

Roanoke Valley Transportation PLANNING ORGANIZATION



Staffed by the
REGIONAL commission

Roanoke Valley TRANSIT VISION PLAN

Approved September 22, 2016

PLAN CONTENTS

Executive Summary

PART 1: Introduction

PART 2: Background and Existing Conditions

PART 3: Existing Conditions Technical Report: Preliminary Surveys and Data Analysis

PART 4: Preferences and Demand

PART 5: Recommendations

PART 6: Implementation Strategies and Performance Measures

Roanoke Valley Transportation PLANNING ORGANIZATION



Staffed by the
REGIONALcommission

Roanoke Valley TRANSIT VISION PLAN

Approved September 22, 2016

PART 1: Introduction

CONTENTS

1.0	WHAT IS TRANSIT?	1
1.1	What is a Transit Vision Plan?	1
1.2	Transit Vision Plan Goals	1
2.0	A LIVABLE ROANOKE VALLEY	2
2.1	Transit and Livability	3
3.0	ROANOKE VALLEY TRANSIT VISION AND GOALS	4
3.1	Regional Uses of Transit	4
3.2	Regional Vision for Transit	4
3.3	Regional Goals for Transit	5
4.0	PLAN DEVELOPMENT	5
4.1	Study Area	5
4.2	Roles and Responsibilities	6
4.3	Plan Timeline	7
5.0	MEDIA COVERAGE HIGHLIGHTS	10
6.0	PLAN COMPONENTS	20

LIST OF FIGURES

Figure 4.1-1 Roanoke Valley TPO 2040 Study Area Boundary	6
---	----------

Roanoke Valley Transportation PLANNING ORGANIZATION



Staffed by the
REGIONALcommission

Roanoke Valley TRANSIT VISION PLAN

Approved September 22, 2016

PART 2: Background and Existing Conditions

CONTENTS

1.0 HISTORICAL TRANSIT PERSPECTIVE	1
1.1 Streetcar Decline and Rise of Bus Service	1
1.2 Significant Regulatory Changes	2
1.3 Reflections on the Past	3
2.0 TRANSIT IN THE ROANOKE VALLEY TODAY	6
2.1 Fixed-Route Transit	6
2.2 Star Line Trolley	10
2.3 Services for Older Adults and People with Disabilities	11
2.3.1 <i>Bedford County Ride Program</i>	11
2.3.2 <i>Botetourt County Senior Van Service</i>	11
2.3.3 <i>Montgomery County Public Transportation</i>	11
2.3.4 <i>Local Office on Aging Taxi Vouchers</i>	12
2.3.5 <i>Logisticare</i>	12
2.3.6 <i>Private Shuttles</i>	12
2.3.7 <i>S.T.A.R. Service</i>	12
2.3.8 <i>County of Roanoke Transportation (CORTRAN)</i>	13
2.4 Services for Students	14
2.5 Intercity Bus Transportation	17
2.5.1 <i>Greyhound</i>	17
2.5.2 <i>Megabus</i>	17
2.5.3 <i>Smart Way Base</i>	18
2.5.4 <i>Smart Way Connector</i>	20
2.6 Amtrak Passenger Rail	20
3.0 FARE STRUCTURES AND EXISTING FUNDING SOURCES	22
3.1 FTA Section 5307	24
3.2 FTA Section 5339	24
3.3 FTA Section 5310	24
3.4 State Funding	25
3.5 Local Funding	25

3.6	Regional Surface Transportation Program	28
3.7	Transportation Alternatives Program	28
3.8	HB2	28
3.9	Six-Year Improvement Program / Transportation Improvement Program	28
4.0	RELATED PLANS, STUDIES AND LOCAL ORDINANCES	29
4.1	VTRANS 2040	29
4.2	VTRANS 2040: Virginia Multimodal Transportation Plan 2025 Needs Assessment	30
4.3	Multimodal System Design Guidelines	30
4.4	Livable Roanoke Valley Plan	30
4.5	Downtown Roanoke Intermodal Transportation Study, 2015	31
4.6	Constrained Long-Range Transportation Plan, 2011	33
4.7	RVTPO Congestion Management Process Plan, 2014	33
4.8	Bus Stop Accessibility Study, 2013	38
4.9	Roanoke Valley Pedestrian Vision Plan, 2015	38
4.10	Bikeway Plan for the Roanoke Valley Area Metropolitan Planning Organization, 2012 Update	39
4.11	RVTPO Passenger Rail Study, 2008	39
4.12	RVTPO Planning for Elderly and Disabled Mobility Study, 2005	39
4.13	Age Wave Study: Demographic Analysis of the Roanoke Valley-Alleghany Region of Virginia, 2013	39
4.14	Coordinated Human Service Mobility Plan, 2013	39
4.15	Route 419 Corridor Study, 2010	40
4.16	Bedford County Zoning Ordinance	41
4.17	Bedford County Traffic Impact Study Guidelines	41
4.18	Montgomery County 2025 Comprehensive Plan	41
4.19	Montgomery County 2025: Elliston and Lafayette Village Plan	42
4.20	Montgomery County Zoning Ordinance	42
4.21	Roanoke, Virginia Comprehensive Plan Vision 2001-2020	42
4.22	Zoning Ordinance of the City of Roanoke, Virginia	43
4.23	Glenvar Community Plan	44
4.24	Hollins Area Plan, 2008	44

4.25	Roanoke County, Virginia 2005 Community Plan	44
4.26	Comprehensive Plan of the City of Salem, Virginia	45
4.27	Vinton Area Corridors Plan	45
4.28	Roanoke Valley Conceptual Greenway Plan, 2007 Update	45
4.29	RVARC Rural Transportation Project Priorities, 2012	45
4.30	RVARC 2035 Rural Long-Range Transportation Plan	45
4.31	RCIT/Blue Hills Transportation Survey Analysis Report	46
4.32	Bonsack Area Public Transit Survey Analysis Report	46
5.0	LAND DEVELOPMENT AND PUBLIC TRANSPORTATION	51
5.1	Activity Density	53
6.0	ROADWAY NETWORK CONSIDERATIONS	58
6.1	At-grade Railroad Crossings	59
6.2	Valley View Interchange	60
6.3	Aviation Drive and Towne Square Boulevard Intersection	61
6.4	Peters Creek Road Extension	61
6.5	2 nd Street/Gainsboro Road and Wells Avenue	63
6.6	Special Events in Downtown Areas	63
7.0	INTERACTION BETWEEN TRAVEL MODES	67
7.1	Transit - Pedestrian	67
7.2	Transit – Bicycle	71
7.3	Transit - Cars	72
7.4	Transit – Passenger Rail Transportation	72
7.5	Transit – Air Transportation	73
7.6	Transit – Intercity Bus Transportation	73

LIST OF FIGURES

Figure 1.0-1 Following the use of mule-pulled passenger rail lines, steam dummy engines were used during the early expansion of the Roanoke Street Railway Company	1
Figure 1.1-1 An example of the Jitney buses which were commonplace in the Teens and early 1920's in Roanoke	2
Figure 1.3-1 Photo of an original vehicle used for CORTAN service	4
Figure 1.3-2 Buses load and unload at the Campbell Court Transportation Center	5
Figure 2.1-2 Buses Transport People during Snow Events	7
Figure 2.1-1 Hourly Fixed-Route Network.....	8
Figure 2.1-3 Valley Metro Snow Routes.....	9
Figure 2.2-1 Map of Star Line Trolley Service	10
Figure 2.3.7-1 S.T.A.R. Service Area.....	13
Figure 2.3.8-1 CORTAN Service Area.....	13
Figure 2.4-1 Hollins Express	15
Figure 2.4-2 Ferrum Express.....	16
Figure 2.5.1-1 Greyhound Services	17
Figure 2.5.3-1 Smart Way Stops and Connections	18
Figure 2.6-1 Excerpt from Official Virginia State Railroad Map, 2012	21
Figure 2.6-2 Passenger Rail Platform Typical Section.....	21
Figure 2.6-3 Passenger Rail Platform Concept.....	21
Figure 4.1-1 Regional Distribution of Livable Roanoke Valley Survey Participants	31
Figure 4.5-1 Intermodal Study Public Meeting Advertisement.....	31
Figure 4.5-2 Downtown Roanoke Intermodal Station Options.....	32
Figure 5.0-1 East Main Street, Salem	52

Figure 5.0-2 West Main Street, Salem	52
Figure 5.0-3 New mixed-use development designed for people walking, Daleville.....	53
Figure 5.0-4 New development easily accessible by multiple modes, Roanoke	53
Figure 5.1-1 Snapshot of Regional Activity Density	55
Figure 5.1-2 Snapshot of Regional Multimodal Centers and Districts	56
Figure 5.1-3 Legend of Regional Multimodal Centers and Districts	57
Figure 6.0-1 Barriers to Travel Map	58
Figure 6.2-1 Valley View Interchange Project Map.....	60
Figure 6.3-1 Aviation Drive prior to Intersection Improvements.....	61
Figure 6.3-2 Aviation Drive post Intersection Improvements.....	61
Figure 6.4-1 Peter's Creek Road Prior to Extension	62
Figure 6.4-2 Peters Creek Road Post Extension	62
Figure 6.5-1 2 nd Street prior to bridge construction.....	63
Figure 6.5-2 2 nd Street post bridge construction.....	63
Figure 6.5.3-1 Downtown Roanoke Streets used for Special Events	66
Figure 7.1-1 Lifts on buses benefit people with disabilities as they move around the region on Valley Metro	67
Figure 7.1-2 Makeshift pedestrian facilities at bus stops	68
Figure 7.1-3 Bus Stop at Edinburgh Square, Roanoke County	68
Figure 7.1-4 School Crossing, 9th Street and Montrose Avenue, City of Roanoke	69
Figure 7.1-5 Church Crossing, Washington Avenue near N. Poplar Street, Vinton.....	69
Figure 7.1-6 Wise Avenue bus stop—pedestrian access coordination, City of Roanoke.....	69
Figure 7.1-7 On-street parking blocks access to trolley stop	70
Figure 7.1-8 Bus Loading/Unloading Signage on Campbell Avenue.....	70

Figure 7.2-1 The 2006 model Valley Metro buses were the first to feature bicycle racks	72
Figure 7.3-1 A Smart Way bus serves riders at the Berglund Center Park and Ride Lot	72
Figure 7.4-1 Passengers in Lynchburg board the Smart Way Connector headed to Bedford/Roanoke/New River Valley	73
Figure 7.6-1 Passengers switch buses at the Megabus station in Washington D.C.	74

LIST OF TABLES

Table 2.0-1 Regional Transit Service Availability	6
Table 2.1-1 Fixed-Route Numbers	7
Table 2.5.3-1 Smart Way Base Schedule as of February 2015	19
Table 3.5-1 Valley Metro Funding Amount by Source for All Services	27
Table 3.5-2 Valley Metro Funding Percentage by Source for All Services	27
Table 4.0-1: Local Plan Review Matrix.....	47

Roanoke Valley Transportation PLANNING ORGANIZATION



Staffed by the
REGIONALcommission

Roanoke Valley TRANSIT VISION PLAN

Approved September 22, 2016

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

PART 3: Technical Report on
Preliminary Surveys and Data Analysis

CONTENTS

ACKNOWLEDGEMENTS	2
1.0 INTRODUCTION	11
2.0 VALLEY METRO EMPLOYEE SURVEY	11
2.1 The Most Frequent Customer Complaint about the Transit System	12
2.1.1 <i>Hours of Operation</i>	12
2.1.2 <i>Network Structure</i>	12
2.1.3 <i>Service Delivery</i>	12
2.1.4 <i>Travel Time</i>	12
2.1.5 <i>Service Area</i>	12
2.1.6 <i>Fares</i>	12
2.1.7 <i>Comfort</i>	12
2.2 Locations Where Transit Service is Needed	13
2.3 Routes that are Rushed to Accomplish within the Available Time	15
2.4 Routes that should be Structured Differently	16
2.5 Routes that Experience Overcrowding and at What Time of Day	18
2.6 Routes that Experience Very Low Ridership and at What Time of Day	19
2.7 Other Recommendations for Public Transportation in the Greater Roanoke Valley Region	19
3.0 VALLEY METRO RIDER SURVEY	22
3.1 Race, Age, Disability, Vehicle Ownership	22
3.2 Ridership Frequency and the Importance of Transit	23
3.3 Employment Status and Family Income	24
3.4 Trip Origins and Destinations, Transfers, Travel Time and Trip Purpose	25
3.5 Recommendations for Locations Needing a Better Connection to Transit	31
3.6 Most Important Message to Decision Makers	34
3.6.1 <i>Additional Service</i>	35
3.6.2 <i>Great Service</i>	36
3.6.3 <i>Thank you</i>	36
4.0 VALLEY METRO SURVEY OF BOARDINGS AND ALIGHTINGS	37

4.1 Average Stop Usage	39
4.2 Stop Frequency	39
4.3 Bus Stop Activity Index	40
5.0 GENERAL PUBLIC SURVEY	46
5.1 Public Survey Outreach	46
5.2 Place of Residence	49
5.3 Place of Work	51
5.4 Age	52
5.5 Vehicle Ownership and Personal Mobility	53
5.6 Ridership Frequency	54
5.7 Investment and Importance of Transit	54
5.8 Most Important Transit Idea	57
5.8.1 <i>General Feedback</i>	57
5.8.2 <i>Amtrak</i>	57
5.8.3 <i>Downtown Transfer Center</i>	57
5.8.4 <i>Hours of Service</i>	58
5.8.5 <i>Fares</i>	58
5.8.6 <i>Additional Service</i>	58
5.8.7 <i>System Efficiency</i>	59
5.8.8 <i>Vehicles</i>	60
5.8.9 <i>Amenities</i>	60
5.9 Most Important Message to Decision Makers	60
6.0 RADAR TWO-YEAR DATA ANALYSIS RESULTS	62
6.1 Customers Database	63
6.1.1 <i>Age</i>	63
6.1.2 <i>Mobility Type</i>	64
6.1.3 <i>Elderly</i>	66
6.1.4 <i>Funding Sources</i>	66
6.2 Trips Database	69
6.2.1 <i>Trip Distance</i>	69
6.2.2 <i>Trips by Day of the Week</i>	72
6.2.3 <i>Trips by Mobility Type</i>	73

6.2.4	<i>Trips by Trip Purpose</i>	74
6.2.5	<i>Trips by Zip Code</i>	89
6.2.6	<i>Trips by Funding Source</i>	94
7.0 BOTETOURT COUNTY SENIOR AND ACCESIBLE VAN PROGRAM		100
8.0 COMMON VALUES AND CONCLUSIONS		101

LIST OF TABLES AND FIGURES

Figure 2.2-1: Map of Transit Recommendations from Valley Metro Employees	14
Figure 3.0-1: Valley Metro Rider Survey Card	22
Table 3.1-1: Rider Survey: Race Classification	23
Table 3.2-1: Rider Survey: Use Frequency	23
Figure 3.2-1: Why Public Transit is Important to Current Riders	24
Table 3.3-1: Rider Survey: Employment Status	24
Table 3.3-2: Rider Survey: Annual Family Income	24
Table 3.4-1: Top 20 Trip Origins	25
Figure 3.4-1: Origins for Trips Taken by Fixed-Route Transit	26
Table 3.4-2: Top 20 Trip Destinations	27
Figure 3.4-2: Destinations for Trips Taken by Fixed-Route Transit	28
Figure 3.4-3: Linear Path Analysis: Origins of Trips taken on Valley Metro on June 24, 2014	29
Figure 3.4-4: Linear Path Analysis: Destinations of Trips taken on Valley Metro on June 24, 2014	30
Figure 3.4-5: Rider Survey: Trip Purpose	31
Table 3.5-1: Rider Survey: Top Locations Needing to be Better Connected to the Bus System	32
Figure 3.6-1: Map of Recommendations from Valley Metro Riders	33
Table 3.6-1: Rider Survey: Message to Decision Makers	34
Figure 4.0-1: Passengers Board a Bus at Valley View Walmart	37
Figure 4.0-2: A Passenger Boards a Bus at Fresenius Medical Care - Friendship Manor on Hershberger Road	37
Figure 4.0-3: 2010-2011 and 2013-2014 Survey Trip Sheets	38
Table 4.2-1: Stop Frequency	40
Table 4.3-1: 25 Most Active Bus Stops in 2013-2014 Survey	40
Table 4.3-2: 25 Most Active Bus Stops in 2010-2011 Survey	42
Figure 4.3-1: Bus Stop Activity Index 2013-2014	43
Figure 4.3-2: Bus Stop Activity Index 2010-2011	44

Table 4.3-3: Comparison of Number of Active Stops between 2010-2011 and 2013-2014	45
Figure 5.1-1: Regional Pedestrian and Transit Vision Plans Survey Instrument	48
Table 5.2-1: Public Survey: Locality of Residence	49
Figure 5.2-1: Public Survey: Locality of Residence	49
Table 5.2-2: Public Survey: Residential Zip Code	50
Table 5.3-1: Public Survey: Place of Employment	51
Table 5.3-2: Public Survey: Place of Employment Zip Code	52
Table 5.4-1: Public Survey: Age	52
Figure 5.5-1: Public Survey: Vehicle Ownership	53
Figure 5.5-2: Public Survey: Mobility Disability	53
Figure 5.5-3: Public Survey: Ability to Travel	53
Table 5.6-1: Public Survey: Transit Use Frequency	54
Table 5.7-1: Public Survey: Why Transit is Important in the Roanoke Valley	54
Table 5.7-2: Public Survey: Top Locations that should be Better Connected via the Public Transit Network	55
Figure 5.7-1: Public Survey: Locations Needing a Better Connection to Public Transit	56
Table 5.8-1: Public Survey: Most Important Message to Decision Makers	61
Table 6.1-1: Content of RADAR Databases	62
Figure 6.1-1: RADAR Customers by Birth Decade	63
Table 6.1-2: RADAR Customers: Age	64
Table 6.1-3: RADAR Customers: Mobility Type	65
Figure 6.1-2: Percent of RADAR Customers by Mobility Type	65
Table 6.1-4: RADAR Customers: Elderly	66
Figure 6.1-3: Percent of CORTTRAN Customers 60 years or older	66
Table 6.1-5: RADAR Funding Sources	68
Figure 6.1-4: Source of Funding Subsidy for CORTTRAN Customers	68
Figure 6.1-5: Source of Funding Subsidy for STAR Customers	68

Table 6.2-1 Number of RADAR Trips by Service	69
Table 6.2-2: Number of CORTRAN Trips by Trip Distance	70
Figure 6.2-1: Percent of CORTRAN Trips by Trip Distance	70
Table 6.2-3: Number of STAR Trips by Trip Distance	71
Figure 6.2-2: Percent of STAR Trips by Trip Distance	71
Figure 6.2-3: Percent of CORTRAN Trips by Day of the Week	72
Figure 6.2-4: Percent of STAR Trips by Day of the Week	72
Table 6.2-4: Number of Trips by Mobility Type	73
Table 6.2-5: Number of Trips by Trip Purpose	74
Table 6.2-6: Percent of Trips by Trip Purpose	74
Table 6.2-7: Number of Trips Taken by Trip Purpose and Mobility Type	75
Table 6.2-8: Highest RADAR Pick-Up Locations	76
Figure 6.2-5: Number of Pick-Ups by Address on Both STAR and CORTRAN (zoomed in)	77
Figure 6.2-6: Number of Pick-Ups by Address on Both STAR and CORTRAN (zoomed out)	78
Table 6.2-9: Highest RADAR Drop-Off Locations	79
Figure 6.2-7: Map of Number of Drop-Offs by Address on Both STAR and CORTRAN (zoomed in)	81
Figure 6.2-8: Map of Number of Drop-Offs by Address on Both STAR and CORTRAN (zoomed out)	82
Figure 6.2-9: Map of CORTRAN Trips from Pick-Up Locations to the Adult Care Center (zoomed in)	83
Figure 6.2-10: Map of CORTRAN Trips from Pick-Up Locations to the Adult Care Center (zoomed out)	84
Figure 6.2-11: Map of STAR Trips from Pick-Up Locations to the Adult Care Center	85
Figure 6.2-12: Map of CORTRAN Trips from Adult Care Center to Drop-Off Locations (zoomed in)	86
Figure 6.2-13: Map of CORTRAN Trips from Adult Care Center to Drop-Off Locations (zoomed out)	87
Figure 6.2-14: Map of STAR Trips from Adult Care Center to Drop-Off Locations	88
Figure 6.2-15: Map of Zip Codes for the Roanoke Valley	89
Table 6.2-10: Number of RADAR Pick-Ups by Zip Code	90
Figure 6.2-16: Percent of Total Trips by Pick-Up Zip Code	90
Table 6.2-11: Number of RADAR Drop-Offs by Zip Code	91

Figure 6.2-17: Percent of Total Trips by Pick-Up Zip Code	91
Table 6.2-12: Matrix of Pick-up Zip Code vs. Drop-off Zip Code	92
Figure 6.2-18: Number of Trips by Service and Zip Code	93
Table 6.2-13: Number of Trips by Funding Source (as scheduled)	95
Table 6.2-14: Number of Trips by Funding Source (actual trips completed and billed)	96
Figure 6.2-19: Percent of CORTRAN and STAR Trips by Funding Source	97
Table 6.2-15: Trips by Mobility Type and Funding Source	98
Table 6.2-16: Trips by Trip Purpose and Funding Source	99
Figure 7.0-1 Botetourt County Number of Annual Riders	100
Figure 7.0-2: Botetourt Program: Miles Traveled	100
Figure 8.0-1: Map of All Transit Recommendations Combined	102

Roanoke Valley Transportation PLANNING ORGANIZATION



Staffed by the
REGIONALcommission

Roanoke Valley TRANSIT VISION PLAN

Approved September 22, 2016

PART 4: Preferences and Demand

CONTENTS

1.0 INTRODUCTION.....	1
2.0 PUBLIC INPUT ON CONNECTIONS AND PREFERENCES	2
2.1 Needed Connections	3
2.2 Transit Preferences.....	6
3.0 TRANSIT PROPENSITY ANALYSIS	10
3.1 Residential Propensity.....	10
3.2 Commuter Propensity	10
3.3 Work Propensity	11
3.4 Non-Work Propensity.....	11
4.0 REGIONAL TRAVEL DEMAND ANALYSIS.....	17
4.1 Base Year (2005) Flows.....	17
4.2 Forecasted Year (2035) Flows.....	17
5.0 GAP ANALYSIS.....	20
5.1 Service Area Gaps	20
5.2 Frequent Service Corridor Analysis.....	20
5.3 Service Connection Gaps	21
5.4 Public Feedback Gaps	21
5.5 System Structure (Pulse or Non-Pulse).....	21

TABLE OF FIGURES

Figure 2.0-1 Roadside sign advertises public meeting	2
Figure 2.0-2 RVARC Facebook Video Post Advertising Public Workshops, October 30, 2015	2
Figure 2.1-1 Public Workshop Interactive Mapping Activity	3
Figure 2.1-2 All Day Service Transit Needs	1
Figure 2.1-3 Commuter Service Transit Needs.....	2
Figure 2.1-4 Evening Service Transit Needs.....	3
Figure 2.1-5 Sunday Service Transit Needs.....	4
Figure 2.1-6 Word Cloud Visualization of Web Survey Results.....	5
Figure 2.2-1 Public Workshop Transit Preference Activity	7
Figure 2.2-2 Rider Preferences Survey	8
Figure 2.2-2 Transit Preferences Survey Results.....	9
Figure 3.1-1 Residential Propensity Map	13
Figure 3.2-1 Commuter Propensity Map	14
Figure 3.3-1 Work Propensity Map	15
Figure 3.4-1 Non-Work Propensity Map	16
Figure 4.1-1 Travel Model Flows (2005) Map	18
Figure 4.2-1 Travel Model Flows (2035) Map	19
Figure 5.1-1 Peak Hour Service Gap Map	24
Figure 5.1-2 All Day Service Gap Map	25
Figure 5.2-1 Frequent Corridor Map	26
Figure 5.3-1 Service Connection Gap Map	27
Figure 5.4-1 Public Feedback Gap Map	28
Figure 5.5-1 Barriers to Travel Map	29

LIST OF TABLES

TABLE 2.1-1 WEB SURVEY RESULTS ON CONNECTIONS	5
TABLE 5.5-1 PULSE SYSTEM VERSUS DIRECT (NON-PULSE) NETWORK	22
TABLE 5.5-2 VALLEY METRO ROUTE TRAVEL PATTERNS	23

Roanoke Valley Transportation PLANNING ORGANIZATION



Staffed by the
REGIONALcommission

Roanoke Valley TRANSIT VISION PLAN

Approved September 22, 2016

PART 5: Recommendations

CONTENTS

1.0 REFLECTIONS ON THE PAST AND THE CURRENT STATE OF TRANSIT SERVICE IN THE ROANOKE VALLEY	1
2.0 BASIS FOR DEVELOPING RECOMMENDATIONS	2
2.1 Public Workshops: January 21, 2016	2
2.2 Online Engagement	3
2.3 Valley Metro Draft Recommendations Survey	4
2.4 RADAR Survey	9
2.5 Botetourt Senior and Accessible Van Survey	13
2.6 Focus Groups/Local Government Involvement	15
3.0 SHORT-TERM RECOMMENDATIONS (2016-2022)	16
3.1 New Routes	18
3.2 Route Extension/Realignment	21
3.3 Other Service Changes	22
3.4 Additional Recommendations	25
3.5 Summary of Short-Term Recommendations	28
4.0 MEDIUM-TERM RECOMMENDATIONS (2022-2030)	30
4.1 New Routes	32
4.2 Route Extension/Realignment	35
4.3 Other Service Changes	35
4.4 Summary of Medium-Term Recommendations	36
5.0 LONG-TERM RECOMMENDATIONS (2030-2040)	38
5.1 New Routes	40
5.2 Other Service Changes	41
5.3 Summary of Long-Term Recommendations	45
6.0 REGIONAL CONNECTIONS RECOMMENDATIONS	47
7.0 FACILITY RECOMMENDATIONS	48
7.1 Transfer Facilities Overview	48

7.2	Transit Transfer Facility Recommendations	51
7.2.1	<i>Downtown Roanoke</i>	51
7.3	Pedestrian Accommodations	57
7.3.1	<i>Passenger Amenities</i>	57
7.3.2	<i>Access to Transit – Bicycle and Pedestrian Infrastructure</i>	57
7.3.3	<i>Why Invest in Active Transportation?</i>	58
7.3.4	<i>Prioritizing Investments in the Region</i>	59
7.4	Park and Ride Connections	60
7.5	Bike Share Connections	61
7.5.1	<i>Potential for Bike Share in Roanoke</i>	61
7.6	Storage, Maintenance, and Administrative Facilities	64
8.0	CAPITAL AND OPERATING COSTS	65
8.1	Short-Term Costs (2016-2022)	66
8.1.1	<i>Capital Costs</i>	66
8.1.2	<i>Operating Costs</i>	68
8.2	Medium-Term Costs (2022-2030)	70
8.2.1	<i>Capital Costs</i>	70
8.2.2	<i>Operating Costs</i>	70
8.3	Long-Term Costs (2030-2040)	74
8.3.1	<i>Capital Costs</i>	74
8.3.2	<i>Operating Costs</i>	74
A	APPENDIX A: BIKE SHARE	78
A.1	What is Bike Share?	78
A.2	How Does Bike Share Work?	79
A.3	Who Uses Bike Share?	80
A.4	University Systems	81
A.5	Community Systems	81
A.6	Why Bike Share?	82

LIST OF FIGURES

Figure 2.1-1 Workshop Participants Learn about Draft Recommendations	3
Figure 2.2-1 IDEAscale Online Forum Screenshot	4
Figure 2.3-1 Sample Valley Metro Survey (front)	8
Figure 2.3-2 Sample Valley Metro Survey (back)	8
Figure 2.4-1 RADAR Customer Survey.....	10
Figure 2.5-1 Botetourt Senior/Access Van Users Survey.....	13
Figure 3.0-1 Conceptual Short-Term Recommendations Map.....	17
Figure 4.0-1 Conceptual Map of Additional Recommendations for the Medium-Term	31
Figure 5.0-1 Conceptual Map of Additional Recommendations for the Long-Term.....	39
Figure 7.1-1 Examples of Small-Scale Transit Transfer Facility	49
Figure 7.1-2 Example of Medium-Size Transit Transfer Facility in Seattle Region.....	50
Figure 7.1-3 Example of Large-Scale Transit Transfer Facility in Las Vegas.....	50
Figure 7.2-1 Conceptual Map of Short-Term Transit Transfer Recommendations	54
Figure 7.2-2 Conceptual Map of Additional Medium-Term Transit Transfer Recommendations.....	55
Figure 7.2-3 Conceptual Map of Additional Long-Term Transit Transfer Recommendations	56
Figure 7.4-1 Bike Share is designed to Facilitate Point-to-Point Trips.....	61
Figure 7.5.1-1 Typical Dock Based Stations	62
Figure 7.5.1-2 Potential Bike Share Locations	63
Figure A.1-1 DecoBike Station in Miami Beach	79
Figure A.2-2 Typical Dock Based Stations.....	79
Figure A.2-3 Example Smart Bike Station.....	80
Figure A.3-1 Bicycle Library at UConn Storrs	81

Figure A.5-1 | Mystic Community Bikes82

LIST OF TABLES

Table 2.3-1 Valley Metro Riders' Responses to Short-Term Recommendations by % and # Respondents.....	5
Table 2.3-2 Valley Metro Riders' Responses to Medium-Term Recommendations by % and # Respondents	6
Table 2.3-3 Valley Metro Riders' Responses to Long-Term Recommendations by % and # Respondents.....	7
Table 2.4-1 RADAR Survey – Customer's Locality of Residence	9
Table 2.4-2 RADAR Survey – Customer's Locality of Employment.....	9
Table 2.4-3 RADAR Survey – Interest in Service beyond the Current Service Area	10
Table 2.4-4 RADAR Survey – Need for expanded hours	11
Table 2.4-5 Additional amount RADAR customers are willing to pay	12
Table 2.4-6 RADAR Survey – Interest in Additional Transportation Options	12
Table 2.5-1 Botetourt Survey – Recommendation for Next 6-12 Years.....	14
Table 2.5-2 Botetourt Survey - Recommendation for Next 12-25 Years	14
Table 2.5-3 Botetourt Survey - Recommendation for hourly all-day bus service.....	14
Table 2.5-4 Botetourt Survey – Interest in exploring additional transportation options	15
Table 3.0-1 Short-Term Benefits.....	16
Table 3.1-1 Recommendation 1E - Routes 51/52.....	18
Table 3.1-2 Recommendation 1I - Routes 911/922.....	19
Table 3.1-3 Recommendation 1K - Route 1	19
Table 3.1-4 Recommendation 1L - Route 311.....	20
Table 3.1-5 Recommendation 1M - Route 93.....	20

Table 3.1-6 Recommendation 1N - Route 3111.....	21
Table 3.2-1 Recommendation 1C - Routes 21/26	21
Table 3.2-2 Recommendation 1G - Routes 61/62	22
Table 3.2-3 Recommendation 1J - Routes 91/92	22
Table 3.3-1 Recommendation 1A - Routes 15/16.....	23
Table 3.3-2 Recommendation 1B - Routes 21/22	23
Table 3.3-3 Recommendation 1D - Routes 35/36	23
Table 3.3-4 Recommendation 1F - Routes 55/56.....	24
Table 3.3-5 Recommendation 1H - Routes 81/82	24
Table 3.5-1 Summary of Short-Term Recommendations	28
Table 4.0-1 Medium-Term Benefits	30
Table 4.1-1 Recommendation 2E - Route 3	32
Table 4.1-2 Recommendation 2F - Route 8	32
Table 4.1-3 Recommendation 2G - Route 2.....	33
Table 4.1-4 Recommendation 2H - Route 24.....	33
Table 4.1-5 Recommendation 2I - Route 220	34
Table 4.1-6 Recommendation 2J - Route 10.....	34
Table 4.1-7 Recommendation 2K - Route 1000	35
Table 4.2-1 Recommendation 2A - Star Line Trolley	35
Table 4.3-1 Recommendation 2B - Routes 61/62	35
Table 4.3-2 Recommendation 2C - Routes 75/76	36
Table 4.3-3 Recommendation 2D - Routes 81/82 and Routes 91/92	36
Table 4.4-1 Summary of Medium-Term Recommendations.....	37

Table 5.0-1 Long-Term Recommendation Benefits.....	38
Table 5.1-1 Recommendation 3M - Route 7	40
Table 5.1-2 Recommendation 3N - Route 7135	40
Table 5.1-3 Recommendation 3O - Route 117.....	41
Table 5.2-1 Recommendation 3A - Routes 21/22	41
Table 5.2-2 Recommendation 3C – Routes 81/82.....	42
Table 5.2-3 Recommendation 3E - Routes 4/5	42
Table 5.2-4 Recommendation 3F - Routes 911/922.....	42
Table 5.2-5 Recommendation 3H - Route 8.....	43
Table 5.2-6 Recommendation 3I - Route 2	43
Table 5.2-7 Recommendation 3B - Routes 55/56	43
Table 5.2-8 Recommendation 3G - Route 3.....	44
Table 5.2-9 Recommendation 3D - Route 1.....	44
Table 5.2-10 Recommendation 3J - Route 220	44
Table 5.2-11 Recommendation 3K - Route 10	45
Table 5.2-12 Recommendation 3L - Route 1000	45
Table 5.3-1 Summary of Long-Term Recommendations	46
Table 7.1-1 Infrastructure at Transit Transfer Facilities	48
Table 7.2-1 Recommended Size of Proposed Transit Transfer Facilities in the Region	51
Table 7.3.1-1 Recommended Bus Stop Amenities	57
Table 8.1.1-1 Capital Costs - Replacement Fleet (Short-Term)	66
Table 8.1.1-2 Capital Costs - Service Expansion Fleet (Short-Term)	67
Table 8.1.2-1 Operational Costs – General Projects.....	68

Table 8.1.2-2 Operational Costs - Service Expansion Fleet (Short-Term)	69
Table 8.2.2-1 Capital Costs - Service Expansion Fleet (Medium-Term)	71
Table 8.2.2-2 Operational Costs - Service Expansion Fleet (Medium-Term).....	72
Table 8.3.1-1 Capital Costs - Service Expansion Fleet (Long-Term).....	74
Table 8.3.2-1 Operational Costs – Service Expansion (Long-Term)	76
Table A.1-1 Examples of Bike Share Systems	78

Roanoke Valley Transportation PLANNING ORGANIZATION



Staffed by the
REGIONAL commission

Roanoke Valley TRANSIT VISION PLAN

Approved September 22, 2016

PART 6: Implementation Strategies and Performance Measures

CONTENTS

1.0 OVERVIEW	4
2.0 TIMELINE	4
3.0 IMPLEMENTATION STRATEGIES	6
4.0 ROLES AND RESPONSIBILITIES	8
5.0 STRATEGY OUTPUTS	10
6.0 COMMUNITY OUTCOMES	13
7.0 PERFORMANCE MEASURES	15
8.0 SUMMARY MATRIX OF STRATEGIES, ROLES, AND PERFORMANCE MEASURES	18
9.0 PROCEDURAL CHANGES	30
10.0 MARKETING AND BRANDING STRATEGIES	32
11.0 ADDITIONAL FUNDING SOURCES	33
11.1 Local Funding	33
11.2 Partnerships	33
11.3 Advertising and Sponsorships	35
11.4 Competitive Federal Grants	35
11.5 Fare Changes	35
11.6 Other Potential Dedicated Revenue Streams	36
12.0 LAND USE	36
12.1 Land Use Planning and Transit Planning	36
12.2 Policy Tools for Transit-Supportive Land Use Development	38
12.3 Policy Tools for Transit-Supportive Active Transportation	38
13.0 FUTURE MODE AND TECHNOLOGY CONSIDERATIONS	40
14.0 CONCLUSION	42

LIST OF FIGURES

Figure 4.0-1 Stakeholders to Create a Robust Transit Community	8
Figure 9.0-1 Regional Transit Organization Models	31
Figure 12.3-1 Transit-Supportive Active Transportation Improvements	39
Figure 13.0-1 Example of Bus Rapid Transit	40
Figure 13.0-2 Example of a Streetcars.....	40
Figure 13.0-3 Example of Light Rail.....	41

LIST OF TABLES

Table 12.1-1 Stakeholders and Their Traditional Involvement in Transit Investment and Land Use Decision-making	37
Table 12.1-2 Major Issues and Appropriate Champions	37
Table 12.2-1 Transit-Supportive Land Use Policy Tools.....	38