

## INTRODUCTION

A singular known fact of today's world is that a broadband telecommunications network is an essential part of creating 'new economy' jobs and, indeed, enhancing quality of life. This has been documented by numerous public and private studies around the region, nation and world. "Bandwidth," that is, the capacity and speed at which data can be transported upstream and downstream, is the critical infrastructure of the knowledge economy.

Studies have shown that broadband technologies offer dramatic benefits to citizens:

- "Worker productivity increases, jobs are created, and wages grow."<sup>1</sup>
- Residents have the "Opportunity to be producers of next generation applications and services"<sup>2</sup>
- Better jobs: the five fastest growing occupations will be in the information technology sector (according to the Bureau of Labor). . . these jobs will pay on average 85% more than other private sector jobs.<sup>3</sup>
- Opportunity for operators to offer more services to consumers at lower prices, improving efficiency and costs.<sup>4</sup>
- Access to telemedicine, including diagnosis, treatment, and more effective case management systems, as well as access to more affordable medicine and equipment.
- Improvement in care-taking, security and communications options with the elderly and other special needs populations.<sup>5</sup>



These benefits are all the more remarkable in rural areas. "As a core infrastructure, telecommunications has the potential to help rural areas overcome one of the biggest barriers to participating in the global economy: isolation."<sup>6</sup>

This plan provides background on the New River Valley, assesses the current state of telecommunications in the region, documents the vision and goal for future telecommunications, and presents a strategy and implementation plan to provide an advanced regional community network.<sup>7</sup>

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<sup>1</sup> Telecommunications Industry Association Report. *The Economic and Social Benefits of Broadband Deployment*, October 2003.

<sup>2</sup> *Strategic Technology Infrastructure for Regional Competitiveness in the Network Economy, Volume 1*. Virginia Tech eCorridors Program, 2003.

<sup>3</sup> Ibid.

<sup>4</sup> Telecommunications Industry Association Report. *The Economic and Social Benefits of Broadband Deployment*, October 2003.

<sup>5</sup> Sue Shellenbarger. "Technology Holds Promise for Easing Families' Worries Over the Elderly," *The Wall Street Journal*, July 25, 2002, p. D1.

<sup>6</sup> The State of the South. MDC, Inc., 2002.

<sup>7</sup> Telecommunications Industry Association Report. *The Economic and Social Benefits of Broadband Deployment*, October 2003.

## DEFINITIONS

### **BANDWIDTH**

The capacity of a telecommunication line to carry signals. The necessary bandwidth is the amount of spectrum required to transmit the signal without distortion or loss of information.

### **BROADBAND**

Broadband access is high-speed, always available, access to the Internet and Intranet. It should have sufficient downstream and upstream bandwidth per user to support the full range of converged data, voice and video applications expected. Low-end broadband today is in the megabit per second range and high-end is in the gigabit per second range. Research needs are in the tens of gigabits per second range.

### **DIAL-UP**

Slow access to the Internet, generally provided via copper phone lines; the access is available only during the call.

### **DSL**

A digital subscriber line provides higher speeds than dial-up, but generally does not provide symmetrical service, nor does it support next-generation services, such as voice-over IP.

### **NETWORK**

Any connection of two or more computers that enables them to communicate. Networks may include transmission devices, servers, cables, routers and satellites. The phone network is the total infrastructure for transmitting phone messages.

### **PERSONAL COMMUNICATIONS SERVICE (PCS)**

Any of several types of wireless, voice and/or data communications systems, typically incorporating digital technology. PCS licenses are most often used to provide services similar to advanced cellular mobile or paging services. However, PCS can also be used to provide other wireless communications services, including services that allow people to place and receive communications while away from their home or office, as well as wireless communications to homes, office buildings and other fixed locations.

### **SERVICE PROVIDER**

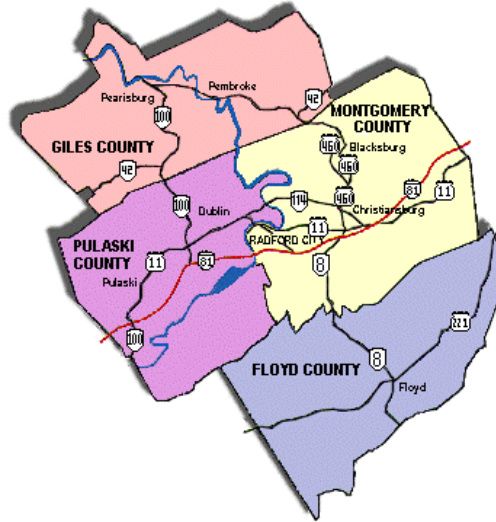
A telecommunications provider that owns circuit-switching equipment.

*Source: Federal Communication Commission Online Glossary and Virginia Tech's eCorridors Program.*

## BACKGROUND

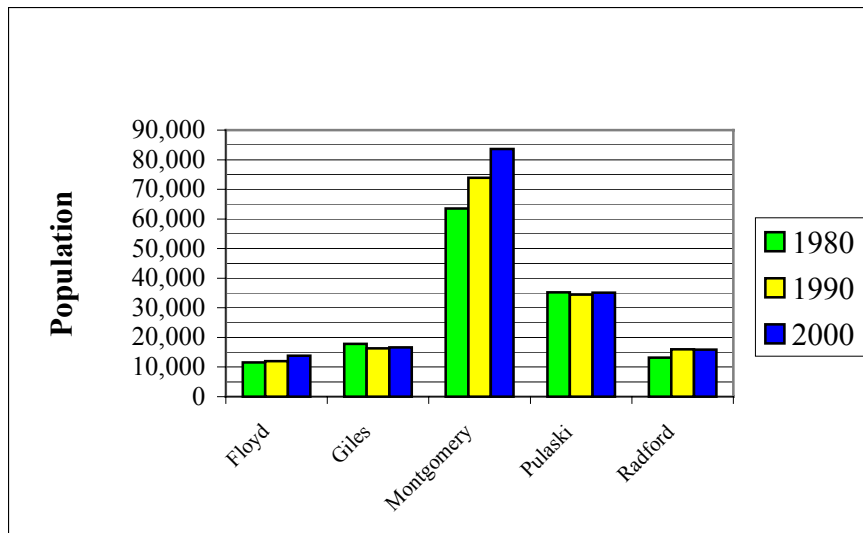
The New River Valley (NRV) is a beautiful region in southwest Virginia, encompassing the Counties of Floyd, Giles, Montgomery and Pulaski, the City of Radford, and ten Towns, including Blacksburg, Christiansburg and Pulaski (Figure 1). There are more than 165,000 people in the region, comprised of small-urban core surrounded by rural farms and forests.

**FIGURE 1: New River Valley Map**



While Montgomery and Floyd Counties have had double-digit population growth percentages, populations in other localities have been generally flat (Figure 2 and Table 1.) Yet, aggregated, the NRV growth rate was solid at 8.2% from 1990 to 2000. Due to this population growth and growing commuting and commercial interconnectivity, the Montgomery-Giles-Radford-Pulaski area was recently designated a new Metropolitan Statistical Area.

**FIGURE 2: NRV POPULATION, 1980-2000**



**TABLE 1**  
**NRV POPULATION**  
**1980-2003**

<b>JURISDICTION</b>	<b>1980</b>	<b>1990</b>	<b>PERCENT CHANGE 1980-90</b>	<b>2000</b>	<b>PERCENT CHANGE 1990-2000</b>	<b>*2003</b>
<b>Floyd County</b>	<b>11,563</b>	<b>11,965</b>	<b>3.5</b>	<b>13,874</b>	<b>16.0</b>	<b>14,500</b>
Towns:						
Floyd	411	396	-3.6	432	9.1	
<b>Giles County</b>	<b>17,810</b>	<b>16,366</b>	<b>-8.1</b>	<b>16,657</b>	<b>1.8</b>	<b>16,500</b>
Towns:						
Glen Lyn	235	170	-27.7	151	-11.2	
Narrows	2,516	2,082	-17.2	2,111	1.4	
Pearisburg	2,128	2,064	-3.0	2,729	32.2	
Pembroke	1,302	1,064	-18.3	1,134	6.6	
Rich Creek	746	670	-10.2	665	-0.7	
<b>Montgomery County</b>	<b>63,516</b>	<b>73,913</b>	<b>16.4</b>	<b>83,629</b>	<b>13.1</b>	<b>85,000</b>
Towns:						
Blacksburg	30,638	34,590	12.9	39,573	14.4	
Christiansburg	10,345	15,004	45.0	16,947	12.9	
<b>Pulaski County</b>	<b>35,229</b>	<b>34,496</b>	<b>-2.1</b>	<b>35,127</b>	<b>1.8</b>	<b>34,100</b>
Towns:						
Dublin	2,368	2,012	-15.0	2,288	13.7	
Pulaski	10,106	9,985	-1.2	9,473	-5.1	
<b>City of Radford</b>	<b>13,225</b>	<b>15,940</b>	<b>20.5</b>	<b>15,859</b>	<b>-0.5</b>	<b>15,100</b>
<b>New River Valley</b>	<b>141,343</b>	<b>152,680</b>	<b>8.0</b>	<b>165,146</b>	<b>8.2</b>	<b>165,200</b>
<b>Virginia</b>	<b>5,346,818</b>	<b>6,187,358</b>	<b>15.7</b>	<b>7,078,515</b>	<b>14.4</b>	<b>7,386,300</b>

Sources: U. S. Census Bureau.

\*2003 Provisional Estimates: Weldon Cooper Center for Public Service, University of Virginia, Charlottesville, VA, 2004.

Note: County totals include the Towns within the County.

The NRV has a history and tradition of manufacturing, partly because it is located within a day's drive to approximately three-quarters of the nation's major markets. Educational institutions, including Virginia Tech, Radford University and the New River Community College, are the biggest entities in the region, employing thousands of people. The schools, scenic vistas, historical and cultural attractions, and qualities inherent to the area are drawing people to this Valley as travelers and new residents. A critical component of success in this region is the pride and work ethic exhibited by the residents. These are the people that move the Valley toward accomplishing its goals and sustaining its growth.

Despite growth and great assets, there are very real economic challenges facing the NRV. The NRV has lost thousands of defense, textile and apparel manufacturing jobs in the last 10-12 years. Yet, 20% of the New River Valley-Mount Rogers' (neighboring region to the west) workforce is employed in manufacturing, compared to 9% in the state and 11% in the nation. Moreover, some of the largest industries in the region are associated with sectors in decline, such

as textiles and furniture. Conversely, only 21% of the New River Valley-Mount Rogers' employment is in desirable service sectors versus 32% in the state and nation. Specifically, business services, health services and engineering and management services comprise 21% of the state's employment in the top 10, compared to 21% for these two regions<sup>8</sup>. Moreover, the New River Valley's employment is very heavily and dangerously concentrated with the 20 largest entities employing 39% of the people, versus about 25% in Mount Rogers and Central Shenandoah and 15% in Northern Virginia<sup>9</sup>. A result of this economy is that incomes still lag significantly behind the State average (see Table 2), and well-trained youth tend to go to other regions.

**TABLE 2**

**SUMMARY TABLE OF KEY ECONOMIC INDICATORS**

JURISDICTION	2000 MEDIAN HOUSEHOLD INCOME	2000 PER CAPITA INCOME	2000 POVERTY RATE
Floyd County	\$31,585	\$16,345	8.5
Giles County	34,927	18,396	6.6
Montgomery County	32,330	17,077	8.8
Pulaski County	33,873	18,973	10.6
City of Radford	24,654	14,289	6.9
New River Valley	N/A	17,284	N/A
Virginia	\$46,677	\$23,975	7.0

Sources: U.S. Census Bureau, Virginia Employment Commission, Federal Deposit Insurance, 2003, Virginia Department of Taxation. Report on the Comparative Revenue Capacity, Revenue Effort, and Fiscal Stress of Virginia's Counties and Cities 1999/2000, Secondary Source: NRV Regional Data Book

Yet, with the region's extraordinary educational resources and entrepreneurial spirit (see below), we have the resources and human capacity to rise to the challenges of a high-technology economy. As *Community First*, our regional strategic plan notes, "Our planning and strategic development must build the necessary infrastructure and support to prepare the New River Valley for this change."<sup>10</sup>

<sup>8</sup> Chris Chmura, *New River Mount Rogers Current State of Economy*. Prepared for Virginia Economic Bridge, November 2002.

<sup>9</sup> Ibid.

<sup>10</sup> *Community First: Harnessing Change and Building Connections (Strategic Plan)*. New River Valley Planning District Commission, 2003.

## **NRV: Committed to Education and Entrepreneurs**

Committed to educational excellence, the people in the New River Valley have developed an exceptional educational system. This commitment benefits everyone; students, parents, and employers. The area is home to Virginia's largest university, Virginia Tech (VT). VT's colleges of engineering and business rank among the best in the nation; it is also a significant research and technology-transfer university. Radford University provides strong programs in business, geography, communications, and education. New River Community College, along with its superb associate degree programs, is dedicated to training and retraining the region's labor force. These higher educational centerpieces also have strong ties with the local school divisions and local business and industry.

Another support system in the New River Valley exists for small and emerging businesses. The Virginia Tech Corporate Research Center provides the opportunity for innovative high-tech companies to bring ideas to market. The New River Valley Competitiveness Center is an industrial development incubator. The Jacksonville Center, a craft incubator in Floyd County and the Giles Business Incubator add substantial support to the entire entrepreneurial community. Additionally, the region is home to the Radford University's Business Assistance Center which promotes and supports emerging businesses.

Local governments and community organizations have responded to the physical infrastructure needs by investing in land development, water and sewer improvements, housing starts and renovations, and road development and improvements. Several industrial parks and buildings have been enhanced including traditional shell buildings and industrial park layouts as well as mixed use and alternative economic development sites.

Among the pivotal issues for this plan:

- ⇒ Will our higher education institution maintain their leadership positions without “sufficient and early access” to advanced telecommunication technology?<sup>11</sup> (van Gelder)
- ⇒ Will our region reap the maximum benefits of our existing assets without the addition of a fiber-optic network?
- ⇒ Will true next-generation broadband services be provided in the near-term by the large telecommunications firms?

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<sup>11</sup> Brenda van Gelder. ““The Case for the Municipal Provision of Competitive Broadband Infrastructure,” *EDUCAUSE Review*, vol. 39, no. 3 (May/June 2004): 62–63.