Roanoke Valley Transportation
PLANNING ORGANIZATION

Staffed by the
REGIONALcommission

ROANOKE VALLEY
TRANSIT VISION PLAN

FINAL DRAFT August 5, 2015

Technical Report: Surveys and Data Analysis

ACKNOWLEDGEMENTS

REGIONAL COMMISSION STAFF

Cristina D. Finch, AICP, LEED AP
Manager of Transit Planning and Programming
Regional Transit Vision Plan Project Manager
Bryan W. Hill, Transportation Planner I
Jeremy Holmes, LEED Green Associate
Director of Sustainability Programs
Matt Miller, Director of Information Services
O. Dale Saylor, Data Analysis Volunteer

GREATER ROANOKE TRANSIT COMPANY STAFF

Carl Palmer, General Manager
Kevin Price, Assistant General Manager
Bob Broughman, Director of Transportation
John Thompson, Director of Maintenance

UNIFIED HUMAN SERVICES TRANSPORTATION SERVICES STAFF

Curtis Andrews, Executive Director
John D. Desper, Director of Transportation

RVTPO POLICY BOARD

Chairman Billy Martin, Sr.
Botetourt County Board of Supervisors
Vice Chair Jane Johnson
Salem City Council

Doug Adams	Vinton Town Council
Al Bedrosian	Roanoke County Board of Supervisors
Bill Bestpitch	Roanoke City Council
Todd Dodson	Botetourt County Board of Supervisors
Ray Ferris	Roanoke City Council
Lisa Garst	Salem City Council
Efren Gonzalez	Roanoke-Blacksburg Regional Airport
Charlotte Moore	Roanoke County Board of Supervisors
Wes Nance	Vinton Town Council
Lee Osborne	Roanoke Valley-Alleghany Regional Commission
Carl Palmer	Greater Roanoke Transit Company
Annette S. Perkins	Montgomery County Board of Supervisors
Bill Thomasson	Bedford County Board of Supervisors
Neil Sherman	Department of Rail and Public Transportation

TRANSPORTATION TECHNCIAL COMMITTEE

Curtis Andrews	Unified Human Services Transportation Services, Inc.
Liz Belcher	Roanoke Valley Greenway Commission
Dan Brugh	New River Valley Metropolitan Planning Organization
Jeff Busby	Botetourt County, Planning Department
Chris Chittum	City of Roanoke, Department of Planning, Building and Development
Brian Epperly	Roanoke County, Transportation Department
Michael Gray	Virginia Department of Transportation, Planning Department
David Holladay	Roanoke County, Community Development Department
Mark Jamison	City of Roanoke, Transportation Division
Diana Lewis	Roanoke-Blacksburg Regional Airport
Melinda Payne	City of Salem, Planning Department
Kevin Price	Greater Roanoke Transit Company
Cody Sexton	Botetourt County, Planning Department
Ryan Spitzer	Town of Vinton, Town Manager's Office
Neil Sherman	Department of Rail and Public Transportation
Benjamin W. Tripp	City of Salem, Planning Department
Gary Woodson	Town of Vinton, Public Works Department

CONTENTS

1.0 INTRODUCTION 10

2.0 VALLEY METRO EMPLOYEE SURVEY 10

2.1 The Most Frequent Customer Complaint about the Transit System 11

2.1.1 Hours of Operation 11
2.1.2 Network Structure 11
2.1.3 Service Delivery 11
2.1.4 Travel Time 11
2.1.5 Service Area 11
2.1.6 Fares 11
2.1.7 Comfort 11

2.2 Locations Where Transit Service is Needed 12

2.3 Routes that are Rushed to Accomplish within the Available Time 14

2.4 Routes that should be Structured Differently 15

2.5 Routes that Experience Overcrowding and at What Time of Day 17

2.6 Routes that Experience Very Low Ridership and at What Time of Day 18

2.7 Other Recommendations for Public Transportation in the Greater Roanoke Valley Region 18

3.0 VALLEY METRO RIDER SURVEY 21

3.1 Race, Age, Disability, Vehicle Ownership 21

3.2 Ridership Frequency and the Importance of Transit 22

3.3 Employment Status and Family Income 23

3.4 Trip Origins and Destinations, Transfers, Travel Time and Trip Purpose 24

3.5 Recommendations for Locations Needing a Better Connection to Transit 30

3.6 Most Important Message to Decision Makers 33

3.6.1 Additional Service 34
3.6.2 Great Service 35
3.6.3 Thank you 35

4.0 VALLEY METRO SURVEY OF BOARDINGS AND ALIGHTINGS 36

4.1 Average Stop Usage 38

4.2 Stop Frequency 38
4.3 Bus Stop Activity Index 39

5.0 GENERAL PUBLIC SURVEY 45

5.1 Public Survey Outreach 45
5.2 Place of Residence 48
5.3 Place of Work 50
5.4 Age 51
5.5 Vehicle Ownership and Personal Mobility 52
5.6 Ridership Frequency 53
5.7 Investment and Importance of Transit 53
5.8 Most Important Transit Idea 56
5.8.1 General Feedback 56
5.8.2 Amtrak 56
5.8.3 Downtown Transfer Center 56
5.8.4 Hours of Service 57
5.8.5 Fares 57
5.8.6 Additional Service 57
5.8.7 System Efficiency 58
5.8.8 Vehicles 59
5.8.9 Amenities 59
5.9 Most Important Message to Decision Makers 59

6.0 RADAR TWO-YEAR DATA ANALYSIS RESULTS 61

6.1 Customers Database 62
6.1.1 Age 62
6.1.2 Mobility Type 63
6.1.3 Elderly 65
6.1.4 Funding Sources 65
6.2 Trips Database 68
6.2.1 Trip Distance 68
6.2.2 Trips by Day of the Week 71
6.2.3 Trips by Mobility Type 72
6.2.4 Trips by Trip Purpose 73

6.2.5 Trips by Zip Code *88*
6.2.6 Trips by Funding Source *93*

7.0 COMMON VALUES AND CONCLUSIONS **99**

LIST OF TABLES AND FIGURES

Figure 2.2-1: Map of Transit Recommendations from Valley Metro Employees 13
Figure 3.0-1: Valley Metro Rider Survey Card 21
Table 3.1-1: Rider Survey: Race Classification **22**
Table 3.2-1: Rider Survey: Use Frequency **22**
Figure 3.2-1: Why Public Transit is Important to Current Riders 23
Table 3.3-1: Rider Survey: Employment Status **23**
Table 3.3-2: Rider Survey: Annual Family Income **23**
Table 3.4-1: Top 20 Trip Origins **24**
Figure 3.4-1: Origins for Trips Taken by Fixed-Route Transit 25
Table 3.4-2: Top 20 Trip Destinations **26**
Figure 3.4-2: Destinations for Trips Taken by Fixed-Route Transit 27
Figure 3.4-3: Linear Path Analysis: Origins of Trips taken on Valley Metro on June 24, 2014 28
Figure 3.4-4: Linear Path Analysis: Destinations of Trips taken on Valley Metro on June 24, 2014 29
Figure 3.4-5: Rider Survey: Trip Purpose 30
Table 3.5-1: Rider Survey: Top Locations Needing to be Better Connected to the Bus System **31**
Table 3.6-1: Rider Survey: Message to Decision Makers **33**
Figure 3.6-1: Map of Recommendations from Valley Metro Riders 32
Figure 4.0-1: Passengers Board a Bus at Valley View Walmart 36
Figure 4.0-2: A Passenger Boards a Bus at Fresenius Medical Care - Friendship Manor on Hershberger Road 36
Figure 4.0-3: 2010-2011 and 2013-2014 Survey Trip Sheets 37

Table 4.2-1: Stop Frequency **39**
Table 4.3-1: 25 Most Active Bus Stops in 2013-2014 Survey **39**
Table 4.3-2: 25 Most Active Bus Stops in 2010-2011 Survey **41**
Figure 4.3-1: Bus Stop Activity Index 2013-2014 42
Figure 4.3-2: Bus Stop Activity Index 2010-2011 43
Table 4.3-3: Comparison of Number of Active Stops between 2010-2011 and 2013-2014 **44**
Figure 5.1-1: Regional Pedestrian and Transit Vision Plans Survey Instrument 47
Table 5.2-1: Public Survey: Locality of Residence **48**
Figure 5.2-1: Public Survey: Locality of Residence 48
Table 5.2-2: Public Survey: Residential Zip Code **49**
Table 5.3-1: Public Survey: Place of Employment **50**
Table 5.3-2: Public Survey: Place of Employment Zip Code **51**
Table 5.4-1: Public Survey: Age **51**
Figure 5.5-1: Public Survey: Vehicle Ownership 52
Figure 5.5-2: Public Survey: Mobility Disability 52
Figure 5.5-3: Public Survey: Ability to Travel 52
Table 5.6-1: Public Survey: Transit Use Frequency **53**
Table 5.7-1: Public Survey: Why Transit is Important in the Roanoke Valley **53**
Table 5.7-2: Public Survey: Top Locations that should be Better Connected via the Public Transit Network **54**
Figure 5.7-1: Public Survey: Locations Needing a Better Connection to Public Transit 55
Table 5.8-1: Public Survey: Most Important Message to Decision Makers **60**
Table 6.1-1: Content of RADAR Databases **61**
Figure 6.1-1: RADAR Customers by Birth Decade 62
Table 6.1-2: RADAR Customers: Age **63**
Table 6.1-3: RADAR Customers: Mobility Type **64**
Figure 6.1-2: Percent of RADAR Customers by Mobility Type 64

Table 6.1-4: RADAR Customers: Elderly **65**

Figure 6.1-3: Percent of CORTRAN Customers 60 years or older 65

Table 6.1-5: RADAR Funding Sources **67**

Figure 6.1-4: Source of Funding Subsidy for CORTRAN Customers 67

Figure 6.1-5: Source of Funding Subsidy for STAR Customers 67

Table 6.2-1 Number of RADAR Trips by Service **68**

Table 6.2-2: Number of CORTRAN Trips by Trip Distance **69**

Figure 6.2-1: Percent of CORTRAN Trips by Trip Distance 69

Table 6.2-3: Number of STAR Trips by Trip Distance **70**

Figure 6.2-2: Percent of STAR Trips by Trip Distance 70

Figure 6.2-3: Percent of CORTRAN Trips by Day of the Week 71

Figure 6.2-4: Percent of STAR Trips by Day of the Week 71

Table 6.2-4: Number of Trips by Mobility Type **72**

Table 6.2-5: Number of Trips by Trip Purpose **73**

Table 6.2-6: Percent of Trips by Trip Purpose **73**

Table 6.2-7: Number of Trips Taken by Trip Purpose and Mobility Type **74**

Table 6.2-8: Highest RADAR Pick-Up Locations **75**

Figure 6.2-5: Number of Pick-Ups by Address on Both STAR and CORTRAN (zoomed in) 76

Figure 6.2-6: Number of Pick-Ups by Address on Both STAR and CORTRAN (zoomed out) 77

Table 6.2-9: Highest RADAR Drop-Off Locations **78**

Figure 6.2-7: Map of Number of Drop-Offs by Address on Both STAR and CORTRAN (zoomed in) 80

Figure 6.2-8: Map of Number of Drop-Offs by Address on Both STAR and CORTRAN (zoomed out) 81

Figure 6.2-9: Map of CORTRAN Trips from Pick-Up Locations to the Adult Care Center (zoomed in) 82

Figure 6.2-10: Map of CORTRAN Trips from Pick-Up Locations to the Adult Care Center (zoomed out) 83

Figure 6.2-11: Map of STAR Trips from Pick-Up Locations to the Adult Care Center 84

Figure 6.2-12: Map of CORTRAN Trips from Adult Care Center to Drop-Off Locations (zoomed in) 85

Figure 6.2-13: Map of CORTRAN Trips from Adult Care Center to Drop-Off Locations (zoomed out) 86

Figure 6.2-14: Map of STAR Trips from Adult Care Center to Drop-Off Locations 87
Figure 6.2-15: Map of Zip Codes for the Roanoke Valley 88
Table 6.2-10: Number of RADAR Pick-Ups by Zip Code 89
Figure 6.2-16: Percent of Total Trips by Pick-Up Zip Code 89
Table 6.2-11: Number of RADAR Drop-Offs by Zip Code 90
Figure 6.2-17: Percent of Total Trips by Pick-Up Zip Code 90
Table 6.2-12: Matrix of Pick-up Zip Code vs. Drop-off Zip Code 91
Figure 6.2-18: Number of Trips by Service and Zip Code 92
Table 6.2-13: Number of Trips by Funding Source (as scheduled) 94
Table 6.2-14: Number of Trips by Funding Source (actual trips completed and billed) 95
Figure 6.2-19: Percent of CORTRAN and STAR Trips by Funding Source 96
Table 6.2-15: Trips by Mobility Type and Funding Source 97
Table 6.2-16: Trips by Trip Purpose and Funding Source 98
Figure 7-1: Map of All Transit Recommendations Combined 100

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. As mentioned in Part 1, staff conducted several interviews with people who have contributed greatly to the development of transit in the Roanoke Valley. Many more people have contributed to this Plan by completing a survey. This section will review the results of surveys and data analyzed from five 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

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

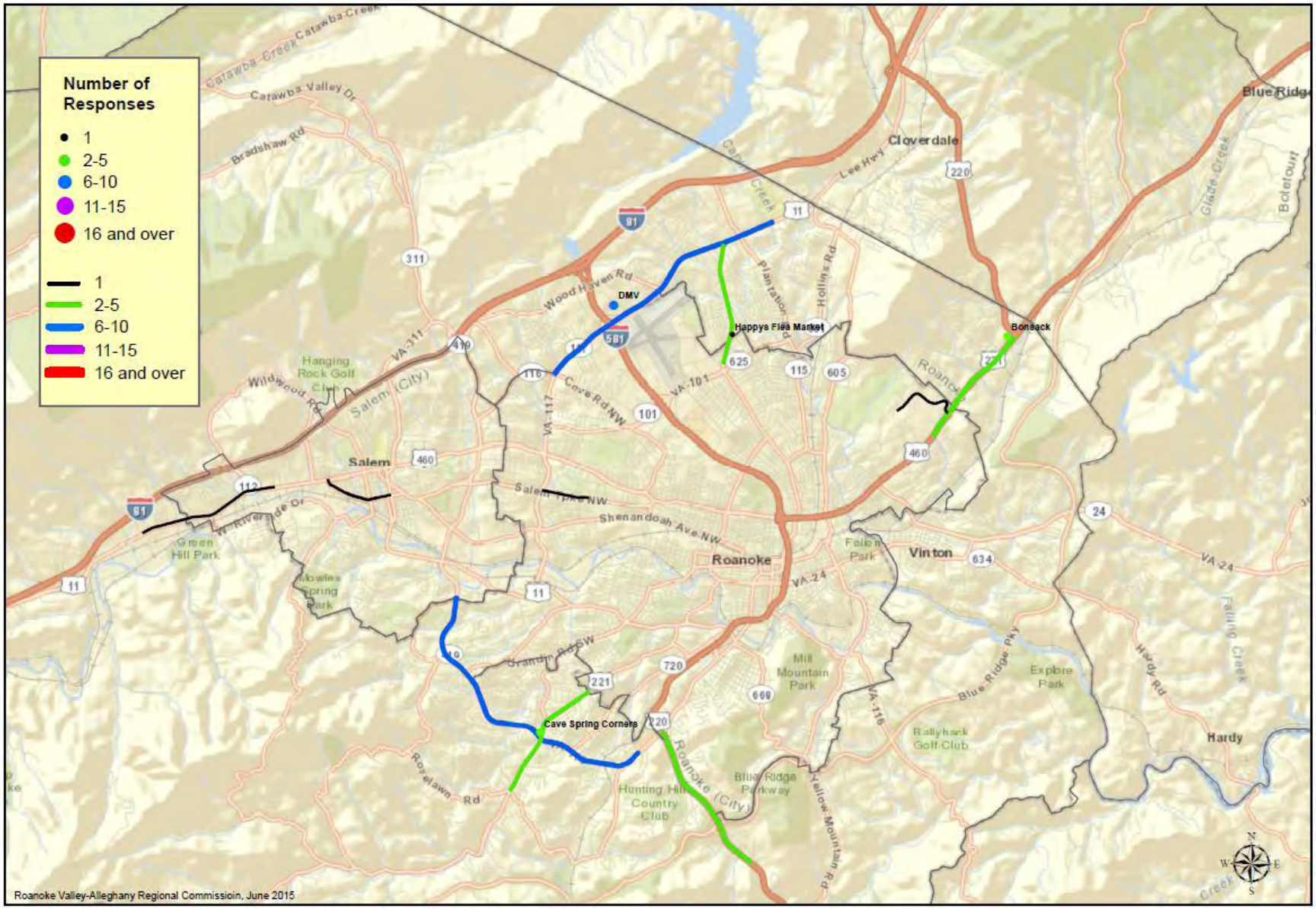
2.2 Locations Where Transit Service is Needed

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 4TH 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 Lights/school bus getting out of CC (Campbell Court) 10 min. late Block 3 – the lights catch you wrong and you are down by 5-10 minutes Lift use Too many stops on Ferncliff Traffic signal at Cove Rd.
11/12 15/16	Light timing 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) Valley View Mall routes are rushed as it is, and with Valley Court added it is even harder, ridership is very poor at Valley Court.
25/26	**Peak** stoplight and traffic Severely delayed by signals at Orange Ave. and Hollins Road. Traffic backups on Hershberger Road at Williamson Road. 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 Time it takes to exit Food Lion lot and Jamestown. Going to Garden City Driving into neighborhoods, Piggly Wiggly shopping center traffic backup
75	Length of run, where it goes, roadwork Last timepoint at Center and 5th should be moved closer (7 stoplights, 2 that have left turns) Elderly people – workers at VA, apartments on route
85/86	Route is too long for time provided Securing wheelchairs Too many twists and turns. Hard to get out of Golfside onto Cove making a left turn. Need to cut Forest Park neighborhood
91/92	Too congested with passengers often standing. 92 from VA Medical Center to Campbell Court due to congestion, length, lights Heavy ridership on Melrose Avenue Heavy ridership at Elizabeth Arden Route too long Lights

	Congestion
All routes	- traffic increases - duration - due to ridership buses held sometimes until :20 or later
Additional feedback not associated with a particular route	Mall routes Valley View Mall – high ridership Valley View Walmart – many customers 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.

ROUTE	FEEDBACK
11	Need mall express bus just to malls – no neighborhoods Should bypass Valley View – mall service replaced by direct shuttle to and from transfer station 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. Need mall express bus just to the malls – no neighborhoods.
15	Need mall express bus just to the malls – no neighborhoods. 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. Peak, delete Valley Court. Replace with a Route 12 stop on Hershberger Road. Stop service to Celebration Station (Taylor Learning Center) 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. 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. Would like to take the bus from inside Jamestown 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.

	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 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. Going through the neighborhood should be upon request because you barely pick up or drop off in that area. 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. No left on Westside, stay straight on Hershberger to Peters Creek. 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.

91	Redo run Move to Lane 7 Still overcrowded Needs a bigger bus – too many people Right 6th Street Left Colorado – > Traffic Congestion 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 Still overcrowded Needs a bigger bus – too many people. Change 40 TP (time-point) to 35 TP Route becomes Main St. from West Salem to Melrose, 11th, 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.

ROUTE	FEEDBACK
11	Mid-morning hours 12:15-7:15 p.m. 10:15 a.m. Saturdays can be very crowded
12	2-6 p.m. 11:00 a.m. - 6:00 p.m. 12:15 p.m. – 7:15 p.m.
15	2-6 p.m. Every hour 11:00 a.m. - 6:00 p.m. Mid-morning hours 12:15 p.m. – 7:15 p.m. 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. Until the peak comes on Every hour All day 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
56	12:00 p.m. – 6:00 p.m.
61	12:00 p.m. – 3:30 p.m. 12:00 p.m. – 6:00 p.m.
75	2:45 p.m. and 3:45 p.m. at VA Hospital 3-5 p.m. 6-9 a.m.
91	All day every day Early morning Mid-morning hours Most times 10:00 a.m. – 12:00 p.m. 11:15 a.m. until the end of the day 5:00 p.m. 3:00 p.m. – 6:00 p.m. Every trip from 8:15 a.m. on, outbound to Wal-Mart, then nearly empty
92	All day every day Most times Every trip from 8:30 a.m. on, from College Avenue to Campbell Court 10:00 a.m. – 12:00 p.m. 11:15 a.m. until the end of the day 3:00 p.m. – 6:00 p.m. 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.

ROUTE	FEEDBACK
11	Most peak routes All peak service!
16	Valley Court – 4:15 p.m. 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 Any time of day. 6:15 a.m. – 5:15 p.m.
86	7:15 a.m. – 6:15 p.m.
91	7:15 trip 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: Peak routes - the time should be later coming in to work, which will help with buses being overcrowded. 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.

	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. 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. More hours in service.
9	Answer to low ridership question: Peak routes have low ridership almost every time I pass a peak bus. 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

Valley Metro

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: ☐ BUS ROUTE #_____ **or** ☐ TROLLEY **or** ☐ SMARTWAY

3. The place I am COMING FROM is:
(List the Home or Business Address or Name or Street Intersection)

Location of this place:
☐ City of Roanoke
☐ City of Salem
☐ Town of Vinton
☐ Roanoke County
☐ Other: _____

4. Does this trip require a transfer? ☐ Yes, I will also use route _____ ☐ No

5. The place I am GOING TO is:
(List the Home or Business Address or Name or Street Intersection)

Location of this place:
☐ City of Roanoke
☐ City of Salem
☐ Town of Vinton
☐ Roanoke County
☐ Other: _____

6. From door to door, how long will this trip take? _____

7. Trip purpose: ☐ Work ☐ School ☐ Medical ☐ Shopping ☐ Social ☐ Other: _____

8. Please check ONE main reason why public transit is important to you.
☐ Because I am not able to drive.
☐ Because I don't have another way to get around.
☐ It is my only way to get to work and keep my job.
☐ It is cheaper than driving.
☐ It is good for the environment.
☐ 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? ☐ Under 18 ☐ 18-45 ☐ 46–64 ☐ 65 +
12. Do you have a disability? ☐ No ☐ Yes
13. Do you own a car? ☐ No ☐ Yes
14. How often do you ride Valley Metro?
☐ About every day ☐ Once or twice/week ☐ 1-3 times a month ☐ Less than once a month
15. Which of the following describes your current employment status? *(Check all that apply)*
☐ Employed full-time ☐ Student ☐ Retired
☐ Employed part-time ☐ Unemployed ☐ Homemaker
16. What is your approximate total family income in a year?
☐ Under $10,000 ☐ $30,000—$49,999
☐ $10,000—$19,999 ☐ $50,000—$74,999
☐ $20,000—$29,999 ☐ $75,000 or more
17. How would you classify yourself?
☐ African American ☐ Caucasian/White ☐ Hispanic/Latino ☐ Asian ☐ 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

RACE CLASSIFICATION	RESPONSE PERCENT	# RESPONDENTS
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
Total Surveys:		**1,895**

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

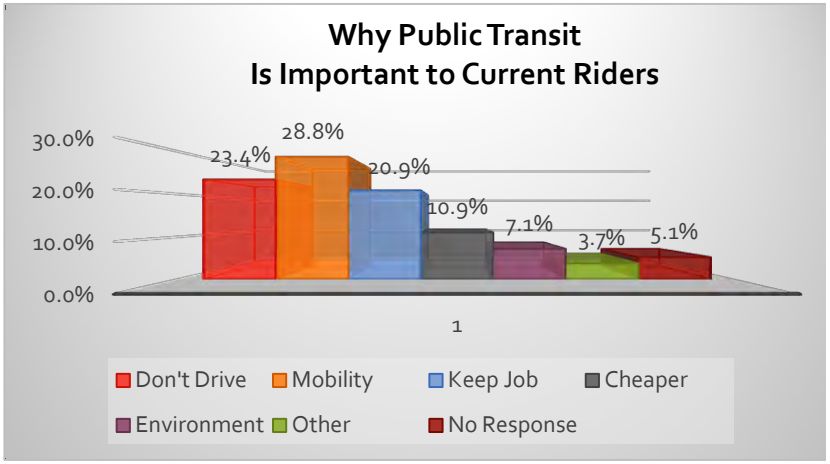
The following table shows how frequently the riders use Valley Metro of which 74% of respondents said they use transit about every day.

Table 3.2-1: Rider Survey: Use Frequency

	PERCENT	# PEOPLE
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
Total People Surveyed		**1,895**

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

EMPLOYMENT STATUS	PERCENT	# RESPONSES
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

ANNUAL FAMILY INCOME	RESPONSE PERCENT	# RESPONDENTS
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
	Total Surveys:	**1,895**

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.

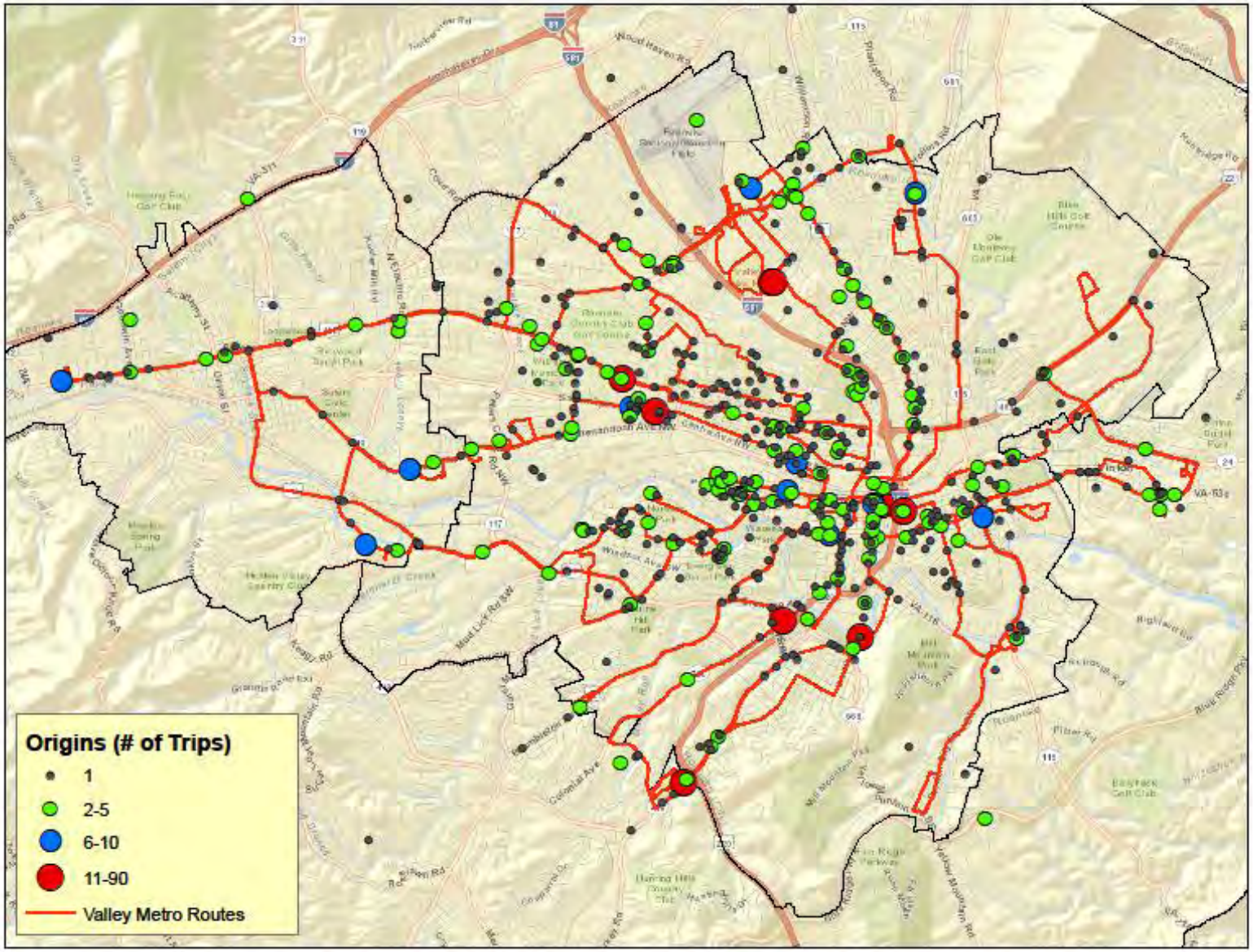
Survey responders noted 640 unique addresses for trip origins of which the top 20 are listed in the following table.

Table 3.4-1: Top 20 Trip Origins

TOP 20 TRIP ORIGINS	ORIGIN ADDRESS	# PEOPLE
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

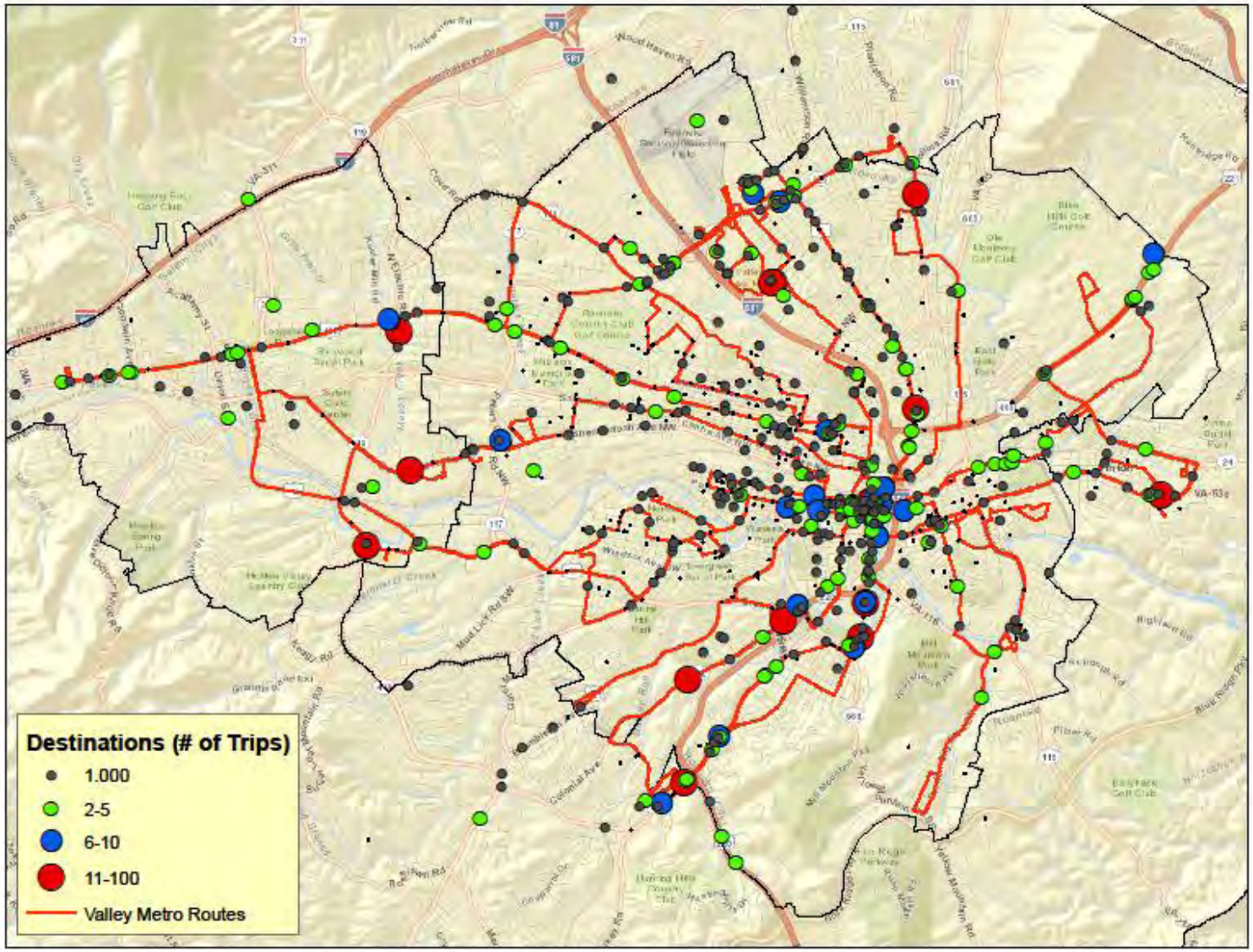


Of the 429 unique destinations noted by respondents, the top twenty are listed below and all are shown in the following map.

Table 3.4-2: Top 20 Trip Destinations

TOP 20 TRIP DESTINATIONS	DESTINATION ADDRESSES	# PEOPLE
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

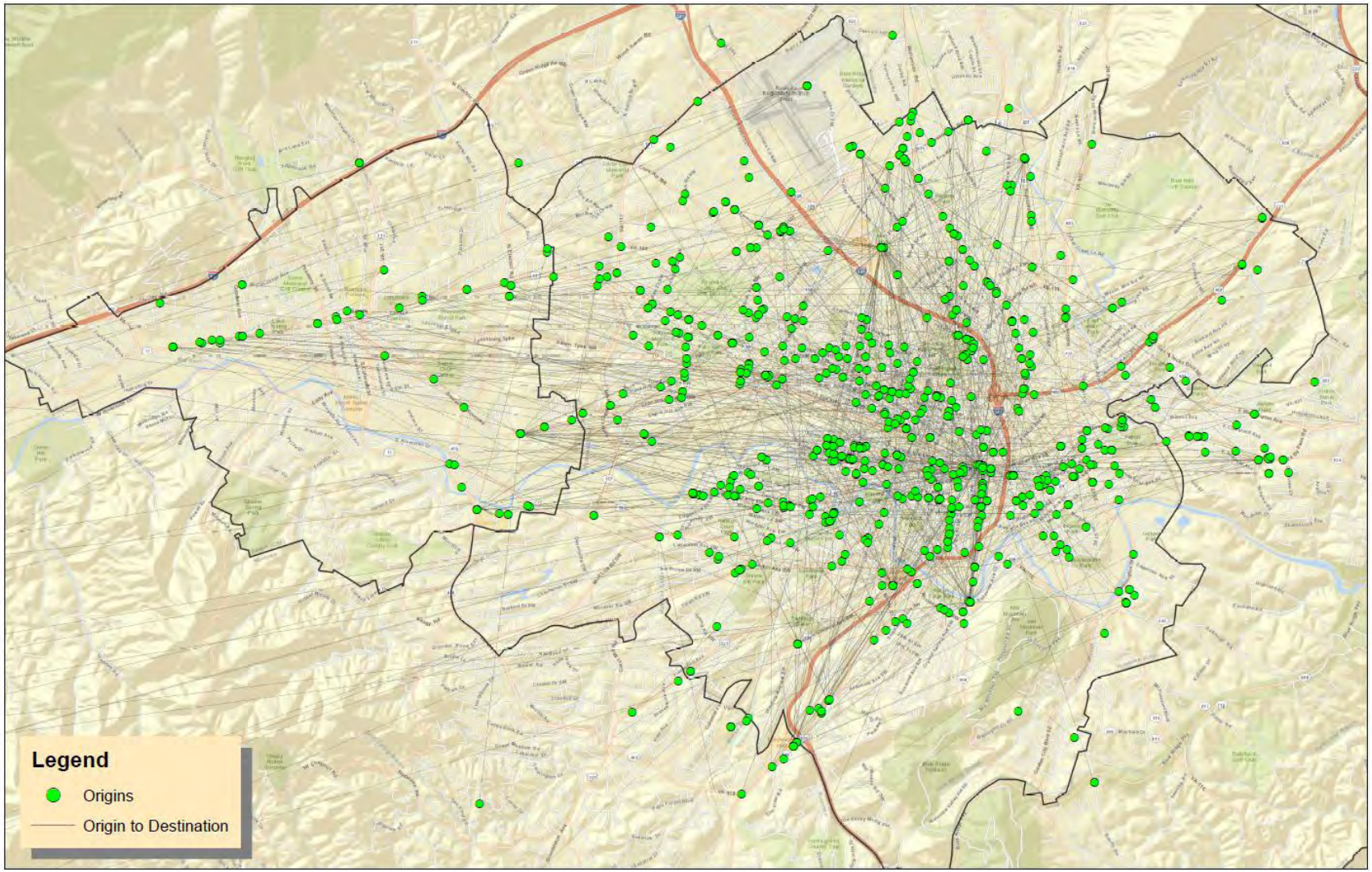
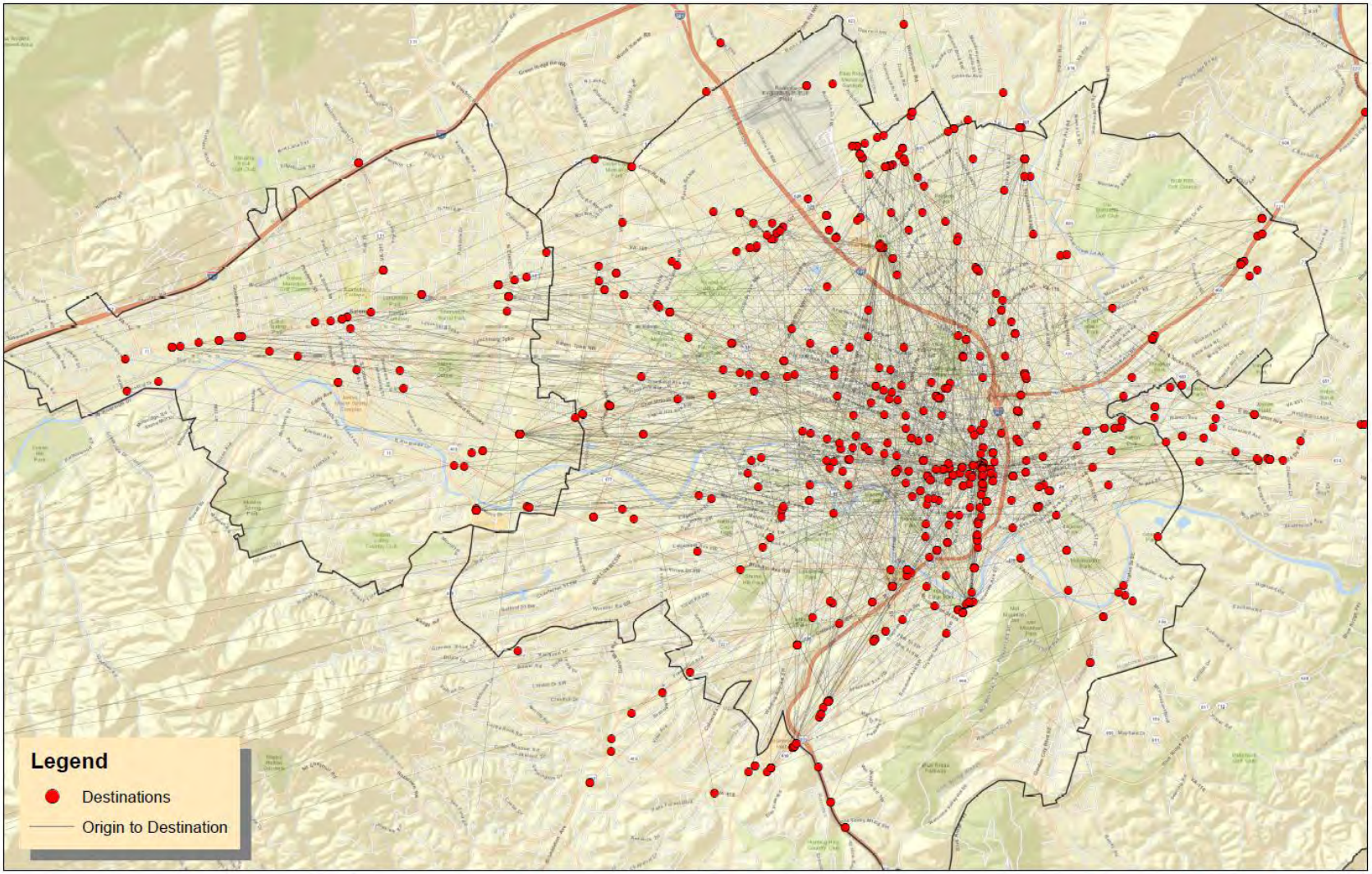


Figure 3.4-4: Linear Path Analysis: Destinations of Trips taken on Valley Metro on June 24, 2014



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

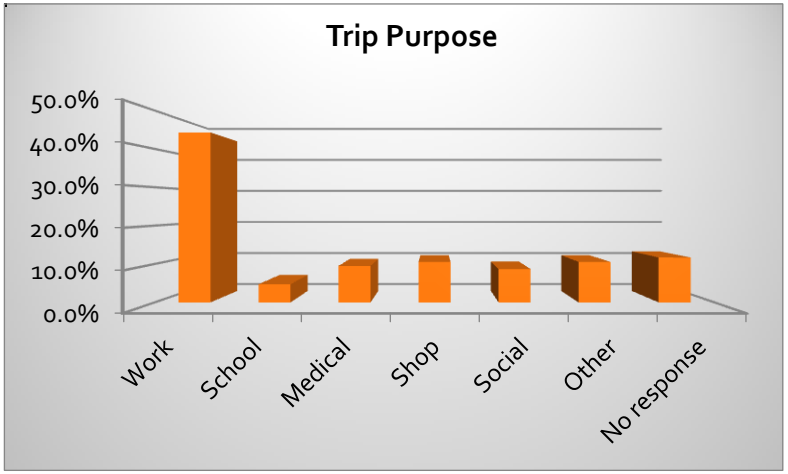
In general, the people who indicated that their trip would take more than an hour were traveling on the Smart Way bus or across the region.

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.

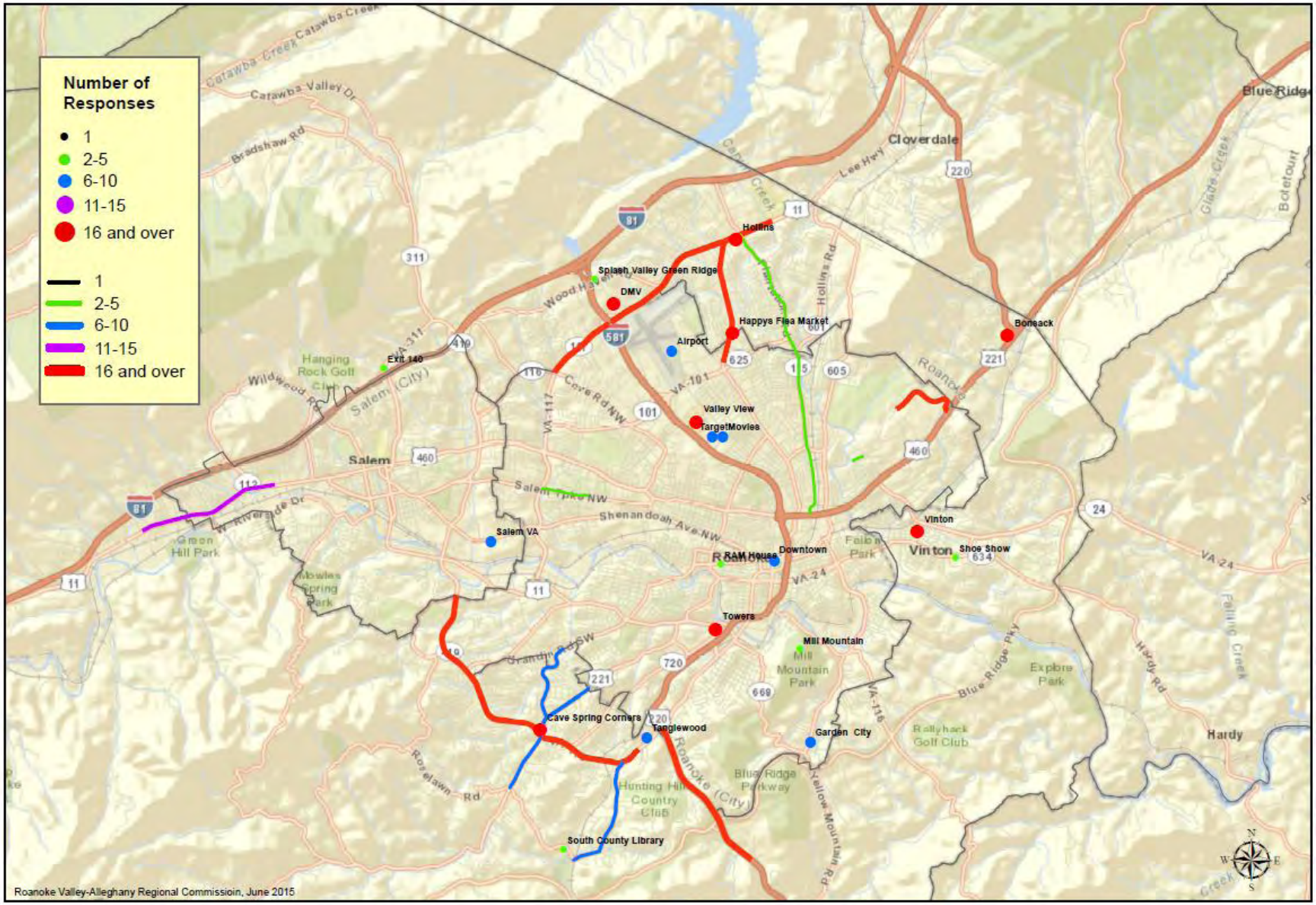
The second location is Salem, which has transit throughout the City. However, to go from western Salem to Roanoke requires traveling to Lewis Gale and the VA Medical Center. The extra time and length of the ride may be the reason why many people indicated Salem needs to be better connected to the transit 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

VALLEY METRO RIDER SURVEY - JUNE 24, 2014		
RANK	TOP LOCATION BETTER CONNECTED TO TRANSIT SYSTEM	PEOPLE
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 table below followed by some additional details.

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	608
2	Great Service	214
3	Bus Conditions	71
4	Consider the Needs of Others	52
5	Timeliness	42
6	Thank you!	32
7	Improve Communication	32
8	Transit Stop Accessibility	27
9	Decision Making	23
10	Fares	18
11	Amenities	15
12	Driver Training	12
13	Ride the Bus	8
14	Service Changes	5
15	Fun	3
16	Better Bus Terminal	3
17	Safety	2
18	Good for the Environment	2
19	Driver salary	1
	Grand Total	**1170**

3.6.1 Additional Service

Riders made more than 600 references to the need for additional 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 5TH 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

2010-2011

SURVEY TRIP SHEET

Trip ID	M5116	Bus Number	0614	Bus Type (circle one)	Valley Metro / Smart Way
Date	5/24/11	Route Number	51		

Stop Description	Odometer	Passengers Boarded	Passengers Deboarded	Passengers On Board	Bikes Boarded	Bikes Deboarded	Lift Used
Campbell Court	107 ~~1.1~~	12		12	–	–	
Patrick Henry Hotel	~~1.4~~		1	11			
Jefferson & Mountain	1.6		2	9			
Jefferson & Walnut	1.8		1	8			
Carilion RMH	2.8		1	7			
Franklin & Roberts	4.1	2	~~2~~ 1	8			
Franklin & Kmart	4.9	1	1	8			
Franklin & Townside	5.0		1	7			
Franklin & Applemart	~~5.2~~		1	6			
Kroger	~~5.7~~	1	1	6			
Tanglewood, EOL	6.0	4	–	10			

Surveyor: [signature] Start Time: End Time:

2013-2014

SURVEY TRIP SHEET								
	Surveyor:		Date:		Bus Number:		Start Time:	
	Bus Type:	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								

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: $\text{Average Stop Usage} = \frac{2 + 10}{16} = .75$

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: $\text{Stop Frequency} = \frac{7}{16} = 0.44 = 44\%$

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

	2013 STOP FREQUENCY	2010 STOP FREQUENCY
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:

Bus Stop Activity Index =

Stop Usage * Stop Frequency

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

	2013 DATA - STANDARDIZED BUS STOP DESCRIPTION	2013 ACTIVITY INDEX	2010 ACTIVITY INDEX
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 3rd most active stop at that time.

Table 4.3-2: 25 Most Active Bus Stops in 2010-2011 Survey

	2010 DATA - STANDARDIZED STOP DESCRIPTION	2010 ACTIVITY INDEX	2013 ACTIVITY INDEX
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	Ferncliff 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 27th 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

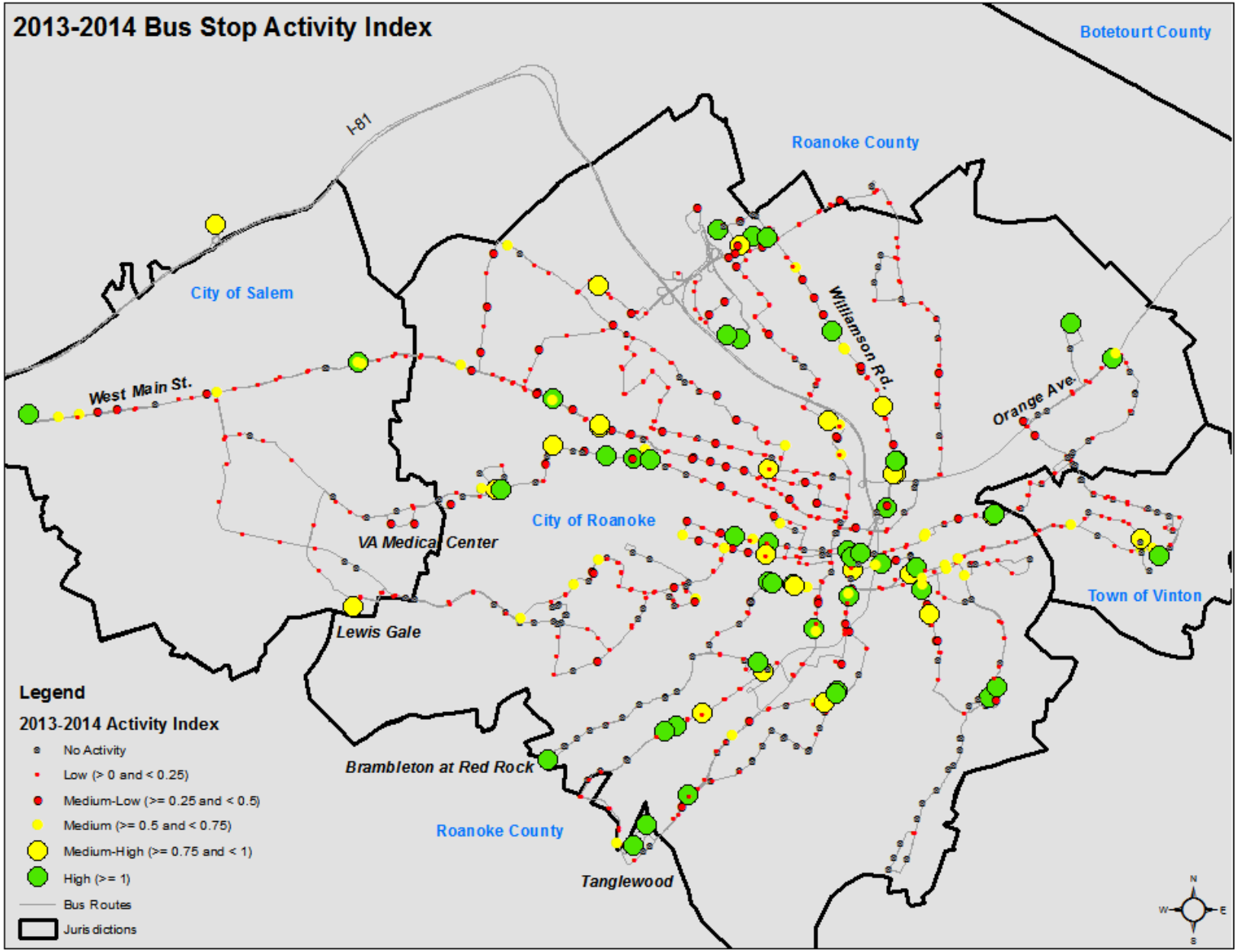
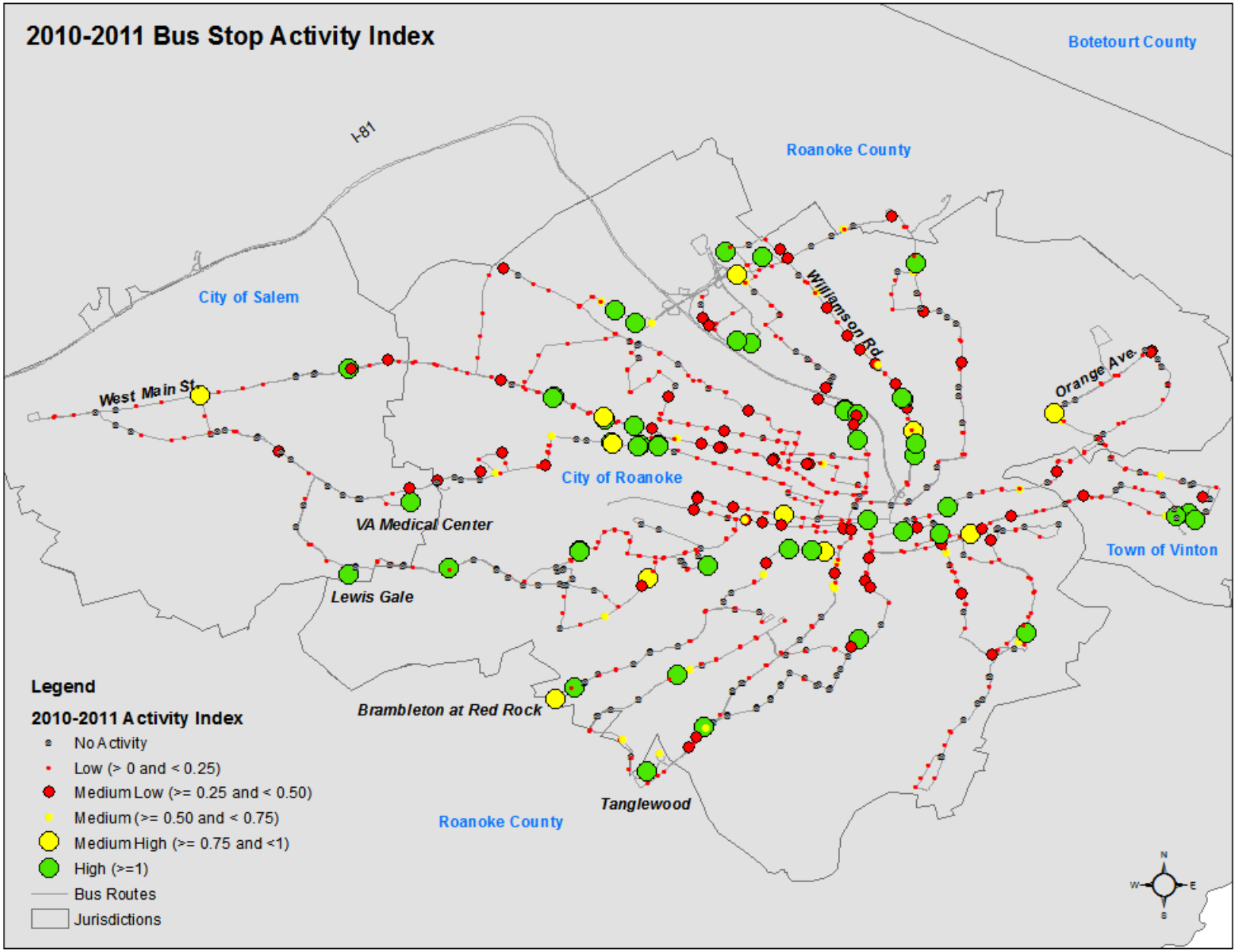


Figure 4.3-2: Bus Stop Activity Index 2010-2011



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

BUS STOP ACTIVITY INDEX	BUS STOP ACTIVITY LEVEL	2010-2011 NUMBER OF STOPS	2010-2011 PERCENT OF TOTAL STOPS	2013-2014 NUMBER OF STOPS	2013-2014 PERCENT OF TOTAL STOPS
0	No Activity	Not Surveyed (162 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%
	Total	**777 surveyed** **939 estimated total stops at the time of the survey**		**933**	

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
Staffed by the REGIONALcommission

1. In what locality do you reside?

- ☐ Bedford County
- ☐ Botetourt County
- ☐ Montgomery County
- ☐ Roanoke County
- ☐ City of Roanoke
- ☐ City of Salem
- ☐ Town of Vinton
- ☐ Other (please specify)

2. What is your residence zip code?

3. In what locality do you work?

- ☐ Not applicable, I don't work
- ☐ Bedford County
- ☐ Botetourt County
- ☐ Montgomery County
- ☐ Roanoke County
- ☐ City of Roanoke
- ☐ City of Salem
- ☐ Town of Vinton
- ☐ Other (please specify)

4. What is your work zip code?

5. What is your age?

☐ Under 18 ☐ 18-25 ☐ 26-35 ☐ 36-45
☐ 46-55 ☐ 56-65 ☐ Over 65

6. Do you own a car?

☐ Yes ☐ No

7. Do you have a mobility disability and/or use a wheelchair, scooter, or other mobility device?

☐ Yes ☐ No

8. Do you think local governments should allocate more money to construct/improve pedestrian facilities?

☐ Yes ☐ No

9. Please share why you think walkability is or is not important to the Roanoke Valley.

10. How would you classify your walking (or rolling if you use a wheelchair or mobility scooter) ability in terms of the following?

- ☐ I have no difficulty walking a quarter-mile or more.
- ☐ I can walk a couple blocks but more is difficult for me.
- ☐ I can walk a block but more is difficult for me.
- ☐ I am unable to walk a block.

11. On average, how many DAYS per week do you walk (roll) 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						

12. 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.

1

2

3

13. Do you think local governments should allocate more money to improve public transit services?

☐ Yes ☐ No

14. Please share why you think public transit is or is not important in the Roanoke Valley.

15. In the past year, have you used public transit (such as Valley Metro, Smart Way, RADAR)?

☐ Yes ☐ No

16. What public transit service did you use?

- ☐ Valley Metro local fixed routes
- ☐ Starline Trolley
- ☐ Smart Way Commuter Bus
- ☐ Smart Way Commuter Bus to Amtrak
- ☐ RADAR – STAR service (City of Roanoke, Salem, and Vinton residents.
- ☐ RADAR – County of Roanoke (CORTRAN) service
- ☐ Other (please specify)

17. In the past year, how often did you use public transit?

- ☐ Less than once a month
- ☐ 1-3 times per month
- ☐ Once or twice a week
- ☐ About every day

18. 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						

19. If you use public transit to get to work, please indicate the main reason by checking the appropriate box below.

- ☐ Not applicable; I don't use public transit to get to work.
- ☐ It is my only way to get to work.
- ☐ The cost of parking my car is too much.
- ☐ It is environmentally-friendly.
- ☐ Other (please specify)

20. What factor(s) discourage you from using public transit? Select all that apply.

- ☐ Not Applicable: I frequently use public transit.
- ☐ The bus doesn't come near my home.
- ☐ The bus doesn't go where I need to go.
- ☐ The bus doesn't come often enough for me to use it.
- ☐ The bus ride to where I need to go is too long.
- ☐ I don't understand how the bus system works.
- ☐ I worry about my personal safety.
- ☐ Other (please specify)

21. If it were convenient and affordable, would you consider using public transit?

- ☐ Not Applicable: I currently use public transit.
- ☐ Yes ☐ No

22. 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.

1

2

3

23. 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?

24. What is the most important message you would like to share with decision-makers about walking?

25. What is the most important message you would like to share with decision-makers about public transit?

26. 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
Mail: P.O. Box 2569, Roanoke, VA 24010

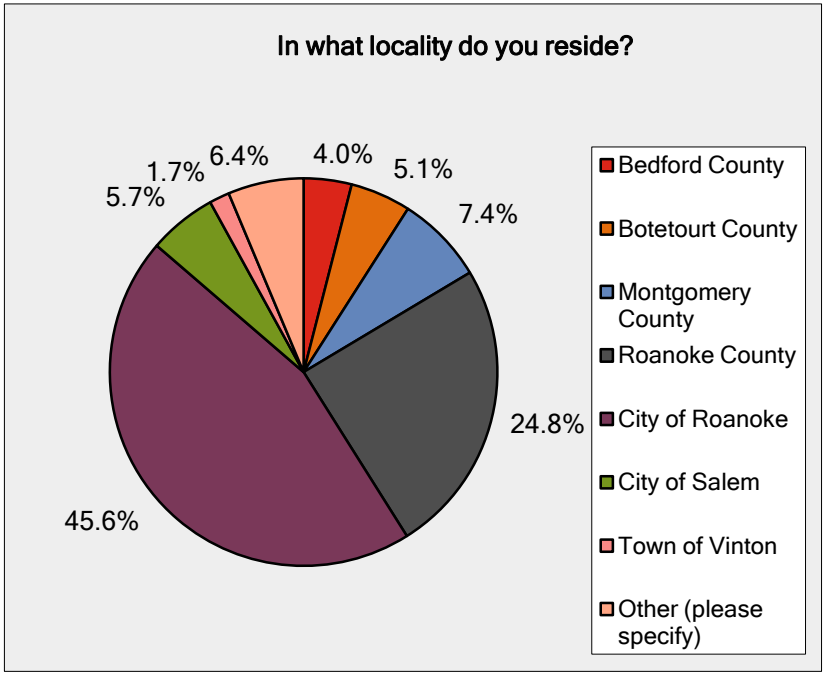
5.2 Place of Residence

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*
	answered question		**470**
	skipped question		**1**

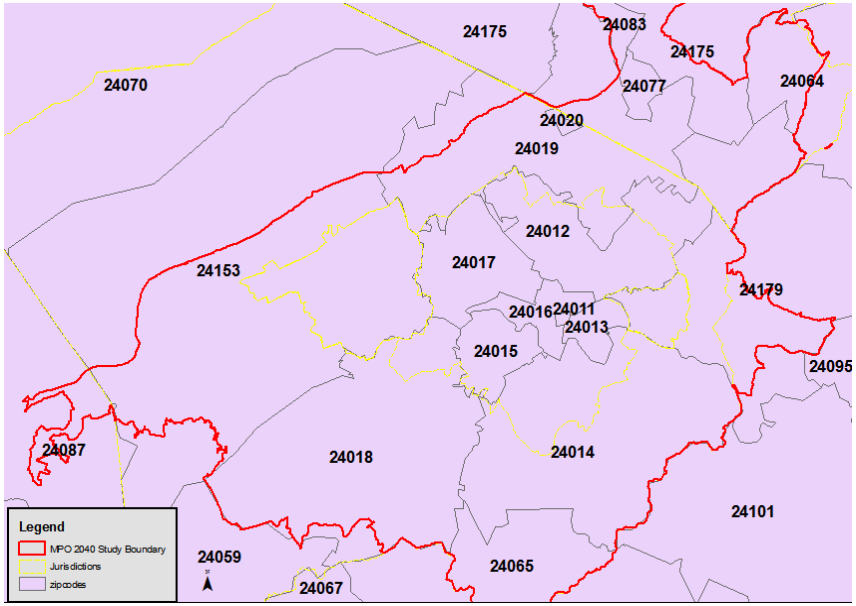
Figure 5.2-1: Public Survey: Locality of Residence



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	

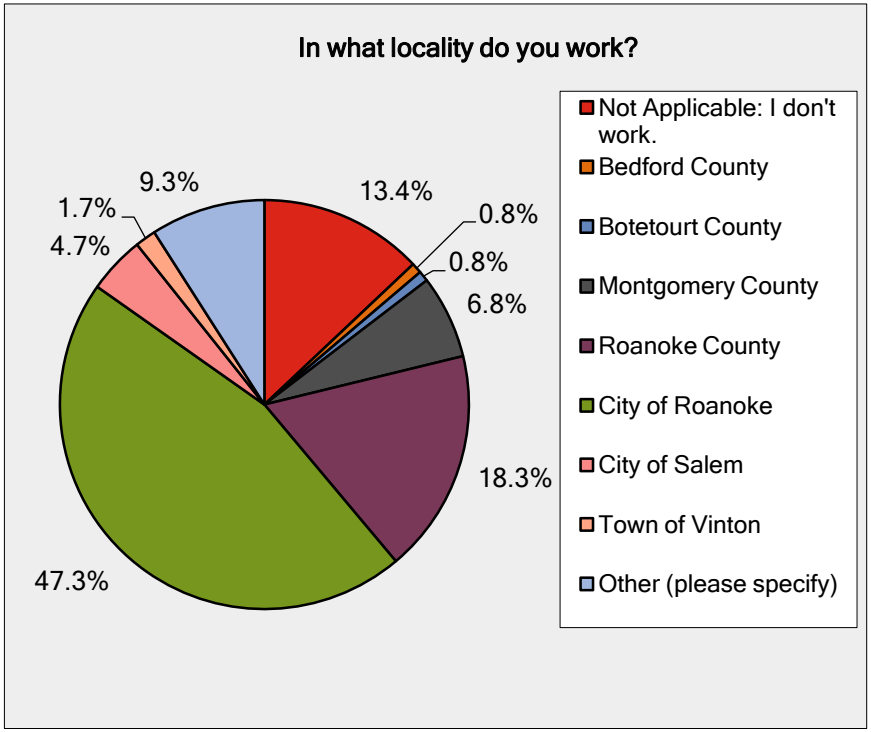
5.3 Place of Work

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**
At Home	*0.8%*	*4*
All	*0.6%*	*3*
Various states	*0.2%*	*1*
Overseas	*0.2%*	*1*
Alleghany County	*0.2%*	*1*
Town of Blacksburg	*0.8%*	*4*
City of Radford	*0.8%*	*4*
Craig County	*0.2%*	*1*
Town of Dublin	*0.2%*	*1*
Franklin County	*0.2%*	*1*
Town of Hillsville	*0.2%*	*1*
City of Lynchburg	*0.6%*	*3*
Floyd County	*0.2%*	*1*
New River Valley	*0.2%*	*1*
Town of Rocky Mount	*0.4%*	*2*
Total Job Location Responses		**471**

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.

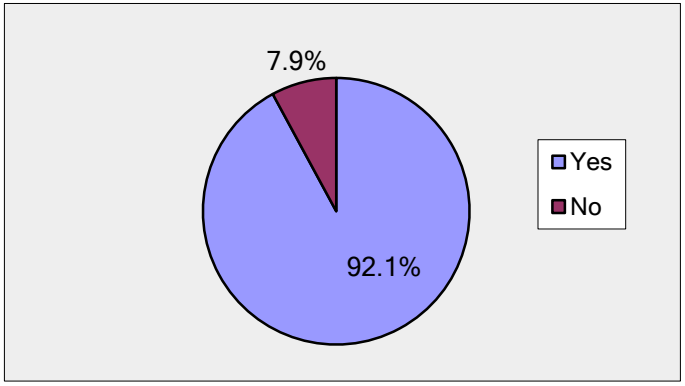
Table 5.4-1: Public Survey: Age

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
answered question		469
skipped question		2

5.5 Vehicle Ownership and Personal Mobility

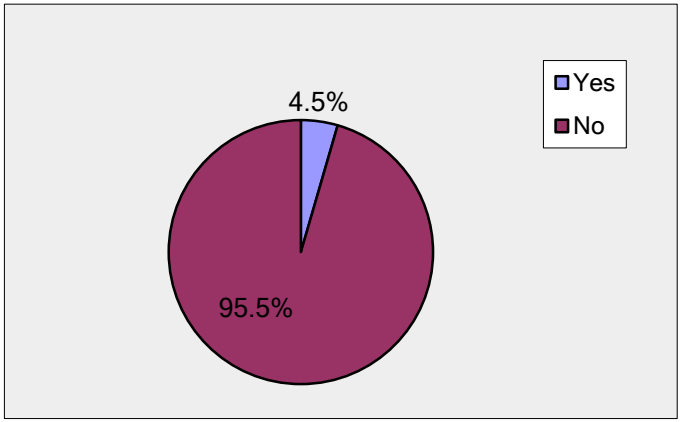
Most respondents (92%) stated they own a car.

Figure 5.5-1: Public Survey: Vehicle Ownership



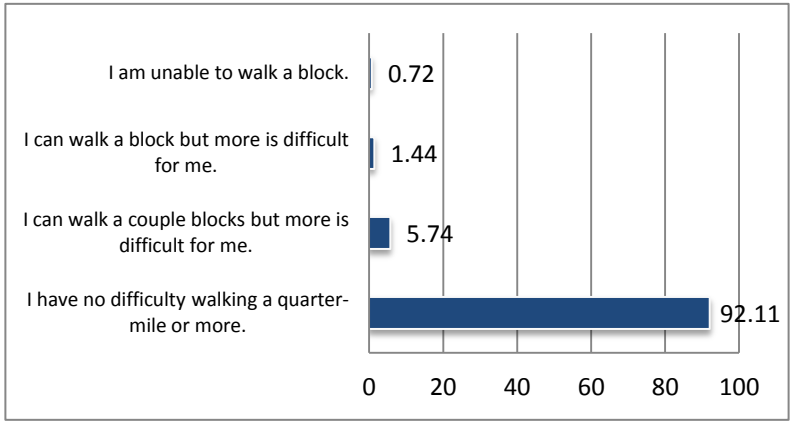
When asked if they have a physical disability that impairs their mobility such as if they use a wheelchair, a scooter, or other mobility device, 95% stated they do not.

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

	PERCENT	# PEOPLE
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
Total People Surveyed		**471**

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 overwhelming 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

CATEGORY	# RESPONSES
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
Total	**422**

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.

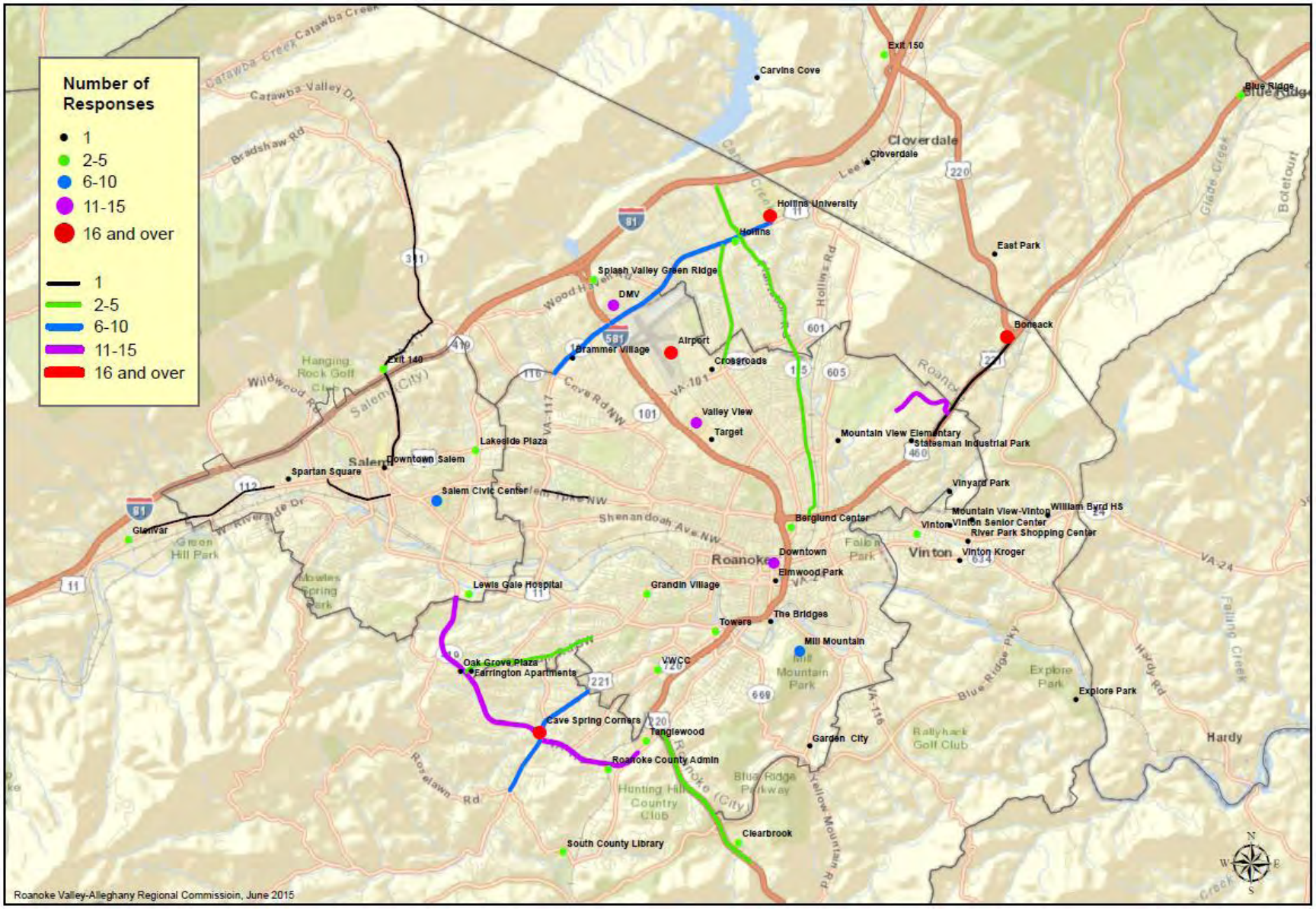
Table 5.7-2: Public Survey: Top Locations that should be Better Connected via the Public Transit Network

RANK	LOCATION	# RESPONDENTS
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 EFFICENT 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

CATEGORY	# RESPONSES
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
Grand Total	**233**

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 ¾ 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

DATABASE	# RECORDS	CONTENT
Customer	14,745	Customer ID number Active Customer Radar ID Address Phone Number Birth date Elderly Mobility Type Funding Source Service Attendant Count
Trips	218,199	Trip ID Trip Date Day of Week Radar ID Pick Up Address Pick Up Zip Drop Off Address Drop Off Zip Service Funding Source Estimated Trip Distance Mobility Type 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

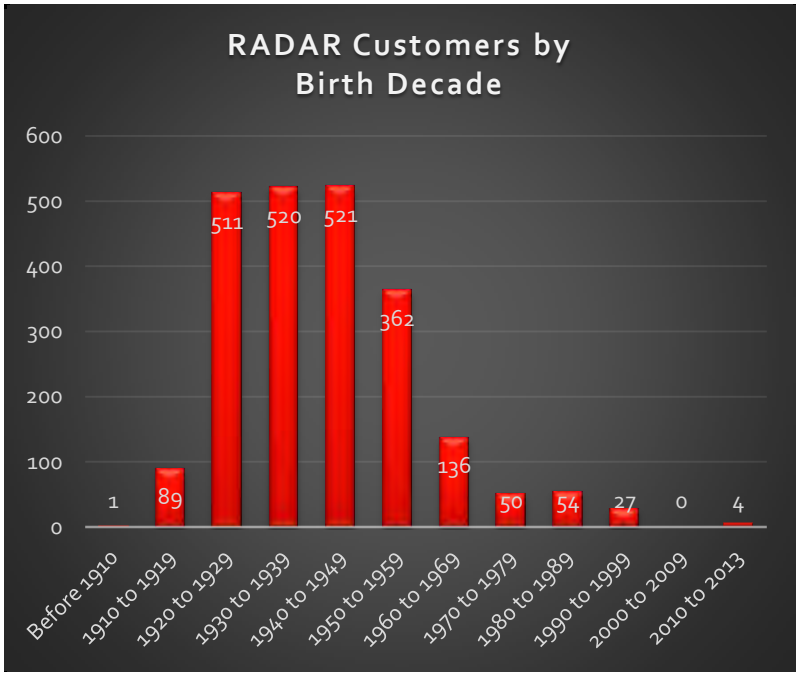
Of the active customers, some were registered both for STAR and CORTRAN service as the breakdown below shows.

- 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

AGE RANGE	BIRTH DECADE	# CUSTOMERS	% CUSTOMERS
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%
	Grand Total	**2,612**	

6.1.2 Mobility Type

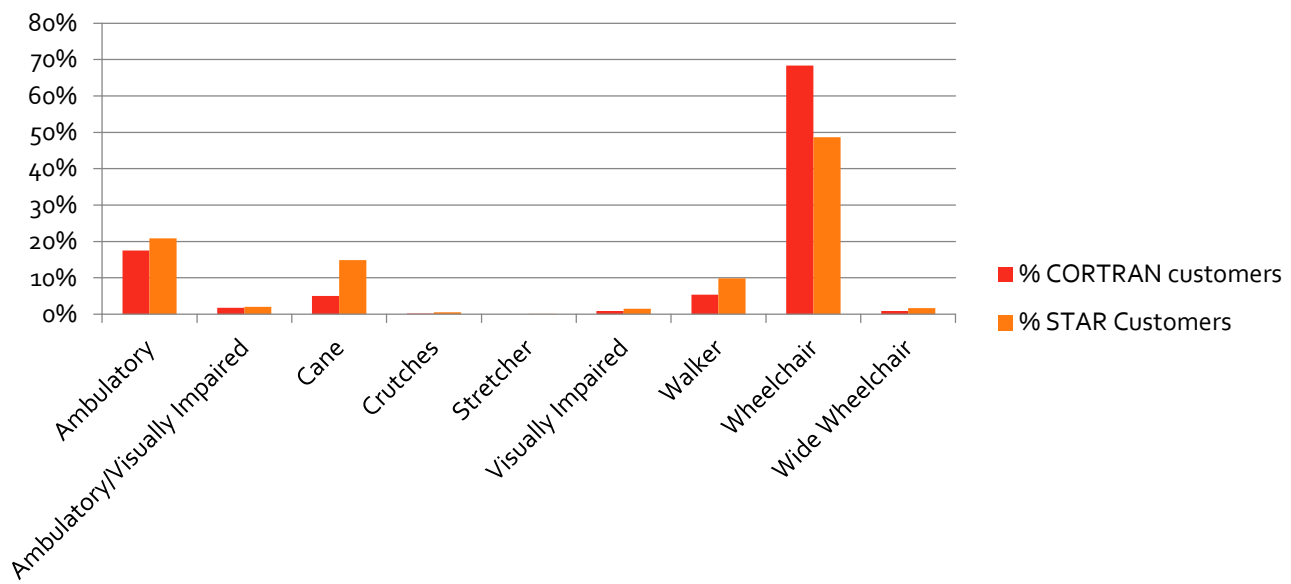
In order to coordinate rides using the vehicles available, RADAR records people's mobility. Depending on the vehicle used, two to three regular wheelchairs can usually be accommodated. The time to board/deboard a passenger in a wide wheelchair is more than for a regular wheelchair and often more time-consuming 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

MOBILITY TYPE	UNKNOWN SERVICE	# CORTRAN CUSTOMERS	% CORTRAN CUSTOMERS	# STAR CUSTOMERS	% STAR CUSTOMERS	TOTAL	% OF TOTAL
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%
Total	**7**	**1,202**	**100%**	**1,403**	**100%**	**2,612**	**100%**

Figure 6.1-2: Percent of RADAR Customers by Mobility Type



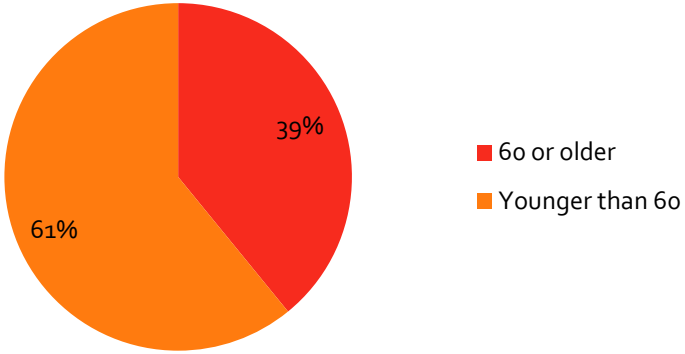
6.1.3 Elderly

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

ELDERLY?	# OF CORTRAN CUSTOMERS	% OF CORTRAN CUSTOMERS
False (No)	**470**	**39%**
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%
True (Yes)	**732**	**61%**
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%
Total	**1,202**	

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 ¾-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

FUNDING SOURCE	# CUSTOMERS	% CUSTOMERS
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%
CORTRAN TOTAL Customers	**1,218**	
STAR 8260 (City of Roanoke, City of Salem, Vinton)	1418	100%
STAR 8264 (JARC)	257	18%
STAR 8263 (New Freedom)	588	41%
STAR TOTAL Customers	**1,418**	

Figure 6.1-4: Source of Funding Subsidy for CORTRAN Customers

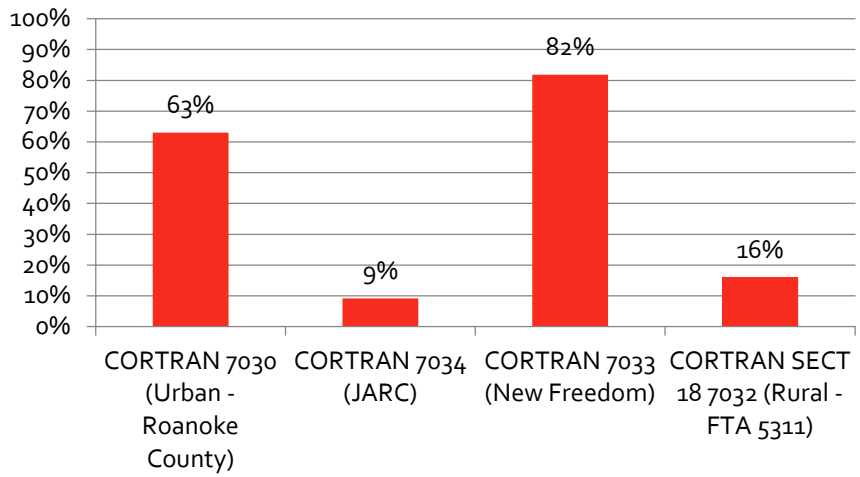
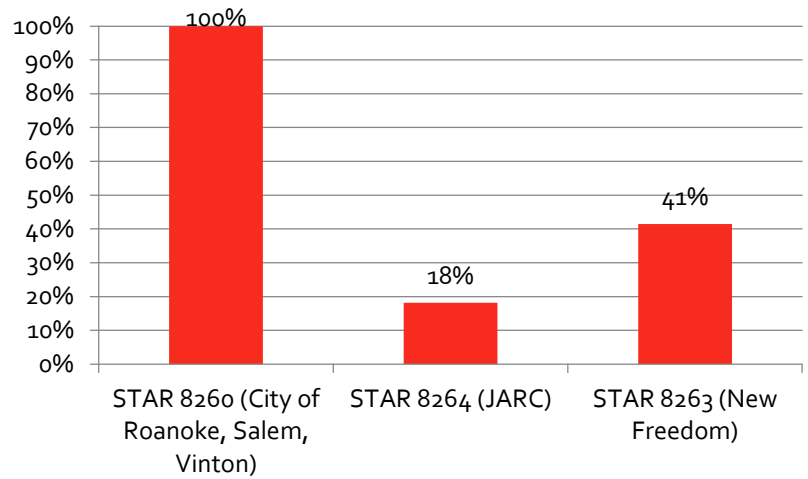


Figure 6.1-5: Source of Funding Subsidy for STAR Customers



6.2 Trips Database

Over the course of the two-year period between January 2012and 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

SERVICE	# TRIPS	% OF TOTAL TRIPS
CORTRAN	52,924	24.25%
STAR	165,275	75.75%
Total	**218,199**	**100.00%**

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%
TOTAL	**52,924**	**100%**

Figure 6.2-1: Percent of CORTRAN Trips by Trip Distance

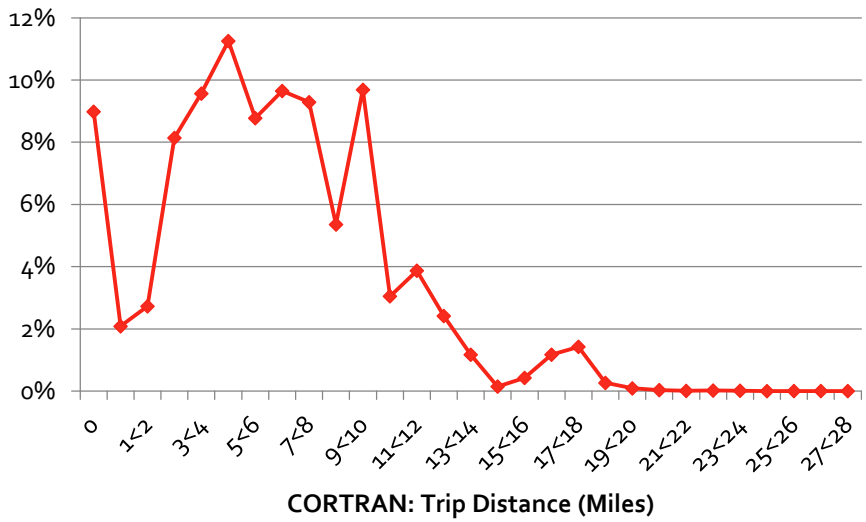
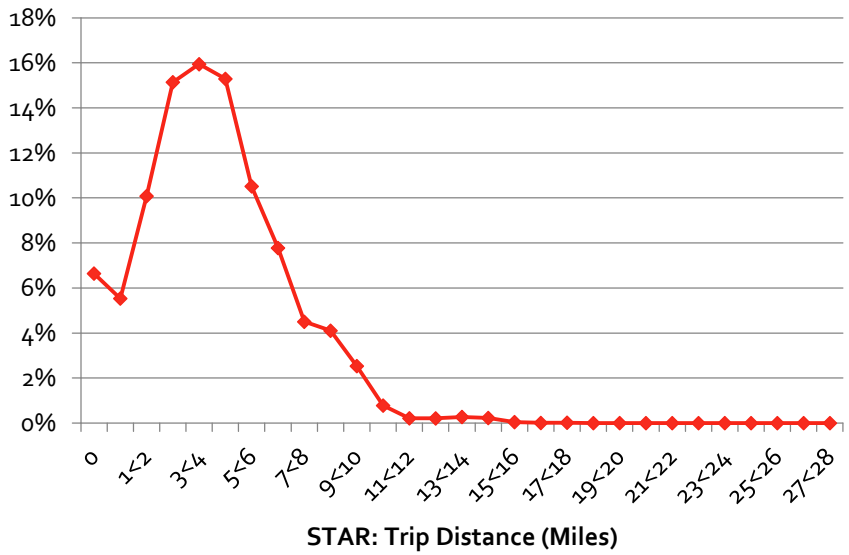


Table 6.2-3: Number of STAR Trips by Trip Distance

MILEAGE RANGE	# TRIPS	% OF STAR TRIPS
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%
TOTAL	**165,275**	**100%**

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

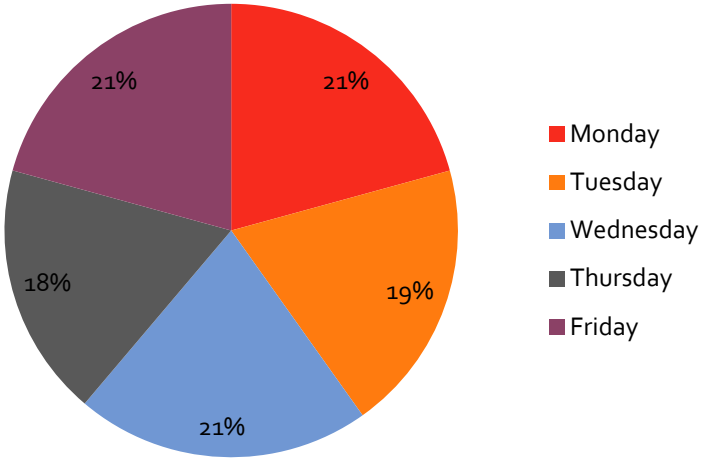
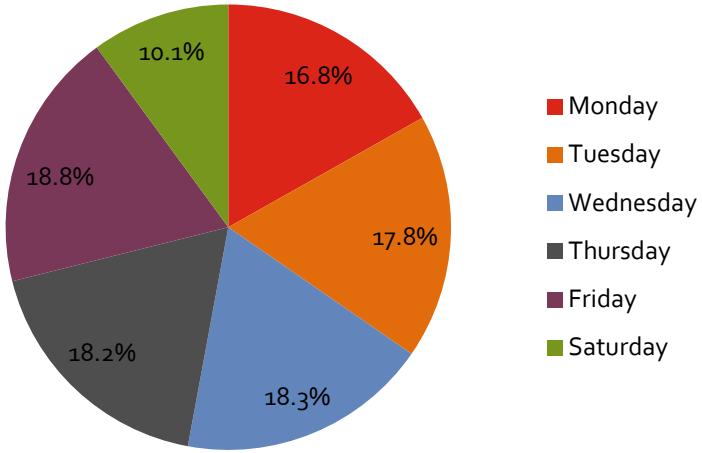


Figure 6.2-4: Percent of STAR Trips by Day of the Week



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

MOBILITY TYPE	# TRIPS ON CORTRAN	CORTRAN	# TRIPS ON STAR	STAR	TOTAL NUMBER	TOTAL PERCENT
Ambulatory	**23,748**	44.87%	**63,374**	38.34%	**87,122**	39.93%
Ambulatory/Visually Impaired	**1,848**	3.49%	**6,565**	3.97%	**8,413**	3.86%
Cane	**5,699**	10.77%	**22,974**	13.90%	**28,673**	13.14%
Crutches	**12**	0.02%	**1,195**	0.72%	**1,207**	0.55%
Visually Impaired	**2,486**	4.70%	**9,144**	5.53%	**11,630**	5.33%
Walker	**4,717**	8.91%	**17,061**	10.32%	**21,778**	9.98%
Wheelchair	**12,566**	23.74%	**43,012**	26.02%	**55,578**	25.47%
Wide Wheelchair	**1,848**	3.49%	**1,950**	1.18%	**3,798**	1.74%
Total	**52,924**	100.00%	**165,275**	100.00%	**218,199**	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

	EDUCATION	EMPLOYMENT	MEDICAL	NUTRITION	RECREATION	SHOPPING	PURPOSE UNKNOWN	GRAND TOTAL
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
Total	4,268	36,035	89,344	2,026	64,428	6,466	15,632	218,199

Table 6.2-6: Percent of Trips by Trip Purpose

	EDUCATION	EMPLOYMENT	MEDICAL	NUTRITION	RECREATION	SHOPPING	PURPOSE UNKNOWN	TOTAL
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%
Grand Total	**1.96%**	**16.51%**	**40.95%**	**0.93%**	**29.53%**	**2.96%**	**7.16%**	**100.00%**

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

	EDUCATION	EMPLOYMENT	MEDICAL	NUTRITION	RECREATION	SHOPPING	TOTAL
CORTRAN	**960**	**9,431**	**26,428**	**183**	**11,530**	**845**	**49,377**
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
STAR	**3,308**	**26,604**	**62,916**	**1,843**	**52,898**	**5,621**	**153,190**
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
Total	**4,268**	**36,035**	**89,344**	**2,026**	**64,428**	**6,466**	**202,567**

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

PLACE	LOCALITY	PICK-UP ADDRESS	CORTRAN TRIPS	STAR TRIPS	TOTAL
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
2012-2013 Total including all other pick-up addresses			**52,924**	**165,275**	**218,199**

Figure 6.2-5: Number of Pick-Ups by Address on Both STAR and CORTRAN (zoomed in)

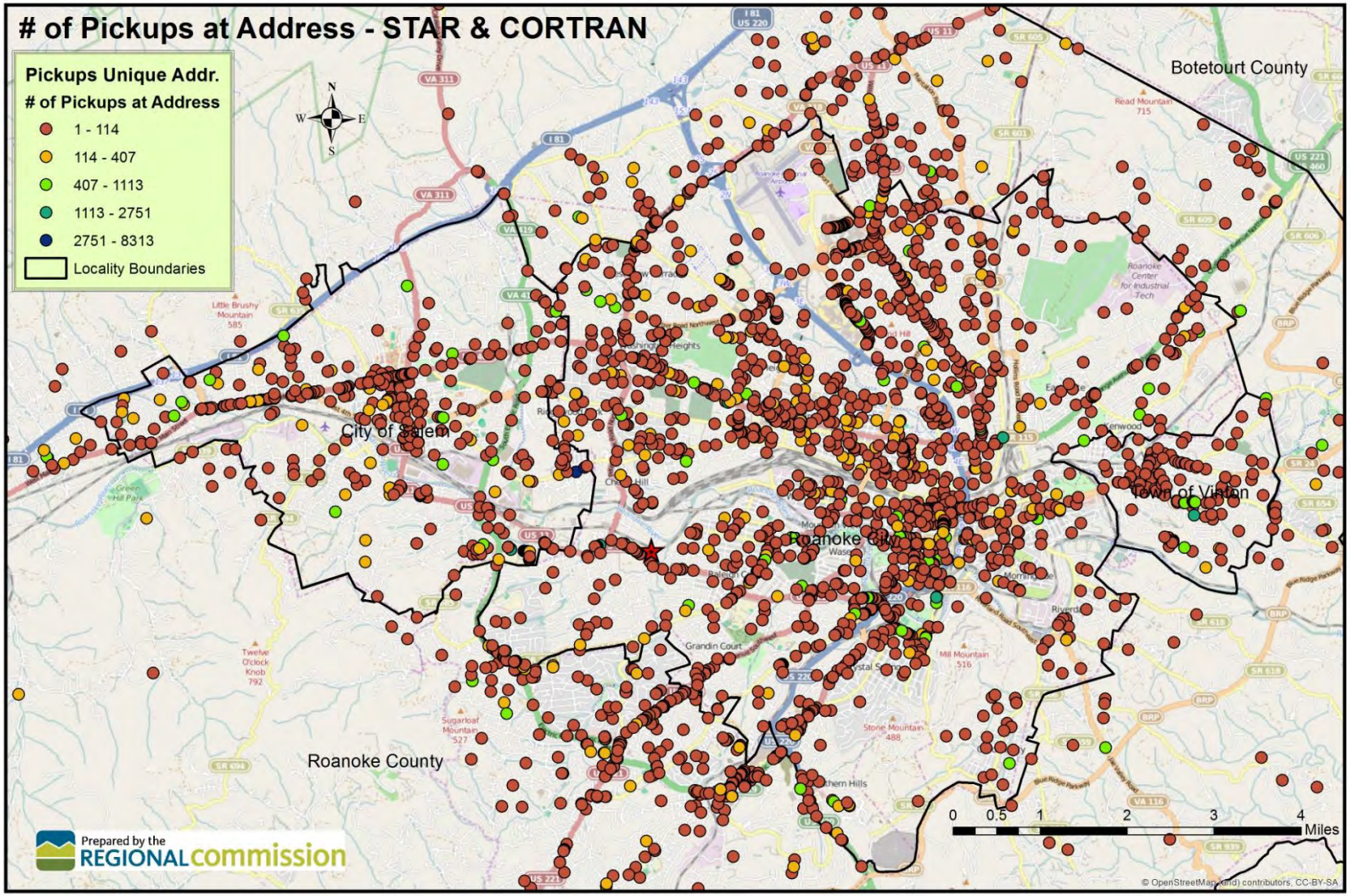
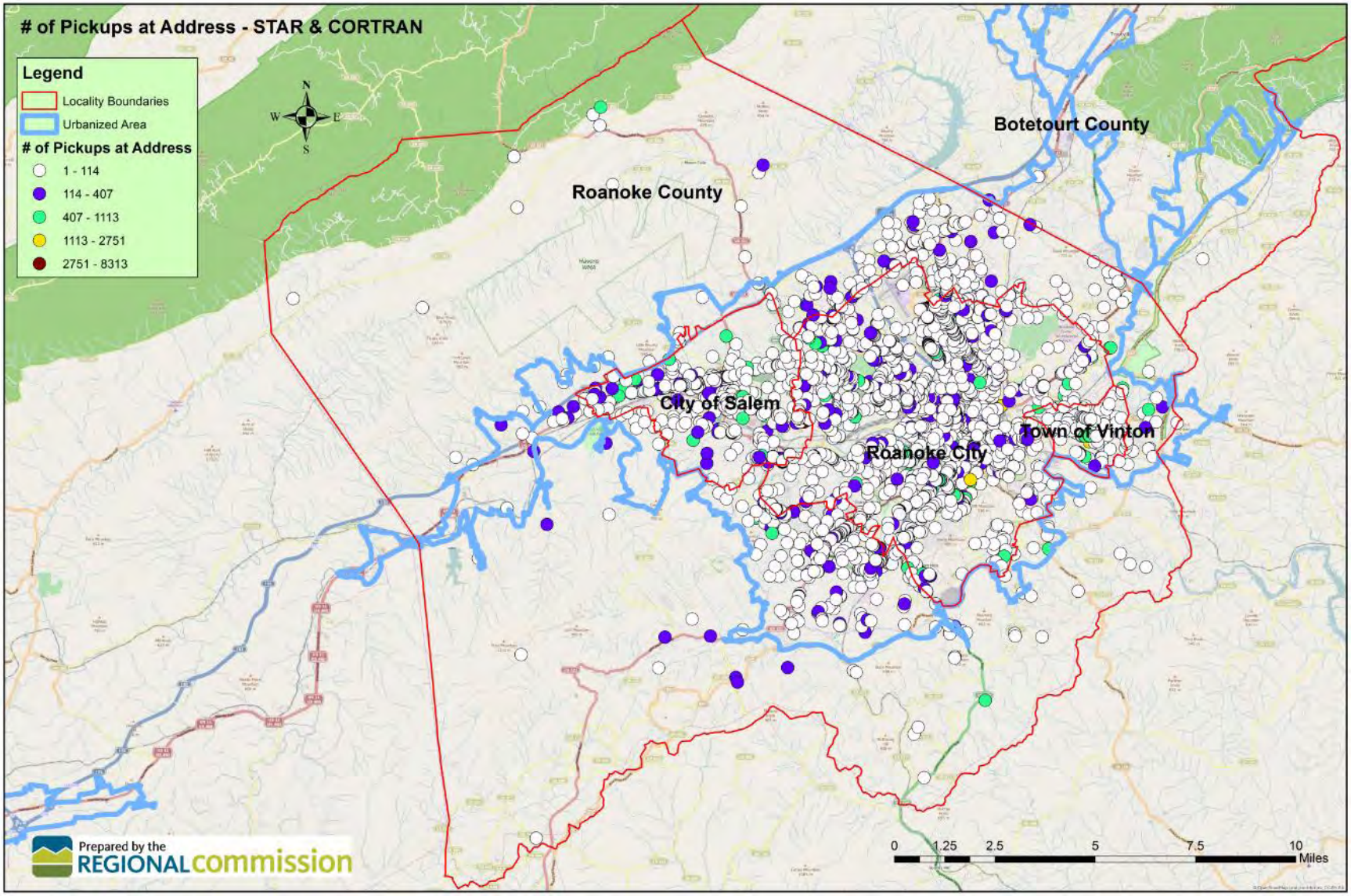


Figure 6.2-6: Number of Pick-Ups by Address on Both STAR and CORTRAN (zoomed out)



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

PLACE	LOCALITY	DROP-OFF ADDRESS	CORTRAN TRIPS	STAR TRIPS	TOTAL
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

PLACE	LOCALITY	DROP-OFF ADDRESS	CORTRAN TRIPS	STAR TRIPS	TOTAL
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
	2012-2013 Grand Total including all other drop-off addresses		**52,924**	**165,275**	**218,199**

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 CORTRAN (zoomed in)

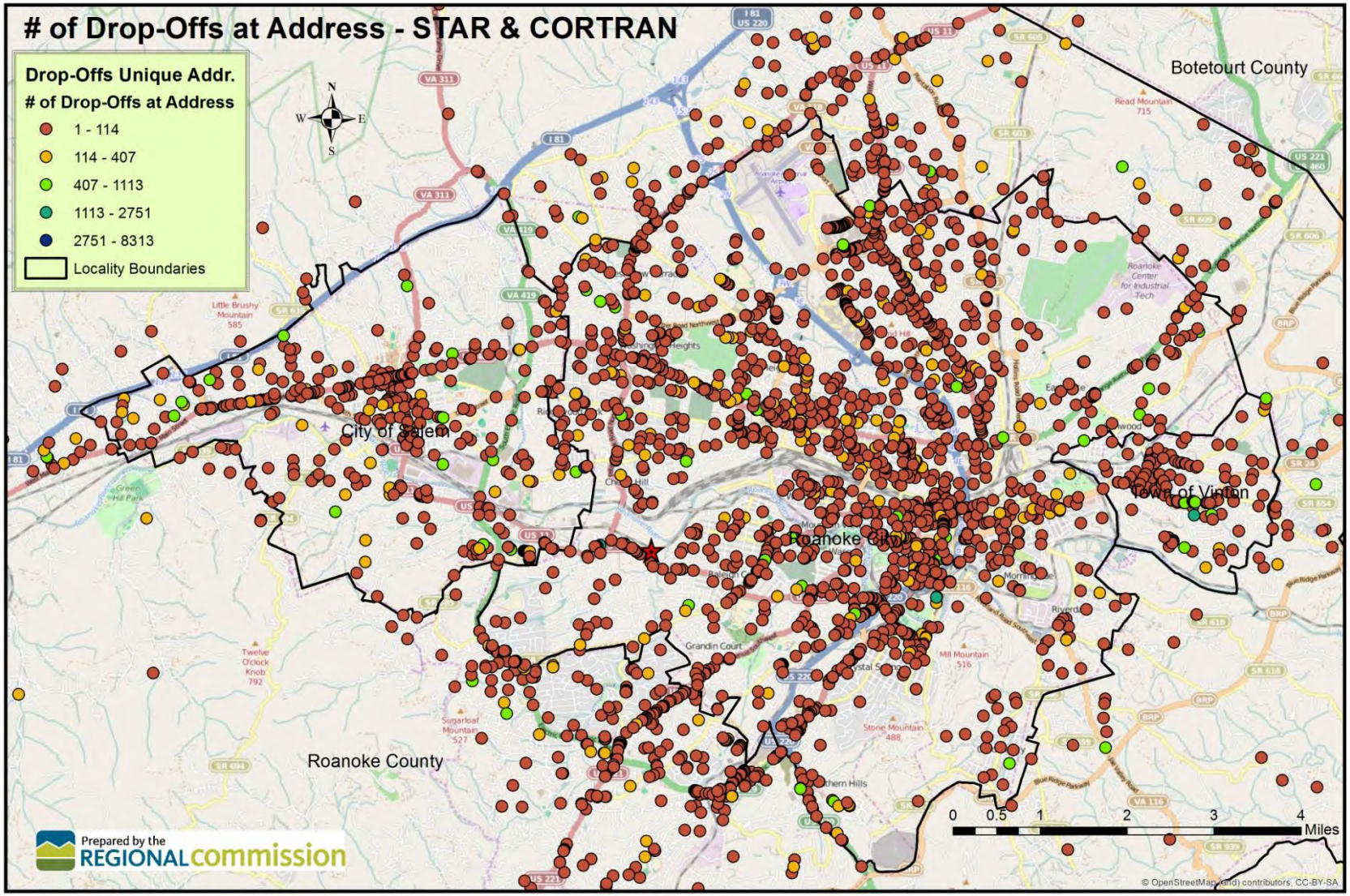
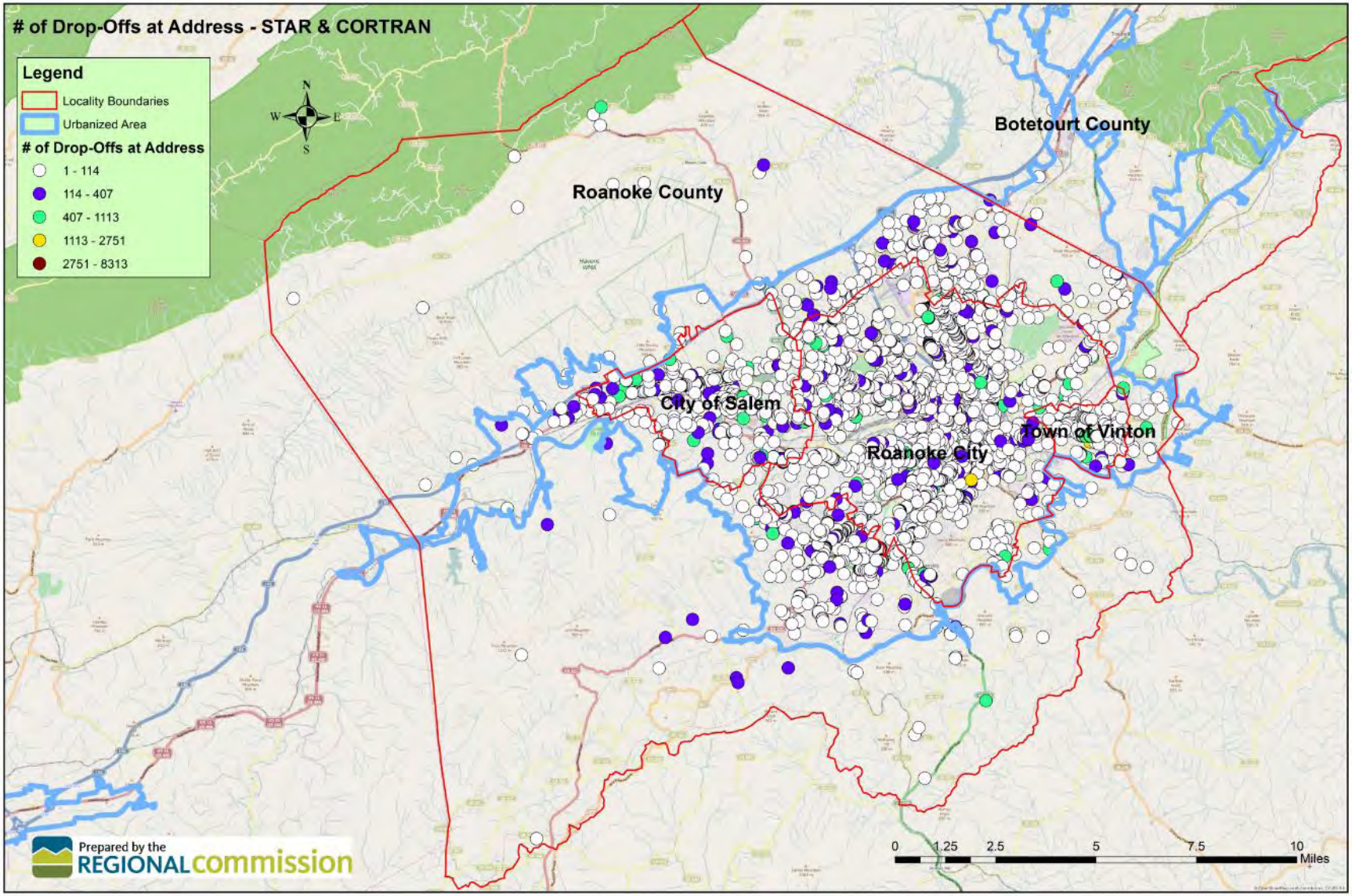


Figure 6.2-8: Map of Number of Drop-Offs by Address on Both STAR and CORTRAN (zoomed out)



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. CORTRAN 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 CORTRAN Trips from Pick-Up Locations to the Adult Care Center (zoomed in)

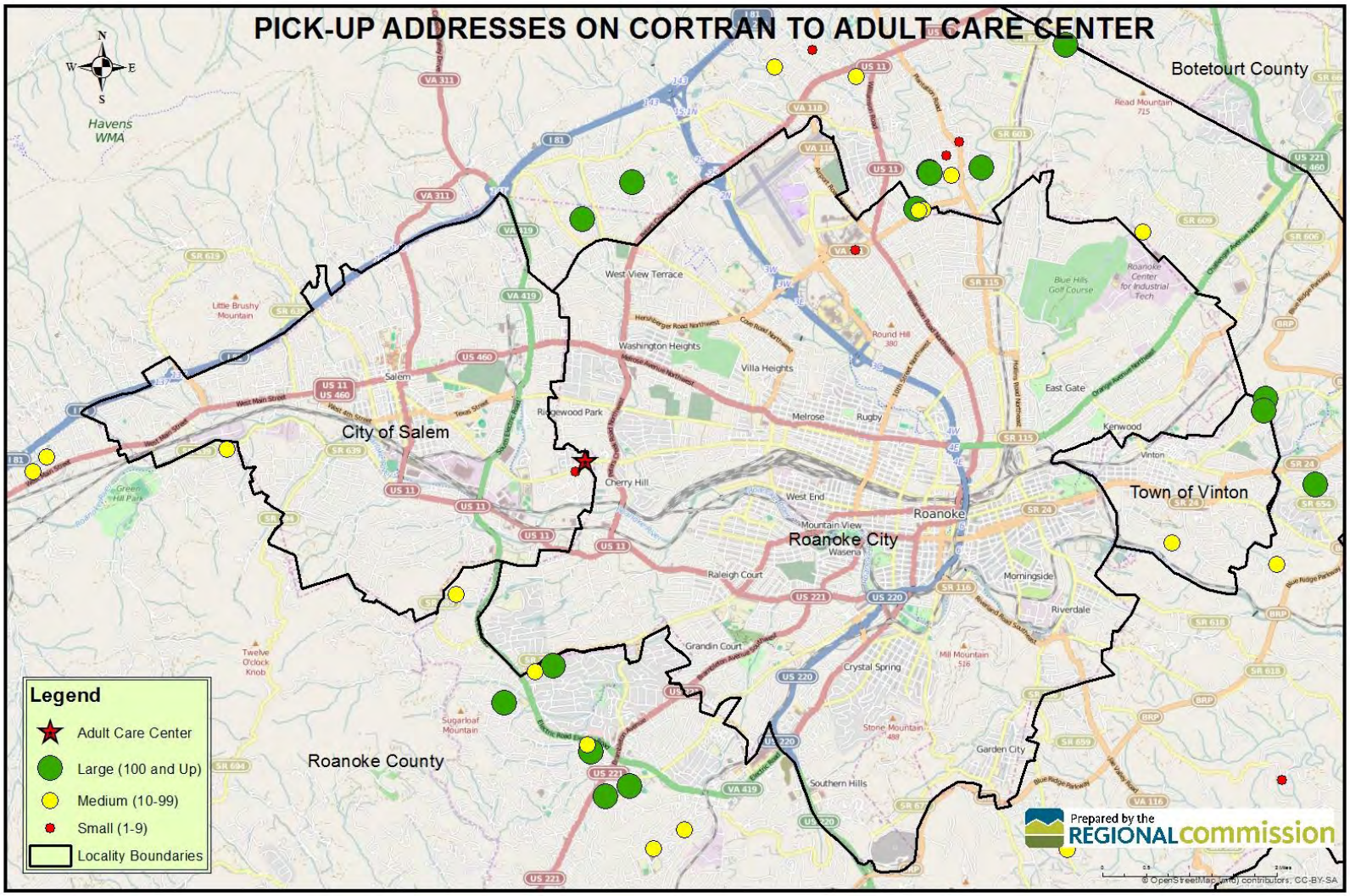


Figure 6.2-10: Map of CORTRAN Trips from Pick-Up Locations to the Adult Care Center (zoomed out)

Figure 6.2-11: Map of STAR Trips from Pick-Up Locations to the Adult Care Center

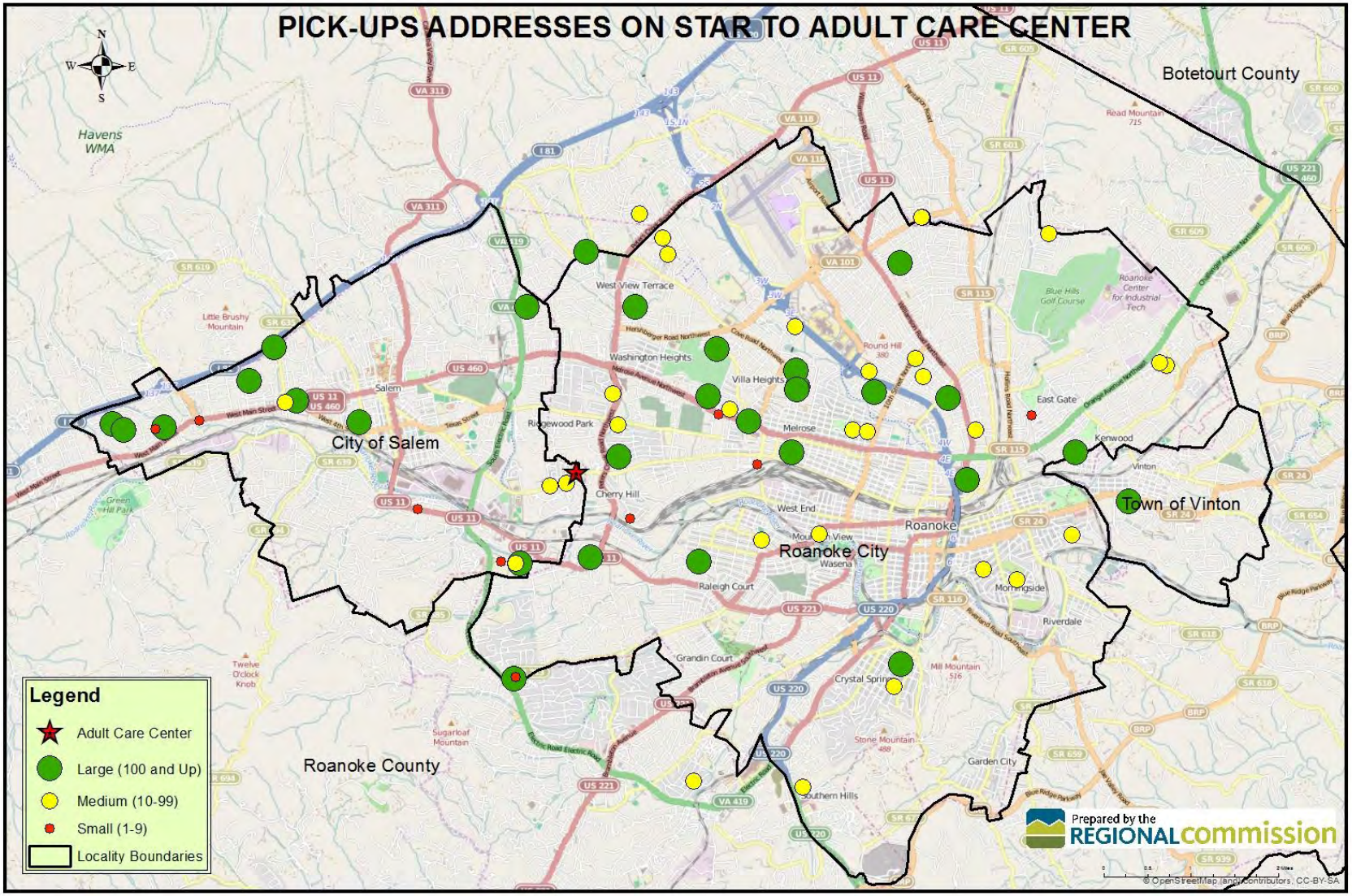


Figure 6.2-12: Map of CORTRAN Trips from Adult Care Center to Drop-Off Locations (zoomed in)

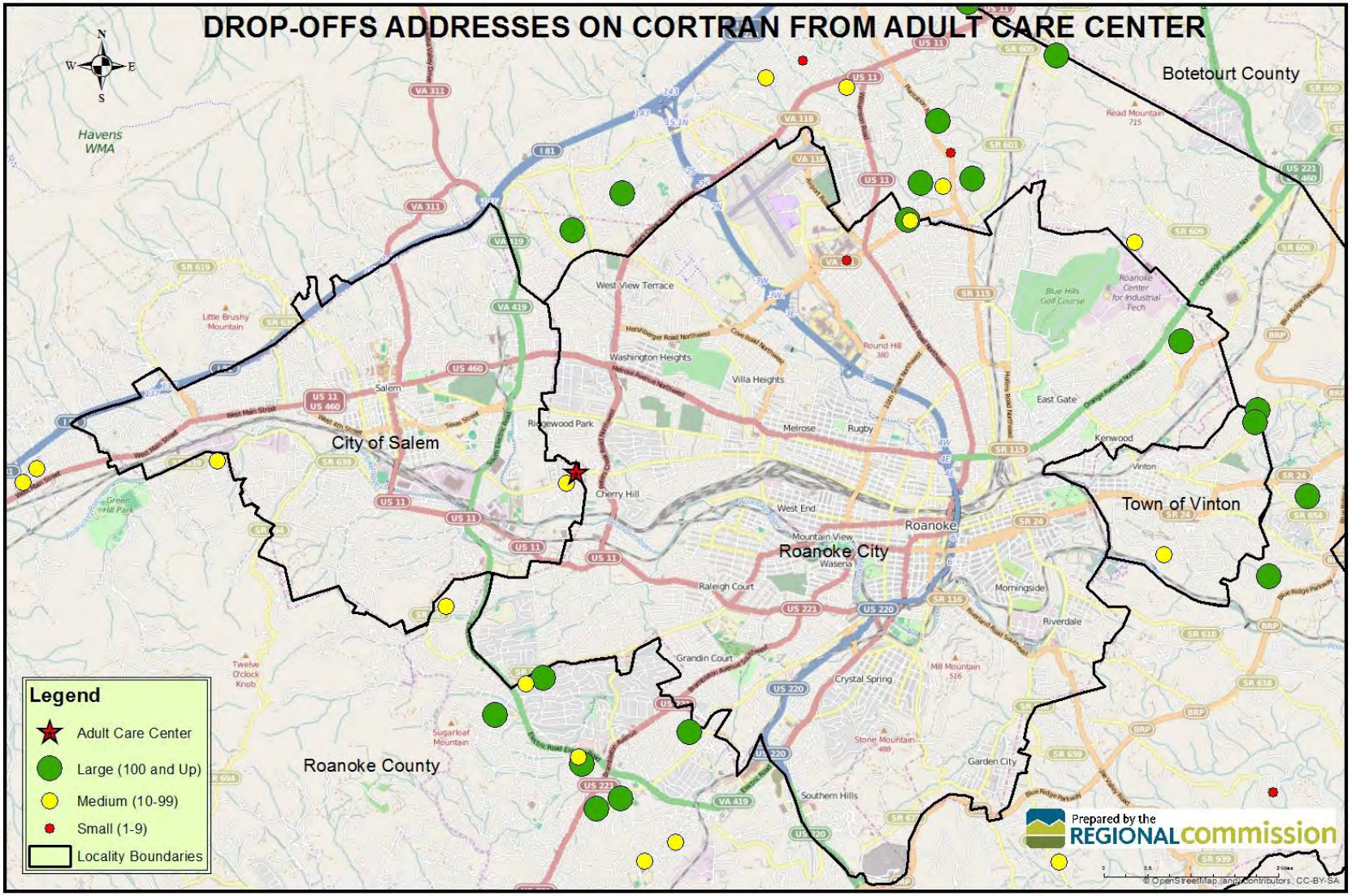
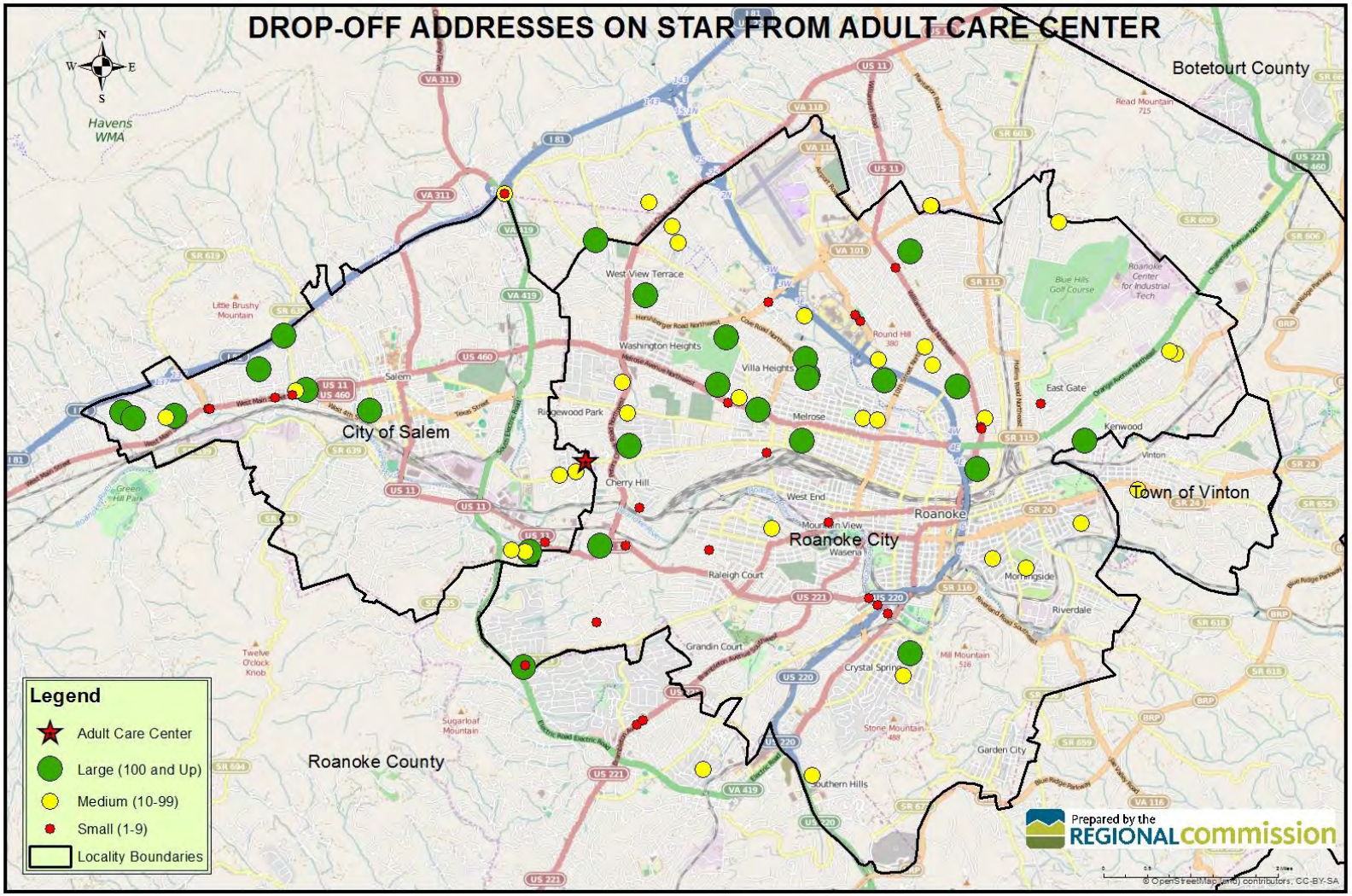


Figure 6.2-13: Map of CORTRAN Trips from Adult Care Center to Drop-Off Locations (zoomed out)

Figure 6.2-14: Map of STAR Trips from Adult Care Center to Drop-Off Locations

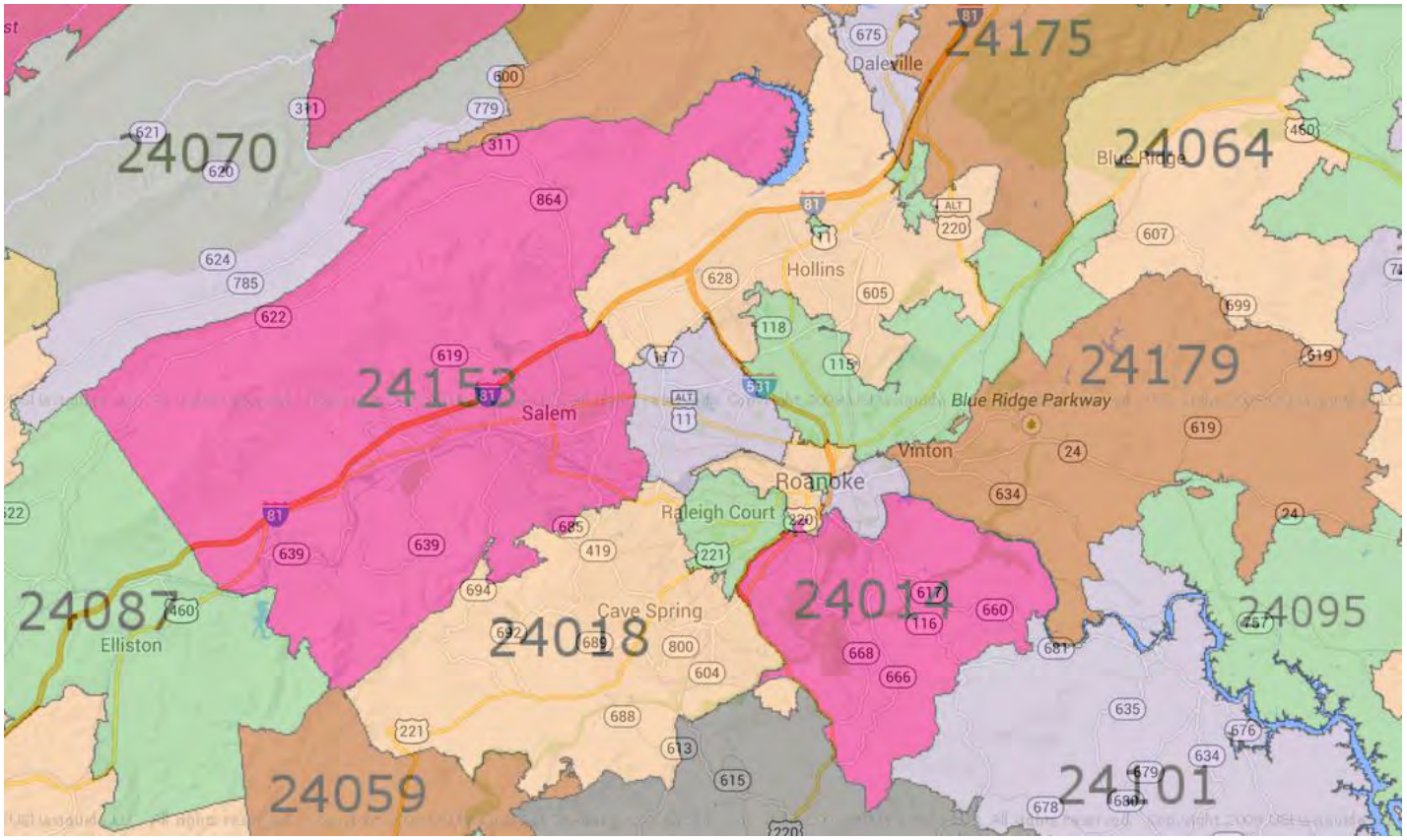


The maps associated with the Adult Care Center indicate that many trips are generated by relatively few customers compared to the many dots seen on the maps of all origins and destinations. The Adult Care Center provides daytime care for dependent adults. Services are available from Monday – Friday from 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

PICK-UP ZIP CODE	% OF TRIPS	TOTAL	CORTRAN TRIPS	STAR TRIPS
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
TOTALS	**100%**	**218,199**	**52,924**	**165,275**

Figure 6.2-16: Percent of Total Trips by Pick-Up Zip Code

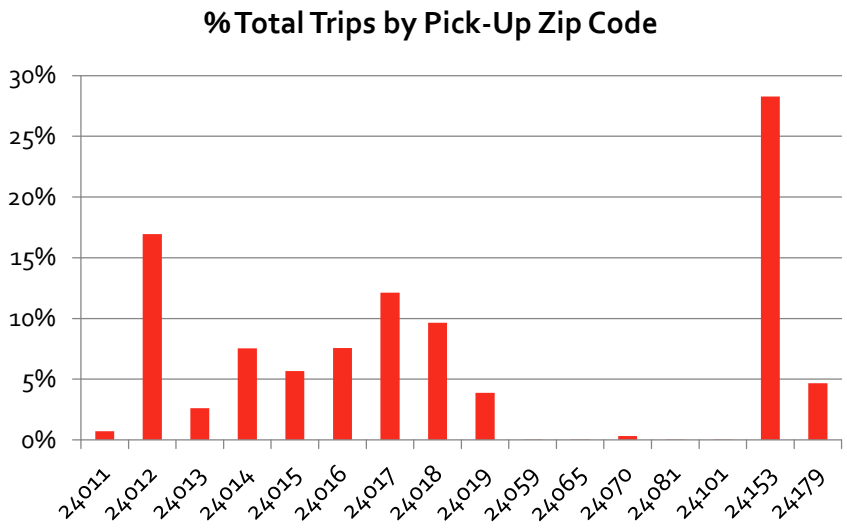
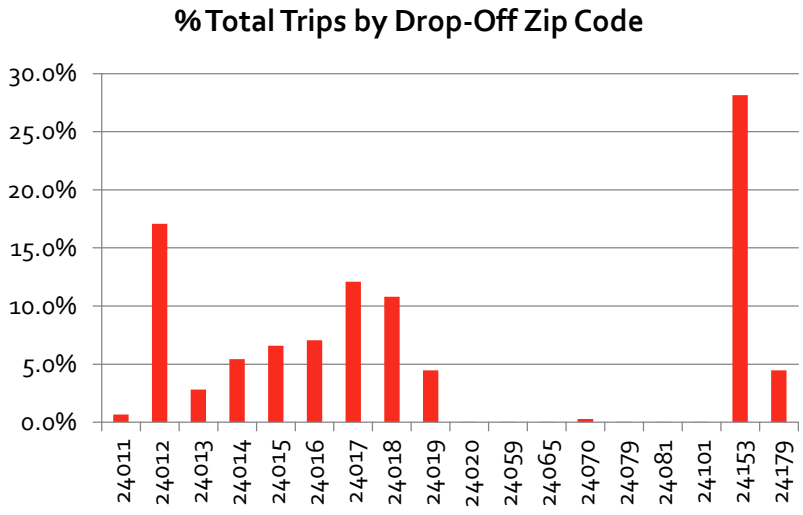


Table 6.2-11: Number of RADAR Drop-Offs by Zip Code

DROP-OFF ZIP CODE	% OF TRIPS	TOTAL TRIPS	CORTRAN TRIPS	STAR TRIPS
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
TOTALS	**100%**	**218,199**	**52,924**	**165,275**

Figure 6.2-17: Percent of Total Trips by Pick-Up Zip Code



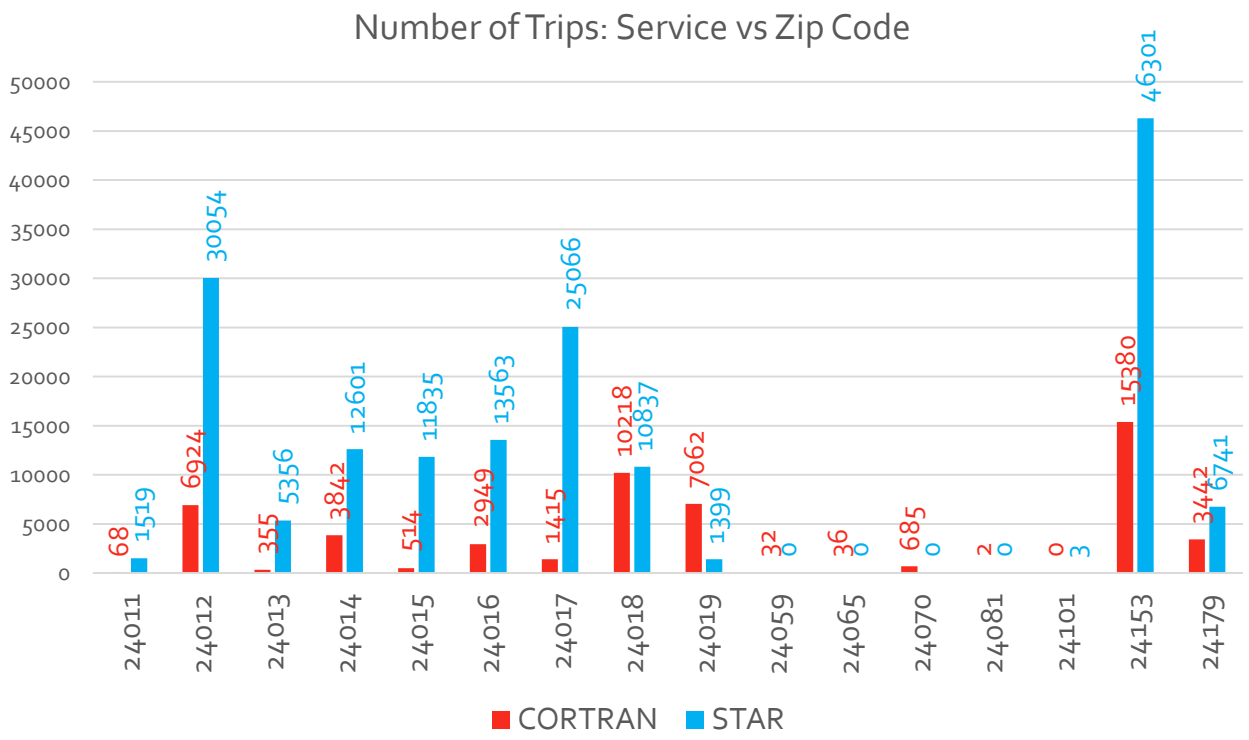
After 24153, the next highest zip code trip generator is 24012 with 17% of all trips starting or ending in the 24012 zip code. Additionally, 24153 is the highest generator of trips with an origin and a destination in the same zip code followed by 24012. The following table is a matrix with the trip origin 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)

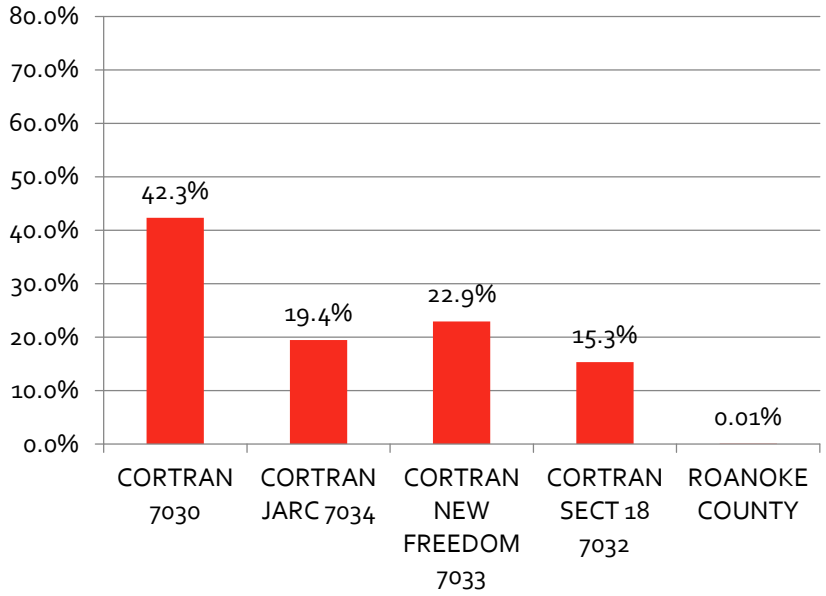
	CORTRAN		STAR		TOTAL	
Funding Sources	**# of Trips**	% of Trips	**# of Trips**	% of Trips	**# of Trips**	% of Trips
CORTRAN 7030 (Roanoke County – Urban)	**22,414**	42.35%	**0**	0.00%	**22,414**	10.27%
CORTRAN 7034 (JARC)	**10,284**	19.43%	**0**	0.00%	**10,284**	4.71%
CORTRAN 7033(NEW FREEDOM)	**12,126**	22.91%	**0**	0.00%	**12,126**	5.56%
CORTRAN SECT 18 7032 (Rural FTA 5311/Roanoke County)	**8,100**	15.30%	**0**	0.00%	**8,100**	3.71%
ROANOKE COUNTY	**0**	0.00%	**7**	0.00%	**7**	0.00%
STAR 8260 (City of Roanoke, City of Salem, Vinton)	**0**	0.00%	**121,004**	73.21%	**121,004**	55.46%
STAR 8264 (JARC)	**0**	0.00%	**34,064**	20.61%	**34,064**	15.61%
STAR 8263 (New Freedom)	**0**	0.00%	**10,200**	6.17%	**10,200**	4.67%
Total	**52,924**	100.00%	**165,275**	100.00%	**218,199**	100.00%

Table 6.2-14: Number of Trips by Funding Source (actual trips completed and billed)

	CORTRAN		STAR		TOTAL	
Funding Sources	**# of Trips**	% of Trips	**# of Trips**	% of Trips	**# of Trips**	% of Trips
CORTRAN 7030 (Roanoke County – Urban)	**19,383**	44.82%	**0**	0.00%	**19,383**	10.80%
CORTRAN 7034 (JARC)	**8,511**	19.68%	**0**	0.00%	**8,511**	4.74%
CORTRAN 7033(NEW FREEDOM)	**4,509**	10.43%	**0**	0.00%	**9,509**	2.52%
CORTRAN SECT 18 7032 (Rural FTA 5311/Roanoke County)	**10,846**	25.08%	**0**	0.00%	**10,846**	6.04%
ROANOKE COUNTY	**0**	0.00%	**7**	0.00%	**7**	0.00%
STAR 8260 (City of Roanoke, City of Salem, Vinton)	**0**	0.00%	**102,609**	75.28%	**102,609**	57.15%
STAR 8264 (JARC)	**0**	0.00%	**27,864**	20.45%	**27,864**	15.52%
STAR 8263 (New Freedom)	**0**	0.00%	**5,834**	4.28%	**5,834**	3.25%
Total	**43,249**	100.00%	**136,307**	100.00%	**179,556**	100.00%

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



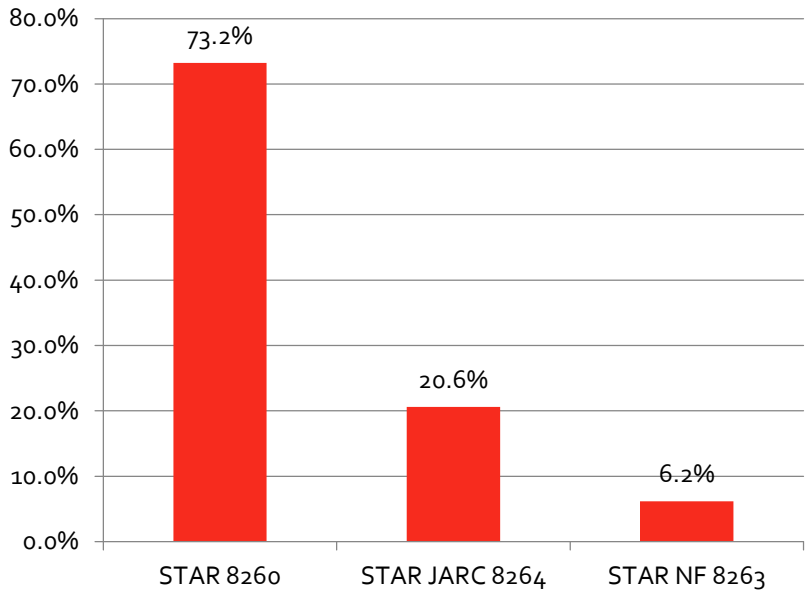


Table 6.2-15: Trips by Mobility Type and Funding Source

	AMBULATORY	AMBULATORY/ VISUAL IMPAIRED	CANE	CRUTCHES	VISUALLY IMPAIRED	WALKER	WHEEL CHAIR	WIDE WHEEL CHAIR	TOTAL
CORTRAN 7030 (Roanoke County – Urban)	40.96%	1.80%	16.69%	0.04%	4.43%	8.73%	24.60%	2.76%	100.00%
CORTRAN 7034 (JARC)	64.95%	8.03%	1.72%	0.00%	6.80%	1.86%	5.80%	10.85%	100.00%
CORTRAN 7033(NEW FREEDOM)	34.42%	4.08%	5.71%	0.03%	0.68%	18.33%	36.63%	0.11%	100.00%
CORTRAN SECT 18 7032 (Roanoke County - Rural)	45.85%	1.53%	13.43%	0.00%	8.79%	4.28%	24.86%	1.25%	100.00%
ROANOKE COUNTY	0.00%	0.00%	0.00%	0.00%	42.86%	0.00%	57.14%	0.00%	100.00%
STAR 8260 (City of Roanoke, City of Salem, Vinton)	34.95%	3.37%	14.93%	0.58%	4.19%	12.46%	28.18%	1.34%	100.00%
STAR 8264 (JARC)	52.70%	5.92%	10.13%	1.44%	11.96%	3.06%	14.69%	0.11%	100.00%
STAR 8263 (New 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

	EDUCATION	EMPLOYMENT	MEDICAL	NUTRITION	RECREATION	SHOPPING	PURPOSE UNKNOWN	TOTAL
CORTRAN 7030 (Roanoke County – Urban)	209	1,062	12,912	110	6,253	591	1,277	**22,414**
CORTRAN 7034 (JARC)	442	7,667	724	11	368	24	1,048	**10,284**
CORTRAN 7033(NEW FREEDOM)	226	557	8,224	26	2,264	100	729	**12,126**
CORTRAN SECT 18 7032 (Roanoke County - Rural)	83	145	4,568	36	2,645	130	493	**8,100**
ROANOKE COUNTY		1	1		3	2		**7**
STAR 8260 (City of Roanoke, City of Salem, Vinton)	974	4,146	54,879	1,681	45,638	4,811	8,875	**121,004**
STAR 8264 (JARC)	2,319	22,062	2,685	95	4,155	523	2,225	**34,064**
STAR 8263 (New Freedom)	15	395	5,351	67	3,102	285	985	**10,200**
Total	**4,268**	**36,035**	**89,344**	**2,026**	**64,428**	**6,466**	**15,632**	**218,199**

7.0 COMMON VALUES AND CONCLUSIONS

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.

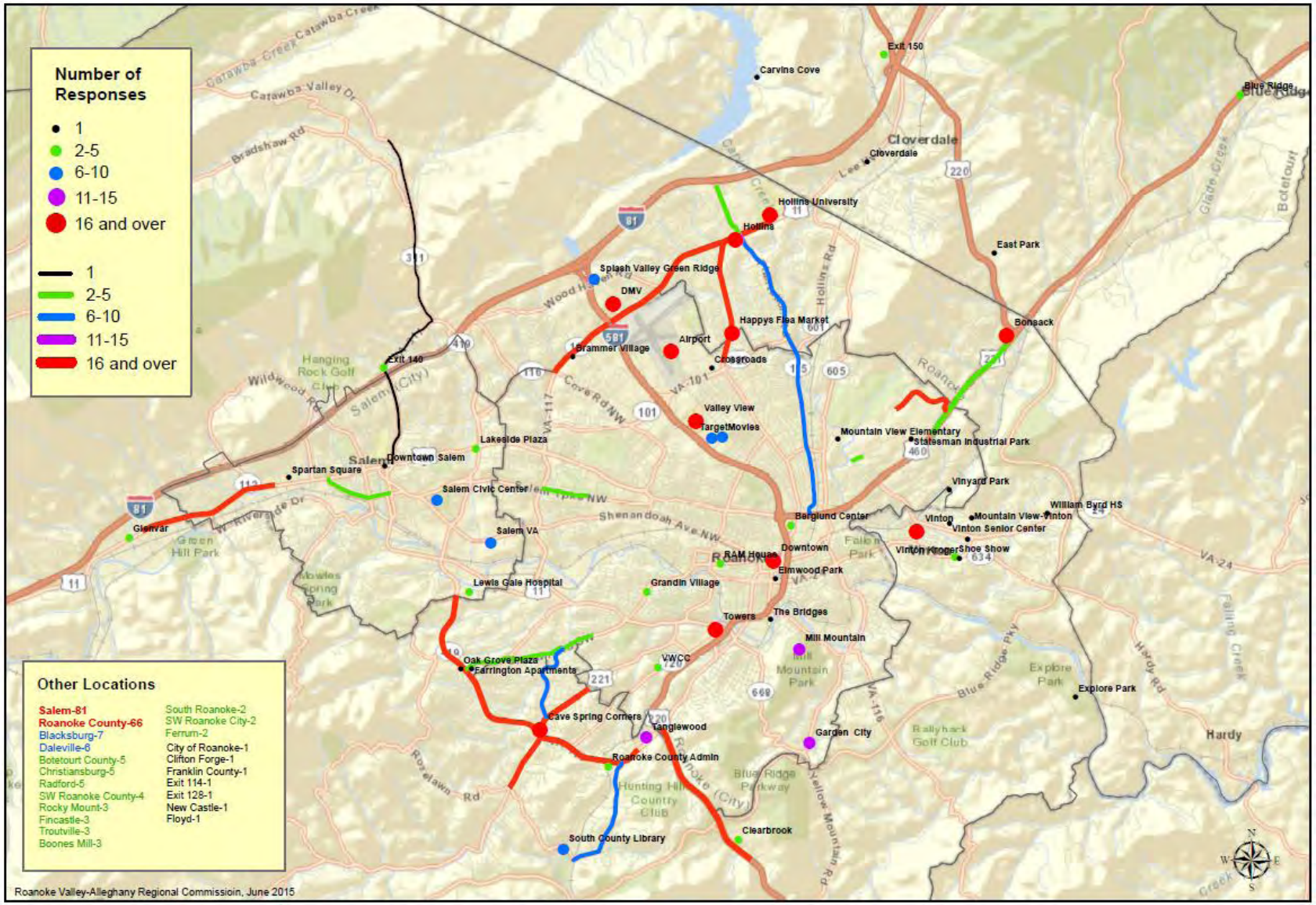
The following statements indicate the community's values regarding transit. They were developed using input from the general public and Valley Metro transit riders as obtained from the public surveys described in the previous sections as well as input from the Transportation Technical Committee members and TPO 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.

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. 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 7-1: 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.