

2013

Region 8 Planning and
Development Council



REGIONAL BROADBAND STRATEGIC PLAN

"It is the mission of the Region 8 Planning and Development Council to obtain the maximum level of sustainable economic and community development in the Potomac Highlands of West Virginia through development, planning and by assisting local governments and businesses implement projects and programs."



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Introduction

The Region 8 Planning and Development Council (Region 8 PDC) is a council, set up by the State of West Virginia, comprising of representatives (both elected and appointed) from five counties: Grant, Hampshire, Hardy, Mineral, and Pendleton and the municipalities of Bayard, Capon Bridge, Carpendale, Elk Garden, Franklin, Keyser, Moorefield, Petersburg, Piedmont, Ridgeley, Romney, and Wardensville. These counties and municipalities make up the Potomac Highlands of West Virginia.

The Region 8 PDC's mission statement—"It is the mission of the Region 8 Planning and Development Council to obtain the maximum level of sustainable economic and community development in the Potomac Highlands of West Virginia through development, planning and by assisting local governments and businesses implement projects and programs."

In keeping with the Council's mission, Region 8 PDC has facilitated the development of a regional broadband strategic plan. In order to develop the plan, a Regional Broadband Planning Team (RBPT) was created with representatives from government, healthcare, education, and the private sector. Region 8 expresses its gratitude to all team members who volunteered their time and resources to make this a successful project.

RBPT Members

- Joan Ashley, Private Citizen—Pendleton County
- Roger Ashley, Private Citizen—Pendleton County
- Derek Barr, Hardy Telecommunications
- Mary Beth Barr, CEO—Grant Memorial Hospital
- Gene Clem, Private Citizen—Mineral County
- Vickie Colaw, Director—Spruce Knob Seneca Rocks Telephone
- Robert Cole, Member—Mineral County Development Authority
- Marlene Collins, Wardensville Community Library
- Mallie Combs, Director—Hardy County Rural Development Authority
- William Hentosh, Director—Mineral County Office of Emergency Services
- Carol Koontz, Hardy County Library
- Paul Lewis, Director—Hardy County Office of Emergency Services
- Chris Kyle, Vice President of Industry Relations & Regulatory - Shentel Service Company
- LeeAnn Shreve, Director—Future Generations Rural America
- Gene McConnell, Pendleton County Commissioner
- Rebecca McConnell, Pendleton County Library
- Neil McLaughlin, CEO—Hampshire Memorial Hospital
- Bruce Minor, Director—Pendleton County Office of Emergency Services
- Donnie Owen, MGW & Lingo Networks
- Anne Palmer, Director—Mineral County Chamber of Commerce
- Mona Ridder, Director—Mineral County Development Authority

- Kim Ruddle, Director—Pendleton County Economic & Community Development Authority
- Scott Sherman, Hardy Telecommunications
- Les Shoemaker, Director—Hampshire County Development Authority
- Beverly Steele, Mineral County Development Authority
- Connie Sutton, Mineral County Library
- Sherry Watts, Eastern West Virginia Community & Technical College
- Barbara Whitecotton, - Superintendent—Hardy County Board of Education

Region 8 PDC Staff

- Terry Lively, Executive Director
- Melissa Earle, Assistant Director
- Ralph Goolsby, Program Manager
- Stacey Heavner, Executive Assistant

Funding for this broadband strategic plan was provided by the West Virginia Geologic and Economic Survey, and the Office of GIS Coordination (WVOGC) through a grant the National Telecommunications and Information Administration (NTIA) in collaboration with Region 8 PDC.

Project Overview

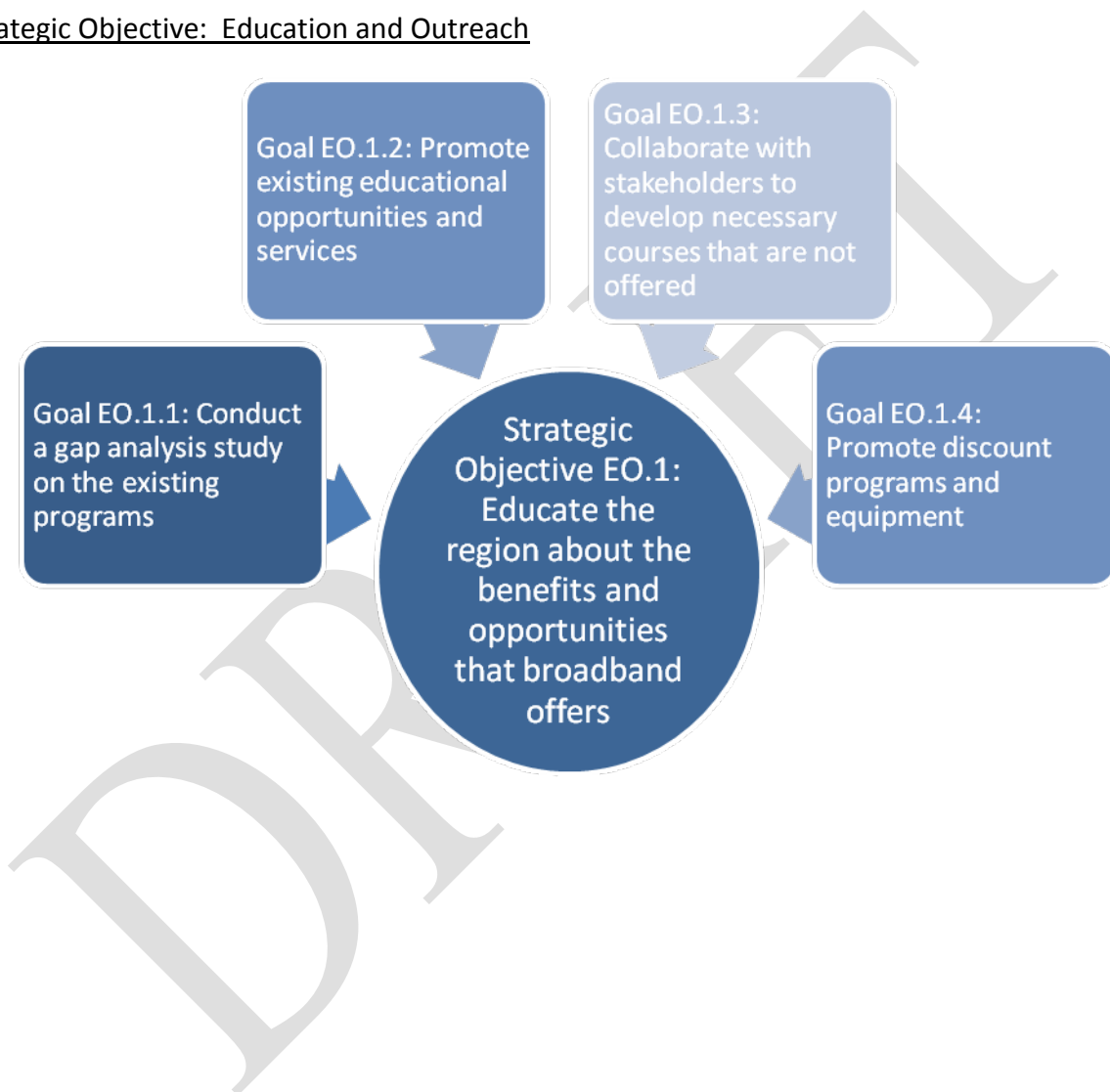
The RBPT conducted a broadband sector survey to ensure that it had an understanding of the current broadband environment in Region 8. The RBPT surveyed residents and businesses throughout the region and reviewed existing studies (e.g., Federal Communications Commission (FCC) reports, state broadband maps, state speed test data, unserved and underserved areas, economic development plans, local government comprehensive plans and local broadband studies). With this knowledge, the RBPT outlined the region's strengths, weaknesses, opportunities, and challenges (SWOC). Next, the RBPT outlined broadband strategic objectives to help improve broadband availability, reliability, and utilization throughout the region. The strategic objectives are outlined in this plan and include the implementation strategy necessary to achieve each objective.

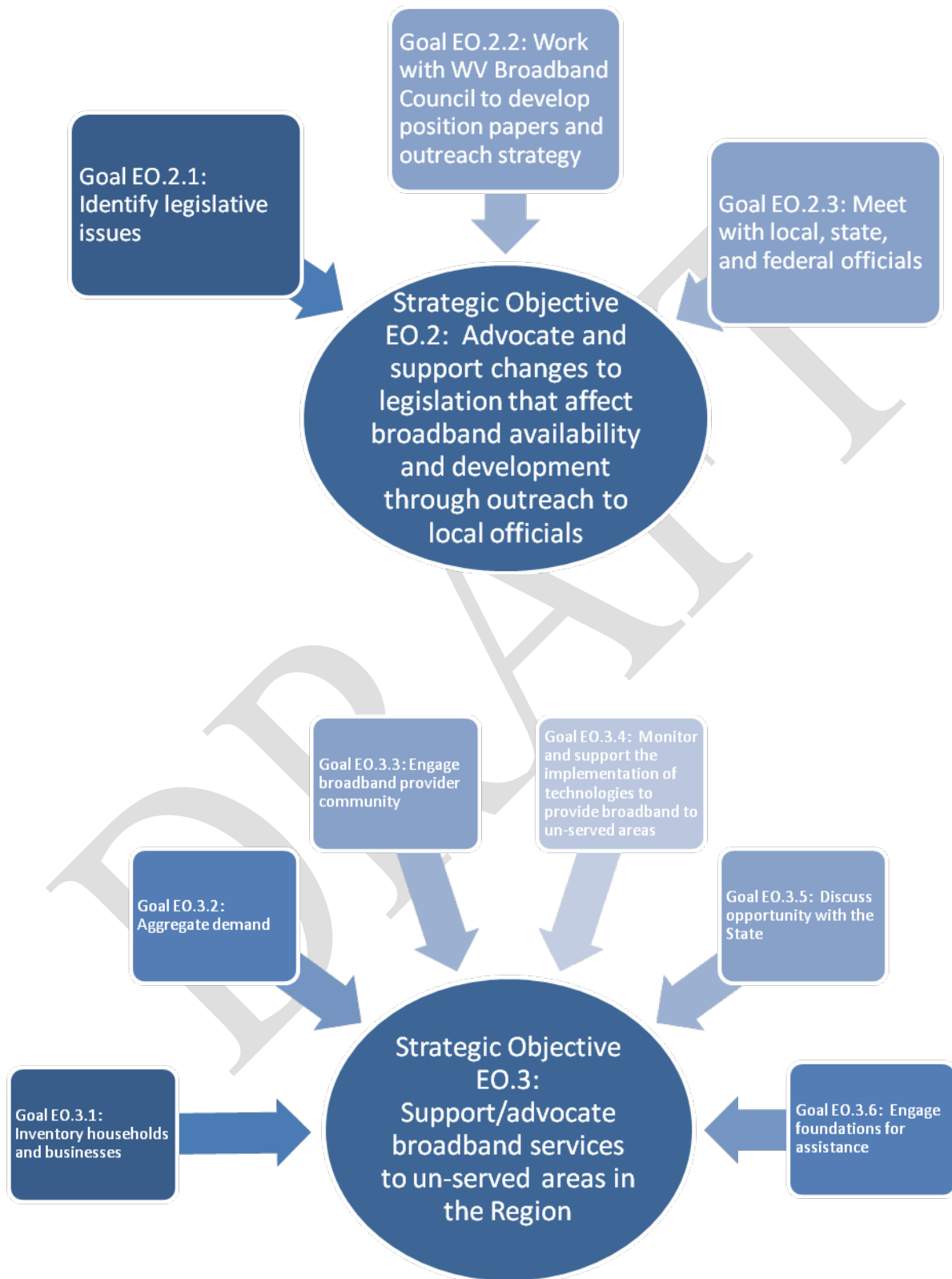
The RBPT strategic plan provides a three-prong approach which includes education and outreach, economic development, and infrastructure. If all three of these areas are brought into focus, it will help to improve the broadband infrastructure throughout the region. Education and outreach to individuals and businesses on the usefulness of broadband will help to increase demand. Incorporating broadband into the economic development planning process will ensure that necessary infrastructure is included and will help current businesses expand and attract new businesses. Both of these actions will increase the competitiveness of the local broadband market and help to justify the expansion of current infrastructure to meet the coverage and speed requirements outlined in the strategic plan.

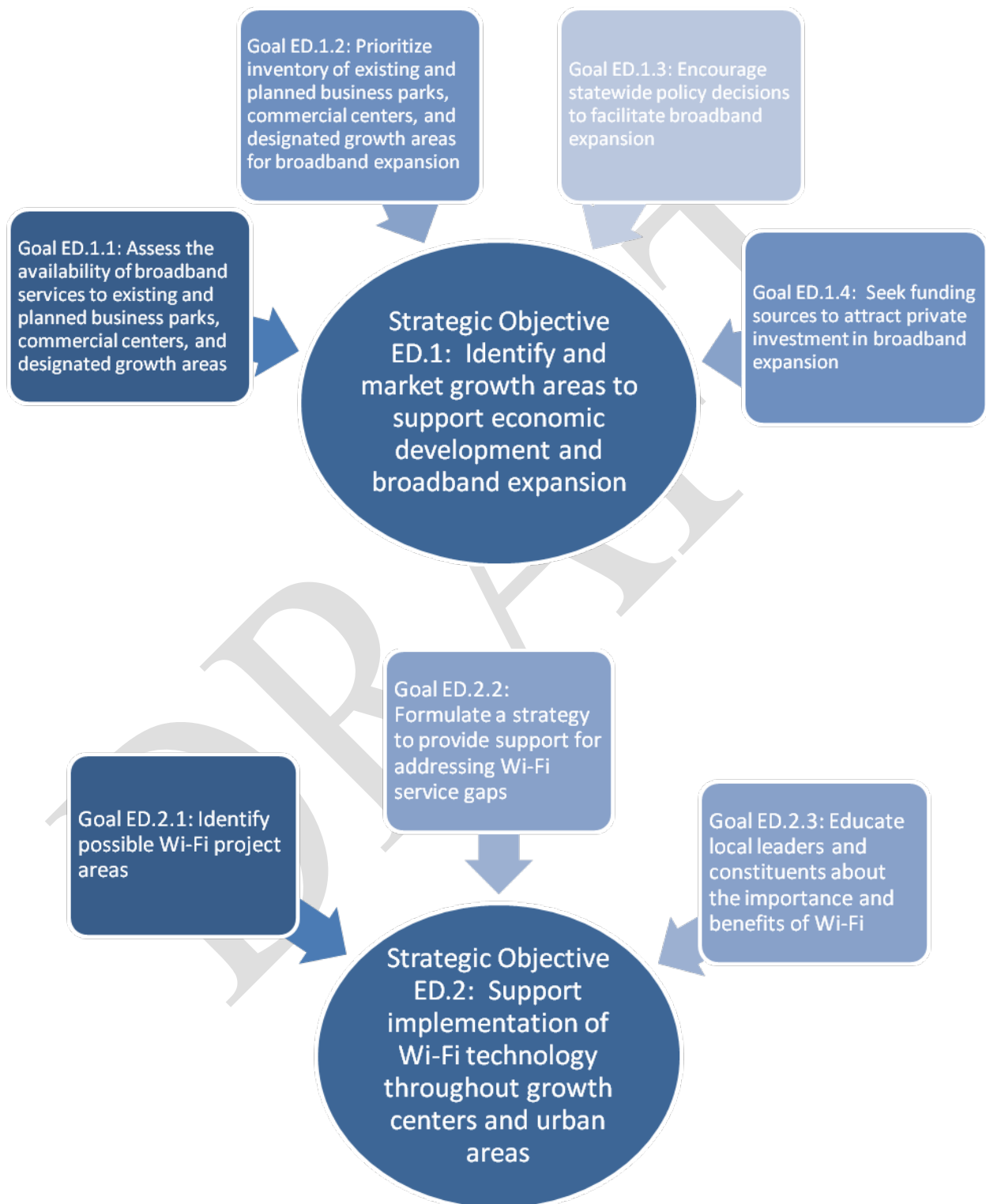
Executive Summary

The following illustrations provide an at-a-glance summary of the nine (9) strategic objectives and each of the corresponding goals defined during the strategic planning process. The summary provides a quick review of the overall objectives and the level of effort required to implement the objectives.

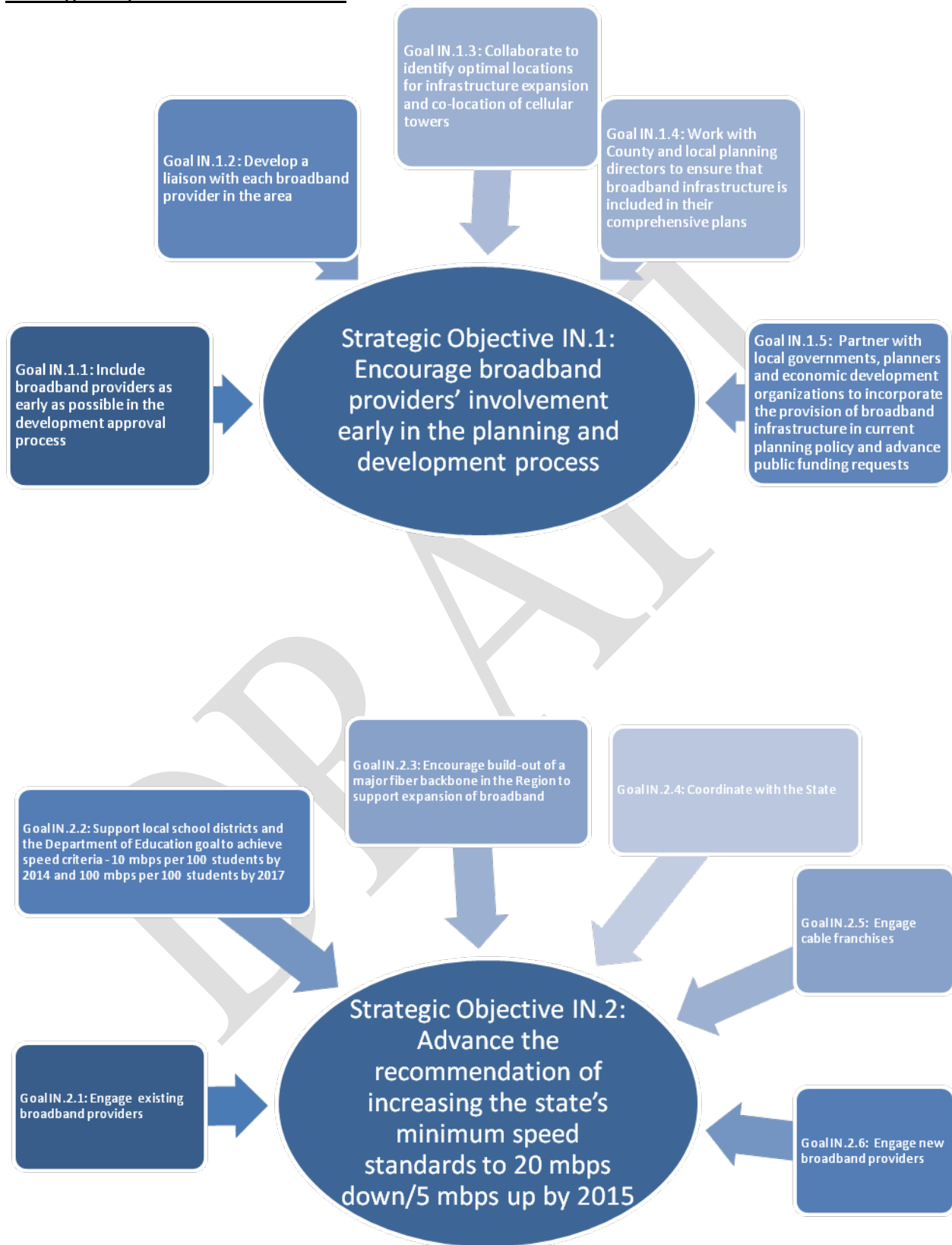
Strategic Objective: Education and Outreach

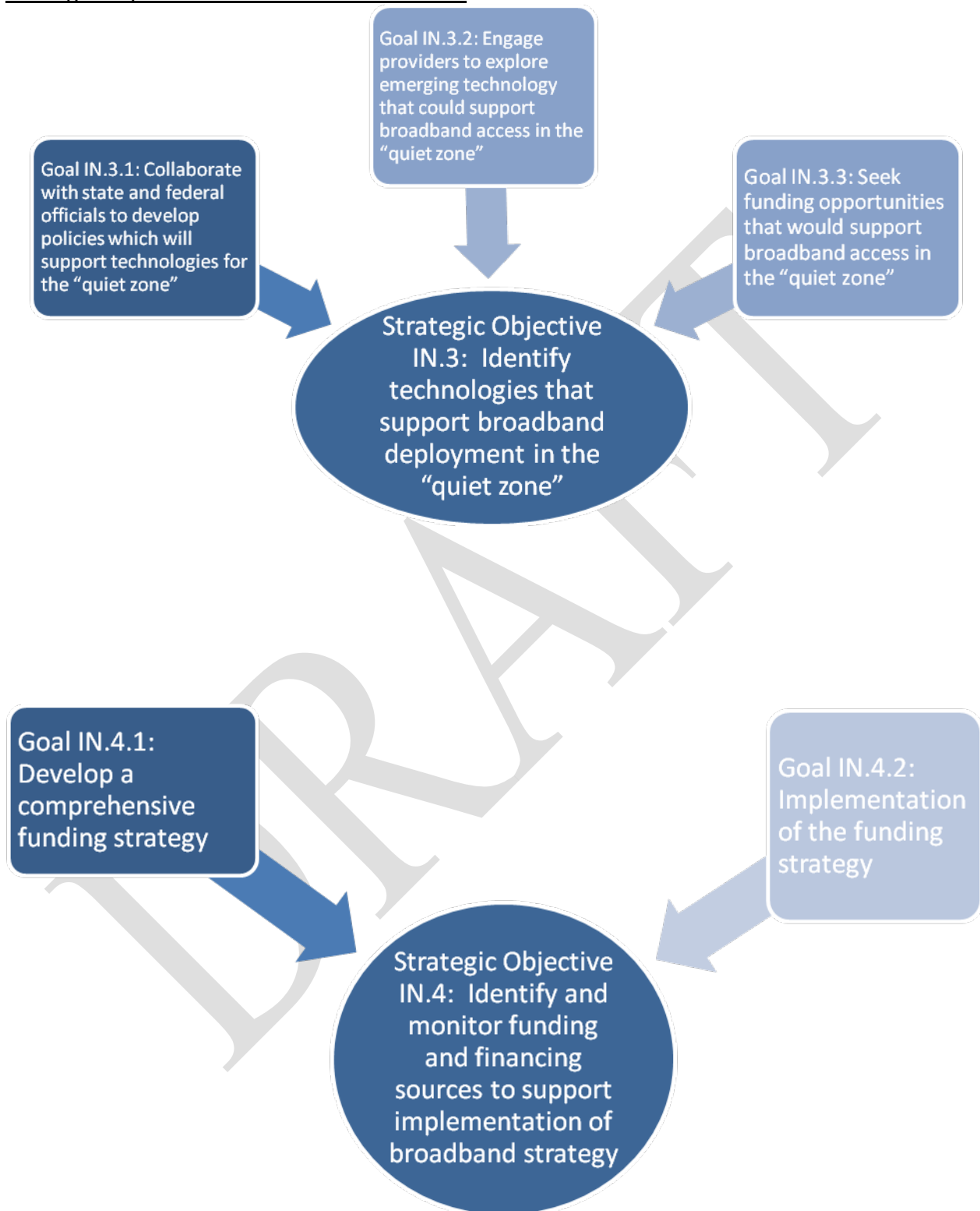


Strategic Objective: Education and Outreach Continued

Strategic Objective: Education

Strategic Objective: Infrastructure



Strategic Objective: Infrastructure Continued

Regional Overview

Socioeconomic Profile

The socioeconomic characteristics of a region provide some insight into the potential utilization rate and uses of broadband services. A recent study published by the U.S. Department of Commerce, *Exploring the Digital Nation: Computer and Internet Use at Home*, found that households in rural areas of the United States and household with lower incomes and less education are less likely to have computers and utilize broadband services than households in urban areas and those with higher incomes and higher education levels. It also found that households with young children are more likely to have computers and utilize broadband services. The following information presents a profile of each of the five Region 8 PDC counties in comparison to West Virginia and the continental United States.

Population

The Potomac Highlands is comprised of Grant, Hampshire, Hardy, Mineral and Pendleton Counties in West Virginia. The Potomac Highlands displayed a 2010 population count of 85,850 residents, with Mineral County demonstrating the largest population of any county in the region at 28,218 residents. The county with the lowest population in the region was Pendleton County with 7,693. Projected growth for the region by 2015 is 88,433 or 3% increase.

There are two metropolitan statistical areas (MSAs) with component counties in the Potomac Highlands. Mineral County is one of the component counties of the Cumberland MSA along with Allegany County in Maryland. The other MSA is the Winchester MSA, which is made up of Hampshire County and Frederick County and Winchester City in Virginia. The inclusion of Mineral and Hampshire counties in their respective MSAs indicates the high degree of commuting flows between these counties and the core counties in other states. In each case, the core county (and thus the core city) of the MSA is located outside of West Virginia. The continued potential for growth in the Potomac Highlands should be attractive to broadband providers, and the increased demand that it creates for broadband services can help to increase competitive broadband options and carriers.

Table 1—Population and Projections

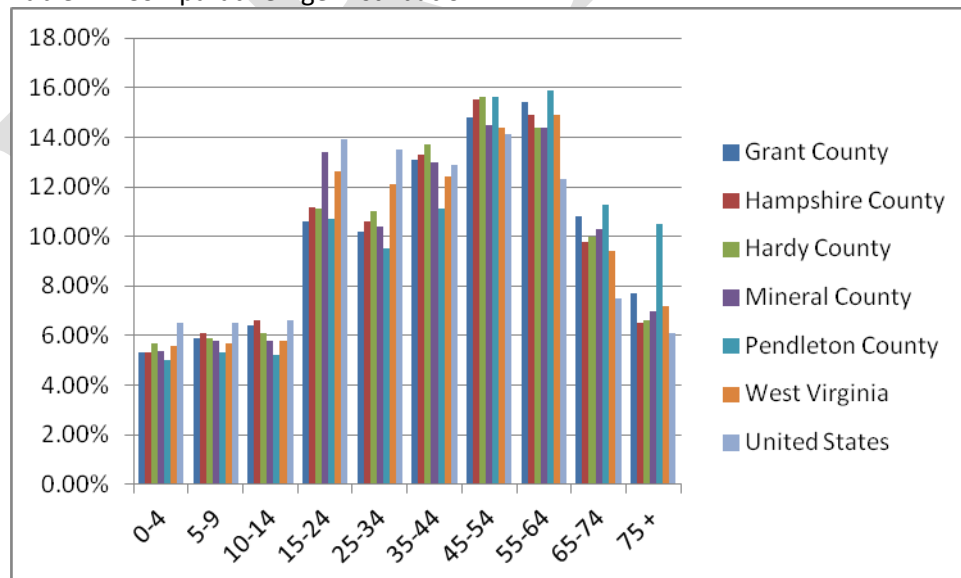
	July 2010	July 2015	July 2020	July 2025	July 2030	2010-2030 Growth
U. S	308,745,538	321,363,000	333,896,000	346,407,000	358,471,000	86%
WV	1,853,243	1,875,634	1,893,182	1,900,835	1,900,535	2.6%
Grant	11,937	12,141	12,256	12,220	12,027	.08%
Hampshire	23,968	25,297	26,404	27,188	27,621	15.2%
Hardy	14,034	14,768	15,465	16,012	16,372	16.7%
Mineral	28,218	28,743	29,107	29,264	29,123	3.2%
Pendleton	7,693	7,484	7,262	6,991	6,649	-13.6%

Source: U. S. Census Bureau and WVU Bureau of Business and Economic Research

Age

The concentration of residents between the ages of 45 and 54 is relatively consistent in Hampshire, Hardy, and Mineral Counties. Grant and Pendleton Counties lead the Potomac Highlands in the senior population, with a concentration of 40.3% of residents 65 and older. This may present a unique challenge for broadband deployment. In contrast Hampshire County has the lowest percentage of seniors, with a concentration of 16.3% who are 65 and older. The concentration of young people under the age of 25 and the higher than average concentration of people 25-65 in Region 8 is an indicator of potential and current demand for broadband services in the region. Table 2 presents the details of the age group concentrations.

Table 2 – Comparative Age Distribution



Source: U. S. Census Bureau

Income

The 2007-2011 American Community Survey 5-Year Estimates indicate households in Grant County have higher median incomes than those in other portions of Region 8 with an estimate of \$40,008, as shown in Table 3. Median incomes in Mineral County are the second highest for the region with \$34,691. Hardy County and Pendleton County have estimated median incomes of \$32,989 and \$33,060 respectively. Hampshire County's median income is estimated to decrease by \$2,658. The concentration of households with lower-than-average incomes in Region 8 could have implications for future broadband demands.

Table 3 – Median Household Income Trends

	2000 Actual	2007-2011 Estimates
Grant	\$28,916	\$40,008
Hampshire	\$31,666	\$29,001
Hardy	\$31,846	\$33,060
Mineral	\$31,419	\$34,691
Pendleton	\$30,429	\$32,989
West Virginia	\$29,696	\$39,550
United States	\$41,994	\$52,762

Source: U. S. Census Bureau and 2007-2011 American Community Survey 5-Year Estimates

Education

The educational attainment for Bachelor's degrees in Pendleton County is higher than that in other Region 8 counties and lower than West Virginia and the United States (see Table 4). Eight and three-tenths percent of residents in Pendleton County have a Bachelor's degree. Mineral County's level of educational attainment is strongest in Region 8 for Associate's degrees with 8% (higher than West Virginia and the United States) and 5.8% Graduate or Professional Degrees. Hardy County also has a 6.5% educational attainment for Associate's degrees which is slightly higher than West Virginia. The concentration of individuals with higher levels of education attainment in Region 8 is also an indicator of potential increased demand for broadband services.

Table 4 – Educational Attainment (age 25 and older)

	Grant	Hampshire	Hardy	Mineral	Pendleton	WV	US
Population over 25	8,568	16,716	9,534	19,389	5,696	1,287,738	202,048,123
Less than 9th grade	10.0%	6.4%	8.6%	4.5%	10.0%	6.5%	6.1%
9-12 grade, no diploma	10.6%	16.1%	11.7%	6.6%	10.7%	10.9%	8.5%
High School Graduate (GED)	51.5%	53.4%	48.6%	50.6%	44.5%	41.0%	28.6%
Some college, no degree	10.8%	11.2%	15.4%	14.8%	17.6%	18.0%	21.0%
Associate's Degree	4.6%	4.2%	6.5%	8.0%	5.4%	6.0%	7.6%
Bachelor's Degree	7.0%	5.7%	5.7%	6.7%	8.3%	10.9%	17.7%
Graduate or Professional degree	5.5%	3.1%	3.6%	5.8%	3.6%	6.8%	10.5%

Source: 2007-2011 American Community Survey 5-Year Estimates

Employment

According to data collected from the U. S. Census Bureau there are 36,642 civilian employed population age 16 and older in Region 8, 31.7% in Mineral County, 26.4% in Hampshire County, 16.3% in Hardy County, 16% in Grant County, and 9.7% in Pendleton County. As shown in Table 5, manufacturing is the largest industry sector for all five counties. The second largest industry sector for all five counties is educational services, health care, and social assistance.

Table 5 - Comparative Industry Mix by County

	Grant	Hampshire	Hardy	Mineral	Pendleton
Civilian employed population age 16 & older	16.0%	26.4%	16.3%	31.7%	9.7%
Agriculture, forestry, fishing & hunting, mining	5.0%	4.4%	4.8%	2.2%	10.8%
Construction	11.6%	14.2%	10.9%	8.0%	11.1%
Manufacturing	19.0%	18.6%	32.0%	17.5%	13.8%
Wholesale trade	1.5%	1.9%	0.8%	1.3%	1.1%
Retail trade	9.4%	12.6%	11.0%	10.5%	11.2%
Transportation and warehousing and utilities	10.2%	3.8%	3.8%	6.0%	7.7%
Information	0.6%	1.0%	0.9%	2.8%	1.2%
Finance & insurance, real estate & rental & leasing	3.7%	2.5%	1.6%	3.2%	1.4%
Professional, scientific & management, administrative & waste management services	3.5%	6.4%	2.2%	6.1%	2.1%
Educational services, health care & social assistance	24.0%	21.5%	15.7%	23.5%	20.9%
Arts, entertainment and recreation, accommodation & food services	4.5%	4.8%	5.2%	5.6%	5.6%
Other services (except public administration)	3.7%	4.0%	3.8%	6.8%	3.7%
Public administration	2.5%	3.8%	6.2%	5.7%	8.7%

Source: 2007-2011 American Community Survey 5-Year Estimates

As compiled by the West Virginia Department of Commerce during March 2012, the top three employers for each county in the Potomac Highlands are as follows:

- Grant County:
 - Grant Memorial Hospital
 - Grant County Board of Education
 - Virginia Electric and Power Company
- Hampshire County:
 - Hampshire County Board of Education
 - West Virginia School for the Deaf and the Blind

- Valley Health Systems
- Hardy County:
 - Pilgrim's Pride Corporation of West Virginia
 - American Woodmark Corporation
 - Hardy County Board of Education
- Mineral County:
 - Alliant Techsystems, Inc.
 - Mineral County Board of Education
 - Wal-Mart Stores, Inc.
- Pendleton County:
 - Pendleton County Board of Education
 - Pendleton Manor, Inc.
 - U.S. Department of Defense.

Inflow and Outflow of Workers

Region 8 has significant levels of workforce commuters. With a cost of living that is lower than areas in Washington, D.C., and the Northern Virginia area, and an attractive quality of life, the counties in Region 8 remain to be home to many commuters. As employers move toward more workplace flexibility, an increasing number of workers telecommute, increasing the demand for broadband services in residential neighborhoods throughout the region. Table 6 shows the inflow and outflow of workers in Grant, Hampshire, Hardy, Mineral, and Pendleton Counties in 2010.

Table 6 – Inflow and Outflow of Workers

	Inflow	Live/Work in County	Outflow
Grant	20%	46%	34%
Hampshire	9%	40%	51%
Hardy	32%	50%	18%
Mineral	17%	40%	43%
Pendleton	8%	59%	33%

Source: U.S. Census Bureau

Grant, Hampshire, Mineral, and Pendleton Counties have a high number of workers that travel outside the counties to work. Many of those workers travel outside the county to bordering states; Maryland, Pennsylvania, and Virginia. Hardy County leads the region with the highest percentage of workers traveling to the county for work (32%). Pendleton County has the highest percentage of workers within their county (59%) and the lowest percentage of workers traveling to the county for work (8%). Hampshire County has the highest percentage of workers traveling out of the county for work (51%). All percentages are based on the total number of workers for that particular county.

Priority Growth Areas in Region 8

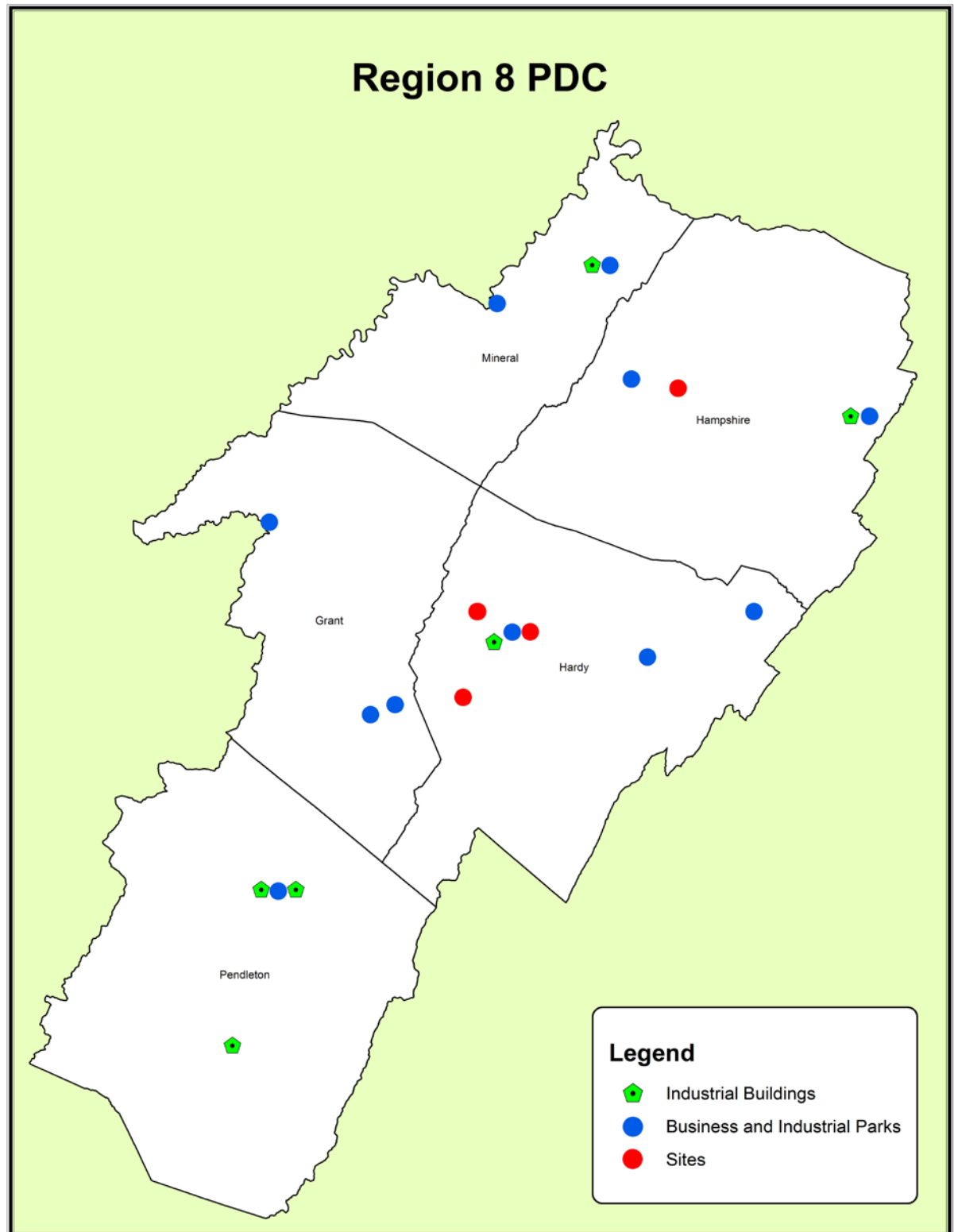
A key consideration in developing a regional broadband strategy is to gain an understanding of where economic growth is expected to occur in the region. This information can help to shape priorities in a broadband strategy and can also help broadband providers to prioritize their investments in broadband infrastructure to ensure that their investments are aligned with local growth priorities. The RBPT reviewed the comprehensive plans of each of Region 8's five counties, reviewed data from the West Virginia Development Office regarding business and industrial parks, sites, and buildings in each county, requested input from each county's development authority director. The following information provides an overview of growth priorities in Region 8.

Table 7 – Region 8 Business and Industrial Parks, Sites, and Buildings

County	Type	Name	Location	Broadband Provider
Grant	Park	Grant County Industrial Park	Petersburg	Frontier
	Park	Mountain Top Industrial Park	Mt Storm	
	Park	Grant County Business & Technology Park	Petersburg	Frontier
Hampshire	Park	Hampshire County – Romney Business Park	Romney	Frontier
	Park	Capon Bridge Tech Park	Capon Bridge	Frontier
	Site	Royce Saville Site	Romney	Frontier
	Building	Capon Bridge Tech Park Multi-Tenant Building	Capon Bridge	Frontier
Hardy	Park	Wardensville Industrial Park	Wardensville	Frontier
	Park	Robert C Byrd – Hardy County Industrial Park	Moorefield	Hardy Tel
		Baker Industrial Park	Baker	Hardy Tel
	Park	Fitzwater Business Site	Moorefield	Hardy Tel
	Site	Crites Stie	Moorefield	Hardy Tel
	Building	American Woodmark Moorefield Plant – Moorefield Industrial Park	Moorefield	Hardy Tel
Mineral	Park	Keyser – Mineral County Industrial Park	Keyser	Frontier
	Park	Fort Ashby Business & Technology Park	Fort Ashby	Frontier
	Building	Mineral County Multi-Tenant Building	Fort Ashby	Frontier
Pendleton	Park	Upper Tract Industrial Park	Upper Tract	Frontier
	Building	Upper Tract Industrial Park Shell Building I	Upper Tract	Frontier
	Building	Upper Tract Industrial Park Shell Building II	Upper Tract	Frontier
	Building	Pendleton County Business Center	Franklin	Frontier

Source: West Virginia Development Office and County Development Authorities

Figure 1 - Region 8 Industrial Parks, Buildings and Sites



Produced by: West Virginia Development Office

Region 8 Planning and Development Council's Regional Development Plan Comprehensive Economic Development Strategy 2009-2013¹ identifies three growth centers, Keyser, Romney, and Moorefield/Petersburg. Previously, the City of Keyser has been designated a Redevelopment - Economic Center by the Economic Development Administration.

Keyser Growth Center

The City of Keyser is the county seat of Mineral County and is the largest city in Region 8. The City's 2010 population was 5,439 persons; this represents a 2.56% increase from the 2000 population of 5,303. More than balancing this loss is the strong growth in the New Creek Valley, south of Keyser. Evidence of this growth is found in a doubling of connections to the New Creek water system. Persons age 17 or younger account for 19.4% of Keyser's population; persons age 65 or older account for 17.14% of the population. Members of minority groups make up 10.7% of the City's population.

According to the 2007-2011 American Community Survey 5-Year Estimates, the City of Keyser had an internal labor force of 2,214 persons and a labor force participation rate of 51.7%. Median family and per capita incomes were \$36,082 and \$15,971 respectively. Unemployment was 6.5%.

Keyser has an excellent transportation network. It is on the main east/west line (New York to St. Louis) of the CSX Rail System. Passenger rail service is available at Cumberland, Maryland. The City is served by Route 46 and Routes 220 and 50. Additionally, Interstate Route 68 is within less than a half hour's driving time. The City is within a three hours drive of major international airports in Pittsburgh, PA, Baltimore, MD., and Washington, DC.

The Keyser Industrial Park contains 155 acres with approximately 26 acres immediately available for development. There are other industrial sites of various sizes in and around the City. Coal and commercial quantities of lumber and limestone are available within close proximity to the community. The City contains six financial institutions, a new hospital, and Potomac State College, a division of West Virginia University. The municipal wastewater treatment plant is being upgraded to meet Chesapeake Bay Watershed Implementation Plan requirements. The City also has a water improvement project for its water treatment plant. The balance of the City's infrastructure, i.e., utilities, housing, education, recreation opportunities, and governmental services are of sufficient quantity and quality to allow development of Keyser and Mineral County's resources.

During the past decade three major employers have closed in Keyser resulting in the loss of about 400 jobs. The community contains a number of vacant industrial plants. Likewise, the City's Main Street has numerous vacant structures and surplus lots. On a more positive note, the commercial area south of Keyser has seen strong growth and a shopping plaza just west of

¹ Region 8 Planning and Development Council's Regional Development Plan CEDS 2009-2013, page 57 funded through grants from the Appalachian Regional Commission and Economic Development Administration

Main Street appears sound. The City of Keyser has the potential to have significant impact on the region's growth.

Moorefield/Petersburg Growth Center

The municipalities of Moorefield and Petersburg, the county seats of Hardy and Grant counties respectively, are nearby communities in the South Branch Valley. The economies of the two towns are closely linked and development in one community supports growth in the other. For these reasons, the communities have been jointly identified as a growth center. With combined population of 5,011, the Moorefield/Petersburg area has enjoyed population growth; the area's population has grown by 8.94% since 2000. Persons age 65 and older comprise 41.76% of the population and those 17 and younger comprise 39.47%. Minorities account for 38.06% of the municipalities' population.

According to the 2007-2011 American Community Survey 5-Year Estimates, the labor force of the municipalities was 2,721; the labor force participation rate was 59.8%. The median family income averaged \$38,495 and per capita income was \$19,134. The growth center had an unemployment rate of 7.1%.

The Moorefield/Petersburg growth center has only a fair transportation network. The South Branch Valley Railroad provides regular service to the main east/west line of the CSX rail system. US Route 220 and WV Routes 55, 28, and 42, are the center's primary highways. Construction of Appalachian Corridor H continues and approximately 33.6 miles of the four-lane highway connect Hardy County (Wardensville) and Grant County (Scherr). The completion of Corridor H will provide a tremendous highway access to the Moorefield/Petersburg growth center. The Grant County Airport, with a lighted runway of over 5,000 feet, serves the growth center.

Six major industrial plants are located in and around the two towns. These industries employ nearly 5,000 persons. The center has the region's greatest concentration of manufacturing employment and contains all the region's poultry processing facilities and most of its wood products employment. Within 50 miles of the growth center are abundant supplies of coal, limestone, timber and agricultural products.

Public water and sewer treatment have been upgraded or are currently being replaced. The City of Petersburg has completed an \$11 million water system improvement project. The City is seeking funds for upgrades to the wastewater treatment plant to meet requirements of the Chesapeake Bay Watershed Implementation Plan. While the Town of Moorefield has completed a water improvement project that will allow its treatment plant to meet community needs. A new \$40 million wastewater treatment plant is being constructed to meet current demand, future growth, and requirements of the Chesapeake Bay Watershed Implementation Plan. The growth center contains seven banks, a hospital, and Eastern West Virginia Community and Technical College. The area's infrastructure is capable of supporting additional

growth and development of the center's potential is central to growth in the Potomac Highlands.

Romney Growth Center

The City of Romney is the county seat of Hampshire County and is the third largest community in Region 8. The 2010 census indicates that the City's population declined by 4.74% since 2000 to 1,848 persons. However, this loss has been more than offset by strong growth in the areas immediately adjacent to the City. Persons age 65 and older comprised 23.65% of the population and persons age 17 and younger accounted for 23.6% of the population. Members of minority groups made up 4.4% of the City's population.

According to the 2007-2011 American Community Survey 5-Year Estimates, Romney had a labor force participation rate of 51% with a labor force of 705 persons. The median family income for 1999 was \$34,271 and the 1999 per capita income was \$15,765. Per capita income increased by 57.7% during the 90's and the census indicated an unemployment rate of .9%.

Romney has a good transportation network. It is served by the South Branch Valley Railroad, which provides regular service to the main east/west route of the CSX system. Romney is directly served by Route 50 and 28. The City is within 30 minutes driving time of Interstate 68. Passenger rail service is available at Cumberland, Maryland and Romney is within a three hours drive of major international airports in Pittsburgh, PA, Baltimore, MD., and Washington, DC.

There are several industrial sites in and around the community, including a 75-acre industrial park adjacent to the City. Within the 75-acre park, there are 21 acres available for development. The Hampshire County Development Authority owns a 25,000 square foot multi-tenant building. Lumber and agricultural products are available in commercial quantities. The City's infrastructure is sound and would allow for development resources. The City contains two banks and a hospital is just outside the City limits.

Broadband Planning Implications

Region 8 as a whole has demonstrated modest population and job growth over the past decade, and if trends continue it will likely continue to have solid opportunities for growth. Access to affordable and reliable broadband service is essential to sustaining these growth trends, and also plays a significant role in the attractiveness of the area to residential and commercial developers and to businesses looking to expand or relocate to the area. Based on feedback from the RBPT, factors such as the quality of life in the area and a comparatively low cost of living is a potential to increase a number of telecommuters, which is reflected in the high levels of worker outflow from the region. In addition, as higher education institutions transition from traditional classroom settings and increase their online education options, the demand for broadband coverage will increase to meet the needs of students in neighborhoods throughout the region.

Interviews and sector survey responses with local economic development organizations revealed that, because of its proximity to Washington, D.C., and its comparatively low energy costs, the region is attracting interest from companies looking to locate data centers, which would require the availability of significant bandwidth to support. Although some of the business and industrial parks, sites and buildings presented in the previous discussions may have broadband access, in reality the current broadband service is not sufficient to support businesses with heavy technology utilization. Ensuring that broadband infrastructure and redundancies are in place in priority areas with affordable, reliable broadband service is critical to the attractiveness of Region 8 for economic development.

Key Assessment Findings

Through the review and independent research conducted by RBPT, the following key assessment findings have been assembled from county, regional, state, and federal surveys, studies, data sources and reports. RBPT reviewed best practices for sustainable adoption and increased utilization of high-speed broadband that were successfully implemented in other states. In some cases, high-speed broadband initiatives were a priority consideration, paramount to critical infrastructure such as roads, electricity, and water. Through the research, it was discovered that in order to provide fast, reliable access to underserved and unserved rural communities, motivation must exist for broadband and telecommunication providers to invest large capital expenditures. In other words, demand must be present in order to supply the need.

The majority of consumers surveyed, both residents and businesses, indicated an overwhelming need to have robust broadband capabilities that are vital to the daily operation of their business and necessary to take advantage of online education and healthcare services. Online bill pay, entertainment, and communications were also noted as key factors for wanting access

to broadband Internet. Additionally, based on both the regional and state speed test results, broadband speeds as defined by the FCC are not being met with the current technology and infrastructure that exists in Region 8.

West Virginia Broadband Coverage

The West Virginia Broadband Mapping Program worked with broadband providers throughout the state to map broadband availability information. The following maps provide an overview of the number of Broadband Internet Providers servicing Region 8

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Figure 2 – Number of Broadband Internet Providers

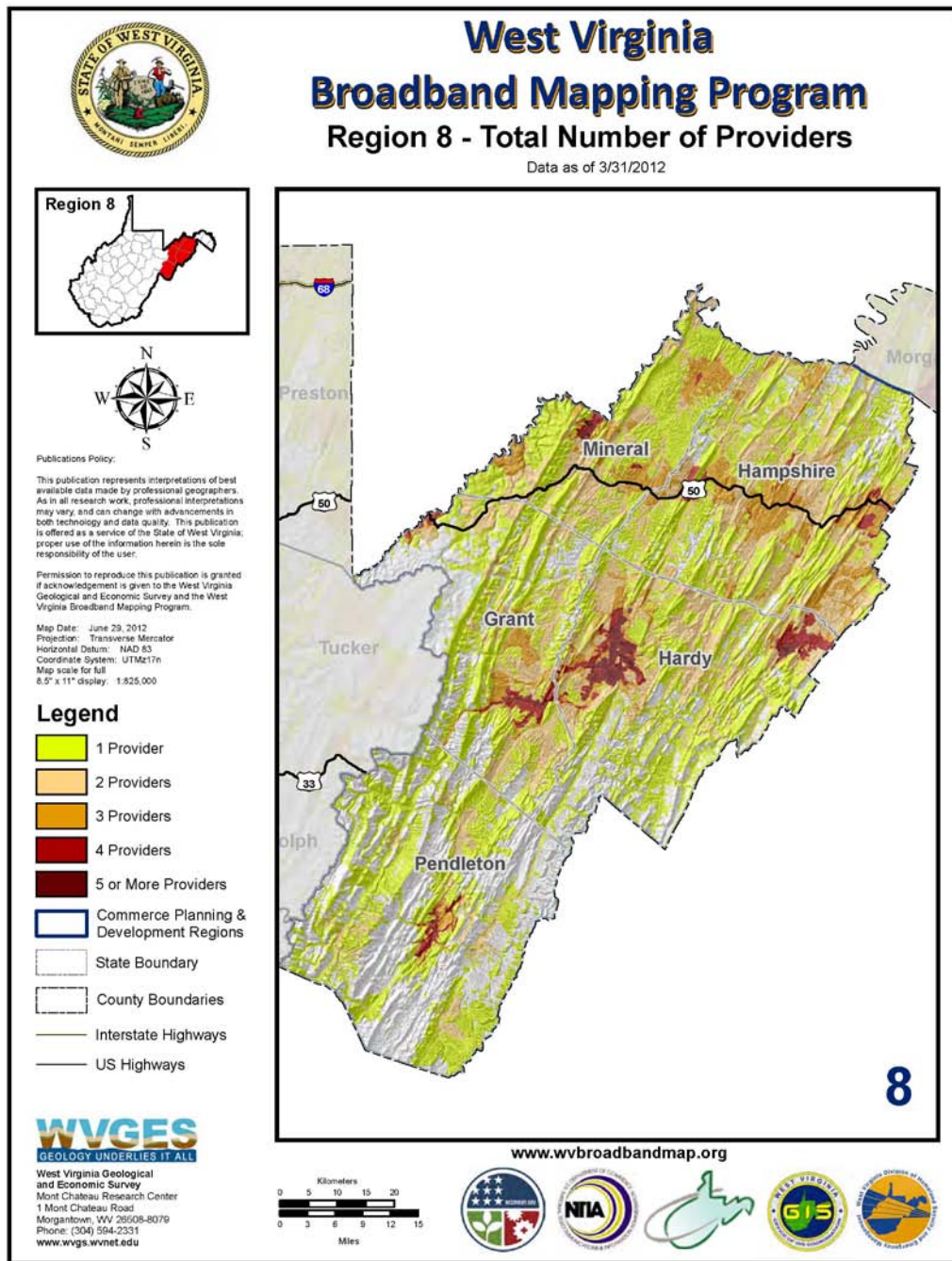


Figure 3 – Technology: xDSL, BPL, Other Copper

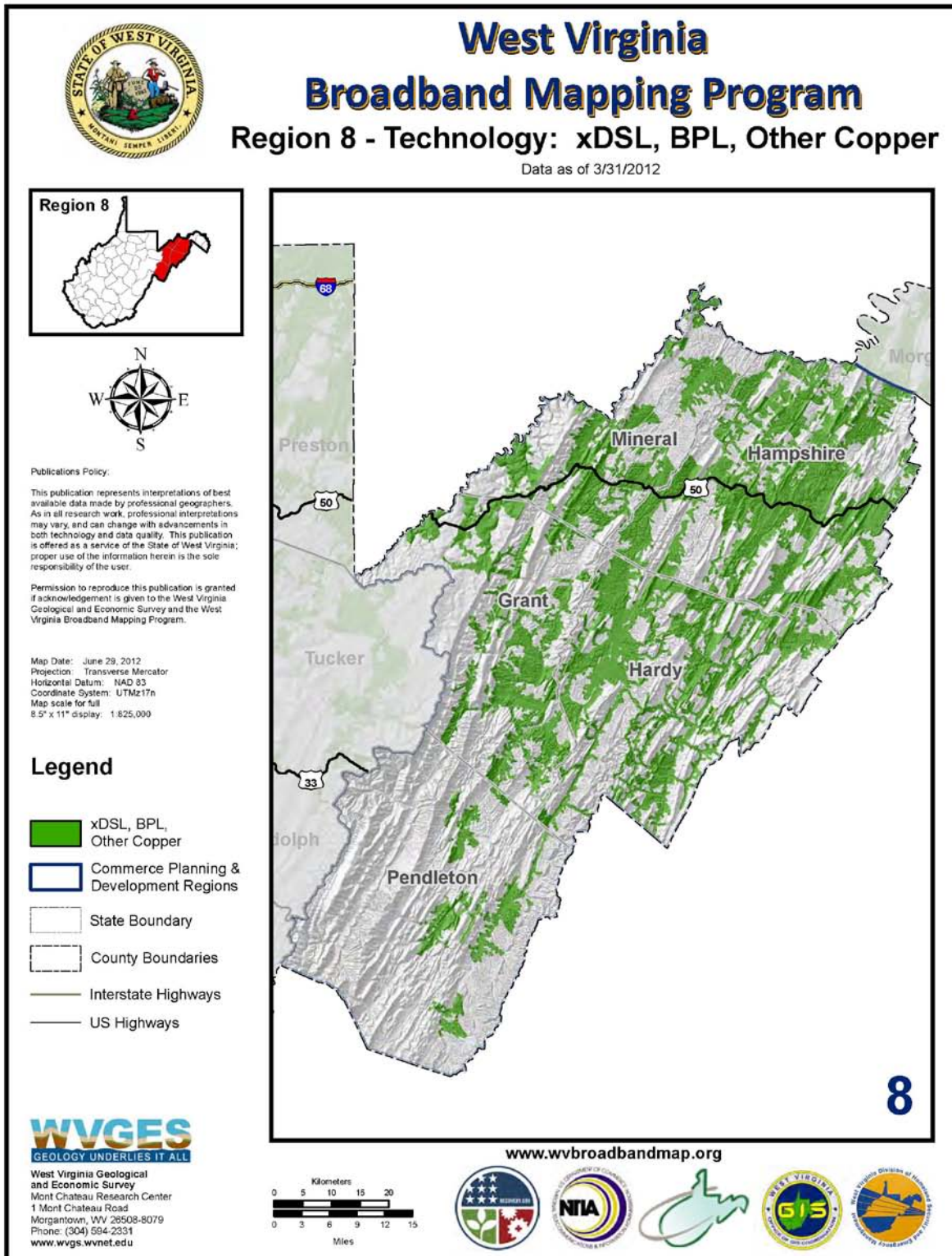


Figure 4 – Technology: Cable and FTTP

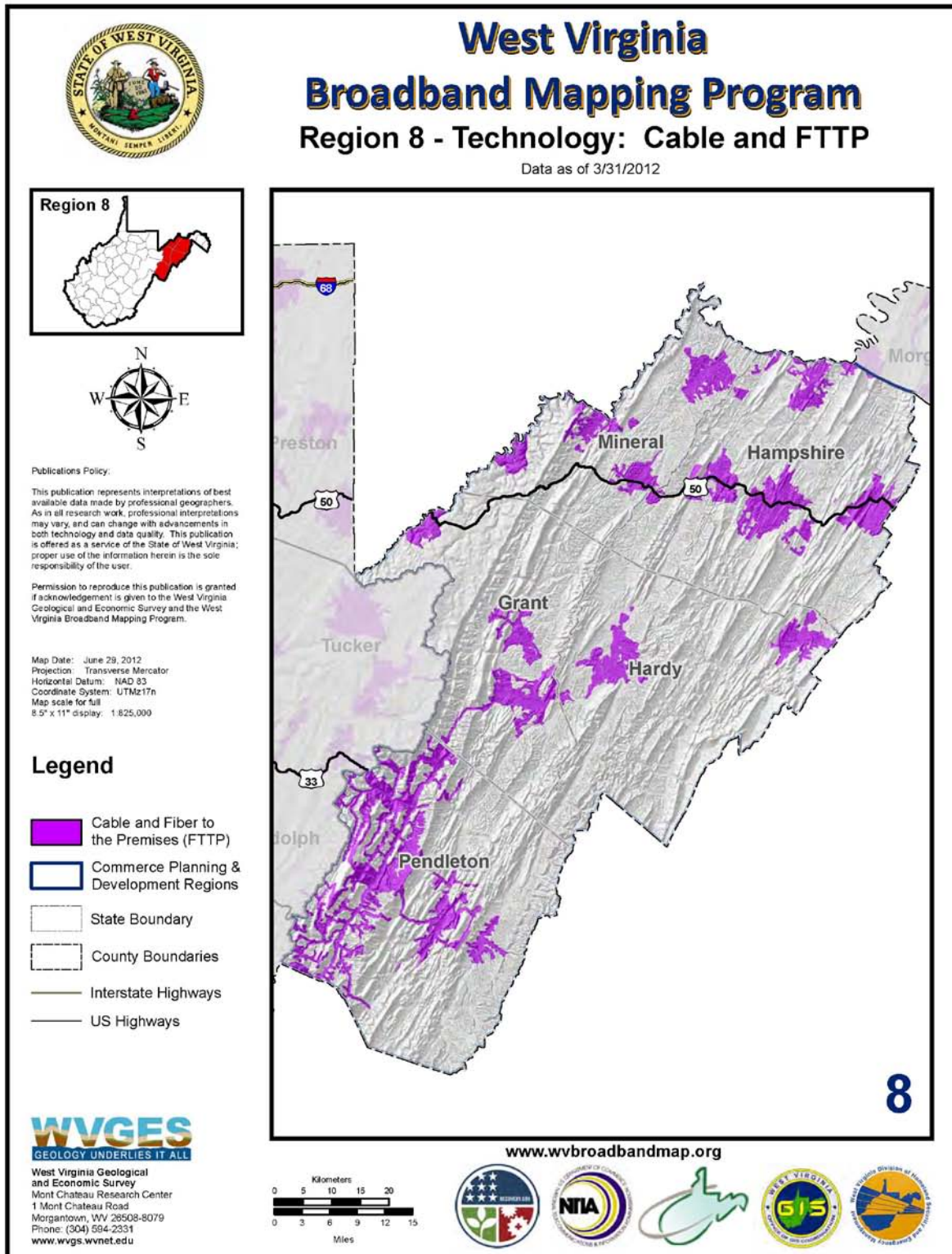


Figure 5 – Technology: Fixed Wireless

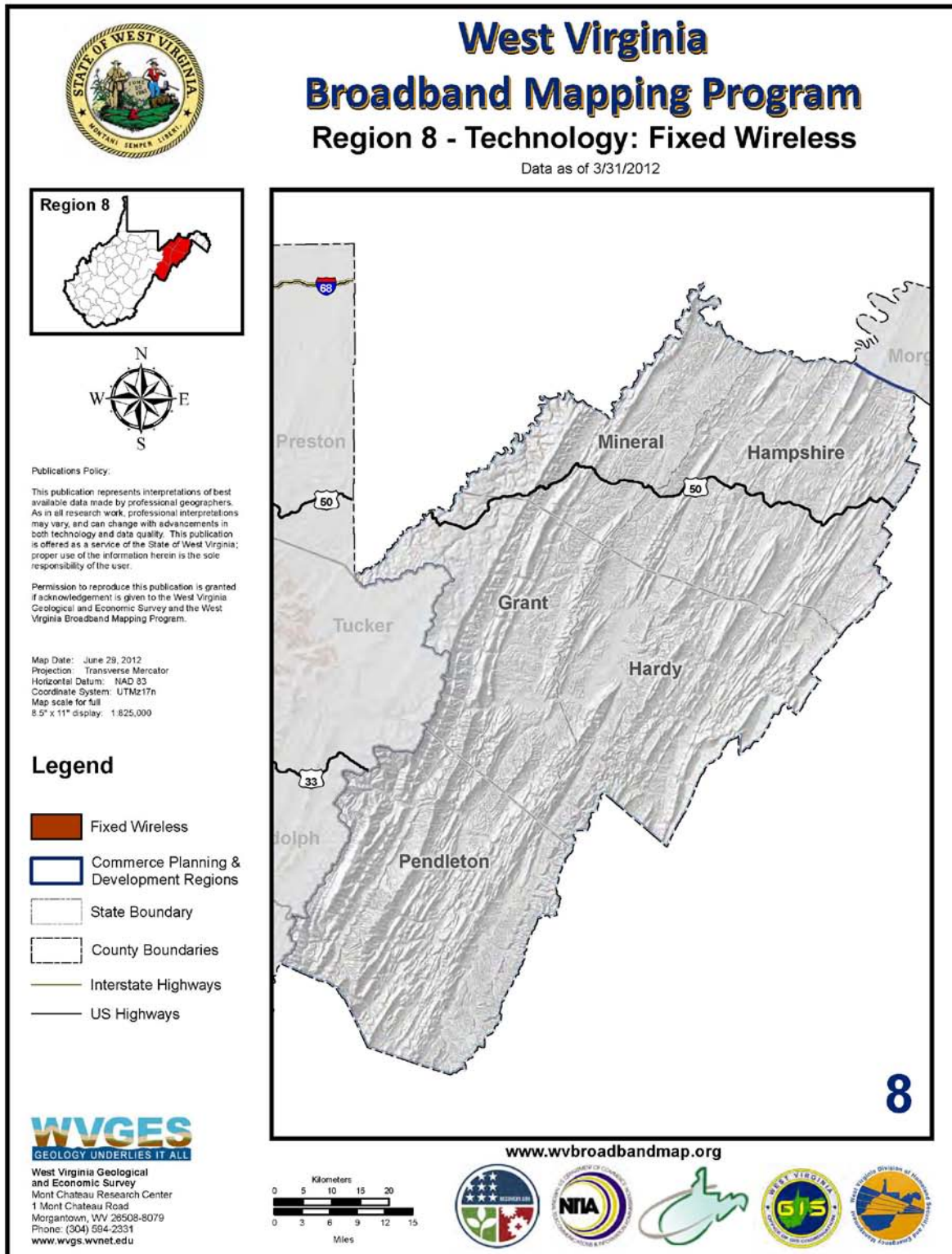


Figure 6 – Technology: Mobile Wireless

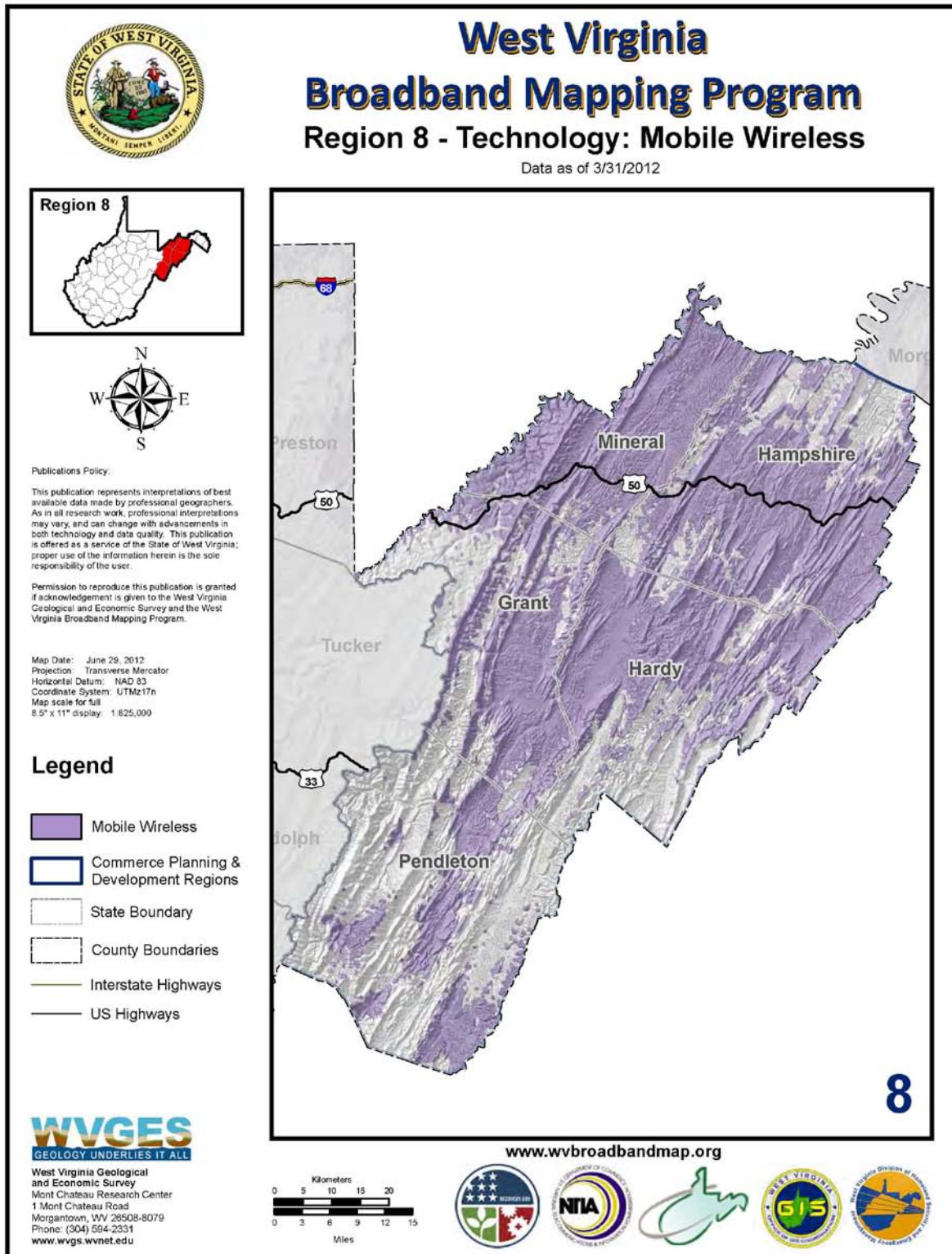
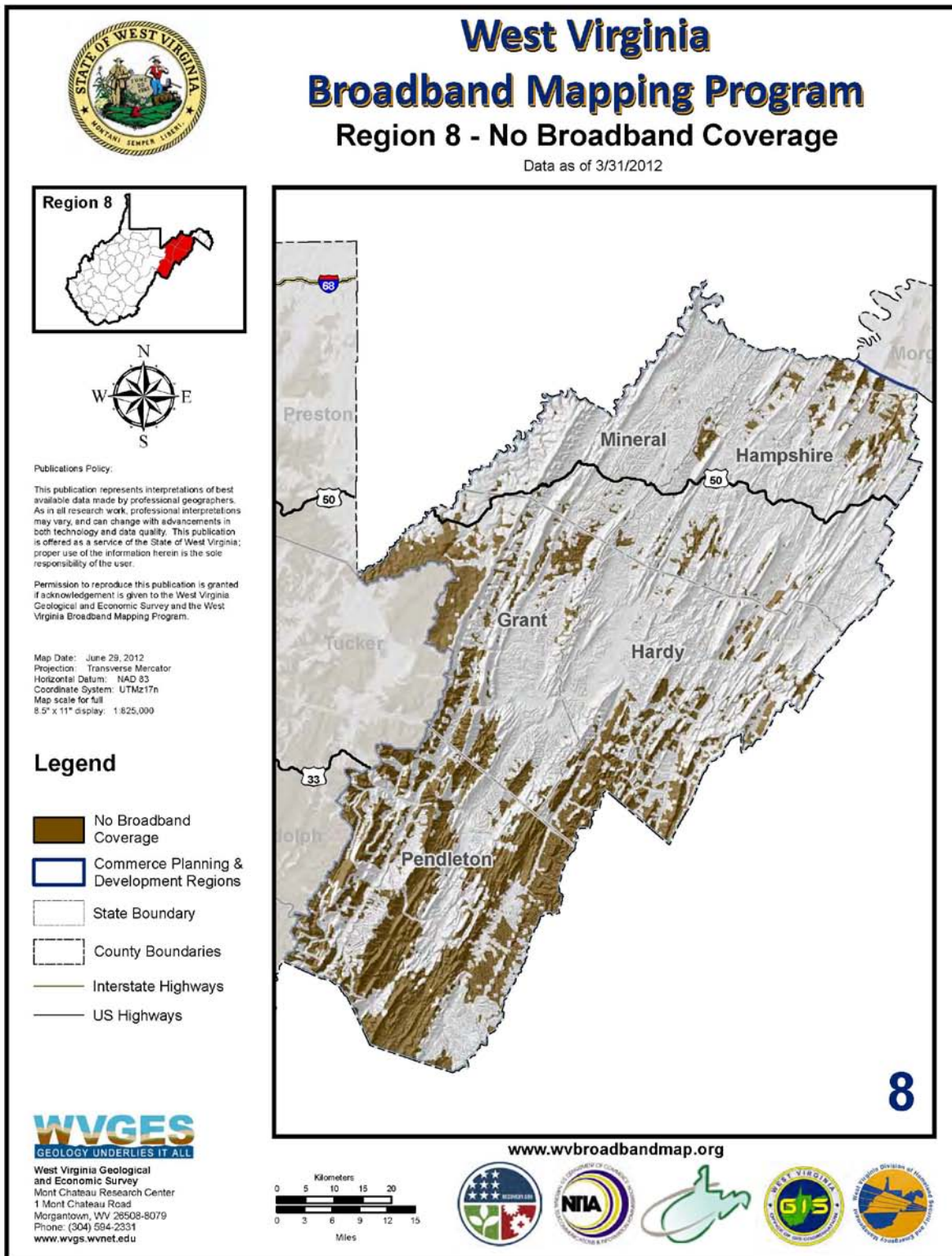


Figure 7 – No Broadband Coverage



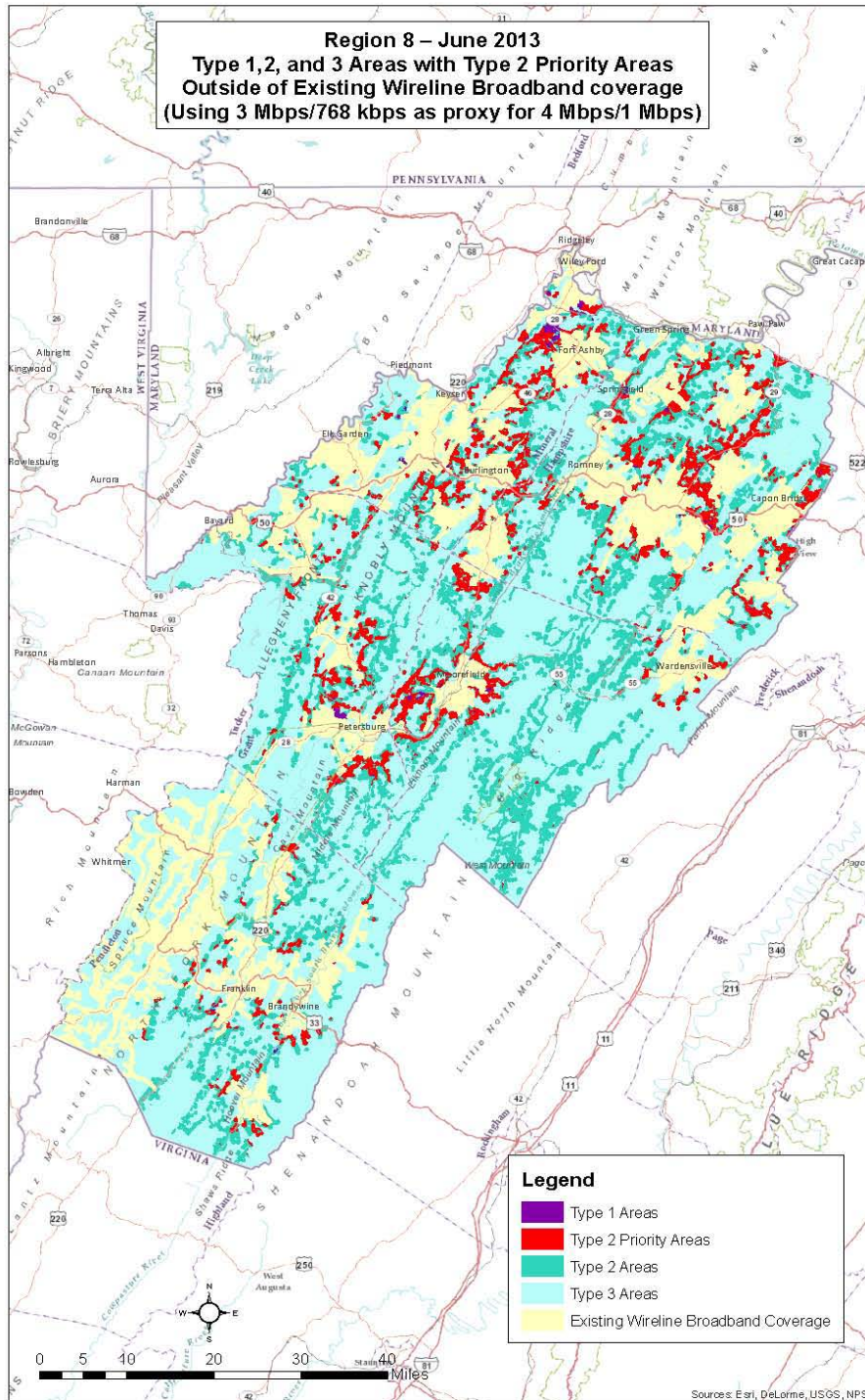
West Virginia Unserved Broadband Analysis

Based on its analysis of mapping, broadband demand, and other relevant data, the West Virginia Broadband Council shall designate unserved areas of the state as being one of three distinct types. These types are as follows:

- (1) Type 1 unserved area: an area in which broadband may be deployed by service providers in an economically feasible manner;
- 2) Type 2 unserved area: an unserved area in which broadband may be deployed by broadband service providers and other entities in an economically feasible manner, provided some form of public moneys is made available; and
- (3) Type 3 unserved area: an unserved area in which, at present, cable or wireline broadband cannot be deployed in an economically feasible manner and an intermodal approach employing other technologies, such as satellite and wireless, is required to provide that area with high-speed internet access.

The following maps are an analysis of the West Virginia Broadband Council for Region 8 by type and service.

Figure 8 – Type Layer Overview of Analysis



Produced by: L.R. Kimball

Residential and Business Broadband Surveys

A regional survey was conducted between May 9, 2013 and July 8, 2013 with 601 residents and businesses in Grant, Hampshire, Hardy, Mineral, and Pendleton Counties participating. 492 residents and 109 businesses participated in the survey. The survey questions were aimed at seeking information about the characteristics of the Internet service, such as type, provider, connection speed, availability, reliability cost, and overall satisfaction with the service (see Appendix B for a copy of the survey). Table 8 shows the number of responses by county.

Table 8 – Region 8 Residential and Business Respondents by County

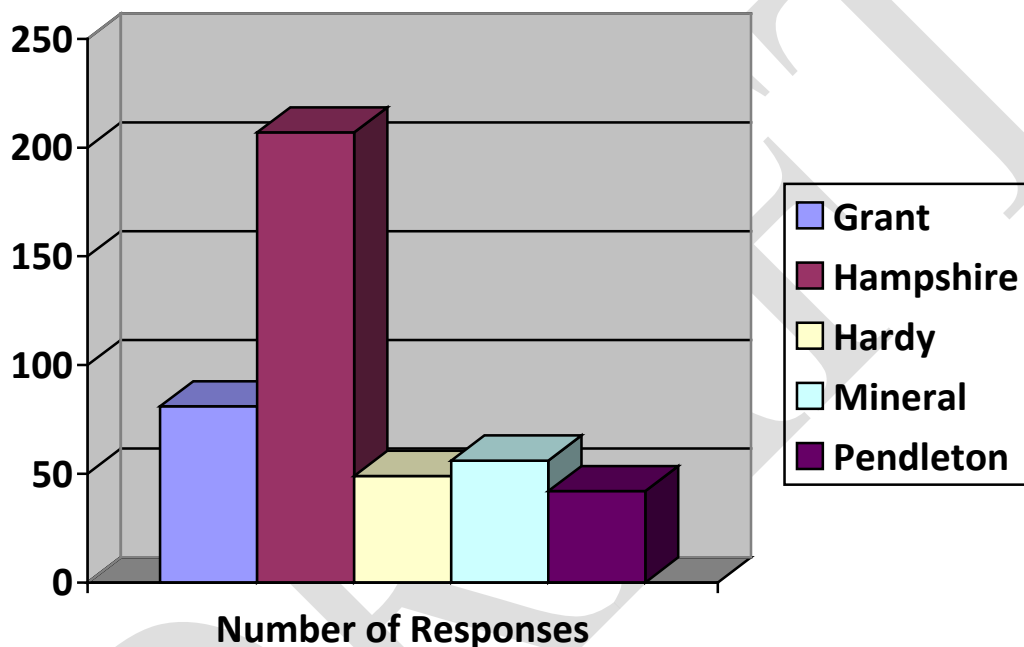
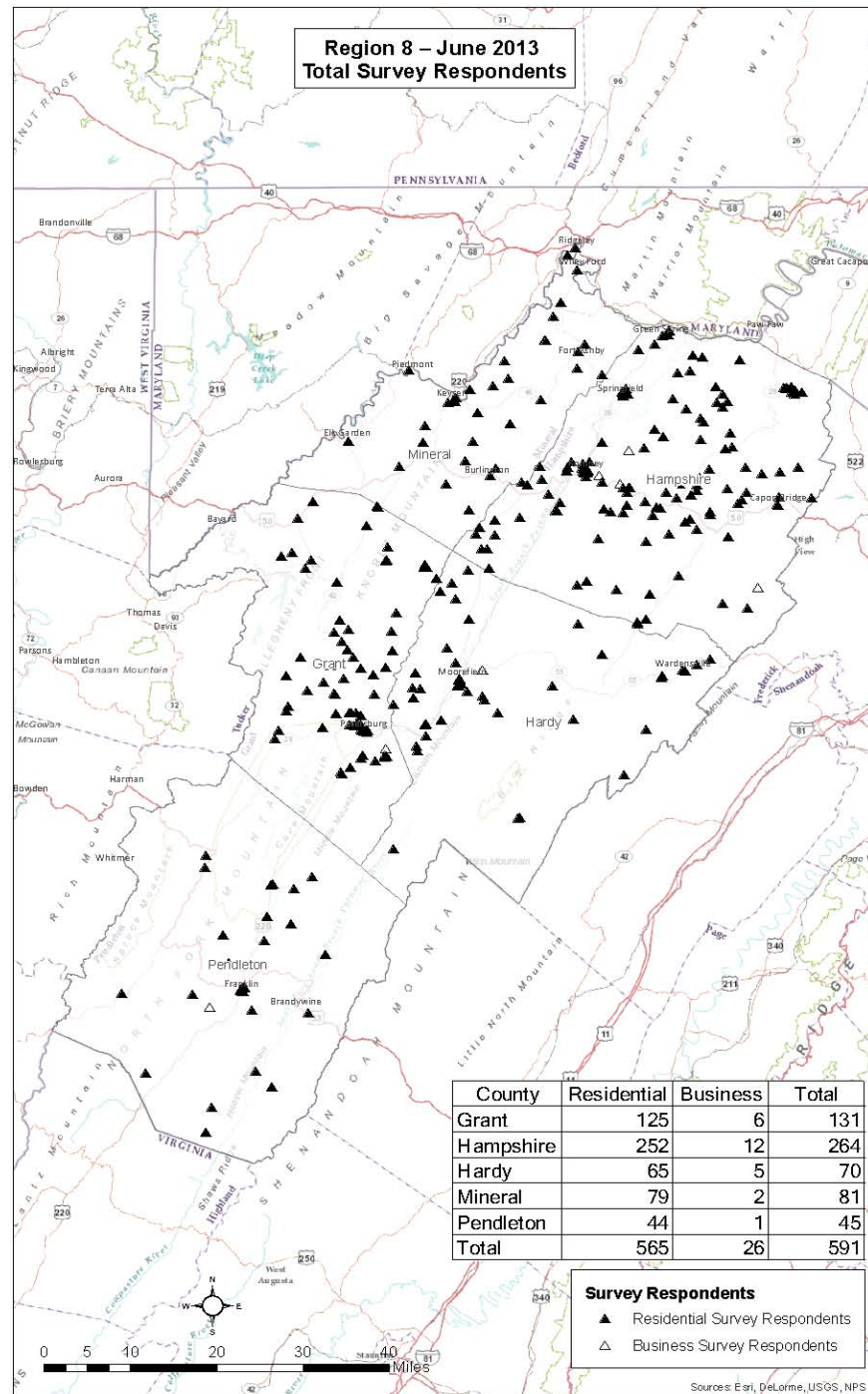


Figure 8 maps the residential and business survey respondents in Region 8. There were 601 survey respondents and 10 of those didn't respond their location information including county. Therefore, 591 respondents were mapped. The map can also be viewed in Appendix A.

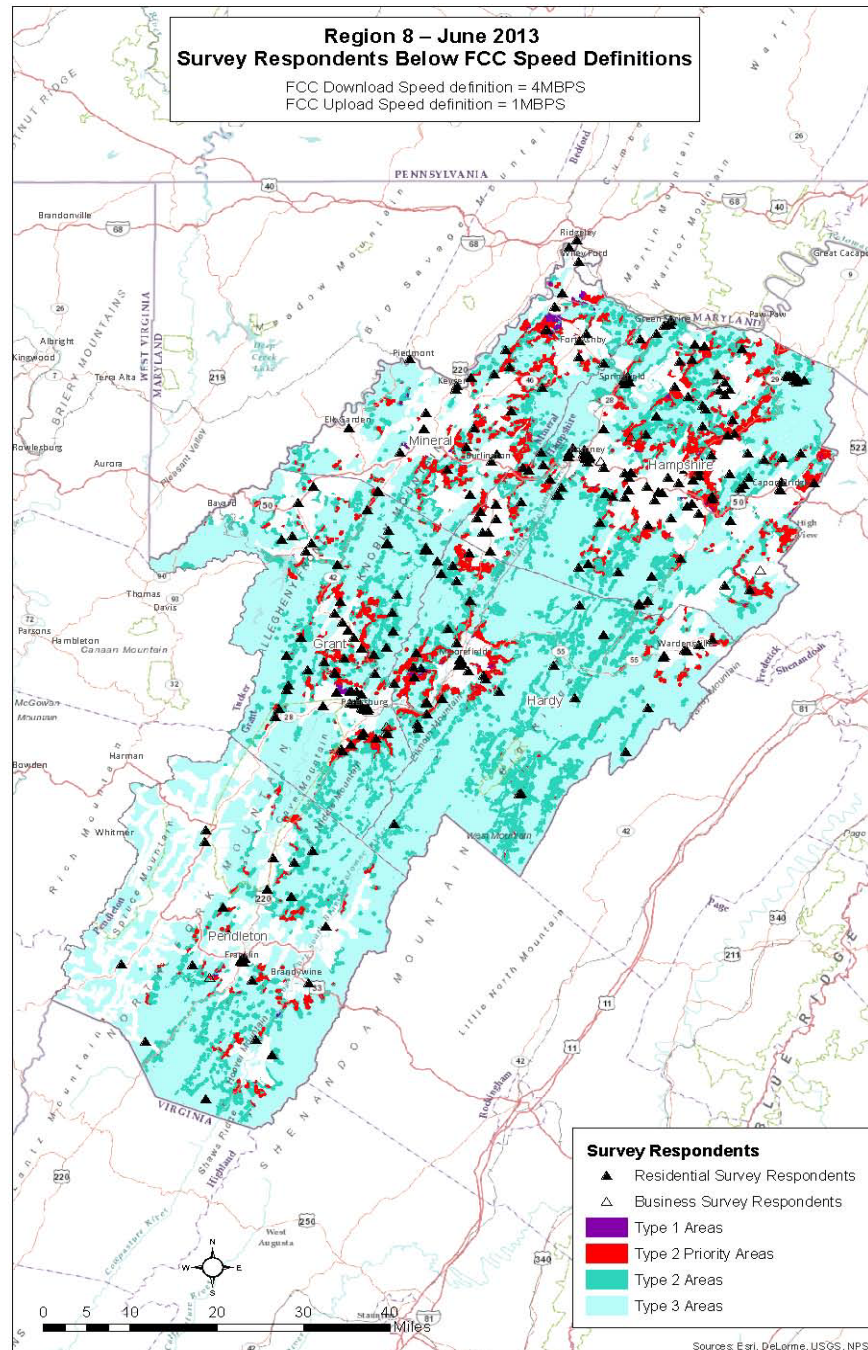
Initially, the RBPT developed an outreach strategy that served as a guideline to effectively market and distribute the surveys to ensure the surveys were conducted successfully. The residential and business survey was available to the public in numerous formats that included online access through Region 8's website. Links from partnering organization's websites to the survey, and e-mail blasts with links to the surveys were also distributed. Paper copies were readily available at libraries, health departments, senior centers, Chambers of Commerce, development authorities, and some business establishments. The survey was also distributed to all K-9 students in the Hardy County School system. Grant County 4-H campers received flyers as well. Flyers were inserted into all local newspapers in the five county region with instructions for the electronic survey or to request a paper copy. The Hampshire Review published a news story based on an interview with Region 8 staff members involved with the broadband project. Local radio stations made announcements throughout the day with information about the survey. One of those stations aired an interview with Mr. Ralph Goolsby regarding the need for better broadband services in the Potomac Highlands. The survey questions were aimed at seeking information about the characteristics of the Internet service, such as type, provider, connection speed, availability, reliability, cost, and overall satisfaction with the service. Outreach efforts including website notices, flyer, news articles and other related information can be found in Appendix B.

Figure 9 – Region 8 Survey Responses



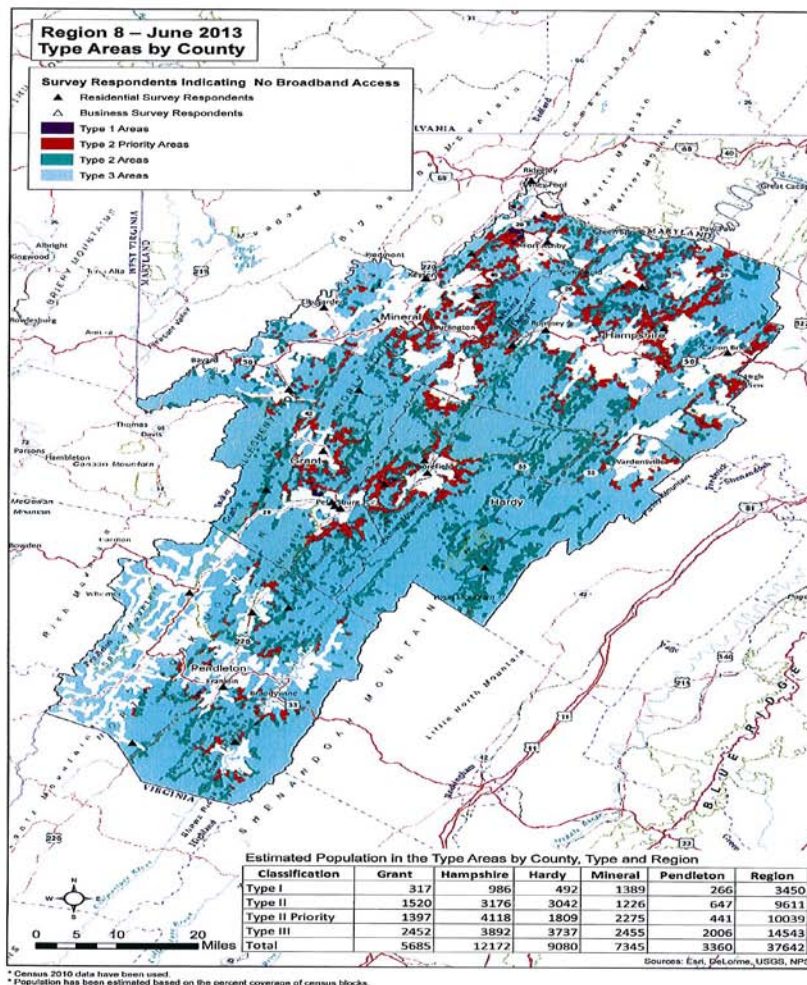
Produced by: L.R. Kimball

Figure 10 – Residential and Business Survey Respondents Below FCC Speed Definitions by Type Areas



Produced by: L.R. Kimball

Figure 11 - Estimated Population in the Type Areas by County, Type and Region



Produced by: L.R. Kimball

Table 9 - Corresponding figures from the above map

Classification	Grant	Hampshire	Hardy	Mineral	Pendleton	Region
Type I	317	986	492	1389	266	3450
Type II	1520	3176	3042	1226	647	9611
Type II Priority	1397	4118	1809	2275	441	10039
Type III	2452	3892	3737	2455	2006	14543
Total	5685	12172	9080	7345	3360	37642

The residential and business survey was released throughout Region 8 to gather critical information to help form the basis of a strategic broadband planning report. 601 residents and businesses responded to the survey. 99% of residents and 95% of businesses completing the survey have Internet access. The respondents most likely to answer the survey were between the age range of 55 to 64 years old. Total respondents were 49.5% female and 50.5% male.

In addition to questions about the general characteristics of their Internet service, key pieces of information were collected, including who uses the Internet in the household, if telecommuting is an option, and other places where Internet is used outside the home. Those who answered the survey were largely the users of the Internet. In the survey responses, 19.8% of residents say their employer allows employees to telecommute. Other than at home, 57% of respondents use the Internet at work, 49.4% access the Internet by cell phone, 38.7% access the Internet at a friend or relatives house, and 17.7% access the Internet at a retail shop with wireless Internet.

Respondents were asked to take a speed test to capture download and upload speeds. The resultant speed test data was integrated into the maps to achieve a more thorough picture of the areas where there is no broadband coverage and speeds do not meet the FCC definition (4Mbps down and 1 Mbps up). Only 8% of residents and 22% of businesses have broadband speed according to the FCC definition. One dominant provider serves 80% of residents and businesses.

Table 10 – Region 8 Residential and Business Respondents Speed Test Results

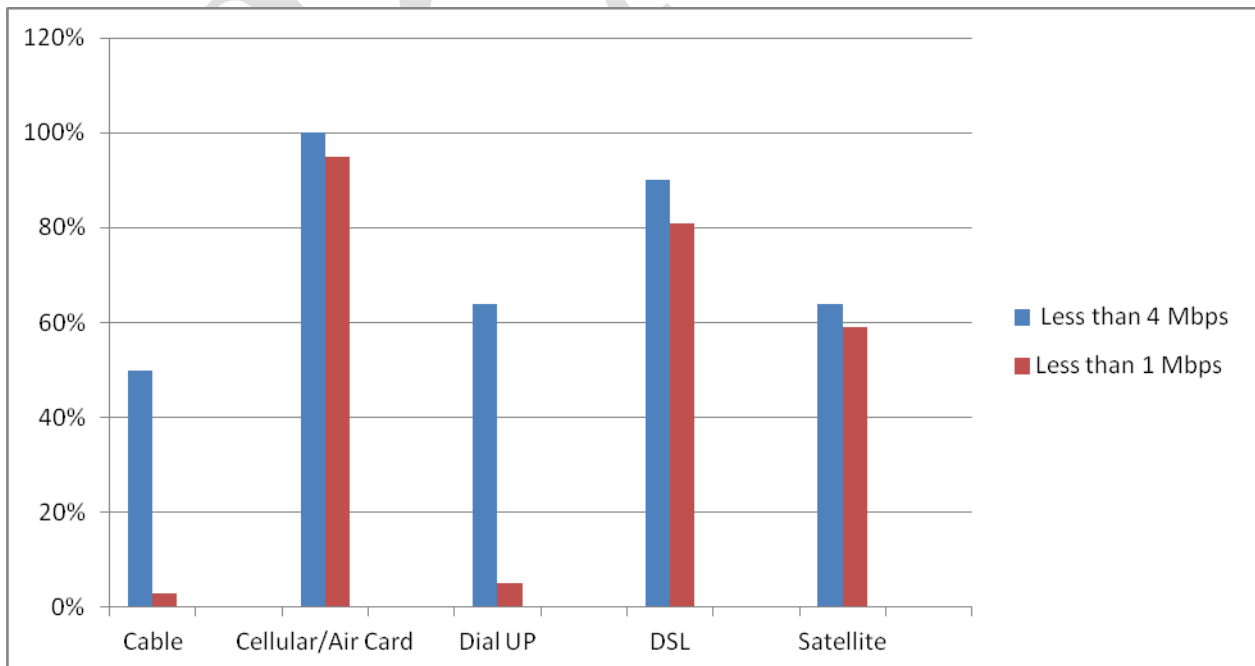


Table 11 – Region 8 Residential and Business Respondents Satisfaction Survey

Internet Characteristics	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied
Speed of Connection	6%	23%	32%	38%
Cost of Internet	3%	23%	40%	30%
Technical Support	10%	42%	22%	18%
Reliability of Access	7%	33%	30%	29%
Customer Service	10%	41%	23%	18%
Number of Providers	3%	9%	22%	52%

As the table indicates:

- 74% of the respondents are dissatisfied or very dissatisfied with the number of providers.
- 70% of respondents are dissatisfied or very dissatisfied with the speed of connection.
- 70% of respondents are dissatisfied or very dissatisfied with cost.
- 59% of respondents are dissatisfied or very dissatisfied with reliability of access.

Respondents who do not have broadband Internet service indicated the top three reasons are:

- 70% broadband service not available
- 33% cost/too expensive (approximate average cost \$62.37)
- 4% don't own a computer

Furthermore, if these three factors were addressed 97% of respondents would utilize high-speed Internet access. Consequently, the survey responses clearly suggest that respondents feel it is very important to have access to affordable, more robust broadband service.

A thorough review of businesses responding to the survey revealed there is a profound need for faster, more robust, easily accessible, affordable, and highly available high speed Internet. Additionally, business survey findings show significant broadband service improvements are needed within the region in order to promote and ensure future economic growth and development.

Businesses described the availability of multiple, competing broadband provider options as not competitive, with at best, only one or two providers to choose from. Businesses that responded to the survey indicated that robust high speed Internet connection is very important to the day-to-day operations of their business. Out of the 109 businesses that participated in the survey, 67% employed from 1 to 25 employees.

Key findings drawn from the businesses surveyed are highlighted below.

- 95% of businesses surveyed have Internet access
- 1 dominant provider service
- 95% connect to the Internet using cable, DSL, or fiber
- 67.2% do not allow their employees to telecommute

- 82% cited a robust broadband connection as very important to their day-to-day operations
- 94% agree that if the broadband environment is enhanced, it would benefit their customers and clients
- Only 22% of businesses have broadband speed according to the FCC definition (4Mbps/1Mbps)

Table 12 – Region 8 Residential and Business Respondents Speed Test Results

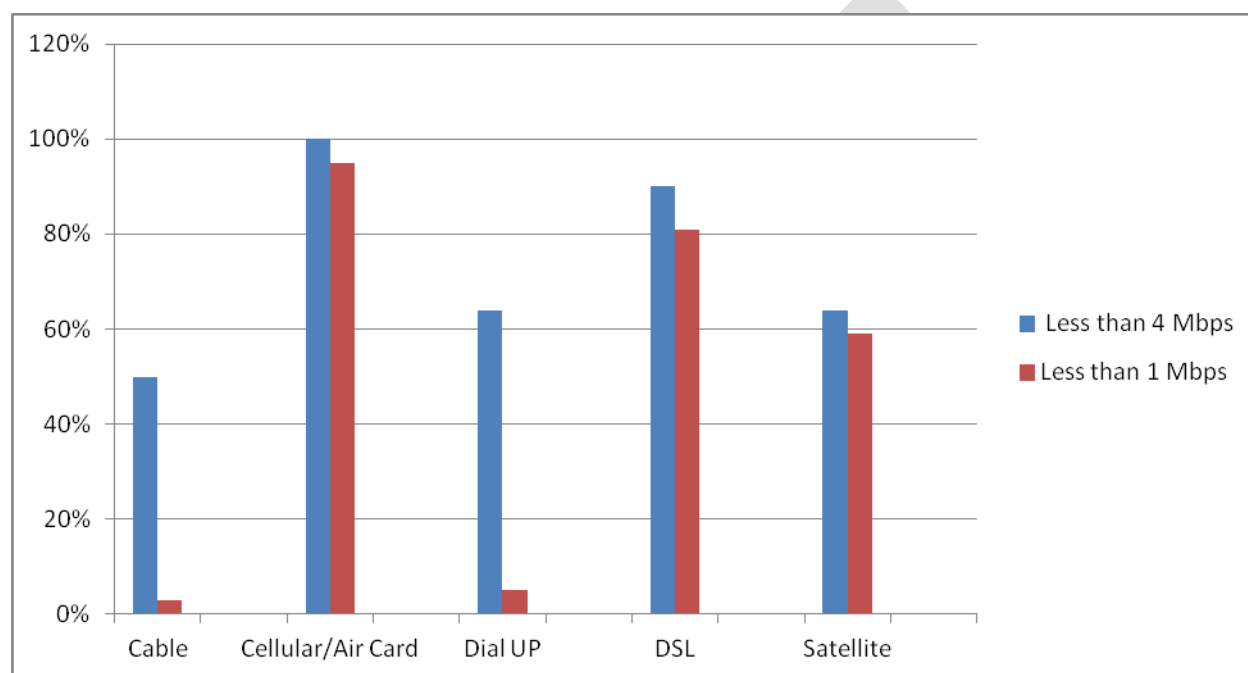
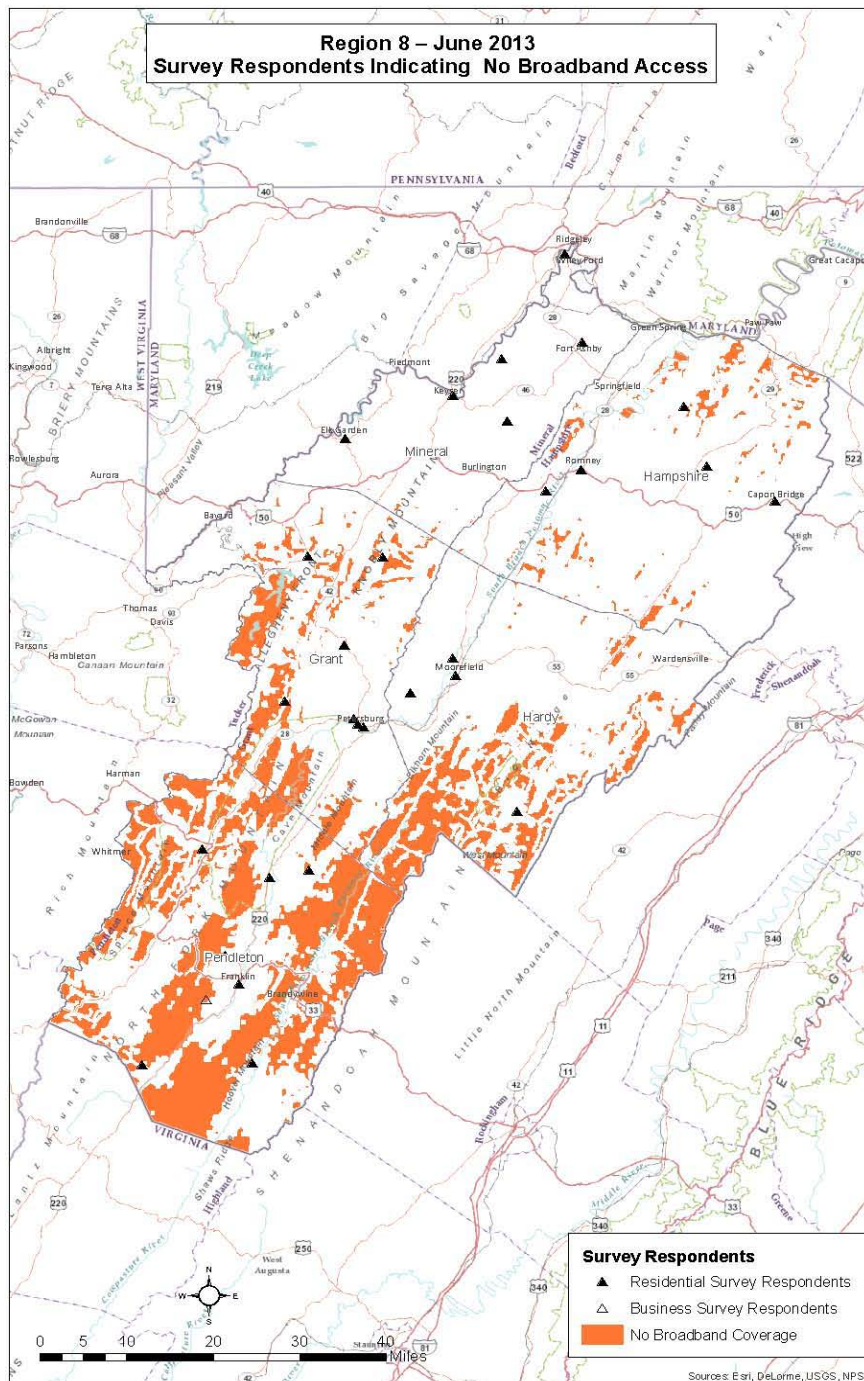


Table 13 – Region 8 Residential and Business Respondents Satisfaction Survey

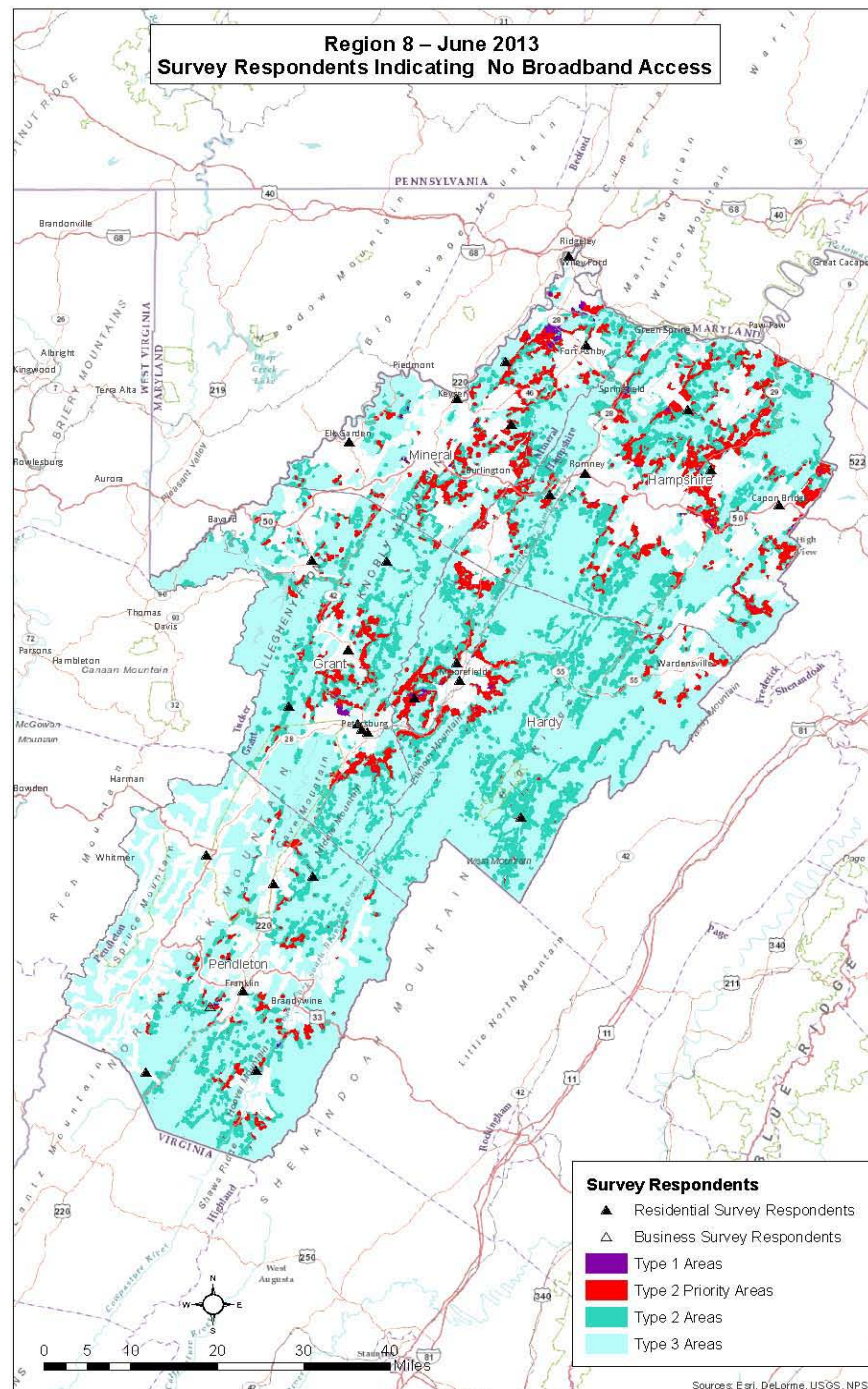
Internet Characteristics	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied
Speed of Connection	6%	23%	32%	38%
Cost of Internet	3%	23%	40%	30%
Technical Support	10%	42%	22%	18%
Reliability of Access	7%	33%	30%	29%
Customer Service	10%	41%	23%	18%
Number of Providers	3%	9%	22%	52%

Figure 12 – Survey Respondents Indicating No Broadband Access



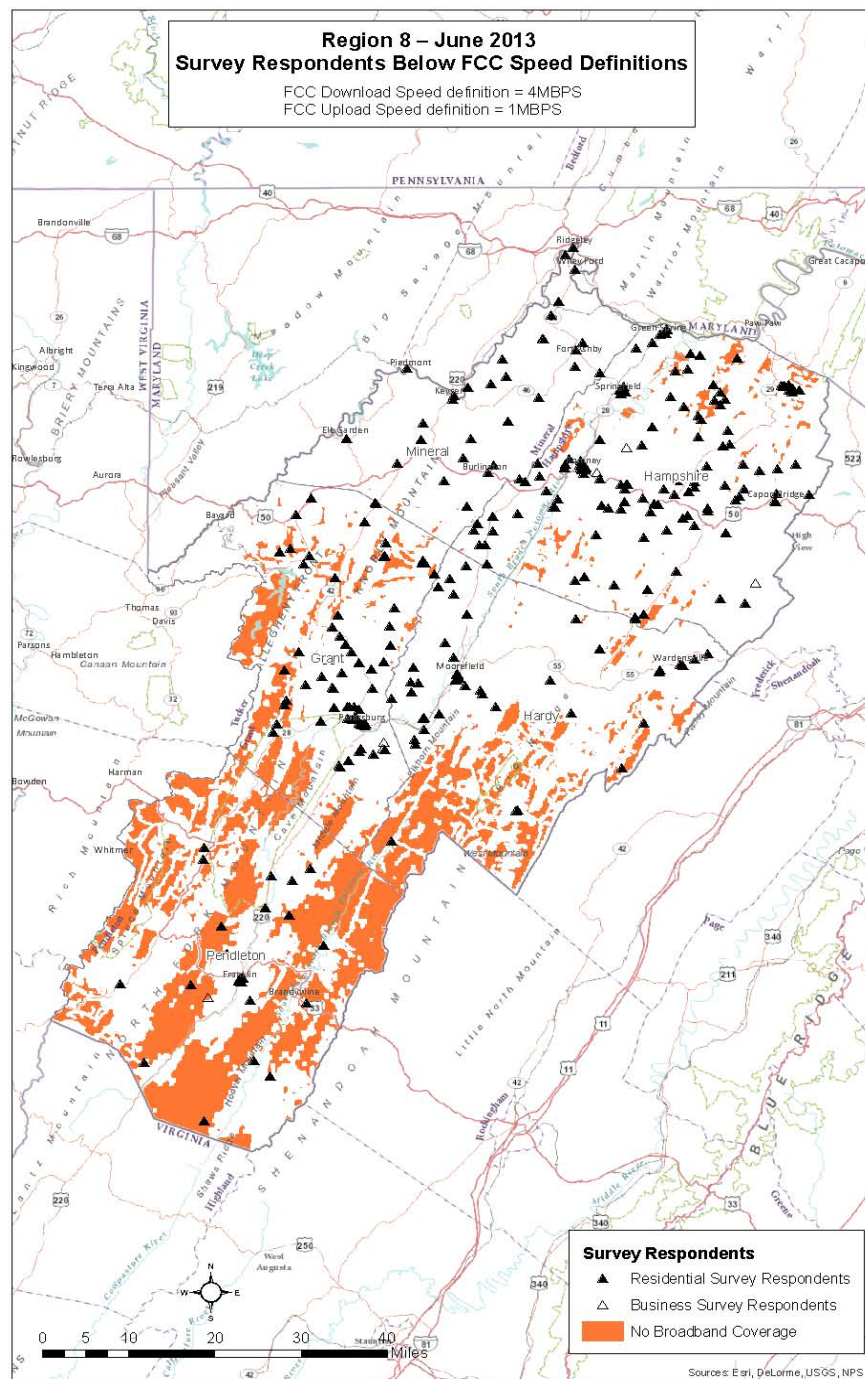
Produced by: L.R. Kimball

Figure 13 – Survey Respondents Indicating No Broadband Access



Produced by: L.R. Kimball

Figure 14 – Survey Respondents Below FCC Speed Definitions

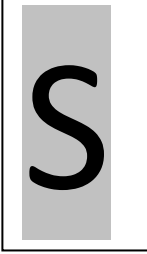
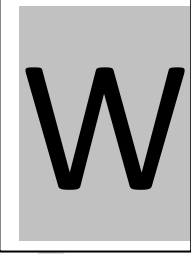
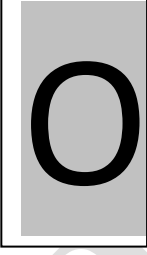
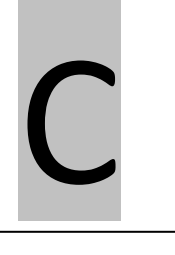


Produced by: L.R. Kimball

SWOC Analysis

After reviewing federal, state, and regional data, studies and surveys, combined with the RBPT's experience and knowledge, the RBPT conducted a SWOC analysis of the region's broadband capabilities. The following table provides an overview of the top priority items in each quadrant.

Table 14 – SWOC Analysis

<div data-bbox="191 506 337 758">  </div> <div data-bbox="407 506 574 548"> <h3>Strengths</h3> </div> <ul data-bbox="345 558 786 1010" style="list-style-type: none"> • Locally owned providers • Business expansion opportunities • Huge component for economic development • Locally owned providers • Essential infrastructure component 	<div data-bbox="824 506 1013 758">  </div> <div data-bbox="1024 506 1230 548"> <h3>Weaknesses</h3> </div> <ul data-bbox="1013 558 1414 1073" style="list-style-type: none"> • Limited number of providers/lack of competition • Resource commitment/funding, people • Political will/vision • Education system adjust to the direction of acquiring information
<div data-bbox="191 1123 337 1375">  </div> <div data-bbox="375 1123 613 1165"> <h3>Opportunities</h3> </div> <ul data-bbox="345 1173 786 1671" style="list-style-type: none"> • Development for entrepreneurship • Job growth and telecommuting • Market existing and new businesses • Healthy appetite for services – high speed/limited concern about cost • Leverage new technologies 	<div data-bbox="824 1123 997 1375">  </div> <div data-bbox="1036 1123 1219 1165"> <h3>Challenges</h3> </div> <ul data-bbox="1013 1173 1414 1808" style="list-style-type: none"> • Political will/vision • Education system adjust to the direction of acquiring information • Quality of place vs state of the art technology • Quiet zones – effect communications/cell service, wireless, and microwave • Local providers face obstacles in expanding

The SWOC analysis was used to help identify the strategic objectives outlined in this plan.

Current Broadband Environment

The RBPT survey of residents and businesses indicated that 99% of responding residents and 95% of responding businesses have Internet access. However only 8% of responding residents and 22% of responding businesses have broadband speed according to the FCC definition (4Mbps/1Mbps). The region is dominated by one Internet provider serving 80% of the responding residents and businesses.

RBPT members including Frontier Communications, Hardy Telecommunications, Spruce Knob Seneca Rocks Telephone, and Shentel continue to make significant investments in the region.

Organization

Currently an organization(s) and/or funding resources have not been identified to implement the Broadband Strategic Plan. In the following sections, the words “regional team” refer to any organization or cooperative at the state or local level that decides to champion the implementation of one or all strategic objectives. The Council may assist its members, as needed, in project planning and preparing applications for funding.

Strategic Direction

The strategic direction section outlines the strategic objectives identified during the RBPT strategic planning process. The section is divided into three focus areas: (1) education and outreach, (2) economic development, and (3) infrastructure. Each focus area outlines the strategic objective and specific goals to accomplish the objective. This is followed by an implementation matrix that outlines the specific tasks and time frames for each strategic objective. The following table provides an overview of all the strategic objectives and their associated goals.

Table 15 – Strategic Objectives and Goals

EDUCATION AND OUTREACH (EO)	
Strategic Objective EO.1: Educate the region about the benefits and opportunities that broadband offers	Goal EO. 1.1: Conduct a gap analysis study on the existing programs
	Goal EO.1.2: Promote existing educational opportunities and services
	Goal EO.1.3: Collaborate with stakeholders to develop necessary courses that are not offered
	Goal EO.1.4: Promote discount programs and equipment

EDUCATION AND OUTREACH (EO) Continued	
Strategic Objective EO.2: Advocate and support changes to legislation that affect broadband availability and development through outreach to local officials	Goal EO.2.1: Identify legislative issues
	Goal EO.2.2: Work with WV Broadband Council to develop position papers and outreach strategy
	Goal EO.2.3: Meet with local, state, and federal officials
Strategic Objective EO.3: Support/advocate broadband services to unserved areas in the Region	Goal EO.3.1: Inventory households and businesses
	Goal EO.3.2: Aggregate demand
	Goal EO.3.3: Engage broadband provider community
	Goal EO.3.4: Monitor and support the implementation of technologies to provide broadband to unserved areas.
	Goal EO.3.5: Discuss opportunity with the State
	Goal EO.3.6: Engage foundations for assistance
ECONOMIC DEVELOPMENT (ED)	
Strategic Objective ED.1: Identify and market growth areas to support economic development and broadband expansion	Goal: ED.1.1: Assess the availability of broadband services to existing and planned business parks, commercial centers, and designated growth areas
	Goal ED.1.2: Prioritize inventory of existing and planned business parks, commercial centers, and designated growth areas for broadband expansion
	Goal ED.1.3: Encourage statewide policy decisions to facilitate broadband expansion
	Goal ED.1.4: Seek funding resources to attract private investment in broadband expansion
Strategic Objective ED.2: Support implementation of Wi-Fi technology throughout growth centers and urban areas	Goal ED.2.1: Identify possible Wi-Fi project areas
	Goal ED.2.2: Formulate a strategy to provide support for addressing Wi-Fi service gaps
	Goal ED.2.3: Educate local leaders and constituents about the importance and benefits of Wi-Fi

INFRASTRUCTURE (IN)	
Strategic Objective IN.1: Encourage broadband providers' involvement early in the planning and development process	Goal IN.1.1: Include broadband providers as early as possible in the development approval process
	Goal IN.1.2: Develop a liaison with each broadband provider in the area
	Goal IN.1.3: Collaborate to identify optimal locations for infrastructure expansion and co-location of cellular towers
	Goal IN.1.4: Work with County and local planning directors to ensure that broadband infrastructure is included in their comprehensive plans
	Goal IN.1.5: Partner with local governments, planners and economic development organizations to incorporate the provision of broadband infrastructure in current planning policy and advance public funding requests
Strategic Objective IN.2: Advance the recommendation of increasing the state's minimum speed standards to 20 mbps down/5 mbps up by 2015	Goal IN.2.1: Engage existing broadband providers
	Goal IN.2.2: Support local school districts and the Department of Education goal to achieve the following recommended speed criteria: <ul style="list-style-type: none"> • 2014 – 10 mbps per 100 students • 2017 – 100 mbps per 100 students
	Goal IN.2.3: Encourage build-out of a major fiber backbone in the Region to support expansion of broadband
	Goal IN.2.4: Coordinate with the State
	Goal IN.2.5: Engage cable franchises
	Goal IN.2.6: Engage new broadband providers
Strategic Objective IN.3: Identify technologies that support broadband deployment in the "quiet zone"	Goal IN.3.1: Collaborate with state and federal officials to develop policies which will support technologies for the "quiet zone"
	Goal IN.3.2: Engage providers to explore emerging technologies that could support broadband access in the "quiet zone"
	Goal IN.3.3: Seek funding opportunities that would support broadband access in the "quiet zone"

INFRASTRUCTURE (IN) Continued	
Strategic Objective IN.4: Identify and monitor funding and financing sources to support implementation of broadband strategy	Goal IN.4.1: Develop a comprehensive funding strategy
	Goal IN.4.2: Implementation of the funding strategy

Strategic Objective EO.1: Educate the region about the benefits and opportunities that broadband offers

Broadband plays a significant role in our lives today. It exists in our homes, offices, schools, and businesses. Many opportunities avail themselves when broadband is present and accepted. In contrast, lack of information, education and resistance to new technologies are broadband adversaries and create challenges to widespread adoption. Bridging this “digital divide” is not an easy feat, especially in the United States today where nearly 100 million Americans do not have access to high-speed broadband. Any person who does not have Internet access is being left behind.

To help close the divide, the regional team may consider developing and implementing an education and outreach strategy to (1) address the benefits, increase use, and advance the procurement of broadband services, as well as aggregate customer demand in communities with little or no broadband service; and (2) approach ways to deliver more valuable, informative, time-saving, online services and content to the consumer, including finding resources to guide new ventures through the business process, and helping end users get the technical support they need, and get it quickly.

Universal adoption, implementation, and expansion of broadband will not only help close the digital divide for communities and neighborhoods in the region, but will ultimately help shift the gears forward in developing and advancing infrastructure and economically strengthen the state.

Goal EO.1.1: Conduct a gap analysis study on the existing programs

Widespread broadband penetration, adoption, and usage are paramount to the region’s competitiveness and economic growth. It is important to recognize the capabilities, opportunities, and potential power of having access to high-speed broadband. It is conceivable that communities will thrive and achieve greater success in every aspect of life if there is a reliable, accessible, and affordable broadband network to take advantage of education, healthcare, commerce, government, and business services.

And yet, a community will not flourish if they are not given the same chance as others to understand its benefits, and access and utilize high-speed Internet services. Educating users

about the advantages of technology, the options available to them, and setting a higher standard of what is acceptable, high-speed broadband will ultimately increase the acceptance and proliferation of this technology. We should embrace the notion that a broadband “user” understands the benefits that technology brings to their lives and is invested in exploring and expanding those benefits.

Providing affordable broadband options throughout the region must be a priority. Many consumers do not subscribe to high-speed Internet, citing the lack of affordability as one of the major obstacles. As part of this strategy, it will be demonstrated where there are programs available that leverage subsidized funding to help those who cannot afford the high costs of broadband services.

In order to accomplish this objective, the regional team may consider developing a targeted outreach and education strategy that will transform the way residents and businesses in local communities and neighborhoods utilize and adopt high-speed broadband.

Goal EO.1.2: Promote existing educational opportunities and services

The regional team may partner with key constituents to promote existing educational opportunities identified in the gap analysis designed to instruct individuals about the advantages of broadband access. For example, the regional team may collaborate with senior centers. To help with outreach and training, and to offer programs they currently use (i.e., teach older citizens about computers and how to safely get online) to parents, rural residents, vulnerable populations, the unemployed, and low-income families.

Goal EO.1.3: Collaborate with stakeholders to develop necessary courses that are not offered

The regional team may coordinate with stakeholders to develop the necessary programs that provide educational value about broadband services and are not currently offered. For example

- Teach basic Internet principles and computer skills
- How to connect to family and friends via social networks and e-mail
- Access resources (shopping, government communications and services etc.)

Goal EO.1.4: Promote discount programs and equipment

One of the challenges the regional team faces is increasing the broadband take rate in economically distressed areas and low-income households. This problem is not isolated to the region or even West Virginia. In fact, the nation has been faced with this issue for decades. Since 1985, the FCC has been administering a successfully recognized program called LifeLine².

² www.fcc.gov/guides/lifeline-and-link-affordable-telephone-service-income-eligible-consumers

LifeLine provides millions of low-income Americans access to basic telephone service. (Please refer to Appendix C for more information.)

According to the survey results, the top three reasons cited for not having broadband Internet service were (1) broadband service not available, (2) cost is too expensive, (3) don't own a computer. As part of the overarching goals of the education and outreach strategy, the regional team may consider taking the lead in researching, identifying, participating, and promoting existing programs designed to provide affordable, reduced-rate broadband services for struggling, low-income families. This may include Future Generations, Mission West Virginia and others. It was noted August 2013 the FCC released \$385 million to support the Connect America Fund, for which Frontier Communications received \$24 million.

By acting as a partner, the regional team can help spread the word about the program to constituents as well as the community. As a partner in this program, members receive the following benefits:

- program information and updates
- materials for back to school notices to parents
- flyers, articles, and other handouts
- complimentary brochures to pass on to people in the community

In addition the regional team may want to monitor the following program for future availability and funding opportunities:

- Connect2 Compete – is a national, nonprofit organization of public-private partnerships. The FCC announced the creation of this program in October 2011 and identified its mission of helping Americans improve their lives by becoming digitally literate. It began as a pilot project in California, but has expanded throughout the country in 2012, and will ultimately be available for all 50 states by late 2013. This program is designed to help organizations promote and advance the adoption of high speed Internet by making it accessible and affordable for low-income families. However, the low-cost Internet service and computer offer is not available in the Potomac Highlands at this time. The organization is working to make sure Connect2Compete reaches communities throughout the country in the coming year. To follow their progress periodic checks will be made on their website.
- Lifeline Broadband Pilot Program – is another FCC initiative that was created to help low-income families receive basic telephone service. Earlier this year, a number of ISPs were awarded funding to participate in the pilot program that is currently undergoing modernization reforms to extend LifeLine discounts to broadband services for certain subsidy amounts, end user charges, access to digital literacy, data usage limits, choices for broadband speed, access to equipment, and other important variables that affect broadband choices. This is a federally funded program that should be monitored closely for future funding opportunities and participation of local Internet service providers that may expand the program to the Region.³

³ Federal Communications Commission Document, accessed at <http://www.fcc.gov/document/14-projects-chosen-lifeline-broadband-pilot-program-competition>

Strategic Objective EO.2: Advocate and support changes to legislation that affect broadband availability and development through outreach to local officials

The RBPT identified the need to support Broadband friendly legislation as a critical component to expanding broadband infrastructure and utilization. The regional team may support legislation that removes barriers to expanding infrastructure, increases the speed definition of broadband and provides funding for broadband expansion in accordance with the goal and objectives of this strategic plan.

Goal EO.2.1: Identify legislative issues

The regional team may identify issues that require legislative support to improve the deployment and availability of broadband throughout the region. Some of the issues identified during the planning process included the state definition of broadband speed, simplifying/streamlining the ability of utilities to use right-of-ways, and increase funding for broadband planning and implementation. The regional team may also monitor local and federal legislative opportunities.

Goal EO.2.2: Work with WV Broadband Council to develop position papers and outreach strategy

The regional team may collaborate to develop position papers on key issues. The papers will identify the issue, the necessary action and the benefits of the change in legislation or regulation. Position papers provide the foundation for the outreach strategy and ensure that all supports have the same base information. The outreach strategy should identify for each issue:

- Who should receive the messages/request for help (e.g., Congressional Member, State Legislatures, Agency Staff, County Commissioner)
- Who should deliver the message
- Timeline for action
- Collateral material needed

Goal EO.2.3: Meet with local, state, and federal officials

The regional team may meet with key decision makers and request support for identified legislative initiatives. The stakeholders could include, but would not be limited to, the following groups.

- | | |
|---------------------------------|-----------------------------|
| - Local officials | – State agencies |
| - State legislators | - Lobbying groups |
| – Congressional representatives | - WV Department of Commerce |

Strategic Objective EO.3: Support/Advocate broadband services to unserved areas in the Region

Region 8 continues to have areas that are unable to receive Internet service other than through dial-up or satellite connectivity. This limitation can affect the quality of life (e.g., healthcare, education, business opportunities) for residents and the competitiveness of businesses in these areas. Therefore, the regional team may work to ensure broadband availability throughout the region.

Goal EO.3.1: Inventory households and businesses

The regional team may develop an inventory of households and businesses that are unable to receive broadband Internet services. In order to focus on unserved and underserved areas, the regional team may use multiple sources of data:

- The West Virginia statewide 911 addressing data point layers
- The State's Type I, II and III priority area maps
- FCC data layer to the mapping project that shows areas that are reported as unserved by fixed broadband, with advertised speeds of 3 mbps down and 768 Kbps up
- Address data for the RBPT survey of individuals and businesses that indicated they do not have broadband available in their area
- Areas identified in Strategic Objective ED.1

Utilizing the State's Priority Type data layers and the statewide 911 addressing data points, the RBPT has identified unserved cluster areas in each County. The regional team may target these areas for demand aggregation as outlined in Goal EO.3.2 below. The following table outlines the number of unserved and underserved addressed facilities by County.

Table 16 - Unserved Areas by County, Type, and Region

Classification	Grant	Hampshire	Hardy	Mineral	Pendleton	Region
Type I	132	360	258	209	74	1033
Type II	1845	2631	6269	934	1085	12764
Type II Priority	1202	2532	2237	1269	423	7663
Type III	416	391	1954	122	279	3162
Total	3595	5914	10718	2534	1861	24622

Goal EO.3.2: Aggregate demand

In order to demonstrate market demand, the regional team may survey the identified residents and businesses to determine their desire to purchase broadband. The outreach may include educational information to demonstrate the benefits of broadband. This task may be accomplished through phone calls or a mailing. Furthermore, residents and businesses could be encouraged to sign a letter of intent stating that if broadband is provided at a specified

service level for a specified price they will purchase the service. The information may be analyzed to determine if priority areas or regions exist.

Demand aggregation is an important step in increasing broadband availability. Broadband providers have informed the RBPT that when making network expansion decisions the key variables that are considered are: capital improvement costs, operation cost, number of likely users, and return on investment. Identifying early adopters and likely users will help the provider community make clear investment decisions.

The regional team may seek funding from the State Broadband Deployment Council to assist with demand aggregation. Demand aggregation in unserved and underserved areas is an eligible funding activity.

Goal EO.3.3: Engage broadband provider community

Once the total population and the initial level of interest have been assessed, the broadband provider community will be engaged to identify solutions. The regional team may present the providers with an overview of the opportunity and discuss their ability and willingness to provide services. This may be accomplished through a provider conference or a request for information process. If no provider is interested in committing to providing services in the identified area, the regional team may work with the provider community to identify barriers (e.g., capital expense, technical issues) to expanding broadband services.

Goal EO. 3.4: Monitor and support implementation of technologies to provide broadband to unserved areas

The regional team may monitor the progress of potential technologies that may have the ability to provide broadband to unserved areas. Some of the technologies that will be monitored include the use of white space spectrum currently utilized by broadcast companies, advancements in broadband over power lines and increased speed and reliability of broadband via satellite.

If these or new emerging technologies methods prove promising the regional team may support funding efforts and pilot programs in the region.

Goal EO.3.5: Discuss opportunity with the State

The regional team may engage the state government as a partner throughout this process and invite them to participate in the provider outreach program. Additionally, any barriers of entry identified by the providers may be shared with the state. The regional team may engage the state to identify resources, funding, and assistance in the implementation and support of potential projects in unserved and underserved areas. Furthermore, the regional team may work with the state to leverage its Broadband Technology Opportunities Program (BTOP)

investment in fiber to anchor institutions throughout the region to determine if the new resources can benefit the unserved and underserved areas.

Goal EO.3.6: Engage foundations for assistance

In addition to state and federal funding, many foundations provide assistance to bring broadband services to unserved and underserved areas. The regional team may present the foundations with an overview of the opportunity and discuss their ability and willingness to assist. Examples of potential partners include GigU, Google, Cisco, Bill and Melinda Gates Foundation and Claude Worthington Benedum Foundation.

Strategic Objective ED.1: Identify and market growth areas to support economic development and broadband expansion

A healthy, growing economy is heavily dependent upon the latest technologies and access to affordable and reliable broadband infrastructure is often a key criterion in business decisions when a company is looking to relocate to an area. In addition to serving the employment base already in the area, communities will be attractive to an emerging new group of business-people that typically are well-educated, own their own businesses, and are making choices about where they live based on family needs and interests and the availability of affordable, high performance broadband.

This new breed of entrepreneurs place a high value on the kinds of amenities that are already part of the region: mild climate, superb recreational activities, great small towns, good schools, and a sense of place.

Business people and their families make decisions to stay in a community or to relocate based on quality of life and the availability of abundant and affordable broadband, because broadband is the enabler of these new Knowledge Economy businesses. Our discussions with local businesses and leaders suggest strong business support for an improved access to broadband and more affordable telecom services. To ensure that implementation of the RBPT broadband strategy supports regional growth priorities, it is important that local priorities are considered in its implementation.

Goal ED.1.1: Assess the availability of broadband services to existing and planned business parks, commercial centers, and designated growth areas

The regional team may conduct a more thorough inventory of existing and planned business and industrial parks, sites, and buildings, as well as locally designated growth areas. These areas should include brownfield sites and post-mining sites. The background section of this report provides a foundation for this inventory with the identification of growth areas and the current priority economic development sites for infrastructure expansion and enhancements. The regional team may use this information as a starting point to engage partners as

appropriated and develop a regional inventory of growth area priorities. Partners for this task should include county and municipal administrators and economic development organizations.

Goal ED.1.2: Prioritize inventory of existing and planned business parks, commercial centers, and designated growth areas for broadband expansion

The regional team may develop criteria for prioritizing infrastructure development in areas without broadband access. While individual counties and municipalities each have priority growth areas and economic development sites, a regional strategy should collaboratively synthesize these priorities into an overall strategy for the region. As with the inventory referenced above, local planning departments and economic development organizations should play key roles in this process. Potential prioritization criteria could include things such as:

- Traffic counts
- Physical characteristics
- Zoning
- Property ownership
- Potential return on investment
- Foreign Trade Zone (FTZ) Site
- Economic impact
- Access to:
 - Water/sewer infrastructure
 - Technology infrastructure
 - Natural gas/energy
 - Utilities
- Proximity to:
 - Workforce retail amenities
 - Recreation amenities
 - Rail transportation
 - Air transportation
 - Major transportation corridors
 - Business & industry cluster

The regional team may use the criteria developed above to rate and prioritize broadband infrastructure investment. The regional prioritization of the growth areas and sites can guide the implementation of the broadband strategy to ensure the areas and sites that can have the greatest impact on the regional economy and are among the first efforts in the expansion of broadband infrastructure in the region.

Goal ED.1.3: Encourage statewide policy decisions to facilitate broadband expansion

The regional team may meet with the West Virginia Department of Transportation to encourage the “dig once” philosophy with future highway improvements.

Goal ED.1.4: Seek funding resources to attract private investment in broadband expansion

The regional team may also collaborate with local governments and economic development organizations to identify potential private investors in broadband infrastructure. In a growing economy, incentives could potentially be offered to private companies who are considering locating or expanding in the Region. These private companies could potentially invest in broadband infrastructure with local incentives designed to subsidize development costs and encourage location in priority growth areas.

Strategic Objective ED.2: Support implementation of Wi-Fi technology throughout growth centers and urban areas

Wireless Internet (Wi-Fi) is a popular technology that allows electronic devices to connect to the Internet and exchange data wirelessly.⁴ Wi-Fi connectivity is not only expected, but is paramount to the way today's consumers gain instantaneous access to the Internet wherever they go. Wi-Fi allows us to decentralize and expand, but stay even more connected to family, friends, and work. Wi-Fi can have a greater range outdoors – many square miles – than it does indoors. Not being tethered to computers, laptops, and other conventional devices and going beyond the inherent limitations of bricks and mortar is becoming the standard in our digital society.

One of the challenges the Region faces is breaking the Wi-Fi barriers that impede the ability to connect anywhere, anytime. Uninterrupted, reliable, robust, and secure Wi-Fi service has significant implications to achieving greater economic diversification and growth, and will:

- benefit local businesses by encouraging consumers to patronize their services
- increase a consumer's buying power and enhance their overall experience
- enable a safer environment through better public safety and security efforts
- help promote cities and urban areas as destination places

Throughout the country, some cities recognize Wi-Fi's capacity to make location extremely relevant and increase the drive for a competitive advantage. These cities have begun setting up their own wireless networks – know as municipal Wi-Fi – either wholly government owned or through public-private arrangements with telecommunications companies. These types of networks go beyond the established practice of connecting to Wi-Fi at local coffee shops and libraries. Universal service that covers the city is more economical, enhances city services, and serves as a social service, providing connectivity to those who cannot afford private high speed Internet. Cities need to be Wi-Fi friendly to attract and encourage visitors and businesses to cluster into the downtown and urban areas.

In a recent study conducted by Design Nine for Mineral County Broadband Recommendations it is stated, "Wireless services will be important in Mineral County. And wireless is not going

⁴ <http://en.wikipedia.org/wiki/Wi-Fi>

away; it will remain as an important component of a well-designed community broadband system – as a mobility solution. As we travel around the community, we want to be able to access the Web, check email, make phone calls, and do other sorts of things. Wireless services enable that, and in rural areas, wireless services are an important step up from dial-up.”⁵

However, Wi-Fi deployment does have some unique challenges. For example, which downtown areas deserve the most focus and attention? Should the network be municipally owned and operated, or shall a public-partnership be formed to control it? What types of Wi-Fi networks are available – cloud solutions or zones, better known as “hot spots”? How feasible are they to deploy? Who should share the burden of the costs for wireless infrastructure, and how is such infrastructure maximized to its fullest potential? And finally, who are the key stakeholders that need to be engaged and educated about Wi-Fi technologies?

To support the implementation of Wi-Fi throughout the Region’s cities, the RBPT defined several key goals to respond to these challenges and help shape the future of Wi-Fi.

Goal ED.2.1: Identify possible Wi-Fi project areas

The Region 8 Planning and Development Council’s Regional Development Plan Comprehensive Economic Development Strategy 2009-2013 identifies Keyser, Romney and Moorefield/Petersburg as growth centers for the region. An inventory of need for those areas will be collected and priorities will be shaped and shared with broadband providers to prioritize their investments in broadband infrastructure to ensure that their investments are aligned with local growth priorities in the region. Once the inventory is developed, areas without Wi-Fi will be prioritized.

Goal ED.2.2: Formulate a strategy to provide support for addressing Wi-Fi service gaps

The regional team may study best practices where Wi-Fi has been successfully implemented and utilized and contact local wireless internet providers and networking companies to identify potential solutions and partners. Using this information, the regional team may develop a template to help facilitate Wi-Fi projects in targeted areas identified in Goal ED.2.1. The template may identify:

- Best practices in deploying Wi-Fi in small communities
- Potential network technologies/architectures
- Costs
- Potential funding opportunities

The template will define a model that can be adjusted and replicated by other cities and municipalities in the Region.

⁵ Mineral County Broadband Recommendations, page 18 as prepared by Design Nine and funded by the Appalachian Regional Commission and the Mineral County Commission

Goal ED.2.3: Educate local leaders and constituents about the importance and benefits of Wi-Fi

The most effective way to garner support to expand city-wide Wi-Fi access is to educate local public officials, business leaders, and other key constituents about the benefits that Wi-Fi brings to the community. The regional team may present the benefits of Wi-Fi and the template module to an audience of public officials, local businesses, educators, and other community leaders. Key discussion areas may include:

- Wireless Internet is an asset not a liability
- Wi-Fi has improved the quality of life for residents and businesses
- The costs, technology, trends, and issues
- Funding sources to absorb the upfront costs
- Recruiting the cities' technology experts to assist with efforts

The regional team may help coordinate and support local Wi-Fi projects and planning efforts.

Strategic Objective IN.1: Encourage broadband providers' involvement early in the planning and development process

During the planning process, a number of opportunities where broadband infrastructure can be introduced into existing processes were identified. In most cases, essential infrastructure is critical to the marketability of sites in a residential or commercial subdivision. Developers meet early in the process with local planning departments, economic development groups, and utility providers to make sure that the infrastructure can be provided and to ensure that the needed infrastructure is included in economic development planning. While in the past, infrastructure needs were typically focused on water, sewer, and utilities, with advances in and increased utilization of technology in business and personal operations, broadband infrastructure should receive equal consideration during the planning process.

Goal IN.1.1: Include broadband providers as early as possible in the development approval process

One of the first steps required to achieve this goal is to clearly define the importance of including broadband providers in the development planning and approval process, the opportunities that can be created through their involvement for both the providers and for the local community. The regional team may meet with broadband providers to gain an understanding of their current involvement in the early stages of the development planning process and the value that including broadband providers can bring to the process. This information could be used by the regional team in developing talking points for subsequent meetings with economic development organizations and planners. During these meetings, the regional team may also identify a contact person from each provider organization who will serve as the liaison for future communication and involvement in local community and economic development planning processes and activities.

Understanding the coverage and capacity of each provider can be very helpful to the broadband planning process, as well as to economic development planning. Another objective of the meetings with broadband providers is to encourage each provider to share as much information as possible regarding the location of current infrastructure and its capacity. This information should include both lit and dark fiber.

With information compiled from meetings with broadband providers, the regional team may meet with local economic development organizations and planning officials to gain a clear understanding of their planning and approval processes and to communicate the importance of including broadband providers as early as possible in the processes.

The objectives of these meetings should be (1) identify specific times/milestones in the planning process where broadband providers should be included in the process; (2) agree upon how and when broadband providers will be invited to participate in the process; (3) provide the contact information for the liaison from each provider organization. In some situations, it may be appropriate to solicit provider interest in specific development projects through the use of Requests for Proposals (RFPs), or perhaps solicit letters of interest in very early stages of the development process.

Broadband providers, local planning departments, and economic development organizations will likely be key partners in the implementation of this portion of the broadband strategy; therefore, the above meetings can also be used to (1) introduce these groups to the strategy; (2) gain their buy-in and support for the strategy; (3) invite their participation as a partner in strategy implementation, and (4) identify collaborative ways for the groups to participate in the strategy implementation. Funding opportunities should be part of collaborative implementation strategies.

The regional team may also coordinate with staff members of planning departments and economic development organizations to provide briefings to their boards regarding the broadband strategy and its importance to the region. This can help to ensure a united commitment to support the strategy's implementation.

Goal IN.1.2: Develop a liaison with each broadband provider in the area

To maximize collaborative efforts in strategy implementation, it is important to establish primary points of contacts from each broadband provider who will act as liaisons to planning and economic development groups. This will ensure consistency and efficiency in the inclusionary process. The contact information can be circulated to all regional planning and economic development groups for reference.

Goal IN.1.3: Collaborate to identify optimal locations for infrastructure expansion and co-location of cellular towers

Broadband providers, local government officials, and planning and economic development organizations are all stakeholders in broadband infrastructure expansion. Since all of these groups will invest in some way in the expansion of broadband infrastructure, it is important that they collaborate in prioritizing the optimal locations for infrastructure expansion.

Goal IN.1.4: Work with county and local planning directors to ensure that broadband infrastructure is included in their comprehensive plans

A local comprehensive plan serves as a long-range “blueprint” for a community or region that identifies its vision and goals for the future, and lays a foundation for future land use and policy decisions. Including broadband in local comprehensive plans is critical to provide a basis for policy decisions associated with the regional broadband strategy. The inclusion of broadband infrastructure in a local comprehensive plan can also inform and enable prioritization decision, can ensure that investments in broadband infrastructure are made in specific areas where they will yield the greatest benefit, and demonstrate local commitment to the strategic development and expansion of broadband infrastructure.

West Virginia counties and municipalities are required to update their comprehensive plans every 10 years. Counties and municipalities that are in the process of updating their comprehensive plans can easily incorporate a broadband strategy into their updates. Counties that have recently completed updates to their comprehensive plans can adopt an amendment to their existing plan if needed that would include a broadband strategy.

The regional team may conduct meetings with county and municipal planning departments in Region 8 to gather information regarding existing comprehensive plans within the counties and their municipalities, and to discuss the importance of including a broadband strategy in their comprehensive plans.

The inclusion of broadband in a comprehensive plan can range from a simple mention of its importance to an assessment of current broadband infrastructure, identifying priority areas for future infrastructure and a strategy for its implementation. The strategies outlined in the RBPT Broadband Strategy can serve as the basis for the broadband section of county and municipal comprehensive plans. The regional team may make recommendations to local planning departments for comprehensive plan updates or amendments.

As local planners are developing broadband plans for inclusion in their comprehensive plans, they may require technical support to ensure that their plans are aligned with specific needs for broadband infrastructure. The regional team may provide input and technical assistance as needed regarding broadband infrastructure requirements to assist in the development of

comprehensive plan updates. The regional team may include partners who are subject-matter experts with the needed technical expertise.

Goal IN.1.5: Partner with local governments, planners and economic development organizations to incorporate the provision of broadband infrastructure in current planning policy and advance public funding requests

Local planning officials can help to ensure that broadband access is a consideration in subdivision planning for residential, commercial, and industrial development through the use of regulatory requirements for land development. Subdivision and land development ordinances, especially in designated growth areas, can ensure that developers provide adequate broadband infrastructure that will support the land uses targeted for specific areas. Adequate broadband infrastructure, coupled with the lower-than-average cost of doing business in the region, can also be a key factor in attracting targeted businesses to the region.

The regional team may encourage local planning officials to amend zoning and subdivision and land development ordinances to include broadband requirements. These amendments can include the following types of items:

- Requirements that cell towers allow for multiple users
- Inclusion of a “dig once” regulation requiring, at a minimum, infrastructure (conduit) is included in land development. Even if it is not feasible at the time of construction to run fiber, requiring the infrastructure at the time of development will minimize cost and inconvenience when fiber is feasible.
- Require the inclusion of dark fiber with transportation/streetscape improvements and new roadway construction.
- Require that external provider’s investments conform to current local standards (e.g., visual impact, restrictions regarding types of antennas and towers, deployment of antennas to existing infrastructure such as light poles, etc.)
- Require, as a condition of approval, the removal of broadband and other advanced telecommunication towers and equipment when they are no longer needed.
- Require that new or renovated residential and commercial development projects include infrastructure components necessary to support broadband
- Require publicly subsidized developments to provide broadband connectivity and include infrastructure components necessary to support broadband.

As local planners consider regulatory amendments to support broadband infrastructure expansion and enhancement, they may require technical support in ensuring that ordinance revisions are aligned with locally specific broadband infrastructure, and that they are broad enough to anticipate and accommodate future technological advances. The regional team may provide technical assistance to planning officials as needed in developing ordinance amendments, and therefore, should include partners who are subject-matter experts with the technical expertise to assist in this process.

A united effort among local governments, economic development organizations, and broadband implementation organizations sends a message to funding agencies that local leaders have a common focus and can help to positively advance applications for funding. Partnerships that use public funds to leverage private investment can create a “win-win” opportunity for public funding agencies and can realize a higher return on their investment, and private entities can decrease development costs to positively impact their bottom line. Strategic, collaborative efforts can maximize the region’s attractiveness for funding.

The regional team may set up regular meetings of a collaborative group to identify funding opportunities. The group could include local governments, economic development organizations, and private-sector entities as appropriate. It may seek to identify projects where collaborative efforts could maximize funding opportunities to advance projects.

As funding opportunities are identified, it is likely that grant application will require detailed information regarding the broadband infrastructure plan and requirements, the costs involved, etc. The regional team may assist with requirements of grant applications as related to broadband infrastructure development to ensure that the technical aspects of the project are adequately and accurately presented and that the project message is clear, concise, and compelling

Strategic Objective IN.2: Advance the recommendation of increasing the state’s minimum speed standards to 20 mbps down/5 mbps up by 2015

The RBPT survey of residents and businesses indicated that 99%% of residents and 95% of businesses have Internet access. However, only 8% of residents and 22% of businesses have broadband speed according to the FCC definition (4Mbps/1Mbps). The state recently passed legislation that redefines broadband speeds consistent with the FCC. The RBPT believes that not only being connected but having enough bandwidth/speed to capitalize on the modern applications available over the Internet is crucial to the competitiveness and well being of the community. This is further suggested from discussions with local providers as well as identified in the sector surveys. Therefore, the RBPT team has suggested broadband minimum speed goals for the region.

Goal IN.2.1 Engage existing broadband providers

The regional team may engage broadband providers and outline the region’s goals for broadband speed and share the results of the RBPT survey and the state speed test to demonstrate that current “broadband” offerings do not meet the state or FCC definition or the region’s expectations. The regional team may stress that the goal is not to have these broadband speeds available in the region, but to have the speeds available as the basic/entry-level options for broadband services in the area. Once the provider community has an understanding of the goals and objectives, the regional team may seek commitments from the providers to meet the standards. The commitments and progress will be monitored through

continued speed testing and a review of publicly available Internet offerings (e.g., price and speed).

Providers who are unable to commit to meeting the broadband speed goals will be engaged to determine specific barriers to providing the desired service in the region.

Goal IN.2.2: Support local school districts and the Department of Education goal to achieve the following recommended speed criteria:

- 2014 – 10 Mbps per 100 students
- 2017 – 100 Mbps per 100 students

The regional team may coordinate with local school districts to support their efforts to meet Department of Education speed goals. The regional team may help identify and support potential funding opportunities to upgrade broadband services to local schools.

Goal IN.2.3: Encourage build-out of a major fiber backbone in the Region to support expansion of broadband

The RBPT has identified the need for a major fiber backbone as a critical resource to ensure multiple major internet connections, increase speed, reliability and competition. There have been multiple attempts in the past to encourage the development of a fiber backbone. The regional team may monitor potential project and partners and support education, outreach and funding opportunities to develop the backbone. Additionally, through strategic objective IN.1 the regional team may support legislation that removes impediments to the development of a major fiber backbone.

Goal IN.2.4: Coordinate with the State

The regional team may share potential projects with the state that would enable current providers to meet the speed objectives. With the state's assistance, the regional team may also identify any potential federal or state funding that could be used to support these projects. Additionally, the regional team may work with the state to leverage its BTOP investment in fiber to anchor institutions throughout the region to determine if the new resources can benefit speed levels in the region. The regional team may assist entities in pursuing funding opportunities.

Goal IN.2.5: Engage cable franchises

Cable companies hold franchise agreements with county and local municipalities granting them the right to provide service in the area. The regional team may encourage the government entities to incorporate the above-stated broadband speed goals in all future negotiations. The regional team may provide initial outreach to municipalities, highlighting the importance of broadband for their citizens. During this outreach, the implanter may benchmark current data

agreements (if available) and develop a list identifying renegotiation dates for each municipality.

Goal IN.2.6: Engage new broadband providers

If incumbent providers are unable or unwilling to improve their product offerings to meet the stated speed goals, encourage new broadband providers to enter the market and provide services in accordance with speed goals. The regional team may identify potential target providers that currently provide services in West Virginia or the surrounding out-of-state areas, but do not currently provide service in the region. The regional team may develop a regional profile that highlights the current economic and broadband environment to demonstrate the viability of the region. The regional team may meet with targeted providers, share the regional profile, and gauge their willingness to service the region. The regional team may assist in the development and support of federal and/or state funding opportunities, where appropriate, to help new providers enter the region.

Strategic Objective IN.3: Identify technologies that support broadband deployment in the “quiet zone”

The United States National Radio Quiet Zone is a large area of land centered between the National Radio Astronomy Observatory (NRAO) at Green Bank, West Virginia and the Sugar Grove Research Facility at Sugar Grove, West Virginia. The Radio Quiet Zone is a rectangle of land approximately 13,000 square miles (34,000 km²) in size that straddles the border area of Virginia and West Virginia.⁶

The National Radio Quiet Zone protects the telescopes of the NRAO facility and the antennas and receivers of the U.S. Navy Information Operations Command (NIOC) at Sugar Grove, West Virginia. The NIOC at Sugar Grove has long been the location of electronic intelligence-gathering systems, and is today said to be a key station in the ECHELON system operated by the National Security Agency (NSA).⁷

The Quiet Zone was created by the Federal Communications Commission (FCC) in 1958 to protect the radio telescopes at Green Bank and Sugar Grove from harmful interference.

⁶ Official website, National Radio Quiet Zone (<http://www.gb.nrao.edu/nrqz/nrqz.html>)

⁷ ”Interception Capabilities 2000, Sugar Grove, Virginia – COMSAT interception at ECHELON site” (http://www.fas.org/irp/eprint/ic2000.htm#_Toc448565544) *Interception of Communications Section*. Leeds, UK: Cyber-Rights & Cyber-Liberties (UK). May 11, 1999. Archived from the original (http://cyber-rights.org/interception/stoa/ic2kreport.htm#_Toc448565544) on May 2008. Retrieved September 14, 2011. “Interception Capabilities 2000 Report to the Director General for Research of the European Parliament (Scientific and Technical Options Assessment programme office) on the development of surveillance technology and risk of abuse of economic information.”

Restrictions on transmission are tightest near these sites, where most omnidirectional and high-power transmissions are prohibited.

Not all transmissions are prohibited in the Radio Quiet Zone. For example, Citizen's Band radios, police and ambulance radios, and fire department radios are used there. However, large transmitter owners must typically coordinate their operations with representatives of the NRAO, which oversees the NRQZ in agreement with the Sugar Grove facility.⁸

Goal IN.3.1: Collaborate with state and federal officials to develop policies which will support technologies for the "quiet zone"

The "quiet zone" has an impact on the manner which broadband can be deployed in the Region. It is important for the providers and the Region to fully understand the value of the research occurring in the "quiet zone" as well as its impact on broadband opportunity. The RBPT may wish to host forums within the region with the providers and the NRAO to discuss and offer the public a better understanding of the "quiet zone" and what alternative broadband delivery systems could be deployed. Any findings from the forum should be shared with state and federal officials.

Additionally, it is important to determine the number of citizens in the unserved areas that may be impacted by the "quiet zone" restriction. This research could be carried out in conjunction with Strategic Objective EO.3, Goals EO.3.1, EO.3.2 and EO.3.3.

Goal IN.3.2: Engage providers to explore emerging technology that could support broadband access in the "quiet zone"

The "quiet zone" does pose a unique opportunity for technology advancement. In discussing the "quiet zone" with one of the region's broadband providers it was understood that technology opportunities may exist to provide broadband service to rural sparsely populated areas. Much of the research into the "quiet zone" alternative delivery systems could be part of work suggested in Strategic Objective EO.3.4.

Goal IN.3.3 Seek funding opportunities that would support broadband access in the "quiet zone"

It is generally recognized that the area most impacted by the "quiet zone" is rural and sparsely populated and most likely a type 3 unserved area. Traditional financing methods will not support the deployment of broadband to this area. Therefore subsidies will be needed to deploy broadband for these areas. The regional team in conjunction with providers and other funders will be needed in order for this area to be served. This research could be carried out in conjunction with Strategic Objective 4, Goals 4.1, and 4.2.

⁸ http://en.wikipedia.org/wiki/United_States_National_Radio_Quiet_Zone

Strategic Objective IN.4: Identify and monitor funding and financing sources to support implementation of broadband strategy

A variety of funding and financing mechanisms are available at the local, state, and federal levels to assist with the advancement of strategic planning and capital improvements initiatives. These grant and loan programs can be pursued to support the broadband strategic objectives of the RBPT. State and federal funding can be used to advance a variety of projects, including providing public services, and assisting state and local governments in developing solutions within West Virginia communities. As funding and financing sources are identified, the regional team may monitor and vet specific funding sources for applicability and align them with the broadband strategic plan's priorities and initiatives, including provisions for broadband infrastructure. The following Strategic Objective and the key goals defined herein will serve as a guide for developing and advancing an effective funding strategy.

Goal IN.4.1: Develop a comprehensive funding strategy

The overarching goals and objectives for the Broadband Strategic Plan may be successfully achieved if the proper funding strategy is developed and implemented. When initially approaching a funding strategy, costs associated with each targeted initiative must be evaluated and prioritized. Once eligible costs are aligned with applicable programs a comprehensive funding strategy, including a detailed accounting of sources and uses, should be developed.

A preliminary funding overview matrix was created during the broadband strategic planning process. It includes potential funding programs that are currently available and may be leveraged to help saturate broadband services throughout the Region (see Resource Section). The funding overview matrix highlights key characteristics of the programs:

- type of program (grants or loans)
- applicant's eligible requirements
- administering agency
- eligible use(s) for the funding
- matching fund requirements
- timeframe for submission and award

The regional team may review the funding overview matrix and determine which applicable programs shall be pursued.

Goal IN.4.2: Implementation of the funding strategy

Upon determining the appropriate, eligible program(s) to pursue, an application with all supporting documentation should be developed, including a concise Executive Summary. Outreach to elected officials and other stakeholders at the local, state, and federal levels is critical to ensuring stakeholder support for funding or financing requests. Once applications are submitted, a collective effort must be orchestrated for stakeholders to proactively engage the administering agency, or source, to voice support for the request and encourage its approval. If approvals are secured, facilitation and monitoring of the funds draw-down process is required to ensure compliance and maximize the fiscal benefit of the award. An on-going dialogue with all elected officials and stakeholders must be maintained throughout the process to facilitate a true collaborative effort.

Implementation Matrix

The following matrix outlines the nine (9) strategic objectives and details the goals and action items necessary to implement. The matrix can be used as a management tool to assist in the implementation process and will be updated and amended as needed.

Strategic Objective EO.1: Educate the region about the benefits and opportunities that broadband offers	
Goal	Action Item
EO.1.1: Conduct a gap analysis study on the existing programs	1. Conduct a gap analysis to identify and inventory suitable broadband programs that are readily available, cost-effective, and pertinent
	2. Identify broadband programs with educational value that need to be created and developed
	3. Collaborate with key stakeholders (non-profit groups, public agencies, anchor institutions, etc.) to develop and support new programs
	4. Work with local facilities to serve as training venues
EO.1.2: Promote existing educational opportunities and services	1. Partner with key stakeholder and organizations to help <ul style="list-style-type: none"> • Senior Centers – provide outreach and training support to targeted audiences • Workforce WV – open access to computer labs for the public • School districts – host youth-based classes that provide an overview of the basics
	2. Host training events at anchor institutions/facilities (i.e., recreation centers) that have computers available for public use. The following is a list of possible training ideas: <ul style="list-style-type: none"> • Create a series of videos to help parents teach children to use computers • Demonstrate how to connect to family and friends, watch TV, and find entertainment through the Internet • Develop a basic, hands-on IT 101 class to: <ul style="list-style-type: none"> ○ Teach basic Internet principles and computer skills ○ Access the Internet safely ○ Learn general digital literacy terms ○ Access resources and why, for example: <ul style="list-style-type: none"> ▪ Shopping ▪ News and information ▪ Education ▪ Government communications and services ▪ Health care ▪ Entertainment and social media ○ Promote e-commerce classes to businesses to demonstrate how to: <ul style="list-style-type: none"> ▪ Conduct sales and services online ▪ Find buyers and/or suppliers
	3. Take advantage of online business applications

Strategic Objective EO.1: Educate the region about the benefits and opportunities that broadband offers - continued	
<i>Goal</i>	<i>Action Item</i>
EO.1.3: Collaborate with stakeholders to develop necessary courses that are not offered	1. Collaborate with stakeholders and other resources to develop broadband educational programs not currently offered
	2. Recommend that courses be practical, hand-on training, and focus on parents, students, and the older population
EO.1.4: Promote discount programs and equipment	1. Monitor federal programs and encourage provider involvement
	2. Evaluate, pursue, and promote programs that provide home computer subsidies, discounted equipment, and technical support
Strategic Objective EO.2: Advocate and support changes to legislation that affect broadband availability and development through outreach to local officials	
<i>Goal</i>	<i>Action Item</i>
Goal EO.2.1: Identify legislative issues	1. Identify issues that require legislative support to improve the deployment and availability of broadband throughout the region
	2. Monitor state and federal legislative opportunities
Goal EO.2.2: Work with WV Broadband Council to develop position papers and outreach strategy	1. Support position papers on key issues to identify the <ul style="list-style-type: none"> necessary action and benefits of the change in legislation or regulation
	2. Support outreach strategy to ensure all supports have identical information
Goal EO.2.3: Meet with local, state, and federal officials	1. Identify key stakeholders (i.e., local officials, state legislators, and agencies, congressional representatives, etc.)
	2. Meet with key decision makers and request support for identified legislative initiatives

Strategic Objective EO.3: Support/advocate broadband services to unserved areas in the Region	
<i>Goal</i>	<i>Action Item</i>
Goal EO.3.1: Inventory households and businesses	1. Utilize state address point data and Type I, II, and III and FCC maps to develop initial list
	2. Review list of individuals and businesses that reported no broadband availability on the survey
	3. Finalize the inventory
Goal EO.3.2: Aggregate demand	1. Develop a survey tool and Letter of Intent
	2. Survey individuals and businesses
	3. Develop profile of priority areas and level of interest
	4. Potentially seek funding from the State Broadband Deployment Council to assist with demand aggregation
Goal EO.3.3: Engage broadband provider community	1. Develop a list of current and potential providers
	2. Present the providers with an overview of the opportunity
	3. Gauge provider community ability and willingness to provide services
	4. Hold a provider conference or a request for information process
	5. Potentially work with provider community to identify barriers to expand services
Goal EO.3.4: Monitor and support the implementation of technologies to provide broadband to unserved areas	1. Monitor the progress of potential technologies that may potentially serve the identified areas <ul style="list-style-type: none"> • white space spectrum • power lines • satellite
	2. If proven to work, support funding efforts and pilot programs in the region
Goal EO.3.5: Discuss opportunity with the State	1. Meet with representatives from the State Broadband Deployment Council and Mapping project to discuss opportunities
	2. Share any barriers of entry identified by the providers with the state
	3. Catalog any potential state assistance, including timelines, eligible uses, and next steps
	4. Help eligible applicants apply for funding
	5. Track targeted communities that gain broadband access

Strategic Objective EO.3: Support/advocate broadband services to unserved areas in the Region - continued	
<i>Goal</i>	<i>Action Item</i>
Goal EO.3.6: Engage foundations for assistance	1. Develop a list of foundations that support broadband expansion efforts
	2. Draft a message statement that identifies potential opportunities and demand for the region
Strategic Objective ED.1: Identify and market growth areas to support economic development and broadband expansion	
<i>Goal</i>	<i>Action Item</i>
Goal ED.1.1: Assess the availability of broadband services to existing and planned business parks, commercial centers, and designated growth areas	1. Identify and engage partners for this task (i.e., county and municipal planners and economic development organizations)
	2. Leveraging and background section of the Plan as a foundation, conduct a thorough regional inventory of <ul style="list-style-type: none"> existing and planned business and industrial parks, sites, and buildings locally designated growth areas, including brownfield sites and post-mining sites
Goal ED.1.2: Prioritize inventory of existing and planned business parks, commercial centers, and designated growth areas for broadband expansion	1. Develop criteria for prioritizing infrastructure development in areas without broadband access
	2. Use the developed criteria to rate and prioritize broadband infrastructure investment
Goal ED.1.3: Encourage statewide policy decisions to facilitate broadband expansion	1. Meet with the West Virginia Department of Transportation to encourage the “dig once” philosophy/legislation with future highway improvements and/or expansions
	2. Include dark fiber as part of future highway infrastructure improvements
Goal ED.1.4: Leverage local incentives to attract private investment in broadband expansion	1. Collaborate with local governments and economic development organizations to identify potential private investors in broadband infrastructure
	2. Offer local incentives to attract private investment

Strategic Objective ED.2: Support implementation of Wi-Fi technology throughout growth centers and urban areas	
<i>Goal</i>	<i>Action Item</i>
Goal ED.2.1: identify possible Wi-Fi project areas	1. Conduct a comprehensive review of Wi-Fi inventory/availability in small communities <ul style="list-style-type: none"> • Seek volunteers to help assess areas • Conduct outreach to local businesses to determine if free Wi-Fi is available • Clearly document where service is available and gaps exist
	2. Partner with the On Trac West Virginia State program <ul style="list-style-type: none"> • Reach out to the On Trac Coordinator to encourage participation and collaboration • Review and discuss current, successful implemented Wi-Fi projects
	3. Prioritize areas identified through the inventory
Goal: ED.2.2: Formulate a strategy to provide support for addressing Wi-Fi service gaps	1. Work with leaders in the region to gather information on best practices for implementing Wi-Fi
	2. Reach out to local wireless Internet providers and networking companies to <ul style="list-style-type: none"> • For partnerships • Find potential solutions
	3. Develop a template to help facilitate Wi-Fi projects in targeted areas identified in ED.2.1 <ul style="list-style-type: none"> • The template would include: <ul style="list-style-type: none"> ○ Best practices in deploying local Wi-Fi ○ Recommended network technologies/architectures ○ Costs ○ Potential funding opportunities
	4. Employ best practices found in other community Wi-Fi implementation

Strategic Objective ED.2: Support implementation of Wi-Fi technology throughout growth centers and urban areas - continued	
<i>Goal</i>	<i>Action Item</i>
Goal ED.2.3: Educate local leaders and constituents about the importance and benefits of Wi-Fi	1. Demonstrate to an audience of public officials, local businesses, educators, and other community leaders the benefits of Wi-Fi
	2. Include key discussion areas: <ul style="list-style-type: none"> • Wireless Internet is an asset not a liability • Wi-Fi has improved the quality of life for residents and businesses • The costs, technology, trends, and issues • Funding sources to absorb the upfront costs • Recruiting the cities' technology experts to assist with efforts
	3. Help coordinate and support local Wi-Fi projects and planning efforts <ul style="list-style-type: none"> • Periodically review progress of projects
Strategic Objective IN.1: Encourage broadband providers' involvement early in the planning and development process	
<i>Goal</i>	<i>Action Item</i>
Goal IN.1.1: Include broadband providers as early as possible in the development approval process	1. Meet with broadband providers to: <ul style="list-style-type: none"> • Gain an understanding of their current involvement in the early stages of development planning process • Gain an understanding of specific value broadband providers can bring to the process • Gather as much information as possible regarding the location of current infrastructure and its capacity (both lit and dark fiber) • Identify a contact person/liaison with each provider for future communication
	2. Meet with local economic development organizations and planning officials to: <ul style="list-style-type: none"> • Introduce these groups to the broadband strategy • Gain their buy-in and support for the strategy • Invite their participation as a partner in strategy implementation • Identify collaborative ways for the groups to participate in the strategy implementation • Identify specific times/milestones in the planning process where broadband providers should be included in the process • Agree upon how and when broadband providers will be invited to participate • Provide the contact information for the liaison from each provider organization

Strategic Objective IN.1: Encourage broadband providers' involvement early in the planning and development process - continued	
<i>Goal</i>	<i>Action Item</i>
Goal IN.1.2: Develop a liaison with each broadband provider in the area	1. Establish primary points of contacts from each broadband provider to: <ul style="list-style-type: none"> • Maximize collaborative efforts in strategy implementation • Serve as liaisons to planning and economic development groups • Ensure consistency and efficiency in the inclusionary process
	2. Circulate contact information to all regional planning and economic development groups
Goal IN.1.3: Collaborate to identify optimal locations for infrastructure expansion and co-location of cellular towers	1. Use framework from Strategic Objective ED.1 to collaborate with providers, local government officials and other stakeholders to identify and prioritize optimal locations
Goal IN.1.4: Work with County and local planning directors to ensure that broadband infrastructure is included in their comprehensive plans	1. Conduct meetings with county and municipal planning departments to : <ul style="list-style-type: none"> • Gather information on comprehensive plans • Discuss the importance of including broadband strategies in the plans
	2. Make recommendations to local planning departments for comprehensive plan updates or amendments
	3. Provide input and technical assistance as needed regarding broadband infrastructure requirements
	4. Identify and engage partners who are subject-matter experts with the technical expertise to assist in the process
Goal IN.1.5: Partner with local governments, planners and economic development organizations to incorporate the provision of broadband infrastructure in current planning policy and advance public funding requests	1. Coordinate regular meetings of a collaborate group to identify funding opportunities
	2. Identify projects where collaborative effort could maximize funding opportunities to advance projects
	3. Assist with requirements of grant applications as related to broadband infrastructure development <ul style="list-style-type: none"> • Ensures that technical aspects of the project are adequate and accurate • Delivers a clear, concise, compelling message

Strategic Objective IN.2: Advance the recommendation of increasing the state's minimum speed standards to 20 mbps down /5 mbps up by 2015	
Goal	Action Item
Goal IN.2.1: Engage existing broadband providers	1. Develop a message statement to share with providers that includes the following: <ul style="list-style-type: none"> • RBPT survey results • State speed test • Region 8's speed objectives • Unserved and underserved aggregate demand results
	2. Meet with providers and identify commitment and time frame to reach goals
	3. Identify any barriers to meeting speed goals
	4. Seek commitments from the providers to meet the standards
	5. Monitor speed test on a periodic basis
Goal IN.2.2: Support local school districts and the Department of Education goal to achieve the following recommended speed criteria: <ul style="list-style-type: none"> • 2014 – 10 mbps per 100 students • 2017 – 100 mbps per 100 students 	1. Coordinate a meeting with local school districts and Department of Education
	2. Help identify and support potential funding opportunities to upgrade broadband services to local schools
Goal IN.2.3: Encourage build-out of a major fiber backbone in the Region to support expansion of broadband	1. Monitor potential projects and partners, and support education, outreach, and funding opportunities to develop fiber backbone
	2. Support legislation that removes impediments to the development of a major fiber backbone
	3. Research the possibility of identifying an area in the region for a major fiber backbone connection
Goal IN.2.4: Coordinate with the State	1. Meet with representatives from the State Broadband Deployment Council and Mapping project to discuss opportunities and obstacles
	2. Catalog any potential state assistance, including timelines, eligible uses, and next steps
	3. Assist in the development of funding application

Strategic Objective IN.2: Advance the recommendation of increasing the state's minimum speed standards to 20 mbps down /5 mbps up by 2015 - continued	
<i>Goal</i>	<i>Action Item</i>
Goal IN.2.5: Engage cable franchises	1. Identify franchise holders
	2. Meet with local governments to discuss the importance of broadband and their willingness to negotiate for broadband speed rates
	3. Benchmark current data agreements
	4. Develop a list identifying renegotiation dates for each municipality
	5. Contact municipality before contract negotiations
	6. Track agreements negotiated with speed rates and implementation time frame
	7. Monitor cable franchise agreements for speed goal inclusion
Goal IN.2.6: Engage new broadband providers	1. Encourage new broadband providers to enter the market and provide services in accordance with speed goals (if incumbents are unable/unwilling)
	2. Identify potential target providers that currently provide services in WV, and surrounding out-of-state services
	3. Develop a regional profile highlighting the current economic and broadband environment
	4. Meet with targeted providers, share the regional profile, and gauge their willingness to service the region
	5. Assist in the development and support of federal and/or state funding opportunities to help new providers enter the region
Strategic Objective IN.3: Identify technologies that support broadband deployment in the "quiet zone"	
<i>Goal</i>	<i>Action Item</i>
Goal IN.3.1: Collaborate with state and federal officials to develop policies which will support technologies for the "quiet zone"	1. Identify areas most impacted by the "quiet zone" using the methodology in EO.3.1
	2. Determine the area types
	3. Determine demand for broadband services
	4. Share results with state and local officials
Goal IN.3.2: Engage providers to explore emerging technologies that could support broadband access in the "quiet zone"	1. Share results of IN.3.1.4 with providers to show there is an interest in service
	2. Encourage providers to work with FCC regarding new technologies
	3. Seek pilot project opportunities for new technology

Strategic Objective IN.3: Identify technologies that support broadband deployment in the “quiet zone” - continued	
<i>Goals</i>	<i>Action Items</i>
Goal IN.3.3: Seek funding opportunities that would support broadband access in the “quiet zone”	1. Meet with legislative leaders and key decision makers to seek pilot funding
	2. Research federal funding opportunities
	3. Seek foundation support for emerging technologies for the “quiet zone”
Strategic Objective IN.4: Identify and monitor funding and financing sources to support implementation of broadband strategy	
<i>Goal</i>	<i>Action Items</i>
Goal IN.4.1: Develop a comprehensive funding strategy	1. Evaluate and prioritize costs associated with each targeted initiative
	2. Develop a detailed accounting of sources and uses (funding matrix initially developed and referenced in this Plan)
	3. Review, prioritize, and determine which applicable funding programs to pursue
Goal IN.4.2: Implementation of the funding strategy	1. Develop application(s) with all supporting documentation
	2. Include a concise Executive Summary
	3. Submit application(s) to the appropriate administering agency
	4. Conduct outreach to local officials and stakeholders to ensure support
	5. Engage the administering agency, or source, to voice support for the request and encourage its approval
	6. Facilitate and monitor the funds draw-down process to ensure compliance and maximize the fiscal benefit of the award
	7. Keep elected officials up to date and engaged in the RBPT’s initiatives
	8. Assign a resource to facilitate and manage the application process. The funding resource would: <ul style="list-style-type: none"> • Monitor and identify various grant and loan opportunities • Conduct legislative outreach to stay abreast of relevant legislation • Periodically review and augment the funding matrix to include new, viable funding sources and remove obsolete programs • Distribute updated funding information among all RBPT members and stakeholders involved in the implementation of the plan

Resource Consideration

In an effort to complete the Regional Broadband Strategic Plan in a timely manner, the Resource Consideration matrix is under development and will be included in the final plan.

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Timeline and Benchmarks

The following table provides a high-level implementation schedule. Red represent initial implementation time and yellow represent ongoing support efforts.

Strategic Objective & Goals	Year 1 Qtr 1	Year 1 Qtr 2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4	Year 3 Qtr 1	Year 3 Qtr 2	Year 3 Qtr 3	Year 3 Qtr 4
Strategic Objective EO.1.												
Goal EO.1.1	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal EO.1.2	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal EO.1.3	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal EO.1.4	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Strategic Objective EO.2												
Goal EO.2.1	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal EO.2.2	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal EO.2.3	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Strategic Objective EO.3												
Goal EO.3.1	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal EO.3.2	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal EO.3.3	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal EO.3.4	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal EO.3.5	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal EO.3.6	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Strategic Objective ED.1												
Goal ED.1.1	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal ED.1.2	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal ED.1.3	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal ED.1.4	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Strategic Objective ED.2												
Goal ED.2.1	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal ED.2.2	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal ED.2.3	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Strategic Objective IN.1												
Goal IN.1.1	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal IN.1.2	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal IN.1.3	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal IN.1.4	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal IN.1.5	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Strategic Objective IN.2												
Goal IN.2.1	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal IN.2.2	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal IN.2.3	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal IN.2.4	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal IN.2.5	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal IN.2.6	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Strategic Objective IN.3												
Goal IN.3.1	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal IN.3.2	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal IN.3.3	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Strategic Objective IN.4												
Goal IN.4.1	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Goal IN.4.2	Red	Red	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow

Appendix

Appendixes will be added to the final document.

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