

**SECTION 1.0 BIKEWAY PLAN INTRODUCTION**

The *Bikeway Plan for the Roanoke Valley Area Metropolitan Planning Organization – 2012 Update* (herein referred to as the *Bikeway Plan*), is an update of the 2005 [Bikeway Plan for the RVAMPO](#). The 2012 Update represents a coordinated effort by the Roanoke Valley Area MPO and local jurisdictions to facilitate development of a regional transportation network that accommodates and encourages bicycling as an alternative mode of travel and popular form of recreation in the RVAMPO study area and greater region.

The purpose of the *Bikeway Plan* is to provide a coordinated and strategic approach to the development of a regional bicycling network that provides greater connectivity between activity centers and cultural resources such as greenways, public areas, downtown areas, commercial centers, employment concentrations, educational institutions, transit facilities, scenic corridors, and other points of interest in the MPO study area.

**1.1 Overview of Bikeway Plan - 2012 Update**

The *Bikeway Plan 2012 Update* is intended to be a dynamic document that accurately reflects the bicycling-related transportation needs and challenges within the RVAMPO study area. As such, while promoting bicycling as a viable form of transportation and recreation, the *Bikeway Plan Update* also recognizes and promotes the numerous benefits of an interconnected, regional alternative transportation network consisting of on-street bicycle accommodations, greenways and shared use trails, recreational trails, and public transportation. Benefits of a bicycle-

friendly community include, but are not limited to:

- Transportation
- Recreation
- Public health
- Environment
- Economic development
- Quality of Life

The *Bikeway Plan* seeks to facilitate the realization of these benefits through the following tasks and activities:

- Serve as a resource guide for bicycle accommodations planning and general promotion of cycling in the region;
- Bicycle User Survey to better understand and document bicyclists and motorists perceptions and opinions regarding cycling in the region;
- Encourage and document application of VDOT policies and practices as related to the planning and provision of bicycle accommodations in the RVAMPO Study Area and RVARC Rural Transportation Planning Area;
- Encourage local governments to incorporate bicycle accommodations in local plans, policies, ordinances, and related guidance;
- Identify and map all existing bicycle accommodations (and related resources) to use in evaluating general progress toward development and implementation of bicycle accommodations RVAMPO study area;
- Identify and map roadways corridors for consideration of future bicycle accommodations or alternatives;



- Provide examples of various bicycle accommodations in place in the region and the various approaches utilized in the planning, installation, maintenance, and promotion of these accommodations; and
- Develop user-friendly cycling information and resources (laws and safety tips, bicycle accommodations, guidance documents, etc.)

### 1.2 Bikeway Plan Study Area

The *Bikeway Plan* covers the Roanoke Valley Area Metropolitan Planning Organization (RVAMPO) 2035 Study Area which includes the Roanoke Census Defined Urbanized Area (UA) and the contiguous geographic area(s) likely to become urbanized within the twenty year forecast period covered by the Long-Range Transportation Plan (LRTP) (Figure 1.1). Note: an Urbanized Area is a statistical geographic entity, designated by the Census Bureau, consisting of a central core and adjacent densely settled territory that together contain at least 50,000 people, generally with an overall population density of at least 1,000 people per square mile.

Localities within the RVAMPO Study Area include the cities of Roanoke and Salem, the Town of Vinton, the portions of Botetourt and Roanoke counties, and the western portion of Bedford County. Figure 1.1 shows the MPO study area boundary, Roanoke Urbanized Area, and the jurisdictional boundaries. The RVAMPO is within the VDOT Salem Construction District (Figure 1.2). While the primary geographic focus of the *Bikeway Plan* is the MPO study area, the Plan also seeks to facilitate connections to population centers (e.g., Census-defined places, urban clusters), employment centers, recreational

destinations and resources, and other activity centers adjacent or in close proximity to the Roanoke Valley Area MPO study area boundary. Regional transportation planning in areas outside of the RVAMPO study area are conducted as part of Rural Transportation Program and includes Alleghany, Craig, and Franklin counties, and portions of Botetourt and Roanoke counties (i.e., areas outside of the RVAMPO study area). The [Rural Bikeway Plan](#) (2006), developed by the Roanoke Valley Alleghany Regional Commission in partnership with local governments and stakeholders, provides an overview of bicycling conditions, destinations, resources, and related information for areas covered in the RVARC [Rural Transportation Program](#).

As shown in Table 1.1, the City of Roanoke remains the most populous locality in the RVAMPO study area. Several localities, particularly the Town of Vinton and the cities of Roanoke and Salem, have relatively high population and development densities, which are generally conducive to cycling for mobility purposes. Additionally, portions of Botetourt and Roanoke counties within the RVAMPO study area have relatively high population and development densities and generally correspond to Census-defined places. Examples include the Cave Spring and Hollins areas of Roanoke County and the Cloverdale, Daleville, and Troutville areas in Botetourt County (Figure 1.1).

Given the limited availability (and accuracy) of bicycle-specific data, bicycle usage (for all purposes) in the RVAMPO study area is difficult to quantify. Common data sources include U.S. Census “journey-to-work” and [Census Transportation Planning Package](#) (CTPP) data,



which provide various commuting information for workers 16 years and over, including primary means of transportation to work, and American Community Survey (ACS) data. Table 1.3 provides ACS 2005-2009 for localities in the RVAMPO study area. Review of these data indicate that a relatively low percentage of workers use a bicycle as their primary means of transportation to work in the study area. However, the numbers for the localities comprising the more densely developed areas of the RVAMPO (i.e., cities of Roanoke and Salem), while low, are comparable to state and national averages at around 0.4 percent of workers commuting to work by bicycle.

While Census data provide a level of insight into bicycle commuting, due to considerable margins of error associated with ACS data in general (on which CTPP data are now based); journey to work data being limited to the primary means of commuting to work; and not capturing data on travel beyond work commuting (e.g., recreation, errands, exercise) these data do not provide a completely accurate measure of bicycle use in the study area. Beyond Census data, the 2009 Bicycle User Survey, conducted as a component of the *Bikeway Plan - 2012 Update*, provides a range of bicycle-related information for the RVAMPO study area. A complete analysis of survey responses is presented in Section 5. Additional data sources include RVARC Regional Greenway and Trail Users Count Program RVARC (Section 3.3.3) and the RIDE Solutions commuter database.

### **1.3 Roles and Responsibilities**

While the *Bikeway Plan* is intended to facilitate, promote, and provide general guidance on improving cycling conditions in the region, within

the MPO study area, the primary entity (local government or VDOT) responsible for construction and maintenance of roads (and on-street bicycle accommodations) within the RVAMPO study area is based on jurisdictional boundaries, geographic designations, and roadway functional classifications. VDOT 2005 Virginia Highway Functional Classification maps for the RVAMPO study area and local jurisdictions are provided in Appendix A.

#### **1.3.1 Locally Maintained Roads**

The following localities are responsible for road construction and maintenance of local roads within their respective jurisdictional boundaries:

- City of Roanoke
- City of Salem
- Town of Vinton

These localities generally have more flexibility in providing bicycle accommodations via context-sensitive design, spot improvements, restriping, signage, pavement markings, bicycle route development, street cleaning, and other approaches to accommodating bicyclists on locality maintained roads. These activities are often conducted as part of the annual street paving programs, general maintenance, or reconstruction projects. Guidance and recommendations on bicycle accommodations design are generally based on AASHTO and MUTCD design standards. The 2011 NACTO Urban Bikeway Design Guide also provides guidance and standards for on-street bicycle accommodations. AASHTO, MUTCD, and NACTO standards, as well as local guidance documents and standards, are discussed in Section 2. Note: VDOT is responsible



for maintenance and construction on federal and state highways in these jurisdictions (e.g., 81, 581, US 220, US 460, etc.).

### 1.3.2 VDOT Maintained Roads

VDOT is responsible for road construction and maintenance in the following localities within the RVAMPO study area:

- Botetourt County
- Roanoke County

While VDOT is the responsible for maintenance and construction in these jurisdictions, the respective local governments, RVAMPO, and other stakeholders participate in the planning processes (long-range and local) and can request VDOT consider specific bicycle accommodations based on local and regional needs. The VDOT Policy for Integrating Bicycle and Pedestrian Accommodations, State Bicycle Policy Plan, and other VDOT bicycle-related guidance are discussed in Section 2.

### 1.3.2 Roanoke Valley Area Metropolitan Planning Organization

Federal law requires the formation of an “MPO” for any urbanized area (UZA) with a population of more than 50,000. The [Roanoke Valley Area Metropolitan Planning Organization](#) was created in 1979 to plan and budget the use of federal transportation dollars in the Roanoke region. The RVAMPO develops three key documents that are the backbone of transportation planning and programming in the region and include the Long-Range Transportation Plan, the Transportation

Improvement Program, and the Unified Planning Work Program.

RVAMPO activities are directed by a 15-member Policy Board. The voting members of the Policy Board include representatives from the six member localities, as well as the Greater Roanoke Transit Company, the Roanoke Regional Airport Commission, the Roanoke Valley-Alleghany Regional Commission, and the Virginia Department of Transportation. In addition, ex-officio (non-voting) members include the Virginia Department of Rail and Public Transportation, the Federal Highway Administration, and the Federal Transit Administration. Additionally, two standing committees assist the RVAMPO Policy Board – the Transportation Technical Committee (TTC), which is responsible for making recommendations to the MPO Policy Board on all transportation plans and programs in the region; and the Community Advisory Committee (CAC), which provides a citizen’s perspective on the impact of transportation plans in the region and advises the MPO Policy Board on the public participation plan.



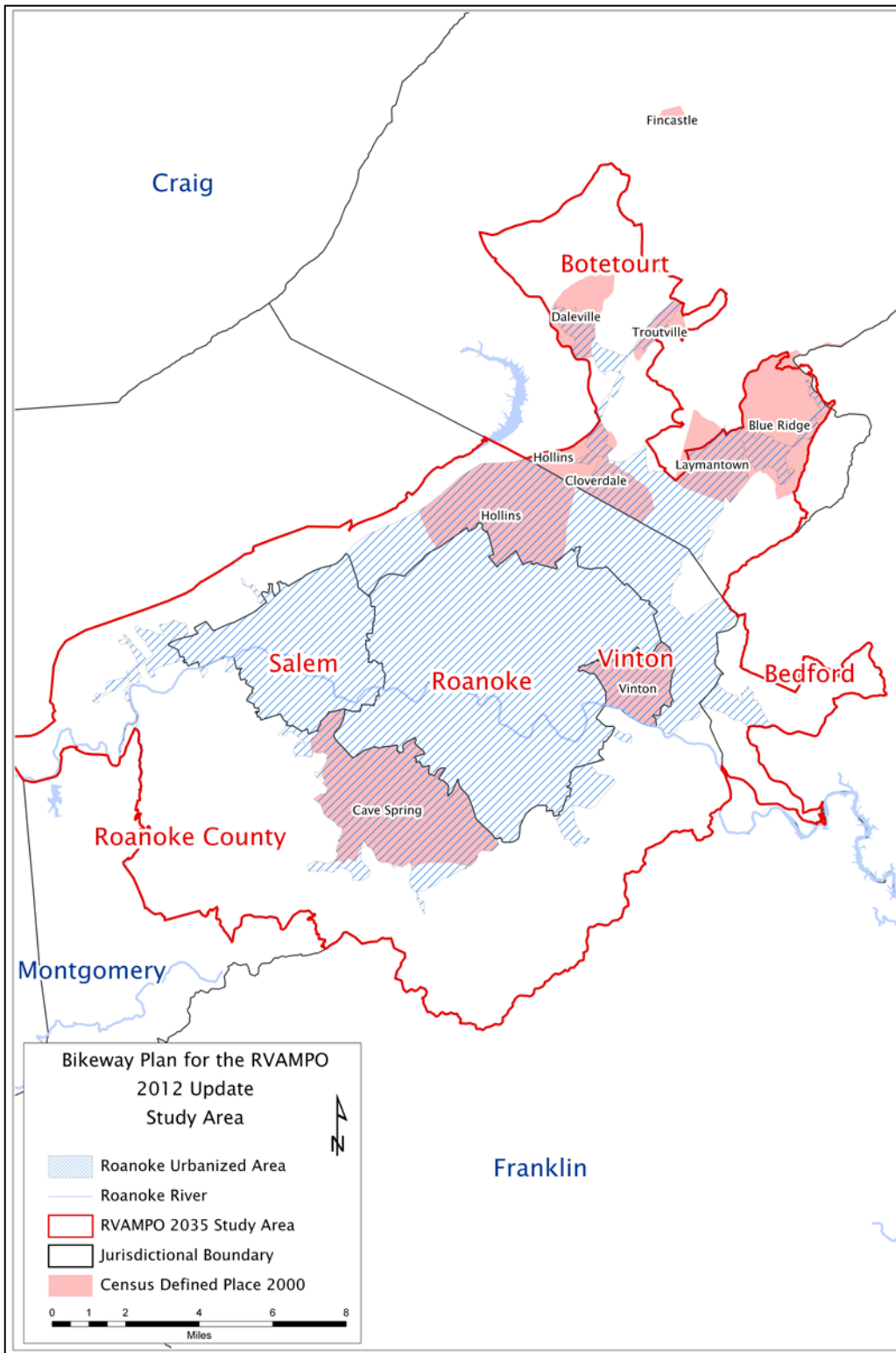


Figure 1.1: Bikeway Plan Study Area



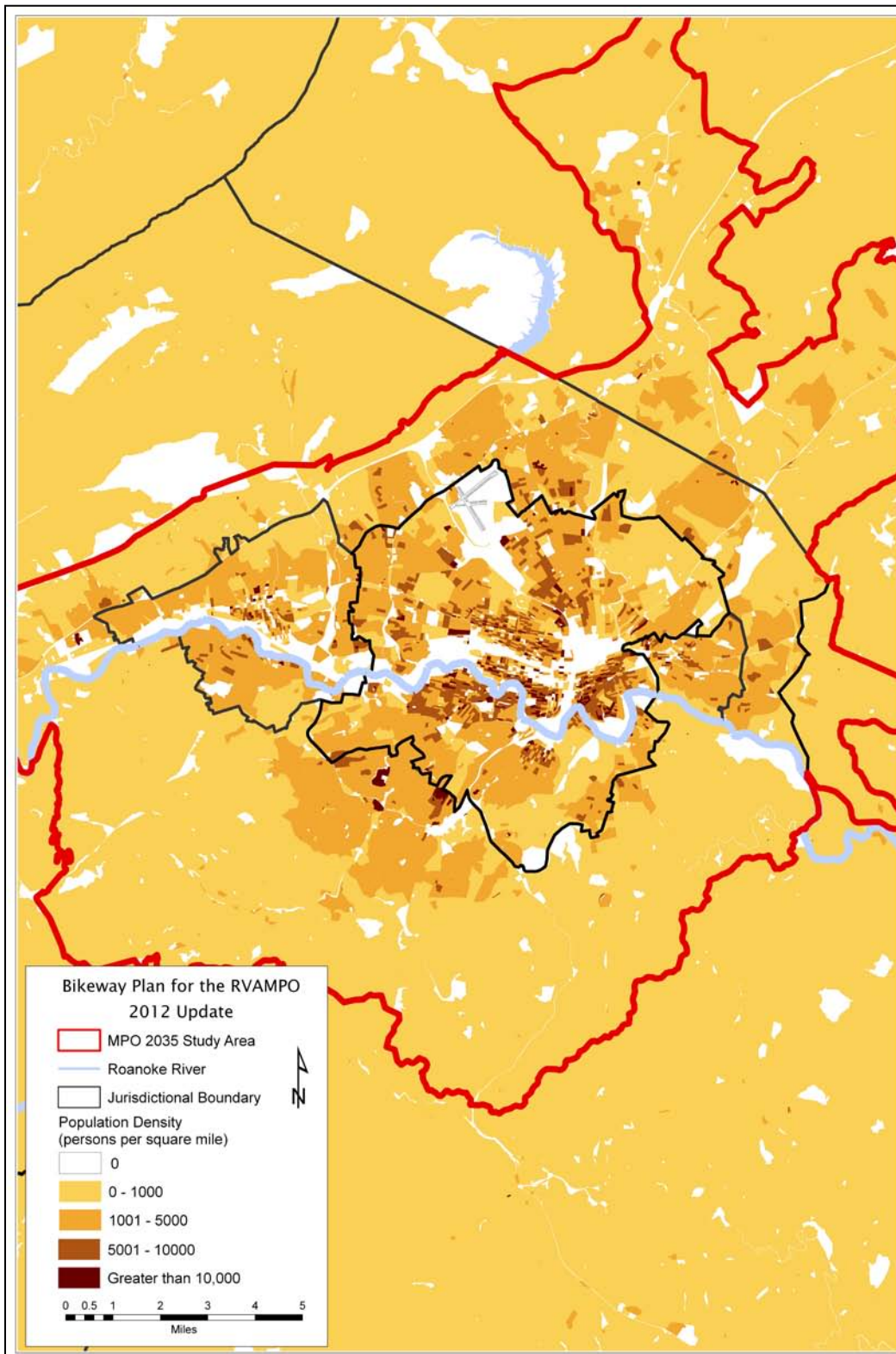


Figure 1.2: RVAMPO Study Area Population Density; Source: US Census 2010



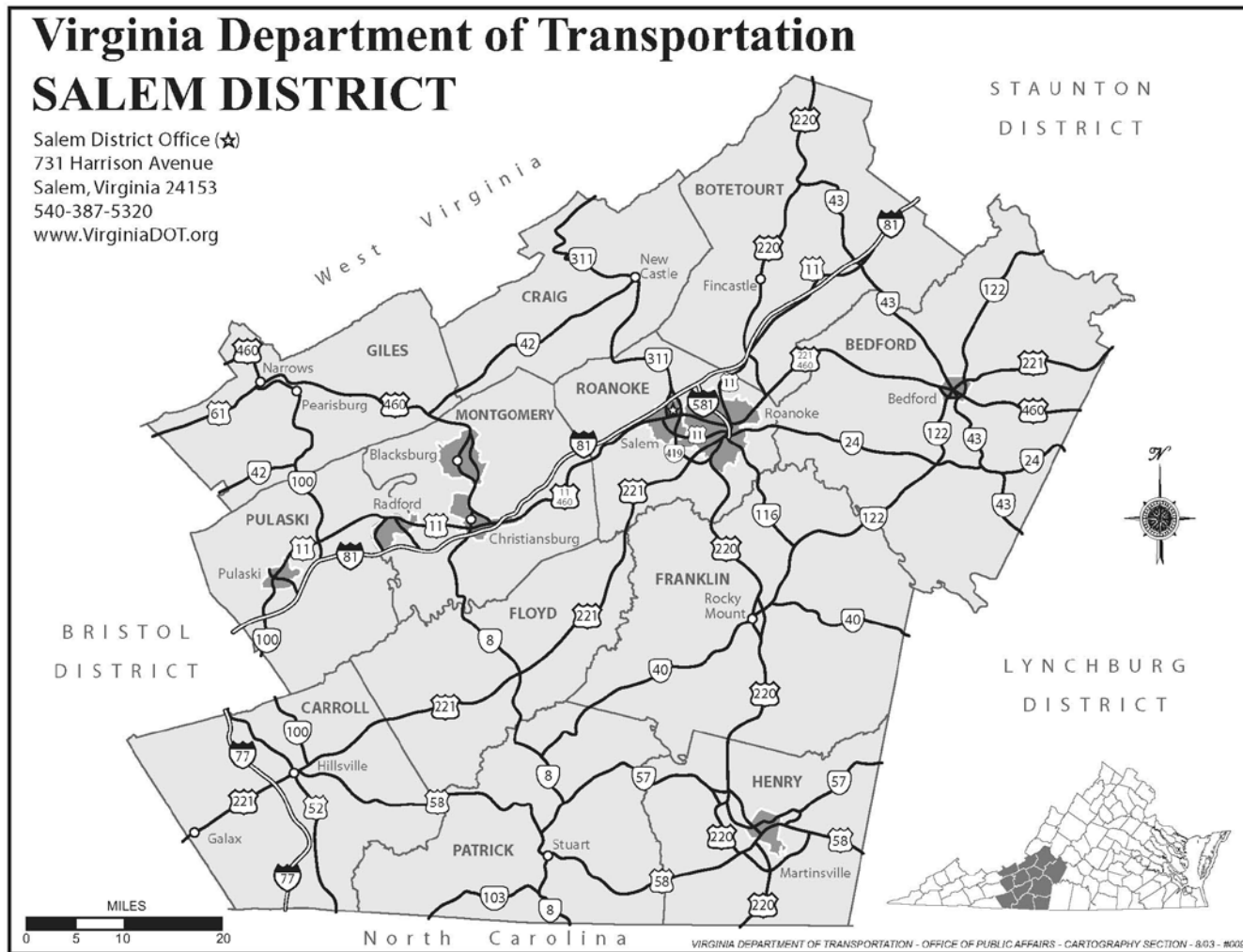


Figure 1.3 VDOT Salem District



Table 1.1  
Population and Population Density by Locality  
2010

Locality	Population 2010	Area (Square Miles)	Population Density 2010	Urbanized Area Population 2010
City of Roanoke	97,032	42.9	2,262	97,032
City of Salem	24,802	14.6	1,699	24,802
Town of Vinton	8,089	3.2	2,528	8,089
Botetourt County	33,148	543	61	N/A
Roanoke County*	84,287	548	154	N/A

*Source: US Census Bureau 2012; \* excludes the Town of Vinton; N/A = 2010 US Census defined Urbanized Areas have not yet been delineated*

Table 1.2  
RVAMPO Study Area Population  
2000

Locality	Locality Population 2000	RVAMPO Study Area Population 2000	Percent of Locality Population in RVAMPO Study Area 2000
City of Roanoke	94,911	94,911	100.0
City of Salem	24,747	24,747	100.0
Town of Vinton	7,782	7,782	100.0
Botetourt County	30,496	15,771	51.7
Roanoke County*	77,996	65,307	76.1

*\* excludes the Town of Vinton. Source: US Census 2000; 2010 MPO Population estimate has not yet been determined (contingent upon delineation of 2010 US Census defined Urbanized Areas)*





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Table 1.3  
American Community Survey 2005-2009  
Journey to Work Data

Means of Transportation to Work	Virginia		Botetourt		City of Roanoke		Roanoke County		City of Salem		Vinton		Roanoke MSA		Roanoke Urbanized Area 2000*
	Total (%)	Margin of Error	Total (%)	Margin of Error	Total (%)	Margin of Error	Total (%)	Margin of Error	Total (%)	Margin of Error	Total (%)	Margin of Error	Total (%)	Margin of Error	Total (%)
Workers 16 years and over	3,795,832	+/-8,053	16,037	+/-457	41,351	+/-918	44,843	+/-761	12,021	+/-434	3,614	+/-351	139,675	+/-1,401	95,310
Car, truck, or van	88.0	+/-0.1	93.3	+/-1.5	91.9	+/-1.1	94.2	+/-0.9	88.7	+/-2.6	96.1	+/-2.6	92.8	+/-0.5	93.6
Drove alone	77.1	+/-0.2	85.2	+/-2.1	81.2	+/-1.5	86.3	+/-1.3	81.1	+/-2.8	81.2	+/-5.0	83.3	+/-0.8	83.7
Carpooled	11.0	+/-0.1	8.1	+/-1.6	10.7	+/-1.3	7.9	+/-1.0	7.7	+/-2.0	14.9	+/-4.7	9.4	+/-0.6	9.8
In 2-person carpool	8.1	+/-0.1	6.8	+/-1.5	8.5	+/-1.2	6.6	+/-1.0	5.7	+/-1.6	10.0	+/-4.1	7.8	+/-0.6	n/a
In 3-person carpool	1.7	+/-0.1	1.0	+/-0.5	1.3	+/-0.5	1.0	+/-0.4	1.7	+/-1.1	4.3	+/-2.7	1.1	+/-0.2	n/a
In 4-or-more person carpool	1.1	+/-0.1	0.3	+/-0.2	1	+/-0.4	0.3	+/-0.2	0.3	+/-0.3	0.6	+/-0.9	0.5	+/-0.1	n/a
Public transportation (excluding taxicab)	4.2	+/-0.1	0.1	+/-0.2	2.7	+/-0.6	0.5	+/-0.3	0.7	+/-0.6	1.8	+/-1.7	1.1	+/-0.2	1.4
Walked	2.3	+/-0.1	1.0	+/-0.6	1.6	+/-0.5	1.5	+/-0.4	4.2	+/-1.5	1.0	+/-1.1	1.9	+/-0.3	1.9
Bicycle	0.3	+/-0.1	0.0	+/-0.2	0.4	+/-0.3	0.1	+/-0.1	0.4	+/-0.4	0.0	+/-1.0	0.2	+/-0.1	0.1
Taxicab, motorcycle, or other means	1.0	+/-0.1	0.8	+/-0.4	1	+/-0.3	0.3	+/-0.2	0.6	+/-0.6	0.0	+/-1.0	0.6	+/-0.2	0.7
Worked at home	4.2	+/-0.1	4.8	+/-1.2	2.3	+/-0.5	3.4	+/-0.6	5.3	+/-1.8	1.1	+/-1.1	3.5	+/-0.4	2.2

Source: ACS 2005-2009 5 year estimates; \* US Census 2000 SF3

