



Mercer County

Land Use Master Plan 2014



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Executive Summary

This Land Use Master Plan (LUMP) conveys information on Mercer County's current demographic and geographic status. This plan will be used to evaluate the potential of post-mine sites for development, and evaluate Mercer County's investment position.

Senate Bill (SB) 603 mandates the development of a LUMP by counties with surface mining operations. The LUMP will be an effective tool towards achieving Mercer County's development goals. The Nick J. Rahall Appalachian Transportation Institute (RTI) coordinates with the Office of Coalfield Community Development to provide this essential information. Mercer County has no post-mine development currently in place, most likely because of the small inventory of post-mine sites. This plan will help Mercer take advantage of its post-mine sites in a varied and potentially lucrative manner.

Mercer County has lost 16 percent of its population since 1980. The county's median age and age distribution are average for the state, and indicate a population capable of productivity in the labor force. The population is also projected to decrease past 2030.

Employment consists mainly of Government; Trade, Transportation, and Utilities; Professional and Business Services; Education and Health Services; and Leisure and Hospitality. Government and Trade, Transportation and Utilities are the major wage contributors due to the size

of employment, followed by Education and Health Services and Professional and Business Services. Manufacturing is the fifth highest wage contributor due to the higher wages in the sector versus the Leisure and Hospitality sector. Mercer County maintains an average labor force participation rate, and a greater than average ratio of government transfers to income (35 percent).

Mercer County's total enrollment has been rising despite the decline in population. The dropout rate has fallen as the county emphasizes education, and national economic struggles discourage dropping out. Nineteen percent of Mercer County residents 25 and older have not graduated high school.

Utility prices are varied throughout the county, and this plan provides municipal and private rates for electricity, sewer, and water. Broadband infrastructure is much better than average in Mercer County, indicating a strong commitment to development.

Transportation is an important issue in any development strategy. Interstate 77 traverses Mercer County. The County also is proposed to contain parts of the King Coal Highway and the Shawnee Highway. Mercer County has approximately 76 miles of rail and a small airport, the Bluefield/Mercer County Airport.

Mercer County has 17 sites in the National Register and several pieces of historic

architecture designated by the state. Historic preservation can be a basis for tourism, cultural identity, and community cohesion.

This plan also reviews energy and environmental issues in Mercer County. The environment of the county should be considered in an overall development strategy. Mercer County is heavily forested but has only a few designated recreational areas. Mercer County is not on the list of air pollution non-attainment areas, which is positive. Mercer County has a few gas pipes, but little play in the Marcellus Shale. The County has no wood byproducts industry despite being heavily forested, but appears to have several areas that are very favorable to wind and solar development.

This information is as critical as the site information for several reasons. One is that development is not a process that can occur in a vacuum. Without understanding the resources available in the county, and the demand for more investment, money will end up wasted. Another is that investment requires active partners who will need information on each of the county's essential demographic topics to determine their level of risk. Without this, investors will not be persuaded to enter the county. Finally, this information can help policy makers target their land use strategies to any of these topics, as long as they understand the situation.

Site analysis is integral to this report. Researchers identified all the post mine sites given certain criteria for Mercer County.

The researchers created a distance analysis using a scoring system based on distance to certain essential utilities and features, summed the scores, and plotted each score for each mine site. A workforce analysis was conducted to determine available labor within certain radii for each site, and a retail analysis was conducted to determine which areas had the most retail activity. The top five mine sites were then identified, and are displayed individually. Map A contains the top five sites within a view of the county.

The tables below are comprehensive comparisons between the top five post-mine lands for potential development. In table A, and table B, distances and total scores are compared, providing an idea of the more suitable site under a considered criterion. For example, if we want to look for a site which is located closest to water lines, the answer is site ranking #5, permit ID S S401491. However, if we wanted the site closest to power lines, the best site is site ranking #1, permit ID S400409.

Table C explains how each criterion contributes to the final total score and the importance of the weights. Because of the assumption that one criterion may be more important than others through differing weights, the site with higher absolute and relative scores is still able to receive a smaller total score than the others. Site ranking #5, permit ID S401491, is closest to water lines, but is further away from the other essential scoring attributes.

Table A: Distances comparison between top five sites for potential development

Suitability Ranking	1	2	3	4	5	Weight
Broadband	0.22	0.12	0.09	0.55	0.29	9
Gas Pipes	7.46	6.87	8.00	8.80	9.44	6
Oil Pipes	0.00	0.32	0.39	1.21	0.94	6
Power Lines	0.04	0.25	0.42	1.25	0.60	10
Railroad	0.72	0.87	1.53	1.60	1.57	5
Sewer Lines	1.86	1.96	2.35	2.01	3.15	8
Water Lines	1.67	1.83	2.11	1.80	1.34	10
Existing Highway	2.70	2.30	4.57	3.74	4.72	8
Intermodal Terminal Facilities	77.63	74.09	79.50	78.84	81.18	6
Interstate	12.21	13.47	13.90	11.00	11.37	8
Proposed Highway	0.03	2.73	2.36	1.25	2.88	9
Solid Waste Treatment Facilities	11.87	12.60	13.55	10.66	11.02	8
Sewer Treatment Facilities	3.84	3.58	4.82	3.43	2.29	7
Yeager Airport	78.46	74.91	80.33	79.66	82.01	3

Table B: Total score comparison between top five sites for potential development

Suitability Ranking	1	2	3	4	5	Weight
Broadband	67.5	90	90	31.5	67.5	9
Gas Pipes	4.5	6	4.5	3	1.5	6
Oil Pipes	60	42	42	3	13.5	6
Power Lines	100	100	100	35	52.5	10
Railroad	50	50	26.25	17.5	26.25	5
Sewer Lines	56	56	42	56	20	8
Water Lines	10	7.5	5	7.5	10	10
Existing Highway	80	80	40	60	40	8
Intermodal Terminal Facilities	4.5	6	3	4.5	1.5	6
Interstate	28	28	14	56	42	8
Proposed Highway	90	67.5	90	90	45	9
Solid Waste Treatment Facilities	42	42	28	56	56	8
Sewer Treatment Facilities	36.75	36.75	24.5	49	70	7
Yeager Airport	6.75	9	4.5	6.75	2.25	3
Total Weighted Score	636	620.75	513.75	475.75	448	

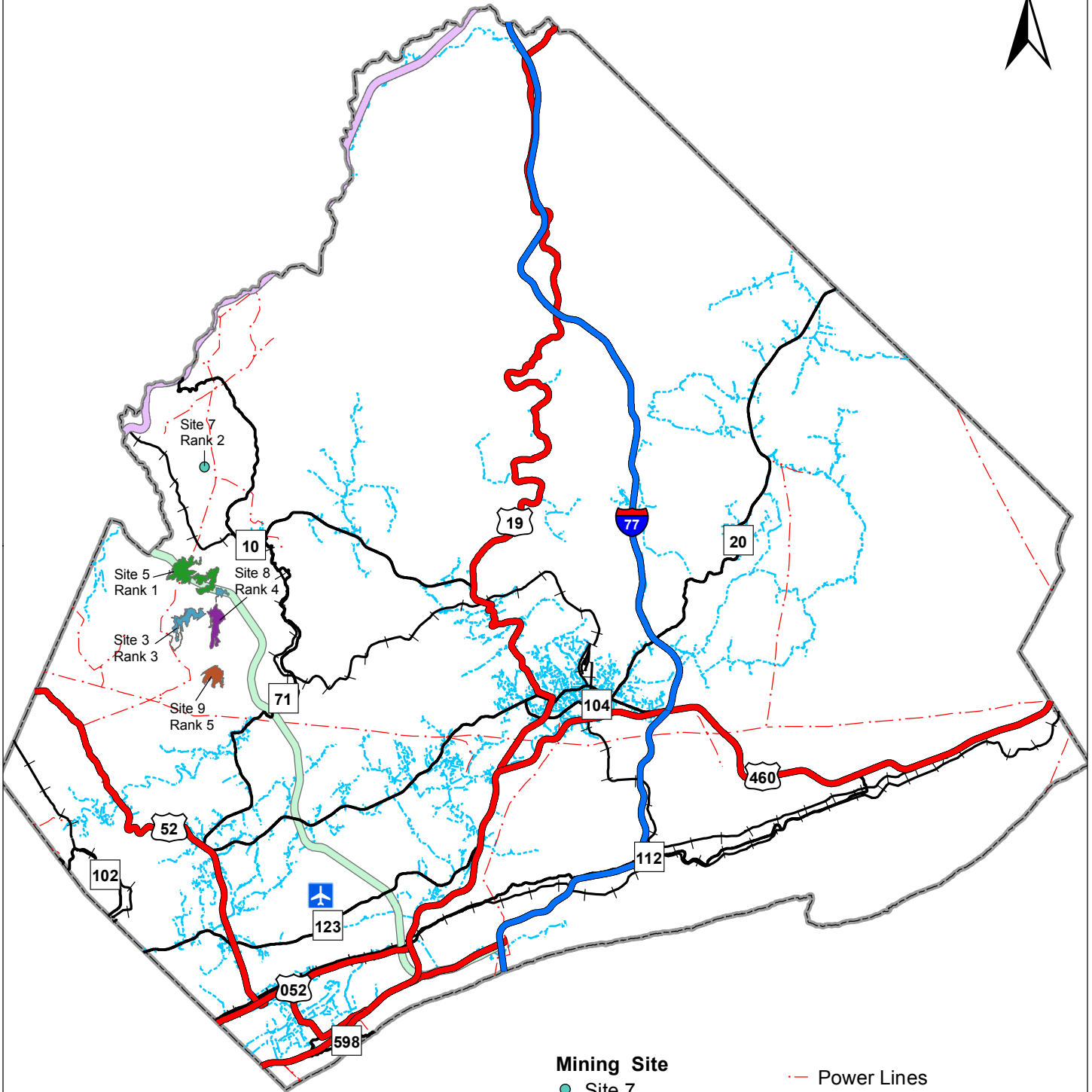
Table C: Absolute/Relative score comparison between top five sites for potential development

Suitability Ranking	1	2	3	4	5	Weight
Broadband	10	10	10	7	10	9
Gas Pipes	1	1	1	1	1	6
Oil Pipes	10	7	7	1	3	6
Power Lines	10	10	10	7	7	10
Railroad	10	10	7	7	7	5
Sewer Lines	7	7	7	7	5	8
Water Lines	1	1	1	1	1	10
Existing Highway	10	10	10	10	10	8
Intermodal Terminal Facilities	1	1	1	1	1	6
Interstate	7	7	7	7	7	8
Proposed Highway	10	10	10	10	10	9
Solid Waste Treatment Facilities	7	7	7	7	7	8
Sewer Treatment Facilities	7	7	7	7	10	7
Yeager Airport	3	3	3	3	3	3
Total Absolute Score	94	91	88	76	82	

Suitability Ranking	1	2	3	4	5	Weight
Broadband	7.5	10	10	5	7.5	9
Gas Pipes	7.5	10	7.5	5	2.5	6
Oil Pipes	10	10	10	5	7.5	6
Power Lines	10	10	10	5	7.5	10
Railroad	10	10	7.5	5	7.5	5
Sewer Lines	10	10	7.5	10	5	8
Water Lines	10	7.5	5	7.5	10	10
Existing Highway	10	10	5	7.5	5	8
Intermodal Terminal Facilities	7.5	10	5	7.5	2.5	6
Interstate	5	5	2.5	10	7.5	8
Proposed Highway	10	7.5	10	10	5	9
Solid Waste Treatment Facilities	7.5	7.5	5	10	10	8
Sewer Treatment Facilities	7.5	7.5	5	10	10	7
Yeager Airport	7.5	10	5	7.5	2.5	3
Total Relative Score	120	125	95	105	90	

Top Five Sites for Potential Development

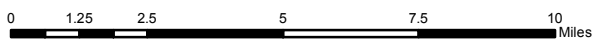
Mercer County



Mining Site

- Site 7
- Site 3
- Site 5
- Site 8
- Site 9
- ✈ Airports
- ▭ County Boundary

- - - Power Lines
- - - Water Lines
- Interstate
- US Routes
- WV Routes
- Railroads
- Proposed KingCoal Highway
- Proposed Shawnee Highway



Site's General Info.

Permittee	Met Resources, LLC
Facility Name	Weyanoke Surface Mine
Permit ID	S400409
Issue Date	5/17/2011
Expiration Date	5/17/2016
Current Acres	296.06
Lat	37° 24'22.0000"
Long	81° 16'34.0000"
Nearest Post Office	Matoaka

Site Number	5
Suitability Ranking	1
Total Score	636

Distance Analysis Results

Broadband	0.22
Gas Pipes	7.46
Oil Pipes	0.00
Power Lines	0.04
Railroad	0.72
Sewer Lines	1.86
Water Lines	1.67
Existing Highway	2.70
Intermodal Terminal Facilities	77.63
Interstate	12.21
Proposed Highway	0.03
Solid Waste Treatment Facilities	11.87
Sewer Treatment Facilities	3.84
Yeager Airport	78.46

Site number 5 should be the first choice for potential development. It is the closest site to power lines (.04 miles), and the second-closest site to water lines (1.67 miles), which both receive high scores in the model. The site's distances to transportation, including proposed highway (.03 miles), are all good indications for developed space.



Site's General Info.

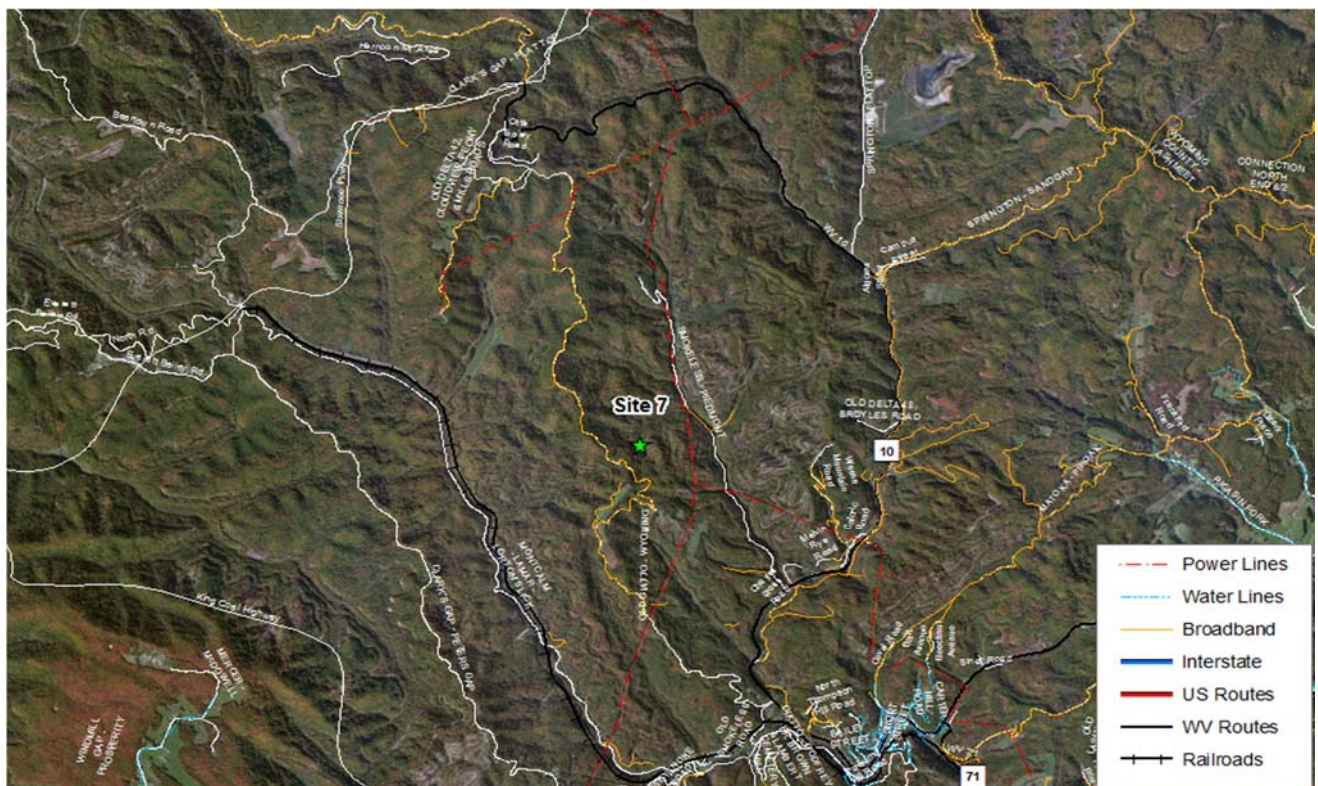
Permittee	Preservati Construct Co Inc
Facility Name	NA
Permit ID	S001180
Issue Date	1/6/1980
Expiration Date	1/6/1993
Current Acres	NA
Lat	37° 26'33.0000"
Long	81° 16'2.0000"
Nearest Post Office	

Site Number	7
Suitability Ranking	2
Total Score	620.75

Distance Analysis Results

Broadband	0.12
Gas Pipes	6.87
Oil Pipes	0.32
Power Lines	0.25
Railroad	0.87
Sewer Lines	1.96
Water Lines	1.83
Existing Highway	2.30
Intermodal Terminal Facilities	74.09
Interstate	13.47
Proposed Highway	2.73
Solid Waste Treatment Facilities	12.60
Sewer Treatment Facilities	3.58
Yeager Airport	74.91

Site number 7 has the second highest score in the suitability model. The site is located near utility features such as power lines (.25 miles), water lines (1.83 miles) and broadband (0.12 miles), as well as several transportation options including an existing highway (2.30 miles). This would make this site a good residential area.



Site's General Info.

Permittee	Met Resources, LLC
Facility Name	McComas Surface Mine No. 1
Permit ID	S401808
Issue Date	2/4/2010
Expiration Date	2/4/2015
Current Acres	155.72
Lat	37° 23'35.0000"
Long	81° 16'32.0000"
Nearest Post Office	Montcalm

Site Number	3
Suitability Ranking	3
Total Score	513.75

Distance Analysis Results

Broadband	0.09
Gas Pipes	8.00
Oil Pipes	0.39
Power Lines	0.42
Railroad	1.53
Sewer Lines	2.35
Water Lines	2.11
Existing Highway	4.57
Intermodal Terminal Facilities	79.50
Interstate	13.90
Proposed Highway	2.36
Solid Waste Treatment Facilities	13.55
Sewer Treatment Facilities	4.82
Yeager Airport	80.33

Site number 3 is listed as the third suitable site for post-mine land development. The site is fairly close to several important criteria. It is only 0.42 miles from power lines (10 pts. in the suitability model) and .09 miles from broadband (9 pts. in the model). Short distances to these factors make up for the longer distances to transportation modes like the interstate and existing highways.



Site's General Info.

Permittee	CNP Properties LLC
Facility Name	SURFACE MINE NO. 1
Permit ID	S400197
Issue Date	11/17/1997
Expiration Date	11/17/2017
Current Acres	206.06
Lat	37° 23'8.0000"
Long	81° 15'43.0000"
Nearest Post Office	

Site Number	8
Suitability Ranking	4
Total Score	475.75

Distance Analysis Results

Broadband	0.55
Gas Pipes	8.80
Oil Pipes	1.21
Power Lines	1.25
Railroad	1.60
Sewer Lines	2.01
Water Lines	1.80
Existing Highway	3.74
Intermodal Terminal Facilities	78.84
Interstate	11.00
Proposed Highway	1.25
Solid Waste Treatment Facilities	10.66
Sewer Treatment Facilities	3.43
Yeager Airport	79.66

Site number 8 is ranked as the fourth suitable site for post-mine land development in the county. The site has average distances to sewer lines (2.01 miles) and water lines (1.80 miles), as well as the existing highway (3.74 miles). It is also the closest site to a Solid Waste Treatment Facility (10.66 miles), which could provide some cost savings and business opportunities.



Site's General Info.

Permittee	Melissa Coals Inc
Facility Name	NA
Permit ID	S401491
Issue Date	10/3/1991
Expiration Date	10/3/1996
Current Acres	112.29
Lat	37° 22'24.0000"
Long	81° 15'44.0000"
Nearest Post Office	

Site Number	9
Suitability Ranking	5
Total Score	448

Distance Analysis Results

Broadband	0.29
Gas Pipes	9.44
Oil Pipes	0.94
Power Lines	0.60
Railroad	1.57
Sewer Lines	3.15
Water Lines	1.34
Existing Highway	4.72
Intermodal Terminal Facilities	81.18
Interstate	11.37
Proposed Highway	2.88
Solid Waste Treatment Facilities	11.02
Sewer Treatment Facilities	2.29
Yeager Airport	82.01

Site number 9 has the fifth highest score in the suitability model for its relatively close distances to several criteria including broadband (0.29 miles), water lines (1.34 miles), and the interstate (11.37 miles). All of those criteria receive high absolute points. The distances from the site to other important criteria, such as solid waste and sewer treatment facilities are also short.



I. Introduction

Senate Bill (SB) 603, passed in the 2001 Legislative Session, mandates the development of a Land Use Master Plan (LUMP) by counties with surface mining operations. The creation of a LUMP would facilitate the development of economic or community assets, secure developable land and infrastructure, and ensure that post-mining land use proposed in any reclamation plan is in compliance with the specified land use in the approved LUMP. In order to promote acceptable principles of smart growth within the desired community it has become evident that a sustainable land use plan is needed to determine development needs within a community. This detailed document addresses the physical development needs of properties within the coalfield counties and provides guidelines, strategies, and a framework for future decisions relating to land use and projected community needs.

The 1977 Surface Mining Control and Reclamation Act established a program for the regulation of surface mining activities and the reclamation of coal-mined lands. The Act requires that coal operators minimize the disturbance and adverse impact on the environment and community in addition to restoring the mined property to its approximate original contour. Special provisions are granted for operators who offer development plans for post-mining land use, in which the coal operators (private sector) make capital investments towards land development that would benefit the community (public sector) affected by the mining operations. This unique opportunity, also known as Public-Private Partnership (P3), has far-reaching consequences on those communities with coal mining operations. The operators utilize the LUMP, created by the county officials with post-mine land use in mind, to gain insight into the land and infrastructure needs of the local community and then materialize the development opportunities described in the LUMP. The LUMP leverages private investment to facilitate public development, which is critical to the sustainability of counties and communities. Community sustainability requires a transition from poorly managed land to land-use planning practices that create and maintain efficient infrastructure, ensure close-knit neighborhoods and sense of community, and preserve natural systems.

RTI, a nationally recognized center of excellence for rural transportation research, was established through the Transportation Equity Act for the 21st Century passed by Congress in 1998 and is funded through a grant from the Research and Innovative Technology Administration (RITA) of the US Department of Transportation. As a University Transportation Center, RTI has cultivated relationships with private industry and public agencies to leverage resources, technology and strategic thinking to improve mobility and to stimulate economic development. RTI has taken the lead in conducting site-specific research, supporting multimodal planning and analysis to improve mobility and global connectivity for rural regions. The Office of Coalfield Community Development (OCCD) was created by the 1999 Legislative Session to assist communities affected by surface mining activity throughout the State. With the passage of SB 603 in 2001, the responsibilities of the OCCD changed to include working with local economic development agencies to develop land use master plans and include the

recommendations of local economic redevelopment authorities in the reclamation plans of surface mine permits. The OCCD established criteria to consider development of these sites, provided for certain land uses as post-mining land uses and stipulated that master plans must comport to environmental reclamation requirements. The office allows existing and future surface mining permits to include master plan criteria and reclamation standards.

This plan provides information and analysis specifically for Mercer County. Mercer County has been developing fairly well, with constantly increasing wages, high broadband coverage, and several positive educational achievements. More can be done utilizing post-mine sites however, as several energy development options are unutilized, and a majority of the County is employed in one of three sectors. By utilizing post-mine sites, Mercer County can improve its outlook further.

This plan, including both the demographic and post-mine site analysis, requires data gathered from professional, secondary sources. Every attempt has been made to verify the accuracy of this data. However, the datasets are subject to differing methodologies, third-party error, and changes in time. Any and all information should be verified for accuracy.

II. Planning Area

Mercer County was formed in 1837, 26 years before West Virginia became a state. It was formed from parts of Giles and Tazewell Counties, and was named after Hugh Mercer, a Revolutionary War general. As with many coalfield counties, the boom from natural resource extraction brought people and money to the area, but through the Great Depression and the withdrawal of many natural resource companies and the decline of manufacturing industries, Mercer began to decline. Several indications show that Mercer County has developed more than most of the other counties in West Virginia, but population decline is still a major concern.¹

¹ McGehee, C. Stuart, "Mercer County," *The West Virginia Encyclopedia*, Accessed March 24, 2014, <http://www.wvencyclopedia.org/articles/1764>.

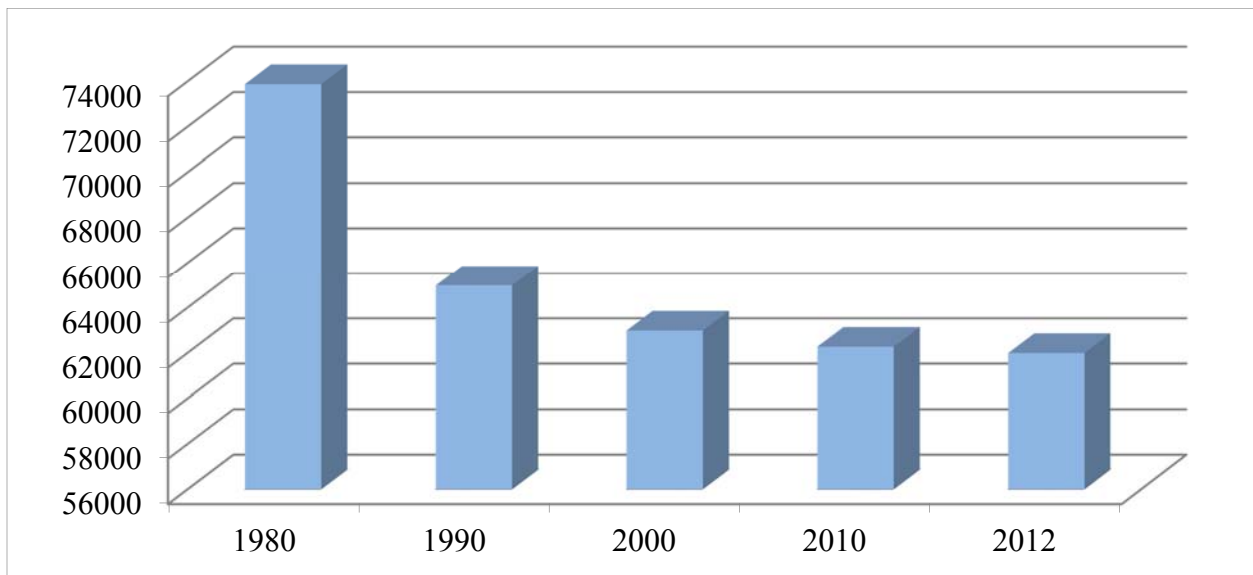
III. Existing Conditions

This information will provide a background understanding of the demographic trends in the county. This base information is meant to provide overall detail on Mercer County’s status as it stands. Part IV will deal with possible future site development information, to be considered with the demographic data to target strategies for investment.

Population

The population of Mercer County in 2012 was 61,984 according to the 2012 American Community Survey (ACS) 5-year estimates, ranking it eighth in county population among the 55 counties in West Virginia.² The decennial censuses show that Mercer County has slowly but steadily lost population over the past 20 years. The major decrease however was the 12 percent population loss between 1980 and 1990.

Figure 1: Census Populations for Mercer County

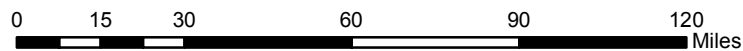
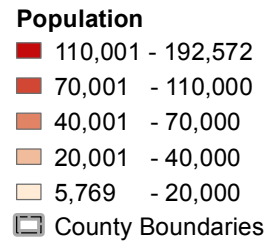
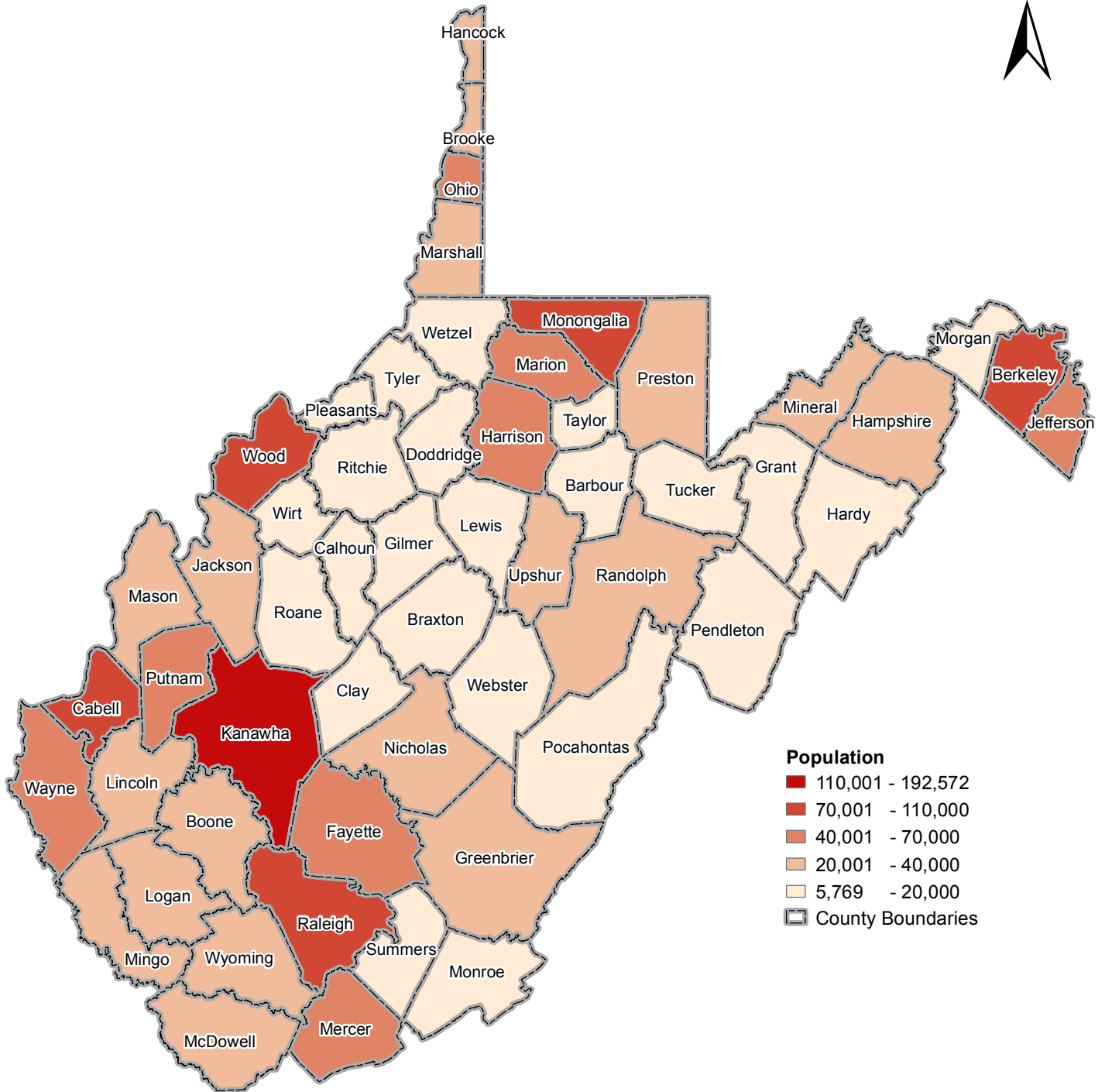


Source: Stats Indiana, USA Counties in Profile

Map 1 illustrates the Mercer County population compared to West Virginia overall. Mercer is at the higher end of the spectrum, being the eighth largest county by population. The population is boosted by critical transportation links including the interstate and major US highways.

² United States Census Bureau, “2012 American Community Survey 5-year Estimates,” Accessed April 20, 2013, www.factfinder2.census.gov

Demographic Population



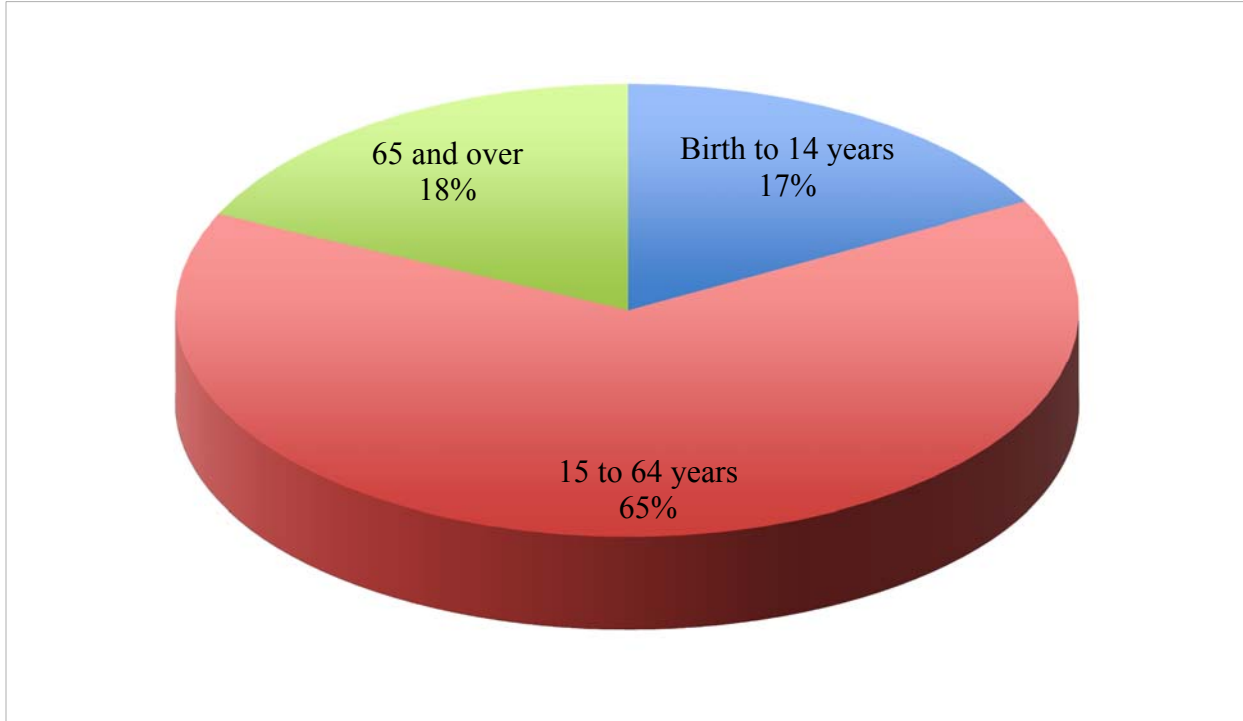
Source: U.S. Census Bureau, 2008-2012 American Community Survey

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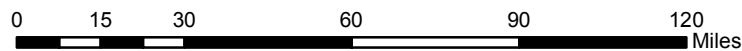
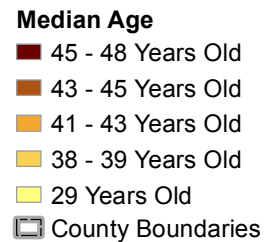
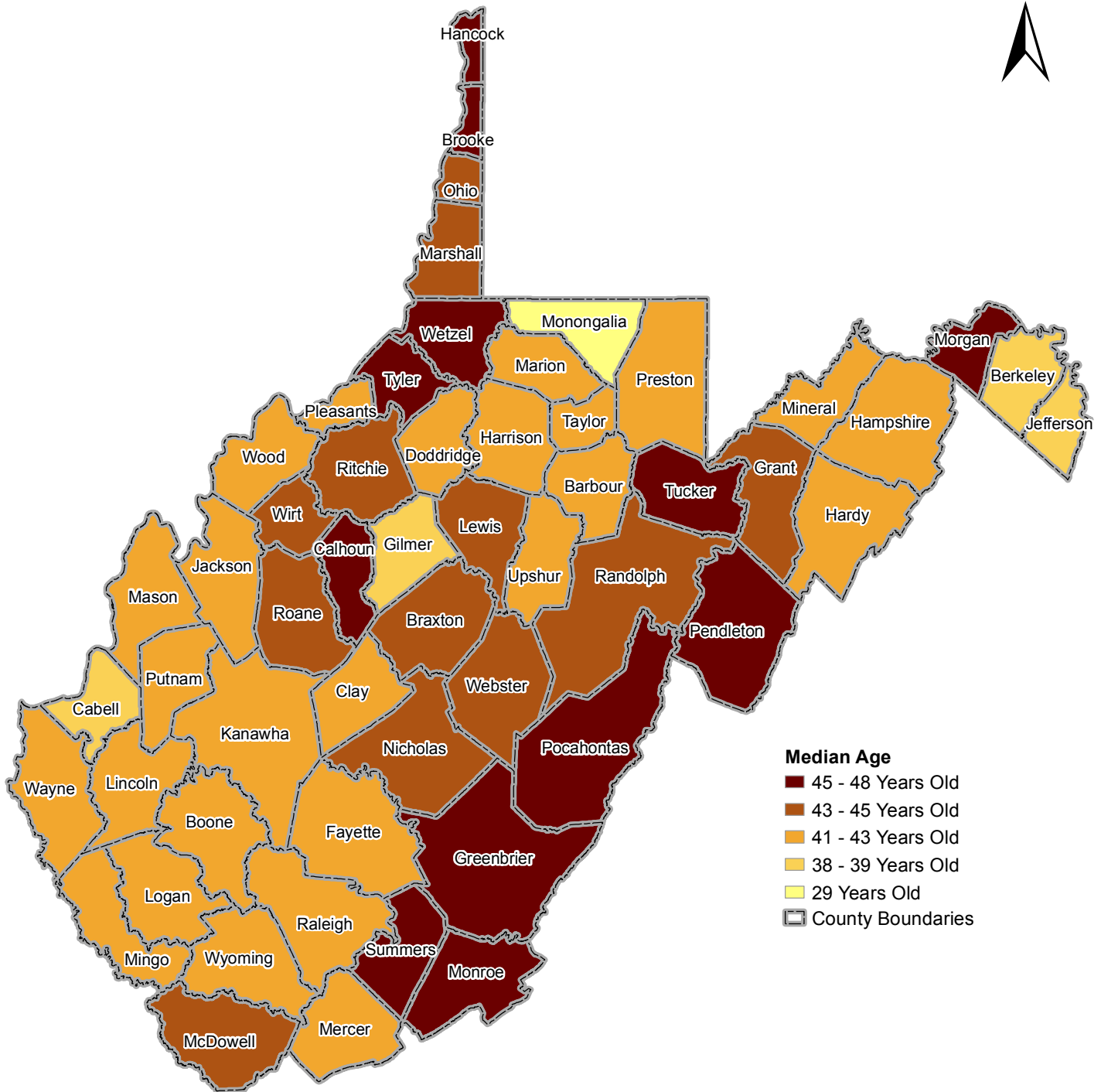
According to the ACS, almost 22 percent of Mercer County residents are 62 years of age and over, while almost 15 percent are between 5 and 17 years of age and just under six percent are below the age of 5. Approximately 10,000 people are of retirement age. The median age in Mercer is 42.1, which is very near the median age of the State (Map 2). The majority of the population is around working age, as denoted in Figure 2.

Figure 2: Mercer County Age Breakdown



Source: 2012 American Community Survey 5-Year Estimate Calculation

Demographic Median Age



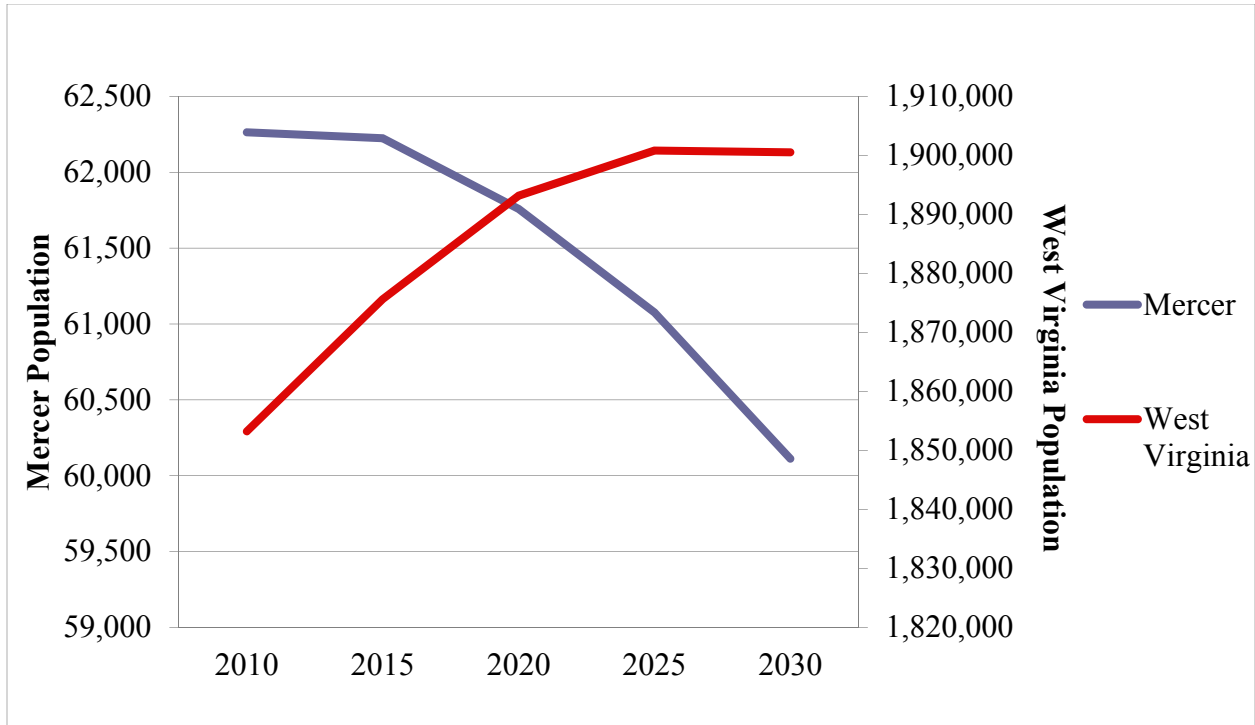
Source: U.S. Census Bureau, 2008-2012 American Community Survey

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The Bureau of Business and Economic Research at West Virginia University projects a 3.5 percent decrease in the Mercer County population between 2010 and 2030, which is different from the projected growth of West Virginia.³ The model for the projection is based on past population patterns and statistics, and should not be taken as permanent. The decrease is derived from a steady decrease in population over the past 20 years and no signs that the trend is reversing, despite increasing development.

Figure 3: Population Projections



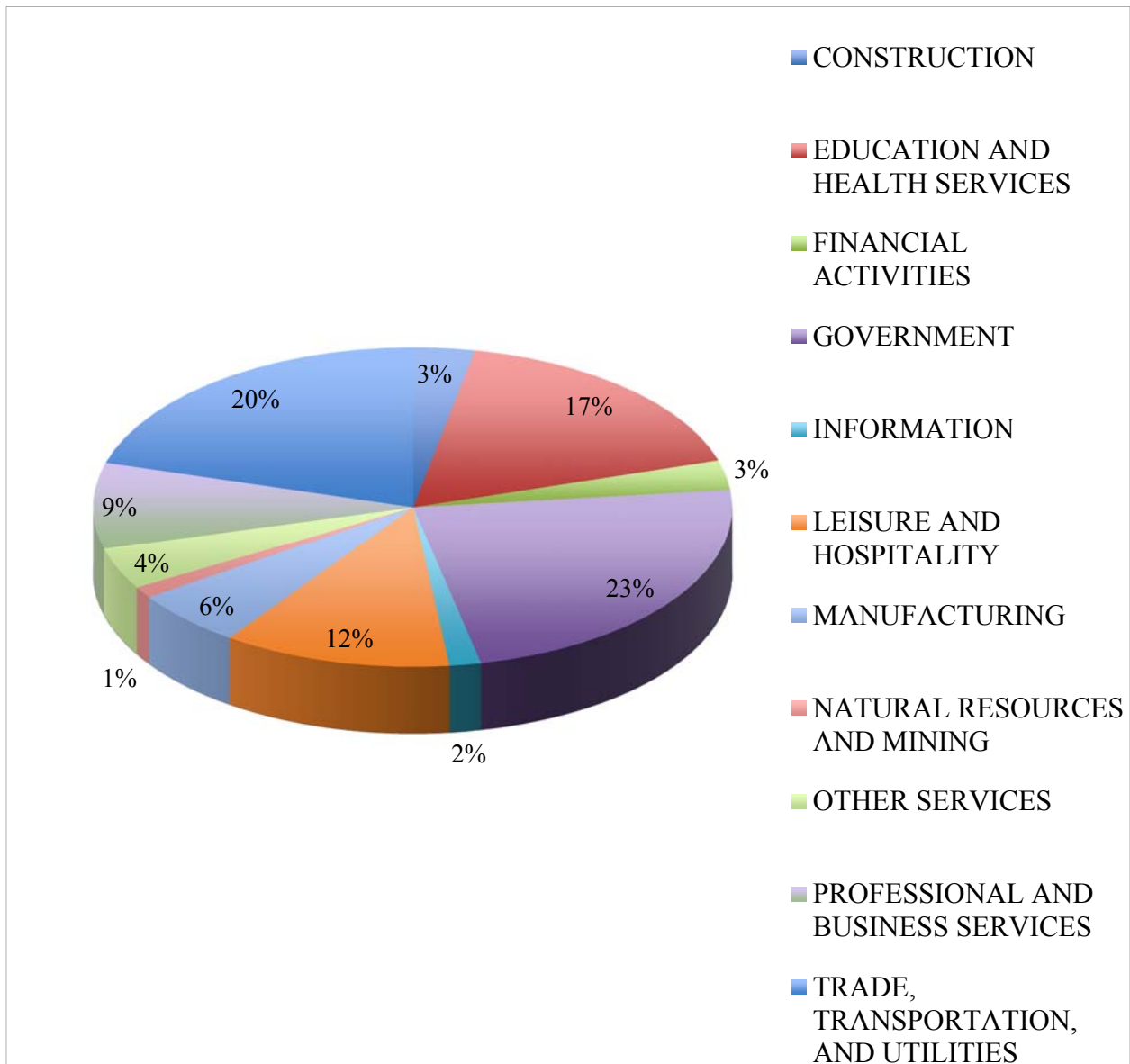
Source: WVU Bureau of Business and Economic Research

Employment

Workforce WV has a complete dataset on employment numbers and wages. The total number of employed in 2012 was 20,859. Approximately 23 percent of wage earners in Mercer County worked in Government, a fifth worked in Trade, Transportation, and Utilities, and almost another fifth worked in Education and Health Services. Mercer County’s employment mix is consistent with several other coalfield counties, minus Natural Resources and Mining employment. This mix is not very diverse, putting the economy at risk under government budget cost cuts and sector downturns. Leisure and Hospitality employs over a tenth of workers, and Professional and Business Services rounds out the top employers.

³ Christiadi. “Population Projection for West Virginia Counties.” Bureau of Business and Economic Research, College of Business and Economics, West Virginia University, Morgantown, WV (August 2011).

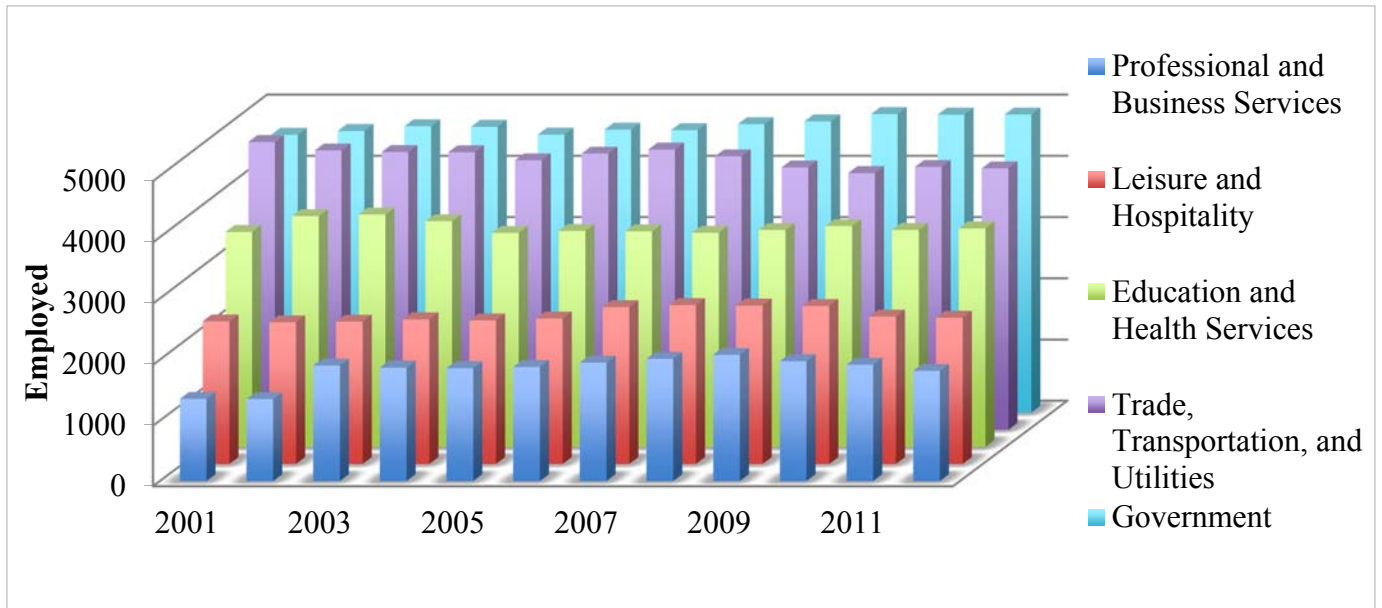
Figure 4: 2012 Mercer County Employment



Source: Workforce WV

The four sectors identified above have been the major contributors to employment throughout the past decade. Government has consistently been the largest employer, but with Trade, Transportation, and Utilities consistently employing almost the same number of people until the recession in 2008. Education and Health Services employment has remained fairly consistent, as has Leisure and Hospitality. The largest grower was Professional and Business Services in 2003, growing by almost 50 percent over 2002 employment.

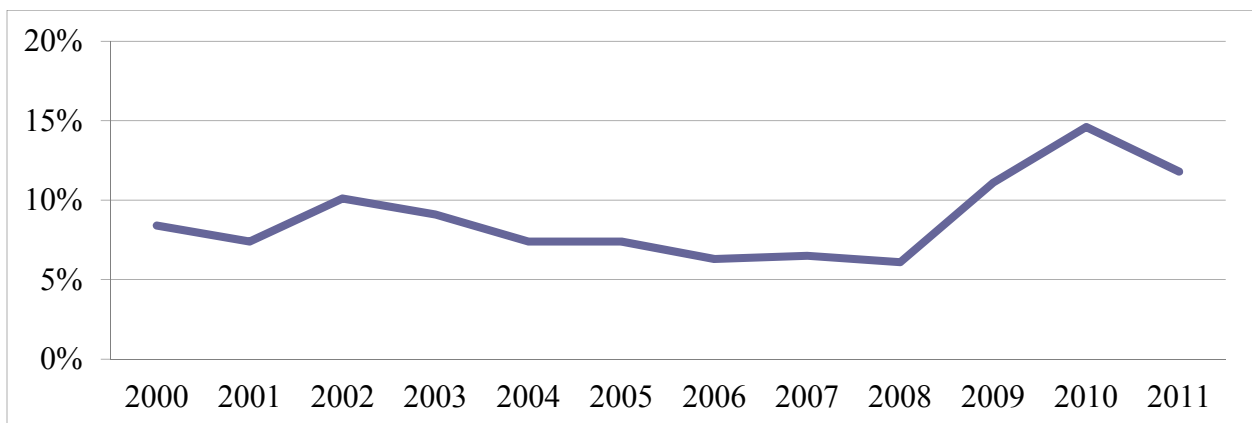
Figure 5: Mercer County Employment by 5 Sectors 2001-2012



Source: Workforce WV

The civilian labor force in the county is one of the most interesting statistics when determining potential investors. As Map 3 shows, Mercer’s participation rate is about average for the state. Despite a small rise from the national economic contraction in the early 2000s, unemployment was decreasing until the recession in 2008 when businesses and governments across the spectrum began cutting. (Figure 6). Map 4 shows that Mercer’s unemployment rate remained about average however. Note that the data for both the figure and the map is for 2011, as statistics for the figure have not yet been seasonally adjusted.

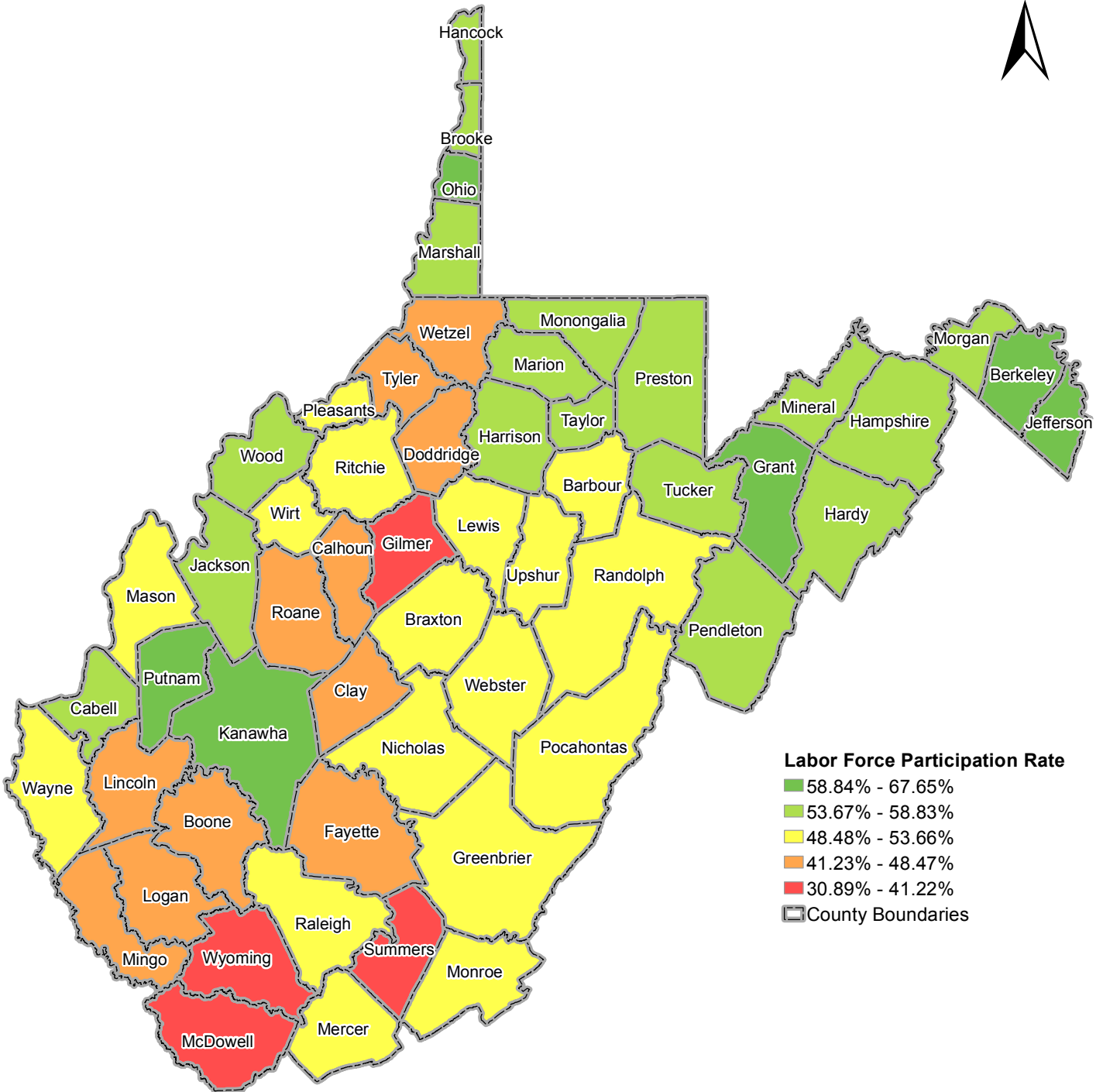
Figure 6: Mercer County Unemployment Rate



Source: Workforce WV

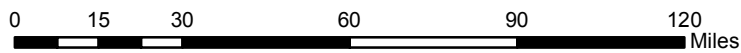
Demographic

Labor Force Participation Rate



Labor Force Participation Rate

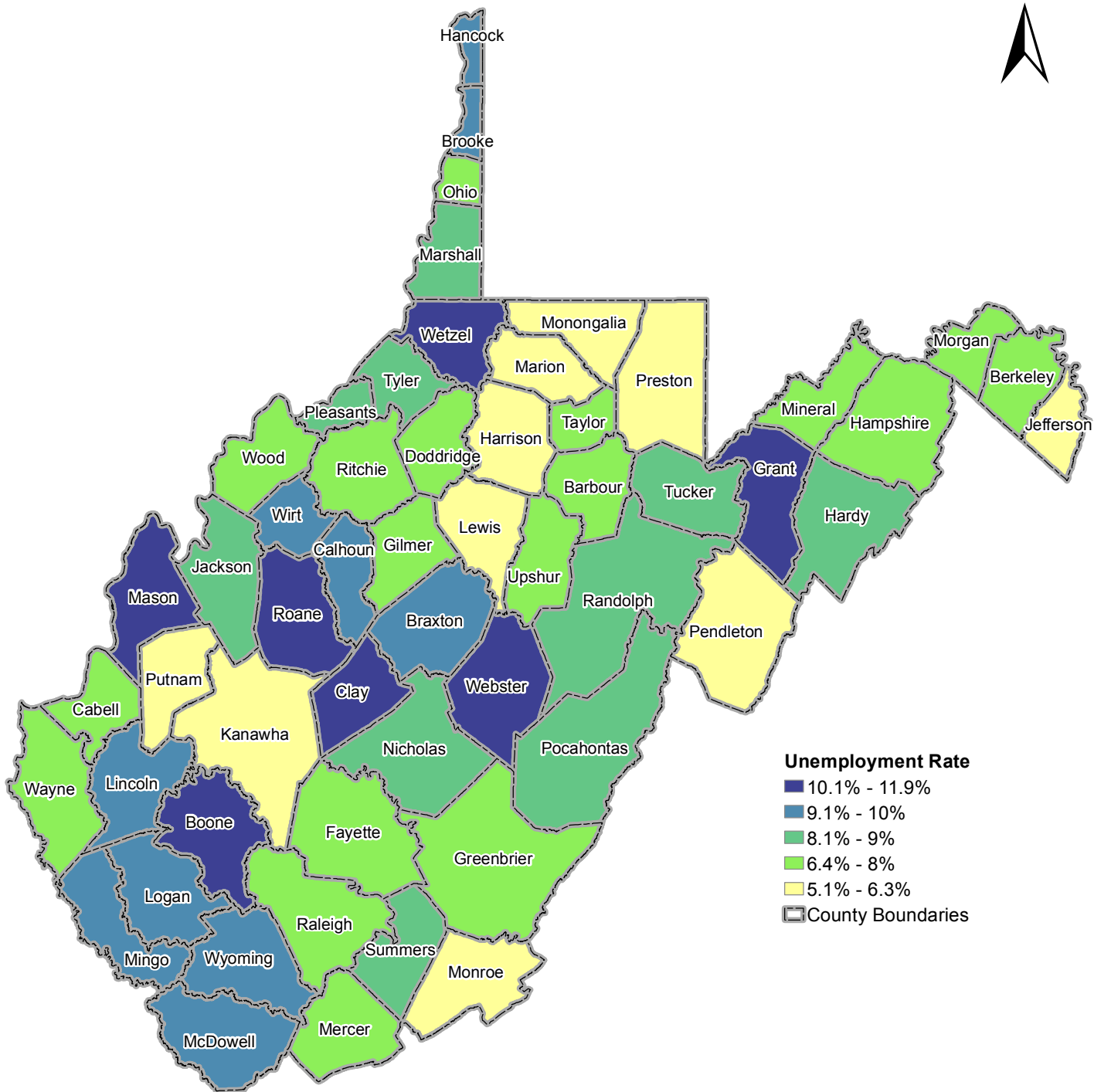
- 58.84% - 67.65%
- 53.67% - 58.83%
- 48.48% - 53.66%
- 41.23% - 48.47%
- 30.89% - 41.22%
- County Boundaries



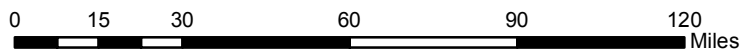
Source: U.S. Census Bureau, 2008-2012 American Community Survey

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Demographic Unemployment Rate



Unemployment Rate
 ■ 10.1% - 11.9%
 ■ 9.1% - 10%
 ■ 8.1% - 9%
 ■ 6.4% - 8%
 ■ 5.1% - 6.3%
 □ County Boundaries



Source: United States Census Bureau 2011

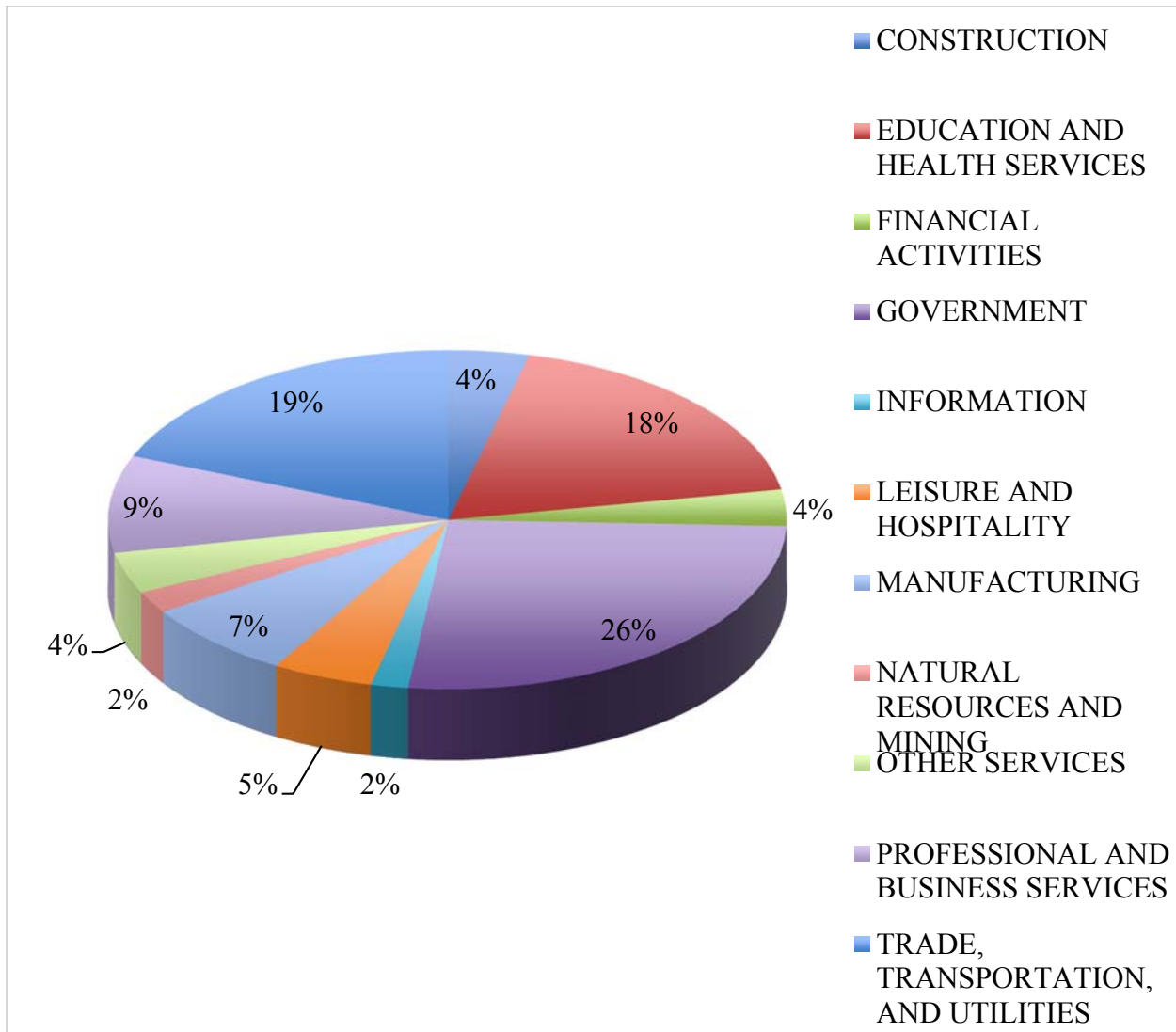
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Wages and Income

The only difference between Mercer County's largest employers and largest wage contributors is the Manufacturing sector. Because of the relatively high wages in that sector, Manufacturing's small employment still makes up seven percent of total wages. Leisure and Hospitality, though larger in employment, pays significantly less than Manufacturing (Figure 7). Otherwise, the top wage contributors provide about the same percentage as they do in employment.

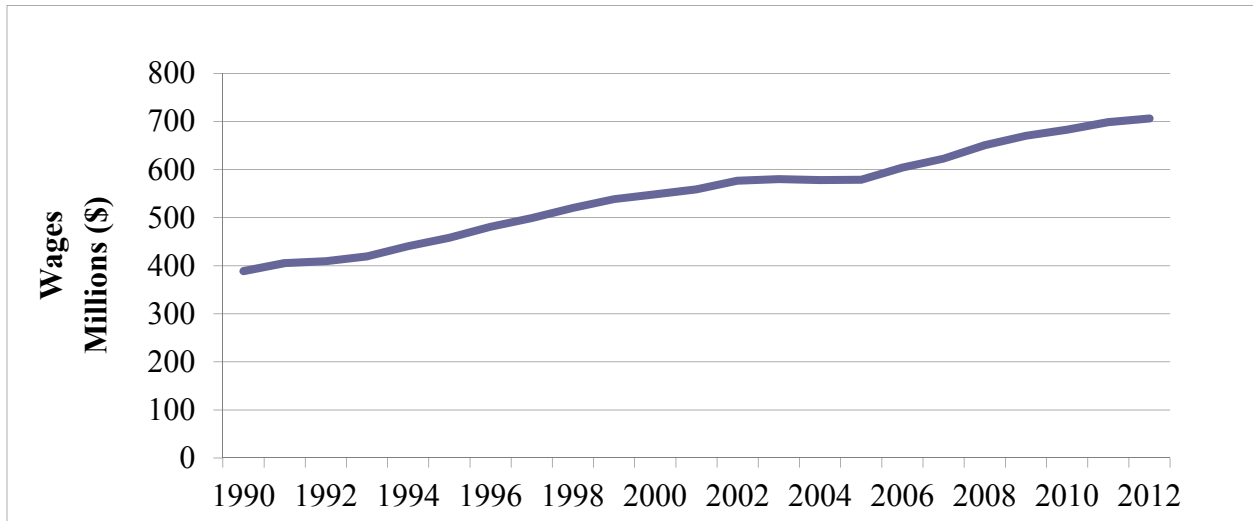
Figure 7: 2012 Mercer County Total Wages



Source: Workforce WV

Historically, wages for Mercer County have shown a tendency to rise. Over the past two decades total wages have nearly doubled, without regard for economic downturns or the loss in population. Indeed, since the population has fallen over this time span, it is reasonable to assume that the people who work in Mercer County have been increasing their pay over time.

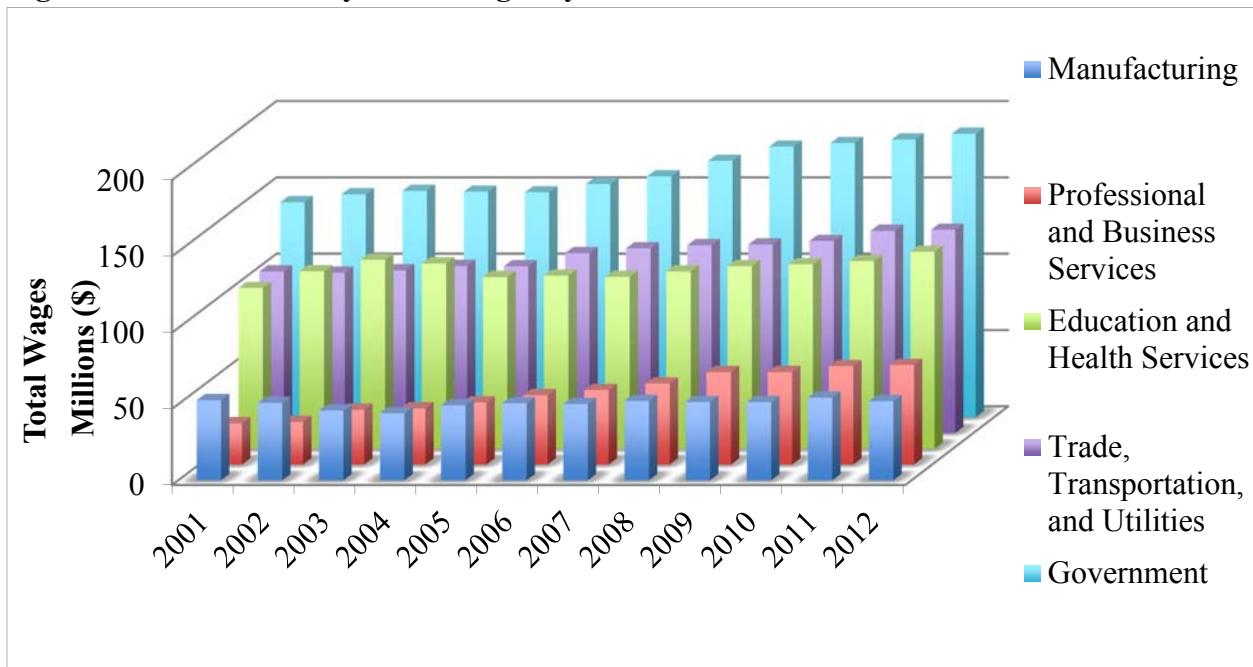
Figure 8: Mercer County Total Wages 1990-2012



Source: Workforce WV

Figure 9 confirms the general trend in wages, also showcasing the dominance of three major sectors. Government wages have increased the most over time, as have Professional and Business Services. Education and Health Services and Trade, Transportation, and Utilities have been contributing about equally to wages over the past decade, both slowly growing over time. Manufacturing wages have remained fairly steady.

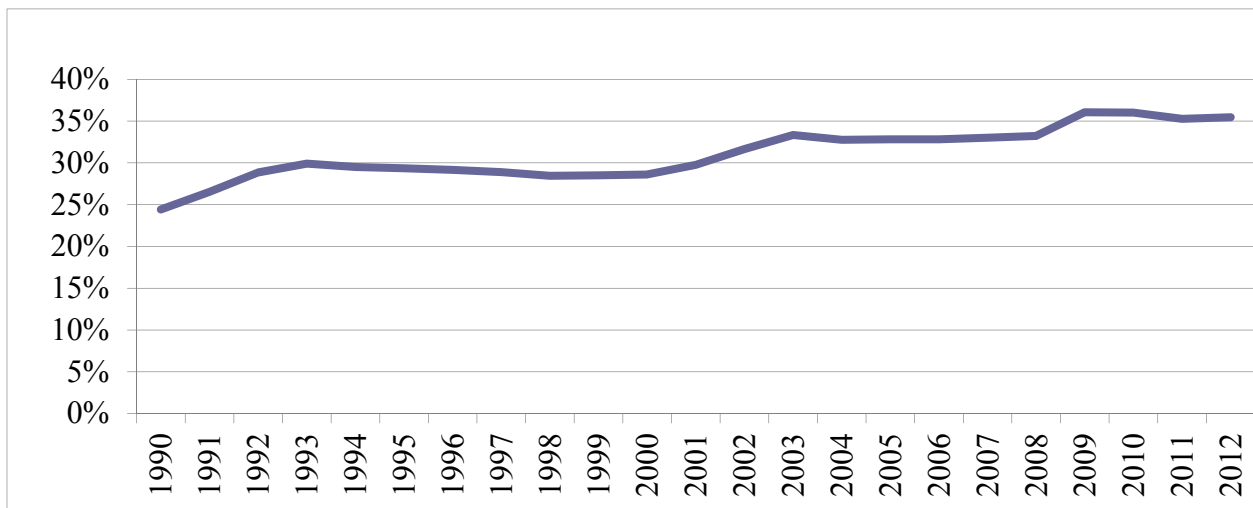
Figure 9: Mercer County Total Wages by 5 Sectors 2001-2012



Source: Workforce WV

In most American counties, one would find that the majority of income for people stems from wages. In West Virginia, however, an important distinction must be made between income and wages. Income is the total receipt of earnings resulting from any economic activity, while wages are derived from actual work in an employed setting. Therefore, dividends from stockholdings are considered income, but not wages. The distinction is necessary in the case of Mercer County because in 2012, Mercer County wages were \$706 million for all industries.⁴ Income for the County was larger (around \$2 billion). Though there are many components to income other than work earnings, 35 percent of total Mercer County income is derived from government transfers.⁵ Government transfers accounted for about 95 percent of total transfers to Mercer County, dwarfing transfers from private institutions such as charities. Government transfers have consistently contributed between 24 to 36 percent of income over the past 20 years. This does not count the wages for government workers. This percentage is above average for the state.

Figure 10: Government Transfers as a Percentage of Income for Mercer County



Source: United States Bureau of Economic Analysis

The total personal income of Mercer County is therefore made up of 35 percent government transfers and 55 percent earnings from work. According to the BEA, per capita income was \$33,257 for Mercer County in 2012. Annual net earnings, or income from work, is displayed in Map 5, and Mercer is ranked about average in earned income in West Virginia.

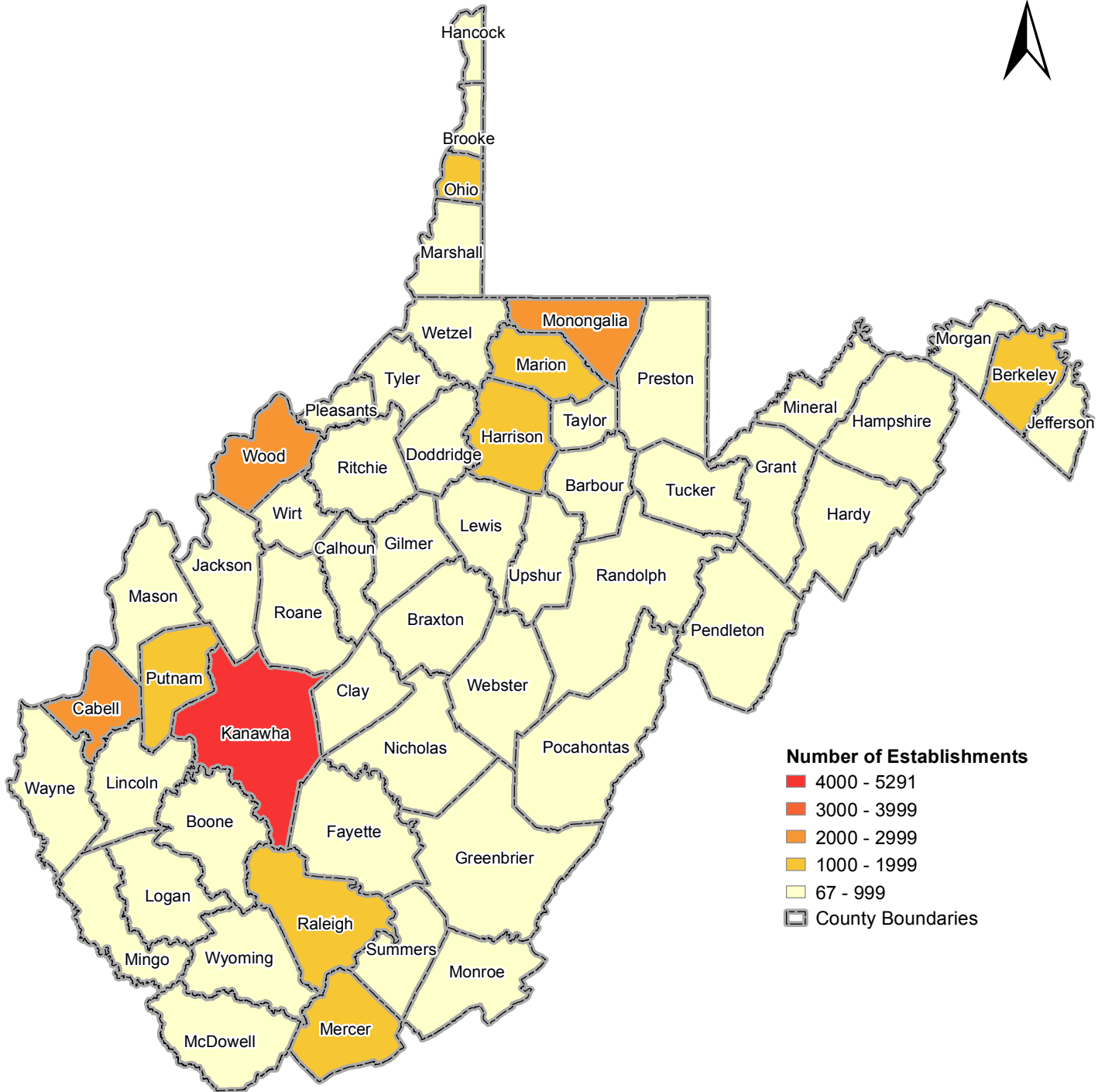
⁴ “Employment and Wages – 2012, Mercer County,” Workforce WV, Accessed February 13, 2014, <http://www.workforcewv.org/lmi/EW2011/ew11x059.htm>

⁵ “Tables CA 04 and CA 35 analysis,” Bureau of Economic Analysis, Regional Economic Accounts, Local Area Person Income and Employment, Accessed February 13, 2014, <http://www.bea.gov/regional/index.htm>.

Another measure of economic health is the number of establishments that do business in the area. Map 6 shows the number of establishments in each county in West Virginia. Mercer County appears to be at the lower end of the spectrum, though it has a higher number of establishments than average. Though Government and Education and Health Services are characterized by low numbers of establishments, Professional and Business Services and Trade, Transportation, and Utilities may have enough to bring that number up. This showcases healthy competition and development in Mercer County.

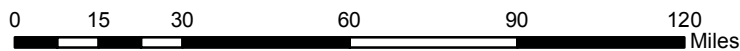
Demographic

Number of Establishments



Number of Establishments

- 4000 - 5291
- 3000 - 3999
- 2000 - 2999
- 1000 - 1999
- 67 - 999
- County Boundaries



Source: U.S. Census Bureau, 2011

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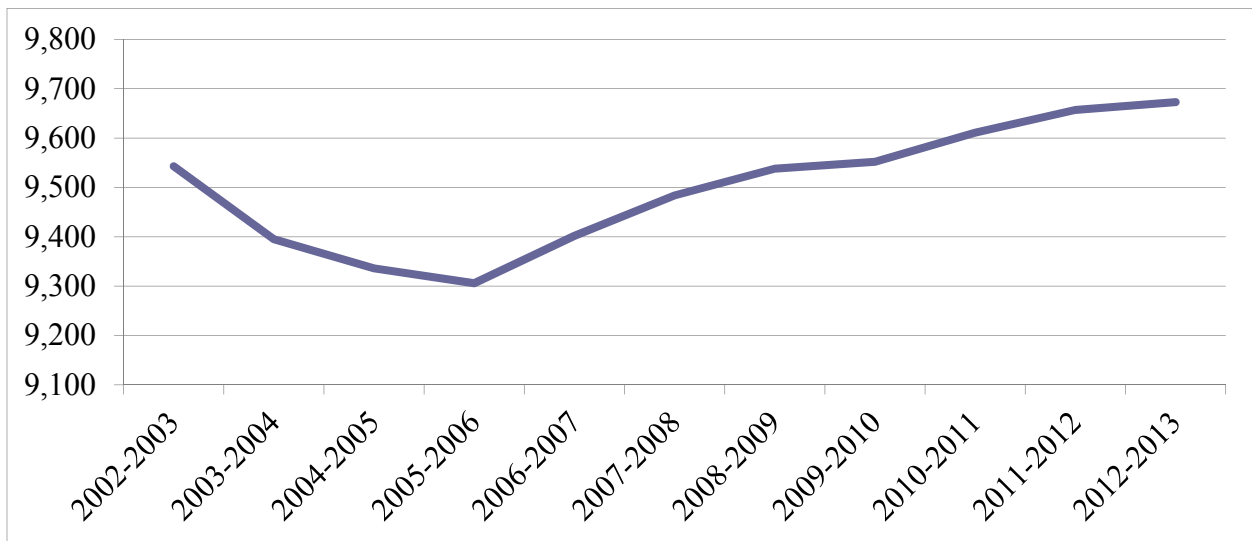


Education

Mercer County has four high schools, three middle schools, one intermediate school, 12 elementary schools, and five schools with varying grade ranges as of the 2012-2013 school year.⁶

Mercer County 2nd month school enrollment has shown a general increase since the 2005-2006 school year, despite the overall trend of population decline. The schools have increased enrollment by over 200 students, or about three percent, since that year (Figure 11). Mercer County 2nd month enrollment is above average for the state, which is expected because of its higher population (Map 7).

Figure 11: Mercer County School Enrollment

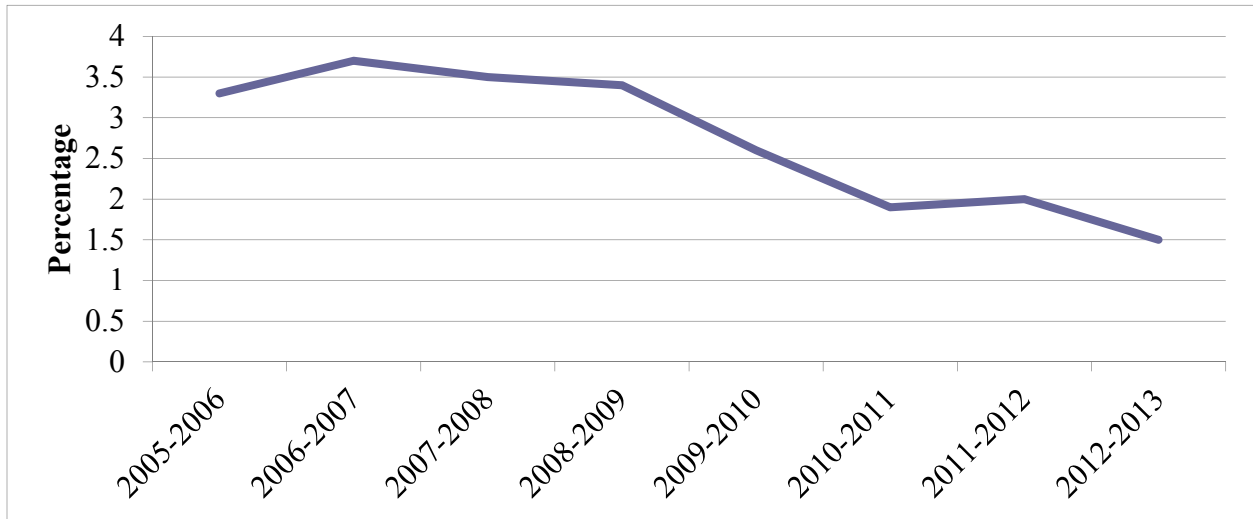


Source: WVEIS

The West Virginia Education Information System (WVEIS) also has dropout rates for the school years from 2005 to 2013. Dropout rates for grades 7-12, which showcase the most likely time for school dropouts, do not follow the total enrollment statistic, as total enrollment is computed with the grades below 7th grade as well. Dropout rates have been falling for several years, as increased focuses on education, and the economic consequences for dropping out, began to take hold (Figure 12).

⁶ “School Profiles,” West Virginia Education Information System, West Virginia Department of Education, Accessed February 13, 2014, http://wveis.k12.wv.us/nclb/profiles/c_profile.cfm?cn=043.

Figure 12: Mercer County Dropout Rate

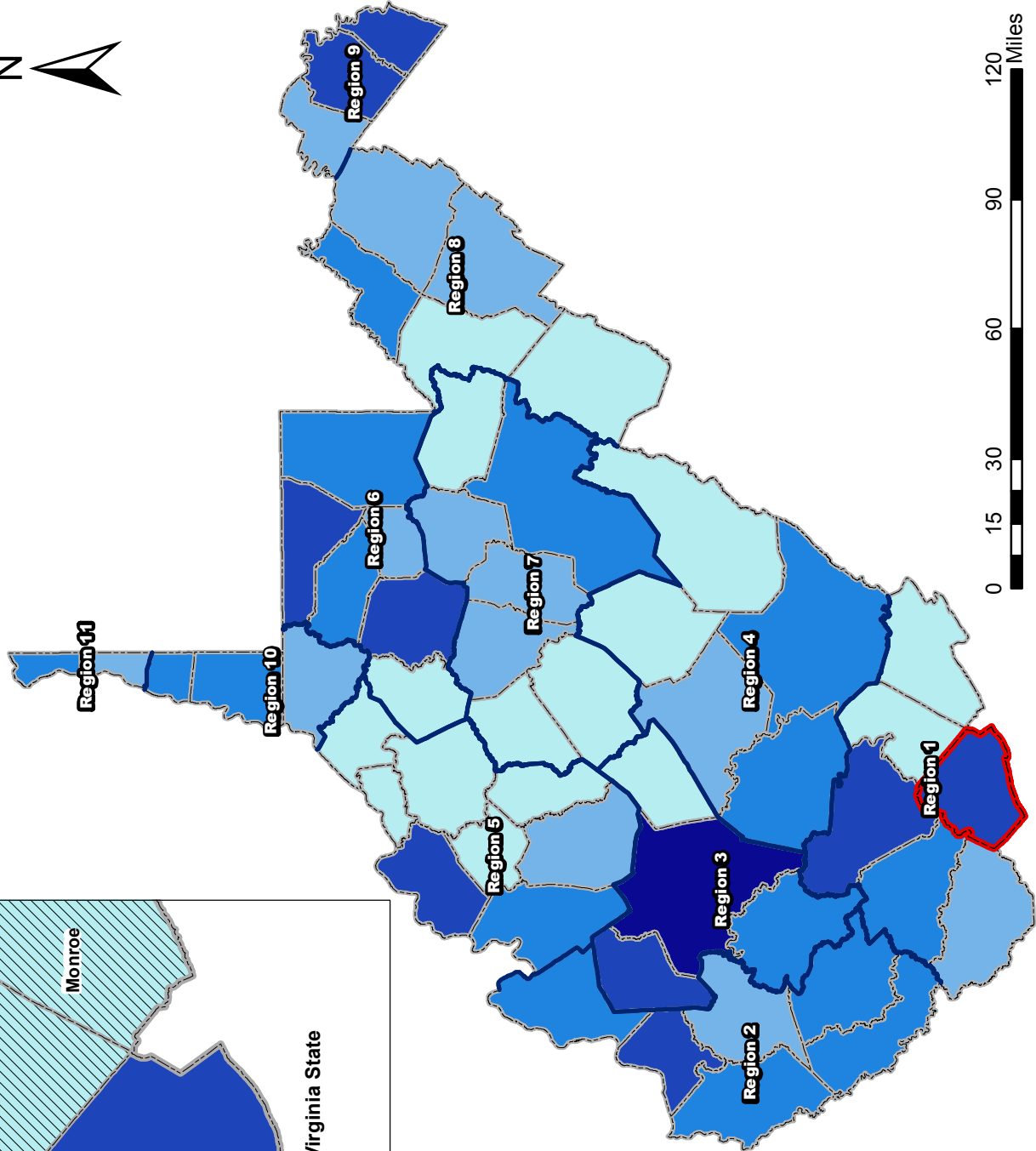
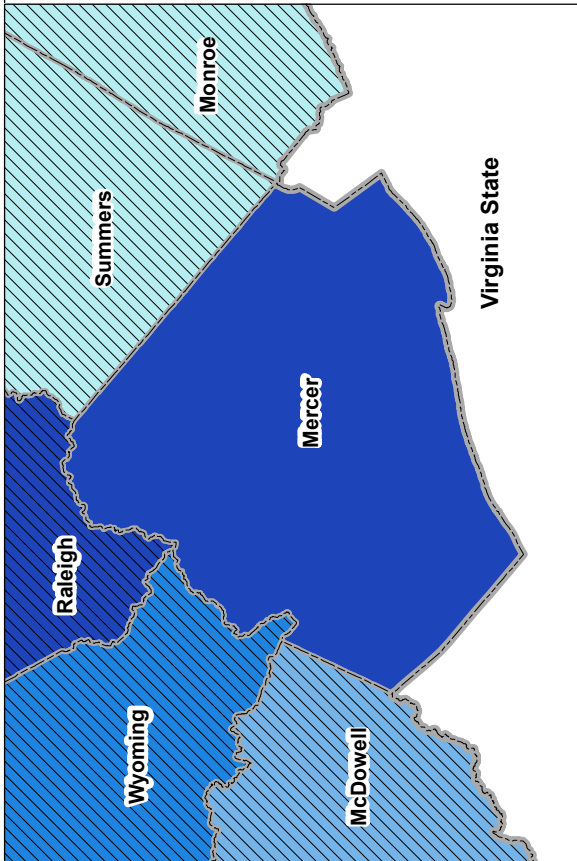


Source: WVEIS

Map 8 shows each county's dropout rate. Mercer County currently has an average dropout rate, resulting from a combination of education services and the lack of value in dropping out of high school. Maps 9 and 10 show the total graduates and the graduation rate by county, which are above average and below average respectively for the State. Mercer County's school locations are noted in Map 11. Not coincidentally, the major schools are located on the main roads in the county. The largest school by attendance is Princeton Senior High School, located in the county seat of Princeton. The significance of the locations of these schools is the access to major transportation routes. The schools appear to be built in order for parents and students to maintain steady access, which is important to discourage dropping out and to maintain attendance levels.

NCLB - Second Month Enrollment

Mercer County



- Planning Regions Line
- 903.00 - 2128.00
- 2128.01 - 3956.00
- 3956.01 - 8036.00
- 8036.01 - 18221.00
- 18221.01 - 28378.00
- County Boundaries

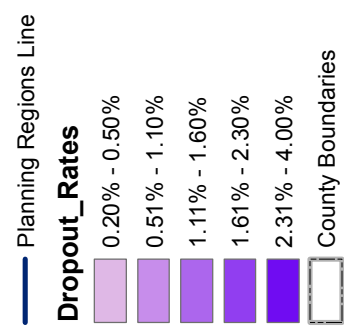
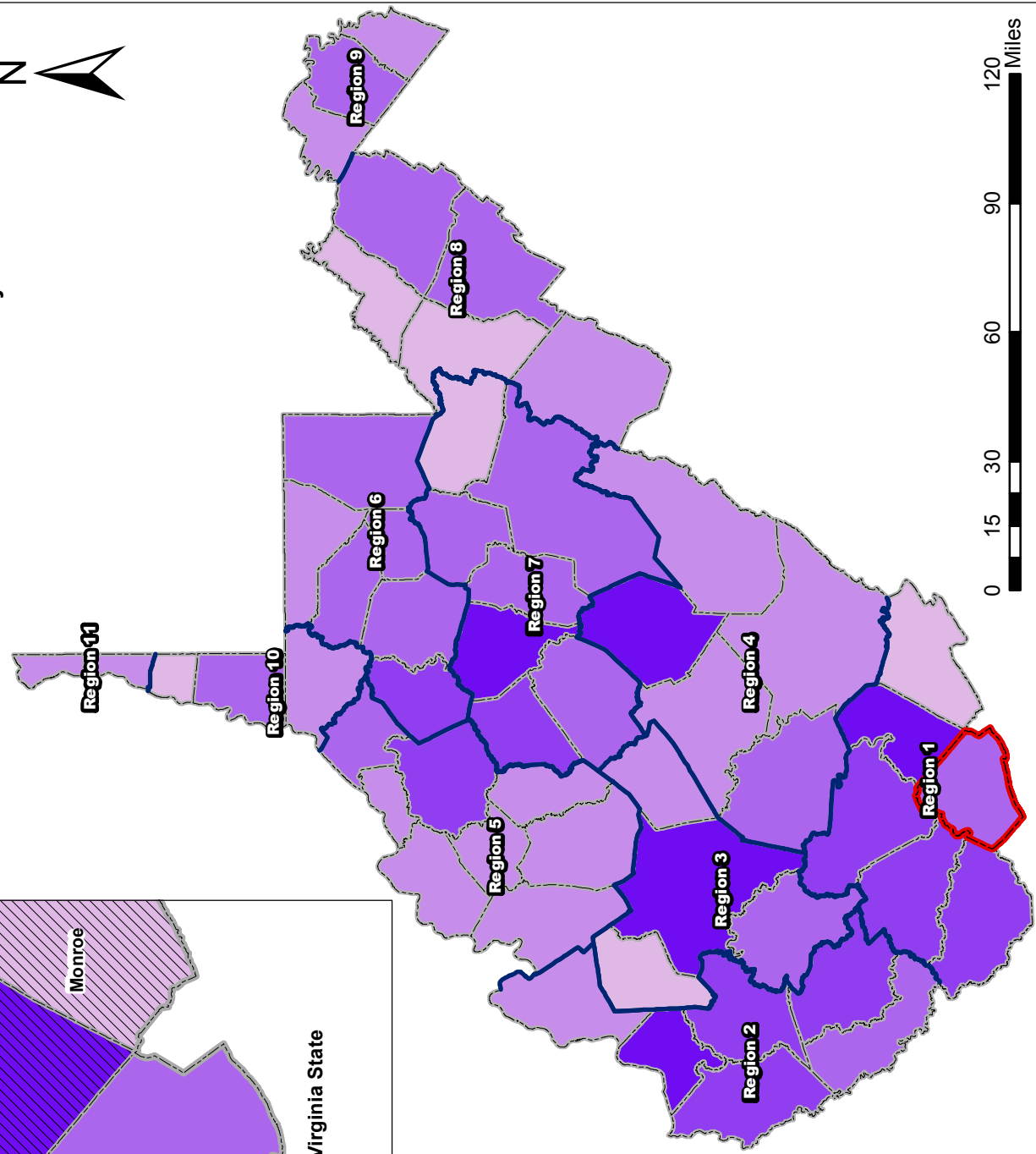
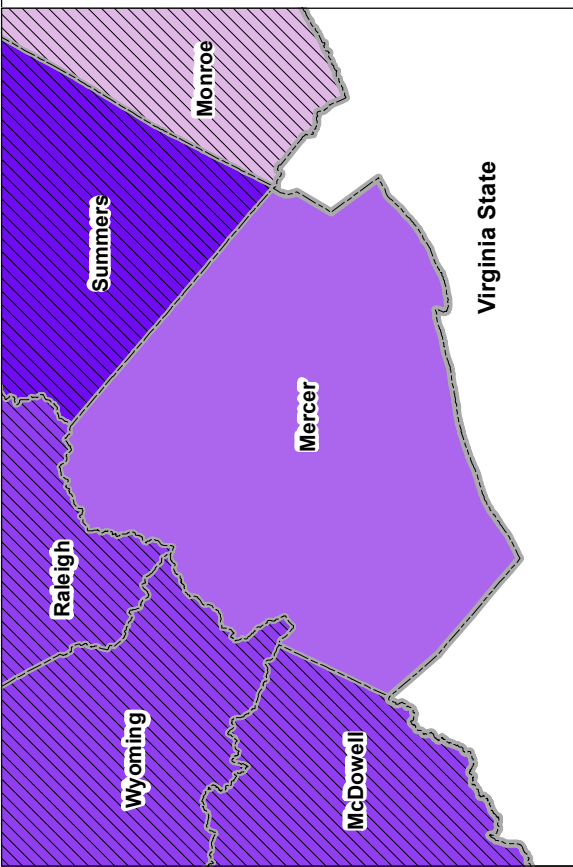
Source: West Virginia Department of Education 2014

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NCLB - Dropout Rate

Mercer County

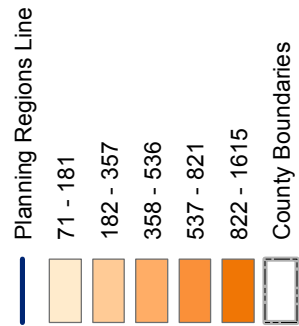
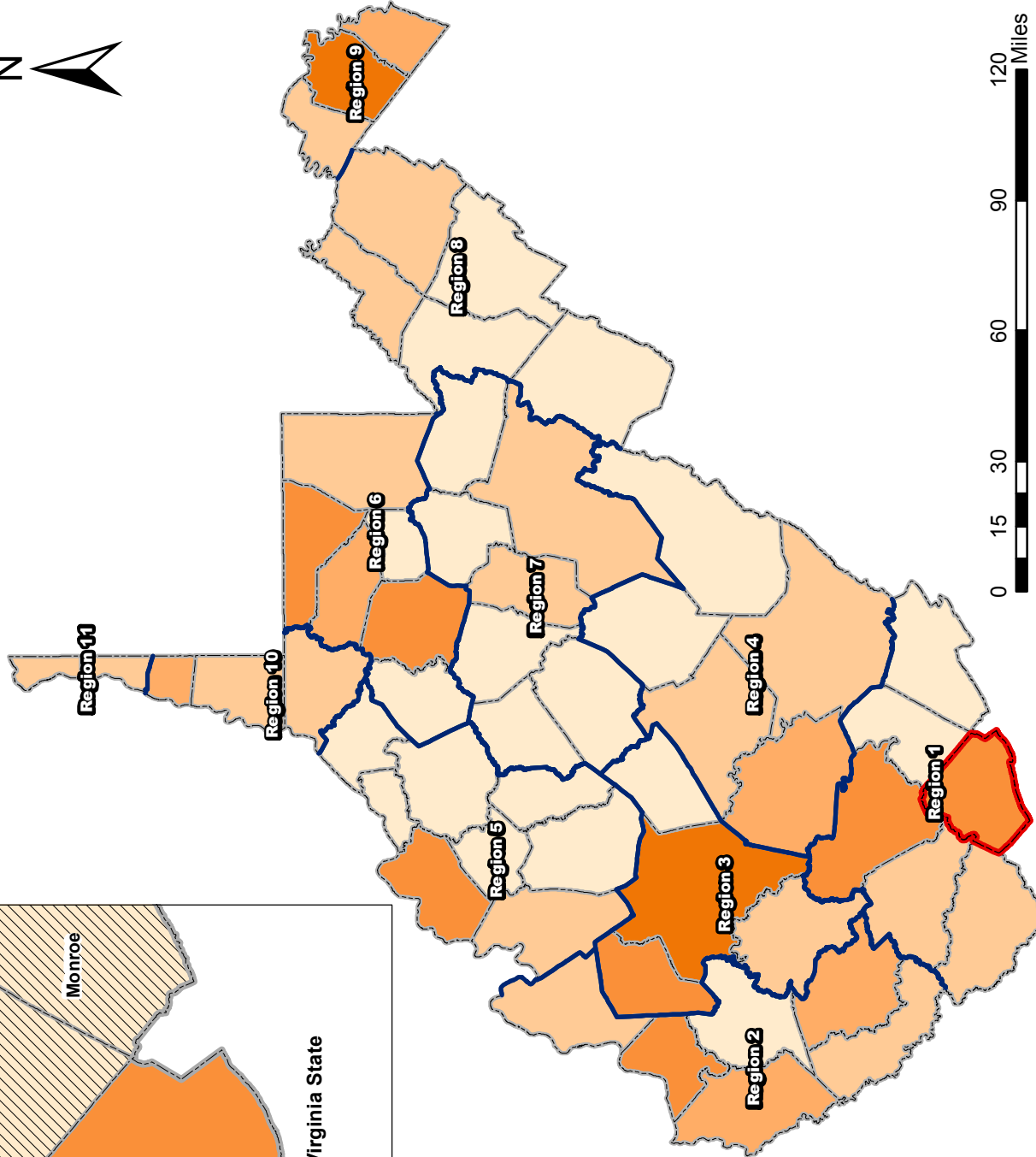
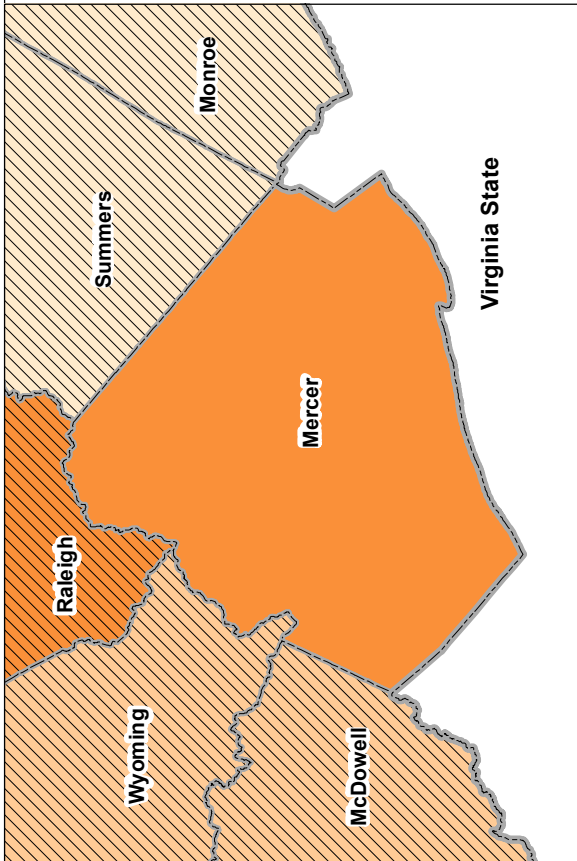


Source: West Virginia Department of Education 2014

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NCLB - Total Graduates

Mercer County



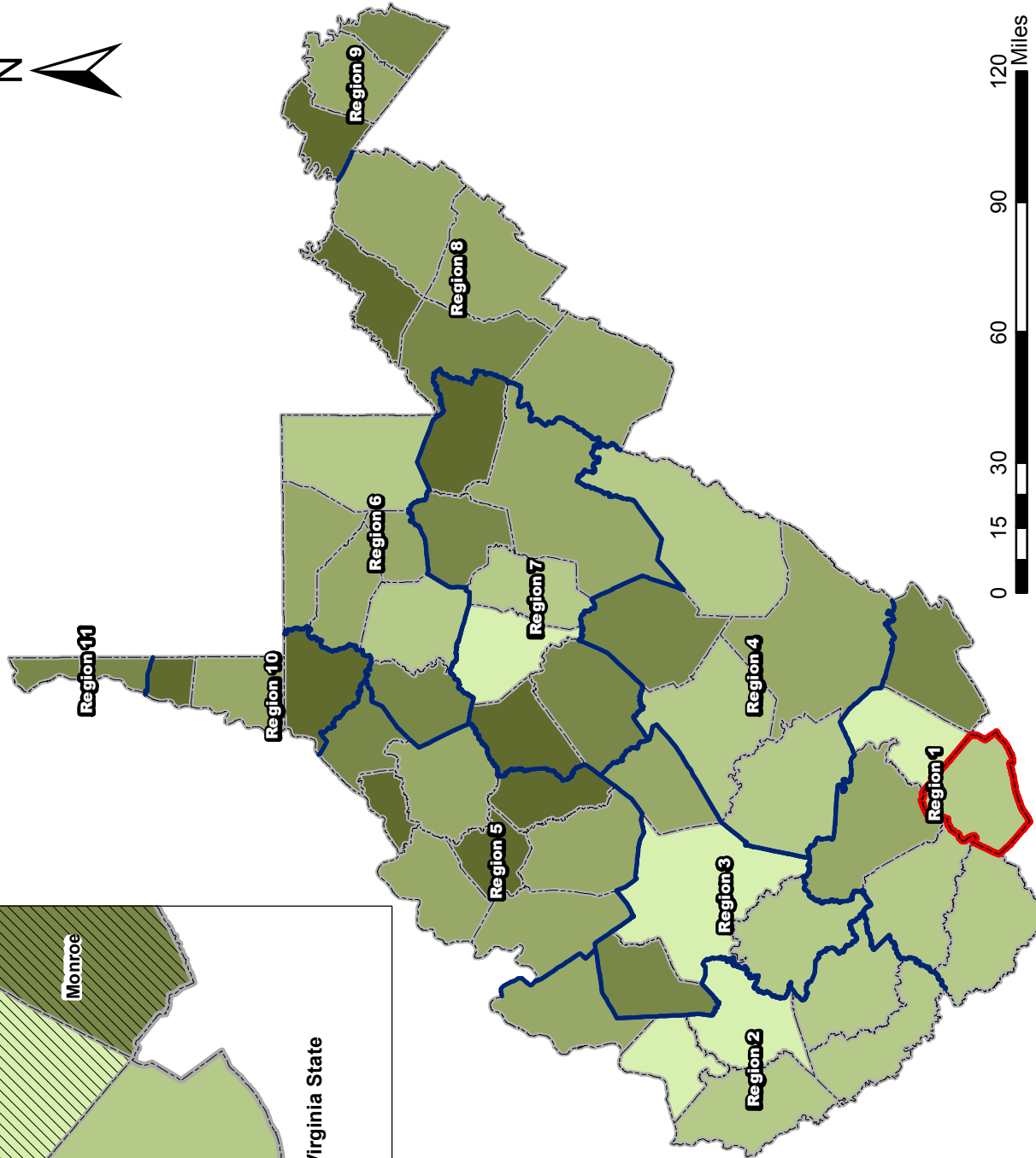
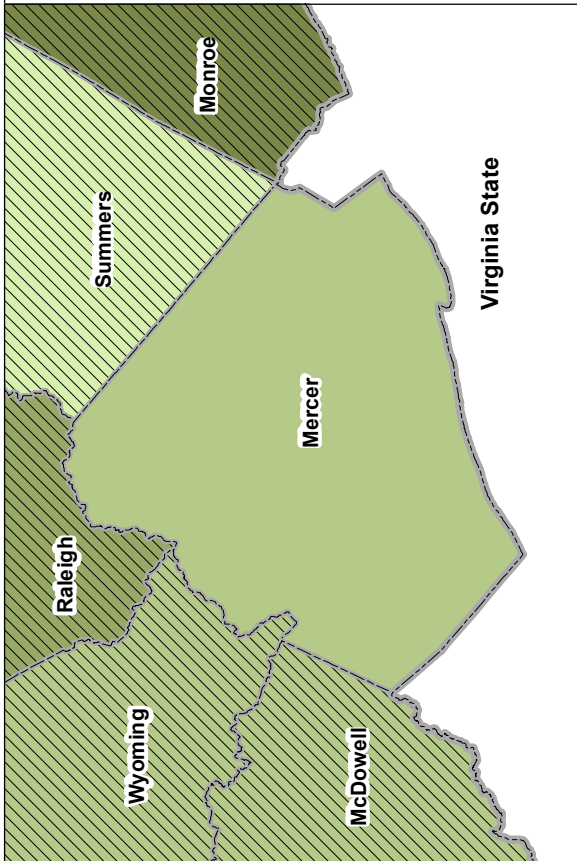
Source: West Virginia Department of Education 2013

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NCLB - Graduates Rate

Mercer County



- Planning Regions Line
- 70.85% - 76.62%
- 76.63% - 81.00%
- 81.01% - 85.00%
- 85.01% - 90.00%
- 90.01% - 97.26%
- County Boundaries

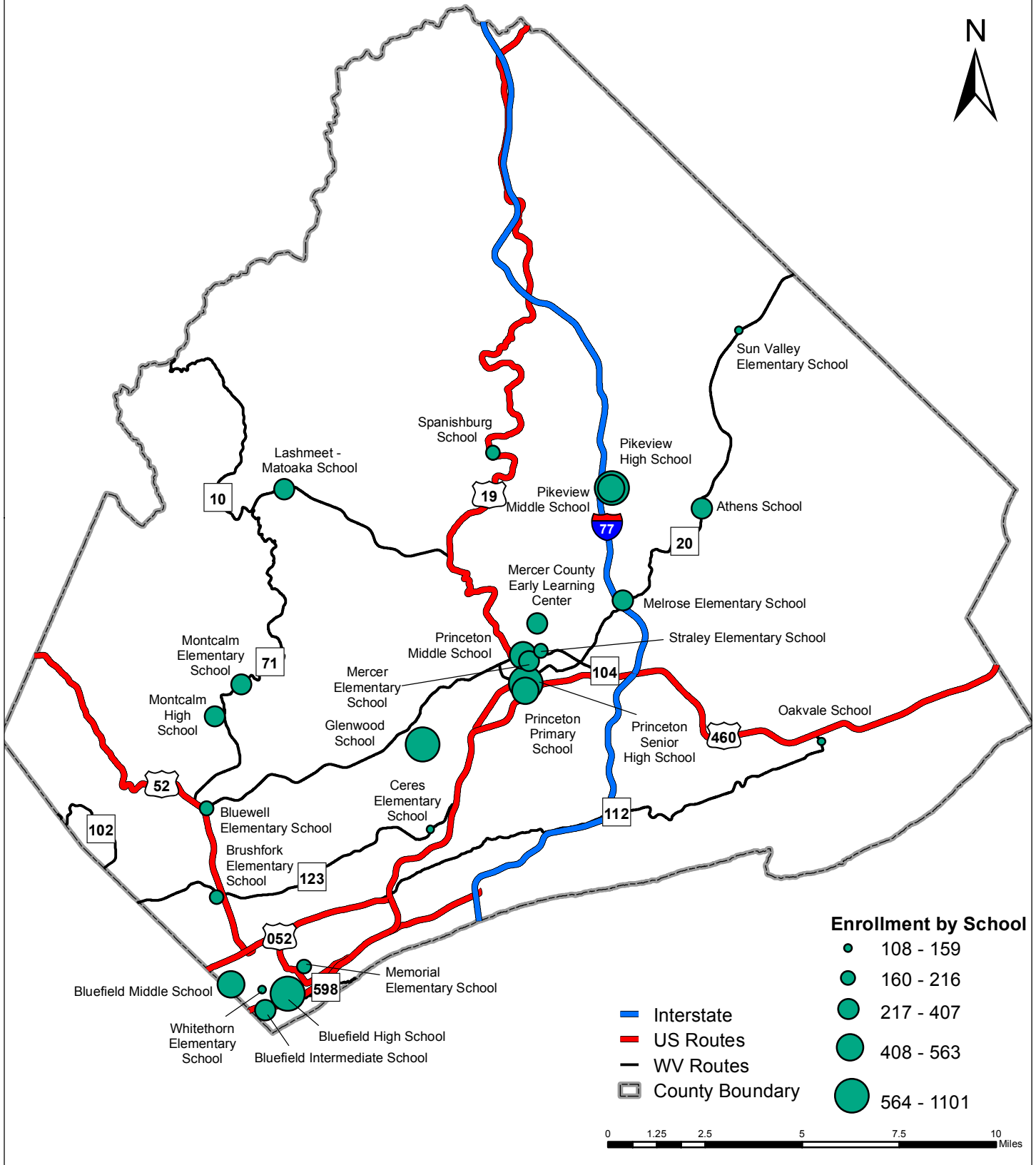
Source: West Virginia Department of Education 2014

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Total Attendance by School - 2014

Mercer County



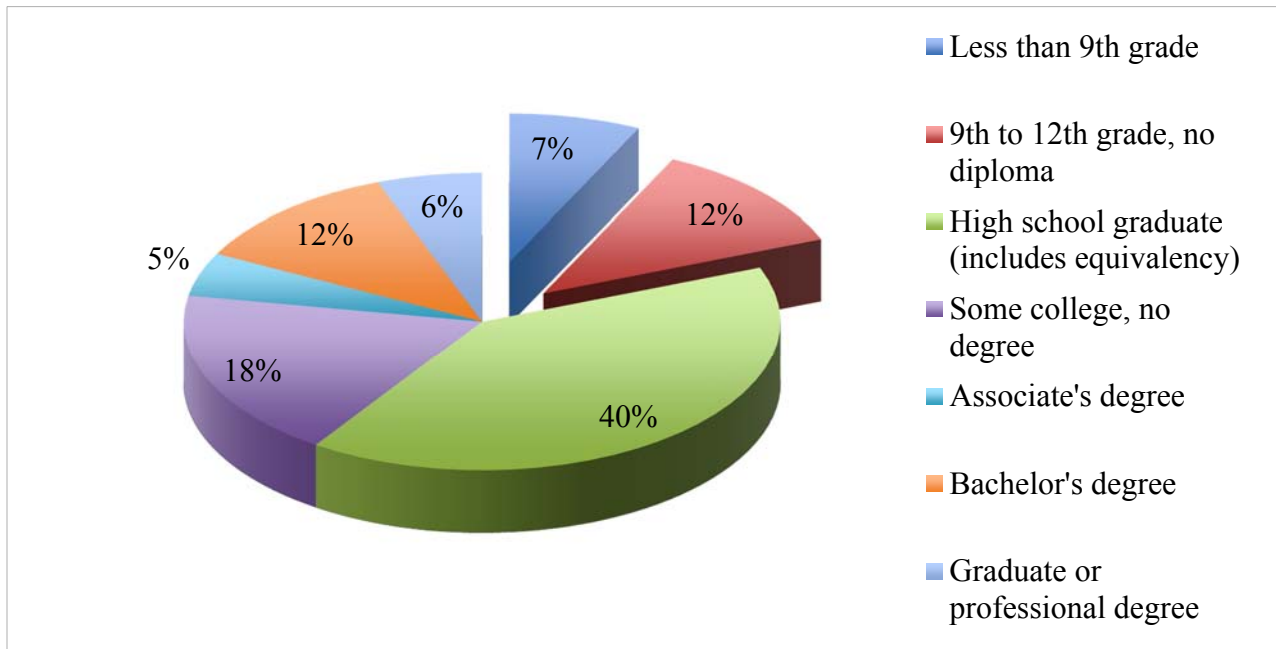
Source: West Virginia Department of Education 2014

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The ACS also maintains data on the educational attainment of the population that is 25 years and over. Forty percent of these residents have terminated at a high school diploma or equivalent. Nineteen percent have less than a high school diploma. This number is high when the connection between education, employment, and wages is considered, but is similar to most of the state. Almost a fifth of the population has a bachelor's or higher degree.

Figure 13: Mercer County Educational Attainment



Source: 2012 American Community Survey 5-Year Estimates

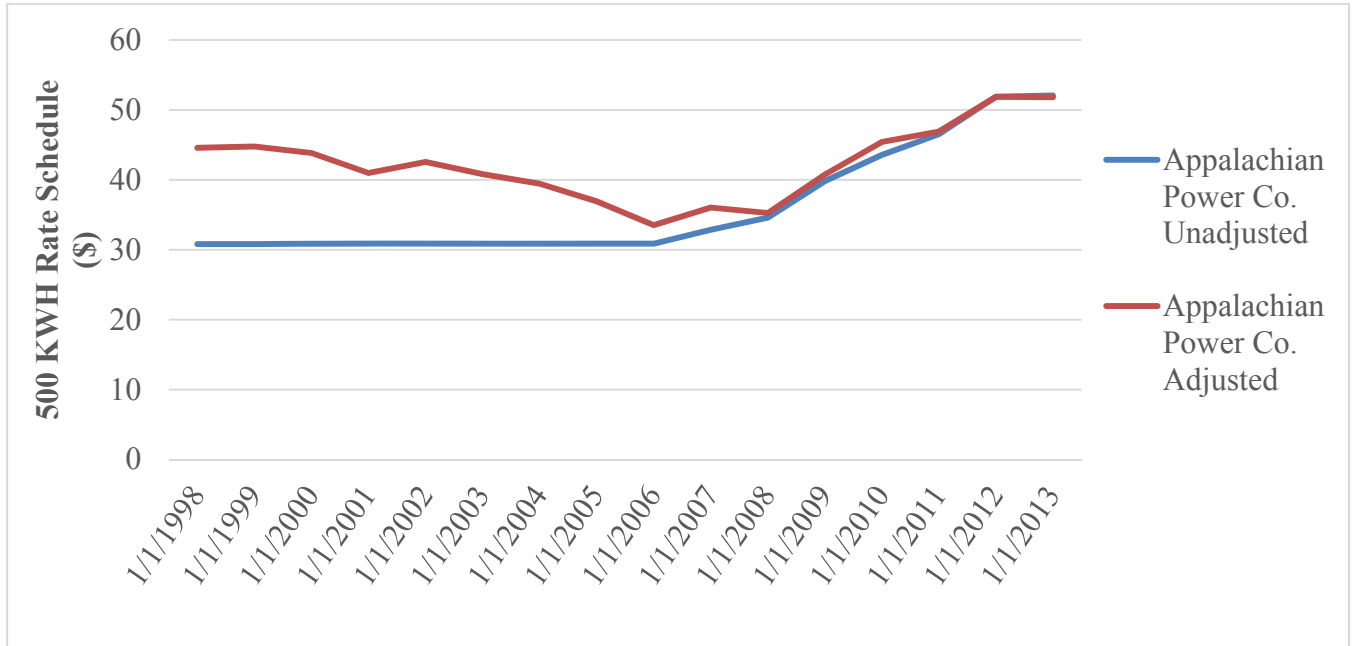
Utilities and Infrastructure

Mercer County has 31 utility companies according to the West Virginia Public Service Commission (PSC). Economic development depends on infrastructure, and Mercer County has several providers of water and sewer, and one provider of electricity. Appalachian Power provides industrial, commercial, and residential electricity to Mercer County.

The West Virginia Public Service Commission maintains tariff rates for all companies involved in providing utilities. Of particular importance are electricity tariffs; the monitoring of these tariffs is an ongoing project. To that end, the PSC observes the growth rate of tariffs and possesses a 20-year comparison based on the average residential utility rate of the State for Appalachian and Monongahela Power Companies. This provides a significant overview of how electric prices behave in West Virginia as a whole. As Figure 14 shows, if the tariffs are not adjusted by the Consumer Price Index (CPI), it would appear that rates are constantly increasing. Viewing rates in such a manner would be a misunderstanding, and would be incorrect in reference to a State with the highs and lows of West Virginia's past. The Bureau of Labor

Statistics has a CPI for electricity prices dating from 1998 to 2012. The adjusted and unadjusted prices are provided in Figure 14.

Figure 14: Power Company Prices



Source: WV Public Service Commission and United States Bureau of Labor Statistics

The graph shows that electricity rates steadily decreased in real terms through 2006 and remained fairly constant with adjustment. Both adjusted and unadjusted prices have increased since 2006. Many possible factors contributed to this rise, including the increased costs of energy and the increased demand. Map 12 also shows the distribution of power lines, plants, and substations within West Virginia and Mercer County.

The two other utilities of particular importance are water and sewer. Table 1 displays water and sewer metered rates for the providers of those services. They are all public services with varying rates and categories. Mercer County has 13 public sewer and water providers. Maps 13 and 14 show the water and sewer facilities and the served areas for each of these utilities, as well as the solid waste management facilities in West Virginia, of which Mercer County has one operational landfill.

Table 1: Mercer County Water and Sewer Rates

Bramwell Public Service District	
Sewer Rates	
First 3,000 gallons used per month	12.86 per 1,000 gallons
Next 3,000 gallons used per month	12.26 per 1,000 gallons
Next 4,000 gallons used per month	11.67 per 1,000 gallons

Next 10,000 gallons used per month	11.07 per 1,000 gallons
All Over 20,000 gallons used per month	2.41 per 1,000 gallons
Green Valley-Glenwood Public Service District	
Water Rates	
First 2,000 gallons used per month	9.13 per 1,000 gallons
Next 2,000 gallons used per month	7.32 per 1,000 gallons
Next 6,000 gallons used per month	5.50 per 1,000 gallons
Next 90,000 gallons used per month	3.68 per 1,000 gallons
All Over 100,000 gallons used per month	1.87 per 1,000 gallons
Sewer Rates	
First 2,000 gallons used per month	8.62 per 1,000 gallons
Next 2,000 gallons used per month	7.78 per 1,000 gallons
Next 6,000 gallons used per month	6.88 per 1,000 gallons
Next 90,000 gallons used per month	5.99 per 1,000 gallons
All Over 100,000 gallons used per month	5.12 per 1,000 gallons
Bluwell Public Service District	
Water Rates	
First 2,000 gallons used per month	9.85 per 1,000 gallons
Next 8,000 gallons used per month	9.28 per 1,000 gallons
Next 10,000 gallons used per month	6.84 per 1,000 gallons
Next 20,000 gallons used per month	6.57 per 1,000 gallons
All Over 40,000 gallons used per month	6.47 per 1,000 gallons
Sewer Rates	
First 2,000 gallons used per month	6.80 per 1,000 gallons
Next 8,000 gallons used per month	6.14 per 1,000 gallons
Next 10,000 gallons used per month	5.61 per 1,000 gallons
Next 20,000 gallons used per month	5.27 per 1,000 gallons
All Over 40,000 gallons used per month	4.59 per 1,000 gallons
Oakvale Road Public Service District	
Water Rates	
First 1,500 gallons used per month	Minimum charge
Next 28,500 gallons used per month	10.29 per 1,000 gallons
Next 870,000 gallons used per month	6.78 per 1,000 gallons
Next 8,100,000 gallons used per month	4.93 per 1,000 gallons
All Over 9,000,000 gallons used per month	3.21 per 1,000 gallons
Sewer Rates	
All amounts used per month	5.90 per 1,000 gallons
Cool Ridge-Flat Top Public Service District	
Water Rates	

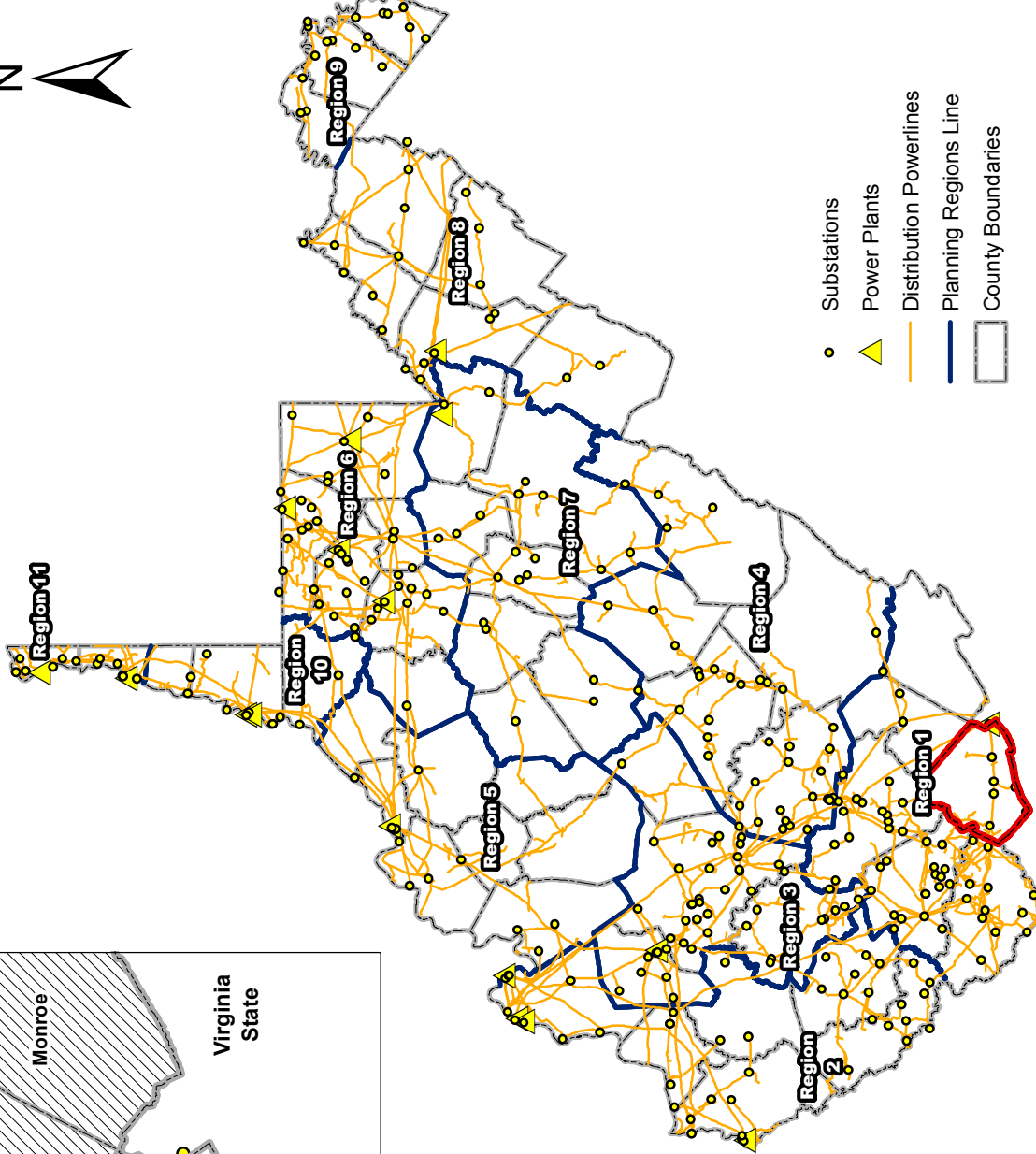
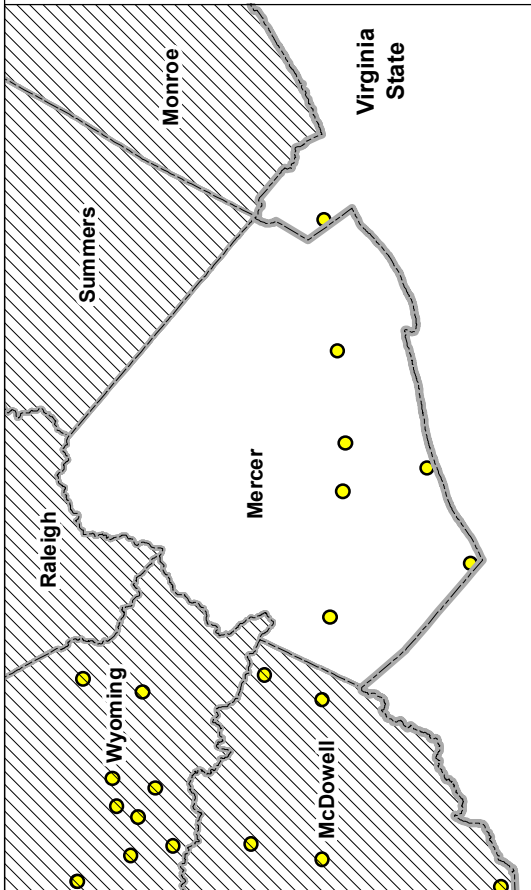
First 2,000 gallons used per month	9.76 per 1,000 gallons
Next 3,000 gallons used per month	8.55 per 1,000 gallons
Next 15,000 gallons used per month	7.22 per 1,000 gallons
All Over 20,000 gallons used per month	5.90 per 1,000 gallons
Cumberland Public Service District	
Water Rates	
First 2,000 gallons used per month	5.80 per 1,000 gallons
Next 28,000 gallons used per month	3.80 per 1,000 gallons
Next 970,000 gallons used per month	3.00 per 1,000 gallons
All Over 1,000,000 gallons used per month	2.70 per 1,000 gallons
Lashmeet Public Service District	
First 1,500 gallons used per month	Minimum charge
Next 28,500 gallons used per month	10.29 per 1,000 gallons
Next 870,000 gallons used per month	6.78 per 1,000 gallons
Next 8,100,000 gallons used per month	4.93 per 1,000 gallons
All Over 9,000,000 gallons used per month	3.21 per 1,000 gallons
Raleigh County Public Service District	
Water Rates	
First 2,000 gallons used per month	7.12 per 1,000 gallons
All Over 2,000 gallons used per month	7.12 per 1,000 gallons
City of Princeton Sanitary Board	
Sewer Rates	
First 2,500 gallons used per month	8.50 per 1,000 Gallons
All Over 2,500 gallons used per month	4.00 per 1,000 Gallons
Athens	
Water Rates (Municipal Water Works)	
First 2,000 gallons used per month	7.40 per 1,000 gallons
Next 3,000 gallons used per month	6.66 per 1,000 gallons
Next 5,000 gallons used per month	6.11 per 1,000 gallons
Next 15,000 gallons used per month	5.56 per 1,000 gallons
Next 75,000 gallons used per month	5.02 per 1,000 gallons
All Over 100,000 gallons used per month	3.35 per 1,000 gallons
Sewer Rates (Sanitary Board)	
First 2,000 gallons used per month	12.50 per 1,000 gallons
Next 3,000 gallons used per month	11.71 per 1,000 gallons
Next 5,000 gallons used per month	10.96 per 1,000 gallons
Next 15,000 gallons used per month	10.60 per 1,000 gallons
All Over 25,000 gallons used per month	9.81 per 1,000 gallons

Town of Matoaka	
Water Rates	
First 2,000 gallons used per month	26.00 per 1,000 gallons
Next 1,000 gallons used per month	8.68 per 1,000 gallons
Next 7,000 gallons used per month	7.47 per 1,000 gallons
Next 40,000 gallons used per month	6.46 per 1,000 gallons
All Over 50,000 gallons used per month	4.57 per 1,000 gallons
Sewer Rates (Sanitary Board)	
First 3,000 gallons used per month	8.42 per 1,000 gallons
Next 7,000 gallons used per month	4.37 per 1,000 gallons
Next 40,000 gallons used per month	2.70 per 1,000 gallons
All Over 50,000 gallons used per month	1.50 per 1,000 gallons
Town of Pocahontas	
Water Rates	
First 2,000 gallons used per month	Minimum charge
Next 3,000 gallons used per month	7.00 per 1,000 gallons
Next 5,000 gallons used per month	8.50 per 1,000 gallons
All Over 10,000 gallons used per month	9.00 per 1,000 gallons
City of Bluefield	
Sewer Rates	
First 10,000 gallons used per month	8.69 per 1,000 gallons
Next 115,000 gallons used per month	7.98 per 1,000 gallons
Next 375,000 gallons used per month	7.75 per 1,000 gallons
All over 500,000 gallons used per month	5.79 per 1,000 gallons

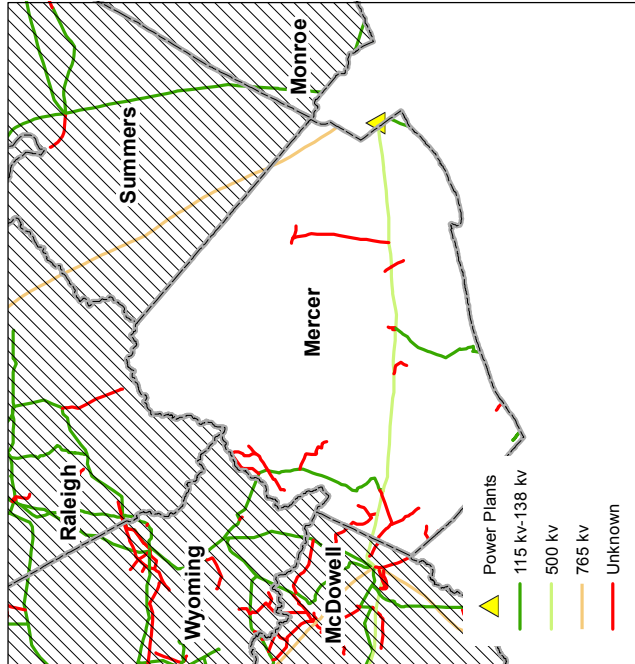
Two water associations and a private sewer facility also serve the county: Hiawatha Water Association, Windmill Gap Water Association, and Green Acres Utilities.

Utilities - Electricity

Mercer County



● Electricity Substations



▲ Power Plants
 115 kv-138 kv
 500 kv
 765 kv
 Unknown

● Substations
 ▲ Power Plants
 — Distribution Powerlines
 — Planning Regions Line
 □ County Boundaries



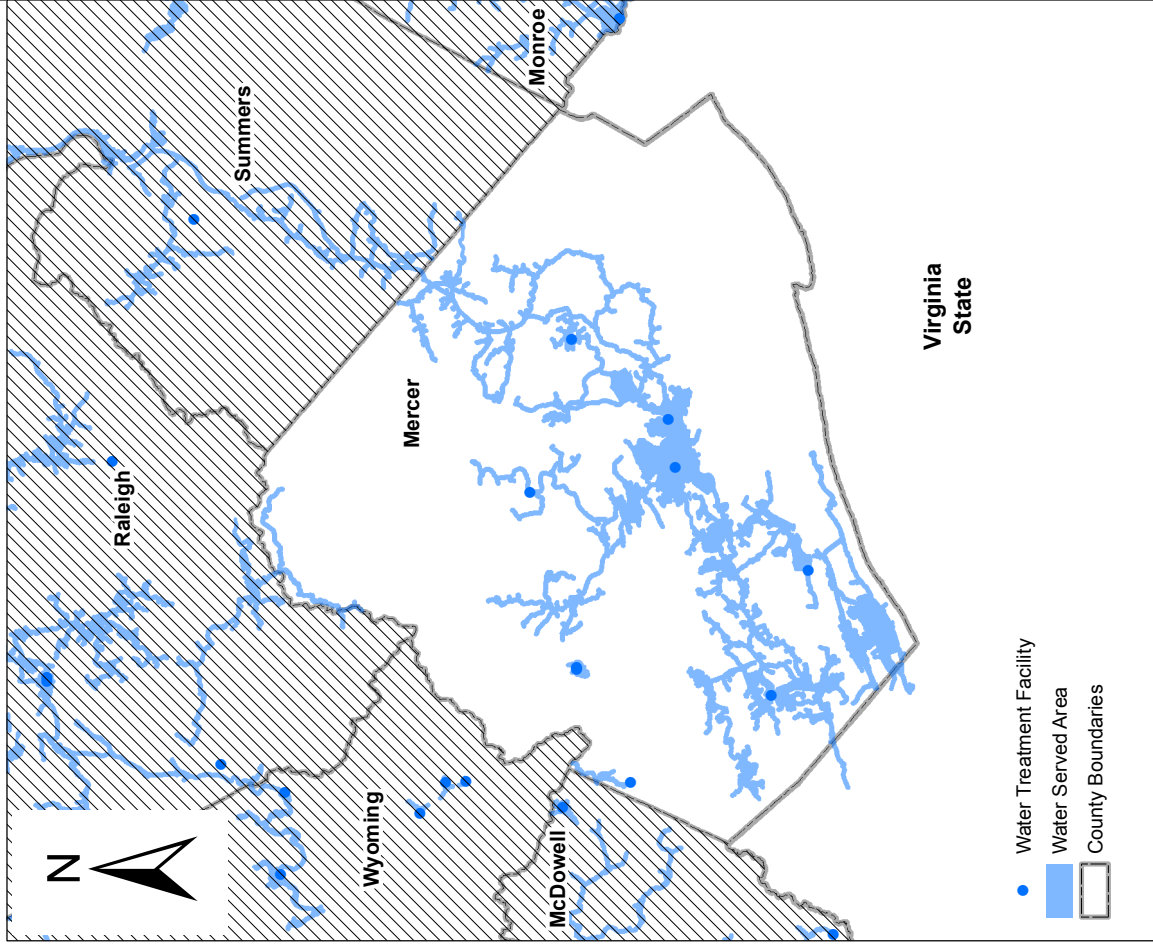
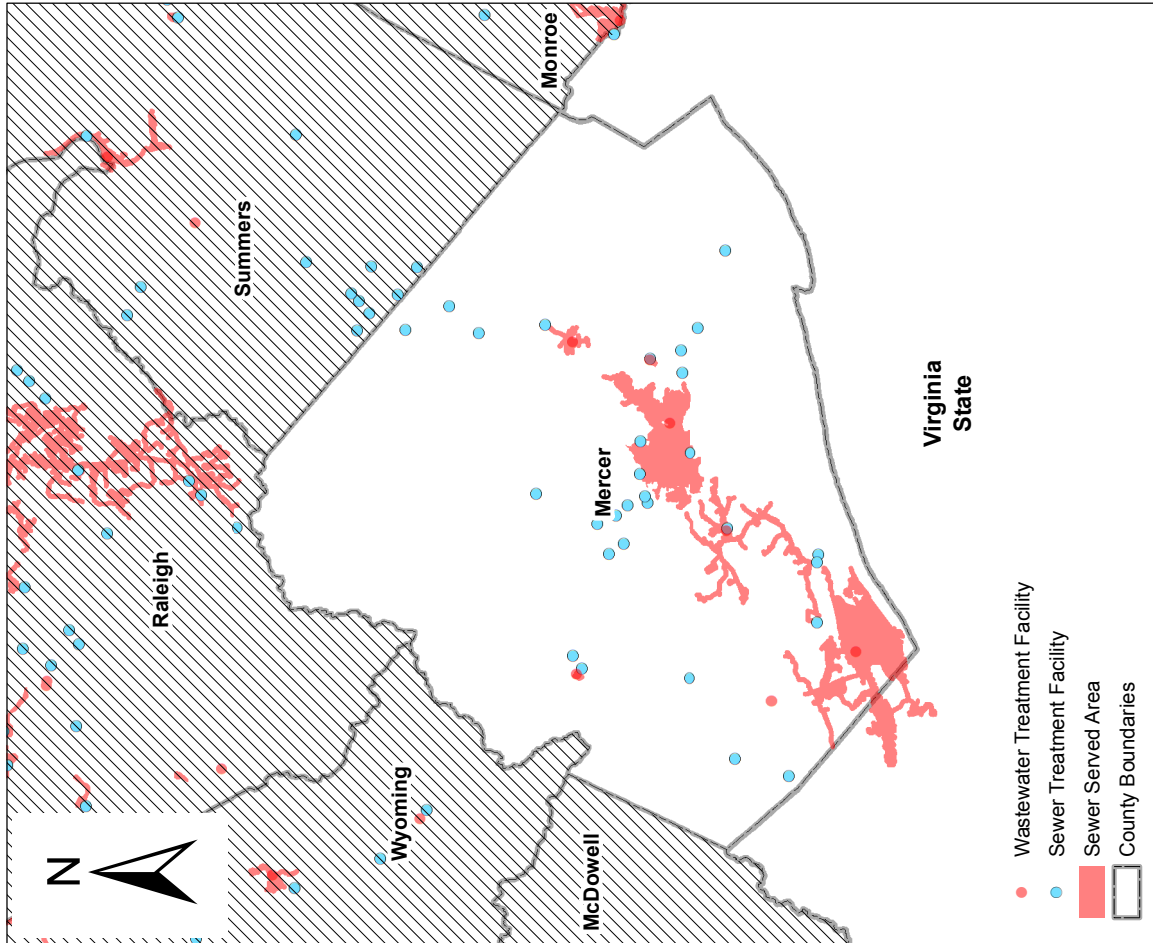
Source: West Virginia Division of Natural Resources, Statewide Addressing and Mapping 2008

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Utilities - Water and Sewer

Mercer County



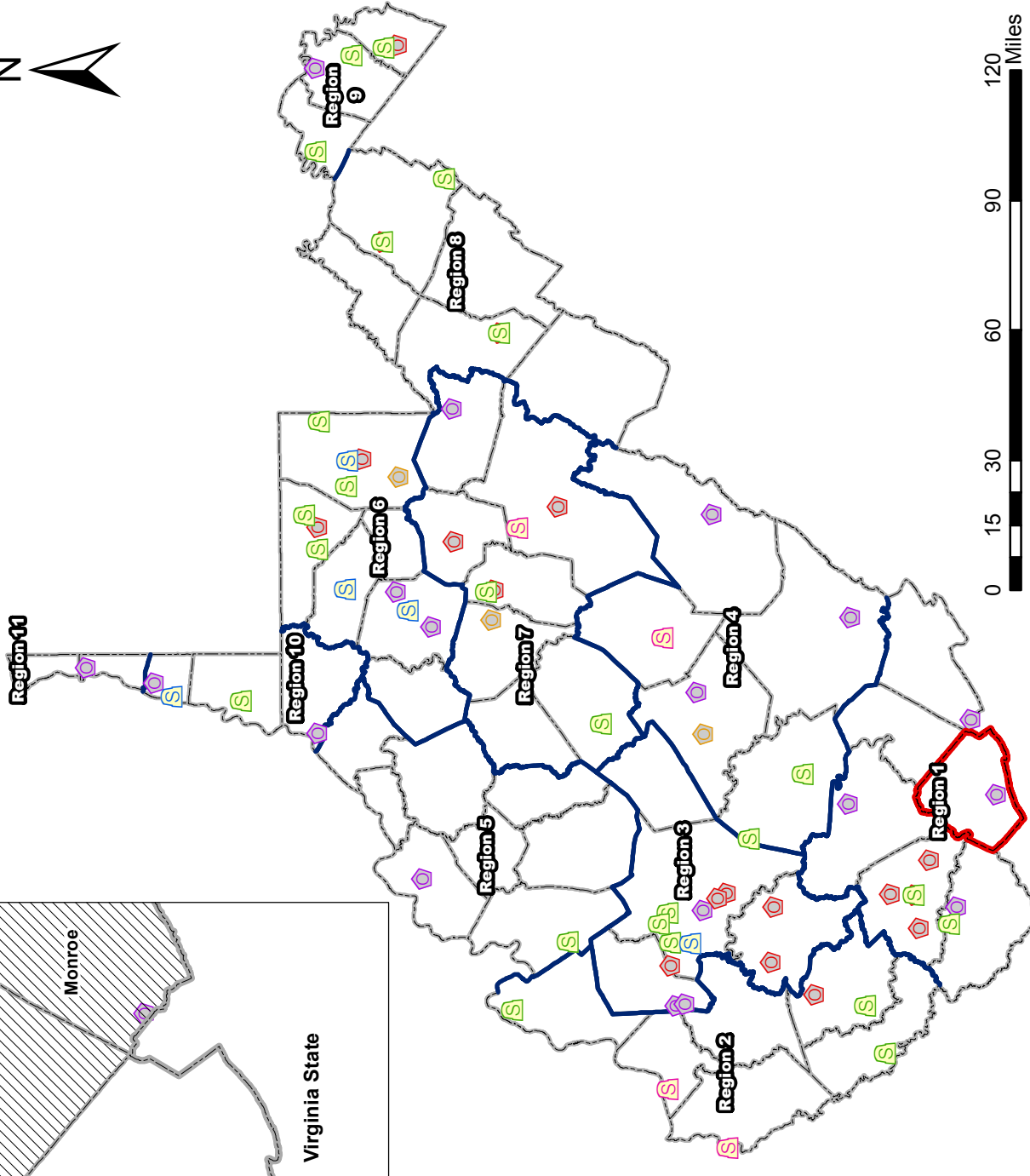
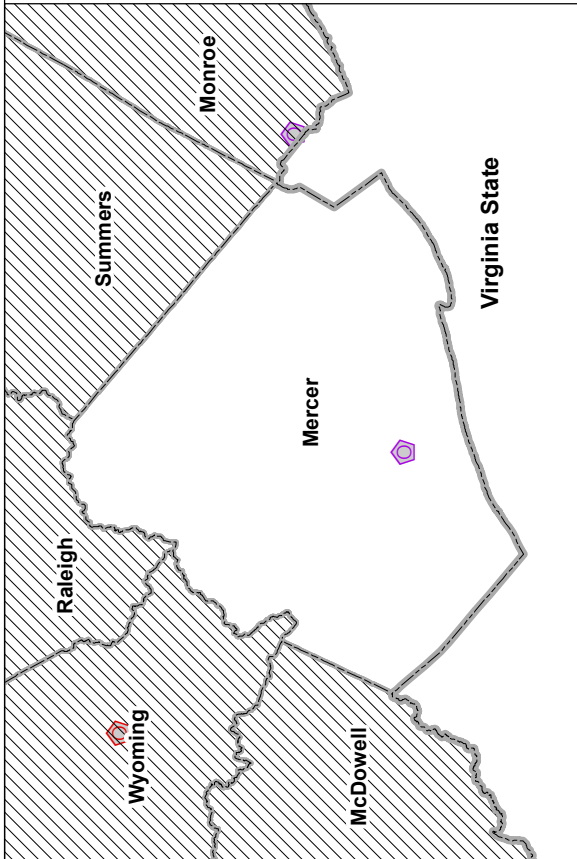
Source: West Virginia Infrastructure and Jobs Development Council N.A.

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Utility - Solid Waste Facility

Mercer County



Non Operational Facility

- Post-closure status
- Closure status
- A non LCAP** facility

Operational Facility

- Operational landfill
- Solid waste transfer station
- Operational tire monofill
- Planning Regions Line
- County Boundaries

** Landfill Closure Assistance Program

Source: West Virginia Solid Waste Management Board 2012

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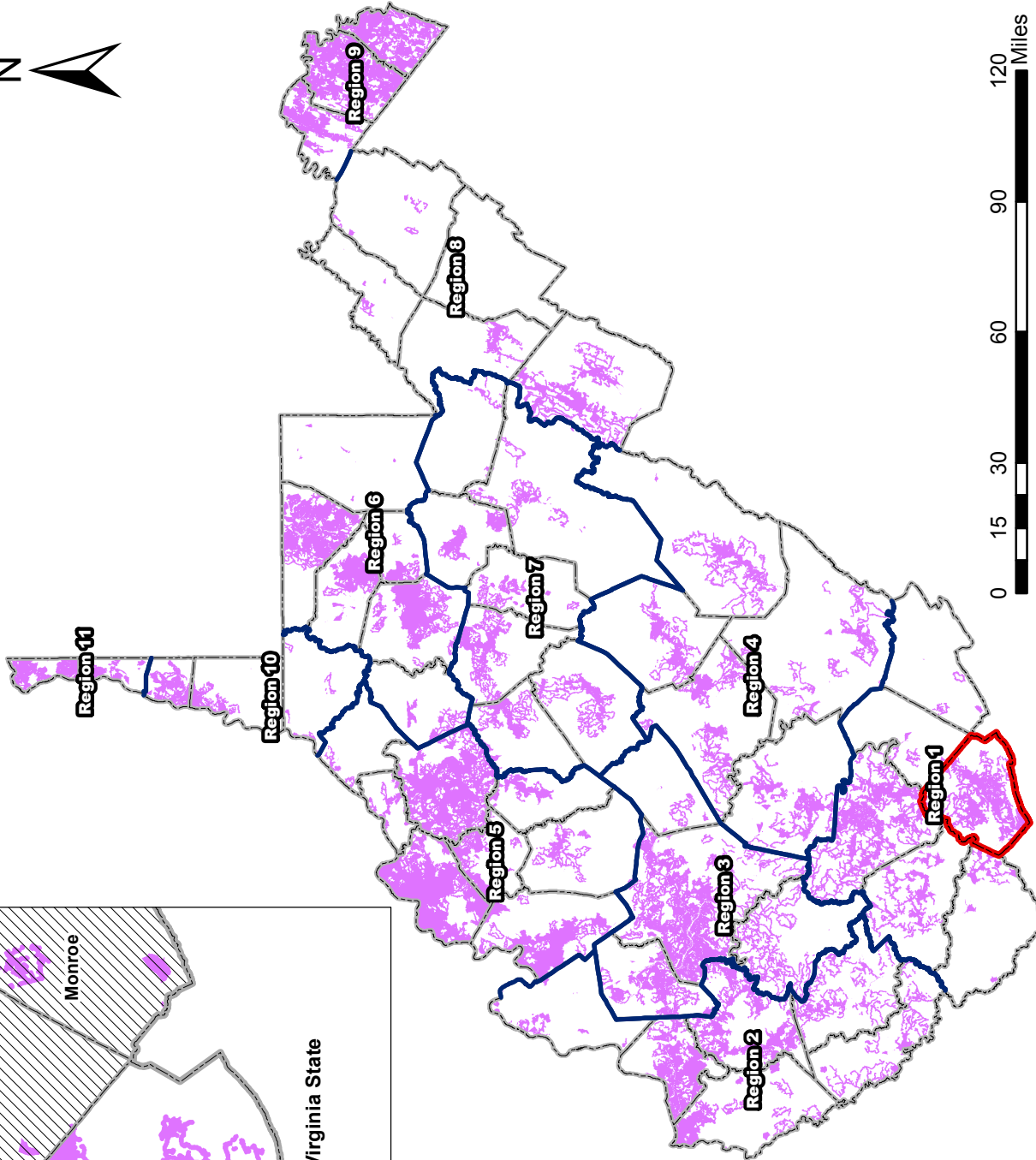
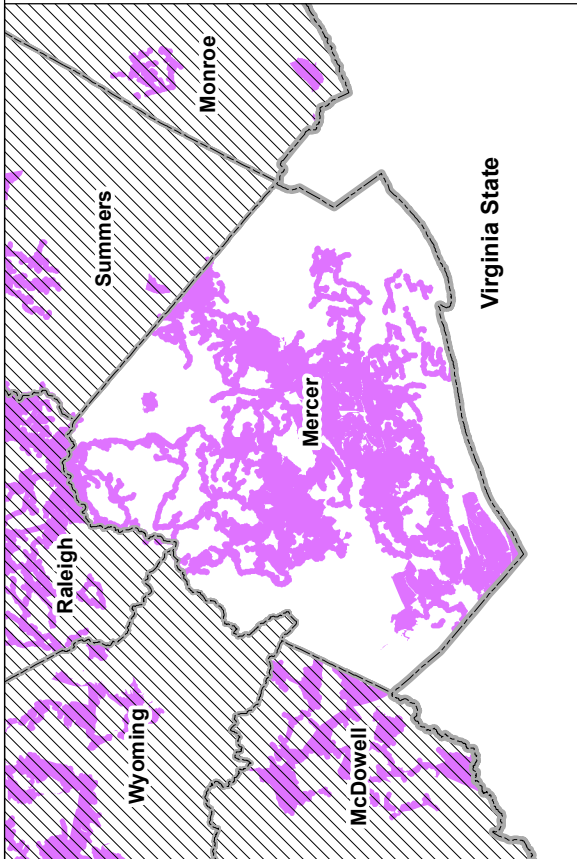
One essential modern convenience, now widely understood as an essential utility in a globalized world, is broadband access. The following 11 maps demonstrate Mercer County's broadband infrastructure in relation to the State's. The largest number of providers in Mercer County is five. Mercer County broadband infrastructure resembles those of the more populous and wealthy counties than other coalfield counties, with large areas having broadband and many areas having more than three providers. Of particular note is the spottiness of fixed wireless, the connection of two fixed points wirelessly by radio or other links.




Map 15 shows physical cable infrastructure running from ISPs to other structures. DSL, BPL, and other copper represent the transferal system of broadband (Map 16). Map 17 shows the entire wire system, represented by physical wires, while Maps 18 and 19 show the maximum uploading and downloading speeds for the system. Map 20 shows the total number of providers, which is denser in the more economically developed areas of the State. Map 21 has fixed wireless coverage, or the connection between two fixed points wirelessly by radio or other links, and the next two maps show the maximum uploading and downloading speeds in a given area (22 and 23). Map 24 shows the location of mobile wireless coverage, including for smartphones and tablets, and Map 25 shows areas where no broadband coverage is reported in any way.

Internet service, specifically broadband, is non-existent in many rural areas, and instead focuses on population centers. While this may be financially wise, it deprives rural areas of an increasingly integral link to a globalized economy and society. All areas now need broadband service, and a complete inventory of these services is needed to plan for future investment in any given area. Mercer County has been proactive in establishing broadband links for both rural and urban populations. Note also that the map data is for 2012, the most recent map available. Changes have been made since that time, thanks to broadband expansion programs encouraged by the state.

Broadband - Internet Cable and FTTP Coverage

Mercer County



-  Planning Regions Line
-  Cable and FTTP
-  County Boundaries



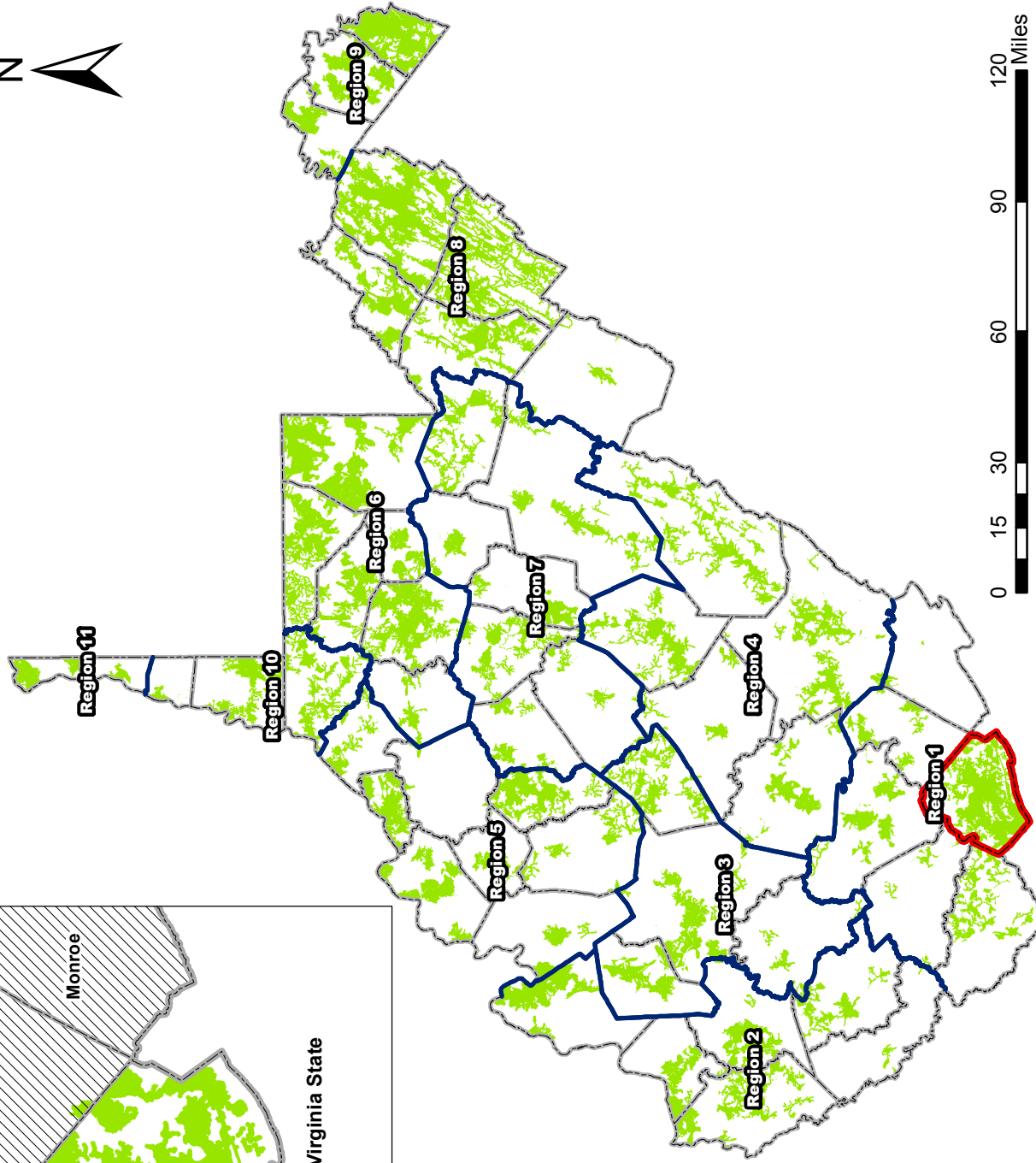
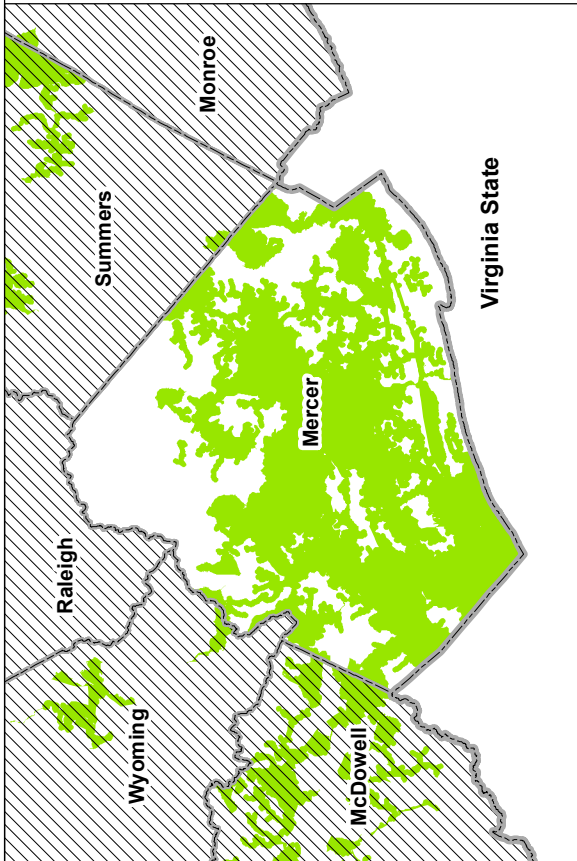
Source: West Virginia Broadband Mapping Program 2012




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Broadband - Internet DSL, BPL, Other Copper

Mercer County



-  Planning Regions Line
-  DSL, BPL, Other Copper
-  County Boundaries

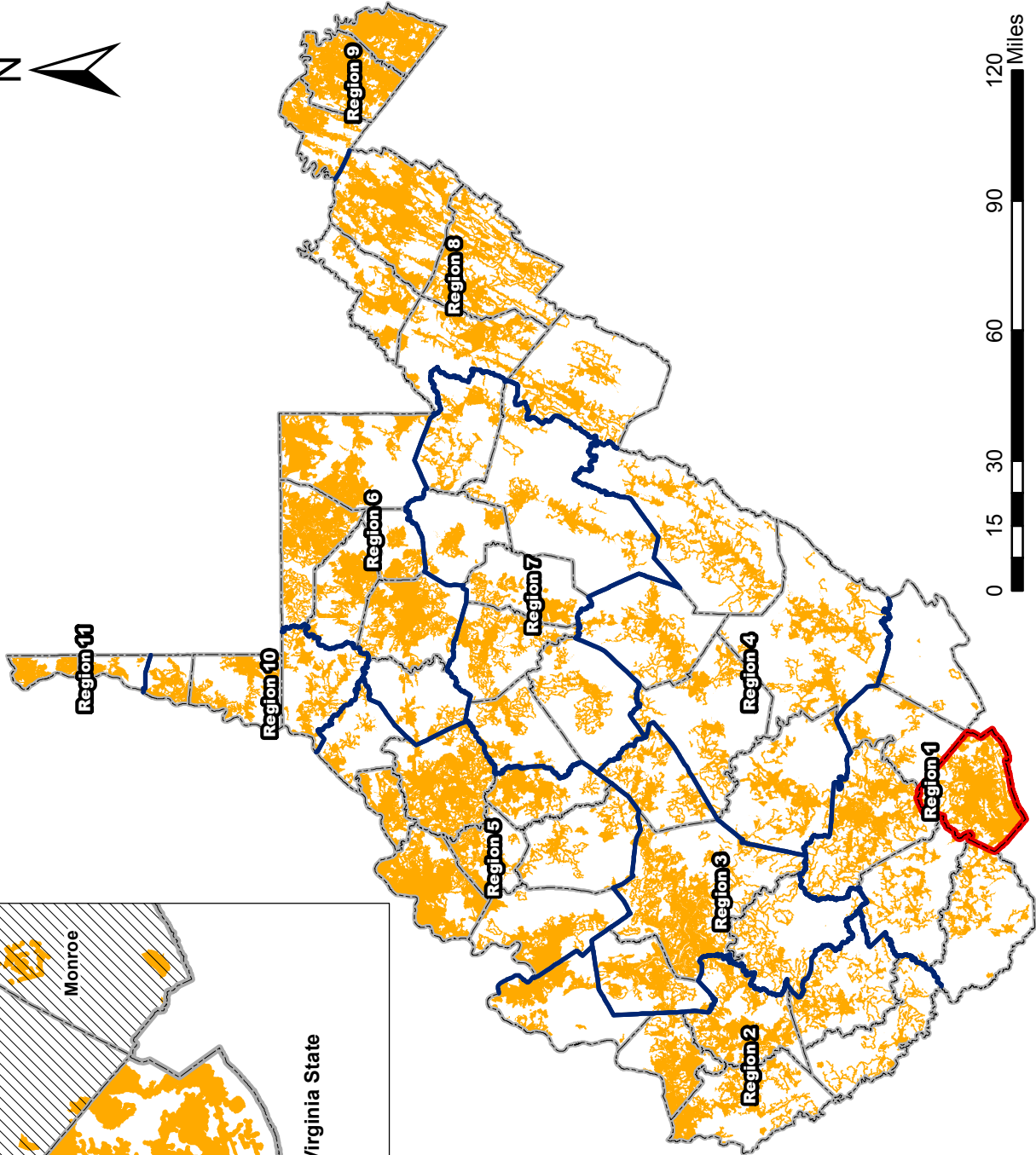
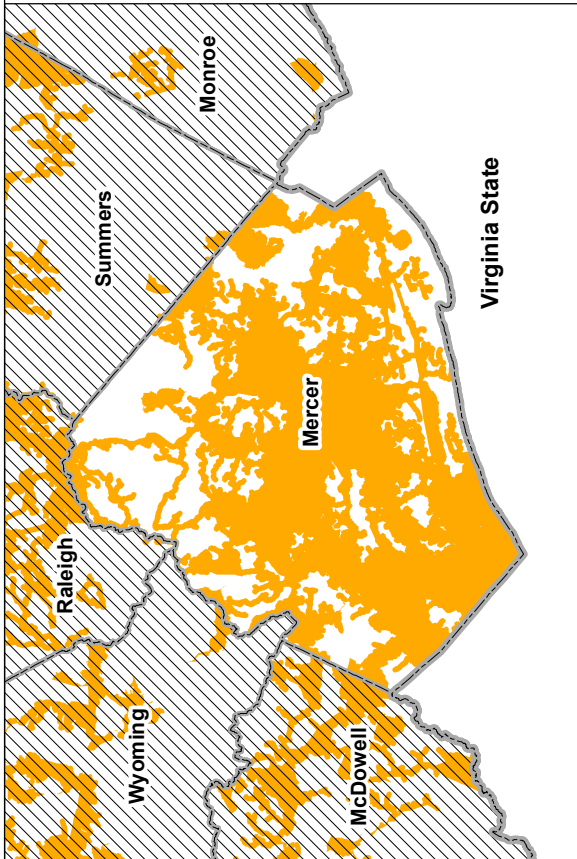
Source: West Virginia Broadband Mapping Program 2012




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Broadband - Internet Wireline Coverage

Mercer County



-  Planning Regions Line
-  Wireline Coverage
-  County Boundaries



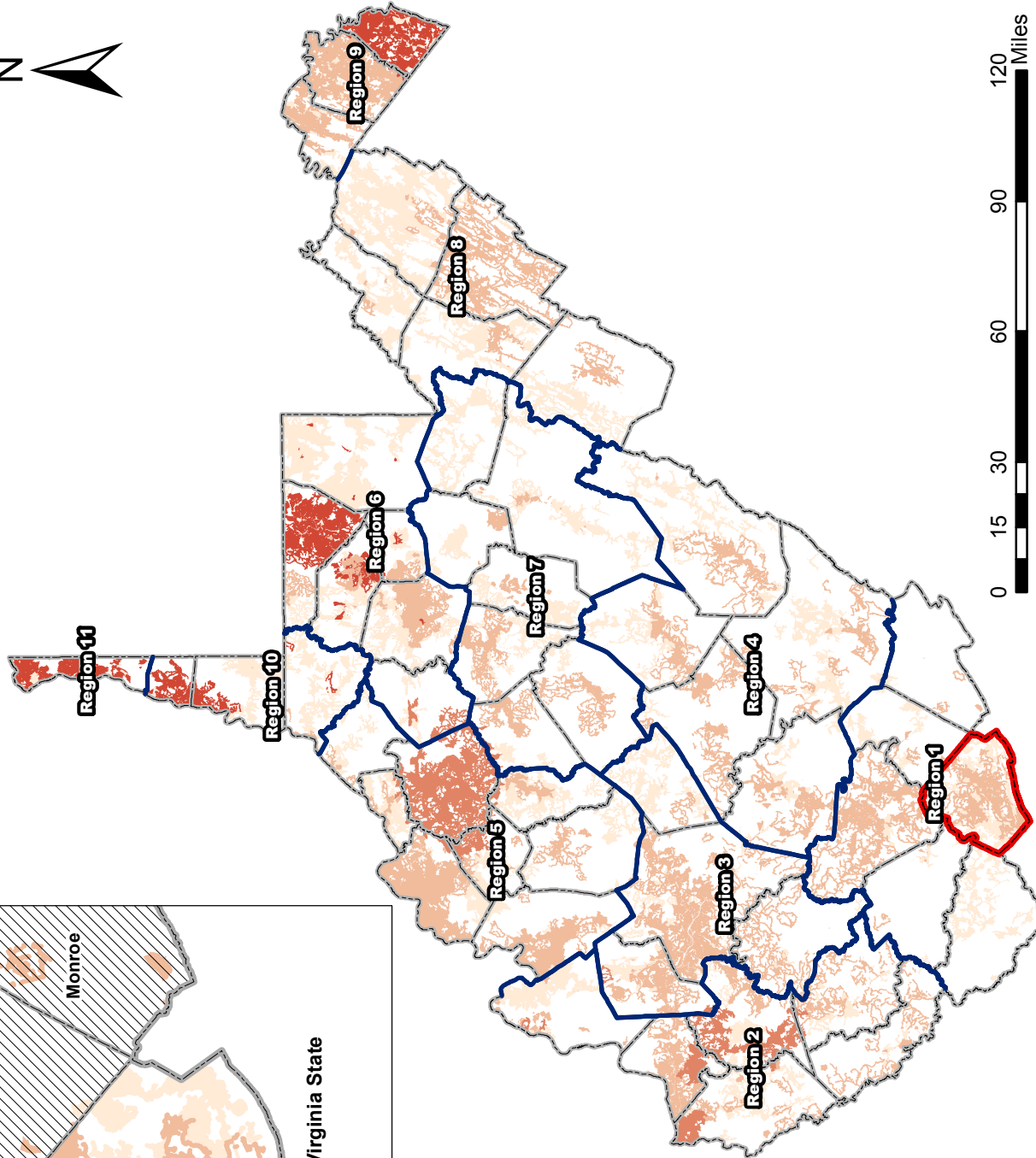
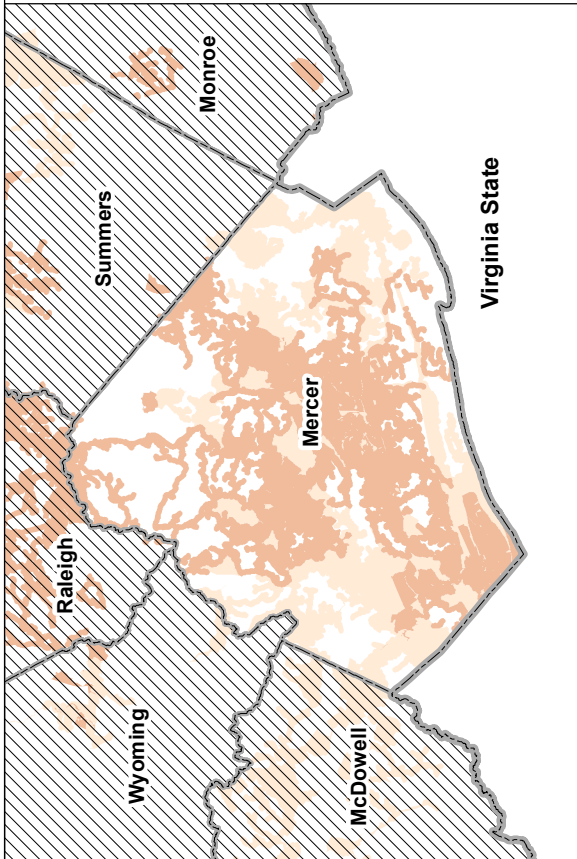
Source: West Virginia Broadband Mapping Program 2012

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Broadband - Internet MaxUp Speed Wireline

Mercer County



- Planning Regions Line
- 200 - 768 kbps
- 768 kbps - 3 mbps
- 3 - 10 mbps
- 10 - 25 mbps
- Greater than 25 mbps
- County Boundaries

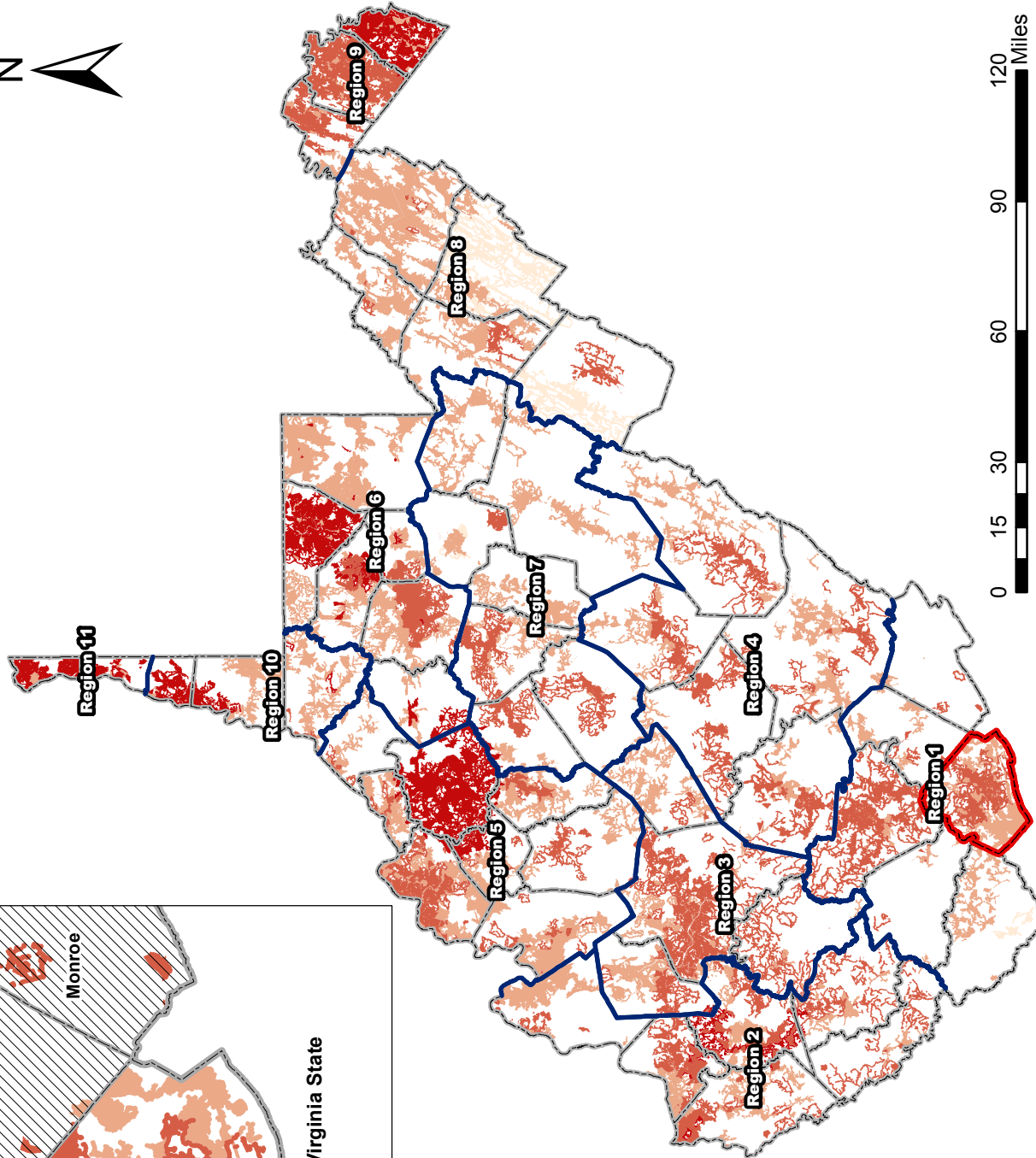
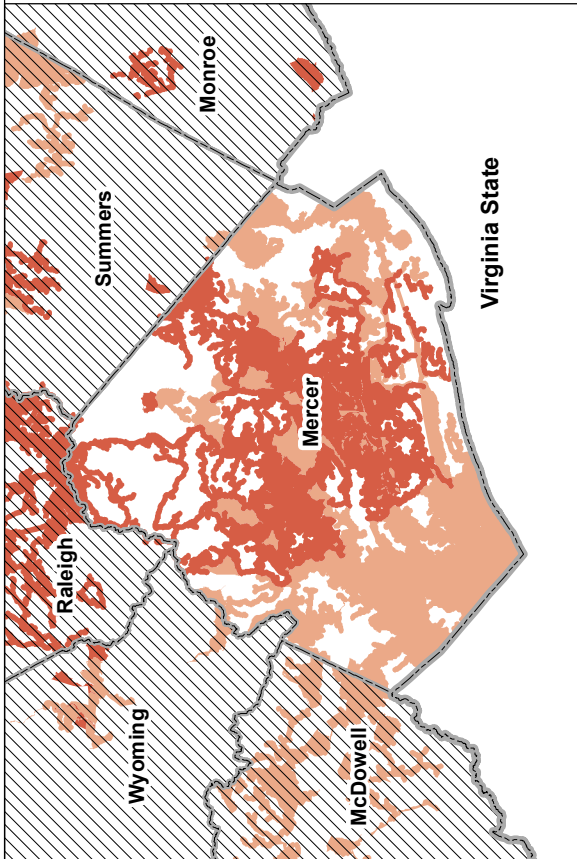
Source: West Virginia Broadband Mapping Program 2012







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Broadband - Internet MaxDown Speed Wireline

Mercer County



-  Planning Regions Line
-  768 kbps - 3 mbps
-  3 - 10 mbps
-  10 - 25 mbps
-  Greater than 25 mbps
-  County Boundaries

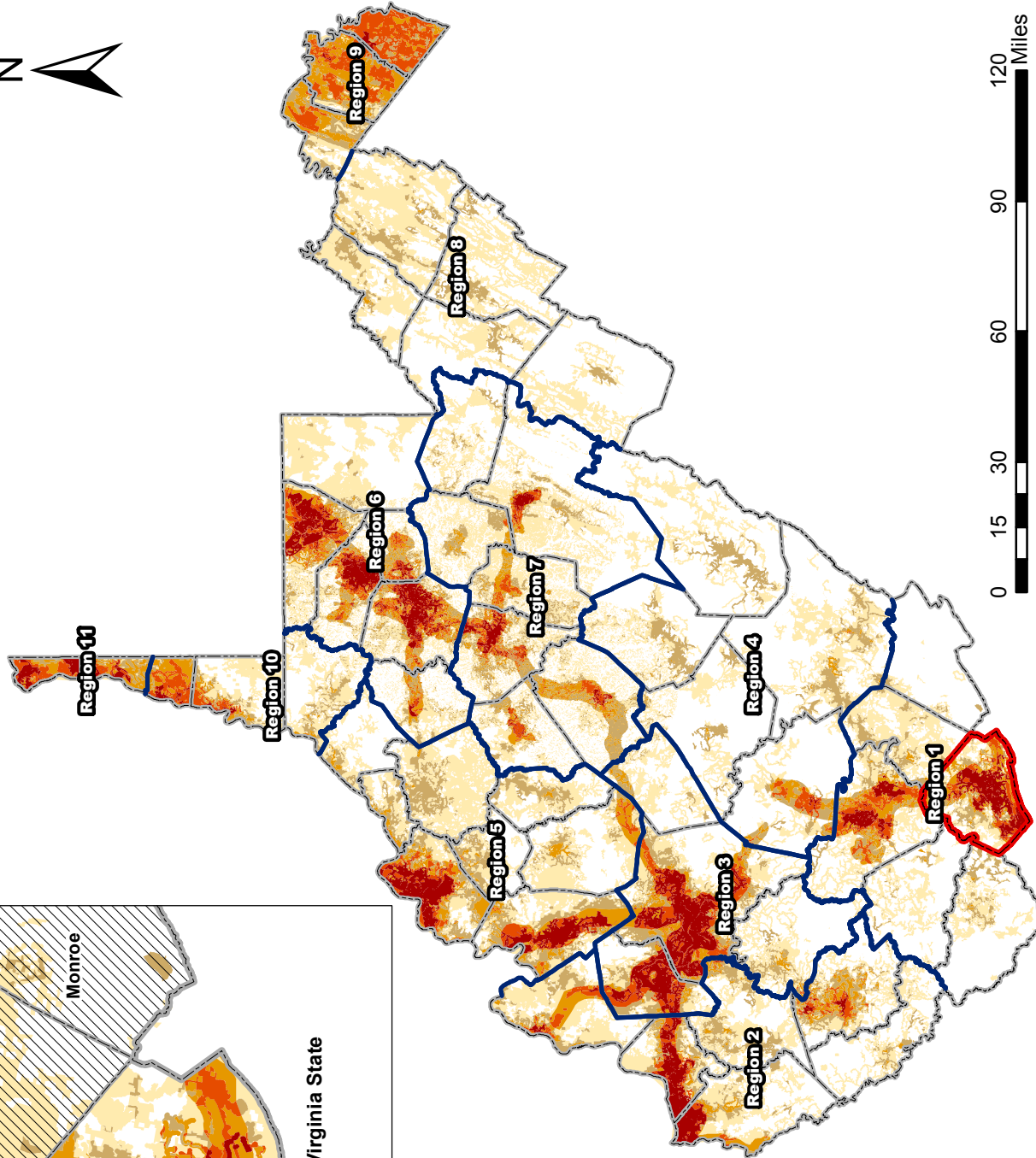
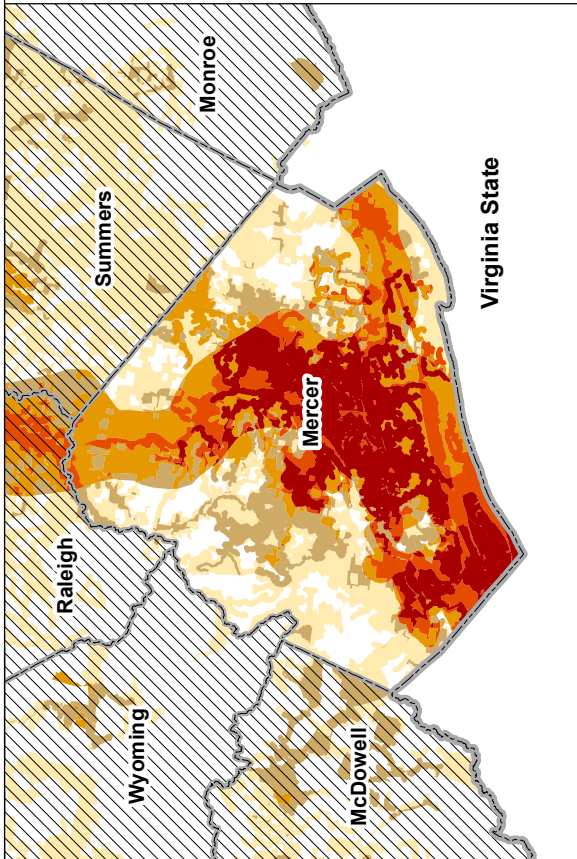
Source: West Virginia Broadband Mapping Program 2012

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Broadband - Internet Total Number of Providers

Mercer County



- Planning Regions Line
- 1 Provider
- 2 Providers
- 3 Providers
- 4 Providers
- 5 Providers
- County Boundaries

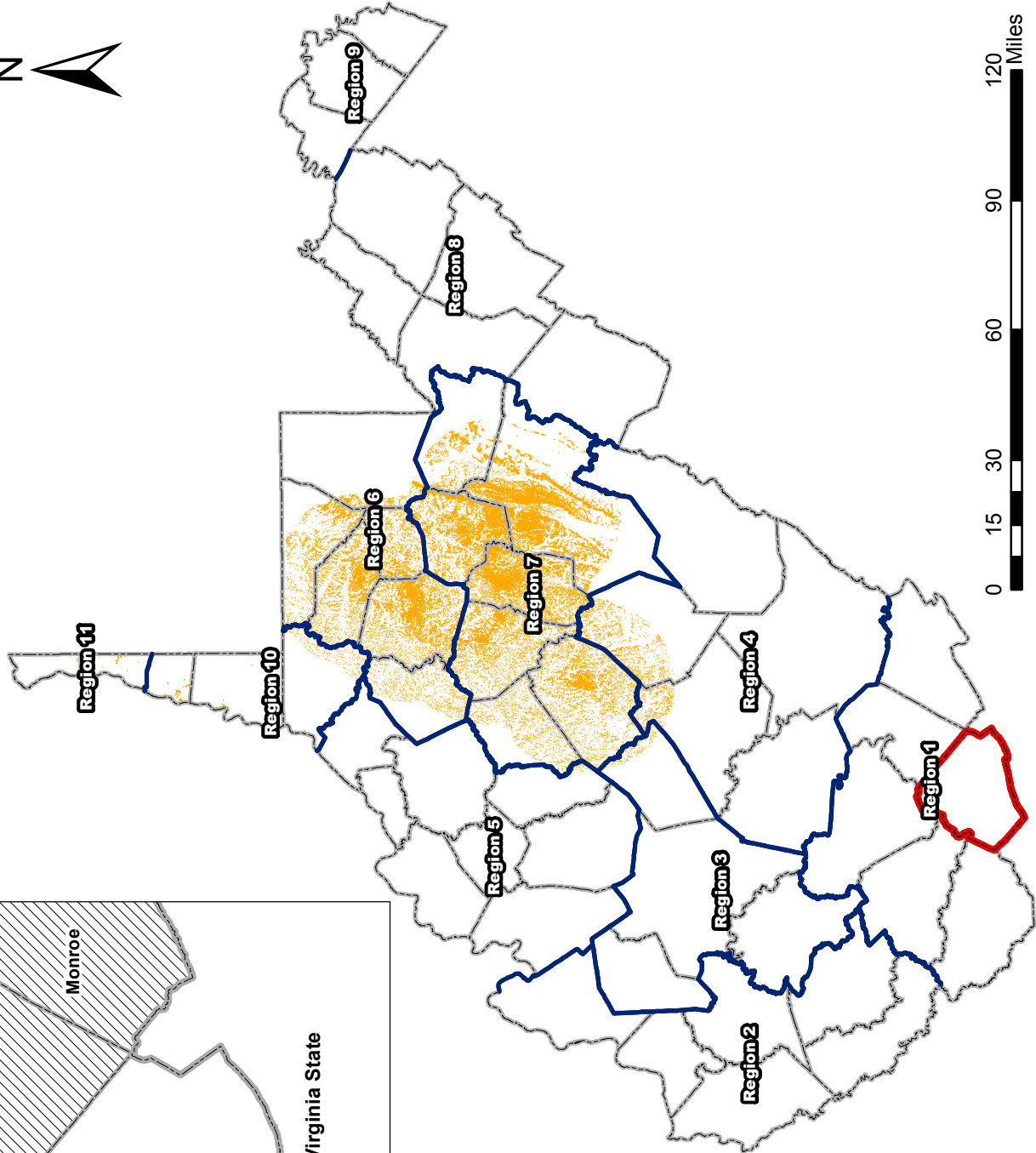
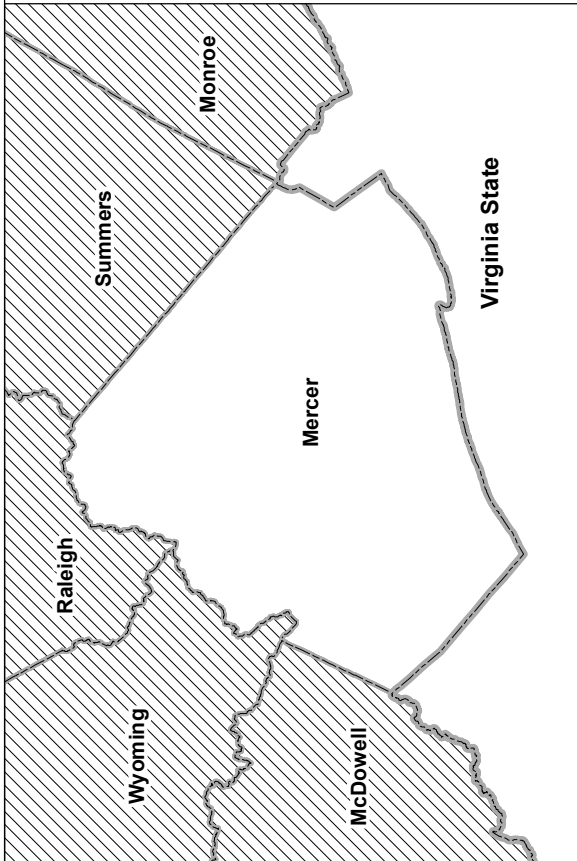
Source: West Virginia Broadband Mapping Program 2012




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Broadband - Internet Fixed Wireless Coverage

Mercer County



-  Planning Regions Line
-  Fixed Wireless
-  County Boundaries

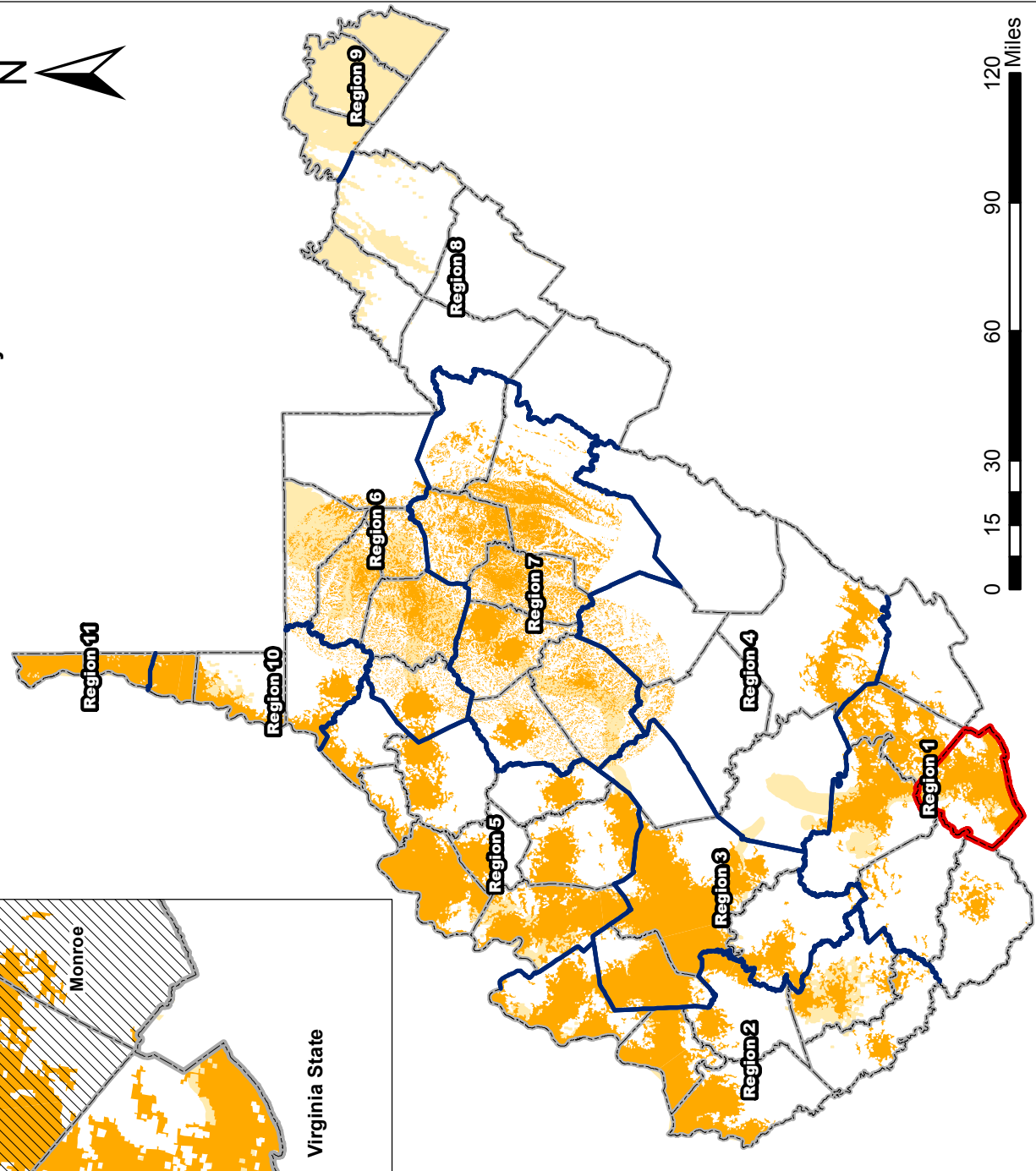
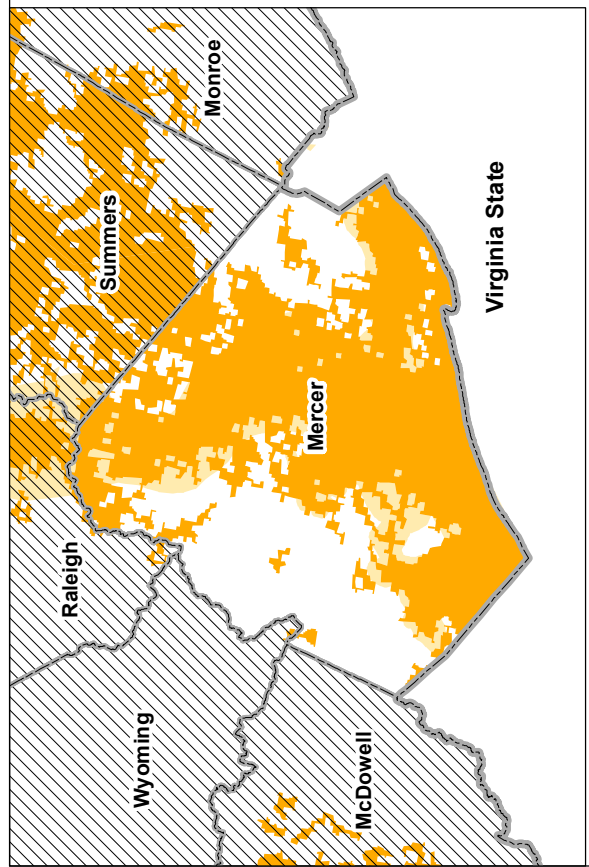
Source: West Virginia Broadband Mapping Program 2012





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Broadband - Internet MaxDown Speed Wireless

Mercer County



-  Planning Regions Line
-  768 kbps - 3 mbps
-  3 - 10 mbps
-  County Boundaries

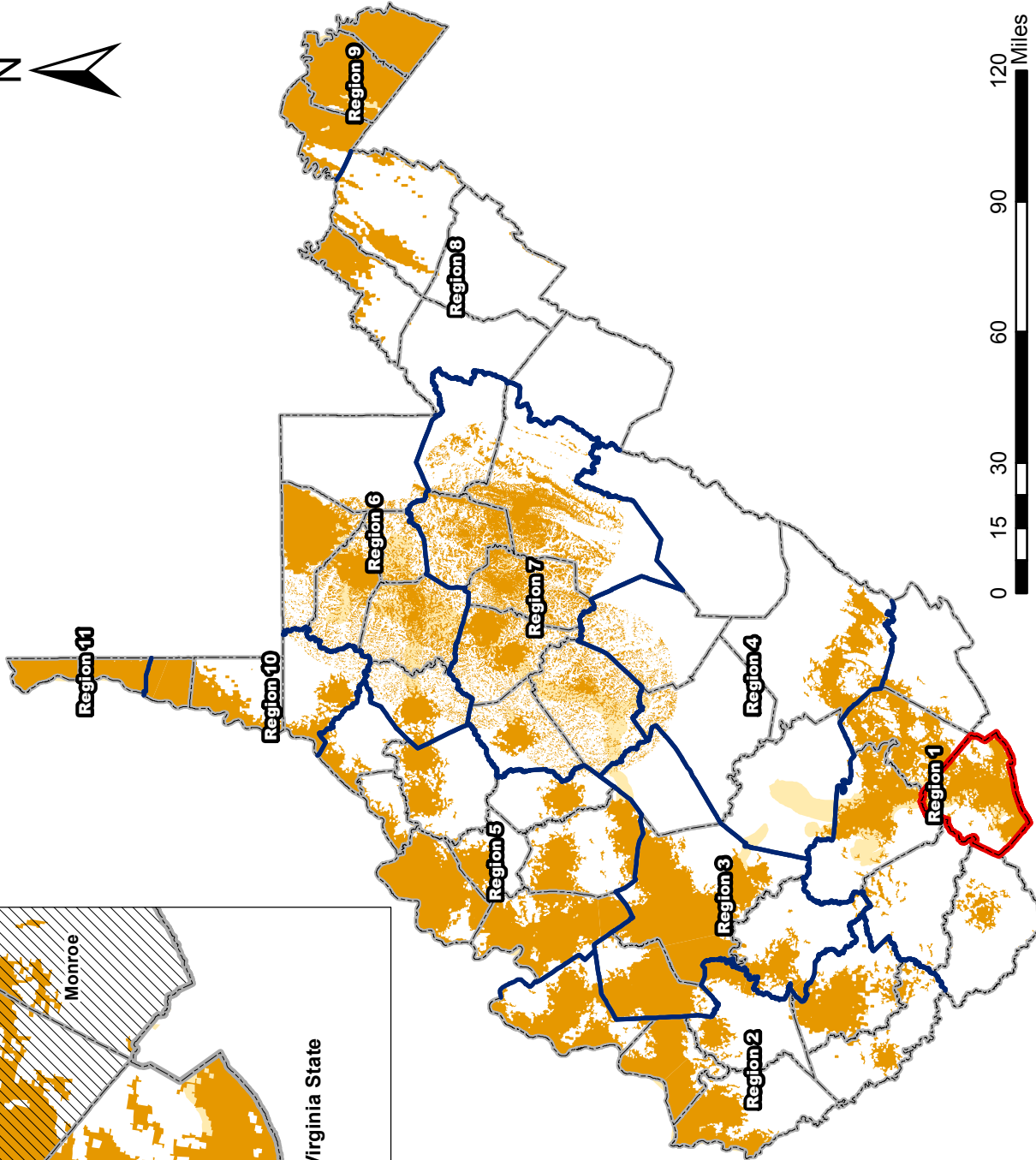
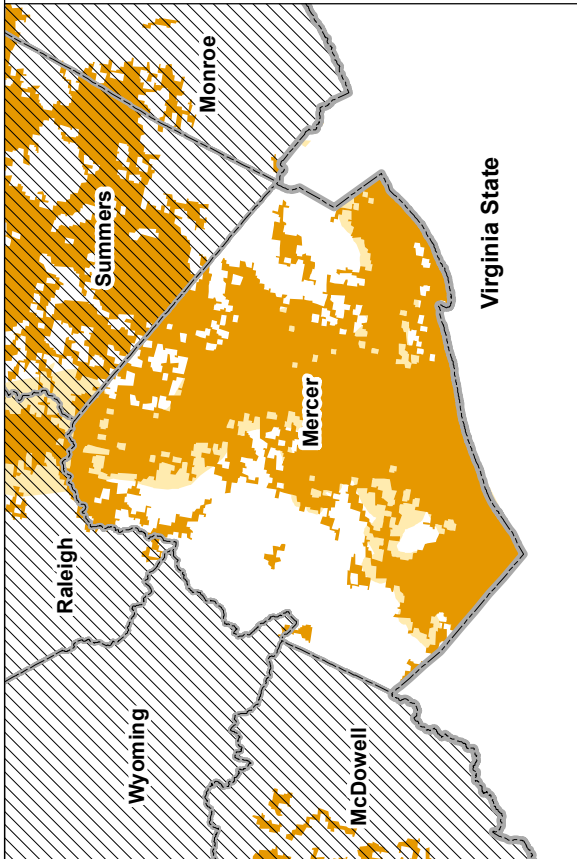
Source: West Virginia Broadband Mapping Program 2012





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Broadband - Internet MaxUp Speed Wireless

Mercer County



-  Planning Regions Line
-  200 - 768 kbps
-  768 kbps - 3 mbps
-  County Boundaries



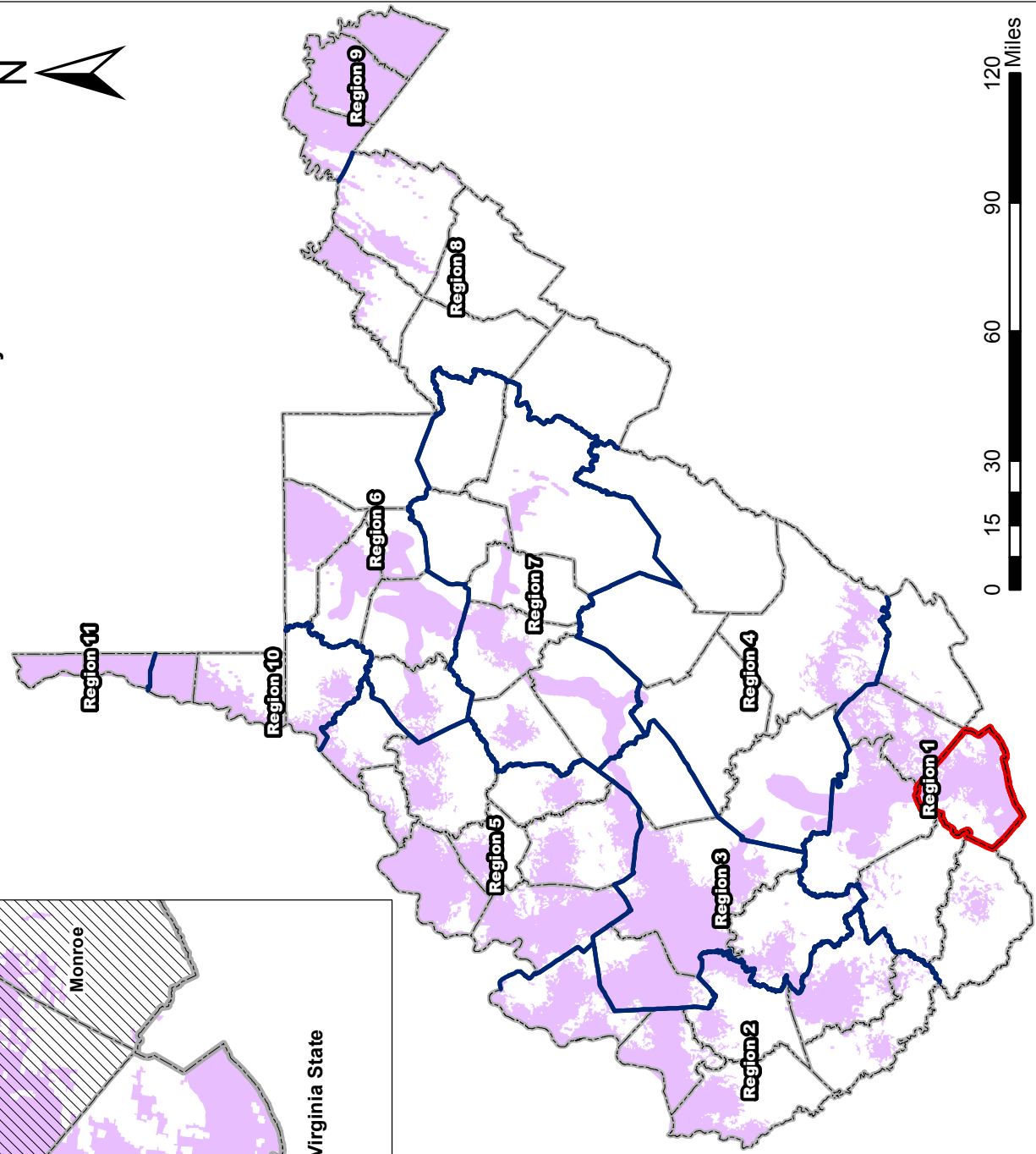
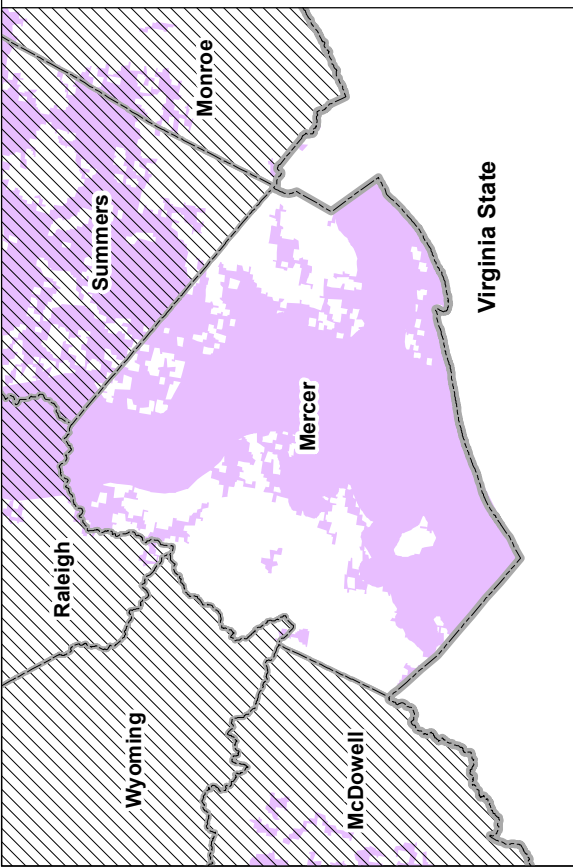
Source: West Virginia Broadband Mapping Program 2012




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Broadband - Internet Mobile Wireless Coverage

Mercer County



-  Planning Regions Line
-  Mobile Wireless
-  County Boundaries



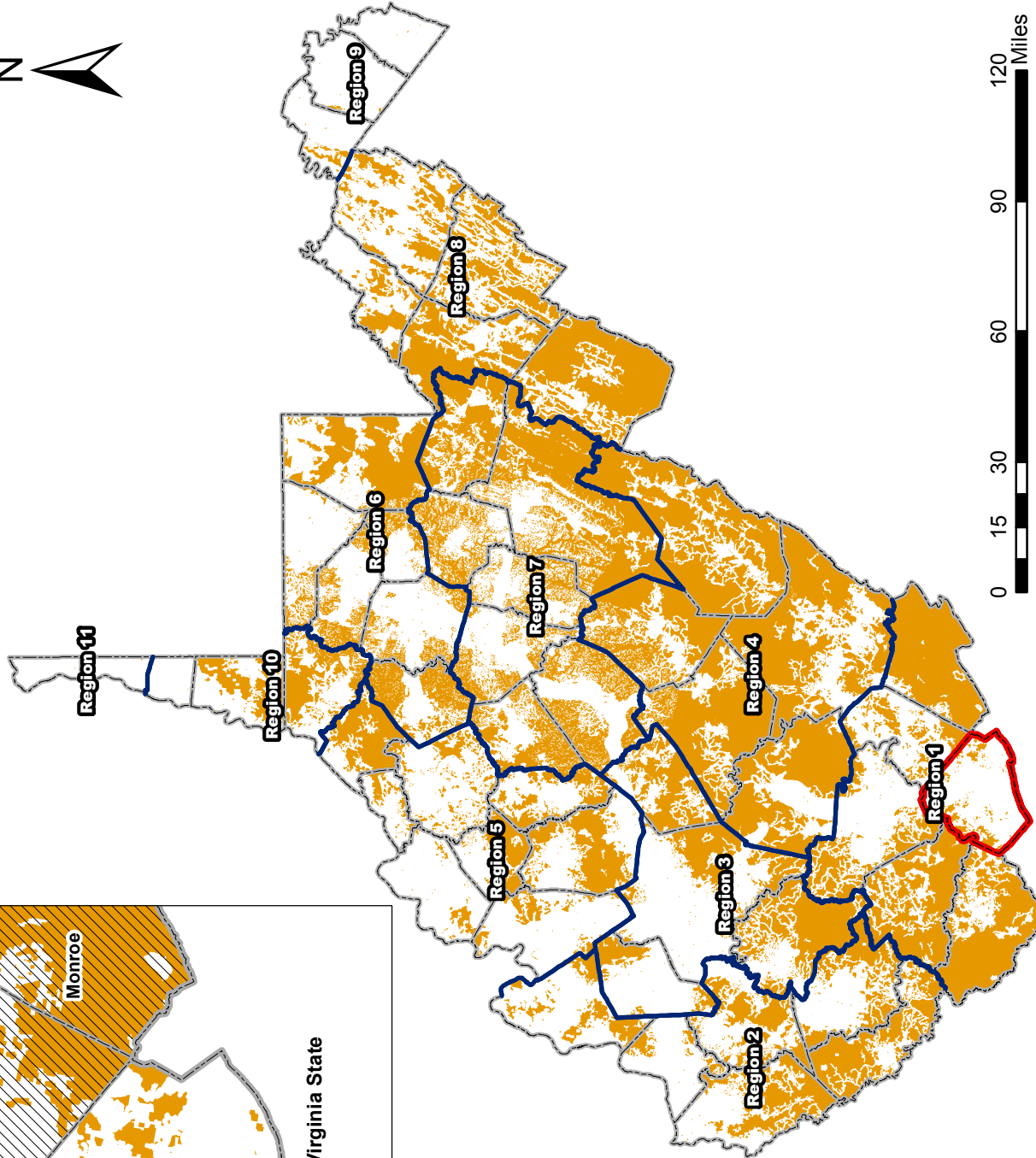
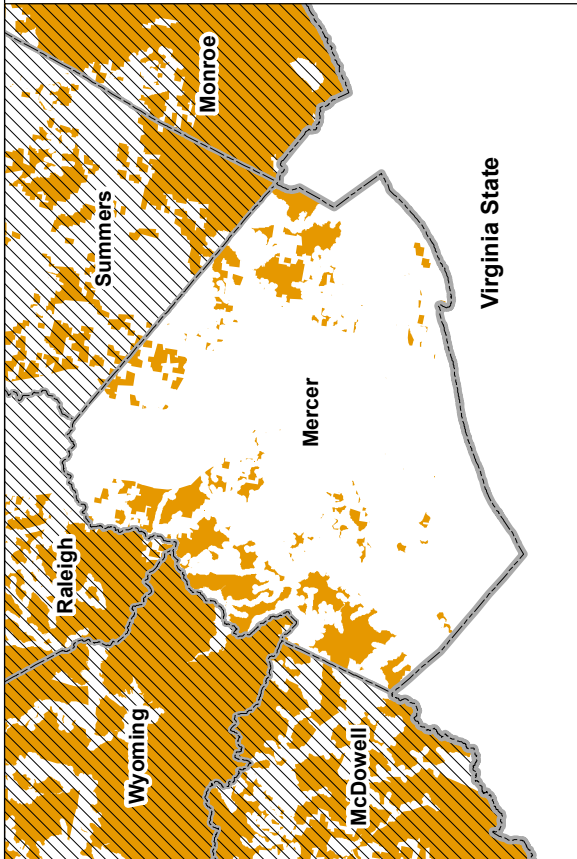
Source: West Virginia Broadband Mapping Program 2012




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Broadband - No Broadband Coverage

Mercer County



-  Planning Regions Line
-  No Coverage Reported
-  County Boundaries

Source: West Virginia Broadband Mapping Program 2012

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Transportation

Highways

Mercer County is traversed by Interstate 77, contains US Routes 19, 52, and 460, and State Routes 10, 20, 71, 102, 112, 123 and 598. It also has two proposed highways within its borders, the King Coal Highway and the Shawnee Highway (Map 26).

Rail

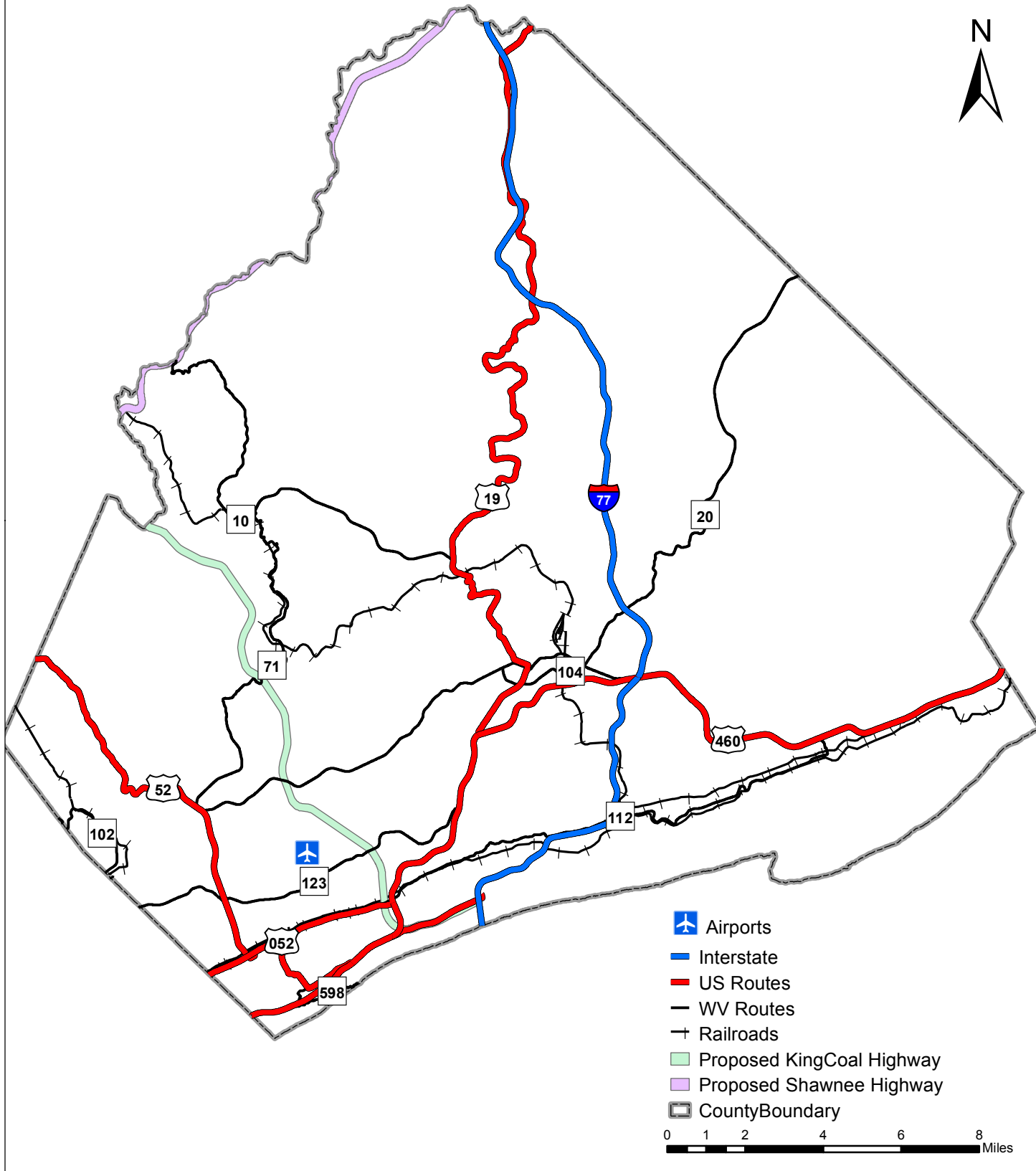
Mercer County has over 75 miles of rail track owned exclusively by Norfolk-Southern.

Air

Bluefield/Mercer County Airport is a small airport about 3 miles from the city of Bluefield. Twenty-two aircraft are based at the airport at its over 100-acre facility. It is owned by the Mercer County Airport Authority, which oversees its operations. It was activated in 1954.

Transportation

Mercer County



Source: Airports; United States Department of Transportation 2012, West Virginia GIS Technical Center; Interstate, US Routes, West Virginia Routes, Proposed KingCoal Highway, Proposed Shawnee Highway; West Virginia Department of Transportation 2012; Railroads; Rahall Transportation Institute 2012

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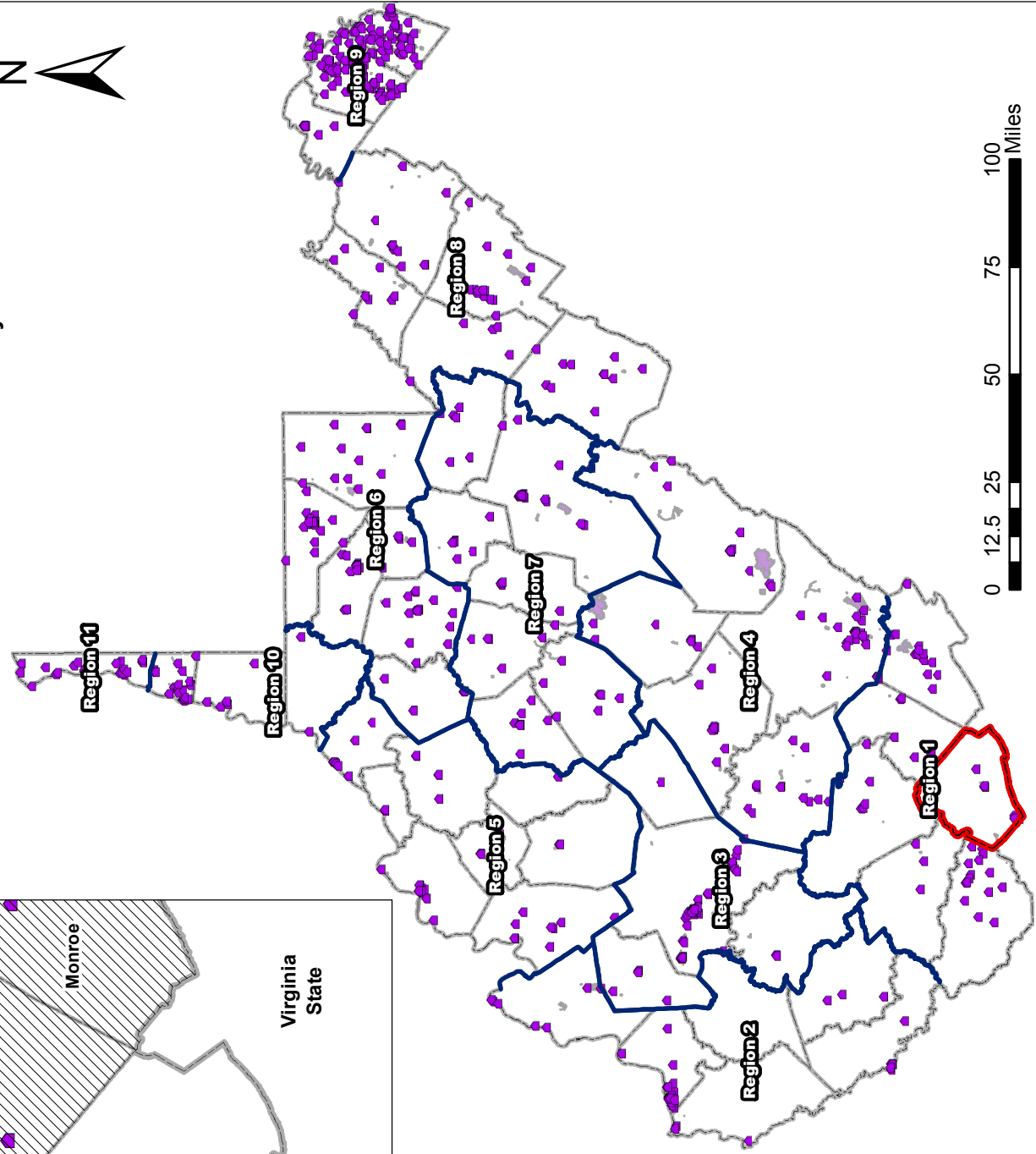
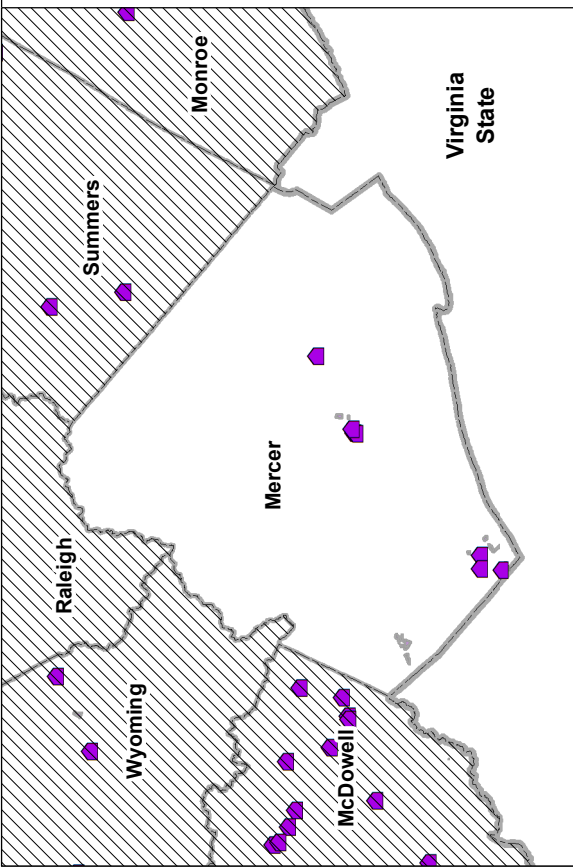






Historic Preservation

Historic preservation is essential in a state that is as steeped in early and coal mining history as West Virginia. Mercer County has 17 listings in the National Register of Historic Places. These include several historic districts and buildings that harken to Mercer County's post-colonial past (Map 27). Other historic areas have been designated by West Virginia. Map 28 gives a spatial position to each designated State historic piece of architecture.

National Register of Historic Place

Mercer County



-  National Register of Historic Place
-  Planning Regions Line
-  National Register of Historic Place (Area)
-  County Boundaries

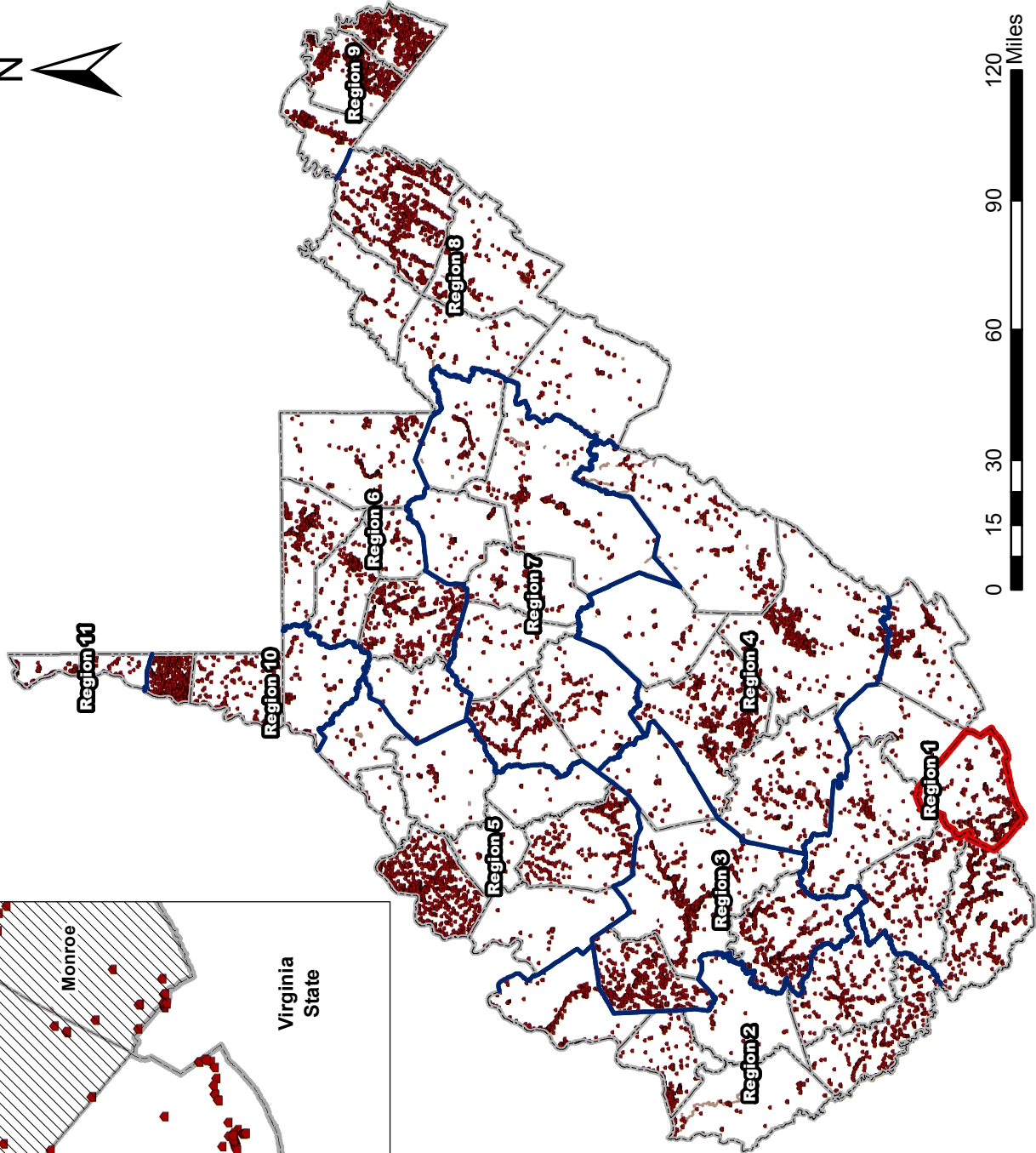
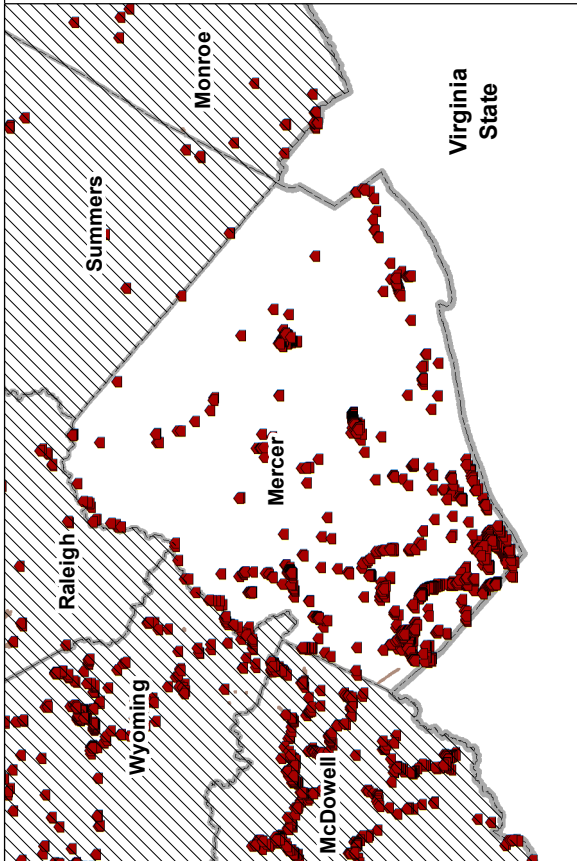
Source: West Virginia State Historic Preservation Office 2012

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State Historic Architecture

Mercer County



- State Historic Architecture
- Planning Regions Line
- State Historic Architecture (Area)
- County Boundaries



Source: West Virginia State Historic Preservation Office 2012

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Natural Resources, Environment, and Energy

Particular importance should be given to the spatial positions of natural resource areas, geographic environments, and potential energy resources in a county. This serves to inform potential investors about what possibilities the land provides for production of resources and energy. Mercer County has several advantages in these areas that can be utilized to the advantage of the citizens.

West Virginia has an extensive wetlands inventory, because of its extensive system of lakes, streams, and rivers. Wetlands provide many environmental benefits, including housing fish, replenishing groundwater, and relaying nutrients. Mercer County has a below average wetlands inventory (Map 29).

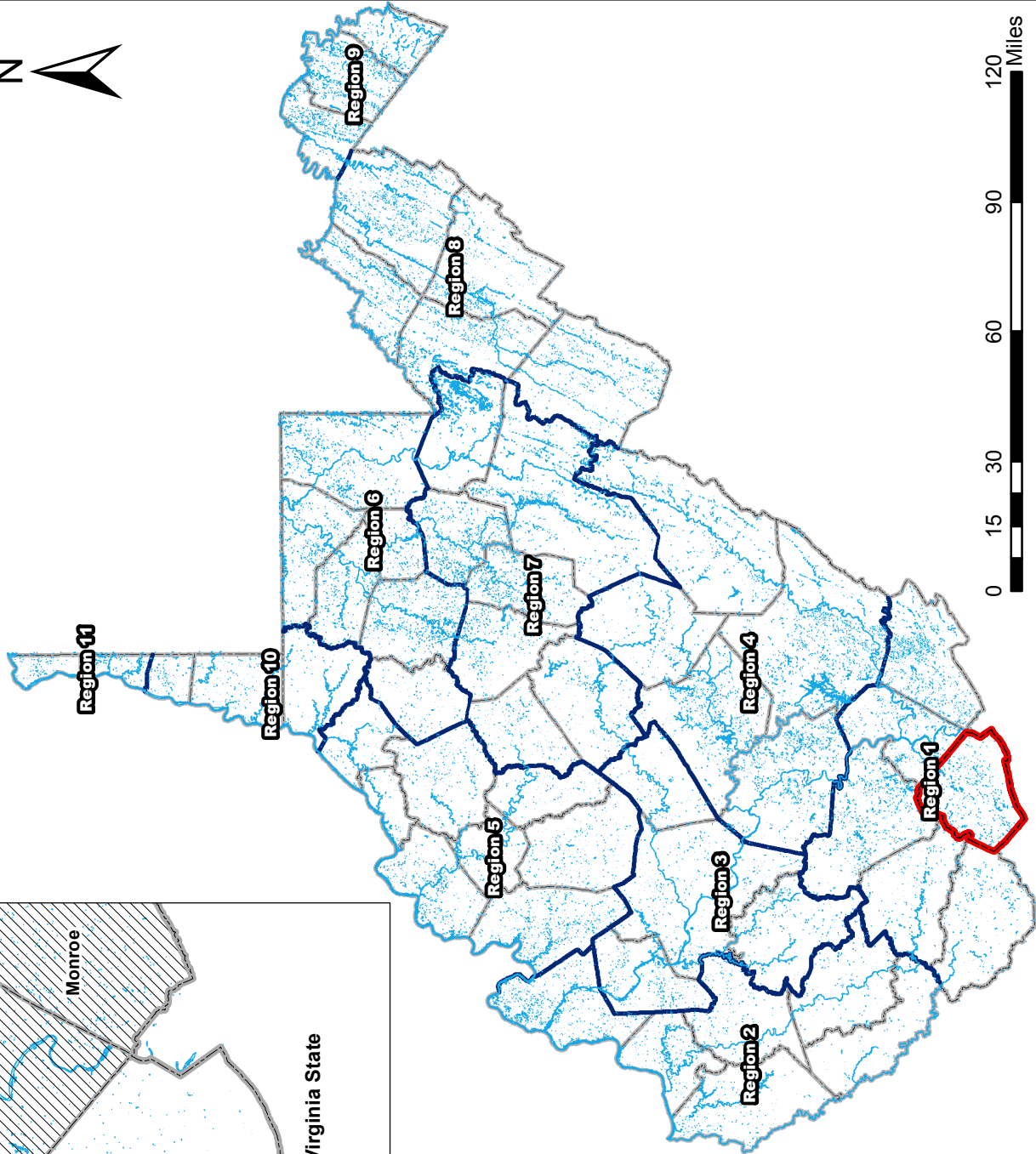
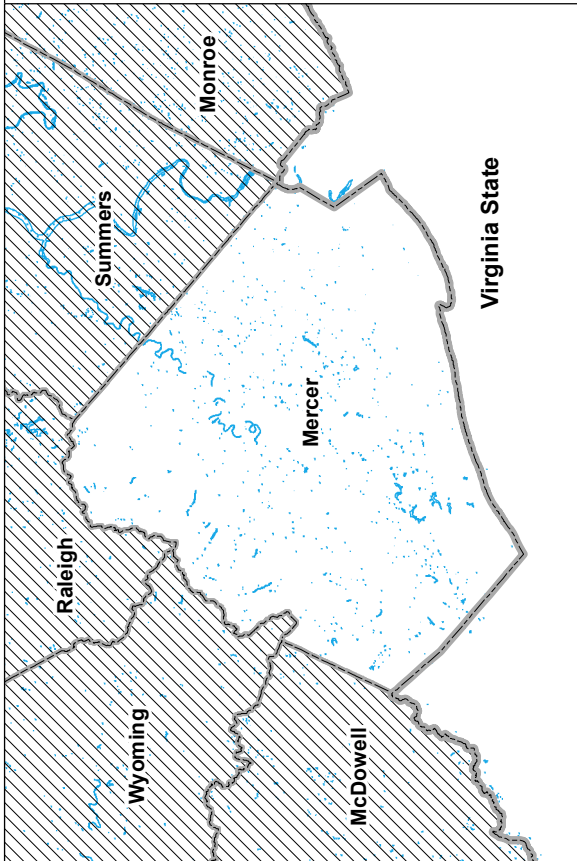
The State also possesses a respectable amount of park and forest land. Most of this land is located in the eastern portion of the State, the area that contains the main part of the Appalachian Mountain range. Mercer County contains a state forest, a state park, parts of a national park, and some wildlife management areas (Map 30).




Air quality is a necessary environmental health benchmark that can determine the health and vitality of an area's residents. The air pollution non-attainment areas are "areas of the country where air pollution levels persistently exceed the national ambient air quality standards."⁷ There are six full counties in West Virginia that are designated air pollution non-attainment areas, either in annual or 2006 24-hour standards as of the publication of this plan; Mercer County is not among them (Map 31).

⁷ "The Green Book Nonattainment Areas for Criteria Pollutants," Environmental Protection Agency, Accessed March 1, 2013, <http://www.epa.gov/oaqps001/greenbk/>.

Hydrology - National Wetlands Inventory

Mercer County



-  Planning Regions Line
-  National Wetlands Inventory
-  County Boundaries

Source: United States Fish and Wildlife Service 1996

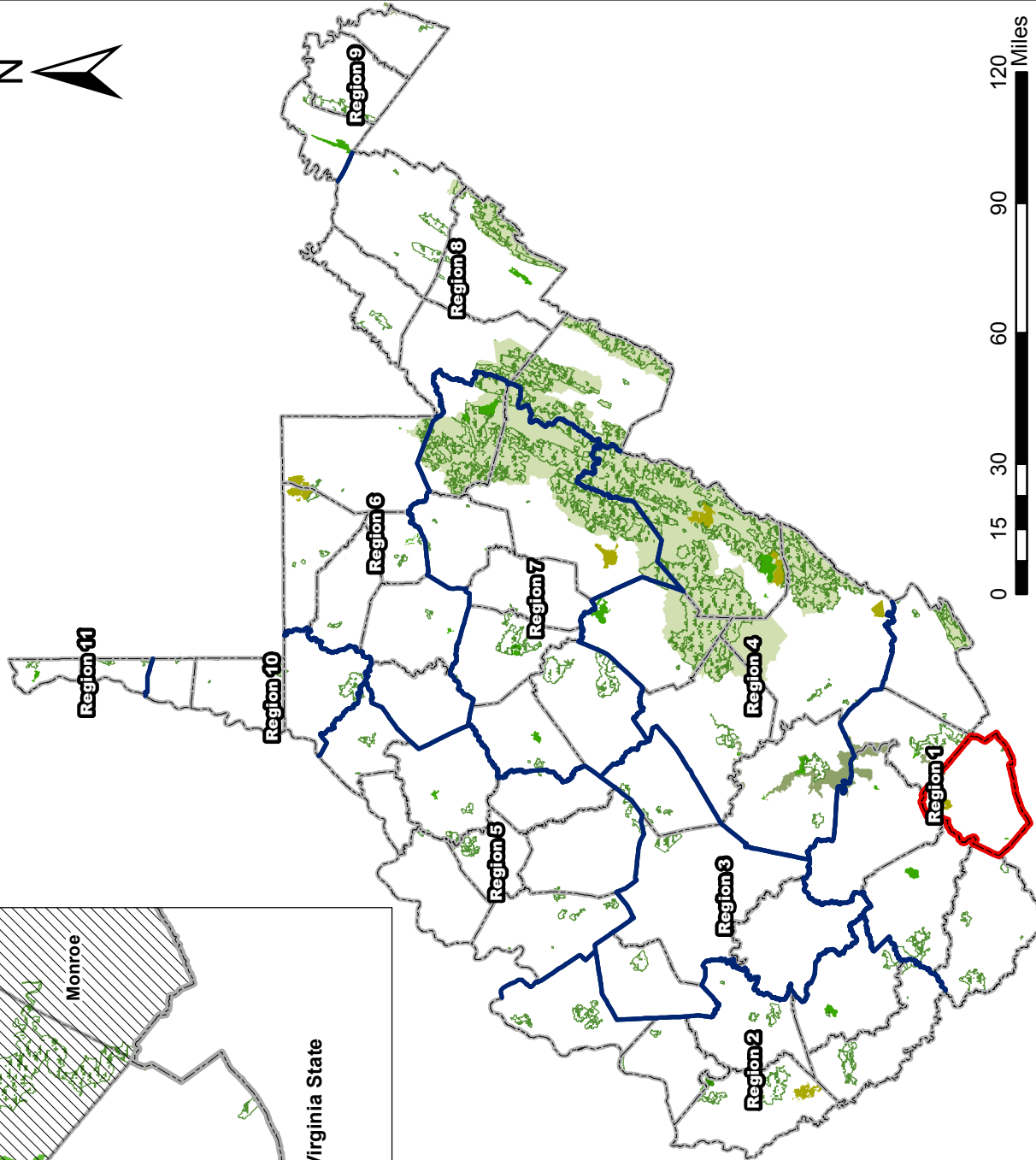
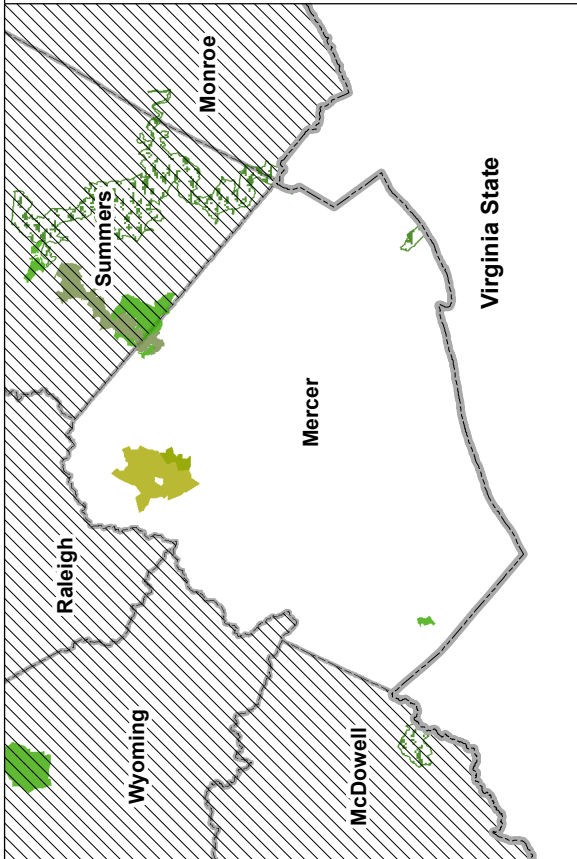
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Public Land - Parks and Forests

Mercer County



-  Planning Regions Line
-  Wildlife Management Areas
-  State Forest
-  State Park
-  National Forest
-  National Park
-  County Boundaries



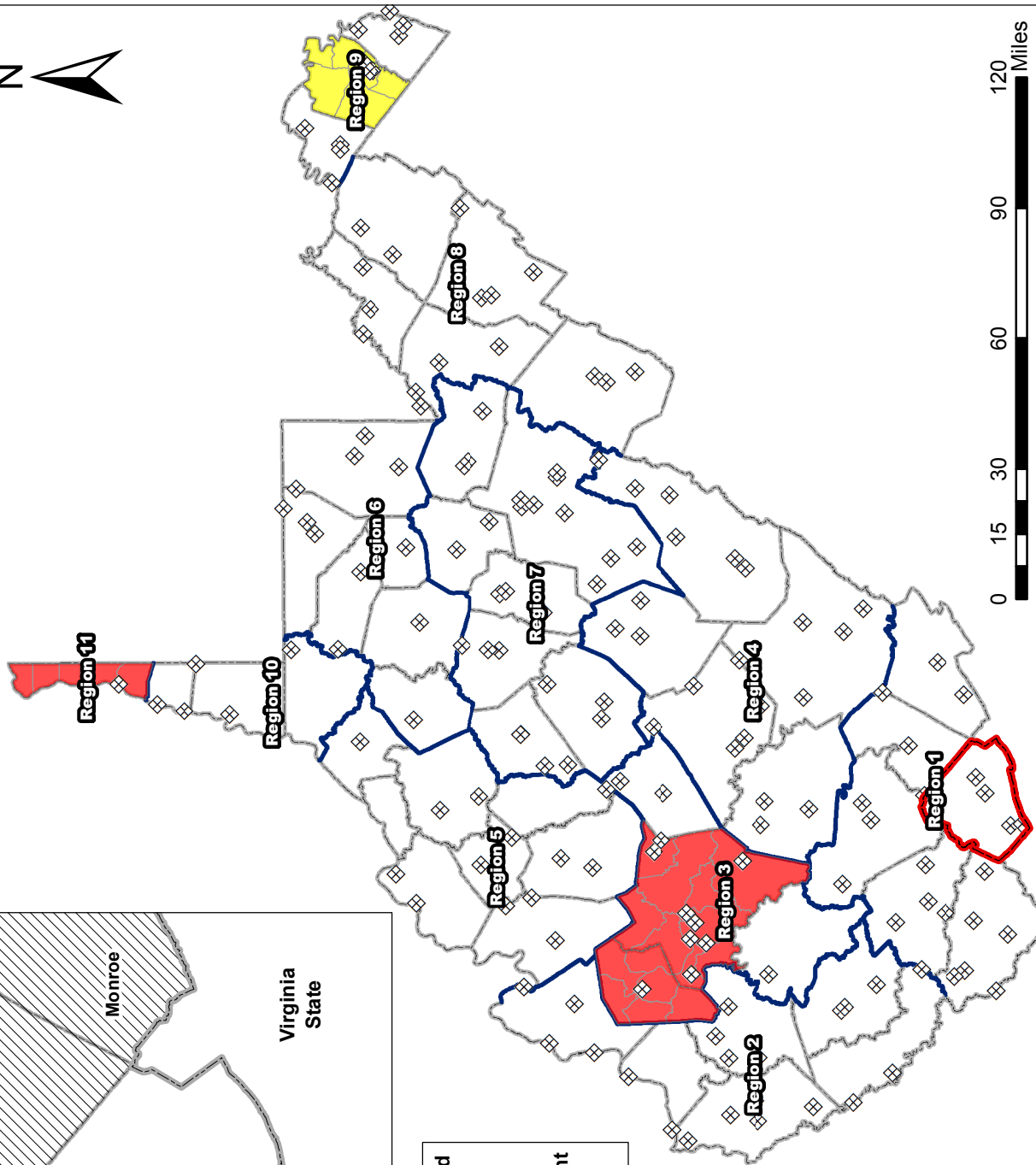
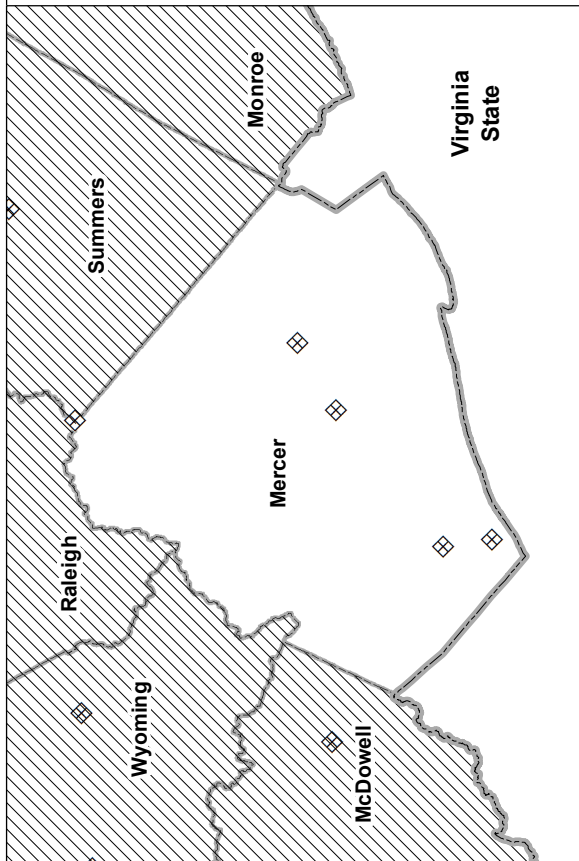
Source: Wildlife Management Areas; West Virginia Division of Natural Resources 2002; State Forest; West Virginia Division of Forestry 2004; State Park; West Virginia Division of Natural Resources; Natural Resource Analysis Center 2000; National Forest; United States Forest Service 2003; National Park; United States National Park Service 2003

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Environment - Monitoring

Mercer County



+ On December 28, 2012, U.S.EPA re-designated Cabell and Wayne Counties and the Graham Tax District in Mason County to attainment for the 1997 NAAQS.
 + September , 2013, U.S.EPA re-designated Wood, Marshall and Ohio Counties and the Grant Tax District in Pleasants County to attainment for the 1997 NAAQS.

- ◇ Weather_ Stations
- Planning Regions Line
- Air Pollution Non Attainment Areas**
 - PM2.5 Nonattainment Areas (for both the Annual and the 2006 24-hr Standards)
 - PM2.5 Nonattainment Areas (Annual)
- ▭ County Boundaries

Source: Weather Stations; National Oceanic and Atmospheric Administration 1999; Air Pollution Non Attainment Areas; West Virginia Department of Environmental Protection and United States Environmental Protection Agency, 2013

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West Virginia's past and most likely its future are defined by energy. Besides coal, other options for energy have been investigated in the State. Gas and oil are of course the main energy staples in the nation, and West Virginia has access to this energy in a number of ways. Mercer County has no oil fields or pipelines and has only a few gas pipes (Map 32). Mercer County does not have extensive play in the Marcellus Shale, as most of the County shale thickness is unknown (Map 33). The Marcellus Shale will continue to be a major player in West Virginia's energy layout for the foreseeable future, and as technology improves recoverability may also. Mercer County has developed its current system to meet current energy needs.

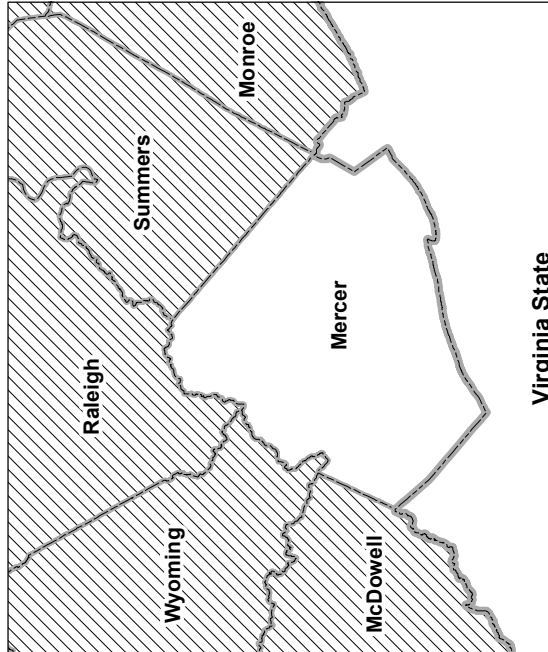
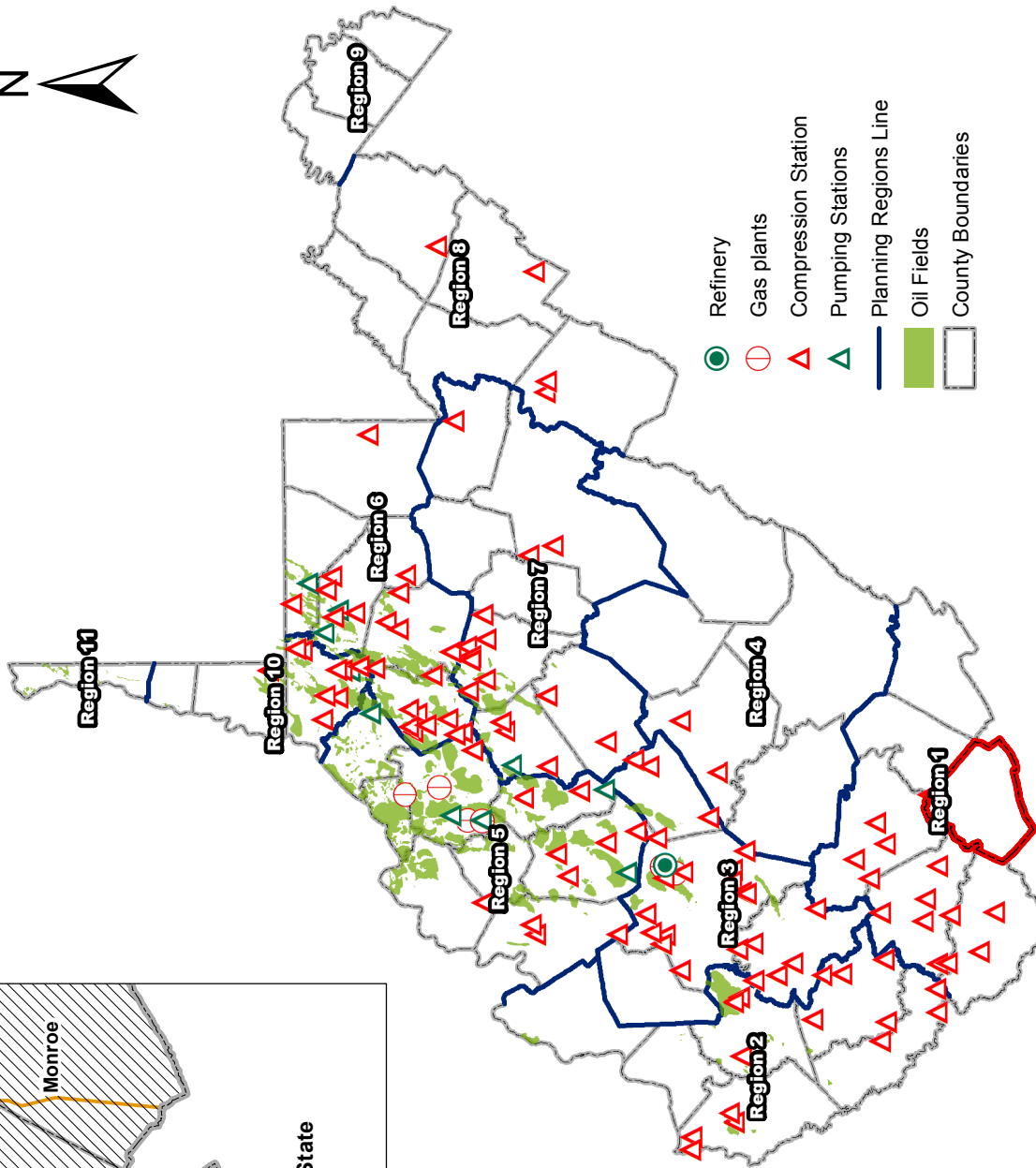
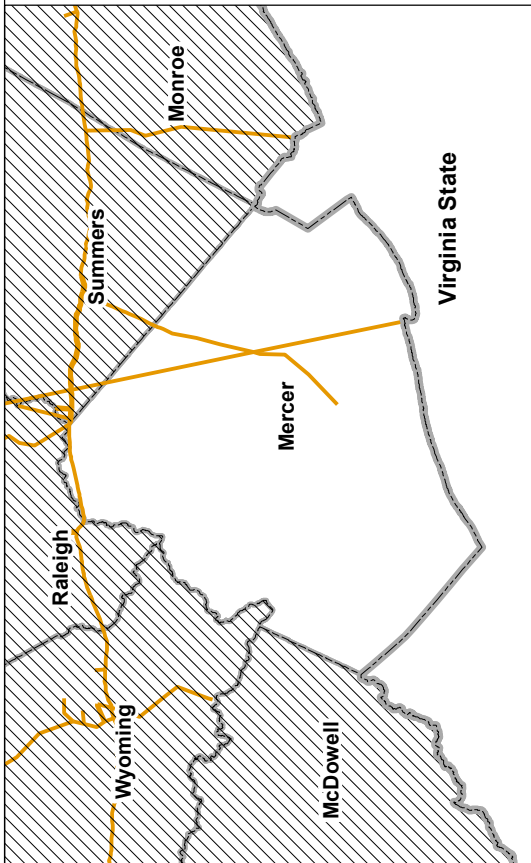
Potential renewable energy sources were also examined. Wood byproducts are a potential energy source classified as biomass energy. Naturally it is most useful in areas with a great deal of wood products. West Virginia is one of the most forested States in the country. Mercer County appears to be one of the most forested counties in West Virginia (Map 34). However, there is no activity in the wood byproducts industry, indicating a potentially major untapped renewable resource (Maps 35 and 36). Other potential renewable energy sources include geothermal (Map 37), solar (Map 38), and wind (Map 39). Each of these resources was examined in a recent report from the Center of Business and Economic Research at Marshall University.⁸ None of these sources was "likely to provide fuel or electricity at a lower cost" than coal and oil. Subsidizing these resources appears to be the only way to encourage faster growth in consumption, and in some cases they still have very limited potential in West Virginia. Geothermal energy appears to have great potential in certain parts of the State, as shown in Map 37, but Mercer appears to be one of the counties least favorable for development. However, the County is more favorable for solar development than other counties, and several areas along the border are superb places for wind development. Still, technology is not predictable, and improvements could occur in each of these resource areas that will make generation more feasible. Efforts to monitor research in all these areas should be undertaken to make use of any potential developments.⁹

⁸ Kent, Calvin, Risch, Christine, and Pardue, Elizabeth. *Renewable Energy Policy: Opportunities for West Virginia*. Center for Business and Economic Research, Huntington, WV (2012).

⁹ Ibid.

Energy - Gas and Oil

Mercer County



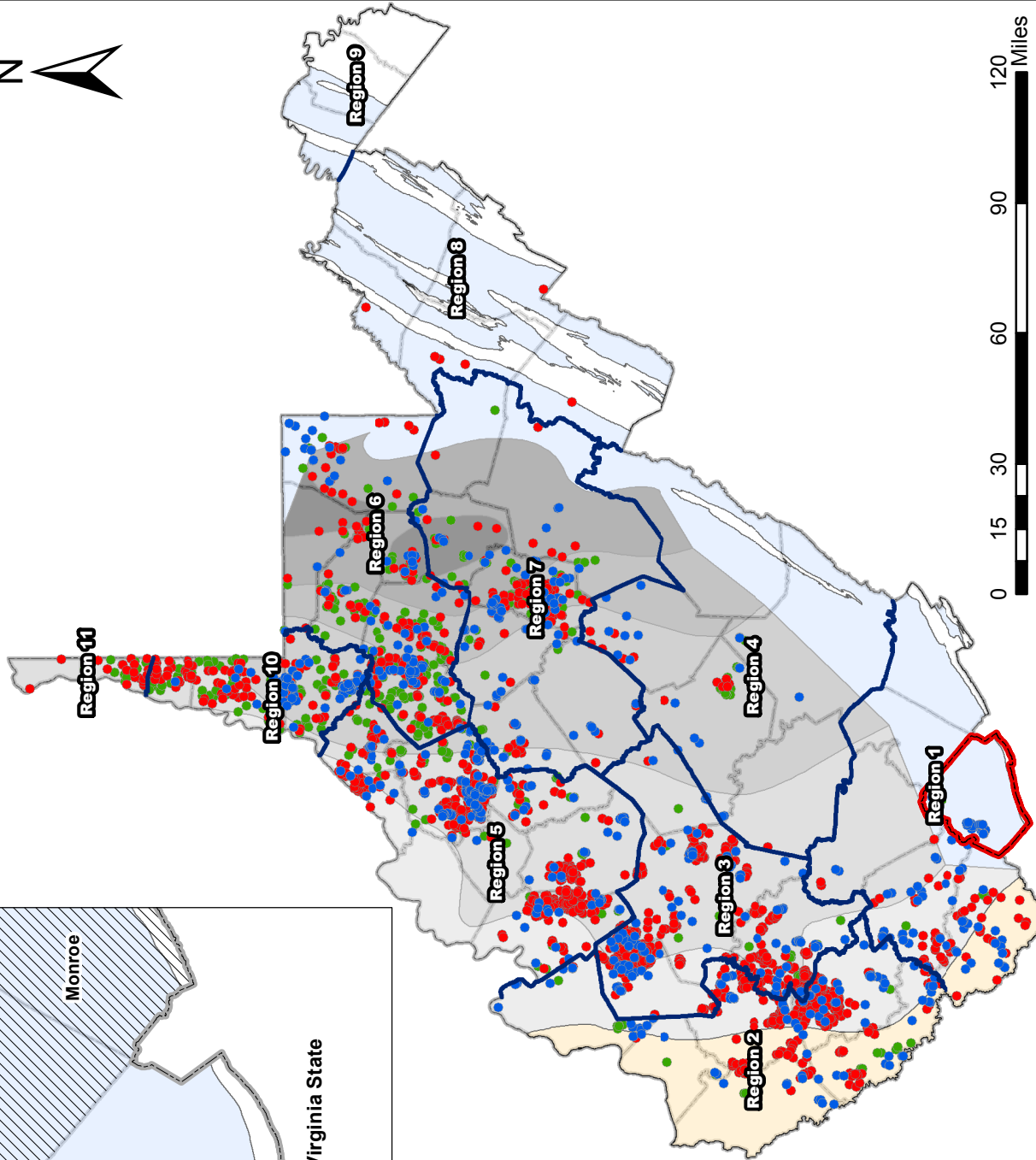
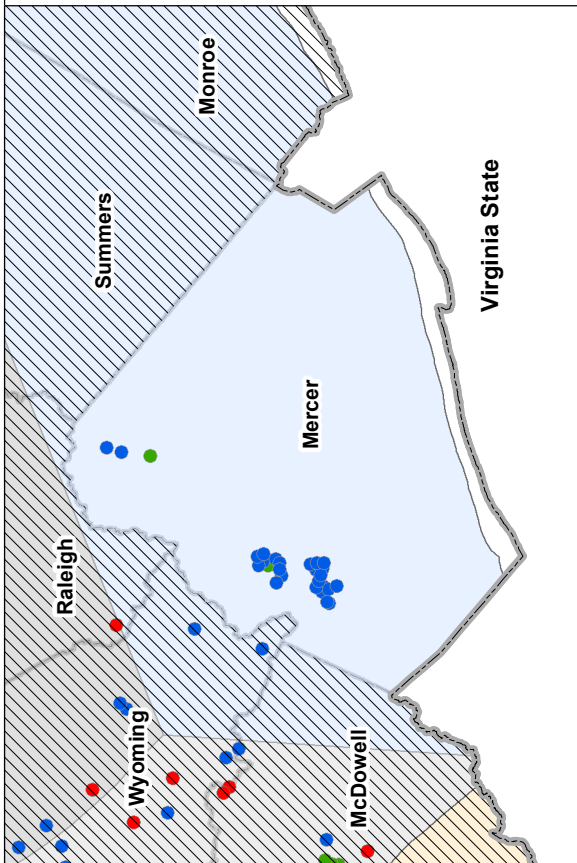
Source: West Virginia Geological and Economic Survey 2007

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Energy - Marcellus Wells

Mercer County



- Cancelled Marcellus Wells
- Completed Marcellus Wells
- Permitted Marcellus Wells
- Planning Regions Line
- 0 ft. - 20 ft.
- 21 ft. - 40 ft.
- 41 ft. - 60 ft.
- 61 ft. - 80 ft.
- 81 ft. - 100 ft.
- Over 100 ft.
- Possible/Uncertain Marcellus
- Uncertain thickness
- Marcellus assumed to be absent
- County Boundaries

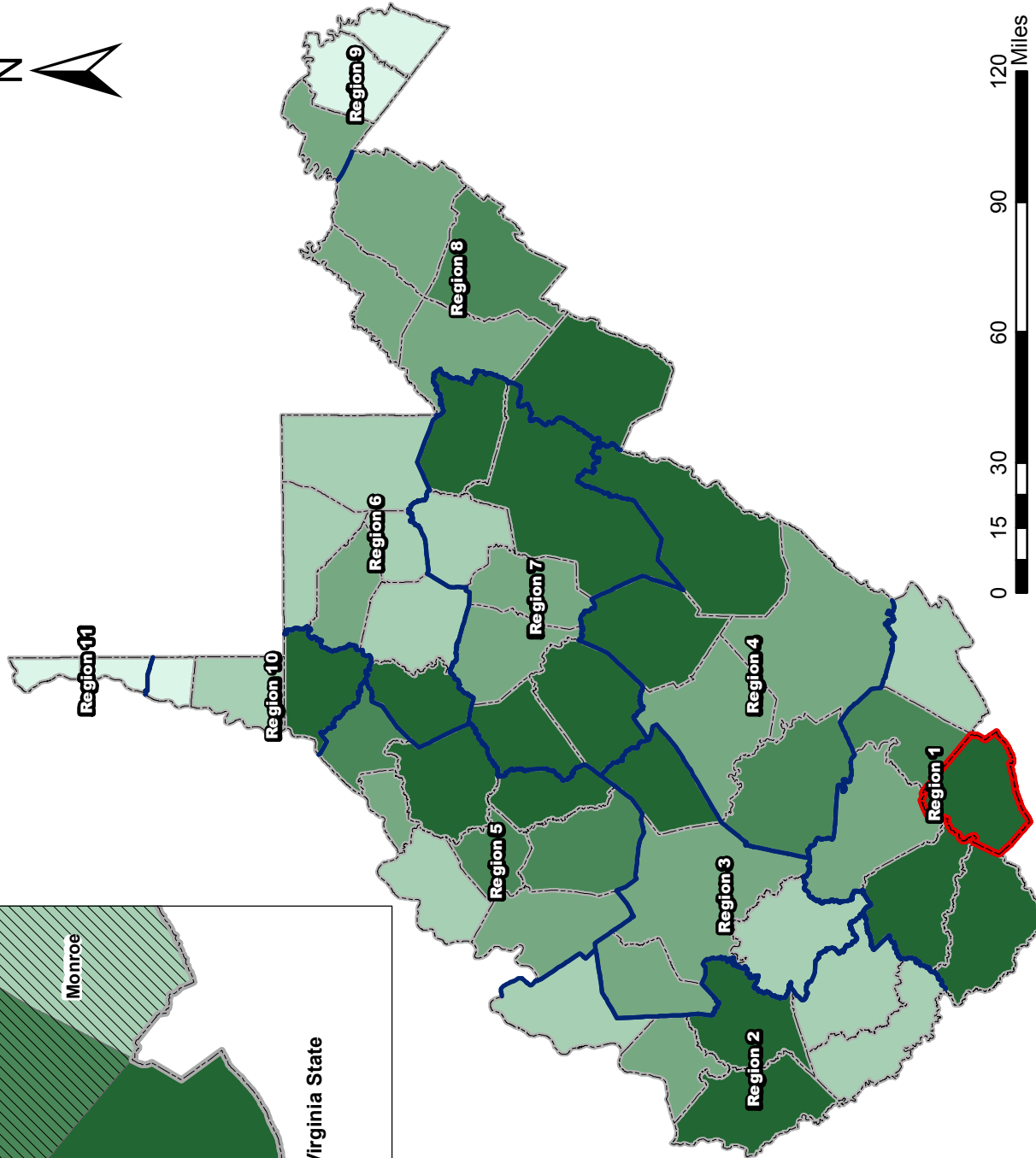
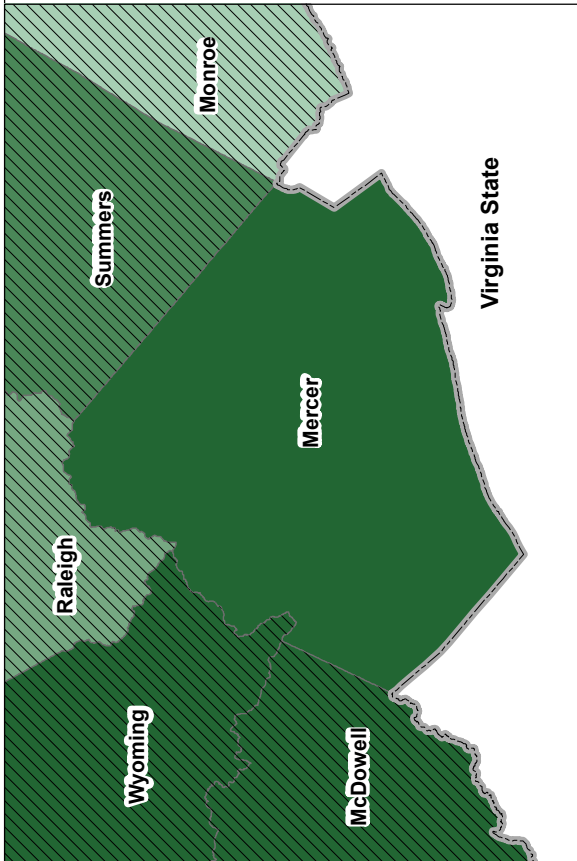
Source: West Virginia Geological and Economic Survey 2013

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Energy - Percent Forest Coverage

Mercer County



- Planning Regions Line
- 45.87% - 65%
- 65.01% - 75%
- 75.01% - 82%
- 82.01% - 85%
- 85.01% - 100%
- County Boundaries

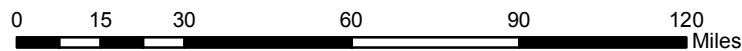
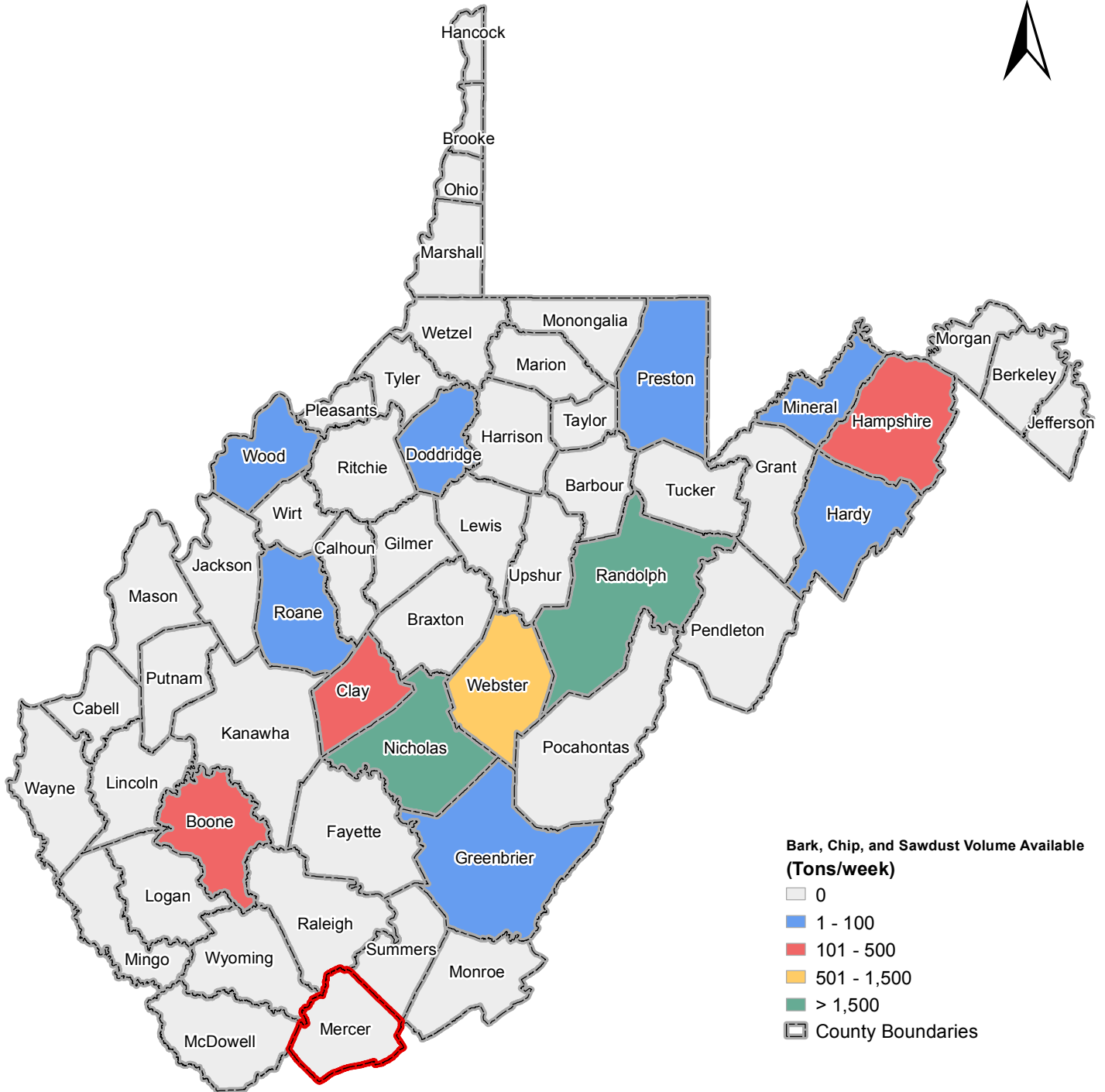
Source: Rahaal Transportation Institute 2013

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Renewable Energy - Wood By Products

Bark, Chip, and Sawdust Volume Available - Mercer County



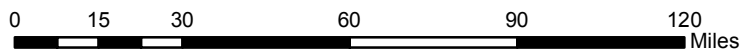
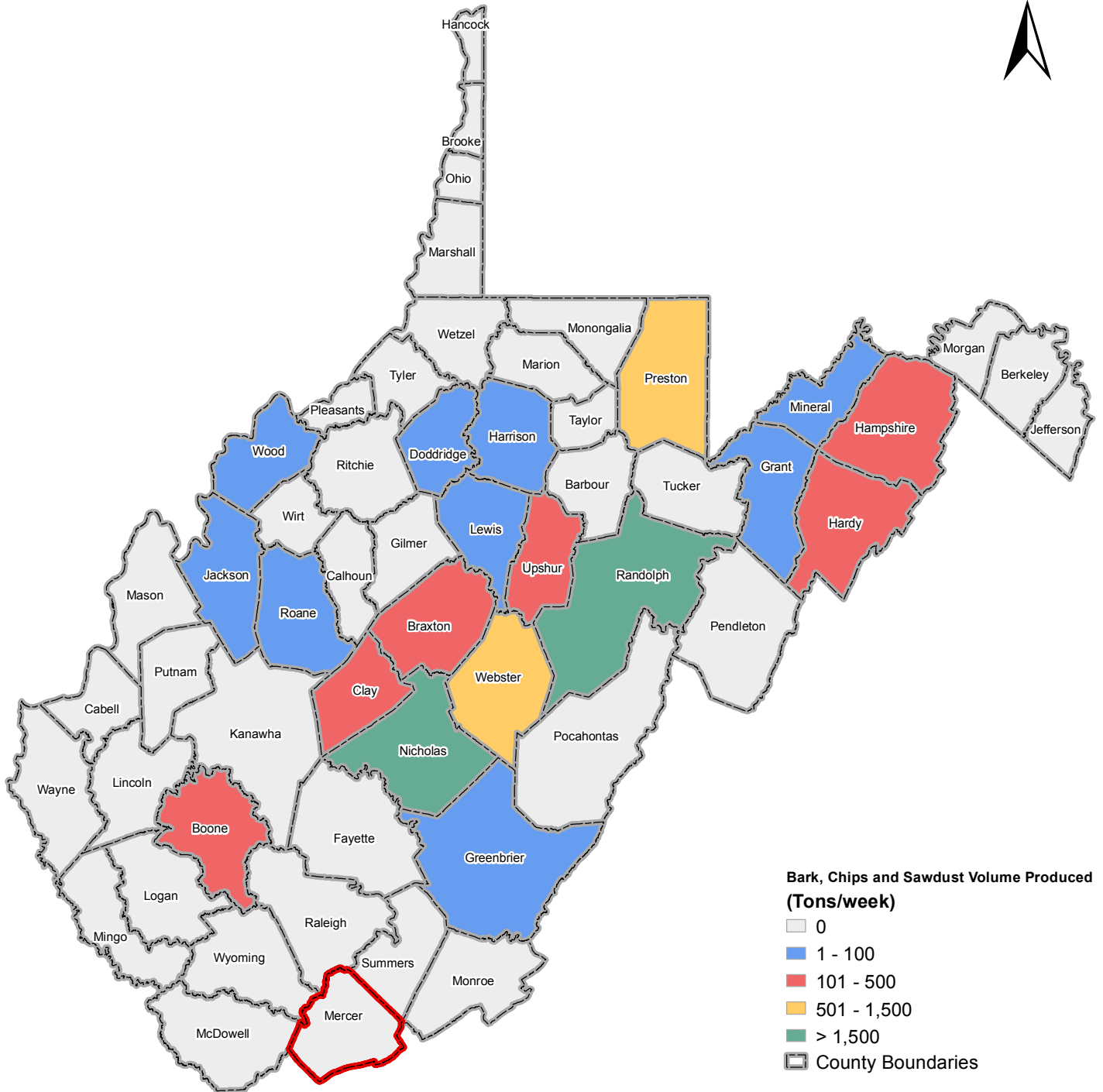
Source: Appalachian Hardwood Center 2011

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Renewable Energy - Wood By Products

Bark, Chip and Sawdust Volume Produced - Mercer County



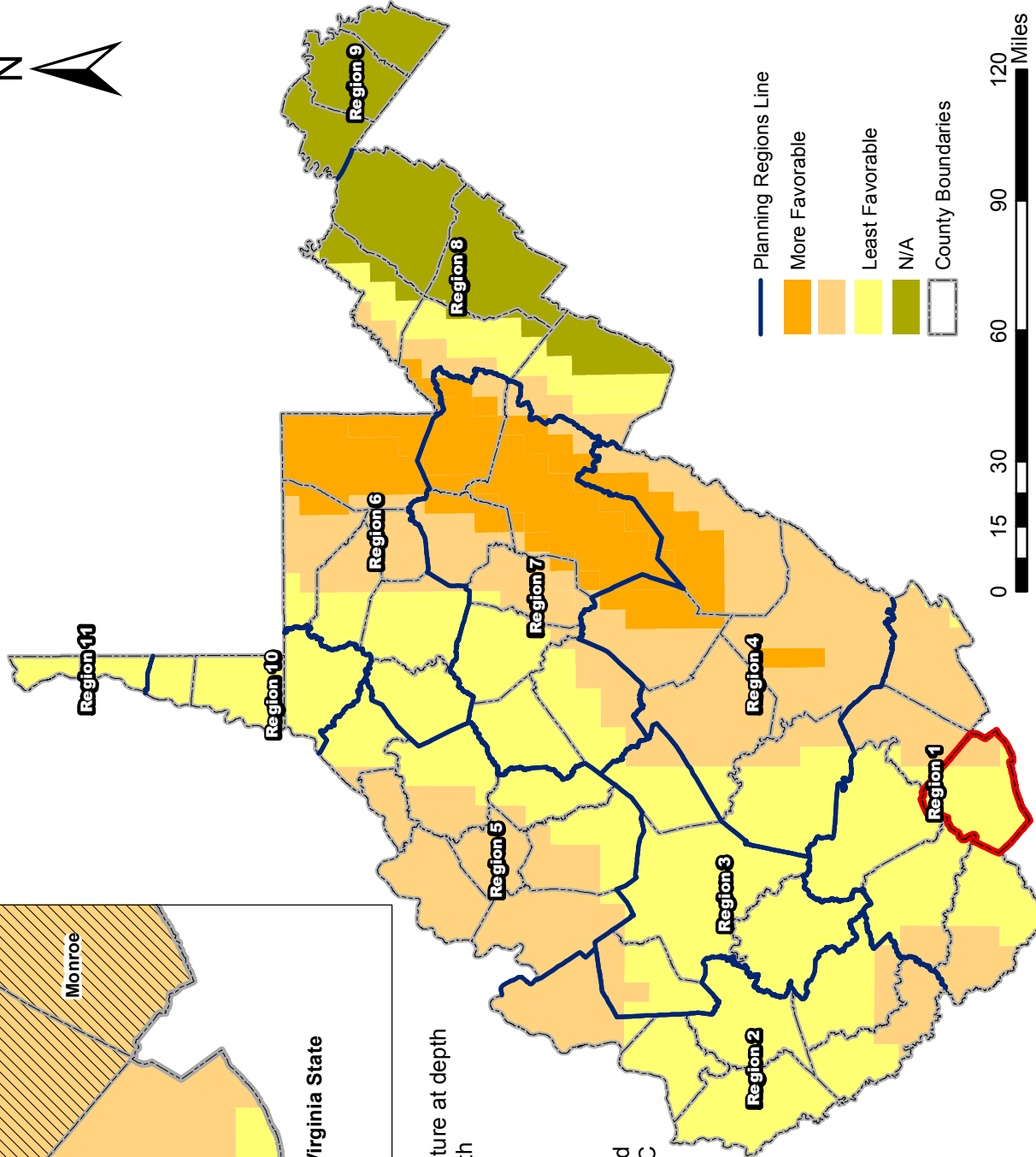
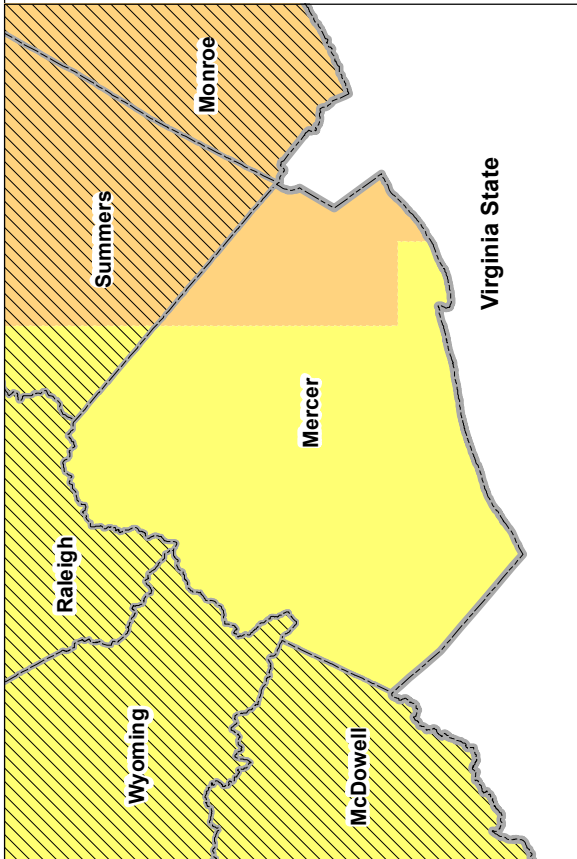
Source: Appalachian Hardwood Center 2011

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Energy - Geothermal Resource of Mercer County

Favorability of Deep Enhanced Geothermal Systems



- Planning Regions Line
- More Favorable
- Least Favorable
- N/A
- County Boundaries



– Source data for deep EGS includes temperature at depth from 3 to 10 km and analyses (for regions with temperatures \geq 150 degrees C).

– Class values reflect relative favorability, with 1 being more favorable, 3 being least favorable, and "N/A" regions not having been assessed due to temperatures less than 150 degrees C at 10 km depth.

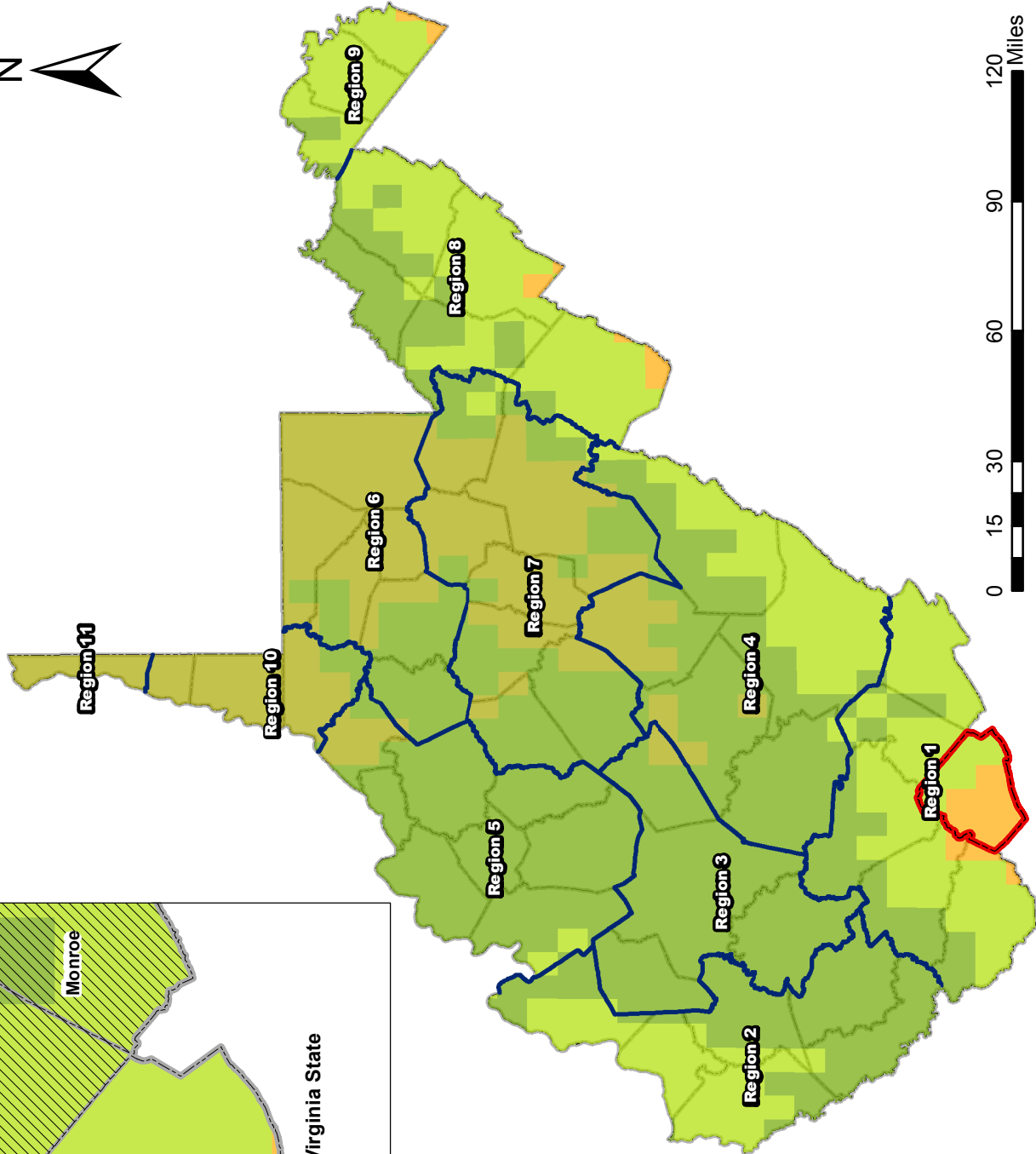
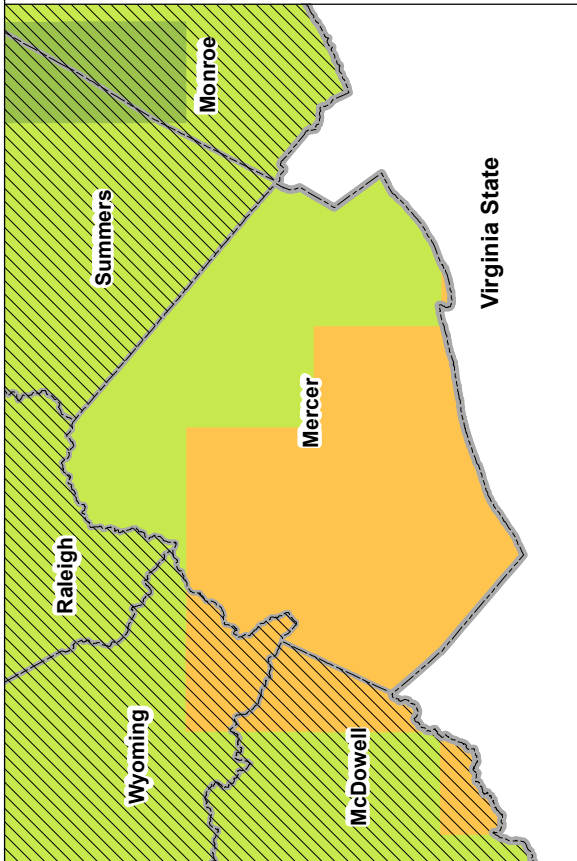
Source: National Renewable Energy Laboratory 2009

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Solar - Renewable Energy

Mercer County



— Planning Regions Line

(kWh/m²/day)

4.2 - 4.4

3.9 - 4.1

3.7 - 3.8

3.4 - 3.6

□ County Boundaries



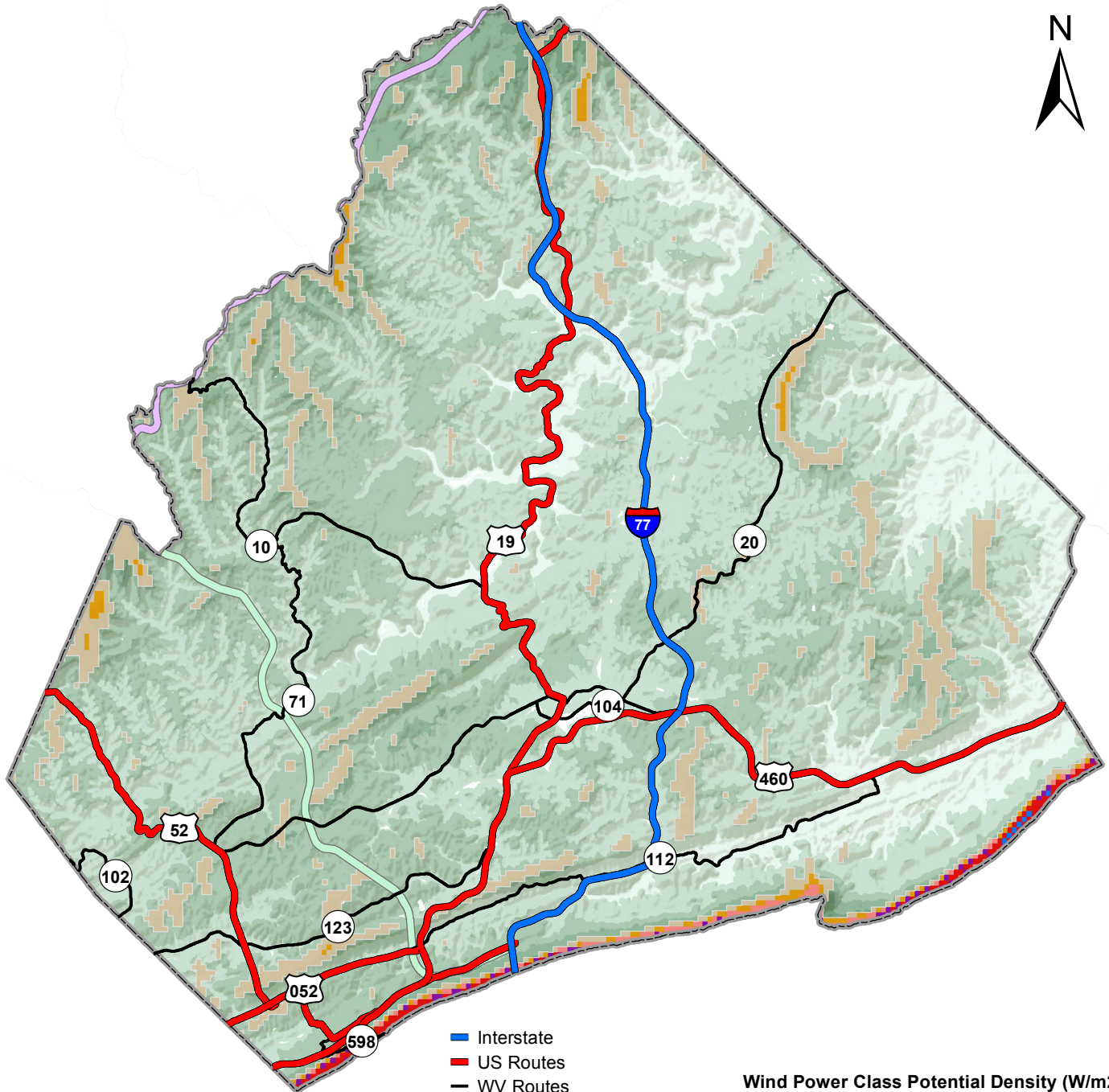
Source: National Renewable Energy Laboratory 2012

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Renewable Energy-Wind

Mercer County



- Interstate
- US Routes
- WV Routes
- Elevation (Feet)**
- 1460 - 2180
- 2181 - 2500
- 2501 - 2760
- 2761 - 3120
- 3121 - 4060
- Proposed KingCoal Highway
- Proposed Shawnee Highway

- Wind Power Class Potential Density (W/m2)**
- 0 - 200 Poor
 - 200 - 300 Marginal
 - 300 - 400 Fair
 - 400 - 500 Good
 - 500 - 600 Excellent
 - 600 - 800 Outstanding
 - > 800 Superb
 - County Boundary

Source: National Renewable Energy Laboratory 2006, United States Geological Survey n.d., ESRI, 2013

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IV. Land Use Smart Planning

The research team constructed a smart planning criterion that would apply to each mine site in Mercer. Tax Districts were utilized and labeled based on a particular land use practice that has previously been incorporated into the site. This criterion allows researchers and policymakers to determine suitability after weighing all the factors mentioned in the plan. A range of potential utilizations is given to give optimal control to policymakers and investors.

The table below (Table 2) provides the categories and their areas. The Smart Planning Map (Map 40) showcases the geographies separated by utilization.

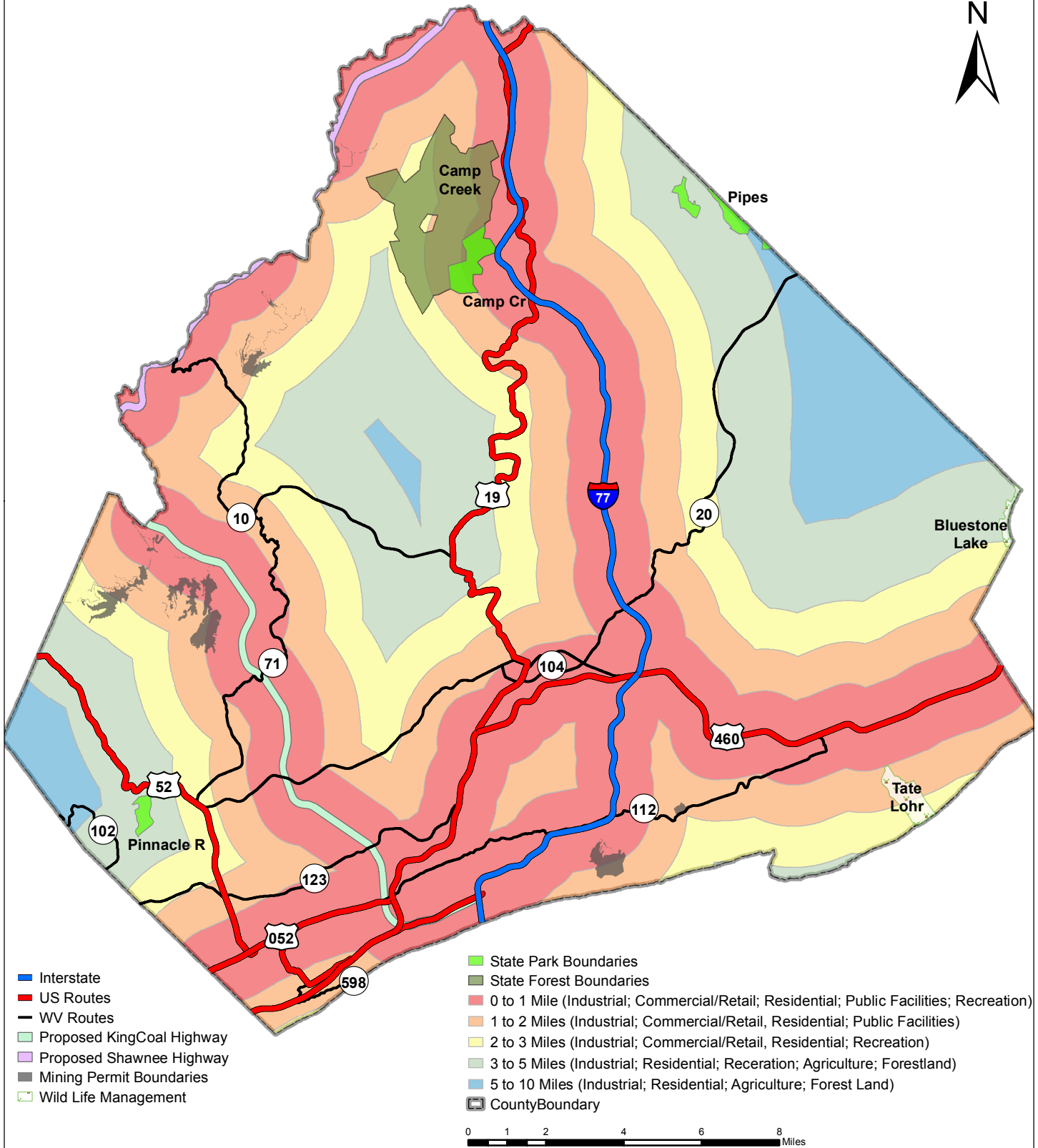
Table 2: Smart Planning Utilizations

Name	Smart Planning Criteria
Utilization Area 0-1 mile	Industrial, Commercial/Retail, Residential, Public Facility, Recreational
Utilization Area 1-2 miles	Industrial, Commercial/Retail, Residential, Public Facilities, Recreational
Utilization Area 2-3 miles	Industrial, Commercial/Retail, Residential, Recreational
Utilization Area 3-5 miles	Industrial, Residential, Recreational, Agriculture, Forestland
Utilization Area 5-10 miles	Industrial, Residential, Agriculture, Forest Land, Recreational
Utilization Area 10 miles +	Industrial, Residential, Agriculture, Forest Land

Land development or redevelopment options are determined through a review of the redevelopment authority's anticipated needs. The required infrastructure component standards are determined on a site by site basis by the county economic development authority as designated by West Virginia Code Chapter 05B Article 2A.

Landuse Criteria

Mercer County



Source: Rahall Transportation Institute 2014

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V. Site Evaluation

Once the smart planning buffers have been created, the sites available for analysis are confirmed. This evaluation provides the county with an inventory of post mine sites that are suitable for development. The evaluation consists of existing infrastructure availability, which gives the most accurate assessment of a site’s physical capabilities for investment purposes. This will encourage strategic development and evaluation.

Initial Data Collection:

The consulting team collected all available data on surface mines sites located in Mercer County to produce an inventory of sites for analysis. The source for site information was primarily the West Virginia Department of Environment Protection (WV DEP) website, which allows permit searches by geographic location and mining type. The information provided by this source was used to develop a preliminary property database of all surface mines as well as general mapping.

The WV DEP permit database acts as a general clearinghouse for information, but is not infallible. The data is often updated by third-party sources, which increases the margin of error for site location. Because of this, the actual attributes being measured may not be at the distance stated because the mine site is not actually in the location given. The WV DEP has sought to minimize those errors, and RTI attempts to maintain the reliability of the measurements by observing their locations when mapping. RTI does not ensure the reliability of the site location or distances to the attributes. Any and all information should be verified for accuracy.

The initial data collection revealed all the mine sites in the county. Together, the team put together nine sites for analysis. All of the sites and their distance attributes are listed below.

Table 3: Mercer County Potential Surface Mine Sites for Development

Site No	Permit ID	Permittee	Facility Name	Issue Date	Expiration Date	Acres
1	S403092	MELISSA COALS INC	NA	2/4/1993	2/4/1998	204.87
2	S024568	THOMPSON COAL COMPANY	NA	9/7/1968	9/7/1993	28
3	S401808	MET RESOURCES, LLC	McComas Surface Mine No. 1	2/4/2010	2/4/2015	182.87
4	S004983	LILLYBROOK COAL CO	NA	6/24/1983	6/24/1988	30
5	S400409	MET RESOURCES, LLC	Weyanoke Surface Mine	5/17/2011	5/17/2016	172.34
6	S400807	CNP PROPERTIES LLC	McComas Point Surface Mine	12/19/2008	12/19/2013	88.24

Site No	Permit ID	Permittee	Facility Name	Issue Date	Expiration Date	Acres
7	S001180	PRESERVATI CONSTRUCT CO INC	NA	1/6/1980	1/6/1993	121.84
8	S400197	CNP PROPERTIES LLC	SURFACE MINE NO. 1	11/17/1997	11/17/2017	163.17
9	S401491	MELISSA COALS INC	NA	10/3/1991	10/3/1996	112.29

Site Analysis (Distance Analysis)

Once the surface mining sites in the county were identified each of the sites were evaluated by estimating the shortest distance from the site to a specified criteria (features which are important to development). There are two types of distance calculation in this analysis: road-path and Euclidean distance. Road-path distance is the distance when travelling on an actual roadway from the site to the feature; Euclidean distance is when the distance is a straight line from the site to the feature, without the necessity of following a roadway. Following are lists of criteria used in the analysis:

- Road-path Distances:
 - Distance to nearest roadway (Interstate, Existing Highway, and Proposed Highway)
 - Distance to major airports (Tri-State, Yeager)
 - Distance to Intermodal Terminal Facility and Huntington Port
 - Distance to nearest Sewer/ Solid Waste Treatment Facility
- Euclidean Distances:
 - Distance to Water Lines, Sewer Lines, Power Lines and Broadband
 - Distance to Gas Pipe and Oil Pipe
 - Distance to Railroad, National Waterway Network

The following tables illustrate the results of road-path and Euclidean distance assessments for all of the identified sites. Several attributes were not analyzed, such as national waterways and ports, as they were not applicable to Mercer County. All distances were recorded in miles.

Table 4: Assessment of Distances

Site No	PermitID	Interstate (IS)	Sign-IS	Existing Highway (EH)	Sign-EH	Proposed Highway (PH)	Name-PH	Paved Road (RD)	Name-RD
1	S403092	11.68	I77	5.02	U52	3.19	Kingcoal Highway	0.24	GODFREY MOUNTAIN
2	S024568	5.62	I77	4.00	U19	6.58	Shawnee Highway	1.02	STOVALL RIDGE
3	S401808	13.90	I77	4.57	S10	2.36	Kingcoal Highway	0.09	CHURCH HILLOW ROAD
4	S004983	0.01	I77	0.01	I77	4.20	Shawnee Highway	0.02	I 77
5	S400409	12.21	I77	2.70	S10	0.03	Kingcoal Highway	0.05	King Coal Highway
6	S400807	14.32	I77	4.99	S10	2.78	Kingcoal Highway	0.57	Howerton Road

Site No.	Permit ID	Interstate (IS)	Sign-IS	Existing Highway (EH)	Sign-EH	Proposed Highway (PH)	Name-PH	Paved Road (RD)	Name-RD
7	S001180	13.47	I77	2.30	S10	2.73	Shawnee Highway	0.12	OLD GIATTO - WYOMING
8	S400197	11.00	I77	3.74	S10	1.25	Kingcoal Highway	0.18	MONTCALM - LOWE
9	S401491	11.37	I77	4.72	U52	2.88	Kingcoal Highway	0.05	GODFREY MOUNTAIN

Table 5: Shortest Distances from Sites to Airports

Site No.	Permit ID	Yeager Airport
1	S403092	82.32
2	S024568	74.19
3	S401808	80.33
4	S004983	65.27
5	S400409	78.46
6	S400807	80.75
7	S001180	74.91
8	S400197	79.66
9	S401491	82.01

Table 6: Shortest Distances from Sites to Other Transportation Methods

Site No.	Permit_ID	Railroad (RR)	Owner (RR)	Intermodal Terminal Facility	Intermodal Terminal Facility Name
1	S403092	1.43	NS	81.49	Martin Marietta Aggts: Charleston
2	S024568	6.94	NS	73.35	Martin Marietta Aggts: Charleston
3	S401808	1.53	NS	79.50	Martin Marietta Aggts: Charleston
4	S004983	9.00	NS	64.44	Martin Marietta Aggts: Charleston

Site No.	Permit_ID	Railroad (RR)	Owner (RR)	Intermodal Terminal Facility	Intermodal Terminal Facility Name
5	S400409	0.72	NS	77.63	Martin Marietta Aggts: Charleston
6	S400807	1.78	NS	79.92	Martin Marietta Aggts: Charleston
7	S001180	0.87	NS	74.09	Martin Marietta Aggts: Charleston
8	S400197	1.60	NS	78.84	Martin Marietta Aggts: Charleston
9	S401491	1.57	NS	81.18	Martin Marietta Aggts: Charleston

Table 7: Shortest Distances from Sites to Sewer Lines (SL) and Water Lines (WL)

Site No.	Permit_ID	SL	Public Utility - SL	WL	Public Utility - WL
1	S403092	2.79	Town of Matoaka Sanitary Board	1.56	Bluewell Public Service District (Water)
2	S024568	6.91	Town of Matoaka Sanitary Board	2.73	West Virginia-American Water Company
3	S401808	2.35	Town of Matoaka Sanitary Board	2.11	Windmill Gap Water Association
4	S004983	4.16	Shady Spring Public Service District	2.56	Raleigh County Public Service District
5	S400409	1.86	Town of Matoaka Sanitary Board	1.67	Town of Matoaka
6	S400807	2.35	Town of Matoaka Sanitary Board	2.14	Town of Matoaka
7	S001180	1.96	Town of Matoaka Sanitary Board	1.83	Town of Matoaka
8	S400197	2.01	Town of Matoaka Sanitary Board	1.80	Town of Matoaka
9	S401491	3.15	Town of Matoaka Sanitary Board	1.34	Bluewell Public Service District (Water)

Table 8: Shortest Distances from Sites to Broadband and Power Lines

Site No.	Permit_ID	Broadband	Provider	Power Lines	Type	Size_kV
1	S403092	0.65	Frontier Communications of West Virginia	0.77	Transmission	115-138
2	S024568	0.63	Cebridge Acquisition LLC	3.91	Sub-Transmission	Unknown
3	S401808	0.09	Frontier Communications of West Virginia	0.42	Transmission	115-138
4	S004983	0.08	Cebridge Acquisition LLC	5.02	Sub-Transmission	Unknown

Site No.	Permit_ID	Broadband	Provider	Power Lines	Type	Size_kV
5	S400409	0.22	Frontier Communications of West Virginia	0.04	Transmission	115-138
6	S400807	0.57	Frontier Communications of West Virginia	0.80	Transmission	115-138
7	S001180	0.12	Frontier Communications of West Virginia	0.25	Transmission	115-138
8	S400197	0.55	Frontier Communications of West Virginia	1.25	Transmission	115-138
9	S401491	0.29	Frontier Communications of West Virginia	0.60	Transmission	115-138

Table 9: Shortest Distances from Sites to Sewer and Solid Waste Treatment Facilities

Site No.	Permit_ID	Sewer Treatment (ST)	Facility Name (ST)	Solid Waste Treatment (SWT)	Facility Name (SWT)
1	S403092	2.60	BLUEWELL PSD	11.33	Mercer Co. Landfill
2	S024568	5.92	Spanishburg School	15.39	Mercer Co. Landfill
3	S401808	4.82	BLUEWELL PSD	13.55	Mercer Co. Landfill
4	S004983	4.93	APPALACHIAN DIST ASSEMB OF GOD	15.96	Mercer Co. Landfill
5	S400409	3.84	MATOAKA TOWN OF	11.87	Mercer Co. Landfill
6	S400807	5.24	BLUEWELL PSD	13.97	Mercer Co. Landfill
7	S001180	3.58	MATOAKA TOWN OF	12.60	Tralee

Site No.	Permit_ID	Sewer Treatment (ST)	Facility Name (ST)	Solid Waste Treatment (SWT)	Facility Name (SWT)
8	S400197	3.43	BLUEWELL PSD	10.66	Mercer Co. Landfill
9	S401491	2.29	BLUEWELL PSD	11.02	Mercer Co. Landfill

Table 10: Shortest Distances from Sites to Gas Pipe and Oil Pipe

Site No.	Permit_ID	Gas Pipe (GP)	Company Name (GP)	Oil Pipe (OP)	Company Name (OP)
1	S403092	9.30	Dominion Transmission Inc.	1.18	CN
2	S024568	5.38	Columbia Gas Transmission Corp.	4.54	Unknown
3	S401808	8.00	Dominion Transmission Inc.	0.39	Unknown
4	S004983	3.07	Columbia Gas Transmission Corp.	3.09	CL
5	S400409	7.46	Dominion Transmission Inc.	0.00	Unknown
6	S400807	8.48	Dominion Transmission Inc.	0.87	Unknown
7	S001180	6.87	Dominion Transmission Inc.	0.32	Unknown
8	S400197	8.80	Dominion Transmission Inc.	1.21	Unknown
9	S401491	9.44	Dominion Transmission Inc.	0.94	CN

Suitability Model

The suitability model for Mercer County is created with a weighted scoring method. The method scores options against a prioritized requirements list to determine which option best fits the selection criteria. Using a consistent list of criteria, weighted according to the importance or priority of the criteria to the researcher, a comparison of similar “products” can be completed. If numerical values are assigned to the criteria priorities (**weighting**) and the ability of the product to meet a specific criterion (**scoring**), a “score” can be derived. By summing the score (**total score**), the product most closely meeting the criteria can be determined.

Criteria are chosen and weighted based on published Land Use Master Plans (LUMPs) for several counties in West Virginia, RTI’s own research on the existing conditions in Mercer County and expert advice about important factors to site development.¹⁰ Then, scores for each site are given by comparing the closest distance from the site to all factors within given distance thresholds. There are three sets of scores in this suitability model: **absolute scores**, **relative scores**, and the **total score**.

Absolute scores are given by comparing certain distance thresholds with the results of GIS Distance Analysis. Thresholds are determined mainly based on the researcher’s experience, characteristics of the considered criteria and the priority given to the criteria. For example, if the closest distance from a site to an existing highway ranges from 5 to 10 miles, the site will be given 7 points for the Existing Highways Criteria. Absolute scores will directly affect the site selection. Different score categories may result in significant change in the cost of investment, and will thus impact the county’s decisions.

Relative scores, on the other hand, depend solely on the closest distances of sites to relative criteria features. Initially, statistical values will be computed according to distance values from all sites to a certain factor (criteria), including min, quartile 1 – Q1, quartile 2 – Q2, quartile 3 – Q3, and max. Then, distance values will be classified into four groups and given the scores shown in Table 13 (below). This score set is used to sharpen differences between all sites in a certain category and therefore aid the decision maker. For example, two sites may have the same absolute score (in the same range of miles) but may fall in different statistical groups. Then the two sites will have different relative scores.

¹⁰ Joseph, M. *A Decision-Support Model of Land Suitability Analysis for the Ohio Lake Erie Balanced Growth Program*. EcoCity Cleveland. (2006).

The total score is a combination of weights, absolute scores, and relative scores. The following equation is used to calculate the total score of a certain studied site:

$$\text{Total score of site A} = \sum (\text{absolute score} \times \text{relative score} \times \text{weight})_{ci} / 10 \quad (\text{ci: criteria i})$$

Sites with higher total scores reveal a higher chance of being developed. Total scores will vary according to a combination of three components: weights, absolute scores, and relative scores.

1. Weighting

Table 11 prioritizes post-mining land-use criteria for surface coal mining site selection in Mercer County. Criteria weights are assigned on a one-to-ten scale. According to Joseph, utilities (power, water, and sewer) and road networks are considered more important factors to development. Therefore, those factors receive higher weights (7-10) in the suitability model. On the other hand, decision-makers are less affected by factors such as airports, national waterways, and ports. Those factors may be good supplements but do not critically change the investments.

Table 11: Weighting Sites Selection Criteria

No	Criteria	Weight
1	Interstate	8
2	Existing Highway	8
3	Yeager Airport	3
4	Sewer Treatment Facilities	7
5	Solid Waste Treatment Facilities	8
6	Intermodal Terminal Facilities	6
7	Sewer Lines	8
8	Railroads	5
9	Water Lines	10
10	Power Lines	10
11	Gas Pipes	6
12	Pipe Lines	6
13	Broadband	9
14	Proposed Highway	9

2. Scoring

2.1 Absolute Scores:

The shorter the distance to a feature from a site, the higher absolute score the site receives. Table 12 describes the thresholds and score categories for each criterion, ranging from 1 to 10. In order to achieve a better comparison between sites, the score scale is evenly distributed between five distance groups (1-3-5-7-10).

As mentioned above, thresholds are mainly defined based on researcher experience, traveling method from a site to the features (road-path vs. Euclidean), and characteristic of criteria (type of feature, priority, and density). For example, distance thresholds for “Solid Waste Treatment Facilities” are much smaller than ones for “Intermodal Terminal Facilities”. This is because treatment facilities are much denser than intermodal terminal facilities. In addition, solid waste treatment facilities are considered more important in site selection (weight: 8 vs. 6).

Table 12: Absolute Scoring System

Absolute Score		10	7	5	3	1
Criteria (Distances in miles)	Existing Highway	0 - 5	5 - 10	10 - 15	15 - 20	> 20
	Intermodal Terminal Facilities	0 - 10	10 - 20	20 - 30	30 - 40	> 40
	Interstate	0 - 5	5 - 14	14 - 22	22 - 30	> 30
	Sewer Treatment Facilities	0 - 2.5	2.5 - 5	5 - 7.5	7.5 - 10	> 10
	Solid Waste Treatment Facilities	0 - 5	5 - 14	14 - 22	22 - 30	> 30
	Yeager Airport	0 - 30	30 - 50	50 - 70	01 - 90	> 90
	Broadband	0 - 0.5	0.5 - 2	2 - 3	3 - 4	> 4
	Gas Pipe (Natural Gas)	0 - 0.5	0.5 - 1.5	1.5 - 2	2 - 2.5	> 2.5
	Proposed Highway	0 - 5	5 - 10	10 - 15	15 - 20	> 20
	Power Lines	0 - 0.5	0.5 - 1.5	1.5 - 2	2 - 2.5	> 2.5
	Pipe Lines (Oil)	0 - 0.25	0.25 - 0.5	0.5 - 0.75	0.75 - 1	> 1
	Railroads	0 - 1	1 - 3	3 - 4	4 - 5	> 5
	Sewer Lines	0 - 1	1 - 3	3 - 4	4 - 5	> 5
	Water Lines	0 - 0.25	0.25 - 0.5	0.5 - 0.75	0.75 - 1	> 1

2.2 Relative Scores:

Table 13 shows four statistical groups and their relative scores in the Mercer County land suitability model. The total number of coal mining sites will be equally distributed in each group. The relative score differs from the absolute score in two ways. First, thresholds for relative scores are derived only from real distances from the sites to the features (criteria). Second, it is not affected by personal opinion and does not consider either traveling method or nature of criteria.

Table 13: Relative Scoring System

		Threshold (Distances in miles)				
		Min - Q1	Q1 - Q2	Q2 - Q3	Q3 – Max	
		Relative Score				
		10	7.5	5	2.5	
No.	Criteria	Min	Q1	Q2	Q3	Max
1	Interstate	0.01	11.00	11.68	13.47	14.32
2	Existing Highway	0.01	2.70	4.00	4.72	5.02
3	Proposed Highway	0.03	2.36	2.78	3.19	6.58
4	Yeager Airport	65.27	74.91	79.66	80.75	82.32
5	Sewer Treatment Facilities	2.29	3.43	3.84	4.93	5.92
6	Solid Waste Treatment Facilities	10.66	11.33	12.60	13.97	15.96
7	Intermodal Terminal Facilities	64.44	74.09	78.84	79.92	81.49
8	Sewer Lines	1.86	2.01	2.35	3.15	6.91
9	Railroads	0.72	1.43	1.57	1.78	9.00
10	Water Lines	1.34	1.67	1.83	2.14	2.73
11	Power Lines	0.08	0.12	0.29	0.57	0.65
12	Gas Pipes	3.07	6.87	8.00	8.80	9.44
13	Oil Pipes	0.00	0.39	0.94	1.21	4.54
14	Broadband	0.04	0.42	0.77	1.25	5.02

3. Mercer County’s Suitability Model:

Table 14 shows the total scores of all studied sites in Mercer County. Site No-5 (Permit ID = S400409) has the highest score of 636. The sites with higher total scores suggest better opportunities for development. Results in Table 14 are also plotted in the bar chart (Figure 15) for better visualization. Among nine analyzed potential development sites of Mercer County, it is easy to notice the top five sites and determine the most suitable sites for investment.

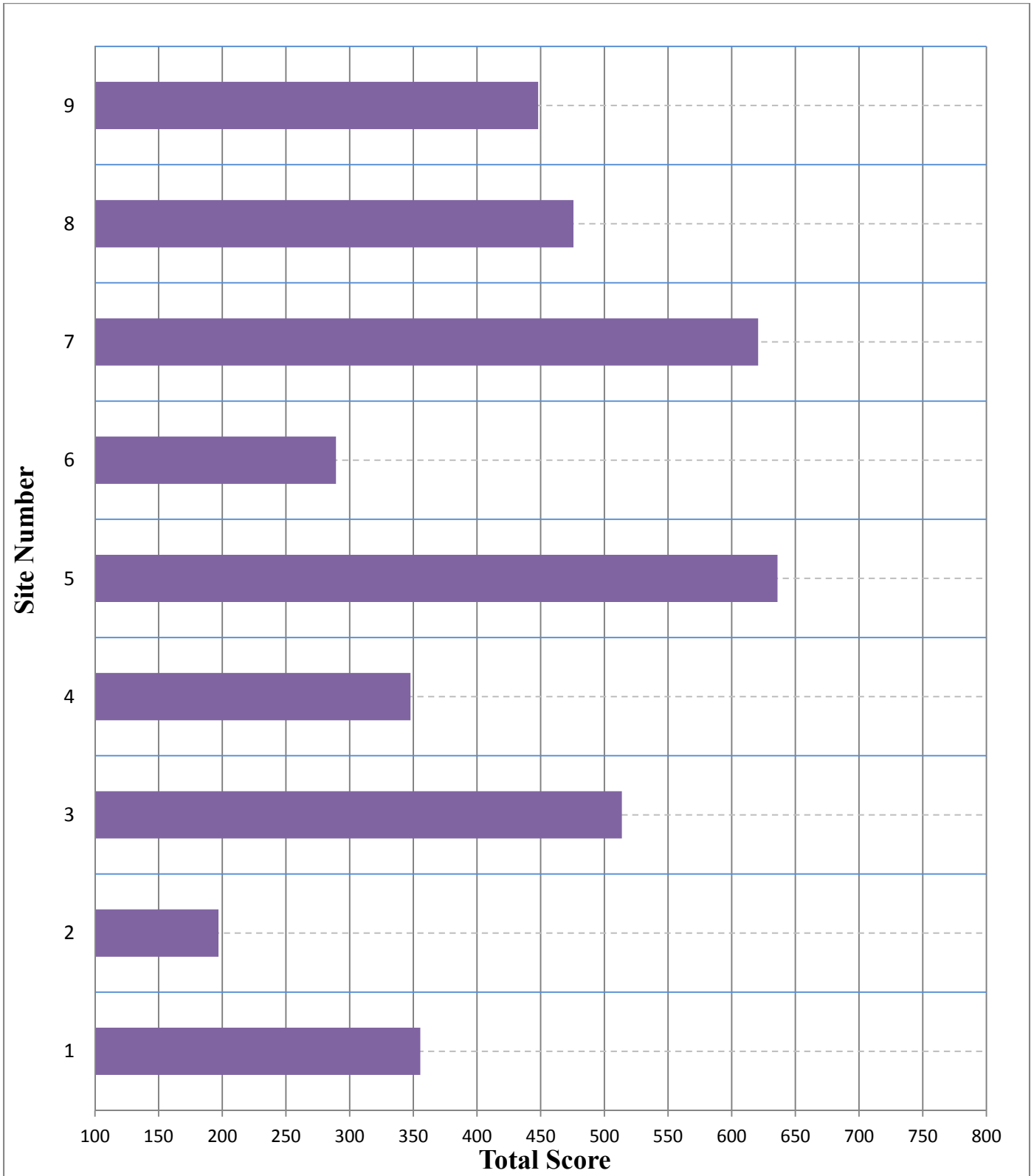
Certainly, any change in weight values or the scoring system will result in different output and may change the decision. For better analysis and decision-making, the dynamic suitability model, which allows modification in criteria’s weights, thresholds and scores is available for distribution through RTI’s Geospatial Program.

Besides a distance analysis, a suitability model for Mercer is supported by demographic data as well as two additional analyses, which are workforce analysis and retail location density (shown on Table 15 and Map 41). The best decision will be made with careful consideration of the suitability analysis as well as the demographic and economic information.

Table 14: Total Score of Mine Sites in Mercer County

Site No.	Permittee	PermitID	Score
1	Melissa Coals Inc	S403092	355.5
2	Thompson Coal Company	S024568	197
3	Met Resources, Llc	S401808	513.75
4	Lillybrook Coal Co	S004983	347.75
5	Met Resources, Llc	S400409	636
6	Cnp Properties Llc	S400807	289.25
7	Preservati Construct Co Inc	S001180	620.75
8	Cnp Properties Llc	S400197	475.75
9	Melissa Coals Inc	S401491	448

Figure 15: Mercer County's Suitability Model (Total Score of Each Surface Coal Mining Site)



Work Force Analysis

A work force analysis estimates total employment and unemployment within a certain distance, providing potential labor sources if an investment is made on the site. According to Gary Langer, the average one-way commute time is 26 minutes or 16 miles.¹¹ It is reasonable to consider unemployment within 15 miles of the site as an upper limit for a potential employer. This data set does not provide a skill set analysis however; therefore employers may not find the labor skills they need. This dataset provides the pool of labor resources from which to choose.

Table 15: Employment and unemployment within radius of 5, 10 and 15 miles from the site

Site No.	Permit_ID	Emp_05	Unemp_05	Emp_10	Unemp_10	Emp_15	Unemp_15
1	S403092	2971	593	16616	2342	20288	2958
2	S024568	829	60	7003	914	15308	2415
3	S401808	2085	462	13009	1968	20079	2905
4	S004983	657	32	2612	332	11556	1683
5	S400409	1602	377	10284	1694	20114	2898
6	S400807	2392	506	15016	2156	20187	2929
7	S001180	873	173	6215	1020	20237	2894
8	S400197	2542	513	15846	2274	20367	2962
9	S401491	3094	624	16473	2324	20218	2950

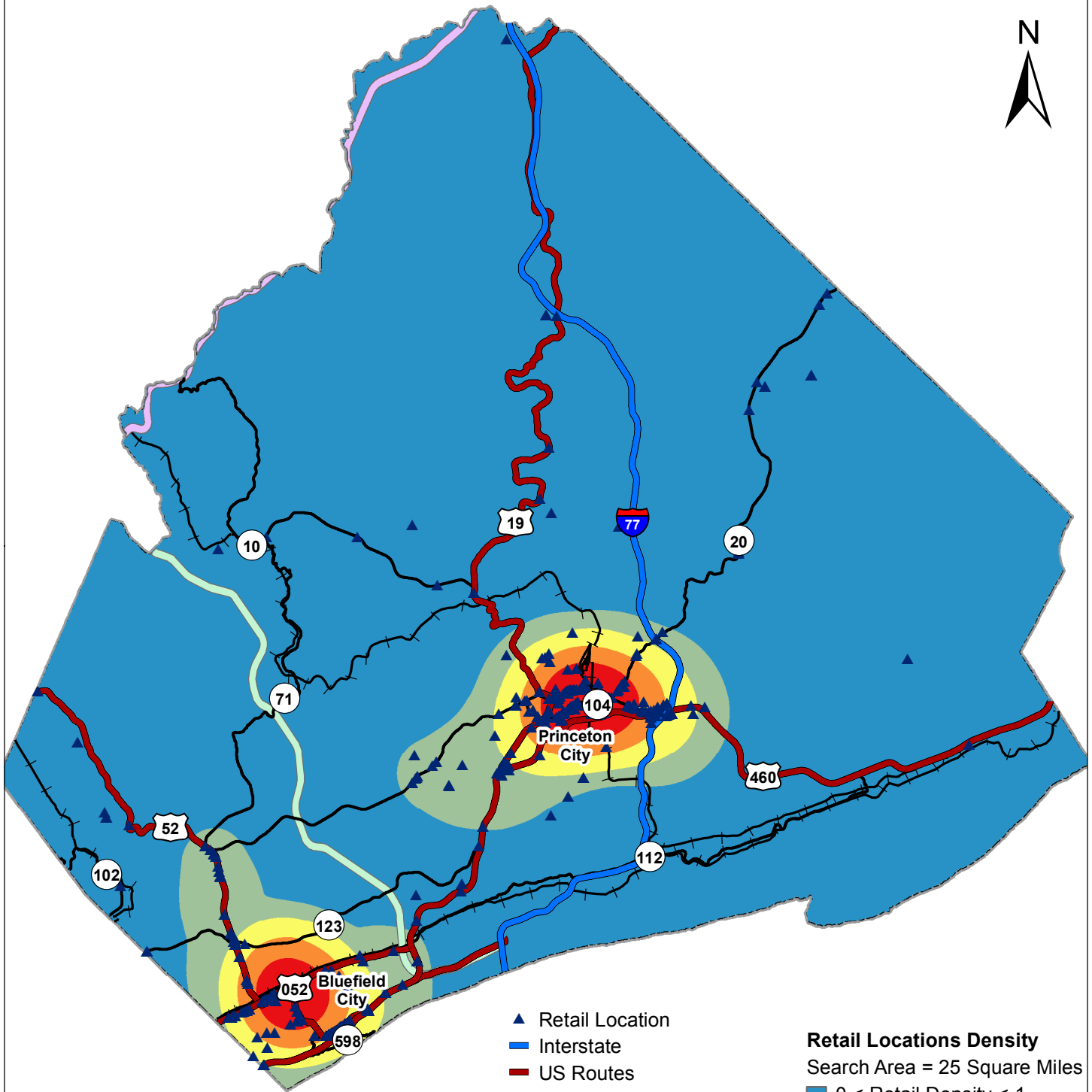
Retail Location Analysis

A retail location analysis is a hot spot analysis that depicts a number of retailers within 25 square miles of any certain location in the county (Map 41). The result, as shown on the map, is displayed in blue-to-red color for retail's density from low to high. Normally, the area with a high density of retailers indicates an already developed and populated community, which possibly has the highest opportunity as well as the heaviest competition. The areas with low retail density showcase where population is lowest, but also where competition is lowest and which may provide retail opportunities.

¹¹ Gary Langer, "Poll: Traffic in the United States," ABC News Online, February 13, 2005, Accessed March 1, 2013, <http://abcnews.go.com/Technology/Traffic/story?id=485098&page=1>.

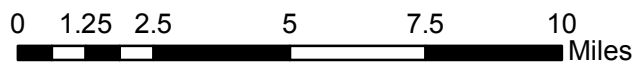
Retail Location Density

Mercer County



- ▲ Retail Location
- Interstate
- US Routes
- WV Routes
- Railroads
- Proposed KingCoal Highway
- Proposed Shawnee Highway
- CountyBoundary

- Retail Locations Density**
Search Area = 25 Square Miles
- 0 < Retail Density < 1
 - 1 < Retail Density < 4
 - 4 < Retail Density < 9
 - 9 < Retail Density < 14
 - 14 < Retail Density < 21



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VI. Conclusion

Mercer County has a decreasing and aging population, with a rising percentage of income coming from government transfers. However, the economy is diverse and increasing the number of professional businesses, wages are consistently growing, and the infrastructure, especially broadband, is far ranging and advanced. Mercer County appears to be poised for growth if its assets can be utilized optimally.

This plan has identified and displayed the five post-mine sites that are most suitable for development. These sites have the integral tools that researchers have shown can assist in spatial development. Though success is not guaranteed, this overview combined with careful strategic planning can bring about the changes in the trends that are necessary for Mercer County to thrive.

Through a site distance analysis and complete demographic calculation, this plan provides the most comprehensive understanding of the economic state of Mercer County and the potential of its land. By analyzing specific infrastructures and demographics, policymakers can begin attracting investors to post-mine sites, and continue the process of developing the economy. This plan provides strategic information; the choice as to how to utilize this information belongs with the administrators and people of the county.