

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 Districts 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

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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.