoke Valley Plan, the Montgomery County Comprehensive Plan, and the Elliston and Lafayette Village Plan all support this recommendation.

***Recommendation 1Q: Study the need for additional Smart Way commuter services (Roanoke-Lynchburg) to improve regional connectivity and increased jobs access***

With the onset of passenger rail, the Smart Way Connector bus service will cease to exist. The Connector bus also currently

provides trips between Roanoke and Lynchburg that are unrelated to accessing Amtrak.

Study the need for a commuter bus service between Roanoke and Lynchburg, similar to Smart Way service between Roanoke and Blacksburg.

The Livable Roanoke Valley Plan supports this recommendation.

***Recommendation 1R: Study the potential for consolidating bus stops to reduce transit travel time and improve reliability***

Review bus stop spacing by route to determine optimal locations for bus stops.

***Recommendation 1S: Develop partnerships with employers to increase jobs access and funding***

Develop a partnership plan for working with local employers – could include possible contract stops, increased ridership or revenue opportunities.

***Recommendation 1T: Update route schedule publications and maps to ensure that transit is attractive and easy to use***

Update route schedule publications and maps both in print and online.

***Recommendation 1V: Evaluate individual routes for efficiencies and enhancements to save or maximize time and investment***

Evaluate route modifications of alignment and termini.

***Recommendation 1W: Greatly increase the attractiveness and usability of transit by providing real-time information***

Provide up-to-the-minute, on-demand, “real-time” information about the arrival time and status of the bus on smartphones and computers.

***Recommendation 1X: Reduce costs and significantly improve connectivity by regionalizing services for persons with disabilities and for seniors across jurisdictional boundaries***

Coordinate existing services for people with disabilities to enable them to easily travel to destinations around the Roanoke Valley without jurisdictional barriers. Identify jurisdictional needs to provide service beyond paratransit (3/4 mile within fixed routes) to seniors and persons with disabilities through the Roanoke Valley region.

This is a key regional need that was identified as a huge barrier and citizens repeatedly spoke of this need throughout the planning process. In particular, citizens with disabilities who live in Salem and Roanoke City are currently unable yet need to access places in Roanoke County primarily. Likewise, citizens in Roanoke County, as well as Salem, Roanoke City, and Vinton, are unable to access destinations in Botetourt County. These are the most common needs identified by people with disabilities.

Eliminating travel barriers across jurisdiction boundaries, particularly for people with disabilities, are immediate needs.

***Recommendation 1Y: Adjust PM peak service hours to better align with travel patterns and daytime work hours***

The morning peak hours begin around the region picking up and dropping people off as they travel across the region. In contrast, the afternoon peak hours begin in Downtown Roanoke at 3:45 p.m. and end in Downtown Roanoke at 6:45 p.m. with the next option to connect to destinations around the region at 7:15 p.m. Thus, if someone takes the last peak bus into Downtown Roanoke and their final destination requires a transfer, they have a 30-minute wait until the next bus.

These hours should be shifted to begin a half-hour earlier (at 3:15 p.m.) around the region to facilitate travel as people begin to get off of work from earlier shifts. Peak service would then end around the region at 6:15 p.m. The pm peak service would then operate like the morning peak, providing better services between destinations throughout the region.

***Recommendation 1Z: Explore additional special activity/event transit services to popular recreational destinations***

As the region becomes a bigger destination for special events, providing transit service to enable people to access the event without the need to provide excessive parking at the event will become a bigger need. Transit options already exist for people to access daytime festivals, cultural activities, or other special events within the service area. With more events taking place in the evenings, such as those at the Salem Civic Center, the Berglund Center, and Elmwood Park, later evening transit service is needed to enable participants to get home after the event.

As the region grows and its outdoor amenities become more popular, specialized transit services will be needed to help people access the attraction. For example, on many weekends, McAfee's Knob on Rt. 311 is frequented by many people yet parking is limited. Transit service, potentially from the I-81 Exit 140 Park and Ride Lot and the Orange Market Park and Ride Lot at Rt. 311/Rt. 419 would provide people with an option to access this popular recreation site while minimizing traffic and parking needs on the mountain. Similarly, as Explore Park is developed into a regional destination, transit service to Explore Park will be important.

Additional shuttles during events, and other opportunities for special activity/event transit service should be explored as the needs arise.

***Recommendation 1AA: Extend service for people with disabilities later in the evening and on weekends where transit services are provided beyond the fixed-routes***

For places beyond the ¼-mile area around fixed-routes that choose to provide transit service for people with disabilities and seniors, such as Roanoke County's CORTRAN and the Botetourt Senior and Accessible Van service, extend the hours of operation into the evening and on weekends. Citizens with disabilities cited the desire to be able to work, attend meetings, shop, and be social in the evenings and on weekends; the lack of transportation service available to them currently is a barrier to them being able to participate in many activities.

***Recommendation 1BB: Study the ability to vary the fleet size based on ridership demands to better meet current and future needs while minimizing capital and operating expenses***

Local transit services are provided with 35-foot buses and the Smart Way service utilizes 45-foot buses. Currently, the 91/92 experiences overcrowding and could benefit from a larger vehicle. Other routes may also benefit from a larger vehicle. New services, particularly express limited-stop services, may not require full-size buses and may be implemented using smaller vehicles. The need to provide different sized vehicles to maximize efficiency should be evaluated by route and with each new service implemented.



### 3.5 Summary of Short-Term Recommendations

A summary of the short-term recommendations is provided in the following table. To support these recommendations, additional recommendations related to regional connections (**Section 6.0**) and facilities (**Section 7.0**) should be considered in the short-term and continuously as needed to support the evolving transit system.

Table 3.5-1 | Summary of Short-Term Recommendations

| #  | SHORT-TERM RECOMMENDATION   | TYPE                               |
|----|---|------------------------------------|
| 1A | Improve mobility and access between Valley View and Downtown Roanoke by adding greater midday/evening service frequency and Sunday service                                  | Other Service; Routes 15/16        |
| 1B | Improve convenience by connecting two key activity centers with enhanced midday and evening service between Crossroads Shopping Area, Williamson Road, and Downtown Roanoke | Other Service; Routes 21/22        |
| 1C | Improve job access and regional connectivity with an all-day connection and additional peak service to Roanoke-Blacksburg Regional Airport                                  | Route Extension/ Realignment 21/26 |
| 1D | Enhance activity and improve connectivity in and between Vinton and Downtown Roanoke by adding peak and Sunday service  | Other Service; Routes 35/36        |
| 1E | Create a new route that eliminates a missing transit connection between Salem and Carilion and that connects the communities and businesses of the 419 corridor             | New Route 51/52                    |

|    |  |                                    |
|----|--|------------------------------------|
| 1F | Improve convenience by enhancing midday and evening service between Tanglewood Mall, Virginia Western Community College, Towers Shopping Center, and Downtown Roanoke                      | Other Service; Routes 55/56        |
| 1G | Create new access to the Cave Spring activity center for area residents and connect the community with Downtown Roanoke via an all-day connection  | Route Extension/ Realignment 61/62 |
| 1H | Improve convenience and jobs access by enhancing midday and evening service between Goodwill Salem/Lakeside Plaza and Downtown Roanoke while improving regional connectivity               | Other Service; Routes 81/82        |
| 1I | Provide a convenient express connection between Glenvar/Richfield, Downtown Salem, and Downtown Roanoke for workers and residents to improve access to employment and key activity centers | New Route 911/922                  |
| 1J | Create more convenient access within Salem and connect Glenvar/Richfield to the regional transit system by providing a 7-day service for residents/ employees                              | Route Extension/ Realignment 91/92 |
| 1K | Implement a new circulator connecting the activity centers of Crossroads, Hollins/Plantation Road, the DMV and other key locations in North Roanoke County                                 | New Route 1                        |
| 1L | New peak hour service between the Roanoke Centre for Industry and Technology and Downtown Roanoke to improve access to key employment sites for area residents                             | New Route 311 (31X)                |
| 1M | Connect Salem and its key destinations with the Smart Way Commuter regional service  | New Route                          |

|    |  |                |
|----|--|----------------|
|    | <i>using a new circulator</i>  | 93             |
| 1N | <i>Improve access to employment sites in Bonsack - Eastern Roanoke County, Botetourt County, and Downtown Roanoke with a new peak hour service</i> | New Route 3111 |
| 1O | <i>Greatly increase the convenience and attractiveness of transit service in the valley by expanding the hours of service</i>                      | Other Service  |
| 1P | <i>Coordinate transit services with Amtrak (Roanoke) Station schedules to increase regional connectivity and the convenience of longer trips</i>   | Additional     |
| 1Q | <i>Study the need for additional Smart Way commuter services (Roanoke-Lynchburg) to improve regional connectivity and increased jobs access</i>    | Additional     |
| 1R | <i>Study the potential for consolidating bus stops to reduce transit travel time and improve reliability</i>                                       | Additional     |
| 1S | <i>Develop partnerships with employers to increase jobs access and funding</i>   | Additional     |
| 1T | <i>Update route schedule publications and maps to ensure that transit is attractive and easy to use</i>  | Additional     |
| 1U | <i>Pursue a partnership among local governments for public transportation service to increase and improve transit service and funding</i>          | Additional     |
| 1V | <i>Evaluate individual routes for efficiencies and enhancements to save or maximize time and investment</i>  | Additional     |
| 1W | <i>Greatly increase the attractiveness and usability of transit by providing real-time</i>   | Additional     |

|     |   |            |
|-----|---|------------|
|     | <i>information</i>  |            |
| 1X  | <i>Reduce costs and significantly improve connectivity by regionalizing services for persons with disabilities and for seniors across jurisdictional boundaries</i> | Additional |
| 1Y  | <i>Adjust PM peak service hours to better align with travel patterns and daytime work hours</i>   | Additional |
| 1Z  | <i>Explore additional special activity/event transit services to popular recreational destinations</i>  | Additional |
| 1AA | <i>Extend service for people with disabilities later in the evening and on weekends where transit services are provided beyond the fixed-routes</i>                 | Additional |
| 1BB | <i>Study the ability to vary the fleet size based on ridership demands to better meet current and future needs while minimizing capital and operating expenses</i>  | Additional |

## 4.0 MEDIUM-TERM RECOMMENDATIONS (2022-2030)

The medium-term recommendations are focused on improving the quality of transit service in the Roanoke Valley region by making new connections within the existing and short-term service area as well as adding basic service coverage to more key activity centers. These changes provide additional transit options for more people and would improve service along large portions of existing routes or routes implemented in the short-term. New routes outside the existing service area that would connect to areas in Daleville, Clearbrook, South Roanoke County, and Vinton are also recommended for the medium-term.

The medium-term recommendations identify the transit service needs that should be addressed within the period between 2022 and 2030. **Figure 4.0-1** illustrates the recommendations being made in the medium-term.

As shown in **Table 4.0-1**, the medium-term recommendations improve the quality of service for 49 percent of the population (52,000) and 62 percent of the jobs (47,000) in the short-term service area. The new areas being served in this term increase the total population being served by seven percent (7,000) and the number of jobs by six percent (4,000).

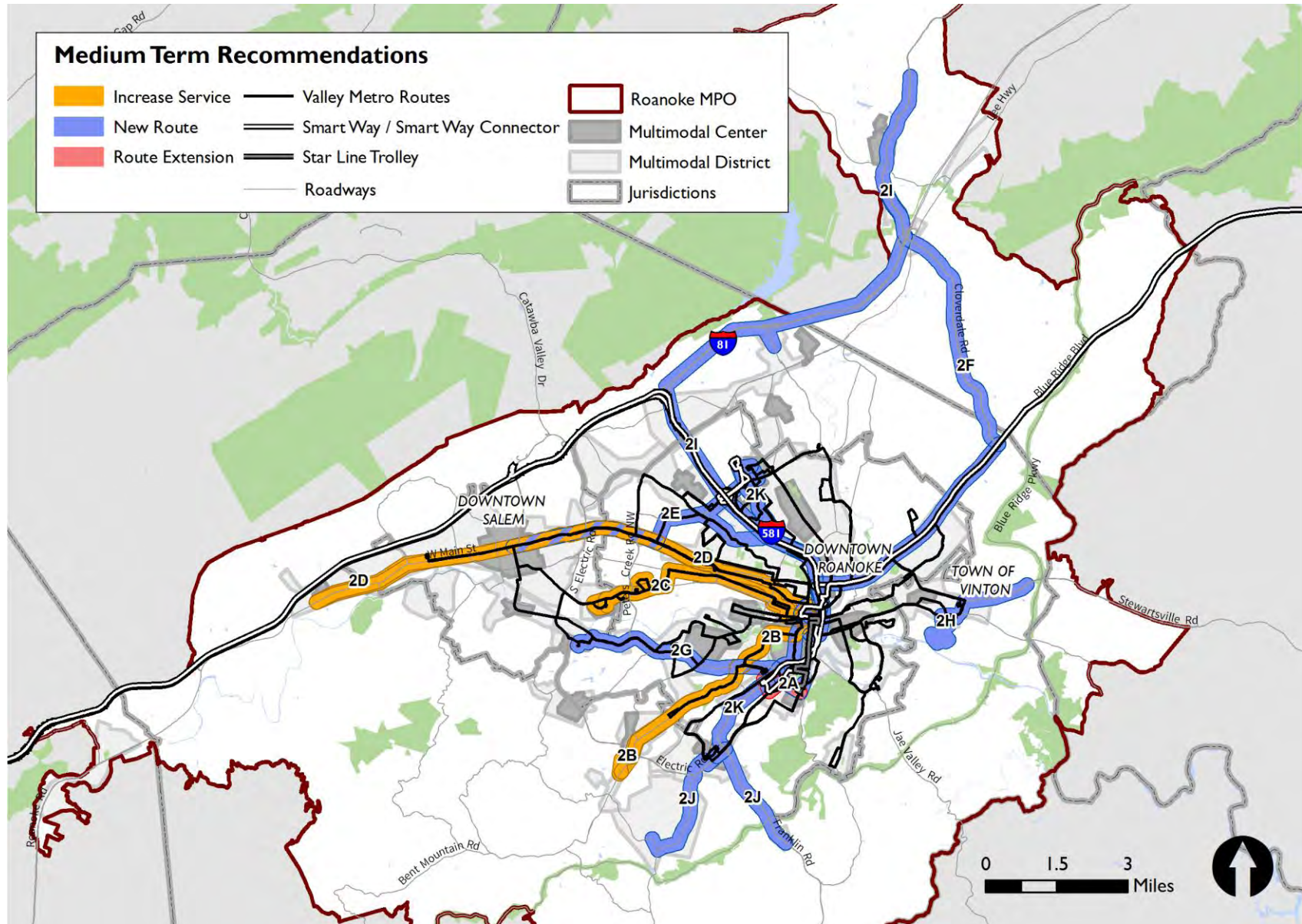
*Table 4.0-1 | Medium-Term Benefits*

|                   | Short Term Service Area | Medium Term Service Area | Improved Service <sup>3</sup> | Percent Growth in Population Served | Percent Improved Service <sup>4</sup> |
|-------------------|-------------------------|--------------------------|-------------------------------|-------------------------------------|---------------------------------------|
| <b>Population</b> | 106,561                 | 114,512                  | 52,528                        | 7%                                  | 49%                                   |
| <b>Jobs</b>       | 80,012                  | 85,087                   | 49,275                        | 6%                                  | 62%                                   |
| <b>Households</b> | 46,375                  | 49,900                   | 22,891                        | 8%                                  | 49%                                   |

<sup>3</sup> Includes areas being served by existing routes that have recommendations for increased span or frequency, or a new route overlaid.

<sup>4</sup> Percent of short term service area population receiving improved service.

Figure 4.0-1 | Conceptual Map of Additional Recommendations for the Medium-Term



## 4.1 New Routes

**Recommendation 2E: Create a new cross-town connection between Salem/Lakeside Plaza and Crossroads/Valley View connecting Salem with key activity centers**

Facilitate the ability for people who travel between Salem and Crossroads/Valley View to reach their destination efficiently by providing a direct transit connection and eliminating the need to travel to Downtown Roanoke to make the trip using transit.

Create a new route (Route 3) from Lakeside Plaza/Goodwill Salem to Crossroads (which enables greater connections), past Valley View through the new I-581/Valley View interchange connection to Cove Road and back to Salem. The connections would offer opportunities to connect with additional routes in the Crossroads area and provide service to new developments that will arise from the interchange improvement.

This recommendation is based upon feedback received from public input, through the Steering Committee, and the results of the residential, non-work, and workforce analyses and Home-Based Work trip flow analysis. The City of Salem and City of Roanoke Comprehensive Plans as well as the RVTPO Congestion Management Process Plan support this recommendation.

Table 4.1-1 | Recommendation 2E - Route 3

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| <b>Days of Service</b>     |                     | N/A     | Mon-Sun  |
| <b>Frequency (minutes)</b> | M-F Peak            | ---     | 60       |
|                            | M-F Midday/ Evening | ---     | 60       |
|                            | Saturday            | ---     | 60       |
|                            | Sunday              | ---     | 60       |

**Recommendation 2F: Create a new connection providing access between Greenfield/Daleville, Bonsack, and Downtown Roanoke**

Several exciting new business announcements will spur additional travel in southern Botetourt County as they transpire over the next several years. These new developments and additional future growth plans in Botetourt County will spur the need to provide a new transit connection among key destinations in the southern part of the County and connect with nearby destinations in the Bonsack area and Downtown Roanoke.

Create a new route (Route 8) connecting Greenfield/Daleville, Bonsack and Downtown Roanoke via Cloverdale Road, Challenger Avenue, and Orange Avenue.

This recommendation is based upon public input, input from Botetourt County Planning Commission, and through the workforce propensity and Home-Based Work trip flow analyses. The Roanoke County 2005 Community Plan, the City of Roanoke’s Comprehensive Plan, Vision 2001-2020, and the RVTPO Congestion Management Process Plan all support this recommendation.

Table 4.1-2 | Recommendation 2F - Route 8

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| <b>Days of Service</b>     |                     | N/A     | Mon-Sat  |
| <b>Frequency (minutes)</b> | M-F Peak            | ---     | 60       |
|                            | M-F Midday/ Evening | ---     | 60       |
|                            | Saturday            | ---     | 60       |
|                            | Sunday              | ---     | ---      |

**Recommendation 2G: Create new cross-town service connecting the key destinations of Lewis Gale, Towers Shopping Center, and Carilion improving access for residents**

A new route is recommended to facilitate easier travel across the region without needing to transfer in Downtown Roanoke.

Create a new east-west route (Route 2) connecting Lewis Gale, Towers Shopping Center, and Carilion. This route provides new connections while reinstating the lost connection between routes 61/62 (Brambleton Avenue) and Towers Shopping Center in the short-term due to the reallocated service to add a connection to Cave Spring.

This recommendation is based upon feedback from public input and is supported by the City of Roanoke’s Comprehensive Plan, Vision 2001-2020, and the Route 419 Corridor Study.

Table 4.1-3 | Recommendation 2G - Route 2

|                     |                     | Current | Proposed |
|---------------------|---------------------|---------|----------|
| Days of Service     |                     | N/A     | Mon-Sat  |
| Frequency (minutes) | M-F Peak            | ---     | 60       |
|                     | M-F Midday/ Evening | ---     | 60       |
|                     | Saturday            | ---     | 60       |
|                     | Sunday              | ---     | ---      |

**Recommendation 2H: Reduce dependency on paratransit services and provide new connections for residents via a new circulator connecting key destinations in Vinton and Eastern Roanoke County**

Areas in Vinton that are underserved by fixed-route transit experience high paratransit demands. Public input indicates a need for basic service coverage to destinations in Eastern Roanoke County.

Create a new hourly circulator (Route 24) to connect A Porter’s Haven, Clearview Manor, Lakedrive Plaza, Downtown Vinton, East Vinton Plaza Shopping Center, and William Byrd High School.

This recommendation is based upon feedback received from the Town of Vinton, an analysis of high trip generators, and public input. This recommendation is supported by the RVTPO Bus Stop Accessibility Study.

Table 4.1-4 | Recommendation 2H - Route 24

|                     |                     | Current | Proposed |
|---------------------|---------------------|---------|----------|
| Days of Service     |                     | N/A     | Mon-Fri  |
| Frequency (minutes) | M-F Peak            | ---     | 60       |
|                     | M-F Midday/ Evening | ---     | 60       |
|                     | Saturday            | ---     | ---      |
|                     | Sunday              | ---     | ---      |

**Recommendation 2I: Improve regional connectivity with new peak hour service between Greenfield/Daleville, Plantation Road and Downtown Roanoke providing transit access to key destinations**

Businesses and employment abound in Downtown Roanoke, the Hollins/Plantation Road area, and in Greenfield/Daleville. Create a new route (Bus Route 220) with peak morning and afternoon limited stop express service between Downtown Roanoke, I-81 Exit 146/Plantation Road, and Daleville/Greenfield to provide travel options to employment sites.

This recommendation is based upon results received from the public input, through feedback from the Steering Committee and the commuter propensity analysis. It is supported by the RVTPO

Congestion Management Process Plan and the City of Roanoke’s Comprehensive Plan, Vision 2001-2020.

Table 4.1-5 | Recommendation 2I - Route 220

|                     |                     | Current | Proposed |
|---------------------|---------------------|---------|----------|
| Days of Service     |                     | N/A     | Mon-Fri  |
| Frequency (minutes) | M-F Peak            | ---     | 75       |
|                     | M-F Midday/ Evening | ---     | ---      |
|                     | Saturday            | ---     | ---      |
|                     | Sunday              | ---     | ---      |

**Recommendation 2J: Implement a new circulator connecting the communities of Clearbrook, Tanglewood, and South Roanoke County**

Key regional activity centers and new businesses located in South Roanoke County and Clearbrook necessitate transit connections to provide a transportation option for moving around the southern part of the region.

Create a new hourly circulator (Route 10) to connect South County Library, Tanglewood, and Clearbrook via Starkey Road, Route 419, and Route 220 South.

This recommendation is based upon feedback received during public input, through the workforce, commuter, and non-work propensity analyses and the trip flow analysis. It is supported by the Roanoke County 2005 Community Plan and the RVTPO Congestion Management Process Plan.

Table 4.1-6 | Recommendation 2J - Route 10

|                     |                     | Current | Proposed |
|---------------------|---------------------|---------|----------|
| Days of Service     |                     | N/A     | Mon-Sat  |
| Frequency (minutes) | M-F Peak            | ---     | 60       |
|                     | M-F Midday/ Evening | ---     | 60       |
|                     | Saturday            | ---     | 60       |
|                     | Sunday              | ---     | ---      |

**Recommendation 2K: Create a new express service between Crossroads, Valley View, Downtown Roanoke, and Tanglewood improving efficient mobility across the region**

Basic access is currently provided to Crossroads, Valley View, Downtown Roanoke, and Tanglewood; however, the local nature of the service is not time efficient for riders wanting to access the final destination. To make travel between these key regional activity centers more timely, a new express service is recommended.

Create a new limited-stop express service (Route 1000) which utilizes I-581 and U.S. 220, connecting Crossroads, Valley View, Downtown Roanoke and the Tanglewood area.

This recommendation is based upon public input, the Steering Committee, and the results of the commuter propensity analysis. The Roanoke County 2005 Community Plan, RVTPO Congestion Management Process Plan, and the City of Roanoke’s Comprehensive Plan, Vision 2001-2020 support this recommendation.

Table 4.1-7 | Recommendation 2K - Route 1000

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| Days of Service            |                     | N/A     | Mon-Sat  |
| <b>Frequency (minutes)</b> | M-F Peak            | ---     | 60       |
|                            | M-F Midday/ Evening | ---     | 60       |
|                            | Saturday            | ---     | 60       |
|                            | Sunday              | ---     | ---      |

## 4.2 Route Extension/Realignment

**Recommendation 2A: Improve job and retail access and circulation by extending the Star Line Trolley to connect Downtown Roanoke and Carilion Roanoke Memorial Hospital to Towers Shopping Center and Carilion Clinic on Franklin Road**

New residences, businesses, and a growing medical community around Carilion will benefit from being better connected through an extension of the trolley service to include nearby restaurants and shopping.

Extend the Star Line Trolley from the Crystal Spring Medical Building to Towers Shopping Center and Carilion Clinic on Franklin Road. A reverse service enables people to travel from Franklin Road businesses to Towers Shopping Center and back to Carilion Roanoke Memorial Hospital and Downtown Roanoke; add 30-minute evening service and weekend service.

This recommendation is based upon feedback received from public input.

Table 4.2-1 | Recommendation 2A - Star Line Trolley

|                            |             | Current | Proposed |
|----------------------------|-------------|---------|----------|
| Days of Service            |             | Mon-Fri | Mon-Fri  |
| <b>Frequency (minutes)</b> | M-F Peak    | 15      | 15       |
|                            | M-F Midday  | 10      | 10       |
|                            | M-F Evening | ---     | 30       |
|                            | Saturday    | ---     | 30       |
|                            | Sunday      | ---     | 30       |

## 4.3 Other Service Changes

**Recommendation 2B: Improve the attractiveness of transit between Cave Spring and Downtown Roanoke by adding peak hour service between these key activity centers**

Increase peak frequency on Routes 61/62 to every 30 minutes to encourage transit use between these key destinations by making it more convenient to residents and to encourage non-auto access to Downtown Roanoke.

This recommendation is based upon feedback received from public input and the trip flow analysis.

Table 4.3-1 | Recommendation 2B - Routes 61/62

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| Days of Service            |                     | Mon-Sat | Mon-Sat  |
| <b>Frequency (minutes)</b> | M-F Peak            | 60      | 30       |
|                            | M-F Midday/ Evening | 60      | 60       |
|                            | Saturday            | 60      | 60       |
|                            | Sunday              | ---     | ---      |



**Recommendation 2C: Improve convenience and access to medical services by enhancing midday and evening service, and add Sunday service between the VA Medical Center and Downtown Roanoke**

Increase midday/evening frequency of Routes 75/76 to every 30 minutes and add Sunday service.

This recommendation is based upon results from the non-work propensity analysis.

Table 4.3-2 | Recommendation 2C - Routes 75/76

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| Days of Service            |                     | Mon-Sat | Mon-Sun  |
| <b>Frequency (minutes)</b> | M-F Peak            | 30      | 30       |
|                            | M-F Midday/ Evening | 60      | 30       |
|                            | Saturday            | 60      | 60       |
|                            | Sunday              | ---     | 60       |

**Recommendation 2D: Improve jobs access and regional connectivity by enhancing service between Salem/Lakeside Plaza and Downtown Roanoke**

Consolidate Routes 81/82 into realigned Routes 91/92 (see short-term recommendation 1H), which in the medium-term would have increased frequency (30 minutes all day on weekdays) and added Sunday service.

This recommendation is based upon results from the non-work propensity analysis.

Table 4.3-3 | Recommendation 2D - Routes 81/82 and Routes 91/92

|                            |                     | Current Routes 81/82 | Proposed Routes (Short Term) 91/92 | Proposed Routes 91/92 |
|----------------------------|---------------------|----------------------|------------------------------------|-----------------------|
| Days of Service            |                     | Mon-Fri              | Mon-Sun                            | Mon-Sun               |
| <b>Frequency (minutes)</b> | M-F Peak            | 30                   | 60                                 | 30                    |
|                            | M-F Midday/ Evening | 60                   | 60                                 | 30                    |
|                            | Saturday            | ---                  | 60                                 | 60                    |
|                            | Sunday              | ---                  | 60                                 | 60                    |

#### 4.4 Summary of Medium-Term Recommendations

A summary of the medium-term recommendations is provided in the following table. To support these recommendations, additional recommendations related to regional connections and facilities should be considered as needed to support the new and improved services as described in **Sections 6.0 and 7.0** of this document.

Table 4.4-1 | Summary of Medium-Term Recommendations

| #  | MEDIUM-TERM RECOMMENDATION  | TYPE  |
|----|---|---|
| 2A | <i>Improve job and retail access and circulation by extending the Star Line Trolley to connect Downtown Roanoke and Carilion Roanoke Memorial Hospital to Towers Shopping Center and Carilion Clinic on Franklin Road</i> | Route Extension/<br>Realignment<br>Star Line<br>Trolley |
| 2B | <i>Improve the attractiveness of transit between Cave Spring and Downtown Roanoke by adding peak hour service between these key activity centers</i>  | Other<br>Service;<br>Routes<br>61/62                    |
| 2C | <i>Improve convenience and access to medical services by enhancing midday and evening service, and add Sunday service between the VA Medical Center and Downtown Roanoke</i>  | Other<br>Service;<br>Routes<br>75/76                    |
| 2D | <i>Improve jobs access and regional connectivity by enhancing service between Salem/Lakeside Plaza and Downtown Roanoke</i>   | Other<br>Service;<br>Routes<br>81/82                    |
| 2E | <i>Create a new cross-town connection between Salem/Lakeside Plaza and Crossroads/Valley View connecting Salem with key activity centers</i>  | New Route 3   |
| 2F | <i>Create a new connection providing access between Greenfield/Daleville, Bonsack, and Downtown Roanoke</i>   | New Route 8   |
| 2G | <i>Create new cross-town service connecting the key destinations of Lewis Gale, Towers Shopping Center, and Carilion improving access for residents</i>   | New Route 2   |

|    |  |                   |
|----|--|-------------------|
| 2H | <i>Reduce dependency on paratransit services and provide new connections for residents via a new circulator connecting key destinations in Vinton and Eastern Roanoke County</i> | New Route<br>24   |
| 2I | <i>Improve regional connectivity with new peak hour service between Greenfield/Daleville, Plantation Road and Downtown Roanoke providing transit access to key destinations</i>  | New Route<br>220  |
| 2J | <i>Implement a new circulator connecting the communities of Clearbrook, Tanglewood, and South Roanoke County</i>   | New Route<br>10   |
| 2K | <i>Create a new express service between Crossroads, Valley View, Downtown Roanoke, and Tanglewood improving efficient mobility across the region</i>                             | New Route<br>1000 |

## 5.0 LONG-TERM RECOMMENDATIONS (2030- 2040)

The long-term recommendations further enhance the level of transit service throughout the region by increasing frequency, increasing the hours of service, adding weekend services and adding new routes within the existing service area. This term also recommended routes outside the existing service area that would connect to new areas in Troutville and North Roanoke County between Peters Creek Road and Route 419.

The long-term recommendations identify the transit service needs that should be addressed within the 10-year period between 2030 and 2040. **Figure 5.0-1** illustrates the recommendations being made in the following section.

These types of improvements are vital to ensure that the Roanoke Valley can improve upon the quality of life for its residents. Increasing the frequency makes routes more convenient for existing riders, and it makes transit attractive to new riders by making it a viable alternative to the automobile for a wider variety of trips. New connections with new transit service means that a wider variety of locations will be accessible to a larger portion of the population. With the realization of the recommendations of this plan citizens will be able to travel to all of the major destinations in the Valley via transit.

*Frequent transit service is transformative!*

*It supports and encourages a denser and mixed-use development of land use which in turn increases property value and quality of life.*

The long-term recommendations improve the quality of service for 66% of the population (75,000) and 80% of the jobs (67,000) in the short-term service area, as shown in the table below.

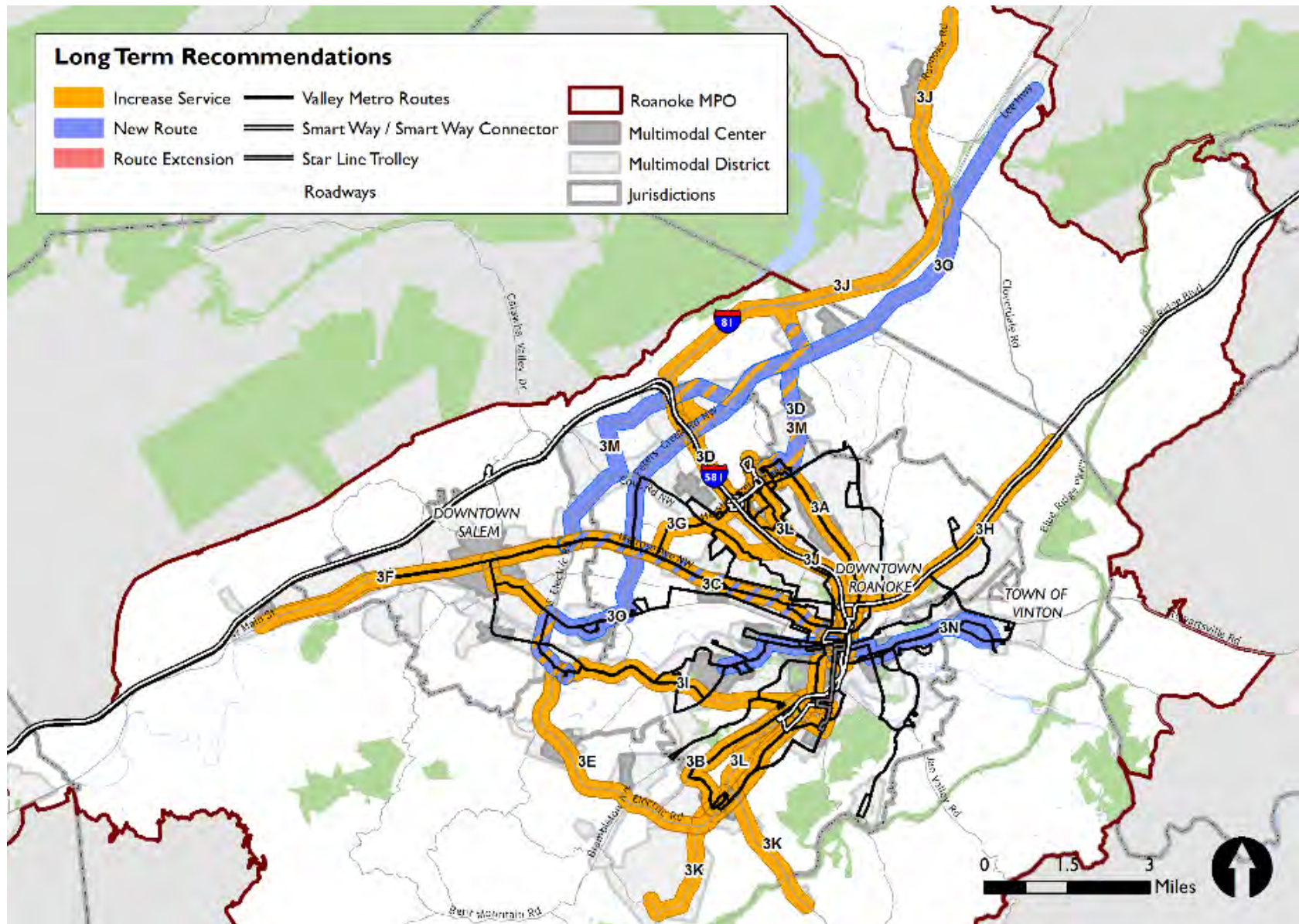
*Table 5.0-1 | Long-Term Recommendation Benefits*

|                   | Medium Term Service Area | Long Term Service Area | Improved Service <sup>5</sup> | Percent Growth in Population Served | Percent Improved Service <sup>6</sup> |
|-------------------|--------------------------|------------------------|-------------------------------|-------------------------------------|---------------------------------------|
| <b>Population</b> | 114,512                  | 116,722                | 75,168                        | 2%                                  | 66%                                   |
| <b>Jobs</b>       | 85,087                   | 87,647                 | 67,806                        | 3%                                  | 80%                                   |
| <b>Households</b> | 49,900                   | 50,670                 | 33,051                        | 2%                                  | 66%                                   |

<sup>5</sup> Includes areas being served by existing routes that have recommendations for increased span or frequency, or a new route overlaid.

<sup>6</sup> Percent of short term service area population receiving improved service.

Figure 5.0-1 | Conceptual Map of Additional Recommendations for the Long-Term



## 5.1 New Routes

**Recommendation 3M: Create a new connection between Salem and Crossroads via DMV/Plantation Road providing new access to area residents to key destinations and services**

New service from Goodwill Salem/Lakeside Plaza at Route 419/East Main Street to Crossroads via the DMV, Green Ridge Road, Peters Creek Road, Plantation Road and Williamson Road. This recommendation builds off the short-term recommendation 1A, by providing an hourly bus bi-directionally between Salem, North Roanoke County, and the City of Roanoke.

This recommendation is based upon results from the commuter propensity analysis and is supported by the Hollins Area Plan, City of Roanoke Comprehensive Plan-Vision 2001-2020, Roanoke County 2005 Community Plan, City of Salem Comprehensive Plan, and the RVTPO Congestion Management Process Plan.

Table 5.1-1 | Recommendation 3M - Route 7

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| <b>Days of Service</b>     |                     | N/A     | Mon-Sat  |
| <b>Frequency (minutes)</b> | M-F Peak            | ---     | 60       |
|                            | M-F Midday/ Evening | ---     | 60       |
|                            | Saturday            | ---     | 60       |
|                            | Sunday              | ---     | ---      |

**Recommendation 3N: Quick and continuous connections between Grandin Village, Downtown Roanoke, and Downtown Vinton**

The Grandin Village, Downtown Roanoke, and Downtown Vinton all offer unique opportunities to live a car-light lifestyle and are in close proximity to each other. As these activity centers and the neighborhoods between them continue to grow and attract residents and employees that appreciate a multimodal lifestyle, a more robust transit connection throughout the day will strengthen these communities.

The new Route 7135 would complement Routes 71/72 and 35/36 to provide increased frequency, every 30 minutes, on the portion of those routes between Grandin Village, Downtown Roanoke, and Downtown Vinton/Kroger on Hardy Road.

This recommendation is based upon public input and the results from the residential propensity analysis. It is supported by the Vinton Area Corridors Plan, the RVTPO Congestion Management Process Plan, and the City of Roanoke’s Comprehensive Plan, Vision 2001-2020.

Table 5.1-2 | Recommendation 3N - Route 7135

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| <b>Days of Service</b>     |                     | N/A     | Mon-Fri  |
| <b>Frequency (minutes)</b> | M-F Peak            | ---     | ---      |
|                            | M-F Midday/ Evening | ---     | 60       |
|                            | Saturday            | ---     | ---      |
|                            | Sunday              | ---     | ---      |

**Recommendation 30: New service connecting residents and businesses between Troutville, Hollins, the VA Medical Center and Lewis Gale**

As the U.S. 11 corridor grows in North Roanoke County and Botetourt County, a new cross-town connector will provide travel options for citizens between these areas and the Salem medical centers.

A new hourly route connecting Troutville, Hollins, the VA Medical Center and Lewis Gale is recommended that provides new access for residents to key destinations and services and improves regional connectivity.

This recommendation is needed to provide a basic coverage connection for residents between growing areas in the north part of the region, key destinations, and services. Improved access to employment centers and a non-auto travel option would be provided.

This recommendation is supported by the RVTPO Congestion Management Process Plan and the City of Salem Comprehensive Plan.

Table 5.1-32 | Recommendation 30 - Route 117

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| <b>Days of Service</b>     |                     | N/A     | Mon-Sat  |
| <b>Frequency (minutes)</b> | M-F Peak            | ---     | 30       |
|                            | M-F Midday/ Evening | ---     | 60       |
|                            | Saturday            | ---     | 60       |
|                            | Sunday              | ---     | ---      |

5.2 Other Service Changes

**Recommendation 3A: Create a highly connected, activity filled corridor between Crossroads Shopping Area and Downtown Roanoke**

To make it easier and more attractive for people to travel to/from destinations along Williamson Road, around Crossroads and Downtown Roanoke, additional service frequency is recommended.

Increase peak frequency in the Williamson Road corridor on Routes 21/22 to every 15 minutes and add Sunday service.

This recommendation is based upon feedback from the frequent corridor propensity analysis. It is supported by the RVTPO Congestion Management Process Plan and the City of Roanoke’s Comprehensive Plan, Vision 2001-2020.

Table 5.2-1 | Recommendation 3A - Routes 21/22

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| <b>Days of Service</b>     |                     | Mon-Sat | Mon-Sun  |
| <b>Frequency (minutes)</b> | M-F Peak            | 30      | 15       |
|                            | M-F Midday/ Evening | 60      | 30       |
|                            | Saturday            | 60      | 60       |
|                            | Sunday              | ---     | 60       |

**Recommendation 3C: Create a high frequency corridor between Downtown Salem and Downtown Roanoke**

As land in the corridor between Downtown Roanoke and Downtown Salem is developed, the density of destinations and people increases to a level that supports higher frequency transit service.

Add Routes 81/82 back into the system (in medium-term recommendation 2D, they were consolidated into Routes 91/92); this recommendation results in a 15-minute frequency along this corridor when combined with Routes 91/92.

This recommendation is supported by the frequent corridor propensity analysis and the RVTPO Congestion Management Process Plan.

Table 5.2-2 | Recommendation 3C – Routes 81/82

|                            |                     | Proposed Medium Term | Proposed Long Term |
|----------------------------|---------------------|----------------------|--------------------|
| <b>Days of Service</b>     |                     | ---                  | Mon-Fri            |
| <b>Frequency (minutes)</b> | M-F Peak            | ---                  | 30                 |
|                            | M-F Midday/ Evening | ---                  | ---                |
|                            | Saturday            | ---                  | ---                |
|                            | Sunday              | ---                  | ---                |

**Recommendation 3E: Create more convenient, easy access between Carilion and Salem via quicker connections between the activity centers along Route 419**

On the short-term proposed Route 4/5, connecting Carilion-Tanglewood, Cave Spring, Oak Grove, Lewis Gale, and Downtown Salem, add midday service at every 30 minutes.

This recommendation is supported by the Roanoke County 2005 Community Plan, the RVTPO Congestion Management Process Plan, and the City of Salem Comprehensive Plan.

Table 5.2-3 | Recommendation 3E - Routes 4/5

|                            |                     | Proposed Short Term | Proposed Long Term |
|----------------------------|---------------------|---------------------|--------------------|
| <b>Days of Service</b>     |                     | Mon-Sun             | Mon-Sun            |
| <b>Frequency (minutes)</b> | M-F Peak            | 30                  | 30                 |
|                            | M-F Midday/ Evening | 60                  | 30                 |
|                            | Saturday            | 60                  | 60                 |
|                            | Sunday              | 60                  | 60                 |

**Recommendation 3F: Create a high frequency corridor between Glenvar and Salem**

Similar to Recommendation 3C, increase peak frequency on Routes 911/922 to every 30 minutes. Combined with Route 91/92 this creates a 15-minute frequency between Glenvar and Salem.

This recommendation is supported by the frequent corridor propensity analysis, the Glenvar Community Plan, and the City of Salem Comprehensive Plan.

Table 5.2-4 | Recommendation 3F - Routes 911/922

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| <b>Days of Service</b>     |                     | Mon-Fri | Mon-Fri  |
| <b>Frequency (minutes)</b> | M-F Peak            | 60      | 30       |
|                            | M-F Midday/ Evening | ---     | ---      |
|                            | Saturday            | ---     | ---      |
|                            | Sunday              | ---     | ---      |

**Recommendation 3H: Enhance the connection between Bonsack and Downtown Roanoke and add Sunday service**

Increase frequency to 30 minutes during peak and midday and add Sunday service on Route 8, which was created in the medium-term (Recommendation 2F).

This recommendation is based upon public input, and through the workforce propensity and Home-Based Work trip flow analyses.

Table 5.2-5 | Recommendation 3H - Route 8

|                            |                     | Proposed Medium Term | Proposed Long Term |
|----------------------------|---------------------|----------------------|--------------------|
| Days of Service            |                     | Mon-Sat              | Mon-Sun            |
| <b>Frequency (minutes)</b> | M-F Peak            | 60                   | 30                 |
|                            | M-F Midday/ Evening | 60                   | 30                 |
|                            | Saturday            | 60                   | 60                 |
|                            | Sunday              | ---                  | 60                 |

**Recommendation 3I: Create easy access and improve connectivity between Lewis Gale, Towers Shopping Center, and Carilion**

Increase peak and midday frequency to 30 minutes and add Sunday service on Route 2, which was created in the medium-term (Recommendation 2G).

Table 5.2-6 | Recommendation 3I - Route 2

|                            |                     | Proposed Medium Term | Proposed Long Term |
|----------------------------|---------------------|----------------------|--------------------|
| Days of Service            |                     | Mon-Sat              | Mon-Sun            |
| <b>Frequency (minutes)</b> | M-F Peak            | 60                   | 30                 |
|                            | M-F Midday/ Evening | 60                   | 30                 |
|                            | Saturday            | 60                   | 60                 |
|                            | Sunday              | ---                  | 60                 |

**Recommendation 3B: Create a high frequency corridor between Tanglewood Mall and Downtown Roanoke**

With a redeveloped Tanglewood area, more trips will be generated from the area and attracted to the area. Two key activity generators in the region become connected with high quality transit service with this recommendation.

Add 15-minute peak service between Tanglewood and Downtown Roanoke; increase weekend service frequencies.

This recommendation is supported by the frequent corridor propensity analysis.

Table 5.2-7 | Recommendation 3B - Routes 55/56

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| Days of Service            |                     | Mon-Sat | Mon-Sun  |
| <b>Frequency (minutes)</b> | M-F Peak            | 30      | 15       |
|                            | M-F Midday/ Evening | 60      | 30       |
|                            | Saturday            | 60      | 30       |
|                            | Sunday              | ---     | 30       |



**Recommendation 3G: Make the connection between Salem and Crossroads more appealing to more people through increased frequency.**

Increase peak and midday frequency to 30 minutes on the new Route 3 between Salem/Lakeside Plaza and Crossroads, which was created in the medium-term (Recommendation 2E).

Table 5.2-8 | Recommendation 3G - Route 3

|                            |                     | Current | Proposed |
|----------------------------|---------------------|---------|----------|
| Days of Service            |                     | Mon-Sun | Mon-Sun  |
| <b>Frequency (minutes)</b> | M-F Peak            | 60      | 30       |
|                            | M-F Midday/ Evening | 60      | 30       |
|                            | Saturday            | 60      | 60       |
|                            | Sunday              | 60      | 60       |

**Recommendation 3D: Create easy access and improve connectivity between Hollins/Plantation Road and the DMV**

Increase weekday frequency to 30 minutes and add Saturday/Sunday service to Route 1, which was created in the short-term (Recommendation 1K).

This recommendation is supported by the Hollins Area Plan, the City of Roanoke’s Comprehensive Plan, Vision 2001-2020, the Roanoke County 2005 Community Plan, and the RVTPO Congestion Management Process Plan.

Table 5.2-9 | Recommendation 3D - Route 1

|                            |                     | Proposed Short Term | Proposed Long Term |
|----------------------------|---------------------|---------------------|--------------------|
| Days of Service            |                     | Mon-Fri             | Mon-Sun            |
| <b>Frequency (minutes)</b> | M-F Peak            | 60                  | 30                 |
|                            | M-F Midday/ Evening | 60                  | 30                 |
|                            | Saturday            | ---                 | 60                 |
|                            | Sunday              | ---                 | 60                 |

**Recommendation 3J: Provide a consistent all-day connection between Greenfield/Daleville via Plantation Road to Downtown Roanoke**

Increase the frequency on the new “Bus Route 220”, which was created in the medium-term (Recommendation 2I), to hourly all-day service and add Saturday service.

This recommendation is based upon public input, Steering Committee input, and the results from the commuter propensity analysis. It is supported by the Hollins Area Plan, the RVTPO Congestion Management Process Plan, and the Roanoke County 2005 Community Plan.

Table 5.2-10 | Recommendation 3J - Route 220

|                            |                     | Proposed Medium Term | Proposed Long Term |
|----------------------------|---------------------|----------------------|--------------------|
| Days of Service            |                     | Mon-Fri              | Mon-Sat            |
| <b>Frequency (minutes)</b> | M-F Peak            | 75                   | 60                 |
|                            | M-F Midday/ Evening | ---                  | 60                 |
|                            | Saturday            | ---                  | 60                 |
|                            | Sunday              | ---                  | ---                |

**Recommendation 3K: Enable improved mobility between Clearbrook, Tanglewood, and the South County Library**

Increase peak frequency to every 30 minutes on Route 10, which was created in the medium-term (Recommendation 2J).

This recommendation is supported by the RVTPO Congestion Management Process Plan and the Roanoke County 2005 Community Plan.

Table 5.2-11 | Recommendation 3K - Route 10

|                            |                     | Proposed Short Term | Proposed Long Term |
|----------------------------|---------------------|---------------------|--------------------|
| <b>Days of Service</b>     |                     | N/A                 | Mon-Sat            |
| <b>Frequency (minutes)</b> | M-F Peak            | 60                  | 30                 |
|                            | M-F Midday/ Evening | 60                  | 60                 |
|                            | Saturday            | 60                  | 60                 |
|                            | Sunday              | ---                 | ---                |

**Recommendation 3L: Enable quick and easy connections between Crossroads/Valley View, Downtown Roanoke, and Tanglewood**

Increase weekday frequency to 30 minutes and add Sunday service to Route 1000, which was created in the medium-term (Recommendation 2K).

This recommendation is based upon public input, the Steering Committee, and the results of the commuter propensity analysis. It is supported by the RVTPO Congestion Management Plan, the City of Roanoke’s Comprehensive Plan, Vision 2001-2020, and Roanoke County’s 2005 Community Plan.

Table 5.2-12 | Recommendation 3L - Route 1000

|                            |                     | Proposed Medium Term | Proposed Long Term |
|----------------------------|---------------------|----------------------|--------------------|
| <b>Days of Service</b>     |                     | N/A                  | Mon-Sun            |
| <b>Frequency (minutes)</b> | M-F Peak            | 60                   | 30                 |
|                            | M-F Midday/ Evening | 60                   | 30                 |
|                            | Saturday            | 60                   | 60                 |
|                            | Sunday              | ---                  | 60                 |

### 5.3 Summary of Long-Term Recommendations

A summary of the long-term recommendations is provided in the following table. To support these recommendations, additional recommendations related to regional connections and facilities should be considered as needed to support the new and improved services as described in **Sections 6.0 and 7.0** of this document.

Table 5.3-1 | Summary of Long-Term Recommendations

| #  | LONG-TERM RECOMMENDATION  | TYPE   |
|----|---|--|
| 3A | Create a highly connected, activity filled corridor between Crossroads Shopping Area and Downtown Roanoke                           | Other Service; Routes 21/22                  |
| 3B | Create a high frequency corridor between Tanglewood Mall and Downtown Roanoke   | Other Service; Routes 55/56                  |
| 3C | Create a high frequency corridor between Downtown Salem and Downtown Roanoke  | Other Service; Routes 81/82                  |
| 3D | Create easy access and improve connectivity between Hollins/Plantation Road and the DMV   | Other Service; Route 1/<br>Recommendation 1K |
| 3E | Create more convenient, easy access between Carilion and Salem via quicker connections between the activity centers along Route 419 | Other Service; Route 4/5                     |
| 3F | Create a high frequency corridor between Glenvar and Salem  | Other Service; Routes 911/922                |
| 3G | Make the connection between Salem and Crossroads more appealing to more people through increased frequency.                         | Other Service; Route 3/<br>Recommendation 2E |
| 3H | Enhance the connection between Bonsack and Downtown Roanoke and add Sunday service  | Other Service; Route 8/<br>Recommendation 2F |
| 3I | Create easy access and improve connectivity between Lewis Gale,   | Other Service; Route 2/                      |

|    |  |   |
|----|--|---|
|    | Towers Shopping Center, and Carilion   | Recommendation 2G                               |
| 3J | Provide a consistent all-day connection between Greenfield/Daleville via Plantation Road to Downtown Roanoke   | Other Service; Route 220/<br>Recommendation 2I  |
| 3K | Enable improved mobility between Clearbrook, Tanglewood, and the South County Library  | Other Service; Route 10/<br>Recommendation 2J   |
| 3L | Enable quick and easy connections between Crossroads/Valley View, Downtown Roanoke, and Tanglewood   | Other Service; Route 1000/<br>Recommendation 2K |
| 3M | Create a new connection between Salem and Crossroads via DMV/Plantation Road providing new access to area residents to key destinations and services | New Route; Route 7                              |
| 3N | Quick and continuous connections between Grandin Village, Downtown Roanoke, and Downtown Vinton  | New Route; Route 7135                           |
| 3O | New service connecting residents and businesses between Troutville, Hollins, the VA Medical Center and Lewis Gale                                    | New Route; Route 117                            |

## 6.0 REGIONAL CONNECTIONS RECOMMENDATIONS

The Roanoke Valley is the largest urban area in Southwest Virginia. As such, there is a desire for places outside the Valley to be better connected to it for a number of reasons such as access to medical services, jobs, shopping, and entertainment, as well as transferring to other regional transportation via the Roanoke-Blacksburg Regional Airport, the future Roanoke Amtrak station or intercity buses. Connections are already present with Christiansburg and Blacksburg and should be expanded to enable a connection with Amtrak's daily departures and arrivals. The Plan's public involvement process uncovered several places where a transit connection with the Roanoke Valley is desired including:

- ▲ ALLEGHANY HIGHLANDS (ALLEGHANY COUNTY, COVINGTON, AND CLIFTON FORGE)
- ▲ BEDFORD
- ▲ HARRISONBURG
- ▲ LYNCHBURG
- ▲ MARTINSVILLE
- ▲ RADFORD
- ▲ ROCKY MOUNT
- ▲ SMITH MOUNTAIN LAKE AREA (FRANKLIN AND BEDFORD COUNTIES)

Each of the places listed above have their own unique draws which would benefit from being better connected to the Roanoke Valley for purposes such as tourism, access to education, and jobs.

In addition to connecting people to Amtrak in Roanoke, there is particular interest in a transit connection between the Roanoke Valley and Amtrak's Cardinal line service. The train makes a stop in Clifton Forge as it travels between Chicago-Indianapolis-Cincinnati-Washington DC-New York as follows:

- ▼ #51 TRAIN TRAVELING FROM NEW YORK TO CHICAGO MAKES A STOP IN CLIFTON FORGE ON SUNDAYS, WEDNESDAYS, AND FRIDAYS AT 4:13 P.M.
- ▼ #50 TRAIN TRAVELING FROM CHICAGO TO NEW YORK MAKES A STOP IN CLIFTON FORGE ON SUNDAYS, WEDNESDAYS, AND FRIDAYS AT 12:44 P.M.

A transit service available from the Roanoke Valley would make the Cardinal train a long-distance travel option for more people.

The feasibility of providing a transit connection with these regional destinations should be studied in the short-term.

## 7.0 FACILITY RECOMMENDATIONS

This section discusses facility recommendations to support transit operations including transfer facilities, bicycle and pedestrian facilities, park-and-ride facilities, bikeshare opportunities, and storage, maintenance, and administrative facilities.

### 7.1 Transfer Facilities Overview

A Transit Transfer Facility (TTF) is a location where two or more transit routes and/or modes (bus, train, etc.) share a common hub and where some level of amenities for passengers are provided. The primary function of a TTF is to improve connectivity of the system by bringing transit routes together in logical locations. This provides additional opportunities for users to transfer either between transit routes, transportation modes, or even different transit providers, expanding access via transit throughout the region. Examples include landmark stations served by many local routes and transportation modes and small transfer points served by a few local services and rural transit providers. By pooling resources to invest in a hub jointly used by multiple providers, these facilities may feature comfortable waiting areas, local art or décor, information kiosks, and other amenities.<sup>7</sup>

<sup>7</sup> TCRP Report 173: Improving Transit Integration among Multiple Providers. Volume I: Transit Integration Manual.

Transit transfer facilities should be the pride of the transit system. As visible hubs of a thriving transit network, they are a reflection of community values; providing customers with an inviting, safe, and comfortable user experience is paramount.

A Livable Roanoke Valley requires a future transit system with world-class transit facilities. The scale of TTFs in the region are broken into three categories: Small, Medium, and Large. At a minimum, TTFs will provide a number of key passenger amenities such as real-time information, trash cans, shelters, and lighting. All TTFs should be easily accessed by pedestrians and bicyclists, connect to nearby destinations, and provide bicycle racks. Centers that serve a large number of cyclists can include secure bicycle parking as well. The extent of infrastructure at transit centers will depend on the level of service and importance of each facility (**Table 7.1-1**).

Table 7.1-1 | Infrastructure at Transit Transfer Facilities

| Amenity                                | Small Transfer Facility | Medium Transfer Facility | Large Transfer Facility |
|--|-------------------------|--------------------------|-------------------------|
| ADA Accessible Boarding/Alighting Area | ●                       | ●                        | ●                       |
| Flag Sign with Basic Route Information | ●                       | ●                        | ●                       |
| Seating                                | ●                       | ●                        | ●                       |
| Shelter                                | ●                       | ●                        | ●                       |
| Trash Receptacle                       | ●                       | ●                        | ●                       |
| Lighting                               | ●                       | ●                        | ●                       |
| Detailed Route Information             | ●                       | ●                        | ●                       |

| Amenity                            | Small Transfer Facility | Medium Transfer Facility | Large Transfer Facility |
|------------------------------------|-------------------------|--------------------------|-------------------------|
| System Map                         | ●                       | ●                        | ●                       |
| Real-Time Information Displays     | ●                       | ●                        | ●                       |
| Ticket Vending Machines            | ●                       | ●                        | ●                       |
| Bike Racks                         | ●                       | ●                        | ●                       |
| Bathrooms                          |                         | ●                        | ●                       |
| Information Kiosk                  |                         | ●                        | ●                       |
| Indoor Seating                     |                         |                          | ●                       |
| Staff (fare sales and information) |                         |                          | ●                       |

Small TTFs are located at minor transfer points, facilitating linkages between transit services. Because of their lower expected ridership, these facilities are small scale facilities located largely in curb-side settings. A premium version is shown in **Figure 7.1-1**<sup>8</sup>, with a bus shelter, real-time information, security cameras, lighting, and benches. As these TTFs do not handle a large number of routes, bus layover space can be accommodated with a concrete bus pad instead of dedicated bus bays or a bus loop. In many cases, a Small TTF will only need to be a large shelter with multiple benches and other enhanced amenities. When small TTFs are located in activity centers,

<sup>8</sup> Photo Credit: Wikimedia.org (top); timberframes.org (bottom)

pedestrian and bicycle accommodations should connect the TTF to nearby destinations.

Figure 7.1-1 | Examples of Small-Scale Transit Transfer Facility



Mid-size TTFs represent the next step up in the hierarchy. Like those pictured in **Figure 7.1-2**, these are larger facilities, typically located off-street, that can accommodate connections to

multiple routes as well as in some instances multi-modal transfers. These facilities feature a bus loop and dedicated layover area to accommodate the higher level of traffic expected at such locations. In addition to the features provided at small TTFs, mid-size TTFs should have dedicated restroom facilities and at least part-time staffing to provide enhanced security and surveillance of the facility. Finally, these TTFs may include passenger drop-off areas (i.e. kiss-and-rides).

*Figure 7.1-2 | Example of Medium-Size Transit Transfer Facility in Seattle Region*



Large TTFs represent the most important transfer nodes within the entire regional transit system. As capstones of the transit network they are the heart of a mobile community. As an icon of a proud citizenry, their attractiveness and ease of use directly contribute to people's desire and decision to use transit. These facilities should be able to accommodate a large number of transit connections through an off-road bus loop, bus bays, and layover areas. The facilities should include kiss-and-rides to allow passengers to be dropped off and picked up (**Figure 7.1-3**).

Furthermore, depending on the location, large transit centers can include park-and-ride facilities. Large TTFs should include indoor waiting areas, restrooms, and a full-time staff presence to serve customers and provide an enhanced security presence.

Large TTFs have the potential to benefit their surroundings greatly by capitalizing on the number of people that can utilize transit to get to/from nearby destinations; they are prime locations for adjacent high density business and residential areas.

*Figure 7.1-3 | Example of Large-Scale Transit Transfer Facility in Las Vegas*



## 7.2 Transit Transfer Facility Recommendations

Proposed TTFs are defined at three levels: Small Transit Center, Medium Transit Center, and Large Transit Center.

Recommendations for TTFs throughout the region are provided in **Table 7.2-1**.

*Table 7.2-1 | Recommended Size of Proposed Transit Transfer Facilities in the Region*

| Recommended Transit Center Size         | Facility                           | Phase      |
|---|------------------------------------|------------|
| <b>Small Transit Transfer Facility</b>  | Crossroads/Airport                 | Short-Term |
|   | Valley View Mall                   | Short-Term |
|   | Downtown Salem                     | Short-Term |
|   | Salem VA Medical Center            | Short-Term |
|   | Lewis Gale Medical Center          | Short-Term |
|   | Cave Spring                        | Short-Term |
|   | Tanglewood                         | Short-Term |
|   | Carilion Roanoke Memorial Hospital | Short-Term |
|   | Vinton                             | Mid-Term   |
|   | Hollins                            | Long-Term  |
| <b>Medium Transit Transfer Facility</b> | Salem (460/419 intersection)       | Long-Term  |
|   | Crossroads/Airport                 | Mid-Term   |
|   | Carilion Roanoke Memorial Hospital | Mid-Term   |
|   | Tanglewood                         | Long-Term  |
| <b>Large Transit Transfer Facility</b>  | Lewis Gale Medical Center          | Long-Term  |
|   | Downtown Roanoke                   | Short-Term |

The results of the analysis illustrate the need for new TTFs throughout the region to support the proposed route recommendations (See **Figure 7.2-31**, **Figure 7.2-2**, and **Figure 7.2-3**). The recommended locations depicted denote general

areas where a facility is deemed necessary to provide system connectivity, not precise locations. More precise locations for each facility would be determined through further study and in concert with implementation of the phased route recommendations included in the plan. Each figure only shows the TTFs for each phase; for clarity, recommendations from the previous phase are not carried through.

Much like the phased approach described for fixed-route services, in many cases it may be more efficient to begin with smaller facilities and increase their size and amenities as transit service and user activity increases. The risk with this approach is the inability to acquire sufficient space for growth in future years.

If the Transit Vision Plan recommendations are realized, the system will ultimately include seven small TTFs, four medium TTFs, and one large TTF providing crucial amenities and information to users throughout the system.

### 7.2.1 Downtown Roanoke

The network analysis (described in **Part 4: Preferences and Demand**) illustrates the importance of Downtown Roanoke to the regional transportation system. According to the regional travel demand model 50% of all trips in the region pass through the Downtown area. This is a result of both its status as a cultural, social, and employment center, and the historic development of transportation infrastructure in the area, the latter of which has been shaped by natural features such as Mill Mountain, Read Mountain, and the Roanoke River. The railroads, an important part of the Roanoke economy since the mid-1800's, have also played a significant role in shaping the local roadway network by creating east-west and north-south barriers



to transportation. Given the cost of bridges and tunnels, and the desire to preserve natural habitat, certain limitations to the Roanoke area transportation infrastructure have resulted in the funneling of many trips to and through Downtown Roanoke.

As a result, Downtown Roanoke will remain the most important location for transit service for the foreseeable future. The current bus system utilizes the Campbell Court facility in Downtown Roanoke for its pulse service, whereby all buses arrive and depart on the same schedule. Given the recommendations of the Transit Vision Plan, this system will evolve over time; some routes, and particularly new routes, will no longer follow this pattern. Nevertheless, the importance of a centralized transit hub for the region in this location will remain.

A large transit transfer multimodal facility is needed in Downtown Roanoke for several reasons.

1. Downtown Roanoke will continue to be the primary hub of cultural, social, and employment activities where a significant number of trips are destined. As such, the presence of a multimodal transit facility in Downtown Roanoke is critical to the continued and future success of alternative modes to passenger vehicles for daily activities and special events.
2. The benefits of co-locating multiple modes in a single location are well established. First and foremost, a facility with multiple transportation services makes transfers between these services convenient, encouraging their use. Second, efficiencies are gained with parking, amenities, information, and fare services reducing the costs and footprint of these services in the urban core. These benefits extend beyond the facility itself. Studies have shown that

required parking spaces can be reduced by 30 and 50 percent, respectively, for office and retail development in transit-intensive areas.<sup>9</sup>

3. Transit operating frequencies as described in this Vision are insufficient to eliminate the pulse system altogether.
4. Transfers will continue to be needed between routes to facilitate movement throughout the region. For geographic purposes, this transfer option is most suited to be located in Downtown Roanoke.
5. Despite claims to the contrary, well planned and designed transit services and facilities increase the value of surrounding real estate, increase retail sales, increase wages<sup>10</sup>, and significantly contribute to the ability for businesses to attract and retain employees<sup>11</sup>. 54 percent of millennials would consider moving to a new city if it offered a wider and better range of transportation options.<sup>12</sup>

As such, it is recommended that a large transfer facility continue to be located in Downtown Roanoke.

The current facility at Campbell Court has served the region well for over 30 years. Changes have occurred since the building was converted into a bus transfer station, and Valley Metro operators and staff have adapted exceptionally well given the

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<sup>9</sup> American Public Transportation Association (APTA) "Benefits of Public Transit: Relieving Traffic Congestion," 2007:

<http://www.apta.com/resources/reportsandpublications/Documents/congestion.pdf>

<sup>10</sup> <http://www.apta.com/mediacenter/ptbenefits/Pages/default.aspx>

<sup>11</sup> <http://www.citylab.com/work/2013/08/public-transit-worth-way-more-city-you-think/6532/>

<sup>12</sup> The Rockefeller Foundation. "2014 Public Opinion Survey of Millennials," 2014

constraints of the site. These changes have included meeting the minimum ADA accessibility standards; accommodating wheelchair lifts and bicycles on buses; accommodating the increasing number of passengers using mobility devices; the ongoing replacement of the fleet to a new standard width of buses from 96" to 102"; accommodating more routes and vehicles in the facility; and the growing number of special events taking place in Downtown Roanoke. While Valley Metro has been able to adapt, these constraints still make it challenging for bus operators and passengers alike to maneuver through the facility and maintain consistent operations.

With the onset of passenger rail in 2017, the need to accommodate more intermodal transfers will increase, and the utility of easy transfers for visitors through this gateway into the Valley will become even more valuable. As the region envisions a healthy, livable, multimodal future, the Downtown Roanoke intermodal facility should be a place where residents and visitors enjoy their transportation experience.

For the reasons stated in this Transit Vision Plan, and per the recommendations of the Downtown Roanoke Intermodal Transportation Study, developing a new attractive multimodal facility, with high quality amenities and services for users as well as comfortable space for traveling through the facility, making connections, and maintaining consistent daily operations, is recommended. Ultimately, whether transfers in Downtown Roanoke continue at Campbell Court or a new facility (site to be determined) will be up to Roanoke City Council, the Greater Roanoke Transit Company, and other stakeholders to decide.

Figure 7.2-1 | Conceptual Map of Short-Term Transit Transfer Recommendations

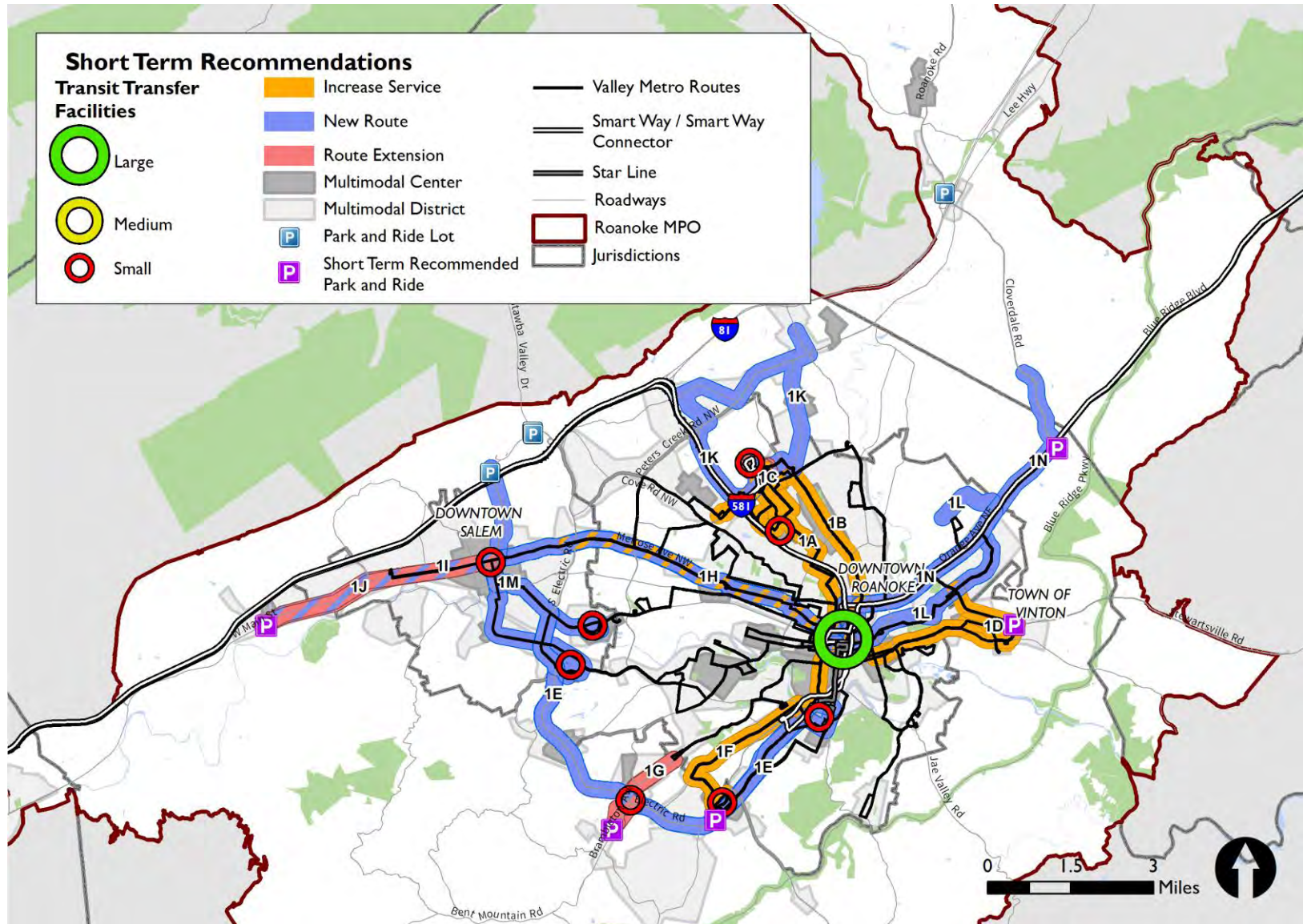


Figure 7.2-2 | Conceptual Map of Additional Medium-Term Transit Transfer Recommendations

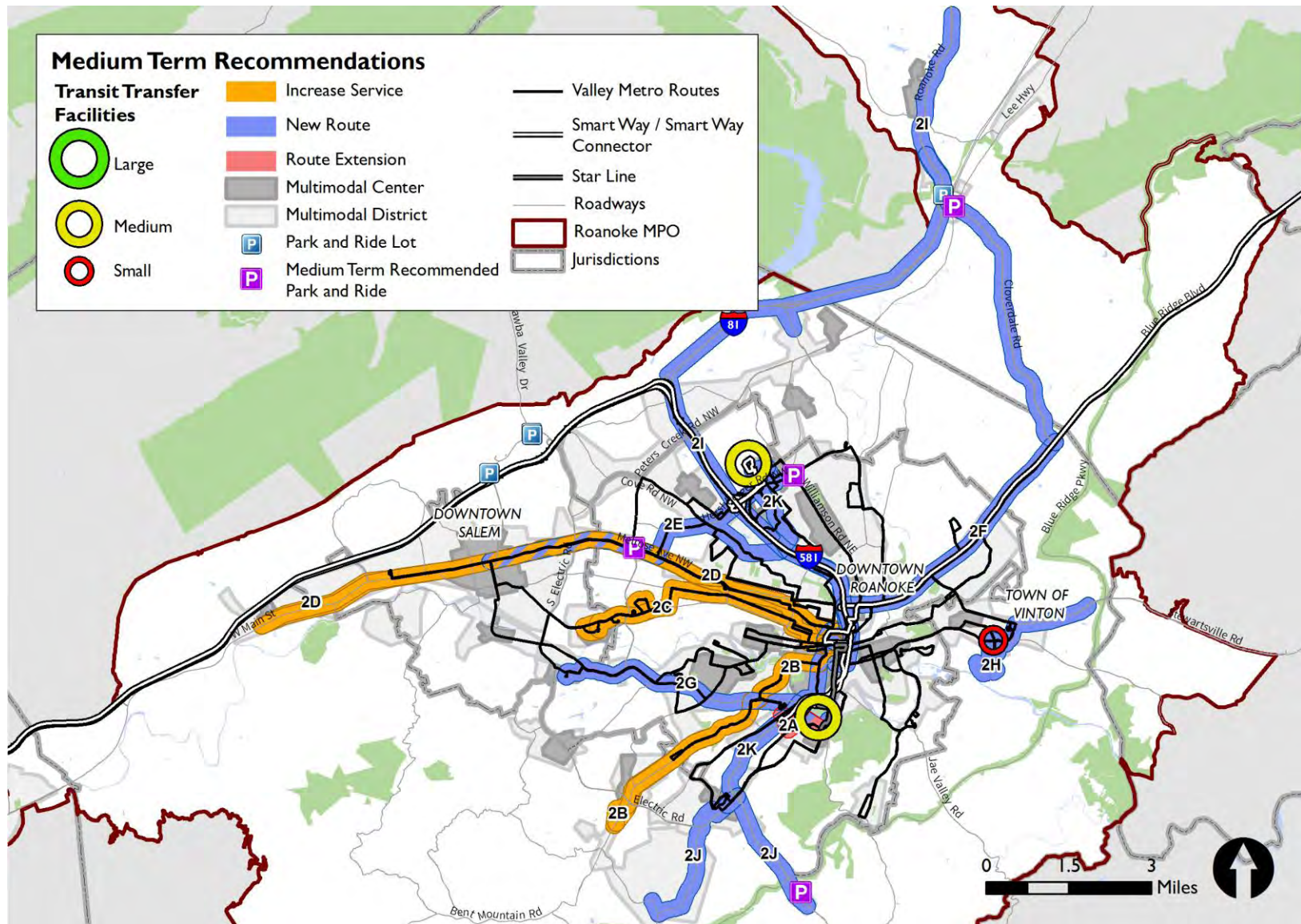
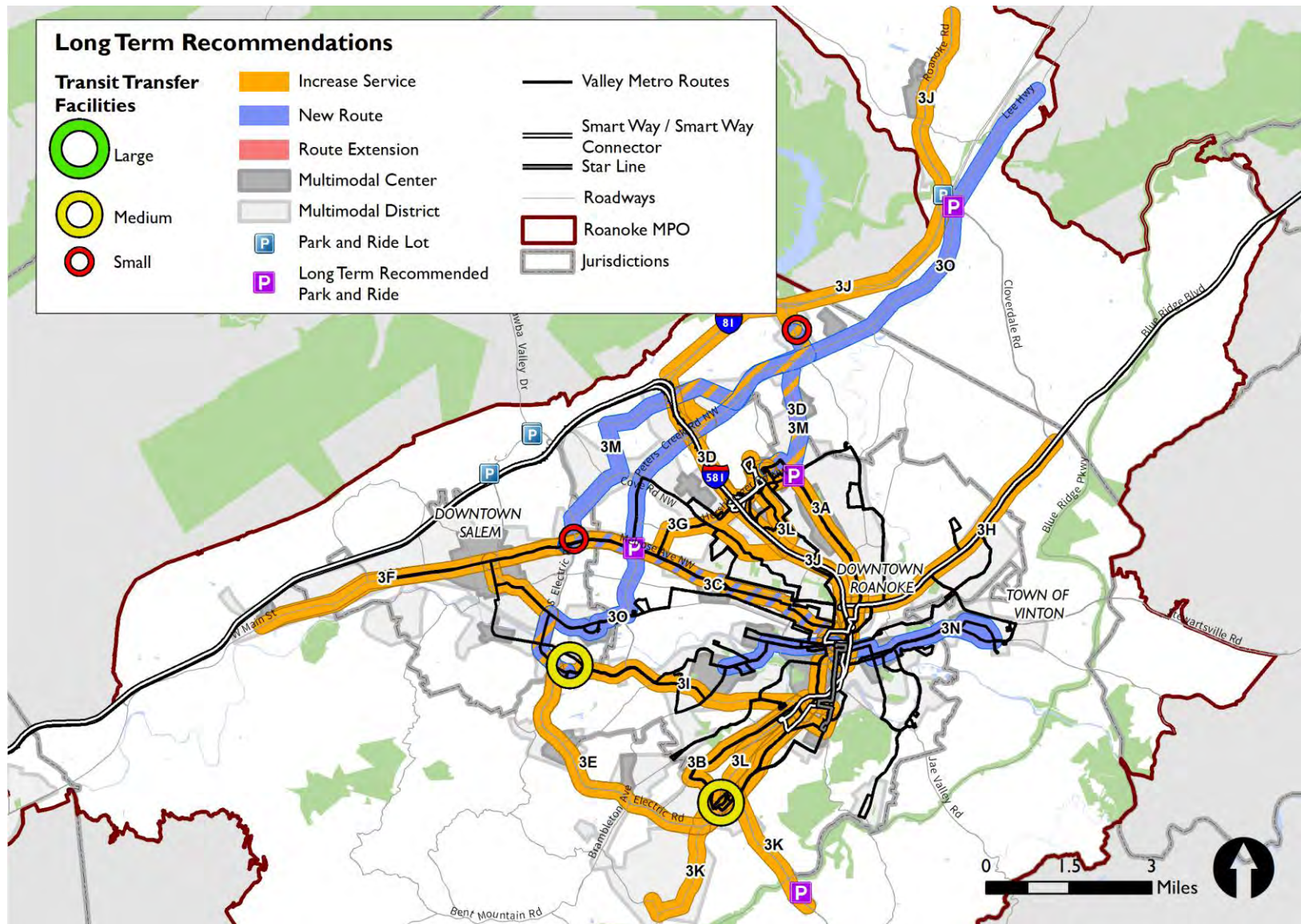


Figure 7.2-3 | Conceptual Map of Additional Long-Term Transit Transfer Recommendations



## 7.3 Pedestrian Accommodations

### 7.3.1 Passenger Amenities

To support the recommendations of the Roanoke Transit Vision the following amenity standards are proposed that will guide the provision of transit amenities across the region. These standards call for every bus stop to have proper signage and ADA access where feasible. These amenity standards call for additional stop features based on ridership and service hours like lighting and trash receptacles at bus stops. Additional convenience features such as real-time arrival displays and fare vending machines should be provided at key locations such as transit transfer facilities and along future high-frequency bus corridors.



Table 7.3.1-1 | Recommended Bus Stop Amenities

| Amenity                                | Threshold  |
|--|--|
| ADA Accessible Boarding/Alighting Area | All stops (where feasible)   |
| Flag Sign with Basic Route Information | All stops  |
| Seating                                | 25 boardings/day or stops serving special populations (senior, disabled, etc.) |
| Shelter                                | 50 boardings/day   |
| Trash Receptacle                       | All stops with shelters or where litter is a problem.                          |
| Lighting                               | All stops with evening or early morning service.                               |

| Amenity                           | Threshold   |
|-----------------------------------|---|
| Full Route Information System Map | 10 boardings/day<br>All stops with shelters; include a “You are here” marker on maps. |
| Real-Time Information Displays    | Transfer locations served by three routes or more and at all transfer hubs            |
| Ticket Vending Machines           | Transit Hubs/Centers  |
| Bike Racks                        | 50 boardings/day  |

### 7.3.2 Access to Transit - Bicycle and Pedestrian Infrastructure

Active transportation (biking and walking) are crucial for supporting a robust transit system. All transit riders are cyclists or pedestrians at some point of their journey, and without safe, comfortable, and convenient active transportation links, people will be dissuaded from choosing public transportation.

As such, “Active Transportation” infrastructure to enable bicyclists and pedestrians to access transit is a critical element of the overall transportation network. Such linkages should be provided at all bus stops, transit centers, and park-and-rides throughout the region. This also addresses the need to elevate active transportation as a viable mode for complete trips.

Active transportation is a key component to realizing the Roanoke Transit Vision Plan, as excellent pedestrian and bicycle connections support all other types of movement, and are the foundation for all public transit improvements.

The Roanoke Valley Pedestrian Vision Plan (2015) and the Bikeway Plan for the RVAMPO (2012 Update) envision a robust active transportation network across the region to support access to public transportation. An upgraded network of sidewalks and bicycle lanes/paths, expanded pedestrian priority at intersections, and improved connections at bus stops will

create a more accessible system. The potential for bike share is also discussed as an element to support the transit network. Building on the Roanoke Valley Pedestrian Vision Plan and the Bus Stop Accessibility Study, the following sections describe best practices for improving access to transit in the Roanoke Valley.

### 7.3.3 Why Invest in Active Transportation?

Transit-supportive biking and walking facilities are essential to the success of public transportation because they provide critical connections, create more livable communities, and promote physical activity and healthy lifestyles.

#### *Providing Critical Connections*

Active transportation is a crucial component in developing a more robust and functional transit system for the Roanoke Valley.

Nearly every transit rider begins and/or ends their trip as a pedestrian or cyclist. A lack of infrastructure and poor street conditions will discourage people from using transit and limits the size of a transit stop's service area.

Pedestrian infrastructure can make the transit system more accessible for users with disabilities. In Oregon, pedestrian infrastructure improvements resulted in higher ridership of fixed-route services among disabled persons and contributed to lower paratransit ridership; making transit services accessible for the disabled not only expands mobility options but reduces demand for high-subsidy paratransit trips.<sup>13</sup>

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<sup>13</sup> TCRP, TCRP Report 163: Strategy Guide to Enable and Promote the Use of Fixed-Route Transit by People with Disabilities

Therefore, to enable connections from origins to transit stops and from transit stops to destinations, pedestrian infrastructure within ½-mile and biking infrastructure within three miles is essential.

#### *Creating More Livable Communities*

Investments in better transit-supportive walking and bicycling infrastructure makes for more livable communities.

- ▲ THEY PROVIDE PEOPLE, REGARDLESS OF INCOME OR AGE, AN ECONOMICAL AND HEALTHY WAY TO GET AROUND. COMMUNITIES THAT NEGLECT TRANSIT-SUPPORTIVE ACTIVE TRANSPORTATION NETWORKS CREATE HOSTILE URBAN ENVIRONMENTS.
- ▲ PLACES THAT ENGINEER-OUT TRANSIT, WALKING AND BIKING AS INTERRELATED TRANSPORTATION CHOICES REQUIRE PEOPLE TO DEPEND ON THEIR CARS FOR EVERY TRIP. AUTO DEPENDENCY LEADS TO THE NEED TO BUILD MORE PARKING AND WIDER ROADS. IT CONTRIBUTES TO SPRAWL, INCREASED TRAFFIC CONGESTION, HIGHER TRANSPORTATION COSTS, LOST PRODUCTIVITY, AND INCREASED EMISSIONS.<sup>14</sup>

Compared to new roads and expanded parking lots, even small investments in improved transit, bicycle and pedestrian infrastructure can have a major economic impact.

- ▼ RIDING TRANSIT, WALKING AND BICYCLING ALLOWS PEOPLE TO ENGAGE WITH THEIR NEIGHBORS, FRIENDS AND NEW ACQUAINTANCES AS A NATURAL PART OF THEIR DAY IN A WAY SIMPLY NOT POSSIBLE FROM THE INSIDE OF A CAR. RESIDENTS ON LOWER TRAFFIC MULTIMODAL STREETS ARE

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<sup>14</sup> Litman, Todd *Automobile Dependency and Economic Development*. Victoria Transportation Policy Institute, 2002

MORE LIKELY TO HAVE A STRONGER SOCIAL NETWORK WITH THEIR NEIGHBORS THAN AUTO-ORIENTED ROADS.<sup>15</sup>

*Promotes Physical Activity and Healthy Lifestyles*

Transit use increases active transportation resulting in extensive public health benefits by integrating physical activity into travel.

- ▲ IMPROVED PEDESTRIAN AND BICYCLE INFRASTRUCTURE ALSO HAS THE SECONDARY BENEFIT OF IMPROVING PUBLIC SAFETY AS BETTER INFRASTRUCTURE CAN REDUCE BICYCLE AND PEDESTRIAN INJURIES DUE TO COLLISION. THE CENTERS FOR DISEASE CONTROL (CDC) FOUND THAT ACTIVE TRANSPORTATION IMPROVEMENTS CAN RESULT IN AN INCREASE OF PHYSICAL ACTIVITY OF UP TO 35 PERCENT.<sup>16</sup>

#### 7.3.4 Prioritizing Investments in the Region

While it is recommended that pedestrian and bicycle infrastructure be incorporated into developments across the region, the Roanoke Valley should work to focus future active transportation investments where they can have the most impact for daily trips. Determining regional priorities for new bicycle and pedestrian infrastructure however is challenging. Successful bicycle and pedestrian planning must happen on the local level with regional input and look at a broad range of factors from the location of key destinations to the quality of existing infrastructure. A combination of population and employment densities, as well as the density of the local street network, should be used to determine which parts of the region would benefit most from strong pedestrian and bicycle links.

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<sup>15</sup> Appleyard, Donald, *Livable Streets*, 1981

<sup>16</sup> American Public Health Association and Safe Routes to School, *Promoting Active Transportation, An Opportunity for Public Health*, 2013

The Roanoke Valley undertook such an effort in developing the [Roanoke Valley Pedestrian Vision Plan](#) that was adopted in January 2015. The purpose of the Pedestrian Vision Plan is to provide a coordinated and strategic approach to making walking a more widely chosen form of transportation. It is the region's first plan focusing specifically on promoting walking for everyday trips. With limited financial resources for pedestrian improvements, this plan identifies where pedestrian infrastructure investments are most needed based on the number of potential residents, employees, shoppers, diners, and other visitors to walk to access nearby destinations. Through the development of a regional pedestrian network, safe and attractive walking environments can exist to enable people to accomplish their daily tasks with greater ease.

Good pedestrian and bicycle connections should underpin the transit investments outlined in the Roanoke Transit Vision Plan. Developing good active transportation links to transit begins with adoption of "Complete Streets" design principles for urban design and planning for better street connectivity. In developing improved linkages to transit stations and stops, planners should consider how users will access these multimodal transfer locations. Decisions like where to improve sidewalks or install a crosswalk should be guided by where investments maximize the convenience for pedestrians and bicyclists. People are most likely to walk or bicycle to a facility if their path is time efficient, direct, and easy to take. Lengthy wait times at intersections and crosswalks as well as long walking or biking connections that are out of the way for users will all reduce accessibility to stops.<sup>17</sup> The typical walk shed for a transit stop ranges from one-quarter

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<sup>17</sup> Los Angeles County Metro *Path Planning Guidelines* 2013



to one-half of a mile for pedestrians and up to three miles for cyclists; these radii should be the focus for improving active transportation connections to transit.<sup>18</sup>

The design of bus stops themselves and the amenities provided at stops can also play a role in building better connections to/from transit. All transit stops should be sited to maximize connections to existing pedestrian and bicycle accommodations. All stops should be fully ADA accessible, where feasible. At busier locations, bicycle racks or even secure bicycle storage should be provided to aid in bike-transit trips.

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## 7.4 Park and Ride Connections

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The transit network recommendations for the Roanoke Valley connect Botetourt County, Roanoke County, the City of Salem, the City of Roanoke, and the Town of Vinton with fixed-route services. Two additional localities, Bedford County and Montgomery County, are also within the Roanoke Valley Transportation Planning Organization study area yet the densities and land uses do not lend themselves to consistent fixed-route transit connections. Instead, local stakeholders recommended incorporating more opportunities for their residents to connect with the fixed-route transit network through park-and-ride facilities. Through the Valley Metro surveys, it was shown that residents beyond the extent of the current transit network do use the fixed-route services. Therefore, it will be important moving ahead to create more places where people can connect with the transit network through park-and-ride facilities.

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<sup>18</sup> Ibid

The following park-and-ride locations should be studied further to improve access to transit. The need for the park-and-ride lot coincides with the recommended services in each timeframe.

### *SHORT-TERM:*

- ▲ CLOVERDALE ROAD/U.S.460, ROANOKE/BOTETOURT COUNTY
- ▲ BYPASS ROAD/WASHINGTON BOULEVARD, TOWN OF VINTON
- ▲ TANGLEWOOD MALL, ROANOKE COUNTY
- ▲ GLENVAR/U.S. 460, ROANOKE COUNTY
- ▲ BRAMBLETON AVENUE/COLONIAL AVENUE, ROANOKE COUNTY

### *MEDIUM-TERM:*

- ▲ U.S. 460/ROUTE 419, CITY OF SALEM
- ▲ CLEARBROOK, ROANOKE COUNTY
- ▲ HOLLINS/PLANTATION ROAD, ROANOKE COUNTY
- ▲ U.S. 220 NORTH/I-81 EXIT 150 OR DALEVILLE/GREENFIELD, BOTETOURT COUNTY

### *LONG-TERM:*

- ▲ TROUTVILLE, BOTETOURT COUNTY

In addition to enabling more people to access transit, the development of more park-and-ride lots in the Roanoke Valley would enable new carpooling opportunities as well as free long-term parking options for Amtrak or airport connections.

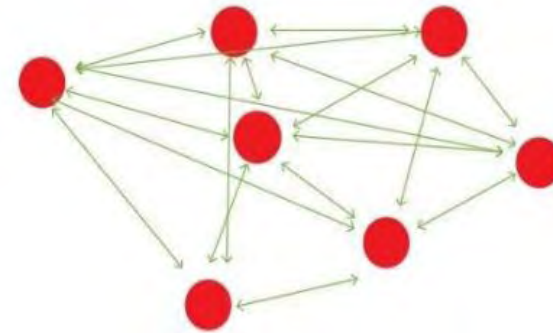
## 7.5 Bike Share Connections

The Roanoke Transit Vision plan includes a series of potentially transformative public transit recommendations, including route extensions, new routes, increases in frequency, and supporting facilities, amenities, and technology. When completed these improvements will provide stronger links within the Valley and make transit a viable option for more people for a wider variety of trips to a wider variety of destinations. The concept of bike share is being explored as part of this Vision Plan as a means to leverage these transit investments by providing improved access to destinations for residents, employees, and visitors who are touring the region and wish to minimize automobile usage.

Bike share has the potential to enhance mobility, encourage physical activity and help support the region’s economic vitality and the overarching goals of the Livable Roanoke Plan. More detailed background information on bike share as a mode, how it works, who uses it, and its benefits, can be found in **Appendix A: Bike Share**.

As shown in **Figure 7.4-1**, bike share requires a network of facilities that allow users to travel from point to point, typically trips of 1-3 miles. As such bike share does not function well as an isolated service on the periphery of a transit system to extend the reach of that system. Nevertheless, bike share could play a role in supporting transit in the region and increasing mobility.

*Figure 7.4-1 | Bike Share is designed to Facilitate Point-to-Point Trips*



### 7.5.1 Potential for Bike Share in Roanoke

The following section describes potential locations for bike share stations in Roanoke that would support elements of the Transit Vision Plan. A full bike share development plan would be needed before any system could be launched to understand the market, geographic scope and size, and to develop a business plan and implementation plan. Furthermore, one of the greatest determining factors in the success of bike share is the level of bicycle facilities (racks, lanes, cycle tracks, greenways, etc.) that exist for users to take advantage of. Without these facilities, and in the absence of sidewalks, many potential users will not feel comfortable using roadways and mixing with vehicular traffic to use the system. **Figure 7.5.1-1** provides an example of a typical dock based bike share station.

Figure 7.5.1-1 | Typical Dock Based Stations



While this section provides some suggested locations for a potential bike share system in the Roanoke region, there is no definitive way to declare whether or not bike share is feasible in a region. Feasibility in this Vision Plan has been defined as whether or not bike share would contribute positively to the goals and objectives identified by the study stakeholders. Bike share does support these goals and objectives, however the level of ridership, mode share, and other potential performance measures have not been defined and therefore do not play into the determination of feasibility.

The areas identified for bike share stations are intentionally broad given the high level nature of the Vision Plan. They are based on existing land use data combined with the recommendations of the Transit Vision Plan. As such it is likely (and similar to most bike share systems), that implementation would be phased over time as transit vision recommendations and supporting bicycle infrastructure are implemented.

Furthermore, it is unlikely that users would utilize bike share to travel between the widely separated areas identified below, given the distances, lack of destinations, and lack of supporting infrastructure. If the regional greenway network is further built out, users in these isolated areas could use bike share to travel between them.

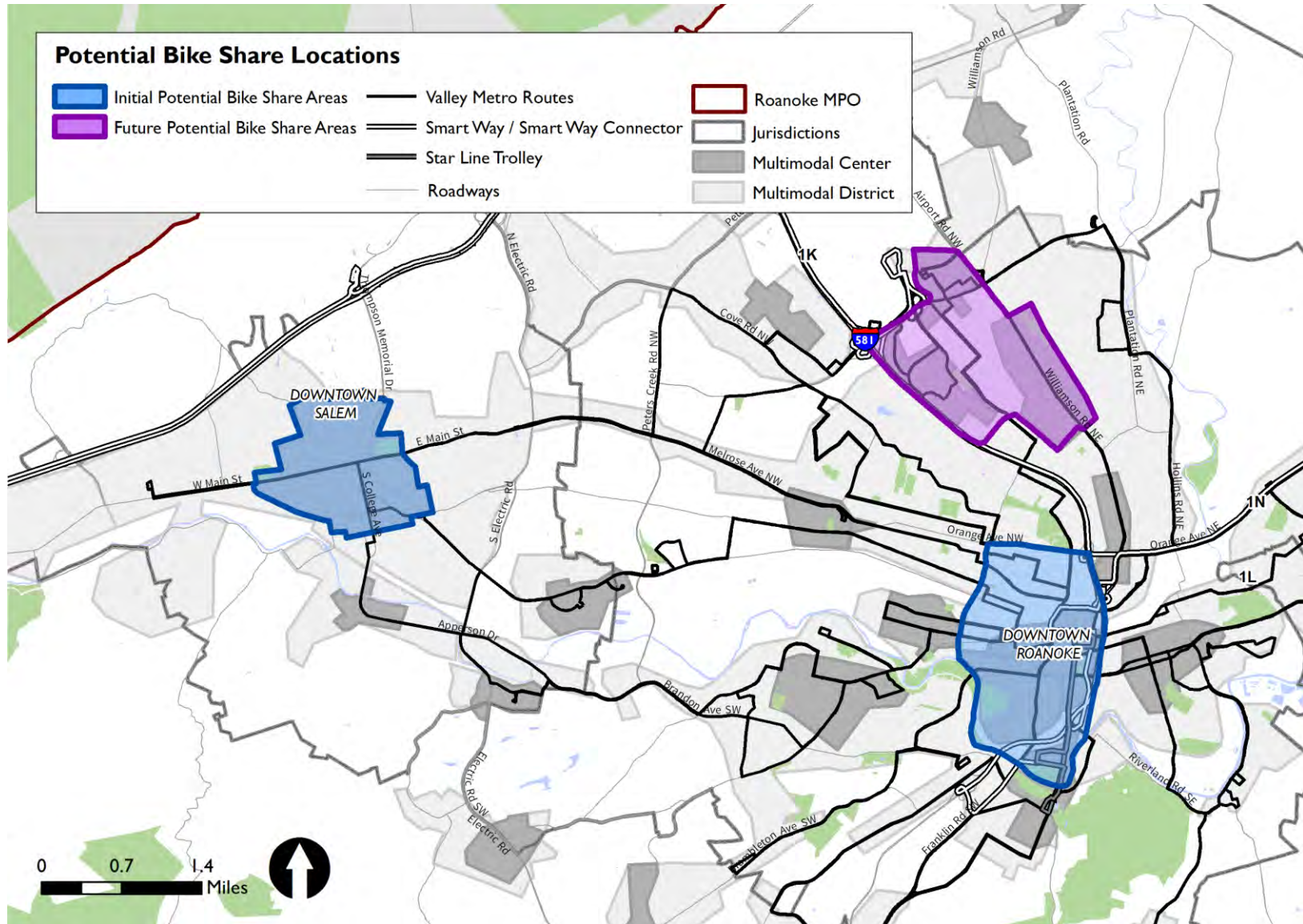
Currently, there are only two locations that even potentially support bike share, Downtown Roanoke and Downtown Salem. This is primarily based on the existing land use and roadway network. The former having a mix of land uses and destinations, and the latter being a grid system of small roadways that will encourage bicycle use (less traffic and slower speeds). For Downtown Roanoke this is the area approximately bordered by Orange Avenue to the north, 10<sup>th</sup> Street SW on the west, I-581 on the east, and the railroad tracks/Roanoke River on the south. **Figure 7.5.1-2** depicts this area. For Downtown Salem this area is smaller when compared to Downtown Roanoke and includes the downtown core, neighborhoods and parks immediately surrounding the core, and Roanoke College.

The greater Salem Civic Center could be connected to the Downtown Salem system should investments in bicycle infrastructure be made on area roadways.

Similarly, should significant investments in bicycle infrastructure be made, the Crossroads/Valley View Mall area, and surrounding neighborhoods, may support bike share in the future, given the mix of land uses and destinations.

To support better connections to transit, particularly on the periphery of the system, the region should invest in pedestrian and bicycle infrastructure, including sidewalks, bike lanes, and bike racks on buses and at bus stops.

Figure 7.5.1-2 | Potential Bike Share Locations



## 7.6 Storage, Maintenance, and Administrative Facilities

As the transit system grows to serve more places and more people, the need for additional facilities to store and maintain facilities will be needed. The current maintenance facility is at capacity, and the Greater Roanoke Transit Company has already purchased land adjacent to its administration and maintenance building to accommodate expansion. To minimize the distance traveled to take a vehicle from the garage to the point of revenue service, additional garages or storage facilities to house vehicles closer to their point of service origin/destination may be needed.

Similar to Valley Metro, RADAR, Botetourt County's Senior and Accessible Van Program, and public schools all maintain and store buses that require facility investments. Where possible, sharing facilities should be considered to minimize expenses. The maintenance and administrative facility needs should be continuously evaluated and new facilities proposed as soon as it is identified that they will be needed.

*Figure 7.6-1 | Valley Metro Administration and Maintenance Facility*



*Figure 7.6-2 | RADAR Administration and Maintenance Facility*



*Figure 7.6-3 | One of Several School Bus Storage and Maintenance Facilities in the Region*



## 8.0 CAPITAL AND OPERATING COSTS

The following section details the operational and capital costs by short-, medium-, and long-term. Annual operational costs were determined by multiplying the estimated revenue hours by the actual cost per hour and the average number of service days.

The assumptions were as follows:

- ▲ COST PER HOUR FOR ONE ROUTE: \$75.54
- ▲ AVERAGE NUMBER OF WEEKDAYS: 256
- ▲ AVERAGE NUMBER OF SATURDAYS: 52
- ▲ AVERAGE NUMBER OF SUNDAYS: 52

Capital costs were determined with the following assumptions<sup>19</sup>:

- ▲ SHORT-TERM:
  - FY 2018 Replacement 35' Vehicle Cost - \$448,000
  - FY 2019 Replacement Vehicle Cost - \$464,000
  - FY 2020 Replacement Vehicle Cost - \$481,000
  - FY 2021 Replacement Vehicle Cost - \$497,835
  - FY 2021 Commuter Bus Replacement Cost - \$630,000
  - FY 2022 Replacement Vehicle Cost - \$514,335
  - FY 2022 Commuter Bus Replacement Cost - \$645,000
  - Expanded Vehicle Cost: \$465,000
- ▲ MEDIUM-TERM:
  - Replacement Vehicle Cost - \$586,000

<sup>19</sup> As route planning is refined through the Transit Development Plan process, the opportunity to use different vehicle sizes, smaller or larger based on needs, will be analyzed.

- Expanded Vehicle Cost - \$586,000

### ▲ LONG-TERM:

- Replacement Vehicle Cost - \$670,000
- Expanded Vehicle Cost - \$670,000

New or improved facilities to support the expanded fleet will need to be priced individually as each project is more fully scoped. Currently, an expanded maintenance facility for Valley Metro on their property is estimated at \$2,200,000. The following list provides rough estimates for transit transfer facilities (not including site specific expenses such as potential land acquisition or park and ride lots). TTFs are discussed in more detail in **Section 7.2**.

### ▲ SMALL SIMPLE TTF: \$50,000

NICE STOP (TWO SHELTERS)

### ▲ SMALL ENHANCED TTF: \$100,000

SUPER STOP WITH REAL-TIME PASSENGER INFORMATION (RTPI)

### ▲ MEDIUM SIMPLE TTF: \$350,000 TO \$500,000

OFF-STREET BUS LOOP AND SHELTERS

### ▲ MEDIUM ENHANCED TTF: \$750,000 TO \$1,000,000

OFF-STREET BUS LOOP WITH STRUCTURE WITH ROOF, RTPI, BATHROOMS

### ▲ LARGE TTF: \$5,000,000-\$10,000,000

FULL MULTIMODAL TRANSFER FACILITY, INDOOR WAITING AREA, BATHROOMS, STAFFED, RTPI, MULTIPLE BUS LOOPS, KISS AND RIDE, ETC.

## 8.1 Short-Term Costs (2016-2022)

### 8.1.1 Capital Costs

The Valley Metro vehicle replacement schedule in the short-term calls for a replacement of 22 vehicles or 49 percent of the fleet (**Table 8.1.1-1**). This will cost a total of \$10,909,670.

The service recommendations in the Short Term will require six extra vehicles, or will result in a 13 percent increase in the fleet size (**Table 8.1.1-2**). This will result in a fleet size of 51 vehicles, including 10 spares, and cost a total of \$2,790,000.

Recommendations include reallocating resources from existing operational services on routes 51/52, 65/66 and 85/86.

- *51/52: Reallocation due to utilization of the Starline Trolley between Downtown Roanoke and Carilion and the incorporation of 51/52 resources to provide expanded connections via Routes 4/5 between Carilion, Tanglewood, the 419 Corridor, and Downtown Salem.*
- *65/66: Reallocation of peak service due to low ridership and the presence of routes 71/72 nearby as alternatives.*
- *85/86: Reallocation of peak service due to low ridership and the presence of routes 81/82 and 11/12 nearby as alternatives.*

This will result in four additional vehicles that can be used for expansion of service. In total, replacement and expansion of the fleet will cost approximately \$13,699,670.

Table 8.1.1-1 | Capital Costs - Replacement Fleet (Short-Term)

| Vehicle Type                      | Fleet Size | FY 2018  |                    | FY 2019  |                    | FY 2020  |                    | FY 2021  |                    | FY 2022  |                    |
|-----------------------------------|------------|----------|--------------------|----------|--------------------|----------|--------------------|----------|--------------------|----------|--------------------|
|                                   |            | Vehicles | Cost               | Vehicles | Cost               | Vehicles | Cost               | Vehicles | Cost               | Vehicles | Cost               |
| 2004 Heavy Duty Transit Buses     | 9          |          |                    |          |                    |          |                    |          |                    |          |                    |
| 2006 Heavy Duty Transit Buses     | 18         | 8        | \$3,584,000        | 4        | \$1,856,000        | 4        | \$1,924,000        | 2        | \$995,670          |          |                    |
| 2008 Medium Duty Trolley Buses    | 4          |          |                    |          |                    |          |                    |          |                    |          |                    |
| 2009 Over-the-Road Commuter Buses | 5          |          |                    |          |                    |          |                    | 2        | 1,260,000          | 2        | \$1,290,000        |
| 2014 Heavy Duty Transit Buses     | 9          |          |                    |          |                    |          |                    |          |                    |          |                    |
| <b>Total</b>                      | <b>45</b>  | <b>8</b> | <b>\$3,584,000</b> | <b>4</b> | <b>\$1,856,000</b> | <b>4</b> | <b>\$1,924,000</b> | <b>4</b> | <b>\$2,225,670</b> | <b>2</b> | <b>\$1,290,000</b> |

Table 8.1.1-2 | Capital Costs - Service Expansion Fleet (Short-Term)

| Route                      | Recommendation | Description   | Existing Number of Vehicles | Additional Vehicles Needed | Percent Change | Cost               |
|----------------------------|----------------|---|-----------------------------|----------------------------|----------------|--------------------|
| <b>Star Line Trolley</b>   |                | Carilion/Downtown Roanoke   | 3                           | ---                        | ---            | ---                |
| 11/12                      |                | Valley View/Downtown Roanoke  | 2                           | ---                        | ---            | ---                |
| 15/16                      |                | Valley View/Downtown Roanoke  | 2                           | ---                        | ---            | ---                |
| 21/22                      |                | Crossroads/Downtown Roanoke   | 2                           | ---                        | ---            | ---                |
| 25/26                      |                | Crossroads/Downtown Roanoke   | 2                           | ---                        | ---            | ---                |
| 31/32                      |                | Vinton/Downtown Roanoke   | 1                           | ---                        | ---            | ---                |
| 35/36                      | 1D             | Vinton/Downtown Roanoke   | 1                           | 1                          | 100%           | \$465,000          |
| 41/42                      |                | Southeast Roanoke/Downtown Roanoke                                      | 1                           | ---                        | ---            | ---                |
| 51/52                      | 1E             | Tanglewood/Downtown Roanoke   | 2                           | -2                         | -100%          | ---                |
| 55/56                      |                | Tanglewood/Downtown Roanoke   | 2                           | ---                        | ---            | ---                |
| 61/62                      |                | Red Rock/Downtown Roanoke   | 1                           | ---                        | ---            | ---                |
| 65/66                      |                | Carlton & Grandin/Downtown Roanoke                                      | 2                           | -1                         | -50%           | ---                |
| 71/72                      |                | Lewis Gale/Downtown Roanoke   | 2                           | ---                        | ---            | ---                |
| 75/76                      |                | Veterans Hospital/Downtown Roanoke                                      | 2                           | ---                        | ---            | ---                |
| 81/82                      |                | Goodwill Salem/Downtown Roanoke   | 1                           | ---                        | ---            | ---                |
| 85/86                      | 1I             | Peters Creek Road/Downtown Roanoke                                      | 2                           | -1                         | -50%           | ---                |
| 91/92                      | 1J             | Glenvar/Richfield/Downtown Salem/<br>Downtown Roanoke                   | 2                           | ---                        | ---            | ---                |
| <b>Smart Way</b>           |                | Roanoke Valley/New River Valley   | 1                           | ---                        | ---            | ---                |
| <b>Smart Way Connector</b> |                | Lynchburg/Bedford/Roanoke Valley/New River Valley                       | 4                           | ---                        | ---            | ---                |
| 1                          | 1K             | Crossroads/Plantation Road/DMV  | ---                         | 1                          | ---            | \$465,000          |
| 311                        | 1L             | RCIT/Downtown Roanoke   | ---                         | 1                          | ---            | \$465,000          |
| 4/5                        | 1E             | Carilion/Tanglewood/Cave Spring/Oak Grove/<br>Lewis Gale/Downtown Salem | ---                         | 4                          | ---            | \$1,860,000        |
| 93                         | 1M             | Exit 140/Downtown Salem/Medical Centers                                 | ---                         | 1                          | ---            | \$465,000          |
| 3111                       | 1N             | East Park/Bonsack/Downtown Roanoke                                      | ---                         | 1                          | ---            | \$465,000          |
| 911/922                    | 1I             | Glenvar/Richfield/Downtown Salem/<br>Downtown Roanoke                   | ---                         | 1                          | ---            | \$465,000          |
|                            |                | <b>Spare Fleet</b>  | <b>10</b>                   | ---                        | ---            | ---                |
|                            |                | <b>Total</b>  | <b>45</b>                   | <b>6</b>                   | <b>13%</b>     | <b>\$2,790,000</b> |



### 8.1.2 Operating Costs

In the short-term eight operational studies/service adjustments, three programs for increased collaboration on transportation services by regional partners and two customer enhancements are being recommended. In total these general enhancements are estimated to cost \$595,000 (**Table 8.1.2-1**).

The short-term also includes recommendations to increase the level of services on five existing routes, reduce levels of service

on three routes, add six new routes, add Sunday service on select routes and increase the overall length of service across the system to 18 hours a day. This results in \$3,905,000 of additional annual operational costs over the existing operational cost, an increase of 46 percent (**Table 8.1.2-2**). Individual annual costs within the short-term timeframe will depend upon implementation.

Table 8.1.2-1 | Operational Costs – General Projects

| Recommendation | Description   | Proposed Cost    |
|----------------|---|------------------|
| <b>1P</b>      | Coordinate SmartWay (Roanoke-Blacksburg) service with Amtrak (Roanoke) Station schedules            | ---              |
| <b>1Q</b>      | Study need for SmartWay (Roanoke-Lynchburg) commuter service  | ---              |
| <b>1R</b>      | Bus Stop Consolidation Study  | \$20,000         |
| <b>1S</b>      | Develop Partnerships with Employers   | ---              |
| <b>1T</b>      | Update route schedule publications and maps   | \$20,000         |
| <b>1U</b>      | Collaborative Jurisdictional Partnership for public bus service                                     | ---              |
| <b>1V</b>      | Evaluate individual routes for efficiencies and enhancements  | \$80,000         |
| <b>1W</b>      | Real-time Information   | \$225,000        |
| <b>1X</b>      | Regionalize services for persons with disabilities and for seniors across jurisdictional boundaries | ---              |
| <b>1Y</b>      | Adjust PM peak service hours to better align with travel patterns and daytime work hours            | \$250,000        |
| <b>1Z</b>      | Explore additional special activity/even transit services to popular recreational destinations      | Varies           |
| <b>1AA</b>     | Extend service for people with disabilities later in the evening and on weekends                    | Varies           |
| <b>1BB</b>     | Study the ability to vary the fleet size based on ridership demands                                 | ---              |
| <b>Total</b>   |   | <b>\$595,000</b> |

Table 8.1.2-2 | Operational Costs - Service Expansion Fleet (Short-Term)

| Route                      | Recommendation | Description   | Existing Costs     | Additional Costs   | Percent Change |
|----------------------------|----------------|---|--------------------|--------------------|----------------|
| <b>Star Line Trolley</b>   |                | Carilion/Downtown Roanoke   | \$542,000          | ---                | ---            |
| <b>11/12</b>               |                | Valley View/Downtown Roanoke  | \$466,000          | ---                | ---            |
| <b>15/16</b>               | 1A             | Valley View/Downtown Roanoke  | \$466,000          | \$232,000          | 50%            |
| <b>21/22</b>               | 1B, 1C         | Crossroads/Downtown Roanoke   | \$466,000          | \$174,000          | 37%            |
| <b>25/26</b>               |                | Crossroads/Downtown Roanoke   | \$466,000          | ---                | ---            |
| <b>31/32</b>               |                | Vinton/Downtown Roanoke   | \$348,000          | ---                | ---            |
| <b>35/36</b>               | 1D             | Vinton/Downtown Roanoke   | \$348,000          | \$176,000          | 51%            |
| <b>41/42</b>               |                | Southeast Roanoke/Downtown Roanoke                                  | \$466,000          | ---                | ---            |
| <b>51/52</b>               | 1E             | Tanglewood/Downtown Roanoke   | \$466,000          | -\$466,000         |                |
| <b>55/56</b>               | 1F             | Tanglewood/Downtown Roanoke   | \$466,000          | \$232,000          | 50%            |
| <b>61/62</b>               |                | Red Rock/Downtown Roanoke   | \$348,000          | ---                | ---            |
| <b>65/66</b>               |                | Carlton & Grandin/Downtown Roanoke                                  | \$466,000          | -\$118,000         | -25%           |
| <b>71/72</b>               |                | Lewis Gale/Downtown Roanoke   | \$466,000          | ---                | ---            |
| <b>75/76</b>               |                | Veterans Hospital/Downtown Roanoke                                  | \$466,000          | ---                | ---            |
| <b>81/82</b>               |                | Goodwill Salem/Downtown Roanoke                                     | \$290,000          | ---                | ---            |
| <b>85/86</b>               |                | Peters Creek Road/Downtown Roanoke                                  | \$466,000          | -\$118,000         | -25%           |
| <b>91/92</b>               | 1J             | Glenvar/Richfield/Downtown Salem/<br>Downtown Roanoke               | \$337,000          | \$57,000           | 17%            |
| <b>Smart Way</b>           |                | Roanoke Valley/New River Valley                                     | \$895,000          | ---                | ---            |
| <b>Smart Way Connector</b> |                | Lynchburg/Bedford/Roanoke Valley/New River Valley                   | \$232,000          | ---                | ---            |
| <b>1</b>                   | 1K             | Crossroads/Plantation Road/DMV                                      | ---                | \$290,000          | ---            |
| <b>311</b>                 | 1L             | RCIT/Downtown Roanoke   | ---                | \$82,000           | ---            |
| <b>4/5</b>                 | 1E             | Carilion/Tanglewood/Cave Spring/Oak Grove/Lewis Gale/Downtown Salem | ---                | \$1,048,000        | ---            |
| <b>93</b>                  | 1M             | Exit 140/Downtown Salem/Medical Centers                             | ---                | \$349,000          | ---            |
| <b>3111</b>                | 1N             | East Park/Bonsack/Downtown Roanoke                                  | ---                | \$116,000          | ---            |
| <b>911/922</b>             | 1I             | Glenvar/Richfield/Downtown Salem/Downtown Roanoke                   | ---                | \$116,000          | ---            |
| <b>All Routes</b>          | 1O             | Expand span of service to 18 hours                                  | ---                | \$1,735,000        | ---            |
| <b>Total</b>               |                |   | <b>\$8,466,000</b> | <b>\$3,905,000</b> | <b>46%</b>     |

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## 8.2 Medium-Term Costs (2022-2030)

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### 8.2.1 Capital Costs

The service recommendations in the medium-term will require nine extra vehicles, or will result in an 18 percent increase over the short-term fleet size (**Table 8.2.1-1**). This will result in a fleet size of 60 vehicles, including 10 spares, and cost a total of \$5,274,000. Operational services will be reduced on routes 81/82 which will result in one additional vehicle that can be used for expansion of service.

### 8.2.2 Operating Costs

In the medium-term it is being recommended to increase the level of services on three existing routes, reduce levels of service on one route and add seven new routes. This results in \$15,843,000 of total annual operational costs in the medium-term, an increase of \$4,042,000 or 33 percent over the short-term (**Table 8.2.2-1**). Individual annual costs within the medium-term timeframe will depend upon implementation.

Table 8.2.2-1 | Capital Costs - Service Expansion Fleet (Medium-Term)

| Route                      | Recommendation | Description  | Short-Term Number of Vehicles | Additional Vehicles Needed | Percent Change | Cost       |
|----------------------------|----------------|--|-------------------------------|----------------------------|----------------|------------|
| <b>Star Line Trolley</b>   | 2A             | Carilion/Downtown Roanoke  | 3                             | 1                          | 33%            | \$586,000  |
| 11/12                      |                | Valley View/Downtown Roanoke   | 2                             | ---                        | ---            | ---        |
| 15/16                      |                | Valley View/Downtown Roanoke   | 2                             | ---                        | ---            | ---        |
| 21/22                      |                | Crossroads/Downtown Roanoke  | 2                             | ---                        | ---            | ---        |
| 25/26                      |                | Crossroads/Downtown Roanoke  | 2                             | ---                        | ---            | ---        |
| 31/32                      |                | Vinton/Downtown Roanoke  | 1                             | ---                        | ---            | ---        |
| 35/36                      |                | Vinton/Downtown Roanoke  | 2                             | ---                        | ---            | ---        |
| 41/42                      |                | Southeast Roanoke/Downtown Roanoke                                     | 1                             | ---                        | ---            | ---        |
| 51/52                      |                | Tanglewood/Downtown Roanoke  |                               | ---                        | ---            | ---        |
| 55/56                      |                | Tanglewood/Downtown Roanoke  | 2                             | ---                        | ---            | ---        |
| 61/62                      | 2B             | Red Rock/Downtown Roanoke  | 1                             | 1                          | 100%           | \$586,000  |
| 65/66                      |                | Carlton & Grandin/Downtown Roanoke                                     | 1                             | ---                        | ---            | ---        |
| 71/72                      |                | Lewis Gale/Downtown Roanoke  | 2                             | ---                        | ---            | ---        |
| 75/76                      |                | Veterans Hospital/Downtown Roanoke                                     | 2                             | ---                        | ---            | ---        |
| 81/82                      | 2D             | Goodwill Salem/Downtown Roanoke  | 1                             | -1                         | ---            | -\$586,000 |
| 85/86                      |                | Peters Creek Road/Downtown Roanoke                                     | 1                             | ---                        | ---            | ---        |
| 91/92                      |                | Glenvar/Richfield/Downtown Salem/<br>Downtown Roanoke                  | 2                             | ---                        | ---            | ---        |
| <b>Smart Way</b>           |                | Roanoke Valley/New River Valley  | 1                             | ---                        | ---            | ---        |
| <b>Smart Way Connector</b> |                | Lynchburg/New River Valley/Roanoke Valley/Bedford                      | 4                             | ---                        | ---            | ---        |
| 1                          |                | Crossroads/Plantation Road/DMV   | 1                             | ---                        | ---            | ---        |
| 311                        |                | RCIT/Downtown Roanoke  | 1                             | ---                        | ---            | ---        |
| 4/5                        |                | Carilion/Tanglewood/Cave Spring/Oak Grove/Lewis<br>Gale/Downtown Salem | 4                             | ---                        | ---            | ---        |
| 93                         |                | Exit 140/Downtown Salem/Medical Centers                                | 1                             | ---                        | ---            | ---        |
| 3111                       |                | East Park/Bonsack/Downtown Roanoke                                     | 1                             | ---                        | ---            | ---        |
| 911/922                    |                | Glenvar/Richfield/Downtown Salem/Downtown Roanoke                      | 1                             | ---                        | ---            | ---        |

| Route              | Recommendation | Description   | Short-Term Number of Vehicles | Additional Vehicles Needed | Percent Change | Cost               |
|--------------------|----------------|---|-------------------------------|----------------------------|----------------|--------------------|
| 3                  | 2E             | Goodwill Salem/Crossroads/Valley View/Salem           | ---                           | 1                          | ---            | \$586,000          |
| 8                  | 2F             | Greenfield/Daleville/Bonsack/Downtown Roanoke         | ---                           | 2                          | ---            | \$1,172,000        |
| 2                  | 2G             | Lewis Gale/Towers Shopping Center/Carilion            | ---                           | 1                          | ---            | \$586,000          |
| 24                 | 2H             | A Porters Haven/ William Byrd High School             | ---                           | 1                          | ---            | \$586,000          |
| 220                | 2I             | Greenfield/Daleville/Plantation Road/Downtown Roanoke | ---                           | 1                          | ---            | \$586,000          |
| 10                 | 2J             | Clearbrook/Tanglewood/South County Library            | ---                           | 1                          | ---            | \$586,000          |
| 1000               | 2K             | Crossroads/Valley View/Downtown Roanoke/Tanglewood    | ---                           | 1                          | ---            | \$586,000          |
| <b>Spare Fleet</b> |                |   | <b>10</b>                     | ---                        | ---            | ---                |
| <b>Total</b>       |                |   | <b>51</b>                     | <b>9</b>                   | <b>18%</b>     | <b>\$5,274,000</b> |

Table 8.2.2-2 | Operational Costs - Service Expansion Fleet (Medium-Term)

| Route             | Recommendation | Description                        | Short Term Costs | Additional Costs | Percent Change |
|-------------------|----------------|------------------------------------|------------------|------------------|----------------|
| Star Line Trolley | 2A             | Carilion/Downtown Roanoke          | \$542,000        | \$838,000        | 155%           |
| 11/12             |                | Valley View/Downtown Roanoke       | \$466,000        | ---              | ---            |
| 15/16             |                | Valley View/Downtown Roanoke       | \$698,000        | ---              | ---            |
| 21/22             |                | Crossroads/Downtown Roanoke        | \$640,000        | ---              | ---            |
| 25/26             |                | Crossroads/Downtown Roanoke        | \$466,000        | ---              | ---            |
| 31/32             |                | Vinton/Downtown Roanoke            | \$348,000        | ---              | ---            |
| 35/36             |                | Vinton/Downtown Roanoke            | \$524,000        | ---              | ---            |
| 41/42             |                | Southeast Roanoke/Downtown Roanoke | \$466,000        | ---              | ---            |
| 51/52             |                | Tanglewood/Downtown Roanoke        | ---              | ---              | ---            |
| 55/56             |                | Tanglewood/Downtown Roanoke        | \$698,000        | ---              | ---            |
| 61/62             | 2B             | Red Rock/Downtown Roanoke          | \$348,000        | \$118,000        | 34%            |
| 65/66             |                | Carlton & Grandin/Downtown Roanoke | \$348,000        | ---              | ---            |
| 71/72             |                | Lewis Gale/Downtown Roanoke        | \$466,000        | ---              | ---            |
| 75/76             | 2C             | Veterans Hospital/Downtown Roanoke | \$466,000        | \$232,000        | 50%            |

| Route                      | Recommendation | Description   | Short Term Costs    | Additional Costs   | Percent Change |
|----------------------------|----------------|---|---------------------|--------------------|----------------|
| 81/82                      | 2D             | Goodwill Salem/Downtown Roanoke                                     | \$290,000           | -\$290,000         |                |
| 85/86                      |                | Peters Creek Road/Downtown Roanoke                                  | \$348,000           | ---                | ---            |
| 91/92                      | 2D             | Glenvar/Richfield/Downtown Salem/<br>Downtown Roanoke               | \$394,000           | \$300,000          | 76%            |
| <b>Smart Way</b>           |                | Roanoke Valley/New River Valley                                     | \$895,000           | ---                | ---            |
| <b>Smart Way Connector</b> |                | Lynchburg/New River Valley/Roanoke Valley/Bedford                   | \$232,000           | ---                | ---            |
| 1                          |                | Crossroads/Plantation Road/DMV                                      | \$290,000           | ---                | ---            |
| 311                        |                | RCIT/Downtown Roanoke   | \$82,000            | ---                | ---            |
| 4/5                        |                | Carilion/Tanglewood/Cave Spring/Oak Grove/Lewis Gale/Downtown Salem | \$1,048,000         | ---                | ---            |
| 93                         |                | Exit 140/Downtown Salem/Medical Centers                             | \$349,000           | ---                | ---            |
| 3111                       |                | East Park/Bonsack/Downtown Roanoke                                  | \$116,000           | ---                | ---            |
| 911/922                    |                | Glenvar/Richfield/Downtown Salem/Downtown Roanoke                   | \$116,000           | ---                | ---            |
| <b>All Routes</b>          | 1O             | Expand to 18 hours of service                                       | \$1,735,000         | \$348,000          | 20%            |
| 3                          | 2E             | Goodwill Salem/Crossroads/Valley View/Salem                         | ---                 | \$348,000          | ---            |
| 8                          | 2F             | Greenfield/Daleville/Bonsack/Downtown Roanoke                       | ---                 | \$698,000          | ---            |
| 2                          | 2G             | Lewis Gale/Towers Shopping Center/Carilion                          | ---                 | \$348,000          | ---            |
| 24                         | 2H             | A Porters Haven/ William Byrd High School                           | ---                 | \$290,000          | ---            |
| 220                        | 2I             | Greenfield/Daleville/Plantation Road/Downtown Roanoke               | ---                 | \$116,000          | ---            |
| 10                         | 2J             | Clearbrook/Tanglewood/South County Library                          | ---                 | \$348,000          | ---            |
| 1000                       | 2K             | Crossroads/Valley View/Downtown Roanoke/Tanglewood                  | ---                 | \$348,000          | ---            |
| <b>Total</b>               |                |   | <b>\$15,843,000</b> | <b>\$4,042,000</b> | <b>33%</b>     |

## 8.3 Long-Term Costs (2030-2040)

### 8.3.1 Capital Costs

The service recommendations in the long-term will require 18 extra vehicles and four extra spare vehicles, resulting in a 37 percent increase over the medium-term fleet size for a total cost of \$14,740,000 (**Table 8.3.1-1**). This will result in a total fleet size of 82 vehicles, which includes 14 spares.

*Table 8.3.1-1 | Capital Costs - Service Expansion Fleet (Long-Term)*

| Route                    | Recommendation | Description   | Medium-Term Number of Vehicles | Additional Vehicles Needed | Percent Change | Costs       |
|--------------------------|----------------|---|--------------------------------|----------------------------|----------------|-------------|
| <b>Star Line Trolley</b> |                | Carilion/Downtown Roanoke                             | 4                              | ---                        | ---            | ---         |
| <b>11/12</b>             |                | Valley View/Downtown Roanoke                          | 2                              | ---                        | ---            | ---         |
| <b>15/16</b>             |                | Valley View/Downtown Roanoke                          | 2                              | ---                        | ---            | ---         |
| <b>21/22</b>             | 3A             | Crossroads/Downtown Roanoke                           | 2                              | 2                          | 100%           | \$1,340,000 |
| <b>25/26</b>             |                | Crossroads/Downtown Roanoke                           | 2                              | ---                        | ---            | ---         |
| <b>31/32</b>             |                | Vinton/Downtown Roanoke                               | 1                              | ---                        | ---            | ---         |
| <b>35/36</b>             |                | Vinton/Downtown Roanoke                               | 2                              | ---                        | ---            | ---         |
| <b>41/42</b>             |                | Southeast Roanoke/Downtown Roanoke                    | 1                              | ---                        | ---            | ---         |
| <b>51/52</b>             |                | Tanglewood/Downtown Roanoke                           |                                | ---                        | ---            | ---         |
| <b>55/56</b>             | 3B             | Tanglewood/Downtown Roanoke                           | 2                              | 2                          | 100%           | \$1,340,000 |
| <b>61/62</b>             |                | Red Rock/Downtown Roanoke                             | 2                              | ---                        | ---            | ---         |
| <b>65/66</b>             |                | Carlton & Grandin/Downtown Roanoke                    | 1                              | ---                        | ---            | ---         |
| <b>71/72</b>             |                | Lewis Gale/Downtown Roanoke                           | 2                              | ---                        | ---            | ---         |
| <b>75/76</b>             |                | Veterans Hospital/Downtown Roanoke                    | 2                              | ---                        | ---            | ---         |
| <b>81/82</b>             | 3C             | Goodwill Salem/Downtown Roanoke                       | ---                            | 2                          | ---            | \$1,340,000 |
| <b>85/86</b>             |                | Peters Creek Road/Downtown Roanoke                    | 1                              | ---                        | ---            | ---         |
| <b>91/92</b>             |                | Glenvar/Richfield/Downtown Salem/<br>Downtown Roanoke | 2                              | ---                        | ---            | ---         |

### 8.3.2 Operating Costs

In the medium-term it is being recommended to increase the level of services on 14 existing routes, and add three new routes. This results in \$22,843,000 of total annual operational costs, an increase of 46 percent over the medium-term (**Table 8.3.2-1**). Individual annual costs within the long-term timeframe will depend upon implementation.

| Route                          | Recommendation | Description  | Medium-Term<br>Number of<br>Vehicles | Additional<br>Vehicles<br>Needed | Percent<br>Change | Costs               |
|--------------------------------|----------------|--|--------------------------------------|----------------------------------|-------------------|---------------------|
| <b>Smart Way</b>               |                | Roanoke Valley/New River Valley  | 1                                    | ---                              | ---               | ---                 |
| <b>Smart Way<br/>Connector</b> |                | Lynchburg/New River Valley/Roanoke Valley/Bedford                      | 4                                    | ---                              | ---               | ---                 |
| <b>1</b>                       | 3D             | Crossroads/Plantation Road/DMV   | 1                                    | 1                                | 100%              | \$670,000           |
| <b>311</b>                     |                | RCIT/Downtown Roanoke  | 1                                    | ---                              | ---               | ---                 |
| <b>4/5</b>                     |                | Carilion/Tanglewood/Cave Spring/Oak Grove/Lewis<br>Gale/Downtown Salem | 4                                    | ---                              | ---               | ---                 |
| <b>93</b>                      |                | Exit 140/Downtown Salem/Medical Centers                                | 1                                    | ---                              | ---               | ---                 |
| <b>3111</b>                    |                | East Park/Bonsack/Downtown Roanoke                                     | 1                                    | ---                              | ---               | ---                 |
| <b>911/922</b>                 | 3F             | Glenvar/Richfield/Downtown Salem/Downtown Roanoke                      | 1                                    | 1                                | 100%              | \$670,000           |
| <b>3</b>                       | 3G             | Goodwill Salem/Crossroads/Valley View/Salem                            | 1                                    | 1                                | 100%              | \$670,000           |
| <b>8</b>                       | 3H             | Greenfield/Daleville/Bonsack/Downtown Roanoke                          | 2                                    | 2                                | 100%              | \$1,340,000         |
| <b>2</b>                       | 3I             | Lewis Gale/Towers Shopping Center/Carilion                             | 1                                    | 1                                | 100%              | \$670,000           |
| <b>24</b>                      |                | A Porters Haven/ William Byrd High School                              | 1                                    | ---                              | ---               | ---                 |
| <b>220</b>                     |                | Greenfield/Daleville/Plantation Road/Downtown Roanoke                  | 1                                    | ---                              | ---               | ---                 |
| <b>10</b>                      | 3K             | Clearbrook/Tanglewood/South County Library                             | 1                                    | 1                                | 100%              | \$670,000           |
| <b>1000</b>                    | 3L             | Crossroads/Valley View/Downtown Roanoke/Tanglewood                     | 1                                    | 1                                | 100%              | \$670,000           |
| <b>7</b>                       | 3M             | Salem/Crossroads via DMV/Plantation Rd                                 | ---                                  | 2                                | ---               | \$1,340,000         |
| <b>7135</b>                    |                | Grandin Village/Downtown Roanoke/Vinton                                | ---                                  | ---                              | ---               | ---                 |
| <b>117</b>                     | 3O             | Troutville/Hollins/VA Medical Center/Lewis Gale                        | ---                                  | 2                                | ---               | \$1,340,000         |
|                                |                | <b>Spares Vehicles</b>   | <b>10</b>                            | <b>4</b>                         | <b>---</b>        | <b>\$2,680,000</b>  |
|                                |                | <b>Total</b>   | <b>60</b>                            | <b>22</b>                        | <b>37%</b>        | <b>\$14,740,000</b> |



Table 8.3.2-1 | Operational Costs – Service Expansion (Long-Term)

| Route                      | Recommendation | Description   | Medium-Term Costs | Additional Costs | Percent Change |
|----------------------------|----------------|---|-------------------|------------------|----------------|
| <b>Star Line Trolley</b>   |                | Carilion/Downtown Roanoke   | \$1,160,000       | ---              | ---            |
| <b>11/12</b>               |                | Valley View/Downtown Roanoke  | \$466,000         | ---              | ---            |
| <b>15/16</b>               |                | Valley View/Downtown Roanoke  | \$698,000         | ---              | ---            |
| <b>21/22</b>               | 3A             | Crossroads/Downtown Roanoke   | \$640,000         | \$638,000        | 100%           |
| <b>25/26</b>               |                | Crossroads/Downtown Roanoke   | \$466,000         | ---              | ---            |
| <b>31/32</b>               |                | Vinton/Downtown Roanoke   | \$348,000         | ---              | ---            |
| <b>35/36</b>               |                | Vinton/Downtown Roanoke   | \$524,000         | ---              | ---            |
| <b>41/42</b>               |                | Southeast Roanoke/Downtown Roanoke                                  | \$466,000         | ---              | ---            |
| <b>51/52</b>               |                | Tanglewood/Downtown Roanoke   |                   | ---              |                |
| <b>55/56</b>               | 3B             | Tanglewood/Downtown Roanoke   | \$698,000         | \$580,000        | 83%            |
| <b>61/62</b>               |                | Red Rock/Downtown Roanoke   | \$466,000         | ---              | ---            |
| <b>65/66</b>               |                | Carlton & Grandin/Downtown Roanoke                                  | \$348,000         | ---              | ---            |
| <b>71/72</b>               |                | Lewis Gale/Downtown Roanoke   | \$466,000         | ---              | ---            |
| <b>75/76</b>               |                | Veterans Hospital/Downtown Roanoke                                  | \$698,000         | ---              | ---            |
| <b>81/82</b>               | 3C             | Goodwill Salem/Downtown Roanoke                                     | ---               | \$232,000        | ---            |
| <b>85/86</b>               |                | Peters Creek Road/Downtown Roanoke                                  | \$348,000         | ---              | ---            |
| <b>91/92</b>               |                | Glenvar/Richfield/Downtown Salem/<br>Downtown Roanoke               | \$694,000         | ---              | ---            |
| <b>Smart Way</b>           |                | Roanoke Valley/New River Valley                                     | \$895,000         | ---              | ---            |
| <b>Smart Way Connector</b> |                | Lynchburg/New River Valley/Roanoke Valley/Bedford                   | \$232,000         | ---              | ---            |
| <b>1</b>                   | 3D             | Crossroads/Plantation Road/DMV                                      | \$290,000         | \$408,000        | 141%           |
| <b>311</b>                 |                | RCIT/Downtown Roanoke   | \$82,000          | ---              | ---            |
| <b>4/5</b>                 | 3E             | Carilion/Tanglewood/Cave Spring/Oak Grove/Lewis Gale/Downtown Salem | \$1,048,000       | \$348,000        | 33%            |
| <b>93</b>                  |                | Exit 140/Downtown Salem/Medical Centers                             | \$349,000         | ---              | ---            |
| <b>3111</b>                |                | East Park/Bonsack/Downtown Roanoke                                  | \$116,000         | ---              | ---            |
| <b>911/922</b>             | 3F             | Glenvar/Richfield/Downtown Salem/Downtown Roanoke                   | \$116,000         | \$116,000        | 100%           |

| Route             | Recommendation | Description   | Medium-Term Costs   | Additional Costs   | Percent Change |
|-------------------|----------------|---|---------------------|--------------------|----------------|
| <b>All Routes</b> | 1O             | Expand to 18 hours of service                         | \$2,083,000         | \$1,338,000        | 64%            |
| <b>3</b>          | 3G             | Goodwill Salem/Crossroads/Valley View/Salem           | \$348,000           | \$350,000          | 101%           |
| <b>8</b>          | 3H             | Greenfield/Daleville/Bonsack/Downtown Roanoke         | \$698,000           | \$698,000          | 100%           |
| <b>2</b>          | 3I             | Lewis Gale/Towers Shopping Center/Carilion            | \$348,000           | \$350,000          | 101%           |
| <b>24</b>         |                | A Porters Haven/ William Byrd High School             | \$290,000           | ---                | ---            |
| <b>220</b>        | 3J             | Greenfield/Daleville/Plantation Road/Downtown Roanoke | \$116,000           | \$232,000          | 200%           |
| <b>10</b>         | 3K             | Clearbrook/Tanglewood/South County Library            | \$348,000           | \$292,000          | 84%            |
| <b>1000</b>       | 3L             | Crossroads/Valley View/Downtown Roanoke/Tanglewood    | \$348,000           | \$350,000          | 101%           |
| <b>7</b>          | 3M             | Salem/Crossroads via DMV/Plantation Rd                |                     | \$698,000          | ---            |
| <b>7135</b>       | 3N             | Grandin Village/Downtown Roanoke/Vinton               |                     | \$252,000          | ---            |
| <b>117</b>        | 3O             | Troutville/Hollins/VA Medical Center/Lewis Gale       |                     | \$466,000          | ---            |
| <b>Total</b>      |                |   | <b>\$16,413,000</b> | <b>\$7,488,000</b> | <b>46%</b>     |

## APPENDIX A: BIKE SHARE

### A.1 What is Bike Share?

Quite simply, bike share is bicycle-based public transportation. Bike share systems allow users to access a fleet of bicycles for short-term use. Systems are designed for one-way journeys, allowing a rider to pick up a bike in one place and return it somewhere else in the system. Bike share differs from other modes of public transportation as it is available on-demand. Since users are not tied to a fixed bus route or train line with set schedules, bike share provides tremendous flexibility.

The concept of bike share originated in the 1960's in Amsterdam, and early bike share systems consisted of specially marked bikes placed around cities for free use. These pioneers of bike share, referred to today as "first generation" bicycle systems, saw limited success as there were few curbs on theft and vandalism. It was not until the arrival of automated locking and payment systems that bike share began to see wide-spread implementation world-wide. Today modern bike share systems are most often fully automated systems. Users use a membership card, kiosk, or phone to unlock bicycles. Vandalism and theft is deterred through robust locking mechanisms, and users typically must provide a credit card or debit card hold to rent a bicycle.

The first major bike share system in North America was Montreal's BIXI, launched in May 2009. Since then, bike share systems have multiplied rapidly across North America, with over 35 systems in place in the United States alone. The largest bike share systems in the country are located in major cities such as

New York (CitiBike), Boston (Hubway), Chicago (Divvy), and Washington DC (Capital Bikeshare), however cities of all sizes feature bike share. A number of small and medium sized metropolitan areas have bike share systems, including Greenville, SC, Chattanooga, TN, and Boulder, CO. Bike share systems are increasingly moving beyond downtowns and inner city neighborhoods and into the suburbs. Capital Bikeshare in Montgomery County, MD and Bay Area Bike Share in Santa Clara County, CA are providing bike share as a means to connect suburban communities to transit and facilitate reverse commutes.

*Table A.1-1 | Examples of Bike Share Systems<sup>20</sup>*

| System Name                 | Greenville B-Cycle | Boulder B-Cycle |  | Nice Ride MN               | Capital Bikeshare          |
|-----------------------------|--------------------|-----------------|--|----------------------------|----------------------------|
| City                        | Greenville, SC     | Boulder, CO     |  | Minneapolis & St. Paul, MN | Washington, DC and suburbs |
| Population of Cities Served | 60,000             | 97,000          |  | 684,000                    | 1,218,000                  |
| Number of Bikes             | 28                 | 150             |  | 1,550                      | 2,700+                     |
| Number of Stations          | 6                  | 22              |  | 170                        | 310+                       |
| Annual Ridership            | 3,200              | 30,000          |  | 305,000                    | 2,725,000                  |
| Average Daily / Bike        | 0.32               | 0.55            |  | 0.91                       | 2.76                       |

As **Table A.1-1** illustrates, system size and ridership levels differ widely among bike share systems. Larger bike share systems tend to have a higher utilization per bike because these systems

<sup>20</sup> 2015 data.

benefit from the network effect of having many possible destinations reachable by bike share, and also because large bike share systems are mostly located in dense urban areas with high travel demand.

Many of the bike share systems in smaller or less dense cities are located in places with a high concentration of visitors or students. San Antonio's bike share system, for example, benefits from high tourist use, with stations concentrated around major downtown attractions and recreation trails. Other bike share systems, like the Spartanburg, SC and Boulder, CO B-Cycle systems, are located in college towns with a high concentration of students to help drive usage. Not all bike share systems in smaller cities rely on a large tourist or student populations however, some are successful with a combination of both.

Regardless of what city bike share stations are located in, bike share is most highly used in places where there is a high concentration of destinations within biking distance to one another. Bike share works best in mixed-use communities where bikes can be utilized for a variety of purposes. Neighborhoods with a high concentration of housing, retail, and employment generate trips throughout the day, not just during peak commuting times.

## A.2 How Does Bike Share Work?

Most bicycle share systems in North America are dock-based systems, an example of which is shown in **Figure A.1-1** and **Figure A.2-2**. Bicycles are picked up and returned to stations composed of a set of docks and a payment kiosk. The bicycles are locked into the dock, making theft extremely difficult. Dock based systems are often solar powered, allowing for stations to

be installed without any electric hardwiring or other in-ground infrastructure.

*Figure A.1-1 | DecoBike Station in Miami Beach*



Source: Matt Johnson

*Figure A.2-2 | Typical Dock Based Stations*



photo credit: Steven Chuo, 2014

An alternative to dock-based systems are smart bikes, an example of which is shown in **Figure A.2-3**. With smart bikes, the locking mechanism and payment system are on the bicycle itself. Some smart bike systems allow users to lock a bicycle anywhere within a service area, but many establish virtual stations where bikes must be returned.

*Figure A.2-3 | Example Smart Bike Station*



more likely to cycle for utilitarian trip purposes than the typical area cyclist<sup>21</sup>. Bike share users tend to be well-educated but not necessarily well-off, a function of the low average age of riders.<sup>22</sup> Survey and trip data show that bike share serves a transportation need for the majority of trips; bike share is utilized for short-one way trips in lieu of another mode. Bike share riders have distinct commute patterns compared to the general population, typically living within a few miles of their place of employment.<sup>23</sup> Finally bike share shows close integration with other modes of public transportation, with many systems reporting their highest ridership bike share locations at or near major transit hubs.

In addition to the most common dock and smart bike systems referenced above there are several other types of bike share implementations in the U.S. including university and community based systems.

### A.3 Who Uses Bike Share?

Bike share attracts a diverse base of users. While some bike share users are avid cyclists who use bike share in addition to their own bicycles, a large proportion of bike share riders are new or infrequent cyclists. A study of Capital Bikeshare users found that bike share users are more likely to be female, have a lower household income, own fewer cars and bicycles, and are

<sup>21</sup> Buck, Darren et. al. *Are Bikeshare Users Different from Regular Cyclists? A First Look at Short-Term Users, Annual Members, and Area Cyclists in the Washington, DC Region* Transportation Research Board 2012

<sup>22</sup> Shaheen, Susan et. al. *Public Bikeshare in North America: Early Operator and User Understanding* Mineta Transportation Institute 2012

<sup>23</sup> *ibid*

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## A.4 University Systems

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Universities have utilized a variety of bike share implementations. The simplest form by which faculty and staff sign out dedicated departmental bikes for trips around campus. More advanced systems have utilized Zagster, a bike share company that typically creates closed bike share systems for private entities, e.g., colleges and universities, corporate campuses, hotels, and multifamily buildings. The Zagster system uses branded bicycles, U Locks, and dedicated bicycle racks and requires a cell phone to text a code for unlocking the bicycle. Another option is a bike library with a fixed number of bikes that can be checked out for free but must be returned by the end of the day. Some universities have used Republic Bikes' system which is closed and requires a code to check out bikes. It operates much like Zagster.

*Figure A.3-1 | Bicycle Library at UConn Storrs*



Source: [today.uconn.edu](http://today.uconn.edu)

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## A.5 Community Systems

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Community bike share systems often operate as a bike library created and run through a group of dedicated community volunteers. Bikes may be housed at local businesses frequented by tourists, and both tourists and locals sign out bike locks and helmets to access the bicycles. Usage is free but there is a deposit. The system relies on volunteer time, fundraising support through local businesses, and recently, grant writing.

Some bike libraries are seasonal focused on serving recreational riders in a given area or utilizing a specific trail or trail system. In some cases, a small group of local bicycle advocates start these systems and set up distribution centers, typically local businesses, who sponsor the system. Riders check out bikes and locks inside the store, a process similar to many other systems. The rider is required to leave a deposit and the bikes must be returned to where they were checked out.

Figure A.5-1 | Mystic Community Bikes



Source: (top) themysticwave.com, (bottom) Mystic Community Bikes

## A.6 Why Bike Share?

Bike share is a unique opportunity to provide a physically active form of public transportation that integrates with and supports Roanoke’s current and proposed transit options. These systems provide a short distance transportation option that fills the gap between distances that are too far to walk but too close to justify waiting for and riding other transit options, e.g., bus.

### *Transportation Network Benefits*

Bike share systems give a new option for short distance trips and increase the diversity and effectiveness of a region’s public transportation system. Bike share works in conjunction with bus service and walking to provide the “last mile” connections for riders. Bike share enhances options for car-free and car-light households by providing a new public transit mode that is free from schedules or routes. In Roanoke, bike share could provide travelers with another means to connect with the existing bus system and future bus system, allowing users to transfer from the stop/station and bike farther than they would be able to walk.

Bike share has also been shown to reduce the dependence on personal vehicles. In a multi-city study, 40 percent of bike share users reported driving less often since joining. The same study also found that two percent of members sold their personal

vehicles and claimed that bike share had an influence in their decision making.<sup>24</sup>

### *Health Benefits*

Bike share is one of the only physically active forms of public transportation and has the potential to help make a healthier city. In general cycling has been linked with increased cardiovascular health which reduces the likelihood of heart disease and obesity. A health survey conducted by Capital Bikeshare (Washington, DC region) found that 31% of members reported weight loss since joining the program and 27% reported an improvement in personal physique.<sup>25</sup>

Bike share also offers safety benefits to the cycling community at large. Increasing the number of bikes on the streets helps acclimate drivers to sharing the road. A study in the British Medical Journal found that increasing the number of cyclists and pedestrians in a community reduced the relative risk of a collision.<sup>26</sup> While there is still a risk of injury with cycling, the health benefits have been found to far outweigh the risk of injury.<sup>27</sup>

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<sup>24</sup>Public Bikesharing in North America: Early Operator and User Understanding, Mineta Transportation Institute Report 11-26, June 2012, <http://transweb.sjsu.edu/PDFs/research/1029-public-bikesharing-understanding-early-operators-users.pdf>

<sup>25</sup> Vehicle 4 Change: Health Implications of the Capital Bikeshare Program, December 2012, [http://capitalbikeshare.com/assets/pdf/v4c\\_capstone\\_report\\_final.pdf](http://capitalbikeshare.com/assets/pdf/v4c_capstone_report_final.pdf)

<sup>26</sup> Safety in Numbers: More Walkers and Bicyclists, Safer Walking and Bicycling, British Journal of Medicine, Volume 9 Issue 3, September 2003, <http://injuryprevention.bmj.com/content/9/3/205.full>

<sup>27</sup> The Health Risk and Benefits of Cycling in Urban Environments Compared with Car Use: Health Impact Assessment Study, British Journal of Medicine, August 2011, <http://www.bmj.com/content/343/bmj.d4521>

### *Economic Benefits*

Bike share helps connect riders with local business and generates new trips to retail and tourist destinations. In the Minneapolis-Saint Paul region the introduction of the NiceRide bike share system generated an additional \$150,000 dollars to businesses around bike docking stations.<sup>28</sup> Tourism is another significant economic benefit of bike sharing. Tourists can quickly and easily access sites around the city, without the expense of a cab or car rental.

### *Environmental Benefits*

Bike share creates an opportunity to decrease the pollution in our environment. On average, the cars driven in the U.S. produce a pound of CO<sup>2</sup> per mile driven. In the first year of Denver B-Cycle operations, there was an estimated reduction over 300,000 pounds of CO<sup>2</sup> and in the four years since the number has risen to over a million pounds annually.<sup>29</sup> Bike share systems help promote greater environmental consciousness in the communities they serve, and many systems provide users customized statistics on pounds of CO<sup>2</sup> saved by each trip.

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<sup>28</sup> University of Minnesota Center for Transportation Studies *Catalyst*, July 2012, <http://www.cts.umn.edu/Publications/catalyst/2012/july/niceride/>

<sup>29</sup> Denver Bike Sharing 2013 Annual Report, [http://denverbikesharing.org/AnnualReports/DBS\\_2013\\_Annual\\_Report.pdf](http://denverbikesharing.org/AnnualReports/DBS_2013_Annual_Report.pdf)



# Roanoke Valley Transportation PLANNING ORGANIZATION

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## Roanoke Valley TRANSIT VISION PLAN

*Approved September 22, 2016*

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PART 6: Implementation Strategies and Performance Measures

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## 1.0 OVERVIEW

This section describes various elements related to the implementation of the recommendations of the Transit Vision Plan including:

- **Timeline:** Discussion of next steps and future planning efforts to implement the Transit Vision Plan.
- **Implementation Strategies:** Provides ideas on how to accomplish the Plan's goals.
- **Roles and Responsibilities:** Describes guiding goals and strategies and the parties responsible for their implementation to realize the vision of the plan.
- **Strategy Outputs:** Identifies the tangible results of the strategies.
- **Community Outcomes:** Identifies the broader desired results for individuals and the community as a whole.
- **Performance Measures:** Identifies how the strategy outputs will be tracked as stakeholders work to produce the community outcomes that achieve regional goals.
- **Procedural Changes:** Provides guidance on several types of transit organizational structures that may be pursued to further the plan.
- **Marketing and Branding:** Describes elements of an easy-to-understand unified marketing and branding program to support the plan.
- **Additional Funding Sources:** Describes potential funding sources and partners.
- **Land Use:** Describes changes to land use policies that will need to be realized to increase both the mix and density of land uses to support the plan.

## 2.0 TIMELINE

Adoption of the Roanoke Valley Transit Vision Plan is a milestone in the region's transportation planning process and overall strategic planning as it strives to become a more Livable Roanoke Valley, accomplishing the region's first long-range 25-year transit plan. Development of the Plan involved many stakeholders and citizens and its implementation, though challenging, will be supported by even more. Most immediately, the Plan's recommendations will be evaluated by the Transportation Planning Organization Policy Board for incorporation into the region's next Constrained Long-Range Multimodal Transportation Plan, schedule for adoption in Fall 2016. Fortunately, the Virginia Department of Transportation (DRPT) has invested in a more robust travel demand model for the Roanoke Valley which now includes the details of the current transit system and will include in its forecasts, the short-, mid-, and long-term recommendations. With a more complete perspective of travel patterns in the region, decision-makers will have better information from which to steer transportation policies and investments. The CLRMTP is updated every five years and with each update, elements of the Transit Vision Plan will be reviewed to assess its achievements and the feasibility of remaining projects. The Vision Plan's recommendations are provided for the following timeframes:

- ▲ SHORT-TERM: 2016-2022
- ▲ MEDIUM-TERM: 2022-2030
- ▲ LONG-TERM: 2030-2040

The DRPT works with all transit agencies in the Commonwealth to create Transit Development Plans (TDPs) to assess transit

needs and plan system progress over the next six years. With great fortune, both Valley Metro and RADAR's TDPs are due for a complete update which is scheduled to begin in the Summer 2016. Both should be accomplished together in light of the grander regional transit vision described in this plan. These TDPs provide guidance and input to yearly funding applications and support investments identified in the Commonwealth's Six-Year Improvement Program (SYIP) and the transit program of projects listed in the federally-required Roanoke Valley Transportation Improvement Program (TIP).

Applications for DRPT funding are due every year on February 1 after which the SYIP is drafted and published in April/May followed by the Commonwealth Transportation Board's approval in June. The TIP is newly created every three years with the next TIP scheduled for development and approval in 2017.

Several notable funding cycles aid capital projects that establish the necessary infrastructure to support public transportation. The Commonwealth's House Bill 2 (HB2) program will be open for new applications due September 30, 2016 with additional open application periods every other year. New transit facilities, transit-supportive active transportation projects, and expansion vehicles are all examples of projects eligible for HB2. The former Transportation Alternatives Program (TAP), now the set-aside for Surface Transportation Block Grant (STBG) program for transportation alternatives (TA), will also be open for applications due November 1, 2016 for similar capital projects as HB2 with the exception of transit vehicles. The Regional Surface Transportation Program (RSTP) will be open for new applications in the Fall 2017. The following list summarizes these critical reoccurring dates.

- ▲ 9/3-/16 – BIENNIAL HB2 CAPITAL PROJECT APPLICATIONS
- ▲ 11/1/16 - ANNUAL STBG-TA CAPITAL PROJECT APPLICATIONS
- ▲ 2/1/17 – ANNUAL DRPT OPERATING/CAPITAL PROJECT APPLICATIONS
- ▲ 9/30/17 – BIENNIAL RSTP CAPITAL PROJECT APPLICATIONS

Depending on the scale, capital projects take a year or many years to conceptualize, apply for funding, and receive funding approval. Depending on the funding program and funds availability, funding is provided for an immediate year or some future year. Much time is spent on establishing funding contracts, hiring design consultants, designing the facility, purchasing any needed right-of-way or establishing operating agreements, and ultimately hiring a contractor and constructing the project. Even the simplest project may take three years to complete, so capital projects should be planned in advance or pursued in light of a desired completion date for functional operations.

The members of the Steering Committee have been exceptionally helpful in guiding the Plan's development. The group will cease to function once the Plan is complete; however, new collaborations and partnerships should begin to form immediately upon completion of the Plan to keep the Plan's implementation active.

Where possible, Valley Metro and local governments should work continuously to identify those recommendations which may be simpler to complete than others and pursue them first to indicate to the public and stakeholders that the Plan is important and people's needs are being addressed.

## 3.0 IMPLEMENTATION STRATEGIES

As previously stated, there are five goals for transit in the Roanoke Valley and within each goal strategies have been identified for how to accomplish those goals.

### **GOAL #1: CAPITALIZE ON THE COMMUNITY'S INVESTMENT IN TRANSIT TO ENRICH THE ECONOMY OF THE ROANOKE VALLEY**

- ▲ PROVIDE REGIONAL AND LOCAL FUNDING TO LEVERAGE AVAILABLE STATE AND FEDERAL FUNDS FOR TRANSIT.
- ▲ PROVIDE RELIABLE AND CONVENIENT TRANSIT SERVICES THAT CONNECT MAJOR EMPLOYMENT DESTINATIONS, SHOPPING CENTERS, ESSENTIAL SERVICES, COLLEGES, HIGH SCHOOLS, TECHNICAL SCHOOLS AND SPECIAL EVENTS.
- ▲ CREATE DESTINATIONS THAT SUPPORT PUBLIC TRANSPORTATION.

### **GOAL #2: UTILIZE TRANSIT TO SUPPORT PEOPLE'S ABILITY TO LIVE HEALTHY LIFESTYLES.**

- ▲ USE TRANSIT WHENEVER POSSIBLE INSTEAD OF DRIVING.
- ▲ FUND TRANSIT SERVICES TO ENABLE ROANOKE VALLEY RESIDENTS TO ACCESS HEALTHCARE FACILITIES, HEALTHY FOOD, WELLNESS, EXERCISE, RECREATION, AND CULTURAL LOCATIONS.
- ▲ PROVIDE ROANOKE VALLEY RESIDENTS WITH TRANSIT SERVICES TO HEALTHCARE FACILITIES, HEALTHY FOOD, WELLNESS, EXERCISE, RECREATION, AND CULTURAL LOCATIONS.

- ▲ COORDINATE BICYCLE AND PEDESTRIAN INFRASTRUCTURE INVESTMENTS WITH TRANSIT.
- ▲ EDUCATE CITIZENS ABOUT AVAILABLE TRANSIT SERVICES.
- ▲ ENCOURAGE THE USE OF TRANSIT BY PEOPLE OF ALL AGES, CULTURES, ABILITIES, AND INCOME LEVELS.

### **GOAL #3: SUSTAIN THE ROANOKE VALLEY'S NATURAL ENVIRONMENT BY EMBRACING TRANSIT ON A PERSONAL AND COMMUNITY LEVEL**

- ▲ FUND TRANSIT SERVICES ON AN INCREMENTAL BASIS UNTIL DESIRED SERVICE LEVELS ARE MET.
- ▲ USING TRANSIT TO ACCOMPLISH MORE TRIPS, REDUCE EMISSIONS IN THE ROANOKE VALLEY TPO URBANIZED AREA.
- ▲ REDUCE EMISSIONS BY TRANSIT VEHICLES IN THE ROANOKE VALLEY TPO URBANIZED AREA.
- ▲ SUPPORT LAND DEVELOPMENTS THAT MINIMIZE LAND CONSUMPTION, MAXIMIZE IN-FILL DEVELOPMENT AND REDEVELOPMENT, AND MAXIMIZE TRANSIT-ORIENTED DEVELOPMENT (TOD)
- ▲ REDUCE MINIMUM AND MAXIMUM PARKING REQUIREMENTS.
- ▲ MAXIMIZE AVAILABLE ON-STREET SPACE FOR PARKING WHILE LEAVING ADEQUATE SPACE AVAILABLE AT BUS STOPS FOR BUS PULL-OFFS.
- ▲ URBAN DEVELOPMENT AREAS (UDAS) ARE IDENTIFIED AND IMPLEMENTED WITH DENSITIES THAT SUPPORT TRANSIT USE.

**GOAL #4: PROVIDE INFRASTRUCTURE TO SUPPORT PEOPLE'S ABILITY TO SAFELY USE TRANSIT**

- ▲ INCORPORATE AND MAINTAIN SECURITY MEASURES AND TECHNOLOGY THROUGHOUT THE TRANSIT SYSTEM.
- ▲ ENSURE ALL TRANSIT STOPS AND TRANSFER FACILITIES AT A MINIMUM ARE ADA COMPLIANT AND, WHERE POSSIBLE, PROVIDE EXTRA ROOM FOR PASSENGER MOBILITY.
- ▲ PROVIDE PEDESTRIAN CONNECTIONS TO BUS STOPS INCLUDING BUT NOT LIMITED TO ALONG STREETS, ACROSS STREETS, AND WITHIN NEW DEVELOPMENTS TO ENABLE SAFE ACCESS TO TRANSIT.
- ▲ IMPROVE BUS STOP AMENITIES TO PROVIDE A SAFE AND COMFORTABLE ENVIRONMENT DURING WAITS AND INCLEMENT WEATHER.

**GOAL #5: IMPROVE THE MOBILITY OF RESIDENTS, EMPLOYEES, AND VISITORS THROUGHOUT THE ROANOKE VALLEY BY PROVIDING SEAMLESS CONNECTIONS WITH OTHER TRANSPORTATION MODES AND ENABLING PEOPLE TO GET AROUND WITHOUT THE NEED FOR A PERSONAL VEHICLE**

- ▲ COORDINATE LOCAL TRANSIT SERVICES WITH THE AIRPORT, PASSENGER RAIL, AND INTERCITY BUS SERVICES TO ENABLE SEAMLESS TRANSITIONS BETWEEN THESE MODES.
- ▲ INCORPORATE PEDESTRIAN CONNECTIONS TO TRANSIT INTO NEW DEVELOPMENT STANDARDS AND SITE PLANS TO ENABLE THE CONNECTION WITH NEARBY OR FUTURE TRANSIT SERVICES.
- ▲ FUND PEDESTRIAN AND BIKING INFRASTRUCTURE TO SUPPORT TRANSIT.

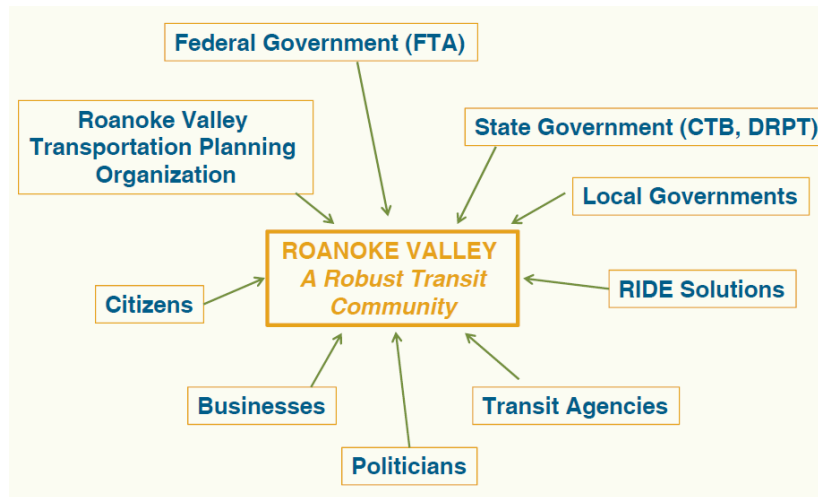
- ▲ INVEST IN ATTRACTIVE, WELL-FUNCTIONING TRANSIT FACILITIES.
- ▲ PROVIDE PEDESTRIAN INFRASTRUCTURE TO PARCELS WITHIN ¼ MILE AND BIKING INFRASTRUCTURE WITHIN THREE MILES OF TRANSIT STOPS.
- ▲ PROVIDE PEDESTRIAN AMENITIES SUCH AS SHELTERS, BENCHES, LIGHTING, AND BUS ROUTE AND SCHEDULE INFORMATION AT TRANSIT STOPS.
- ▲ INCORPORATE TRANSIT AMENITIES, SUCH AS BUS SHELTERS, BENCHES, OR TRANSIT INFORMATION, INTO DEVELOPMENT STANDARDS FOR NEW DEVELOPMENTS THAT ABUT A TRANSIT ROUTE.
- ▲ ESTABLISH POLICIES, PRACTICES, AND INCENTIVES THAT ENCOURAGE EMPLOYEES TO USE TRANSIT.
- ▲ ADOPT LAND USE POLICIES AND LAND DEVELOPMENT CODES THAT SUPPORT MIXED-USE DEVELOPMENT WITH MULTIMODAL CHOICES, INFILL DEVELOPMENT, AND CORRIDOR ACCESS MANAGEMENT POLICIES.
- ▲ PRIORITIZE TRANSIT MOVEMENTS ON THE ROADWAY NETWORK BY INSTALLING PRIORITY SIGNALIZATION ON TRANSIT CORRIDORS.
- ▲ DEVELOP PARKING POLICIES AND DEVELOPMENT STANDARDS THAT SUPPORT TRANSIT.

While these strategies all indicate what needs to be done, the question is often who is responsible for doing that? The following section addresses roles and responsibilities.

## 4.0 ROLES AND RESPONSIBILITIES

The responsibility to make the Roanoke Valley transit system robust falls on everyone as displayed below.

Figure 4.0-1 | Stakeholders to Create a Robust Transit Community



Steering Committee members reflected on the community-wide effort needed to make transit a common element in more people's day and identified the following general roles and responsibilities.

### **Federal Government (Federal Transit Administration)**

- ▲ PROVIDE FUNDING FOR TRANSIT SERVICES
- ▲ GUIDE TRANSPORTATION IN THE RIGHT DIRECTION THROUGH FUNDING PROGRAMS

- ▲ COMMUNICATE, COLLABORATE, COORDINATE INTERCONNECTIVITY BETWEEN MODES AT A NATIONAL LEVEL
- ▲ ENCOURAGE USE

### **State Government (Commonwealth Transportation Board)**

- ▲ PROVIDE FUNDING FOR TRANSIT SERVICES
- ▲ COORDINATE INTERCONNECTING MODES AT A STATE LEVEL
- ▲ MORE COLLABORATION BETWEEN THE VIRGINIA DEPARTMENT OF TRANSPORTATION AND LOCAL OFFICES TO PROMOTE USE OF CORRECT DESIGN STANDARDS

### **Local Governments**

- ▲ WORK TOGETHER TO PLAN TRANSIT SERVICES
- ▲ PROVIDE ZONING CODES THAT ESTABLISH DEVELOPMENT DENSITY TO SUPPORT TRANSIT
- ▲ CREATE WALKABLE DEVELOPMENTS
- ▲ WORK WITH THE VIRGINIA DEPARTMENT OF TRANSPORTATION AND DEVELOPERS TO BUILD NECESSARY INFRASTRUCTURE TO SUPPORT TRANSIT
- ▲ EXPAND TRANSIT SERVICES TO MEET CITIZEN NEEDS
- ▲ FOR TOURISM, PROMOTE TRANSIT USE TO ACCESS DESTINATIONS
- ▲ PROVIDE FUNDING



### ***Politicians***

- ▲ BECOME MORE INFORMED REGARDING TRANSIT ISSUES
- ▲ BE AN ADVOCATE FOR TRANSIT IMPROVEMENTS
- ▲ PROMOTE AND SUPPORT TRANSIT IN LOCALITIES
- ▲ EXPRESS TRANSIT'S SIGNIFICANCE TO CITIZENS
- ▲ PARTICIPATE IN TRANSIT DISCUSSIONS
- ▲ WORK TOGETHER AND WITH OTHER STAKEHOLDERS TO IDENTIFY FUNDING FOR TRANSIT

### ***Roanoke Valley Transportation Planning Organization***

- ▲ COORDINATE REGIONAL TRANSIT PLANNING
- ▲ PROMOTE AND COORDINATE INTERCONNECTING MODES AT A REGIONAL LEVEL
- ▲ PROMOTE REGIONAL COOPERATION AMONG LOCALITIES
- ▲ PROGRAM AND APPROVE THE USE OF FEDERAL FUNDS FOR TRANSIT PURPOSES
- ▲ WORK WITH LOCAL GOVERNMENTS TO PROVIDE GUIDELINES FOR DENSITY TO SUPPORT TRANSIT AND HOW TO ZONE TO CREATE A WALKABLE ENVIRONMENT
- ▲ PROVIDE FUNDING FOR TRANSIT SERVICES

### ***Transit Agencies***

- ▲ PROVIDE TRANSIT SERVICES APPROPRIATE TO THE LOCATIONS AND TIMES DESIRED; LOCATE WHERE PEOPLE ARE LOCATED
- ▲ CONNECT RURAL AREAS AND URBAN AREAS BETTER
- ▲ EXPAND SCHEDULE, INCREASE STOPS

- ▲ PROVIDE BUS STOP AMENITIES SUCH AS AN INVITING TRANSIT HUB, BENCHES AND SHELTERS, A PLACE TO WAIT
- ▲ COMMUNICATE TRAVEL INFORMATION TO CITIZENS
- ▲ TEACH PEOPLE HOW TO USE TRANSIT
- ▲ PROMOTE TRANSIT USE

### ***RideSolutions***

- ▲ COMMUNICATE TRANSIT AND OTHER ALTERNATIVE OPTIONS TO CITIZENS
- ▲ ASSIST WITH PROMOTING TRANSIT IN THE VALLEY
- ▲ SHARE/RIDE STOPS AT PLACES WHERE TRANSIT TAKES OFF
- ▲ INCREASED EDUCATION AND OUTREACH.

### ***Citizens***

- ▲ RIDE TRANSIT, IT IS FOR EVERYONE
- ▲ WALK/ROLL TO DESTINATIONS, BUS STOPS
- ▲ VIEW TRANSIT LIKE OTHER BASIC COMMUNITY INFRASTRUCTURE OR UTILITY
- ▲ ENCOURAGE MORE MONEY FOR TRANSIT FROM FEDERAL, STATE AND LOCAL GOVERNMENTS
- ▲ NEIGHBORHOOD GROUPS AND BUSINESS ASSOCIATIONS NEED TO SUPPORT/FUND/COMMUNICATE TRANSIT
- ▲ PRESSURE OFFICIALS TO SEE THE VIRTUE IN TRANSIT

### **Businesses**

- ▲ ESTABLISH POLICIES THAT ENCOURAGE EMPLOYEES TO USE TRANSIT
- ▲ PROMOTE EXISTING AND CREATE NEW TRANSIT INCENTIVES AMONG EMPLOYEES;
- ▲ PROVIDE STIPENDS FOR EMPLOYEES
- ▲ SCHEDULING AROUND LIFESTYLES, BUS SCHEDULES
- ▲ LOCATE WHERE TRANSIT IS PROVIDED OR PLANNED
- ▲ PARTICIPATE IN PLANNING HOW TO GET EMPLOYEES TO WORK
- ▲ PARTICIPATE IN PLANNING HOW TO GET EMPLOYEES FROM THE NEAREST BUS STOP TO WORK
- ▲ PROVIDE A SAFE WAY TO GET FROM BUS STOPS TO THE BUSINESS'S FRONT DOOR
- ▲ ADOPT A BUS STOP
- ▲ PROVIDE FUNDING FOR TRANSIT SERVICES

In addition to these roles and responsibilities, the Summary Matrix of Strategies, Roles, and Performance Measures in Section 8.0 identifies responsible parties for accomplishing particular strategies.

## 5.0 STRATEGY OUTPUTS

By working on the implementation strategies, the responsible parties aim to generate the following outputs:

### **Economic Outputs:**

- ▲ NECESSARY FUNDING IS SECURED TO ACCOMPLISH DESIRED INVESTMENTS IN TRANSIT SERVICES, FACILITIES, AND AMENITIES.
- ▲ TRANSIT SERVICES ARE WELL COORDINATED AND CONNECT PEOPLE TO THEIR JOBS, SHOPPING CENTERS, AND ESSENTIAL SERVICES.
- ▲ TRANSIT SERVICES PROVIDE ACCESS TO COLLEGES, HIGH SCHOOLS, TECHNICAL SCHOOLS AND SPECIAL EVENTS.
- ▲ AN INEXPENSIVE WAY TO EASILY MOVE AROUND THE ROANOKE VALLEY IS AVAILABLE TO CITIZENS.
- ▲ ALL NEW DEVELOPMENTS IN THE REGION ARE REVIEWED FOR TRANSIT ACCESSIBILITY AND WHERE TRANSIT IS NEEDED, DEVELOPMENT PLANS ARE DESIGNED WITH PEDESTRIAN AND TRANSIT INFRASTRUCTURE TO SUPPORT TRANSIT USE.

### **Health Outputs:**

- ▲ MORE TRIPS ARE TAKEN ON TRANSIT.
- ▲ VEHICLE EMISSIONS ARE REDUCED.
- ▲ MORE PEOPLE ARE EXERCISING AS A NATURAL PART OF THEIR DAY BY WALKING, BIKING AND USING TRANSIT.
- ▲ SUFFICIENT FUNDING IS PROVIDED TO SUPPORT DESIRED TRANSIT SERVICES.

- ▲ TRANSIT SERVICES ARE PLANNED AND IMPLEMENTED THAT CONNECT CITIZENS WITH DESTINATIONS THAT PROMOTE GOOD HEALTH.
- ▲ PROJECTS FOR NEW BIKING AND WALKING INFRASTRUCTURE INCORPORATE ACCESS TO TRANSIT AND RELATED INFRASTRUCTURE.
- ▲ CITIZENS ARE KNOWLEDGEABLE ABOUT HOW TO USE TRANSIT SERVICES AVAILABLE TO THEM.
- ▲ PEOPLE OF ALL AGES, CULTURES, ABILITIES, AND INCOME LEVELS USE TRANSIT.

***Environmental Outputs:***

- ▲ TRANSIT SERVICES ARE AVAILABLE.
- ▲ TRANSIT SERVICES ARE INCREASING WHERE NEEDED.
- ▲ POLICIES AND INVESTMENT PRACTICES THAT FAVOR PEOPLE MOVEMENT (THROUGH TRANSIT, WALKING, AND BIKING) OVER CAR MOVEMENT.
- ▲ ADAPT LAND USE AND ZONING CODES TO SPUR DENSE LAND DEVELOPMENTS AND REDEVELOPMENTS WHICH ARE DESIGNED PRIMARILY FOR WALKING, BIKING, AND TRANSIT MOBILITY AND SECONDLY FOR PERSONAL VEHICLES.
- ▲ MORE FUNDS ARE APPLIED TO IMPROVE NON-FOSSIL FUEL MOBILITY.
- ▲ POLICIES AND INVESTMENT PRACTICES THAT SUPPORT AND PROMOTE NON FOSSIL FUEL-POWERED MOBILITY.
- ▲ INVEST IN NON FOSSIL FUEL-POWERED TRANSIT VEHICLES.
- ▲ ADAPT ZONING CODES TO ENABLE ALL TYPES OF DEVELOPMENTS ON SMALLER LAND PARCELS, FACILITATE MORE BUILDINGS, HOMES, AND UNITS IN CLOSE PROXIMITY,

ENCOURAGE TALLER BUILDINGS, AND REDUCE MINIMUM AND MAXIMUM PARKING REQUIREMENTS.

- ▲ LOCATE IN EXISTING AVAILABLE SPACES RATHER THAN SEEKING NEW SPACE ON UNDEVELOPED RURAL LAND.
- ▲ ZONING ORDINANCES ARE MODIFIED TO REFLECT LESS NEED FOR PARKING.
- ▲ BUS PULL-OFF SPACE AT BUS STOPS IS RESERVED FOR BUSES TO PULL UP TO THE STOP AND ENABLE ADA ACCESSIBLE RIDER PICK-UP/DROP-OFF.
- ▲ DEVELOPMENTS ARE STEERED TOWARDS URBAN LOCATIONS THAT ARE EASILY ACCESSIBLE BY TRANSIT.
- ▲ DEVELOPMENT DENSITY INCREASES IN THE URBAN AREA.

***Safety Outputs:***

- ▲ SECURITY MEASURES ARE IMPLEMENTED THAT CONTRIBUTE TO THE SAFETY OF THE SYSTEM.
- ▲ ADDITIONAL SECURITY CAPITAL IMPROVEMENTS ARE MADE.
- ▲ TRANSIT STOPS AND TRANSFER FACILITIES ARE ADA COMPLIANT AND PROVIDE THE SPACE NEEDED TO MOVE AROUND COMFORTABLY.
- ▲ PEDESTRIAN INFRASTRUCTURE EXISTS WITHIN ½ MILE OF BUS STOPS TO ENABLE SAFE ACCESS.
- ▲ MORE BUS STOPS FEATURE BUS SHELTERS, BENCHES, LIGHTING, BUS ROUTE AND SCHEDULE INFORMATION, ETC.

***Mobility Outputs:***

- ▲ CONNECTIONS EXIST FOR PEOPLE TO TRANSFER EASILY FROM ONE MODE OF TRAVEL TO ANOTHER.

- ▲ PEDESTRIAN ACCOMMODATIONS ARE ROUTINELY BUILT AS PART OF NEW DEVELOPMENTS.
- ▲ TRANSIT-SUPPORTIVE PEDESTRIAN AND BIKING INFRASTRUCTURE IS FUNDED.
- ▲ TRANSIT FACILITIES ARE ATTRACTIVE, INVITING AND EASY TO USE FOR RESIDENTS AND VISITORS.
- ▲ PEDESTRIAN AND BIKING INFRASTRUCTURE EXISTS FOR PEOPLE TO WALK OR BIKE SAFELY FROM TRANSIT TO NEARBY DESTINATIONS.
- ▲ PROJECTS ARE CONTINUOUSLY PURSUED TO IMPROVE THE WAITING AREA AT BUS STOPS.
- ▲ BUSINESSES “ADOPT A STOP” PROVIDING NECESSARY INFRASTRUCTURE.
- ▲ NEW DEVELOPMENTS ARE BUILT WITH TRANSIT SUPPORTIVE- INFRASTRUCTURE SUCH AS SIDEWALKS, BUS STOP WAITING AREAS, SHELTERS, AND BENCHES.
- ▲ MORE LOCAL BUSINESSES AND GOVERNMENTS REGULARLY PROMOTE TRANSIT USE AMONG THEIR EMPLOYEES.
- ▲ ACTIVITY DENSITY INCREASES IN MULTIMODAL CENTERS AND DISTRICTS.
- ▲ MORE ROANOKE VALLEY CITIZENS LIVE AND WORK IN MULTIMODAL ENVIRONMENTS WITH CHOICES FOR MOBILITY.
- ▲ TRANSIT SIGNAL PRIORITIZATION IS INSTALLED ALONG TRANSIT CORRIDORS, PARTICULARLY THOSE WITH TRAFFIC CONGESTION.
- ▲ PARKING IS NOT LOCATED NEXT TO BUS STOPS ENABLING BUSES TO PULL UP TO THE STOP FOR ACCESSIBLE PASSENGER LOADING.

- ▲ MINIMUM AND MAXIMUM PARKING REQUIREMENTS ARE MINIMIZED IN DEVELOPMENT STANDARDS WHERE TRANSIT ACCESS IS AVAILABLE.
- ▲ BUILDINGS, RATHER THAN PARKING LOTS, ARE LOCATED NEAR THE STREET TO FACILITATE EASY TRANSIT ACCESS.

From these outputs, the ultimate desired results are accomplished and are listed in the following section regarding outcomes.

## 6.0 COMMUNITY OUTCOMES

By embracing transit as a tool for accomplishing the previously-mentioned goals and the greater goals of Livable Roanoke Valley, the community aims to realize the following outcomes.

### ***Economic Outcomes:***

- ▲ ROANOKE VALLEY RESIDENTS HAVE THE TRANSIT SERVICES NEEDED TO ACCESS WORK, SHOPPING, SERVICES, EDUCATION, AND SPECIAL EVENTS THUS CONTRIBUTING TO THE ECONOMIC VITALITY OF THE REGION.
- ▲ CONVENIENT TRANSIT SERVICES ARE VIEWED BY PROSPECTIVE BUSINESSES AS AN ASSET AND HELP ATTRACT NEW JOBS TO THE REGION.
- ▲ LIMITED TRANSPORTATION FUNDS ARE USED TO MOVE MORE PEOPLE EFFICIENTLY AND COST-EFFECTIVELY.
- ▲ PEOPLE ARE ABLE TO AVOID THE NEED TO OWN A PERSONAL VEHICLE AND TO SAVE MONEY ON TRANSPORTATION EXPENSES BY TAKING TRANSIT.
- ▲ ECONOMIC DEVELOPMENT INCREASES AS PEOPLE ARE ABLE TO ACCESS DESTINATIONS.
- ▲ MORE DESTINATIONS IN THE REGION ARE EASILY ACCESSIBLE BY PUBLIC TRANSPORTATION.

### ***Health Outcomes:***

- ▲ HEALTHIER ROANOKE VALLEY RESIDENTS AND EMPLOYEES.
- ▲ CITIZENS ARE ABLE TO USE TRANSIT TO ACCESS FACILITIES THAT IMPROVE THEIR HEALTH.
- ▲ TRANSIT ENABLES EASY MOBILITY AND REDUCED STRESS.

- ▲ MORE PEOPLE ARE ABLE TO LIVE HEALTHY ACTIVE LIFESTYLES USING TRANSIT AND NON-MOTORIZED TRANSPORTATION.
- ▲ MORE PEOPLE FEEL COMFORTABLE RIDING TRANSIT AND FIXED-ROUTE TRANSIT IN PARTICULAR.
- ▲ PEOPLE OF ALL AGES, CULTURES, ABILITIES, AND INCOME LEVELS HAVE A GREATER APPRECIATION FOR OTHER PEOPLE PROMOTING FEELINGS OF UNDERSTANDING AND ACCEPTANCE.

### ***Environmental Outcomes:***

- ▲ DUE TO ITS CONVENIENCE, MORE PEOPLE CHOOSE TRANSIT FOR TRAVELING RATHER THAN DRIVING.
- ▲ AIR REMAINS CLEAN AND IN ATTAINMENT OF FEDERAL AIR QUALITY STANDARDS.
- ▲ TRANSIT IS A PRACTICAL OPTION FOR TRIP-MAKING THUS EMISSIONS ARE REDUCED BECAUSE MORE PEOPLE CHOOSE TO TRAVEL WITHOUT A PERSONAL CAR.
- ▲ TRANSIT VEHICLES IN THE ROANOKE VALLEY OPERATE ON NON FOSSIL-FUEL ENERGY SOURCES.
- ▲ LAND USES ARE CLOSELY INTEGRATED SO THAT ACCOMPLISHING DAILY TASKS ARE NOT DEPENDENT ON PERSONAL VEHICLE MOBILITY.
- ▲ EXISTING DISTURBED LAND IS BETTER UTILIZED TO ACCOMMODATE FUTURE RESIDENTIAL AND BUSINESS NEEDS.
- ▲ MORE BUSINESSES AND RESIDENTIAL AREAS ARE IN CLOSE PROXIMITY ALLOWING MORE PEOPLE TO EFFICIENTLY ACCOMPLISH THEIR DAILY ACTIVITIES.
- ▲ THE NATURAL ENVIRONMENT REMAINS UNDISTURBED.

- ▲ THE NEED FOR IMPERVIOUS SURFACES CREATED BY PARKING LOTS AND ROADS IS MINIMIZED.
- ▲ MORE TRIPS ARE ACCOMPLISHED VIA TRANSIT, CARPOOL, WALK, BIKE, ETC.
- ▲ RIDING TRANSIT IS ADA ACCESSIBLE AND CONVENIENT BECAUSE RIDERS ARE ABLE TO EASILY GET ON AND OFF OF THE BUS.
- ▲ LAND CONSUMPTION BY INDIVIDUAL BUSINESSES IS MINIMIZED.
- ▲ NATURAL RESOURCES AND TREES ARE PRESERVED AS DEVELOPMENTS OCCUR IN PREVIOUSLY DISTURBED OR INTENTIONALLY PLANNED NEW DEVELOPMENT AREAS.
- ▲ BUILDINGS ARE LOCATED CLOSE TO EACH OTHER AND CLOSE TO THE STREET.
- ▲ MORE BUSINESSES AND RESIDENCES ARE EASILY ACCESSED BY TRANSIT.

#### ***Safety Outcomes:***

- ▲ CITIZENS FEEL COMFORTABLE AND SAFE RIDING TRANSIT THROUGHOUT THE ROANOKE VALLEY.
- ▲ FIXED-ROUTE RIDERSHIP INCREASES.
- ▲ CITIZENS WITH DISABILITIES ARE ABLE TO ACCESS AND USE FIXED-ROUTE TRANSIT.
- ▲ DECREASE IN PARATRANSIT COST AND USE.
- ▲ BUS STOPS ARE DIGNIFIED AND COMFORTABLE PLACES TO WAIT.
- ▲ BUS STOPS PROVIDE THE ROUTE INFORMATION NEEDED TO EASILY USE TRANSIT.

#### ***Mobility Outcomes:***

- ▲ CITIZENS ARE ABLE TO ACCESS THE AIRPORT, PASSENGER RAIL, AND INTERCITY BUS SERVICES EASILY VIA LOCAL TRANSIT.
- ▲ UPON ARRIVING IN THE ROANOKE VALLEY BY PLANE, TRAIN, OR INTERCITY BUS CITIZENS ARE ABLE TO ACCESS LOCAL AND REGIONAL DESTINATIONS EASILY VIA TRANSIT.
- ▲ ROANOKE VALLEY CITIZENS ARE ABLE TO SAFELY WALK TO ACCESS NEARBY TRANSIT.
- ▲ RESIDENTS AND VISITORS HAVE A PLEASANT EXPERIENCE USING REGIONAL TRANSIT FACILITIES.
- ▲ MORE CITIZENS FEEL COMFORTABLE USING TRANSIT BECAUSE OF THE EASE OF ACCESS TO/FROM THEIR DESTINATIONS.
- ▲ FIXED-ROUTE RIDERSHIP INCREASES.
- ▲ DIGNIFIED AND COMFORTABLE WAITING PLACES ARE AVAILABLE FOR CITIZENS TO ACCESS TRANSIT MAKING TRANSIT A MORE APPEALING OPTION FOR MORE PEOPLE.
- ▲ USERS OF NEW DEVELOPMENTS FEEL COMFORTABLE USING TRANSIT.
- ▲ MORE PEOPLE USE TRANSIT TO ACCESS WORK.
- ▲ LESS PERSONAL VEHICLES ON ROADWAYS CREATES MORE OPPORTUNITY FOR MOBILITY AND GROWTH WITHIN THE EXISTING TRANSPORTATION SYSTEM.
- ▲ ROANOKE VALLEY CITIZENS CHOOSE TRANSIT, WALKING, AND BIKING FOR MORE TRIPS.
- ▲ TRANSIT IS ABLE TO MOVE MANY PEOPLE EFFICIENTLY FROM ONE PLACE TO ANOTHER WHILE MINIMIZING DELAY DUE TO TRAFFIC SIGNALS AND TRAFFIC CONGESTION.
- ▲ PASSENGERS ARE ABLE TO BOARD BUSES FROM BUS STOPS.

- ▲ LAND CONSUMPTION DUE TO THE NEED FOR PARKING IS REDUCED BECAUSE OF THE AVAILABILITY OF TRANSIT.
- ▲ USING TRANSIT TO REACH DESTINATIONS ALONG TRANSIT ROUTES IS MORE ATTRACTIVE BECAUSE BUILDINGS ARE CLOSER TO TRANSIT.

## 7.0 PERFORMANCE MEASURES

Increased emphasis is being placed on tracking progress, identifying work being done to accomplish goals, and evaluating how well those goals are being met. This desire to better understand how well the region is progressing towards its vision plays itself out in the form of performance measures, which are tied directly to individual strategies and outputs. The following performance measures are recommended to assess how well the region is accomplishing its transit vision.

### ***Economic Performance Measures:***

- ▲ PERCENT OF FUNDED VS. UNFUNDED TRANSIT SERVICES OUTLINED IN THE TRANSIT DEVELOPMENT PLANS.
- ▲ AMOUNT OF STATE AND FEDERAL DOLLARS LEVERAGED THROUGH LOCAL FUNDS.
- ▲ ANNUAL VEHICLE REVENUE MILES.
- ▲ NUMBER OF NEW DEVELOPMENTS WITH PEDESTRIAN INFRASTRUCTURE.

### ***Health Performance Measures:***

- ▲ ANNUAL UNLINKED PASSENGER TRANSIT TRIPS.
- ▲ ANNUAL PASSENGER MILES TRAVELED.
- ▲ PERCENT OF FUNDED VS. UNFUNDED TRANSIT SERVICES OUTLINED IN THE TRANSIT DEVELOPMENT PLANS.
- ▲ PERCENT OF SUPERMARKETS, HEALTHCARE FACILITIES, CULTURAL INSTITUTIONS, AND PUBLIC RECREATION FACILITIES IN THE ROANOKE VALLEY TPO URBANIZED AREA WITHIN ¼ MILE OF TRANSIT.
- ▲ NUMBER OF PUBLIC TRANSIT STOPS CONNECTED TO A PUBLIC WALKWAY.
- ▲ RIDER SATISFACTION AND PUBLIC PERCEPTION SURVEYS CONDUCTED EVERY THREE YEARS.

### ***Environmental Performance Measures:***

- ▲ PERCENT OF RECOMMENDED TRANSIT SERVICES IN THE TRANSIT DEVELOPMENT PLANS THAT HAVE BEEN SATISFIED.
- ▲ ANNUAL NUMBER OF DAYS WHEN OZONE LEVELS WERE ABOVE THE 8-HOUR STANDARD.
- ▲ ANNUAL PASSENGER MILES TRAVELED.
- ▲ ANNUAL UNLINKED PASSENGER TRANSIT TRIPS.
- ▲ PERCENT OF VEHICLES IN THE TRANSIT FLEET THAT DO NOT RELY ON FOSSIL FUELS FOR PROPULSION.
- ▲ PERCENT CHANGE IN ACTIVITY DENSITY IN THE URBANIZED AREA.
- ▲ NUMBER OF ADA ACCESSIBLE PUBLIC TRANSIT STOPS.
- ▲ PERCENT OF THE ROANOKE VALLEY URBANIZED AREA THAT IS INCLUDED IN AN URBAN DEVELOPMENT AREA (UDA).

***Safety Performance Measures:***

- ▲ RIDER SATISFACTION AND PUBLIC PERCEPTION SURVEYS CONDUCTED EVERY THREE YEARS.
- ▲ ANNUAL UNLINKED PASSENGER TRANSIT TRIPS.
- ▲ NUMBER OF ADA ACCESSIBLE PUBLIC TRANSIT STOPS.
- ▲ NUMBER OF PUBLIC TRANSIT STOPS WITH NEARBY LIGHTING.
- ▲ PERCENT OF POPULATION AND EMPLOYMENT IN MULTIMODAL CENTERS AND DISTRICTS WITHIN 1/8 MILE OF SIDEWALKS.
- ▲ NUMBER OF BUS STOPS WITH SHELTERS, BENCHES, LIGHTING, AND TRAVEL INFORMATION.

***Mobility Performance Measures:***

- ▲ NUMBER OF REGIONAL AND LOCAL TRANSIT CONNECTIONS TO THE ROANOKE-BLACKSBURG REGIONAL AIRPORT AND INTERCITY BUS SERVICES.
- ▲ NUMBER OF REGIONAL AND LOCAL TRANSIT CONNECTIONS AVAILABLE WITHIN 1/8 MILE AND 30 MINUTES OF DEPARTING/ ARRIVING AMTRAK TRAINS.
- ▲ NUMBER OF MUNICIPALITIES IN THE ROANOKE VALLEY TPO URBANIZED AREA THAT REQUIRE NEW DEVELOPMENTS TO PROVIDE PEDESTRIAN CONNECTIONS TO CURRENT OR PLANNED TRANSIT STOPS WITHIN ¼ MILE.
- ▲ PERCENT OF PROJECTS IN THE TRANSPORTATION IMPROVEMENT PROGRAM THAT INCLUDE TRANSIT-SUPPORTIVE INFRASTRUCTURE.
- ▲ PERCENT OF NEW PEDESTRIAN INFRASTRUCTURE BUILT WITHIN ¼ MILE OF A TRANSIT STOP.

- ▲ PERCENT OF NEW BIKING INFRASTRUCTURE BUILT TO CONNECT TRANSIT STOPS WITH DESTINATIONS WITHIN THREE MILES.
- ▲ RIDER SATISFACTION AND PUBLIC PARTICIPATION SURVEYS CONDUCTED EVERY THREE YEARS.
- ▲ PERCENT OF PARCELS WITHIN ¼ MILE OF TRANSIT STOPS CONNECTED TO THE STOP BY A PEDESTRIAN ACCOMMODATION.
- ▲ PERCENT OF PARCELS WITHIN THREE MILES OF TRANSIT STOPS CONNECTED TO THE STOP BY A BIKING ACCOMMODATION.
- ▲ NUMBER OF BUS STOPS WITH SHELTERS, BENCHES, LIGHTING, AND TRAVEL INFORMATION.
- ▲ NUMBER OF MUNICIPALITIES IN ROANOKE VALLEY TPO URBANIZED AREA THAT REQUIRE OR INCENTIVIZE NEW DEVELOPMENTS THAT ABUT A TRANSIT STOP TO INCORPORATE TRANSIT STOP AMENITIES INTO THE SITE PLAN.
- ▲ RIDERSHIP / ACTIVITY INDEX AT TRANSIT STOPS BEFORE AND AFTER TRANSIT AMENITIES ARE INSTALLED.
- ▲ NUMBER OF EMPLOYERS IN THE ROANOKE VALLEY TPO URBANIZED AREA WHO PROVIDE A TRANSIT BENEFIT TO THEIR EMPLOYEES.
- ▲ PERCENT OF POPULATION AND OF EMPLOYMENT IN THE ROANOKE VALLEY TPO URBANIZED AREA WITHIN ¼ MILE OF TRANSIT.
- ▲ NUMBER OF VALLEY METRO / RIDESOLUTIONS OUTREACH EVENTS OR EMPLOYER VISITS TO PROMOTE AWARENESS OF TRANSIT OPTIONS.
- ▲ NUMBER OF MUNICIPALITIES IN THE ROANOKE VALLEY TPO URBANIZED AREA THAT REQUIRE OR INCENTIVIZE CRITICAL



GOVERNMENT SERVICES TO BE LOCATED WITHIN ¼ MILE OF TRANSIT.

- ▲ PERCENT OF ROANOKE VALLEY TPO URBANIZED AREA INCLUDED IN AN URBAN DEVELOPMENT AREA.
- ▲ PERCENT INCREASE IN ACTIVITY DENSITY IN THE ROANOKE VALLEY TPO URBANIZED AREA.
- ▲ NUMBER OF INTERSECTIONS THAT INCLUDE TRANSIT SIGNAL PRIORITY TECHNOLOGY.
- ▲ ON-TIME PERFORMANCE OF TRANSIT ROUTES.
- ▲ NUMBER OF LOCAL GOVERNMENTS WITH PARKING POLICIES AND DEVELOPMENT STANDARDS THAT SUPPORT TRANSIT.

## 8.0 SUMMARY MATRIX OF STRATEGIES, ROLES, AND PERFORMANCE MEASURES

The following matrices relate the previously-mentioned strategies, responsible parties, outputs, outcomes, and performance measures to clearly explain how one leads to another and how the strategy’s impact will be tracked over time.

### GOAL #1: CAPITALIZE ON THE COMMUNITY’S INVESTMENT IN TRANSIT TO ENRICH THE ECONOMY OF THE ROANOKE VALLEY

|   | Strategies   | Responsible Parties   | Strategy Outputs   | Community Outcomes  | Performance Measures   |
|---|--|---|--|---|--|
| 1 | Provide regional and local funding to leverage available state and federal funds for transit.  | <ul style="list-style-type: none"> <li>• RVTPO</li> <li>• Local governments</li> <li>• Local business partners</li> </ul>                                   | <ul style="list-style-type: none"> <li>• Necessary funding is secured to accomplish desired investments in transit services, facilities, and amenities.</li> </ul>   | <ul style="list-style-type: none"> <li>• Roanoke Valley residents have the transit services needed to access work, shopping, services, education, and special events thus contributing to the economic vitality of the region.</li> <li>• Convenient transit services are viewed by prospective businesses as an asset and help attract new jobs to the region.</li> <li>• Limited transportation funds are used to move more people efficiently and cost-effectively.</li> </ul> | <ul style="list-style-type: none"> <li>• Percent of funded vs. unfunded transit services outlined in the Transit Development Plans.</li> <li>• Amount of State and Federal dollars leveraged through local funds.</li> </ul> |
| 2 | Provide reliable and convenient transit services that connect major employment destinations, shopping centers, essential services, colleges, high schools, technical schools and | <ul style="list-style-type: none"> <li>• Valley Metro</li> <li>• RADAR</li> <li>• Other transit providers</li> <li>• Public-private partnerships</li> </ul> | <ul style="list-style-type: none"> <li>• Transit services are well coordinated and connect people to their jobs, shopping centers, and essential services.</li> <li>• Transit services provide access to colleges, high schools, technical schools and special events.</li> <li>• An inexpensive way to</li> </ul> | <ul style="list-style-type: none"> <li>• People have the transit services needed to access work, shopping, services, education, and special events thus contributing to the economic vitality of the region.</li> <li>• People are able to avoid the need to own a personal vehicle and to save money on transportation expenses by taking transit.</li> </ul>  | <ul style="list-style-type: none"> <li>• Percent of funded vs. unfunded transit services outlined in the Transit Development Plans.</li> <li>• Annual Vehicle Revenue Miles.</li> </ul>                                      |

| Strategies   | Responsible Parties   | Strategy Outputs   | Community Outcomes   | Performance Measures   |
|--|---|--|--|--|
| special events.  |   | easily move around the Roanoke Valley is available to citizens.  | <ul style="list-style-type: none"> <li>Economic development increases as people are able to access destinations.</li> <li>Convenient transit services are viewed by prospective businesses as an asset and help attract new jobs to the region.</li> </ul> |  |
| <b>3</b> Create destinations that support public transportation. | <ul style="list-style-type: none"> <li>Local governments</li> </ul> | <ul style="list-style-type: none"> <li>All new developments in the region are reviewed for transit accessibility and where transit is needed, development plans are designed with pedestrian and transit infrastructure to support transit use.</li> </ul> | <ul style="list-style-type: none"> <li>More destinations in the region are easily accessible by public transportation.</li> </ul>  | <ul style="list-style-type: none"> <li>Number of new developments with pedestrian infrastructure.</li> </ul> |

**GOAL #2:** UTILIZE TRANSIT TO SUPPORT PEOPLE’S ABILITY TO LIVE HEALTHY LIFESTYLES

|   | Strategies  | Responsible Parties   | Outputs   | Outcomes  | Performance Measures   |
|---|---|---|---|---|--|
| 1 | Use transit whenever possible instead of driving.   | Roanoke Valley residents and employees  | <ul style="list-style-type: none"> <li>• More trips are taken on transit.</li> <li>• Vehicle emissions are reduced.</li> <li>• More people are exercising as a natural part of their day by walking and using transit.</li> </ul> | <ul style="list-style-type: none"> <li>• Healthier Roanoke Valley residents and employees</li> </ul>  | <ul style="list-style-type: none"> <li>• Annual Unlinked Passenger Transit Trips.</li> <li>• Annual Passenger Miles Traveled.</li> </ul>   |
| 2 | Fund transit services to enable Roanoke Valley residents to access healthcare facilities, healthy food, wellness, exercise, recreation, and cultural locations. | <ul style="list-style-type: none"> <li>• FTA</li> <li>• CTB/DRPT</li> <li>• RVTPO</li> <li>• Local governments</li> </ul> | <ul style="list-style-type: none"> <li>• Sufficient funding is provided to support desired transit services.</li> </ul>   | <ul style="list-style-type: none"> <li>• Citizens are able to use transit to access facilities that improve their health.</li> </ul>  | <ul style="list-style-type: none"> <li>• Percent of funded vs. unfunded transit services outlined in the Transit Development Plans.</li> </ul>   |
| 3 | Provide Roanoke Valley residents with transit services to healthcare facilities, healthy food, wellness, exercise, recreation, and cultural locations.          | <ul style="list-style-type: none"> <li>• Valley Metro</li> <li>• RADAR</li> <li>• Other transit providers</li> </ul>      | <ul style="list-style-type: none"> <li>• Transit services are planned and implemented that connect citizens with destinations that promote good health.</li> </ul>  | <ul style="list-style-type: none"> <li>• Citizens are able to use transit to access facilities that improve their health.</li> <li>• Transit enables easy mobility which reduces stress.</li> </ul> | <ul style="list-style-type: none"> <li>• Percent of supermarkets, healthcare facilities, cultural institutions, and public recreation facilities in the Roanoke Valley TPO urbanized area within ¼ mile of transit.</li> </ul> |
| 4 | Coordinate bicycle and pedestrian infrastructure  | <ul style="list-style-type: none"> <li>• Local governments (Transportation and</li> </ul>                                 | <ul style="list-style-type: none"> <li>• Projects for new biking and walking infrastructure</li> </ul>  | <ul style="list-style-type: none"> <li>• More people are able to live healthy active lifestyles using transit and non-motorized transportation.</li> </ul>  | <ul style="list-style-type: none"> <li>• Number of public transit stops connected to a public</li> </ul>   |

|   | Strategies  | Responsible Parties   | Outputs   | Outcomes  | Performance Measures  |
|---|---|---|---|---|---|
|   | investments with transit.   | Planning staff)<br><ul style="list-style-type: none"> <li>Valley Metro</li> <li>RVTPPO staff</li> </ul>   | incorporate access to transit and related infrastructure.   |   | walkway.  |
| 5 | Educate citizens about available transit services.  | <ul style="list-style-type: none"> <li>Valley Metro</li> <li>RideSolutions</li> </ul>   | <ul style="list-style-type: none"> <li>Citizens are knowledgeable about how to use transit services available to them.</li> </ul> | <ul style="list-style-type: none"> <li>More people feel comfortable riding transit and fixed-route transit in particular.</li> </ul>  | <ul style="list-style-type: none"> <li>Rider satisfaction and public perception surveys conducted every three years.</li> </ul> |
| 6 | Encourage the use of transit by people of all ages, cultures, abilities, and income levels. | <ul style="list-style-type: none"> <li>Local governments</li> <li>RVTPPO</li> <li>RideSolutions</li> <li>Valley Metro</li> <li>RADAR</li> <li>Roanoke Valley residents</li> </ul> | <ul style="list-style-type: none"> <li>People of all ages, cultures, abilities, and income levels use transit.</li> </ul>         | <ul style="list-style-type: none"> <li>People of all ages, cultures, abilities, and income levels have a greater appreciation for other people promoting feelings of understanding and acceptance.</li> </ul> | <ul style="list-style-type: none"> <li>Rider satisfaction and public perception surveys conducted every three years.</li> </ul> |

**GOAL #3:** SUSTAIN THE ROANOKE VALLEY'S NATURAL ENVIRONMENT BY EMBRACING TRANSIT ON A PERSONAL AND COMMUNITY LEVEL

|   | Strategies   | Responsible Parties  | Outputs  | Outcomes  | Performance Measures  |
|---|--|--|--|---|---|
| 1 | Fund transit services on an incremental basis until desired service levels are met.                | <ul style="list-style-type: none"> <li>Funding Partners (RVTPO, local governments, CTB/DRPT, FTA, others)</li> </ul> | <ul style="list-style-type: none"> <li>Transit services are available.</li> <li>Transit services are increasing where needed.</li> </ul>   | <ul style="list-style-type: none"> <li>Due to its convenience, more people choose transit for traveling rather than driving.</li> <li>Air remains clean and in attainment of federal air quality standards.</li> </ul>  | <ul style="list-style-type: none"> <li>Percent of recommended transit services in the Transit Development Plans that have been satisfied.</li> </ul>  |
| 2 | Using transit to accomplish more trips, reduce emissions in the Roanoke Valley TPO urbanized area. | <ul style="list-style-type: none"> <li>Citizens</li> <li>Local Governments</li> <li>RVTPO</li> </ul>                 | <ul style="list-style-type: none"> <li>Policies and investment practices that favor people movement (through transit, walking, and biking) over car movement.</li> <li>Adapt land use and zoning codes to spur dense land developments and redevelopments which are designed primarily for walking, biking, and transit mobility and secondly for personal vehicles.</li> <li>More funds are applied to improve non-fossil fuel mobility.</li> </ul> | <ul style="list-style-type: none"> <li>Transit is a practical option for trip-making thus emissions are reduced because more people choose to travel without a personal car.</li> </ul>   | <ul style="list-style-type: none"> <li>Annual Number of Days when Ozone Levels Were Above the 8-Hour Standard.</li> <li>Annual Passenger Miles Traveled.</li> <li>Annual Unlinked Passenger Transit Trips.</li> </ul> |
| 3 | Reduce emissions by transit vehicles in the Roanoke Valley TPO urbanized area.                     | <ul style="list-style-type: none"> <li>RVTPO</li> <li>Local governments</li> </ul>                                   | <ul style="list-style-type: none"> <li>Policies and investment practices that support and promote non fossil fuel-powered mobility.</li> <li>Invest in non fossil fuel-powered transit vehicles.</li> </ul>  | <ul style="list-style-type: none"> <li>Transit vehicles in the Roanoke Valley operate on non fossil-fuel energy sources.</li> <li>Land uses are closely integrated so that accomplishing daily tasks are not dependent on personal vehicle mobility.</li> </ul> | <ul style="list-style-type: none"> <li>Percent of vehicles in the transit fleet that do not rely on fossil fuels for propulsion.</li> </ul>   |

| Strategies   | Responsible Parties  | Outputs  | Outcomes  | Performance Measures  |
|--|--|--|---|---|
| <p>4 Support land developments that minimize land consumption, maximize in-fill development and redevelopment, and maximize Transit-Oriented Development (TOD)</p> | <ul style="list-style-type: none"> <li>Local governments (Planning, Zoning, and Development Review)</li> <li>Businesses</li> <li>Citizens</li> </ul> | <ul style="list-style-type: none"> <li>Adapt zoning codes to enable all types of developments on smaller land parcels, facilitate more buildings, homes, and units in close proximity, encourage taller buildings, and reduce minimum and maximum parking requirements.</li> <li>Locate in existing available spaces rather than seeking new space on undeveloped rural land.</li> </ul> | <ul style="list-style-type: none"> <li>Existing disturbed land is better utilized to accommodate future residential and business needs.</li> <li>More businesses and residential areas are in close proximity allowing more people to efficiently accomplish their daily activities.</li> <li>The natural environment remains undisturbed.</li> </ul> | <ul style="list-style-type: none"> <li>Percent change in activity density in the urbanized area.</li> </ul>                 |
| <p>5 Reduce minimum and maximum parking requirements.</p>  | <ul style="list-style-type: none"> <li>Local governments (Traffic engineering, Zoning and Development Review, VDOT, developers)</li> </ul>           | <ul style="list-style-type: none"> <li>Zoning ordinances are modified to reflect less need for parking.</li> </ul>   | <ul style="list-style-type: none"> <li>The need for impervious surfaces created by parking lots and roads is minimized.</li> <li>More trips are accomplished via transit, carpool, walk, bike, etc.</li> </ul>  | <ul style="list-style-type: none"> <li>Annual Unlinked Passenger Transit Trips</li> </ul>                                   |
| <p>6 Maximize available on-street space for parking while leaving adequate space available at bus stops for bus pull-offs.</p>                                     | <ul style="list-style-type: none"> <li>Local governments (Traffic engineering)</li> </ul>  | <ul style="list-style-type: none"> <li>Bus pull-off space at bus stops is reserved for buses to pull up to the stop and enable ADA accessible rider pick-up/drop-off.</li> </ul>   | <ul style="list-style-type: none"> <li>Riding transit is ADA accessible and convenient because riders are able to easily get on and off of the bus.</li> </ul>  | <ul style="list-style-type: none"> <li>Number of ADA accessible public transit stops.</li> </ul>                            |
| <p>7 Urban development areas (UDAs) are identified and implemented with</p>  | <ul style="list-style-type: none"> <li>Local Governments</li> <li>Businesses</li> <li>Developers</li> </ul>  | <ul style="list-style-type: none"> <li>Developments are steered towards urban locations that are easily accessible by transit.</li> </ul>  | <ul style="list-style-type: none"> <li>Land consumption by individual businesses is minimized.</li> <li>Natural resources and trees are preserved as developments occur in</li> </ul>   | <ul style="list-style-type: none"> <li>Percent of the Roanoke Valley urbanized area that is included in an Urban</li> </ul> |

| Strategies                          | Responsible Parties | Outputs  | Outcomes   | Performance Measures    |
|-------------------------------------|---------------------|--|--|-------------------------|
| densities that support transit use. |                     | <ul style="list-style-type: none"> <li>• Development density increases in the urban area.</li> </ul> | <p>previously disturbed or intentionally planned new development areas.</p> <ul style="list-style-type: none"> <li>• Buildings are located close to each other and close to the street.</li> <li>• More businesses and residences are easily accessed by transit.</li> </ul> | Development Area (UDA). |



**GOAL #4:** PROVIDE INFRASTRUCTURE TO SUPPORT PEOPLE’S ABILITY TO SAFELY USE TRANSIT

|   | Strategies  | Responsible Parties  | Outputs  | Outcomes  | Performance Measures  |
|---|---|--|--|---|---|
| 1 | Incorporate and maintain security measures and technology throughout the transit system.  | <ul style="list-style-type: none"> <li>Valley Metro</li> <li>RADAR</li> </ul>  | <ul style="list-style-type: none"> <li>Security measures are implemented that contribute to the safety of the system.</li> <li>Additional security capital improvements are made.</li> </ul> | <ul style="list-style-type: none"> <li>Citizens feel comfortable and safe riding transit throughout the Roanoke Valley.</li> <li>Fixed-route ridership increases.</li> </ul>  | <ul style="list-style-type: none"> <li>Rider satisfaction and public perception surveys conducted every three years.</li> <li>Annual unlinked passenger transit trips.</li> </ul>   |
| 2 | Ensure all transit stops and transfer facilities at a minimum are ADA compliant and, where possible, provide extra room for passenger mobility.                       | <ul style="list-style-type: none"> <li>Valley Metro</li> <li>RADAR</li> <li>Local governments</li> </ul>                   | <ul style="list-style-type: none"> <li>Transit stops and transfer facilities are ADA compliant and provide the space needed to move around comfortably.</li> </ul>                           | <ul style="list-style-type: none"> <li>Citizens with disabilities are able to access and use fixed-route transit.</li> <li>Citizens feel comfortable and safe riding transit throughout the Roanoke Valley.</li> <li>Decrease in paratransit cost and use.</li> </ul> | <ul style="list-style-type: none"> <li>Number of ADA accessible public transit stops.</li> <li>Number of public transit stops with nearby lighting.</li> <li>Rider and public perception survey conducted every three years.</li> </ul> |
| 3 | Provide pedestrian connections to bus stops including but not limited to along streets, across streets, and within new developments to enable safe access to transit. | <ul style="list-style-type: none"> <li>Local governments (Transportation, Planning, Zoning, Development Review)</li> </ul> | <ul style="list-style-type: none"> <li>Pedestrian infrastructure exists within ½ mile of bus stops to enable safe access.</li> </ul>   | <ul style="list-style-type: none"> <li>Citizens feel comfortable and safe riding transit throughout the Roanoke Valley.</li> <li>Fixed-route ridership increases.</li> <li>Decrease in paratransit cost and use.</li> </ul>   | <ul style="list-style-type: none"> <li>Rider and public perception survey conducted every three years.</li> <li>Percent of population and employment in Multimodal Centers and Districts within 1/8 mile of sidewalks.</li> </ul>       |
| 4 | Improve bus stop amenities to provide a safe and comfortable environment during waits and inclement weather.  | <ul style="list-style-type: none"> <li>Valley Metro</li> <li>Public-private partnerships</li> </ul>                        | <ul style="list-style-type: none"> <li>More bus stops feature bus shelters, benches, lighting, bus route and schedule information, etc.</li> </ul>   | <ul style="list-style-type: none"> <li>Bus stops are dignified and comfortable places to wait.</li> <li>Bus stops provide the route information needed to easily use transit.</li> </ul>  | <ul style="list-style-type: none"> <li>Number of bus stops with shelters, benches, lighting, and travel information.</li> </ul>   |

**GOAL #5:** IMPROVE THE MOBILITY OF RESIDENTS, EMPLOYEES, AND VISITORS THROUGHOUT THE ROANOKE VALLEY BY PROVIDING SEAMLESS CONNECTIONS WITH OTHER TRANSPORTATION MODES AND ENABLING PEOPLE TO GET AROUND WITHOUT THE NEED FOR A PERSONAL VEHICLE

|   | Strategies   | Responsible Parties  | Outputs   | Outcomes   | Performance Measures   |
|---|--|--|---|--|--|
| 1 | Coordinate local transit services with the airport, passenger rail, and intercity bus services to enable seamless transitions between these modes.           | <ul style="list-style-type: none"> <li>Valley Metro</li> <li>RADAR</li> <li>City of Roanoke</li> <li>AMTRAK</li> <li>Greyhound</li> <li>Megabus</li> <li>Roanoke-Blacksburg Regional Airport</li> <li>Other transit providers</li> </ul> | <ul style="list-style-type: none"> <li>Connections exist for people to transfer easily from one mode of travel to another.</li> </ul> | <ul style="list-style-type: none"> <li>Citizens are able to access the airport, passenger rail, and intercity bus services easily via local transit.</li> <li>Upon arriving in the Roanoke Valley by plane, train, or intercity bus citizens are able to access local and regional destinations easily via transit.</li> </ul> | <ul style="list-style-type: none"> <li>Number of regional and local transit connections to the Roanoke-Blacksburg Regional Airport and intercity bus services.</li> <li>Number of regional and local transit connections available within 1/8 mile and 30 minutes of departing/ arriving AMTRAK trains.</li> </ul> |
| 2 | Incorporate pedestrian connections to transit into new development standards and site plans to enable the connection with nearby or future transit services. | <ul style="list-style-type: none"> <li>Local governments (Zoning and Development Review)</li> </ul>  | <ul style="list-style-type: none"> <li>Pedestrian accommodations are routinely built as part of new developments.</li> </ul>          | <ul style="list-style-type: none"> <li>Roanoke Valley citizens are able to safely walk to access nearby transit.</li> </ul>  | <ul style="list-style-type: none"> <li>Number of municipalities in the Roanoke Valley TPO urbanized area that require new developments to provide pedestrian connections to current or planned transit stops within ¼ mile.</li> </ul>   |
| 3 | Fund pedestrian and biking infrastructure to support transit.  | <ul style="list-style-type: none"> <li>Local governments</li> <li>RVTPo</li> <li>Valley Metro</li> <li>CTB/DRPT</li> </ul>   | <ul style="list-style-type: none"> <li>Transit-supportive pedestrian and biking infrastructure is funded.</li> </ul>                  | <ul style="list-style-type: none"> <li>Roanoke Valley citizens are able to safely walk and bike to access nearby transit.</li> </ul>   | <ul style="list-style-type: none"> <li>Percent of projects in the Transportation Improvement Program that include transit-supportive pedestrian or biking infrastructure.</li> <li>Percent of new pedestrian infrastructure built</li> </ul>   |

| Strategies | Responsible Parties  | Outputs  | Outcomes   | Performance Measures   |   |
|------------|--|--|--|--|---|
|            |  |  |  | within ¼ mile of a transit stop.<br><ul style="list-style-type: none"> <li>• Percent of new biking infrastructure built to connect transit stops with destinations within three miles.</li> </ul>      |   |
| 4          | Invest in attractive, well-functioning transit facilities.   | <ul style="list-style-type: none"> <li>• FTA</li> <li>• CTB/DRPT</li> <li>• RVTPO</li> <li>• Local governments</li> <li>• Valley Metro</li> <li>• RADAR</li> </ul> | <ul style="list-style-type: none"> <li>• Transit facilities are attractive, inviting and easy to use for residents and visitors.</li> </ul>  | <ul style="list-style-type: none"> <li>• Residents and visitors have a pleasant experience using regional transit facilities.</li> </ul>   | <ul style="list-style-type: none"> <li>• Rider satisfaction and public perception surveys conducted every three years.</li> </ul>   |
| 5          | Provide pedestrian infrastructure to parcels within ¼ mile and biking infrastructure within three miles of transit stops.  | <ul style="list-style-type: none"> <li>• Local governments</li> <li>• VDOT</li> </ul>  | <ul style="list-style-type: none"> <li>• Pedestrian and biking infrastructure exists for people to walk and bike safely from transit to nearby destinations.</li> </ul>                                  | <ul style="list-style-type: none"> <li>• More citizens feel comfortable using transit because of the ease of access to/from their destinations.</li> <li>• Fixed-route ridership increases.</li> </ul> | <ul style="list-style-type: none"> <li>• Percent of parcels within ¼ mile of transit stops connected to the stop by a pedestrian accommodation.</li> <li>• Percent of parcels within three miles of transit stops connected to the stop by a biking accommodation.</li> </ul> |
| 6          | Provide pedestrian amenities such as shelters, benches, lighting, and bus route and schedule information at transit stops. | <ul style="list-style-type: none"> <li>• Valley Metro</li> <li>• Local businesses</li> <li>• Local governments</li> </ul>  | <ul style="list-style-type: none"> <li>• Projects are continuously pursued to improve the waiting area at bus stops.</li> <li>• Businesses “adopt a stop” providing necessary infrastructure.</li> </ul> | <ul style="list-style-type: none"> <li>• Dignified and comfortable waiting places are available for citizens to access transit making transit a more appealing option for more people.</li> </ul>      | <ul style="list-style-type: none"> <li>• Number of bus stops with shelters, benches, lighting, and travel information.</li> </ul>   |
| 7          | Incorporate transit amenities, such as bus shelters, benches, or transit information, into development                     | <ul style="list-style-type: none"> <li>• Local governments (Planning and Zoning, Economic Development)</li> </ul>  | <ul style="list-style-type: none"> <li>• New developments are built with transit supportive- infrastructure such as sidewalks, bus stop</li> </ul>   | <ul style="list-style-type: none"> <li>• Users of new developments feel comfortable using transit.</li> </ul>  | <ul style="list-style-type: none"> <li>• Number of municipalities in Roanoke Valley TPO urbanized area that require or incentivize</li> </ul>   |

|   | Strategies  | Responsible Parties  | Outputs   | Outcomes  | Performance Measures   |
|---|---|--|---|---|--|
|   | standards for new developments that about a transit route.  | <ul style="list-style-type: none"> <li>Development community</li> </ul>  | waiting areas, shelters, and benches.   |   | <p>new developments that about a transit stop to incorporate transit stop amenities into the site plan.</p> <ul style="list-style-type: none"> <li>Ridership / Activity Index at transit stops before and after transit amenities are installed.</li> </ul>  |
| 8 | Establish policies, practices, and incentives that encourage employees to use transit.  | <ul style="list-style-type: none"> <li>Local businesses</li> <li>Local governments</li> <li>RideSolutions</li> <li>Valley Metro</li> </ul> | <ul style="list-style-type: none"> <li>More local businesses and governments regularly promote transit use among their employees.</li> </ul>  | <ul style="list-style-type: none"> <li>More people use transit to access work.</li> <li>Less personal vehicles on roadways creates more opportunity for mobility and growth within the existing transportation system.</li> </ul> | <ul style="list-style-type: none"> <li>Number of employers in the Roanoke Valley TPO urbanized area who provide a transit benefit to their employees.</li> <li>Percent of population and of employment in the Roanoke Valley TPO urbanized area within ¼ mile of transit.</li> <li>Number of Valley Metro / RideSolutions outreach events or employer visits to promote awareness of transit options.</li> </ul> |
| 9 | Adopt land use policies and land development codes that support mixed-use development with multimodal choices, infill development, and corridor access management policies. | <ul style="list-style-type: none"> <li>Local governments (Planning and Zoning)</li> </ul>  | <ul style="list-style-type: none"> <li>Activity density increases in Multimodal Centers and Districts.</li> <li>More Roanoke Valley citizens live and work in multimodal environments with choices for mobility.</li> </ul> | <ul style="list-style-type: none"> <li>Roanoke Valley citizens choose transit, walking, and biking for more trips.</li> </ul>   | <ul style="list-style-type: none"> <li>Number of municipalities in the Roanoke Valley TPO urbanized area that require or incentivize critical government services to be located within ¼ mile of transit.</li> <li>Percent of Roanoke Valley TPO urbanized area included in an</li> </ul>  |

| Strategies | Responsible Parties  | Outputs  | Outcomes  | Performance Measures  |  |
|------------|--|--|---|---|--|
|            |  |  |   | Urban Development Area.<br><ul style="list-style-type: none"> <li>• Percent increase in activity density in the Roanoke Valley TPO urbanized area.</li> </ul>   |  |
| <b>10</b>  | Prioritize transit movements on the roadway network by installing priority signalization on transit corridors. | <ul style="list-style-type: none"> <li>• Local Governments</li> <li>• Virginia Department of Transportation</li> </ul> | <ul style="list-style-type: none"> <li>• Transit signal prioritization is installed along transit corridors, particularly those with traffic congestion.</li> </ul>   | <ul style="list-style-type: none"> <li>• Transit is able to move many people efficiently from one place to another while minimizing delay due to traffic signals and traffic congestion.</li> </ul>   | <ul style="list-style-type: none"> <li>• Number of intersections that include transit signal priority technology.</li> <li>• On-time performance of transit routes.</li> </ul> |
| <b>11</b>  | Develop parking policies and development standards that support transit.                                       | <ul style="list-style-type: none"> <li>• Local Governments</li> </ul>  | <ul style="list-style-type: none"> <li>• Parking is not located next to bus stops enabling buses to pull up to the stop for accessible passenger loading.</li> <li>• Minimum and maximum parking requirements are minimized in development standards where transit access is available.</li> <li>• Buildings, rather than parking lots, are located near the street to facilitate easy transit access.</li> </ul> | <ul style="list-style-type: none"> <li>• Passengers are able to board buses from bus stops.</li> <li>• Land consumption due to the need for parking is reduced because of the availability of transit.</li> <li>• Using transit to reach destinations along transit routes is more attractive because buildings are closer to transit.</li> </ul> | <ul style="list-style-type: none"> <li>• Number of local governments with parking policies and development standards that support transit.</li> </ul>                          |

## 9.0 PROCEDURAL CHANGES

Valley Metro is a private, non-profit, public service organization wholly owned by the City of Roanoke. Primary funding sources include operating and capital grants from federal, state, and local governments including the Federal Transit Administration (FTA), the Virginia Department of Rail and Public Transportation, the City of Roanoke, the City of Salem, and the Town of Vinton. Additional sources of funding include fare box revenues, advertising revenues, and the sale of passes.<sup>1</sup>

In the future, if the Roanoke Valley's local governments decide to evaluate alternative organizational structures, a 2012 regional transit organization study by the New River Valley Planning District Commission and Blacksburg-Christiansburg-Montgomery Area Metropolitan Planning Organization provides guidance on several types of transit organizational structure (**Figure 9.0-1**).<sup>2</sup>

### ▲ LOCAL GOVERNMENT JURISDICTION:

VALLEY METRO IS CURRENTLY A LOCAL GOVERNMENT JURISDICTION OPERATION, WHICH IS AUTHORIZED TO ENTER INTO CONTRACTS AND AGREEMENTS TO PROVIDE PUBLIC TRANSPORTATION. HOWEVER, THIS DOES NOT PRECLUDE THE CITY OF ROANOKE AND VALLEY METRO FROM ENTERING INTO MEMORANDUMS OF UNDERSTANDING (MOUS) WITH ADDITIONAL FUNDING PARTNERS, SUCH AS SURROUNDING JURISDICTIONS.

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<sup>1</sup> Valley Metro, Accessed at <http://valleymetro.com/about.html>

<sup>2</sup> "Regional Transit Organization Study," New River Valley Planning District Commission and Blacksburg-Christiansburg-Montgomery Area Metropolitan Planning Organization. April, 2012.

### ▲ TRANSPORTATION DISTRICT:

VIRGINIA STATE CODE GIVES CITIES AND COUNTIES THE AUTHORITY TO CREATE A TRANSPORTATION DISTRICT,<sup>3</sup> WHICH IS MANAGED BY A COMMISSION APPOINTED BY THE GOVERNING BODY OF EACH CITY OR COUNTY IN THE DISTRICT. THE COMMISSION IS RESPONSIBLE FOR PREPARING THE TRANSPORTATION PLAN FOR THE DISTRICT, AND CAN PURCHASE OR LEASE TRANSPORTATION FACILITIES SPECIFIED IN THE PLAN. COSTS ARE ALLOCATED AMONG MEMBER GOVERNMENTS BASED ON A NUMBER OF FACTORS, INCLUDING FACILITIES LOCATION AND POPULATION. THE COMMISSION MAY ACCEPT LOANS AND GRANTS FROM BOTH THE FEDERAL GOVERNMENT AND THE COMMONWEALTH OF VIRGINIA, AND MAY ALSO ISSUES BONDS.

### ▲ SERVICE DISTRICT:

VIRGINIA STATE CODE ALSO GIVES LOCAL GOVERNMENTS THE AUTHORITY TO CREATE SERVICE DISTRICTS,<sup>4</sup> WHICH ARE GOVERNED BY A BOARD WITH RESPONSIBILITIES AGREED UPON BY PARTICIPATING JURISDICTIONS. UNLIKE TRANSPORTATION DISTRICT, SERVICE DISTRICTS CAN LEVY TAXES TO GENERATE REVENUES FOR SERVICES WITHIN THE DISTRICT.

### ▲ REGIONAL TRANSIT AUTHORITY:

A NEW REGIONAL TRANSIT AUTHORITY WOULD REQUIRE ENABLING LEGISLATION FROM THE COMMONWEALTH OF VIRGINIA. A RTA WOULD ACT AS A REGIONAL ENTITY, WITH PARTNERS FROM GOVERNMENT, UNIVERSITIES, AND OTHER STAKEHOLDERS. THE SIZE AND SCOPE OF THE

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<sup>3</sup> The Transportation District Act of 1964 and the Virginia Code Chapters 15.2-4504-4526

<sup>4</sup> Virginia Code Chapters 15.2-2400-2403

AUTHORITY COULD BE MODELED AFTER THE CHARLOTTESVILLE-ALBEMARLE REGIONAL TRANSIT AUTHORITY AS OUTLINED IN §33.2-2801 OF THE CODE OF VIRGINIA.

THE NEW RIVER VALLEY PLANNING DISTRICT COMMISSION STUDY INCLUDED A GRID (**FIGURE 9.0-1**) TO HELP TRANSIT PROVIDERS COMPARE THE FOUR TYPES OF MODELS.

Figure 9.0-1 | Regional Transit Organization Models<sup>5</sup>

| 2011 Regional Transit Organization Analysis |  | Method of Operation |                         |                  |                    |
|---|--|---------------------|-------------------------|------------------|--------------------|
| Details Checklist                           |  | Local Operation     | Transportation District | Service District | Regional Authority |
| Authority                                   | Prepare a transportation plan                          | Yes                 | Yes                     | Yes              | Yes                |
|   | Construct, acquire, maintain, or operate facilities    | Yes                 | Yes                     | Yes              | Yes                |
|   | Enter into agreements or leases                        | Yes                 | Yes                     | Yes              | Yes                |
|   | Acquire land by Purchase, lease, gift, or condemnation | Yes                 | Yes                     | Yes              | Yes                |
|   | Levy and collect transportation service tax            | No                  | No                      | Yes              | Yes                |
|   | Limited to Public Transportation                       | No                  | Yes                     | No               | No                 |
| Composition                                 | Local Government                                       | Yes                 | Yes                     | Yes              | Yes                |
|   | Any Two or More Localities                             | Yes                 | Yes                     | Yes              | Yes                |
|   | University or College                                  | Yes                 | No                      | No               | Yes                |
|   | Community Organizations or Private Entities            | Yes                 | No                      | No               | Yes                |
| Considerations                              | Enabling Legislation Required?                         | No                  | No                      | No               | Yes                |
|   | Multijurisdictional Perspective?                       | No                  | Yes                     | Yes              | Yes                |
|   | Require establishing a Commission (voting body)?       | No                  | Yes                     | Yes              | Yes                |

<sup>5</sup> “Regional Transit Organization Study,” New River Valley Planning District Commission and Blacksburg-Christiansburg-Montgomery Area Metropolitan Planning Organization. April, 2012.

## 10.0 MARKETING AND BRANDING STRATEGIES

An easy-to-understand unified marketing and branding program is a vital part of a transit agency's public face. Not only does it raise awareness and promote the use of services, it also provides a consistent pathway through which transit users and the community can learn about - and learn to trust – the agency. This program should be developed in cooperation with regional transportation demand management (TDM) programs, and should include all agency staff – but especially operators, who are the daily public face of the transit system.

A unified marketing and branding program begins with the development of a comprehensive marketing and communications plan, which could address the following elements:

### ▲ INTERNAL COMMUNICATIONS

- Staff responsibilities, including outreach materials development and communications with stakeholder groups and community-based organizations
- Communications “chain of command” – how do staff and the public learn about new transit services?

### ▲ EXTERNAL COMMUNICATIONS

- Unified brand for all Valley Metro products as well as other transit services
- Standardized printed and online marketing materials

- Geographic focus areas
- A “one stop shop” for the public to learn about all of the region’s transit services
- Valley Metro’s Public Participation Plan (part of the agency’s FTA Title VI Program), which should include a list of community based organizations which Valley Metro regularly communicates

### ▲ INDIVIDUAL CAMPAIGNS/OUTREACH EFFORTS

- Outreach plans for specific upcoming events or new services, such as a new route or transit transfer facility.

While the comprehensive marketing and communications plan provides an overall communications structure for the agency, some events – like the introduction of a new service, or the construction of a new transit transfer facility – will require a shorter, more intense outreach campaign.

Valley Metro may want to contract with a marketing and communications consultant, either on an on-call basis to develop marketing materials, advertisements, and campaigns, or on a specific contract to develop and periodically update the agency’s comprehensive marketing and communications plan.



## 11.0 ADDITIONAL FUNDING SOURCES

The funding concepts presented in this section offer ideas for raising additional money to support transit services. The composition of future funding will be determined by the regional stakeholder group charged with carrying forward the recommendations of this plan.

### 11.1 Local Funding

If a substantive organizational structure change is pursued for the Greater Roanoke Transit Company (Valley Metro) – such as becoming a transportation district, a service district, or develops funding memorandums of understanding with additional neighboring jurisdictions – it will have increased local funding options, whether through MOUs, issuing bonds, or levying taxes in a service district. Additionally, neighboring jurisdictions can increase their contribution to Valley Metro to fund specific service recommendations that serve their constituents.

Both at the Steering Committee and the Transportation Technical Committee the discussion of transit services for public school students was discussed at length. As mentioned previously, Valley Metro at one time had a student ride program where students could ride for free but it was altered to require half-fare after the behavior of some students affected operations.

Many stakeholders reflected on using public transportation in their youth and lamented that so many public funds are being used for the sole purpose of transporting students to school.

Others noted that initiatives have been attempted to encourage students who live near schools to walk or bike to school as opposed to publicly funding a bus to drive them a short distance. The initiatives have seen limited success due to challenges working with the schools and the presence of bus transportation as an easier and perceived safer alternative among school officials and parents.

With approximately 29% of the City of Roanoke’s budget and 28% of the City of Salem’s budget being dedicated for public schools, and similar large proportions in other localities, a notable amount of the funding is dedicated to student transit services. Studying the potential to shift student transit trips to walking/biking for some schools based on available infrastructure, crossing guard presence, and residential proximity to the school could lead to less transit services being needed for this purpose and greater emphasis on student health, environmental, and community interaction benefits of walking and biking. The savings in school transit services could then be applied to implement the general public recommendations noted in this plan.

### 11.2 Partnerships

A strong network of public and private sector partners can help Valley Metro establish the potential for financial and community resources beyond standard public transit funding options. Already, a partnership exists between Valley Metro, Carilion Clinic, and Downtown Roanoke Inc. to help fund the trolley service in addition to federal, state, and local government resources. Similarly, Valley Metro has worked with local businesses to improve bus stop amenities and provide

pedestrian connections such as Towers Shopping Center and New Horizons on Melrose Avenue. Additional partnerships should be pursued and can be initiated by local businesses or Valley Metro.

Another example comes from the Rochester Genesee Regional Transportation Authority (RGRTA) in Rochester, NY, was faced with declining state support in the early 2000s. In response, it began a series of major structural reforms to make the system less dependent on public subsidies, modeled on private sector approaches such as new customer- and revenue-driven policies. As part of this approach, RGRTA engaged with a diverse network of partners; its single largest funding partner is Rochester School District, which funds student passes and additional school-tripper service within the City of Rochester. Other major partners include universities, hospitals, major employers, social services organizations, nursing homes, and property owners. Today partnership revenue accounts for 20 percent of all operating revenue, a greater share than direct fares.

RGRTA has shown a willingness to customize partnership agreements. For some organizations, partnerships provide free transit passes, while for others partnerships are in place simply to preserve or expand service. RGRTA is responsive to the needs of its partners and tries to implement service requests such as timetables that match employee shifts. The agency has staff dedicated to its partnership program and continues to actively recruit new partners, including a “Let us take you out to lunch” program for interested perspective partners.

Finally, emerging trends in transit and public transportation are likely to radically alter the Roanoke region’s mobility landscape.

A March 2016 study<sup>6</sup> conducted for the American Public Transportation Association points out that technology is fundamentally transforming transportation as consumers increasingly seek a broad range of mobility options, including bikeshareing, carsharing, and ridesourcing services by companies like Uber and Lyft. New microtransit companies and other experimental commuting shuttle options like Bridj, Split, Chariot, and Kutsuplus have emerged in denser cities to offer riders additional transportation options that may not make sense for larger buses.<sup>7</sup> Ride-hailing services with flexible hours of operations have also emerged as a complement or an alternative to more traditional paratransit services.<sup>8</sup> The ability of existing

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<sup>6</sup> Shared-Use Mobility Center, “Shared Mobility and the Transformation of Public Transit,” March 2016. Available <https://www.apta.com/resources/reportsandpublications/Documents/APTA-Shared-Mobility.pdf>

<sup>7</sup> For an overview of these services, see Joseph Stromberg, “These Startups Want to do for Buses What Uber Did for Taxi Rides,” Vox, July 7, 2015. Available

<http://www.vox.com/2015/7/7/8906027/microtransit-uber-buses>

<sup>8</sup> See Nicole Dunga, “MBTA Pilot Taxi Partnership Could Include Uber,” *Boston Globe*, November 14, 2015. Available

<https://www.bostonglobe.com/metro/2015/11/14/mbta-launches-pilot-taxi-partnership-that-could-include-uber/6gTeEe8aJm5e6HEv9sdqNK/story.html>;

Linda Poon, “How an Uber Copycat Can Fill the Transit Gap in Rural Nebraska,” *City Lab*, July 13, 2016. Available <http://www.citylab.com/navigator/2016/07/how-an-uber-copycat-can-fill-the-transportation-gap-in-rural-nebraska/490769/>;

Luz Lazo, “Metro moving forward with plan to use Uber, Lyft for paratransit services,” *The Washington Post*, July 20, 2016. Available <https://www.washingtonpost.com/news/dr-gridlock/wp/2016/07/20/metro-moving-forward-with-plan-to-use-uber-lyft-for-paratransit-services/>

<https://www.washingtonpost.com/news/dr-gridlock/wp/2016/07/20/metro-moving-forward-with-plan-to-use-uber-lyft-for-paratransit-services/>

transit providers to interface with these emerging services and adapt to shifting consumer preferences will be crucial in the development of a robust mobility ecosystem.

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### 11.3 Advertising and Sponsorships

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To capture advertising and sponsorship revenue, Valley Metro should ensure that its bus display ad rates and sponsorship options are competitive with the regional market. An advertiser in Roanoke can currently buy a King Size Display<sup>9</sup> exterior ad on a Valley Metro bus – for an entire month – for approximately 1/10<sup>th</sup> the cost of a one-day, half-page ad in the Roanoke Times.<sup>10</sup>

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### 11.4 Competitive Federal Grants

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Valley Metro, in coordination with regional TDM and paratransit service providers, should watch for opportunities in the Federal Register to apply for federal transportation and mobility grants. The Federal Transit Administration (FTA) recently issued a Notice of Funding Opportunity for a “Rides to Wellness” initiative that emphasizes public transportation as a strategy for people to access health services, resulting in greater preventive care, fewer

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<sup>9</sup> Valley Metro Transit Advertising Rates, Accessed at <http://adsonbuses.com/pdf/RoanokeRateCardNEW.pdf>

<sup>10</sup> The Roanoke Times, Retail advertising rates. Based on 60 inches of ad space, approx. \$2,750. Accessed at [http://roanoke.com/app/advertise/rates/rateCards/RETAIL%20\\_Rates.pdf](http://roanoke.com/app/advertise/rates/rateCards/RETAIL%20_Rates.pdf)

unnecessary hospital readmissions, and lower cost (application deadline: May 31, 2016).<sup>11</sup> Other similar grants periodically become available.

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### 11.5 Fare Changes

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Changing the fare for services is always a consideration though the concern is always that a fare increase may lead some people to take trips using other modes. Fare increases may generate more revenue if it does not deter people from riding altogether due to the expense. Consideration should be made for the expense of a daily roundtrip compared to the daily expense of parking or similarly, the expense of a monthly pass compared to the monthly expense for parking and gas.

Fare structures should incorporate incentives for families with children through high school age to ride easily together. For a family or group traveling together, the cost to use transit may seem more expensive than carpooling and paying for parking. Currently, children under 10 ride free and children between 11-17 ride at half-price. Consideration of a family pass may incentivize families to ride together for special events or other trips taken together.

In the RADAR and Botetourt County surveys, some current riders expressed a willingness to explore zone charges for paratransit services based on distance. This zone fare structure should be

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<sup>11</sup> “U.S. Department of Transportation Announces \$5.3 Million Funding Opportunity to Improve Mobility Focused on Healthcare.” Federal Transit Administration, accessed at <https://transit.dot.gov/about/news/us-department-transportation-announces-53-million-funding-opportunity-improve-mobility>

discussed when regional paratransit services are further explored.

Currently Valley Metro provides an unlimited 31-day paratransit trip pass at twice the cost of a 31-day fixed-route pass. The purpose of the fixed-route pass is to encourage more trips on local buses for which greater person-trips does not result in greater expense to operate. On paratransit, however, the 31-day unlimited pass also encourages taking more specialized transit trips, for which each trip requires a significant subsidy. Providing this unlimited 31-day paratransit pass is not required by the federal government, and local governments and Valley Metro should consider an alternative that better reflects sharing each paratransit trip expense with the passenger.

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## 11.6 Other Potential Dedicated Revenue Streams

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In other regions, dedicating funding to transit is often applied from other revenue streams. Such examples may include dedicating a portion of parking, stormwater, or broadband revenues to transit.

Currently, fees for parking are only present in Downtown Roanoke though many parking decks also exist in the Carilion area for free. The broad availability of parking and low cost of parking are reasons why many people choose to drive instead of use public transportation. When finding parking becomes a bit challenging or the cost of parking outweighs transit fare and the added time to use transit, then people begin to consider taking transit as a preferred option over driving. A substantial amount of space is dedicated to storing vehicles during the day on weekdays, particularly in both the Downtown Roanoke and

Carilion areas via many parking garages and surface lots. If a partnership can be established between parking and transit to dedicate a portion of the parking revenue to transit, transit services can be expanded and provide an attractive alternative for people to reach destinations in these areas. Likewise, a single card should be explored to give people the option to pay for parking or pay for transit using the same electronic Smart Card.

## 12.0 LAND USE

Before many of the recommendations for the creation of high frequency corridors in **Part 5** can be implemented, changes to land use policies will need to be realized to increase both the mix and density of land uses along these corridors.

The Federal Transit Administration (FTA) has developed a toolkit of transit-supportive development measures to help planners, elected officials and local governments integrate transit planning with local land use planning.<sup>12</sup> Unless otherwise noted, the contents of this section can be sourced through that toolkit.

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### 12.1 Land Use Planning and Transit Planning

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The traditional roles of community stakeholders in transit investment and land use decision-making are often one or the other with some overlap in state and local governments as seen

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<sup>12</sup> "Planning for Transit-Supporting Development: A Practitioner's Guide." Federal Transit Administration, Prepared by the New Jersey Institute of Technology. June 2014. Accessed at <https://www.fta.dot.gov/funding/funding-finance-resources/transit-oriented-development/planning-transit-supportive>

in **Table 12.1-1**. Public policy is generally developed at the federal, state, and regional levels, while land-use implementation is driven by local governments and developers.

*Table 12.1-1 | Stakeholders and Their Traditional Involvement in Transit Investment and Land Use Decision-making*

|  | Transit Investments | Land Development |
|--|---------------------|------------------|
| Federal Transit Administration           | Significant         | None             |
| State government                         | Some                | Some             |
| Metropolitan Planning Organizations      | Significant         | Some/Little/None |
| Transit authorities                      | Significant         | Some/Little/None |
| Local (municipal and county) governments | Some                | Some/Significant |
| Developers (private; not-for-profit)     | Little/None         | Significant      |

To ensure that these two types of planning connect, planning issues need “champions” at state, regional, and local levels (**Table 12.1-2**) to advocate for the intersection of transit planning and land use policy.

*Table 12.1-2 | Major Issues and Appropriate Champions*

|                 | Major Planning Issues Affecting Transit-Supportive Development   | Levels at Which Champions Are Needed |          |       |
|-----------------|--|--------------------------------------|----------|-------|
|                 |  | State                                | Regional | Local |
| Regional Issues | A region needs a Vision Plan to provide a blueprint for the future, factoring in several goals which include transit-supportive development aligned with the transit system. | ✓                                    | ✓        | ✓     |
| Corridor Issues | Priority should be given to transit corridors that connect the strongest regional centers.   | ✓                                    | ✓        | ✓     |
|                 | Stations should be sited with easy access to the local street network.   | ✓                                    | ✓        | ✓     |
| Local Issues    | Transit-supportive development regulations should be enacted that make public/private partnerships, financing options and land use controls possible.                        | ✓                                    |          | ✓     |
|                 | The character of transit-supportive developments should match the community vision and goal.   |                                      |          | ✓     |

## 12.2 Policy Tools for Transit-Supportive Land Use Development

After developing a Vision Plan and identifying possible transit corridors, it is critical to develop a legal framework to support and guide transit-supportive land use development. Table 12.2-1 details possible tools for doing so, including the creation of transit-supportive districts, Planned Unit Developments, and pedestrian-friendly design standards around transit stations and stops.

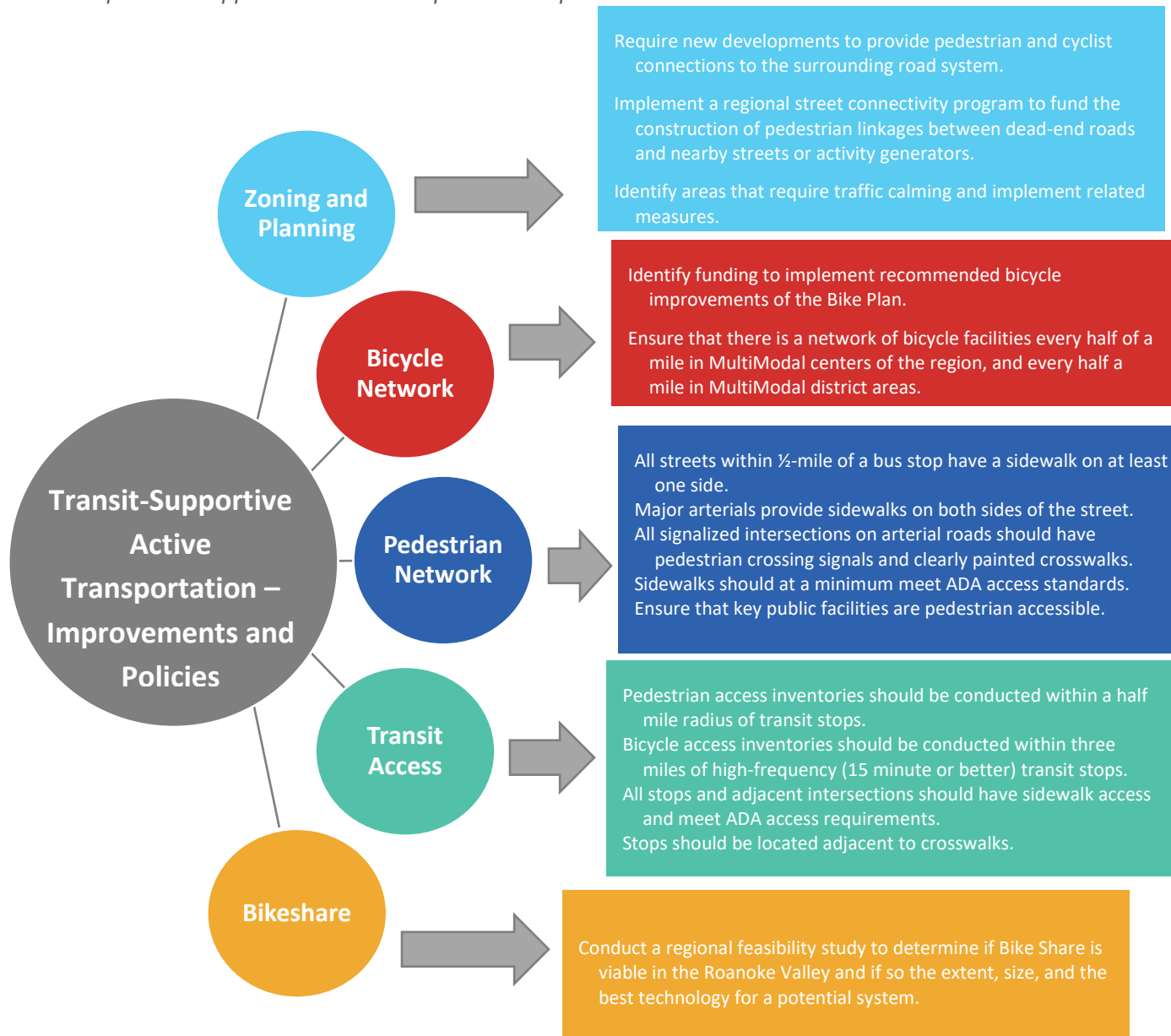
Table 12.2-1 | Transit-Supportive Land Use Policy Tools

| Tool                                   | Overview  | Description  |
|--|---|--|
| <b>Transit-Supportive Districts</b>    | Creation of a specific plan or overlay district encourage people to live and/or work near the transit station/stop and to use public transit. | Create a specific plan or overlay district for a transit-supportive district (generally within ½ mile of transit stops) that refines and targets the general plan’s goals for a particular area by regulating the land use activities within that community. Rules, policies, and ordinances for the area are focused on a desired development outcome—higher densities, mixed land uses, pedestrian amenities, and access to public transit.  |
| <b>Planned Unit Development (PUD)</b>  | Increased flexibility for localities and developers to develop large tracts of land using transit-supportive methods.                         | A Planned Unit Development (PUD) is both a regulatory process and a type of development that allows flexibility of site design beyond the bounds of the existing zoning designation. It is generally used to develop a large tract of land in a way that meets the goals of the community without the hindrances of the established lot by lot zoning ordinance. This method is often used for an undeveloped suburban area, large urban undeveloped lots, and urban redevelopment areas. The creation of a PUD must be in accordance with a comprehensive plan. |
| <b>Design Standards and Guidelines</b> | Regulations that encourage pedestrian-friendly amenities, especially in and around transit stations.  | Design standards or guidelines allow a community to control its appearance and function by governing such elements as site planning, densities, building heights, and pedestrian amenities. Within a transit station area, design standards and guidelines can serve to promote transit-supportive development.  |

## 12.3 Policy Tools for Transit-Supportive Active Transportation

Active transportation is an important factor in the success of transit service. Every transit trip begins and ends either on foot or by bike and that experience before and after transit can have wide ranging implications on the attractiveness and utility of transit. Similar to land use it is critical to develop a robust set of policies that support and guide active transportation facilities that are transit-supportive. **Figure 12.3-1** details possible tools for doing so, including the creation of new zoning requirements, new funding, new standards, and additional inventories and planning studies.

Figure 12.3-1 | Transit-Supportive Active Transportation Improvements



## 13.0 FUTURE MODE AND TECHNOLOGY CONSIDERATIONS

Although the assumption in this plan has been that all of the recommendations would be fulfilled with motorbuses or commuter buses operating in mixed traffic, the recommendations do not preclude the potential to consider other modes and technologies. Utilizing the buses as a gauge on the ridership and success of a service can guide the need to invest in permanent capital infrastructure and equipment.

*Figure 13.0-1 | Example of Bus Rapid Transit*



*Photo Credit: Jarrett Walker + Associates, Kimley Horn, "Recommended Wake County Transit Plan." (December 2015)*

A reflection on Roanoke's past, the following pictures show examples of modern streetcars in Portland, Oregon. Streetcars are often used similar to local buses for local-stop service.

*Figure 13.0-2 | Example of a Streetcars*



Similar to the streetcar, but often used for longer distances and more rapid transit is light rail shown in the following photos.



*Figure 13.0-3 | Example of Light Rail*



*Portland, OR*



*Norfolk, VA*

The greatest technology advancement currently anticipated is driverless vehicles. As this technology evolves over time, their impact on transportation and travel within cities will become known, and it will be interesting to see what effect the technology will have on transit.

## 14.0 CONCLUSION

The Roanoke Valley is not like it was 25 years ago, nor will it be like it is today in 25 years and neither should its transit system. As we grow and simultaneously strive to become a more **Livable Roanoke Valley**, utilizing our investments in transit will help our community be a better place to live, work, learn, and play.

Adoption of the Roanoke Valley Transit Vision Plan is a milestone in the region's transportation planning process and overall strategic planning as we strive for greater quality of life.

Development of the Plan involved many stakeholders and citizens and its implementation, though challenging, will be supported by even more. Paramount to implementation of this plan will be the functional organizational restructuring of the Greater Roanoke Transit Company to establish it as an agency with full regional representation.

Concurrent with the goals of Livable Roanoke Valley, implementing this Transit Vision Plan will:

- Connect the Roanoke Valley with an environmentally sustainable transportation option;
- Provide people with new options for accessing jobs, goods, services, educational and recreational opportunities;
- Improve personal health through walking and biking to access transit and access to healthcare;
- Build community with the natural interaction among people of all ages, income levels, and cultural backgrounds as we move around the Valley in our daily activities.

Transit is for everyone! As an integral part of our community, it is each person's choice to take advantage of the service it provides. Implementation of this Plan will benefit people who ultimately choose to use transit services or not. Some people

may choose to use transit every day; others may choose to use transit once in a while as part of a broader mix of transportation modes used. The choice to use transit will depend on any number of factors such as trip purpose, origin/destination transit accessibility, personal vehicle availability, weather, distance, parking cost, and parking availability.

Others may elect to not use transit at all, choosing instead to fund their own personal transportation. For people who choose other transportation modes for all their trips, transit availability for and use by others benefits them because there are fewer vehicles on roads thus minimizing traffic congestion, maintaining good air quality, and increasing parking availability.

As people in our Roanoke Valley community age, transit services may be something that becomes more of a regular need than a choice. Though some people may not see the value now, at some point in their lives, they may find it useful and grateful for its existence.

There is a common benefit when people are able to live independently and self-sufficiently, and for these reasons, transit plays a huge role in society.

Understanding the greater societal value of transit as an economic investment in the community may be a hard concept for some people to grasp. Therefore, educating citizens about the value that transit brings to the community as well as the various transit services available in the region will be an ongoing need.

Thank you to all the citizens, stakeholders, and decision-makers who have contributed to this plan. Your voices have been heard, your ideas have been recorded, and the future of transit as you have envisioned it will guide our community for years to come.