

Adoption of Amendments to Berkeley County Comprehensive Plan (2016)

Letter From the Planning Commission President

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Chapter 1 – The Role and Purpose of Planning

The West Virginia Code, Chapter 8A states “the general purpose of the comprehensive plan is to guide a governing body to accomplish a coordinated and compatible development of land and improvements within its territorial jurisdiction, in accordance with present and future needs and resources.” The statute goes on to further identify ten purposes of the comprehensive plan:

1. Set the goals and objectives for land development, uses and suitability for a governing body, so a governing body can make an informed decision.
2. Ensure that the elements in the comprehensive plan are consistent.
3. Coordinate all governing bodies, units of government and other planning commissions to ensure that all comprehensive plans and future development are compatible.
4. Create conditions favorable to health, safety, mobility, transportation, prosperity, civic activities, recreational, educational, cultural opportunities and historic resources.
5. Reduce the wastes of physical, financial, natural or human resources which result from haphazard development, congestion, and scattering of population.
6. Reduce the destruction or demolition of historic sites and other resources by reusing land and buildings and revitalizing areas.
7. Promote a sense of community, character and identity.
8. Promote the efficient utilization of natural resources, rural land and scenic areas.
9. Focus development in existing developed areas and fill in vacant or underused land near existing developed areas to create well designed and coordinated communities.
10. Promote cost-effective development of community facilities and services.

The Comprehensive Plan evaluates the current status of the county and projects future growth trends. Based on these trends, the county proposes the best possible land use and implementation tools to accommodate the expected growth, while protecting the area’s resources. In order to develop a true picture of the county, the statute requires, at a minimum, that the Plan shall meet the following objectives:

1. Statement of Goals and Objectives
2. Timeline
3. Action Plan
4. Recommended Financial Program
5. Statement of Recommendations
6. Program to Encourage
7. Maps, Plats, Charts and/or Descriptive Material

The statute also requires, at a minimum, that the Plan shall have the following components:

8. Land Use
9. Housing
10. Transportation
11. Infrastructure
12. Public Services
13. Rural
14. Recreation
15. Economic Development
16. Community Design

17. Preferred Development Areas
18. Renewal and/or Redevelopment
19. Financing
20. Historic Preservation

In addition to the required components, the statute encourages optional components to be addressed including: history, environmental, tourism, conservation, safety, and natural resources use. All of these will be playing a more important role in the County's overall development in the coming years.

What This Plan Does

- Focuses on current trends and issues within Berkeley County and address them with appropriate solutions.
- Provides the best possible projection on future conditions based on the current patterns and identify strategies to help create a more desirable and sustainable future.
- Directs future change through a vision of community potential.
- Establishes the framework for consistency between future land use policies and land use regulatory measures.
- Assists county officials in their decision making process.

Relationship Between The Comprehensive Plan and Other Plans for Berkeley County

The Berkeley County Comprehensive Plan is a broad policy document that provides guidance for future decision making. The plan shows a relationship with other plans that have been developed in the community. These plans go into more depth regarding specific topics.

The following is a partial list of the specific plans that were referenced during the development of the Comprehensive Plan:

- Source Water Assessment and Protection Plan (SWAP)
- Comprehensive Educational Facilities Plan
- Hagerstown-Eastern Panhandle Metropolitan Planning Organization (HEPMPO) Long Range Transportation Plan Update "Direction 2040" (2014)
- Public Service Water District Water Facility Plan Update (2008)
- Berkeley County Commercial Solid Waste Facility Siting Plan (2011)
- Berkeley County Fire Services Board—Five Year Strategic Plan (2011)
- Region 9 Planning & Development Council Multi-Jurisdictional Hazard Mitigation Plan for Berkeley and Morgan Counties (Released 2012)
- Stormwater MS4 Permit Program Financing Feasibility Study (2015)

Recommended Review Process

The Berkeley County Comprehensive Plan will only be useful if it is regularly used and updated. Therefore, it is recommended that the Planning Commission perform the following actions and forward their findings to the County Council and the Council entertain possible amendments to the Plan or the appropriate regulations:

- Every three years evaluate to Comprehensive Plan, and if necessary, make modifications to ensure it provides adequate guidance regarding the future growth in the county.
- Identify potential new strategies and funding opportunities to achieve stated goals.

- Prepare a written summary of the evaluation process. This report should also include a record of major activities undertaken since the last review, as well as a list of the activities scheduled for action in the upcoming years.
- This is also an ideal opportunity to identify any new issues or concerns that may have an impact on the county.

Regulatory Review

The Berkeley County Comprehensive Plan is a guide to preparing for the future. The review process as stated above is important and necessary to preserve the relevance of the plan. Along with the review of the Plan, the regulations addressing items in the plan such as subdivision requirements, storm water management and other components need to be reviewed frequently. These ordinances provide the ability to implement and monitor the recommendations of the plan.

A result of the 2006 Comprehensive Plan was the preparation of a good land use element and plan for the future. However, the adoption of zoning regulations was to play a major role in the implementation of the land use element and plan. When the zoning concept was defeated by the voters of the county, the major tool for directing growth to certain areas was lost. Frequent evaluation of the goals and policies is necessary to ensure the future land use needs of the county are being met.

Chapter 2 - An Introduction to Berkeley County

Location and Regional Setting

Berkeley County is located in the Eastern Panhandle of West Virginia. Washington County, Maryland is located to the north of the county and Frederick County, Virginia is to the south. The West Virginia counties of Jefferson and Morgan are found to the east and west respectively. The county is less than 100 miles from the Baltimore-Washington Metropolitan area and less than 200 miles from Philadelphia, Richmond, and Pittsburgh.

The Potomac River forms the northern and part of the eastern border of the county. North Mountain bisects the county and is the western edge of the Shenandoah Valley, also known as the Great Valley, in the Panhandle. The City of Martinsburg and most of the county's developed areas are found here. West of the mountain, Back Creek winds through the countryside. The Sleepy Creek Wildlife Management Area on Third Hill Mountain is along the western boundary. Here, forested lands and farms have traditionally dominated.

A Brief History of Berkeley County

Prior to the arrival of European settlers, the area that is now Berkeley County had been home to successive groups of Native Americans. The earliest evidence suggests that Mound Builders occupied the area over 2,000 years ago. Missionary reports dating to the 1500s and early 1600s indicate that the Huron Indians were driven from the area by members of the Iroquois Confederacy during that time. The various member tribes, including the Mohawk, Onondaga, and Seneca used the area as hunting ground during the spring and summer months. These tribes were gradually replaced by European settlers throughout the 18th Century.

Berkeley County was one of the first areas of the State of West Virginia to be settled by Europeans. John Lederer first explored the area in 1670. Others soon followed and in 1726, Morgan Morgan, II founded the first permanent settlement of record in West Virginia on Mill Creek near present day Bunker Hill. Many Quakers and Scotch-Irish Presbyterians, along with the English and Dutch, became residents here in the early 1700s. They were followed by the Germans who built many of the present farm complexes.

Berkeley County was formed from Frederick County, Virginia in 1772 and named for Norborne Berkeley Governor of Virginia from 1768 to 1770. The County seat was established in the colonial village of Martinsburg, named for Thomas Bryan Martin, Lord Fairfax's nephew, and was incorporated in 1778. The arrival of the B&O Railroad in the 1840s gave Martinsburg and Berkeley County a big boost, economically. However, during the Civil War, the county's strategic location at the northern edge of the Shenandoah Valley and the presence of the railroad meant that control of both Martinsburg and Berkeley County changed hands many times during the conflict. While most families were loyal to the Confederacy, many had divided allegiances.

In June 1861 Stonewall Jackson destroyed the railroad cars at the Martinsburg B&O Railroad complex and commandeered the engines, dragging them through Winchester to Strasburg. The Roundhouse and machine shops were completely stripped. The first major conflict in the area occurred on July 2, 1861, when the North's General Robert Patterson crossed the Potomac River at Williamsport and defeated the South's General Joseph E. Johnston and General Thomas J. "Stonewall" Jackson. On October 18 and 19, 1862 the Martinsburg B&O Railroad complex and Roundhouses were burned. After November 1863, Berkeley County became part of the new state of West Virginia.

In 1872, the Pennsylvania Railroad came to the area, and it, along with the B&O Railroad, gave the area an excellent transportation base. In early times, a major source of the area's income came from selling flour produced by the area's water-powered mills to the Alexandria and Baltimore markets. Electricity, replacing water power, soon followed and the area became a large textile milling center.

Many of Martinsburg's historic and architecturally important buildings were included in seven historic districts placed on the National Register of Historic Places in December 1980. Additional Districts have been added since then and are described further in the Parks, Recreation and Culture Plan.

Today, Martinsburg continues to be the focus of the business area of Berkeley County, although continued development throughout the county, particularly in the Tabler Station, Inwood and Spring Mills areas is altering the county's landscape. The county's economy is continuing its transition from agriculture and manufacturing to more service oriented and government related businesses. However, with the recent decision by Proctor & Gamble to develop a large manufacturing facility, it is clear manufacturing will continue to have a role in the county.

Quick Facts About Berkeley County

Location:	Eastern Panhandle of West Virginia
Major City:	Martinsburg -Population 17,668 (2013 estimate) ¹
Date of Establishment:	1772
Size:	321.14 square miles
Population;	110,497 (2014 estimate) ¹
Population Density:	324.4 per square mile (2010 calculation) ¹
Median Age:	37.6 (2010 calculation) ²
Primary Watershed:	Potomac River
Major surface Waters:	Potomac River, Opequon Creek, Back Creek
Forest Cover:	115,368 acres (2000 Data)
Recreation:	Sleepy Creek Wildlife Management Area; Yankauer Preserve

¹Population Data Source: www.quickfacts.census.gov

²Population Data Source: www.factfinder.census.gov

Chapter 3 – Key Trends and Forecasts

The first step of this comprehensive plan process focused on gaining an understanding of the Berkeley County community and how it may have changed since 2006. This chapter highlights the key trends and forecasts projected for the County, which will help guide the development of Action Plans. These Action Plans can be found in the chapters that follow.

The following profiles, trends, and forecasts are based on information collected from a variety of sources including the Census Bureau, the County Planning Commission, Emergency Services, Board of Education, West Virginia Division of Highways, Hagerstown-Eastern Panhandle Metropolitan Planning Organization, Builders Association, Association of Realtors, and numerous other county and state agencies that currently operate and impact development of the County. This information was used to help with the development of the Berkeley County 2016 Comprehensive Plan.

Demographic Profile

Population Trends

Population trends and characteristics are used to assess the demand for current services and make reasonable projections for future population growth and needs. Land area requirements for future residential, recreation, commercial, industrial, and other needs are related to current and future requirements of the population in the county. Population projections indicate trends in future demand for schools, transportation facilities and other public infrastructure and services.

Population Growth

Berkeley County's population is growing rapidly (See Table 3-1). According to the Census Bureau, Berkeley County had a resident population of 104,169 persons in 2010, compared to 36,356 in 1970. This represents a 187 percent increase over the 40 year period. Frederick County, VA to the south and Jefferson County, WV to the east have also continued to experienced similar growth rates during this period. According to most recent estimates by the US Census Bureau, Berkeley County is no longer among the top 100 fastest growing counties in the nation. However, with an estimated 2013 population of 108,684 and a 2014 population of 110,497, Berkeley County's population is the second largest in the state. From 2013 to 2014, it also had the highest annual growth rate among neighboring counties at 1.7%.

Table 3-1 Population Growth 1970-2010

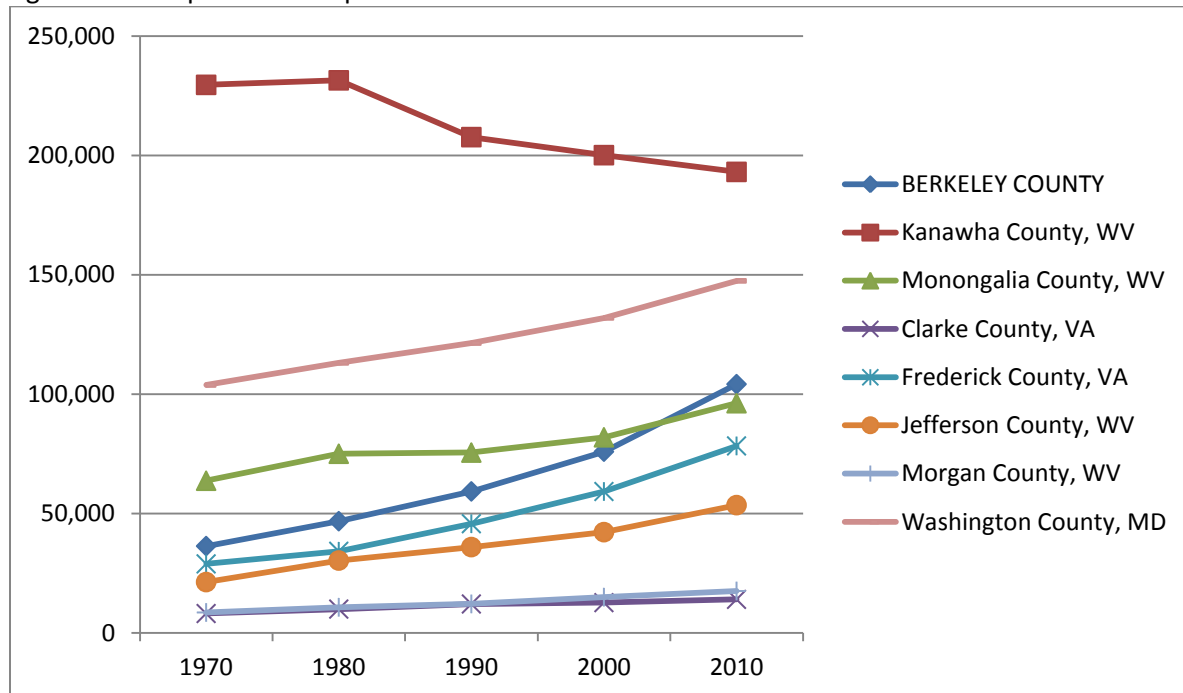
Municipality	Total Population					Population Change			
	1970	1980	1990	2000	2010	2000-2010		1970-2010	
						#	%	#	%
USA	203,302,031	226,542,199	248,709,873	281,421,906	308,747,716	27,325,810	10.0	105,445,685	5.2
West Virginia	1,744,237	1,949,644	1,793,477	1,808,344	1,852,994	44,650	2.5	108,757	5.9
BERKELEY COUNTY	36,356	46,775	59,253	75,905	104,169	28,264	37.0	67,813	186.6
City of Martinsburg	14,626	13,063	14,073	14,972	17,227	2,255	15.0	2,601	17.8
Clarke County, VA	8,102	9,965	12,101	12,652	14,034	1,382	11.0	5,932	73.0
Frederick County, VA	28,893	34,150	45,723	59,209	78,305	19,096	32.3	49,412	171.0
Jefferson County, WV	21,280	30,302	35,926	42,190	53,498	11,308	26.8	32,218	151.4
Morgan County, WV	8,547	10,711	12,128	14,943	17,541	2,598	17.4	8,884	105.3
Washington County, MD	103,829	113,086	121,393	131,923	147,430	15,507	10.6	43,601	42.0

Source: US Census Bureau

The data also indicates that the pace of growth in the county is continuing to climb, with 28.1 percent of growth occurring between 1990 and 2000, as reflected in the 2006 Comprehensive Plan, increasing to 37 percent growth occurring between 2000 and 2010. This trend is due in part to its close proximity to the expanding Baltimore-Washington Metropolitan Area and shows no signs of slowing.

Berkeley County currently has the second largest population in the state of West Virginia. Kanawha County has the largest population estimated at 190,223 and Monongalia County has the third largest population estimated at 103,463 for 2014. While the population of Kanawha County steadily declines, the Berkeley County population continues to increase and surpassed the Monongalia population between 2000 and 2010. Washington County, MD, Frederick County, VA and Jefferson County, WV populations are growing steadily. Clarke County, VA and Morgan County, WV are following a growth path similar to each other but much slower than other neighboring counties. (See Table 3-2 and Figure 3-1)

Figure 3-1 Comparison of Population Growth 1970-2010



Source: US Census Bureau

While population growth rates in comparison to other counties can fluctuate from year to year, the average percentage of long-term growth seen by Berkeley County over the last 44 years, at 4.63 percent, exceeds the growth of all neighboring counties and that of the other two largest counties in the State of West Virginia as well (See Table 3-2).

Table 3-2 Comparison of Population Growth by County 1970-2014

Municipality	Total Population				Total Population Change over last 44 years	Average Annual Population Change over last 44 years	Average Annual Percent Change
	1970	1990	2010	2014 est.			
Kanawha County, WV	229,515			190,223	-39,292	-893	-0.47
BERKELEY COUNTY	36,356	59,253	104,169	110,497	74,141	1,685	4.63
Monongalia County, WV	63,714			103,463	39,749	903	1.42
Clarke County, VA	8,102	12,101	14,034	14,423	6,321	144	1.78
Frederick County, VA	28,893	45,723	78,305	82,377	53,484	1,216	4.21
Jefferson County, WV	21,280	35,926	53,498	55,713	34,433	783	3.68
Morgan County, WV	8,547	12,128	17,541	17,453	8,906	202	2.36
Washington County, MD	103,829	121,393	147,430	149,573	45,744	1,040	1.00

Source: US Census Bureau

Population Density and Distribution by Land Area and Tax District

Trends in population density parallel population change. In 1970, Berkeley County had a population density of 113.2 persons per square mile. By 2010, it had increased to 324.3 persons per square mile. This continues to be much higher than West Virginia as a whole, where population density in 2010 was 79.9 persons per square mile.

Berkeley County had the second highest population density among the surrounding counties, until 2010, when it exceeded the population density of Washington County, MD and became the highest population density at 324.31 persons per square mile. Morgan County, WV, which borders Berkeley County to the west, continues to have the lowest population density at 76.6 persons per square mile (See Table 3-3)

Table 3-3 Population Density 1970-2010

Municipality	Area (square miles)	Persons per Square Mile				
		1970	1980	1990	2000	2010
USA	3,536,338.0	57.5	64.1	70.3	79.6	87.3
West Virginia	24,086.6	72.4	80.9	74.5	75.1	76.9
BERKELEY COUNTY	321.2	113.2	145.6	184.5	236.3	324.3
City of Martinsburg	5.0	2,925.2	2,612.6	2,814.6	2,994.4	2,590.7
Clarke County, VA	177.0	45.8	56.3	68.4	71.5	79.3
Frederick County, VA	414.6	69.7	82.4	110.3	142.8	188.9
Jefferson County, WV	209.6	101.5	144.6	171.4	201.3	255.3
Morgan County, WV	229.0	37.3	46.8	53.0	65.3	76.6
Washington County, MD*	458.2	226.6	246.8	264.9	287.9	322.1

Source: US Census Bureau

* Washington County, MD data for 1970-2000 was calculated by dividing total population by square miles.

The majority of Berkeley County's population continues to live in areas that are classified as urban by the Census Bureau. As defined by the Census Bureau, over 68 percent of the county's residents lived in urban areas in 2010. This is an increase of 14.1 percent since 2000, exceeded only by the Jefferson County urban population which increased by 19.7 percent over the same timeframe. The percentage of increase in urban population for both counties is more than double the next highest county at a percentage increase in urban population of 7.0 percent for Clarke County, VA. Berkeley County is only 2.14 percent below Washington County, which has the highest urban population percentage, at 70.51 percent, of all the neighboring counties.

The rural population of Berkeley County decreased from 34,717 people in 2000 (according to the 2006 Comprehensive Plan) to 32,944 people in 2010. As urban populations increase, rural populations continue to decline, and have done so in the United States, West Virginia, Berkeley County and almost

every neighboring county. One exception to this is Morgan County, WV. It's population increased from 14,943 in 2000 to 17,541 in 2010 and remains a 100 percent rural community.

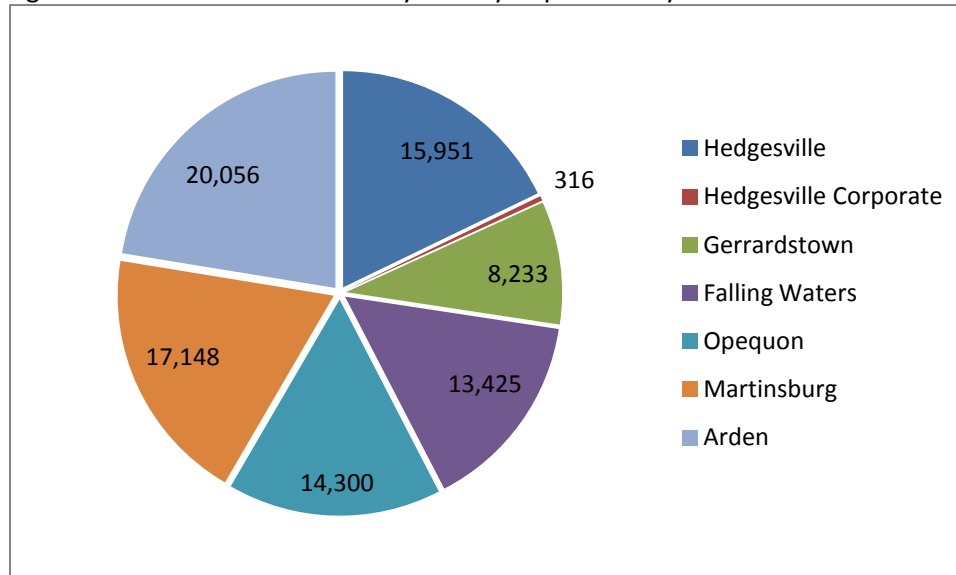
Table 3-4 Distribution of Population by Land Area 2010

Municipality	Total Population	2010 Urban		2010 Rural		2000		2000-2010 % Change in Urban
		#	%	#	%	Urban %	Rural %	
USA	308,745,538	249,253,271	80.7	59,492,267	19.3	79.0	21.0	1.7
West Virginia	1,852,994	902,810	48.72	950,184	51.28	46.1	53.9	2.6
BERKELEY COUNTY	104,169	71,225	68.37	32,944	31.63	54.3	45.7	14.1
Clarke County, VA	14,034	4,277	30.48	9,757	69.52	23.5	76.5	7.0
Frederick County, VA	78,305	43,246	55.23	35,059	44.77	50.6	49.4	4.6
Jefferson County, WV	53,498	27,619	51.63	25,879	48.37	31.9	68.1	19.7
Morgan County, WV	17,541	0	0	17,541	100.00	0	100.0	0
Washington County, MD	147,430	103,953	70.51	43,477	29.49	68.3	31.7	2.2

Source: U.S. Census Bureau

More Berkeley County residents lived in the Arden tax district, as of the 2010 US Census, than any of the other six districts. Hedgesville Corporate and the Gerrardstown tax district represent the two lowest population distributions, with the remaining population fairly evenly distributed among the remaining districts. Figure 3-2 illustrates actual totals for each of these districts.

Figure 3-2 Distribution of Berkeley County Population by Tax District 2010



Source: Berkeley County Tax Records

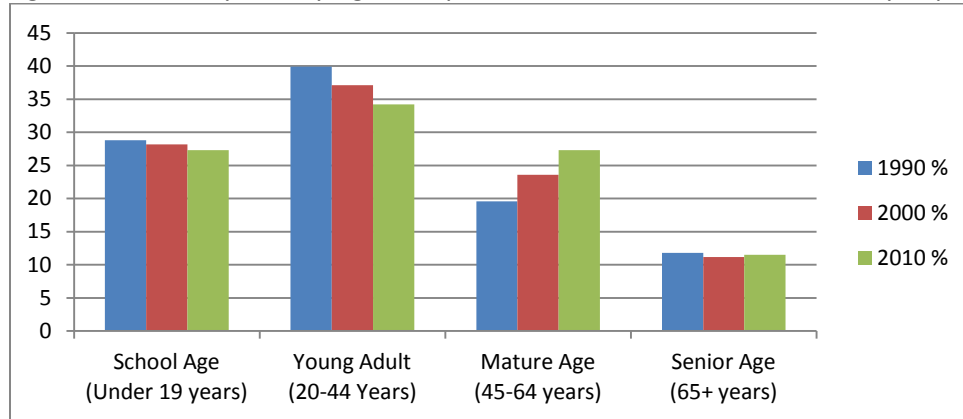
Age Group Distribution

A key factor that impacts an area's future population growth, as well as determines the type of services needed, is the distribution of the total population according to age. Each group has different public service needs that must be considered in the planning process. The School Age Group refers to people under the age of 19. The Young Adult Age Group ranges from 20-44 years of age and is most frequently responsible for new household formation. This group is also a significant part of the local labor force, is most frequently engaged in home buying or building, and is usually highly mobile and active in community functions. The Mature Age Group includes residents between 45 and 65 and tends to be more settled and at the height of their earning power, while people 65 years and older, the Senior Age

Group, are generally characterized by limited purchasing power, increased demand for health and public transit services, special recreational requirements, and also may have special housing needs.

All age groups in Berkeley County continue to experience an increase in total population. Between 1990 and 2010, Berkeley County's total population increased from 59,253-104,410, which increased the number of persons in each age group. The young adult age group remains the largest. However, as a percentage of the total population, this group continues to experience a decrease and has dropped almost six percent between 1990 and 2010. As shown in Figure 3-2, the county's mature age group continues to experience an increase as a percentage of the total population. Since 2000, the Senior Age Group is showing an increase in percentage as well. These trends are consistent with the state of West Virginia.

Figure 3-3 Berkeley County Age Group Distribution Percent of Total County Population 1990-2010



Source: U.S. Census Bureau

Berkeley County's population remains younger than West Virginia's population. As shown in Table 3-5, 61.5 percent of Berkeley County residents were under the age of 44, compared to only 54.8 percent of West Virginia residents (Table 3-6). However, as a result of the growth of the mature age group, the county's median age has increased from 33.3 in 1990 to 37.6 in 2010, as shown in Table 3-7.

Table 3-5 Age Group Distribution 1990-2010 – West Virginia

Age Groups	1990		2000		2010		1990-2010
	#	%	#	%	#	%	Change in %
School Age (Under 19 years)	503,401	28.1	454,715	25.1	438,718	23.7	-12.8
Young Adult (20-44 Years)	652,974	36.4	621,452	34.4	576,138	31.1	-11.8
Mature Age (45-64 years)	368,205	20.5	455,282	25.2	536,273	29.0	45.6
Senior Age (65+ years)	268,897	15.0	276,895	15.3	299,352	16.2	11.3
Total	1,793,477	100.0	1,808,344	100.0	1,850,481	100.0	3.2

Source: US Census Bureau

Table 3-6 Age Group Distribution 1990-2010 – BERKELEY COUNTY

Age Groups	1990		2000		2010		1990-2010
	#	%	#	%	#	%	Change in %
School Age (Under 19 years)	17,037	28.8	21,374	28.2	28,419	27.3	66.8
Young Adult (20-44 Years)	23,657	39.9	28,187	37.1	35,600	34.2	50.5
Mature Age (45-64 years)	11,588	19.6	17,878	23.6	28,402	27.3	145.5
Senior Age (65+ years)	6,971	11.8	8,466	11.2	11,989	11.5	72.0
Total	59,253	100.0	75,905	100.0	104,410	100.0	71.1

Source: US Census Bureau

Table 3-7 Median Age 1990-2010

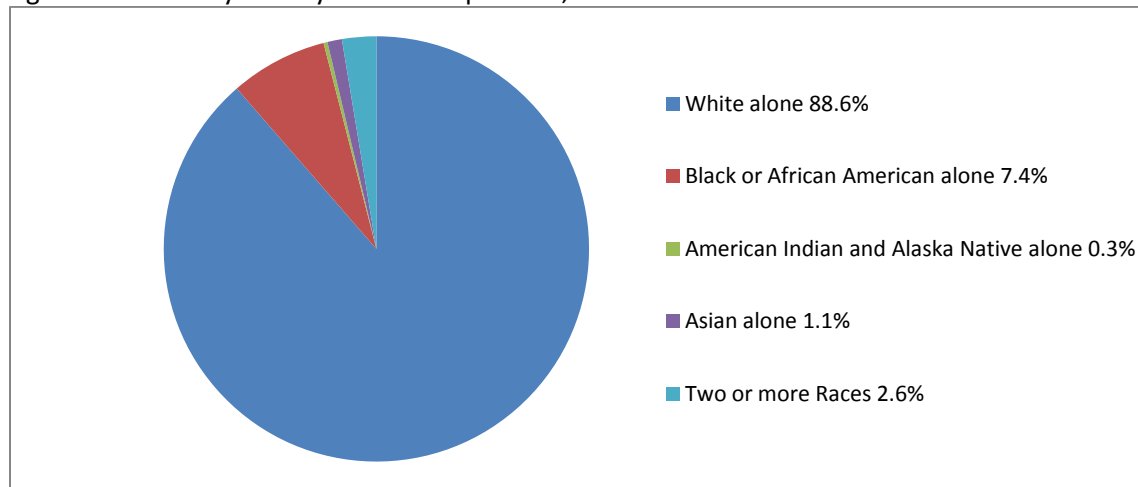
Municipality	1990	2000	2010	Change 1990-2010
USA	32.9	35.3	37.1	4.3
West Virginia	35.3	38.9	41.3	6.0
BERKELEY COUNTY	33.3	35.8	37.6	4.3
Clarke County, VA	36.4	40.6	44.9	8.5
Frederick County, VA	33.0	36.7	39.1	6.1
Jefferson County, WV	32.7	36.8	38.9	6.2
Morgan County, WV	38.0	40.7	45.0	7.0
Washington County, MD	34.4	37.4	38.0	3.6

Source: US Census Bureau

Racial Composition

Berkeley County's European heritage is still widely apparent in its population. According to 2013 Census Bureau estimates, approximately 88.6 percent of Berkeley County residents are white. This represents a decrease of approximately 6.8 percent since 1990, thus indicating a trend towards greater racial diversity. The largest percentage of residents of another single race in the county is Black or African American at 7.4 percent. Less than four percent of residents are of Hispanic or Latino ethnicity, Asian ethnicity, or American Indian/Alaska Native ethnicity. (See Figure 3-3)

Figure 3-4 Berkeley County Racial Composition, 2013 estimates



Source: US Census Bureau

Berkeley County is more racially diverse than West Virginia as a whole (See Table 3-8), but less so than the City of Martinsburg. Census data from 2010 indicates that 11.3 percent of the county's population was classified as "non-white", compared to six percent of the state's population and 22.5 percent of the city's population. In 1990, Clarke County, VA had the highest percentage of non-white residents among the surrounding counties. The non-white population of Washington County has more than doubled since 1990 and, as of 2010 has the largest percentage of non-white residents among the surrounding counties at 14.8 percent.

Table 3-8 Comparison of Racial Diversity, 1990-2010

Municipality	% White			% Non-white		
	1990	2000	2010	1990	2000	2010
USA	80.3	75.1	77.9	19.7	24.9	22.1
West Virginia	96.2	95.0	94.0	3.8	5.0	6.0
BERKELEY COUNTY	95.4	92.7	88.7	4.6	7.3	11.3
City of Martinsburg	90.0	83.9	77.5	10.0	16.1	22.5
Clarke County, VA	90.8	91.1	90.9	9.2	8.9	9.1
Frederick County, VA	97.4	95.0	91.8	2.6	5.0	8.2
Jefferson County, WV	91.7	91.0	88.8	8.3	9.0	11.2
Morgan County, WV	98.8	98.3	97.2	1.2	1.7	2.8
Washington County, MD	92.9	89.7	85.2	7.1	10.3	14.8

Source: US Census Bureau

Household Characteristics

The total number of households in Berkeley County increased between 1990 and 2010, as shown in Table 3-9. In 1990, there were 22,350 households in the county and in 2010 there were 39,992 households, an increase of almost 79 percent. Among the surrounding counties, only Frederick County, VA continues to experience a similar increase in total households during this period and as of 2010 Berkeley County now exceeds Frederick County, VA in percentage change in number of households.

Table 3-9 Number of Households*, 1990-2010

Municipality	1990	2000	2010	% Change
USA	91,947,410	105,480,101	115,226,802	25.3
West Virginia	688,557	737,360	742,674	7.9
BERKELEY COUNTY	22,350	29,616	39,992	78.9
City of Martinsburg	6,040	6,683	7,420	22.8
Clarke County, VA	4,236	4,950	5,580	31.7
Frederick County, VA	16,470	22,124	29,146	77.0
Jefferson County, WV	12,914	16,179	19,824	53.5
Morgan County, WV	4,731	6,144	7,306	54.4
Washington County, MD	44,762	49,708	55,798	24.7

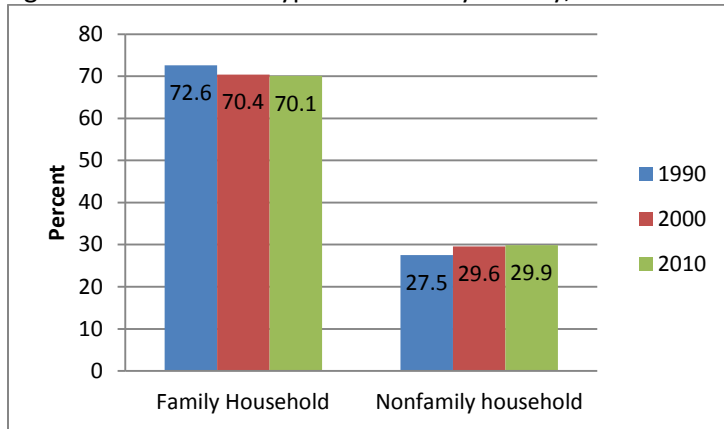
Source: US Census Bureau

* Households are classified by type according to the sex of the householder and the presence of relatives.

Two types of householders are distinguished; family householders and non-family householders. A family householder is a householder living with one or more individuals related to him or her by birth, marriage, or adoption. The householder and all of the people in the household related to him or her are family members. A non-family householder is a householder living alone or with non-relatives only. (US Census Bureau, Technical Documentation)

Family households continue to represent the majority of households at 70.1 percent of households. However, they represented a slightly smaller percentage of the total number of households in 2010 than they did in 1990, as shown in Figure 3-4. The trend towards fewer people in each household seen in 2000 changed direction in 2010, as shown in Table 3-10. Only Clarke County, VA and Morgan County, WV continue to decrease in persons per household. All other surrounding counties, including Berkeley County, the state and the nation are showing an increase in persons per household between 2000 and 2010.

Figure 3-5 Household Types in Berkeley County, 1990-2010



Source: U.S. Census Bureau

Table 3-10 Persons per Household 1990-2010

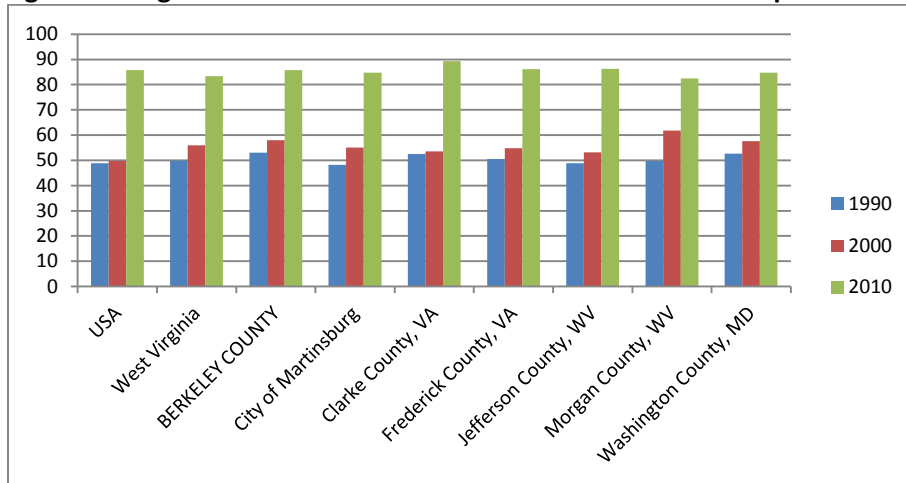
Municipality	1990	2000	2010
USA	2.63	2.59	2.61
West Virginia	2.55	2.40	2.43
BERKELEY COUNTY	2.60	2.53	2.58
City of Martinsburg	2.30	2.21	2.31
Clarke County, VA	2.78	2.50	2.48
Frederick County, VA	2.76	2.64	2.65
Jefferson County, WV	2.68	2.54	2.63
Morgan County, WV	2.52	2.40	2.38
Washington County, MD	2.53	2.46	2.64

Source: US Census Bureau

Educational Attainment: High School

The number of high school graduates residing in Berkeley County has increased to 85.7 percent and mirrors all neighboring counties, the state and the nation, as shown in Figure 3-5. This is in an increase of 27.7 percent from 2000 to 2010. This ten year jump in percentages across all municipalities on the graph parallels the No Child Left Behind Act. According to the U.S. Department of Education website, www.ed.gov, a variety of educational requirements were implemented between 2001 and 2005 as a result of the NCLB Act. The highest increase seen over any other 10-year time span within a neighboring county was experienced by Morgan County from 1990 to 2000 when percent of population with high school attainment increased 12.1 percent.

Figure 3-6 High School Education Attainment as a Percent of Population 25 Years and Older



Source: US Census Bureau

Educational Attainment: College

A review of Census data indicates that 15.5 percent of Berkeley County's 25 year and older population had obtained college degrees in 1990. By 2010 that figure increased to 19.4 percent. This is an increase of 3.9 percent since 1990. As shown in Table 3-11 and Figure 3-6, the percentage of residents in the county that obtained some type of college degree continues to exceed that for West Virginia, Morgan County, WV, and as of 2010 Washington County, but continues to lag behind the national rate, as well as those of the remainder of the surrounding counties.

Figure 3-7 College Education Attainment as a Percent of Population 25 Years and Older



Source: US Census Bureau

Table 3-11 Educational Attainment as a Percent of Population 25 Years and Older

Municipality	1990		2000		2010	
	High School*	College Degree	High School*	College Degree	High School*	College Degree
USA	48.9	26.6	49.7	30.7	85.7	28.5
West Virginia	49.9	16.1	56.0	19.2	83.4	17.9
BERKELEY COUNTY	53.0	15.5	58.0	19.6	85.7	19.4
City of Martinsburg	48.2	19.6	55.1	19.3	84.7	19.8
Clarke County, VA	52.5	22.5	53.5	28.6	89.3	31.2
Frederick County, VA	50.5	19.5	54.8	23.7	86.1	26.2
Jefferson County, WV	48.9	19.3	53.1	26.0	86.2	27.8
Morgan County, WV	49.7	15.1	61.8	14.3	82.5	15.0
Washington County, MD	52.7	16.6	57.6	20.2	84.8	18.7

Source: US Census Bureau

Median Household Income

Median household income in Berkeley County experienced real growth between 1989 and 1999 but felt a slight decline from this growth between 1999 and 2013. When adjusted for inflation, median household income for the county in 2013 was \$53,515, which still reflects an overall increase of 3.8 percent over 1989 figures. Despite a drop in adjusted median household income between 1999 and 2013, Berkeley County and West Virginia maintained a positive change in the overall percent change for the County and the State between 1999 and 2013. The City of Martinsburg, Washington County, MD, Morgan County, WV and the Nation actually experienced a negative percent change in adjusted median household income between 1989 and 2013. Clarke County, VA, Frederick County, VA and Jefferson County, WV experienced a continual increase in adjusted median household income with the highest percent change in Clarke County, VA at 16.1 percent.

Figure 3-8 Adjusted Median Household Income 1989-2013

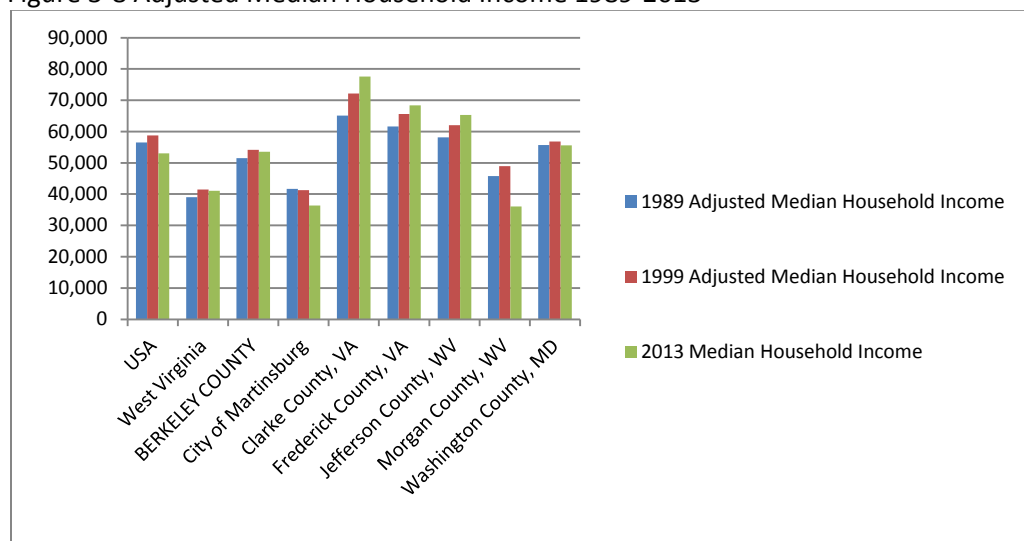


Table 3-12 Change in Median Household Income 1989 - 2013

Municipality	Census Reported 1989 Median Household Income (\$)	1989 Median Household Income Adjusted to 2013 Dollars ⁽¹⁾	Census Reported 1999 Median Household Income (\$)	1999 Median Household Income Adjusted to 2013 Dollars ⁽¹⁾	Census Reported 2009-2013 Median household Income in 2013 Dollars	Percent Change in Adjusted Median Household Income
USA	30,056	56,465	41,994	58,720	53,046	-6.4
West Virginia	20,795	39,067	29,696	41,524	41,043	4.8
BERKELEY COUNTY	27,412	51,499	38,763	54,202	53,515	3.8
City of Martinsburg	22,193	41,694	29,495	41,243	36,330	-14.8
Clarke County, VA	34,636	65,070	51,601	72,154	77,597	16.1
Frederick County, VA	32,806	61,632	46,941	65,638	68,424	9.9
Jefferson County, WV	30,941	58,128	44,374	62,048	65,304	11.0
Morgan County, WV	24,372	45,787	35,016	48,963	36,046	-27.0
Washington County, MD	29,632	55,669	40,617	56,795	55,609	-0.1

Source: US Census Bureau

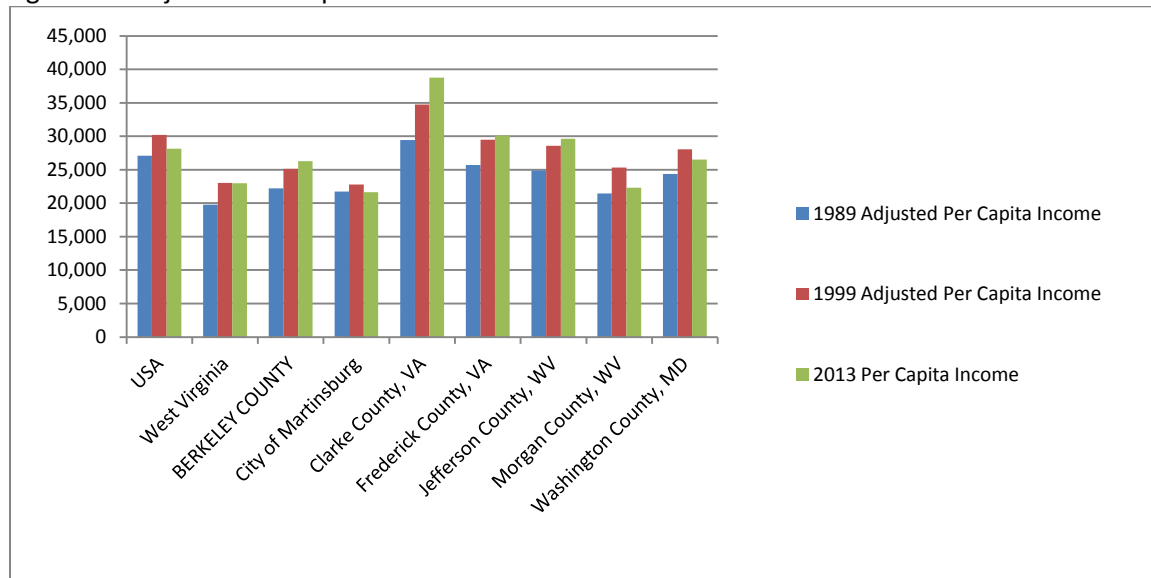
¹ Median household and per capita figures are adjusted to 2013 dollars by using the Department of Labor Statistics inflation calculator.

Note: "When the median income of a group is calculated, it automatically removes those values that are at the furthest ends of the income distribution. By doing this, data calculated based on median income is able to yield a more accurate representation of the group being surveyed. As a result, median income is often preferred over per capita income by fact-finding agencies, particularly when the data are obtained from a relatively small group of individuals." (http://www.ehow.com/info_8301472_difference-median-income-per-capita.html)

Per Capita Income

Per capita income in Berkeley County also experienced real growth between 1989 and 1999 which continued through 2013. (See Figure 3-8 and Table 3-13) When adjusted for inflation, per capita income for the county in 2013 was \$26,264, which reflects a steady increase of 15.4 percent over 1989 figures. The only neighboring municipalities with a higher percent change are Jefferson County, WV at 15.9 percent and Clarke County, VA at 24.1 percent. Washington County, MD, Morgan County, WV, the State and the Nation actually experienced a decrease in per capita income between 1999 and 2013, however the overall percent change remained positive for the same period.

Figure 3-9 Adjusted Per Capita Income 1989-2013



Source: US Census Bureau

Table 3-13 Per Capita Income 1990-2013

Municipality	Census Reported 1989 Per Capita Income (\$)	1989 Per Capita Income Adjusted to 2013 Dollars ⁽¹⁾	Census Reported 1999 Per Capita Income (\$)	1999 Per Capita Income Adjusted to 2013 Dollars ⁽¹⁾	Census Reported 2009-2013 Per Capita Income in 2013 Dollars	Percent Change in Adjusted Per Capita Income
USA	14,420	27,091	21,587	30,185	28,155	3.8
West Virginia	10,520	19,764	16,477	23,040	22,966	13.9
BERKELEY COUNTY	11,832	22,229	17,982	25,144	26,264	15.4
City of Martinsburg	11,563	21,723	16,314	22,812	21,619	-0.5
Clarke County, VA	15,657	29,415	24,844	34,739	38,748	24.1
Frederick County, VA	13,671	25,684	21,080	29,476	30,112	14.7
Jefferson County, WV	13,249	24,891	20,441	28,583	29,605	15.9
Morgan County, WV	11,420	21,455	18,109	25,322	22,312	3.8
Washington County, MD	12,970	24,367	20,062	28,053	26,532	8.2

Source: US Census Bureau

¹ Median household and per capita figures are adjusted to 2013 dollars by using the Department of Labor Statistics inflation calculator.

Note: "When the median income of a group is calculated, it automatically removes those values that are at the furthest ends of the income distribution. By doing this, data calculated based on median income is able to yield a more accurate representation of the group being surveyed. As a result, median income is often preferred over per capita income by fact-finding agencies, particularly when the data are obtained from a relatively small group of individuals." (http://www.ehow.com/info_8301472_difference-median-income-per-capita.html)

Poverty Status

Between 1999 and 2013 Berkeley County and each of the surrounding counties experienced an increase in the percentage of residents with incomes below the poverty level. As shown in Table 3-14, Clarke County, VA and West Virginia were the only two municipalities to show an overall decline in poverty level from 1989 to 2013. Clarke County, VA and Frederick County, VA remain the two lowest poverty levels of surrounding counties, West Virginia and the Nation.

Table 3-14 Poverty Status, 1989-2013

Municipality	Percent of Persons for Whom Poverty Status is Determined with:		
	Income in 1989 Below Poverty Level	Income in 1999 Below Poverty Level	Income in 2013 Below Poverty Level
USA	13.1	12.4	15.4
West Virginia	19.6	17.9	17.9
BERKELEY COUNTY	11.9	11.5	13.1
City of Martinsburg	15.9	20.0	26.6
Clarke County, VA	8.7	6.6	6.7
Frederick County, VA	7.0	6.4	7.1
Jefferson County, WV	10.5	10.3	11.2
Morgan County, WV	11.0	10.4	15.3
Washington County, MD	9.3	9.5	12.4

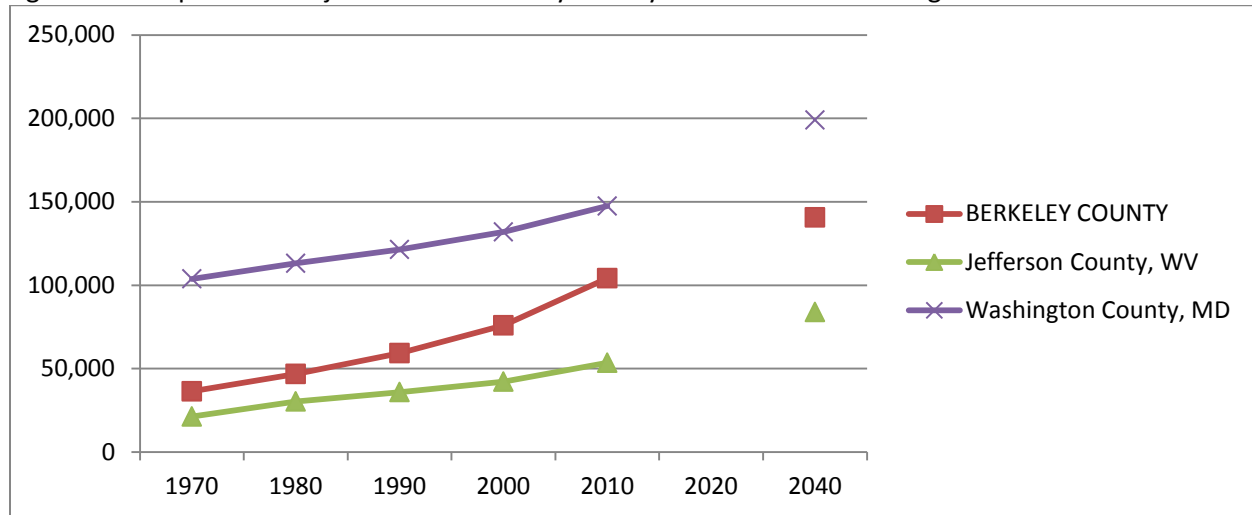
Source: US Census Bureau

Population Projections

Future needs for the residents of Berkeley County will depend largely on the size and composition of its population; therefore, reasonable population projections are necessary. During the 1990s, the county's population increased by approximately 28 percent. From 2000 to 2010 Berkeley County's population increased by approximately 37 percent. All indications are that Berkeley County will continue to see substantial growth in population. Figure 3-9 provides one set of possible projections for Berkeley County and a few neighboring counties for 2040. These projections are provided in Direction 2040, the Hagerstown Eastern Panhandle Metropolitan Planning Organizations Long Range Transportation Plan. According to this plan Berkeley County's population is forecasted to grow to 140, 613 by 2040 with an annual growth rate of 1.00%. Washington County is also anticipated to grow by 1.00% up to 199,010 by

2040. Jefferson County's forecasted annual growth rate is 1.5% making the forecasted total population 83,902 in 2040 for this county.

Figure 3-10 Population Projections for Berkeley County and a Few Surrounding Counties



Source of Projections for 2040: HEPMPO Direction 2040 Long Range Transportation Plan Update

Berkeley County Highlights

The key trends and forecasts provided in this chapter for Berkeley County will help guide the development of the action plans contained within this comprehensive plan. In summary:

- Berkeley County's population is growing rapidly and according to recent estimates, it is the second largest population in the state of West Virginia.
- The average percentage growth rate of Berkeley County exceeds the growth rate of all neighboring counties and the growth rate of the other two largest counties in West Virginia.
- Berkeley County had the second highest population density among the surrounding counties. Until 2010, when it exceeded the population density of Washington County and became the highest population density among the surrounding counties.
- Berkeley County has the second highest urban population percentage among neighboring counties. As urban populations increase, rural populations continue to decline.
- All age groups in Berkeley County continue to experience an increase in total population. While The Young Adult Age Group remains the largest, its percentage of the total population is steadily declining and the Mature Age Group percentage of the total population is steadily increasing.
- The percentage of high school graduates residing in Berkeley County jumped to about 86 percent which mirrors all neighboring counties, the state and the nation, while the percentage of college graduates remains virtually unchanged.
- All indications are that Berkeley County will continue to see substantial growth in population. According to the HEPMPO Direction 2040 plan, Berkeley County's population is forecasted to grow to 140,613 by 2040 with an annual growth rate of one percent.

Chapter 4 – Values, Visions and Goals

Values, Visions and Goals Summary

Residents of Berkeley County have chosen to live here for a variety of reasons, including community character, the natural environment, and family ties. This section of the comprehensive plan examines the opportunities in Berkeley County and the visions for the future that will make it an even better place to live, work and play.

Public Involvement Process

This document is an update to the 2006 Berkeley County Comprehensive Plan and much of the same information was used in formulating the Action Plans contained in this document.

The Comprehensive Plan Update development has utilized several public involvement techniques to determine what the residents of Berkeley County see as the current issues and what they would like to see in the future. Residents were provided several opportunities to answer questions and to establish what is valued in the communities, as well as what the vision of the future should be. The results of this process are the foundation for the plans and implementation strategies found in the following chapters.

Public involvement has been multi-faceted so that the planning process would allow as many people as possible to participate in the planning effort. The following reviews the various levels of participation that have led to the development of the values, visions and goals for the update to the Berkeley County Comprehensive Plan.

Public Meetings

The comprehensive plan update was listed as an agenda item for every Planning Commission meeting beginning in May of 2015 and continued through to the completion and the adoption of the plan. Schedule for these public meetings and public hearings were posted on the comprehensive plan webpage.

Webpage

In order to facilitate sharing the plan with the community at large, a project webpage was developed: www.berkeleywv.org/ComprehensivePlan. In addition to providing information about public meetings, sections of the plan were made available as they were completed. The link to the online community survey was provided and basic background information about the plan, including an electronic copy of the 2006 Berkeley County Comprehensive Plan Update.



Values & Visions

Public Outreach – The Community Survey Summary

From July 2015 through October 2015, an online community survey was made available to the members of the Berkeley County community to validate current issues and concerns in Berkeley County. The survey was advertised in a variety of locations including The Martinsburg Journal, The Herald Mail, Planning Commission meetings, County Council meetings, Planning Commission office reception area, business cards, and email distributions to agencies throughout the community. A few agencies also distributed information regarding the survey through their own email blasts and group distributions.

A total of 375 on-line surveys were completed. The multiple choice survey results were compiled and compared to the survey results of the 2006 Comprehensive Plan. The survey comments were compiled by question and grouped according to similarities. The following provides a general summary of the results of the survey. Detailed survey results can be found in the Appendices.

Multiple Choice

In summary, the multiple choice survey yielded the following results:

- Most residents, nearly 87%, agree to some extent that the quality of life in the county is very good. This is up from 67% in the 2006 plan. However, the percentage of respondents that strongly agreed remains the same at less than 6%.
- More than 71% of respondents agreed to some extent that the location of new development, affordable housing, a lack of employment opportunities, protection of water resources, traffic congestion, the pace of new development and the cleanliness of the county were major issues. Cleanliness of the county and traffic congestion rank as the top two issues. Pace of new development has moved from being one of the top two major issues to being one of the bottom two concerns.
- With regard to the types of housing that should be encouraged in Berkeley County, single family detached homes and retirement villages/assisted living facilities remain ranked as the top two and received strong support with over 85% and nearly 92% respectively. Mobile homes and Conversion of single-family homes to apartments received little support from respondents with less than 22% of respondents encouraging this type of housing.
- More than half of respondents agreed to some extent that availability of community services and utilities in the county are adequate with the exception of Street and Road Maintenance and Internet Access with 46% and 47% of respondents feeling these services were adequate.
- Each of the identified transportation related projects received very strong support, with between 76 and 80% of respondents agreeing that the county should pursue them. Priorities continue to be to “reduce congestion in and around Martinsburg, Hedgesville, Inwood and Tabler Station” and “Provide transportation related services to elderly and the handicapped.”
- Citizens do not appear to be satisfied with County Government, particularly with regard to “planning regulations” (43%) and “keeping citizens informed on available assistance programs” (39%). In regards to “cooperation with other governments in the county and the state” the percentage of respondents unsure about this question remains at 35%.
- More than half of respondents agreed to some extent that the county needs a variety of recreational facilities, with the exception of football fields which fell from 58% to 40%. “Places to walk and hike” and “Bike trails and paths” remain the strongest supported recreational facilities/programs at 87% and 86%.
- There is also agreement on the need for additional community and cultural activities in the county, with the exception of “parades” which only received support from 34% of the

respondents. “Protected greenways along streams and scenic roads” continues to receive the strongest support at 88% of respondents indicating the county needs more of them.

Written Responses

The written answers to the survey questions provided the following insight:

Survey Comment 33: “Other Transportation Services That Should Be Pursued By County Officials”: The majority of responses to this question emphasized the need for improvements to Route 9 from I-81 to Berkeley Springs (25.7% of written responses) and the need for additional taxi and bus services throughout the county (23.0% of written responses). Requested improvements on Route 9 included widening the road to 4 lanes, traffic calming, and traffic enforcement to improve the overall safety of the road and reduce traffic congestion. Increased private taxi services in the area was strongly recommended along with requests for additional bus services for individuals who need off hour transportation to work at 24/7 facilities, medical care, or after school activities. Improved train and MARC access was requested in 14.9% of the written responses, including additional parking, overnight security and at least one weekend run in the morning and evening for families that would like to visit Washington DC. Another 14.9% of written responses suggested more bike and pedestrian paths including a system of paths that connected to each other throughout the county. The remaining written requests emphasized the need to reduce traffic congestion from Winchester Avenue (Route 11) to I-81; making all roads school bus accessible; improving I-81 to reduce congestion and increase safety; and providing apps for portable devices to inform residents of traffic issues.

Survey Comment 42: “I Am Very Satisfied With County Government In Regard To”: In response to this comment 63% of the written comments indicated dissatisfied with county government. The 37% of written comments, indicating that they were satisfied with county government, shared their appreciation for the use of existing vacant properties to house government services and the future rehabilitation center; holding departments within the county government accountable; helpfulness of county employees; the recycling program; pursuing new business growth and attracting better and healthier fast food options; improving the parks; and the use of cable and the county website. Many of the written comments, that specified a reason for dissatisfaction, mentioned concerns regarding zoning or lack of zoning; and decisions being made without or regardless of public input. (Zoning was presented to the public and was defeated in a general election in the 1980s and again in 2010).

Survey Comment 54 “Berkeley County Needs More”: In response to Comment 54, 21.4% of written comments indicated the need for an indoor pool in Berkeley County. The second highest percentage, 14.3% of written comments expressed a need for more bicycle trails and hiking paths along roads and in natural areas such as Sleepy Creek. Another 10.7% emphasized the need for more greenspace, nature preserves and habitat corridors, with shade trees, with an additional 5.4% recommending locations that allow for individual fitness opportunities. Infrastructure concerns were also mentioned 10.7% of the written comments to this question.

Survey Comment 61 “Berkeley County Needs More Community and Cultural Activities”: There was a strong interest in more dancing opportunities, music opportunities, and art festivals, with 15.2% of written comments specifying interest in a variety of these activities. Other interests included recommendations for better communication and advertising of events, improvements to downtown Martinsburg, and activities for elder citizens. Nature preserves, trees, and bicycle trails were also mentioned.

The most important issue to the citizens of Berkeley County remains the ability to maintain the quality of life in the face of the continued development of the County. The initial period after the adoption of the 2006 Comprehensive Plan can be characterized as a period of very rapid growth. This period of rapid growth brought Berkeley County to the forefront in the state as well as the nation. However, the “Building Bubble” burst in 2008. Development became almost non-existent and has only started to come back in recent years. It has not yet reached the levels seen prior to 2008. Berkeley County’s rapid growth has an impact on every aspect of community life. The unprecedented growth has been further complicated by the potential environmental impacts and in particular the waters of the Chesapeake Bay. While the county has taken a number of steps to maintain the water quality within the county, additional steps will need to be undertaken by both citizens and all governmental units and agencies operating within the County. Federal Regulations addressing water quality in the Chesapeake Bay watershed require continued attention and effort in order to meet these regulations. The challenge continues to be finding the balance between individual property rights and the overall needs of the Berkeley County community.

GOALS THROUGH ACTION PLANS

This chapter outlined a preferred vision for Berkeley County’s future. The following chapters outline the action plans that correspond to the preferred vision.

Action Plans answer the question *“How can we change what we do today in order to become the community we want to be tomorrow?”* They recommend policies for decision making and they recommend tasks for initiating change in the community. It is important to recognize that the action plans reflect a partnership of public and private entities working together to improve the quality of life in Berkeley County. Contributions of time, talent and financial resources will be needed to make this plan a reality.

The Action Plans are organized as follows:

- The Growth Management Plan (Land Use)
- The Natural Resources Plan
- The Housing Plan
- The Transportation Plan
- The Infrastructure Plan
- The Community Services and Facilities Plan
- The Education Plan
- The Parks, Recreation and Culture Plan
- The Economic Development Plan

Chapter 5a – The Land Use and Growth Management Plan

The Land Use and Growth Management Plan Goals

Development Based on Water Availability

- High growth areas should be directed to areas currently served by public water and areas projected to be served by public water within the next fifteen (15) years.
- Low density growth areas would utilize on site well and septic systems. Density would be determined by the ability of groundwater systems to support development.
- Regulations should be established to protect historic and archeological sites, sensitive stream bank areas and water resources.

Provide Critical Infrastructure Planning and Protection

- Promote growth management strategies that provide for the protection, coordination and implementation of critical infrastructure such as water, wastewater, energy, communication, and transportation.
- Plan and preserve corridors for communications, wastewater, water supply and transportation infrastructure.
- Provide for riparian buffers.

Growth Management Implementation Tools

- Establish land use controls through the adoption of subdivision and land development ordinances.
- Designate land uses in the County.
- Provide consistent definitions for county land uses.
- Provide development standards that are reasonable and encourage development consistent with the land use plan.

Parks and Recreation

- Identify and provide for active and passive recreational/open space opportunities that will enhance the quality of life for all the residents of Berkeley County.

Annexation and Eminent Domain

- Provide for coordination of growth management policies with proposed boundary changes to avoid changes in future growth management strategies and visions.

Identify and Revitalize Brownfields

- Provide guidance for redeveloping and revitalizing “brownfield” areas as a means of preserving “greenfield” areas.
- Provide for mixed use opportunities.

The Land Use and Growth Management Plan Summary

This plan establishes an overall direction for managing growth in Berkeley County with the goal being to accommodate orderly growth and development while preserving the rural character of Berkeley County. The Land Use and Growth Management Plan provides a general framework for managing growth by identifying areas appropriate for growth and those that should be protected. If managed properly, growth will have positive benefits for current and future residents. This will require coordination with

transportation improvements and the provision of public utilities. It will also require sensitivity for the county's natural resources.

Land Use and Growth Management Plan Profile

Introduction

Berkeley County is a community in transition from a rural agricultural based community to a more suburban community. It continues to experience the growing pains of rapid development. The County is not alone. The entire Eastern Panhandle of West Virginia, and nearby counties in Virginia, Maryland and Pennsylvania have also seen growth in residential and commercial development. Growth in Berkeley County has been stimulated by many factors including, land prices and mortgage rates, good transportation that provides access to employment, an above average economy, and the attractiveness of the county's rural character and natural environment.

However, growth pressures are impacting the quality of life in Berkeley County. The fact that many residents are from outside the area has interjected other thoughts as to how the county should grow. However, all seem to agree that the quality of life is a central concern. Berkeley County is especially vulnerable to negative impacts of unmanaged growth because there are few growth management tools available to the planners and government leaders of this county.

The development of land use data is only one aspect of the inventory phase of planning projects in the community. Identifying how land is used is an extremely important part of the process, as land resources continue to be developed. This is important in communities such as Berkeley County where land development and population growth have been a focus of the comprehensive planning process. Land use is of much interest in the development of the comprehensive plan since it forms the basis for many decisions pertaining to transportation, parks and recreation, open space, natural resource preservation and housing. While each is integrated, land use forms the foundation upon which much of the other community development components are based.

Growth management develops a spatial framework for future development in Berkeley County. It can be implemented through a variety of strategies that are further outlined in the plan to achieve the land use goals and objectives outlined. The 2006 Plan envisioned the adoption of zoning in the county, which was defeated by a vote of the residents in 2010. Zoning is the most effective tool in managing growth within the county, but as the residents have spoken on the issue, other options need to be explored if growth management is going to occur, which many residents desire, according to survey results and public hearing comments.

Existing Land Use

Topography and natural resources play a significant role in the development of both historic and contemporary land uses in the county. The ridge and valley patterns in Berkeley County have been responsible for land use patterns in the county. The valley formed by North Mountain on the west and the Opequon Creek and Jefferson County on the east form an area that was cleared by early settlers for agricultural activity and to take advantage of the rich agricultural soils in the valley. The other valley formed by North Mountain and Third Hill Mountain is known as Back Creek Valley.

The early economy of Berkeley County was based upon agriculture and Martinsburg became the local market center. Transportation links in the 19th century began to open up the county to outside influences. First the Chesapeake and Ohio Canal system followed by the railroad improved access and created linkages to outside economies.

The Civil War had a big impact on Berkeley County. As a transportation corridor the railroads were prized by both the Union and Confederacy. Destruction from the Civil War slowed development in the area for many years. Following reconstruction the area started to see a shifting economy from agricultural to more industry. Textile mills formed the basis of this new industrial revolution in Berkeley County.

Additional improvement to the transportation network continued to influence land use patterns. Additional highways enabled residents to travel greater distances to their work, school and social destinations in less time. This flexibility has eventually led to scattered development throughout the county.

In most communities, early commercial and industrial uses were located in towns and villages where transportation resources and employees were available. As the scale of these operations increased and downtown real estate values increased these uses began to locate on the urban fringes where vacant land was abundant and land costs were lower. This led to uses being located on the urban fringe surrounding existing communities and business centers. Today we find commercial and industrial complexes in suburban and rural areas where transportation access is available and land is less expensive to develop.

The biggest impact on communities and certainly on Berkeley County was the interstate highway program. The construction of I-81 through Berkeley County and the improvements to other highways in the County have had a profound impact on the movement of people and goods in and through the county and on the land use patterns that have evolved for this highways system.

Berkeley County's more recent growth is largely a phenomenon of its location in the heart of the four state region of West Virginia, Virginia, Maryland and Pennsylvania. This region is experiencing enormous growth moving outward from the Washington D.C. area. Until recently, much of this growth was confined to Maryland and northern Virginia. However, as housing and land costs have escalated in those areas, developers and home buyers have continued to search for affordable housing. During the past 20 years Berkeley County has continued to grow, though not as much in the recent decade, in regards to housing and in the commercial sector in order to support the new residents. Berkeley County has become a popular destination for those seeking good housing and also the lure of open spaces.

Each of these factors has stimulated extensive growth in the county which is taxing the county's entire support system, including transportation systems, water resources, schools and wastewater treatment. Furthermore the county's widely expanding sewer and water facilities have made the county an extremely attractive location for new housing development.

Land Use Data

Berkeley County occupies approximately 205,497 acres or 320 square miles. Historical land use data has been compiled in Table 5-1 below. Current land use information for this 2016 plan update was not readily available. Information was pulled from a variety of sources, when available, while other data was estimated based on historical data or calculated using existing information. These numbers are listed in Table 5-2 below. Compiling land use data can be challenging due to a variety of reasons. One of those reasons is that some agricultural data is proprietary. While acreage totals are made available through census data, the actual location of these acres is not readily available which makes the mapping of agricultural acreage a challenge. The Chesapeake Conservancy and the United States Geological

Survey agencies are compiling land cover and land use data for Berkeley County that will be available fall of 2016. It is recommended that land use trends be evaluated utilizing this data.

Table 5-1 Historical Land Use Data Summary

	1960s	1970s	1980s	2000 Data		
Classification	Acres	Acres	Acres	Acres	% of Total	Square Miles
Agriculture	115,835 ¹	84,591 ¹	85,877 ¹	39,485 ²	19.21	61.68
Barren				68 ²	0.03	0.11
Developed Areas (minus transportation)	3,851 ¹		7,710 ¹	45,122 ²	21.96	70.48
Extractive Quarries				24 ²	0.01	0.04
Forested Areas				115,368 ²	56.14	180.20
Open Water			844 ¹	460 ²	0.22	0.72
Transportation	778 ¹		1,977 ¹	3,961 ²	1.93	6.19
Wetlands			1,372 ³	1,007 ²	0.49	1.57
Total	202,240¹	202,240¹	202,240¹	205,497	100.00	320.99

(Source: ¹1990 comprehensive plan; ²2006 comprehensive plan; ³1987 National Wetlands Inventory Mapping)

Table 5-2 Existing Land Use Summary 2012

Classification	Acres	% of Total	Year & Data Source
Agriculture (non-woodland)	53,969	26	2012 USDA Census
Agriculture (woodland)	16,191	8	2012 USDA Census
Forested Areas	113,023	55	2008 WVDOF
Barren			To Be Determined Fall 2016
Developed Areas			To Be Determined Fall 2016
Extractive Quarries			To Be Determined Fall 2016
Open Water			To Be Determined Fall 2016
Transportation			To Be Determined Fall 2016
Wetlands			To Be Determined Fall 2016
Total	205,497	100	

(Source: varies as listed in table-bold represents data available; non-bold represents a calculation)

Developed Areas

Developed areas include residential, commercial, and industrial development that has occurred in the county. Developed areas occur mostly in the valley between North Mountain and the Opequon Creek/Jefferson County border with major concentrations of development along I-81 and US Route 11. A closer inspection of the 2006 Existing Land Use map indicates concentrations of developed areas from north to south starting with Falling Waters areas in the north of the County, development along the Route 9 corridor from I-81 west to Hedgesville, the greater Martinsburg areas and development patterns from Martinsburg south to Inwood and the Virginia border roughly along the I-81 and Route 11 corridors. The corridors of Routes 45, 9, and 51 from US 11 to Jefferson County are also each well developed. Outside of the I-81 corridor areas the biggest concentrations of development occurred in the Marlowe and Falling Waters areas and in the Inwood area.

Since transportation is integral to all developed land uses, these lands are usually limited to large scale transportation corridors. Highways rights-of-way, interchanges and service facilities are included in this category. Local roads that service towns, villages and subdivisions are typically not separated but included in the developed areas land use mapping. Transportation facilities occupy approximately 4,000 acres of land or about 2.0 percent of the total land area of the county. The Eastern West Virginia Regional Airport was included as a developed area rather than a transportation land use because of its integral use for commercial and industrial development.

Undeveloped Lands

Berkeley County is developing rapidly and there are large amounts of land that have been subdivided and could be developed in the future. However, monitoring the portions of the land area in Berkeley County that remain undeveloped and the implementation of growth management recommendations in this comprehensive plan can guide the county towards preserving undeveloped resources in the county and managing the growth that does occur.

Forested Areas: The forested areas of Berkeley County are significant and are now viewed as a recreational resource. This forested open space, a combination of public and private lands, dominates land use in Berkeley County. In 2006 115,368.1 acres or 56 percent of the county was reported as being forested area. This has remained virtually unchanged with 55 percent of Berkeley County being forested area, according to 2008 West Virginia Division of Forestry data. This is the largest single land use in Berkeley County. Much of the forested areas are located on North Mountain and Third Hill Mountain and the Sleepy Creek Wildlife Management Area. Many of these areas are either owned by the State of West Virginia (Sleepy Creek) or have steep slopes that make development difficult.

Agriculture: Agricultural lands are those lands dedicated to the production of crops and livestock and to the support of these operations. According to the 2012 USDA Census, Berkeley County has 53,969 acres of non-woodland agricultural land plus 16,191 acres of woodland agricultural land. This indicates Berkeley County has a total of 70,160 acres or 34 percent of land in the county being used as agricultural land. Much of the agricultural areas occur in the valley between North Mountain and the Jefferson County border since these are the areas that are underlain by the valley's limestone and have the richest soils for agricultural production. Concentrations of agricultural activity occur in the northeast part of the county from Route 9 north to the Potomac River, and west of I-81 and North Mountain is the location of many of the county's fruit orchards which have made the county a leading fruit producer in both West Virginia and in the United States.

Wetlands and Open Water: Wetlands and open waters are a small part of the land cover in Berkeley County. They account for less than one percent of the total acreage in the county but are valuable resources that need to be considered when evaluating future plans for the county.

Historical Comparisons and Trends

As communities grow their land uses change. Properties are sold, subdivided and developed. This is certainly true in Berkeley County which has seen continued development activity over the past decade.

In the 1990 Berkeley County Comprehensive Plan there is an illustrated map of major areas of urbanization in Berkeley County. This map shows nodes of development around certain areas in the county including Martinsburg, Marlowe, Falling Waters, Whitings Neck, Baker Heights, Eastern West Virginia Regional Airport, Tabler Station, Darkesville, Inwood, Ridgeway, Gerrardstown, Glengary, Jones Springs, The Woods, and Hedgesville.

What occurred between the 1990 and 2006 comprehensive plan can be seen in the 2005 Existing Land Use Map. These development nodes still existed but they were blurred by the development that linked each of these nodes to one another. There are continuing ribbons of development along I-81 and US 11 running from the northern boundary of the county along the Potomac River to the southern boundary in Virginia. Also there are east-west ribbons of development along WV 45, 9 and 51 and the eastern boundary with Jefferson County.

Land Use Regulatory Measures

Land use is controlled and managed by land use regulations as provided for in Chapter 8A of the West Virginia Code. Chapter 8A provides for a variety of measures that can be employed by county and local municipalities to manage and control their land use including zoning and subdivision and land development.

Berkeley County: Berkeley County adopted their current comprehensive plan in 2006. This document established plans and recommendations for future development in Berkeley County. Berkeley County has no county-wide zoning. However, the County has had a subdivision and land development ordinance since 1975. This ordinance was revised in 2004 and revised again in 2009. This ordinance is used by the Berkeley County Planning Commission to manage the subdivision of land and land development of individual properties. However, it does not manage the uses of land that can occur in the county.

County Building Code: Berkeley County utilizes building codes which are administered by the Berkeley County Engineering office. The County utilizes the 2009 International Residential Code and the 2012 International Building Code.

Other Areas of Berkeley County with Zoning Regulations: There are two neighborhood zoning ordinances in Berkeley County which have zoning in place and are administered by the Berkeley County Planning Commission.

- The Tuscarora Community Zoning Ordinance was prepared in cooperation with the Tuscarora Community Citizens Advisory Committee and was adopted in September, 1975. This is an area west of I-81 at Exit 13 and extends north and south of the Tuscarora Pike.
- The Windewald Neighborhood Zoning Ordinance was prepared in cooperation with the Windewald Neighborhood Citizens Advisory Committee and was adopted in September, 1975. This is an area immediately to the south of the City of Martinsburg and to the north of Apple Harvest Drive.

Other Ordinances: There are a few other ordinances in Berkeley County monitored by the Berkeley County Planning Commission.

- The Airport Protection Noise Ordinance was prepared to limit height of objects and to regulate placement of certain structures within specific areas of noise level around the Eastern West Virginia Regional Airport.
- The Exotic Entertainment Ordinance was prepared to regulate proximity of these businesses to schools, churches, and residential neighborhoods.

City of Martinsburg: The City of Martinsburg has a comprehensive plan that was adopted in 2007. The City also has a zoning ordinance and subdivision and land development ordinance which are administered by the city staff, within the city limits of Martinsburg.

Town of Hedgesville: The Town of Hedgesville finalized a comprehensive plan in 2013.

The Growth Management Map

The Growth Management Map focuses on the future use of land throughout the Berkeley County. It depicts the key land use concepts outlined in this plan. The purpose of the map is to ensure compatibility between existing and future development in the county. It also provides the necessary flexibility to allow initiative and innovation to flourish.

The Growth Management Map divides the county into various categories that reflect current land uses, as well as the underlying policies of this Comprehensive Plan. The foundation for the growth management categories in Berkeley County is the availability of water. Areas where public water facilities are in place or are planned over the next fifteen years have been designated to accommodate growth in the county.

Growth Management Land Use Categories

The future land use categories shown on the Growth Management Map are described in the following sections. They include Town Centers, Industrial Investment Centers, Growth Areas, Rural/Low Density Residential Areas, Natural Resource Protection Areas, and Planned Community. The categories are derived from the traditional patterns of development in Berkeley County in order to organize development and investment in a way that compliments those patterns, provides for sufficient land to meet future needs and builds upon the future expansion of public services throughout the county. The availability of public water will continue to be the main “driving force” that will stimulate new, higher density development activity in the county, low density and rural development is targeted for those areas that fall outside of the water services areas.

Town Center/Urban Core: The Town Center/Urban Core land use category includes the City of Martinsburg, the Town of Hedgesville, Inwood, Spring Mills and Marlowe. Martinsburg is designated as the primary Town Center/Urban Core area. From a traditional market and transportation center, it has grown into the governmental, education and service center of Berkeley County. It continues to grow through annexation. Continued revitalization of Martinsburg is vital to the future health and well being of the entire county.

Industrial Investment Centers: The Industrial Investment Centers category focuses on the need to identify areas best suited for industrial development in Berkeley County. It includes both existing area devoted to industrial development, as well as new areas that provide for the expansion of existing and the relocation of new businesses. A primary goal of this category is to coordinate the proposed development of new areas with new infrastructure investment to ensure a seamless interface between the county’s economic development initiatives and the ability to provide shovel ready sites for any business desiring to expand into the County. The decision made by Procter and Gamble in 2015 to locate a new manufacturing facility in Berkeley County is a good example of this coordination. Areas devoted to industrial development include Eastern West Virginia Regional Airport, Tabler Station Business Park, Falling Waters Industrial Center, Spring Mills Business Park, Cumbo Yard Industrial Park, the Exit 20 area, and the Liberty Business Park. In addition, several areas with good rail and highway access have been targeted for future industrial investment. Appropriate uses in the Industrial Investment Centers would include light industrial, heavy industrial, commercial, office parks, and warehousing.

Growth Areas: This area comprises a large part of Berkeley County. These areas are characterized by family housing on smaller lots. Housing is mostly single family detached but there are also town homes, garden style apartments, and other styles of higher density housing. These areas are or will be served by public water and public sewer service. They are automobile oriented communities with some amenities, such as sidewalks and recreational facilities. It is important to recognize that these areas are where most of the county’s population growth has occurred. They will continue to support substantial growth, as there are a large number of subdivision plans that have been approved, as well as plans for expansion of water supplies.

However, the future land use plan has placed boundaries around these areas based upon the availability of supporting public water facilities. Available areas should be able to accommodate population estimates for the county for many years to come, while concentrating infrastructure investment into these areas. Appropriate land uses in the growth areas include single family homes, multifamily homes, institutional uses, recreational uses and neighborhood commercial development.

Planned Community: A planned community provides for a mix of residential housing and commercial use. It is based on a master plan that guides the location and mix of development. A planned community will often provide its own infrastructure for water, wastewater and transportation. Examples of planned communities within Berkeley County are the Planned Unit Developments. A few new PUDs within the county include Potomac Station PUD, Spring Mills PUD and Stonecrest PUD.

Rural Areas: Designated rural areas are intended to be protected and to contribute substantially to the quality of life in Berkeley County. They offer an alternative experience to those lands set aside for the growth areas. The Rural/Low Density Residential Areas of Berkeley County are made up of traditional family farm operations, commercial agricultural operations, open spaces, forests, low density residential areas, and natural resource production operations. The purpose of this area is to delineate those portions of the county where a rural living environment is the desired and most appropriate use. It also delineates those areas that will not be served by public water or sewer but will instead rely upon on-lot or small community systems. The Rural/Low Density Residential Areas designation will help preserve the county's existing agricultural community and resources and also meet the needs and desires of Berkeley County residents to continue a rural tradition in many parts of Berkeley County. Proposed land uses in the rural residential areas would include large lot single family detached housing, recreation, agricultural operations, and natural resource production.

Natural Resource Protection Areas: The purpose of this land use category is to identify unique landscapes and environmental resources, as well as to identify areas posing severe constraints on land development. These areas include steep slopes areas, flood plains, wetlands, surface waters, woodlands, park lands, and other public lands.

Planning Strategies and Population Forecasts

Future needs in Berkeley County will depend largely on the size and composition of its population. Therefore, reasonable population projections are needed for the County. There are a few projections available for Berkeley County. This section reviews available projections and compares them with census data in order to validate a projection for the Comprehensive Plan.

Available Population Projection Sources

Berkeley County Commercial and Solid Waste Facility Siting Plan: This Plan was last updated in February 2012 by the Berkeley County Solid Waste Authority. The Plan utilizes the population projections prepared for the 2011 West Virginia Solid Waste Management Plan, which indicate a total increase from 2015 through 2035 in Berkeley County's population of approximately 28.5 percent. Population projections were also utilized within the Plan from the Regional Research Institute at West Virginia University and indicate that the population of Berkeley County may increase to about 166,382 residents by the year 2035.

HEPMPO Long Range Transportation Study (2014): The Hagerstown-Eastern Panhandle MPO developed population projections as part of the Long Range Transportation Plan. Their projections were developed

for 2040 and used a number of sources, including historical population changes from U.S. Census, regional projections from Woods and Poole Economics, and county level data provided by Maryland Department of Planning. According to these projections, the county will have a population of 140,613 by 2040.

Public Service Water District Countywide Facilities Management Plan: A 20-year plan is targeted to be completed for this Agency in 2016. The water district residential growth rate projections obtained from WVU College of Business and Economics and used for this plan are as follows: 2015-2020: 1.3%; 2020-2025: 1.29%; 2025-2035: 1.19%.

Conclusion

A review of the available data indicates that Berkeley County is continuing to grow at one of the fastest rates in West Virginia and the region, but the growth has slowed in recent years. While most projections range from 1% to 3% per year, historically the most accurate projections from 2006 to 2014 appear to be the HEPMPO population projections. As history illustrates, the annual rate of growth can change quickly. However, considering the data available, the projected annual growth rate of 0.0117 will be used for the purposes of estimating the future needs of Berkeley County and updating this comprehensive plan. Table 5-1 lists these population projections.

Table 5-1 Comparison of Population Projections for Berkeley County

Source	Projected Annual Increase	2010 Census Estimate	Projected 2010 from 2006 Comp Plan	2014 Census Estimate	Projected 2026	Projected 2036	Projected 2046
HEPMPO Long Range Transportation Plan	0.0117	104,169	105,722	110,497	127,049	142,721	160,327
Berkeley County Commercial Solid Waste Facility Siting Plan	0.01425	104,169	99,726	110,497	130,946	150,848	173,776
Berkeley County Schools Comprehensive Educational Plan	0.0118	104,169	100,006	110,497	127,200	143,032	160,835
PSWD Countywide Facilities Management Plan	Variable	104,169	93,394	110,497			

2006 Land Use and Growth Management Plan Action Strategies

This section of the plan outlines the strategies and tools recommended to meet the guidance provided in the Growth Management Map. The action strategies include a variety of planning initiatives that promote growth in designated areas and the preservation of the rural areas of the County. The Goal for Growth Management is to accommodate orderly growth and development while preserving the rural character of Berkeley County.

Desired Outcomes:

- Implement effective land use controls and regulations to manage the impacts of growth.
- Ensure that land use is consistent with available water.
- Establish a county wide system of growth areas to direct growth and preserve rural resources.
- Encourage residential, commercial and industrial growth to locate in growth areas.
- Provide for alternative land use preservation measures.
- Integrate new development with traditional patterns of growth.

Water Availability Land Use Plan

Throughout the development of the 2006 Comprehensive Plan there was widespread community support for stronger growth management and land use controls in Berkeley County, while at the same

time maintaining an individual's property rights. The development and implementation of an effective zoning ordinance was advocated to provide the Berkeley County Planning Commission and the County Council with a necessary tool to achieve the goals for growth management and target areas for development that can be supported by the necessary infrastructure. Following the adoption of the 2006 Comprehensive Plan, a zoning ordinance for Berkeley County was developed. However, the residents opposed to the ordinance successfully forced a referendum, which was defeated in a 2010 vote. Therefore, the most utilized tool for the implementation of a growth plan is not available to the County, but there are other tools that can be utilized to help direct growth.

Much of the development that has occurred in Berkeley County has been stimulated by the ready availability of public water. The Public Services Water District has plans to continue to expand public water service in Berkeley County. Areas that will be provided with public water service over the next 20 years have been identified in Chapter 8, The Infrastructure Plan. This water service distribution network has been largely driven by the sensitivity of groundwater in Berkeley County. Groundwater in the limestone (karst) terrain of Berkeley County is highly sensitive to ground water extraction from individual wells. Expansion of the public system will help to protect this essential resource.

Land use based upon water availability will allow for higher densities in those areas that will have public water. Also these areas will be expected to support much of the commercial and industrial development that will occur in the county. Areas that will not be serviced by public water will require on site development of wells and on-lot septic systems and will have lower densities. These will be determined by the ability of groundwater supply to support individual well systems.

Develop Alternatives to Zoning

Chapter 8A of the West Virginia Code provided Berkeley County with the authority to pursue the preparation of a Zoning Ordinance, however, as noted above the residents of the county voted overwhelmingly not to adopt zoning. Therefore, in order to implement the Growth Management Plan, additional strategies will need to be developed to encourage development within designated growth areas. Coordination with the Public Service Water District and the Public Service Sewer District is needed to focus improvements and expansion of these services only in areas designated for growth.

Develop Supporting Groundwater Studies

Groundwater is a very sensitive resource in Berkeley County. Much of the County is underlain by limestone (karst) geology. The quality and quantity of groundwater in these areas is highly sensitive to manmade development impacts, including storm water runoff and groundwater well development. The Subdivision Regulations need to be sensitive to groundwater resources in the county and needs to reference the most current and accurate data available.

Develop Land Use Policy Education Program

During the preparation of the 2006 plan and this update it was clear there is a need for public education about the need for land use controls and their true impact on the county and private property. There is always a significant amount of confusion about the things land use controls can and cannot control. In order to develop and implement effective land use controls in the county it is imperative that educational and public forums need to be organized and conducted. The program needs to be centered on the facts that our waters need to be protected for the health and safety of our residents and while it may negatively impact some properties in the County, the regulations are actually preserving the future of Berkeley County.

Effective Land Use Implementation Tools

The following land use tools will play an important part of effective growth management in Berkeley County and should be considered in the implementation of the Growth Management Plan.

Update Subdivision and Land Development Regulations

Berkeley County currently has a subdivision and land development ordinance as provided for in Chapter 8A of the West Virginia Code. This ordinance was rewritten in 2009 and presently there are developments being processed under the 2009 and 2004 regulations as well as a few under the 1975 regulations. These ordinances and directives govern the subdivision of land and how development will occur. They also provide specific guidelines for the construction of infrastructure such as streets, open space, location of parks and the placement of utilities. Berkeley County is working to continually update the regulations to meet the needs of the county. In spring 2015, the Berkeley County Council approved and issued an Order granting a three-year extension on Vested Preliminary Plans that were outstanding and incomplete in their construction as of July 2015. This Order extended those Preliminary Plan approvals to June 30, 2018, if payment of an extension fee and a written request were received by the specified deadline. In July of 2018 submitted plans will be required to comply with the current Subdivision and Land Use ordinance in place at that time. The intent of these ordinances and orders is to encourage more effective and innovative development techniques that will assist in meeting the demands of our growing county and preserving the county for future residents.

The implementation of the 2010 Storm Water Management and Erosion and Sediment Control Ordinance was a big step taken to preserve the water within the county. These regulations, to a large extent, were the result of the Federal effort to preserve the waters of the Chesapeake Bay. They require quality and quantity control of stormwater for all development projects within the county and are similar to those being implemented for all development within the watershed of the Chesapeake Bay. This watershed encompasses areas from Virginia to New York, including portions of West Virginia and all of Berkeley County. A new Storm Water Management and Erosion and Sediment Control Ordinance will be in place early 2016 in order to encompass MS4 requirements within the ordinance.

Traditional Neighborhood Development (TND)

The primary goal of the traditional neighborhood development concept is to recreate small town character in new developments. It is a smart growth technique that takes themes from our past development practices and applies them to today's development. TND creates a diversified community that incorporates mixed uses in pedestrian oriented design. Public spaces, narrow streets and architectural codes can all be part of this innovative land design concept. Without zoning, the goal would be to incorporate the concept within the subdivision regulations as an option for designing development. TND can be used for new development as well as the redevelopment of older communities. It has become increasingly popular throughout the country and many developers have embraced the concept as a smart growth and economically successful tool to develop land and revitalize communities.

Agricultural Land Preservation

Agricultural land preservation is a subject that many jurisdictions, including Berkeley County have embraced to help preserve the rural farming character of the county. There are many tools available to preserve agricultural land, including the purchase of agricultural land easements from farmers by a governmental entity or private land trust. The public or private entity pays for the development rights of the land and a conservation easement is established, which allows the farmer to gain the financial value

of the land and ability to continue farming in exchange for the extinguishing of development potential. The Berkeley County Farmland Protection Board currently performs this function in the county. It is an effective method to preserve farmland, but is limited in the amount of land it can preserve because of the limited public funds that are available to purchase easements.

Preventing Neighborhood Deterioration

Communities often overlook the preservation of an area as an improvement of their existing neighborhoods. While property maintenance is a job for each individual property owner, some properties for a variety of reasons deteriorate and detract from the neighborhood community. Blighted properties can severely discourage new investment in a neighborhood. Berkeley County has adopted building codes and the International Property Maintenance Code, which sets some minimum standards that a property owner must follow in order to reduce property deterioration.

Town Centers

The Town Center/Urban Cores of Martinsburg and Hedgesville should be revitalized for the purpose of attracting appropriate commercial services and investment. However, one needs to remember that these areas are governed by their own governments and regulations, but the county should offer assistance and encouragement and recommends they consider the following tools be used for revitalization efforts.

Redevelopment Planning and Implementation Programs: Establish planning and implementation programs that focus on redevelopment and improvement. Merchant groups, property owners and the municipality would work together to plan and implement redevelopment programs such as street and pedestrian improvements, streetscape improvement, façade treatments, and similar improvements meant to create a theme and provide visual improvement to the City or Town.

Link Mobility and Access with Development Patterns and Design: Provide for movement of goods and services, while at the same time providing safe and convenient access to the downtown area. Access management tools should be used to provide coordinated access, along with protected crosswalk areas and traffic calming principles. Also provide for adequate off-street parking.

Promote Pedestrian Access: Make the Martinsburg area safe for pedestrians. Provide for well marked and safe crosswalk areas, improve sidewalk systems, institute good streetscapes that beautify and also provide well marked pedestrian ways that link to parking areas, Use traffic calming principles to slow down vehicle traffic in areas where they are in contact with pedestrians. The subdivision regulations and design standards should be used to foster these improvements.

Infill with New Buildings: These new building designs would be sensitive to the buildings' surroundings and design guidelines would be provided for that will enhance community themes.

Promote Mixed Use Development to Create Livelier Communities: Encourage the mixed uses and traditional neighborhood development principles to guide development to Martinsburg. While these centers need to function as business and cultural centers, they also need to provide opportunities for alternative housing, dining, and nice retail businesses.

Develop subdivision and other ordinances dealing with land development in such a manner as to allow and encourage traditional neighborhood character: Provide provisions in the subdivision ordinance and other land use regulations that will facilitate development and redevelopment in growth areas.

Brownfield/Land Recycling: Berkeley County, the City of Martinsburg and Hedgesville should work together to establish a core group of planning and land recycling experts to work together to facilitate the redevelopment of former industrial and commercial sites within their respective jurisdiction. These sites should be identified and prioritized and determined how the jurisdictions can work together to redevelop sites for the betterment of the jurisdictions and county as a whole.

Rural Planning Strategies

Maintaining rural areas in Berkeley County is one of the major objectives of this Growth Management Plan. Throughout the planning process, there has been general consensus that the comprehensive plan should develop strategies to preserve rural areas in the County. Many Berkeley County residents either remain in the county or were attracted here because of its rural amenities. Their loss would significantly reduce the overall quality of life in Berkeley County.

The Growth Management Map designates Rural/Low Density Residential Areas and Natural Resource Areas. These are the areas targeted for preservation and limited growth.

Many of the action strategies in this growth management plan are meant to place development in designated areas and protect rural areas of the county from further encroachment. A number of strategies exist, which will help sustain the county's rural communities by maintaining the integrity of its rural resources.

Use of Village Centers: Direct growth to village centers in the rural areas. These centers are not intended to stimulate growth but rather to capture growth that might occur and service the local areas. This type of development should have the highest priority in the County's rural areas.

Scale of Development: Limit to the scale of development as it relates to the rural community.

Public and Institutional Uses: Direct public and institutional uses to the designated growth areas on the county. This would include public agencies, private institutions, and large educational facilities such as high schools, which would strongly influence the rural community.

Rural Businesses: Provide for existing rural businesses to expand through either infill or on-site expansion.

Rural neighborhoods: Focus future residential development in areas where it currently exists on subdivided land or those adjacent to subdivided land. In addition, development should be at densities consistent with the surrounding area and supportable by on lot water and wastewater systems.

Annexation

Annexation has and continues to be used in West Virginia by municipalities, who wish to extend public services to growing unincorporated areas adjacent to their municipal boundaries. In Berkeley County, the City of Martinsburg has acquired substantial portion of the unincorporated land to the west of I-81 known as the West Side.

The growth management plan urges that future annexations be well coordinated between municipalities and the County to insure there is consistency with the growth management strategies this plan as well as comprehensive plans for Martinsburg and Hedgesville. These include:

- Coordination with identified growth areas.

- Consistency with infrastructure expansion including water, sewer and transportation.
- Consistency with adjacent land uses.
- Consistency of subdivision and land development standards such as road, lot sizes, storm water, and pedestrian facilities.

Implementation

The ability to implement the growth management plan will depend largely on the ability and steadfastness of the county to follow through on the action plans. However, the county cannot accomplish these strategies alone. They will require building partnership and coalitions with other public and private entities to meet the goals and objectives of this growth management plan. The following actions will need to be undertaken to ensure good implementation:

Education and Outreach: The main obstacle to good planning in communities is the lack of knowledge and misconstrued facts and ideas. These can be dispelled through an ongoing program of education and outreach. Successful implementation requires public officials, property owners, developers, and the general public to “buy into” good planning principles. The growth management plan previously proposed an education and outreach program for adopting the proposed county wide zoning ordinance. However, this effort failed and zoning is no longer an option for the foreseeable future. Another program that has worked with the public and stakeholders is to continually review the plan and make revisions to reflect the changing character of the county and its residents. Some of the activities that can be used might include:

- Ongoing workshops on timely issues and topics
- Involving others, public and private sector, as part of the coalition building
- Utilize the media effectively to get the word out about current activities and action.
- Dedicate a part of the County’s website to comprehensive plan strategy topic and initiatives
- Prepare and distribute a Berkeley County Planning Commission newsletter that provides timely information on current topics, initiatives and implementation of the comprehensive plan.

Capacity building – staff: The successful implementation of the comprehensive plan will create new expectations for the staff of the Berkeley County Planning Commission. The County needs to assure there is sufficient staff capability to implement the plan. In addition, the planning commission should create partnerships with other public and private organizations to assist with implementing the strategies on the plan. Important steps would be to hire specialists to address special needs of the plan such as subdivision and land development, rural preservation, funding resources, grants preparation to name a few.

Build partnerships and coalitions: This plan recognizes that Berkeley County cannot undertake or implement all of the initiatives in this plan. However, the action strategies in this plan provide the opportunity to build better partnerships and coalitions to work together to improve the Berkeley County Community. These organizations can included but are not limited to:

- The City of Martinsburg
- The Town of Hedgesville
- Berkeley County Farmland Protection Board
- West Virginia Department of Highways
- Hagerstown/Eastern Panhandle MPO
- Berkeley County Public Service Water District
- Berkeley County Public Service Sewer District

- Berkeley County Solid Waste Authority
- Berkeley County Historical Society
- West Virginia Development Office
- Berkeley County Development Authority
- Berkeley County Fire Service Board
- Region 9
- Local Realtors
- Land Developers
- Eastern Panhandle Home Builders Association
- West Virginia Department of Environmental Protection
- West Virginia Department of Natural Resources
- Berkeley County School District
- Martinsburg-Berkeley County Parks and Recreation Board
- Surrounding Counties in West Virginia, Maryland and Virginia
- Academic Partners—West Virginia University and Shepherd University

2016 Land Use and Growth Management Plan Highlights

- Water availability continues to be the primary factor in the density of growth areas.
- Water quality is becoming an increasing concern, whether it is in regards to clean drinking water, MS4 stormwater compliance or the protection of the pristine waters of the Back Creek watershed.
- Additional research and data compilation needs to be completed in order to analyze existing land use and determine the extent of the growth management risks over the next ten to twenty years.
- Developing alternatives to zoning continues to be a challenge for growth management.
- Land use policy education has more options now with the availability of information via the internet and easier access to current plans through agency links and other electronic communication tools.

Looking Forward to 2026

Growth in Berkeley County over the last twenty (20) years has been significant. For most of the period it was one of the fastest growing areas of the state and the country. While the overall economy caused a significant slow-down, growth is still one of the highest in the state. If the trends continue, as they have towards scattered development, the goals and objectives as set forth in the Growth Management Plan will continue to be at risk.

Implementation of the growth management action strategies presented in this chapter is essential to accommodate future growth in the areas for which it is designated and restrict development from the areas where preservation is the goal. It is essential that each of the partners identified in this plan move to work together quickly on implementing the action strategies and tools outlined in the plan in order to maintain the quality of life in Berkeley County we all want and enjoy.

Chapter 5b – The Natural Resources Plan

Natural Resources Plan Goal

Berkeley County has many natural resources, including forests, streams, productive soils, and a diversity of wildlife. Protecting these resources is a priority for county residents, as they define the character of Berkeley County. In the 2006 comprehensive plan, Berkeley County residents envisioned using a combination of guidelines and regulations, as well as incentives for property owners and developers, to ensure the protection of the county's most sensitive natural, cultural and historic resources. The goal of the natural resources plan is to conserve the character, quality and livability of Berkeley County by preserving its natural assets. The following related objectives were identified in the 2006 comprehensive plan.

Objectives

- Protect and restore groundwater and surface water resources in Berkeley County for continued use by residents and natural systems.
- Provide residents and visitors with a variety of natural resources based recreational opportunities that are easily accessible.
- Protect and improve surface waters and adjacent green spaces for recreation, tourism and scenic value.
- Maintain prime agricultural soils in Berkeley County.
- Promote and protect Berkeley County's natural environment for the benefit of all residents.
- Provide and protect open space in the county.

Natural Resources Profile Summary

The natural environment is an important part of community life. Its characteristics influence local development patterns. For example, fertile soils support agriculture. Its features are scenic, such as North Mountain and Third Hill Mountain, and help define the character of a community. Its diverse systems – vegetation, water and wildlife – are dynamic, providing a stimulating and interactive environment in which to live.

The identification and characterization of Berkeley County's environmental resources is an important part of the planning process. Delineation of these resources serves as a guide for future planning decisions, because natural resources are costly both financially and ecologically to disregard. The following sections of the comprehensive plan identify and describe these areas so they can be considered when making planning decisions. This will ensure that future development in Berkeley County takes place in an environmentally sensitive manner.

Land Based Natural Resources Profile

Physical Geography and Topography Profile

Berkeley County is located in the Ridge and Valley physiographic province, so named because of the alternating, parallel ridges and valleys that are oriented southwest to northeast. Surface rock strata and most of the subsurface rock in the county are sedimentary and consist of alternating belts of limestone, shale and sandstone. The Topography Map in the appendices clearly shows these alternating features. Elevations in the county range from 300 feet at the point where the Potomac River exits the county to over 2,200 feet on Third Hill Mountain.

There are three ridges in Berkeley County: North Mountain, Third Hill Mountain and Sleepy Creek Mountain. North Mountain divides the county into two distinct sections: Back Creek Valley to the west and the Great Valley to the east. Third Hill and Sleepy Creek Mountains are along the western border with Morgan County.

The Great Valley is a major physiographic feature of the eastern United States. It extends approximately 900 miles from New York to Alabama. In West Virginia and Virginia it is known as the Shenandoah Valley. The valley averages about 20 miles wide in West Virginia and is approximately eight miles wide in Berkeley County. Back Creek Valley is named for the creek that created it between North Mountain and Third Hill Mountain. The valley is about five miles wide on the south and seven miles wide on the north.

Steep Slopes Profile

The Slope Map in the appendices shows the location of steep slopes, which are slopes with grades of 15 percent or higher within Berkeley County. The steepest slopes are found on the eastern sides of the mountains, which is primarily due to their underlying geology. They are also found along many of the county's creeks and streams.

The significance of these areas to planning is two-fold. First, if disturbed, they can produce heavy soil erosion and sediment loading in adjacent streams. While this does not necessarily preclude development, additional requirements for addressing stormwater runoff need to be in place in order to minimize erosion and subsequent degradation of surface waters. This type of regulation is generally found in county and/or municipal subdivision and land development ordinances.

Second the use and placement of conventional on-lot sewage disposal systems is impractical on very steep slopes (greater than 24%) because the downhill flow of the effluent is too rapid. Improperly treated effluent is likely to surface at the base of the slope, causing wet, contaminated seepage spots. If there is a layer of impervious material such as dense clay or rock under shallow soils, the effluent may surface on the slope and run downhill unfiltered.

Geology Profile

Berkeley County's underlying geologic formations shape its topography and also determine the characteristics of its aquifers. Rock type, porosity, and rock strata inclinations are just a few of the geologic factors that affect groundwater movement and availability. In addition, groundwater quality is dependent upon the interaction between groundwater and the bedrock. For example, the more soluble bedrock, such as limestone, dissolves in the groundwater, which results in increased hardness values.

Berkeley County is underlain by rocks of the Paleozoic Ages. There are six stages of sedimentary rock present in the County: Cambrian, Ordovician, Silurian, Devonian, and Mississippian. Mississippian exists in a smaller area on the western edge of the County. The majority of the western part of the county is Devonian with two small areas of Silurian in the north and east. Ordovician consumes the eastern half of the county with Cambrian running north/south through the middle of the county. (West Virginia Geological and Economic Survey)

The Geology Map in the appendices shows the location of the six basic geologic formations in Berkeley County. Limestone and shale formations are predominant. Sandstone formations are found along the mountains, and alluvial formations can be found along the southern reaches of Back Creek.

Karst Topography Profile

Approximately 40 percent of Berkeley County is underlain by limestone rock, which is subject to becoming karst topography. This unique topographic feature occurs when carbon dioxide in groundwater forms a weak acid that dissolves calcite, which is a component of limestone and dolomite rock. Acidic groundwater moving through fractures and other spaces within the rock gradually alters small openings, creating large passages and networks of interconnected conduits. Most flow and passage enlargement takes place at or just below the water table, the level below where the ground is saturated with water. The dissolving of bedrock is characterized by both small features (e.g. fractures and fissures) and large features (e.g. caves, sinkholes, and underground streams). With the exception of these openings, however, the limestone is very dense and mostly impermeable, which explains why water may be very abundant at one site but flows only at a trickle in a well a short distance away.

Karst regions require special care because contaminants can flow easily through sinkholes, thus polluting groundwater. Stormwater runoff and sewage disposal provide substantial risk of contamination to the groundwater. In addition, construction activities can destabilize the delicate equilibrium between the surface and underground components of karst, causing altered drainage patterns and sinkhole collapse.

The Geologic Features Map, illustrates the location of Karst formations in Berkeley County. The largest portion of the karst area extends from the Virginia line to the Potomac River, roughly parallel to Interstate 81 east of North Mountain. There is another area along the border with Jefferson County and a small oblong pocket exists in Back Creek Valley. Sinkholes are most common east and west of the Opequon Creek in the northern part of the county where limestone is present. Much of the new development in the county has occurred in these same locations, which has raised serious concerns regarding future water supply. These are discussed in more detail in the water resources section of this chapter.

Mineral Resources Profile

Mineral resources in Berkeley County include limestone, shale, sandstone, and alluvium. They are primarily used to produce high grade metallurgical limestone, structural clay products and cement. The most valuable mineral resource in Berkeley County is the Stones River limestone, a high grade limestone used in steel production for open hearth and blast furnace flux. This limestone averages 98 percent calcium carbonate. This high calcium carbonate and low silica content makes this limestone very valuable in steel manufacturing. Shale and clay from the Martinsburg shale belts are used to manufacture brick and other structural clay building materials by the Continental Brick Company.

Soils Profile

Soil Associations: The Soil Survey of Berkeley County prepared by the Natural Resources Conservation Service describes the soils found across the county and utilizes soil associations to describe how soil depth, slope and drainage affect potential land use. The associations are helpful in attaining a general idea of soil quality, comparing different sections of Berkeley County, and delineating large areas suited to particular issues or uses such as agriculture. According to the survey, there are ten soil associations in the county that are nearly parallel and follow the northeast-southwest landform pattern. Specific soil information can be found at <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>, the soil survey website.

Septic Suitability: Soils are rated according to their absorption capabilities, and range from slight, i.e., few limitations to absorption, to severe, i.e., limitations so difficult to overcome that special designs and

additional costs are necessary to safely handle septic waste. According to the Soil Survey, a majority of the soils in Berkeley County (73 percent or approximately 151,000 acres) are rated severe. There are also soils in the county that are classified as slight or moderate and are better equipped to handle septic drainage. These soils are found in the middle of the county with a small area along the eastern border with Jefferson County as illustrated on the Soils Suitability Map in the appendices.

Agricultural Soils: Each soil type is unique in its origin, structure, texture, and composition. Its capacity to support given land use, such as agriculture, is determined by these features. Since agriculture has the most specific soil requirements of our common land uses, these soils are more thoroughly classified according to their productivity.

Prime farmland, as defined by the US Department of Agriculture (USDA), is land that is best suited to producing food, feed, forage, fiber and oilseed crops. It has the soil quality, growing season, and water supply needed to economically produce a sustained high yield of crops when it is treated and managed using acceptable farming methods. According to the USDA, prime farmland soils are usually classified as capability Class I or Class II of the eight classifications.

The Designated Soils Map in the appendices illustrates the estimated location of prime farmland in Berkeley County. USDA 2012 Census data indicates that there are approximately 70,160 acres of prime farmland soil, most of which are located in the Shenandoah Valley. This represents almost 34 percent of the county's total land area. There are also areas along the banks of Back Creek, Opequon Creek and Sleepy Creek. While prime or highly productive soils are often reserved from developable areas, in Berkeley County, these soils are located in some of the most desirable development locations. Protecting them for continued agricultural uses continues to be a significant challenge.

Farmland Protection Program

In June 2000, the Berkeley County Council authorized a resolution creating the Berkeley County Farmland Protection Act signed into law by the state legislature. The seven-member board was authorized to create and administer the Berkeley County Farmland Protection Program (<http://berkeley.wvfp.org/>) in consultation with the Eastern Panhandle Conservation District (<http://www.wvca.us/districts/epcd.cfm>). The program establishes uniform standards and guidelines for the eligibility of properties and the ranking criteria used to prioritize funds allocation to purchase conservation easements, or to pay associated costs for the purchased or donated easements. (*The Berkeley County Farmland Protection Program, The Berkeley County Farmland Protection Board, Dec. 2002.*) Minimum criteria necessary for consideration of an easement purchase or donation include being located in the county, meeting specific existing land use, and having a clear title to the property. Additional characteristics of the property are also ranked and evaluated. These characteristics fall under the following headings:

- Imminence of Residential, Commercial or Industrial Development
- Total Acreage Offered for Conservation or Preservation Easement
- Presence of Prime or Unique Farmland, etc.
- Property is Contiguous or Appurtenant to Working Farms
- Ratio of the Asking Price of the Easement to the Fair Market Value of the Easement
- Historical, Architectural, Archaeological, Cultural or Unique Value of the Easement
- Amount of Secured Debt on Property, and Length of Protective Easements

As of the 2006 comprehensive plan, conservation easements were purchased for approximately 1,600 acres through this voluntary program. In November of 2013 the Farmland Protection Board reported it *“holds or co-holds 42 recorded conservation easements totaling 4,233 acres. The Land Trust of the Eastern Panhandle (LTEP) holds three easements separately totaling 271 acres which brings the total in Berkeley County to 4,504 acres protected by all entities”*. In a June 2015 Martinsburg Journal article one landowner contributed an additional 205 acres bringing the 2015 total to 4,441 protected acres.

Hydric Soils: Hydric Soils are those that retain water during a portion of the year. As a natural resource, hydric soils provide water storage and infiltration that naturally regulates water sources and flows. These soils are susceptible to compaction and uneven settling when developed. These factors impact land use decisions. Hydric soils in Berkeley County are found primarily in the floodplains of the county's creeks and streams. GIS data from the 2006 comprehensive plan indicated they cover approximately 2,000 acres, just under one percent of the county's land area. Floodplains containing these soils are discussed in more detail in the floodplain section of the water based natural resources profile.

Water Based Natural Resources Profile

Surface Water and Drainage Profile

Surface waters include rivers, streams and ponds. They provide aquatic habitat, carry or hold runoff from storms, and provide recreation and scenic opportunities. They are a dynamic and important component of the natural environment, but ever-present threats such as construction, clear-cutting, mining, overuse, and pollution have required the regulated protection of these valuable resources. The Eastern Panhandle Planning and Development Council's Chesapeake Bay Updates webpage provides access to local resources that can be utilized to protect surface water and drainage areas in the Berkeley County region. <http://www.region9wv.com/ChesapeakeBayUpdates.aspx>

As shown on The Hydrology Map in the appendices, there are many streams in Berkeley County, all of which drain into the Potomac River. In fact, the entire county lies within the Potomac River Direct Drains Watershed. Approximately, 844 acres (0.4 percent) of the county is covered by some type of water feature. The Potomac River is the most notable and forms the northern border of the county. The Opequon Creek forms the southeastern border of the county and flows northward to the Potomac River. Back Creek meanders northward to the Potomac through the valley that bears its name between North Mountain and Third Hill Mountain in the western part of the county. Other prominent streams include Middle Creek and Mill Creek near Inwood and Tuscarora Creek, which are tributaries of the Opequon Creek and Tillance Creek, a tributary of Back Creek. Meadow Branch, a tributary of Sleepy Creek, is the western-most of the county's surface waters. Sleepy Creek Lake is located along the Meadow Branch within the Sleepy Creek Wildlife Management Area.

Floodplain Profile

Floodplain areas perform a number of critical ecological functions. They absorb, store and release large amounts of water to surrounding soils and groundwater systems. Natural vegetation supported by floodplains helps to trap sediment and absorb excess nutrients from upland surface runoff, stabilize stream banks, and reduce soil erosion. Floodplains also provide habitat for terrestrial wildlife and influence stream conditions for aquatic life. Beyond their ecologic value, many people value the scenic qualities of floodplains areas, particularly for their wildlife and waters.

The Floodplains Map in the appendices (also referred to as Flood Hazard Zones) illustrates the floodplains of the county's primary waterways. They are classified for insurance purposes according to the likelihood of flooding. In Berkeley County, most of the waterways are within the 1-percent annual

chance zones (A, AE, AH). The primary difference among the three is related to the method by which base flood elevations are determined. Within these areas, mandatory flood insurance purchase requirements, as established by FEMA (Federal Emergency Management Agency), take effect.

Statewide Flood Protection Plan: (Executive Summary of the WV Statewide Flood Protection Plan, 2005)

In 2005 the WV Flood Protection Task Force presented the first West Virginia Statewide Flood Protection Plan. The multi-agency task force was led by the WV Conservation Agency and the US Army Corps of Engineers. The Plan was developed over a period of three years and spells out both long and short term goals, strategies and implementation schedules. The six specific goals the plan addressed were:

- Reduce the unnecessary loss of lives due to flooding.
- Reduce private and public property damages due to flooding.
- Develop technical and administrative tools to manage flood loss reduction and floodplain management.
- Promote technical and legislative tools that will reduce excessive runoff from land conversion activities.
- Reduce personal and economic loss due to flooding while supporting state economic growth.
- Protect the state's waterways and floodplain environments.

Recommendations of the Statewide Flood Protection Plan focused around 12 key issues and are listed below:

- Floodplain Management: Increase resources in the West Virginia Office of Emergency Services to support local floodplain managers statewide. Require owners of all new structures to obtain a floodplain permit certifying whether or not the structures are in the floodplain. Improve enforcement of floodplain management ordinances.
- Flood Warning System: Improve and expand the network of existing rain and stream gage in the state and connect those instruments to a proposed statewide flood warning system. This system would enable the National Weather Service to issue credible and reliable flood warnings. Provide markers along roads and at stream crossings subject to frequent inundation warning motorists of possible hazards at these locations.
- Floodplain Mapping: Update floodplain mapping to more precisely delineate floodplain areas and create more detailed hydrographic networks to improve flow models and flood risk assessment.
- Flood Damage Assessment: Designate a single agency or point of contact where flood damage data from federal and state resources could be stored. Develop a system that integrates the capability of Geographic Information Systems (GIS) with flood damage data so that damage information could be used as the basis for flood protection planning.
- Building Codes, Permitting and Enforcement: Continue to support and adopt updates of International Building Code, which covers residential building, plumbing, mechanical, fuel-gas and private sewage disposal requirements and meets minimal flood-resistant design standards. Provide education and technical assistance to the public on the regulatory permit process.
- Environmental Impacts of Flooding: Enact legislation that recognizes the attributes and hazards of the state's floodplains and the need for stricter enforcement of floodplain ordinances. The legislation should declare floodway zones to be off-limits to new development (with some exceptions), and encourage federal agencies to evaluate all proposed projects for effects on the state's floodplains. Legislate stricter enforcement of regulations for anchoring floatable materials in the floodway and flood fringe. Convene a "Stream Summit" to formulate a standard classification of stream quality in the state. Enact legislation that supports local regulation of

stormwater runoff volume. Enact guidelines for the emergency removal of stream debris to avoid long-term environmental damage. Fund studies for identification of stable stream reaches that require protection from development.

- Stream Crossings and Access Roads: Establish guidelines for the sizing, installation and maintenance of culverts, drainage structures and stream or river crossings. Identify ownership of abandoned stream crossings and move to demolish unused crossings.
- Dredging: The practice of local stream dredging to reduce the damages associated with large regional floods should be terminated. Channel modifications projects (which includes some dredging) where economically justified and environmentally sound should be supported to reduce flood damages. Allocate funds for stream restoration projects that can reduce flood damages and return the natural functions of damaged streams and ecosystems.
- Resource Extraction: The Task Force supports the recommendations of the study conducted by WVDEP regarding mining. In addition, the Task Force recommends the WV Division of Forestry accelerated revisions to Best Management Practices to reduce the impacts of forestry operations on flooding and develop BMPs on areas severely burned by wildfire.
- Stormwater Management: The Task Force recommends that all counties implement a stormwater ordinance to control the quantity and quality of stormwater and to guide the development and implementation of a stormwater management plan. It is recommended that a State agency inspect stormwater facilities and serve as a back-up for local inspection and enforcement of regulations on design, installation, operation and maintenance of these facilities. It is also recommended that special stormwater regulations be prepared for karst areas in West Virginia.
- Education: Encourage state, county and local officials to take the Federal Emergency Management Agency independent study course related to flooding, flood mitigation and floodplain management. Encourage education outlets to develop classes and curriculums that address floodplain and flood issues. Provide visible markers to identify for the public the Base Flood Elevation level.
- Existing Flood-Prone Structures and Facilities: Evaluate the major watersheds in the state to identify opportunities to construct upstream retention facilities for flood control and water supply. Evaluate the existing municipalities in the state to identify opportunities for protection in place of those communities serving as the economic and political centers of their respective counties. Establish a voluntary program of permanent acquisition for structures within the designated floodways and a voluntary program of flood-proofing and relocations to address existing structures in the flood fringe areas.

Countywide Floodplain Protection

Berkeley County adopted and made effective a Floodplain Ordinance in July of 2009. This ordinance is based upon a state wide model ordinance and, in conjunction with the 44 CFR (Code Federal Regulations) many of the twelve key issues listed above are addressed. Additional resources provided by the state are available at <http://www.dhsem.wv.gov/MitigationRecovery/Pages/Floodplain-Management.aspx>.

An updated model state floodplain ordinance is under review and an updated county version is anticipated to be available in 2016. A complete copy of the currently adopted ordinance can be found on the Berkeley County website www.berkeleywv.org.

Watershed Profile

A watershed is the land area from which water drains toward a common watercourse in a natural basin. As previously mentioned, all of Berkeley County falls within the Potomac River Direct Drains watershed. This watershed is further divided into several “sub-watersheds”. The Surface Drainage Watersheds Map shows each sub-watershed along with the number of acres of land in which each drains.

Watershed Associations: Residents and conservation groups alike have recognized the importance of Berkeley County’s water resources. There are numerous organizations that are working to improve and maintain watersheds throughout the county and the eastern panhandle. The following is a brief summary of some of the organizations that have been involved in watershed management in Berkeley County.

- The West Virginia Department of Environmental Protection (<http://www.dep.wv.gov/>): is a statewide agency that, among many roles and responsibilities, coordinates watershed protection plans throughout the state. This following is a link to The Back Creek Watershed Protection Plan, finalized in June 2014 and submitted to the West Virginia Conservation Agency. http://www.dep.wv.gov/WWE/Programs/nonptsource/WBP/Documents/WP/BackCreek_WPP.pdf
- The West Virginia Conservation Agency: is a statewide agency whose mission is to provide for and promote the protection and conservation of West Virginia’s soil, land, water and related resources for the health, safety and general welfare of the state’s citizens. The Eastern Panhandle district office for this agency is located in Martinsburg and more information regarding their services can be found on their website <http://www.wvca.us/>.
- The Blue Heron Environmental Network, Inc. is a non-profit environmental/conservation education organization. For the past 13 years, this group has been monitoring Back Creek and its tributaries. The organization has also worked closely with state, federal, and local agencies, local businesses, and educational institutions to educate the general public of the importance of caring for and keeping watersheds clean. The organization continues to work to have Back Creek designated as a Wild and Scenic River.
- Interstate Commission of the Potomac River Basin (www.potomacriver.org): was established in 1940. Its mission is to enhance, protect, and conserve the water and associated land resources of the Potomac River basin and its tributaries through regional and interstate cooperation.
- Chesapeake Bay Foundation (www.cbf.org): is a non-profit organization with a mission to improve the Chesapeake Bay watershed. It was founded in 1967 and serves throughout the Chesapeake’s 64,000 square-mile watershed. The Foundation serves as a watchdog, representing the Chesapeake conservation lobby to business, government, and the public. The Chesapeake Bay Foundation also actively restores native habitats and filtering mechanisms (such as wetlands, oyster beds, forests, etc.)
- Soil & Water Conservation Society (www.swcs.org): was established in 1943, its mission is to foster the science and art of natural resource conservation.

- US Fish & Wildlife Service (www.fws.org): has as its mission to work with others to conserve protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. The National Conservation Training Center (NCTC) is located on the banks of the Potomac River in adjacent Jefferson County.
- West Virginia Rivers Coalition (www.wvrivers.org): seeks the conservation and restoration of West Virginia's exceptional rivers and streams. It has worked with DEP to help improve public participation components of NPDES permitting.

Source Water Assessment and Protection Profile

In 2001, a diverse team of citizens, local, state and federal officials, and university scientists formed the Berkeley County Source Water Assessment and Protection (SWAP) Team to address increasing concerns about the county's water supplies. Their purpose was "to examine existing and potential threats to the county's source water and to make recommendations to mitigate those threats." (*Berkeley County Source Water Assessment and Protection Project Final Report, March 2004*)

Potential threats were broken down into the following categories, each with accompanying recommendations, which range from regular inspections of septic and sewer systems, to site design standards that minimize storm water impacts and provide natural filtration.

- Wastewater
- Septic and Sewer Systems
- Septage (collected materials from septic tanks)
- Sludge (treated residue from wastewater treatment facilities)
- Stormwater and Impervious Surfaces
- Other Pollutant Risks
- Agricultural Threats
- Loss of Open Space

It was recommended that the county appoint a Water Resources Advisory Council. This group would have been responsible for advising the County Council and the Berkeley County Public Service Water District as they began to implement the team's recommendations, as well as to take other actions that may be required to preserve the county's source water. A related publication, "Drinking Water Protection: A Citizen's Guide to Getting Involved" was completed by the West Virginia Rivers Coalition to help county residents understand the factors that influence source water in Berkeley County and things they can do to help protect it. A copy of this publication is provided at the end of this document.

The Advisory Council would have been responsible for spearheading the implementation of the West Virginia Potomac Tributary Strategy Implementation Plan in Berkeley County (*West Virginia Potomac Tributary Strategy Implementation Plan, Dec. 2005*) This plan was completed as part of an agreement among the states in the Chesapeake Bay watershed (Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia) to reduce the amount of nutrients and sediment flowing into the Bay. Cap Load Allocations (CLAs) for nitrogen, phosphorus, and sediment were established and partners agreed to develop and carry out voluntary Tributary Strategies to reduce pollutant loads to CLA levels by 2010. The complete document can be accessed through the following WV Conservation Agency website link. http://www.wvca.us/bay/files/bay_documents/11_13298_ImplementationPlan_06_29_07_ps_matrix.pdf

The Strategy Implementation Plan used a decision matrix that included nine weighted factors in order to determine which watersheds would receive priority in an implementation timeline. Two of the top five priority tributaries were located in Berkeley County: Opequon Creek and Rockymarsh Run. It was anticipated that project teams would be organized in the priority watersheds. The teams were to be charged with a variety of tasks, including working with stakeholders, surveying and mapping the watershed to target nonpoint source project sites, and coordinating many of the activities and programs recommended in the plan. Ideally, a representative from the Advisory Council should have been on the Project Team(s). According to the Berkeley County Council webpage, this Water Resources Advisory Council does not exist. However, information regarding source water assessment programs that could impact the Berkeley County area can be obtained at: <http://www.wvdhhr.org/oehs/eed/swap/> or by contacting the local Office of Environmental Health Services in Kearneysville, WV.

Water Quality Profile

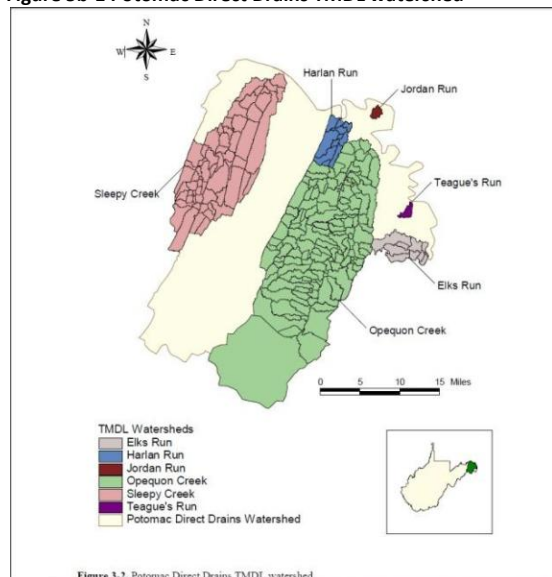
The West Virginia Department of Environmental Protection's Division of Water and Waste Management (DWWM) is currently responsible for the restoration and maintenance of water quality of the state's waters. In 1994, the Environmental Quality Board (formerly the Water Resources Board) developed water quality criteria for each kind of use designated for the state's waters. These uses include the following and are set forth in the *Code of State Regulations, Title 46, Series 1 (Requirements Governing Water Quality Standards)*

- The propagation and maintenance of fish and other aquatic life
- Water contact recreation
- Public water supply
- Agriculture and wildlife uses
- Industrial uses

The most recent assessment of the waters of the Potomac River Direct Drains Watershed was approved in January 2008. Results were compiled and are available online at www.wvdep.org. Most of the sub-watershed is covered by agricultural uses; however, residential and other development has been converting farm and forest land into more urbanized areas. This activity combined with the sensitive Karst topography within the watershed, appear to be having a significant negative impact on water quality.

The assessment team evaluated water quality and other stream health indicators at sites throughout the Potomac Direct Drains watershed, illustrated in Figure 5b-1. The samples collected indicated that many of the streams within the subwatershed were impaired according to the West Virginia Stream Condition Index. A majority of the samples were also in violation of the WV water quality criterion for fecal coliform bacteria also were from the Opequon Creek sample sites. This has been associated in part to karstic drainage patterns, intensive agricultural activities, and intensive urbanization of portions of the Opequon Creek sub-watershed. The report recommends that future research should target both sewage and livestock waste problems in order to help prioritize enforcement activities.

Figure 5b-1 Potomac Direct Drains TMDL watershed



Source: January 2008 Potomac Direct Drains Watershed TMDL Report

The Clean Water Act requires each state to develop a list of streams that are water quality limited and not expected to meet the water quality criteria even after applying technology-based controls. This list is commonly referred to as the 303(d) List. Berkeley County watersheds that appear on this list are illustrated in Figure 5b-1. The stream name and criteria affected are listed in Table 5b-1. The impaired streams of the Opequon Creek watershed, that are situated entirely in Berkeley County from their beginning to where they empty into the Opequon Creek are Hoke Run, Eagle Run, Tuscarora Creek, Evans Run, Buzzard Run, Middle Creek, Goose Creek, Three Run, Mill Creek, and Torytown Run. Table 5b-1 lists their impairment and additional information is available on the West Virginia DEP website www.dep.wv.gov.

Table 5b-1 Impaired Streams in the Potomac Direct Drains Watershed

Stream Name	Criteria Affected	Cause	Impaired Length (mi)	Reach Description	2002 List	2008 List
Elk Branch	CNA-Biological Fecal Coliform Sedimentation	Unknown	4.5	Entire length	Yes No	Yes Yes Yes
UNT/Potomac River RM 12.8 (Teague's Run)	CNA-Biological Fecal Coliform Sedimentation	Unknown	1.5	Entire length	Yes No	Yes Yes Yes
Opequon Creek	Aluminum (discharge) CNA-Biological Fecal Coliform Sedimentation	Unknown	30.7 30.7 30.7	Entire length Entire length Entire length	No Yes Yes	No Yes Yes Yes
Hoke Run	Biological Fecal Coliform Sedimentation	Unknown			No No	Yes Yes Yes
Eagle Run	CNA-Biological Fecal Coliform Sedimentation	Unknown	1.2	Entire length	Yes No	Yes Yes Yes
Tuscarora Creek	CNA-Biological Fecal Coliform Sedimentation	Unknown	11.6	Entire length	Yes No	Yes Yes Yes
Dry Run	CNA-Biological Fecal Coliform Sedimentation	Unknown	4.6	Entire length	Yes No	Yes Yes Yes

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Stream Name	Criteria Affected	Cause	Impaired Length (mi)	Reach Description	2002 List	2008 List
Evans Run	CNA-Biological Fecal Coliform Sedimentation	Unknown	5.8	Entire length	Yes No	Yes No Yes
Shaw Run	Biological Fecal Coliform Sedimentation	Unknown			No No	Yes Yes Yes
Buzzard Run	Biological Fecal Coliform	Unknown			No No	No Yes
Hopewell Run	CNA-Biological Fecal Coliform Sedimentation	Unknown	3.5	Entire length	Yes No	Yes Yes Yes
UNT/Hopewell Run	Biological Fecal Coliform	Unknown			No No	Yes Yes
Middle Creek	CNA-Biological Fecal Coliform Sedimentation	Unknown	11.7	Entire length	Yes No	Yes Yes Yes
Goose Creek	CNA-Biological Fecal Coliform	Unknown	3.0	Entire length	Yes No	No Yes
Three Run	Biological Fecal Coliform	Unknown			No No	No Yes
Mill Creek	CNA-Biological Fecal Coliform Sedimentation	Unknown	11.4	Entire length	Yes No	Yes Yes Yes
Sylvan Run	CNA-Biological Fecal Coliform Sedimentation	Unknown	4.5	Entire length	Yes No	Yes No Yes
Torytown Run	CNA-Biological Fecal Coliform Sedimentation	Unknown	2.4	Entire length	Yes No	Yes Yes Yes
Turkey Run	Biological Fecal Coliform Sedimentation	Unknown			No No	Yes Yes Yes
Silver Spring Run	CNA-Biological Fecal Coliform Sedimentation	Unknown	3.2	Entire length	Yes No	Yes Yes Yes
Harlan Run	CNA-Biological Fecal Coliform Sedimentation	Unknown	7.2	Entire length	Yes No	Yes Yes Yes
Tullis Branch	Biological Fecal Coliform Sedimentation	Unknown			No No	Yes Yes Yes
Sleepy Creek	Fecal Coliform	Unknown			No	Yes
Indian Run	Fecal Coliform	Unknown			No	Yes

Source: 2006 Comprehensive Plan; WV DEP, Potomac Direct Drains Watershed TMDL Report 2008

Note: Indented streams are part of the above named stream's watershed.

Groundwater Profile

The growth in Berkeley County is placing pressure on the groundwater in terms of both quantity and quality. Approximately one half of the county receives its drinking water from either the Berkeley County Public Service Water District or the City of Martinsburg. The other half of the county depends on private wells for its drinking water. Unlike the public water, all the non-public water is from residential wells.

The spatial distribution of the groundwater in Berkeley County, both within and between geological units is very pronounced. When the recharge under normal and modest drought conditions is considered, groundwater quantity and quality is vulnerable. The heterogeneity of groundwater and its recharge must be addressed for growth to continue at current levels. Too often, building approval in Berkeley County is based on the belief that water availability is the same throughout the county. With low density homes, this concept is workable, but the aggressive high density growth challenges the

application of this approach. Over subscription of the ground water in those areas of marginal supply will eventually result in entire subdivisions being without water.

Providing public water throughout the county would be prohibitively expensive. A more reasonable approach is restricting high density growth to areas which can economically be serviced by public water and with imposing restrictions on the density of growth in other places. The level of the density should be based on a thorough assessment of the capacity of groundwater to support the planned development, including the local recharge of the groundwater.

The most pressing question regarding groundwater in Berkeley County is the size, extent, robustness, and sustainability of the various groundwater sheds. By knowing this land-use, managers can determine where aggressive growth cannot be sustained and controls on density are warranted. Associated questions are the interconnection between the groundwater sheds and location and nature of the recharge. While not as daunting a question, the presence of bacterial contamination and the source of the bacteria are important. To ensure that an adequate supply of contamination-free drinking water is available, it is necessary for the county to take aggressive action.

As has been mentioned above, groundwater is perhaps the most important resource in the county. It is imperative that both the quality and quantity of this resource be preserved. Education is an important component of this preservation as is the proper assessment prior to large scale development. The 2009 Berkeley County Subdivision Ordinance includes a WV DEP groundwater protection permit as one of its required outside agency approvals. A better understanding of the details involved in this permit will help determine if this permit requirement meets the needs of the recommendations above or if additional information needs to be obtained to make sound decisions regarding groundwater protection and sustainability.

Wetland Profile

The Hydrology Map in the appendices illustrates the location of the U.S. National Wetlands Inventory in Berkeley County. Many wetlands are located along the county's streams; however, there are pockets of wetlands throughout the county.

Wetlands are unique environments that are transitional areas between terrestrial and hydrologic systems. As a component of both systems, they perform a variety of important functions and are in a state of constant change. Wetlands help to maintain surface stream flow and groundwater recharge. They moderate stormwater runoff and downstream flood crests because they are natural water storage areas. Wetlands provide important habitat for many species of plant and animal life.

There are multiple problems associated with developing on wetlands soils. Wetlands located in floodplains are often flooded. Draining or filling in of upland wetlands removes natural water storage, which yields increased water flows downstream. Wetland soils are sensitive in two ways. First, they are easily compacted, resulting in uneven settling of structures. Second, wetland soils with low permeability and high groundwater tables are not suitable for the installation of on-lot septic systems due to the risk of surface and groundwater contamination. Wetlands are protected by the US Army Corps of Engineers and the West Virginia Department of Environmental Protection.

Air Quality Profile

The Clean Air Act provides the principal framework for national, state, and local efforts to protect air quality. Under the Clean Air Act, the U.S. Environmental Protection Agency (EPA) is responsible for

setting standards, also known as national ambient air quality standards (NAAQS), for pollutants which are considered harmful to people and the environment. These pollutants include ozone, particulate matter, sulfur dioxide, carbon monoxide and nitrogen dioxide. The major sources of these pollutants are cars, power plants, and heavy industry. The EPA is also responsible for ensuring that these air quality standards are attained through national standards and strategies to control pollutant emissions from automobiles, factories, and other sources.

The EPA's Air Quality Index (AQI) reports on levels of the NAAQS pollutants present in the air. An AQI value is given for each monitoring site and pollutant. Martinsburg is one of the West Virginia monitoring sites. The overall AQI for a site is the highest index value of any of the pollutants. Exposure to these pollutants can make it difficult for some people to breathe, especially people with asthma and other respiratory problems. As the level of any of these air pollutants rises beyond health standards, precautionary health warnings are triggered.

According to the 2004 West Virginia DEP's Division of Air Quality (DAQ) Annual Report, new health based standards were set by EPA for 8-hour ozone pollution and for particulate matter in 1997. In 2003, the DAQ confirmed which areas of West Virginia were not meeting the 8-hour ozone standard. Berkeley County was identified as a potential non-attainment area, but was deferred because it voluntarily entered into an Early Action Compact, which required areas to identify and implement control strategies earlier than would otherwise be required. In addition, Berkeley County was designated as a maintenance area for the critical pollutant fine particulate matter in late 2014. This designation required Berkeley County to perform a conformity analysis for transportation projects in the region that are deemed regionally significant. The complete conformity analysis document can be accessed via the following link http://www.hepmpo.net/PDF/2014_AQConformityAnalysis.pdf on the Hagerstown Eastern Panhandle MPO website.

Air Quality Early Action Compact Support

Continue to support the implementation of the Air Quality Early Action Compact. In 2003, the West Virginia DEP Division of Air Quality (DAQ) identified the Eastern Panhandle counties of Jefferson and Berkeley as a potential non-attainment area. However, the counties voluntarily entered into an Early Action Compact, which required areas to identify and implement control strategies earlier than would otherwise be required. An updated Air Quality Master Plan was made available by Region 9 in January 2015. The county should continue to work with DAQ staff to meet the program requirements on schedule. Additional information regarding air quality initiatives in the region is available at <http://www.region9wv.com/AirQualityInitiative.aspx>.

Vegetation and Wildlife Profile

West Virginia's vegetative and wildlife resources are a vital part of its history, its character and its ecological health. Vegetation, particularly forests, performs several vital functions for the local ecology. It provides habitat, both food and shelter, for local wildlife. It circulates nutrients between soil and the atmosphere. It stabilizes soils prone to erosion and filters nutrients, pollutants, and sediment from runoff, particularly along stream banks. Furthermore, forests are productive sources of timber. Berkeley County is in the central forest region. Oaks and associated hardwoods are the dominant species with pines generally found in shale areas.

The West Virginia Wildlife Diversity Program (WDP) and the Natural Heritage Program (<http://www.wvdnr.gov/wildlife/wdpintro.shtm>) are responsible for those species listed by the federal government as threatened or endangered, as well as non-game wildlife and their habitats. Wildlife

Management Areas (WMAs) are a key component of a multi-faceted program that seeks to conserve the state's non-game wildlife, as well as inform and educate the general public about these special resources.

The Sleepy Creek WMA covers 22,928 acres in Berkeley and Morgan Counties. It is located approximately six miles southeast of Berkeley Springs and eleven miles west of Martinsburg. Oak-hickory forest covers 3,500 acres while Virginia pine-oak forest blankets the majority of the area. Sleepy Creek is primarily managed for deer, turkey, grouse, squirrel and raccoon, with wild turkey the featured game species. Sleepy Creek Lake, which covers 205 acres, contains a good sport fishery for largemouth bass, bluegill and crappie. Boat launching facilities are situated at the dam spillway and near the midpoint of the lake. The area also has a rifle range. Seventy-five camping sites are available and trailers over 17 feet are not recommended due to the graveled roads. Water and vault toilets are available and a nominal camping fee is charged. The WMA is owned and managed by WVDNR.

A 2003 report from the Blue Heron Environmental Network indicated that there is a large and diverse variety of endangered, rare and unique forms of plant and wildlife species throughout the Back Creek Watershed. The Harperella, was one of the more prominent endangered plant species mentioned in this report and was known to exist in only 4 water bodies in the Maryland, West Virginia, Pennsylvania area. Back Creek was one of those four water bodies. The West Virginia Division of Natural Resources continues to monitor and inventory wildlife and plants and in 2015 the division implemented a State Wildlife Action Plan. This plan references Species of Greatest Conservation Need, Environmental Stresses and Conservation Actions in Berkeley County. There are 52 Priority 1 Species and 81 Priority 2 Species listed in the Conservation Focus Area of Sleepy Creek and Back Creek (Western Berkeley County). There are 68 Priority 1 Species and 134 Priority 2 Species listed in the Conservation Focus Area of the Greater Shenandoah Valley (Eastern Berkeley County). Berkeley County is not only home to the Harperella plant but also the Shale barren rock cress plant, the James Spiny Mussel, and the Madison Cave Isopod, all of which appear on the West Virginia threatened or endangered species list. The complete State Wildlife Plan document can be accessed on the division's website or through the following link http://www.wvdnr.gov/Wildlife/Action_Plan.shtm.

Scenic Features and Vistas Profile

Berkeley County has many rich vistas from all roadways and regions of the county. There are several driving routes that have been designated within Berkeley County. As defined by the National Scenic Byways Program, the scenic quality is a visual experience derived from the view of natural and manmade elements of the environment.

Sections of State Secondary Roads 9, 45, and 51 in Berkeley County are designated as the George Washington heritage Trail Byway, which follows the footsteps of America's first president. The Byway completes a loop through Jefferson, Berkeley, and Morgan Counties. In Berkeley County, the Byway goes through Martinsburg, Hedgesville, Inwood, Gerrardstown and Shanghai. Scenic byway designation can help to preserve scenic locations and corridors making the designated road segments eligible for federal funds for improvements.

2006 Summary of Natural Resources Action Strategies

- Continue to use the Berkeley County Farmland Protection Program as the primary means for protecting agricultural lands in the county.
- Include overlay zones in the land use ordinance to protect steep slopes, groundwater, sinkholes, Karst regions, watersheds, and floodplains by preventing development in these areas.

- Utilize the Natural Resources Protection Areas on the Growth Management Map to provide a basis for developing a resource protection district that would prevent permanent uses from being developed within these areas.
- Provide property owners information about Best Management Practices (BMPs) they can use to protect sensitive resources, including riparian buffers, native landscaping, and forest management techniques. Protection of Berkeley County's natural resources will depend heavily on the actions of the private land owners. The county should initiate a "Keep Berkeley Green" or similar public outreach and education program that will provide residents with the information they need to do their part to protect the environment. There are currently many organizations that provide information about Best Management Practices (BMPs), including WVU Cooperative Extension Service, WV Division of Natural Resources (DNR) and Division of Forestry, the Conservation Fund, the Natural Lands Trust, and the Chesapeake Bay Foundation. The initiative could be as simple as a set of links from the county's website or as sophisticated as a BMP library that would be available at the planning commission's offices or online
- Prioritize the continued development of the county's GIS database as a critical tool for implementing natural resource protection strategies. Many of the recommendations in this plan will require accurate geographic data in order to implement them. Accurate delineation of sensitive resources will provide a reliable and predictable basis for decisions about the location and nature of new development.
- The creation and maintenance of an electronic database, including a digital map of all of the tax parcels in the county will provide accurate information for developers and the planning commission to make better decisions during the development review process.
- Develop a network of greenways that can serve to protect surface waters, connect open spaces, and meet recreational needs at the same time. As proposed in the Transportation Plan, the county should work with residents and the Parks and Recreation Board to develop a county-wide Greenways and Water Trails network. The goal would be to establish an interconnected network of greenways and land and water trails that would both preserve special natural and historic areas and also provide opportunities for residents and visitors to enjoy them. This strategy will require a coordinated and committed effort by a wide variety of organizations, including citizen groups, land trusts, businesses, and state and federal agencies. However, the final result would be a source of community pride and well worth the efforts needed to make it a reality.
- Institute an on-site management system to manage the functionality of the septic and alternative waste systems in use in Berkeley County.
- Assess the robustness of the groundwater in any area proposed for development and use this information to determine the number of home sites in a particular area. In those areas without an assessment of the amount of availability of groundwater and which are not on public water, development should be limited to a lower housing density in order to protect groundwater resources.

2016 Highlights

- USDA 2012 Census data indicates that there are approximately 70,160 acres of prime farmland soil, most of which are located in the Shenandoah Valley. As of Summer 2015, The Farmland Protection Program conservation easements were up to 4,441 protected acres.
- The Back Creek Watershed Protection Plan, was finalized in June 2014 and submitted to the West Virginia Conservation Agency.

- The West Virginia Potomac Tributary Strategy Implementation Plan was updated in June 2007 in an effort to reduce the amount of nutrients and sediment flowing into the Chesapeake Bay.
- Many of the 2006 natural resources action strategies refer to regulations and incentives that have been and will continue to be addressed by the Berkeley County Subdivision Ordinance. As of the writing of this plan, Berkeley County has three valid subdivision ordinances: 1975, 2004 and 2009.
- A Floodplain Ordinance, based upon a state wide model ordinance, was adopted and made effective in July 2009 by the Berkeley County Council.
- A Stormwater Management and Sediment and Erosion Control Ordinance was adopted by Berkeley County in January of 2010.
- The 2009 Berkeley County Subdivision Ordinance includes a requirement for a WV DEP groundwater protection permit.
- Berkeley County was designated as an air quality maintenance area for the critical pollutant fine particulate matter in late 2014. An updated Air Quality Master Plan was made available by Region 9 in January 2015.
- The West Virginia Division of Natural Resources implemented a State Wildlife Action Plan in 2015. This plan references Species of Greatest Conservation Need, Environmental Stresses and Conservation Actions in Berkeley County.
- Complete copies of the adopted ordinances can be found on the Berkeley County website www.berkeleywv.org.
- An ordinance including zoning options was shared with the public and was defeated in the general election on two separate occasions. The first attempt to pass a zoning ordinance was defeated several years prior to the writing of the 2006 Comprehensive Plan. The second attempt to pass a zoning ordinance was defeated in 2010.
- The county assessor's office has made available a tax parcel map that can be accessed by the public. This map is updated on a regular basis and can be accessed through the following website: <http://www.theassessor.org/>.

Looking Forward to 2026

- Purchases should continue towards conservation easements through the Farmland Protection Program.
- An evaluation of the impaired streams on the 303(d) List should be performed in order to determine Best Management Practices for water quality improvement of these streams.
- Efforts are underway by the Planning Commission and the County Council to bring all subdivision proposals under one set of regulations. This process should be complete in July 2018. The Subdivision Ordinance adopted in 2009 is also under review and a re-write of the ordinance is targeted for 2016 as well.
- An updated version of the Stormwater Management and Sediment and Erosion Control Ordinance is anticipated to be available in 2016.
- An updated Floodplain Ordinance is anticipated to be approved and adopted in Summer 2016.
- Evaluation of the WV DEP groundwater protection permit will help determine if this permit is meeting the needs of Berkeley County in regards to groundwater preservation or if additional steps need to be taken.
- Berkeley County is home to the Harperella plant, the Shale barren rock cress plant, the James Spiny Mussel and the Madison Cave Isopod, all of which appear on the West Virginia threatened or endangered species list. Steps will need to be taken to ensure protection through compliance with the Federal Endangered Species Act.

- Sewer and septic service upgrades, as outlined in The Infrastructure Plan chapter, need to be considered.
- Impaired stream water quality data, more recent than 2008, needs to be obtained. This will assist in determining if any improvement in the quality of impaired streams has occurred.
- Region 9 will continue to play a critical role in community outreach programs regarding Best Management Practices for groundwater, surface water and other natural resource preservation through initiatives such as increasing the Urban Tree Canopy of Berkeley County.
- Define a process for verifying the presence of a wetland on individual parcels, prior to any grading or construction taking place that could potentially destroy the wetland. This process could be similar to the floodplain verification process, if mapped wetland data is available. There is also a need to document the steps involved in notifying the appropriate agencies in order to enforce the protection of wetlands, when they are present, according to the requirements of the Federal Clean Water Act.

Chapter 6 - The Housing Plan

Housing Profile

Attractive and affordable housing are two of the most important assets of any community. Good housing creates a sound tax base that will continue to appreciate in value and assures that residents are living in a healthy and safe environment. The existing and future quality of housing is extremely important to the growth and development of Berkeley County. An analysis of existing housing conditions and projected population levels are necessary when identifying housing needs for the future. The following sections describe the existing housing types, conditions, vacancies, and other factors that characterize the supply of housing in Berkeley County. Data from the U.S. Census Bureau served as the primary source of housing statistics unless otherwise noted.

Housing Unit Supply

The total number of housing units in Berkeley County increased by 26,992 units, which is an increase of 145 percent, between 1980 and 2010. This growth rate is significantly higher than the 28 percent increase experienced in West Virginia as a whole. (See Table 6-1) Jefferson and Morgan Counties also had significant increases in housing units between 1980 and 2010: 93.1 and 99.9 percent respectively. Frederick County, VA continues to experience the highest growth rate in the area at 150.9 percent over the same thirty-year period, resulting in 19,254 new housing units in that county. The number of housing units added to Berkeley County over a ten-year period continues to climb each decade with 6,813 added 1980-1990; 7,528 added 1990-2000; and 12,651 added between 2000-2010. Housing growth from 2000-2010 continues to be only slightly higher than the population growth. According to Census data, housing units increased by 38.4 percent during the decade, while population increased by 37.0 percent.

Table 6-1 Growth in Housing Supply 1980-2010

	Total Housing Units				Change in Housing Units							
	1980	1990	2000	2010	1980-1990		1990-2000		2000-2010		1980-2010	
Municipality					#	%	#	%	#	%	#	%
West Virginia	686,311	781,295	844,623	879,449	94,984	13.8	63,328	8.1	34,826	4.1	193,138	28.1
BERKELEY COUNTY	18,572	25,385	32,913	45,564	6,813	36.7	7,528	29.7	12,651	38.4	26,992	145.3
Hedgesville	80	93	99		13	16.3	6	6.5				
City of Martinsburg	5,803	6,670	7,432	8,408	867	14.9	762	11.4	976	13.1	2,605	44.9
Clarke County, VA	3,961	4,531	5,388	6,247	570	14.4	857	18.9	859	15.9	2,286	57.7
Frederick County, VA	12,759	17,864	23,319	32,013	5,105	40.0	5,455	30.5	8,694	37.3	19,254	150.9
Jefferson County, WV	11,542	14,606	17,623	22,290	3,064	26.5	3,017	20.7	4,667	26.5	10,748	93.1
Morgan County, WV	4,884	6,757	8,076	9,762	1,873	38.3	1,319	19.5	1,686	20.9	4,878	99.9
Washington County, MD	42,391	47,448	52,972	60,830	5,057	11.9	5,524	11.6	7,858	14.8	18,439	43.5

Source: U.S. Census Bureau (shaded area indicates data was unavailable for this municipality)

Final Subdivision Lot (Housing Unit) Approvals

Between 2000 and 2004, there was a continual increase in major subdivision final approval in Berkeley County. During this time, almost 6,500 lots received final approval. From 2005 to 2009 this upward trend in approved lots continued, however, between 2010 and 2014 the number of lots receiving final approval declined. Table 6-2 lists the number of major subdivisions receiving final approval by year in Berkeley County.

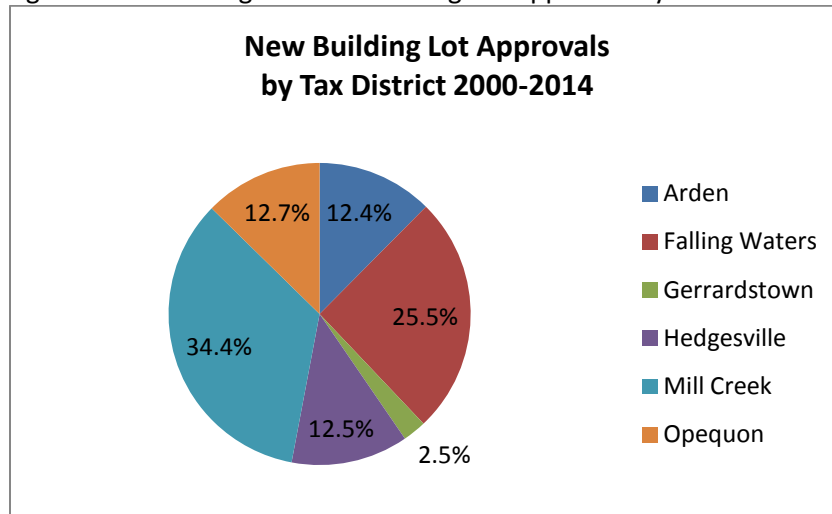
Table 6-2 Final Subdivision Lot Approvals by Tax District

Year	Arden	Falling Waters	Gerrardstown	Hedgesville	Mill Creek	Opequon	Total
2000							668
2001							910
2002							927
2003							1,181
2004							2,749
SubTotal	1,567	1,008	258	1,386	1,344	872	6,435
2005	101	215	11	186	1,223	134	1,870
2006	385	225	138	310	1,088	220	2,366
2007	505	620	51	522	690	390	2,778
2008	95	86	9	45	52	91	378
2009	14	121	12	22	95	2	266
SubTotal	1,100	1,267	221	1,085	3,148	837	7,658
2010	6	35	4	2	1	16	64
2011	3	811	3	10	5	280	1,112
2012	9	86	9	14	41	47	206
2013	11	125	0	58	25	11	230
2014	42	77	0	11	16	2	148
SubTotal	71	1,134	16	95	88	356	1,760
05-14 TOTAL	1,171	2,401	237	1,180	3,236	1,193	9,418

Source: Berkeley County Planning Commission (dark shaded area indicates data was unavailable for this year by individual district)

The distribution of building lot approvals, by percentage, across the magisterial districts in the County is illustrated in Figure 6-1. Of all the districts, Mill Creek has seen the highest percentage of new building lot approvals over the last fifteen years, with Falling Waters being the second highest percentage. However, since 2010, the Falling Waters district has had more new building lot approvals than all the other tax districts combined.

Figure 6-1 Percentage of New Building Lot Approvals by Tax District 2000-2014



Residential Building Permits Issued

Table 6-3 takes this information a step further and shows the number of building permits that were issued between 2000 and 2014 in the County. These figures show the accelerated rate of building activity within the county peaked in 2004 then steadily declined from 2005 to 2011. The number of total new residential permits issued has slightly increased each year, since 2011. The largest number of permits issued between 2000 and 2014 was 10,602 permits for single family detached homes. The second largest number was for mobile homes at 2,947 permits issued. The annual number of mobile home permits issued is steadily declining. Since 2011, the number of permits issued annually for single family houses and townhouses is slowly but steadily increasing. Updates to the county subdivision ordinance occurred in 2004 and again in 2009. The decrease in mobile home permits could be related to a change in the 2009 Subdivision Regulations increasing the lot size requirements from 5,000 square feet to 7,500 square feet per lot. The lot width requirements for mobile homes also increased from 50 feet to 75 feet. The 5,000 square feet per lot and 50 feet lot width requirements had been in place since the original subdivision ordinance implemented in 1975.

Table 6-3 Residential Building Permits Issued in Berkeley County 2000-2010

Year	Single Family Houses	Townhouses	Duplex Building	Apartment Buildings	Five or More Family Buildings	Mobile Homes	Total New Residential Permits
2000	664	32	7	2	0	335	1,040
2001	945	49	4	4	1	355	994
2002	1,264	46	12	9	3	288	1,622
2003	1,259	64	0	6	0	267	1,596
2004	1,461	272	23	14	0	305	2,075
subtotal	5,593	463	46	35	4	1,550	7,327
2005	1,292	348	30	2	4	258	1,934
2006	1,038	342	28	4	12	248	1,672
2007	613	241	25	6	0	197	1,082
2008	413	205	9	4	3	149	783
2009	261	132	14	0	3	111	521
subtotal	3,617	1,268	106	16	22	963	5,992
2010	226	134	10	0	0	80	450
2011	184	94	14	0	0	80	372
2012	253	132	10	7	12	98	512
2013	333	164	10	0	0	98	605
2014	396	175	10	6	11	78	676
subtotal	1,392	699	54	13	23	434	2,615
TOTAL	10,602	2,430	206	64	49	2,947	16,298

Source: Berkeley County Engineering and Building Inspections Office

Housing Unit Density

The housing unit density (Table 6-4) for Berkeley County was 141.9 houses per square mile according to 2013 Census Bureau data. This is a total change in housing units per square mile of 84.1 over a 33-year period. As a result, Berkeley County now has more housing units per square mile than all surrounding counties, including Washington County, MD, which from 1980 to 2000, had the highest housing unit density in the area. Clarke County continues to have the lowest density, around 35.5 housing units per square mile.

Table 6-4 Housing Unit Density

	Land	Housing Units Per Square Mile				Change			
	Area								
Municipality	(Sq. Mi)	1980	1990	2000	2013	1980-1990	1990-2000	2000-2013	1980-2013
West Virginia	24,087	28.5	32.4	35.1	36.5	3.9	2.6	1.4	8.0
BERKELEY COUNTY	321	57.8	79.0	102.5	141.9	21.2	23.4	39.4	84.1
Clarke County, VA	177	22.4	25.6	30.4	35.5	3.2	4.8	5.1	13.1
Frederick County, VA	415	30.8	43.1	56.2	77.1	12.3	13.2	20.9	46.3
Jefferson County, WV	210	55.1	69.7	84.1	106.1	14.6	14.4	22.0	51.0
Morgan County, WV	229	21.3	29.5	35.3	42.6	8.2	5.8	7.3	21.3
Washington County, MD	458	92.5	103.6	115.6	132.8	11.0	12.1	17.2	40.3

Source: U.S. Census Bureau (Note: time span for recent data is 13-years rather than 10-years and data should be interpreted accordingly.)

Average Household Size

Average household size for owner occupied housing units decreased for the state, Berkeley County and all other surrounding counties over the last 23 years, with the exception of Morgan County, which increased from 2.57 to 2.71. (See Table 6-5a) Berkeley, Jefferson and Washington Counties saw an increase in household size for renter-occupied units over the same period.

Table 6-5a Average Household Size Since 1990

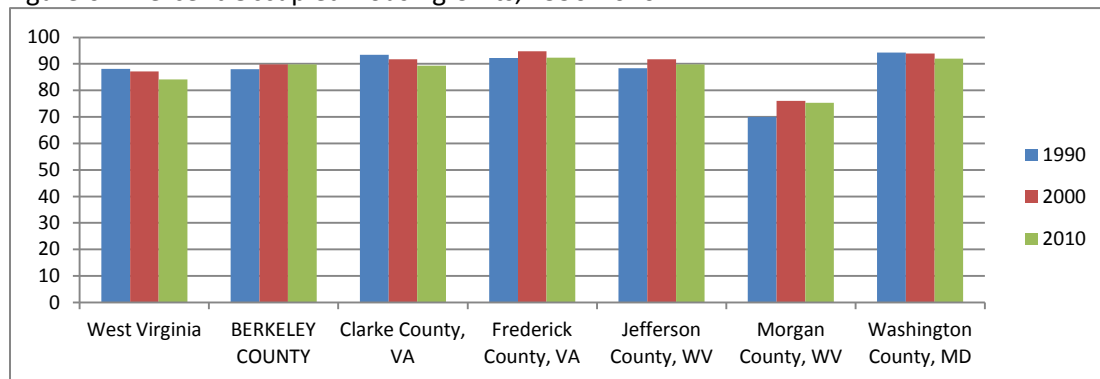
	Avg. household size of			Avg. household size of		
	Owner-occupied units			Renter-occupied units		
Municipality	1990	2000	2009-2013 est	1990	2000	2009-2013 est
West Virginia	2.63	2.47	2.50	2.33	2.18	2.25
BERKELEY COUNTY	2.69	2.64	2.61	2.36	2.20	2.52
Clarke County, VA	2.81	2.57	2.52	2.70	2.27	2.38
Frederick County, VA	2.77	2.67	2.70	2.72	2.55	2.61
Jefferson County, WV	2.75	2.58	2.65	2.48	2.41	2.66
Morgan County, WV	2.57	2.42	2.71	2.32	2.31	1.74
Washington County, MD	2.62	2.60	2.57	2.38	2.22	2.40

Source: U.S. Census Bureau

Occupied and Vacant Housing Units

The general trend in the percentage of occupied housing units shows minimal fluctuations from 1990 to 2010, as illustrated in Figure 6-2. The percentage of occupied housing units in Berkeley County has been relatively consistent since 1990 and has been at 89.8 percent since 2000. Morgan County remains the lowest percentage ranging from 70 percent in 1990 to 76.1 percent in 2000. Washington County had the highest percentage in 1990 at 94.3 percent but shows a small, steady decline to 92.0 percent in 2010. The percentages of vacant housing mirror these numbers and actual percentages are listed in Table 6-5b below. Berkeley County has remained at a 10.2% vacancy rate from 2000 through 2010.

Figure 6-2 Percent Occupied Housing Units, 1990-2010



Source: U.S Census Bureau

Table 6-5b Percent Occupied and Vacant Housing Units, 1990-2010

Municipality	Percent Occupied			Percent Vacant		
	1990	2000	2010	1990	2000	2010
West Virginia	88.1	87.2	84.2	11.9	12.8	15.8
BERKELEY COUNTY	88.0	89.8	89.8	12.0	10.2	10.2
Clarke County, VA	93.5	91.7	89.3	6.5	8.3	10.7
Frederick County, VA	92.2	94.8	92.4	7.8	5.2	7.6
Jefferson County, WV	88.4	91.7	89.8	11.6	8.3	10.2
Morgan County, WV	70.0	76.1	75.3	30.0	23.9	24.7
Washington County, MD	94.3	93.9	92.0	5.7	6.1	8.0

Source: US Census Bureau

The percentage of renter occupied housing in Berkeley County as of 2010, was 24.8 percent (Table 6-6). The highest percentage in the region, 35.1 percent, occurred in Washington County, Maryland. The lowest percentage, 20.3 percent, occurred in Clarke County, Virginia.

Table 6-6 Percentage of Housing Units Owner Occupied and Renter Occupied in 2010

Municipality	Occupied by:	
	Owner %	Renter %
West Virginia	73.4	26.6
BERKELEY COUNTY	75.2	24.8
Clarke County, VA	79.7	20.3
Frederick County, VA	78.3	21.7
Jefferson County, WV	75.1	24.9
Morgan County, WV	65.0	35.0
Washington County, MD	64.9	35.1

Source: US Census Bureau

Age of Housing

Roughly 30 percent of Berkeley County's housing units were built between 2000 and 2010. From 1980 to 2010 more homes have been built in Berkeley County than in any of the surrounding counties. Currently almost 66 percent of the county's housing stock is less than thirty-five years old as shown in Figure 6-3. The accelerated growth of housing since 1980 clearly indicates the desirability of the area as a place to live. Table 6-7 provides a comparison of the age of each county's housing stock, as well as West Virginia's.

Figure 6-3 Percentage of Structures Built in Berkeley County by Year

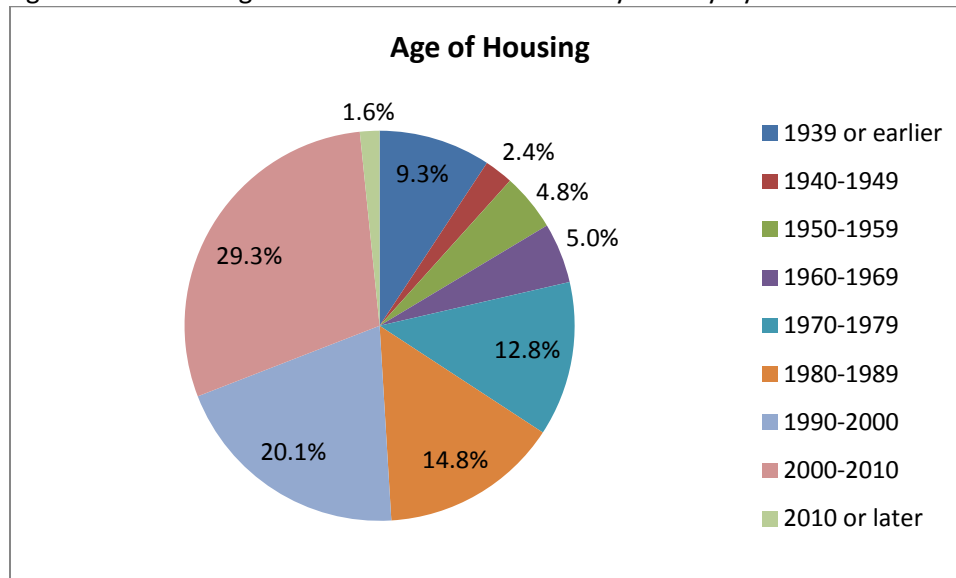


Table 6-7 Age of Housing Comparison

Municipality	1939 or earlier	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-2000	2000-2010	2010 or later	Total Units
West Virginia	146,366	71,382	98,569	83,771	150,769	115,414	117,091	92,577	5,012	880,951
BERKELEY COUNTY	4,181	1,071	2,143	2,247	5,778	6,680	9,044	13,190	731	45,065
Clarke County, VA	1,048	397	537	530	1,005	809	804	1,096	20	6,246
Frederick County, VA	1,696	857	1,161	2,095	4,581	6,017	6,951	7,923	306	31,587
Jefferson County, WV	2,366	622	1,123	1,612	3,632	3,868	3,821	5,070	32	22,146
Morgan County, WV	1,019	351	566	886	2,135	1,836	1,733	1,217	14	9,757
Washington County, MD	12,255	3,857	7,115	5,962	7,687	6,385	7,593	9,746	204	60,804

Source: US Census Bureau

Housing Unit Design

The predominant housing unit design in Berkeley County continues to be the single-family, detached home. The 2010 Census data shows that nearly 70 percent, over 31,500 units of the county's total housing stock falls into this category. Mobile homes represent approximately 13 percent of total housing units. This is six percent less than reported in 2000, and now falls lower than Morgan County, where mobile homes represent 13.5 percent of all housing units in the county. Another 7.6 percent are classified as single-family, attached while 9.6 percent are multi-family housing units with two or more units per building. Table 6-8 illustrates the breakdown of housing units by design as per the 2010 Census.

The counties that surround Berkeley County have a similar distribution of housing unit types with between 60 and 91 percent of housing units classified as single-family, detached. Washington County continues to have more multi-family housing than any of the surrounding counties at 19.1 percent. Berkeley and Morgan County West Virginia continue to have the highest number of mobile homes, trailers and other housing units, while Jefferson County, West Virginia has dropped below Frederick County Virginia in percentage of these types of housing units.

Table 6-8 Housing Type Comparison

Municipality	Percent Total Housing Units								
	Single Family		Multi-Family						Total Units
	1 unit detached	1 unit attached	2 units	3-4 units	5-9 units	10-19 units	20-49 units	Mobile homes, trailers and other	
West Virginia	71.0	1.9	2.2	2.8	2.8	1.6	2.5	15.1	880,951
BERKELEY COUNTY	69.9	7.6	1.2	2.2	2.6	2.2	1.4	13.0	45,065
Clarke County, VA	90.9	2.2	2.3	0.3	1.7	0.8	1.4	0.4	6,246
Frederick County, VA	77.0	8.8	0.4	0.6	1.8	2.3	1.0	8.1	31,587
Jefferson County, WV	76.6	7.6	1.4	2.4	2.2	1.9	1.2	6.6	22,146
Morgan County, WV	79.5	0.9	1.2	2.1	1.7	0.7	0.4	13.5	9,757
Washington County, MD	60.3	16.1	2.5	3.8	4.0	5.7	3.5	4.1	60,804

Source: US Census Bureau

Housing Values and Affordability

According to 2000 Census data, the highest percentage of occupied housing units in Berkeley County, 44.5 percent, fell within the \$50,000 to \$99,999 price range. Frederick, Jefferson, Morgan and Washington Counties had similar percentages in this range, between 33.1 and 47.8 percent. Clarke County had the highest housing values in the area, with 23.8 percent of all housing unit prices at \$200,000 or more. Table 6-9 illustrates the housing values in the region according to 2000 Census data.

Table 6-9 Housing Values 2000

Municipality	\$50,000 to \$99,999		\$100,000 to \$149,999		\$150,000 to \$199,999		\$200,000 or more	
	#	%	#	%	#	%	#	%
West Virginia	184,733	47.0	62,302	15.9	22,939	5.8	17,893	4.6
BERKELEY COUNTY	7,122	44.5	5,292	33.1	1,713	10.7	951	5.9
Clarke County, VA	740	26.9	726	26.4	569	20.7	655	23.8
Frederick County, VA	4,609	33.1	5,318	38.2	2,238	16.1	1,507	10.8
Jefferson County, WV	3,513	36.0	2,775	28.4	1,727	17.7	1,377	14.1
Morgan County, WV	1,637	47.8	993	29.0	204	6.0	120	3.5
Washington County, MD	9,503	34.3	10,772	38.8	4,070	14.7	2,610	9.4

Source: 2006 Berkeley County Comprehensive Plan Update

Owner Occupied Housing Values

According to 2010 Census data (See Table 6-10 below), the highest percentage of Berkeley County's occupied housing units, 23.0 and 24.0 percent, jumped to the \$150,000 to \$199,999 and \$200,000 to \$299,999 price ranges, respectively. Morgan and Washington Counties housing costs rose as well and continue to have the highest percentages in the same housing cost ranges as Berkeley County. Clarke County continues to have the highest housing values in the area, with 60.8 percent of all housing unit prices at \$300,000 or more. Jefferson County, West Virginia and Frederick County, Virginia housing costs have increased to the point that they are now higher than Berkeley County. Jefferson County has 48.0 percent of housing unit values within the \$200,000 to \$499,000 range and Frederick County has 52 percent of the housing units within this same range.

Table 6-9 Owner Occupied Housing Values and Total Housing Units 2010

	Less than \$50,000	\$50,000 to \$99,000	\$100,000 to \$149,999	\$150,000 to \$199,999	\$200,000 to \$299,000	\$300,000 to \$499,000	\$500,000 to \$999,999	\$1,000,000 or more	Total
Municipality	%	%	%	%	%	%	%	%	
West Virginia	21.9	28.8	17.8	13.7	11.2	4.7	1.3	0.5	544,059
BERKELEY COUNTY	11.1	11.2	18.6	23.0	24.0	10.3	1.3	0.5	30,408
Clarke County, VA	2.4	2.2	3.8	7.8	23.0	40.3	16.6	3.9	4,447
Frederick County, VA	8.2	5.3	10.5	18.0	29.2	22.8	5.2	0.8	22,852
Jefferson County, WV	5.5	8.4	13.4	18.8	28.4	20.4	4.0	1.2	14,943
Morgan County, WV	10.5	15.3	16.8	25.3	19.6	10.6	1.9	0.1	4,770
Washington County, MD	4.2	6.9	14.4	22.4	29.8	17.0	4.5	0.7	36,335

Source: US Census Bureau

Contract Rent

Median contract rent in Berkeley County increased from \$416 in 2000 to \$832 in 2010, which now ranks fifth among each of the surrounding counties and West Virginia (Table 6-11). Median contract rent increased to values higher than Berkeley County, since 2000 Census Data, in Jefferson County, West Virginia and Washington County, Maryland. Frederick and Clarke Counties in Virginia continue to rank first and second in Median Contract Rent among neighboring counties. All neighboring counties, Berkeley County and West Virginia nearly doubled or more than doubled in median contract rent from 2000 to 2010.

Table 6-11 Median Contract Rent

Municipality	2000	2010
West Virginia	\$311	\$611
BERKELEY COUNTY	\$416	\$832
Clarke County, VA	\$495	\$1,022
Frederick County, VA	\$506	\$1,084
Jefferson County, WV	\$401	\$899
Morgan County, WV	\$342	\$680
Washington County, MD	\$412	\$849

Source: US Census Bureau

Housing Affordability

Based on 2009 Census Bureau data (Table 6-12), approximately 33.6 percent of Berkeley County's owner occupied households are considered "cost burdened". A homeowner is considered cost burdened if they spend 30 percent or more of their household income on their mortgage. This is an increase of 21.7 percent over the ten year period. All surrounding counties and West Virginia experienced similar increases in cost burdened percentages. Berkeley County moved from the lowest cost burdened county of surrounding counties in 2000 to the third highest of neighboring counties making Frederick County Virginia the least cost burdened county in the area. The highest percentage of cost burdened homeowners as of the 2009 data was Morgan County, followed by Jefferson County. Renter-occupied cost burdened household percentages reflect a decrease in all surrounding counties, including Berkeley County and West Virginia.

The availability of affordable housing is important for several reasons. If employees, particularly those in entry level positions, cannot afford to live near their place of employment, they will be forced to commute long distances, thus adding to traffic congestion and air pollution. Quality of life is also impacted as longer commute times take away from leisure and family time. Retail and service sector employers tend to have a difficult time filling positions in areas where housing is relatively expensive. A

wider range of housing types, rental options and prices can help alleviate some of these affordable housing problems.

Table 6-12 Percentage of Cost Burdened Households

	1999 Owner- Occupied	2009 Owner- Occupied	1999 Renter- Occupied	2009 Renter- Occupied
Municipality	Cost Burdened*	Cost Burdened*	Cost Burdened*	Cost Burdened*
West Virginia	9.7	24.5	48.6	48.1
BERKELEY COUNTY	11.9	33.6	59.6	51.1
Clarke County, VA	13.4	33.6	61.9	34.9
Frederick County, VA	11.9	31.4	60.4	49.0
Jefferson County, WV	12.5	34.3	55.8	43.8
Morgan County, WV	12.7	37.8	59.1	43.8
Washington County, MD	13.8	33.5	65.3	46.7

* Cost Burdened is spending 30% or more on monthly housing costs

Source US Census

Public Housing

According to the US Department of Housing and Urban Development, there are currently eight locations registered as providing subsidized housing opportunities for Berkeley County residents. Table 6-13 lists each of the properties, the contact organization and type of unit. As shown there are only three that provide family units, and two for the elderly. There are also three facilities for the disabled, which are managed by the Eastern Panhandle Mental Health Center, Inc. Within The City of Martinsburg there are five additional locations (Table 6-14) that provide subsidized housing opportunities for residents.

Table 6-13 Homes and Communities Offering Subsidized Housing

Contact	Property	Type
TM Associates Management, Inc. Phone: 240-683-0300	Oak Tree Village 318 Garden Drive, Apt 104 Martinsburg, WV 25401-3984	Family
FMG Property Management Phone: 304-263-1801	Capital Heights Townhouses 101 Boarman Place Martinsburg, WV 25401	Family
Humphrey Associates, Inc. Phone: 304-263-2300	Franklin Manor 700 W Burke Street Martinsburg, WV 25401-2783	Family
Eastern Panhandle Mental Health Center, Inc. Phone: 304-263-8954	Hoffmaster Houses 290 Lutz Avenue Martinsburg, WV 25401-2783	Disabled
Associates for Community Development, Inc. Phone: 304-267-2102 Need_email@hud.gov	Kings Daughter Court 116 E King Street Martinsburg, WV 25401-4225	Elderly
Eastern Panhandle Mental Health Center, Inc. Phone: 304-263-8954 Need_email@hud.gov	NAR Roberts, Jr. 91 Tavern Road Martinsburg, WV 25401	Disabled
Millennia Housing Management Ltd. Phone: 216-520-1250 assetmanagement@mhmltd.com	Senior Towers 200 E Stephens Street Martinsburg, WV 25401-4197	Elderly

Source: US Department of Housing and Urban Development, 2015

Table 6-14 Public Housing Complexes in Martinsburg

Name	Location	Units
Adam Stephen Homes	Wilson Street	47
Horatio Gates Village	Porter Avenue	51
Leeland Apartments	201 North Kentucky Avenue	20
Ambrose Towers	703 Porter Avenue	104
Stonewall Haven	300 Silver Lane	104

Source: Martinsburg Housing Authority

Future Housing Needs

The following Tables (6-15 and 6-16) provide an illustration of the future housing that will be needed to accommodate the projected population for Berkeley County. This table indicates that, at the current 2010 US Census level of persons per housing unit, Berkeley County will require 53,880 housing units to meet the projected increase in population. Based upon existing housing units available as of the 2010 US Census and projected units within projects submitted to the Planning Commission for approval, Berkeley County is on track for providing the projected number of housing units needed by 2040.

Table 6-15 Projected Housing Unit Needs

	US Census	Projections	2010-2040	
	2010	2040	Change In Number	
Population ¹	104,169	140,613	36,444	35%
Estimated Housing Units Needed @2.61 Persons Per Housing Unit ²	39,911	53,880	13,969	35%

¹Source: Direction 2040 HEPMPD Long-Range Transportation Plan²See Table 6-5 Average household size of owner occupied units

Table 6-16 Projected Housing Unit Availability

Total Existing Housing Units as of 2010 US Census ¹	45,564
Total Housing Units Vested in 2015 Preliminary Plan Extension Request ²	6,786
Total Existing and Potential Future Housing Units Available	52,350
Remaining Housing Units Needed for Projected Population Growth	1,530

¹See Table 6-1 Growth in Housing Supply²Berkeley County Planning Commission

2006 Summary of Housing Action Strategies

The vision for housing in Berkeley County is to provide an adequate supply of housing that will give current and future residents of the county choices in housing types, location and value. In addition, tools need to be developed, to ensure these dwellings meet and are maintained in such a manner as to provide minimal standards, especially in the area of rental housing. The Growth Management Plan designates areas for new housing where services like public water and public sewer can be provided by the appropriate agencies. New housing developments shall be encouraged in these areas and amendments should be made to the subdivision and land development regulations to provide developers and the county with the ability to provide incentives for innovative land development practices and housing designs in these areas. A summary list of the housing action strategies for 2006 is as follows:

New Housing and Land Use Management

- Create new housing developments that maximize open space and protect environmentally sensitive features such as sinkholes and surface water.
- Provide regulations and incentives that will allow developers to utilize innovative development techniques (smart growth techniques) to provide diverse housing opportunities and shape the character of neighborhoods. These techniques would include 'mixed use developments' of

different housing types, planned unit developments, cluster developments, adaptive reuse of existing structures, and review requirements for each. Each of these techniques would also encourage housing affordability, along with designated growth areas, transit oriented development, and minimum lot size options.

- In exchange for additional open space or preservation, regulations could be amended to permit developers to maintain the density they would have achieved. This could be utilized in areas where floodplains have been determined to exist, allowing a landowner to create a nicer development including open space as an amenity.
- Update the subdivision and land development ordinance to improve standards and streamline the current application and approval process.
- Promote infill development of new housing as a means to encourage the improvement of the adjacent neighborhoods. This technique will also utilize existing infrastructure, which could reduce overall costs and increase affordability.

Housing Affordability and Choices

- The strategies mentioned above are being recommended to assist in the promotion of affordable housing in conjunction with the strategies listed in this section.
- Create inclusionary housing tools to target affordable housing to below market and moderate income households. Create a minimum percent for inclusionary housing, encourage the use of smart growth techniques as outlined above to incorporate inclusionary housing practices and review and update the subdivision regulations to reflect demographic changes in Berkeley County.
- Encourage the building and development community to partner with not-for-profit housing providers in order to incorporate inclusionary housing seamlessly into innovative housing development designs.
- Work with builders and developers to create innovative housing styles, encourage private builders and not-for-profit builders to develop innovative housing styles and encourage higher densities.
- Expand relationships with mortgage providers such as Fannie Mae to provide additional homeownership opportunities, inventory and map public lands and buildings that may be available for residential uses, create a housing trust to funnel private funds for affordable housing and conduct an annual housing summit that develops ideas for partnerships, funding, design and construction of affordable housing.
- Seek ways to increase available resources to assist low and moderate income families with finding and financing adequate housing. Programs to assist with first time home buyers should be expanded and publicized throughout the community.
- The County should promote education and outreach by conducting a series of educational seminars to orient local developers, builders, realtors and public officials on the benefits of sustainable land development and the provision of affordable housing and land use regulations.

Neighborhood Revitalization and Preservation

- Improve the quality of the county's existing housing stock to encourage continued use and re-use in order to preserve the character and quality of residential neighborhoods.
- As the average age of the population in the county continues to increase, the demand for suitable housing also increases. Regulations should be mindful of this fact and designs that make things easier for these residents should be encouraged.

- In older neighborhoods, encourage mixed-use development to include a mixture of low, medium and high density residential housing, along with commercial, service and employment centers.
- Attention needs to be given to the older developments and neighborhoods through reinvestment and rehabilitation of older buildings in order to fully utilize vacant and underutilized structures.
- Additional efforts need to be made to realistically enforce the property maintenance codes adopted by the county.
- Incorporate streetscape improvements within the Subdivision Regulations that provide traffic calming techniques, provide for adequate parking for residents and visitors, allow for safe movement of pedestrians and improve aesthetics of the streets with street trees, sidewalks and curbing where appropriate.
- Encourage the development and redevelopment of parks walkways and open space that will connect neighborhoods and provide access to commercial areas.
- The County or one of its partner's should develop an educational program for residents. Sensitive historic property modernization, alternative methods and materials, and money saving measures such as insulating, replacing windows, and upgrading heating and cooling systems would be appropriate topics. This initiative could take the form of public service announcements or an event such as a "building expo" that would include demonstrations by professionals. Another option would be participation at the annual builder's show.
- Direct public and private reinvestment of funds and resources in developments to spark revitalization.
- Utilize Tax Increment Financing (TIF) to stimulate the reuse of vacant and underutilized buildings.
- Leverage appropriate state and federal funding resources related to community and economic development to stimulate revitalization efforts.
- Seek out funding sources that will support the rehabilitation of historic buildings and develop programs to encourage and assist members of the building trades to see the benefits of restoring and rehabilitating historic buildings.

2006 Summary of Implementation Strategies

The focus of the Housing Plan is creating choices: choices for types of housing, choices of location, and choices for the cost of housing. The Housing Plan also provides strategies for those who choose to improve their current neighborhoods or move into mature neighborhoods. This section recommends more specific actions to implement the Housing Plan.

Convene a Housing Choices Committee: This committee would work to find ways to implement housing recommendations. Without this type of committee and their ability to focus on items that impact housing policies and programs, the creation of housing choices for all residents of Berkeley County may not be given the attention it deserves. The committee would include a mix of representatives from the public and private sectors who have expertise in housing and a strong interest in having good housing policies. The committee should also include representatives from the rental housing community as this type of housing needs to be monitored to ensure there is enough quality rental units available as some individuals prefer renting to owning.

Collect data and share information about available programs and funding sources: An important role in an effective housing policy is staying on top of the data. Data on housing starts, mortgage rates, housing

costs, housing markets, rental rates, vacancies and other data are usually captured from diverse sources and disseminated by equally diverse methods. This information is usually not widely distributed nor is it available for policy decision making. The Housing Choice Committee should determine the types of information that needs to be collected and make assignments to the various partners to collect, update and share this data on a regular basis.

Coordinate Housing Decisions with Decisions Related to Other Planning Initiatives, Including the Growth Management Plan and the Transportation Plan: Housing choices require consistency with growth management and transportation planning policies in Berkeley County. This Housing Plan has made a wide range of housing policy recommendations that if implemented will have an impact on growth management. Also housing revitalization and preservation policies promoted in the Housing Plan need to be consistent with the planning needs of the urban core, towns, and villages in the county. The Berkeley County Planning Commission is best suited to ensure to the extent possible that housing and growth management decisions are consistent through use of the subdivision and land development process.

Develop Innovative Housing Types: The County should work with the Housing Choice Committee, builders, developers, and others in the design community to develop incentive programs and awards for the development of innovative and affordable and diverse housing choices in the county.

Monitoring Implementation: During the implementation of the Housing Plan, it is important to monitor the outcomes to determine if changes are consistent with both the Growth Management Plan and Housing Plan. Monitoring results will determine areas that may require changes by the housing partners and at the same time being mindful of the market, which is the major governing factor.

2010 Berkeley County Housing Highlights

- Since 1980, the number of housing units in Berkeley County has increased by 145 percent. The number of housing units continues to climb each decade. Housing growth continues to be only slightly higher than the population growth of the county.
- Of all the districts, Mill Creek has seen the highest percentage of new building lot approvals over the last fifteen years, with Falling Waters being the second highest percentage. Since 2010, the Falling Waters district has had more new building lot approvals than all the other tax districts combined.
- Berkeley County has more housing units per square mile than all surrounding counties.
- The vacancy rate for Berkeley County has remained at 10.2 percent since 2000.
- Almost 66 percent of the county's housing stock is less than thirty-five years old.
- The predominant housing unit design continues to be the single-family, detached home.
- The highest percentage of occupied housing units jumped to the \$150,000 to \$299,999 price ranges from the \$50,000 to \$99,000 price range of 2000.
- Median contract rent increased from \$416 in 2000 to \$832 in 2010.
- Approximately 34 percent of the county's owner occupied households are cost burdened. Berkeley County moved from the lowest cost burdened county of surrounding counties in 2000 to the third highest of neighboring counties.
- Based upon existing housing units available, and projected future units submitted to the Planning Commission for approval, the county is on track for providing the projected number of housing units needed by 2040.

Looking Forward to 2026

For this comprehensive plan update, the 2006 action strategies were summarized in three main categories. They are New Housing and Land Use Management, Housing Affordability and Choices, and Neighborhood Revitalization and Preservation. The action strategies were sorted into these categories based upon the tools that are available, as of the writing of this plan, to respond to these strategies.

New Housing and Land Use Management

Many of the 2006 new housing and land use management action strategies refer to regulations and incentives that have been and will continue to be addressed by the Berkeley County Subdivision Ordinance. As of the writing of this plan, Berkeley County has three valid subdivision ordinances (1975, 2004 and 2009). Efforts are underway by the Planning Commission and the County Council to bring all subdivision proposals under one set of regulations. This process should be complete in July 2018. The Subdivision Ordinance adopted in 2009 is also under review and a re-write of the ordinance is targeted for 2016 as well. The building permit process monitors the quality of housing, while under construction, to ensure compliance with the Berkeley County Building Code Ordinance. This ordinance is reviewed periodically with the most recent version being adopted by County Council in August of 2013. Complete copies of these ordinances can be found on the Berkeley County website www.berkeleywv.org.

Housing Affordability and Choices

While the availability of a variety of housing types can be considered during the plan review process, the affordability of housing is determined by other factors. There are agencies in place to assist in finding affordable housing. They are the U.S. Department of Housing and Urban Development (www.hud.gov), the West Virginia Association of Housing Agencies (www.wvaha.org), the Martinsburg Housing Authority located at 703 Porter Avenue in Martinsburg, and Habitat for Humanity of the Eastern Panhandle (www.habitatwv.org).

Neighborhood Revitalization and Preservation

The neighborhood revitalization and preservation action strategies refer to communities that have already been established and have completed the housing and land use planning process. Berkeley County adopted a County Clean/Safe Ordinance in August of 2010. This ordinance addresses basic concerns such as litter, unsightly debris and refuse, overgrown vegetation and toxic spillage or seepage. If improvements or changes to existing housing units are made, they are monitored through the county engineering department building permit process. In Berkeley County, the majority of neighborhood revitalization and preservation efforts are managed at the homeowner association level through the neighborhood's covenants, restrictions and by-laws. Copies of recorded HOA governing documents are kept on file in the Office of the County Clerk in the Berkeley County Courthouse.

Chapter 7 – The Transportation Plan

The Transportation Plan Goal

The transportation plan focuses on providing an efficient and well maintained transportation system to maximize the accessibility and safe movement of people and goods by cooperative transportation planning with Berkeley County; Jefferson County; Morgan County; Washington County, MD; Frederick County, VA; the State of West Virginia; the State of Maryland, and the Commonwealth of Virginia. The following related objectives are based upon the goals identified in the 2006 Comprehensive Plan.

Objectives

- Work with West Virginia Division of Highways (WVDOH) and appropriate agency representatives from surrounding regions to ensure completion of existing and planned highway projects that will improve mobility throughout Berkeley County.
- Coordinate with the Hagerstown Eastern Panhandle Metropolitan Planning Organization (HEPMPO) in developing a Long Range Transportation Plan that considers all modes of transportation.
- Work with government agencies, the public and private groups to relieve congestion throughout the roadway system to improve commuter and freight movement.
- Encourage alternative forms of transportation by creating livable communities through the implementation of workable communities and transit oriented communities.
- Assist with corridor planning for improvements to WV Route 9 from Virginia to US 522 and WV Route 51 from Charles Town to WV45 and onto US 522. Explore alternative ways of obtaining the necessary rights-of-way needed for improvements, when acquisition is a challenge, to lower the costs of the projects.
- Pursue gaining authority to issue transportation bonds for needed road improvements.
- Continue working with legislative leaders and the WVDOH to prioritize the completion of identified projects.

Transportation Profile Summary

Berkeley County's transportation system consists of roads, bridges, rails, public transportation, airports, and bicycle and pedestrian facilities. The majority of the system is comprised of roadways, which are the responsibility of the WVDOH. One of the most notable impacts of the county's residential and economical growth has been an increase in traffic congestion along the roadway system. As population, housing and businesses have grown substantially in Berkeley County over the last 25 years, improvements in the county's transportation system have also occurred. However, there continues to be a challenge to serve the ever increasing traffic flow needs throughout the county. In addition, to the increasing traffic, many of the local roads are not designed to handle current volumes and are physically deteriorating. The responsibility for maintenance of these local roads (privately owned and not part of the WVDOH maintained roadways) falls on the surrounding property owners, which adds another variable to consider in the prioritization of road improvements. Residents are increasingly frustrated about the situation, as private automobile is by far the dominant mode of travel for county residents. Over 95 percent of residents use an automobile to travel to work and to other activities (Figure 7-1). With the current and projected population growth, management of Berkeley County's transportation network is critical. The purpose of this profile is to identify the key facilities that compose the transportation network and highlight some trends concerning its use.

Transportation Challenges Profile

There are a number of constraints that limit the county's ability to improve the transportation system. First, there are no roads or bridges within Berkeley County that are owned or maintained by the county. Secondly, the WVDOH owns and maintains many of the roads in the county, which means that improvements must be programmed, funded and implemented at the state level through an established process. Thirdly, roads that are not maintained by the state are the responsibility of the property owners or a Homeowners Association if within a development. Fourth, there are limited requirements within the county's subdivision and land development ordinance to access and mitigate impacts of new developments. The ordinance is also limited in its ability to require one development to assist with maintenance of roads in another development when roads are being used by residents of both. Finally, the entire Eastern Panhandle is a treasure of history and natural beauty. Efforts to protect these resources can contribute to lengthy delays on highway project development. The delay on improvements to WV9 is an example of this.

Transportation Planning and Decision-Making Agencies Profile

Highway and roadway planning for Berkeley County is conducted by the WVDOH and the HEPMPO. The HEPMPO also carries out system wide, multimodal transportation planning for Berkeley County and is the federally designated metropolitan planning organization for the region.

West Virginia Department of Transportation Division of Highways (DOH)

WVDOH is responsible for planning, engineering, right-of-way acquisition, construction, reconstruction, traffic regulation and maintenance on the state's highways. This agency also develops short, medium and long term planning documents that guide its roadway construction and maintenance priorities. This agency produces three documents that outline the state's ongoing highway projects and future roadway investments: 1) The short term Statewide Transportation Improvement Program (STIP) outlines federal-aid projects anticipated to occur in a three-year period; 2) The medium term Six-Year Highway Improvement Program bridges the gap between projects ready for immediate construction and those that achieve broader strategic goals; 3) The state's long range transportation plan, the Statewide Transportation Policy Plan, provides overall guidance for strategic transportation planning. In addition, each DOH District Office identifies a listing of projects under construction, or immediately planned, for the region. Berkeley County is a part of DOH's District 5. More information about the WV Department of Transportation DOH can be found on its website: www.transportation.wv.gov/highways.

Hagerstown/Eastern Panhandle Metropolitan Planning Organization (HEPMPO)

HEPMPO is the federally-designated metropolitan planning organization that includes Berkeley County within its region and evaluates and plans for short term and long term improvements for the entire transportation system. HEPMPO includes DOH's current and anticipated projects as part of its planning process. The HEPMPO is responsible for the development and updating of the Transportation Improvement Plan (TIP) and the Long-Range Transportation Plan (LRTP). This region includes Berkeley County, WV, Jefferson County, WV, Washington County, MD and a small portion of Franklin County, PA. HEPMPO comprises representatives from the West Virginia and Maryland counties, West Virginia DOT, Maryland DOT, and the USDOT's Federal Highway Administration and Federal Transit Administration. The mission of the HEPMPO is to provide a forum to facilitate a cooperative decision-making process for transportation planning and programming for the region and acts as the pass-through agency for federal transportation funds. Transportation planning for Morgan County is carried out by the West Virginia Department of Transportation. More information about the HEPMPO can be found on their website: www.hepmo.net.

West Virginia Eastern Panhandle Transportation Authority (WVEPTA)

The WVEPTA acts in an advisory capacity to promote mobility, economic development and tourism investments in the panhandle, in support of the activities of the Hagerstown/Eastern Panhandle Metropolitan Planning Organization and the Region 9 Eastern Panhandle Regional Planning and Development Council. WVEPTA was created by an act of the West Virginia Legislature in 2004 to coordinate transportation planning decisions among the three West Virginia eastern panhandle counties of Berkeley, Jefferson and Morgan. The authority promotes and advances highway construction projects in conjunction with the counties and municipalities that comprise the eastern panhandle and advocate for economic development and tourism investments in the region. A specific focus of the authority has been to organize local input on improvements for West Virginia Route 9 and other highways that serve the area. The organization also helps build momentum for projects to be funded by HEPMPO or other state and local agencies. More information about the WVEPTA can be found on its website: www.eptawv.com.

Transportation Roadways Profile

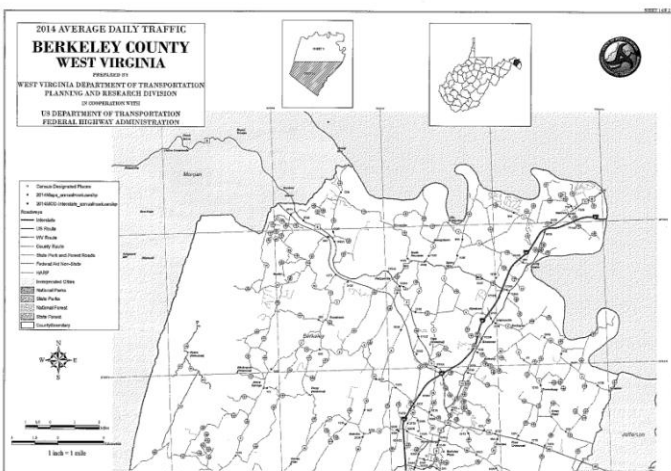
Interstate 81

I-81 is a fully controlled highway with twenty-six miles and seven interchanges in Berkeley County, with the span from Exit 12 to exit 23 is provided six (6) lanes of travel. Also known as the West Virginia Veterans Memorial Freeway, I-81 runs through the eastern part of Berkeley County and provides connections to major cities to the north and south. Average daily traffic on I-81 through Berkeley County has increased from approximately 45,000 vehicles per day in 2006 to 76,000 vehicles per day, according to 2015 state transportation agency traffic data. There are two welcome centers on I-81 within Berkeley County. The I-81 interchange areas present many challenges with regard to access management. Expanding commercial land uses in these areas cause access management to be very important.

US 11

US Route 11 is a north/south roadway generally parallel to Interstate 81. This roadway connects Martinsburg to Williamsport, MD, to the north, and Frederick County, Virginia, to the south. According to a 2004 report average daily traffic exceeded 7,000 vehicles per day. Average daily traffic on US 11 has nearly doubled, based upon 2014 traffic data. The 2014 traffic volume numbers range from the low end of 7,600 near the Virginia border and 7,300 near the Maryland border to nearly 12,700 at the WV 901 Spring Mills intersection and nearly 16,000 vehicles per day at the Apple Harvest Drive/Route 9 intersection. Average Daily Traffic Volumes for Route 11 and other roadways can be found using tools such as the map illustrated in Figure 7-1 below or through the WVDOH website and the WVDOH Planning Division.

Figure 7-1 2014 Image of Average Daily Traffic Data for the Northern Portion of Berkeley County



Source: HEPMPO website, maps and data section

WV Route 9

This corridor is an essential link in the Eastern Panhandle and the need for improvements was originally identified in 1978. The route was divided into segments for planning purposes: 1) Charles Town to the Virginia state line (completed); 2) Martinsburg to Charles Town (completed); 3) The Martinsburg bypass; and 4) Berkeley Springs to Martinsburg. Delays in the construction of segments 3 and 4 have been primarily related to the potential impact on the environment and historic resources. Segment 2 provides access to the Veterans Affairs Medical Center and the US Coast Guard Operations System Center.

State Route 45 (WV 45)

Route 45 is a predominantly east/west road that connects Martinsburg to Shepherdstown to the east and to the more rural areas of southern and western Berkeley County.

State Route 901 (WV 901)

This route is an east/west road that links WV 9 and US 11. This route has an interchange with I-81 that allows access to the Falling Waters area, Spring Mills Business Park, and Falling Waters Industrial Center.

County Route 13 (CR 13)

This route intersects I-81 at Exit 14. It is also known as Dry Run Road west of the interchange and Tennessee Ave to the east into Martinsburg. Lost Road, which connects Dry Run Road with King Street west of the interstate, is also marked as CR13.

County Route 15 (CR 15)

This route connects I-81 with downtown Martinsburg. CR 15 becomes King Street within the boundaries of Martinsburg and ends at Queen Street in Martinsburg.

State Route 51 (WV 51)

This route intersects with I-81 in the southern portion of the county, the southernmost interchange with I-81 within Berkeley County. It also links US 11 and WV 45.

The George Washington Heritage Trail Byway

Sections of State Secondary Roads 9, 45, and 51 in Berkeley County are designated as the George Washington Heritage Trail Byway, which follows the footsteps of America's first president. The Byway completes a loop through Jefferson, Berkeley, and Morgan Counties. In Berkeley County, the Byway goes through Martinsburg, Hedgesville, Inwood, Gerrardstown and Shanghai. Scenic byway designation can help to preserve scenic locations and corridors making the designated road segments eligible for federal funds for improvements.

Aviation Profile

The Eastern West Virginia Regional Airport/Shepherd Field

This Airport is located off US 11, south of Martinsburg. The airport is open to the public but there are no scheduled flights. It serves as an important source of transportation for a variety of industries in the area. This airport is designated as a foreign trade zone which allows products/items to be exempt from duties. However, the foreign trade zone is not activated as of the writing of this plan. The West Virginia Air National Guard currently has a unit based at the airport. The installation consists of approximately 205 acres and 34 buildings totaling 347,441 square feet. During peak surges, the installation population is approximately 1500 personnel. Expansion plans for a new terminal were completed in 2005 widening the runway to 200 feet, adding stormwater management improvements, a parallel taxi-way, and a new hangar complex. In 2009, Runway 26 was extended from 7,000 to 7,815 feet and Runway 8 was extended for 7,000 to 8,815 feet. An Airport Master Plan is expected to be completed late 2016.

A final Environmental Impact Statement was prepared by the U.S. Air Force in 2004 as part of the change of mission for the air guard unit from C-130 to C-5 aircraft. In response, a runway protection ordinance was prepared and adopted by the Berkeley County Council in September 2004 that provides for designated runway protection zones, noise contours, and the restriction of development height and dwelling type (no home dwellings or high occupancy buildings).

Located within the airport complex is the John D. Rockefeller IV Science and Technology Center which is home to Aero-Smith Aircraft Management Co. (formerly Tiger Aircraft), DC Corporation (formerly Ralph Lauren) which is a start-up IT company and Action Aviation (formerly Sino-Swearingen) which is an 82,000 square foot hangar and office complex available for sale or lease as of the writing of this plan. Adjacent to the Science and Technology center is the Arcadia hangar and office complex. The hangar is 20,000 square feet and the office complex is 3,500 square feet. The facility is home to Health Net, an air ambulance helicopter service and is also for sale or lease.

Washington Dulles International Airport

The closest major airport to Berkeley County is Washington Dulles International Airport in Sterling Virginia, approximately 72 miles from Martinsburg. Dulles provides nonstop service to approximately 125 destinations (46 international) and served 21.9 million passengers in 2013. (Metropolitan Washington Airports Authority, 2015)

Bicycle and Pedestrian Transportation Profile

The Tuscarora Trail extends south from Pennsylvania through West Virginia and into Virginia and is used for hiking purposes. In Berkeley County, the Tuscarora Trail goes through Sleepy Creek Wildlife Management Area. This trail is a side trail of the Appalachian Trail. Residents of Berkeley County have expressed a clear desire to be able to walk and bike safely In Berkeley County, both for recreational purposes and as an alternative to driving. The WV 9 bicycle path was completed in 2010 along the corresponding section of the WV 9 roadway.

Railroad ProfileRailroad Freight Lines

CSX Transportation and Winchester & Western Railroad are the two freight railway companies that operate in Berkeley County. Winchester & Western is a short line partner of CSX Transportation. In Berkeley County, CSX has sidings at Cumbo Yard Industrial Park and General Motors. Winchester & Western has sidings at Tabler Station Business Park and Berkeley County Industrial Park. Products shipped by CSX through West Virginia include coal, grain, automobiles, chemicals, sugar, produce and limestone. The Winchester & Western operates 54 miles of railroad through West Virginia in Frederick County, VA, Berkeley County, WV and Washington County, MD. The Winchester & Western has connections with both CSX Transportation and Norfolk Southern. Through a partnership with H.H. Omps Trucking, Winchester & Western is able to provide bulk transloading in Winchester, Virginia.

Railroad Passenger Lines

Amtrak: Amtrak's "Capitol Limited" is a passenger rail line that operates daily between Washington, DC and Chicago. Martinsburg is the only stop for this rail line within Berkeley County. The one eastbound trip leaves at 11:01 AM and the one westbound trip leaves at 5:45 PM.

MARC: The Maryland Transit Administration operates commuter rail service between Martinsburg and Washington, DC, Monday through Friday on the MARC Brunswick Line. The AM rush hour trips, beginning in Martinsburg for Washington's Union Station, have increased from two to three trips per day. The return trips, from Washington to Martinsburg in the PM rush hour, have increased from three to four trips per day. No midday commuter rail trips serve Martinsburg. The West Virginia State Rail Authority maintains the station in Martinsburg. According to the MARC 2013 WV Statewide Rail Plan the overall number of riders boarding in Berkeley County on the Brunswick Line has increased since 2006. The average daily ridership boarding in Martinsburg has risen from 184 in 2006 to 208 in 2011 and has consistently been the highest ridership of the West Virginia stations. Ridership numbers peaked in 2008 at 223 riders for the Martinsburg station and a total of 547 riders for all of the West Virginia stations. A fare surcharge was implemented in January of 2009 which might have influenced the drop in West Virginia ridership in 2009.

Table 7-1 West Virginia MARC Ridership (12-Month Rolling Average Daily Ridership)

Station	2006 Comp Plan	Feb 08-Jan 09	Feb 09-Jan 10	Feb 10-Jan 11	Feb 11-Jan 12
Martinsburg	184	223	190	194	208
Duffields	164	184	157	152	164
Harpers Ferry	139	140	125	98	117
Total	487	547	472	444	489

Source: 2013 MARC West Virginia State Rail Plan

Bus Services ProfileEPTA

Local panhandle bus service is provided by the Eastern Panhandle Transit Authority. In 2006 approximately 65 percent of EPTA's ridership was comprised of trips made by Shepherd University students to and from the University located in Jefferson County, WV. EPTA ridership has observed gains among the general public and, as of 2014, the relatively consist number of Shepherd University riders constitutes only about 48 percent of the total number of EPTA riders. According to projections in the 2015 EPTA Transit Development Plan, EPTA non-Shepherd University ridership is anticipated to increase from 71,578 to 112,499. The distribution of these riders among the various routes is listed in Table 7-2

below. EPTA is planning to split the Red Route into Red North and Red South and adding a Yellow Route and a Green Route.

Table 7-2 Annual Number of Riders in 2014 and Annual Projection

Route	2014		Annual Projection
Red	26,053	Red North	17,544
	n/a	Red South	12,440
Blue	28,895	Blue	24,279
Orange	14,331	Orange	15,801
	n/a	Yellow	24,597
	n/a	Green	13,378
Purple	2,299	Purple	4,460
TOTAL	71,578		112,499
Shepherd	66,407		not projected

Source: 2015 EPTA Transit Development Plan

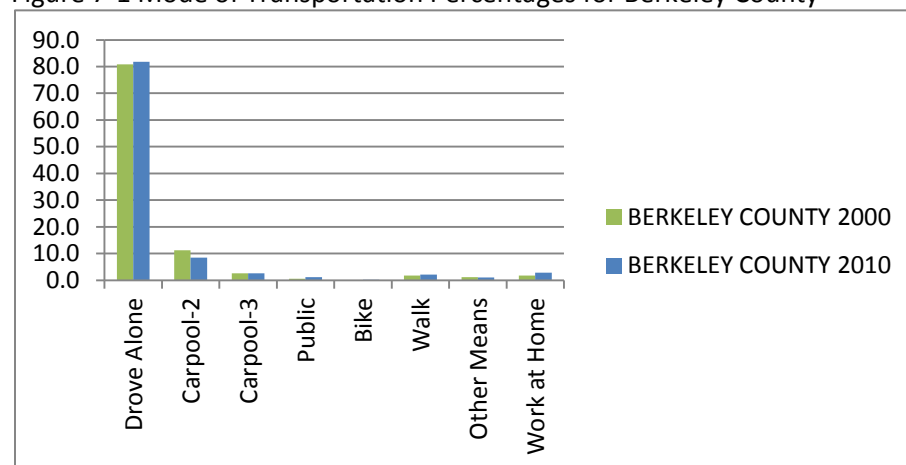
Transportation Trends Profile

The Hagerstown/Eastern Panhandle Metropolitan Planning Organization Long Range Transportation Plan Update (July 2014) prepared by the Hagerstown/Eastern Panhandle MPO indicates that traffic in the region will continue to increase from 2010 through 2040. Between 2010 and 2040, HEPMPO projects a 30 percent population increase and a 36 percent employment increase for Berkeley County. For the HEPMPO three-county region (Berkeley & Jefferson Counties, WV, and Washington County, MD), overall population and employment are expected to increase by 33 percent and 30 percent, respectively. (HEPMPO, Long-Range Transportation Plan Update for the Hagerstown/Eastern Panhandle Metropolitan Area, 2014)

Choice of Mode for Work Travel

Commuter data provides helpful information about how the transportation network is used because trips to and from work comprise the majority of trip-making. Commuter trends in Berkeley County are consistent with what is observed throughout the region.

Figure 7-1 Mode of Transportation Percentages for Berkeley County



Source: US Census Bureau

Table 7-3 Mode of Transportation to Work in 2000 (Percentages)

Municipality	Drove Alone	Carpool (2-person)	Carpool (3-person)	Public	Bike	Walk	Other Means	Work at Home
USA	75.7	9.4	2.8	4.6	0.4	2.9	1.0	3.3
West Virginia	80.3	10.3	2.4	0.7	0.1	2.9	0.9	2.4
BERKELEY COUNTY	80.8	11.2	2.6	0.6	0.0	1.7	1.2	1.7
City of Martinsburg	73.9	12.3	4.4	0.8	0.2	5.2	2.1	1.0
Clarke County, VA	77.3	8.4	2.5	0.5	0.1	4.7	0.8	5.8
Frederick County, VA	83.4	9.3	2.5	0.2	0.0	1.3	0.4	2.8
Jefferson County, WV	72.1	12.8	5.0	2.6	0.2	3.4	0.6	3.4
Morgan County, WV	76.4	15.2	3.0	0.4	0.1	1.9	0.9	2.0
Washington County, MD	80.6	9.4	2.5	0.7	0.1	2.1	1.3	3.3

Source: US Census Bureau

Table 7-4 Mode of Transportation to Work in 2010 (Percentages)

Municipality	Drove Alone	Carpool (2-person)	Carpool (3-person)	Public	Bike	Walk	Other Means	Work at Home
USA	76.0	8.0	2.4	4.9	0.5	2.8	1.2	4.1
West Virginia	81.3	8.7	2.1	0.9	0.2	2.9	1.0	2.9
BERKELEY COUNTY	81.8	8.4	2.6	1.2	0.2	2.1	1.0	2.8
City of Martinsburg	71.7	10.0	3.4	3.5	0.7	7.1	1.0	2.7
Clarke County, VA	82.6	7.8	1.9	0.6	0.0	1.6	0.8	4.7
Frederick County, VA	84.3	7.5	2.2	0.2	0.0	1.2	1.4	3.2
Jefferson County, WV	73.3	10.8	2.2	3.7	0.1	3.3	1.6	4.9
Morgan County, WV	83.6	8.5	2.6	0.3	0.0	0.5	1.1	3.5
Washington County, MD	80.5	9.1	3.0	1.5	0.1	1.5	1.1	3.1

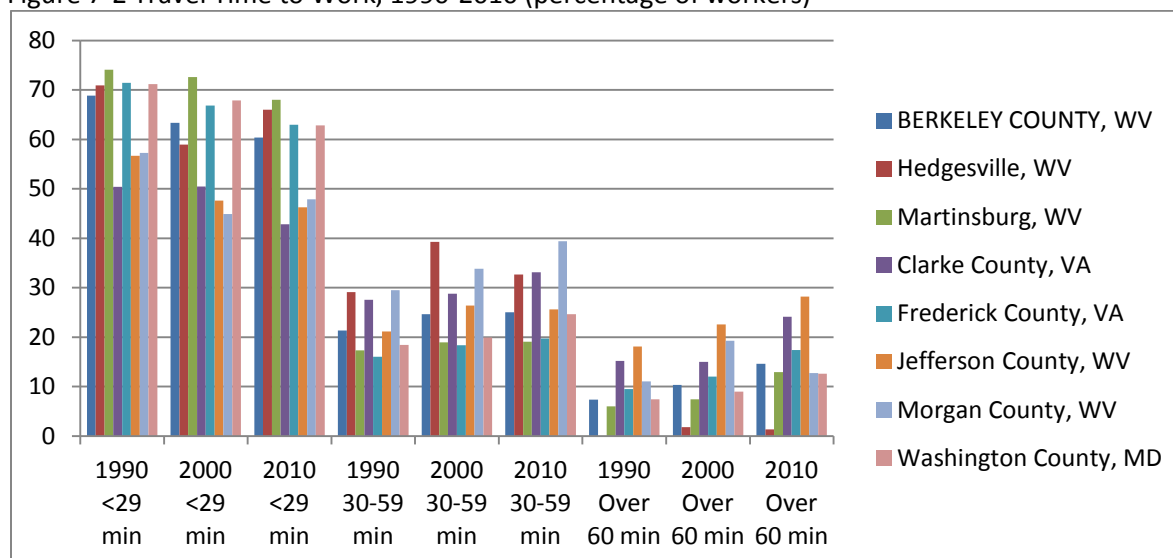
Source: US Census Bureau

As illustrated in Figure 7-1, single-occupancy commuting continues to rise in Berkeley County and as of 2010 it had reached 81.8 percent of workers driving alone to work. This trend was seen in each of the neighboring counties as well with the exception of Washington County, MD where driving alone dropped by 0.1 percent. In Berkeley County the percentage of workers choosing to use public transportation, bike, walk and work at home also increased in the last 10 years, while the 2-person carpool percentage continues to drop. Table 7-3 and 7-4 list these percentages along with those of other neighboring counties.

Travel Time to Work

Commute times are continuing to get longer for Berkeley County workers. The percentage of commuters traveling fewer than 29 minutes to work dropped from 68.81 percent down to 60.38 percent. At the same time, the percentage of commuters traveling from 30 to 59 minutes and over 60 minutes both continued to increase. Jefferson County, WV has the longest commute times in the region. Additional analysis will be needed to determine how much of this increase in travel time is impacted by distance and how much is impacted by traffic congestion.

Figure 7-2 Travel Time to Work, 1990-2010 (percentage of workers)



Source: 2006 Comprehensive Plan and www.bestplaces.net commuter data

Table 7-5 Travel Time to Work, 1990-2010 (percentage of workers)

County	< 29 min			30-59 min			Over 60 min		
	1990	2000	2010	1990	2000	2010	1990	2000	2010
BERKELEY COUNTY, WV	68.81	63.31	60.38	21.35	24.62	25.05	7.33	10.36	14.58
Hedgesville, WV	70.89	58.93	65.98	29.11	39.29	32.66	0.00	1.79	1.36
Martinsburg, WV	74.10	72.57	68.01	17.32	18.97	19.05	6.01	7.42	12.95
Clarke County, VA	50.38	50.45	42.81	27.55	28.76	33.10	15.17	14.99	24.09
Frederick County, VA	71.44	66.80	62.94	16.00	18.35	19.71	9.50	12.02	17.36
Jefferson County, WV	56.68	47.61	46.22	21.12	26.40	25.58	18.13	22.54	28.21
Morgan County, WV	57.27	44.92	47.86	29.50	33.80	39.39	11.03	19.26	12.73
Washington County, MD	71.14	67.86	62.81	18.43	19.88	24.61	7.45	8.95	12.57

Source: www.bestplaces.net commuter data

Table 7-6 Top Commuter Destinations, 1990-2010

	1990		2000		2010	
	# of Commuters	% of Total	# of Commuters	% of Total	# of Commuters	% of Total
Berkeley County, WV	16,758	62.1	20,031	56.2	23,923	51.4
Washington County, MD	2,522	9.3	4,696	13.2	5,851	12.6
Jefferson County, WV	2,161	8	3,158	8.9	3,931	8.4
Frederick County, VA	1,703	6.3	1,534	4.3	2,488	5.3
Loudon County, VA	421	1.6	604	1.7	1,819	3.9
Frederick County, MD	567	2.1	1,079	3	1,535	3.3
Winchester City, VA	267	1	1,135	3.2	1,468	3.2
Montgomery County, MD	576	2.1	470	1.3	1,318	2.8
District of Columbia	305	1.1	503	1.4	787	1.7
Fairfax County, VA	313	1.2	365	1	748	1.6
Other Destinations	1280	5	2,015	6	2,659	5.7
Total	25,593	100	33,575	100	46,527	100

Source: www.bestplaces.net commuter data

Key Commuter Destinations

The top 10 commuter destinations for Berkeley County residents remained the same for 1990, 2000 and 2010. Berkeley County continued to remain the top commuter destination; however, the percentage of Berkeley County Commuters who remained within the county decreased from 62.1 percent to 56.2 percent in 2000 and down to 51.4 percent in 2010. Berkeley, Washington (MD), Jefferson (WV), and Frederick (VA) Counties retained their rank as the first, second, third, and fourth commuter destinations for Berkeley County residents from 1990 to 2010. Over the 20-year period the percentage of commuters to Loudon County, VA; Frederick County, MD; and the District of Columbia continued to increase. While over the same period the percentage of commuters driving to work destinations within Berkeley County has steadily declined from 62.1% in 1990 to 56.2% in 2000 to 51.4% in 2010. These data indicate that Berkeley County is experiencing a shift in the percentage of overall commuter destinations from within the county to outside the county. In 1990, 37.9 percent of commuters left the county for work and in 2010 this has increased to 48.6 percent. This will likely increase to more than 50 percent of commuters traveling outside of the county over the next 10 years.

2006 Summary of Transportation Action Strategies

Adopt the County Priority Transportation Network

Traffic congestion is a major issue in Berkeley County. An officially recognized multi-modal network shows a commitment to providing transportation choices to Berkeley County residents and businesses. It prioritizes regional and local facilities within the areas targeted for growth, thus supporting the goals of the growth management plan. The network also provides a basis for developing specific requirements for traffic impact studies and access management requirements as part of the subdivision and land development process to ensure that roadway facilities are adequate. The 2006 Priority Transportation Network Map illustrated the proposed Priority Transportation Network in Berkeley County.

Minor or Feeder Roads

In addition to the major roads, the secondary roads in the county also need to be addressed. With the growth within the county, these roads are becoming increasingly congested.

Bicycle and Pedestrian Transportation

- Incorporate bicycle and pedestrian facilities into new development by requiring them within the subdivision and land development ordinance.
- Effectively link bicycle and pedestrian facilities with transit operations in the county to provide some relief to increasingly congested roadways, particularly in targeted growth areas.
- Develop a regional trail network by combining the development of bicycle and pedestrian facilities with the protection of the county's streams. This network would provide alternative travel connections among the county's town and village centers as well as the neighborhoods and other special places. Along the stream corridors, the trails would incorporate native landscaping to filter runoff, also known as riparian buffers, yet still allow for hiking and biking. Mill Creek, Back Creek, Opequon Creek and Tuscarora Creek would be prime candidates for initial inclusion, with others added over time. This effort will require the development of strong public/private partnerships at many levels throughout the county. Many of the county's stream corridors are adjacent to private property and there are legitimate concerns about trespassing, littering, and even safety. However, with careful planning and community commitment this network could become a true source of pride. It could also be another attraction that would draw visitors to the area.

PanTran and MARC

PanTran and MARC are also integral elements of the county-wide transportation network. They provide service to segments of the population that do not drive or commuters with specific needs. Their ability to capture a larger share of the commuter and employment market would greatly assist in reducing the congestion along key corridors, especially during peak travel times. This could be accomplished by improving the linkages to the MARC stations, including Park and Ride facilities and providing adequate parking. Emphasis should also be given to extending service west to Hancock, MD. Preliminary recommendations from PanTran's evaluation prior to the 2006 comprehensive plan included a restructuring of the existing route system into a Hub and Spike System with Demand Response Service. This would serve key village centers of Inwood and Hedgesville, as well as key employment centers along WV9 and 45. Regionally, the spokes travel outward to Shepherdstown and Charles Town. Other recommendations included providing a downtown shuttle and linking more effectively with MARC facilities in both Berkeley and Jefferson Counties. The evaluation also included recommendations for a bus replacement program, benches, and shelters for stops, and other physical plant improvements. Finally, cleanliness and reliability are essential to increasing ridership.

Subdivision and Land Use Ordinance

- Adopt and enforce good access management principles. Access management is defined by the Transportation Research Board (TRB) as "the systematic control of the location, spacing and design and operation of driveways, median openings, interchanges and street connections to a roadway. The purpose of the access management is to provide vehicle access to land development in a manner that preserves the safety and efficiency of the transportation system."
- Work with WV DOH to incorporate design solutions that fit with the rural areas, including planting street trees and other landscaping elements because residents have expressed a desire to maintain the rural character of Berkeley County as it grows.
- Emphasize the need to construct complete streets that accommodate vehicles, non-motorized bikes, transit and pedestrians during the subdivision and land development process. These facilities would be most appropriate in the high density growth areas, including the town and village centers.
- Develop sign regulations for Berkeley County that will determine the location, height and bulk of billboards along state highways. This can be accomplished by adopting a separate sign ordinance. Work with the West Virginia Division of Highways to implement regulations to ensure consistency with WVDOH regulations regarding the permitting of billboards along state highways, especially I-81.

Funding

- Federal Funding: Funding for transportation improvements continues to be a major problem in Berkeley County. The FAST Act (Fixing America's Surface Transportation) of 2015 is a potential source for Federal funding. More information is available at <http://www.fhwa.dot.gov/fastact/>
- State Funding: Limited state funds, which are the "local" share for the projects has also been a factor. There are very limited state funds that can be accessed to build roads. It was recommended in the 2006 plan that funding could possibly be pursued through a legislative change which would allow growth counties to keep more of the gasoline taxes that a county pays or legislative guarantees. For example, if a county raises funds through impact fees or bonding, perhaps matching state funds would follow.
- Local Funding: Chapter 7-20 of the West Virginia Code provides for the assessment and collection of impact fees to offset the cost of road improvements needed to accommodate traffic associated with commercial and residential development within counties. In order for this to be feasible, one

document Berkeley County would need to draft and adopt is a comprehensive zoning ordinance to meet criteria needed to implement this strategy. This would provide the county with some control over much needed roadway improvements to accommodate traffic associated with new development. However, since the community has repeatedly voted against zoning options, this does not appear to be a viable solution at this time.

Agency Communication

- The current exchange of information between the WVDOT and the Berkeley County Planning Commission has improved since the 2006 plan. The Planning Commission and WVDOH hold quarterly meetings to evaluate the impact of increased traffic on the planned development and coordinate requirements and steps to provide adequate traffic flow. A county wide transportation plan must address the minor or feeder roads and offer solutions before they become overly congested.
- County and municipal leaders need to continue to work within the existing HEPMPO to prioritize projects. They should also continue to work with both elected and appointed officials to find additional funding sources for transportation improvements.
- The county should work closely with both PanTran and MARC to maintain and improve their services to Berkeley County residents. Key actions that can support increased usage of these two modes of travel include development and adoption of land management ordinances that allow for “transit-friendly” design and establishing dedicated funding sources for continued improvements to the system.

2016 Berkeley County Transportation Highlights

The number of Berkeley County residents driving alone to work has risen to 81.8 percent, however, the percentage of workers choosing to use public transportation, biking, walking or working at home has also increased. The percentage of residents commuting fewer than 29 minutes to work has steadily dropped while the percentage of residents commuting over 60 minutes has steadily risen over the last 20 years. Berkeley County is experiencing a shift in the percentage of overall commuter destinations from within the county to destinations outside the county. As of 2010, 48.6 percent of residents left the county for work, which is also reflected in the longer commute times. This is an increase of 10.7 percent since 2006. Commuter travel via single-occupant vehicle is anticipated to increase, therefore volumes along existing highways will increase. Expansion of existing transportation system to increase capacity is challenging.

2016 Priority Transportation Network

This network will need to be incorporated into the MPO’s Long Range Transportation Plans in order to have the items included for funding by the federal and state government. As part of the process the county has been working with WVDOH to obtain more and better information concerning development impacts prior to approvals. One factor complicating the process is the fact the county does not have the ability to control where all development locates and as a result, new developments are developed that create additional transportation needs in their vicinity.

- WV Route 9: In 2010 construction of the first and second segments was completed. The remaining segments around Martinsburg and west of I-81 to US 522, which may have the greatest impact on the residents of the county, are still a number of years in the future. The Martinsburg Bypass between WV9 and I-81, segment 3, is shown in the 2014 update of the HEPMPO Long Range Transportation Plan with an estimated cost of \$47.7 million in 2013 dollars.

- Tabler Station Connector: This five-lane facility between I-81 and US 11 has been constructed and is open to traffic. The extension of Development Drive from Tabler Station Road to Corning Way is under contract and is scheduled to be completed in 2016.
- Tabler's Station Multi-Modal Hub: A significant amount of acreage was sold by the Berkeley County Development Authority to Procter & Gamble. The completion of the relocation project for Tabler Station road has improved the ability to handle additional traffic in the area generated by the area's development, but additional improvements will be required as time progresses to ensure adequate capacity in the future.
- WV 51 Inwood Bypass: WVDOT held a public meeting in December 2014, outlined the project alternate options, specified the preferred alternate option and shared a project schedule which indicated an estimated construction start in spring 2016.
- Raleigh Street Extension: In 2013 the Raleigh Street Extension was completed between West Race Street and the intersection of US11 and WV9 near Old Courthouse Square.
- I-81: Average daily traffic on I-81 through Berkeley County has increased from approximately 45,000 vehicles per day in 2006 to 76,000 vehicles per day. Widening has been completed north of Martinsburg to US 11 interchange and south of Martinsburg to the WV 45 interchange. Widening of I-81 from the US 11 interchange to the Potomac River Bridge is scheduled to start in 2016.
- US 11: Average daily traffic on US Route 11 through Berkeley County continues to be just over 7,000 vehicles per day in the northern and southern portions of the county but has increased to just under 12,700 near the WV 901 intersection and almost 16,000 vehicles per day where it intersects with WV 45/Apple Harvest Drive.

Aviation

- In 2009, Runway 26 was extended from 7,000 to 7,815 feet and Runway 8 was extended from 7,000 to 8,815 feet.
- The Eastern Panhandle Inland Port Coalition, Inc. was formally organized in 2010. Its mission is to establish an intermodal transportation facility centered on the Eastern Regional Airport, which would be a designated port of entry with U.S. customs agents to accommodate import/export business.

Bicycle and Pedestrian Transportation

- The bicycle path along WV 9 was completed in 2010.
- A regional bike study was initiated through the Hagerstown Eastern Panhandle MPO in 2015.
- A North Martinsburg Area Pedestrian Plan was prepared in March of 2012 and facilitated by the HEPMPO.

Railroads

- MARC commuter services on the Brunswick Line have increased by one trip in each direction to and from Washington DC.

Subdivision and Land Use Ordinance

- WV DOH entrance permit requirements and a Manual of Street Standards have been included in the 2009 Subdivision Ordinance.

Funding

The Transportation Plan focuses on improving the county's ability to facilitate improvements to the transportation system through the development of the Metropolitan Planning Organizations Long

Range Transportation Plan (LRTP). This LRTP is developed recognizing the major role that the West Virginia Department of Transportation and Division of Highways plays in addressing transportation issues in the county. The plan incorporates the county's growth management plan through the identification of a multi-modal network that will provide choices to residents, while connecting the county's town and village centers together, as well as to the region at large. The LRTP also considers current funding constraints and proposes strategies to work more efficiently within the existing framework for identifying, programming, funding and completing needed improvements. This plan and other transportation related information can be found at http://www.hepmo.net/planning_docs/index.shtm.

Agency Communication

There has been much improvement between the WVDOT, in particular the DOH in recent years with regard to the sharing of information with the county as part of their review of projects. In particular, the agencies meet on a quarterly basis to inform all parties of potential projects and problems. In conjunction with the MPO Long Range Plan, it would be beneficial to have a priority plan prepared for making improvements to the secondary roads as well. The largest question to be answered is the source of the money necessary to make the required improvements, especially if they cannot be tied to a particular development.

Looking Forward to 2026

Priority Transportation Network

- The Priority Transportation Network has been updated to reflect eight (8) top transportation priorities for Berkeley County. They are:
 1. Martinsburg Bypass
 2. Re-Align WV 9 West
 3. Inwood Access Road
 4. US 11 Intersections from southern Berkeley County Line to Tabler Station Road
 5. WV 45
 - Widening and realignment of WV 45 (Apple Harvest Drive) from Blue Ridge CTC to WV 9 at Queen St
 - Intersection improvements of WV 45 from WV9 to Shepherdstown Connector
 6. Widen Novak Rd from Us 11 to Airport Dr
 7. Create second access point for The Commons Shopping Center parallel to Interstate-81 near exit 8

Aviation

- An Airport Master Plan is expected to be completed late 2016.

Bicycle and Pedestrian Transportation

- The Hagerstown Eastern Panhandle MPO Bicycle Study began in late 2015 and will assist the county and the region in establishing regional connections among existing bicycle trails and roadways.
- Evaluate The North Martinsburg Area Pedestrian Plan to determine which initiatives have been completed and which initiatives still need to be addressed.

Rail and EPTA

- The Eastern Panhandle Transit Authority forecasts an increase in the annual number of riders and plans to split the red line and add a Yellow Route and a Green Route.

Berkeley County Comprehensive Plan Update June 2016

- An EPTA Bus Transfer Point Study was commissioned by the HEPMPO to evaluate several potential locations to identify an ideal location for a new transfer center. The ideal location would be easily accessible, centrally located and serve municipal, transit provider and rider needs. A final report and recommendations are anticipated to be completed during the summer of 2016.

Funding

- Continue to work with the HEPMPO while also researching other tools and opportunities for funding that could be used to improve Berkeley County roadways. The Hagerstown/Eastern Panhandle Metropolitan Area Long Range Multimodal Transportation Plan, developed by HEPMPO and adopted in April of 2014, is a comprehensive examination of future travel needs. The Plan identifies a number of potential problem areas within the county due to projected population and employment increases and provides recommended improvements. Table 7-7 is a list of proposed projects for Berkeley County from the Direction 2040 HEPMPO Long Range Transportation Plan Update.

Table 7-7 Berkeley County Proposed Projects

Project ID	Facility	Segment	Description	Cost (2013 \$)
4	I-81	Berkeley County Line to WV 45	Widen to six lanes	\$273.7M
13	US 11	Berkeley County Line to Tabler Station Road	Intersection improvements	\$14.7M
14	US 11	Tabler Station Rd to WV 45/9	Widen to four lanes	\$35.3M
16	US 11	Edwin Miller Boulevard to Potomac River	Intersection improvements	\$24.9M
36	WV 9	Morgan County Line to County Route 1	New four lane alignment	\$25.4M
38	WV 9	County Route 1 to Industrial Circle	Widen to six lanes	\$13.8M
40	WV 45	I-81 to WV 9 (Queen Street)	Widen to six lanes	\$19.7M
43	WV 51	Gerrardstown to I-81	Intersection improvements	\$6.4M
45	WV 51	I-81 to US 11	Widen to four lanes	\$12.4M
46	WV 51	US 11 to Tarico Heights	New four lane alignment	\$11.6M
47	WV 51	County Route 26 to W. Washington Street	New two lane alignment <i>Berkeley/Jefferson counties</i>	\$77.5M
51	CR 1	WV 9 to WV 901	Widen to four lanes	\$73.6M
57	WV 901	US 11 to County Route 1	Widen to four lanes	\$32.9M
58	King Street	I-81 to US 11	Intersection improvements	\$3.9M
62	Lutz Avenue Extension	Existing Lutz Avenue to Meridian Parkway	New two lane road	\$3.5M
63	Delmar Orchard Road	Klee Drive to West King Street	Road Reconstruction (2 lanes)	\$19.1M
92	Novak Road	US 11 to Airport Drive	Widen to four lanes	\$22.8M
105	WV 45	I-81 to WV 51	Reconstruction of roadway/safety improvements	\$73.8M
B1	Martinsburg Bypass	I-81 to WV 9	Construct new roadway	\$47.7M
M1	Commercial Drive	Delmar Orchard Road to WV 45	Construct new roadway	\$12.3M
M2	East-West Connector	Klee Drive to Proposed Commercial Drive	Construct new roadway	\$5.7M
M3	North-South Connector	Proposed East-West Connector to Proposed Klee Drive	Construct new roadway	\$2.3M
M4	Commercial Road Connector	Delmar Orchard Road to Proposed Commercial Drive	Construct new roadway	\$2.3M
M5	Main Residential Road	Residential loop connection to Delmar Orchard Road	Construct new roadway	\$11.5M
M6	Residential through Road	Arden-Nollville Road to Delmar Orchard Road	Construct new roadway	\$8.5M

Source: HEPMPO Direction 2040 Long Range Transportation Plan Update

Chapter 8 – The Infrastructure Plan

Infrastructure Goals

The Infrastructure Plan focuses on providing assurance that vital public infrastructure services will be provided for the county's rapidly growing population. These services include water, wastewater, stormwater, solid waste and other necessary utilities. Each of these service areas is impacted by the growth that is occurring in Berkeley County and in the case of public utilities such as water, sewer, and solid waste they are an important part of the growth management plan. The goals of the Infrastructure Plan are to:

- Assure that public water services are available across the county by managing water, wastewater and stormwater systems in a way that is consistent with sound planning and land use regulations.
- Provide comprehensive solid waste services, including recycling and trash disposal throughout the county.
- Review existing public utility services and any public concerns that need be addressed.

Public Water Facilities and Services Profile

Public water service in Berkeley County is provided by the Berkeley County Public Service Water District in the County and the City of Martinsburg in the city limits. Public water service in the county is widespread with about 22,000 customers. Public water service is an important element of the Comprehensive Plan since future service areas have been closely tied to the growth areas in the Growth Management Plan.

The Berkeley County Public Service Water District

The Berkeley County Public Service Water District (BCPSWD) was formed in 2001 by consolidating the three existing county public services water districts: Opequon, Hedgesville, and Berkeley County Public Service District. The City of Martinsburg continues to operate a separate water facilities system. The following is a review of the current water system in Berkeley County.

Service Area

Although the entire county falls within the PSWD boundaries, the current service area includes about half of the county's total land area. Those areas not served by the PSWD rely upon on-site well water for their water supply. In addition, the City of Martinsburg water distribution system is a separate system that serves most of the city's residents, approximately 17,000 people. According to PSWD, about 59,000 people of the 120,000 (2015 population estimate) are served by PSWD and receive public water. PSWD is adding about 50 new customers per month and currently (2015) has a total of approximately 22,000 customers. The Public Water Service Areas Map in the appendices illustrates the current extent of the county's public water services.

Water Treatment Facilities

There are three major distribution systems in the BCPSWD: Hedgesville, Opequon and South Berkeley. The South Berkeley system has several sources for raw and finished water. This system receives finished water purchased from the City of Martinsburg at a connection known as Big Spring. In addition, raw water is withdrawn from Lefevre Spring and Baker Lakes Quarry, which is treated at the Bunker Hill Water Treatment Plant located below Inwood. The Bunker Hill WTP is a 2.8 MGD plant that used earth filters and chlorination to produce finished water.

The Hedgesville system was previously supplied through Ben Speck Spring, a spring fed reservoir located and treated at the Hedgesville Water Treatment Plant. As the Hedgesville WTP was retired in 2015, water to the Hedgesville System is now supplied from the Potomac River.

The third major water distribution system is the Opequon System. The Potomac River is the source of water for the Opequon system. Water from the Potomac River is treated at the Potomac River Water Treatment Plant, which is located in the Falling Waters area of Berkeley County. It is a 6.0 MGD plant currently permitted to withdraw 4.0 MGD from the Potomac River. The Potomac River WTP consists of a river intake, sedimentation, membrane filtration, and chlorine disinfection.

The City of Martinsburg also supplies water to the BCPSWD through a series of interconnections with the City of Martinsburg water system. Presently, the District purchases 225,000 gallons per day from the City, representing 4.2% of the total finished water.

The City of Martinsburg has two water treatment plants. The Kilmer Springs Water Treatment Plant is a 2.0 MGD plant located on Baltimore Street in the City. The source supply for this plant is an artesian well. The Big Spring Water Treatment Plant is located on US Route 11 south. This is a 2.5 MGD capacity WTP that uses multi stage, multimedia filtration. The source supply is a 5.0 MGD capacity well located on Essrock property south of the City.

Another water treatment facility is the Glenwood Forest Utilities treatment facility. This facility is located on Route 45 west of Inwood and I-81. This facility's water source is a well field and treats the water through chlorination only.

Future Water Supply Demand and Facilities

The Water District projects that much of the county's growth will be concentrated along Routes 11, 51 and 9. Much of this growth is being influenced by growth in Winchester, Virginia which is a major growth area. Other growth areas include Hedgesville, Martinsburg area and Falling Waters/Marlowe. Currently the District's water supply is exceeding demands through treatment and purchases of finished water. The expansion of the Potomac River water treatment plant completed in 2009 boosted total water supply to 10.5 MGD which will accommodate the District's demands for another 20 years or longer.

The District projects a water demand of 8 MGD in the year 2035. With its current supply at 10.5 MGD (including 1 MGD available from the City of Martinsburg) the District believes its existing resources are adequate to meet future needs over the next 20 years. Additional information or current updates can be found at the Water District's website www.berkeleywater.org.

Wastewater Facilities and Services Profile

In Berkeley County central wastewater collection and treatment is provided by the Berkeley County Public Service Sewer District (PSSD) for service areas in the County and by the City of Martinsburg for those areas within the city. The Berkeley County PSSD serves approximately 22,000 customers or approximately 60,000 persons. The City of Martinsburg serves all of the City or about 17,000 persons. This is a total of approximately 77,000 persons or 74 percent of the total population of the county that receives public sewer service. The remainder of the population is served by on-lot systems. The Berkeley County PSSD has extended services to additional areas of the county that have developed and has plans to provide service to other growing areas of the county.

Current Service Areas and Wastewater Treatment Plants

The Berkeley County PSSD has a widespread service area that stretches from Hedgesville south to the Inwood area and the Virginia border. Service areas also continue east to the Jefferson County boundary. The Public Sewer Services Map (in the Appendices) illustrates the current and future service areas in Berkeley County as projected by the PSSD. The service area includes a network of collections systems, pumping stations and wastewater treatment plants that vary in size and location.

Opequon/Hedgesville Wastewater Treatment Plant: The northern area is served by the Opequon/Hedgesville Wastewater Treatment Plant (WWTP) located north of Route 45 and east of Martinsburg. This sequential batch reactor (SBR) plant will have a capacity of 1.3 million gallons daily (MGD) and discharges into the Opequon Creek. The facility is currently under construction to be upgraded to an advanced biological nutrient removal plant in compliance with The Chesapeake Bay TMDL. Construction is scheduled to be completed by June 2016.

Baker Heights Wastewater Treatment Plant: The Baker Heights WWTP is located southeast of Martinsburg and below Route 9. This treatment plant will have a capacity of 1.875 MGD. This is also a SBR plant. Discharge from this plant is to the Opequon Creek. The facility is currently under construction to be upgraded to an advanced biological nutrient removal plant in compliance with The Chesapeake Bay TMDL. Construction is scheduled to be completed by June 2016.

Inwood Wastewater Treatment Plant: The southern part of the PSSD service area is served by the Inwood WWTP located on Sulphur Springs Road and provides treatment for the PSSD systems in the southern part of Berkeley County. This area, which is referred to as the Inwood Phase 1 and Phase 2A area, serves an approximately 20 square mile area south of Martinsburg between the Eastern West Virginia Regional Airport and Route 51. The Inwood SBR plant will have a capacity of 1.875 MGD. The plant discharges into the Opequon Creek. The facility is currently under construction to be upgraded to an advanced biological nutrient removal plant in compliance with The Chesapeake Bay TMDL. Construction is scheduled to be completed by June 2016.

North Area Wastewater Treatment Plant: The northern part of the PSSD service area is served by the North Area WWTP located on Scrabble Road and provides treatment for the PSSD system in the northern part of Berkeley County. The area currently served is the general area north of Berkeley Station Road to the Exit 20 area extending west of I-81 to the developed areas and east to the Opequon Creek. The PSSD plan to extend service further north and west which would be served by the North Area Plant. The North Area plant is an SBR plant that will have a capacity of 2.0 MGD. Discharge from this plant is to the Opequon Creek. The facility is currently under construction to be upgraded to an advanced biological nutrient removal plant in compliance with The Chesapeake Bay TMDL. Construction is scheduled to be completed by June 2016.

The City of Martinsburg Wastewater Treatment Plant: The City of Martinsburg WWTP is located in the eastern part of the city off of John Street with discharge into the Tuscarora Creek. The City of Martinsburg has a combined storm sewer overflow system that combines stormwater and sanitary waste discharges during periods of high flow rain fall events. The City has not pursued separating these flows due to the costs involved. Wastewater flows through the plant are in the range of 2.5-2.7 MGD on an average daily basis but rain and storm events have increased the flow up to 9 million gallons in one day. Treatment plant upgrades were completed in 2015, giving the plant a capacity of as much as 12 million gallons during storm events and 9.9 million gallons per day through its new moving bed

biological reactor. This reactor consists of three, electronically monitored areas that are each able to handle about 3.3 million gallons a day.

Table 8-1 provides a list of wastewater treatment plants in the County. In addition to the treatment plants discussed above, the Berkeley County PSSD also lists a large group of treatment plants that are package treatment plants that serve subdivisions and other developments. The PSSD owns these treatment plants and is responsible for their operation and maintenance.

Table 8-1 Berkeley County Wastewater Treatment Plants and Package Plants

Facility Name	Physical Location	Maximum Capacity	Current Monthly Use (ADF) ⁵	Discharge Location
Opequon/Hedgesville Waste Water Treatment Plant	Eagle School Road east of Martinsburg	1.3 MGD ⁶	0.9 MGD	Eagle Run to Opequon Creek
Baker Heights Waste Water Treatment Plant	Off of Opequon Lane, south of Baker Heights	1.875 MGD	0.8 MGD	Unnamed Tributary to Opequon Creek
Inwood Waste Water Treatment Plant	South of the intersection of Strobridge Road and Sulphur Springs Road	1.875 MGD	1.1 MGD	Opequon Creek
Forest Heights I	Vanville, off of Airport Road and Independence Lane	26,000 GPD	20,000 GPD	Buzzard Run
Forest Heights II	Vanville, off of Veterans Way	52,000 GPD	30,000 GPD	Unnamed Tributary to Buzzard Run
Highpointe	Bunker Hill off of Pinnacle Drive	11,200 GPD	11,200 GPD	Mill Creek
Northwinds	West of Williamsport off of Michigan Drive	16,000 GPD	16,000 GPD	Unnamed Tributary to Potomac River
Honeywood	Off of Vineyard Road, North of Spring Mills	50,000 GPD	26,000 GPD	Potomac River
Tomahawk Elementary	Off of Route 9 at Tomahawk Elementary School	14,000 GPD	6,000 GPD	Back Creek
Gerrardstown Intermediate	Gerrardstown Intermediate School, crossroads of State Routes 24 and 51	8,000 GPD	8,000 GPD	Mill Creek
Marlowe Garden Apartments	North of Falling Waters and South of State Route 1 on Forever Green Drive	14,000 GPD	6,000 GPD	Unnamed Tributary of Potomac River
Woods Resort-Lagoon	Walden Woods off of Walden Road	95,000 GPD	60,000 GPD	Whites Run
North Area WWTP	Off Scrabble Road			
Corners @Arden	Arden off of Arborshade Drive	13,160 GPD	6,000 GPD	Unnamed tributary of Middle Creek
Riverside WWTP	Route 11 N near Falling Waters	50,000 GPD	35,000 GPD	Potomac River
Austin MHP WWTP	Route 45 east of Martinsburg	7,500 GPD	5,000 GPD	Opequon Creek
Broad Lane MHP WWTP	Broad Lane off Route 11	27,000 GPD	19,000 GPD	Unnamed Tributary of Potomac River
Forevergreen Market WWTP	Grade Road on Forevergreen Drive	10,000 GPD	6,000 GPD	Unnamed Tributary of Potomac River
Brookfield WWTP	Crawford Quarry Rd off of Route 11 N	50,000 GPD	40,000 GPD	Potomac River
⁵ ADF: Average Daily Flows ⁶ MGD: Million Gallons/Day ⁷ GPD: Gallons/Day				

Source: Berkeley County Public Service Sewer District

Future Service Areas

The Berkeley County PSSD has prepared sanitary sewer plans that would eventually lead to providing public sewers for much of the county between Jefferson County and North Mountain.

North Area Service System: This proposed service area stretches from the current service area north to the Potomac River. It will be developed over a period of years according to the North Area Sanitary Sewer Facility Plan prepared by the PSSD. North Area Phase 1 has been designed and construction was completed in 2008. Future phases in The North Area will be designed and constructed as funds are available.

This is an area of residential, multi-family and small industrial uses that continues to grow and expand. Providing sewer service to these areas will relieve the burden of poorly operating private package treatment plants and also remove onsite disposal systems that are ineffective due to improper construction or poor soils conditions. Also, according to PSSD there are numerous sites that discharge partially or untreated sewage into local streams throughout the area. This information is documented by USGS studies, health department information and SWAP findings.

Inwood Phase 2 Service Area: This area in south Berkeley County has been under heavy development pressure. Responding to this development pressure, the Berkeley County PSSD has developed the Inwood Phase 2 Facilities Plan to provide sewer facilities to much of this area of the County. This planning phase has been divided into Phase 2A and 2B. Phase 2A was completed approximately two years ago. These service areas are along the I-81 corridor and would serve areas mainly west of I-81. Parts of Phase 2A have been constructed with other areas waiting for funding for construction. Construction will continue as development requires, to complete Phase 2A. Phase 2B which will serve areas both east and west of the I-81 corridor have been designed and is waiting for funding for construction.

Phase 3 – Future: The Berkeley County PSSD has also proposed a Phase 3 – Future services area. This service area is west of Phases 2A and 2B and continues to the base of North Mountain. This area known as Phase III, has no current planning design or construction activities. Any activities for this area will be determined by future growth patterns.

On-Lot Wastewater Management Systems

Current population estimates for Berkeley County indicate there are approximately 110,497 (2014 US Census estimate) people residing in the County. About 27,999 or one-third of the county's residents rely upon some type of alternative or on-lot wastewater treatment and disposal system. Living in rural areas does not necessarily mean that residents depend exclusively upon on-lot systems. Numerous alternative systems have been developed that provide useful alternatives to rural use.

The large number of residents in Berkeley County who rely upon these alternative systems represents a great opportunity for potential degradation of groundwater and surface water if these systems are not properly managed or if new technologies for wastewater treatment are not available. This is particularly compounded in the limestone (karst) terrain that underlies most of the Great Valley region east of North Mountain.

On-Lot wastewater management systems, if installed and functioning properly are a safe, reliable method of recharging the local groundwater. In this regard, it has the advantage over public sewer which provides no local recharge. The installation and maintenance of on-lot systems is managed by the West Virginia Department of Health and Human Services. They approve the installation of conventional septic systems or alternative systems because of poor soils conditions or where conventional systems have failed.

On-Lot Wastewater Management System Monitoring

Many of the on-site systems have come under more careful scrutiny as public health problems. Many of these systems are poorly maintained and operated which lead to greater potential for groundwater and surface water pollutions. These problems are caused by numerous factors including lack of public education on proper operation and maintenance of systems and cost. Failure to properly maintain on-

lot systems can impact the life of the on-lot wastewater disposal system causing failures and contamination.

These problems often lead public service districts to expand their municipal collections at great cost to serve problem areas. This can lead to sprawl development in which new areas are opened up to development, when the solution could have been better management of existing on-lot systems. WVDHHS does not monitor these systems after they have been installed. Such monitoring is necessary to ensure that the on-lot systems are functioning properly and not polluting the groundwater. As will be discussed shortly, monitoring and maintenance is a simple process, but a country-wide system must be instituted to ensure it happens.

On-Lot Wastewater System Management Alternatives

There are several different levels of management that are usually associated with the management of on-lot or alternative systems ranging from the individual homeowners to central management by either the West Virginia Department of Health and Human Services or the local PSD.

- Level 1 - This level leaves responsibility for the operations and management to the homeowner, but the public agency (DOH or PSD) develops an inventory of all systems and provides educational information to the owners and users on a regular basis.
- Level 2 - Provides an inspection and maintenance certificate program, providing standard of maintenance which would be carried out by an operator hired by the homeowner. This would involve a government organization getting involved, setting standards across the system area, and providing upgrades where necessary to remove threats to public health.
- Level 3 - A government unit entity takes over the monitoring and maintenance of all systems. Cost would be recovered either through a rate system or direct cost for services. This could also be done by a private operator who would have reporting responsibility back to the public agency.
- Level 4 - All of the assets of the on-lot/alternative systems are vested with the public entity which manages them directly.

On-Lot Sewage Management Districts

One method of sewage management programs in rural areas has been the development of on-lot management districts. These are created by ordinance and usually involve a specific geographic area or on-lot district in the community that utilizes on-lot wastewater disposal practices. These programs can be administered by either a public or private entity. Usually they require regular septic pumping and system inspection. These inspections should include not only septic systems, but also other sophisticated on-lot sewage disposal systems that utilize mechanical equipment to assist in the collection and treatment of wastewater.

Administration of the on-lot sewage management program can be performed by the Department of Health. Fees can also be levied on the property owners for inspections and sampling to cover the costs of the program.

An important part of the on-lot sewage management program is the homeowner education program. These should be on-going educational programs for homeowners with on-lot sewage disposal systems. These educational programs can be provided in brochures that educate the homeowners on the public health and natural environmental impacts of malfunctioning in-lot sewage disposal systems; how the

systems work; maintenance that can be performed by the homeowner ; and potential cost of a well maintained system.

Decentralized System Technology

There are a wide range of decentralized system technologies that are available for a variety of applications in rural areas. Table 8-1 identifies some of the technologies that might be applicable to Berkeley County. Each of these technologies is subject to approval by the West Virginia Department of Health and Human Services.

Table 8-2 Decentralized System Technology Options

Technology	Advantages/Disadvantages
Septic System Tanks – Engineered systems installed in appropriate soils to receive wastewater from one or multiple residences.	Advantages – Cost effective decentralized systems. Disadvantages – Soils unsuitable for septic tank effluent treatment and renovation. Sludge may cause odor problems.
Aerobic Treatment – Provides an oxygen rich environment to reduce organic portion of the waste to carbon dioxide and water.	Advantages – Higher treatment level. Alternative to septic system. Extend life of drain field. Disadvantages – Cost Requires maintenance and electricity.
Intermittent Sand Filters – Use filter beds of carefully graded media. Treated effluent is transported for further treatment or disposal.	Advantages – High quality effluent. Low energy requirements. Drain fields are small and shallow. Disadvantages – Land area is a limiting factor. Regular maintenance is required.
Low Pressure Pipe Systems (LPP) – Shallow pressure dosed soil absorption systems.	Advantages – Absorption fields can be located in sloped or uneven terrain. Shallow placement promotes evapotranspiration. Disadvantages – Suitability limited by soil and slope. Potential clogging of holes.
Mound Systems – Pressure dosed sand filters that discharge directly to natural soil. Intended to overcome local soil restrictions.	Advantages – Enable use of same sites unsuitable for conventional septic systems. Can be use in most climates. Disadvantages – Construction costs higher than conventional systems. Mounds may not be pleasing to local landscaping.
Pressure Sewer Systems Septic Tank Effluent Pump (STEP) – Pumps effluent from septic tanks for treatment. Grinder Pumps (GP) – Grinds solids and pumps into a pressure system.	Advantages – Materials and trenching costs are lower. Disadvantages – Operations and maintenance costs are higher than conventional gravity systems.
Re-circulating Sand Filters RSF) – Modified version of the single pass open sand filter system. Used to augment or substitute for inadequate soil conditions.	Advantages – Good effluent quality. No chemicals required. Disadvantages – Weekly maintenance required. Design must address very cold temperatures.
Small Diameter Gravity Sewer – Convey effluent by gravity from a septic tank to a centralized treatment location.	Advantages – Construction can be accomplished quickly. Unskilled personnel can operate and maintain. Disadvantages – Limited experience with this technology has yielded situations where systems have not performed adequately.

Source: Berkeley County Public Service Sewer District

Stormwater Services Profile

In 2010, the Berkeley County Council adopted The Stormwater Management and Sediment and Erosion Control Ordinance. Compliance with this ordinance is required for any new construction that involves more than 5,000 square feet of earth disturbance. In 2004, Berkeley County became a regulated Municipal Separate Storm Sewer System (MS4). The ordinance was under review, as of the writing of this plan, and revisions may be implemented that bring the county into compliance with the MS4 regulations.

Stormwater Permits

The West Virginia Department of Environmental Protection's Storm Water Permit Team is responsible for administrative and technical review of applications and storm water pollution prevention plans submitted for coverage under storm water general permits.

There are three general storm water permits. The Storm Water Construction permit covers all earth-disturbing construction activities that are one acre and greater. The Multi-Sector Storm Water Permit covers storm water effluent from certain industrial activities and the Municipal Separate Storm Sewer Systems (MS4s) Permit covers storm water discharges from certain municipalities and other public entities such as hospitals, universities, highways and prisons. Additional specifics regarding each type can be found at the WV DEP website at www.wvdep.org.

Municipal Separate Storm Sewer System (MS4)

The following is an extract of an executive summary posted in July 2015 which summarizes the Berkeley County MS4 permit. *In 2004, the Berkeley County Council elected to become a regulated MS4 community for stormwater. Berkeley County still remains the only county-wide MS4 in West Virginia. The other MS4 communities are municipalities with some individual MS4 permits issued to institutions such as universities and hospitals. While the County Council elected to become an MS4 over ten years ago, the Chesapeake Bay TMDL would have likely resulted in Berkeley County being designated an MS4 community at this time.*

“Being an MS4 permit holder has regulatory compliance responsibilities. The permit is issued under the National Pollutant Discharge Elimination System (NPDES) and falls under the Federal Clean Water Act. Once electing or being designated an MS4 permittee, a community, business, or individual cannot “opt out” of the regulatory permit requirements. Failure to comply with the permit carries the same fines and penalties as other Clean Water Act violations, including fines of up to \$37,500 per day.

The Berkeley County PSSD (is the current MS4 permittee and) is working to bring Berkeley County into compliance with its MS4 permit. Recent regulatory inquiries have stressed the importance of getting a proper program in place to administer the MS4 permit. In order to fund the program, the District is evaluating the implementation of a stormwater fee for county residents. The amount and nature of the fee is still to be determined. Without relief from WVDEP or EPA, fines and other penalties may be imposed for continued noncompliance. Public input and participation will be important parts of the process of developing a stormwater fee and long term permit administration.

Solid Waste Management Profile

Solid waste disposal, litter control and recycling programs are overseen or managed by the Berkeley County Solid Waste Authority. It has been calculated that Berkeley County currently generates about 238-246 tons per day of municipal solid waste. This is projected to grow to about 300 tons per day by 2030 based upon population estimates for the County. The Authority has two State approved solid waste plans:

- The Berkeley County Comprehensive Litter and Solid Waste Control Plan – September, 2009. It is available for viewing at <http://www.berkeleycountycomm.org/bcswa/docs.cfm>
- The Berkeley County Commercial Solid Waste Facility Siting Plan – February, 2012. It is available for viewing at http://www.berkeleycountycomm.org/bcswa/pdf/Berkeley_County_Commercial_Solid_Waste_Facility_Siting_Plan.pdf

In 2011, the Berkeley County Solid Waste Authority adopted its Commercial Solid Waste Facility Siting Plan. It was also approved by the WV Solid Waste Management Board in 2012. The plan specifies the type of solid waste facilities and under what restrictions and conditions one may establish, expand convert, operate or construct any given solid waste facility in the county for the next twenty years. It considers and responds to the eleven conclusions of the County’s Comprehensive Litter and Solid Waste Control Plan completed in 2009, which are summarized here as they provide an excellent summary of the issues and improvements related to the handling of solid waste in Berkeley County.

- While significant progress is being made, the county continues to have substantial solid waste issues to address.
- Continued growth will place tremendous burdens on the existing solid waste management programs and the implementers of those programs.
- Since 1995, the county solid waste authority has managed and overseen a tremendous start to public recycling programs, but the program continues to lack sufficient funding to meet its objectives.
- Since 1989, the county solid waste authority has overseen an aggressive litter control and open dumping cleanup program. But, the program continues to lack sufficient resources to meet all aspects of the problem.
- In the future, the county could benefit significantly from the construction of the permitted mixed waste resource recovery processing facility in an effort to preserve landfill space and to reach the 50% diversion rate set by the WV Legislature.
- Interstate 81 creates an “out-of-county” litter problem that cannot be addressed through local education programs.
- The old Berkeley County Landfill is capped but there may be opportunities with the installation of a solar farm on the old landfill.
- When considering the available capacity and the permitted disposal limitations and the projected disposal requirements there is sufficient capacity at regional landfills to satisfy the disposal needs of Berkeley County for more than 20 years.

Landfill Facilities Profile

Currently, there are three landfills that receive municipal solid waste (MSW) from Berkeley County. The LCS Services landfill in Berkeley County, north of Hedgesville is one disposal point for Berkeley County generated MSW. Private haulers also transport county generated MSW to the Mountainview Reclamation Landfill and the PA Blue Ridge Landfill in nearby Pennsylvania. The LCS landfill, which is owned by Waste Management Inc., has reported that it has a remaining capacity of about 7.34 million tons of MSW. At the present time there is one landfill in Berkeley County – The North Mountain Sanitary Landfill, which is owned by LCS Services, a wholly owned subsidiary of Waste Management, Inc. This Class B Facility (*“Solid waste facilities are classified according to the amount of solid waste handled per month. Class A facilities handle between 10,000 and 30,000 tons per month; Class B receives, or is expected to receive an average of 100 tons per working day, serves or is expected to serve 40,000+ population, but does not receive solid waste exceeding an aggregate of 10,000 tons per month.”* Berkeley County Solid Waste Facilities Plan, 2004) opened in January of 1991. According to the owners, there was a monthly average of just over 6,000 tons of Berkeley County waste disposed at the facility in 2014. Finally, haulers also utilize the Jefferson County Transfer Station for MSW originating from Berkeley County. The transfer station exports its waste to the LCS Landfill and the Mountainview Reclamation Landfill.

Berkeley County is well positioned to take advantage of the national trend to utilize MSW for energy in lieu of landfilling. Entsorga, WV has been fully permitted to locate West Virginia’s first mixed waste resource recovery processing facility in Berkeley County. This facility is expected to significantly reduce landfilling from Berkeley County. Construction is expected to begin in late 2015.

The Berkeley County Commercial Solid Waste Facility Siting Plan includes a series of maps that illustrate the areas in the county where specific types of solid waste facilities are prohibited or tentatively

prohibited. No Class A landfills are permitted in Berkeley County. Due to residential growth there are very few places where Class B, C, or D facilities could be located.

Recycling Program Profile

The Solid Waste Authority operates an award winning recycling program that has been operational since 1995. There are three established, non-commercial recycling centers in the county and the City of Martinsburg operates both a curbside and drop-off recycling program. Comprehensive recycling services are available for nearly all types of recyclables. Most of these recyclables are accepted for free. The Authority also operates a cooperative curbside recycling program with Apple Valley Waste for the curbside pickup of many items.

Table 8-3 Recycling Centers in Berkeley County

Center	Location	Hours
South Berkeley	Pilgrim Street	Tues-Sat: 9-5
Martinsburg	Grapevine Road	Tues-Sat: 9-5
Hedgesville	Eagle Plaza	Sat: 9-5

Source: Berkeley County Solid Waste Authority

Litter Control Program Profile

Litter is a common problem in most areas and Berkeley County is no exception. The Berkeley County Solid Waste Authority operates an award winning litter control program. The program includes a voluntary litter and open dumping reporting program. The program works actively with the Berkeley County Sheriff's Office and the Department of Environmental Protection to investigate violations of litter and open dumping laws. The program has been in operation since 1989 and led to the cleanup of hundreds of open dumps. The Litter Control Program has also been very effective working in cooperation with the "Adopt a Highway" Program in encouraging many volunteer groups to keep the County's roadways free of litter and debris.

Public Utilities Profile

Residents of Berkeley County have good access to modern utilities, although in many areas choices are limited with regard to service providers. Of particular concern to many is the limited broadband and high speed internet access, which is an increasingly important tool in today's business world. The following are the major public utility providers in Berkeley County.

- The Potomac Edison company, a division of First Energy, is the primary electricity provider.
- The Mountaineer Gas Company is the only natural gas supplier authorized by the West Virginia Public Service Commission to operate in Berkeley County.
- Verizon West Virginia Inc. is the primary telephone service provider and also provides both DSL and dial-up internet services.
- Frontier Communications offers telephone and internet services.
- Comcast Cable, formerly Adelphia, provides cable, telephone and internet service, while satellite service is available through DirectTV and Dish Network.

2006 Summary of Infrastructure Facilities and Services Action Strategies

Water

- Encourage consistency between water service investment and growth management recommendations in the Growth Management plan.
- Utilize groundwater studies to determine densities for future development in rural/non-growth areas of the county.
- Develop a source water protection plan to safe guard public drinking water supply from wells.
- Merge the public service water and sewer districts for more efficient operations.
- Expand the Potomac River water treatment plant.

Wastewater

- Encourage consistency between sewer infrastructure investment and the Growth Management policies of this Comprehensive Plan.
- Expand capacity at wastewater treatment plants to meet project demands.
- Improve management of on-lot wastewater systems in the county by coordinating activities between homeowners, West Virginia Department of Health and the PSSD and implementing rural wastewater management strategies that best meet the needs of these areas.

Stormwater

- None provided in the 2006 plan.

Solid Waste

- As funding allows, the Berkeley County Solid Waste Authority should study the feasibility of siting more publicly owned drop off recycling facilities, transfer stations, C&D recycling facilities and commercial recycling facilities. These facilities are best sited on public land.
- Assure that the siting of any existing and future solid waste facilities in the County are consistent with the county's growth and the overall desire to protect its quality of life in a county that contains large amounts of karst geology. Current and future land use patterns have been making it more difficult to site new or expand existing landfills. To preserve landfill space, any new or additional capacity efforts should encourage alternatives to landfilling. Any such alternatives should support the West Virginia preferred integrated waste management concepts of waste reduction, reuse techniques, recycling and composting, resource recovery as a priority over landfilling.
- The Berkeley County Solid Waste Authority should update the Comprehensive Litter and Solid Waste Plan and follow the recommendation of the updated Plan to the extent possible.

Public Utilities

- None provided in the 2006 plan.

2016 Berkeley County Infrastructure Highlights

- Public water service in the county is widespread with about 22,000.
- Although the entire county falls within the PSWD boundaries, the current service area includes about half of the county's total land area.
- About 59,000 people of the 120,000 (2015 estimate) are served by PSWD and receive public water.
- PSWD is adding about 50 new customers per month.
- The Water District projects that much of the county's growth will be concentrated along Routes 11, 51, and 9 and projects a water demand of 8 million gallons per day in the year 2035.
- The expansion of the Potomac River water treatment plant, completed in 2009 boosted total water supply to 10.5 million gallons per day which will accommodate the Districts demands for another 20 years or longer.
- Large wastewater plants (> 0.4 MGD) are being upgraded to meet nutrient removal limits.
- In 2010, the Berkeley County Council adopted the Stormwater Management and Sediment and Erosion Control Ordinance. Compliance with this ordinance is required for any new construction that involves more than 5,000 square feet of earth disturbance.
- The Berkeley County Public Service Sewer District is working to bring Berkeley County into compliance with its MS4 permit.
- Berkeley County generates about 238-246 tons per day of municipal solid waste. This is projected to grow to about 300 tons per day by 2030 based upon population estimates.
- The Berkeley County Comprehensive Litter and Solid Waste Control Plan was adopted in 2009.
- The Berkeley County Commercial Solid Waste Facility Siting Plan was adopted in 2012.
- Entsorga, WV has been fully permitted to locate West Virginia's first mixed waste resource recovery processing facility in Berkeley County. This facility is expected to significantly reduce landfilling from Berkeley County.
- In October 2015, the State Department of Environmental Protection recognized the Berkeley County Solid Waste Authority as the grand prize winner of the annual Clean County Award. These awards are presented annually to county solid waste authorities that promote environmental stewardship through cleanups, outreach and law enforcement.
- According to a May 19, 2015 Martinsburg Journal article, Mountaineer Gas' capacity was at about 85 percent of maximum. This is the capacity suppliers of natural gas target, so they can increase capacity when customer demand increases during times such as weather extremes.

Looking Forward to 2026

Water

The water district researched the merger of the public service water and sewer districts. It was concluded that a merger is not feasible due to bond covenants and obstacles created by those bond covenants that would preclude a legal merger of the tow districts. The 20-year Water Facility Plan is anticipated to be completed in 2016. Total existing water supply is anticipated to accommodate the districts demands for the next 20-years.

Wastewater

Additional capacity will be added as needed but within annual nutrient load caps. An inventory of on-lot systems will be created and an inspection protocol will be put into place.

Stormwater

Options and tools available for MS4 compliance will continue to be evaluated and implemented.

Solid Waste

The search for potential funding sources and other resources will continue in order to expand the public recycling programs, the litter control program, and open dumping program. Efforts will continue to build and operate Entsorga, WV, the first mixed waste resource recovery processing facility of its kind in West Virginia. This facility is expected to significantly reduce landfilling from Berkeley County.

Public Utilities

Region 9 oversaw a natural gas feasibility study beginning in 2014. According to the study there are three options available to bring natural gas to the area but only two, the large interstate transmission lines to the north and to the south, are feasible. More details of this study and the anticipated timeline for completion can be found by going to the Region 9 website www.region9wv.com and clicking on the Eastern Panhandle Natural Gas Expansion Study link.

Region 9 also facilitated the writing of a Regional Broadband Strategic Plan. According to this plan, *“The RBPT (Regional Broadband Planning Team) surveyed residents and businesses throughout the region and reviewed existing studies (e.g., Federal Communications Commission (FCC) reports, state broadband maps, state speed test data, unserved and underserved areas, economic development plans, and local broadband studies). With this knowledge, the RBPT outlined the region’s strengths, weaknesses, opportunities, and challenges (SWOC). Next, the RBPT outlined six broadband strategic objectives to help improve broadband availability, reliability, and utilization throughout the region. The strategic objectives are outlined in this plan and include the implementation strategy necessary to achieve each objective.”* More details of this plan can be found by going to the Region 9 website www.region9wv.com and clicking on the Regional Broadband Study link.

Chapter 9a – The Public Safety and Health Services Plan

Public Safety and Health Services Goals

The Public Safety and Health Services chapter focuses on providing assurance that vital public services will be provided for the county's rapidly growing population. These services include: public safety, health care, and public health. Each of these service areas is impacted by the growth that is occurring in Berkeley County and they are part of the growth management plan. The goals of the Public Safety and Health Services Plan are to:

- Assure that county residents and businesses receive public safety services that are efficient in response time and fiscally responsive.
- Assure access to adequate health care and wellness services.
- Assure access to the county's public health services and human resources.

Public Safety and Health Services Profile Summary

The purpose of this profile is to provide an inventory of existing public and quasi-public facilities and services in Berkeley County. The significance of community facilities is critical in assessing needed improvements to serve current and future development. The various Community Facilities Maps are found in the Appendices.

Public Safety Profile

Deputies and Police Services Profile

The Berkeley County Sheriff's Department and West Virginia State Police provide police protection to the residents of the county. The Berkeley County Sheriff's Department has six divisions:

1. Patrol
2. Criminal Investigations, Major Crime, Drug, and Multiple Burglaries
3. Eastern Panhandle Task Force
4. Security
5. Animal Control
6. Civil Process-Records

As referenced in the 2006 Comprehensive Plan, patrol officers *"provide general police duties to the county of Berkeley, respond to complaints, investigate traffic collisions, enforce traffic laws, patrol for intoxicated drivers, conduct traffic safety checkpoints, conduct criminal investigation, serve criminal arrest warrants, provide crime prevention patrols, perform security checks, and police large events such as ball games, county fairs, community events, etc. In addition to these duties the patrol shifts assist in the service of court subpoenas, domestic violence orders and civil process."* The Sheriff's Department also has a bearcat armored vehicle and teams with specialties in K9, dive, water rescue, and special response services. The Department is a member of the Eastern Panhandle Drug and Violent Crimes Task Force.

The Deputy Reserve is another group of individuals who selflessly volunteer their time to patrol the county and direct traffic at special events and traffic accidents. Additional information about The Deputy Reserve and all the other services provided through the sheriff's department can be obtained through the department website, www.sheriff.berkeleywv.org.

The City of Martinsburg has their own Police Department with a total of 48 officers. The department has a K9 Unit, Bicycle Patrol, a SWAT Team and a Drug and Violent Crime Task Force. The city also operates under a Community Policing Policy, which is a partnership between the police and the

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community to identify and address some of the root causes of public safety problems. The department has a Citizens Academy, a Junior Police Academy and other programs designed to meet the needs of the youth and citizens in the community. The police department website, www.martinsburgpd.org, can be referenced for additional information.

Table 9-1 lists these departments that provide police protection in Berkeley County. West Virginia State Police Troop #2 patrols each of the three Eastern Panhandle Counties. Their command post is located in Charles Town in Jefferson County, with satellite facilities in Martinsburg and Berkeley Springs.

Table 9-1 Police/Sheriff's Departments Serving Berkeley County

Department	Address	Phone Number	Staff
WV State Police Troop #2	14 Trooper Dr Martinsburg, WV	304-267-7000	Approximately 18 Troopers
Berkeley County Sheriff's Department	510 S Raleigh St Martinsburg, WV	304-267-7000	The Sheriff & 61 Deputy Positions
Martinsburg	232 N Queen St., Martinsburg	304-264-2100	Police Chief & 47 Officers

Adequate staffing is the usual concern regarding police services. A policing standard of one police officer per 1,000 persons has been a yard stick used to measure police staffing levels. Berkeley County's 2010 population was 104,169 and it is estimated to have grown to 110,497 in 2014. Based upon inventory information, the City of Martinsburg Police Department and the Berkeley County Sheriff's office have about 109 officer positions between the two departments. In addition, approximately 18 West Virginia State Troopers also provide policing services to the County. Based upon this information, Berkeley County would need 110 officers to serve the 2014 estimated population of Berkeley County. It would appear that police staffing and services are sufficient for now, however, the Berkeley County Sheriff has expressed concern with these staffing parameters for the following reasons.

- The number of deputy positions in the Sheriff's Department is 62 but approximately 20 of these positions remain unfilled. According to the Sheriff, the main reason these positions remain unfilled, appears to be lack of interest from qualified candidates.
- Frequently the 48 Martinsburg City officers need to stay within the city limits, leaving the 62 Berkeley County deputy positions to serve the remainder of the county. Based upon the square miles and the population to be served additional deputies are needed to provide prompt and thorough law enforcement. Additional deputies would also place Berkeley County on the same staffing level as neighboring counties in Virginia and Maryland.
- As the County's population continues to grow police staffing levels, especially in the county need to undergo periodic review to ensure they are keeping pace with providing necessary service to the residents of Berkeley County.

Fire and Rescue Services Profile

As of the writing of this plan, there are five volunteer fire departments in Berkeley County working out of eight different stations. These stations are listed in Table 9-2 below. All stations are staffed by a combination of career and volunteer firefighters. The Berkeley County Fire Service Board is the funding mechanism for facilities, apparatus and maintenance for all county stations. In August 2015 the board was awarded a Staffing for Adequate Fire & Emergency Response (SAFER) grant from FEMA and the Department of Homeland Security for the recruitment and retention of volunteer firefighters in Berkeley County. The Berkeley County Council provides career staffing for fire fighting, HAZMAT and water rescue. The Berkeley County Fire Service Board developed a Five-Year Strategic Plan in November of 2011. This plan and other updated documents can be accessed through the county website www.berkeleywv.org and selecting the Fire Board link.

Table 9-2 Berkeley County Fire Stations

Station Name	Address
South Berkeley Volunteer Fire and Rescue Company 20	Main Station: 8009 Winchester Avenue, Inwood Substation (Station 29): 4127 Winchester Ave, Martinsburg
Hedgesville Volunteer Fire and Rescue Company 30	Main Station: Hedgesville Road (Main Street), Hedgesville Substation: (Station 70): 3676 Mountain Lake Rd, Hedgesville
Bedington Volunteer Fire and Rescue Company 40	Main Station: 775 Bedington Road, Martinsburg Substation (Station 49): 1036 Mid-Atlantic Parkway, Martinsburg
Back Creek Valley Volunteer Fire Company 50	1922 Back Creek Rd, Hedgesville
Baker Heights Volunteer Fire Company 60	2229 Charles Town Rd, Martinsburg

The City of Martinsburg has two fire stations, Martinsburg Central Fire and Rescue and the Westphal Hose Company No. 5, which operate as a single unit. The stations are manned 24-hours a day, seven days a week, by personnel trained in emergency response and there are a total of 37 career personnel on staff. For additional information, go to www.cityofmartinsburg.org.

Emergency Medical Services Profile

The responsible agency for EMS delivery in Berkeley County, as designated by the County Council, is the Berkeley County Emergency Ambulance Authority. It consists of the Headquarters Office where fees are collected, insurance claims are filed, and other administrative tasks are carried out and the Field Operations Organization. The Field Operations consist of the Career Staff and three Volunteer Companies. The Career Staff operates out of six stations, South (24/7), Center (24/7), and North (24/7) and West (24/7) with additional unit 12 hours central, south, and west in Back Creek. The Career Staff maintains six ready-duty ambulances plus three spares for the Field Operations Organization. Each Career Staff Unit is staffed by a Paramedic and an EMT.

Each of the three Volunteer Companies has one ambulance that is housed at either the Company Fire hall or a Substation. The Ambulance Authority regularly transports patients to Berkeley Medical Center (Berkeley County, WV), Winchester Medical Center (Frederick County, VA) and Meritus Medical Center (Washington County, MD). According to the President of the Authority, the Authority was conceived and is managed as an emergency 911 service; however, they are being regarded more and more as a rolling Minor Acute Emergency Room. These trips cost money but may not result in billable charges.

Another key issue that the Authority and the fire departments are facing is the number of volunteers is decreasing and new residents are coming from places that provide EMS and fire services as a portion of government-furnished services. Efforts to build a viable volunteer auxiliary have been unsuccessful to date.

The Emergency Service Facilities Map in the appendices illustrates the location of all of the emergency service facilities in the county.

Central Dispatch Profile

Berkeley County Central Dispatch currently has a total of 26 dispatcher and administrative staff positions. Of these positions, four to six of them frequently remain unfilled for various reasons. In 2012, County Council approved an increase from 26 to 36 staff positions. However, existing facility space, a total of 990 square feet for all of the Central Dispatch staff, limited the number of dispatchers that could be hired at that time. The Central Dispatch facility began renovations in 2015. When complete, the dispatchers will have 7,200 square feet of new dedicated work space. This will allow the number of dispatcher consoles to increase from 7 to 16 consoles plus 4 call taking positions. The new facility will include the following state of the art technology upgrades:

- The existing UHF trunked radio system will be upgraded from a consulate concept (a radio in a backroom for each channel) to a direct microwave link which will expand the capabilities of the radio system.
- The CAD System will become fully integrated with the new telephone system.
- The facility will be Next Generation 911 compliant.
- The ability for mobile applications to be used by field responders. This includes CAD, mapping locations, and AVL (Automatic Vehicle Location) which will allow for the closest unit to be dispatched to an incident.

In addition to the new 7,200 square feet of dispatcher work space, the existing building will be transformed to house the administrative offices, a meeting room, bunk rooms, a full kitchen, a quiet room, and a break room, separate from the kitchen. The main equipment room will house the network servers. The entire Central Dispatch facility will be a secure facility with additional security fencing around the building. Dispatcher Services are provided 24 hours a day, 7 days a week and will continue throughout the entire renovation process.

Homeland Security and Emergency Management Profile

The Office of Homeland Security and Emergency Management is moving to a completely renovated facility, located at the former sheriff's department on Emmett Rousch Drive. Expected completion of these renovations is by the end of 2015. According to the Berkeley County Council website, "The Berkeley County Office of Homeland Security and Emergency Management is responsible for initiating and maintaining the emergency management plan that prepares for public recovery and relieves and reduces human suffering following events of natural or manmade disasters, catastrophes, or terrorist threats for Berkeley County." This agency follows the adopted Basic Plan, called the Berkeley County Emergency Operations Plan. More information is available at www.berkeleywv.org.

Hazard Mitigation Profile

The Region 9 Planning and Development Council released a Draft Hazard Mitigation Plan in 2012, which was adopted by the County Council in April 2012 and approved by FEMA in May of 2012. The plan will expire on January 9, 2017. This plan encompasses Berkeley and Morgan County and the municipalities within these counties. This document can be accessed through the county website, Office of Homeland Security and Emergency Management page, or by using the following link and clicking on the corresponding document title <http://berkeleywv.org/safety/emergency-service.cfm>.

Public Health Facilities and Services Profile

Berkeley Medical Center Profile

Berkeley Medical Center, formerly City Hospital, is a 195-bed acute care hospital located in Martinsburg that offers a broad range of services to residents of Berkeley County. Founded in 1905, Berkeley Medical Center has undergone a number of expansions over the years, including a move to its current location in 1972. Four additional floors were added along with a major expansion of the first floor in 1982, and another expansion in 1992 including a new surgical wing, an expanded emergency department, and a consolidation of outpatient services into one area. In January 2005, a new regional health system was formed uniting Berkeley Medical Center and Jefferson Medical Center with WVU Hospitals in Morgantown under one parent corporation now known as WVU Medicine University Healthcare. In 2010, a \$33 million expansion program was launched at Berkeley Medical Center to include a new cardiac cath lab, 18-bed ICU, and 44-bed Emergency Department.

Although residents of Berkeley County have access to hospital services in the adjoining areas of Winchester, Virginia and Hagerstown, Maryland, University Healthcare has recruited over 200 new physicians to the Eastern Panhandle and has expanded/enhanced the delivery of health services so that residents no longer have to leave the area for their health care needs. As the County's population continues to increase and as the County ages, the demand for hospital services will increase as well.

Martinsburg Veterans Affairs Medical Center Profile

Since 1944, Martinsburg has been home to the Martinsburg VA Medical Center. This 175-acre medical center, located on Butler Avenue, treats approximately 35,000 veterans every year. According to an August 4, 2015 Herald Mail article, "The hospital is intended to have a staff of around 200 physicians, but the number is down because of recent retirements and difficulties in recruiting specialists." The article also indicated that female veterans are among the fastest-growing patient populations. The center also makes services available to more than 126,000 veterans living in 22 counties in Western Maryland, West Virginia, South Central Pennsylvania and Northwest Virginia. The Martinsburg center provides out-patient, in-patient and residential services along with many other programs and support to seven community based out-patient clinics throughout the region in Maryland, West Virginia and Virginia. Additional information and resources can be obtained on the Martinsburg Veteran Affairs Center website www.martinsburg.va.gov/.

Urgent Care Centers Profile

In addition to University Healthcare and the Martinsburg VA Medical Center there are six urgent care facilities located throughout the area. They are listed in Table 9-6 along with the address and type of service for each facility. The Berkeley County Health Department is also available to provide clinical services. A listing of these services is available at www.bchealthdept.org/clinical.

Table 9-6 Acute Care and Urgent Care Facilities in Berkeley County

Facility	Address	Type
Berkeley Medical Center	2500 Hospital Drive, Martinsburg	Acute Care Hospital
Martinsburg VA Medical Center	510 Butler Ave, Martinsburg	Veterans Hospital
Berkeley Family Medicine & Urgent Care	101 Marcle Dr, Martinsburg	Urgent Care
MedExpress Urgent Care-Martinsburg	1355 Edwin Miller Blvd, Martinsburg	Urgent Care
MedExpress Urgent Care-Martinsburg Commons	83 Retail Commons Parkway, Martinsburg	Urgent Care
Valley Health Urgent Care	97 Administrative Drive, Martinsburg	Urgent Care
University Urgent Care	Inwood Medical Building, Rt 51, Inwood	Urgent Care

Berkeley County Health Department Profile

One agency that provides public health services to the community is the Berkeley County Health Department. The health department provides clinical services, environmental services and threat preparedness education to the citizens of Berkeley County. Clinical services include immunizations, clinics health testing and counseling. Environmental health services protects the public by ensuring the integrity of the food and water supply, neighborhood cleanliness, a hazard-free workplace, and proper disposal of waste. The threat preparedness program provides educational guides and brochures to inform the public of the steps that can be taken before an emergency occurs. As of the writing of this plan the health department is housed at two locations. However, by 2016 all health department programs will be under one roof at the new location of 122 Waverly Place in Martinsburg. Additional details regarding health department services, schedules, applications and contact information can be found at www.bchealthdept.org.

Department of Health and Human Resources Profile

The West Virginia Department of Health and Human Resources is comprised of five bureaus. They are the Bureau for Behavioral Health and Health Facilities; the Bureau for Child Support Enforcement; the Bureau for Children and Families, the Bureau for Medical Services and the Bureau for Public Health. The Berkeley County DHHR Office is located at 433 Mid Atlantic Parkway, Martinsburg. This office provides Family Assistance Services, Social Services and Early Care and Education. These services cover a broad range of programs including, but not limited to, Medicaid, nutrition assistance, energy assistance, school clothing allowance, adoption, guardianship, protective services, homeless services, and child care licensing.

Drug and Alcohol Addiction Treatment Centers Profile

Berkeley County has four centers offering services specializing in drug and alcohol addiction treatment, according to the Washington/Baltimore High Intensity Drug Trafficking Area report prepared in August 2015. Three of the four facilities provide only outpatient treatment services. The Martinsburg VA Medical Center is the only facility that provides residential or hospital inpatient treatment services in Berkeley County. The report also indicated that, of the three outpatient facilities, the Martinsburg Institute has the capacity to serve 440 outpatient treatment slots, Eastridge Health Systems can serve 2400 a year and the capacity of Behavioral Health Services of Shenandoah Valley Medical Systems could not be defined. The needs assessment section of the report states that *“Beyond the outpatient services, Berkeley County is missing the full continuum of treatment services. The need for detoxification services and residential treatment was already identified by the Governor for West Virginia’s Advisory Council on Substance Abuse. Currently, individuals in need of residential treatment are being sent to programs in Pennsylvania, Morgantown, WV or to programs in Virginia. In addition, those referrals only occur for individuals with insurance or some ability to cover the cost of treatment.”* The complete report can be accessed through the following link http://www.journal-news.net/pdf/news/643682_3.pdf. The key findings of the HIDTA Heroin Treatment Needs Assessment for Berkeley County, West Virginia Report suggest that:

Berkeley County would greatly benefit from continued and developed leadership to coordinate a strategic approach to addressing the heroin problem. Major recommendations to achieve the needed level of leadership include:

- *Implementing evidence based prevention and treatment programs.*
- *Supporting the development and implementation of the proposed Recovery Center.*
- *Seeking seed money to fund the Recovery Center until such time that criminal justice system funds may be reallocated.*
- *Supporting the implementation of the new Drug Courts.*
- *Developing a system to collect the key indicators and set performance measurements.*
- *Providing prevention and treatment education.*

2006 Summary of Public Safety and Health Services Action Strategies

Public safety and public health services cover the broad areas of police, fire and rescue, emergency medical, dispatch, homeland security, and healthcare facility services. As stated in the 2006 Comprehensive Plan, much of the emphasis on public health and safety has changed in the post 9/11 era. Also, natural disasters like the Derecho of June 2012 and Hurricane Sandy in October 2012 will continue to periodically threaten the area. Public safety officials are also continuing to face additional demands for more than routine public safety measures, including homeland protection and disaster

planning and management. In view of these concerns, several action strategies were proposed in the 2006 comprehensive plan that cut across the boundaries of all of the agencies mentioned above. A summary list of these action strategies is as follows:

Staffing Strategies

- Develop arrangements to improve working relationships among police, fire and EMS organizations within the county.
- Periodically review police staffing levels to maintain a sufficient number of police officers in relation to the growing population and increase staffing, as necessary to meet current and future needs.
- Continue to monitor the number of volunteers trained and available to respond to fire calls especially during weekday mornings and afternoons. Recruit additional volunteers by providing incentives, especially to local public employees who can respond quickly to day time fire calls or look for other initiatives to garner additional volunteers including retirees who are interested in supporting the fire service.
- Increase the number of EMS crews ready to roll on demand and optimize the stationing of these crews across the county, in terms of location and time periods.
- Increase North Station EMS coverage to 24/7 as soon as possible.
- Increase EMS career staffing to 12 crews in July 2006; 14 crews in 2008 and 17 crews by 2014.

Equipment and Facilities

- Ensure that response times are meeting emergency needs by periodically reviewing service areas and the populations served within those areas.
- Locate a new fire station in the City of Martinsburg west side.
- Continue to provide sufficient funding for the purchase of new equipment and the maintenance of existing equipment and increase ambulance services fees to cover short term and long term additional costs of an expanding system.
- Continue to move forward toward a single, integrated EMS system that supports the entire county. Maintain and operate an optimum ambulance fleet in terms of size and location.
- Institute a fourth EMS service unit to provide 24/7 coverage for high demand periods. Hire additional staff to support.
- Start building new EMS South Station in Spring 2008 and Back Creek Valley Sub-station in Fall, 2009 and acquire new EMS service units in 2010 and 2012.
- Increase overall County coverage by 2014 with coverage beginning for Back Creek Valley on 2010.
- Berkeley Medical Center will continually review the health needs of the community to expand to meet the acute care demands of a growing and aging Berkeley County.
- Develop any new medical facilities that are consistent with the Growth Management Plan of the Comprehensive Plan, for example, public and institutional uses should only be located in the county growth areas.
- Provide health care facilities that will provide services to western Berkeley County/eastern Morgan County.

Plan Development and Training Strategies

- Ensure that police, fire and EMS have current homeland protection training.
- Provide information to county residents and officials regarding disaster planning and management.

- Develop and update hazard mitigation plan for use throughout the county.
- Develop a county-wide emergency plan that is coordinated with law enforcement, fire services, emergency management and WV Department of Highways.

2016 Berkeley County Public Safety and Public Health Highlights

- Based upon staffing inventory information and 2014 population estimates, it would appear that police staffing and services are sufficient for now. However, approximately twenty of the approved deputy positions remain unfilled.
- The Berkeley County Fire Service Board developed a Five-Year Strategic Plan in November of 2011. In August 2015 the board was awarded a Staffing for Adequate Fire & Emergency Response (SAFER) grant from FEMA and the Department of Homeland Security for the recruitment and retention of volunteer firefighters in Berkeley County.
- The Berkeley County Emergency Ambulance Authority is the responsible agency for EMS delivery in Berkeley County.
- Both the Fire Service Board and the Ambulance Authority are experiencing a decrease in the number of volunteers as new residents are coming from places that provide EMS and fire services as a portion of government furnished services. Efforts to build a viable volunteer auxiliary have been unsuccessful to date.
- In 2012, County Council approved an increase in Central Dispatch staffing positions from twenty-six to thirty-six. However, existing facility space limited the number of dispatchers that could be hired at that time.
- Homeland Security and Emergency Management follows their adopted basic plan called the "Berkeley County Emergency Operations Plan."
- The Region 9 Planning and Development Council released a Draft Hazard Mitigation Plan in 2012 which was adopted by County Council and approved by FEMA later that same year.
- The Martinsburg VA Medical Center is intended to have a staff of approximately 200 physicians but the number is down due to retirements and difficulties in recruiting specialists.
- Female veterans are among the fastest growing patient populations at the Martinsburg VA Medical Center.
- The Berkeley County Health Department provides clinical services, environmental services and threat preparedness education to the citizens of Berkeley County.
- Berkeley County has four centers offering services specializing in drug and alcohol addiction treatment. However, three of the four facilities provide only outpatient treatment services.
- Beyond the outpatient services, Berkeley County is missing the full continuum of treatment services needed, including the need for detoxification services and residential treatment as identified by the Governor for West Virginia's Advisory Council on Substance Abuse.
- A West Virginia help line for opiate addiction, 1-844-HELP4WV, was launched in September 2015. This help line is operated by First Choice Services and is funded by the state health department. A Community Services Recovery Coordinator was hired by Berkeley County in early 2016 and is continuing to work towards outlining and defining the best way to address the impacts of drug and alcohol addiction on the Berkeley County community.
- As of the writing of this plan, several facility renovation and construction projects are under way, including the Office of Emergency Management and Homeland Security, the Central Dispatch facility, the Health Department, and the South Berkeley Fire Station.

Looking Forward to 2026

For this comprehensive plan update, the 2006 public safety and health action strategies were summarized into three main categories. They are Staffing; Equipment and Facilities; and Plan Development and Training. The action strategies were sorted into these categories based upon the tools that have been put into place, as of the writing of this plan, to respond to these strategies.

Staffing

In August 2015 the Berkeley County Fire Service Board was awarded a Staffing for Adequate Fire & Emergency Response (SAFER) grant from FEMA and the Department of Homeland Security for the recruitment and retention of volunteer firefighters in Berkeley County.

Recruiting and retaining qualified applicants is a universal challenge among public safety and public health agencies in Berkeley County. Collaborations between public safety and public health agencies and educational institutions throughout the region could be beneficial in expanding staffing resources within the region.

Equipment and Facilities

EMS station coverage is increasing and a new Central Station is planned for 2018 and new EMS service units are to be acquired in 2016 and again in 2018. New technology will be utilized by dispatch and first responders to monitor response times and ensure emergency needs are being met. Berkeley County has purchased a building to be renovated and used as a Recovery Center. This center will house a full range of rehabilitative services: substance abuse counseling, family counseling, recover support groups, job and educational counseling. The county will continue with the existing and future facility construction and renovations throughout the county.

Plan Development and Training

The 2011 Berkeley County Fire Service Board Five-Year Strategic Plan will need to be reviewed and updated in 2016. The 2015 Hazard Mitigation Plan will need to be evaluated and updated before expiration in January 2018. The Health Department efforts to provide information to county residents and officials regarding disaster planning management will need to continue. The Office of Homeland Security and Emergency Management will need to continue the coordination of the Berkeley County Emergency Operations Plan along with ensuring that police, fire and EMS have current homeland protection training.

A Community Recovery Services Coordinator was hired for the Recovery Center. In fall of 2016, the following goals and objectives for the Recovery Center were compiled and shared with the community:

1. Detox, Treatment and Recovery
 1. Find detox options.
 2. Seek out and find appropriate treatment options.
 3. Promote the development/expansion of services.
 4. Establish a referral system for individuals seeking help.
 5. Promote treatment and recovery success stories in our area.
 6. Improve financial accessibility to services.
2. Prevention and Intervention
 1. Expand community prevention/intervention efforts.
 2. Reduce underage drinking and drug use.
 3. Reduce babies born into an environment of addiction.
 4. Reduce the spread of blood borne pathogens through harm reduction programs.

3. Enforcement
 1. Act as an additional conduit for information that can help law enforcement efforts.
 2. Ensure drug dealers are prosecuted through the justice system.
 3. Ensure users are provided resources for treatment.
 4. Strengthen ties with U.S. Attorney's Office, Prosecutor's Office, Local Law Enforcement and Federal Law Enforcement Agencies.
4. Coordinate/Integration Services
 1. Promote collaborative partnerships between stakeholders throughout the region.
 2. Liaison with all local/regional medical facilities.
 3. Build and sustain comprehensive networks with faith-based and community organizations.
 4. Promote career opportunities for people recovering.
5. Research
 1. Centralize funding opportunities to support community revitalization, economic growth, and drug reduction efforts.
 2. Research best practices from across the country.
 3. Early problem detection/emerging threats.
 4. Conduct surveys to assess the wants/needs of a community.
6. Education
 1. Educate the public on the drug abuse/addiction/issues (children/teens/future mothers).
 2. Increase public support for various drug efforts and inform them of our successes (local forums/social media/print media, etc.).
 3. Create various substance abuse reports, policy briefs, and fact sheets.
7. Advocacy
 1. Act as a regional advocate for policy change by lobbying local, state, and federal lawmakers for resources and legislation.
 2. Promote and share ideas regionally and nationally.

Chapter 9b – The Educational Facilities and Services Plan

Educational Facilities and Services Goals

The Educational Facilities and Services chapter focuses on providing assurance that vital public educational services will be provided for the county's rapidly growing population. These educational services are impacted by the growth that is occurring in Berkeley County and they are part of the growth management plan. The goals of Educational Facilities and Services Plan are to:

- Coordinate the location and development of public educational facilities with targeted growth areas.
- Invest in quality facilities for public libraries in the county.

Educational Facilities and Services Profile Summary

The purpose of this profile is to provide an inventory of existing public and private educational facilities and services in Berkeley County. The significance of community facilities is critical in assessing needed improvements to serve current and future development. The Education and Library Facilities Map is located in the Appendices.

Educational Facilities and Services Profile

Public Education Profile

Public education in Berkeley County is provided by the Berkeley County School District. Each county school district in West Virginia is required by the State Board of Education to develop a ten year Comprehensive Educational Facilities Plan (CEFP). Its primary purpose is to *"establish a planned, organized, systematic approach to providing educational facilities that will support the county school system in the delivery of the best possible education to its students within the parameters of available resources."* (Berkeley County Schools Comprehensive Educational Facilities Plan, 2000-2010, January 2000.) The Berkeley County School District has developed such a plan with a revision date of July 2010.

Berkeley County Schools is the fastest growing school district in West Virginia, according to an April 15, 2015 letter to parents from Superintendent Manny P. Arvon. New schools built and opened since the 2006 Comprehensive Plan include Spring Mills Primary, Mountain Ridge Intermediate, Mountain Ridge Middle and Spring Mills High. Martinsburg North Middle renovations were completed in early 2015 with the realignment of student enrollment in affect for the 2015-2016 school year. Potomack Intermediate School renovations are scheduled to begin in 2015. In a July 23, 2015 Martinsburg Journal news article it was stated that, since approximately 1996, "Berkeley County schools have grown by 7,000 students. The system has built 10 new schools and completed 37 renovation and expansion projects."

There are 21 elementary schools (including 2 primary schools and 6 intermediate schools), 6 middle schools, and 4 high schools in the Berkeley County School District. See Table 9-3 for a listing of these schools and their corresponding enrollment numbers. At the writing of the 2006 Comprehensive Plan, The School District was under intense pressure for additional facilities as the County's school age population continues to grow. Enrollment for the 2014-2015 school year was approximately 18,668 students K-12. This is a total increase of 3,685 students over the 2004-2005 school year enrollment. (See Table 9-3.) Total current capacity is 21,905 which is approximately 3,237 above current enrollment. The construction of four new schools increased district capacity by 3,622. Renovations of existing schools also increased overall district capacity. Total school capacity minus total enrollment for the 2014-2015 school year is 3,237. As the county population continues to grow, additional school construction and renovations will need to take place in order to maintain open capacity.

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Table 9-3 Berkeley County Public Schools Enrollments 2004-2005 & 2014-2015 School Years

School	2004-2005 Enrollment	2014-2015 Enrollment	2014-2015 Capacity	Change in Enrollment from 2004-2005 to 2014-2015	Capacity Minus 2014- 2015 Enrollment
Inwood Primary	180	174	300	(6)	126
Spring Mills Primary	-	436	600	436	164
Back Creek Valley Elementary	175	146	250	(29)	104
Bedington Elementary	218	168	219	(50)	51
Berkeley Heights Elementary	613	980	655	367	-325
Bunker Hill Elementary	198	404	308	206	-96
Burke Street Elementary	150	106	173	(44)	67
Gerrardstown Elementary	176	261	225	85	-36
Hedgesville Elementary	424	635	650	211	15
Marlowe Elementary	252	323	437	71	114
Opequon Elementary	502	461	600	(41)	139
Rosemont Elementary	331	462	415	131	-47
Tuscarora Elementary	297	341	500	44	159
Valley View Elementary	571	409	550	(162)	141
Winchester Avenue Elementary	230	257	266	27	9
Eagle School Intermediate	409	761	900	352	139
Mill Creek Intermediate	717	508	600	(209)	92
Mountain Ridge Intermediate	-	581	772	581	191
Orchard View Intermediate	501	604	625	103	21
Potomack Intermediate	768	725	600	(43)	-125
Tomahawk Intermediate	407	548	650	141	102
TOTAL ELEMENTARY	7,119	9,290	10,295	2,171	1,005
Hedgesville Middle	604	713	775	109	62
Martinsburg North Middle	657	591	650	(66)	59
Martinsburg South Middle	793	917	900	124	-17
Mountain Ridge Middle	-	607	750	607	143
Musselman Middle	1,099	643	1,260	(456)	617
Spring Mills Middle	461	756	750	295	-6
TOTAL MIDDLE	3,614	4,227	5,085	613	858
Hedgesville High	1,471	1,196	1,750	(275)	554
Martinsburg High	1,471	1,268	1,500	(203)	232
Musselman High	1,308	1,524	1,775	216	251
Spring Mills High	-	1,163	1,500	1,163	337
TOTAL HIGH	4,250	5,151	6,525	901	1,374
TOTAL ALL SCHOOLS	14,983	18,668	21,905	3,685	3,237

Source: Berkeley County Schools

Private Schools Profile

There are also 5 private schools in Berkeley County that enroll Pre-K through 12th Grade students. Current enrollment for these schools is listed in Table 9-4.

Table 9-4 Private Schools in Berkeley County

Schools	Location	Grades	Enrollment
Faith Christian Academy	138 Greensburg Rd, Martinsburg	Pre-K – 12	291
Martinsburg Christian Academy	2247 Williamsport Pike, Martinsburg	Pre-K – 12	28
Rocky Knoll Seventh Day Adventist School	52 Advent Drive, Martinsburg	Pre-K – 8	69
Saint Joseph Parish School	336 S. Queen St, Martinsburg	Pre-K – 8	352
Eastern Panhandle Christian Academy	2395 Middleway Pike, Bunker Hill	K-12	19

Public Libraries Profile

Berkeley County has four public libraries throughout the region. They are located in Martinsburg, Musselman-South Berkeley, North Berkeley and Hedgesville. Services at these libraries include general print collections, passport agents, notary public, meeting rooms, exhibit space, and electronic and other multimedia resources. Additional information and current activity schedules are located at <http://martinsburg.lib.wv.us>.

Other Educational Opportunities Profile

Residents of Berkeley County also have access to a variety of alternatives to traditional secondary programs, as well as post-secondary educational opportunities. These opportunities are listed in the following table.

Table 9-5 Educational Opportunities Beyond High School

Educational Institution	Type	Website
James Rumsey Technical Institute	High School and Adult Education	www.jamesrumsey.com
WVU – The Robert C. Byrd Health Sciences Center	University Level Health Education	www.hsc.wvu.edu
WVU Berkeley County Extension Service	Community Resident Education	www.berkeley.ext.wvu.edu
American Public University	Online, Accredited University	www.apu.apus.edu
Valley College, Martinsburg Campus	College Level	www.valley.edu
Shepherd University	Bachelor's through Doctorate Degrees	www.shepherd.edu
Shepherd University-Martinsburg Center	Bachelor's through Doctorate Degrees	www.shepherd.edu/martinsburg-center
Blue Ridge Community and Technical College	Associate's Degree Level and Technical Certificates	www.blueridgectc.edu

2006 Summary of Educational Facilities and Services Action Strategies

- Encourage the Berkeley County Board of Education to consider the growth management recommendations in the Berkeley County Comprehensive Plan when acquiring property or siting new schools in the county.
- The Berkeley County Planning Commission and Board of Education should coordinate with one another on the siting of new schools to encourage consistency with the recommendations of the Berkeley County Comprehensive Plan.

2016 Educational Facilities and Services Highlights

- Berkeley County Schools is the fastest growing school district in West Virginia.
- New schools built since 2006 include Spring Mills Primary, Mountain Ridge Intermediate, Mountain Ridge Middle and Spring Mills High. Martinsburg North Middle and Potomack Intermediate renovations have also been completed.
- Since approximately 1996, the system has built ten new schools and completed thirty-seven renovation and expansion projects.
- Total school capacity minus total enrollment for the 2014-2015 school year was 3,237. As the county population continues to grow, additional school construction and renovations will need to take place in order to maintain open capacity.
- There are five private schools in Berkeley County that enroll Pre-Kindergarten through twelfth grade students.
- Berkeley County has four public libraries located in Martinsburg, Musselman-South Berkeley, North Berkeley and Hedgesville.
- Residents of Berkeley County have access to a variety of educational opportunities including alternatives to traditional secondary programs, technical certificates, and post-secondary educational opportunities ranging from the Associate's degree level all the way through the Doctorate degree level.

Looking Forward to 2026

The Berkeley County Board of Education is encouraged to consider the growth management recommendations in the Berkeley County Comprehensive Plan when acquiring property or siting new schools in the county. The coordination of the Berkeley County Planning Commission and the Board of Education, on the siting of new schools, will encourage consistency with the recommendations of the Berkeley County Comprehensive Plan. An existing tool available to assist in this coordination is the Residential Development Public School Impact Analysis Form. This form is a requirement of the 2009 Berkeley County Subdivision Ordinance as part of the application process. The Martinsburg-Berkeley County Public Libraries are a wealth of resources and information. Opportunities to invest in them are provided on the webpage and in their monthly newsletters.

Chapter 10 – The Parks, Recreation, and Cultural Resources Plan

Parks, Recreation, and Cultural Resources Plan Goals

- Provide recreational opportunities for county residents and tourists to meet both current and future needs.
- Coordinate and expand recreational planning, development and marketing, including private recreational development, to provide residents with a wide variety of recreational resources that are both easily accessible and available the entire year.
- Enhance the quality of life through the conservation, promotion, and interpretation of cultural and historic resources.
- Conserve the features and sites, including historic buildings and cemeteries that define the historic and cultural character of Berkeley County.
- Encourage sensitive community development in the vicinity of identified cultural and historic resources.
- Increase the awareness and inter-relationships between Berkeley County's history, its residents and the tourism economy.
- Promote the arts, culture, and history throughout the county.

Parks and Recreation Profile

State Parks Profile

Sleepy Creek Wildlife Management Area is owned and operated by the West Virginia Division of Natural Resources and covers the western edge of Berkeley County. This 23,000 acre area is a large, remote, passive area in contrast to the more active parks and recreation areas managed by the Parks and Recreation Board. Sleepy Creek includes camping areas, an extensive system of trails and a 200 acre lake on Meadow Branch.

City and County Parks Profile

Parks and recreation facilities in Berkeley County are provided by the Martinsburg-Berkeley County Parks and Recreation Board (<http://www.mbcparcs-rec.org/>). It is comprised of nine members representing the City of Martinsburg, Berkeley County Council and the Berkeley County Board of Education. The Board's activities are run by a staff of full and part-time employees. Park facilities run from one acre parks to the 137 acre Poor House Farm Park. In looking at Berkeley County, most of the current parks and recreation facilities are clustered in the greater Martinsburg area. As the population in the county grows, especially in the north and south, additional park lands and recreation opportunities will be needed. These include the Inwood, Hedgesville, Marlowe/Falling Waters areas, as well as the Back Creek Valley area. The Parks and Outdoor Areas Map in the appendices illustrates the various existing park areas throughout the county.

Municipal standards published by the National Recreation and Parks Association suggest there should be 10 acres of park land for every 1,000 residents. There are many factors to consider in this ratio including active and passive recreation areas and open space areas. Currently, the combined total of parks and recreation facilities under the Parks and Recreation Board is about 395 acres. Using the standard of 10 acres of park land per thousand residents and the 2014 estimated population of 110,497 persons, it would appear that Berkeley County, as of the writing of this plan, needs a total of over 1,100 acres of park land.

Berkeley County Comprehensive Plan Update June 2016

There are nineteen parks and recreational facilities located in Berkeley County; Table 10-1 lists each site its location, size, owner and available facilities. The Parks and Recreation Board also offers a variety of recreation classes, including swimming, tennis, gymnastics and dance. Summer programs include soccer, cheerleading, summer basketball leagues, summer day camps and programs such as Hershey Track & Field. There are also ten sports leagues that are offered to children of all ages during the year. The Summer Playground Program & Passport to Fun are two programs that are partially funded through the United Way of Berkeley & Morgan Counties.

Recreation Centers Profile

The Berkeley 2000 Recreation Center is located in Lambert Park on Woodbury Avenue, Martinsburg. It has been expanded twice since the original structure was built. The facility includes administrative offices, a main gym, Quad Graphics Gymnasium, Flip Over Gymnasium, Turning Pointe Centre for Dance, and the Marshall Mason Multipurpose wing.

The W. Randy Smith Recreation Center is an 18,200 square feet facility which opened in the Fall of 2013. The facility includes a gymnasium, bleacher seating, reception area and office and concessions. There are plans for a proposed phase II and phase III when funding allows.

Table 10-1 County and City Parks and Recreational Facilities

Park	Location	Owned by:	Acres
Allensville Acreage	1 mile north of Hedgesville, currently undeveloped	County	78
Ambrose Park	Rocky Lane & Porter Ave	City	4.3
Dupont Soccer Complex	US Rt 11 North, next to Spring Mills High School	County	28
E. Burke Street Park	Along Tuscarora Creek in Martinsburg	City	0.5
Gerrardstown Athletic Field	1 mile south of Gerrardstown on Dominion Road	County	3
Hedgesville Park	Property between Hedgesville Elementary and Middle Schools	Board of Education	10
Inwood-Bunker Hill Lions Park	Property on south side of Mill Creek Intermediate School	Board of Education	20
Lambert Park	Woodbury Avenue	City	12
Leeland Playground	West Main Street	City	1.5
Martin Luther King Jr. Park	West Main Street	City	1
Oak Street Park	Oak Street	City	2
Oatesdale Park	Corner of Baltimore & William Street	City	22
P.O. Faulkner Park	Sycamore & Ryneal Streets	County	30
Pikeside Park	US Rt 11 South in Pikeside	Leased through WVANG 167th	5
Poor House Farm Park	Poor House Road	County	137
Rooney (Tomahawk) Park	Back Creek Valley Road behind Tomahawk Ruritan Club	County	17
Rousch Field	Between South Georgia Ave & South Alabama Ave	City	1.5
W. Randy Smith Recreation Center	Excellence Way	County	3
War Memorial Park	North Tennessee Ave	City	19.5

Source: Martinsburg-Berkeley County Parks and Recreation Board

Parks and Recreation Funding

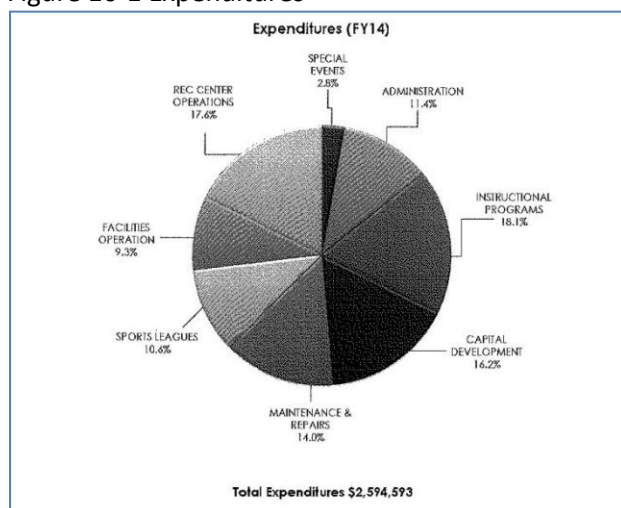
The Parks and Recreation Board understands the need to expand opportunities for the growing population of Berkeley County. The Board would like to expand current facilities such as the Poor House Farm area and also purchase additional acreage and build new facilities to meet current and future needs. The Board has been frustrated in trying to expand their facilities due to the lack of funding sources that can be targeted for parks and recreational facilities. The Board is completely dependent on

budget appropriations by the County, City and Board of Education. Attempts to gain a steady source of funding for parks and recreation facilities have been unsuccessful.

- Excess Levy Tax – An option to consider but this requires 60% voter approval. Funds could be used for maintenance and operation.
- Bond Levy – Could be used to build facilities such as an indoor aquatic center. This also requires 60% voter approval.
- Impact Fees – Not available in Berkeley County unless a Zoning Ordinance is adopted.
- Property Transfer Tax – State Legislature would need to approve allowing more of this tax to be returned to counties where tax is generated.
- State of West Virginia – No dedicated funding stream for public parks. Community Participation Grants that have provided small funding amounts over the past decade are being eliminated entirely.
- New Home Rule – State Legislation could provide funds for public parks. The City of Martinsburg qualifies to increase sales tax by 1% under a trial basis. City Council would have full authority to dictate how this revenue will be disbursed. County Council could potentially qualify as well.
- Martinsburg Berkeley County Parks and Recreation has two endowments in the EWV Community Foundation encouraging private donors to dedicate funds through estates and other gifts dedicated for enhancement of local parks.
- Research land dedications or “fees in lieu of community open space” as part of the subdivision approval process.

The lack of funding sources has frustrated the Parks and Recreation Board. If the County is to respond to the future needs for Parks and Recreation facilities one of the above described funding streams will need to be made available for the purchase of park land and the operation and maintenance of these facilities. This could be complimented with a larger percentage of the property tax collected by the county. When compared to other areas in West Virginia, the Berkeley County Parks and Recreation is underfunded in terms of appropriated dollars. Efforts should be undertaken to fund this at a level commensurate with the rest of the state. The board’s 2014 Fiscal Year Expenditures are shown in the pie chart in Figure 10-1.

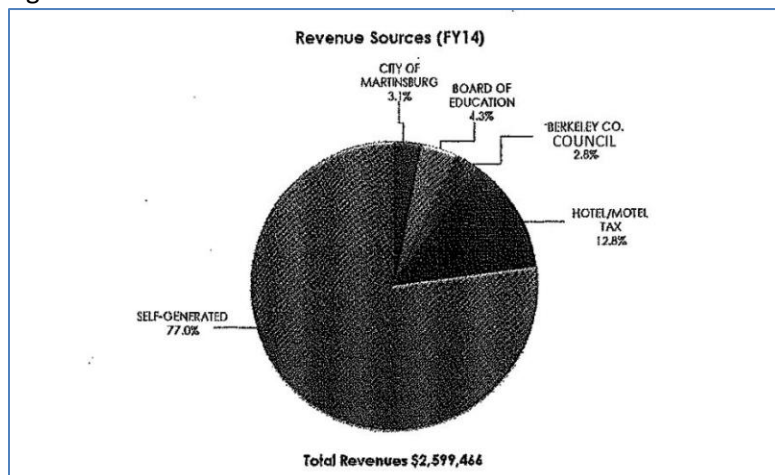
Figure 10-1 Expenditures



Source: Martinsburg-Berkeley County Parks and Recreation Board Annual Report

In addition to setting recreation and park service policy in Berkeley County, the Parks and Recreation Board receives annual allocations from each of the three governing bodies to operate recreation programs and to maintain the parks and facilities. This revenue is illustrated in Figure 10-2.

Figure 10-2 Revenue Sources



Source: Martinsburg-Berkeley County Parks and Recreation Board Annual Report

Historic and Cultural Resources Profile

Berkeley County has a wealth of historic and cultural resources. The Berkeley County Historic Society has identified and documented over three thousand historic sites in the county, many of which are listed on the National Register of Historic Places. There are also twenty-two historic districts, a variety of historic monuments, and two markers erected by the Berkeley County Landmarks Commission. There are also a variety of museums and events that celebrate the history and culture of the county.

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, and other physical evidence of human activities considered important to a society. A wealth of cultural resources may be found throughout Berkeley County, as well. Knowledge of these resources increases our understanding and appreciation of the local heritage and improves the overall quality of life of local residents. This section provides a basic inventory of the cultural resources located within Berkeley County and gives particular attention to local historic preservation efforts.

These resources represent opportunities and some challenges for Berkeley County as it grows. They are opportunities in that they provide an excellent base for heritage tourism in the county; challenges because their protection and continued value depends primarily on their owners.

National Register of Historic Places

Listing in the National Register contributes to preserving historic properties in a number of ways:

- Recognition that a property is of significance to the nation, the state, or the community.
- Consideration in the planning for federal or federally assisted projects.
- Eligibility for federal tax benefits.
- Qualification for federal assistance for historic preservation, if funds are available.

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Like many state and federal preservation programs, the interest in National Register listing originates with the land owner. Once approved by the state, the state historic preservation agencies can nominate the property to the national level. Listing in the National Register does not interfere with a private property owner's right to alter, manage, or dispose of property. However, it often changes the way communities perceive their historic resources and give credibility to efforts to preserve these resources as irreplaceable aspects of the community. According to the Berkeley County Historical Society, there are over 3,000 sites in Berkeley County that are on the National Register, as well as 45 additional sites that are not included in the following list of properties.

Table 10-2 National Register of Historic Places in Berkeley County

Historic Place	Location	Year Added to National Register
The John-David-Jacob Rees House	Bunker Hill, Route 11	1984
"Morgan Acres" – William G. Morgan House	Bunker Hill, Route 24	1984
"Golden Meadows" – David Morgan House	Bunker Hill, Route 26	1985
"Marshy Dell" – Gilbert McKown House	Gerrardstown, Route 51	1984
"Mountain View" – Washington Gold House & Rippy Cabin	Gerrardstown, Route 51/2	1984
James Nathaniel Burwell House	Ridgeway	1991
"Oban Hall" – Mary Park Wilson House	Gerrardstown, Route 51/2	1984
Teter M. French House	Hedgesville, Route 1 & 3 Junction	1980
"Maidstone Manor" – William Robinson Leigh House	Hedgesville, Route 1	1980
Harmony Cemetery	Marlowe, Route 1	1980
Decatur Hedges House	Hedgesville, Route 9	1984
"Fort Hedges" – Hedges-Leman House	Hedgesville, Route 4	1991
Mount Zion Baptist Church	Martinsburg, Opequon Lane	1980
"Allen Dale"	Martinsburg, southwest of Route 45/3 and Route 40 junction	1984
Susan Couchman House	East of Martinsburg, Warm Springs Road	1994
Smoketown School	East of Martinsburg, 45/4 East	1994
Rush-Miller House	Smoketown, WV 45	1985
Continental Clay Brick Plant	Southeast of Martinsburg, Route 9	1980
Kearfoot-Bane House	Baker Heights, Route 36/1	1985

Source: 2006 Berkeley County Comprehensive Plan Update

Historic Districts

There are also a number of historic districts that have been identified within the county and placed on the register. They are listed below in Table 10-3 and illustrated on The Historic Districts Map in the appendices.

Table 10-3 Historic Districts in Berkeley County

Map Number	Historic District	Location	Date Added
1	Baltimore and Ohio and Related Industrial	Roughly bounded by B&O RR from south side of Burke St. underpass to north side of B&O & PA RR bridge	1980
2	Boomtown	Roughly along Winchester Ave. to Arden Rd., W. King St. to Red Hill Rd., W. Stephen, W. Addition St. and Raleigh St., Martinsburg	1980
3	Boydville	Roughly bounded by W. Stephen St, S. Spring St, and S. Queen St, including Boydville grounds, Martinsburg	1980
4	Bunker Hill	Jct. of US 11 and Rt. 26, Bunker Hill	1980
5	Clary's Mountain	North of Hedgesville	2004
6	Darkesville	US 11 at Middle Creek, Darkesville	1980
7	Downtown Martinsburg	Roughly bounded by W. Race St, Water St, Stephen St and Charles St, Martinsburg	1980
8	East Martinsburg	Roughly bounded by B&O RR right-of-way, N. Queen St., Moler Ave., and High., St., Martinsburg	1980
9	Gerrardstown	Roughly, along WV 51 and Virginia Line Rd., Gerrardstown	1991
10	Green Hill Cemetery	486 E. Burke St., Martinsburg	1980

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Map Number	Historic District	Location	Date Added
11	Harlan Spring	Harlan Spring, Hedgesville	1980
12	Hedgesville	Roughly bounded by N. and S. Mary St., and E. and W. Main St., Hedgesville	1980
13	Jones' Mill	9 acres along Dam #4 Rd, north of Scrabble	1980
14	Martinsburg, Mining, Manufacturing & Improvement Co.	Also known as MMM&I Historic District; Martinsburg	2002
15	Mill Creek	Runs along Mill Creek extending both E and W of Bunker Hill, Bunker Hill	1980
16	Ridge Road	S along Ridge Rd, from Nollville, Nollville	1980
17	Rosemont	Tennessee, Illinois, Georgia, Kentucky Avenues, Martinsburg	2002
18	Scrabble	Scrabble Rd, Dam #4 Rd	2006
19	South Water Street	Roughly bounded by E. John, Water, and E. Burke Streets, and B&O RR, Martinsburg	1980
20	Spring Mills	Portions of Hammonds Mill Rd and Harlan Spring Rd	2004
21	Swan Pond Manor	Swan Pond, Martinsburg	1980
22	Tabler's Station	North of Tabler's Station Road, west of US 11	2004
23	Tuscarora Creek	Roughly bounded by N. Tennessee Ave, S on Old Mill Rd to Route 15, Martinsburg	1980

Source: USNPS National Register Information System

State Historical Markers

There are 31 State Historical Markers located in Berkeley County according to the West Virginia Division of Culture and History. (See Table 10-4) Originally implemented in 1937, the West Virginia Commission on Historic and Scenic Markers worked with the state Road Commission, Works Progress Administration, and Federal Emergency Relief Administration to place 440 markers during the first year alone. After World War II, markers were placed at the sites of most state-run facilities and schools. The West Virginia Historic Commission took over the program in 1963 and since the late 1960s the program has been managed by the West Virginia State Archives, which is part of the West Virginia Division of Culture & History. <http://www.wvculture.org/history/archivesindex.aspx>

The State Archives maintains files on each of the markers. Unfortunately, many of these files are outdated because markers have been moved and road names have been changed. In 1996, the Division of Culture & History was awarded a federal intermodal Surface Transportation Efficiency Act (ISTEA) grant to survey the state's high way markers. The updated markers guidebook is now available online from the Division of Culture and History at www.wvculture.org/history/markerbook.

The historical markers were funded by the state until 1985. All markers placed since then have been funded by groups or private individuals. There are two styles of markers, both of which include the State Seal. In order to place a new marker, the site, property, district, or community to be honored must possess some degree of significance in state or local prehistory (archaeology), history, natural history, architecture, or cultural life. A complete list of guidelines can be obtained from the State Archives.

There is no state funding to repair or replace markers. Some historical societies and civic groups assume the cost for refurbishing markers in their counties. Missing or damaged markers should be reported to the State Archives. More information about the Markers Program can be obtained by contacting Joseph N. Geiger, Jr., Director of the West Virginia State Archives or by visiting the archives website <http://www.wvculture.org/history/archivesindex.aspx>.

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Table 10-4 Historical Markers in Berkeley County

Marker Title	Location
Martinsburg	Intersection of North Queen Street and Eagle Schoolhouse Road, Martinsburg
Hedgesville	WV 9 in Hedgesville
West Virginia (Berkeley County)/Maryland	US 11 at West Virginia/Maryland border (marker missing)
Fort Neally	US 11, two miles north of Martinsburg
Boydville	600 block of S Queen St, Martinsburg
Martinsburg/Berkeley Riflemen	300 W King St at Old Federal Building, Martinsburg
General Adam Stephen	309 E John St, Martinsburg
Railroad Strike of 1877/Roundhouse and Shops	End of E Martin St and Roundhouse Dr at Caperton Station in Martinsburg
Tuscarora Church	Tuscarora Pike at entrance to church, about 0.5 miles west of I-81 Exit 13
Swan Pond Manor	WV 45 and Secondary Rd 45/2, four miles east of Martinsburg (marker missing)
Van Metre Ford Bridge	Needy Road (CR 36) at south east end of bridge, two miles east of Martinsburg
Veterans Administration Center	WV 9, 4.5 miles south of Martinsburg
Fort Evans	US 11, south of Martinsburg (marker missing)
Gerard House	Secondary road 51/2 about 0.1
Gerrardstown	WV 51 at Gerrardstown west of intersection with US 51/5
Darkesville	US 11 at Darkesville
Morgan Morgan	In Morgan Park, US 11 at Bunker Hill
Morgan's Chapel	US 11 and secondary road 26 in Bunker Hill (marker missing)
"Morgan Acres"	In Morgan Park, US 11 at Bunker Hill
Morgan Cabin	ON WV 26 2/2 miles west of US 11 on east side of Runnymede Road
Berkeley County/Jefferson County	On WV 51 (south side) at southwest corner of Opequon Creek Bridge WV 45 at Berkeley/Jefferson border (marker missing) WV 9 at Berkeley/Jefferson border (marker missing)
Berkeley County/Morgan County	WV 9 (northbound) at county line on Morgan side of creek
West Virginia (Berkeley County)/State of Virginia	WV 45 (marker missing) US 11 (marker missing)
Watkins Ferry	West side of US 11 North beside bridge across Potomac River
J.R. Clifford	Martinsburg
VA-Z291 West Virginia	US 11 (southbound) at the Virginia and West Virginia state line
WV-WV016 Berkeley County	Location listed
WV-WV017 Gerrardstown	Location not listed

Historic Monuments

In addition to the aforementioned markers, there are also a number of monuments located throughout Berkeley County. These monuments recognize a variety of significant events and individuals.

Local Historic Preservation Efforts

In addition to sites of state and national significance, there are a number of properties in Berkeley County that signify county and local history or that represent cultural aspects of history. The Berkeley County Historical Society (www.bchs.org) has researched and documented over 3,000 individual properties, including cemeteries, and 22 historic districts in Berkeley County. The Historical Society's primary goals are to preserve county records and historically significant buildings. There are currently over 700 members who live across the country. The county Archives, Research Center, Book Store, and Herb Garden are located at 136 E Race Street in Martinsburg.

The Berkeley County Landmarks Commission was formed in 1975 by the Berkeley County Commission. There are five voting members. For several years the Berkeley County Landmarks Commission has reviewed grants for the state office to hire someone to write up the forms for a district or individual property to be listed on the National Register. As part of the review process, the Landmarks Commission supplies only the history. The commission has also done this for many of the buildings, 50-years or older, to determine if they may be eligible for the National Register. There were two requests into the state program for 2006, a district and eight individual properties in Berkeley County. The commission also had a \$12,000 grant. The purpose of this grant was to survey and establish two more

historic districts in Martinsburg. The city was putting up the match. For properties in Berkeley County, the County Council provided the necessary matching funds. The Landmarks Commission has also installed two additional historic markers in Berkeley County as shown below in Table 10-4.

Table 10-4 Additional Historical Markers

Marker Title	Location
Providence Quaker Cemetery	North side of Tuscarora Rd, ¼ mile from the I-81 Exit 13
Pack Horse Road	West of the intersection of Pack Horse Rd and US 11

Cultural Resources Profile

Cultural Landscape

According to the National Park Service (NPS), a cultural landscape is a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

In the urban environment, the built features define the character of the local landscape. Building types, architectural styles, porch designs, window placement, and rooflines, particularly those prior to WWII, can be unique to a region or locale. These features can provide justification for historic significance and preservation as individual sites and collective districts.

In the rural environment, historic sites are often farmhouses and barns. Until recently, there was no broader attention given to the rural environment. The rural landscape, as a whole, is a representation of the past, in the way that historic districts recognize continuity in the urban environment. New efforts to designate rural historic landscape districts recognize continuity in the urban environment. New efforts to designate rural historic landscape districts have helped rural areas to protect their community, foster community cohesion, and speak with one voice to federal, state, and regional decision-makers.

Beyond the NPS definition, even ordinary neighborhoods are cultural landscapes as they reflect the ways of life and values of those that live there.

The Arts

While billboards advertising events in other areas can be seen as one drives through Berkeley County, there are many hidden gems that can be found within the county and only a few minutes from home or work. Wearing many names over the years, including, “The Town Cinema”, “The Berkeley County Civic Theatre” and currently “The Apollo Civic Theatre”, this venue, was built in 1913 and is located on Martin Street in Martinsburg. It houses a main auditorium floor with 509 seats and hosts a variety of events including the Annual ACT Community Talent Show, Apolloween, performances by the Apollo Youth Theater Company, and many other seasonal shows.

Performances drawing larger audiences are hosted by area high schools such as Musselman High School, with a 600-seat auditorium or Spring Mills High with a 750-seat auditorium. These performances range from school sponsored show choirs, talent shows, instrumental concerts, and plays to performances by the Inwood Performing Arts Company and other dance companies and entertainers throughout the region. Michael Stiles, Theatre Director at Musselman High School and High School Representative on the Board of Directors for the West Virginia Theatre Association (www.wvtheatreassociation.org), indicated that nearly 60 outside agencies have used and continue to use the school’s auditorium as a venue for their events.

As of the writing of this plan, no venue exists within Berkeley County that is able to host events, such as high school graduations. Each year, the high schools plan to hold graduation at each school's stadium. However, in the event of inclement weather, graduations must be held in the school's auditoriums, with back-up seating in cafeterias where the commencement can be viewed via broadcast. This indoor option drastically reduces the number of family and friends that are able to attend their student's graduation. A larger venue within the county would be closer to the home schools than venues used in previous years and will provide the much needed space to host indoor high school graduations when weather prevents the outdoor stadium ceremonies from taking place. A larger venue will also attract a broader range of talent and performances into Berkeley County for community participation and enjoyment.

According to Kevin Green, CEO of Civic Sounds Incorporated, "The Board of Directors of Civic Sounds, in partnership with The Living Room, continues to pursue funding for Berkeley County's 4,000-seat Civic Center. Great progress is being made in the infrastructure that will support this facility as we are nearing the completion of our first building with seating capacity of 1,000. The timeline of the Civic Center greatly relies on funding as the land, site approvals and architectural drawings are secured. This progress has us optimistic that the beginning of the Civic Center is in the very near future."

Another concern expressed, is that many of our talented youth leave the county, after graduation, for performance and artistic opportunities outside of the county. Increasing the availability of art resources within the county would not only encourage these youth to remain in the county, but it would also provide more entertainment and cultural choices to all citizens of Berkeley County. "The U.S. Department of Commerce data indicates that the arts and culture industry has a national impact of \$699 billion, or 4.3% of GDP annually. This is greater than the tourism or agriculture industries. Berkeley County has a key resource in the already established Berkeley County Arts Council." (Alissa Novoselick, Executive Director of the Tamarack Foundation for the Arts. www.tamarackfoundation.org)

The Berkeley County Arts Council www.berkeleyartswv.org, is a non-profit organization whose members "Amplify the Arts" as indicated on their logo. This organization was founded in 2009 to provide support and resources for local artists, arts organizations, and the public. The Arts Council features a wide variety of programs including classes, youth photography contests, poetry readings, themed exhibits, and year-round juried shows by local and regional artists and artisans. Course listings and a schedule of events are made available on the Arts Council website.

Cultural Events and Resources

Martinsburg Roundhouse Complex Events www.martinsburgroundhouse.com

Berkeley County Historical Architectural Tours www.bchs.org

Mountain State Apple Harvest Festival www.msahf.com

Sumner-Ramer Heritage Archives www.bchs.org

Berkeley County Youth Fair www.berkeleycountyyouthfair.org

House and Garden Annual Spring Tour, sponsored by the Shenandoah Potomac Garden Council

Morgan Cabin Spring Festival

Belle Boyd Annual Birthday Party

Adam Stephen Founder's Day

Christmas at the Belle Boyd House

Trolley Tours sponsored by the Berkeley County Landmarks Commission

Berkeley County Historical Society House Tour

Apollo Civic Theater www.apollocivictheatre.org

The Berkeley Arts Council www.berkeleyarts.org

Inwood Performing Arts Company www.inwoodperformingarts.com

2006 Summary of Parks and Recreation Action Strategies

- The Parks and Recreation Board should prepare a county-wide parks and recreation plan that assesses the future demand, determines the types of recreation facilities that are needed and their location in the county. This includes a careful look at strategies to acquire additional park lands and provide additional programs in order to meet future demands of a rapidly expanding population.
- Acquisition is only the first step to be evaluated, followed by design and construction of adequate facilities and then the annual burden of operating and maintenance of these facilities.
- The Parks and Recreation Board needs to develop a long range strategy to acquire and develop park lands at both the local and regional levels. Park lands can come from a variety of sources, including gifts from land owners or estates, acquisition of lands, and dedication by land developers. Acquire additional park lands in the Hedgesville, Inwood, Marlowe/Falling Waters and Back Creek areas.
- There are recommendations in the Growth Management Plan for the proposed county-wide land use tools to provide for the conservation of open space and natural areas. These areas would be mostly passive uses, but would contribute significantly to the open space needs and aesthetics of Berkeley County.
- A consistent theme of the 2006 Comprehensive Plan was to provide better access to facilities. This included providing parks and recreation facilities close to the more densely populated sections of the county. It would allow users to utilize pedestrian and bicycle trails to access park facilities.
- Develop a dedicated stream of funding for park acquisition through excess levy taxes, property transfer taxes, dedication of lands by developers, or possibly impact fees.
- Continue to look at funding sources such as the Federal Land and Conservation fund and others for park land acquisition.
- Private recreational providers are a big part of recreational programs. They provide for recreation demands that the public sector cannot meet. The Parks and Recreation Board should work with private providers to promote, facilitate, and coordinate the services they provide.
- Provide greenways and hiking trails by designating or acquiring right-of-way for biking and/or hiking trail.
- Develop community centers in conjunction with schools and libraries. The Parks and Recreation Board should continue to work cooperatively with the Berkeley County Board of Education to use school facilities for recreational programs.

2006 Summary of Cultural Resources Action Strategies

- Work with the Berkeley County Historic Society and the Landmarks Commission to establish a dedicated funding stream to purchase historically significant properties in the county.
- Continue to work with the Convention and Visitors Bureau to promote the county's historic and cultural assets to visitors.
- Work with the Martinsburg-Berkeley County Parks and Recreation Board to include historic sites where appropriate as they begin to develop a greenways network for the county.
- Encourage property owners and developers to protect historic properties and cemeteries by providing incentives such as tax credits or streamlined review processes.

- Include specific provisions in the proposed zoning ordinance and also within the subdivision and land development ordinance to protect historic resources. This could take the form of an overlay district in the zoning ordinance and conservation design requirements in the SLDO.
- Revise the subdivision and Land Development Ordinance to include language that would require adequate buffer zones around all sites and cemeteries listed on the National Register of Historic Places.

2016 Highlights

- The Berkeley 2000 Recreation Center has been expanded twice since the original structure was built.
- The new South Berkeley Recreation Center was built in 2013.
- An ordinance including zoning options was shared with the public and was defeated in the general election on two separate occasions. The first attempt to pass a zoning ordinance was defeated several years prior to the writing of the 2006 Comprehensive Plan. The second attempt to pass a zoning ordinance was defeated in 2010.
- A Regional Bike Study, underway through the Hagerstown Eastern Panhandle MPO, is evaluating bicycle routes and trails throughout the area.
- The need for a 2,000 seat venue that would allow a group of this size to watch a performance or event has been expressed by multiple organizations and members of the community.
- The Berkeley County Arts Council was founded in 2009.

Looking Forward to 2026

- Using the standard of 10 acres of park land per thousand residents, Berkeley County needs an additional 700 acres of park land. This need will continue to grow as the population grows.
- Major projects to consider, if funding can be identified to purchase, build, and then maintain and operate the facilities are as follows:
 - Regional parks of approximately 100 plus acres in both North and South Berkeley County. These would be multipurpose facilities, similar to Poor House Farm Park.
 - Expand the W. Randy Smith Recreation Center in South Berkeley County by building Phase II and Phase III to increase the size from 18,200 square feet to 50,000 square feet.
 - Indoor Aquatic Center – This type of project is too large for the local park and recreation organization to undertake, however an authority made up of many entities might be able to coordinate and fund it.
 - Public Access to Potomac River – Berkeley County owns quite a bit of property in what is known as “Sportsmans Paradise” located in North Berkeley County. Current budget does not allow funds for developing property or maintaining property. Serious issues faced include poor conditions of road, accessing the acreage and illegal/criminal behavior that has taken place within this area.
 - Need to develop an adult softball complex with a minimum of four fields with lighting.
 - Work with Eastern Panhandle Trailblazers to continue to build trails throughout the Eastern Panhandle connecting all three counties.
- Potential funding sources include the New Home Rule, the EWV Community Foundation endowments, and possible land dedications or a “fees in lieu of community open space” as part of a revised subdivision approval process.
- A new facility with a theater seating capacity of 1,000 is anticipated to be completed in the fall of 2016. A “Civic Center” is to follow within the next ten years that will be able to hold up to 4,000-seats, depending on the needs of the performance or event, including sporting events. Both of these facilities are located on Creative Place between I-81 and Rock Cliff Drive.

- The Berkeley County Arts Council is preparing to survey both potential audiences and those who create various forms of art to provide guidance for this organization over the next ten years.

Chapter 11: The Economic Development Plan

Economic Development Plan Summary

Berkeley County's economy is growing strong. In fact, growth in total employment in Berkeley County in 2014 was the strongest among the surrounding counties, with an increase of 30 percent since 2001 levels. However, even with this growth, approximately 55 percent of the workforce was traveling outside the county to work in 2009, which indicates more needs to be done to increase employment opportunities within the county.

Berkeley County is just over an hour's drive from the Baltimore-Washington DC metropolitan area, which is among the nation's fastest growing and most affluent. In fact, the county's strategic location places it within 500 miles or two-thirds of all industrial activity and retail consumers in the United States. The county is well connected to these markets by a highly developed highway-rail-air transportation network and should take advantage of them as part of an overall economic development strategy.

Economic Development Goals

The 2006 comprehensive plan update planning process established the following vision for Berkeley County's economic future, "A diversified economy that takes advantage of access to regional markets, opportunities for recreational, heritage, and ecology base tourism, and continues to support strong agricultural sector."

Economic Development Plan Profile

Berkeley County's economy continues to evolve and change. Agriculture has traditionally been a significant part of the county's economy. During the early 1700s the first settlers worked the land and many of the original farm complexes are still in operation. With the arrival of the B&O Railroad in the 1840s and the Pennsylvania Railroad 30 years later, the area's economy diversified with flour and textile mills providing products to the Alexandria and Baltimore markets. In addition, the various machine shops associated with the railroads were also important.

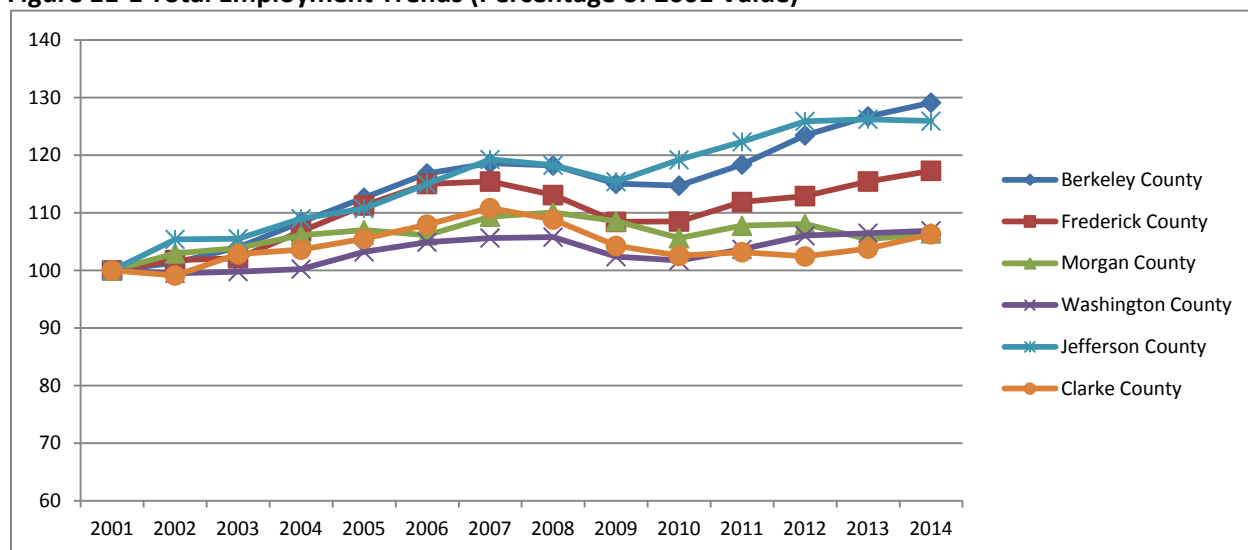
This profile provides an assessment of Berkeley County's economic structure and performance, as well as its labor force. This analysis provides a basis for strategic planning for a healthy and sustainable economy. The structure and performance of Berkeley County's economy are evaluated primarily using available public data on employment figures and employee earnings. Data came from two sources. The original source of the Berkeley County Development Authority data provided in this chapter was the U.S. Bureau of Labor Statistics. This agency provides data on employment covered under unemployment insurance programs. Categories excluded from these data are federal employment, interstate railroads, self-employed, and household workers. These data include approximately 95% of all employment. The other source is The U.S. Bureau of Economic Analysis. This agency begins with the Bureau of Labor Statistics data and adds estimates for the missing classes of employment, as well as provides earnings statistics for all of these categories. Employment data from the U.S. BEA, however, are only available at a more aggregated industry sectoring scheme. All of these employment data are for both full-time and part-time employment.

Employment Trends

This section examines the employment in terms of "place of work"; that is, workers employed in Berkeley County regardless of where they live. These data thus reflect the local industry performance and employment opportunities available in the county. The adjacent counties are referenced for context. A look at data on total employment trends (Figure 11-1) reveals a continued strong growth

trends for Berkeley County – about 30 percent over 2001 levels. This is the highest growth trend among all of the surrounding counties. Frederick County, VA continued to experience somewhat similar growth, while growth in Jefferson County nearly mirrored Berkeley County growth and even exceeded it in 2010, 2011 and 2012. Morgan County, Washington County and Clarke County maintained a growth rate at or below 10 percent over the same time period.

Figure 11-1 Total Employment Trends (Percentage of 2001 Value)



Source: Bureau of Economic Analysis

Private sector employment accounted for 78 percent of Berkeley County's total employment in 2014 (Table 11-1). This is a 2 percent drop from the 80% reflected in the comprehensive plan 2003 data. This is fairly consistent throughout the region. Washington County continues to have the highest percentage of private sector employment at 87 percent, along with Frederick County, VA.

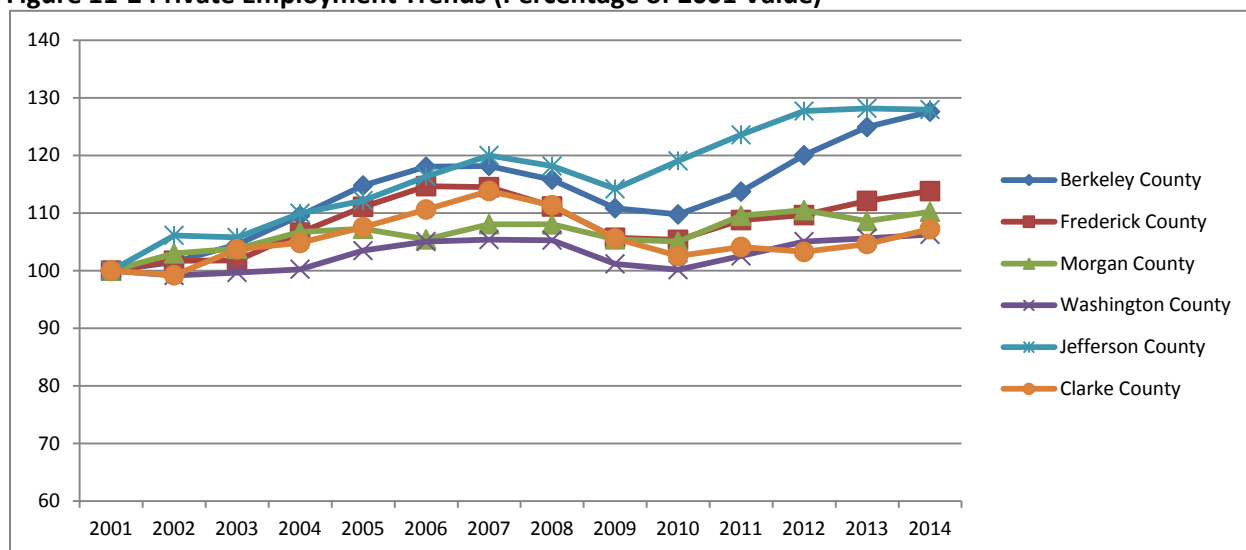
Table 11-1 Private Employment Totals as a Percentage of Total Employment

Employment	Berkeley	Jefferson	Frederick	Morgan	Clarke	Washington
Total	45,364	22,359	68,714	4,795	6,781	81,318
Private	35,255	17,679	59,533	3,758	5,396	70,632
Percentage	78%	79%	87%	78%	80%	87%

Source: Bureau of Economic Analysis

As shown in Figure 11-2, private sector employment in 2014 was almost 30 percent higher than the 2001 private sector employment percentage. The growth in the private sector in Berkeley County continues to be one of the strongest in the region. Jefferson County also experienced close to 30 percent growth over the same time period, while Frederick, Morgan, Washington and Clarke Counties are hovering near 10 percent.

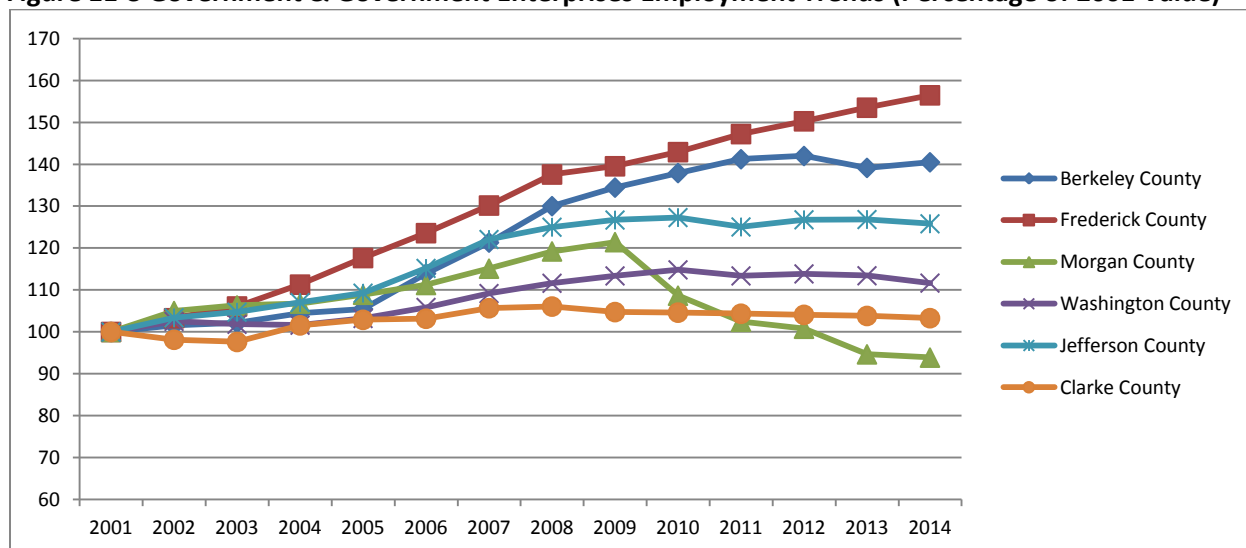
Figure 11-2 Private Employment Trends (Percentage of 2001 Value)



Source: Bureau of Economic Analysis

Trends in the government and government enterprises sector employment are illustrated in Figure 11-3. The 50 percent growth Clarke County, VA experienced from 1990 through 2000 (2006 comprehensive plan) began to decline in 2001 and has hovered around 5 percent growth of 2001 totals through to 2014. Frederick County, VA employment numbers in this sector reflected 40 percent growth over 1990 totals (2006 comprehensive plan). This growth has not only continued in Frederick County, it has increased to nearly 60 percent of 2001 totals, leading the region in this sector. Berkeley County government and government enterprises employment continues an overall upward trend with 40 percent growth in 2014 over 2001 employment totals. All other counties in the region experienced an increase of less than 30 percent, with the exception of Morgan County which experienced a decline in employment totals compared to 2001 totals.

Figure 11-3 Government & Government Enterprises Employment Trends (Percentage of 2001 Value)



Source: Bureau of Economic Analysis

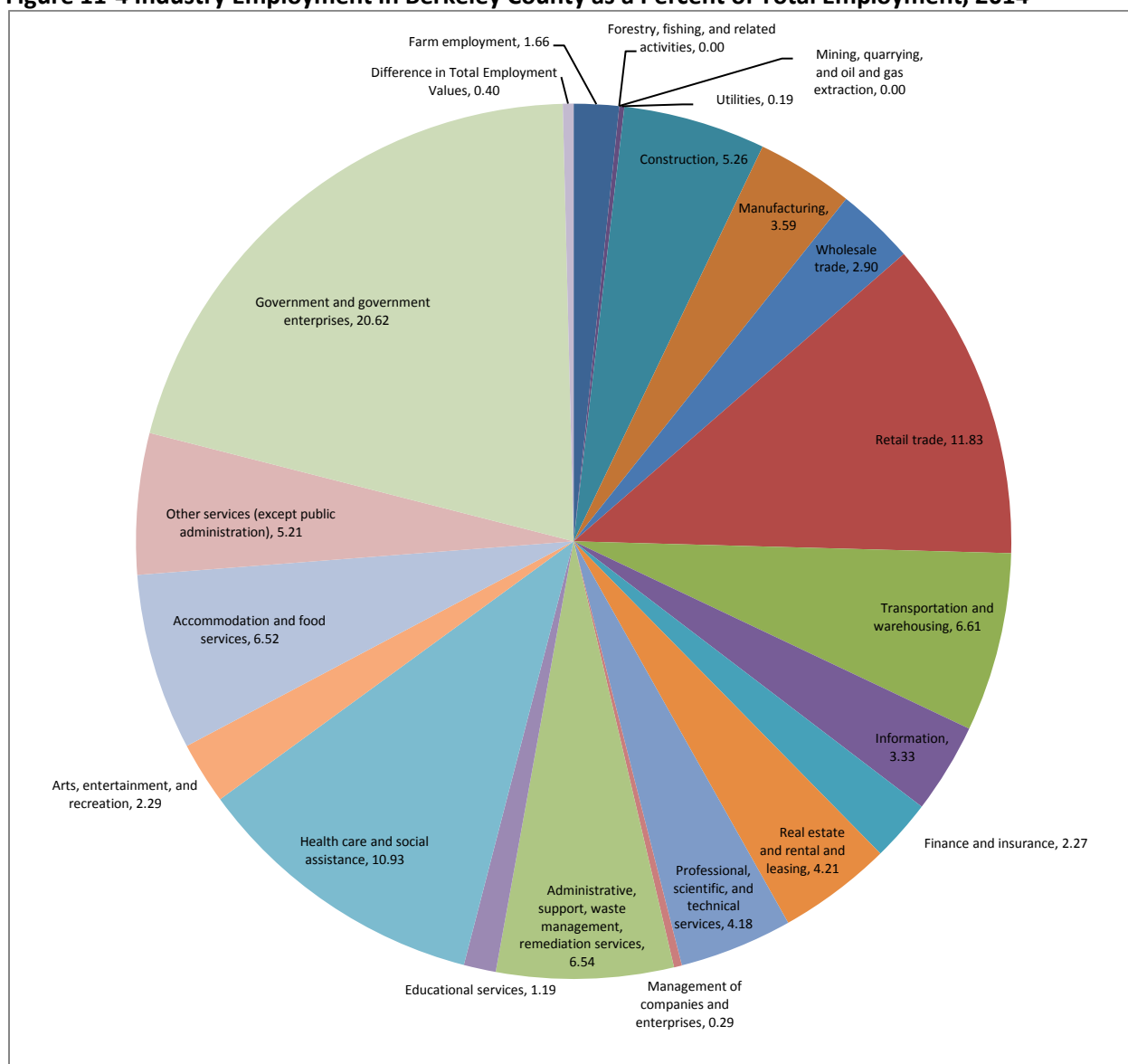
Industrial Structure

The examination of Berkeley County's industrial structure begins with a snapshot look at employment and earnings in broadly defined sectors within the county. The section concludes with a close-up view of more narrowly defined industrial categories that have special prominence in Berkeley County's economy.

Employment and Earnings

Figures 11-4 and 11-5 depict the composition of Berkeley County's economy based on employment and earnings, respectively.

Figure 11-4 Industry Employment in Berkeley County as a Percent of Total Employment, 2014



Source: Bureau of Economic Analysis

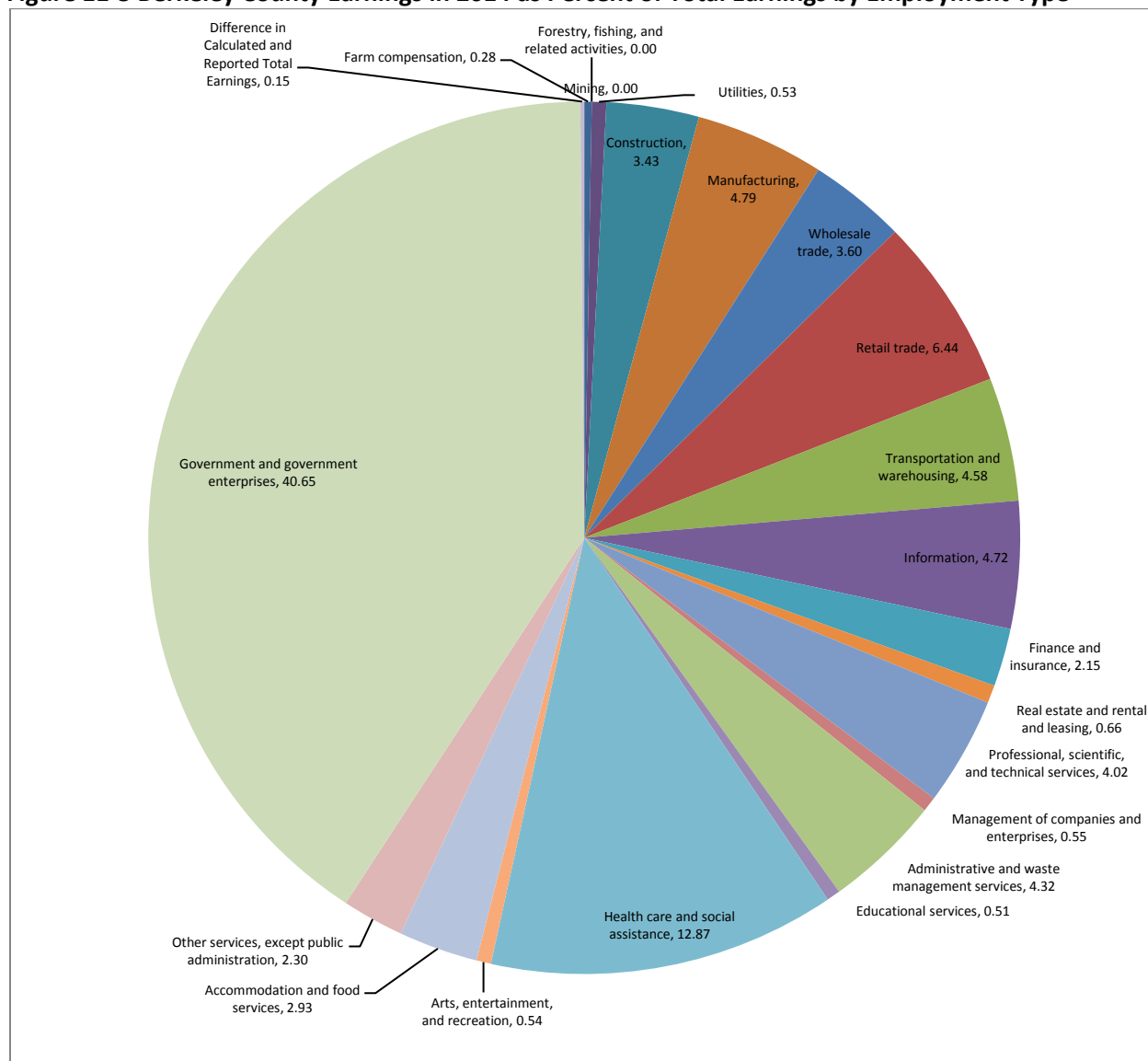
Totals not shown to avoid disclosure of confidential information were reflected as (D) in the bureau data, but the estimates for these item were included in the overall totals. As a result of this requirement, "Forestry, fishing and related activities" and "Mining, quarrying, and oil and gas extraction" are reflected in this pie as "0%" but could actually be part of the "Difference in Total Employment Values" portion of the overall total not included in any specific industry.

According to the Bureau of Economic Analysis, the following industries each comprised over ten percent of total employment in the county in 2014.

- Government and Government Enterprises: 21% (up from 19% in 2006)
- Retail trade: 12% (down from 14 percent in 2006)
- Education, health care and social assistance: 12% (consistent with 12% in 2006)

All other industries each represent less than 10 percent of total employment in 2014.

Figure 11-5 Berkeley County Earnings in 2014 as Percent of Total Earnings by Employment Type



Source: Bureau of Economic Analysis

Totals not shown to avoid disclosure of confidential information were reflected as (D) in the bureau data, but the estimates for these item were included in the overall totals. As a result of this requirement, "Forestry, fishing and related activities" and "Mining" are reflected in this pie as "0%" but could actually be part of the "Difference in Calculated and Reported Total Earnings" portion of the overall total not included in any specific industry.

The sheer number of jobs is only part of the picture. Some industries play a larger role in the economy by injecting more labor income, due to a higher rate of earnings per job. This higher earnings rate

results from a combination of higher wages and higher average hours worked per job. Note that the employment figures do not distinguish between full- and part-time employments.

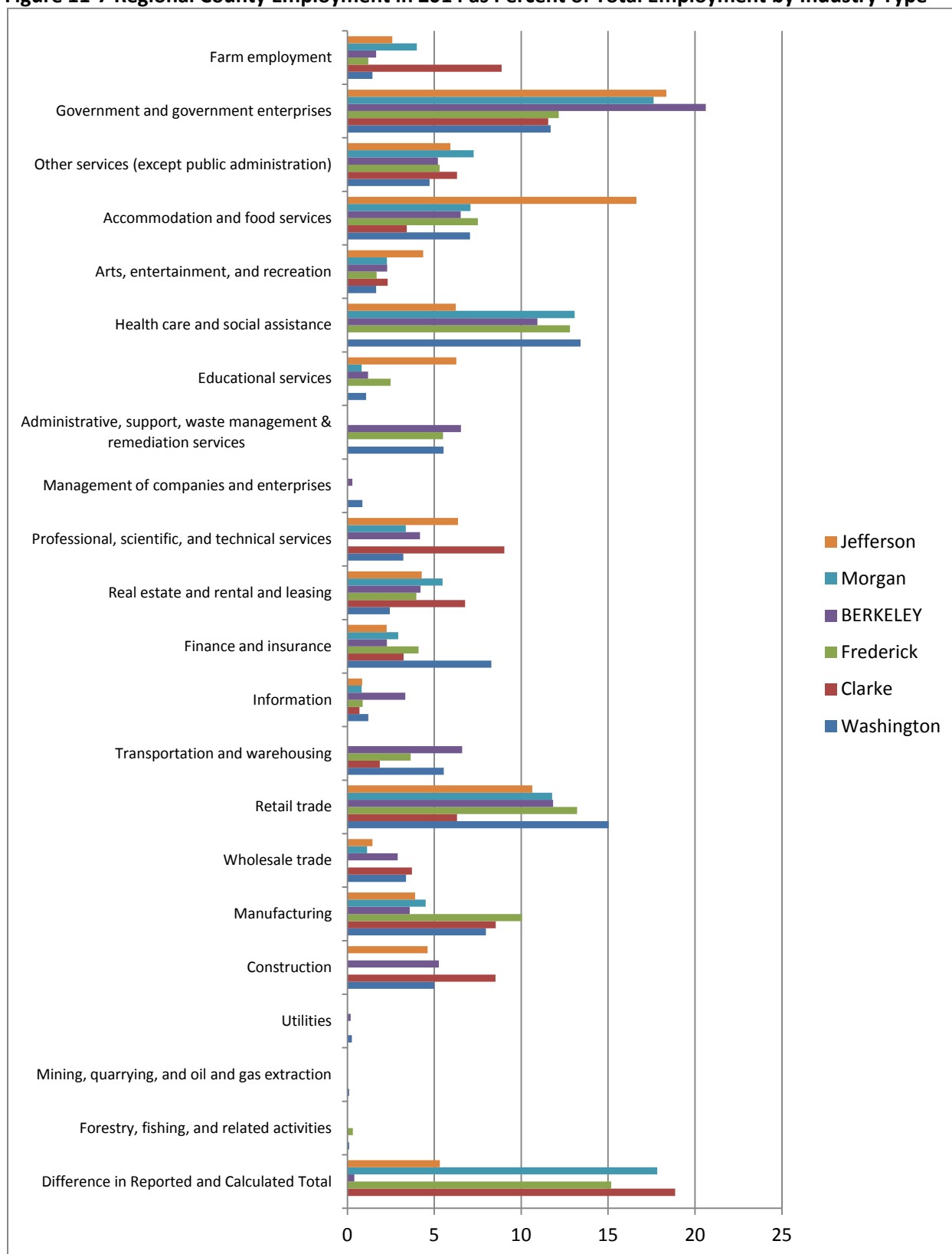
When measured by earnings proportions, government and government enterprises takes on an even greater prominence, accounting for almost 41 percent of all earnings in Berkeley County in 2014 (Figure 11-5). This earnings percentage is almost double the total employment percentage of 21%. Health care and social assistance maintain roughly the same percentage of earnings (12.87%) as total employment percentage (11%). All other industries decline in prominence when the measure changes from jobs to earnings.

Table 11-2 Berkeley County 2010 Average Earnings Per Employee by Industry

Industry	Earnings
Forestry, fishing, hunting, agriculture support	\$38,462
Mining	N/A
Utilities	N/A
Construction	\$39,435
Manufacturing	\$42,798
Wholesale Trade	\$45,456
Retail trade	\$22,239
Transportation & warehousing	N/A
Information	\$41,241
Finance & insurance	\$42,244
Real estate & rental & leasing	\$26,932
Professional, scientific & technical services	\$51,486
Management of companies & enterprises	\$55,622
Administration & Support, Waste Management and Remediation	\$25,803
Educational services	\$36,846
Health care and social assistance	\$36,846
Arts, entertainment & recreation	\$18,095
Accommodation & food services	\$13,535
Other services (except public administration)	\$25,085

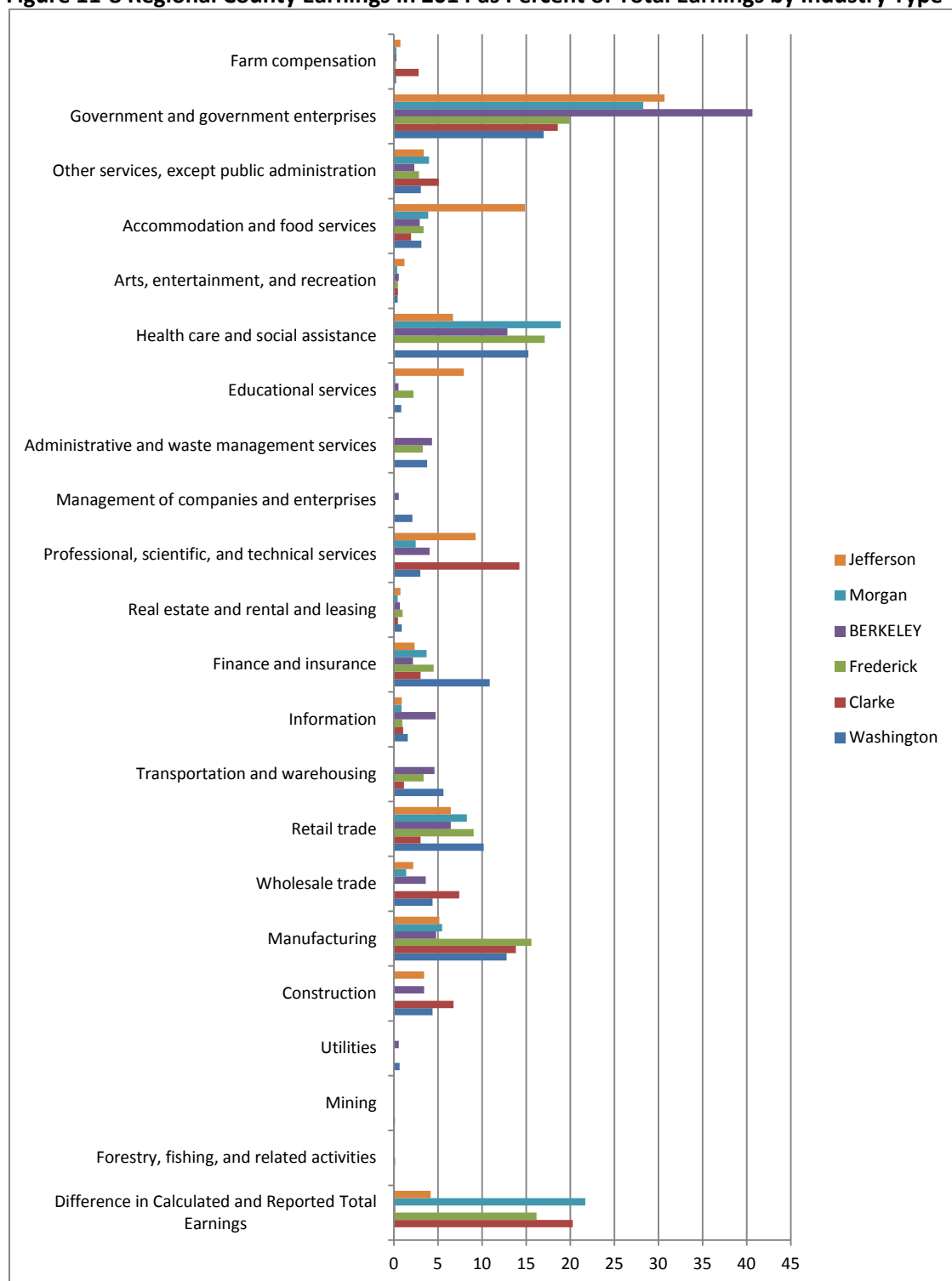
Source: Berkeley County Development Authority (N/A: Data not available)

Figure 11-7 Regional County Employment in 2014 as Percent of Total Employment by Industry Type



Source: Bureau of Economic Analysis

Figure 11-8 Regional County Earnings in 2014 as Percent of Total Earnings by Industry Type



Source: Bureau of Economic Analysis

Earnings or compensation of employees is the sum of wage and salary disbursements and supplements to wages and salaries, including employer contributions for employee pension and insurance funds and of employer contributions for government and social insurance-US.

Figures 11-7 and 11-8 compare industry composition by employment (11-7) and by earnings (11-8) for Jefferson, Morgan, Berkeley, Frederick, Clarke, and Washington Counties. With the exception of “Farm employment”, “Farm compensation” and “Government and government enterprises”, all the industries listed reflect private sector industries. Availability of data for “Utilities”, “Mining”, and “Forestry, fishing and related activities” is limited to avoid disclosure of confidential information. However, the estimates for these items were included in the totals and represent an unknown portion of the “Difference in Reported and Calculated Total” percentages.

The industry percentages of Total Employment and Total Earnings are somewhat similar throughout the region. The Government and government enterprises industry is the top sector for both employment and earnings in Jefferson, Morgan and Berkeley counties. The Retail trade sector is the top sector for Frederick and Washington counties in Total Employment but not in Total Earnings where the Health care and social assistance sectors represent the top sector for these two counties.

In comparing 2003 percentages to 2014 percentages one sector stands out. In Jefferson County the Accommodations and food services sector appears to have jumped from about 9 percent in 2003 to about 17 percent in 2014. The Education, health care, and social services sector in 2003 is reflected in two separate sectors in the 2014 data with Educational services as its own sector and Health care and social assistance as its own sector. The Professional sector of 2003 has been redistributed among other sectors in the 2014, including Administrative, support, waste management & remediation services, which appears as a new sector in 2014 data. Berkeley County is leading the region in total employment percentage for the following sectors: Government and government enterprises; Administrative, support, waste management and remediation services; and Transportation and warehousing.

Berkeley County Top Employers

Table 11-3 lists the top ten employers in Berkeley County, the number of employees, their primary product and location. Since the 2006 comprehensive plan, the first five top employers remain unchanged. WVU Hospital East was called City Hospital, Inc. Macy’s and the U.S. Coast Guard Operations Systems Center are new to the top ten employers list, ranking at number eight and nine respectively. Aker Plastics (MAAX) Bathroom Sector and Quebecor Printing no longer appear as one of the top ten employers of Berkeley County.

Table 11-3 Berkeley County Top Employers, 2013

Employer	# of Employees	Primary Product or Service	Location
Berkeley County Schools	2,300	Other General Government Support	Martinsburg
Veteran’s Administration Center	1,569	Health Care	Martinsburg
West Virginia Air National Guard	1,230	Air Defense Training	Martinsburg
Quad/Graphics Inc	900	Trade-Binding & Related Work	Martinsburg
Enterprise Computing System	900	Public Finance Activities	Martinsburg
WVU Hospital East	900	General Medical & Surgical Hospitals	Martinsburg
Bureau of Alcohol, Tobacco, & Firearms	600	U.S. Government Services	Martinsburg
Macy’s	800	Distribution Center	Martinsburg
U.S. Coast Guard Operations Systems Center	535	National Security	Kearneysville
Regional Educational Service Agency VIII	400	Legislative Bodies	Martinsburg

Source: Berkeley County Development Authority

The Agriculture Sector

Agriculture has been an important industry in Berkeley County since the earliest settlers arrived in the 1700s. Crop production is still an area of specialization in the county. Even though the sector only accounted for approximately 2 percent of total employment in 2014 this is double the 1 percent total employment reflected in 2003 data. The market value of production has also increased from

\$18,430,000 in 2002 to \$30,545,000 in 2012. The number of farms remains at 676 and acreage continues to drop from 76,393 acres in 2002 to 70,089 acres in 2012. These figures are according to the USDA Census of Agriculture and reported on the WVU Extension services website. Apple production continues to rank first in the state.

Workforce Characterization and Trends

The characteristics of an area's workforce are among several priority factors that influence a company's decision to locate a new facility or expand operations. In the past, the cost of labor, i.e., the hourly wage, was the primary labor-related consideration. Today, those responsible for making corporate site selection decisions are also looking very closely at the skills, productivity, work ethic, and size of the prospective labor force, as well as "quality of life" and other intangibles offered by a community or region.

This section profiles Berkeley County's resident workforce, i.e., the people who live in Berkeley County regardless of where they work. It is developed to help county officials, the Berkeley County Development Authority, and the Martinsburg-Berkeley County Chamber of Commerce assess the desirability of the county as a place to do business and also to plan strategically for the future. It will also provide these organizations with the statistical data that companies are looking for as they go through the initial stages of the site selection process.

Table 11-4 Change in Civilian Labor Force in Berkeley County in 2010

Year	Number
2000	39,606
2010	44,066
November, 2011	43,346
% Change 2000-2010	11.3%

Source: Berkeley County Development Authority

The 30 percent increase in the civilian labor force experienced between 1990 and 2000 was not seen between 2000 and 2010 when the county experienced an 11.3% increase.

Table 11-5 Unemployment in Berkeley County in 2010

Year	Number	Percent
2000	1,426	3.6
2010	4,212	9.6
November, 2011	3,319	7.7

Source: Berkeley County Development Authority

In 1990 the unemployment rate for Berkeley County was a little over 6 percent. By 2000 it dropped to its lowest rate of the decade at 3.6 percent. In 2010 it had risen to 9.6 percent. However 2011 numbers indicate that unemployment in Berkeley County is declining again.

Table 11-6 Commutation Patterns in Berkeley County in 2009

Residence Location	Percent	Employment Location	Percent
Total	100.0	Total	100.0
Berkeley County, WV	67.2	Berkeley County, WV	45.0
Jefferson County, WV	7.5	Washington County, MD	10.5
Washington County, MD	4.2	Jefferson County, WV	9.4
Morgan County, WV	3.7	Winchester City, VA	4.2
Frederick County, VA	2.4	Frederick County, MD	3.6
Mineral County, WV	1.1	Frederick County, VA	3.5
Hampshire County, WV	0.8	Fairfax County, VA	3.4
Winchester City, VA	0.7	Montgomery County, MD	2.7
Franklin County, PA	0.7	Loudoun County, VA	2.6
Frederick County, MD	0.6	Kanawha County, WV	0.9
All other Locations	11.2	All Other Locations	14.2
Non-residents as % of employees	32.8	% of workforce working outside home county	55.0

Source: Berkeley County Development Authority

Commuting Patterns

A review of the commuting patterns of the County's workforce helps to further define Berkeley County's economic position. By comparing historical and current data, it is possible to see the changes in the location of the region's employment centers.

Place of Work by County 1990-2009

The percentage of residents who traveled out of Berkeley County for employment continued to increase from 38 percent in 1990, to 43 percent in 2000, to 55 percent in 2009. Berkeley County continues to be the top destination for its residents but the percentage of residents staying in Berkeley County to work has been declining from 62.1 percent in 1990 to 56.2 percent in 2000 to 45.0% in 2009. While there are more residents working in the county, this number continues to represent a smaller percentage of the workforce.

Travel Time to Work 1990-2009

Travel time to work can indicate distance to work and may be an indicator of congestion. The following illustrates the trends in travel time for Berkeley County residents from 1990 to 2000. The data is also referenced in the transportation plan. The approximately 63 percent of Berkeley County's workforce that traveled less than thirty minutes to their place of employment in 2000 was about 5 percent less than in 1990 and continues to drop. In 2010, 61.4 percent of residents traveled less than 30 minutes to work which is 1.6 percent less than 2000.

Table 11-7 Commutation in Berkeley County in 2010

% of Workforce with:	Percent
Under 15-minute commute or work at home	27.6
15 to 29-minute commute	33.8
30 to 59-minute commute	25.1
60-minute or more commute	13.5

Source: Berkeley County Development Authority

Educational Attainment (Decennial Census)

According to a 1991 report regarding the practice of economic development, (American Economic Development Council Education Foundation, "Practicing Economic Development", 1991) "the increasing incorporation of technology in virtually every type of job...calls for better reading and mathematical skills and a generally higher level of employee competence." This section analyzes trends in the educational attainment levels of Berkeley County's 25 years and older population as reported by the Census Bureau for 1990, 2000 and 2010.

Table 11-8 Educational Attainment in Berkeley County in 2010

Highest Level	Percent	Summary
No High School Diploma	17.8	17.8
High School Diploma Only	37.8	
1 to 3 Years College (No Degree)	19.8	
Associate Degree	6.4	
Bachelors Degree	11.2	
Graduate Degree	6.9	
12 to 15 Years of Education	64.1	64.1
16 or More Years of Education	18.1	18.1
TOTAL		100.0

Source: Berkeley County Development Authority

The number of high school and college graduates residing in Berkeley County has increased. Data indicates that 15.5 percent of the county's 25 year and older population had obtained college degrees in 1990. By 2000, that figure had increased by 4.1 percent to 19.6 percent and in 2010 this increased another 4.9 percent to 24.5 percent of Berkeley County residents having obtained college degrees. Berkeley County residents have a wealth of education and training resources available to them. More detailed information regarding Berkeley County workforce education and training resources are provided in The Education Plan chapter of this comprehensive plan.

Relationships to Infrastructure Conditions

The county's ability to sustain and expand its economy is related not only to market and workforce trends but also to the availability of land and physical infrastructure (roads, water, sewer, waste disposal and telecommunications networks). More detailed inventories of land use and infrastructure are provided in their corresponding chapters in this comprehensive plan.

Land Markets

Land availability is critical for business retention and new business development. Existing businesses need land for expansion and new businesses, whether initial start-ups or relocating businesses, need land for new facilities. The location of available land in relation to other infrastructure conditions is equally important.

There are a variety of locations and sites available for new and expanding businesses. The West Virginia Development Office provides specific information about each, including available utilities, proximity to transportation facilities, and contact information. The Berkeley County Development Authority is the local organization for providing assistance with regard to these properties. A complete list of sites and properties currently available in Berkeley County is provided by the Berkeley County Development Authority and can be accessed through their website <http://www.developmentauthority.com/>.

The Berkeley County Development Authority's mission is to attract and retain jobs in Berkeley County. Most new businesses are referred through the WV Development Office. Business retention is achieved through a business calling program that allows the Development Authority to better understand the needs and concerns of the county's existing businesses. According to the Development Authority, there is a great deal of hiring going on in the county, which is creating a certain amount of competition. Linking businesses with customized and appropriate training resources is also a key role of the EDA.

2006 Summary of Economic Development Action Strategies

- Protect sites near the interstate interchanges, along the rail lines, and in proximity to the airport for light industry and transportation related industries.

- Encourage existing owners of vacant retail and industrial properties to redevelop/revitalize them.
- Support the revitalization efforts of the City of Martinsburg by encouraging the reuse of older buildings in the downtown for much needed office space.
- Continue to develop and maintain a county-level database of all available development sites, including brownfields and other sites that could be redeveloped.
- Continue to work with and support Berkeley County Public Schools and all of the region's secondary and post secondary educational providers to ensure a skilled workforce for existing and future businesses.
- Encourage the development of an adequate communications technology network in the county.
- Work with the farming community to identify future role of agriculture in the county's economy.
- Enhance opportunities to establish historical, cultural and recreational tourism-related businesses.

2016 Berkeley County Economic Development Highlights

- Data for Berkeley County reveals a continued strong growth trend in total employment which is about 30 percent over 2001 levels.
- Private sector employment accounted for 78 percent of Berkeley County's total employment in 2014. This is a 2 percent drop from the 80 % reflected in 2006 comprehensive plan data.
- Government and government enterprises employment grew 30 percent from 1990 totals and continues a steady upward trend with 40 percent growth in 2014 over 2001 employment totals.
- Government and government enterprises encompassed 21 percent of total jobs in Berkeley County (up from 19 percent in 2006). Retail Trade encompassed 12 percent (down from 14 percent in 2006). Education, health care and social assistance encompassed a consistent 12 percent of total jobs in Berkeley County.
- Government and government enterprises continue to take on a greater prominence in Berkeley County, accounting for 41 percent of total earnings by employment type.
- Berkeley County is leading the region in total employment percentage for the following sectors: Government and government enterprises; Administrative, support, waste management and remediation services; and Transportation and warehousing.
- Since the 2006 comprehensive plan, the first five top employers remain unchanged.
- Procter and Gamble has broken ground in Berkeley County and has the potential to become one of the top ten employers with an estimate of 700 employees to be hired in 2017.
- The market value of production in Berkeley County in the Agriculture Sector has increased from \$18,430,000 in 2002 to \$30,545,000 in 2012. Apple production continues to rank first in the state.
- In 2010 unemployment in Berkeley County had risen to 9.6 percent, however, 2011 data indicates that unemployment is declining again.
- The percentage of residents who traveled out of Berkeley County for employment continues to increase and was up to 55 percent by 2009. While there are more residents working in the county, this number continues to represent a smaller percentage of the workforce.
- Data indicates that the percentage of college graduates residing in Berkeley County continues to increase. As of 2010, 24.5 percent of residents, 25 years and older have obtained a college degree.

Looking Forward to 2026

Protect sites near the interstate interchanges, along the rail lines, and in proximity to the airport for light industry and transportation related industries:

- The Development Authority continues to encourage the use of sites near the interstate interchanges, along rail lines, and in proximity to the airport for light industrial and transportation related industries to take advantage of multiple modes to move goods. This supports the Growth Management Plan and the County's Priority Transportation Network.
- Development since the 2006 comprehensive plan and future county development plans along the Interstate-81 corridor are listed by exit from north to south include:
 - Falling Waters - Williamsport Pike
 - Food Lion Shopping Center (completed)
 - Spring Mills – Hammonds Mill Road
 - Multiple Commercial Projects including a hotel, a medical center and more retail (in progress and planned future development)
 - Martinsburg – Hedgesville Road and Edwin Miller Boulevard
 - Macy's Fulfillment Center (complete; some small pad sites still available)
 - Hospital – Dry Run Road and Tavern Road
 - Hospital (continual growth of existing)
 - Civic Center (planned future development)
 - Tuscarora Pike and King Street
 - Apple Harvest Drive
 - Weis Markets Shopping Center
 - Tabler Station Road
 - Procter & Gamble (in progress)
 - Equis BBG (future industrial on Connector Road)
 - Gerrardstown Road

Where appropriate, make provisions for home-based businesses by including standards in the Subdivision and Land Development Ordinance to mitigate possible light and noise issues:

- The Subdivision and Land Development Ordinance includes standards to mitigate possible light and noise issues in the "Off-Street Parking, Buffering and Screening Section of the ordinance.

Encourage existing owners of vacant retail and industrial properties to redevelop/revitalize them; support the revitalization efforts of the City of Martinsburg by encouraging the reuse of older buildings in the downtown for much needed office space; Continue to develop and maintain a county-level database of all available development sites, including brownfields and other sites that could be redeveloped:

- The Development Authority continues to develop and maintain a county-level listing of available development sites, including brownfields and other sites that could be redeveloped.

Continue to work with and support Berkeley County Public Schools, and all of the region's secondary and post secondary educational providers to ensure a skilled workforce for existing and future businesses:

- Procter and Gamble has partnered with Blue Ridge Community and Technical College to train its future workforce in Berkeley County.
- The Education Plan chapter in this comprehensive plan expands upon this in more detail.

Encourage the development of an adequate communications technology network in the county:

- Broadband access and other communications tools are still needed to facilitate business activity in the county and capture the expanding technology businesses which are close by to the county.

Work with the farming community to identify future role of agriculture in the county's economy:

The WVU Extension Service has been a key partner in this strategy. This agency's mission is: "WVU Extension Service educators and volunteers build and help sustain collaborations and partnerships with people and organizations in West Virginia, to improve their lives and communities. Our programs and services strengthen leaders of all ages, youth, and families. We develop and teach best practices for sustainable agriculture, for responsible use of renewable resources, and stewardship of natural resources. We work to improve our state's communities, workforce, and the economy." The website, www.berkeley.ext.wvu.edu provides information and expertise in Agriculture & Natural Resources, the Master Gardener program, 4-H & Youth Development, Community Educational Outreach Service (CEOS), the Families, the Food & Health program and Soil Testing.

Enhance opportunities to establish historical, cultural and recreational tourism-related businesses:

The Martinsburg-Berkeley County Chamber of Commerce provides a wealth of information on its website, <http://www.berkeleycounty.org/> regarding upcoming community events and reasons to visit or bring businesses to Berkeley County. The Parks Recreation and Culture Plan chapter of this comprehensive plan outlines many of these opportunities and the steps being taken to improve them.

Entrepreneurial Enterprise Development:

The Berkeley County Development Authority, along with Jefferson County and Morgan County, continues to conduct Eastern Panhandle Entrepreneur Forums regularly for those already in business or wishing to start a business in the Eastern Panhandle Counties.

Chapter 12: Consistency and the Interrelationships of the Plan Elements**Summary**

Chapter 8A of the West Virginia Code states that one of the purposes of the comprehensive plan is to “Ensure that the elements in the comprehensive plan are consistent”. This chapter summarizes the interrelationships of the various plan elements. It is accomplished by summarizing the plan elements and the agency involvement necessary to address key issues that have been identified in Berkeley County. For further clarity, the following examples of the interrelationships among the plan elements are provided.

- The policy of establishing growth areas based on water availability not only focuses growth in appropriate areas, but also ensures protection of the county’s water resources.
- The policy of developing ordinances provides the tools the county needs to encourage appropriate location of new development, as well as the ability to review and monitor how that development will be designed and constructed.
- Efforts to increase housing diversity benefit the county by providing more choices in terms of housing type and value, which allows for greater cultural and social diversity.
- Economic development strategies will help to stimulate community vitality and support for cultural activities and events.
- The strategy of education and training programs integrated with the larger community strengthens the economic policy of developing a trained, flexible, and locally employable workforce.
- Economic development is strengthened by promoting historic and cultural resources in the county, as well as its rural recreational opportunities, through tourism activities.
- Commercial, industrial, and residential development is encouraged to take place near areas serviced by existing infrastructure, resulting in greater efficiency and effectiveness of community service delivery and management.
- Preservation of the County’s agricultural lands, open spaces and sensitive environmental resources will allow the continued enjoyment of the area’s recreational opportunities, scenic landscapes, and sensitive flora and fauna.

The Berkeley County Planning Commission and the Berkeley County Council have been responsible for coordinating the writing and the adoption of this comprehensive plan. Many of the following plan elements will also require the continued involvement of the County Council and the Planning Commission along with other agencies, such as the Berkeley County Public Service Sewer District and the Berkeley County Public Service Water District.

Many of the intentions of one plan element overlap the intentions of other plan elements. In other instances, some plan elements will repeat and occur in multiple plans because that particular action affects them. The following is a list of plan elements from the “Looking forward to 2026” sections of each plan chapter:

Growth Management Plan Elements

- Water Availability Land Use Plan
- Develop Alternatives to Zoning
- Develop Supporting Groundwater Studies
- Develop Land Use Policy Education Program
- Update Subdivision and Land Development Regulations
- Traditional Neighborhood Development (TND)
- Agricultural Land Preservation
- Preventing Neighborhood Deterioration
- Town Centers
- Redevelopment Planning and Implementation Programs
- Link Mobility and Access with Development Patterns and Design
- Promote Pedestrian Access
- Infill with New Buildings
- Promote Mixed Use Development to Create Livelier Communities
- Brownfield/Land Recycling
- Annexation
- Education and Outreach
- Capacity building – staff
- Build partnerships
- Additional Research and Data Compilation

Natural Resources Plan Elements

- Continue purchasing conservation easements through the Farmland Protection Program.
- Evaluate the impaired streams on the 303(d) List and obtain data more recent than 2008, in order to determine BMPs for water quality improvement.
- Bring all subdivision proposals under one set of regulations.
- Adopt the updated version of the Stormwater Management and Sediment and Erosion Control Ordinance.
- Adopt the updated Floodplain Ordinance.
- Evaluate the WV DEP groundwater protection permit process to determine if it is meeting the needs of Berkeley County in regards to groundwater preservation, or if additional steps need to be taken.
- Comply with the Federal Endangered Species Act in order to protect threatened or endangered species which reside in Berkeley County.
- Upgrade sewer and septic services, as outlined in The Infrastructure Plan chapter.
- Define a process for verifying the presence of a wetland on individual parcels, and notifying the appropriate entities, prior to any grading or construction taking place that could potentially destroy the wetland.

Housing Plan Elements

- New Housing and Land Use Management
 - Bring all subdivision proposals under one set of subdivision regulations.
 - Adopt most current building codes through an updated Building Code Ordinance.
- Monitor Housing Affordability and Choices
- Neighborhood Revitalization and Preservation

- Enforce the County Clean/Safe Ordinance
- Support HOA's covenants, restrictions and by-laws

Transportation Plan Elements

- Support and Construct the Priority Transportation Network
- Complete and implement the Airport Master Plan
- Participate in HEPMPO Bicycle Study and Implement Recommendations When Available
- Implement and Expand Upon the North Martinsburg Area Pedestrian Plan
- Complete EPTA Bus Transfer Point Study and Implement Recommendations When Available
- Participate in Quarterly HEPMPO TAC (Technical Advisory Committee) and ISC (Interstate Council) Meetings
- Continue to work with the HEPMPO while also researching other tools and opportunities for funding, including the FAST Act, to improve Berkeley County roadways.

Infrastructure Plan Elements

- Public Water
 - Update and adopt the next 20-year Water Facility Plan
- Private Well Water (Groundwater)
 - Utilize groundwater studies to determine densities for future development in rural/non-growth areas of the county.
 - Develop a source water protection plan to safe guard drinking water supply from wells.
- Wastewater
 - Add capacity as needed but within annual nutrient load caps.
 - Create an inventory of on-lot systems and put an inspection protocol into place.
- Stormwater
 - Adopt and Implement the Proposed Stormwater Management and Sediment and Erosion Control Ordinance Revisions.
 - Evaluate Options and Implement Appropriate Tools That Are Available for MS4 Compliance.
- Solid Waste
 - Continue to search for potential funding sources and other resources in order to expand the public recycling programs, the litter control program, and open dumping program.
 - Continue efforts to build and operate Entsorga, WV.
- Public Utilities
 - Continue to evaluate and implement a feasible option for bringing natural gas to the area.
 - Continue to evaluate and implement a feasible option for bringing broadband to the area.

Public Safety and Health Services Plan Elements

- Staffing
 - Collaborate with public safety, public health agencies and educational institutions throughout the region
- Equipment and Facilities
 - Increase EMS station coverage and build new Central Station as outlined in the plan.
 - Utilize new technology by dispatch and first responders to monitor response times and ensure emergency needs are being met.
 - Establish a recovery center that will house a full range of rehabilitative services: substance abuse counseling, family counseling, recovery support groups, job and educational counseling.

- Continue with the existing and future county facility construction and renovations throughout the county.
- Plan Development and Training
 - Review and update The 2011 Berkeley County Fire Service Board Five-Year Strategic Plan.
 - Evaluate and update The 2015 Hazard Mitigation Plan before its expiration in January 2018.
 - Continue The Health Department efforts to provide information to county residents and officials regarding disaster planning management.
 - Continue to coordinate the Berkeley County Emergency Operations Plan along with ensuring that police, fire and EMS have current homeland protection training through The Office of Homeland Security and Emergency Management.

Parks, Recreation and Culture Plan Elements

- Acquire and construct at least 700 acres or more of park land as the county population continues to grow through the following actions:
 - Create regional parks of approximately 100 plus acres in both North and South Berkeley County.
 - Expand the W. Randy Smith Recreation Center in South Berkeley County by building Phase II and Phase III.
 - Build an Indoor Aquatic Center
 - Continue with plans to acquire property through hazard mitigation grants and convert Sportsman's Paradise into a county park with public access to the Potomac River.
 - Develop an adult softball complex.
 - Continue to build biking/hiking trails throughout the Eastern Panhandle connecting all three counties.
- Support efforts to establish a venue within Berkeley County that is able seat at least 2,000 people to watch a performance or event.
- Participate in Berkeley County Arts Council organization surveys to provide guidance for the organization regarding community interest as audience members, performers, and artists.

Economic Development Plan Elements

- Protect sites near the interstate interchanges, along the rail lines, and in proximity to the airport for light industry and transportation related industries
- Make provisions, where appropriate, for home-based businesses by including standards in the Subdivision and Land Development Ordinance to mitigate possible light and noise issues
- Encourage existing owners of vacant retail and industrial properties to redevelop/revitalize them
- Support the revitalization efforts of the City of Martinsburg by encouraging the reuse of older buildings in the downtown for much needed office space
- Continue to develop and maintain a county-level database of all available development sites, including brownfields and other sites that could be redeveloped
- Continue to work with and support Berkeley County Public Schools, and all of the region's secondary and post secondary educational providers to ensure a skilled workforce for existing and future businesses.
- Encourage the development of an adequate communications technology network in the county
- Work with the farming community to identify future role of agriculture in the county's economy

- Enhance opportunities to establish historical, cultural and recreational tourism-related businesses.
- Conduct Eastern Panhandle Entrepreneur Forums regularly for those already in business or wishing to start a business in the Eastern Panhandle Counties.

Statutory Authority and Limitations

There are many resources that are currently being utilized to carry-out the various elements within this comprehensive plan. International Building Codes, Federal Acts, and State legislation provide the statutory authority necessary to enforce key elements of the plan. Local ordinances have also been written and adopted, which are utilized by local agencies to enforce specific requirements within Berkeley County. In addition to this legislation, there are also many element specific plans and studies that have been produced by various agencies. These plans and studies provide insight regarding the current status of particular agencies, and the details regarding how these agencies intend to meet the forecasted needs of the Berkeley County community. Table 12-1 is a list of the Building Codes, Federal Acts, State Legislation, local ordinances, plans and studies referenced throughout the chapters of this comprehensive plan.

Table 12-1 Statutory Authority

LEGISLATION	EMPHASIS	VERSION
International Building Codes		
2015 Edition, International Building Code (IBC)		
2012 Edition, International Building Code (IBC)		
International Code Council		
American National Standards Institute		
National Fire Protection Association		
FEDERAL		
Clean Water Act Section 303	Impaired Waters and Total Maximum Daily Loads (TMDLs)	
Clean Water Act Section 404	Dredged or Fill Material Permit Required	
Clean Water Act	NPDES permitting	
44 CFR 59.1 through 78	National Flood Insurance Program and Floodplain Management	
Endangered Species Act		
FAST Act	funding for transportation projects	2015
STATE		
West Virginia Code, Chapter 8A	Land Use Planning	
Berkeley County Farmland Protection Act	Farmland conservation easements	
WV DEP Groundwater Protection	Permitting	
WV Building Code	Permitting and Inspections	supports 2012 IBC
Statewide Transportation Improvement Program (STIP)		
Statewide Transportation Policy Plan		
MARC WV Statewide Rail Plan		2013
West Virginia Code, Chapter 7-20	Local funding for roads	

ORDINANCES		
Berkeley County Subdivision Ordinance	Subdivision and Land Use	2009; 2016 version in progress
Berkeley County Storm Water Management and Erosion and Sediment Control Ordinance		2010; 2016 version in progress
Berkeley County Floodplain Ordinance		2009; 2016 version in progress
Berkeley County Building Code Ordinance		supports WV Building Code with some exceptions
County Clean/Safe Ordinance		2010
PLANS		
Backcreek Watershed Protection Plan		
Berkeley County Commercial Solid Waste Facility Siting Plan		2011
Berkeley County Comprehensive Litter and Solid Water Control Plan		
Berkeley County Emergency Operations Plan		
Berkeley County Fire Service Board - Five-Year Strategic Plan		2011
Berkeley County Fire Services Board- Five Year Strategic Plan		2011
Comprehensive Educational Facilities Plan		2010
Hagerstown Eastern Panhandle MPO Long Range Transportation Plan Update		2014; newer version in progress
North Martinsburg Area Pedestrian Plan		2012
Public Service Water District Water Facility Plan Update		2008; newer version in progress
Region 9 Planning & Development Council Multi-Jurisdictional Hazard Mitigation Plan for Berkeley and Morgan Counties		2012; newer version in progress
Regional Broadband Strategic Plan		
Source Water Assessment and Protection Plan (SWAP)		
WV Potomac Tributary Strategy Implementation Plan		2007
WV State Wildlife Action Plan		
WV Statewide Flood Protection Plan		2005
STUDIES		
HEPMPO Bicycle Study		In progress
Eastern Panhandle Natural Gas Expansion Study		2014
Regional Broadband Strategic Plan		2013 (approximately)

Source: Berkeley County Planning Commission

Agency Resources

As updates and revisions to these documents occur, it is important to also keep in mind the limitations that exist in relation to these documents. For example, a Growth Management Plan can be recommended, but without zoning, it is difficult to enforce and alternatives will need to be considered. Enforcement is a factor that affects many of the elements of this comprehensive plan and will need to be evaluated. Cooperation and coordination among the key agencies involved will be the key to effective implementation of the comprehensive plan elements. This comprehensive plan is the result of input and effort from an extensive group of individuals and agencies. The key contributors of content and proof-readers of the 2016 Berkeley County Comprehensive Plan Update are as follows:

TABLE 12-2 Acknowledgements

AGENCY NAME	CONTACT	TITLE/FUNCTION
BC Ambulance Authority	Brian Costello	Director
BC Arts Council	Malinda Shaver	President, CFO
BC Assessor's Office	Larry Hess	Assessor
BC Assessor's Office	Bill King	GIS Mapping Technician
BC Assessor's Office	Roger Kirkbride	GIS Coordinator
BC Central Dispatch	Mary Kackley	Director
BC Central Dispatch	Andy Light	Deputy Director
BC Community Services	Kevin Knowles	Recovery Coordinator
BC Council	Alan Davis	County Administrator
BC Council	Dan Dulyea	Council Person
BC Council	Doug Copenhaver	President
BC Council	Elaine Mauck	Council Person
BC Council	James Barnhart	Council Person
BC Council	Christopher Overton	Grants Administrator
BC Council	Penny Shewell	Office Administrator
BC Council & BC Planning Commission	Jim Whitacre	Vice-President
BC Council & BC Planning Commission	Norwood Bentley	Legal Counsel
BC Development Authority	Steve Christian	Former Executive Director
BC Development Authority	Sandy Hamilton	Interim Executive Director
BC Engineering & Permitting Department	Brian Ross	Director
BC Farmland Protection Board	F. Mark Schiavone	Executive Director
BC Fire Service Board	Julie Rivard	Former Administrative Director
BC Health Department	Jennifer Beamer Hutson	Sanitarian Supervisor
BC Health Department	Keith Allison	Sanitarian
BC Health Department	Diane Gaviria	Former Health Officer
BC Health Department	Bill Kearns	Administrator
BC Health Department	Ashley Petrolino	Threat Preparedness Coordinator
BC IT Department	Gary Wine	Director
BC IT Department	Jeff Frye	GIS Mapping
BC IT Department	Woodie Diamond	Webpage Design
BC Landmarks & Historical Society	R. Todd Funkhouser	President
BC Office of Homeland Security and Emergency Management	Eddie Gochenour	Director
BC Planning Commission	Donald Fox	President
BC Planning Commission	Linda Barnhart	Vice-President
BC Planning Commission	Daniel Gantt	Member
BC Planning Commission	Eric Goff	Member
BC Planning Commission	Gary Matthews	Member
BC Planning Commission	John R. Hardy	Member
BC Planning Commission	Mike Green	Member
BC Planning Commission	Vickana Norton	Member
BC Planning Commission	Jim Whitacre	Council Liason
BC Planning Commission Staff	Michael Thompson	Director
BC Planning Commission Staff	Heather Williams	Comprehensive Plan Manager
BC Planning Commission Staff	Monique Boots	Administrative Assistant
BC Planning Commission Staff	Jamie MacLean	Planner II
BC Public Service Sewer District	Curtis Keller	General Manager
BC Public Service Water District	Chris Thiel	Executive Director
BC School District	Dave Kenney	Capacities and Enrollment
BC School District	Elaine Bobo	Director, Communications
BC Sheriff's Department	Sheriff Lemaster	Sheriff
BC Sheriff's Department	Rebecca Scales	Assistant
BC Solid Waste Authority	Clint Hogbin	Chairman
Behavioral Health Services of Shenandoah Valley Medical Systems	WEBPAGE	
Blue Heron Environmental Network, Inc.	Allan Knotts	Member
Blue Heron Environmental Network, Inc.	Debra Ann Knotts	Member
Blue Heron Environmental Network, Inc.	Sherry Evasic	Member
Blue Heron Environmental Network, Inc.	Hilda Kettering	Member
Blue Heron Environmental Network, Inc.	Richard Kidwell	Member
Blue Heron Environmental Network, Inc.	Floyd Kursey	Member

AGENCY NAME	CONTACT	TITLE/FUNCTION
Blue Ridge Community and Technical College	WEBPAGE	
Bureau of Economic Analysis	WEBPAGE	
Cacapon Institute	Katherine Cooper	Watershed BMP Specialist
Canaan Valley Institute	WEBPAGE	
Chesapeake Bay Foundation	WEBPAGE	
Civic Sounds, Inc.	Kevin Green	CEO
Comcast Cable	WEBPAGE	
Conservation Fund	WEBPAGE	
CSX Transportation and Winchester & Western Railroad	WEBPAGE	
DHHR	WEBPAGE	
East Ridge Health Systems	WEBPAGE	
Eastern Panhandle Christian Academy	WEBPAGE	
Eastern Panhandle Conservation District	WEBPAGE	
Eastern Panhandle Home Builders Association, Inc.	David Hartley	Executive Officer
Eastern WV Regional Airport	William Walkup	Former Manager/Administrator
Faith Christian Academy	Eric Kerns	Administrator
Frontier Communications	WEBPAGE	
Habitat for Humanity of the Eastern Panhandle	Karin Dunn	Operations Manager
Hagerstown/Eastern Panhandle MPO	Matt Mullenax	Director
Hagerstown/Eastern Panhandle MPO	Steve Thomas	Transportation Planner
Hedgesville, The Town of	WEBPAGE	
Interstate Commission of the Potomac River Basin	WEBPAGE	
James Rumsey Technical Institute	WEBPAGE	
MARC	WEBPAGE	
Martinsburg Christian Academy	WEBPAGE	
Martinsburg Housing Authority	Catherine Dodson	Executive Director
Martinsburg Police Department	WEBPAGE	
Martinsburg Utilities	Steve Knipe	Director
Martinsburg Veterans Affairs Medical Center	WEBPAGE	Public Affairs Officer
Martinsburg, The City of	WEBPAGE	
Martinsburg-Berkeley County Chamber of Commerce	Tina Combs	President & CEO
Martinsburg-Berkeley County Parks and Recreation Board	Steve Catlett	Executive Director
Martinsburg-Berkeley County Public Libraries	Sheridan Montgomery	Library Director
Media: The Herald Mail	Matt Umsted	Reporter
Media: The Martinsburg Journal	Samantha Cronk	Reporter
Media: The Martinsburg Journal	Sarah Phillips	Advertising Consultant
Media: WEPM	Hans Fogle	News Director
Musselman High School, Theatre Department	Michael Styles	Theatre Director
Natural Lands Trust	WEBPAGE	
Natural Resources Conservation Service	WEBPAGE	
PanTran	WEBPAGE	
Region 9	Bill Clark	Executive Director
Region 9	Matt Pennington	Chesapeake Bay Program Coordinator
Region 9	Rachel Snively	Project Assistant
Rocky Knoll Seventh Day Adventist School	Jan Akush	Principal
Shepherd University	WEBPAGE	
Shepherd University Martinsburg Center	James Klein	Director
Soil & Water Conservation Society	WEBPAGE	
St. Joseph Parish School	Katie Richards	Director of Advancement
The Mountaineer Gas Company	WEBPAGE	

AGENCY NAME	CONTACT	TITLE/FUNCTION
The Potomac Edison Company	WEBPAGE	
US Census	WEBPAGE	
US Department of Housing and Urban Development	WEBPAGE	
US Fish & Wildlife Service	WEBPAGE	
USDA Natural Resources Conservation Service	WEBPAGE	
Valley College, Martinsburg Campus	WEBPAGE	
West Virginia Rivers Coalition	WEBPAGE	
What's Next Berkeley County	James Hersick	
Workforce WV	Nick Diehl	Founding Partner Manager
WV Association of Housing Agencies	WEBPAGE	
WV Conservation Agency	Suzy Campbell	Conservation Specialist
WV Department of Environmental Protection	Alana Hartman	Potomac/Eastern Basin Coordinator
WV Department of Environmental Protection	Tim Craddock	Program Coordinator
WV Development Office	WEBPAGE	
WV DHHR	WEBPAGE	
WV DHHR Environmental Engineering Division	Alan Marchun	District Engineer
WV DHHR Environmental Engineering Division	Monica Whyte	Environmental Resource Specialist III
WV Division of Forestry	WEBPAGE	
WV Division of Highways, District 5	Larry Alt	Systems Analyst
WV DNR (Division of Natural Resources)	Kieran O'Malley	Wildlife Diversity Biologist
WV DOH, Traffic Engineering Division	Donald Meadows	Traffic Engineer
WV DOH, Traffic Engineering Division	Matthew Skiles	Traffic Engineer
WV DOT	Ken Clohan	Traffic Engineer
WV DOT	Richard Warner	Planning Division Director
WV DOT, Commissioners Office of Economic Development	David Cramer	PE
WV Eastern Panhandle Transit Authority	Doug Pixler	Director
WV Eastern Panhandle Transit Authority	Elaine Bartoldson	Assistant Director
WV Geological and Economic Survey	WEBPAGE	
WV Public Service Commission	WEBPAGE	
WV Rail Authority	WEBPAGE	
WV State NFIP Coordination Office, DHSEM	Greg McCann	NFIP Specialist
WV State NFIP Coordination Office, DHSEM	Kevin Sneed	State NFIP Coordinator
WV State Police	WEBPAGE	
WV State Rail Authority	Cindy Butler	Executive Director
WV University - The Robert C. Byrd Health Sciences Center	WEBPAGE	
WV University Cooperative Extension Service	WEBPAGE	
WV University Healthcare	Teresa McCabe	Vice President, Marketing and Development
WV Wildlife Diversity Program (WDP) and the Natural Heritage Program	WEBPAGE	

Source: Berkeley County Planning Commission

Interrelationship of Entities and Involvement in Plan Elements

The involvement of all of the above entities was needed to update this comprehensive plan, and it is greatly appreciated. It is even more critical that everyone's involvement continues after approval and adoption of this comprehensive plan. Participation in the completion of the plan elements will be the

key variable that determines the future of Berkeley County and making it the community you want it to be.

While one agency might take the lead on a particular plan element initiative, it is important to have involvement from the other agencies and the citizens of Berkeley County because all are impacted by these decisions and efforts. The following is a list of consolidated plan elements and the recommended lead agencies.

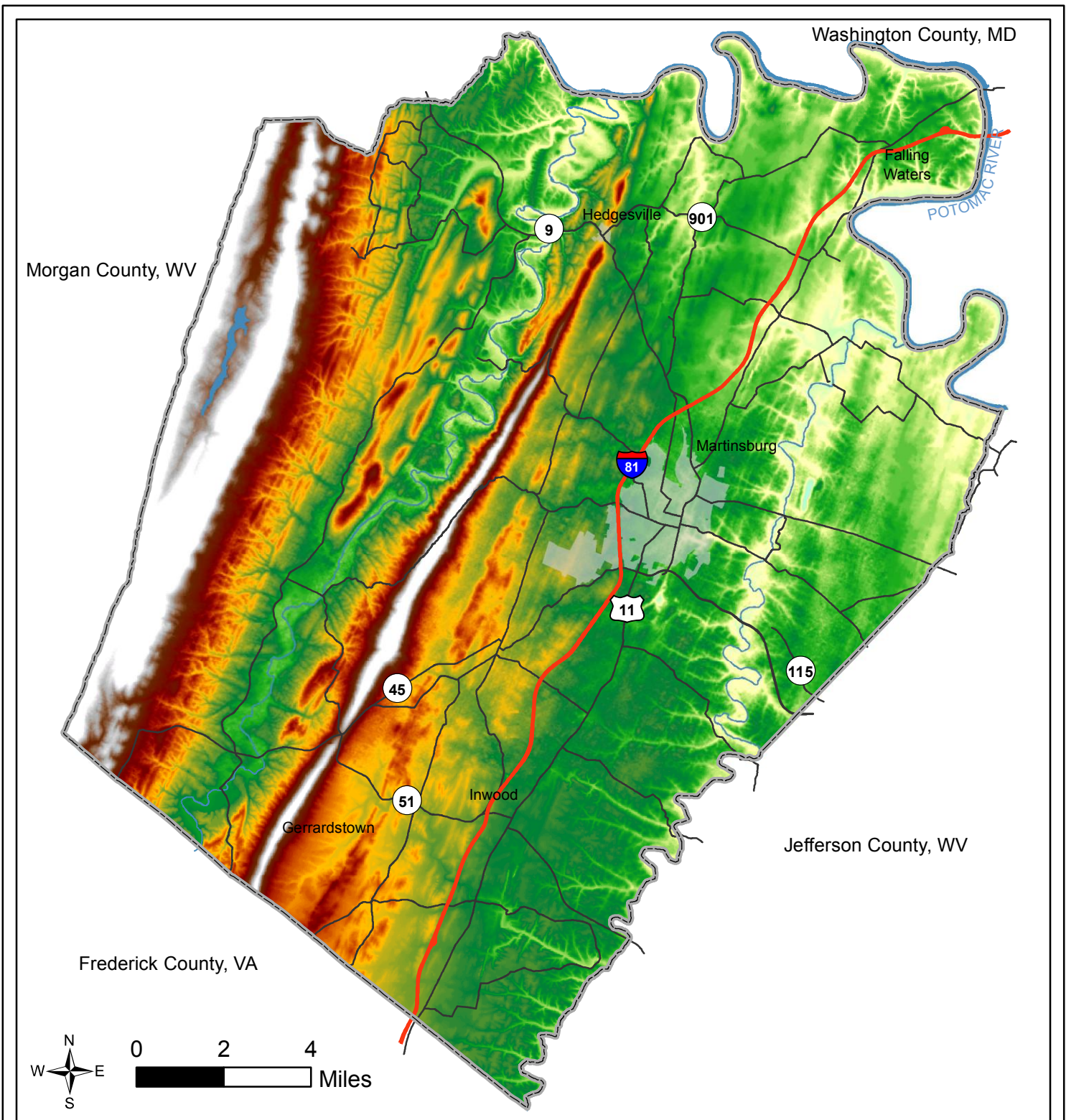
Table 12-3 – Lead Agency Recommendations

Lead Agency(ies)	Plan Element
ALL	Build partnerships
ALL	Comply with the Federal Endangered Species Act in order to protect threatened or endangered species which reside in Berkeley County.
ALL	Work with and support Berkeley County Public Schools, and all of the region's secondary and post secondary educational providers to ensure a skilled workforce for existing and future businesses.
ALL	Develop Alternatives to Zoning
ALL	Education and Outreach
ALL	Establish a recovery center that will house a full range of rehabilitative services: substance abuse counseling, family counseling, recover support groups, job and educational counseling.
ALL	Support HOA's covenants, restrictions and by-laws
ALL	Support the revitalization efforts of the City of Martinsburg by encouraging the reuse of older buildings in the downtown for much needed office space
ALL	Support efforts to establish a venue within Berkeley County that is able seat at least 2,000 people to watch a performance or event. Participate in Berkeley County Arts Council organization surveys to provide guidance for the organization regarding community interest as audience members, performers, and artists.
BC Ambulance Authority	Increase EMS station coverage and build new Central Station as outlined in the plan.
BC Council	Adopt and Implement the Proposed Stormwater Management and Sediment and Erosion Control Ordinance Revisions.
BC Council	Adopt most current building codes through an updated Building Code Ordinance.
BC Council	Adopt the updated Floodplain Ordinance.
BC Council	Annexation
BC Council	Work with the HEPMPO while also researching other tools and opportunities for funding, including the FAST Act, to improve Berkeley County roadways.
BC Council	Construct and renovate the existing and future county owned and operated facilities.
BC Council	Encourage existing owners of vacant retail and industrial properties to redevelop/revitalize them
BC Council	Enforce the County Clean/Safe Ordinance
BC Council	Enhance opportunities to establish historical, cultural and recreational tourism-related businesses.
BC Council	Infill with New Buildings
BC Council	Link Mobility and Access with Development Patterns and Design
BC Council	Preventing Neighborhood Deterioration
BC Council	Promote Mixed Use Development to Create Livelier Communities
BC Council	Redevelopment Planning and Implementation Programs
BC Council; BC Engineering & Permitting Dept	Capacity building – staff
BC Council; BC Planning	Define a process for verifying the presence of a wetland on individual parcels, and notifying the appropriate entities, prior to any grading or construction taking place that could potentially destroy the wetland.
BC Council; HEPMPO	Complete EPTA Bus Transfer Point Study and Implement Recommendations When Available
BC Development Authority	Brownfield/Land Recycling

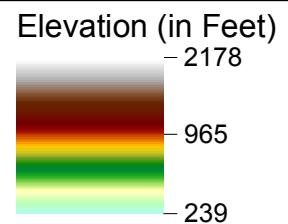
Lead Agency(ies)	Plan Element
BC Development Authority	Conduct Eastern Panhandle Entrepreneur Forums regularly for those already in business or wishing to start a business in the Eastern Panhandle Counties.
BC Development Authority	Develop and maintain a county-level database of all available development sites, including brownfields and other sites that could be redeveloped
BC Development Authority	Protect sites near the interstate interchanges, along the rail lines, and in proximity to the airport for light industry and transportation related industries
BC Farmland Protection Board	Agricultural Land Preservation
BC Farmland Protection Board	Purchase conservation easements through the Farmland Protection Program.
BC Farmland Protection Board	Work with the farming community to identify future role of agriculture in the county's economy
BC Fire Service Board	Review and update The 2011 Berkeley County Fire Service Board Five-Year Strategic Plan.
BC Office of Homeland Security and Emergency Management	Provide information to county residents and officials regarding disaster planning management.
BC Office of Homeland Security and Emergency Management	Coordinate the Berkeley County Emergency Operations Plan along with ensuring that police, fire and EMS have current homeland protection training through The Office of Homeland Security and Emergency Management.
BC Planning Commission	Additional Research and Data Compilation on Current Land Use
BC Planning Commission	Bring all subdivision proposals under one set of subdivision regulations.
BC Planning Commission	Develop a source water protection plan to safe guard drinking water supply from wells.
BC Planning Commission	Develop Land Use Policy Education Program
BC Planning Commission	Develop Supporting Groundwater Studies
BC Planning Commission	Evaluate the WV DEP groundwater protection permit process to determine if it is meeting the needs of Berkeley County in regards to groundwater preservation, or if additional steps need to be taken.
BC Planning Commission	Implement and Expand Upon the North Martinsburg Area Pedestrian Plan
BC Planning Commission	Update Subdivision and Land Development Regulations
BC Planning Commission	Utilize groundwater studies to determine densities for future development in rural/non-growth areas of the county.
BC Planning Commission & BC Council	Make provisions, where appropriate, for home-based businesses by including standards in the Subdivision and Land Development Ordinance to mitigate possible light and noise issues
BC Planning Commission & BC Council	Participate in HEPMPO Bicycle Study and Implement Recommendations When Available
BC Planning Commission & BC Council	Participate in Quarterly HEPMPO TAC (Technical Advisory Committee) and ISC (Interstate Council) Meetings
BC Planning Commission & BC Council	Promote Pedestrian Access
BC Planning Commission & BC Public Service Water District	Water Availability Land Use Plan
BC Planning Commission; BC Council; Martinsburg-Berkeley County Parks and Recreation	Acquire property through hazard mitigation grants and convert Sportsman's Paradise into a county park with public access to the Potomac River.
BC Public Service Sewer District	Add wastewater capacity as needed but within annual nutrient load caps.
BC Public Service Sewer District	Create an inventory of on-lot wastewater systems and put an inspection protocol into place.
BC Public Service Sewer District	Upgrade sewer and septic services, as outlined in The Infrastructure Plan chapter.
BC Public Service Water District	Update and adopt the next 20-year Water Facility Plan
BC Solid Waste Authority	Build and operate Entsorga, WV.
BC Solid Waste Authority	Search for potential funding sources and other resources in order to expand the public recycling programs, the litter control program, and open dumping program.
Eastern WV Regional Airport	Complete and implement the Airport Master Plan
Emergency Response Agencies	Collaborate with public safety, public health agencies and educational institutions throughout the region to meet public safety staffing needs

Lead Agency(ies)	Plan Element
Emergency Response Agencies	Utilize new technology by dispatch and first responders to monitor response times and ensure emergency needs are being met.
HEPMPO & WV DOH	Support and Construct the Priority Transportation Network
Martinsburg Housing Authority	Monitor Housing Affordability and Choices
Martinsburg-Berkeley County Parks and Recreation	Acquire and construct at least 700 acres or more of park land as the county population continues to grow.
Martinsburg-Berkeley County Parks and Recreation	Create regional parks of approximately 100 plus acres in both North and South Berkeley County.
Martinsburg-Berkeley County Parks and Recreation	Develop an adult softball complex.
Martinsburg-Berkeley County Parks and Recreation	Expand the W. Randy Smith Recreation Center in South Berkeley County by building Phase II and Phase III.
Martinsburg-Berkeley County Parks and Recreation & ALL	Build an Indoor Aquatic Center
Martinsburg-Berkeley County Parks and Recreation & HEPMPO	Build biking/hiking trails throughout the Eastern Panhandle connecting all three counties.
Region 9	Evaluate and implement a feasible option for bringing broadband to the area.
Region 9	Evaluate and implement a feasible option for bringing natural gas to the area.
Region 9	Encourage the development of an adequate communications technology network in the county
Region 9	Evaluate and update The 2015 Hazard Mitigation Plan before its expiration in January 2018.
Region 9	Evaluate the impaired streams on the 303(d) List and obtain data more recent than 2008, in order to determine BMPs for water quality improvement.
Region 9 & BC Council	Evaluate Options and Implement Appropriate Tools That Are Available for MS4 Compliance.

Source: Berkeley County Planning Commission

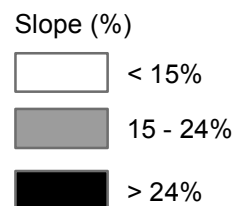
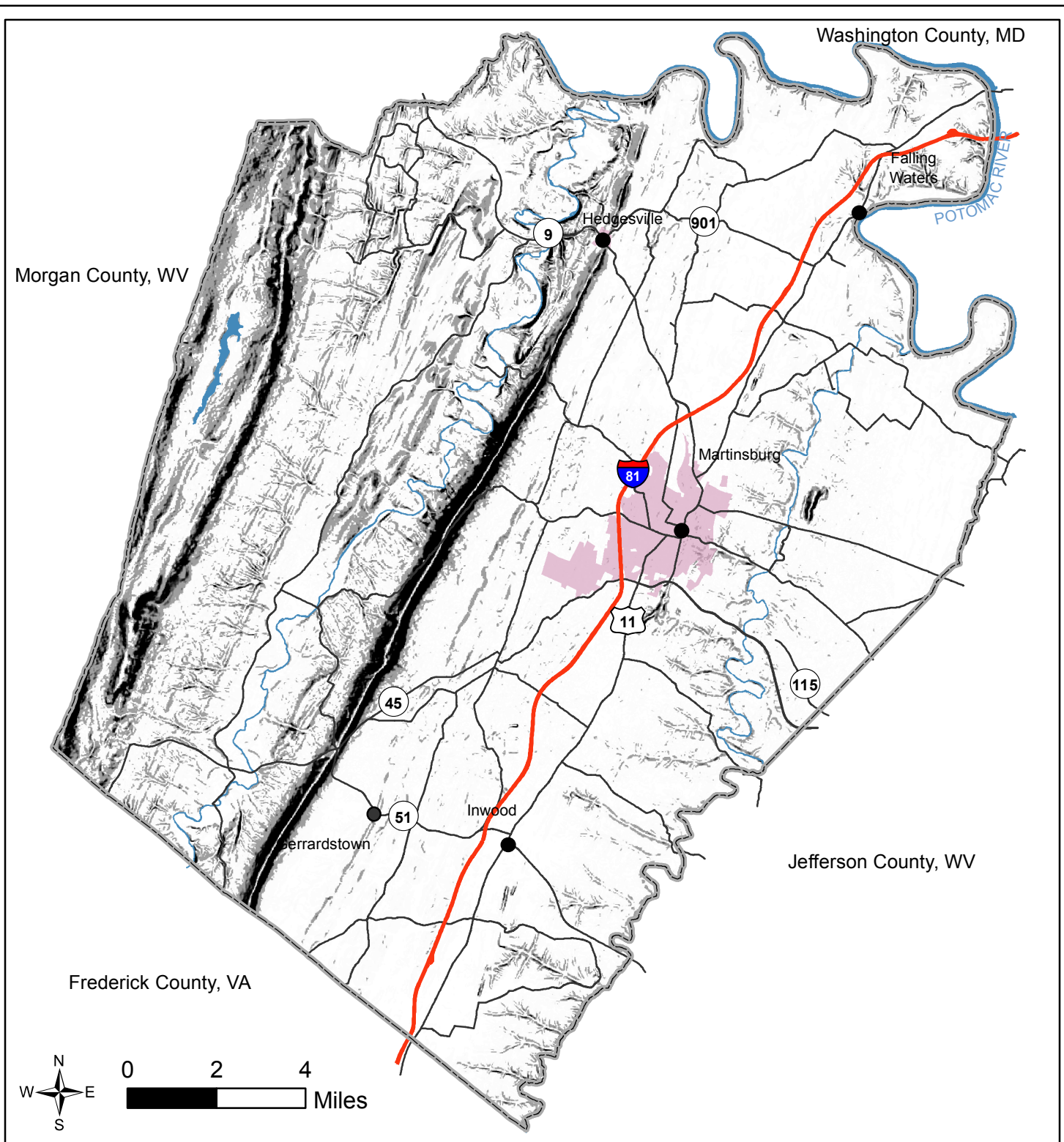


Data Source:
Berkeley County
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Berkeley County Map 1 - Topography

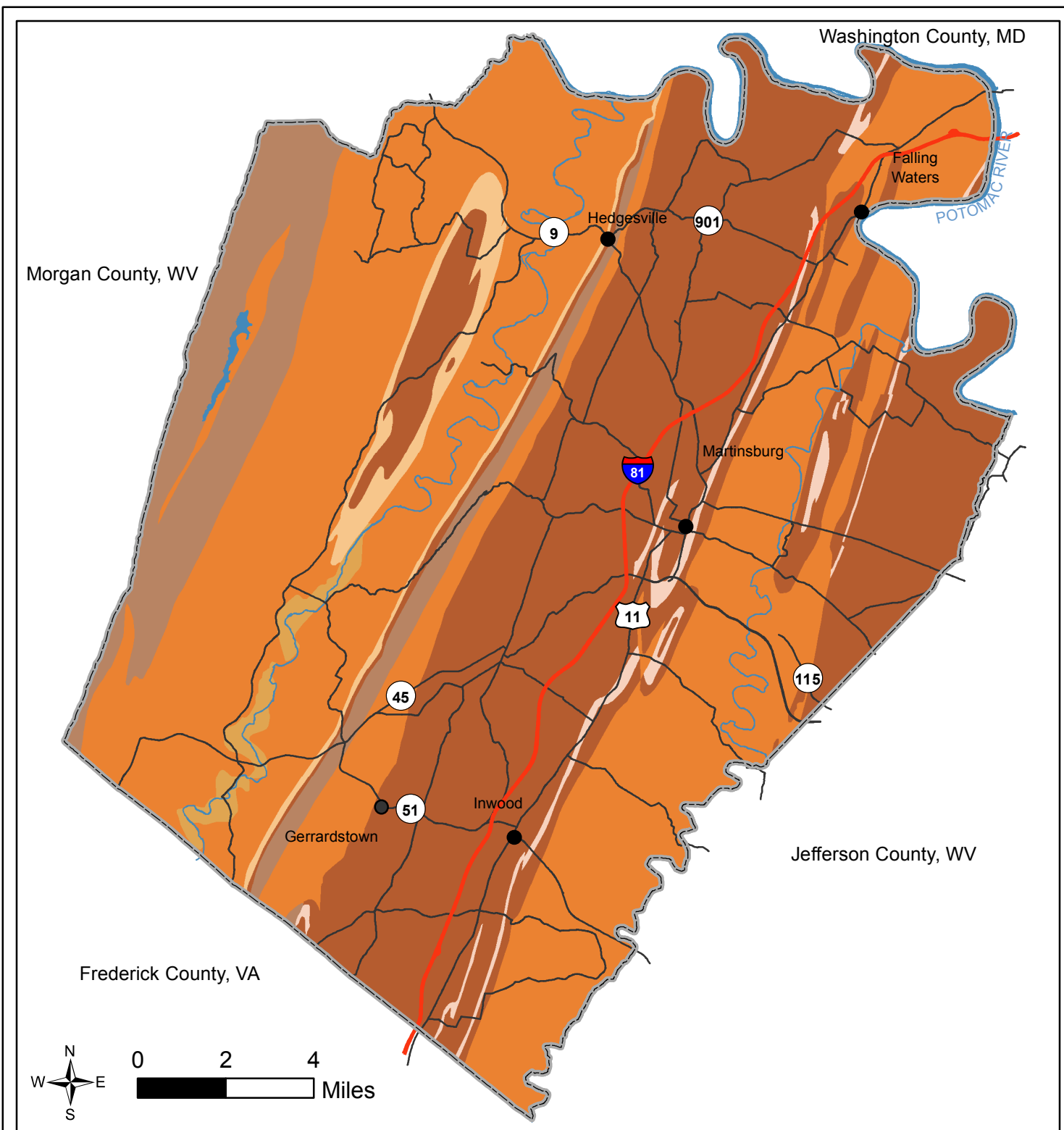
Berkeley County Comprehensive Plan Update 2016



Berkeley County Map 2 - Slope



Data Source:
 Berkeley County
 GIS



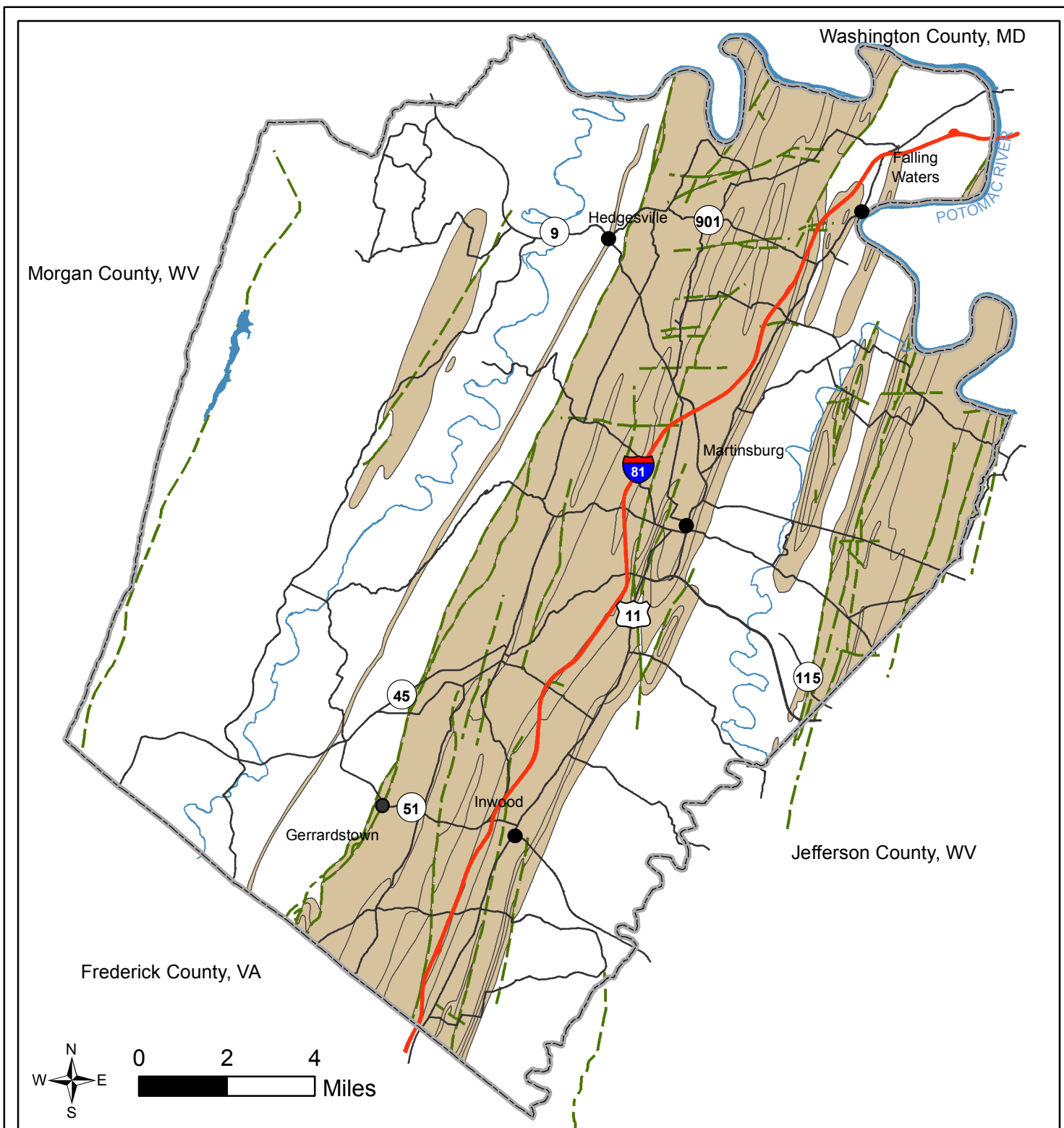
Data Source:
Berkeley County
GIS

Geologic Type

Alluvium	Sandstone
Dolostone	Shale
Limestone	Sandstone/Limestone

Berkeley County Map 3 - Geology

Berkeley County Comprehensive Plan Update 2016



Data Source:
Berkeley County
GIS

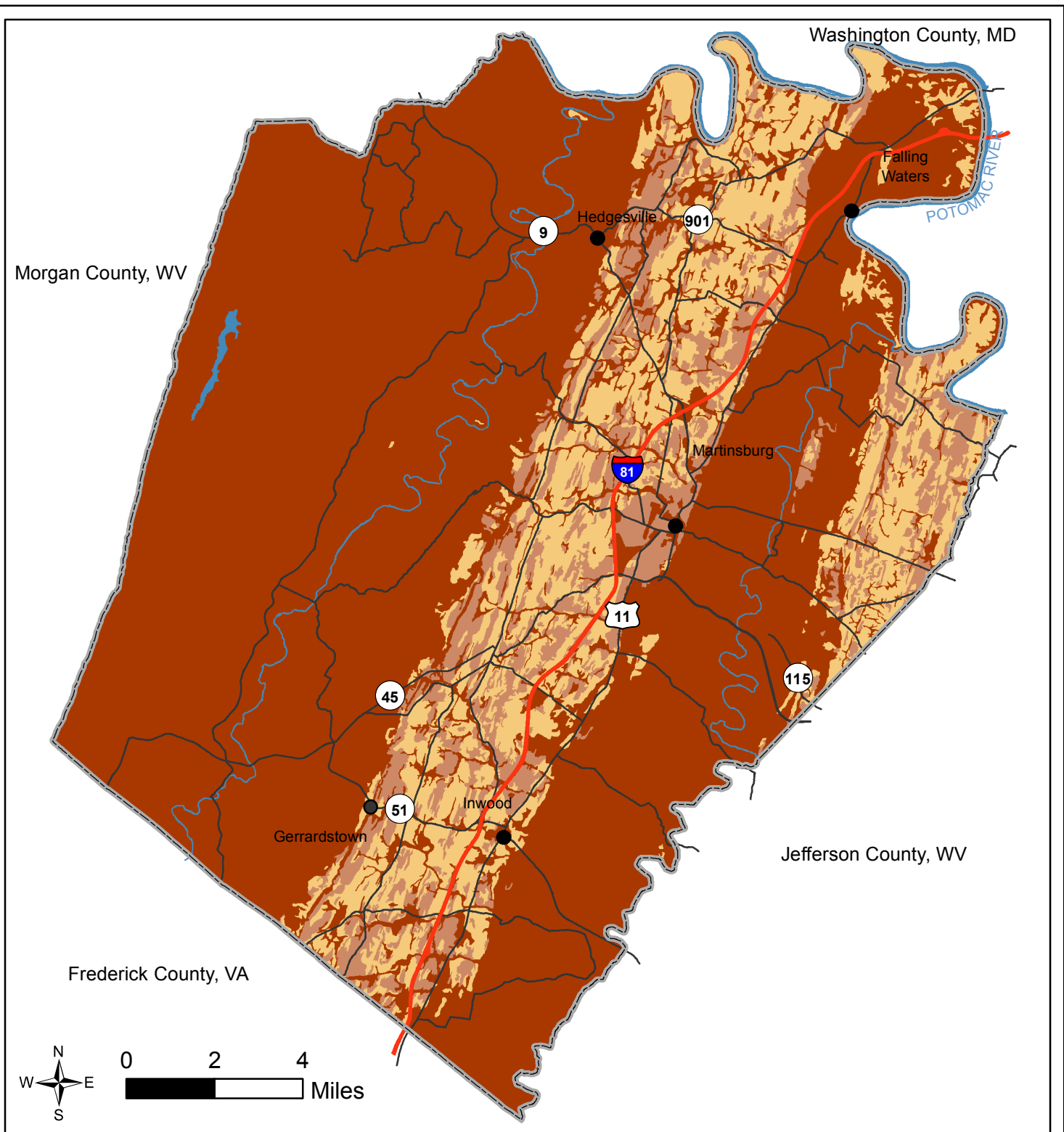
Geologic Type

- Fault Lines
- Karst Formations

Berkeley County

Map 4 - Geologic Features

Berkeley County Comprehensive Plan Update 2016



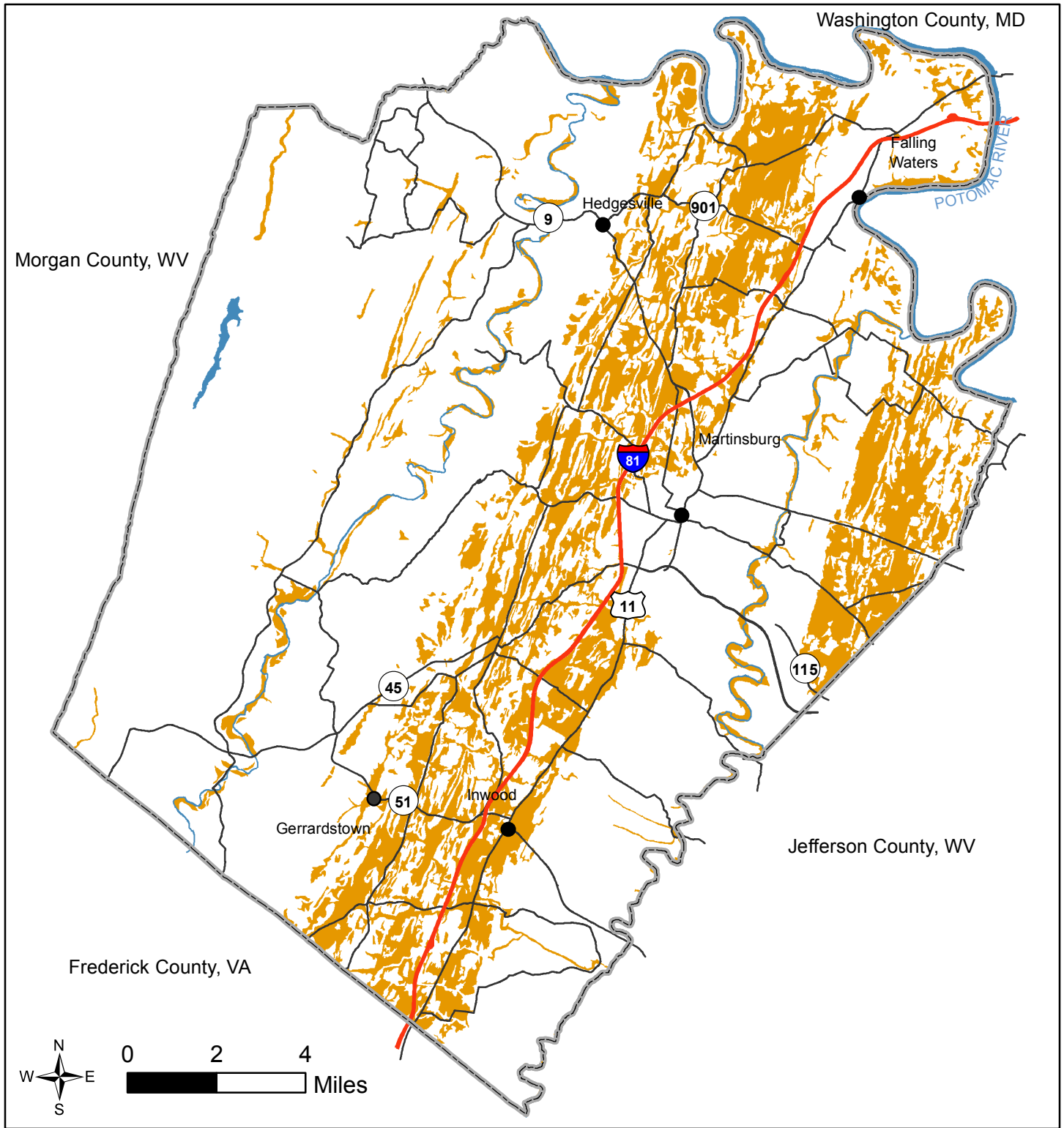
Data Source:
Berkeley County
GIS

Septic Suitability

- Moderate Limitation
- Moderate/Severe
- Severe Limitation

Berkeley County Map 5 - Soil Suitability

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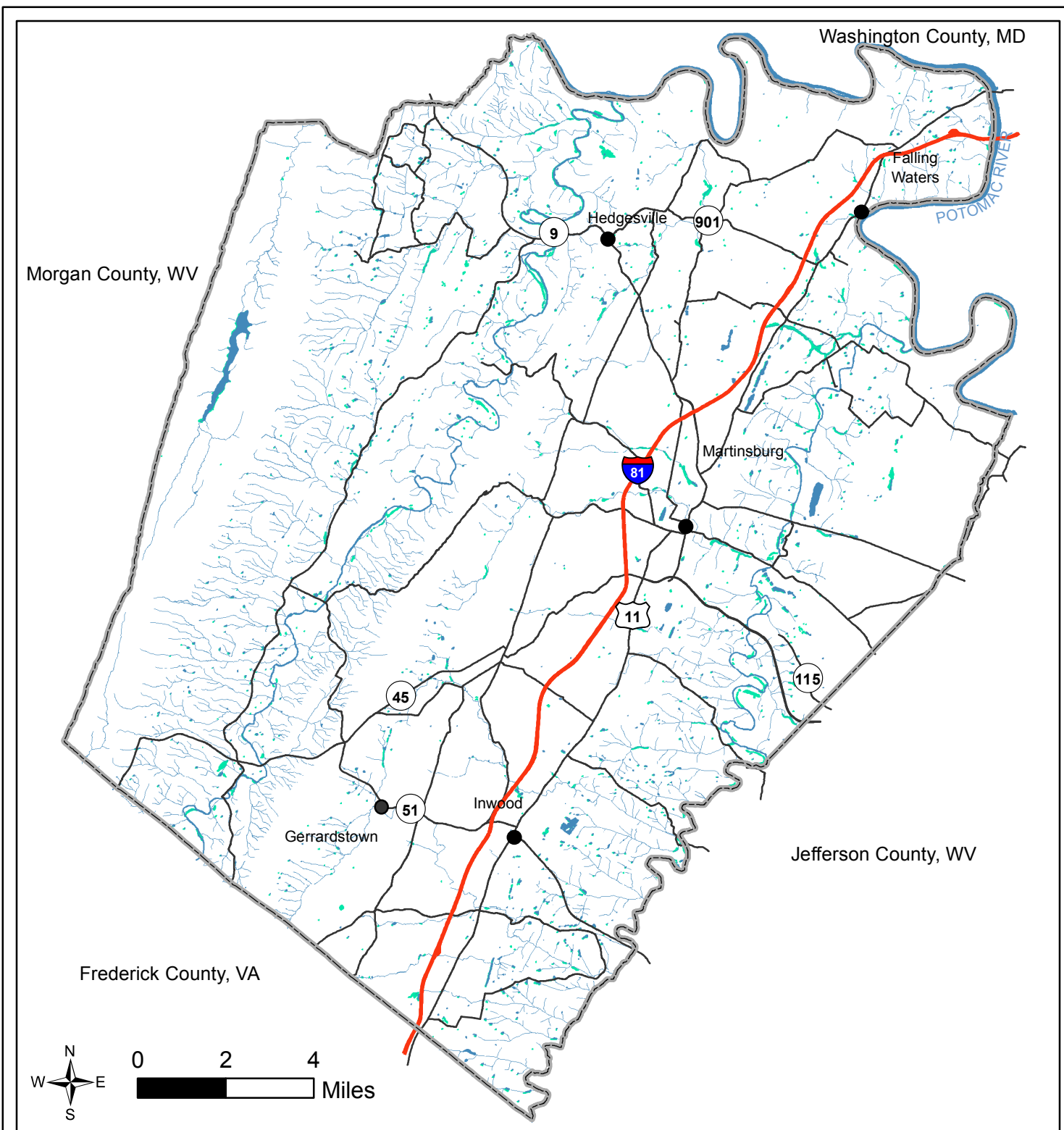


 Prime Farmland



Data Source:
Berkeley County
GIS

Berkeley County Map 6 - Designated Soils Berkeley County Comprehensive Plan Update 2016

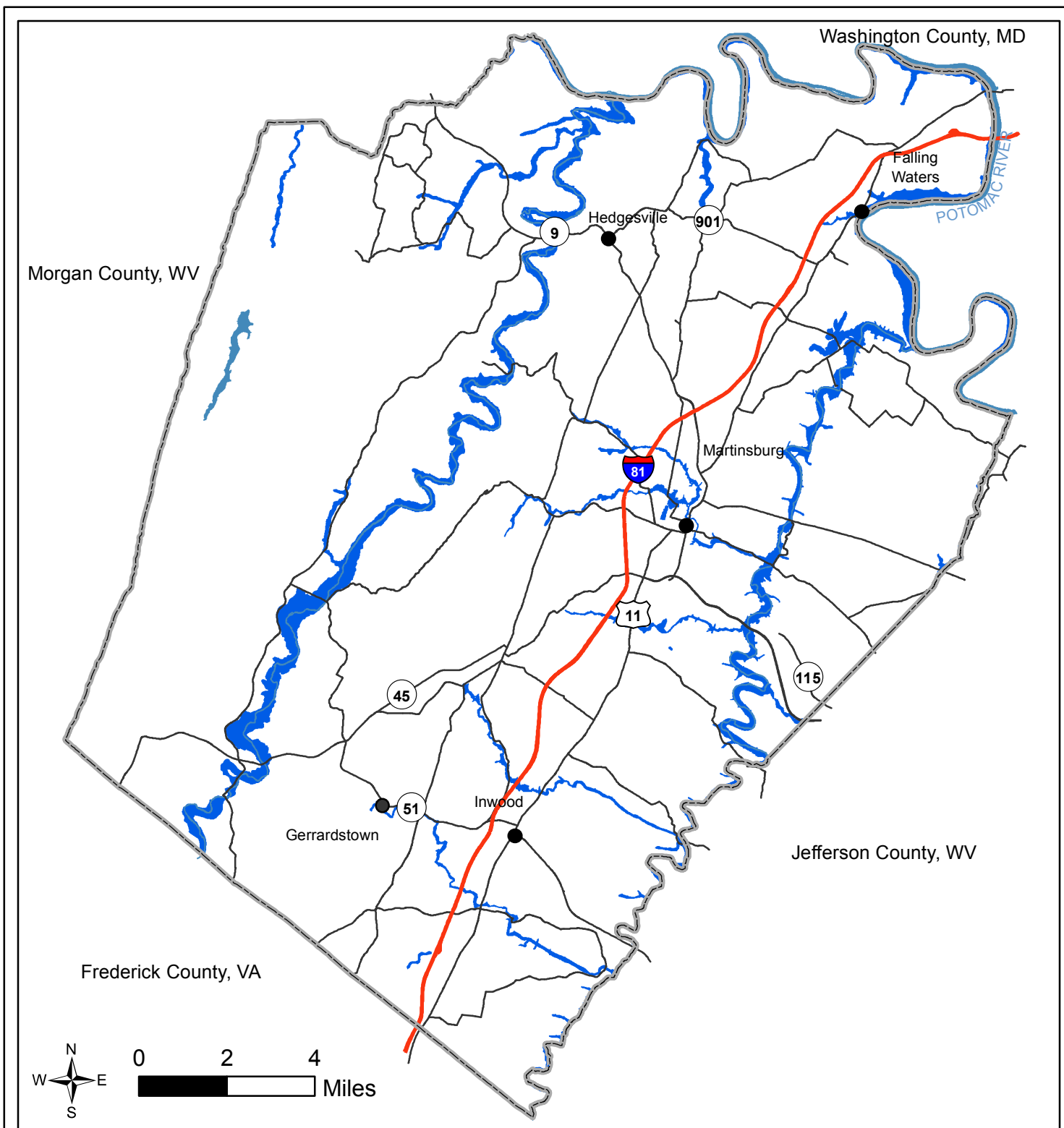


Data Source:
Berkeley County
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- Rivers/Streams
- Wetlands

Berkeley County Map 7 - Hydrology

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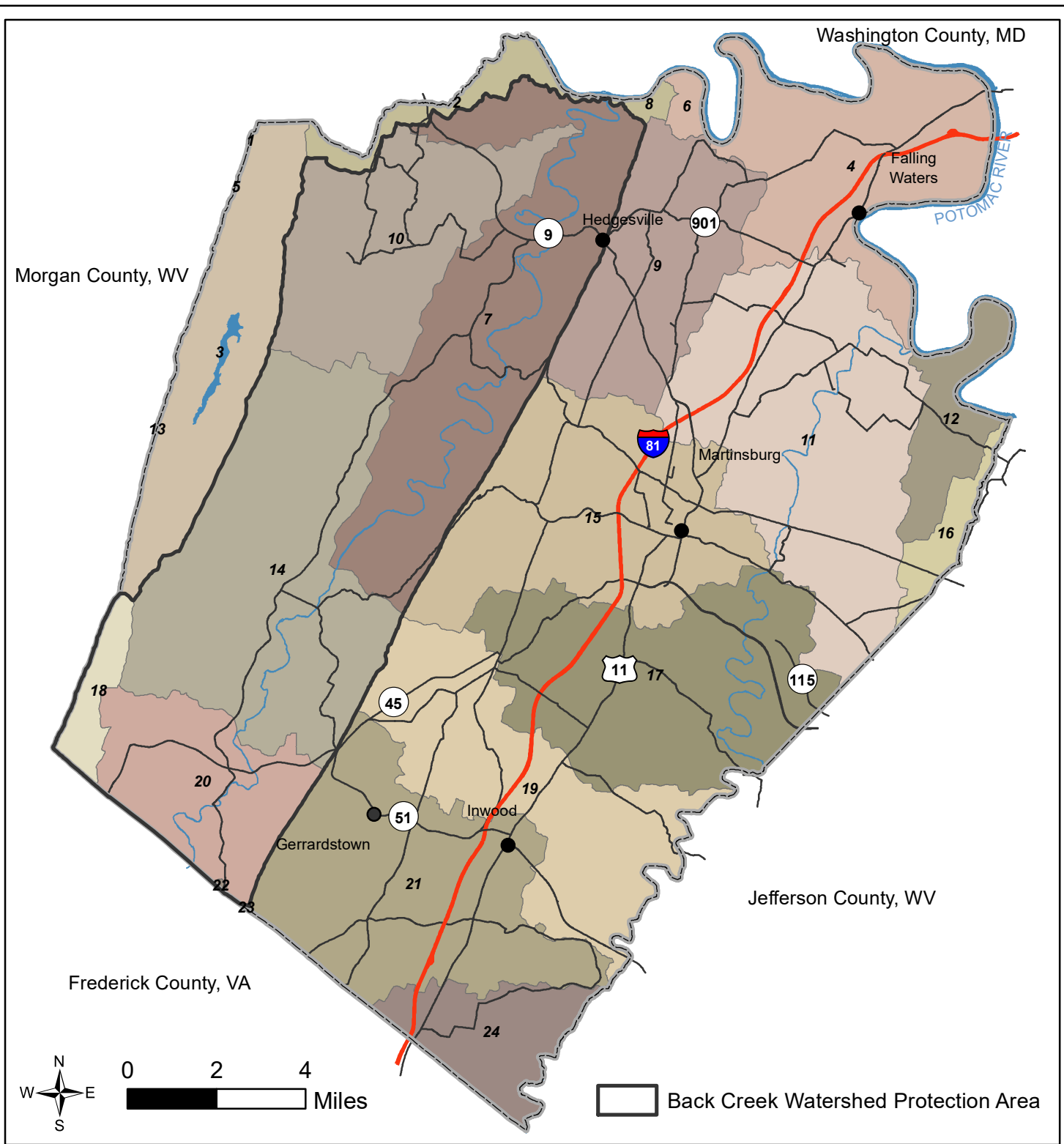
 100 Year Floodplain



Data Source:
Berkeley County
GIS

Berkeley County Map 8 - Flood Plains

Berkeley County Comprehensive Plan Update 2016



1	Lower Sleepy Creek	4.09	13	Middle Fork Sleepy Creek	18.78820742
2	Cherry Run-Potomac River	2271.68	14	Elk Branch-Back Creek	22257.87215
3	Meadow Branch	10589.58	15	Tuscarora Creek	17104.72032
4	Camp Spring Run-Potomac River	13540.45938	16	Rockymarsh Run	1943.662664
5	Middle Sleepy Creek	20.74688207	17	Evans Run-Opequon Creek	17998.34063
6	Camp Spring Run-Potomac River	720.2735537	18	Brush Creek	1933.042526
7	Outlet Back Creek	20608.65334	19	Middle Creek-Opequon Creek	14932.86678
8	Cherry Run-Potomac River	402.5790818	20	Warm Springs Hollow-Back Creek	8908.404592
9	Harlan Run	10816.78327	21	Mill Creek	17745.94603
10	Tilthance Creek	12760.29262	22	Babbs Run	39.37046956
11	Hoke Run-Opequon Creek	21826.07844	23	Babbs Run	7.14499589
12	Rattlesnake Run-Potomac River	3994.836356	24	Turkey Run-Opequon Creek	5403.293362

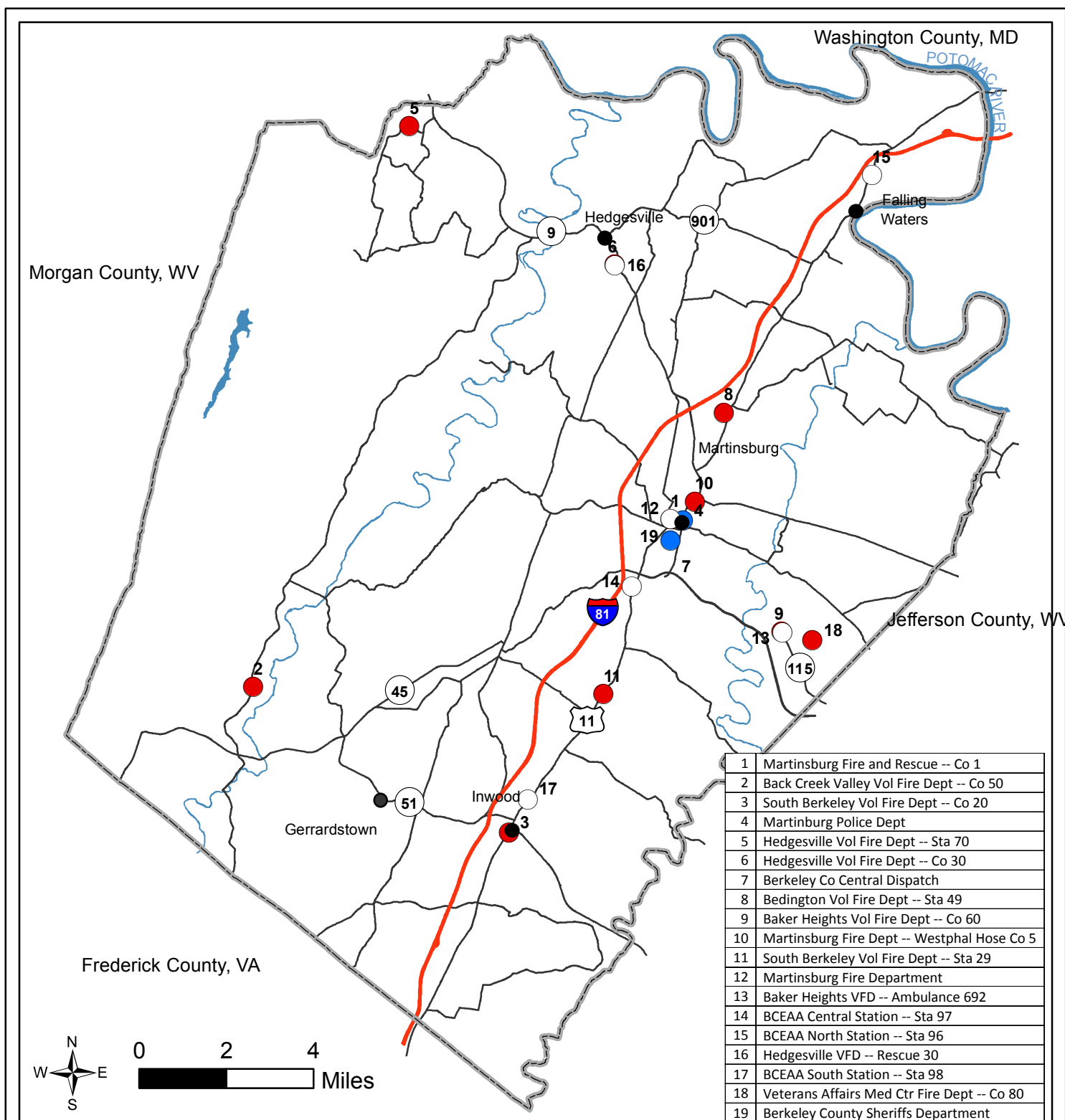


Data Source:
Berkeley County
GIS

Berkeley County

Map 9 - Surface Drainage Watersheds

Berkeley County Comprehensive Plan Update 2016



Data Source:
Berkeley County
GIS

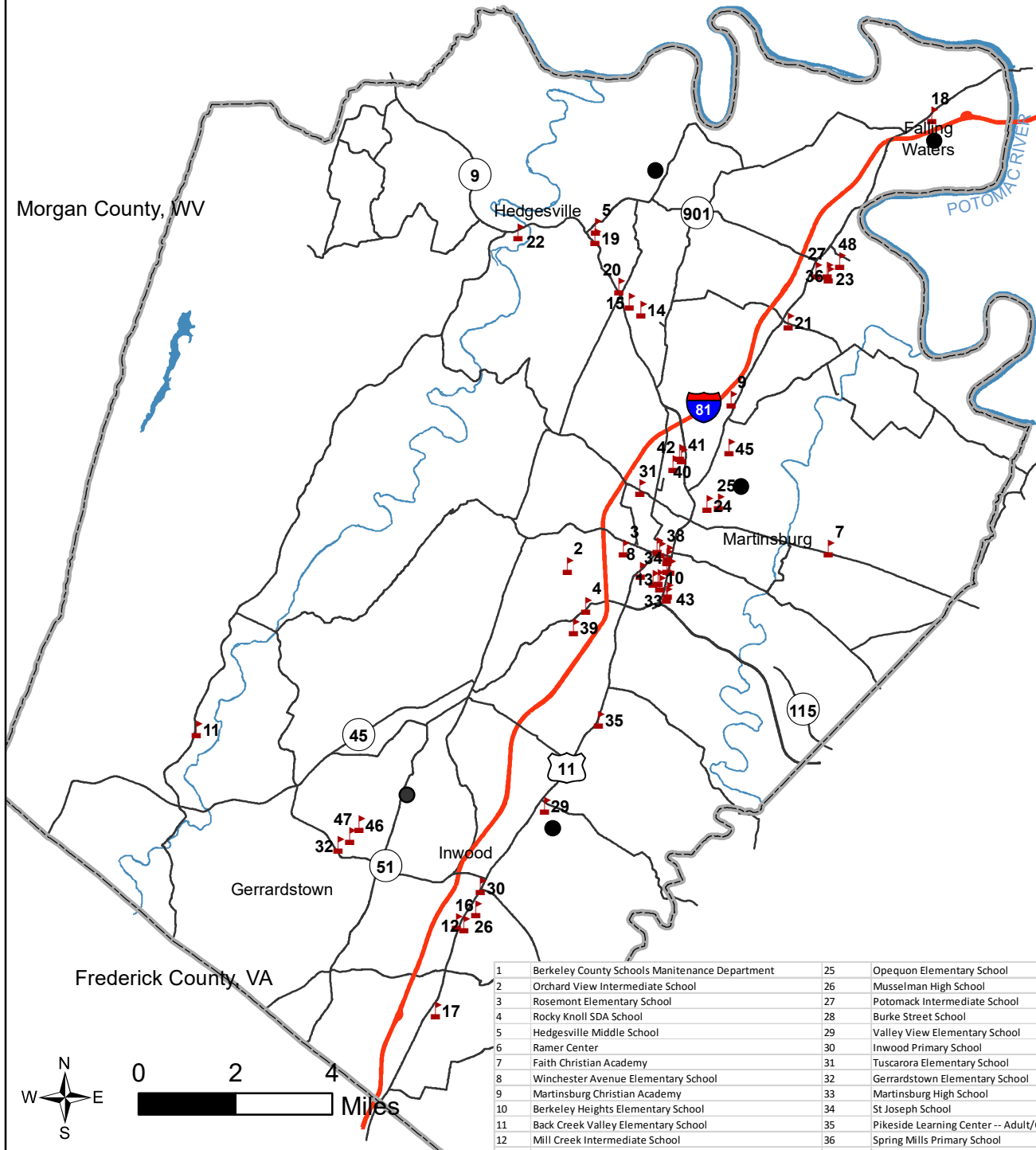
Facility Code

- Ambulance Service
- Fire Station / EMS Station
- Law Enforcement

Berkeley County

Map 10 - Emergency Service Facilities

Berkeley County Comprehensive Plan Update 2016



Frederick County, VA

1	Berkeley County Schools Maintenance Department	25	Opequon Elementary School
2	Orchard View Intermediate School	26	Musselman High School
3	Rosemont Elementary School	27	Potomack Intermediate School
4	Rocky Knoll SDA School	28	Burke Street School
5	Hedgesville Middle School	29	Valley View Elementary School
6	Ramer Center	30	Inwood Primary School
7	Faith Christian Academy	31	Tuscarora Elementary School
8	Winchester Avenue Elementary School	32	Gerrardstown Elementary School
9	Martinsburg Christian Academy	33	Martinsburg High School
10	Berkeley Heights Elementary School	34	St Joseph School
11	Back Creek Valley Elementary School	35	Pikeside Learning Center --- Adult/Community Education
12	Mill Creek Intermediate School	36	Spring Mills Primary School
13	South Middle School	37	Berkeley County Public Schools Office
14	James Rumsey Technical Institute	38	Regional Education Service Agency (RESA VIII)
15	James Rumsey Technical Institute	39	Blue Ridge Community and Technical College
16	Musselman Middle School	40	Valley College
17	Bunker Hill Elementary School	41	Martinsburg College (Distance Learning Programs)
18	Marlowe Elementary School	42	Shepherd University Martinsburg Center
19	Hedgesville Elementary School	43	Regional Education Service Agency (RESA VIII) Head Start
20	Hedgesville High School	44	International Beauty School
21	Bedington Elementary School	45	Eagle School Intermediate
22	Tomahawk Intermediate School	46	Mountain Ridge Intermediate
23	Spring Mills Middle School	47	Mountain Ridge Middle School
24	North Middle School	48	Spring Mills High School

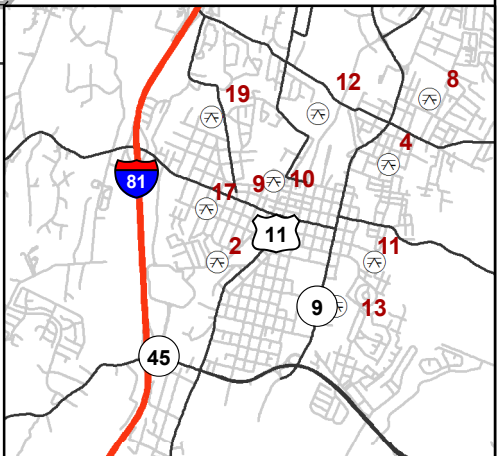
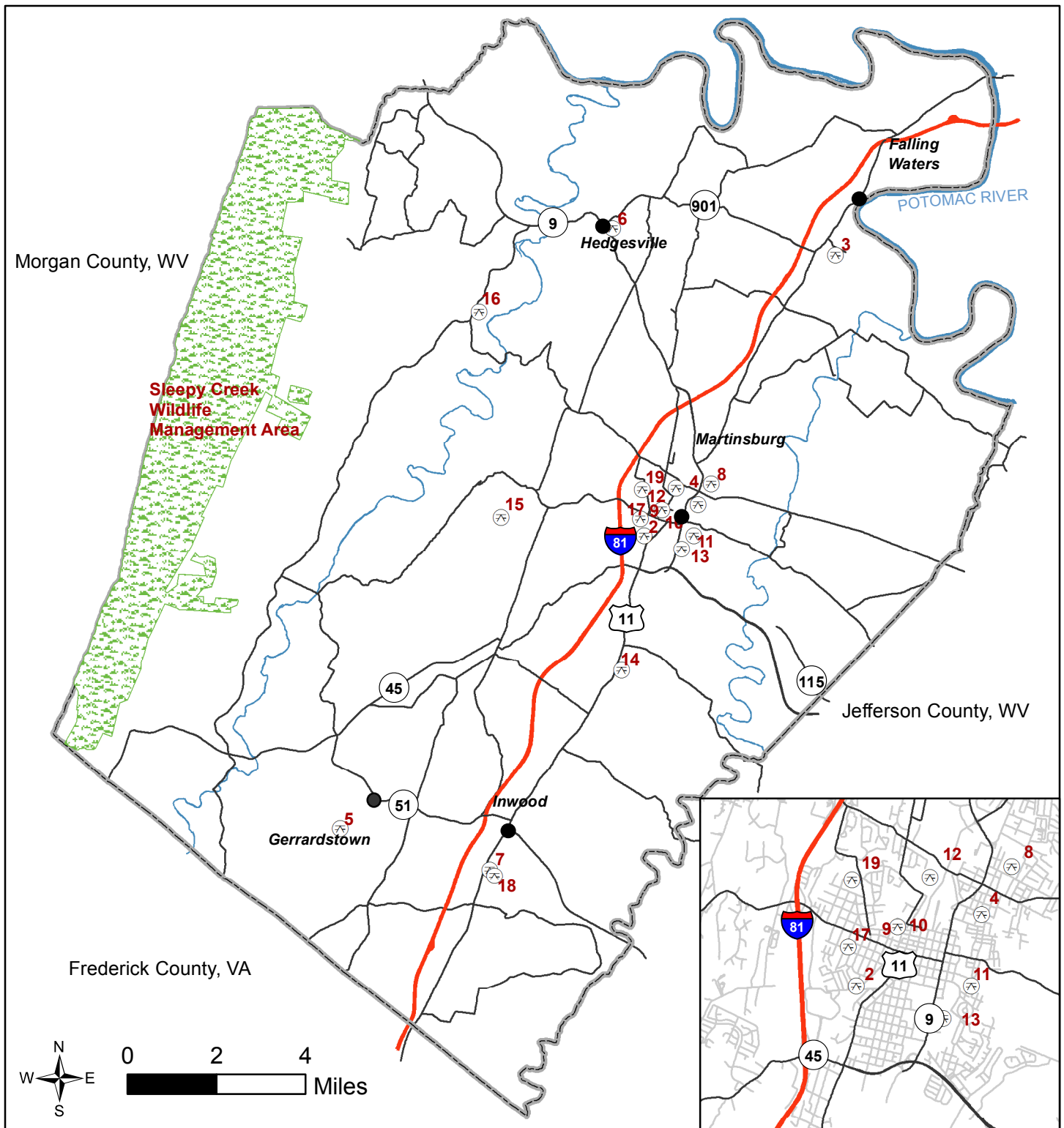


Data Source:
Berkeley County
GIS

Berkeley County

Map 11 - Education Facilities

Berkeley County Comprehensive Plan Update 2016



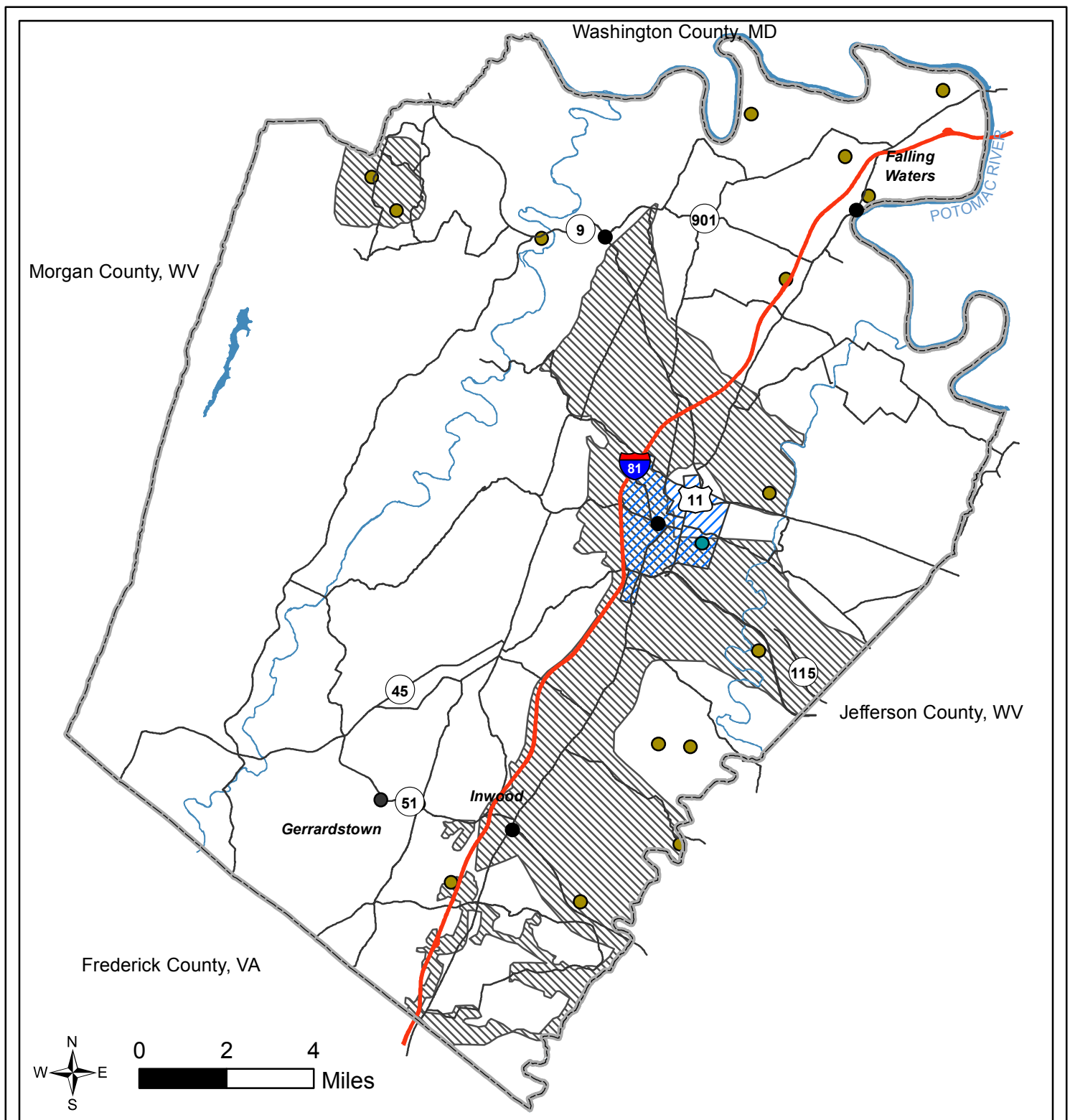
- | | |
|----------------------------------|--------------------------------|
| 1. Allensville Acreage | 11. Oak Street Park |
| 2. Ambrose Park | 12. Oatesdale Park |
| 3. DuPont Park & Soccer Complex | 13. P.O. Faulkner Park |
| 4. E Burke St Park | 14. Pikeside Park |
| 5. Gerrardstown Athletic Field | 15. Poor House Farm Park |
| 6. Hedgesville Park | 16. Rooney (Tomahawk) Park |
| 7. Inwood-Bunker Hill Lions Park | 17. Roush Field |
| 8. Lambert Park | 18. W. Randy Smith Rec. Center |
| 9. Leeland Playground | 19. War Memorial Park |
| 10. Martin Luther King Jr. Park | |



Data Source:
Berkeley County
GIS

Berkeley County Map 12 - Parks and Outdoor Areas

Berkeley County Comprehensive Plan Update 2016



- Martinsburg WWTP
- Berkeley Co WWTP or Package
- Martinsburg Service Area
- Berkeley Co Service Area

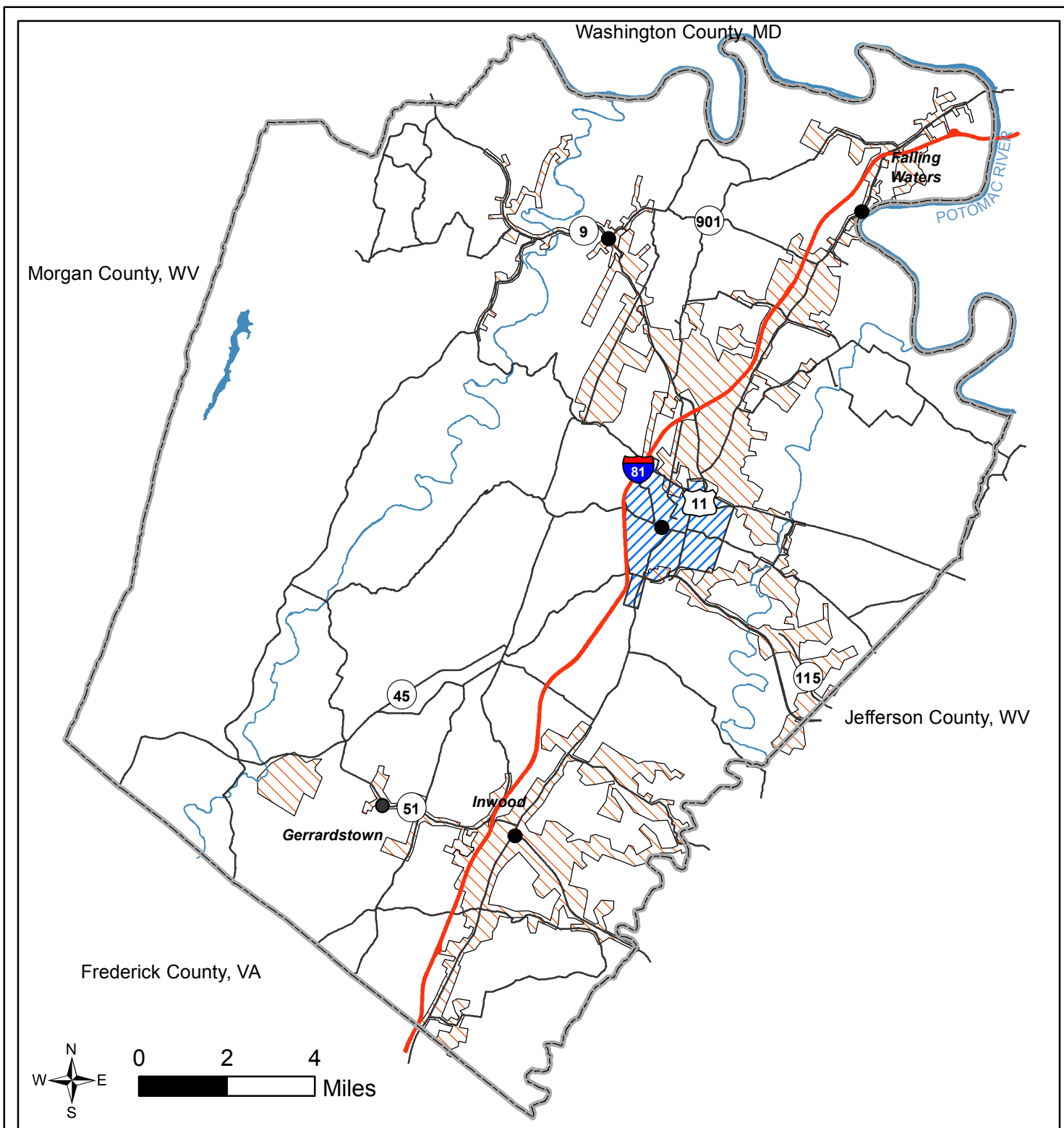


Data Source:
Berkeley County
GIS

Berkeley County

Map 13 - Public Sewer Services

Berkeley County Comprehensive Plan Update 2016



-  Berkeley County Water Service Area
-  Martinsburg Service Area

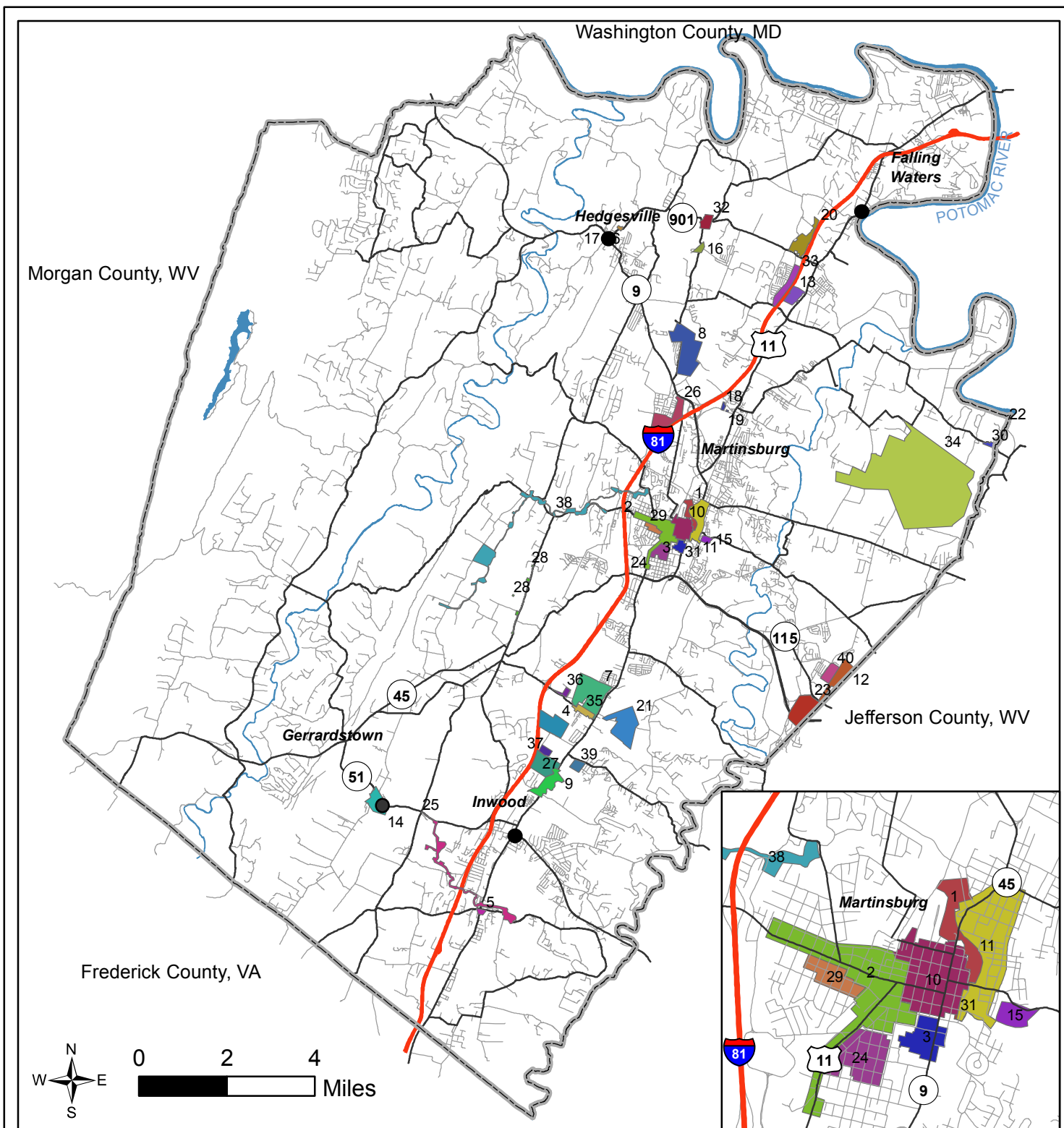


Data Source:
Berkeley County
GIS & BCPWSD

Berkeley County

Map 14 - Public Water Services

Berkeley County Comprehensive Plan Update 2016

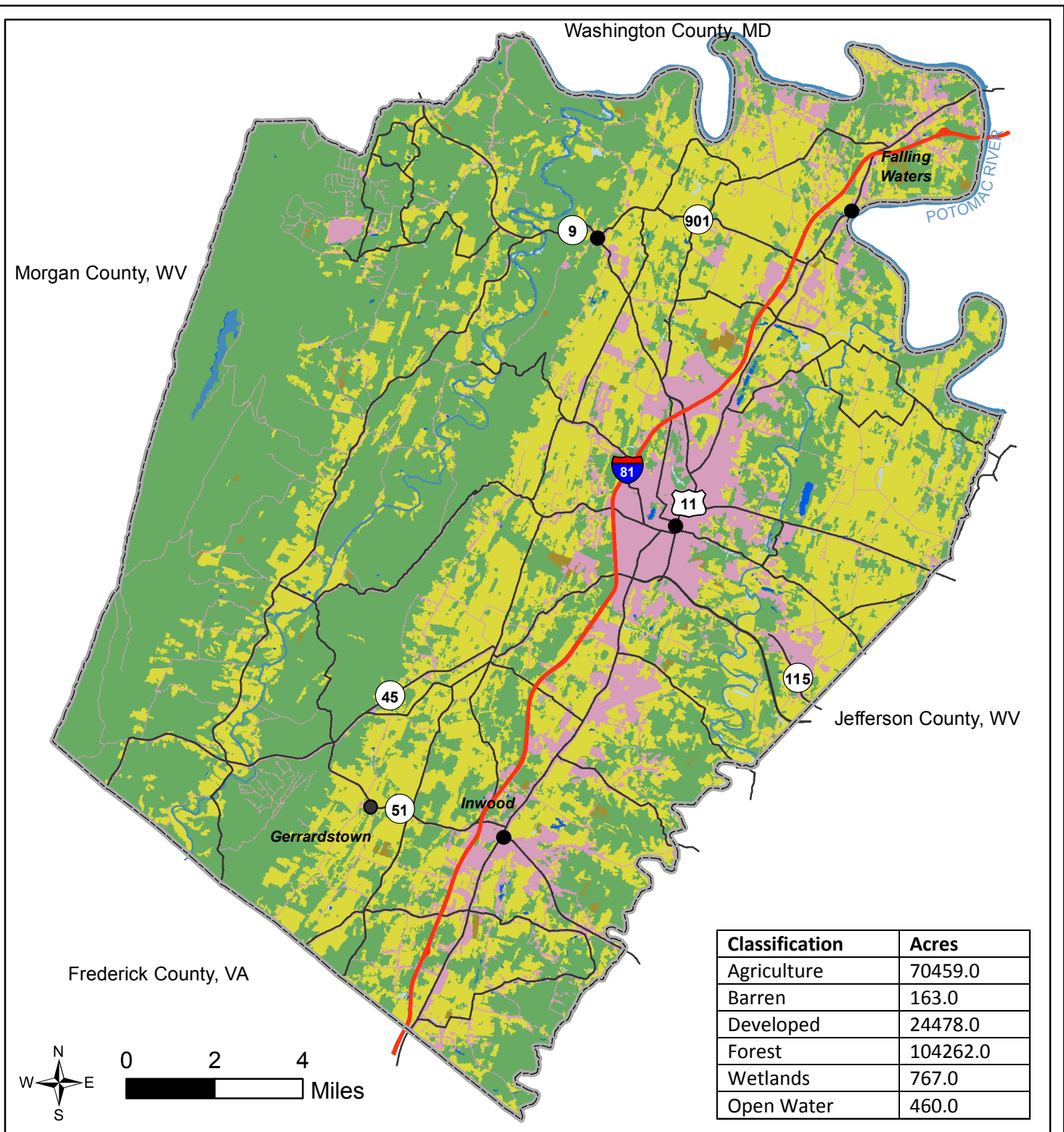


Data Source:
Berkeley County
GIS

1. Baltimore and Ohio and Related Industries Historic District
2. Boomtown Historic District
3. Brydville
4. Bynally Manor Orchards Site
5. Bunker Hill Historic District
6. Clay's Mountain
7. Criswell Site
8. Cumbo Yard Industrial Park
9. Darksville Historic District
10. Downtown Martinsburg Historic District
11. East Martinsburg Historic District
12. F.O. Day Site
13. Falling Waters Industrial Center
14. Gerrardstown Historic District
15. Green Hill Cemetery Historic District
16. Harlan Spring Historic District
17. Hedgesville Historic District
18. Holleydale Site
19. Holleydale Site
20. UCON Industrial Park
21. John D. Rockefeller IV Science & Technology Center
22. Jones' Mill Run
23. Liberty Business Park
24. Martinsburg, Mining, Manufacturing & Improvement Co. Historic D
25. Mill Creek Historic District
26. North Star (Berkeley Park) Site
27. Old National Bank Site
28. Ridge Road Historic District
29. Reepmont Historic District
30. Scabbles Historic District
31. South Water Street Historic District
32. Spring Mills
33. Spring Mills Business Park
34. Swan Pond Manor Historic District
35. Tabler's Station
36. Tablers Station Site
37. Talbott Site
38. Tuscanora Creek Historic District 1
39. Valley Business Site
40. Willis Site

Berkeley County Map 15 - Historic Districts

Berkeley County Comprehensive Plan Update 2016

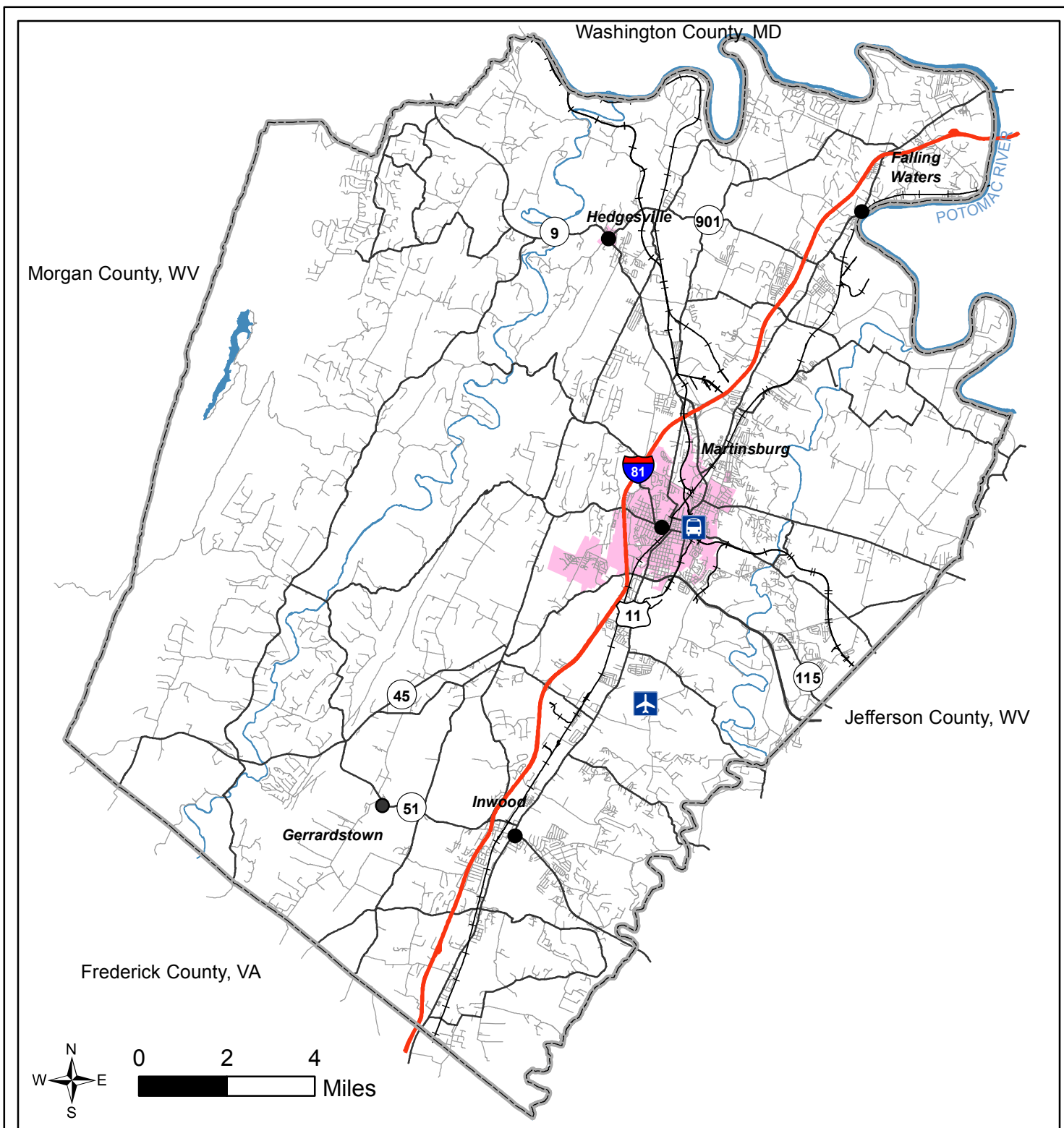


Data Source: Berkeley County GIS
and WV GIS Tech Center

Berkeley County

Map 16 - 2006 Land Use

Berkeley County Comprehensive Plan Update 2016



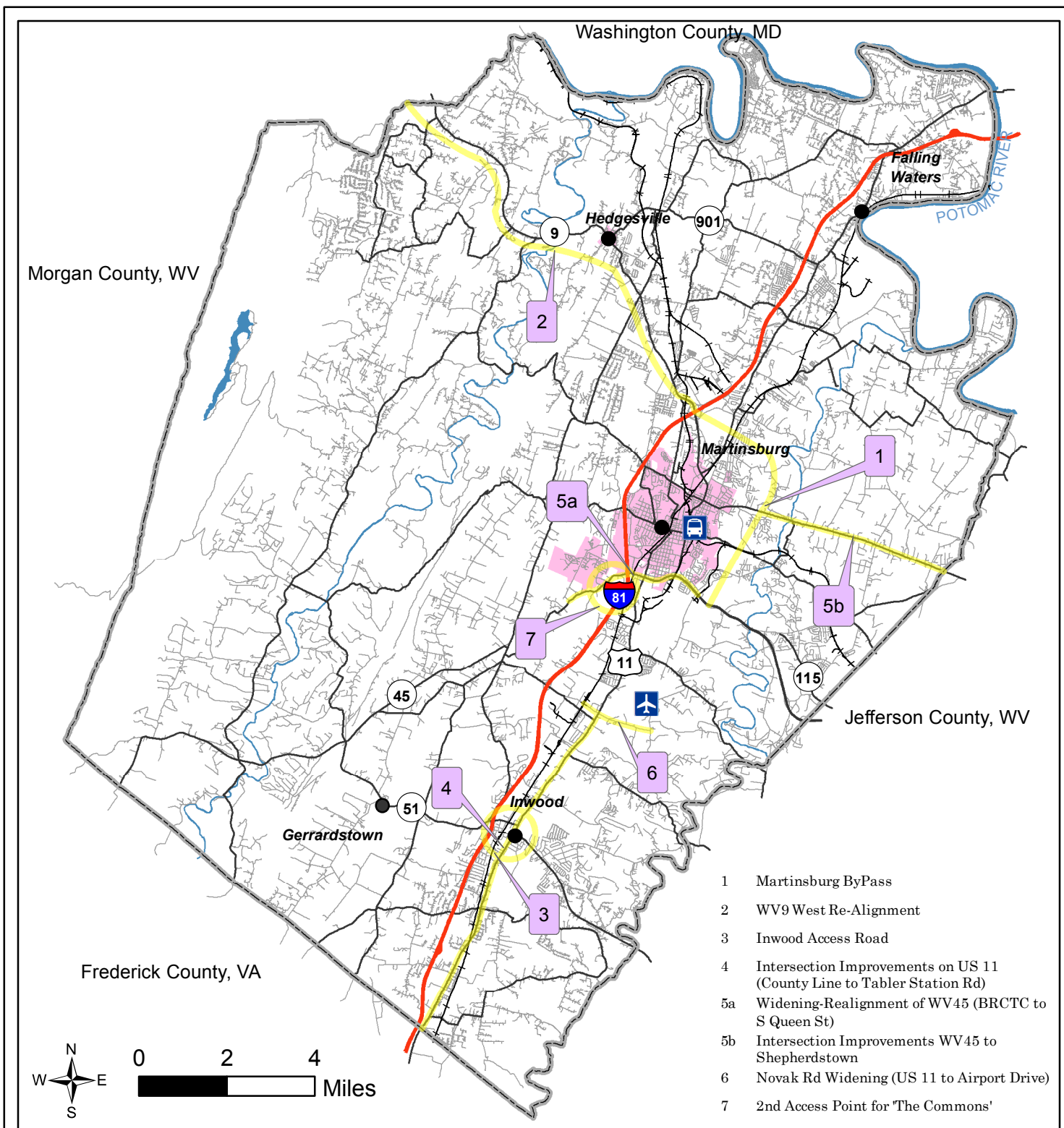
Data Source:
Berkeley County
GIS

Legend

-  Airport Terminal
-  Bus Station / Railroad Terminal
-  Town Center
-  Railroad

Berkeley County Map 17 - Transportation Systems

Berkeley County Comprehensive Plan Update 2016



Data Source:
Berkeley County
GIS

— Transportation Projects

Legend



Airport Terminal



Bus Station / Railroad Terminal

Town Center

— Railroad

Berkeley County Priority Transportation Network

Berkeley County Comprehensive Plan Update 2016

PUBLIC SURVEY COMPARISON OF 2015 and 2005 RESULTS

							2015		2005		
	Percentages (%)	Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree	Not Sure	Agree to some extent	Disagree to some extent	Agree to some extent	Disagree to some extent
1. Taking all things into consideration, the quality of life in the county is very good.		5.07	38.67	42.93	10.67	2.13	0.53	86.67	12.80	67.2	11.4
2. The following are major issues in Berkeley County:											
a. Location of new development		22.51	39.77	23.39	7.31	2.92	4.09	85.67	10.23	85.1	10.6
b. Affordable housing		14.62	30.41	26.61	18.71	5.56	4.09	71.64	24.27	81	13.6
c. Lack of employment opportunities		27.70	29.15	23.62	15.16	2.62	1.75	80.47	17.78	76.1	14.8
d. Protection of water resources		30.70	34.80	20.18	7.60	2.34	4.39	85.68	9.94	85.6	7.4
e. Traffic congestion		42.98	21.64	22.51	11.11	1.17	0.58	87.13	12.28	88.8	7.6
f. Pace of new development		17.49	32.94	22.74	17.49	2.92	6.41	73.17	20.41	85.7	10.6
g. Cleanliness of the county		38.01	30.12	21.64	8.19	0.88	1.17	89.77	9.07	88.2	8.6
3. The following types of housing should be encouraged in Berkeley County:											
a. Single-family detached homes		22.71	50.15	12.39	5.90	1.77	7.08	85.25	7.67	85.9	8.8
b. Multi-story Apartment Buildings		4.72	23.89	25.96	27.73	11.50	6.19	54.57	39.23	41.4	50
c. Loft units above businesses		13.57	34.51	23.60	12.68	5.90	9.73	71.68	18.58	48.6	38.6
d. Townhomes		5.01	29.79	33.63	19.47	7.37	4.72	68.43	26.84	55.2	38.4
e. Conversion of single-family homes to apartments		2.67	6.53	12.76	45.40	24.93	7.72	21.96	70.33	21.9	68.5
f. Retirement Villages/Assisted Living facilities		31.07	43.49	17.16	3.55	2.07	2.66	91.72	5.62	90.1	5.4
g. Mobile Homes		1.19	4.76	15.18	41.96	33.63	3.27	21.13	75.59	n/a	n/a
4. The availability of the following community services and utilities is adequate within the county:											
a. Police Protection		2.06	22.12	30.38	23.89	13.57	7.96	54.56	37.46	60.8	32.8
b. Fire and Ambulance services		3.27	33.63	32.14	15.48	6.55	8.93	69.04	22.03	75.2	19
c. Street and Road Maintenance		0.89	15.18	30.06	30.36	21.73	1.79	46.13	52.09	44.7	51.8
d. Public Water		3.56	34.42	30.56	10.98	4.45	16.02	68.54	15.43	67.4	22.1
e. Public Sewer		3.58	35.22	29.25	11.34	3.58	17.01	68.05	14.92	63	26.3
f. Internet Access		2.09	24.18	20.30	26.27	23.58	3.58	46.57	49.85	60.6	21.7
g. Public Library Services		5.97	33.43	25.97	19.40	8.36	6.87	65.37	27.76	80.6	9.2
h. Trash Removal/Recycling		5.95	38.99	25.60	12.50	8.04	8.93	70.54	20.54	64.7	30.5
i. Parks and Recreation		5.37	33.43	24.18	18.81	10.45	7.76	62.98	29.26	69.6	21.9
j. Cable TV		4.73	32.54	18.93	21.01	16.27	6.51	56.20	37.28	59.8	28.9
5. The following transportation related projects should be pursued by county officials:											
a. Complete planned improvements to US11 from Virginia to Potomac River.		17.91	39.40	18.81	7.46	2.09	14.33	76.12	9.55	n/a	n/a
b. Complete planned improvements to WV51 from Jefferson County line to I-81.		21.26	35.03	20.66	5.09	1.80	16.17	76.95	6.89	n/a	n/a
c. Provide bicycle and pedestrian facilities that connect neighborhoods to schoos, community facilities, and rural sections of the county		33.83	30.54	21.86	7.78	2.69	3.29	86.23	10.47	80.3	13.8
d. Improve Public Transportation		25.15	38.92	21.26	6.29	1.80	6.59	85.33	8.09	87.3	4.6
e. Reduce congestion in and around Martinsburg, Hedgesville, Inwood and Tabler Station		45.05	34.23	14.71	2.10	0.60	3.30	93.99	2.70	94.6	1.8
f. Promote the use of facilities at the Eastern West Virginia Regional Airport		30.95	35.71	19.94	3.27	2.08	8.04	86.60	5.35	81.5	7
g. Provide transportation related services to elderly and the handicapped		33.13	42.09	19.10	2.09	0.90	2.69	94.32	2.99	94.6	1.6

PUBLIC SURVEY COMPARISON OF 2015 and 2005 RESULTS

								2015		2005	
	Percentages (%)	Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree	Not Sure	Agree to some extent	Disagree to some extent	Agree to some extent	Disagree to some extent
6. I am very satisfied with county government in regard to the following:											
a. Citizen input about community decisions	0.92	19.27	33.33	16.82	10.70	18.96		53.52	27.52	49	37.4
b. Building permits, code enforcement and inspections	2.13	18.90	27.44	18.29	10.37	22.87		48.47	28.66	44.5	42.8
c. Planning regulations	1.53	12.23	28.75	20.18	12.54	24.77		42.51	32.72	34.3	54.2
d. Cooperation with other governments in the county and the state	2.15	15.34	31.29	10.43	5.52	35.28		48.78	15.95	53.2	19.6
e. Historic and natural resource protection	2.15	19.02	34.66	15.03	7.67	21.47		55.83	22.70	64.6	18.6
f. Keeping citizens informed on planned projects	1.83	16.21	30.58	25.08	11.62	14.68		48.62	36.70	60.7	31.5
g. Keeping citizens informed on available assistance programs	1.53	10.74	26.38	26.69	8.59	26.07		38.65	35.28	56.3	32.1
h. Keeping citizens informed of community activities	1.85	15.69	33.54	25.85	9.23	13.85		51.08	35.08	70.6	21.9
7. Berkeley County needs more of the following recreational facilities/programs:											
a. Neighborhood parks and playground facilities	23.84	31.27	27.24	10.53	1.24	5.88		82.35	11.77	84.1	7.8
b. Basketball and tennis courts	12.07	20.12	29.72	18.58	4.95	14.55		61.91	23.53	69.3	18.1
c. Baseball and softball fields	8.64	18.21	26.54	25.31	4.01	17.28		53.39	29.32	68.1	19.5
d. Football fields	5.86	14.51	20.06	32.72	8.02	18.83		40.43	40.74	58	29.5
e. Soccer fields	9.63	18.32	27.64	21.43	5.28	17.70		55.59	26.71	63.6	23.5
f. Places to walk and hike	36.53	31.58	18.89	6.81	0.93	5.26		87.00	7.74	86.1	7.2
g. Bike trails and paths	35.69	32.00	18.46	8.31	2.15	3.38		86.15	10.46	84.5	8.2
h. Swimming pools	19.57	20.50	21.74	19.57	3.11	15.53		61.81	22.68	75.1	15.8
i. Arts and craft classes	15.05	20.38	26.33	16.61	3.45	18.18		61.76	20.06	68.9	17.7
j. Fitness classes	17.50	22.19	26.88	17.50	3.75	12.19		66.57	21.25	74.9	14.4
k. Community sports leagues	9.66	19.63	20.87	22.74	4.67	22.43		50.16	27.41	69.5	16.9
8. Berkeley County needs more of the following community and cultural activities:											
a. Historic site tours and activities	11.56	27.50	31.87	18.13	0.94	10.00		70.93	19.07	75.3	14.4
b. Concerts	14.06	35.94	25.00	14.06	3.13	7.81		75.00	17.19	78.5	12.2
c. Live theater	13.48	32.60	26.65	14.11	2.82	10.34		72.73	16.93	75.1	15.2
d. Parades	5.05	10.41	18.93	39.75	10.73	15.14		34.39	50.48	52.6	35.1
e. Festivals	11.71	26.58	28.80	19.62	3.48	9.81		67.09	23.10	76.3	14.4
f. Protective greenways along streams and scenic roads	32.19	38.75	16.88	5.31	1.56	5.31		87.82	6.87	87.4	5.8

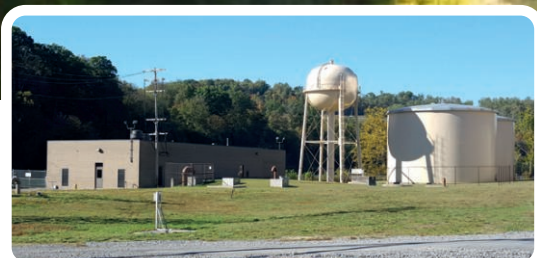
DRINKING WATER PROTECTION

A Citizen's Guide to Getting Involved



Safe Water Depends on Us.
Learn What You Can Do.

WHERE DOES YOUR DRINKING WATER COME FROM?



SOURCE WATER

Source water—water that, after treatment, provides drinking water to your tap—can be from:

- large rivers,
- small streams,
- reservoirs,
- springs, or
- wells.

DRINKING WATER

- Drinking water is typically supplied by a water utility that collects, treats, and distributes treated drinking water to its customers.
- Drinking water systems are considered public systems if they serve more than 25 individuals.
- In more remote areas, private drinking water can be managed by individual landowners, who typically use groundwater from wells or springs.

VULNERABILITY AND PREVENTION

Source water is susceptible to contamination from a variety of activities and land uses. Efforts to protect source water that is used for drinking water occur at the federal, state, local, and individual levels.

This toolkit describes source water protection efforts at the federal and state levels and provides citizens with recommendations for ways to participate in protecting their drinking water.

TYPES OF CONTAMINATION THREATS TO DRINKING WATER SUPPLIES

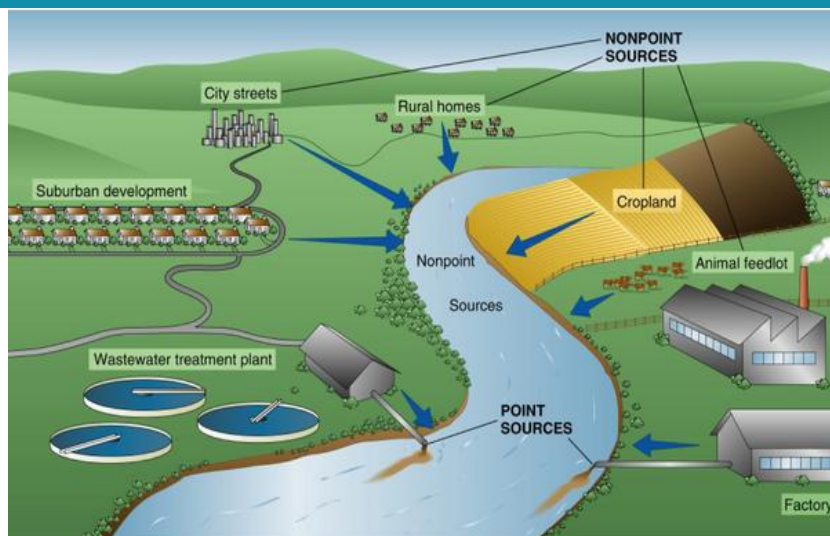
NONPOINT SOURCES

Nonpoint sources are usually diffuse. It is sometimes difficult to determine the cause of pollution from these sources. **Nonpoint sources are generally from:**

- runoff;
- precipitation;
- seepage; or
- stream alteration.

Examples include:

- biological contamination from animal waste;
- fertilizer;
- herbicides or insecticides from excess application;
- oil, grease, or chemicals from energy production;
- acid mine drainage; or
- sedimentation from poorly managed construction sites.



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POINT SOURCES

Point source pollution refers to anything that comes from a discrete pipe, ditch, channel, or concentrated animal feeding operation.

These sources require National Pollutant Discharge Elimination System (NPDES) permits issued by the West Virginia Department of Environmental Protection (WVDEP). These discharges are regulated so as not to cause violations of water quality standards, but they could still potentially contaminate local water supplies during an accident or if site management is not conducted properly.

SOURCE WATER PROTECTION HISTORY AND DEVELOPMENT

Federal laws, such as the Safe Drinking Water Act (SDWA), were enacted to protect source water from contamination and regulate drinking water standards.

SDWA amendments in 1996 required states to create Source Water Protection Programs to carry out assessments for drinking water sources.

Source Water Assessment Reports (SWARs) define land areas contributing to the water supply, identify sources of potential contamination, and determine susceptibility, or likelihood, of contamination.

In West Virginia, the initial SWARs were completed by the West Virginia Bureau for Public Health (WVBPH), mostly in the early 2000s. Some public drinking water utilities developed Source Water Protection Plans (SWPPs) voluntarily after the SWARs were released.

In January 2014, a chemical leak from an aboveground storage tank contaminated the drinking water for approximately 300,000 citizens in Charleston, West Virginia and in parts of nine counties.

The legislature responded by enacting Senate Bill (SB) 373, which requires most public water utilities to create SWPPs or update no later than July 1, 2016.



West Virginia Rivers Coalition has launched a Drinking Water Community Engagement project to strengthen public participation in local source water planning efforts throughout the state.

ALPHABET SOUP OF DRINKING WATER PROTECTION

BMP: Best Management Practice

CCR: Consumer Confidence Report

MCL: Maximum Contaminant Level

PSSC: Potential Source of Significant Contamination

SDWA: Safe Drinking Water Act

SWAR: Source Water Assessment Report

SWPA: Source Water Protection Area

SWPP: Source Water Protection Plan

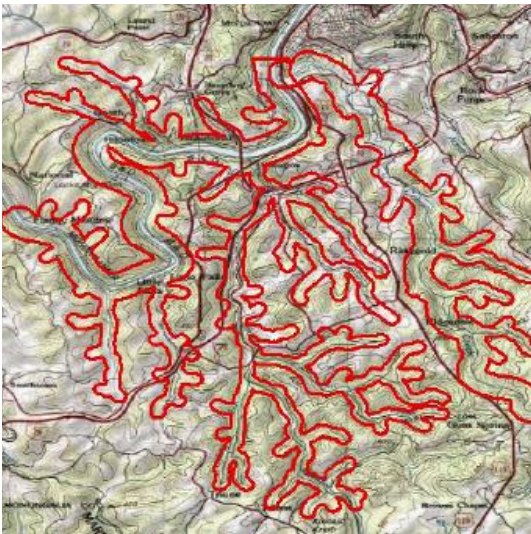
WVBPH: West Virginia Bureau for Public Health

WVDEP: West Virginia Department of Environmental Protection

ZCC: Zone of Critical Concern

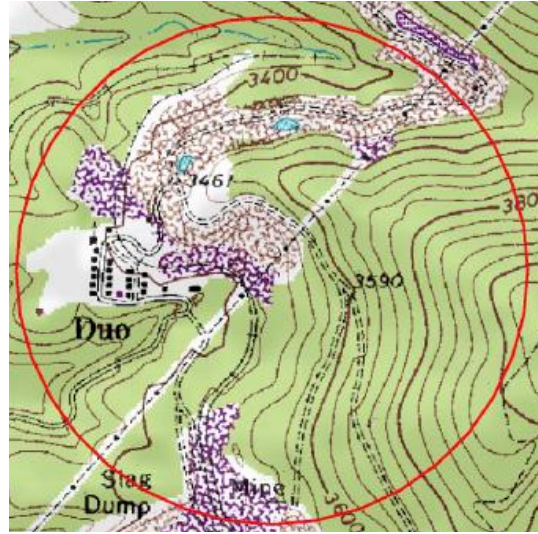
SWARs define source water protection areas to focus protection activities, and these areas differ based on whether intakes draw water from surface water or groundwater.

Surface Water



For surface water drawn from rivers and streams, protection activities focus on the Zone of Critical Concern (ZCC). This is the area that is within a five-hour travel time for a contaminant to flow downstream and reach a drinking water intake.

Groundwater



For groundwater drawn from wells or springs, protection activities focus on the Source Water Protection Area (SWPA). This is a set radius around a well or spring, or a complex area defined by the WVBPH that depends on local geologic and topographic conditions.

While these areas help to focus protection efforts, it is important to also look beyond these areas for potentially important sources of pollution that can contaminate source water.

WEST VIRGINIA SOURCE WATER PROTECTION PLAN REQUIREMENTS

West Virginia law outlines specific requirements for inclusion in the SWPPs. The requirements, described in detail in this document, include:

- Management Plans to minimize the risk of contamination,
- inventories of Potential Sources of Significant Contamination (PSSCs),
- Contingency Plans in the event of contamination,
- Communication Plans in the event of contamination,
- specific engineering details, and
- feasibility studies for the installation of a real time early warning monitoring system.

The updated SWPPs are to be submitted to the WVBPH by **July 1, 2016**. After the plans have been submitted, the WVBPH will hold public hearings on the SWPPs. SWPPs must then be updated every 3 years.

GET INFORMED ABOUT SOURCE WATER PROTECTION PLANNING

READ THE CCR

The SDWA requires public drinking water providers to provide Consumer Confidence Reports (CCRs) each year. The CCR describes the source water for the system, the levels of contaminants in the source water and finished drinking water, the EPA maximum contaminant level (MCL) in finished drinking water, and information about bacteria contamination. The CCR should be readily available to consumers. It is often mailed to customers, but it may also be found on the water utility's website or obtained by request.

READ THE SWAR AND SWPP

Learn about source water protection efforts that have already been completed. The SWAR defines the SWPA or ZCC, and it provides information about source water susceptibility to contamination. Existing SWARs can be found online at: <https://www.wvdhhr.org/oehs/eed/swap/search.cfm>.

PUBLIC INPUT

When writing its SWPP, each utility must solicit public input from drinking water customers and members of the community. Also, utilities are required to engage the public during plan preparation. However, certain information must be kept confidential by law.



ELEMENTS OF SWPP

DRAINS TO WATERWAYS

MANAGEMENT PLAN

The Management Plan provides specific actions that can be taken to minimize the risk of a water contamination event. These actions include a range of activities, such as:

- installing fencing around a well head,
- creating informational documents about source water protection for customers,
- buying property to protect forested landscapes within the ZCC, and
- maintaining communication with PSSCs.

Some of these actions can only be taken by the water utility, but some can be taken by local governments, businesses, or the general public.

GET INVOLVED!

PARTICIPATE IN PROTECTION STRATEGIES

Examples that are relatively easy for citizens to get involved with include:

- managing household chemicals,
- participating in take-back programs that properly dispose of medication,
- properly maintaining septic systems, and
- watching and reporting activities that may impact drinking water.

PLACE A CONSERVATION EASEMENT ON YOUR PROPERTY

If you own property, a conservation easement can be placed on it that stipulates the land will always be protected, no matter who the owner is. For more information about conservation easements, contact the West Virginia Land Trust: www.wvlandtrust.org.

SUPPORT ORDINANCES OR REGULATIONS THAT PROTECT SOURCE WATER

Rules and regulations can also help protect drinking water by requiring Best Management Practices (BMPs) or limiting certain types of development within the source water protection areas.

POTENTIAL SOURCES OF SIGNIFICANT CONTAMINATION



This map shows an example of several types of PSSCs. The gray area circled in red shows the ZCC for this area.

Most of the information used to identify PSSCs is located in publicly accessible databases. Information on permitted discharges, coal mines, and underground storage tanks, can all be obtained from WVBPH or the WVDEP. Public utilities that collect this information can share it with those involved in the SWPP process and the general public.

However, some information is confidential and is not available to citizens. Information about the exact location of aboveground storage tanks and the chemicals they contain cannot be made public. Information about where, how much, and how often hazardous materials are shipped via rail is also proprietary information.

PSSCs are facilities or sites that use, produce, or store contaminants that, if managed improperly, could find their way into source water and threaten public health.

Inventories of PSSCs were compiled in the SWARs in the early 2000s, and they may have been updated in the SWPPs completed since then. The new SWPP must update this inventory again.

The WVBPH is providing utilities with lists of PSSCs within the SWPA or ZCC based on databases and the previous SWARs; however, it is up to each utility to review, revise, and prioritize sites on this list.

TABLE OF RANKINGS OF PSSCs

WVBPH recently provided recommendations for determining which PSSCs present the highest risk to drinking water. The new inventory provides a numeric coding for 178 types of facilities or land uses. These scores combine the probability of occurrence and the likely severity of a contamination event. Scores are provided for groundwater and surface water separately.

For example, railroad tracks and yards, highway transportation, and chemical threats are high risks to both groundwater and surface water. Leaking underground storage tanks are higher risk to groundwater, and permitted discharges are a higher risk to surface water.

These scores can be used directly by a utility to prioritize PSSCs; or utilities, with public input, could adjust these scores based on local conditions and priorities.

POTENTIAL THREATS WITH HIGHER RANKING

- Railroad tracks and yards;
- highways;
- combined sewer overflows;
- chemical spills;
- aboveground storage tanks;
- chemical manufacturing facilities;
- illegal or clandestine dumps;
- sewer lines;
- industrial pipelines; and
- landfills.

For more information, visit the WVBPH Source Water Assessment and Wellhead Protection Program page at: <http://www.wvdhhr.org/oehs/eed/swap/>

GET INVOLVED!

ACCESSING THE DATA

Most of the databases used to create the PSSC list within the ZCC or SWPA are publicly accessible through the West Virginia Water Resources Management Plan Mapping Tool located at <http://tagis.dep.wv.gov/WVWaterPlan/>

OTHER WAYS TO FIND PSSCs

The WVDEP databases will provide information on permitted facilities and activities, but other PSSCs can be found by:

- assessment of updated aerial imagery;
- field review or windshield survey of the SWPA or ZCC; and
- communication with community members.

GET INVOLVED!

Share any information you may have on PSSCs that may not be recognized by the utility during public meetings or directly to the utility. Provide feedback on the threat categories.

CONTINGENCY PLAN

The Contingency Plan refers to actions that would be necessary to respond to a contamination event. This plan provides detailed steps to take during a water contamination event. It defines roles for all involved and identifies who would serve in those roles.

Contingency Plans should be developed with input and collaboration with local emergency response personnel, local health departments, and elected officials. During a water emergency, all of these entities—along with the public water utility—will play a role in keeping the public informed and safe.

COMMUNICATIONS PLAN

The Communication Plan is linked with the Contingency Plan. It provides contact information for people who would be called during a water contamination event. In addition, it can include pre-written public statements to make it easier for the utility to

efficiently communicate with the public in an emergency.

As with the Contingency Plan, collaboration with local emergency response personnel, local health departments, and elected officials is important.

ENGINEERING DETAILS

West Virginia law requires specific information related to engineering and operation of the drinking water plant:

- ability to isolate or divert contaminated waters;
- ability to switch to an alternative intake;
- ability to close its water intake;
- certain operational information;
- available storage capacity;
- unaccounted for water; and
- options to provide service if the primary intake is detrimentally affected.

EARLY WARNING MONITORING

An early warning monitoring system is an automated system that would detect a change in raw water quality before it reaches the drinking water intake. These

systems continuously detect key contaminants that indicate that there is a change in water quality that requires a follow-up investigation to identify the cause.

GET INVOLVED!

- Get informed about your source water and source water protection efforts by reading the CCR and the SWAR for your drinking water utility.
- Participate in source water protection efforts by reviewing SWPPs and providing input.
- Take actions to protect your source water, such as properly managing household chemicals and reporting any activities that may be detrimental to source water.
- If your property is within a SWPA, place a conservation easement on your property to minimize development into the future.
- Support ordinances or regulations that protect source water.
- Review publicly accessible data or aerial imagery for PSSCs, and share information with your water utility.
- Get involved with your local emergency planning committee.
- Report a spill or accidental discharge to the WVDEP at 1-800-642-3074.

ABOUT

This toolkit is a project of the West Virginia Rivers Coalition (WV Rivers) to provide citizens with information on how to get involved in protecting their drinking water. WV Rivers is a statewide organization dedicated to conserving and restoring West Virginia's exceptional rivers and streams that feed our public drinking water supplies.

www.wvrivers.org

304-637-7201

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Charleston, WV 25304

ACKNOWLEDGEMENTS

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KIDS ARE
BODIES OF WATER.
LET'S PROTECT THEM.

Safe Water Depends on Us.

Learn What You Can Do.

WVRivers.org



SAFE WATER
FOR WEST VIRGINIA

