Garrett County Water and Sewerage Master Plan

2014 Revision

Adopted December 9, 2014

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RESOLUTION NO. 2014 – 15

2014 GARRETT COUNTY WATER AND SEWERAGE PLAN

A RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF GARRETT COUNTY, MARYLAND, A BODY POLITIC AND CORPORATE AND A POLITICAL SUBDIVISION OF THE STATE OF MARYLAND (THE "COUNTY"), ADOPTING THE 2014 GARRETT COUNTY WATER AND SEWERAGE PLAN (THE "PLAN") PURSUANT TO THE REQUIREMENTS OF THE CODE OF MARYLAND REGULATIONS ("COMAR"), TITLE 26 SUBTITLE 03, WATER SUPPLY, SEWERAGE, SOLID WASTE , AND POLLUTION CONTROL PLANNING AND FUNDING AND TITLE 9 SUBTITLE 5 OF THE ENVIRONMENT ARTICLE OF THE ANNOTATED CODE OF MARYLAND, WATER AND SEWERAGE PLANS (THE "STATE CODE").

Explanation

The 2014 Garrett County Water and Sewerage Plan has been prepared to support the continued development of water supply and sewerage systems in Garrett County, Maryland. The Plan has been prepared pursuant to the requirements of COMAR Title 26 Subtitle 03, Water Supply, Sewerage, Solid Waste, and Pollution Control Planning and Funding and pursuant to the provisions of Title 9, Subtitle5, of the State Code, County Water and Sewerage Plans.

Garrett County developed its first Master Plan for water and sewerage in 1961. Major reviews and updates were completed in 1982, 1992, and 1997. In between these major updates, and since the 1997 update, numerous amendments have been incorporated into the plan. This Plan is a comprehensive revision to the 1997 Water and Sewerage Master Plan in accordance with COMAR and the State Code. Upon approval by the Maryland Department of the Environment (MDE) this plan will replace the 1997 Comprehensive Water and Sewerage Plan, as amended.

The Plan was prepared by the Garrett County Department of Public Works/Utilities Division with the assistance of the Garrett County Planning and Land Development Office and the Garrett County Health Department, Environmental Health Services. The Plan contains updated information about land use, population, and physical features, based on the 2008 Garret County Comprehensive Plan, the 2010 Census, updated geologic mapping and the most recent growth projections from the Maryland Department of Planning. The Plan contains updated information provided by municipalities in Garrett County, and provides information on the status of water quality in Garrett County, development of TMDLs and Source Water Assessments. Finally, the Plan provides existing and future service area mapping and information on existing and anticipated future capacity and demands related to water and sewerage systems in Garrett County, Maryland.

NOW, THEREFORE, BE IT RESOLVED, by the Board of County Commissioners of Garrett County, Maryland, as follows:

1. The Explanation set forth above is incorporated as a substantive provision of this Resolution.

2. The County hereby adopts the 2014 Garrett County Water and Sewerage Plan, a copy of which is attached hereto, incorporated herein and marked as **Exhibit 1**.

3. The Chairman of the Board of County Commissioners of Garrett County, Maryland, be and is hereby authorized to execute any and all documents as may be necessary or required in conjunction with the Plan.

4. This Resolution shall be effective upon its passage. The 2014 Garrett County Water and Sewerage Plan shall become effective upon its acceptance and approval by MDE.

ADOPTED this 9th day of December, 2014, by the Board of County Commissioners of Garrett County, Maryland, by its Chairman, Paul C. Edwards, and attested by R. Lamont Pagenhardt, County Administrator.

BOARD OF COUNTY COMMISSIONERS
OF GARRETT COUNTY, MARYLAND

(SEAL)

By _____(SEAL)
PAUL C. EDWARDS
Chairman

ATTEST:

_____
R. LAMONT PAGENHARDT
County Administrator

CERTIFICATION

Reference: Garrett County Water and Sewerage Master Plan
2014 Revision

This is to certify this the 11th day of December, 2014, that the Garrett County Department of Public Works has submitted the 2014 revision to the Garrett County Water and Sewerage Master Plan (the "Plan") to the Maryland Department of the Environment, and that the Plan meets the requirements of COMAR 26.03.01.02B: Water Supply, Sewerage, Solid Waste, and Pollution Control Planning and Funding.

Jay Moyer 12/12/14

Jay Moyer
Director

CERTIFICATION

Reference: Garrett County Water and Sewerage Master Plan
2014 Revision

This is to certify this the 11th day of December, 2014, that sections of the 2014 revision of the Garrett County Water and Sewerage Master Plan covering engineering aspects of water and sewer projects have been prepared and reviewed for adequacy by a registered professional engineer licensed in the State of Maryland.

Jay Moyer 12/12/14

Jay Moyer
Director

CERTIFICATION

Reference: Garrett County Water and Sewerage Master Plan
2014 Revision

This is to certify this the 11th day of December, 2014, that the Garrett County Office of Planning and Land Management has reviewed the 2014 revision to the Garrett County Water and Sewerage Master Plan (the "Plan"), and has determined that the Plan, as presented, is consistent with the County's land use and development policies as expressed in the County's Comprehensive Plan, Land Classification Map, and Development Tiers Map.

Deborah A. Carpenter

Deborah A. Carpenter
Assistant Director

Placeholder for MDE Approval

Contents

Introduction

This 2014 Garrett County Water and Sewerage Plan (the "Plan") has been prepared to support the continued development of water supply and sewerage systems in Garrett County. The Plan has been prepared pursuant to the requirements of the Code of Maryland Regulations (COMAR), Title 26, Subtitle 03, Water Supply, Sewerage, Solid Waste, and Pollution Control Planning and Funding; and the Annotated Code of Maryland, Environment Article, Title 9, Subtitle 5, County Water and Sewerage Plans.

Garrett County developed its first Master Plan for water and sewerage in 1961. Major reviews and updates were completed in 1982, 1992 and 1997. In between these major updates, and since the 1997 update, numerous amendments have been incorporated into the plan. This Plan is a comprehensive revision to the 1997 Water and Sewerage Master Plan that complies with the COMAR regulations.

Upon approval by the Maryland Department of the Environment (MDE) this Plan will replace the 1997 Comprehensive Water and Sewer Plan, as amended.

The Plan was prepared by the Garrett County Department of Public Works/ Utilities Division, with the assistance of the Garrett County Planning and Land Development Office and the Garrett County Health Department Environmental Health Services. The Plan:

A. Contains updated information about land use, population, and physical features, based on the 2008 Garrett County Comprehensive Plan, the 2010 Census, updated geologic mapping, and the most recent growth projections from the Maryland Department of Planning.

B. Contains updated information provided by the County's municipalities.

C. Provides information on the status of water quality in Garrett County, development of TMDLs, and Source Water Assessments.

D. Provides existing and future service area mapping.

E. Provides information on existing and anticipated future capacity and demand in the County's water and sewerage systems.

Definitions

Community sewerage system	Any system, whether publicly or privately owned, serving two or more individual lots, for the collection and disposal of sewerage or industrial wastes of a liquid nature, including various devices for the treatment of the sewage and industrial wastes. COMAR 26.03.01.01.
Community water supply system	A source of water and a distribution system, including treatment and storage facilities, whether publicly or privately owned, serving two or more individual lots. COMAR 26.03.01.01
Denied access line	A water or sewer line typically constructed to serve existing development that may have health problems related to its water or sewer service or may be causing pollution. The Sanitary District can deny access to the water or sewer line for other existing development or to new development if this development is unrelated to the reasons the denied access line was constructed.
Equivalent Residential Unit (ERU)	The average amount of water used by one household. ERUs are used by the Department of Public Works to calculate residential and non-residential (e.g., businesses) water demand on a common basis—to enable an "apples to apples" comparison of water supply and demand. For planning purposes the Garrett County Department of Public Works calculates the water use from an Equivalent Residential Unit (ERU) at 262.5 gallons per day (gpd).
Land classification map	A map that establishes density, lot width, lot area, and subdivision design requirements in areas not regulated by zoning (see County Code Chapter 159. Subdivision
Multi-use sewerage system	A single system serving a single lot, whether owned or operated by an individual or group of individuals under private or collective ownership and serving a group of individuals for the collection and disposal of sewage or industrial wastes of a liquid nature, including various devices for the treatment of sewage and industrial wastes having a treatment capacity in excess of 5,000 GPD. COMAR 26.03.01.01
Multi-use water supply system	A single system of piping, pumps, tanks, or other facilities utilizing a source of ground or surface water to supply a group of individuals on a single lot and having a capacity in excess of 1,500 GPD COMAR 26.03.01.01
Priority Funding Areas (PFAs)	Existing communities and places where the County wants to direct state investment—in the form of loans and grants for highways, sewer and water infrastructure, and economic development—to support future growth. PFAs (municipalities, rural villages, and county-designated areas) were established in response to the 1997 Priority Funding Areas Act.
The Plan	The 2014 Water and Sewerage Master Plan—this document.
Sewage, Sewerage	Household, animal and human waste, refuse, and slops (COMAR 20.73.01.03)
Sewer	Pipe carrying sewage or sewerage

Sewerage service area	The area served, or potentially served, by a system of sanitary sewers connected to a treatment plant (COMAR 26.03.01.01)
Water distribution system	that portion of waterworks that receives, stores, pumps, and distributes water for human consumption (COMAR 26.06.01.01)
Water service area	The area served, or potentially served, by a single distribution system under control of a single utility, or, in a very large system, sub-areas as delineated by the county. (COMAR 26.03.01.01
Waterworks	A facility used to collect, store, pump, treat, or distribute water for human consumption. "Waterworks" does not include a facility that is used only by a private residence. (COMAR 26.06.01.01)

Acronynms

CBOD	carbonaceous biochemical oxygen demand	n/a	Not available or not applicable
COMAR	Code of Maryland Regulations	NRCS	National Resources Conservation Service
CR	Commercial Resort land classification	MES	Maryland Environmental Service
CWA	Clean Water Act	PFA	Priority Funding Area
DPW	Garrett County Department of Public Works/Utilities Division	PRD	Planned Residential Development
EC	Employment Center land classification	SHA	State Highway Administration
ENR	Enhanced Nutrient Removal	SR	Suburban Residential land classification
ERU	Equivalent Residential Unit	SWAP	Source Water Assessment Program
gpd	Gallons per day	TC	Town Center land classification
gpm	Gallons per minute	TMDL	Total Maximum Daily Load
GC	General Commercial land classification	TR	Town Residential land classification
I/I	Inflow and Infiltration	USACOE	U.S. Army Corps of Engineers
LR1	Lake Residential 1 land classification	WIP	Watershed Implementation Plan
LR2	Lake Residential 2 land classification	WSP	MDE Water Supply Program
MCL	Maximum Contamination Level	WTP	Water Treatment Plant
MGD	Millions of gallons per day	WWTP	Wastewater Treatment Plant
MDE	Maryland Department of the Environment		
MDP	Maryland Department of Planning		
MSL	(elevation above) mean sea level		
NBOD	Nitrogenous biochemical oxygen demand		

Chapter 1 Goals, Policies, and Organization

1.1 Goals

The goals of this Plan are as follows.

A. Protect the health, safety and welfare of the people of Garrett County by preventing water pollution and by providing safe and adequate water supply and sanitary sewerage facilities.

B. Ensure that public water and wastewater systems meet projected demand without exceeding their capacity

C. Provide necessary public water and sewerage infrastructure in designated growth areas, including the County's incorporated towns, to ensure that development follows the policies of adopted Comprehensive Plans.

D. Provide water and sewerage infrastructure in appropriate locations to support economic development.

E. Minimize the impact of development on the water quality in the County through sewer connections to new and existing development in appropriate locations.

F. Establish water and sewerage infrastructure priorities to guide the capital programming processes of Garrett County and municipalities.

G. Improve water and sewerage systems operating efficiency by reducing water losses through leakage and by reducing inflow and infiltration.

H. Provide a process for periodic update and amendment of the Water and Sewerage Master Plan pursuant to Title 9 of the Environment Article of the Annotated Code of Maryland, and also to address changes in need or conditions within the County.

1.2. County Water and Sewer Administration

The Garrett County Sanitary District, Inc. (the Sanitary District) is the agency of Garrett County government that owns and operates the County-controlled community water and sewerage systems. The Board of County Commissioners is the governing body of the Sanitary District and serves as the Sanitary Commission. The Garrett County Department of Public Works/ Utilities Division (DPW) is responsible for day to day operations of the Sanitary District, and makes recommendations to the County Commissioners on matters pertaining to service area boundaries and the Water and Sewerage Master Plan.

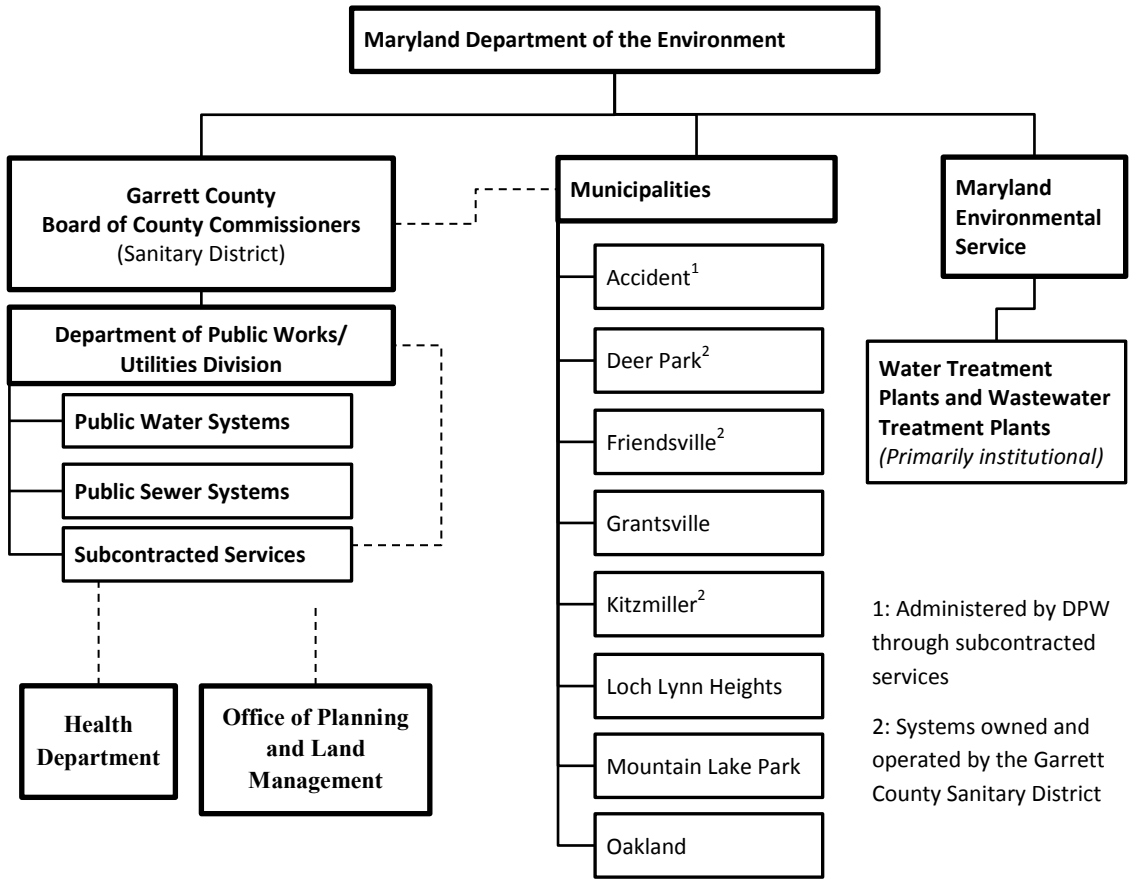
Prior to 2003, the County Commissioners appointed the members of the Sanitary Commission, who directed the operations of the Sanitary District. In April 2003, the County Commissioners became the governing body of the Sanitary District.

The Sanitary District has authority to own and operate water and sewerage systems throughout the County in areas not within incorporated municipalities. If any of the incorporated municipalities request that the County Commissioners develop, inspect, or operate water supply or sewerage systems within municipal limits, the Commissioners have the authority to use the Sanitary District as the vehicle to provide such service.

The DPW manages all operations and maintenance for all community water and sewerage systems that are not managed by one of the municipalities. In 1992 the Sanitary District established water and sewer rates for all its customers of community water and sewer systems. Accounting functions are performed by the DPW, and each system has separate financial record-keeping for debt service purposes.

The following organization chart shows the agencies responsible for the publicly-owned water and sewerage systems in the County.

Figure 1-1: Organization Chart, Water and Sewerage Systems in Garrett County



1.3 Policies

The policies in this section ensure an orderly process for extending public water and sewer service; for remedying problems with existing wells or septic systems; and for making decisions on requests for new public water and sewer service.

1.3.1 General

1. The County, through the Department of Public Works, administers all matters pertaining to water resources, and all administrative aspects of this Plan.
2. The Department of Public Works will use its standards and specifications for the design and construction of water and sewerage facilities constructed under its administration, including standards related to the capacity of new water and sewer infrastructure.
3. This Plan uses 262.5 gallons per day per equivalent dwelling unit for planning purposes to determine future water and sewerage capacity and future capital infrastructure needs.
4. The Department of Public Works will provide operation and maintenance services for sewage and water treatment plants under its ownership and contractual responsibility.
5. The County, through the Department of Public Works (DPW), shall provide, operate and maintain community water and sewerage systems on a user-pay basis. User fees from all water and sewerage systems owned and operated by the Garrett County Sanitary District, Inc. shall be applied to fund costs incurred by the DPW in establishing, operating and maintaining these systems.
6. All buildings that can be reasonably serviced by community water or sewerage systems shall connect to same by a date established by the Board of County Commissioners of Garrett County, MD, upon availability of that service.
7. Waste discharged into a community sewerage system must be in accordance with the County's sewer use ordinances[1].
8. The County shall undertake periodic review of rate structures to assure adequate funding for operation and maintenance of existing systems.
9. The County will seek to improve water and sewerage systems operating efficiency by policies and projects designed to reduce water losses through leakage and by reducing inflow and infiltration (I/I).

   MDE has a goal of no more than 10 percent water loss through leakage[2].

   Inflow is water from storm events entering the system through roof drains, sump pumps, foundation drains, and similar sources. Infiltration is groundwater entering the system through leaking pipes, manholes, and other elements. I/I takes up sewer capacity that should be reserved only for wastewater, effectively limiting the system's overall capacity.
10. The County adopts policies from time to time regarding matters such as rates, connection fees, and service. These policies are posted on the County's web site in order to inform water

[1] The Sanitary Commission adopted ordinances for all sanitary districts. The County intends to create a single ordinance to cover all the districts for inclusion into the County Code.

[2] Developing and Implementing a Water Conservation Plan. Guidance for Maryland Public Water Systems on Best Management Practices for Improving Water Conservation and Water Use Efficiency (MDE 2003)

and sewer customers http://www.garrettcounty.org/public-utilities/policies-1. The County reserves the right to amend or change the Policies, at any time to adequately address the business and affairs of the Sanitary District consistent with the public interest. Changes to these policies do not necessarily require amending this Plan.

An important example is the policy mandating connection to the McHenry Water System for all development within the McHenry water Service Area. In October 2011 the Garrett County Sanitary Commission adopted Policy 2011-2 mandating such connections. The policy incorporates different connection and timing provisions for different types of property through 2021. (See Chapter 3 of this Plan, and the Plan Appendix).

1.3.2 Relationship to Comprehensive Plan

The Garrett County Comprehensive Plan, as well as Comprehensive Plans for the County's municipalities, defines the areas that are intended for development on community or multi-use water or sewerage systems. This Water and Sewerage Master Plan (the Plan) implements the Comprehensive Plan's policies by ensuring that existing and future water and sewerage infrastructure supports the Comprehensive Plan's policies and accommodates projected growth and development. Infrastructure must be provided to allow timely extension of public water and sewer service to the areas where the Comprehensive Plan calls for growth. Likewise, services should not be extended where this would allow inappropriate growth in areas where the Comprehensive Plan calls for conservation of resource land. While exceptions are appropriate in certain locations to respond to water quality or supply problems, the Plan as a whole is intended to implement comprehensive planning goals.

This Water and Sewerage Master Plan updates information and analysis in the Comprehensive Plan's Water Resources Element; see Chapter 2 section 2.4 for additional detail.

1.3.3 Water and Sewerage Service Areas

This Plan divides the County into the following water and sewerage service areas, as shown on the maps that are part of this plan. Time periods in this section relate to the date of approval of this Plan.

W-1	Areas served by community or multi-use water supply systems that either exist or are under construction.	S-1	Areas served by community or multi-use sewerage systems that either exist or are under construction.
W-2	Areas planned to be served by community or multi-use water supply systems within two years.	S-2	Areas planned to be served by community or multi-use sewerage systems within two years.
W-3	Areas planned to be served by community or multi-use water supply systems within three to ten years.	S-3	Areas planned to be served by community or multi-use sewerage systems within three to ten years.
W-FPS	Areas planned to be served by community or multi-use water supply systems after ten years.	S-FPS	Areas planned to be served by community or multi-use sewerage systems after ten years.
W-6	Areas not planned to be served by community or multi-use water supply systems. These areas are also called “no planned service” areas.	S-6	Areas not planned to be served by community or multi-use sewerage systems. These areas are also called “no planned service” areas.

The maps in this Plan do not represent a commitment by Garrett County or any agency or municipality to provide water or sewerage service by a specified time. Service area designations shown on the plan maps indicate the general timeframe in which the County reasonably expects that these services will be provided. The actual construction of facilities and extension of services will depend upon a number of factors such as economic feasibility, availability of adequate capacity and funds, and initiative on the part of land owners.

1.3.4 Extension of Service within Existing or Planned Service Areas

The following policies apply to the provision or extension of community water and sewerage service within existing or planned service areas:

1. This Plan gives a general picture of current and future water and sewerage systems in Garrett County; the mapping, data tables, and other information herein are oriented toward this level of analysis, providing the general basis for more detailed water and sewer planning and engineering at the parcel level. Detailed information such as the specific location of water

and sewer infrastructure, or the availability or economic feasibility of service to particular parcels of land will be obtained during the permitting and development process, and coordinated with the appropriate County or municipal agency.

2. Except for necessary correction of existing health and safety problems (see section 1.3.5.1), public water and sewerage service shall only be extended to land in the following land classifications as shown on the County's Land Classification Map (including Deep Creek Lake zoning districts of the same name):
   A. Lake Residential (LR-1, LR-2)
   B. Suburban Residential (SR)
   C. Town Residential (TR)
   D. Town Center (TC)
   E. General Commercial (GC)
   F. Commercial Resort (CR-1, CR-2)
   G. Employment Center (EC)
   H. Municipality
3. Extension of community water and sewerage service is encouraged within the land areas identified in Section 1.3.4.2. Development proposals that involve the extension of water or sewer service to areas designated W-1, W-2, S-1 or S-2 within these areas will be considered consistent with the policies of this Plan, provided the proposals are consistent with the County's other established development review and approval procedures.
4. In order to ensure the availability and adequacy of water or sewerage services, extension of water or sewerage service to an area designated W-3, W-FPS, S-3 or S-FPS shall not be permitted until the Plan is amended to designate the area W-1, W-2, S-1, or S-2 as appropriate. See Section 1.4 for Plan amendment procedures.
5. The Department of Public Works shall verify that sufficient capacity is available prior to extensions of water or sewer service.
6. For new development, the owner is responsible for constructing the water and sewerage infrastructure, and will deed that infrastructure to the County or municipality upon completion.
7. When water and/or sewerage service becomes available to properties within planned service areas, owners of development (e.g., homes or buildings) that existed prior to service availability may apply to be served, subject to the following requirements:
   A. The application shall be considered pursuant to i) provisions of the Annotated Code of Maryland, Environment Article, §9-649 (Creation of service areas by petition), and ii) Garrett County's Plan amendment procedures (see below Section 1.4).

B. This Plan must be amended to change the service area classification to the appropriate classification; W-2, W-3, S-2, or S-3.

C. If the application is approved and service is provided, the properties shall be shown as W-1 and/or S-1 in subsequent versions of this Plan.

1.3.5 Extension of Water or Sewer Service in No Planned Service Areas

Extension of public water or sewer service in the "No Planned Service" area shall be addressed as follows:

1. Request for service to address failing wells or septic systems: Service may be extended to properties in the "No Planned Service" area to remedy health hazards resulting from inadequate or unsafe wells or septic systems, provided that:

   A. The properties are reasonably near a public system with available capacity.

   B. The extension is approved through an amendment to this Plan.

   C. Service is extended only to relieve health hazards for existing development. Such extensions shall not be used to support new development where such development is not consistent with the Comprehensive Plan.

2. Public water and sewer will not be extended to platted lots in no planned service areas that were of legal size when created but that do not meet current requirements for on-site water or wastewater systems. Instead, property owners seeking to build on these lots must combine platted lots to form lots large enough to comply with current state requirements for on-site water and wastewater systems.

3. Where on-site septic disposal systems create groundwater pollution, the County may provide public sewerage connections to these properties if on-site corrections cannot be implemented, with the understanding that provision of public sewerage does not establish the right to increase to development densities or intensities beyond those specified in the subdivision or zoning ordinance.

1.3.6 AR, RR, and R Land Classifications

For land designated AR, RR or R on the Land Classification Map or the Deep Creek Watershed Zoning Map:

1. Shared septic systems that support cluster development are permitted.

2. No community water or sewerage services will be permitted, except to address health or safety problems in existing developed areas.

3. No private wastewater treatment plants (including "package treatment plants") will be permitted.[3]

1.3.7 Interim On-Site Water Supply or Sewage Disposal System

1. An individual water supply or sewerage system may not be installed in an area where community water or sewerage service is available.
2. If the area is planned for water or sewerage service, but existing service is inadequate or is not available, an interim individual water or sewerage system may be installed and used subject to the following conditions:
   A. The interim system is in compliance with Maryland Department of the Environment Regulation 26.04.02.
   B. The permit for the system will identify the interim nature of the permit and state that connection to a future community system shall be made by a date established by the Board of County Commissioners of Garrett County, MD, upon availability of that service.
   C. Provisions shall be made, whenever possible, to locate such systems so as to permit future connection to the community system in a most economical and convenient manner.
3. The Department of Public Works will be responsible for determining the adequacy of the existing service under this section.

1.4. Process for Modifying the Plan

Consistent with the triennial updates required by state law (Annotated Code of Maryland, Environment Article, § 9-503), and the annual review required by COMAR 26.03.01, this Plan is designed to be updated over time, in response to changing conditions, needs, and development patterns in Garrett County. The following procedures apply to amendments to this Plan:

1. The County Commissioners shall review the Water and Sewer Plan, including any proposed amendments, annually.
2. Requests for modifications to the Water and Sewerage Master Plan shall be in accordance with Title 9, Subtitle 5, County Water and Sewerage Plans of the Environment Article of the Annotated Code of Maryland, and COMAR, Title 26, Department of The Environment, Subtitle 03, Chapter 01, Planning Water Supply and Sewerage Systems.
3. As part of the annual review the Department of Public Works will recommend modifications to the Plan to the County Commissioners based on its own findings related to water and

[3] Package treatment plants are pre-manufactured wastewater treatment plants designed to serve small communities or individual properties, typically with a treatment capacity of 2,000 – 500,000 gallons per day.

sewerage systems as well as on requests from others. Such recommended modifications will be subject to review by County agencies, as well as by the Garrett County Planning Commission and affected municipalities, as required by COMAR 26.03.01.02 B and D.

4. Following the hearing procedure outlined in State law, the County Commissioners will propose, discuss, and adopt or reject any proposed amendments to the Plan at a regularly scheduled public meeting.
5. The County Commissioners may submit changes related to errors or omissions in the Plan at any time during the life of the Plan, following review by the Department of Public Works and other County agencies, as appropriate. This includes amendments necessary to address health hazards (see Section 1.3.5, policy 1).

1.4.1 Required Information

The following information is required for an application to modify the Plan:

1. Formal written request addressed to the Board of County Commissioners of Garrett County, Maryland, requesting modification of the Garrett County Water and Sewerage Master Plan, and the specific modification requested.
2. If the modification is for a proposed project, a description of the project including:
    A. General information
        i. Acreage
        ii. Intended number of lots and/or units
        iii. Mapping
            a. Tax map delineating project location
            b. Topographic map delineating project location
            c. Current water and/or sewer service areas in the proximity of the proposed project
            d. Site map delineating any existing or proposed water and/or sewer facilities and appurtenances such as wells, reservoirs, intakes, transmission and feeder mains, storage facilities, interceptor and trunk sewers, pumping stations, force mains, treatment works, and outfall sewers. If the proposed project will be served by an existing public system, delineate the connection location to the public system.
            e. Priority Funding Area (PFA) Designation
            f. Current Zoning
        iv. Anticipated time schedule for the proposed project
        v. Proposed, if any, future expansion of the project area

B. Water Project

i. Number of anticipated users

ii. Type of system (community, multi-use, individual, public)

iii. Water source

iv. Anticipated daily withdrawal or usage

v. Treatment process

vi. Storage facility

vii. Proposed method for financing of construction

viii. Proposed method for operation and maintenance of system including financing

C. Sewerage Project

i. Number of anticipated Equivalent Residential Units (ERUs)

ii. Type of system (community, multi-use, individual, public)

iii. Treatment/disposal method

iv. Anticipated daily discharge

v. Proposed method for financing of construction

vi. Proposed method for operation and maintenance of system including financing

3. If water and/or sewer service is to be provided by an existing system, the Requestor/Developer shall obtain a letter from the provider attesting that water and/or sewer allocations are available for the development associated with the proposed project.
4. Four copies of all documents required from the Requestor/Developer shall be submitted to the Garrett County Department of Public Works.

1.4.2 Garrett County Government Procedures and Responsibilities:

1. Upon receipt of all required documentation from the Requestor/Developer, the Garrett County Department of Public Works shall submit the amendment to all appropriate County agencies for review and comment within a 30-day period for consistency with planning programs for the area.
2. If changes are required to the proposed modification following County agency review, the Requestor/Developer shall prepare the revisions and submit the revised documentation to the DPW.
3. If a determination that the proposed modification is consistent with the County Comprehensive Plan is rendered, the Garrett County Department of Planning and Land Development shall certify such consistency to the DPW. If a determination that the proposed

inclusion is not consistent with the County Comprehensive Plan, the Department of Planning and Land Development shall outline such findings to the DPW.

4. The DPW in conjunction with the County Commissioners' office shall schedule a public hearing on the proposed modification to the Water and Sewerage Master Plan. The notice of the time and place of the public hearing, together with a summary of the plan, revision, or amendment, shall be published in at least one newspaper of general circulation in the county once each week for two successive weeks, with the first publication of notice appearing at least 14 days before the hearing. The DPW shall also give notice of the public hearing to any municipal government(s) affected by the proposed project and to the Maryland Department of the Environment.
5. The Board of County Commissioners shall hold the public hearing and receive public comments on the proposed modification.
6. If the proposed modification is adopted by the Board of County Commissioners, the official action shall be reflected in the minutes of the public meeting and the County Administrator shall provide a Certification of Authenticity as to the minutes of the Board.
7. The DPW shall compile all pertinent information on the approved inclusion and forward to the Maryland Department of the Environment for review/approval.
8. Following Maryland Department of the Environment approval the Plan including any relevant maps shall be amended to reflect the modification.

2. Background Information

2.1. Location, Natural Setting, Physical Characteristics

2.1.1. Location

Garrett County is the westernmost county in Maryland, and is predominantly rural in character. It is bordered by Pennsylvania to the north; West Virginia and the North Branch of the Potomac River to the west and south-east; and Allegany County to the east (Figure 2-1). Garrett County contains eight incorporated municipalities: Accident, Deer Park, Friendsville, Grantsville, Kitzmiller, Loch Lynn Heights, Mountain Lake Park and Oakland. Of the County's approximately 420,000 acres, over 90% are resource lands, including over 285,500 acres of forest. These resources are not only environmentally sensitive but are also scenic and recreational resources for the County's residents and visitors.[1]

2.1.2. Planning Framework

Garrett County has conducted its land use planning by major watershed (see Section 2.1.4) since the 1974 Comprehensive Plan. This approach is particularly helpful for Garrett County, because the County's natural features play a critical role in guiding the location and type of development, as well as drinking water sources and wastewater treatment options. This Water and Sewerage Master Plan uses the watershed approach to describe water and sewer systems in Chapters 3 and 4. Figure 2-2 shows the major watersheds in Garrett County, as identified in the 2008 Comprehensive Plan.

2.1.3. Topography

Garrett County is traversed by the northeast-southwest ridges of the Appalachian Mountains, interspersed with numerous rivers and streams. Along the sides of these ridges and waterways are more than 54,500 acres of land (approximately 13 percent of the County) with steep slopes—natural slopes greater than 30 percent (Figure 2-3). The average altitude of Garrett County is 2,200 feet above mean sea level (MSL). The lowest point, 1,000 feet MSL, is at the mouth of the Savage River, while the highest elevation, 3,360 feet MSL, occurs on Backbone Mountain north of Kempton, and is also the highest point in the State of Maryland.

[1] Garrett County 2008 Comprehensive Plan; page 7-1.

Figure 2-1: Garrett County Location Map

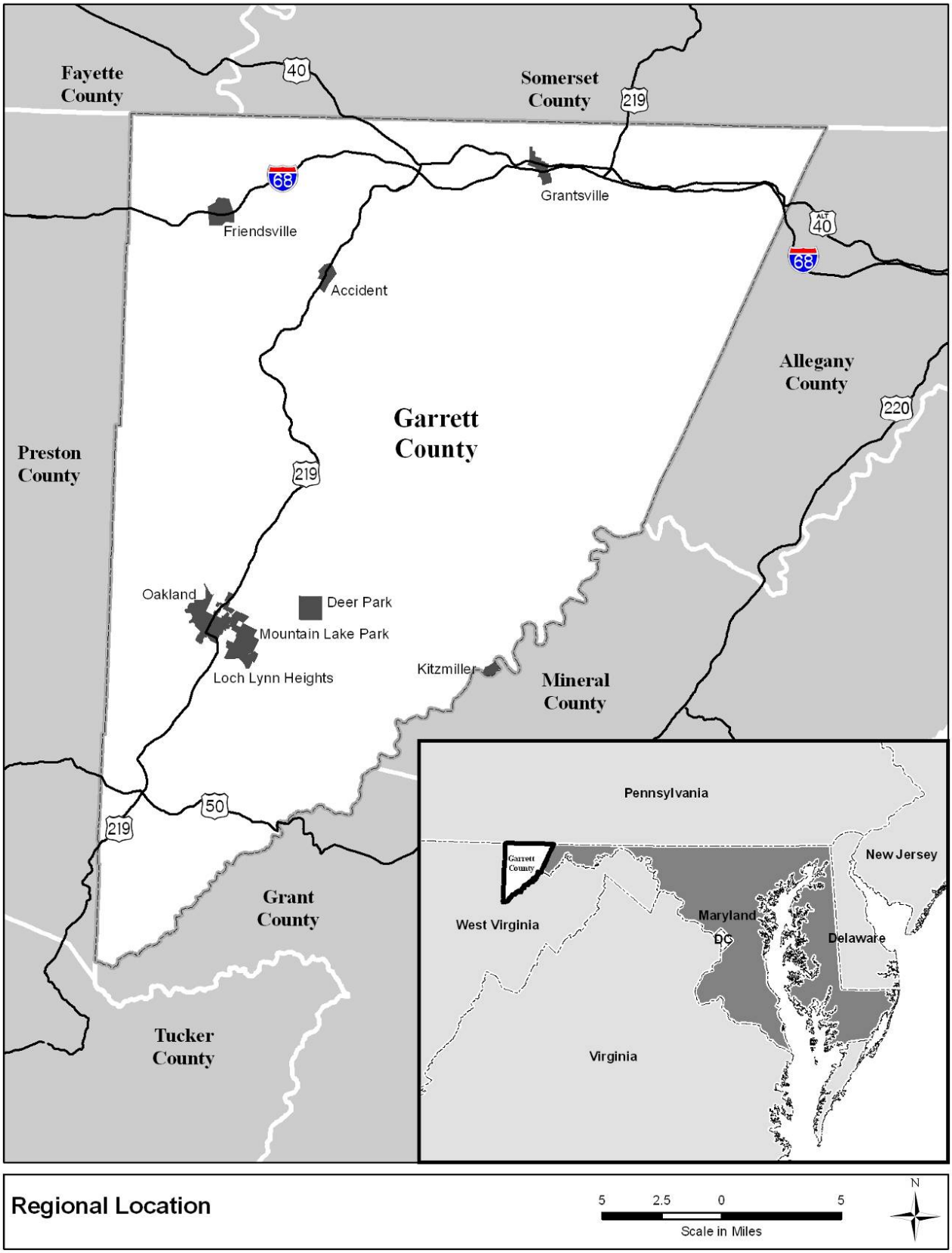


Figure 2-2 Major Watersheds in Garrett County

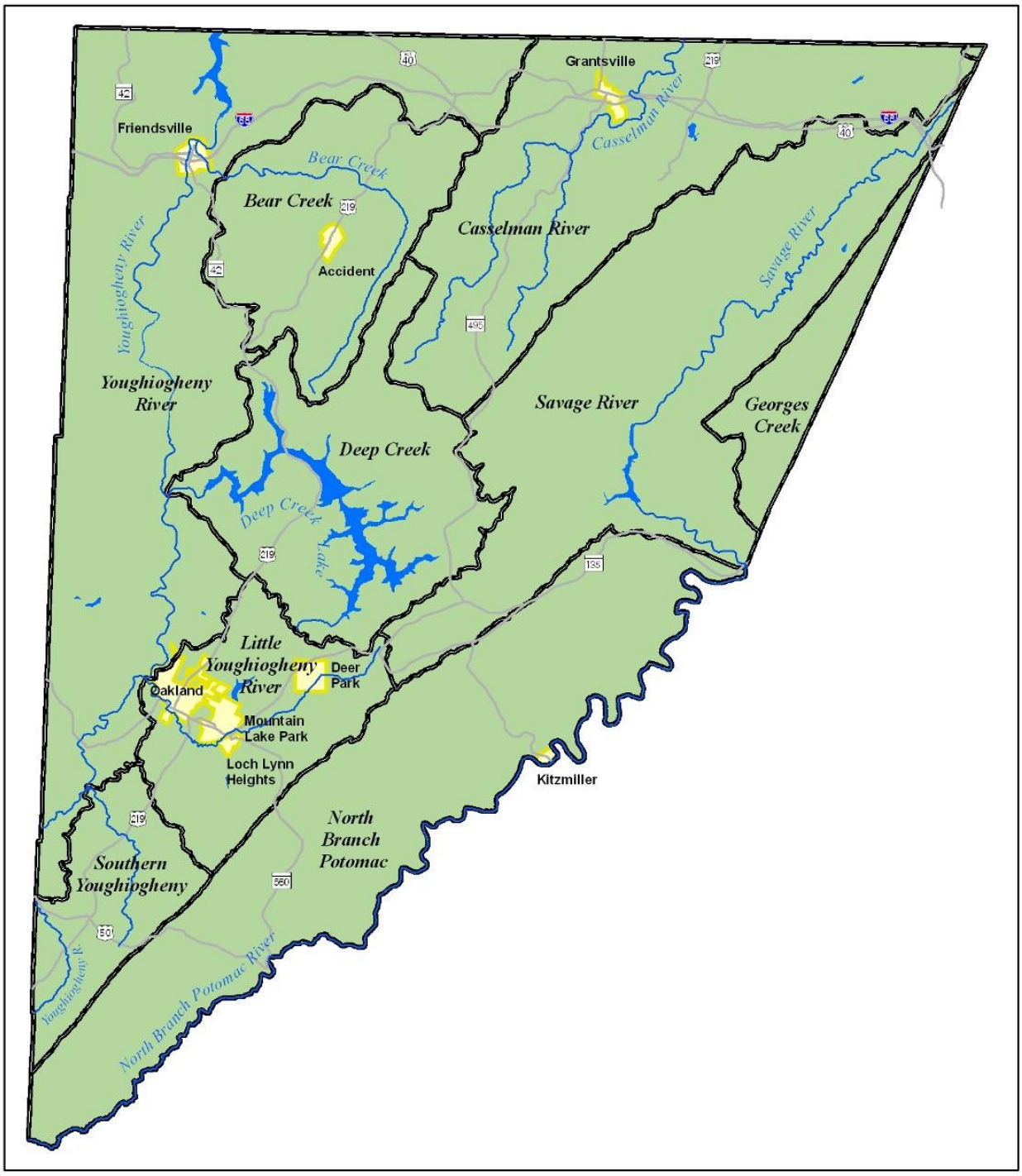
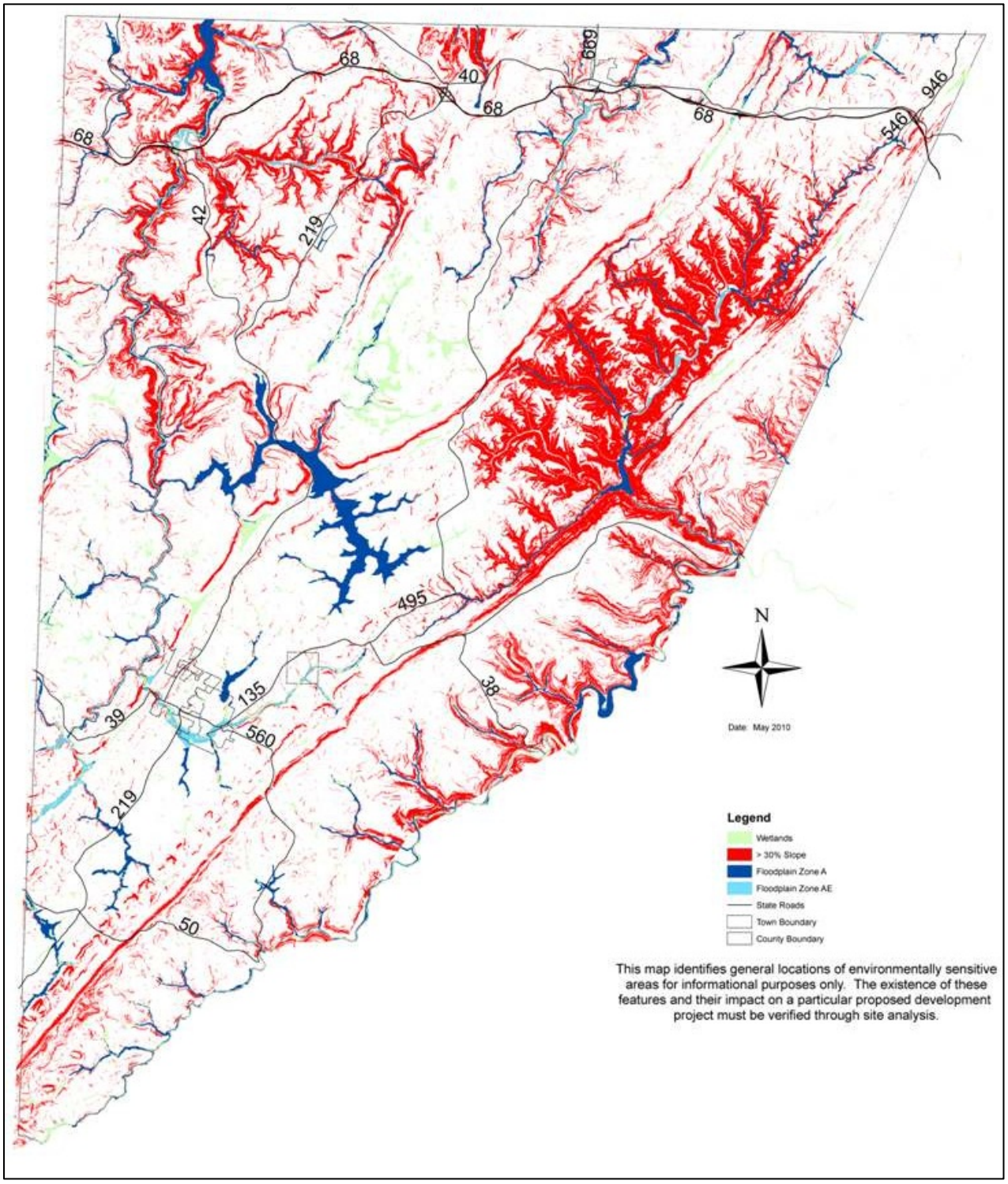


Figure 2-3: Steep Slopes, Floodplains, and Wetlands



Lying between and running parallel to the major ridges are broad valleys through which the major drainage systems flow. Within these primary valleys, the streams have deeply incised themselves into the strata, forming a secondary valley system. The secondary valleys are characterized by steep valley walls, high stream gradients and numerous rapids. There are two drainage patterns in Garrett County, separated by a line drawn along the crests of Backbone Mountain and Meadow Mountain.

Northwest of this line, the County is drained by the Youghiogheny and Casselman Rivers and is part of the Ohio River drainage basin. These two rivers flow through the Youghiogheny Valley in Pennsylvania, into the Monongahela River, which then empties into the Ohio River and eventually into the Gulf of Mexico via the Mississippi River.

Southeast of Backbone and Meadow Mountains, the County drains south or eastward by way of the Savage River and the North Branch of the Potomac River as part of the Potomac River drainage basin, which empties into the Chesapeake Bay and ultimately into the Atlantic Ocean.

2.1.4. Geology and Soils

Geology

Figure 2-4 shows the surface and bedrock geology of Garrett County as identified by the Maryland Geological Survey in 2013, Figure 2-5 is the geological cross section of the county, and Figure 2-6 is the legend for this map. The information below summarizes the characteristics of the geologic layers that are water-bearing formations in Garrett County, as well as formations that due to mining or other activity could potentially affect groundwater and surface water resources.

Conemaugh

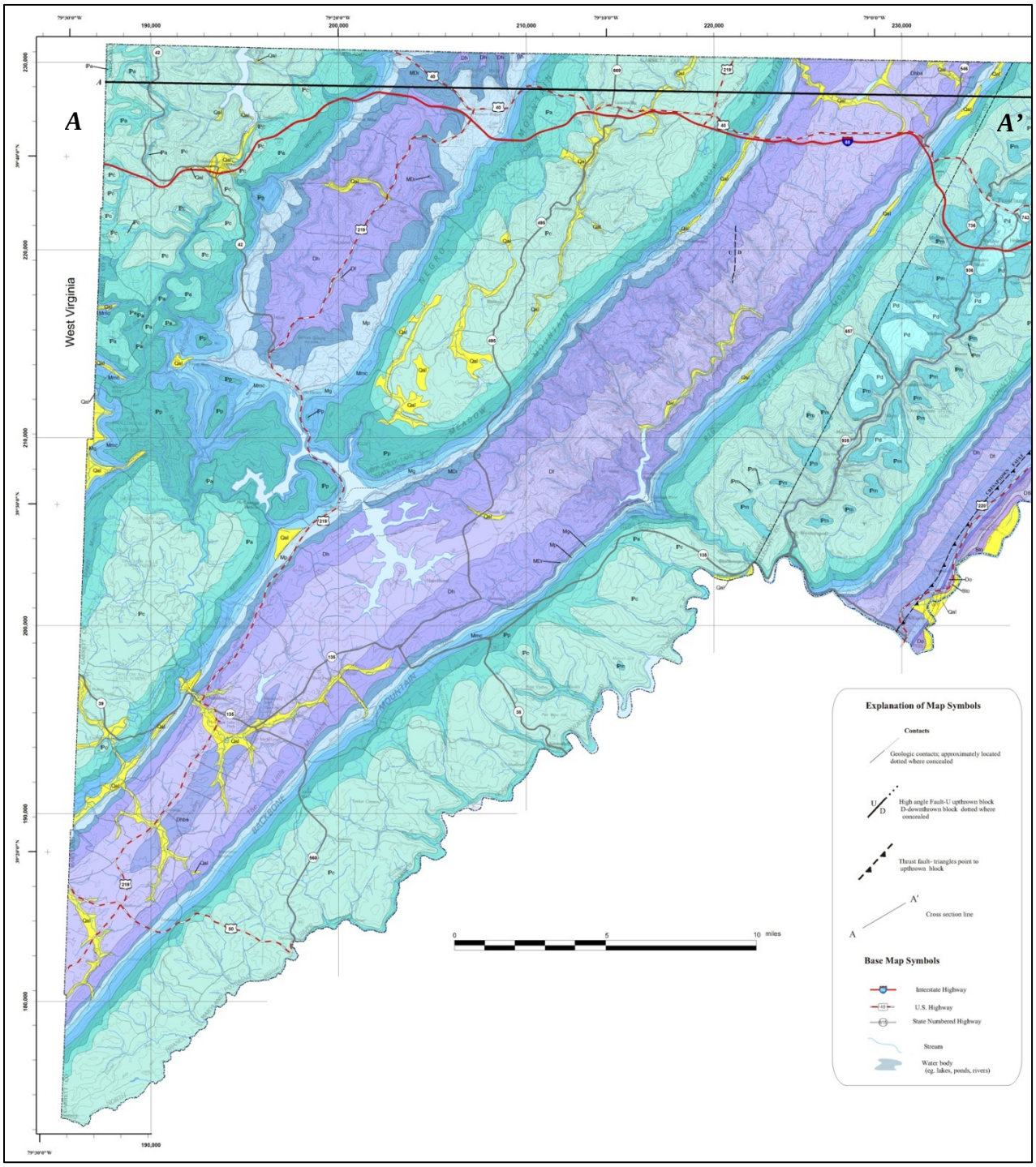
The upper Conemaugh group is of minor importance as a water bearing formation in the Casselman Basin. Spring and well supplies are adequate to meet domestic needs. The average well yield is about 8 gallons per minute (gpm) and well depths range from about 54 to 80 feet. The lower Conemaugh group is an important water bearing formation in the Casselman and Upper Potomac basins. Its lithology is similar to the upper Conemaugh. Adequate supplies are provided from springs and wells to meet domestic and commercial needs. Numerous springs and flowing artesian wells are present. Commercial and industrial wells in this formation yield approximately 15-20 gpm, with well depths between 150 and 357 feet.

Allegheny and Pottsville

The Allegheny Formation is an important water bearing formation in the synclinal basins in Garrett County. It contains adequate well and spring supplies for small commercial and domestic use. The Pottsville Formation is an important water bearing formation in the synclinal basins. It is largely indistinguishable from the Allegheny Formation, although iron contents in the Pottsville Formation are higher than is desirable. Municipal and institutional wells in these

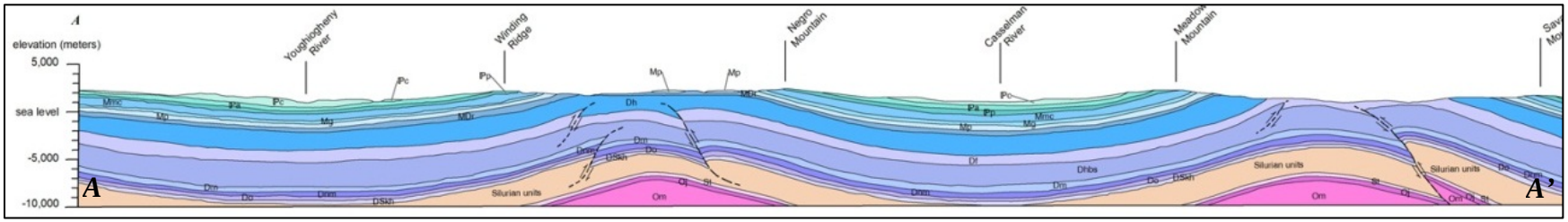
formations typically yield 10-50 gpm, although a single well for the Town of Grantsville yields 1,000 gpm. Well depths in these formations range from 125 to 460 feet.

Figure 2-4: Geologic Map of Garrett County



Source: Maryland Geological Survey (http://www.mgs.md.gov/esic/geo/gar.html)

Figure 2-5: Geologic Map Section of Garrett County



Source: Maryland Geological Survey (http://www.mgs.md.gov/esic/geo/gar.html)

Figure 2-6: Geologic Map of Garrett County – Legend

	Qal	Alluvium	Mississippian	Mp	Purslane Formation		Dnm	Needmore-Marcellus Shales*
Pennsylvanian	IPc	Conemaugh Group (undivided)	Mississippian	MDr	Rockwell Formation		Do	Oriskany Formation*
Pennsylvanian	IPa	Allegheny Formation	Devonian	Dh	Hampshire Formation	Devonian	DSkh	Keyser-Helderberg Formations (undivided)*
Pennsylvanian	IPp	Pottsville Formation	Devonian	Df	Foreknobs Formation			Various Silurian formations*
Mississippian	Mmc	Mauch Chunk Formation	Devonian	Dhbs	Harrell-Brallier-Sherr Formations (undivided)	Ordovician	Oj	Juniata Formation*
Mississippian	Mg	Greenbrier Formation	Devonian	Dm	Mahantango Formation*	Ordovician	Om	Martinsburg Shale*

Adapted from the Maryland Geological Society, http://www.mgs.md.gov/esic/geo/lgdalleg.html#dh.

** Indicates geologic layers shown on Figure 2-4 that are not present at the surface in Garrett County*

Mauch Chunk

The Mauch Chunk Formation is of moderate importance as a water bearing formation along the flanks of the Deer Park anticline. While not generally an important aquifer in Garrett County, this formation provides adequate well and spring supplies for domestic and farm use. Typical community well yields are 15 gpm, with well depths of 145 to 370 feet.

Greenbrier

The Greenbrier Formation is of moderate importance as a water bearing formation. It provides adequate well and spring supplies for domestic and farm use. Typical community and municipal well yields are 50 gpm, with well depths that range from 75 to 430 feet.

Purslane (formerly Pocono)[2]

The Purslane Formation is an important water-bearing formation in the areas of the Deer Park anticline and the Accident dome. Ground water occurs in the Purslane Formation under both artesian and water-table conditions, making it a source of water for both rural and municipal use. Municipal, community, and institutional well yields average 60 gpm, with the highest yield being 200 gpm. Well depths range from 90 to 400 feet.

Hampshire

The Hampshire Formation is an important water bearing formation in the Deer Park anticline and Accident dome areas; most of the wells drilled in the Hampshire Formation are along the shores of Deep Creek Lake and in or near the Town of Accident. Typical municipal and community well yields are 50 gpm, with well depths of 168 to 490 feet.

Harrell-Brallier-Sherr (undivided) (formerly Jennings)[2]

This important water bearing formation is found along the crest and axis of the Deer Park anticline. Groundwater occurs under both artesian and water table conditions in the formation: however, the artesian pressure is not great enough to permit flowing artesian wells. The formation's yields are adequate for large commercial or industrial use. Private well yields average 10 gpm, with the highest yield being 40 gpm. In the vicinity of Avilton, two water bearing zones occur in the formations: one at 35 to 41 feet and the other at 185-218 feet.

Needmore-Marcellus Shales

The Needmore-Marcellus Formations are not important water-bearing formations; however, they are widely known as sources of "unconventional" natural gas (natural gas embedded in and between the rock, rather than in large pockets). Since the mid-2000s, the Marcellus has been the focus of intense interest and natural gas development using hydraulic fracturing (or "fracking") techniques. As of 2013 the state is studying "whether and how gas production from the

[2] Prior to the 2013 revised geologic map of Western Maryland.

Marcellus shale in Maryland can be accomplished without unacceptable risks of adverse impacts to public health, safety, the environment and natural resources."[3]

Soils

Almost all of the soils in Garrett County can be classified as residual soils since they were formed in place through the mechanical and chemical weathering of the underlying rock formations. The depth, composition, and color of the soils are highly related to the composition of the parent rock. For example, the soft and thin-bedded, reddish brown, sandy shale of the Harrell-Brallier-Sherr and Hampshire formations generally weathers to a reddish brown, sandy loam. The six major soil associations in Garrett County include[4]:

1. Calvin-Gilpin Association: Gently sloping to steep, moderately deep, well-drained soils; formed over shale and sandstone.
2. Gilpin-Cookport-Dekalb Association: Gently sloping to steep, moderately deep, well-drained and moderately well-drained soils; formed over sandstone and shale.
3. Gilpin-Wharton-Dekalb Association: Gently sloping to steep, moderately deep, well-drained soils; formed over soft clay shale to hard sandstone.
4. Lickdale-Armagh-Peat Association: Nearly level to gently sloping, deep, poorly drained, and very poorly drained soils; formed over clay shale and hard sandstone.
5. Dekalb-Calvin-Gilpin Association: Gently sloping to steep, moderately deep, well-drained, very stony soils; formed over sandstone and shale.
6. Dekalb-Gilpin-Cookport Association: Gently sloping to steep, moderately deep, well-drained very stony soils; formed over sandstone and shale.

In addition to residual soils, some alluvial and colluvial soils are found in Garrett County. Alluvial deposits of well-stratified sand, gravel and clay occur as terrace deposits in the Casselman River Valley, a few miles south of Grantsville and in the Youghiogheny River Valley north of Friendsville. Colluvial soils are found along any steep slopes and valley margins where they were gravity-transported into place as slide rock and soil.

The permeability of the soils in Garrett County generally runs from poor to fair. The lack of good permeability is partially evidenced by sewage problems associated with poor draining on-lot disposal systems.

[3] MDE. Environmental Matters Committee, Marcellus Shale Briefing. 17 January 2013

[4] Garrett County Soil Survey, 1974

2.1.5. Surface Water

Major Rivers and Watersheds

The County contains all or portions of seven major watersheds and their corresponding rivers and streams: Youghiogheny River (including Bear Creek which is recognized in this Plan as a separate watershed), Little Youghiogheny River; Deep Creek; Casselman River; Savage River; North Branch Potomac River; and Georges Creek (Figure 2-2). The first four drain to the Youghiogheny River and ultimately to the Gulf of Mexico via the Monongahela, Ohio, and Mississippi Rivers. The Youghiogheny River is notable in that it is the County's only state-designated Wild and Scenic River. Like the Savage River (see below), the Youghiogheny offers world-renowned whitewater opportunities.

The remaining watersheds drain to the North Branch Potomac River, and ultimately to the Chesapeake Bay and Atlantic Ocean. A very small area (approximately 143 acres) in the extreme northeast corner of the County is part of the Wills Creek watershed which lies mostly in Pennsylvania and in Allegany County, MD.

Surface Water Impoundments

Deep Creek Lake

Deep Creek Lake, used for recreation and the generation of power, was formed by damming Deep Creek—a tributary of the Youghiogheny River. It is Maryland's largest and highest inland body of water. At spillway level, the reservoir has a surface area of 3,518 acres and a usable capacity of 93,000 acre feet. The state-owned impoundment is used for hydro-electric generation, and is not used as a source of drinking water, despite its excellent water quality. Permitted withdrawals from the lake include: water for snowmaking at the WISP resort; water for the County-owned recirculating whitewater course at the Adventure Sports Center International facility adjacent to WISP; releases for whitewater rafting on the Youghiogheny River; and releases for temperature control to support the fishery in the Youghiogheny River.

Savage River Reservoir

The Savage River Reservoir is used for flood-control and is also a source of water for Westernport in Allegany County. The reservoir has at spillway level a usable capacity of 20,000 acre-feet and a surface area of 360 acres. Controlled release of the water from the reservoir is also used to establish river flows for Olympic-caliber white water sporting events.

Jennings Randolph Lake

Jennings Randolph Lake is a U.S. Army Corp of Engineers (USACOE) project that is used for flood control and to regulate flow and water quality in the Potomac River. It is also used for recreation. The impoundment helps to address pollution from acid mine drainage associated with upstream coal mining, and has greatly improved the water quality in the river below the dam. The reservoir at spillway level has a usable capacity of 130,900 acre-feet, a surface area of 1,184 acres, and a maximum depth of 296 feet.

Broadford Lake

Broadford Lake is an impoundment constructed by the Natural Resources Conservation Service (NRCS) near Oakland. This facility is used for flood control, recreation, and municipal water supply. It has a surface area of 138 acres, and maximum depth of 26 feet and a usable capacity of 2,337 acre feet. The town of Oakland owns and operates the facility as a secondary source of water for the Oakland service area and as a recreational area for the surrounding communities.

Piney Reservoir

The Piney Reservoir in the extreme northeastern corner of Garrett County, is owned and operated by the City of Frostburg for exclusively municipal water supply. The reservoir has 110 acres of surface area and impounds 400 million gallons of water at normal pool elevation.

Wolf Den Run Impoundment

Wolf Den Run Impoundment is a small impoundment (0.3 million gallons) near Kitzmiller that was formerly used as the water supply for the Town and for the Shallmar water distribution system.

Youghiogheny River Reservoir

The Youghiogheny River Reservoir, formed by the damming of the Youghiogheny River in Southern Pennsylvania, extends south into the county for a distance of approximately three miles. The reservoir, used for flood control and recreational purposes, has at spillway level a usable capacity of 254,000 acre-feet, a maximum depth of 184 feet and a surface area of 2,840 acres. The portion of the reservoir in Garrett County is not well suited for recreation or water supply due to the large fluctuation in water levels associated with flood control.

2.2. Water Quality Criteria

This section describes water quality criteria applicable in Garrett County.

Nitrogen-Removing Technology for Septic Systems

All septic systems in areas of the state that drain to the Chesapeake Bay, the Atlantic Coastal bays, or other bodies of water that are impaired by nitrogen (see Water Quality and TMDLs, below) must use nitrogen-removal technology. In Garrett County, this includes the North Branch Potomac, Savage River, George's Creek, and Wills Creek watersheds.

The Clean Water Act and Water Quality Definitions

MDE monitors surface water quality in Garrett County and throughout the state in accordance with the Federal Clean Water Act (CWA). The CWA requires MDE to: develop water quality standards for all surface waters in the state; monitor the waters of the State in accordance with these standards; and, after identification, prepare a list of waters not meeting water quality standards (see Code of Maryland Regulations 26.08.02). A water quality standard is the

combination of its designated use and the water quality criteria designed to protect that use. An impairment is identified when water quality monitoring data suggest that a water body does not meet water quality standards.

The list of impaired waters prepared by MDE is also referred to as the 303(d) list, referencing the section of the CWA that requires such a list. The 303(d) list can be found in a publication called the Integrated Report.[5] The Integrated Report describes five different categories of water quality. Table 2-1 lists the categories and the waters in Garrett County in each category. Table 2-2 provides more detailed information on waters in Categories 4 and 5 (impaired waters). The same water body may appear in multiple categories due to different impairing substances, and the presence of different categories on different segments of each waterway.

Total Maximum Daily Loads (TMDLs)

When a water body is included on the 303(d) list, MDE must determine the cause (pollutant), the priority of the impairment, and solutions to the impairment. TMDLs are a common solution developed for impaired waters. A TMDL is the maximum amount of pollutant that a water body, such as a river or a lake, can receive without causing water quality impairment. In essence it quantifies an upper threshold on pollutants or stressors. The TMDL accounts for all sources of the given pollutant; for example, for nutrients the sources could be point sources such as WWTPs, or nonpoint sources such as stormwater or agricultural runoff. A TMDL typically establishes separate caps for point source and nonpoint source discharges of the impairing pollutant. Table 2-2 lists the impaired waters in Garrett County in Categories 4 and 5.

Table 2-1 Waters in Garrett County by Water Quality Category

Category	Impairment	Waters in Garrett County
Category 1 - waters attaining all standards	n/a	None
Category 2 - waters meeting water quality criteria for selected impairments	Nitrogen	Casselman River, Georges Creek, Savage River, Upper North Branch Potomac River, Youghiogheny River
	Phosphorus	Casselman River, Deep Creek Lake, Georges Creek,Savage River, Upper North Branch Potomac River, Wills Creek, Youghiogheny River
	Fecal Coliform	Deep Creek Lake, Youghiogheny River
	PCB	Deep Creek Lake, Savage River, Jennings Randolph Reservoir, Youghiogheny River

[5] Historically, the 303(d) List and the 305(b) report were submitted to the Environmental Protection Agency (EPA) as separate documents but beginning in 2008 the two reports are now combined into a single biennial publication. The Integrated Report can be found on the MDE website at: http://www.mde.maryland.gov/programs/Water/TMDL/Integrated303dReports/Pages/303d.aspx

	Mercury	Little Youghiogheny River, Jennings Randolph Reservoir,
	Sediment	Savage River
	Low Ph	Savage River, Wills Creek
	Metals	Upper North Branch Potomac River
	Cyanide	Wills Creek
Category 3 - waters with insufficient information to determine if water quality standards are attained	Phosphorus	Cunningham Lake (Casselman River)
Category 4 - impaired or threatened waters that do not need or have already completed a TMDL	See Table 2-2	
Category 5- impaired waters for which a TMDL is required.	See Table 2-2	

Source: MDE Integrated List, http://www.mde.maryland.gov/programs/Water/TMDL/Integrated303dReports/Pages/303d.aspx

Chesapeake Bay TMDL

As noted above, the eastern portion of Garrett County, generally southeast of Backbone and Meadow Mountains, drains to the Chesapeake Bay and is subject to the Chesapeake Bay TMDL. Maryland counties, including Garrett County, address the Chesapeake Bay TMDL through a Watershed Implementation Plan (WIP), which specifies how the County will achieve the reductions necessary to achieve the TMDL's water quality goals.

The County's WIP focuses on the use of erosion and sediment control on land intended for extractive use (i.e., land for which surface mining permits exist) to achieve the required nutrient and sediment reductions in its portion of the Chesapeake Bay basin. Additional reductions (beyond the required amount) may also be achieved through reclamation and implementation of sediment controls on abandoned mine land.

Table 2-2: Impaired Waters in Garrett County with Completed or Required TMDLs

Water Body[1]	Impairment	303(d) Category	Approval Date
Casselman River Watershed			
Casselman River	Low pH	4: TMDL Completed	2/10/2011
Casselman River	Chlorides	5: TMDL Needed	n/a
Piney Reservoir	Mercury	4: TMDL Completed	2/18/2004
Deep Creek Watershed			
Deep Creek Lake	Mercury	4: TMDL Completed	2/18/2004
	Low pH	4: TMDL Completed	11/26/2003
Cherry Creek	Fecal coliform	4: TMDL Completed	9/23/2009
	Low pH	4: TMDL Completed	11/26/2003
	Sediment	4: TMDL Completed	2/21/2007
George's Creek Watershed			

George's Creek	Low pH	4: TMDL Completed	2/10/2011
	Sediment	4: TMDL Completed	12/27/2007
	Fecal coliform	4: TMDL Completed	9/20/2007
	CBOD, NBOD[2]	4: TMDL Completed	2/6/2002
Little Youghiogheny River Watershed			
Little Youghiogheny River	Fecal coliform	4: TMDL Completed	12/3/2009
	CBOD, NBOD[2]	4: TMDL Completed	1/29/2001
	Sediment	4: TMDL Completed	2/7/2007
Broadford Lake	Phosphorus	4: TMDL Completed	3/2/2000
North Branch Potomac River Watershed			
North Branch Potomac River	Low pH	4: TMDL Completed	2/10/2011
	Sediment	4: TMDL Completed	5/15/2007
	Iron and Aluminum	4: TMDL Completed	2/6/2011
	Manganese	5: TMDL Needed	n/a
Laurel Run	Aluminum	4: TMDL Completed	9/20/2007
Three Forks Run	Aluminum	4: TMDL Completed	4/17/2008
	Low pH	4: TMDL Completed	4/17/2008
Savage River Watershed			
Aarons Run	Low pH	4: TMDL Completed	2/10/2011
Savage River Reservoir	Mercury	4: TMDL Completed	1/29/2004
Wills Creek Watershed			
Wills Creek	Low pH	4: TMDL Completed	2/10/2011
	Sediment	4: TMDL Completed	2/21/2001
	Fecal coliform	4: TMDL Completed	11/6/2007
	Chlorides	5: TMDL Needed	n/a
	Sulfates	5: TMDL Needed	n/a
Jennings Run	Low pH	4: TMDL Completed	4/17/2008
Youghiogheny River Watershed			
Youghiogheny River Lake	Mercury	5: TMDL Needed	n/a
Youghiogheny River	Low pH, Total Suspended Solids	4: TMDL Completed	9/20/2007

Source: MDE Integrated List,
http://www.mde.maryland.gov/programs/Water/TMDL/Integrated303dReports/Pages/303d.aspx

Notes:

1: In many cases, multiple segments of the same water body are impaired by the same substance. Those segments are summarized in this table, but are individually described in the Integrated List.

2: CBOD = carbonaceous biochemical oxygen demand; NBOD = nitrogenous biochemical oxygen demand.

As part of the Chesapeake Bay TMDL, MDE has established nutrient caps on point source discharges, such as those from wastewater treatment plants (WWTPs). These caps are numerical limits on the amount of nitrogen and phosphorus that WWTPs can discharge to the Bay and its tributaries, expressed as pounds per year of nitrogen and phosphorus. The only WWTPs that discharge to the Chesapeake Bay basin are Bloomington, Gorman, and Kitzmiller (which all discharge to the North Branch Potomac River watershed), and they are the only WWTPs in

Garrett County that are subject to point source caps. For all three WWTPs, the nutrient cap is equivalent to the maximum existing capacity of the wastewater treatment system.

Source Water Assessment Program

MDE's Water Supply Program (WSP) has conducted nineteen Source Water Assessments for the community water systems in Garrett County using groundwater. As required by Maryland's Source Water Assessment Program (SWAP), these reports delineate the area that contributes water to the sources; identify potential sources of contamination within that area; and determine the susceptibility of the water supply to contamination.[6] Garrett County protects these groundwater supplies by mapping the source water protection areas and 21restricting certain uses within these areas. The mapping and regulations are included in Chapter 156, Sensitive Areas, of the Garrett County Code, adopted May, 2010. Since 2010 four new or revised source water protection areas have been mapped and apply in Garrett County (for the McHenry, Mountain Lake Park, Frostburg and Midland/Lonaconing water systems). Source water protection area maps are included in Appendix 1.

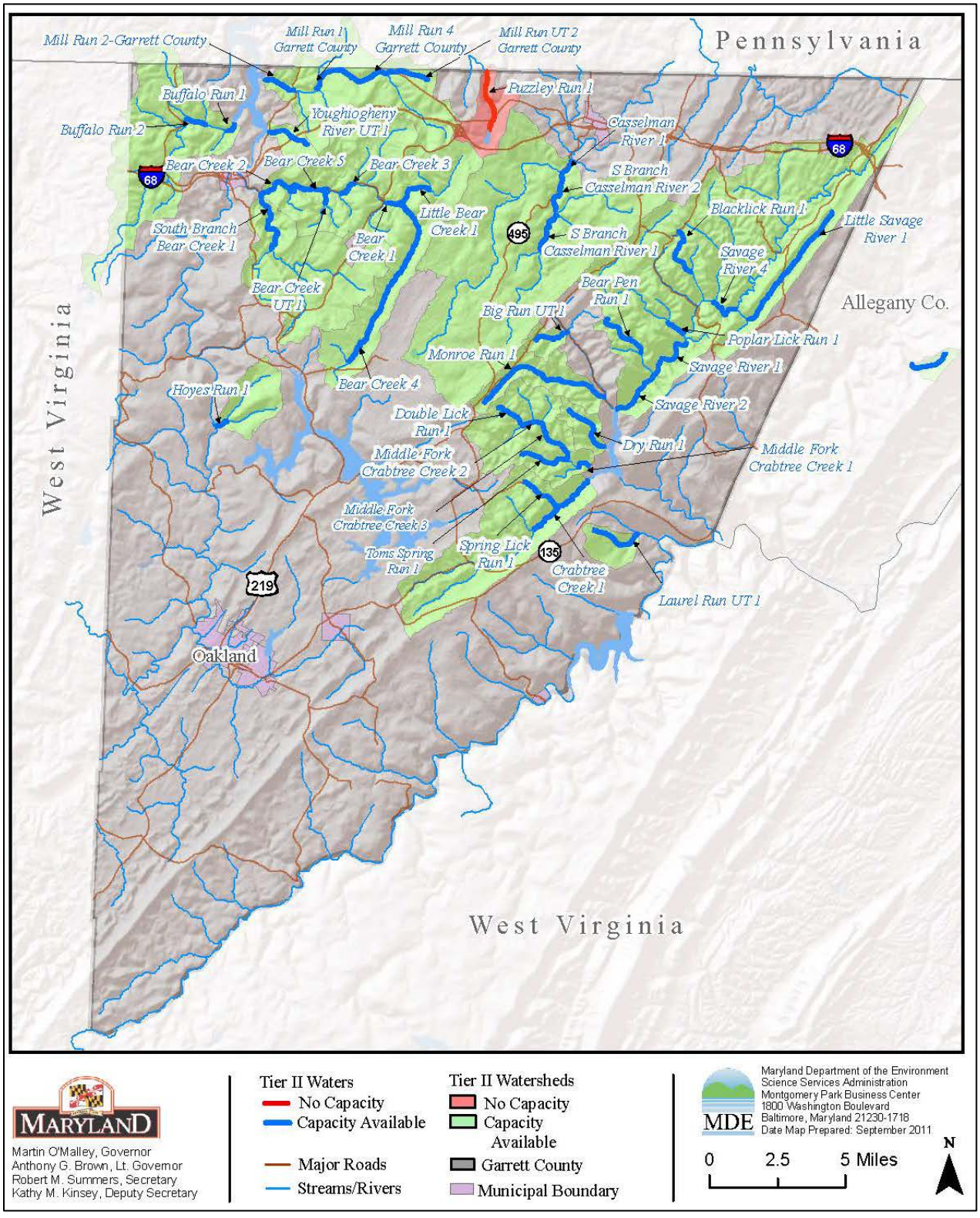
Following adoption of the Water and Sewerage Master Plan, the County intends to update its sensitive areas ordinance to reflect the revised delineations, address protection of spring sources, and ensure that drinking water sources in the County are not impacted by gas, oil, and coal exploration/extraction.

Tier II waters

The CWA requires states to adopt an anti-degradation policy that maintains water quality in high quality (or Tier II) waters, rather than allowing that water quality to degrade to meet only the minimum standards. Under Maryland's anti-degradation policy, MDE reviews proposed amendments to county plans for any new or major modifications to discharges to Tier II waters (COMAR 26.08.02.04). If a proposed amendment to a plan results in a new discharge or a major modification of an existing discharge to a Tier II water, the applicant must perform a Tier II antidegradation review.

[6] Source Water Assessments may be viewed at: http://mde.md.gov/programs/Water/Water_Supply/Source_Water_Assessment_Program/Pages/programs/waterprograms/water_supply/sourcewaterassessment/ga.aspx

Figure 2-7: Tier II Waters in Garrett County



Most of Garrett County's Tier II waters are in areas where development is already limited by state land ownership or agricultural land preservation (see Figure 2-7). One exception is Puzzley Run, a tributary to the Youghiogheny River. In the Puzzley Run watershed the County is seeking to develop new public water supply wells and also has a wastewater discharge permit (see Chapter 3, Section 3.2.8.3 and Chapter 4, Section 4.1.8.3

2.3. Population Trends and Distribution

This section summarizes the County's past population trends and includes updated population projections through the year 2040.

2.3.1. Population Change

Garrett County has a rich history as Maryland's gateway to the west, as a vacation and resort destination, and as a location for resource-based economies such as coal mining and timber. Each of these identities has affected the County's population since its establishment in 1872. The County's population increased through the 1930s, but declined from 1940 through 1960 due to industrialization and migration toward major metropolitan areas. These declines were particularly apparent in older mining towns such as Crellin, Kitzmiller, Shallmar, and Kempton.

The County's population trends began to reverse during the 1960's, due largely to better regional road access and the re-emergence of the County's tourism industry, centered around the recreational tourism development of Deep Creek Lake and surrounding land. The completion of Interstate 68 in 1991 further sustained these trends. Table 2-3 shows the County's full-time (year round) resident population between 1970 and 2010. Table 2-4 shows the population and housing unit totals for Garrett County and its municipalities as of the 2010 U.S. Census.

Table 2-3: Garrett County Historical Population Trends

Year	Population	Percent Change (by decade)
1970	21,476	n/a
1980	26,498	23%
1990	28,138	6%
2000	29,846	6%
2010	30,097	1%

Table 2-4: Garrett County Population and Housing Units, 2010

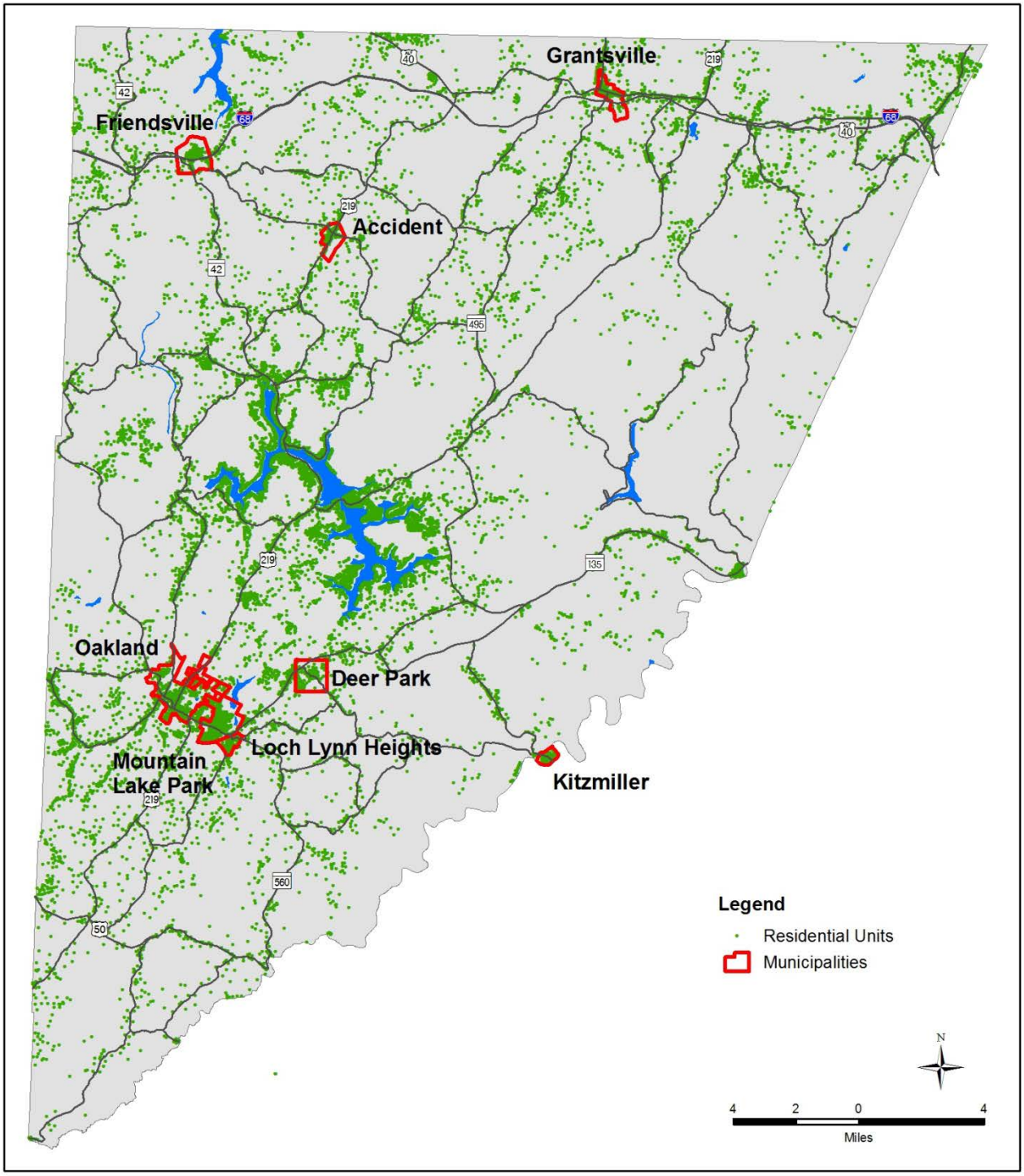
	2010	
Geography	**Population**	**Housing Units**
Towns	6,871	3,366
Accident	325	173
Deer Park	399	175
Friendsville	491	272
Grantsville	766	397
Kitzmiller	321	158
Loch Lynn Heights	552	228
Mountain Lake Park	2,092	954
Oakland	1,925	1009
Unincorporated Area	23,226	15,488
Total County	**30,097**	**18,854**

Source: U.S. Census Bureau, Census 2010, Maryland Department of Planning, Projections and Data Analysis / State Data Center

According to the 2010 Census, 5,440 of the County's housing units are seasonal (vacation) homes, reflecting the ongoing importance of the tourism industry. Many of those units are in the Deep Creek area. The distinction between the year round population and the housing unit total is especially important for this Plan. For example, the year round population of the Deep Creek Lake area in 2003 was estimated at 4,246, while the peak-day population was approximately 27,044.[7] The County's housing unit totals are more correlated to these seasonal population increases, and are thus a more reliable basis for estimating typical water and sewer demand (compared to using year round population). Therefore this Plan discusses demand for water and sewerage services based on housing units rather than on population. Figure 2-8 shows the distribution of housing units in Garrett County 2005. This distribution is consistent with conditions in 2012, and is also representative of population distribution in the County.

[7] Deep Creek Lake Boating Carrying Capacity Assessment, 2004.

Figure 2-8: Distribution of Housing Units in Garrett County



2.3.2. Population Projections

Table 2-5 shows the Maryland Department of Planning's (MDP's) population projections for Garrett County through 2040. Table 2-6 shows these projections through 2030, compared to the year 2030 projections in the 2008 Comprehensive Plan[8]. MDP does not develop housing unit projections on a regular basis, but did develop a projection for 2030 in March 2012.

Table 2-5: Countywide Population Projections

Year	Population
2010	30,097
2020	30,700
2030	31,650
2040	31,850
Change 2010 to 2040	**1,753**

Source: Maryland Department of Planning, March 2012

Table 2-6: Comparison of 2030 Population Projections

	2030	
Source	**Population**	**Housing units**
2008 Comprehensive Plan	33,400	25,076
Maryland Department of Planning	31,650	21,506
Change 2010 to 2030 (Comp Plan)	**3,303**	**6,222**
Change 2010 to 2030 (MDP)	**1,553**	**2,652**

The difference between the two sets of 2030 projections reflects the recession that began in approximately 2007 after the Comprehensive Plan was developed. That recession had significant effects on the housing market, and thus significantly reduced Garrett County's anticipated population and housing growth, compared to the Comprehensive Plan. This Water and Sewerage Master Plan uses the MDP population projections through 2040 (and the housing projection through 2030) as the basis for the calculations of system demand and supply in Chapters 3 and 4. Data in Table 2-6 (and the text in this section of the Plan) are provided to explain why the population projections have changed since adoption of the Comprehensive Plan.

[8] The 2008 Garrett County Comprehensive Plan includes detailed population projections by watershed see (Section 2.1.4).

2.4. Land Use

Planning and Zoning

The 2008 Comprehensive Plan provides detailed information about land use in Garrett County, and establishes the intended future land use in the County. This section summarizes that information. Table 2-7 and Figure 2-9 shows land use/land cover in Garrett County as of 2010.

Table 2-7: Current and Past Land Use/Land Cover

	2010	
Land Use/Land Cover	**Acres**	**Percent**
Residential	25,342	6.0%
Commercial/Industrial	1,808	0.4%
Institutional, Extractive, Bare Ground & Other	9,372	2.2%
Agriculture	89,142	21.2%
Forest	285,508	68.0%
Wetlands	2,663	0.6%
Water	5,795	1.4%
Total	419,630	100.0%

Source: Maryland Dept. of Planning Land Use Land Cover Dataset

Note: MDP dataset adjusted to reflect Chisholm County Boundary (see boundary discussion in Comprehensive Plan).

Figure 2-10 is the Comprehensive Plan future land use map showing the recommended land classification designations in the County. In 2010 the County updated its zoning and subdivision ordinances consistent with the 2008 Comprehensive Plan. The zoning ordinance regulates land use in the Deep Creek Lake watershed. The remainder of the County is not subject to land use regulations but the Subdivision Ordinance regulates the subdivision and development of land, throughout the unincorporated part of the County. The County's eight towns have their own planning authority. All eight towns have adopted comprehensive plans, two have zoning, and subdivision ordinances, and the rest have land development standards. Figure 2-11 shows the land classification map from the subdivision ordinance and Table 2-8 gives the acres by classification.

Chapter 5 of the Comprehensive Plan is the Water Resources Element which analyzes whether future development can be supported given water resource constraints and capacities, including drinking water sources and waste water facilities that will be necessary to serve that development. This Water and Sewerage Master Plan goes into more detail for each system than was possible for the Water Resources Element. The new Plan updates the existing and projected flow numbers, projected needs, and future capacity calculations. Measures identified in the Comprehensive Plan to address identified system needs have been refined in the Water and Sewerage Master Plan based on the updated analyses.

Figure 2-9: Land Use/Land Cover, 2010

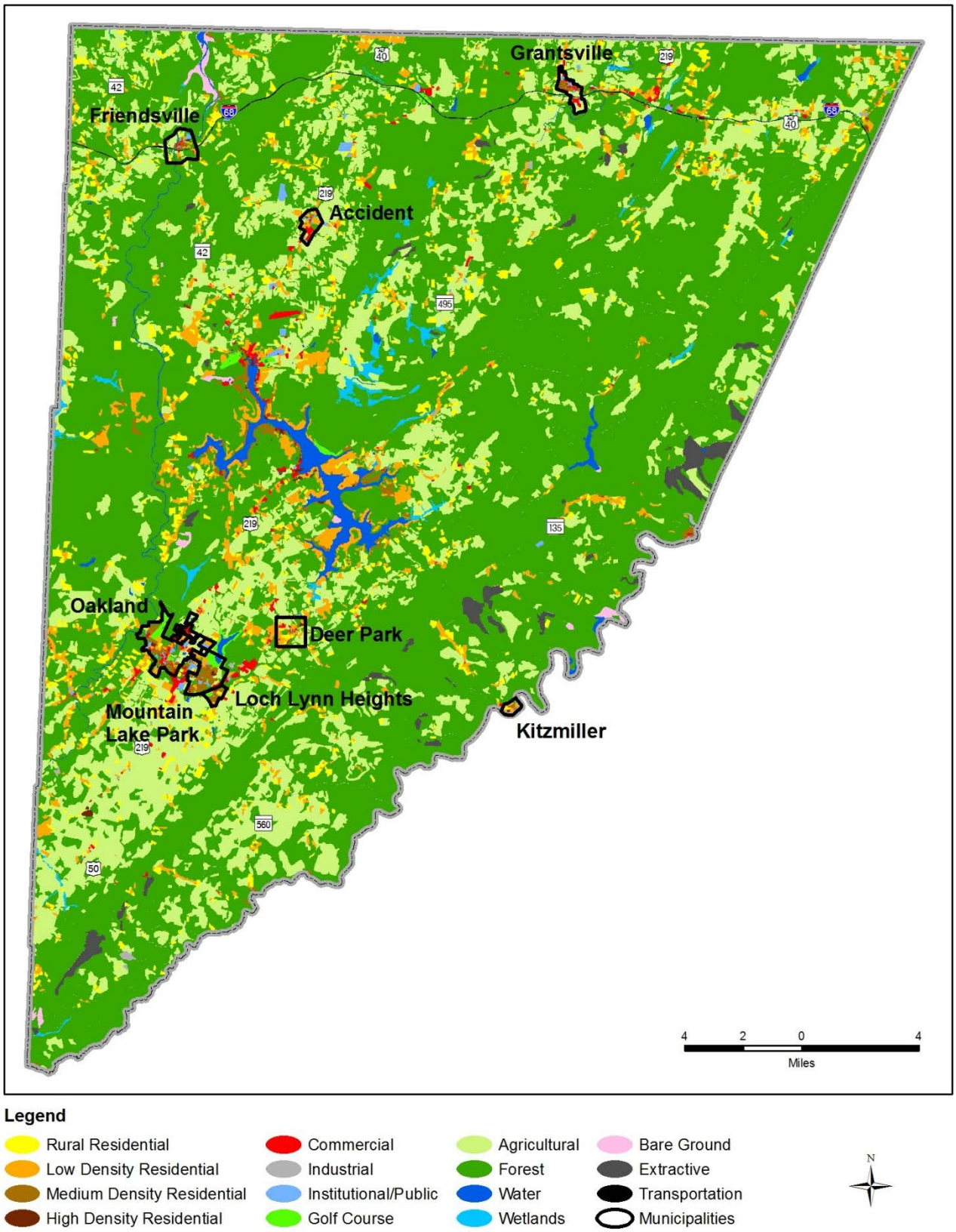


Figure 2-10: Land Use Plan

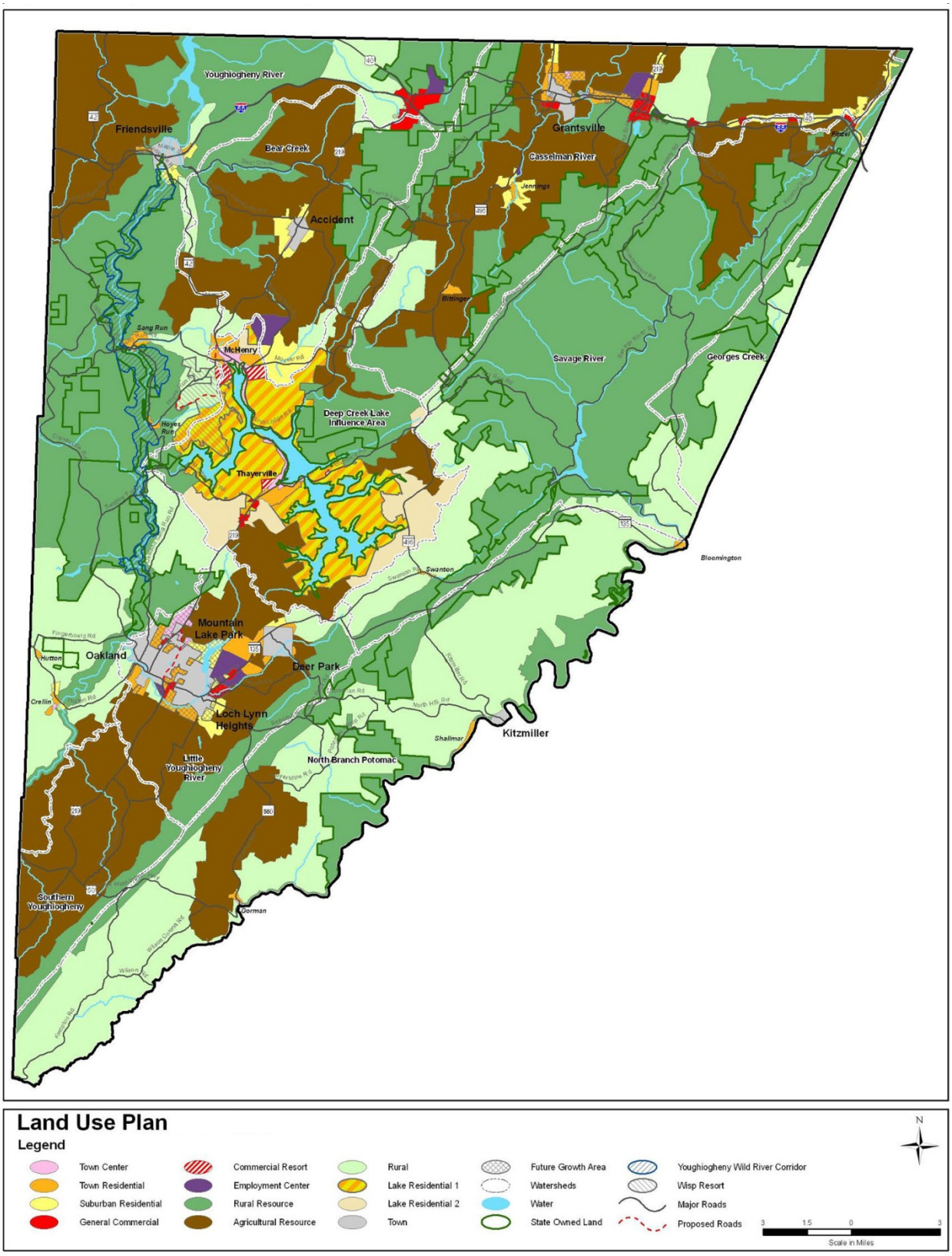


Figure 2-11: Land Classification Map

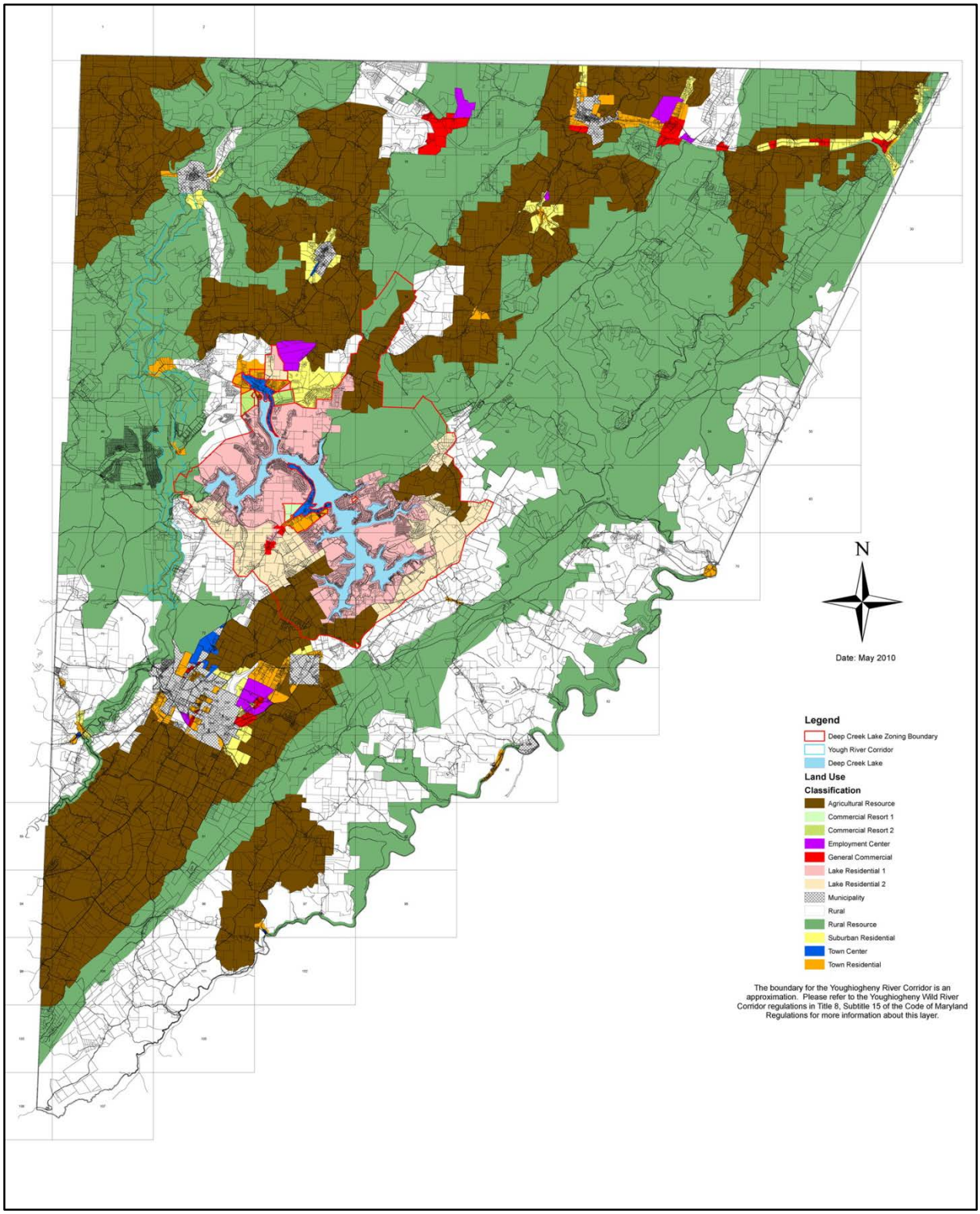


Table 2-8: Zoning and Land Classification Designations

Zoning District/Land Classification[1]	Acres	Percent
Rural Resource (RR)[2]	180,886	43.1%
Agricultural Resource (AR)[2]	104,617	24.9%
Lake Residential 1 (LR1)[3]	13,993	3.3%
Lake Residential 2 (LR2)[3]	7,339	1.7%
Rural (R)	89,291	21.3%
Suburban Residential (SR)	4,770	1.1%
Town Residential (TR)[2]	4,452	1.1%
Town Center (TC)[2]	1,148	0.3%
General Commercial (GC)[2]	1,895	0.5%
Commercial Resort (CR1/CR2)[3]	582	0.1%
Employment Center (EC)	1,870	0.4%
Towns	5,649	1.3%
Deep Creek Lake (Open Water)	3,138	0.7%
Total	**419,630**	**100%**

1: Deep Creek Lake Zoning Districts and Countywide Land Classification designations share common names.

2: Indicates a designation that is found both in the Deep Creek Lake area as a zoning district, and outside of the Lake area as a Land Classification, and where total acreages between the identically-named types of development control are merged.

3: Indicates a designation that is only in the Deep Creek Lake area as a zoning district.

Sustainable Growth and Agricultural Preservation Act of 2012

This legislation is intended to limit the number of new septic systems created in Maryland as a means of protecting water quality and resource lands. The law requires all counties to delineate up to four state-defined development tiers:

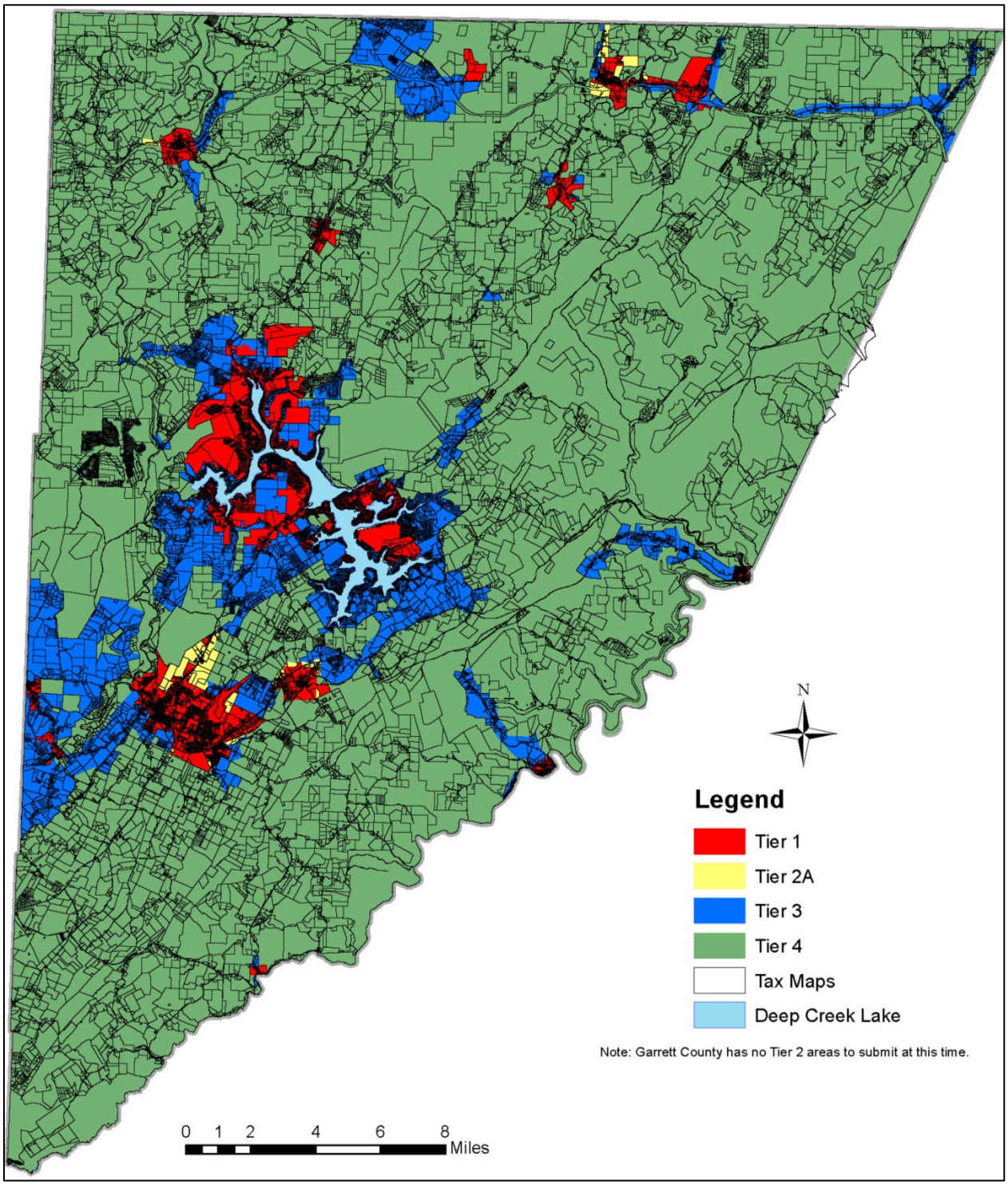
- Tier 1: areas currently served by public sewerage systems
- Tier 2: areas planned to be served by public sewerage systems
- Tier 3: areas are not planned to be served by public sewerage systems, and where growth using on-site sewage disposal (i.e., septic systems) can occur.
- Tier 4: areas are dominated by forest and agricultural land cover or are planned for preservation and conservation; residential major subdivisions are prohibited.

Figure 2-12 shows the Tiers Map that Garrett County adopted in December 2012. The map includes a Tier 2A category[9] which delineates future town growth areas. The proposed water and sewerage service areas shown in Chapters 3 and 4 of this Water and Sewerage Master Plan are generally consistent with the adopted Tiers Map. The County can amend its Development

[9] Consistent with guidance from the Maryland Department of Planning to address the tier map requirements pending completion of the Water and Sewerage Master Plan.

Tiers Map at any time using the same process as when the Map was first adopted. The County intends to amend the Tiers Map following adoption of this Water and Sewerage Master Plan to ensure consistency between the Water and Sewerage Master Plan and the Tiers Map.

Figure 2-12: Development Tiers in Garrett County



Priority Funding Areas

Priority Funding Areas (PFAs) are existing municipalities, rural villages, and county-designated areas where the County wishes to direct investment provided by the state (in the form of loans and grants for highways, sewer and water infrastructure, and economic development) to support future growth. PFAs were established in response to the 1997 Smart Growth Areas and Neighborhood Conservation Act.

Figure 2-13 shows PFAs in Garrett County. The proposed water and sewerage service areas shown in Chapters 3 and 4 of this Water and Sewerage Master Plan are generally consistent with the PFAs. The County or the incorporated Towns may propose that some proposed service areas that are outside the current PFA boundaries become PFAs. Such areas would have to meet the criteria set forth in the PFA law including a minimum development density of 3.5 dwelling units per acre.

Major Public Institutions

Figure 2-14 shows the schools, emergency services, and other major institutions in Garrett County. Nearly all the institutions are served by public water and sewerage services. No new major public institutions are currently proposed. Table 2-9 lists the enrolment of public schools in Garrett County as of September 2013. Other institutions are described in the Comprehensive Plan.

Table 2-9: Major Public Institutions

Institution	Population[1]
Schools	
Accident Elementary	235
Broad Ford Elementary	631
Crellin Elementary	109
Friendsville Elementary	132
Grantsville Elementary	227
Route 40 Elementary	136
Swan Meadow School	36
Yough Glades Elementary	329
Northern Middle School	323
Southern Middle School	538
Northern High School	495
Southern High School	695
Garrett College	771

Sources: Garrett County Public Schools; Garrett College.

Figure 2-13 Priority Funding Areas in Garrett County

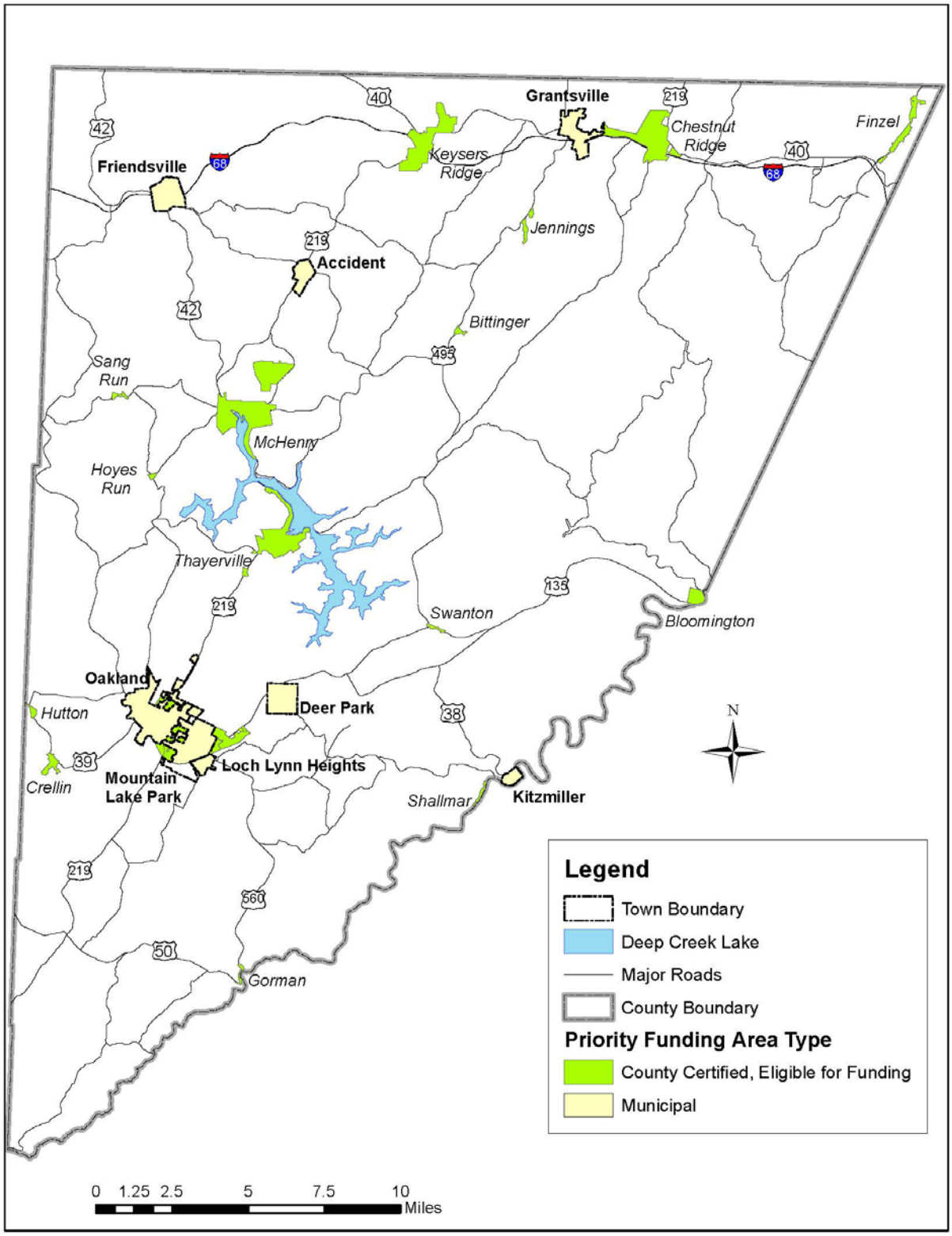
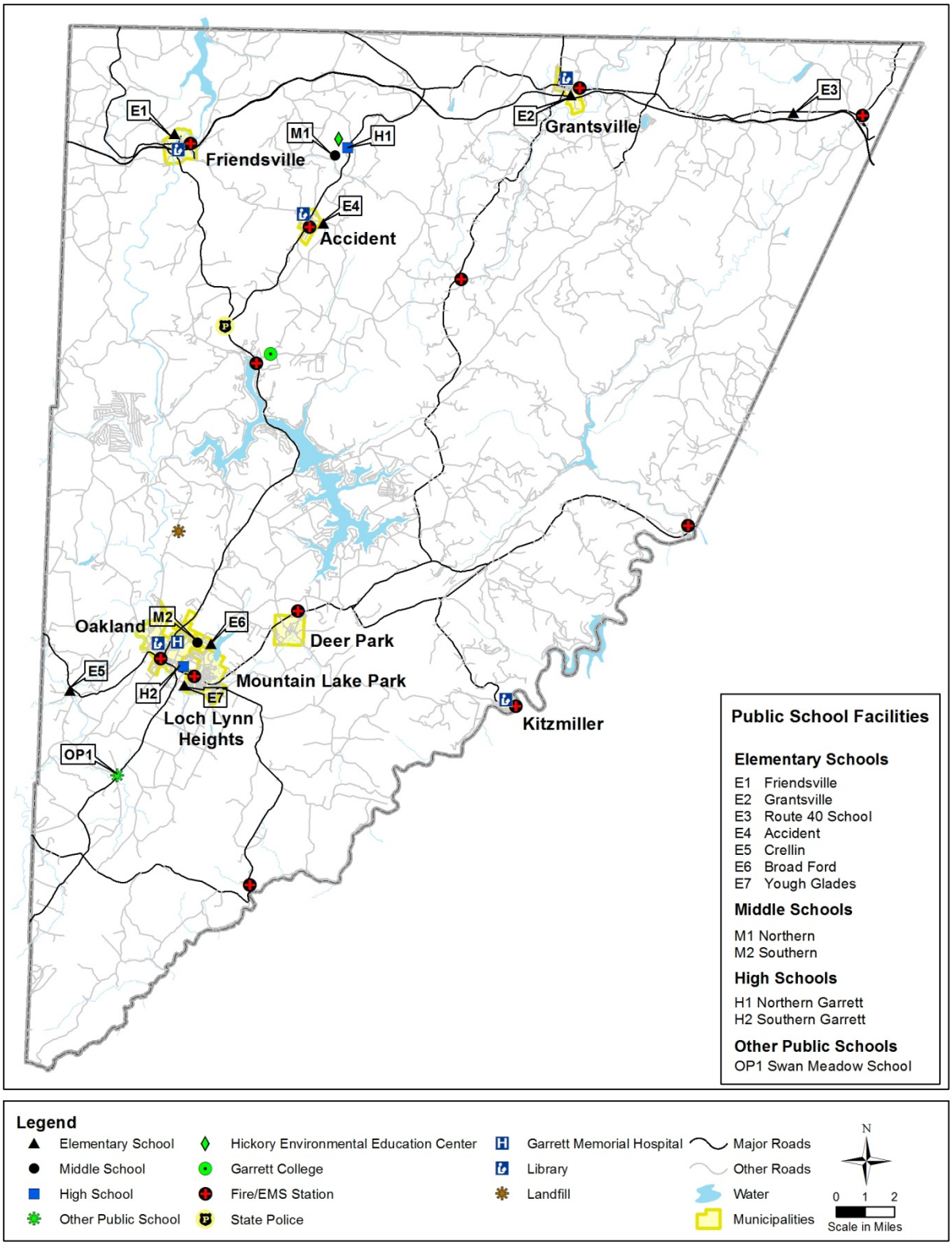


Figure 2-14 Major Public Institutions



3. Water

3.1 Water Resources and Demand

Garrett County has an abundance of water resources, including rivers, streams, and groundwater, which, with proper management and protection, will meet the needs of County residents, businesses and visitors far into the future. This chapter describes the current uses of these water resources and presents a phased plan for extension and improvement of water systems owned by the County and the incorporated towns.

All proposed water system improvements are consistent with the 2008 Comprehensive Plan's land use and infrastructure policies and with the policies in Chapter 1 of this Water and Sewerage Master Plan (the Plan). The public water systems described in this chapter are in areas the County has designated as growth areas to receive the infrastructure investment necessary to support economic development and to absorb the County's projected population and housing unit growth.

Data tables describing the County's water systems and maps depicting those systems are included at the end of this Chapter. [1]

Overview of Water Usage

The County has 13 municipal water systems.[2] These systems, owned and operated by the County (through the Sanitary District) or by the towns of Accident, Oakland, and Grantsville, serve approximately 5,300 dwelling units (28 percent of the County total), commercial users, and all of the county's major business and industrial parks (Table 3-1, Figure 3-1).

In addition to the municipal water systems, approximately 60 water systems in Garrett County have permits from the Maryland Department of the Environment (MDE) and maintain their own water treatment facilities (Table 3-1). These systems are owned by private or other non-County entities, and serve users such as residential developments, businesses, industrial uses, campgrounds, parks facilities, and schools. An additional approximately 17 privately owned water systems are scheduled to become part of the Thayerville municipal water system.

All other water users in the County obtain their water from individual private wells that are approved by the Garrett County Health Department, Environmental Health Services.

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[1] Note, to assist the State in its review, this Plan numbers the tables in order, but the table titles at the end of the chapter also gives the Table numbers as prescribed in COMAR.

[2] As of March 2013, the Thayerville system was under construction, and was expected to become operational in summer 2013. Thayerville is included in this document as a "current" system, reflecting its status at the anticipated time of Plan adoption. The Green System is listed as a separate system from Grantsville because the systems are not connected and County owns some of the distribution lines.

Groundwater

Most municipal water systems in Garrett County use groundwater from wells as the sole or primary water source. Four of the systems use surface water for all or part of their needs (see Table 3-1 and system descriptions below). Private groundwater wells or springs are used by residents and businesses not connected to one of the municipal systems (see Table 3-2). These wells draw their water from a variety of water-bearing formations in the County, with no single formation being prevalent. Section 2.1.4 provides an overview of the geologic sources of groundwater in Garrett County. Although water quality from wells and springs is generally good, these systems may be vulnerable to pollution from septic systems and other sources. This is especially true in cases where wells and/or septic systems predate current health regulations related to parcel size and system design.

Historically the County's groundwater resources, combined with surface water sources, have been adequate to meet demand by the municipal systems. In drought conditions some residential well supplies may experience stress. The MDE's Water Supply Program uses four indicators of drought: precipitation levels; stream flows; ground water levels; and reservoir storage, and a severity scale ranging from normal to watch to warning to emergency. 2012 was a dry year in Western MD. In April, May, and September Western MD was on watch or warning for stream flow. The last emergency status was issued in March 2009.

Detailed information on the capacity of the County's groundwater resources is outdated. The last full study of the County's groundwater resources was a 1980 U.S. Geological Survey (USGS) groundwater study.[3] Since then, the number of residents and seasonal housing units in the County has increased substantially (housing units grew by 4,735 between 1990 and 2010, according to the US Census). To improve available data on groundwater availability, Garrett County is assisting in a *Fractured-Rock Water Supply Study* covering the area of the State north and west of I-95. The Study was initiated in 2009 http://md.water.usgs.gov/wss/. Future updates to the Water and Sewerage Master Plan should incorporate this planned regional study into decisions about expanded use of groundwater for public water systems, particularly if the study reveals limitations on groundwater capacity.

Based on MDE's water balance methodology (described in the Appendix to the 2008 Garrett County Comprehensive Plan, Water Resources Element), the water-bearing formations that serve Garrett County recharge at the rate of more than 200 million gallons per day.[4] At the broad scale, and lacking specific data to the contrary, this volume is adequate to serve projected growth

[3] 1980. USGS. *Basic Data Report 11, Garrett County Water-Well Records, Chemical-Quality Data, Ground-Water Use, Coal Test-Hole Data, and Surface Water Data.*

[4] Source: *Models and Guidelines 26*, the official state guidance for preparing the Water Resources element (see http://www.mdp.state.md.us/mgs/pdf/mg26.pdf). See also the Water Resources section of the Comprehensive Plan Appendix. This calculation reflects only the nearest water-bearing formation. In most locations, two or more water-bearing formations could reasonably be tapped.

in Garrett County through 2033. However, the caveats to this finding are important. Garrett County's water-bearing formations serve areas beyond the County. In addition, geological and seasonal variations mean that groundwater resources may not be uniformly available in every location in the County.

New development and its wells have the potential to impact existing wells serving individual homes and businesses. The Garrett County Health Department, Environmental Health Services, is not aware of situations in Garrett County where water use at a subdivision on individual wells is impacting other users. However, this situation could potentially arise in cases where the existing well is older and shallower. In such a situation, new wells could reduce flows to existing wells in the immediate vicinity, forcing existing well owners to drill new, deeper wells.

Compared to deeper commercial or public supply wells, older, shallower wells are often more vulnerable to direct transmission of septic effluent and contamination from the surface, via means such as underground storage tanks, landfill leachate, mining, construction, petroleum and pesticide spills, and nutrients and bacteria from feedlots. Salt runoff from highway deicing and salt storage facilities in the County have affected some homeowners,[5] although this appears to be less of a problem than in the past (see Table 3-3). New wells drawing over 5,000 gpd require a groundwater appropriation and use permit from MDE's Water Management Administration that may include consideration of impacts on nearby wells[6]. Wells for individual businesses using less than 5,000 gpd are generally exempt from obtaining an appropriation permit, as are individual homes, and are approved through the Garrett County Health Department, Environmental Health Services.

Surface Water

The County's surface water resources include rivers and surface water impoundments, some of which are used as public water sources. Bloomington withdraws water from the Savage River; while Friendsville and Oakland use water from the Youghiogheny River. Oakland draws over 75% of its water from Broadford Lake (see Section 2.1.5 and Tables 3-1 and 3-5).

Allegany County Users

Garrett County surface water sources are also used by two towns in neighboring Allegany County:

- An impoundment of Piney Run in the northeastern corner of Garrett County is the municipal water source for the City of Frostburg.
- The Savage River Reservoir is used for flood-control purposes. It is also a source of water for Westernport in Allegany County, the Mill DI Plant, as well as a small number of customers in Garrett County connected to Westernport's water transmission line.

[5] Source: DNR, Comments on 2008 Comprehensive Plan.

[6] Source: http://www.mde.state.md.us/Permits/WaterManagementPermits/index.asp. Typically, new wells drawing more than 5,000 gpd and residential subdivisions with more than ten lots require a MDE permit.

Deep Creek Lake

Deep Creek Lake is Maryland's largest and highest inland body of water, and is owned by the Maryland Department of Natural Resources (DNR). The lake is not used as a source of drinking water. This possibility has been discussed in the past but is not under active consideration (see discussion in the Garrett County Comprehensive Plan).

3.2 Water Systems

This section of the Plan describes municipal (including County) and other public water systems in Garrett County. The section is organized alphabetically by major watershed. Table 3-3 summarizes supply, demand and capacity in the municipal systems.

Other publicly owned systems such as at state parks and camps, and private systems are listed in Table 3-1.

3.2.1 Bear Creek Watershed

3.2.1.1 Town of Accident

Existing System

The Town of Accident, with a 2010 population of 325, is located along US 219 north of Deep Creek Lake. The Town has approximately 170 housing units, a small number of businesses, and the Central Garrett Industrial Park. The town's water system was initially constructed in 1974. In 1982, a 600 linear foot water line was extended just outside the town boundaries to serve Accident elementary school on Accident-Bittinger Road. In 1987, an 8-inch water line extension was installed to serve the Industrial Park.

The Town owns the water system but contracts operation of the system to Garrett County.

The system currently serves approximately 210 ERUs. The Town's current appropriation permit from MDE allows an average daily withdrawal of 55,000 gpd. Average daily water use in 2012 was approximately 30,000 gpd (Table 3-3).

The Accident water system consists of:

- Two groundwater wells, 300-foot depth, in the Hampshire formation. One on South Street and one on Fratz Street to replace one on Accident Bittinger Road (see below).
- Two water treatment plants with combined design capacity of 110,000 gpd and production capacity of 80,000 gpd. Water treatment is chlorination, South Main Street well also has soda ash treatment for pH adjustment
- A 256,000 gallon capacity ground storage tank (steel/glass lined) installed in 2008
- Approximately 14,000 linear feet of water mains (6-, 8- and 10-inch) water mains, including a 2000-lf 8-inch line to the Industrial Park;

Service Areas

The existing service area closely follows the Town boundary, with the exception of Accident elementary school, east of the Town on Accident Bittinger Road. No service area expansions are planned within three years. In the 3 to 10 year planning period, service may be extended to an approximately 25-acre area south of town on the east and west sides of US 219 (Figure 3-2). Future planned service areas (beyond 10 years) include "infill" development within the town boundaries on the north and west sides

Problem Areas and Future Needs

As of 2013 the system currently serves approximately 210 ERUs (Table 3-3). Available system capacity is approximately 25,000 gpd (appropriation permit of 55,000 gpd minus average daily flow of 30,000 gpd). Projected change in water demand is approximately 3,900 gpd by 2023 and 7,500 gpd by 2033, therefore no increase in capacity will be needed through 2033.

The Accident Bittinger Road well had levels of arsenic that exceeded the national maximum contamination level (MCL) drinking water standard that was established in 2001[7]. This well was taken out of service in February 2013.

Planned and Recommended Improvements

In 2013 the Town constructed a new production well and water treatment plant near Fratz Street to replace the Accident-Bittinger Road well and plant. As of June 2014 the Town is awaiting the certificate of potability for the new well.

Partial funding for this project was provided through a Community Development Block Grant (CDBG); with the Town providing the balance.

3.2.1.2 Other Systems

The Garrett County Airport on Bumble Bee Road is partially within the Bear Creek watershed. It has existing water service from the McHenry water system.

There are no other municipal or other publicly owned systems in the Bear Creek watershed. Table 3-1 lists the private water systems (transient non-community and non- transient non-community)[8].

3.2.2 Casselman River Watershed

Figure 3-3 provides an overview of the water systems in the Casselman River watershed and extending west to the Keysers Ridge water service area which is in the Youghiogheny River watershed.

[7] The standard of 10 parts per billion (ppb) replaced the old standard of 50 ppb.

[8] See definitions in Tables 3-1 and 3-2 from COMAR 26.04.01

3.2.2.1 Town of Grantsville

Existing System

Grantsville is an incorporated town in northern Garrett County with 2010 population of 766. The Town is located north of the interchange of I-68 with MD 495. The 2008 Comprehensive Plan designates areas around Grantsville for Town Residential and commercial use, designations that are consistent with public water and sewerage service. Several areas are shown for potential future annexation by the Town.

The Town of Grantsville and surrounding areas are served by two public water systems, the Grantsville system and the Green system. The Town owns and operates the water sources and the two water treatment plants. The County owns the Keysers Ridge portion of the Green system distribution lines. The systems are not currently interconnected.

The two systems combined currently serve approximately 720 ERUs. The current appropriation permits from MDE allow an average daily withdrawal of 111,000 gpd for the Grantsville system and 112,000 gpd for the Green system. Average daily water use in 2012 was approximately 70,000 gpd for the Grantsville system and 50,000 gpd for the Green system (Table 3-3).

Grantsville System

The Grantsville system is the original system built to serve the Town and consists of:

- Five wells and four natural springs in Savage River State Forest (east side of Negro Mountain) approximately 1.5 miles west of Grantsville;
- A well in the Shade Hollow area approximately 0.5 miles west of town (this well has high iron content, but the water is blended with other water for potable use);
- A treatment plant on Alt Route 40, three miles west of Town south of Zehner Road, which includes filters for iron and manganese removal and treatment of high pH, and has a design capacity of 100,000 gpd;
- Two water storage tanks on the water treatment plant site: 100,000 gallons of raw water storage and 100,000 gallons of treated water storage;
- An 8-inch supply line conveying water from the storage facility to town, and a 12-inch line in the Springs Road area for fire protection. The water distribution system is composed of approximately 25,200 LF of 4- and 6-inch lines.

Green System

The Green System was originally planned to provide water and fire flow protection to the Northern Garrett Industrial Park (NGIP), a 66 acre industrial park within Grantsville's corporate boundaries south of the MD 495/I-68 interchange. The system comprises of:

- One production well located at 5112 National Pike on the Arthur Green property (near Amish Road)

- A six-inch pipe from the well to the treatment plant.
- A water treatment plant (chlorination) with sequestering agent for iron and manganese (near 6226 National Pike).
- 400,000 gallon concrete ground storage tank located beside the WTP.
- Distribution system consisting of approximately 11,350 LF of 8- and 12-inch lines.

Since being placed in service in 2001, the Green system has been extended several times:

- 2002: west on Alt. Route 40 to provide service to the Keysers Ridge area to resolve problems with salt contamination, low yield and high iron content;
- 2004: south along US 219 to serve residential properties and the SHA's Overlook Rest Area, which also experienced salt contamination and poor water quality;
- 2005: to the Northern Middle and High School complex, to address high arsenic levels.

Service Areas

Figure 3-4 shows the existing service area and planned future service area of the Town of Grantsville water service area. In 2012 an addition to the service area was made for the Goodwill Retirement Community[9] which is a continuing care retirement community including an independent living retirement village, assisted living apartments and a nursing home. The property was annexed into the Town in 2006 and the facility is connected to the Green water system.

No service area expansions are planned within three years (W-2). Within 10 years (W-3). Grantsville is considering the following future service area expansions:

- An area along Route 669 north of Grantsville to Pea Vine Road and Dorsey Hotel Road, which includes the Grantsville Volunteer Fire Department, single-family residences and assisted living residences. Private water supplies in this area are susceptible to salt contamination.
- Approximately 100- acre area, west of the current Town boundary, north of I-68.
- Extension of water service along Route 40 east of Grantsville to the Chestnut Ridge area. This would also address salt contamination issues for residences and businesses (see Section 3.3 below).

No additional future service area expansions are currently planned.

Extensions of the Green System are discussed below under the Youghiogheny River Watershed.

[9] Sometimes referred to as Goodwill Mennonite Home.

Problem Areas and Future Needs

As shown in Table 3-3, the Grantsville system currently has approximately 5,000 gpd of available capacity (75,000 gpd treatment plant production capacity minus 70,000 gpd average daily flow). Projected change in water demand through 2023 is approximately 92,400 gpd and through 2033 is approximately 100,000 gpd. Total demand through 2023 would be approximately 162,400 gpd (current use of 70,000 gpd plus 92,400 gpd), exceeding the permitted withdrawal limit (111,000 gpd), and the production capacity of the Town's treatment plant (75,000 gpd). The added demand through 2033 would be close to 100,000 gpd for a total demand close to 170,000 gpd[10], well above the current withdrawal limit. An additional concern is use of water from state lands. Savage River State Forest is owned and managed by the Maryland Department of Natural Resources. Use of water resources is subject to Departmental management policies.

Serving these future demands on Grantsville's water system would necessitate an expanded treatment plant and/or withdrawal permit, or another solution.

While the Green system has approximately 62,000 gpd of unused appropriation (Table 3-3) system capacity is limited by the treatment plant production capacity (45,000 gpd) such that the system currently has no available capacity.

The well on the Green property experienced increased iron and manganese levels. In 2009 a crack in the well casing was discovered which allowed high iron content to enter the well. A temporary repair was made with insertion of an inflatable packer to seal off the affected area. Because the Green system operates on a single well, there is no back-up water supply for the schools, homes, businesses and industries served by this system, should the water production be interrupted[11].

Planned and Recommended Improvements

To resolve water quality and to meet the future water demand described above, the Town would need to replace the existing well and construct a new back up supply well.

The County is planning to serve the Keysers Ridge area by reallocating 50,000 gpd of annual water appropriation from the Grantsville system to a new water supply (Puzzley Run – west side of Negro Mountain). This would reduce demand from the Green supply by approximately 15,000 gpd (treating the Grantsville and Green systems as one for calculation purposes). See the discussion of Keysers Ridge below under the Youghiogheny River Watershed for more detail. Since the 50,000 gpd were previously allocated, they are not considered an increase in withdrawal for new development or uses.

[10] 70,000 gpd current average daily flow plus 99,966 gpd (Table 3-3)

[11] When the Green system was first developed, two wells were drilled. Water quality testing of the second well indicated high iron content. In addition, drawdown from well number 1 affected the supply and recharge of well number 2. Therefore well number 2 is not approved for alternate use for the Green system.

As part of a tentative agreement[12] to develop a well field in the Savage River State Forest (Puzzley Run – west side of Negro Mountain), the Town of Grantsville would decommission three of the five wells in the Town system (that are currently located in Savage River State Forest).

The County and the Town of Grantsville are working with State agencies to reconcile Grantsville's needs with State policies. Depending on the results, the town may need to identify another water supply – in addition to supply from Savage River Forest.

3.2.2.2 Other Systems

There are no other municipal or other publicly owned systems in the Casselman River watershed. Table 3-1 lists the private water systems (transient non-community and non- transient non-community).

3.2.3 Deep Creek Watershed

3.2.3.1 McHenry

Existing System

The unincorporated community of McHenry is the Deep Creek Lake area's focal point for visitor-oriented retail stores, restaurants, and entertainment. This area also has a concentration of community service facilities including a fire station, the county fairgrounds, visitor center, Garrett College and the Community Aquatic and Recreation Complex, and, north of McHenry, the County Public Safety Complex. Much of the projected residential and non-residential development in the Deep Creek Lake watershed will occur near, or will use the businesses and services located in McHenry.

A major present and future demand for water is created by the Wisp Resort, a Planned Residential Development (PRD) with an original approval for 2,500 total dwelling units[13], as well as commercial and recreational uses. Additional public water demand will be generated by development of White Face Farm, a 340 acre site that straddles the Bear Creek and Deep Creek watersheds near the Garrett County Airport. The County has developed a business technology park at this location and a portion of the site is being considered for housing, to be developed by Garrett County Community Action.

The McHenry water system comprises three separate but interconnected systems: Villages of Wisp; Gravelly Run; and the Willows. The system's combined appropriation permits allow for withdrawal of an average of 346,000 gpd. The average daily demand in 2012 was 166,100 gpd – approximately 956 ERUs (Table 3-3).

[12] The tentative agreement is between MD DNR, the Town of Grantsville and the County. This agreement would need to be concluded and formally approved by the three parties.

[13] Concept Plan approved by Planning Commission, September 19, 2005 2,301 acres with 2,500 residential units. See below for current status.

Overall, the McHenry water system consists of:

- Five groundwater wells in the Greenbrier and Mauch Chunk formations, with depths ranging from 75 to 402 feet;
- Three water treatment plants with a combined design capacity of 640,000 gpd;
- Four storage tanks; two 500,000 gallon concrete tanks (Wisp Mountain & Ridgeview Valley), one 250,000 gallon concrete tank (Airport), and one 50,000 gallon steel tank (Villages of Wisp).
- Approximately 30.4 linear miles of water distribution lines.

The County has other wells that are not currently used for water supply but that could potentially be a future water supply sources. Two wells are on Hoyes Run Road; a well report indicated good yield, approximately 300 gallons per minute without affecting a nearby stream with low flow. Another well is on Deep Creek Drive. The County obtained a 50,000 gpd appropriation permit in 2010 but the permit expired as the County did not build a treatment plant and put the well into service.

The County Sanitary District owns and operates the McHenry System.

Service Areas

The McHenry system serves areas on the west side of US 219 and around the northern end of Deep Creek Lake (Figure 3-5).

Villages of Wisp

The Wisp Resort started as a small private, commercial ski area in the mid 1950s. The Villages of Wisp water system began as a private community system serving the Villages of Wisp housing development. The water system was deeded to the Sanitary District in 1987 and the system was subsequently expanded in 1996-1997 to serve commercial properties in the McHenry area, which resulted in the initial McHenry water system.

The Wisp Resort PRD, which began development in 2005, is also served by the McHenry water system. The original PRD proposed 2,500 residential units, a golf course, lodge with restaurant and other amenities on approximately 2,300 acres of land. As of Fall 2013, the golf course has been constructed and a combination of 238 lots and dwelling units have been granted final approval. As of late2013, a request to remove over 346 acres of land together with a reduction of 277 units from the original PRD has been conditionally approved and would result in a reduced total of 1,985 dwelling units available for future development.

The Villages of Wisp water appropriation permit allows an average daily withdrawal of 200,000 gpd, while the water treatment plant has a design capacity of 432,000 gpd.

The Villages of Wisp system consists of:

- Two wells on Marsh Hill Road in the Greenbrier formations, at 309 and 375 feet.

- A water treatment plant located at 1038 Marsh Hill Road. The plant houses a chlorinating unit, various controls, wet wells, and two high head distribution pumps each with a capacity of 70 gallons per minute.
- Two storage tanks; one 500,000 gallons and one 50,000 gallons.

Gravelly Run

The Gravelly Run system was constructed in 2009 to serve an expansion of the McHenry service area that included Mosser Road, Gravelly Run Road and Deep Creek Drive on the east side of Deep Creek Lake.

The Gravelly Run water appropriation permit allows average daily withdrawal of 96,000 gpd, while the water treatment plant has a design capacity of 107,000 gpd.

The Gravelly Run system consists of:

- One well on Gravelly Run Road in the Mauch Chunk formation at 370 feet.
- One 500,000 gallon storage tank
- Treatment plant (chlorination) at 515 Gravelly Run Road
- Water transmission lines that link the Gravelly Run Road well with a water line at Garrett College (through the Ridgeview Valley and Sweet Rewards subdivisions). This "loop" line adds water pressure to the entire McHenry distribution system.

The Willows

The Willows is a condominium development on Deep Creek Drive with a community water system that was built by a developer and deeded to the Sanitary District in 1992. The County interconnected this system to the McHenry system in April 2013.

The Willows water appropriation permit allows an annual average daily withdrawal of 50,000 gpd. The water treatment plant has a design capacity of 101,000 gpd.

The Willows system consists of:

- Two wells on Deep Creek Drive in the Greenbrier formation, at 75 and 100 feet. The deeper well only is in active use.
- Treatment plant (chlorination) at 1601 Deep Creek Drive.

Service Area Expansions

In the upcoming 1 to 3 year period the County plans to expand the McHenry water system to the following areas:

- Shingle Camp Road, Sandy Beach and Stockslager Road areas (approximately 600 acres). This expansion will add approximately 164 new customers and 22,850 linear feet of water distribution line to the McHenry system,

- Between Bumble Bee Road and the Garrett County Airport.

In the upcoming 3 to 10 year period the County plans to expand the McHenry water system to several areas including:

- North of McHenry east of US 219 (Springwood Acres, AspenWoods East subdivisions); approximately 300 acres,
- West of Hoyes Run Road and south of Sang Run Road; (Red Brush and Red Oaks II subdivisions) approximately 70 acres,
- Infill areas along Gravelly Run Road and the Sunset Ridge subdivision,
- Southern portion of Deep Creek Drive (south of Point View Inn to the Deep Creek Bridge),
- Minor infill areas along Moors Hollow Road and Close Road.

Future planned service areas, beyond 10 years, include:

- Rock Lodge Road area; approximately 300-acres,
- East of US 219, north of Gravelly Run Road and west of the Ridgeview Valley subdivision,
- West of US 219 north and south of Sang Run Road,
- Hoyes Run Road south of the Red Brush and Red Oaks II subdivisions (Deep Creek Quarry/EPT property).

As areas currently served by private wells connect to the system, such wells will be decommissioned as potable water supplies.

Mandatory Connection

In October 2011 the Board of County Commissioners of Garrett County adopted Policy 2011-2 mandating connection to the McHenry Water System for all development within the McHenry water Service Area. The policy incorporates different connection and timing provisions for different types of property through 2021. (See Plan Appendix for Policy 2011-2).

Problem Areas and Future Needs

With an average daily flow of approximately 166,000 gpd the McHenry system has a current unused appropriation of approximately 180,000 gpd (Table 3-3). Projected additional demand through 2023 is approximately 270,000 gpd (see Table 3-3 Column N). While sufficient production and treatment capacity exist (see Table 3-3 columns F and G) the added demand would put the system above its permitted withdrawals (435,700 gpd total demand versus 346,000 permitted withdrawal) so that an increase in water appropriation before 2023 will be needed to accommodate this system growth.

The Villages of Wisp system wells on Marsh Hill Road are the most likely candidates for an increased appropriation given their good productivity and past history of appropriation increases.

In addition, as noted above, the County has two wells on Hoyes Run Road and a well on Deep Creek Drive that could potentially become water supply wells though this would require more lead time to build a water treatment plant and water transmission lines.

Planned and Recommended Improvements

Lines will be extended and other infrastructure added as need to bring the areas described above onto the system.

No other specific improvements are currently identified. None are listed on Table 3-6.

3.2.3.2 Thayerville[14]

Existing System

Thayerville is Deep Creek Lake's second largest business and commercial center, after McHenry, but had no public water service until Fall of 2013. The Thayerville system was created in response to petitions by residents and business owners in 2005 citing inadequate water quantity, concerns about water quality, and the complete loss of production in some residential wells. Arsenic had also been detected in some wells in the area, and a residential condominium development was notified by public health officials that its supply was under the direct influence of surface water.

DPW's hydrologist explored several sites for potential production wells and identified a possible source on property owned by Mountainside Home Owners Association at its Marina Club located along US 219. Between 2007 and 2008, DPW developed two wells on the site with adequate supply and good quality water. The Sanitary District created the Thayerville Water Service Area in June 2009. On September 1, 2010, the Maryland Department of the Environment issued a Water Appropriation Permit allowing an average daily withdrawal of 188,000 gpd. Operations began in Fall 2013.

In its initial phase the system is planned to serve approximately 560 ERUs. The system consists of:

- Two wells in the Greenbrier formation at depths of 216 feet (#1) and 240 feet (#2).
- Treatment plant (chlorination) with design capacity of 432,000 gpd
- Two water booster stations (100 gpm and 40 gpm)
- Two pre-cast post-tensioned concrete water storage tanks (1,013,150 gallons and 156,000 gallons)
- Approximately 8.2 miles of water line
- Valves, fire hydrants, and water meter assemblies and lateral connections

[14] The district is called the Mountainside-Thayerville water district on the water appropriation permit, but is referred to in this Plan simply as Thayerville.

The County Sanitary District owns and operates the Thayerville System.

Service Area

The service area includes properties located along US 219 in the vicinity of Thayerville beginning at Leo Friend Road near the US 219 Bridge, south to Glendale Road, Glendale Road from US 219 to the Glendale Bridge, and south along US 219 for approximately 0.6 miles from the intersection of Glendale Road and US 219 (Figure 3-6)

As areas currently served by private wells connect to the Thayerville system, these private wells will be decommissioned as potable water supplies[15] (see Table 3-1).

In the upcoming 3 to 10 year period the County plans to expand the Thayerville water system to several areas including:

- Along and south east of Lake Shore Drive, approximately 700-acres,
- South along US 219 to Sand Flat Road, approximately 470- acres

Future planned service areas, beyond 10 years, include

- South of Glendale Road west of the Glendale Bridge including Zeddock Miller Road and the Paradise Point subdivision[16],
- East of the Glendale Bridge to State Park Road, Glendale Road, Beckmans and Harveys peninsulas.

Problem Areas and Future Needs

The Thayerville system was designed to address existing water quantity and quality problems, and to serve existing and foreseeable needs. The current water appropriation (188,000 gpd) will be sufficient to meet demand from the projected additional service areas through 2023 (see Table 3-3 column N). However, the appropriation permit will need to be increased above the current 188,000 gpd between 2023 and 2033 to meet projected demand after 2023 (see Table 3-3 column P)[17].

3.2.3.3 Other Systems

There are no other municipal systems in the Deep Creek watershed. The only other publicly owned systems are those at Deep Creek Lake State Park that serve the camping area, day use area and visitor center (see Table 3-1). The Maryland Environmental Service (MES) operates these systems.

[15] The electronic version of Table 3-1 includes a list of the water systems that will be connecting to the Thayerville community system.

[16] This is an identified water problem area, see Table 3-4.

[17] During drilling for the current Thayerville production wells a single large water bearing horizon was penetrated near the mid section of the Greenbrier formation. Blown yields of 460 and 680 gpm were recorded.

Table 3-1 lists the private water systems (transient non-community and non- transient non-community) in the Deep Creek watershed.

3.2.4 Georges Creek Watershed

There are no municipal or other public water systems in the George's Creek watershed.

3.2.5 Little Youghiogheny River Watershed

Figure 3-7 provides an overview of water systems in the Little Youghiogheny River Watershed.

3.2.5.1 Deer Park

Existing System

Deer Park, located three miles east of Mountain Lake Park along MD 135, is an incorporated town with a 2010 population of 399. Deer Park is a historic community built in the late 1800s as a summer resort town. The 2008 Garrett County Comprehensive Plan identifies the MD Route 135 corridor between Mountain Lake Park and Deer Park as a growth area, with a potential mix of commercial and employment land use, as well as "town residential" development (density between four and eight dwellings per acre if public water and sewer is available). Provision of public water service in this corridor is consistent with the Comprehensive Plan.

The County Sanitary District constructed the Town's water system in 2004 using federal and state grants and local funds, and currently operates the system for the Town. Prior to 2004, residents used individual wells.

The system currently serves approximately 200 ERUs. The system's water appropriation permit allows withdrawal of up to 47,000 gpd. Average daily demand in 2012 was approximately 35,000 gpd (Table 3-3).

The Deer Park water system consists of:

- Two wells at depths of 302 and 442 feet in the Greenbrier formation on Decost Road near the foot of Backbone Mountain;
- A treatment plant (chlorination and iron removal) with design capacity of 115,000 gpd and production capacity of 96,000 gpd, located at 520 Decost Road;
- A 200,000 gallon concrete storage tank on the WTP site;
- Approximately 58,245 LF of water lines.

Service Areas

Figure 3-8 shows the existing service area and planned future extensions of the Deer Park water service area. The current service area includes most of the land within the incorporated town boundary south of MD 135, as well as some areas immediately adjacent to the Town such as along Calderwood Road and Boiling Springs Road.

In the upcoming 1 to 3 year period the County plans to expand the Deer Park water system to several “infill” areas within the Town as well as some immediately adjacent areas (Figure 3-8)

In the upcoming 3 to 10 year period the County plans to expand the system to the north east part of Town between Edgewood Drive and MD 135.

Future service areas (beyond 10 years) include a large area southwest of the Town from Broadford Road, along MD Route 135 to the Shady Acres area.

Problem Areas and Future Needs

Deer Park loses approximately 35 percent of its treated water through pinhole leaks in copper service lines. The highly acidic soils surrounding the water service lines are the causes of this deterioration, and the DPW is replacing the copper distribution system with PVC pipes on a case-by-case basis.

With an average daily flow of approximately 35,000 gpd the Deer Park system has a current unused appropriation of approximately 12,000 gpd (Table 3-3). Projected increased demand through 2023 from the expanded service areas is approximately 19,200 gpd (Table 3-3 cell N7) therefore an increased appropriation may be needed though approval cannot be guaranteed; see next section.

Planned and Recommended Improvements

Due to high iron levels, water treatment costs at Deer Park are four times more expensive than in Mountain Lake Park. The County is interested in interconnecting the Deer Park and the Mountain Lake Park/Loch Lynn Heights water systems through an extension of Mountain Lake Park/Loch Lynn Heights’ water service. Joining these systems would also create redundancy, and could create substantial cost savings. The Mountain Lake Park/Loch Lynn Heights system is projected to have excess water capacity through 2033 (see Table 3-3).

3.2.5.2 Mountain Lake Park/ Loch Lynn Heights

Existing System

Mountain Lake Park and Loch Lynn Heights are incorporated towns with 2010 populations of 2,092 and 552, respectively. The towns are primarily residential. Along with Oakland and Deer Park, the towns form a corridor along MD Route 135 with nearly continuous public water and sewer service. The Sanitary District owns and operates the unified public water system for Mountain Lake Park and Loch Lynn Heights.

Improvements to the system were completed in 2010 including replacement of some of the spring sources that were determined to be groundwater under the direct influence of surface water (GWUDI) with 4 new production wells, a water treatment plant and a new 500,000 gallon concrete storage tank.

The system currently serves approximately 1,200 ERUs. The system's water appropriation permit allows average annual withdrawal of 250,000 gpd. Average daily flow in 2012 was approximately 201,000 gpd (Table 3-3).

The water system, with the improvements completed in 2010, consists of:

- Four wells in the Hampshire, Rockwell, and Mauch Chunk formations (# 1, 2, 5 & 6A);
- Two springs (# 1 & 2);
- A water treatment plant (chlorination) with design and production capacity of 238,000 gpd (located at 451 Landon's Dam Road;
- A 500,000 gallon concrete storage tank on the WTP site. A second 360,000 gallon concrete storage tank is located at 1204 Pittsburgh Avenue in Mountain Lake Park.

A connection to the Oakland water system is located at the Pittsburgh Avenue tank site. This allows the County to purchase water from Oakland's system during low flow periods or emergency situations.

Service Areas

Figure 3-9 shows the existing service area of the Mountain Lake Park/Loch Lynn Heights water service area. The service area covers the entire incorporated area of the two towns plus a few areas outside the incorporated areas. Service is available to properties along the main water transmission line on Smouse Road south of Loch Lynn Heights.

No service area expansions are proposed in the 1 to 3 year period (W-2). In the upcoming 3 to 10 year period (W-3) the County plans to expand the system east of the Towns along MD Route 135 to the County office complex located at 2008 Maryland Highway. Two infill areas could also be served and are shown as W-3; along Weber Road south of MD 135, and along Madison Street south of Mary Drive.

In the future (W-FPS) the County plans to serve most of the remaining unserved area between Mountain Lake Park and Deer Park.

Problem Areas and Future Needs

With an average daily flow of approximately 201,000 gpd the Mountain Lake Park/Loch Lynn Heights system has a current unused production capacity of approximately 37,000 gpd (Table 3-3). Projected increase in demand through 2023 is approximately 15,200 gpd, therefore no increase in capacity will be needed. Supply needs can be addressed further by reducing water losses due to aging distribution lines; the Mountain Lake Park / Loch Lynn Heights water system currently loses approximately 40 percent of its treated water due to aging distribution infrastructure.

The County plans to interconnect of the Mountain Lake Park/Loch Lynn Heights and Deer Park water systems (see Deer Park, above); this extension would likely include provision of water service to the unserved portion of MD Route 135 corridor between the two towns.

The Town of Loch Lynn Heights notes the following issues:

- Water leaks at the intersections of: Bonnie Boulevard and Tallahassee Street; Lothian Street (MD 560) and Hoye Street; Alderson and Wyandott Streets; and Lothian and Loch Lynn Streets. These leaks can freeze in winter and create driving hazards.
- Low water pressure along Lothian Street (MD 560) requiring some residents to install booster pumps[18].
- Need for accurate mapping of water lines.

The Town of Mountain Lake Park notes an issue of low water pressure in the Southern Pines neighborhood (the Southern Pines Drive). After the new 500,000 gallon tank was placed at the water treatment plant in 2010, the issue seems to have been resolved.

Planned and Recommended Improvements

Efforts are ongoing to rehabilitate the system's water distribution lines to reduce system water loss. In October 2013, the County awarded a construction contract to replace four main water service lines (1,674 linear feet). DPW also repairs/replaces leaking distribution lines as they are located, and updates mapping of lines as part of each project.

Consider a water storage tank placed at the top of the hill above Loch Lynn Heights to address low water pressure along Lothian Street.

DPW has investigated the origin of the water leaking at intersections in Loch Lynn Heights and its source is uncertain. Further investigation is likely warranted.

3.2.5.3 Oakland (Town)

Existing System

Oakland is the County seat, with approximately 2,000 residents in 2010 and the largest commercial area in the county. The town has had a public water system since the early 1900s and continues to own and operate it. Oakland historically withdrew all of its water from the Youghiogheny River, but began shifting its withdrawals to Broadford Lake in 1973, when a 1.5 MGD treatment plant was completed. Today, Oakland withdraws most of its water from Broadford Lake.

The system currently serves approximately 2,200 ERUs. Oakland's water appropriation permits allows average annual withdrawals of 420,000 gpd from Broadford Lake and 170,000 gpd from

[18] DPW notes that low water pressure is not uncommon throughout the county. In areas where homes are located at a higher elevation in relation to the County's tanks, customers may need to purchase booster pumps if they desire additional pressure.

the Youghiogheny River, for a total allowable average withdrawal of 590,000 gpd. The system's average daily demand in 2012 was approximately 474,000 gpd (Table 3-3).

The Oakland water system consists of:

- An intake on the Youghiogheny River immediately upstream from the Little Youghiogheny confluence;
- An intake and pumping station on the southeastern shore of Broadford Lake;
- Two treatment plants on Water Plant Road (the Oakland Plant) and on Glass Drive with a combined design capacity of 2 MGD and a production capacity of 1.765 MGD. The plants provide chemical treatment for pH, taste and odor control, coagulation, flocculation, fluoridation, and chlorination disinfection;
- An 8-inch pressure main connection from the Broadford Lake pumping station to the treatment plant; and a 10-inch pressure main from the Youghiogheny River pump station to the Oakland Plant, which withdraws from the Youghiogheny River;
- One storage tank on Crooks Crest Road with storage capacity of 800,000 gallons. A small second storage tank (20,000 gallons) for backwash use only is at the WTP site at 301 Water Plant Road.

MDE prepared a Source Water Assessment for the Town of Oakland in 2004. A Source Water Assessment is a process for evaluating the vulnerability to contamination of the source of a public drinking water supply.

Service Areas

The Oakland water system serves the Town and several areas that are outside the Town's corporate boundaries. Figure 3-10 shows Oakland's existing service area and planned future expansions.

The existing service area includes:

- Most land within the Town's boundary.
- The area around Broadford Lake, including Broad Ford elementary school and Southern Middle School
- Southern Garrett Industrial Park and the Shady Acres area
- Southern Garrett Business and Technology Park.
- The Simon Pearce facility (formerly Bausch & Lomb).

The Town has an interconnection with Mountain Lake Park that allows the County to purchase water from Oakland's system during low flow periods or emergency situations (see above under Mountain Lake Park/ Loch Lynn Heights).

In the upcoming 3 to 10 year period the Town plans to expand the system to:

- An area between Dennett Road and East High Street,
- A small area near Southern Garrett High school,
- Area east of Broadford Lake,
- Area south west of the town boundary in the MD 39/Rosedale area. Residents have asked for Town services, and the Town will seek funding to provide service to these areas and to the Shaffer Hill area. Service to portions of this area would require an amendment to the County Comprehensive Plan as the area west of MD 39 is currently designated as Rural**.**
- Two areas west and one area east of US 219 north of Merrill Lane/ North 4th Street.

Future planned service areas, beyond 10 years, include:

- Approximately 700- acre area west of US 219 between the town boundary by N. 2nd Street, Oakland Sang Run Road, and the Lowes Store,
- Scattered "infill" areas north and south of Memorial Drive,
- Area south and east of South Third Street, to include the current Sears property and Pleasant Hills Estates area, connecting to U.S. 219 South. Service to this area would require an amendment to the County Comprehensive Plan as it is currently designated as Rural**.**

Problem Areas and Future Needs

With an average daily flow of approximately 473,000 gpd the Oakland system overall has a current unused appropriation of approximately 116,000 gpd (Table 3-3). Projected demand through 2033 is approximately 90,000 gpd therefore no increase in capacity will be needed.

While no capacity increase appears to be necessary, the average daily withdrawal from Broadford Lake (416,000 gpd) is approaching the current appropriation limit (420,000 gpd), and the Town may want or need to seek an increase to the current appropriation for the Broadford Lake water withdrawal permit.

Oakland has identified the following problem areas

1. Low water pressure. As the Oakland water system has expanded some parts of the system experienced insufficient water pressure. The system needs a second water storage tank to increase pressure.
2. The Oakland Intake Facility and Broadford and Oakland water plants do not have backup power sources in the event of a power failure.
3. The Town's aging system requires replacement of old lines (plastic and pit cast, some dating back to 1909) and upgrades to the water plants
4. The Town does not have system wide mapping of its water distribution system.

In addition to the water system rehabilitation needs identified above, the County has also identified water quality issues in two areas southwest of Oakland's corporate boundaries; the Rosedale and Shaffer Hill Road areas have high iron content in individual wells, and would benefit from connecting to public water service. Only a portion of these areas is currently in the Town Comprehensive Plan's future growth area. These areas are shown as W-3 service areas on Figure 3-10.

Planned and Recommended Improvements

This Plan recommends four projects for the Town of Oakland's water system (see also Table 3-8).

- A study to determine the best location and size for a new water storage tank, and subsequent construction of that tank, to address the water pressure issues described above.
- Purchase and installation of backup generators for the Broadford and Oakland (Youghiogheny) Water Plants and the Oakland (Youghiogheny) Intake Facility. The project is vital to ensure uninterrupted water service during power outages.
- Digital mapping of the water distribution system. This project will enable the Town to operate and especially maintain and repair its system much more efficiently.
- The Town continues to pursue system-wide repairs and rehabilitation. This includes, but is not limited to, replacement of old water lines (some of which are 50-75 years old or are galvanized), upgrades at the water plants, including replacement of valves, pumps, and motors (some of which are over 100 years old). These changes will improve the quality of the water, help reduce system water loss, and improve system energy consumption.

  A proposed 2014 upgrade project would upgrade pressure and volume service to the following areas: Frazee Estates; Winter's Development/Highland Estates; South Third Street; Country Club Acres; and Second Street (see Table 3-6).

3.2.5.4 Other Systems

There are no other municipal or other publicly owned systems in the Little Youghiogheny River watershed. Table 3-1 lists the private water systems (transient non-community and non- transient non-community).

3.2.6 North Branch Potomac River Watershed

3.2.6.1 Bloomington

Existing System

Bloomington is a small, unincorporated community located on the Potomac River North Branch, along Garrett County's eastern boundary with Allegany County. The 2008 Comprehensive Plan designates Bloomington as a rural village.

The Bloomington water system was constructed in 1982 by the Bloomington Improvement Association, Inc. – a group of residents who desired a community water system. Water was withdrawn from the Savage River below Aaron Run. Because of operational problems and poor water quality, in 1991 the Association turned the water system over to the Garrett County Sanitary District which now owns and operates the system. The Sanitary District determined the source of the poor water quality and in 1992 relocated the intake structure above Aaron Run.

The system currently serves approximately 140 ERUs. The system's water appropriation permit allows withdrawal of up to 43,000 gpd. Average daily demand in 2012 was approximately 28,000 gpd (Table 3-3).

The Bloomington water system consists of:

- Intake structure on the Savage River just upstream of Aaron Run
- Transmission line (6-inch) to the water treatment plant
- Water treatment plant at 1227 Bloomington Hill Road with design capacity of 60,000 gpd and production capacity of 38,000 gpd. Treatment includes a slow sand filter, chemical, flocculation, sedimentation, filtration and disinfection
- 14,700 LF of distribution lines (4- and 6-inch)
- Water boosting station with capacity of approximately 30 gpm
- Water storage capacity of 120,000 gallons, two 60,000 gallon steel tanks located beside the WTP.

Service Areas

Figure 3-11 shows the existing service area of the Bloomington water service area. No service extensions are planned before 2023. Future planned service areas, beyond 10 years, include areas west of the existing service area, between MD 135 and Bloomington Hill Road.

Problem Areas and Future Needs

With an average daily flow of 28,000 gpd, the Bloomington system has a current unused production capacity of approximately 10,000 gpd (Table 3-3). The projected increase in demand through 2033 is approximately 3,000 gpd therefore no increase in capacity will be needed.

MDE completed a comprehensive performance evaluation of the Bloomington system in June 2012 and found deficiencies with the current plant. The evaluation found that components in the water treatment plant and the two water storage tanks need to be replaced due to deterioration.

Planned and Recommended Improvements

As an alternative to replacement/upgrade of the water treatment plant the County has been assessing the feasibility of connecting the Bloomington system with Town of Westernport in Allegany County. The Town of Westernport's system is operated by the Town and serves a

population of approximately 2,100[19]. The Town of Westernport's water source is the Savage River Reservoir in Garrett County. The Allegany County Water and Sewerage Plan includes a project to extend water to the Town of Luke, immediately east of Bloomington. Garrett County's project would be to extend this line west to provide finished water to Bloomington.

To address Bloomington's water treatment plant's deficiencies, Garrett County currently views interconnection with Westernport as a better solution compared to replacing the existing Bloomington water treatment plant. However, the two water storage tanks on Bloomington's existing WTP site will still need to be replaced in the near future.

In January 2013 Garrett County submitted a capital project financial assistance application to MDE i) to replace the existing Bloomington water storage tanks with a new 100,000 gallon concrete storage tank and ii) for a line extension to connect to the Westernport water supply system (see Table 3-6). The project would consist of boring under the Savage River and then running approximately 6,000 feet of 6" water line along Rt. 135 and connecting into the Westernport water supply. The Town of Westernport submitted its own financial assistance application in January 2013 that included extension to Luke and inter-connection with Bloomington.

3.2.6.2 Gorman

Existing System

Gorman is a small, unincorporated community along the North Branch Potomac River, at the intersection of MD 560 and US 50. The community developed as a component of three mining communities that were settled along the Western Maryland Railroad (the other two communities were in West Virginia). The 2008 Comprehensive Plan designates Gorman as a rural village.

The Gorman water system was originally built in 1982 to serve approximately 55 homes and businesses. The water source for the system was in West Virginia, but in 1996-97 the Sanitary District developed its own well water supply for the system. The service area included the community of Gorman and properties along US 50 westward from the river to the Wilson-Corona Road intersection.

In 2003 a water line was extended along Wilson Corona Road (to approximately 35 customers) due to problems with private water supplies.

In 2007 a water line was extended along Table Rock Road and a portion of Fairview Church Road to serve approximately 26 residences in the area that experienced a reduction and/or loss of water supply due to deep mining activity. The extension consisted of approximately 25,000 linear feet of 6-inch water line with fire protection. Sizing of the extension also allows for future connections along Table Rock Road and Fairview Church Road and further expansion of the system to serve the remaining portion of Fairview Church and Wilson Corona Roads to the

[19] Allegany County Water and Sewerage Plan, November 2012.

current termination of the water system on Wilson Corona Road. Financing of the project was provided by Mettiki Coal, LLC and a MDE grant.

The system currently serves approximately 146 ERUs. The system's water appropriation permit allows withdrawal of up to 40,500 gpd. Average daily demand in 2012 was approximately 35,000 gpd (Table 3-3).

The Gorman water system consists of:

- Water from two wells in the Greenbrier and Mauch Chunk formations at depths of 205 and 224 feet located on Mountain Road.
- Approximately 55,700 linear feet of 4- and 6-inch transmission and distribution lines.
- A treatment plant (chlorination) with design and production capacity of 58,000 gpd located at 4683 George Washington Highway.
- 100,000 gallon concrete ground water storage tank located beside the water treatment plant

Service Areas

Figure 3-12 shows the existing Gorman water service area. The service area is large relative to the local population as it was established to serve homes north and west of the village of Gorman to address water sources impacted by deep mining activity.

No service extensions are planned before 2023. Future planned service areas, beyond 10 years, include "infill" areas within and south of the service area boundaries.

Problem Areas and Future Needs

With an average daily flow of 35,000 gpd, the Gorman system has a current unused capacity of 5,500 gpd (Table 3-3). The projected demand through 2023 is approximately 1,300 gpd therefore no increase in capacity will be needed. However the projected additional demand through 2033 is approximately 17,000 gpd for a total demand of approximately 51,700 gpd. While sufficient production and treatment capacity exist (see Table 3-3 columns F and G) the added demand would put the system above its permitted withdrawals so that an increase in water appropriation, alternate water supply or large reduction in water use after 2023 will be needed to accommodate this system growth.

The original water transmission line constructed in 1982 along US 50 is deteriorating and needs to be replaced.

Planned and Recommended Improvements

Replace the deteriorating water transmission line from Gorman west along US 50. A funding request to MDE for this project is anticipated in 2014.

3.2.6.3 Kitzmiller (Town), Shallmar, Pee Wee Hill

Existing System

Kitzmiller is a small incorporated town on the banks of the North Branch Potomac River where MD 38 crosses the river into West Virginia. Kitzmiller's population in 2010 was 321. The Kitzmiller water system was built in 1985 by the Garrett County Sanitary District with water supplied from an impoundment on Wolf Den Run. The impoundment experienced problems with accumulation of sediment and debris and is no longer used. A single well now serves as the Town's water source. This well naturally produces an average of 0.80 mg/l of fluoride.

The water system also serves the unincorporated village of Shallmar located south of Kitzmiller with a system extension originally built in 1987.

Another extension of the Kitzmiller system serves the small community of Pee Wee Hill north of Kitzmiller. A study investigation of private wells in the area indicated quantity issues including minimal flow, slow recovery and insufficient supply during dry weather conditions along with poor water quality due to previous mining activity. The water project completed in 2012 included approximately 13,582 linear feet of main water line with fire protection, a water booster station and a 105,000 gallon steel glass-lined water storage tank.

The system currently serves approximately 230 ERUs. The appropriation permit allows an average daily withdrawal of 42,000 gpd. Average daily water use in 2012 was approximately 25,500 gpd (Table 3-3).

The water system consists of:

- One well in the Allegheny / Pottsville formations.
- For Kitzmiller: 3,000 LF of 4-inch transmission line, 11,400 LF of 6-inch distribution line and 4,400 LF of 4-inch and smaller distribution line. For Shallmar: A 7,000 LF, 6-inch waterline extension. For Pee Wee Hill: 2,737 LF of 8-inch, 8,788 LF of 6-inch, 20 LF of 4-inch, and 2,037 LF of 2-inch water line.
- A water treatment plant (micro-flocculation, settling, carbon filtration, spent washwater filtration and chlorine disinfection) with design and production capacity of 104,000 gpd. The water treatment plant is located at 4285 North Hill Road.
- Storage tanks: Kitzmiller, a 140,000 gallon steel tank located on Oak Street; Shallmar, a 65,000 gallon steel tank located on North Hill Road; and Pee Wee Hill, a 105,000 gallon steel storage tank located off Pee Wee Hill Road.

Service Areas

Figure 3-13 shows the existing service area of the Kitzmiller water service area.

In the upcoming 3 to 10 year period, the County plans to expand water service to a small area south of MD 38 and an area north of MD 38.

Problem Areas and Future Needs

With an average daily flow of 25,500 gpd the Kitzmiller system has a current unused capacity of 16,500 gpd (Table 3-3). The projected additional demand through 2030 is approximately 2,800 gpd therefore no increase in capacity will be needed.

The Kitzmiller impoundment on Wolf Den Run is no longer useable as a backup water supply for the single water supply well. A second back up well is needed.

Planned and Recommended Improvements

Garrett County is undertaking a project with the Abandoned Mine Lands Division (AMLD) of MDE's Land Management Administration to help fund construction of a second production well in conjunction with the water line extension to the Pee Wee Hill area. The AMLD anticipates providing approximately $22,950 toward the cost of the new well in FY 2014-2015. The total estimated cost of the new well is $77,000. The balance of the project cost will be provided by the County (see Table 3-6).

3.2.6.4 Other Systems

There are no other municipal systems in the North Branch Potomac River watershed. The only other publicly owned system is at Backbone Mountain Boys Camp. The Maryland Environmental Service (MES) operates this system. (see Table 3-1).

Table 3-1 lists the private water systems (transient non-community and non- transient non-community) in the North Branch Potomac River watershed.

3.2.7 Savage River Watershed

There are no municipal water systems in the Savage River Watershed.

The MES operates three water systems in the watershed; the Meadow Mountain Boys Camp, Savage Mountain Boys Camp, and at the cabins and camping area at New Germany State Park. Garrett County Public Schools operates a non-transient non-community water system at the Route 40 Elementary School. Table 3-1 provides detail about these systems as well as about the private water systems in the Savage River watershed.

3.2.8 Youghiogheny River Watershed

3.2.8.1 Crellin

Existing System

Crellin is an old mining community located approximately four miles southwest of Oakland on MD 39. The 2008 Comprehensive Plan designates Crellin as a rural village.

Crellin's water system was built in the 1970s when the activities of a surface mining company in the area threatened the springs that were the community's water supply. The mining company provided the well and treatment facility. The system was taken over by the Crellin Improvement

Association, an organization comprised of the system users, when the mining company sold its interest. Several improvements and expansions to the system were made in the 1980s and 1990s. The Association turned the system over to the Garrett County Sanitary District in 2001. In 2007 a second well was added as a back-up source. In 2008/2009 the water treatment plant was upgraded with new iron removal equipment, a chlorine contact tank and electrical upgrades to enhance water quality .

The system currently serves approximately 70 ERUs. The current appropriation permit allows an average daily withdrawal of 30,000 gpd. Average daily water use in 2012 was approximately 15,000 gpd (Table 3-3).

The Crellin water system consists of:

- Two groundwater wells in the Allegheny/Pottsville formation, at depths of approximately 220 feet.
- A treatment plant (chlorination and iron removal) with design and production capacity of 28,000 gpd.
- A 40,000 gallon concrete storage tank located along MD 39.
- Approximately 11,325 LF of water line.

Service Areas

Figure 3-14 shows the existing Crellin water service area.

In the upcoming 1 to 3 year period the County plans to expand water service to four areas: east side of MD 39 south of the water storage tank, west of MD 39 south of Ashby-Ellis Road, and two areas west of Crellin Mine Road.

In the upcoming 3 to 10 year period, the County plans to expand water service along MD 39 north towards Gank Road and south towards and south of Ashby-Ellis Road.

Problem Areas and Future Needs

With an average daily flow of 15,000 gpd the Crellin system has a current unused capacity of 13,000 gpd (Table 3-3). The projected additional demand through 2023 is approximately 10,700 gpd. While no increase in capacity will be needed to meet this demand the County should carefully monitor water flow because the new total demand (25,754 gpd) will be within 80 percent of the treatment plant's production capacity (see Table 3-1 cell N6)[20].

Note that projected flow is based on water use of 262.5 gpd (See Chapter 1). If the flow from the new service areas maintains the existing average flow per ERU of 211 gpd in Crellin (Table 3-3 cell E6), the demand would be less than 80 percent of the treatment plant's production capacity.

[20] Table 3-3 includes the 80% analysis as an indication of potential capacity issues for the County to monitor and plan to address. The 80% figure is drawn from MDE's capacity management planning methodology.

Planned and Recommended Improvements

None, except to monitor water flow per previous section and reduce water use where possible.

3.2.8.2 Friendsville

Existing System

Friendsville is an incorporated town in northwest Garrett County, located on the Youghiogheny River and on both sides of I-68. The Town's population in 2010 was 491.

In 1974, the Town of Friendsville purchased the holdings of the City Water Company, a privately owned utility which formerly supplied water to Friendsville. The system had water quality and quantity problems. In 1976 a completely new water system was placed in operation. This system was rehabilitated in the early 1990s. In 1996, the town turned the system over to the Sanitary District which now owns and operates it.

The system currently serves approximately 235 ERUs. The Town's current appropriation permit allows an average daily withdrawal of up to 73,000 gpd. Average daily water use in 2012 was approximately 65,000 gpd (Table 3-3).

The Friendsville water system consists of:

- Intake structure on the Youghiogheny River.
- A treatment plant (sand filter) located at 849 First Avenue with design and production capacity of 120,000 gpd.
- A 322,000 gallon steel water storage tank located off of Ross Avenue.
- Water distribution lines.

Service Areas

Figure 3-15 shows the existing service area of the Friendsville water service area. No service area expansions are currently planned.

Problem Areas and Future Needs

With an average daily flow of 65,000 gpd, the Friendsville system has a current unused capacity of 8,000 gpd (Table 3-3). The projected demand through 2023 is approximately 1,800 gpd therefore no increase in capacity will be needed. However, projected new demand through 2033 (65,000 gpd plus 10,648 gpd) will exceed the current appropriation of 73,000 gpd so that an increased appropriation from the Youghiogheny River or from groundwater sources may be needed and increased appropriations cannot be guaranteed. Compared to other systems in the County, Friendsville's flow of 65,000 gpd is high for its number of ERUs. Until April 2013, approximately 26,000 gpd of finished water was used in the wastewater treatment process. This use has been discontinued therefore the reduction will be reflected in the average daily flow in future years. High flows may also be attributable to leaks in the system which are common due to the hard river rock in the local soils. Historically these leaks have been difficult to locate.

Planned and Recommended Improvements

Continue to investigate and repair water leaks and monitor demand.

Complete repairs on the two water filtration units (bottoms of the units are leaking due to deterioration).

Investigate replacement of the insulation on the water line on the Maple Street bridge.

3.2.8.3 Keysers Ridge

Problem Areas and Future Needs

As described above, Grantsville supplies water for the Keysers Ridge area, including the Keysers Ridge Business Park, and south along US 219 to the Northern Middle/High School complex through the Green water system. The County owns the distribution system that provides water to these areas. As further described above, the Green water supply well has experienced increased iron levels that is being addressed in an interim manner through an inflatable packer[21], there is no back up or alternate water supply well, and the water treatment plant is at the maximum of its production capacity.

The existing Keysers Ridge distribution system area needs improvement for flow and pressure equalization, and to satisfy fire flow protection requirements for the Keysers Ridge Business Park and interchange area. Therefore a new 200,000 gallon steel glass-lined water storage tank is currently being designed. The new tank will be constructed on a 0.62 acre site west of the Keysers Ridge interchange along US 219. Construction of the tank is anticipated to commence in the spring of 2014.

Planned System

To meet existing and future needs in this area the County is seeking to reallocate 50,000 gpd of annual water appropriation from the Grantsville system to develop a new public water supply using wells on DNR-owned land near Puzzley Run. Since the 50,000 gpd were previously allocated, they are not considered an increase in withdrawal for new development or uses. Test wells in this area have revealed the presence of sustained, good-quality water, with no impact to existing private water supplies. The County envisions a two-well field, with a potential third well to provide an alternate source. In exchange for authorization to develop this well field, the Town of Grantsville has tentatively agreed to decommission three of its wells within the Savage River State Forest[22].

Puzzley Run is a Tier II water (high water quality) and is subject to the state's anti-degradation policy – see Chapter 2, section 2.2. Under that policy the County has been conducting

[21] See description above in Section 3.2.2.1.

[22] As noted in Section 3.2.2, this is part of a tentative agreement between MD DNR, the Town of Grantsville and the County, that would need to be concluded and formally approved by the three parties.

monitoring tests to ensure that water withdrawals would not negatively impact the stream or the watershed.

Garrett County has purchased a 6.7 acre site along US 40 for construction of a proposed water treatment plant and to secure access to the well field. The estimated cost for developing the water source, including access, roads, electric service, piping and treatment is approximately $1.44 million.

Planned Service Area, Recommended Improvements

In addition to the areas served by the Green water system, the new Keysers Ridge water service area is anticipated to serve the following areas (see Figure 3-16):

- The area south of the I-68/US 40/US 219 interchange, west of Keysers Ridge Business Park. The 2008 Comprehensive Plan designates this area for commercial development (see Figure 2-10). Estimated demand: 78,000 gpd.
- Extension west of Keysers Ridge along US 40 north to the Pennsylvania line (to the Appalachian Village and Hemlock Acres subdivisions) to meet health concerns; residents' ground water supplies are influenced by salt and produce limited production quantity. Estimated demand: 75,000 gpd.

Creating an alternate water supply to serve Keysers Ridge and nearby areas is the County's highest priority in public water system projects.

3.2.8.4 Other Systems

The MES operates two water systems in the Youghiogheny River watershed at Herrington Manor and at Swallow Falls State Parks. Garrett County Public Schools operates a non-transient non-community water system at the Swan Meadow Elementary School. Table 3-1 provides detail about these systems as well as about the private water systems in the Youghiogheny River watershed.

The water systems at Herrington Manor and at Swallow Falls State Parks are approaching the end of their useful lives. MES anticipates requesting funding for upgrades to both facilities within the two to five year planning period.

3.3 Existing Sources of Pollution or Contamination

Groundwater in Garrett County is subject to several types of pollution or contamination that have implications for water supplies. These have resulted in extensions of public water for provision of safe drinking water in some communities.

Salt

Some homes and businesses in the north part of the County have experienced high amounts of salt in their groundwater. This has occurred generally in areas close to I-68 and U.S. Route

40/National Pike. Areas / subdivisions affected included Appalachian Village, Keysers Ridge, Keysers Ridge Estates, Chestnut Ridge, and Finzel.

Occurrences peaked in the 1980s and Maryland State Highway Administration salt storage facilities were implicated. Finzel was severely affected but the issues there appear to have been resolved. Occurrences are fewer today but may still happen sporadically. Upon receipt of a claim, the SHA will investigate and, depending on the cause, undertake corrective action (including, if warranted, drilling a new or deeper well), provide a water treatment system or otherwise settle the claim.

Connection to a community water system can eliminate this issue. In the Keysers Ridge area the County extended public water via the Green System to some properties with high salt levels south along US 219. Concern for properties further west to the Pennsylvania border would be addressed through the County's proposed Puzzley Run (Keysers Ridge) water supply system. Section 3.2.2 describes the Town of Grantsville's future service extension east to Chestnut Ridge.

On-Site Septic Systems

Several areas in the Deep Creek Watershed are prone to problems with fecal contamination in well water due to older on-site septic systems that are failing and/or do not meet current standards. Areas with known problems include Sky Valley, Loch Glade Road, Northglade Hills/Northglade Cove, Clark Lohr, and Paradise Point subdivisions.

These subdivisions have undeveloped lots. New homes on these lots will potentially need to deal with contaminated groundwater. The Garrett County Health Department, Environmental Health Services can require that new wells in these areas include an individual water treatment system. A full treatment system may include ultraviolet light, chlorination and one-micron filtration, as well as an automatic water shut-off if the UV light is below a certain intensity. Once a system is installed, the property owner is responsible to ensure that the treatment system is maintained.

The County proposes water service area expansions to extend the Thayerville Water Service Area to provide public service to Paradise Point.

The County proposes service area expansions to extend the Deep Creek Lake Sewerage Service Area to provide public service to the other problem areas (see Section 4.1.3).

High Concentrations of Iron and other Minerals

Several areas in Garrett County have groundwater with high mineral concentrations. High concentrations of manganese and iron are widespread and high concentrations of arsenic occur. Elevated manganese and iron levels affects taste and color, create odors, stain plumbing fixtures and laundry, and create deposits in pipes.

Some community water systems treat their water supplies for iron including Crellin, Deer Park and Grantsville.

The groundwater in areas along US 219 in the vicinity of Deep Creek Lake and including Mayhew Inn Road, Glendale Road and Lakeshore Drive contains high concentrations of iron. The new Thayerville water system will bring some of these areas onto a community system with low iron content.

Arsenic has been detected at levels that exceed national maximum contamination level (MCL) drinking water standards and all new wells in the County are tested for arsenic[23]. One of the Town of Accident's two community supply wells exceeded the MCL. A new well meeting the MCL was drilled and tested in the Spring of 2013.

Residents in the community of Finzel depend on wells in the Hampshire and Pocono formations for their water supplies. The quality of ground water in this area is poor, with high concentrations of iron and other minerals, necessitating residents to install water conditioners in order to use well water.

Low pH, acid mine drainage

A number of areas in the County experienced contamination of individual water supply wells as a result of former mining activities. Working with MDE's Abandoned Mine Lands Division Section since the 1970s, many of these issues have been resolved. In some cases, such as PeeWee Hill near Kitzmiller, resolution has included connecting areas to a community system.

Issues continue to periodically arise and are reviewed and addressed on a case by case basis.

Storm Drainage Outfalls and Non-Point Sources

Garrett County has a small number of problems with storm drainage outfalls and other non-point sources. These affect the Oakland, Trout Run, Deep Creek, Friendsville, Mountain Lake Park/ Loch Lynn Heights, and Grantsville service areas (see Table 3-7).

[23] The standard was established in 2001 at 10 parts per billion (ppb) and replaced the old standard of 50 ppb.

Tables

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	**Table 3-1 (COMAR Table No. 6)**														
2	**Inventory of Existing Water Treatment Facilities**														
3	**Facility Name**	**System Type 1 (MDE/EPA) Community, Non-transient non-community, Transient-non-community. See Notes for definitions**	**System Type 2 Municipal, Other Public, or Private See Notes for definitions**	**Water Source (see Table 4 for well data)**	**Watershed**	**Type of Treatment**	**Water System ID #**	**Plant Location (lat long)**	**Location description**	**Treatment Plant Design Capacity (gpd)**	**Average Daily Flow (gpd). Last quarter 2012 unless noted in comments.**	**Maximum Peak Flow (gpd) (Treatment plant production capacity)**	**Storage Capacity (Gallons)**	**Operating Agency**	**Groundwater Appropriation Number**
4	Accident	Community	Municipal	Well	Bear Creek	Chlorination and soda ash treatment for pH	MD0110001	39.6248016, -79.3206024	219 South Main Street	110,000	30,000	80,000			
5	Accident	Community	Municipal	Well	Bear Creek				Fratz Street					Dept of Public Works	
6	Bloomington	Community	Municipal	Savage River	North Branch Potomac River	Slow sand filter, chemical, flocculation, sedimentation, filtration and disinfection	MD0110002	39.4776001, -79.0798035	1227 Bloomington Hill Road	60,000	28,000	38,000	120,000	Dept of Public Works	GA1979S014
7	Crellin	Community	Municipal	Wells	Youghiogheny River	Chlorination and iron removal (green sand filter)	MD0110003	39.3851013, -79.4749985	620 Crellin Mine Road, Crellin	28,000	15,000	28,000	40,000	Dept of Public Works	GA1979G004
8	Deer Park	Community	Municipal	Wells	Little Youghiogheny River	Chlorination, iron removal (filtration), fluoridation	MD0110021	39.4104004, -79.2953033	520 Decost Road	115,000	35,000	96,000	200,000	Dept of Public Works	GA2000G009
9	Friendsville	Community	Municipal	Youghiogheny River	Youghiogheny River	Sand filter, chemical, flocculation, sedimentation, filtration and disinfection	MD0110004	39.6671982, -79.4059982	849 First Avenue	120,000	65,000	120,000	322000	Dept of Public Works	GA1974S009
10	Gorman	Community	Municipal	Wells	North Branch Potomac River	Chlorination	MD0110012	39.3031998, -79.4141998	4683 George Washington Highway	58,000	35,000	58000	100,000	Dept of Public Works	GA1996G003
11	Grantsville	Community	Municipal	Springs and wells	Casselman River	Chlorination and filtration. Iron and manganese removal	MD0110005	39.703027,-79.19692	7593 National Pike, Grantsville	100,000	70,000	75,000	100,000	Town	GA1979G011
12	Grantsville Green Supply		Municipal	Well	Casselman River	Chlorination, iron and manganese sequestering	MD0110005	39.703951,-79.214258	6318 National Pike, Grantsville	400,000	50,000	45,000	400,000	Town	GA2000G002
13	Kitzmiller/ Shallmar/Pee Wee Hill	Community	Municipal	Well	North Branch Potomac River	Chlorination	MD0110013	39.3925018, -79.1984024	4285 North Hill Road	104,000	25,500	104,000	310,000	Dept of Public Works	GA1998G008
14	McHenry	Community					MD1111096				166,100		1,300,000		
15	McHenry (Villages of Wisp)		Municipal	Wells	Deep Creek	Chlorination		39.5472984, -79.3597031	1038 Marsh Hill Road, McHenry	432,000	see systemwide number	432,000		Dept of Public Works	GA1986G001
16	McHenry (Gravelly Run)		Municipal	Wells	Deep Creek	Chlorination		39.5430984, -79.3414993	515 Gravelly Run Road, McHenry	107,000	see systemwide number	107,000		Dept of Public Works	GA2005G007
17	McHenry (formerly The Willows)		Municipal	Wells	Deep Creek	Chlorination		39.551078, -79.351657	1601 Deep Creek Drive, McHenry	101,000	see systemwide number	101,000		Dept of Public Works	GA1988G001
18	Mountain Lake Park / Loch Lynn Heights, Towns	Community	Municipal	Springs and wells	Little Youghiogheny	Chlorination, fluoridated, and soda ash for pH	MD0110007	39.3665009, -79.3583984	451 Landon's Dam Road	238,000	201,000	238,000	860,000	Dept of Public Works	GA1979G007
19	Oakland, Town		Municipal	Broadford Lake	Little Youghiogheny	Chlorination	MD0110008	39.4098015, -79.3671036	650 Glass Drive, Oakland	1,500,000	416,000	1,300,000	800,000	Town of Oakland	GA1971S009
20	Oakland, Town	Community	Municipal	Youghiogheny River	Youghiogheny	Chlorination		39.4189987, -79.4122009	301 Water Plant Road, Oakland	500,000	57,500	465,000		Town of Oakland	GA1963S001
21	Thayerville	Community	Municipal	Wells (one mechanical back up)	Deep Creek	Chlorination	To be assigned	39.514565, -79.323972	20300 Garrett Highway, Oakland	432,000	Operation to begin 2013		1,169,150	Dept of Public Works	GA2007G020
22	Backbone Mountain Boys Camp	Community	Public, other	Wells	North Branch Potomac	Iron Removal, Chlorination	MD0110204	39.470831,-79.169361	5 miles west of Luke, Maryland, off of State Route 135.	12,000	4,453	28,800	8,000	MES	
23	Meadow Mountain Boys Camp	Community	Public, other	Wells	Savage	Chlorination	MD0110230	39.572317,-79.19425	Approximately 2 miles east of State Route 495 on New Germany Road.	4,000	4,577	10,000	12,000	MES	
24	Savage Mountain Boys Camp	Community	Public, other	Wells	Savage	Iron Removal chlorination	MD0110227	39.593569,-79.022953	Lonaconong-Avilton Road, approximately 5 miles west of the Town of Lonaconong	21,600	2,851	54,000	6,000	MES	
25	Meadow Park Mobile Subdivision	Community	Private	Wells	Bear Creek		MD0110231	39.613292,-79.332106	Accident					Owner	
26	White Oak Mobile Home Park	Community	Private	Wells	Little Youghiogheny	Chlorination	MD0110225	39.439333,-79.281739	S end of Rt 495	40,000			1,000	Owner	
27	Cherry Hill Assisted Living	Non-transient non-community	Private		Bear Creek		MD1110025	39.597294,-79.305481	Aiken-Miller Rd						
28	Clayburn, Inc.	Non-transient non-community	Private		Casselman		MD1110003	39.656631,-79.180944	Rt 495 N of Jennings						
29	Glotfelty Enterprises	Non-transient non-community	Private		Youghioghenny		MD1110023	39.437825,-79.381675	Rt 219 N of Oakland						
30	Mettiki Coal Corporation - Office	Non-transient non-community	Private	Springs, headwaters of North Fork Sand Run	North Branch Potomac	Filtration, iron removal, UV	MD1110004	39.262111,-79.428881	Table Rock Rd	28,000	6,000	6,000	5,000	Owner	
31	Pilot Travel Center & Arby's Restaurant	Non-transient non-community	Private		Casselman		MD1110028	39.692208,-79.100136	Chestnut Ridge Rd & Rt 40						
32	Rigid Ply Rafters	Non-transient non-community	Private	Wells	Little Youghiogheny	Iron Removal, Chlorination	MD1110021	39.361644,-79.404714	Paul Friend Rd					Dept of Public Works	

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33	Route 40 Elementary School	Non-transient non-community	Public, other		Savage		MD1110009	39.686719,-79.010597	Rt 40 Longstreach					Garrett County Public Schools	
34	Swan Meadow Elementary School	Non-transient non-community	Public, other		Youghioghenny		MD1110011	39.349456,-79.433828	Rt 219 S of Oakland					Garrett County Public Schools	
35	Annies Kitchen	Transient non-community	Private		Bear Creek		MD1111030	39.621322,-79.325011	Accident		500	800			GA1985G013
36	Black Bear Tavern	Transient non-community	Private		Deep Creek		MD1111120	39.549886,-79.351261	McHenry		2,500	4,000			GA1990G014
37	Brenneman's Store	Transient non-community	Private		Casselman		MD1111131	39.589847,-79.231944	Bittinger		40	50			UNKNOWN1
38	Bulls Restaurant	Transient non-community	Private		North Branch or Savage		MD1111011	39.493497,-79.143542	Rt 135 Bever Flats		600	1,000			GA1971G009
39	Camp Sonrise Mt	Transient non-community	Private		Youghioghenny		MD1111016	39.720953,-79.433466	490 Caney Valley Road						GA1979G005
40	Carmel Cove	Transient non-community	Private (Garrett County owns this system)	Wells	Deep Creek	Chlorination	MD1111144	39.512933, -79.291058	15 Carmel Lane		5,000	8,000	10,000	Dept of Public Works	GA1989G011
41	Center For Adventure And Outdoor Studies	Transient non-community	Private		Deep Creek		MD1110001	39.562264,-79.338172	Garrett College						GA1970G009
42	China Wok/ Genus Center Building	Transient non-community	Private		Youghioghenny		MD1111154	39.426894,-79.391211	Oakland		1,000	1,500			GA1987G015
43	Cindy's Place	Transient non-community	Private		Casselman or Savage		MD1111019	39.696333,-78.955314	Finzel		500	1,000			UNKNOWN1 or GA1984G008
44	Comfort Inn, Grantsville	Transient non-community	Private				MD1111036	39.688175,-79.106747	I-68 & Chestnutridge Rd		15,000	20,000		Owner	GA1977G007
45	Deep Creek Pizza	Transient non-community	Private		Deep Creek		MD1111125	39.560983,-79.354442	McHenry		300	500			GA1987G003 or GA1987G005
46	Dental Health Group	Transient non-community	Private		Youghioghenny		MD1111167	39.458333,-79.370494	Near Oakland						UNKNOWN1
47	Double G Campground	Transient non-community	Private		Deep Creek		MD1111024	39.558072,-79.344328	McHenry		1,600	3,800			GA1971G007
48	El Canelo's	Transient non-community	Private		Youghioghenny		MD1111069	39.420817,-79.398003	Oakland		500	800			GA1981G006
49	Four Hoophole South	Transient non-community	Private		Deep Creek	Chlorination	MD1111079	39.488261, -79.307819	Boy Scout Rd		6,000	14,000		Owner	GA1971G001
50	Fuel City Truck Stop / Burger King	Transient non-community	Private		Casselman		MD1111091	39.690817,-79.105522	Rr 219 N &I-68		8,500	1,300			GA1994G002
51	Garrett Co. Vfw # 10077/Deer Park #10077	Transient non-community	Private		Little Yough		MD1111029	39.422589,-79.339439	Maryland Highway near		500 from exemption app.	666			exempt
52	Good To Go (Funny Farm)	Transient non-community	Private		Youghioghenny		MD1111132	39.663317,-79.419883	near Friendsville		300	500			GA1997G020
53	Greens @ The Wisp	Transient non-community	Private		Deep Creek		MD1111157	39.561322,-79.367131	Sang Run Road		3,100	5,200			GA1992G015
54	Hartwood Village	Transient non-community	Private		Deep Creek	Chlorination	MD1111099	39.550458,-79.351828	McHenry		3,000	5,000		Owner	GA1987G014
55	Hen House	Transient non-community	Private		Casselman or Savage		MD1111081	39.687019,-79.004614	Rt 40 Longstreach		1,000	1,800			GA2006G016
56	Hilltop Inn Restaurant & Lounge	Transient non-community	Private		Casselman		MD1111035	39.694547,-79.105686	Rt 40 E of Chestnut ridge		1,200	2,000			GA1971G012
57	Hilltop Office Complex	Transient non-community	Private		Casselman		MD1111165	39.694331,-79.100842	Rt 40 E of Chestnut Ridge		700	1,000			GA2007G014
58	Innsbruck Village A-Upper Unit	Transient non-community	Private		Deep Creek		MD1111122	39.523972,-79.338867	Rt 210 S of DCL Bridge		2,700	4,500			GA1984G007
59	J Gs Pub	Transient non-community	Private		Deep Creek		MD1111085	39.493208,-79.342947	Rt219 and Mayhew Inn Rd		400	1,600			exempt
60	Lakewood Condos North (Village)	Transient non-community	Private		Deep Creek		MD1111086	39.532292,-79.346436	N of DCL Bridge		4,000	6,700			GA1984G004
61	Lakewood Condos South	Transient non-community	Private		Deep Creek		MD1111044	39.530197,-79.346275	N of DCL Bridge		2,600	4,400			UNKNOWN1 or GA1986G030
62	Lakewood Villages	Transient non-community	Private		Deep Creek		MD1111160	39.529281,-79.345614	N of DCL Bridge						UNKNOWN1
63	Little Brown Lake Camp	Transient non-community	Private		Savage		MD1111050	39.625178,-79.012086	Avilton-Lonaconing Rd		1,500	5,000			GA1987G007 or GA1970G002
64	Little Meadows Campground	Transient non-community	Private		Casselman		MD1111124	39.681758,-79.099342	Chestnut Ridge Rd		2,200	3,300			GA1956G002
65	Little Sandys	Transient non-community	Private		Deep Creek		MD1111067	39.482856,-79.350592	Rt 219 and Sand Flat Rd		2,300	3,300			GA1970G010
66	O.C. Cluss Lumber Company	Transient non-community	Private		Youghioghenny		MD1110026	39.478617,-79.374144	Rt 219 Nof Oakland		500	700			GA2004G007
67	Pawn Run Tavern	Transient non-community	Private		Deep Creek		MD1111104	39.475256,-79.332108	Boy Scout Rd						UNKNOWN1
68	Penn Alps Inc	Transient non-community	Private		Casselman		MD1111052	39.696508,-79.141214	Rt 40 E of Grantsville		3,000	6,000			GA1967G011
69	Penn Mar Estates Mobile Home Park	Transient non-community	Private		Deep Creek		MD1111053	39.540650,-79.349511	Dep Creek Dr McHenry		4,000	6,000			GA1970G006

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	**Table 3-1 (COMAR Table No. 6)**														
2	**Inventory of Existing Water Treatment Facilities**														
3	**Facility Name**	**System Type 1 (MDE/EPA) Community, Non-transient non-community, Transient-non-community. See Notes for definitions**	**System Type 2 Municipal, Other Public, or Private See Notes for definitions**	**Water Source (see Table 4 for well data)**	**Watershed**	**Type of Treatment**	**Water System ID #**	**Plant Location (lat long)**	**Location description**	**Treatment Plant Design Capacity (gpd)**	**Average Daily Flow (gpd). Last quarter 2012 unless noted in comments.**	**Maximum Peak Flow (gpd) (Treatment plant production capacity)**	**Storage Capacity (Gallons)**	**Operating Agency**	**Groundwater Appropriation Number**
70	Pine Breeze Condominiums	Transient non-community	Private		Deep Creek		MD1111141	39.545122,-79.353131	Deep Creek Dr McHenry		1,795	4,200			GA1986G014
71	Red Run Condos	Transient non-community	Private	Wells	Deep Creek		MD1111083	39.500647,-79.373525	Mayhew Inn Rd					Developer or condominium owners	
72	Saffitickers	Transient non-community	Private		Youghioghenny		MD1111119	39.353619,-79.429383	Rt 219 S of Mason School Rd		90 annual	2,700			exempt
73	Savage River Cabins	Transient non-community	Private		Savage		MD1111147	39.654961,-79.023264	1600 Mt Aetna Rd					Owner	GA1998G019 same as for the Lodge
74	Savage River Lodge	Transient non-community	Private		Savage		MD1111146	39.655175,-79.021436	1600 Mt Aetna Rd		700	1,500		Owner	GA1998G019
75	Smileys Pizza	Transient non-community	Private		Deep Creek		MD1111114	39.549236,-79.351069	McHenry		5,000	9,000			GA1996G005
76	Sorellee's	Transient non-community	Private		Deep Creek		MD1111163	39.484822,-79.350167	W side Rt 219 at Sand Flat		1,500	2,500			GA2007G010
77	Straight 8 Billiards Pizza /Fazenbakery	Transient non-community	Private		Casselman		MD1111164	39.699969,-79.098356	Rt 219 N of Rt 40		200	300			GA1990G011
78	Subway Shop (Grantsville)	Transient non-community	Private		Casselman		MD1111106	39.695942,-79.099572	Rt 219 N of RT 40		5,000	7,000			GA1974G010
79	Sun Place Condos	Transient non-community	Private	Wells	Deep Creek	Iron Removal, Chlorination	MD1111116	39.553297,-79.350533	Deep Creek Dr McHenry		4,000	6,000		Owner	GA1987G003
80	The View	Transient non-community	Private		Deep Creek		MD1111162	39.501042,-79.355619	Woodland Hills Ln		6,800	11,400		Naylors	GA2003G012
81	Western Md 4H Center	Transient non-community	Private		Casselman		MD1111072	39.562997,-79.243458	4H Camp Rd of of Rt 495		1,500	5,000			GA1995G025
82	Wildwater Inn	Transient non-community	Private		Casselman or Savage		MD1111074	39.683892,-79.070789	S side Rt40 .16 mi E meyersdale Rd						UNKNOWN1
83	Yellowstone Villages	Transient non-community	Private	Wells	Deep Creek		MD1111158	39.500603, -79.314431	Paradise Heights Road		7,200	12,000		Dept of Public Works	GA2006G003
84	Deep Creek Lake State Park - Day Use	Transient non-community	Public, other	Wells	Deep Creek	Chlorination	MD1111020	39.513231,-79.308189	10 miles northeast of Oakland on the east side of Deep Creek Lake, and	28,800	4,620	72,000	40,000	MES	GA1973G002
85	Deep Creek Lake State Park - Shop Well	Transient non-community	Public, other		Deep Creek		MD1111109	39.513675,-79.29845	Fire Tower Trail above shop	Included in Shop Well	Included in Shop Well	Included in Shop Well	Included in Shop Well	MES	UNKNOWN1
86	Herrington Manor State Park	Transient non-community	Public, other	Wells	Youghiogheny	Chlorination	MD1111033	39.453011,-79.451986	5 miles northwest of Oakland on County Route 20	14,400	6,141	36,000	10,000	MES	GA1977G013
87	New Germany State Park - Cabins	Transient non-community	Public, other	Wells	Savage	Chlorination	MD1111008	39.631167,-79.120919	5 miles south of Granstville	10,000	3,158	25,000	16,000	MES	UNKNOWN1
88	New Germany State Park - Camping	Transient non-community	Public, other		Savage		MD1111048	39.632742,-79.117558	hill above cabins	Included in Cabins	Included in Cabins	Included in Cabins	Included in Cabins	MES	UNKNOWN1
89	Swallow Falls State Park	Transient non-community	Public, other	Wells	Youghiogheny	Chlorination	MD1111066	79° 28' 27.04" W 39° 25' 14.12" N	9 miles northwest of Oakland on County Route 20	23,000	4,520	57,600	10,000	MES	GA1967G001
90	Pergin Farms	Currently too small to be a system	Private	Wells	Deep Creek	Chlorination	To be assigned	39.499764,-79.422861	9 miles northwest of Oakland on County Route 20					Dept of Public Works	
91	**Notes**							39.458433,-79.307378	N end Hawthorne Ln						
92	1. This table lists systems first by System Type 1, second by System Type 2, and third alphabetically														
93	2. System Type 1 COMAR Definitions 26.04.01.01														
94	(5) "Community water system" means a public water system which serves at least 15 service connections used by year-round residents, or regularly serves at least 25 year-round residents.														
95	25) "Noncommunity water system" means a public water system that does not meet the requirements of §B(5) of this regulation. These systems serve motels, hotels, medical facilities, restaurants, schools, industrial plants, and similar facilities not connected to a community water system.														
96	(46) "Transient noncommunity water system (TWS)" means a noncommunity water system that does not regularly serve at least 25 of the same individuals over 6 months per year.														
97	(26) "Nontransient noncommunity water system (NTNCWS)" means a public water system that is not a community water system and that regularly serves at least 25 of the same individuals over 6 months per year.														
98	(34) Public Water System. a system that provides water for human consumption to the public through pipes or otherconstructed conveyances, if the system has at least 15 service connections or regularly serves at least 25 individuals daily at least 60days out of the year														
99	3. System Type 2. The terms Municipal, Other Public, and Private are defined for use in this Water and Sewerage Plan. Municipal means owned by the County or by an incorporated town. Other public means owned or operated by a public or quasi-public agency such as Maryland Environmental Service Garrett County Public Schools														
100	4. Sludge Disposal. COMAR requests information about how sludge generated by water treatment is disposed. No treatment plants in Garrett County produce sludge. The only by-product is filter backwash.														
101	5. Flow data for facilities operated by MES are for calendar year 2012														
102	6. Average Daily Flow and Maximum Peak Flow data for Transient non-community systems are the permitted averages from the groundwater appropriation permits as listed in MDE Water Rights Division, Numeric Listing of Active Permits run 4-12-13														

Table 3-2 (COMAR Table No. 4)									
Inventory of Existing Community System Wells									
Name	**System Type 1 (MDE/EPA) Community, Non-transient non-community, Transient-non-community. See Notes for definitions**	**System Type 2 Municipal, Other Public, or Private See Notes for definitions**	**Well Name or Number**	**Depth (Feet)**	**Location (lat/long)**	**Aquifer**	**Appropriation Permit #**	**Appropriation Permit gpd (daily average)**	**Appropriation Permit gpd (month of max use)**
Accident	Community	Municipal	GA-10-0091 (New Well scheduled to be operational 11/2013)		Fratz Street				
Accident	Community	Municipal	GA-72-0257 (#2)	300		Hampshire	GA1975G007	55,000	77,000
Crellin	Community	Municipal	GA-95-1011 (#2)	221		Allegheny/ Pottsville	GA1979G004 (05)	30,000	45,000
Crellin	Community	Municipal	GA-88-0754 (#1)	220		Allegheny/ Pottsville			
Deer Park	Community	Municipal	GA-94-2146 (#1)	302		Greenbrier	GA2000G009 (01)	47,000	72,000
Deer Park	Community	Municipal	GA-94-2145 (#2)	442		Greenbrier			
Frostburg	Community	Municipal	New #1 Savage	400		Pocono	GA1979G012 (05)		
Frostburg	Community	Municipal	New #2 Savage			Pocono			
Gorman	Community	Municipal	GA-92-0452 (#1)	205		Greenbrier/ Mauch Chunk	GA1996G003 (02)	40,500	60,800
Gorman	Community	Municipal	GA-94-0370 (#2)	224		Greenbrier/ Mauch Chunk			
Grantsville	Community	Municipal	GA-00-4222 (Old #1)	267	39.702961, -79.190659	Allegheny/ Pottsville	GA1979G011 (05)	111,000	186,000
Grantsville	Community	Municipal	GA-81-0814 (#1)		39.703309, -79.189865				
Grantsville	Community	Municipal	GA-88-0815 (Well #2)	300	39.702951, -79.190694	Allegheny/ Pottsville			
Grantsville	Community	Municipal	GA-88-0816 (Well #3)	460	39.703044, -79.191536	Allegheny/ Pottsville			
Grantsville	Community	Municipal	GA-01-4982 (#4)	400		Allegheny/ Pottsville	GA197G011 (05)	111,000	186,000
Grantsville	Community	Municipal	GA-88-1351 (Shade Hollow)	232	39.699172, -79.175835	Allegheny			
Green Supply	Community	Municipal	GA-94-1222 (Green 1)	?	39.690612, -79.190694	Purslane	GA2000G002 (01)	112,000	186,000
Kitzmiller	Community	Municipal	GA-94-0821 (#1)	410		Allegheny/ Pottsville	GA1998G008 (03)	42,000	63,000
Mt. Lake Park / Loch Lynn Heights	Community	Municipal	GA-95-0986 (#1)	412		Hampshire	GA19-79G007 (05)	250,000	300,000
Mt. Lake Park / Loch Lynn Heights	Community	Municipal	GA-95-0987 (#2)	414		Hampshire			
Mt. Lake Park / Loch Lynn Heights	Community	Municipal	GA-95-1183 (#5)	411		Rockwell			
Mt. Lake Park / Loch Lynn Heights	Community	Municipal	GA-95-1211 (#6A)	44		Mauch Chunk/ Burgoon aquifer			
McHenry - Villages of Wisp	Community	Municipal	GA-81-0719 (#1)	309		Greenbrier	GA1986G001 (08)	200,000	300,000
McHenry - Villages of Wisp	Community	Municipal	GA-81-0776 (#5)	375		Greenbrier			
McHenry - Gravelly Run	Community	Municipal	GA-95-0336	371		Mauch Chunk	GA2005G007 (02)	96,000	144,000
McHenry - Willows	Community	Municipal	GA-81-1363 (#1)	100		Greenbrier	GA1988G001 (03)	50,000	122,000
McHenry - Willows	Community	Municipal	GA-81-1364 (#2)	75		Greenbrier			
Thayerville	Community	Municipal	GA-88-0285 (#1)	216		Greenbrier	GA2007G020 (02)	188,000	320,000
Thayerville	Community	Municipal	GA-95-1246 (#2)	240		Greenbrier			
Backbone Mountain Boys Camp (2 wells)	Community	Public, other		272		Allegheny/ Pottsville	GA1977G003(06)	8,600	10,000
Backbone Mountain Boys Camp	Community	Public, other				Allegheny/ Pottsville			
Backbone Mountain Boys Camp	Community	Public, other				Allegheny/ Pottsville			
Meadow Mountain Boys Camp (2 wells)	Community	Public, other		405		Pocono	GA1968G009(09)	6,300	10,500
Meadow Mountain	Community	Public, other				Pocono			
Meadow Mountain	Community	Public, other				Pocono			
Savage Mountain Boys Camp (5 wells)	Community	Public, other		264		Conemaugh	GA1968G010(06)	9,000	11,000
Savage Mountain Boys Camp	Community	Public, other				Conemaugh			
Savage Mountain Boys Camp	Community	Public, other				Conemaugh			
Savage Mountain Boys Camp	Community	Public, other				Conemaugh			
Savage Mountain Boys Camp	Community	Public, other				Conemaugh			
Savage Mountain Boys Camp	Community	Public, other				Conemaugh			
Meadow Park Mobile Subdivision	Community	Private					GA1998G005		
White Oak Mobile Home Park	Community	Private	GA-72-0056	168	39.439408, -79.218733	Hampshire	GA1993G001(02)	4,000	6,000
White Oak Mobile Home Park	Community	Private	GA-88-1255	490	39.439531, -79.281589	Hampshire	GA1993G001(02)	4000	6000
Route 40 Elementary School	Non-transient non-community	Public, other	GA-95-1099	560			GA2008G002		
Swan Meadow Elementary School	Non-transient non-community	Public, other	GA-94-1278	163		Upper Devonian	GA1999G007(01)	800	1200
Carmel Cove	Transient non-community	Private	GA-88-0110	200	39.512933, -79.291058	Pocono	GA1989G011 (02)	5,000	8,000
Carmel Cove	Transient non-community	Private	GA-88-0109	315	39.512953, -79.290875	Pocono	GA1989G011 (02)	5,000	8,000
Comfort Inn, Grantsville	Transient non-community	Private	GA-73-1472, GA-73-1473, GA-81-0149	530 512 172		Conemaugh	GA1977G007(06)	15,000	20,000
Four Hoophole South Condos	Transient non-community	Private	GA-71-0065	245	39.488261, -79.307819	Hampshire	GA1971G001(04)	6000	14000
The View	Transient non-community	Private	GA-94-2553	903	39.501217, -79.355339	Allegheny-Pottsville	GA2003G012(01)	6800	11400
The View	Transient non-community	Private	GA-94-2554	1002	39.500994, -79.355578	Allegheny-Pottsville	GA2003G012(01)	6800	11400
Yellowstone Villages	Transient non-community	Private	GA-95-0936	280	39.500603, -79.314431	Pocono	GA2006G003(01)	7200	12000
Yellowstone Villages	Transient non-community	Private	GA-94-2482	343	39.500625, -79.315169	Pocono	GA2006G003(01)	7200	12000
Herrington Manor State Park	Transient non-community	Public, other	GA-73-1708	357	39.453744, -79.450364	Conemaugh	GA1977G013(05)	9000	19000
Herrington Manor State Park	Transient non-community	Public, other	no tag		39.451514, -79.451978	Conemaugh	GA1977G013(05)	9000	19000
Notes									
1. System Type 1 COMAR Definitions 26.04.01.01									
(5) "Community water system" means a public water system which serves at least 15 service connections used by year-round residents, or regularly serves at least 25 year-round residents.									
25) "Noncommunity water system" means a public water system that does not meet the requirements of §B(5) of this regulation. These systems serve motels, hotels, medical facilities, restaurants, schools, industrial plants, and similar facilities not connected to a community water system.									
(46) "Transient noncommunity water system (TWS)" means a noncommunity water system that does not regularly serve at least 25 of the same individuals over 6 months per year.									
(26) "Nontransient noncommunity water system (NTNCWS)" means a public water system that is not a community water system and that regularly serves at least 25 of the same individuals over 6 months per year.									
(34) Public Water System. a system that provides water for human consumption to the public through pipes or other constructed conveyances, if the system has at least 15 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year									
2. System Type 2									
The terms Municipal, Other Public, and Private are defined for use in this Water and Sewerage Plan. Municipal means owned by the County or by an incorporated town. Other public means owned or operated by a public or quasi-public agency (in Garrett County these systems are all operated by Maryland Environmental Service)									
3. Wells on this table pump a minumum of 5,000 gallons per day (average). Smaller wells are not included									

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	**Table 3-3 (COMAR Table #3)**																	
2	**Water Supply Demand and Capacity**																	
3	**Service Area**	**Appropriation Permit (gpd daily average)**	**Equivalent Residential Units Served, 2013 (Resi-dential and Non-Residential)**	**Average Daily Flow (gpd). Last quarter 2012 unless noted in comments.**	**Average Daily Flow per ERU (2012)**	**Treatment Plant Design Capacity (gpd)**	**Treatment Plant Production Capacity (gpd)**	**Unused Appropriation (Appropriatio n permit minus average daily flow)**	**Unused Production Capacity (Production capacity minus average daily flow)**	**Available Capacity 2013 (lesser of Unused Appropriation [Col H] and Unused Production Capacity [Col I]) (gpd)**	**Projected New Total ERUs that will be served by 2023 (Residential and Non-Residential)**	**Projected New Total ERUs hat will be served by 2033 (Residential and Non-Residential)**	**Projected change in ERUs 2013 to 2023**	**Projected change in Water Demand 2013 to 2023 (gpd); gray highlight shows systems where change exceeds or is within 80% of available capacity (Col J). Pink highlight; change exceeds capacity.**	**Projected total water demand in 2023 (gpd) (Col D + Col N)**	**Projected Change in ERUs 2013 to 2033**	**Projected change in Water Demand 2013 to 2033 (gpd); highlight shows systems where change exceeds or is within 80% of available capacity (Col J). Pink highlight; change exceeds capacity.**	**Projected total water demand in 2033 (gpd) (Col D + Col Q)**
4	Accident, Town	55,000	208	30,000	144	110,000	80,000	25,000	50,000	25,000	223	237	15	3,929	33,929	29	7,498	37,498
5	Bloomington	43,000	139	28,000	201	60,000	38,000	15,000	10,000	10,000	145	151	6	1,567	29,567	12	3,036	31,036
6	Crellin	30,000	71	15,000	211	28,000	28,000	15,000	13,000	13,000	112	118	41	10,754	25,754	47	12,223	27,223
7	Deer Park, Town	47,000	200	35,000	175	115,000	96,000	12,000	61,000	12,000	273	383	73	19,154	54,154	183	47,923	82,923
8	Friendsville, Town	73,000	238	65,000	273	120,000	120,000	8,000	55,000	8,000	245	279	7	1,829	66,829	41	10,648	75,648
9	Gorman	40,500	146	35,000	240	58,000	58,000	5,500	23,000	5,500	151	210	5	1,304	36,304	64	16,686	51,686
10	Grantsville, Town	111,000	410	70,000	171	100,000	75,000	41,000	5,000	5,000	762	791	352	92,359	162,359	381	99,966	169,966
11	Grantsville - Green Supply	112,000	309	50,000	162	400,000	45,000	62,000	(5,000)	(5,000)	461	504	152	39,884	89,884	195	51,221	101,221
12	Kitzmiller, Town / Shallmar Pee Wee Hill	42,000	230	25,500	111	104,000	104,000	16,500	78,500	16,500	237	243	7	1,829	27,329	13	3,298	28,798
13	McHenry	346,000	956	166,100	174	640,000	640,000	179,900	473,900	179,900	1,998	2,545	1,042	273,554	439,654	1,589	417,227	583,327
14	Villages of Wisp	200,000				432,000	432,000			-	-		-		-	-		-
15	Gravelly Run	96,000				107,000	107,000			-	-		-		-	-		-
16	Willows	50,000				101,000	101,000			-	-		-		-	-		-
17	Mountain Lake Park / Loch Lynn Heights, Towns	250,000	1,200	201,000	168	238,000	238,000	49,000	37,000	37,000	1,258	1,284	58	15,184	216,184	84	22,003	223,003
18	Oakland, Town	590,000	2,197	473,500	216	2,000,000	1,765,000	116,500	1,291,500	116,500	2,349	2,540	152	39,778	513,278	343	90,160	563,660
19	Thayerville - new system (2013)	188,000	557	-		432,000	Operation to begin 2013	188,000		188,000	1,008	2,055	451	118,347	118,347	1,498	393,178	393,178
20	Total		6,861								9,221	11,337						
21	Notes:																	
22	(1) Data provided by Garrett County Dept. of Planning & Land Development address point database and MD PropertyView parcel centroids. See electronic version of spreadsheet for detailed methodology.																	
23	2. Gallons per day per ERU for planning purposes		262.5															

	A	B	C	D	E
1	**Table 3-4 (COMAR Table No. 7)**				
2	**Inventory of Water Problem Areas**				
3	**Service Area**	**Location (lat /long)**	**ERUs Served**	**Nature of Problem**	**Planned Correction Date (if known)**
4	**Public Water Systems**				
5	Accident		208	Town has two wells. One of the town's two wells (Accident Bittinger Road) had high arsenic levels.	A replacement well was drilled and tested in Spring 2013 and as of Fall 2013 is awaiting Certificate of Potability for the new well.
6	Bloomington		139	The water system was constructed in 1982. MDE completed a comprehensive performance evaluation in 2012 and found that components in the treatment plant and the two water storage tanks need to be replaced due to deterioration.	Options are being explored including possible connection to Westernport in Allegany County. See Table 3-6, proposed project. The water storage tanks will be replaced with one 100,000 gallon concrete tank.
7	Deer Park		200	Due to acidic soils, copper service lateral lines have deteriorated causing pin hole leaks. Water losses are estimated at 35%.	CTS plastic pipe is being used to replace the bad lines on case by case. Covered under operations and maintenance.
8	Friendsville		238	System leaks are difficult to locate due to river rock in local soils.	On going investigations.
9	Gorman		146	Aging water transmission line along US 50.	2-5 years, see Table 3-6, proposed project
10	Grantsville - Green Supply		309	The existing production well has developed a crack in the casing allowing high iron content water to seep into the supply. There is currently no back-up supply for the system. Therefore, development of a new well field is being pursued near Puzzley Run on DNR owned land.	Immediate/ 2-5 years, see Table 3-6, proposed project
11	Mountain Lake Park/Loch Lynn Heights		1200	1. Aging pipes. The system loss is approximately 40%. 2. Water treatment cost at Deer Park are four times more expensive than in Mountain Lake Park. Systems could be connected to reduce water treament costs. 3. Low water pressure along Lothian Street (MD 560)	Ongoing. County is replacing distribution lines as leaks are located.
12	Kitzmiller/Shallmar		230	Wolf Den Run impoundment is subject to siltation and cannot be used as a reliable water supply. A back up water supply well is needed.	One additional well is planned to back up the existing well, see Table 3-6, proposed project.
13	Oakland, Town		2197	1. Low water pressure, the system needs a water storage tank to increase pressure. 2. Oakland Intake Facility and Broadford and Oakland water plants do not have backup power sources in the event of a power failure. 3. There is no system wide mapping of the water distribution system. 4. Aging system requires replacement of old lines (plastic and pit cast, some dating back to 1909) and upgrades to the water plants. 5. The average daily withdrawal from Broadford Lake (416,000) is approaching the current appropriation limit (420,000)	0 to 10 years see Table 8, proposed projects
14	Puzzley Run (Keysers Ridge)			Water storage tank for Keysers Ridge for flow and pressure equalization and to enhance fire flow.	Immediate. Design of the water storage tank is 80% complete. Construction will commence in the Spring of 2014.
15	**Non-Public Areas**				
16	Sky Valley, Loch Glade Rd			Fecal contamination in groundwater. This area has existing homes and unbuilt lots. Residents are using UV light. Individual treatment plant with UV, chlorination, and 1 micron filtration would provide better protection. At a minimum, UV lights should have automatic water shut-off	Potential future public service area. Sky Valley is S-3. Loch Glade Rd is FPS
17	Northglade Hills/ Northglade Cove,	Hines Drive, Clark Lohr Rd.		Fecal contamination in groundwater. These areas have existing homes and unbuilt lots. Residents are using UV light. Individual treatment plant with UV, chlorination, and 1 micron filtration would provide better protection. At a minimum, UV lights should have automatic water shut-off	Potential future public service area. S-3
18	Paradise Point	Paradise Ridge Rd		Fecal contamination in groundwater. This area has existing homes and unbuilt lots. Residents are using UV light. Individual treatment plant with UV, chlorination, and 1 micron filtration would provide better protection. At a minimum, UV lights should have automatic water shut-off	Potential future public service area.
19	Rosedale and Shaffer Hill Road west side of Oakland			High iron content in water; low income property owners may not be able to pay for public service.	Potential future public service area, by extending service from Oakland. See future service area maps.
20	Chestnut Ridge			Possible salt contamination from SHA salt storage. High iron in water	SHA will make corrective actions if warranted. Possible connection to Grantsville system
21	Appalachian Village, Keysers Ridge Estates			Area west of I-68 interchange. Possible salt contamination from SHA salt storage.	SHA will make corrective actions if warranted. Possible connection to Keysers Ridge distribution system

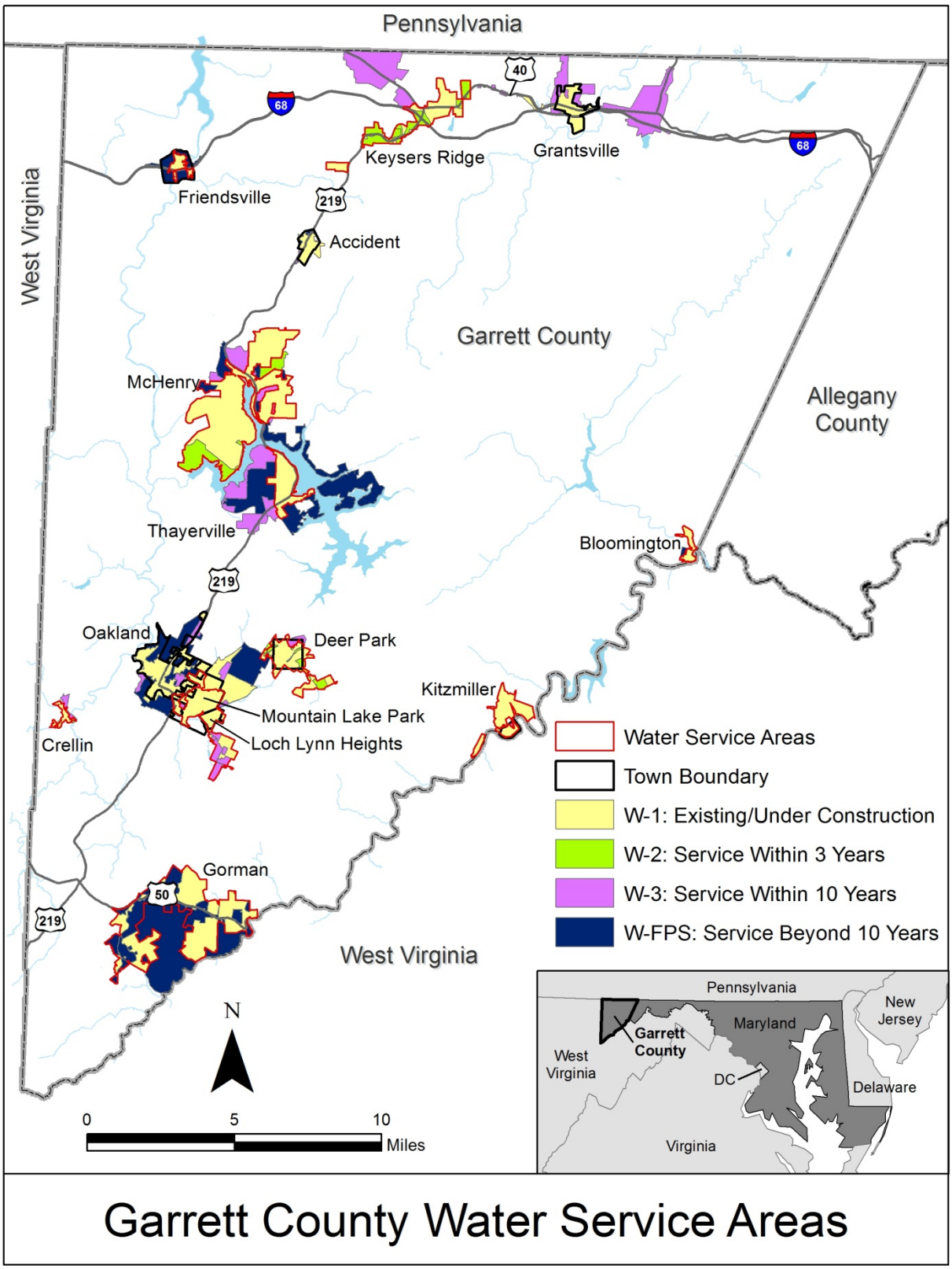
	A	B	C	D	E	F	G	H	I	J	K	L	M
1	**Table 3-5 (COMAR Table No. 5)**												
2	**Inventory of Existing Impounded Supplies**												
3	**Name**	**Owner**	**Crest Elevation (feet above sea level)**	**Spillway Length (feet)**	**Total Length of Dam (feet)**	**Height of Crest Above Stream Bed (feet)**	**Flooded Area of Crest Elevation (acres)**	**Length of Shore Line at Crest Elevation**	**Area of Land Owned (acres)**	**Water Overflowed Crest for First Time**	**Capacity of Reservoir**	**Safe Yield (MGD)**	**Average Daily Withdrawal (MGD)**
4	Broadford Lake	Town of Oakland	2,442	200	1,155	36	138	3.8 miles	399	Never	762 million gallons	1.5	0.5
5	Piney Reservoir	City of Frostburg, Allegany County	Crest 2,381 (normal pool 2,367)	130 (circular)	1,275	41 (normal pool 27)	110	3.5 miles at normal pool	1,400	Never	400 million gallons	2.5, including downstream release	0.9
6	Savage River Reservoir	Upper Potomac River Commission, supplies water to Westernport (Allegany County) and Piedmont in West Virginia.	1,469	320	1,050	184	360	9 miles	500	1952	6.5 billion gallons	22, low flow augment.	0.75
7	**Other Impoundments, Not used for drinking water**												
8	Deep Creek Lake	State	2,462	720	1,340	75	3,900	69 miles	1,800		34 billion gallons	Not used for potable water	0.76
9	Jennings Randolph Lake	Federal	1,514	210	2,130	296	1,184	13.6 miles	4,500	Never	31 billion gallons	69, flow augmentation	None
10	Wolf Den Run Impoundment	Town of Kitzmiller	approx. 1,800	50	80	5	0.4	300 feet	1	Never	0.3 million gallons	Not currently used	Not currently used
11	**Industrial**												
12	Mettiki Coal Corp. D Portal		2,854	100	300	2	0.5	400 feet		Never	3 million gallons	Var.	0.06

	A	B	C	D	E	G
1	**Table 3-6 (COMAR Table No. 8)**					
2	**Immediate, 5 and 10 Year Priorities for Water Development**					
3	**System**	**Description**	**Priority (years) Immediate, 2 to 5, 5 to 10**	**Estimated Cost (2013$)**	**Funding**	**Notes**
4	Accident	Complete installation of new well and WTP	Immediate	$ 303,000	Community Development Block Grant (CDBG)/Town	The new well is anticipted to be operational in November 2013
5	Bloomington	Interconnection to Town of Westernport's finished water supply. Garrett County's project would be to extend a line that Westernport proposes to extend to the Town of Luke to Bloomington.	2 to 5	$ 1,275,000	Funding request submitted to MDE Jan 2013	Interconnection is currently seen as better solution versus replacing the existing water treatment plant
6	Bloomington	Replace the two existing water storage tanks with a 100,000 gallon storage facility	Immediate	$ 180,000	To be determined	
7	Deep Creek Lake / McHenry	Expand McHenry Water System to the Shingle Camp Road, Sandy Beach, and Stockslager Road areas	Immediate	$ 2,800,000	Local funding	Project covers same areas as covered in Western Conveyance wastewater project. Approximately 164 water customers (154 sewer customers)
8	Friendsville	Investigate system leaks	Immediate		Local funding	
9	Friendsville	Complete repairs on the two water filtration units (bottoms of the units are leaking due to deterioration).	Immediate		Local funding	
10	Friendsville	Investigate replacement of the insulation on the water line on the Maple Street bridge.	2 to 5		Local funding	
11	Gorman	Replace water transmission line from Gorman west along US 50	2 to 5	To be determined	Anticipate submitting funding request to MDE in 2014	
12	Grantsville - Green Supply (Keysers Ridge Distribution System)	Water storage tank for Keysers Ridge for flow and pressure equalization and to enhance fire flow	Immediate	$ 688,000	Maryland Department of Business & Economic Development and Local Funding	Design is approximately 80% complete. Construction is anticipated to commence in the spring of 2014
13	Grantsville - Green Supply (Puzzley Run Water Supply Keysers Ridge Distribution System/new service area)	Develop new well source (Puzzley Run Water Supply) and treatment facility to supply the Keysers Ridge Water Distribution System. Project includes well development, water treatment plant and piping.	2 to 5	$ 1,442,000	Maryland Department of Business & Economic Development and Local Funding	MDE is reviewing application for water appropriation permit for well sites on Puzzley Run. Permanent access to site has been requested from the property owner (MD DNR).
14	Herrington Manor State Park	Upgrade exiting aging water facilities	2 to 5	To be determined, by MES		
15	Kitzmiller/ Shallmar/ Pee Wee Hill	Second well to back up the existing well in conjunction with a water line extension to the Pee Wee Hill area completed in 2012	2 to 5	$ 76,500	1.Abandoned mine program $22,950 2. Local funding $53,550.	
16	Mountain Lake Park / Deer Park	Interconnect these two currently separate systems by extending water east from Mountain Lake Park to Deer Park.	5 to 10	To be determined	To be determined	Will create redundancy in the systems and cost savings (production cost at Mtn Lake Park is four times less expensive than in Deer Park, due to less required treatment
17	Mountain Lake Park/Loch Lynn Heights	Rehabilitation of aging distribution lines.	5 to 10	To be determined	To be determined	DPW is assessing the system to identify and prioritize rehabilitation needs
18	Mountain Lake Park/Loch Lynn Heights	Comprehensive mapping of the distribution system to improve system planning and maintenance.	Immediate	To be determined	To be determined	
19	Mountain Lake Park/Loch Lynn Heights	Water storage tank above Loch Lynn Heights to address low water pressure along Lothian Street.	5 to 10	To be determined	To be determined	
20	Oakland	Provide a water storage tank to increase water pressure to the Oakland Water System.	Immediate	$ 350,000	Funding request submitted to MDE Jan 2013	Previous funding request to MDE was denied. MDE currently funding study for tank siting
21	Oakland	Purchase and install backup generators to the Oakland Intake Facility and the Broadford and Oakland water plants	2 to 5	$ 180,000	Funding request submitted to MDE Jan 2013	Previous funding request to MDE was denied.
22	Oakland	Secure system wide mapping of the Oakland water distribution system	2 to 5	$ 100,000	Funding request submitted to MDE Jan 2013	
23	Oakland	Water system rehabilitation project to include replacement of old lines (some dating back to 1909) and various upgrades to the water plants. Pressure/volume service upgrades to 5 areas: 1. Frazee Estates; Isolate existing low pressure areas and install new booster pumps. 2. Winter's Development/Highland Estates; Isolate existing low pressure areas and install new booster pumps. 3. South Third Street; Replace existing 4" line with new 8" line, including the Youghiogheny crossing. 4. Country Club Acres; Isolate existing higher elevations and install new booster pump. 5. Second Street; Replace existing original 8" cast iron water line in Second Street from Pennington Street to Water Street.	2 to 5	$ 790,000	Anticipate funding request to MDE 1/14	
24	Swallow Falls State Park	Upgrade existing aging water facilities	2 to 5	To be determined, by MES		

Table 3-7 (COMAR Table No. 12)				
Water Quality Problem Due to Storm Drainage Outfalls and to Non-Point Sources				
Service Area	**Problem Description**	**Location**	**Reach Affected**	**Notes**
Deep Creek	Sediment	South end of Lake.	Deep Creek Lake.	State/County cooperative watershed management plan study underway as of 2013
Friendsville	Stormwater runoff, especially from roads, due to steep terrain	Upstream of Friendsville	Youghiogheny River	
Grantsville	Salt	Areas close to I-68 and U.S. Route 40/National Pike	Casselman River	See Section 3.3.1
Oakland	Roadway storm drains	Drains outfall into Cherry Glade Run and Wilson Run that flow into the Little Youghiogheny River.	Up stream from the Oakland WTP	Some stormwater controls have been put in place to negate negative impact from these drainage outfalls. This includes a floodwater control dam behind the hospital which also acts as a stormwater sedimentation pond
Mountain Lake Park/ Loch Lynn Heights	Undersized, drainage leading to localized flooding and water quality impacts.	Pensinger Blvd/Heritage Drive area 39.400785,-79.386091	Unnamed tributary of Little Youghiogheny River	A proposed drainage improvement would change the location of the system discharge to a point downstream in the drainway (on the south side of D Street) where it will pose a much smaller risk to homes in the area and will allow for increased carrying capacity of the system to reduce flooding and drainage issues throughout the development. This plan also intends to reduce some pavement and utilize the median areas of Pensinger Blvd to provide filtering and water quality improvement by turning them into mirco-bioretention (similar to a rain garden) areas
Trout Run	Sediment, nutrient runoff from agriculture	Little Youghiogheny River basin	Little Youghiogheny River	

Water Service Area Maps

Figure 3-1 Garrett County Water Service Areas



Garrett County Water Service Areas

Figure 3-2 Accident

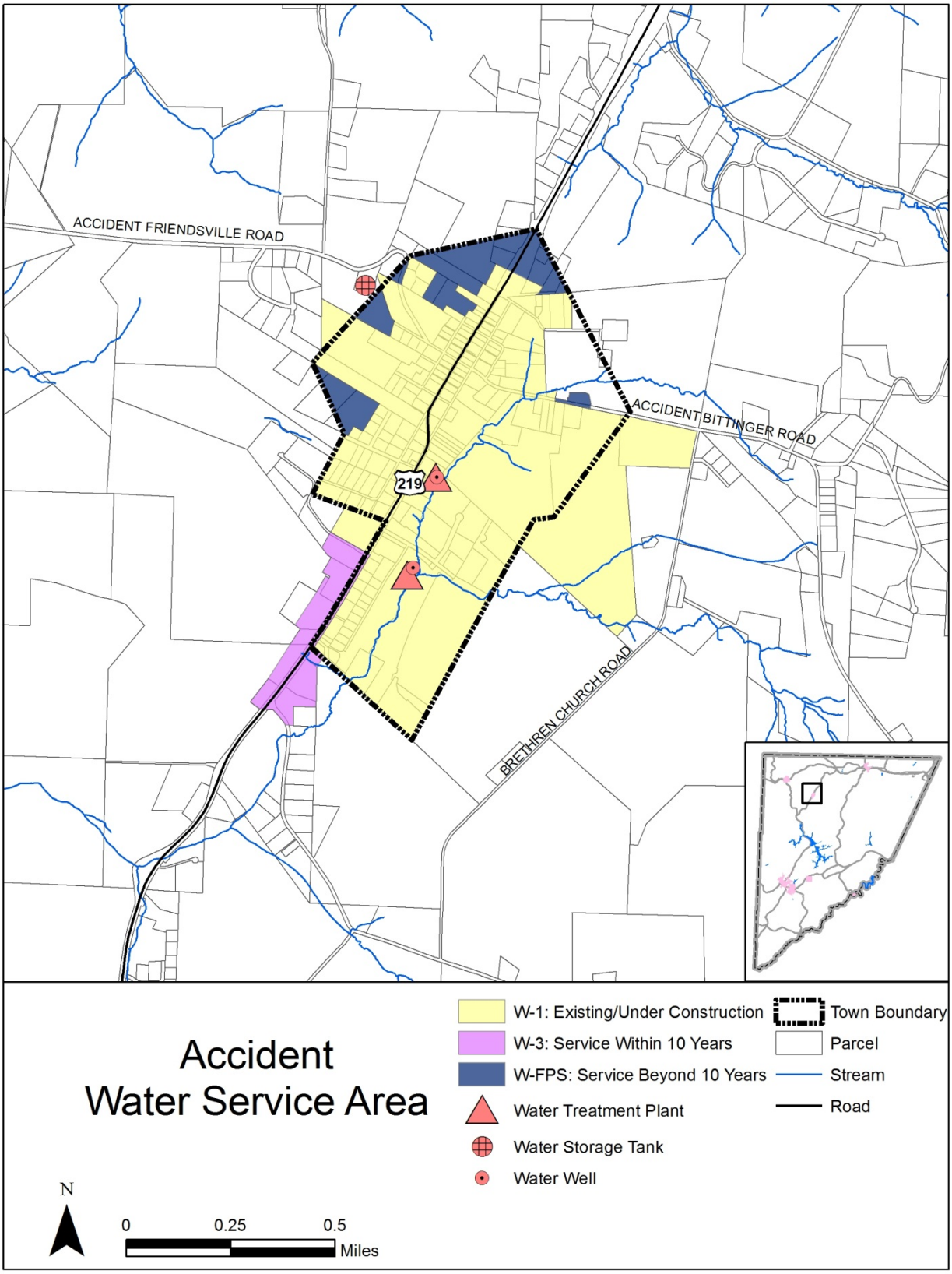


Figure 3-3 Grantsville Keysers Ridge Overview

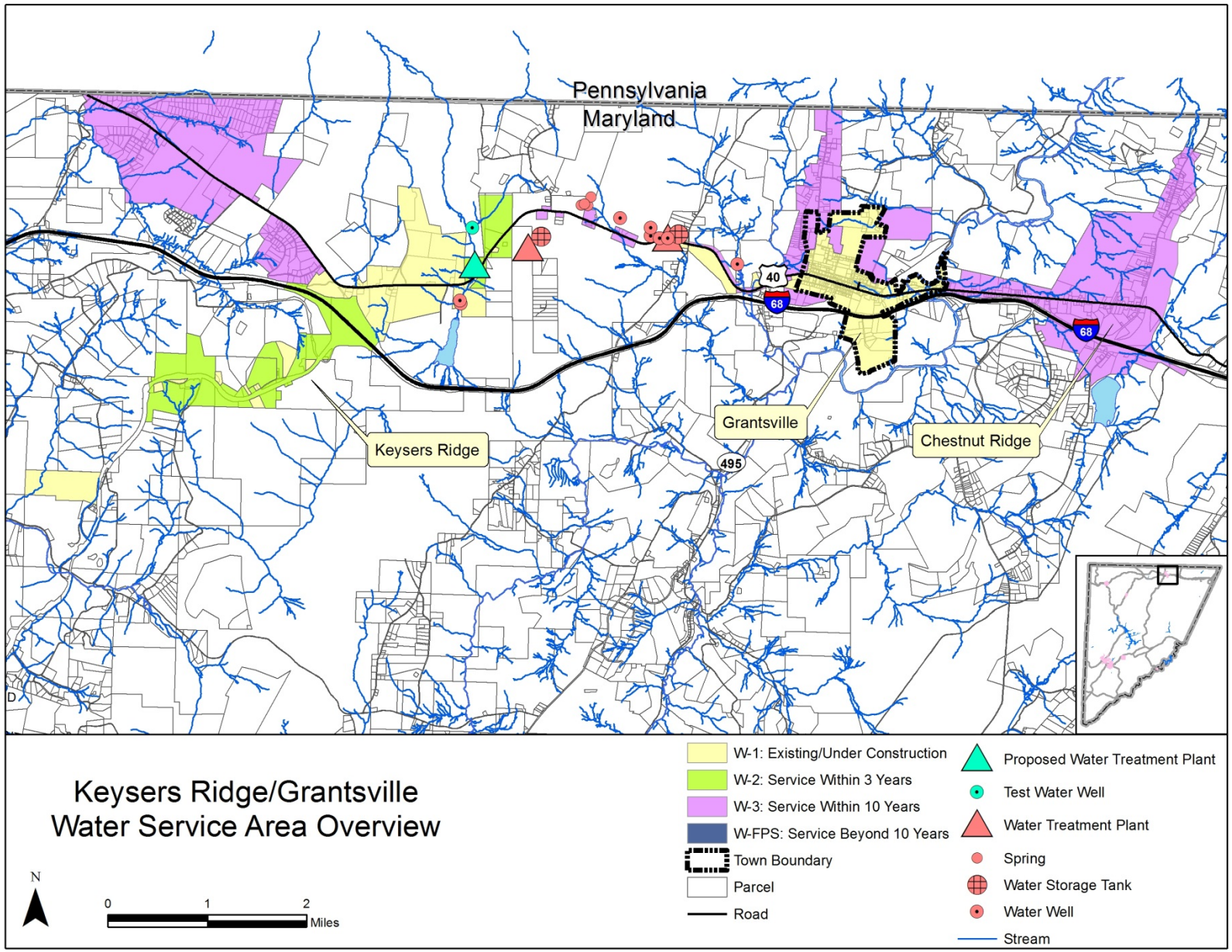


Figure 3-4 Grantsville

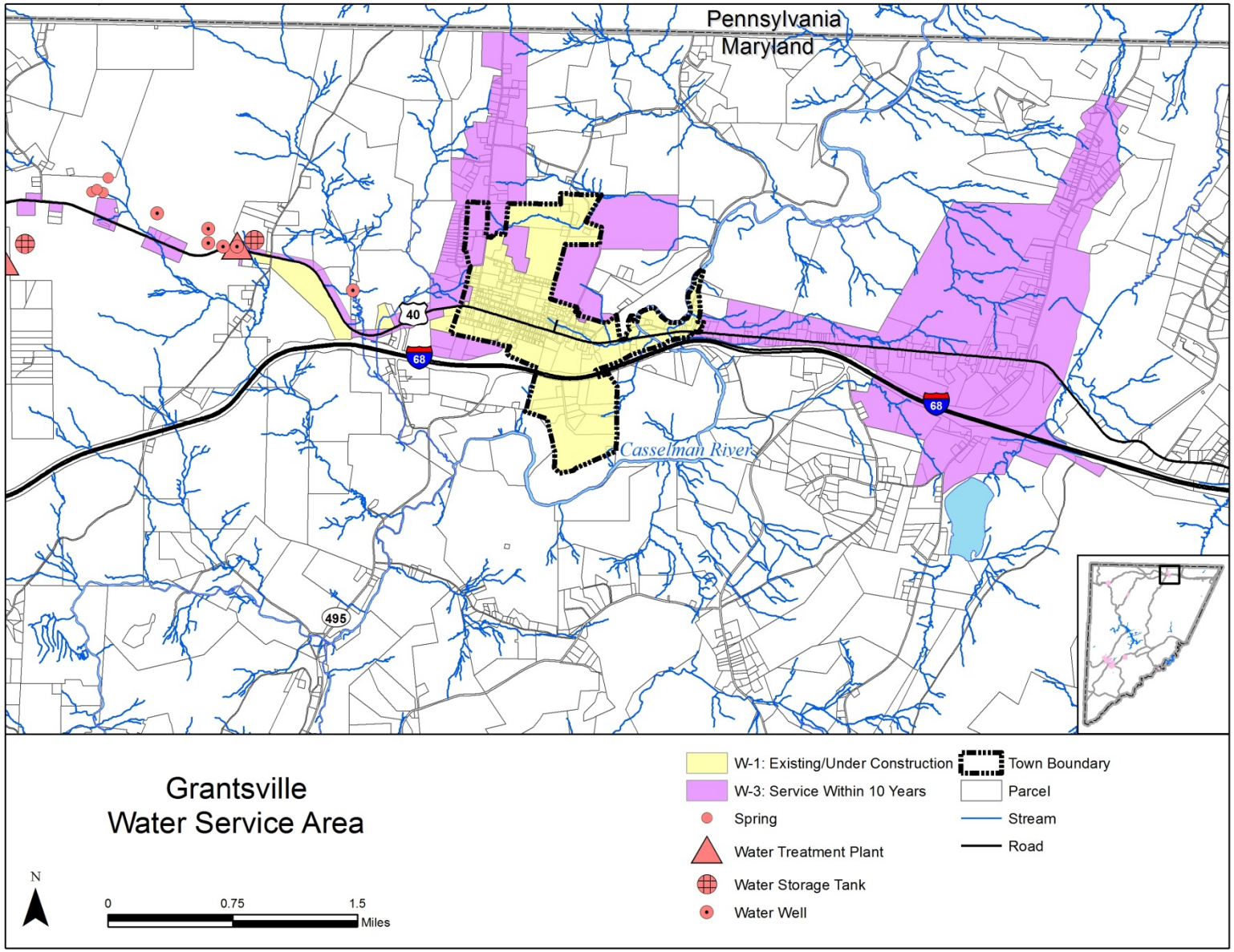


Figure 3-5 McHenry

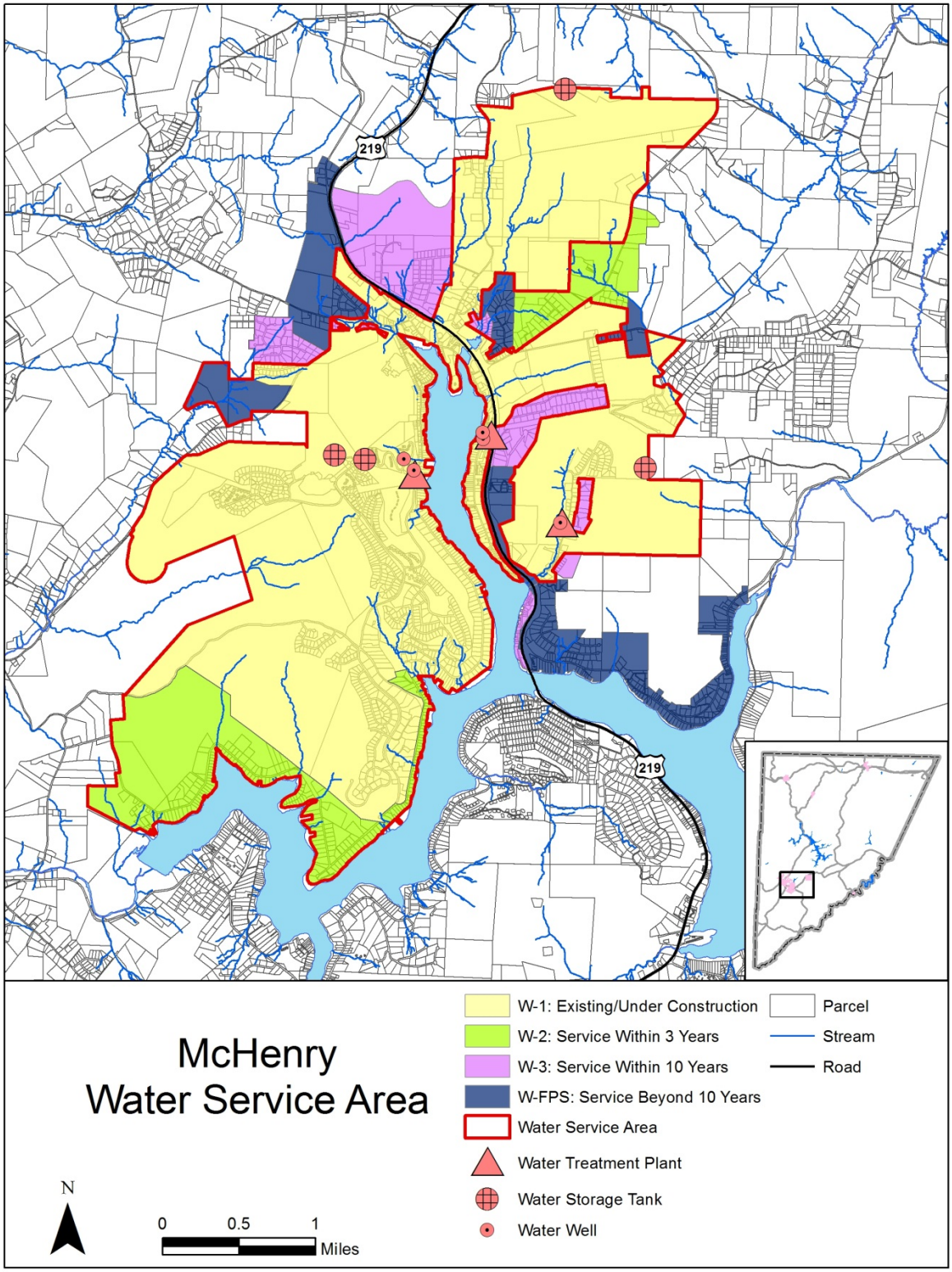


Figure 3-6 Thayerville

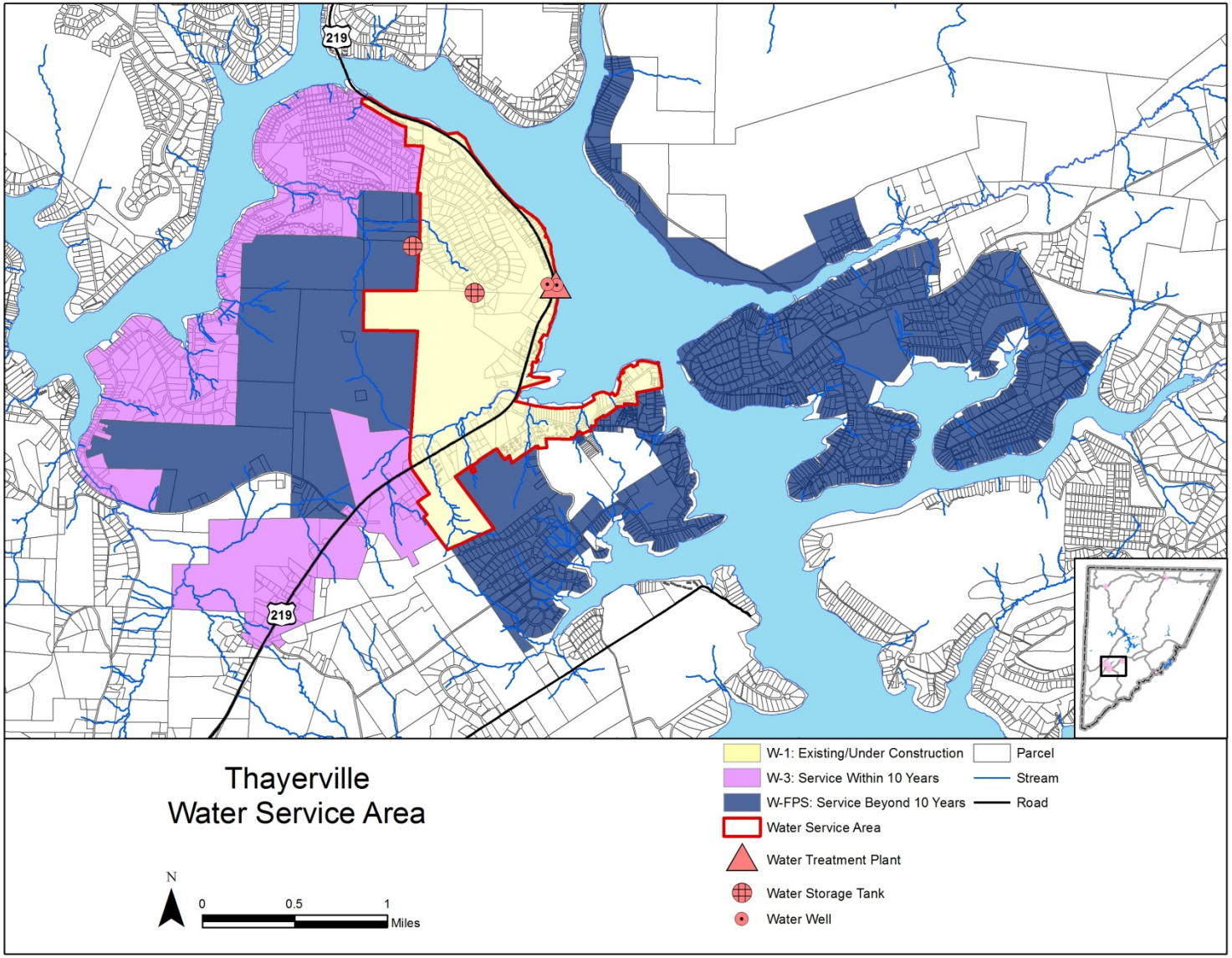


Figure 3-7 Oakland, Mountain Lake Park, Loch Lynn Heights, Deer Park Overview

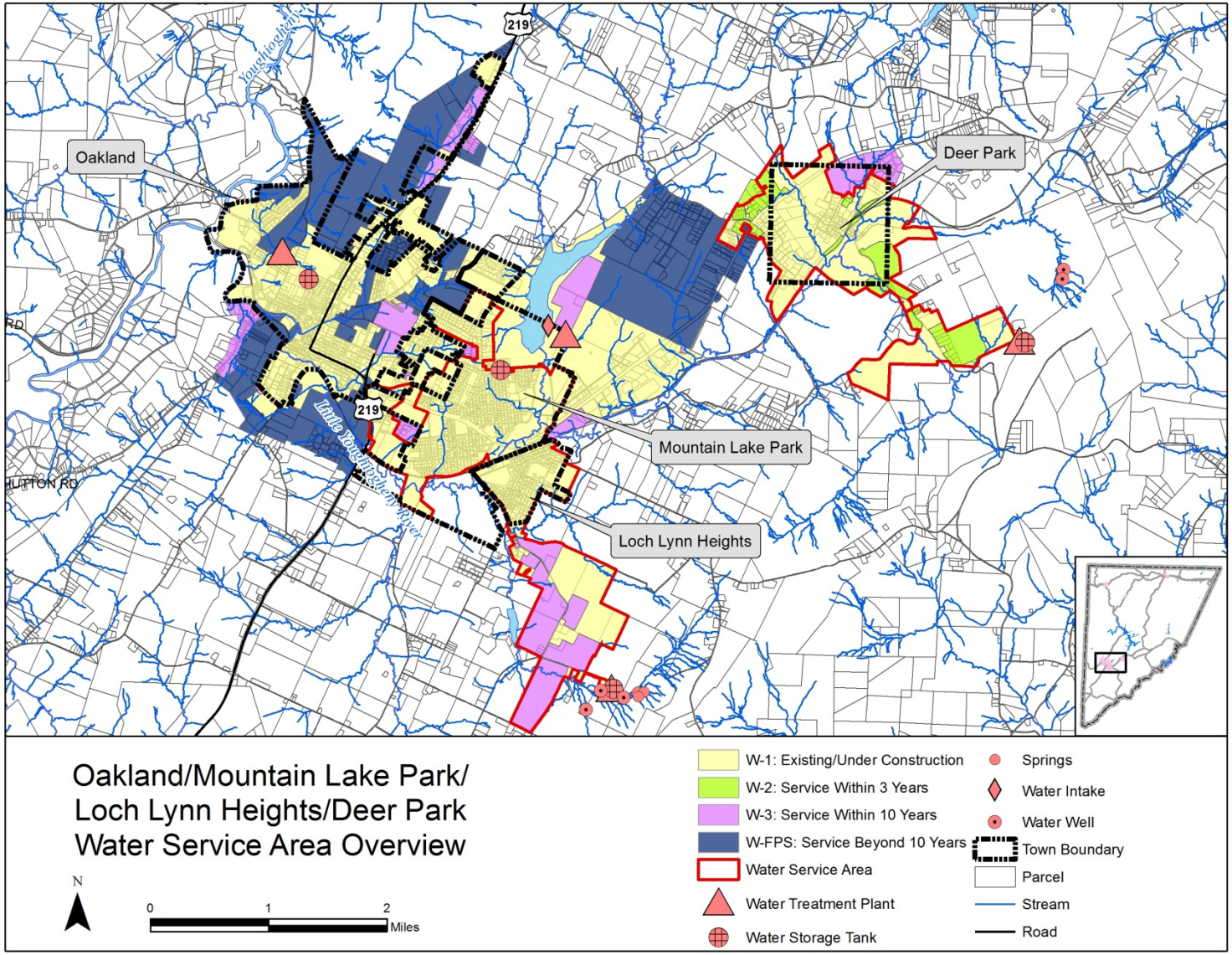


Figure 3-8 Deer Park

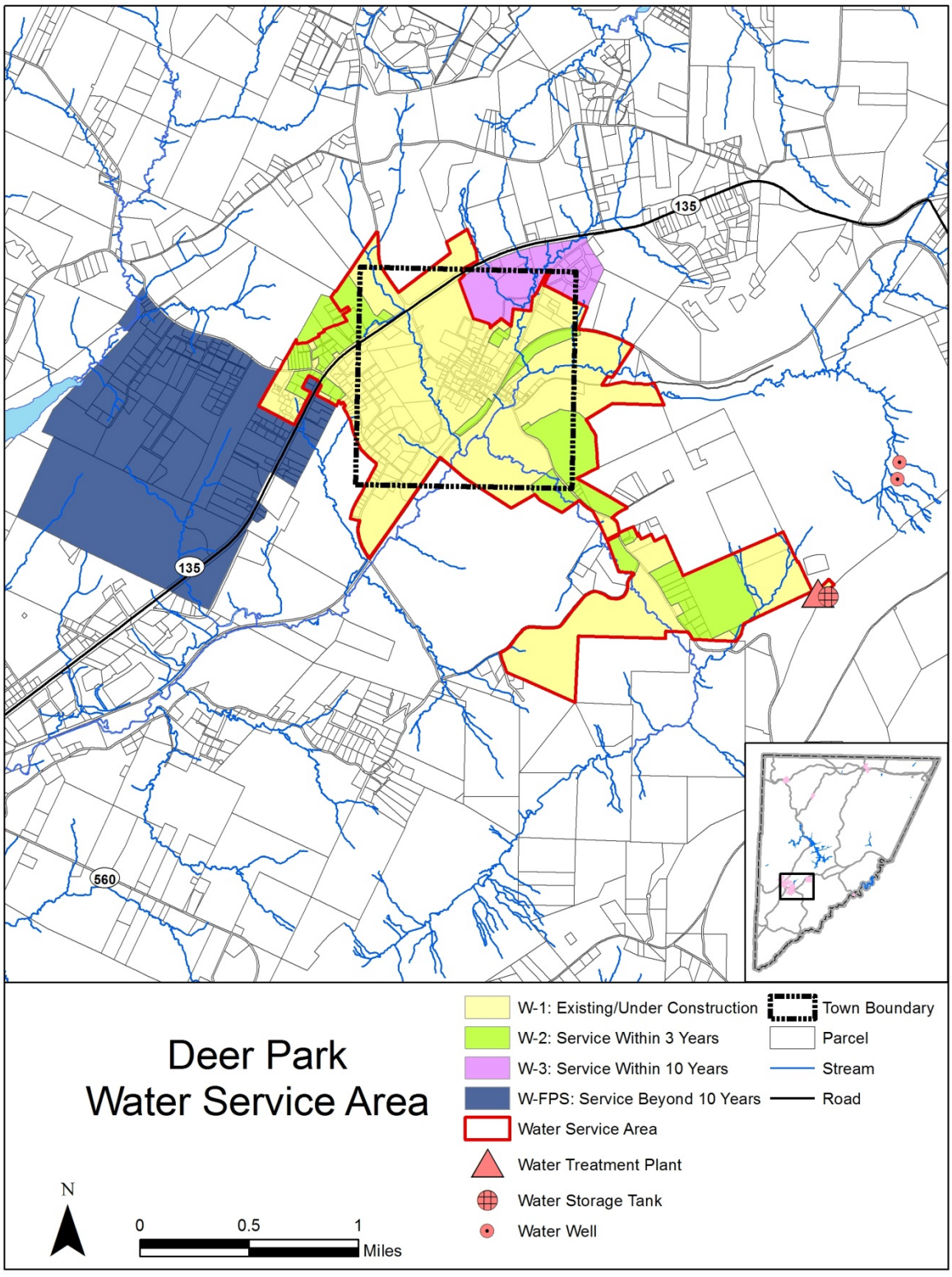


Figure 3-9 Mountain Lake Park, Loch Lynn Heights

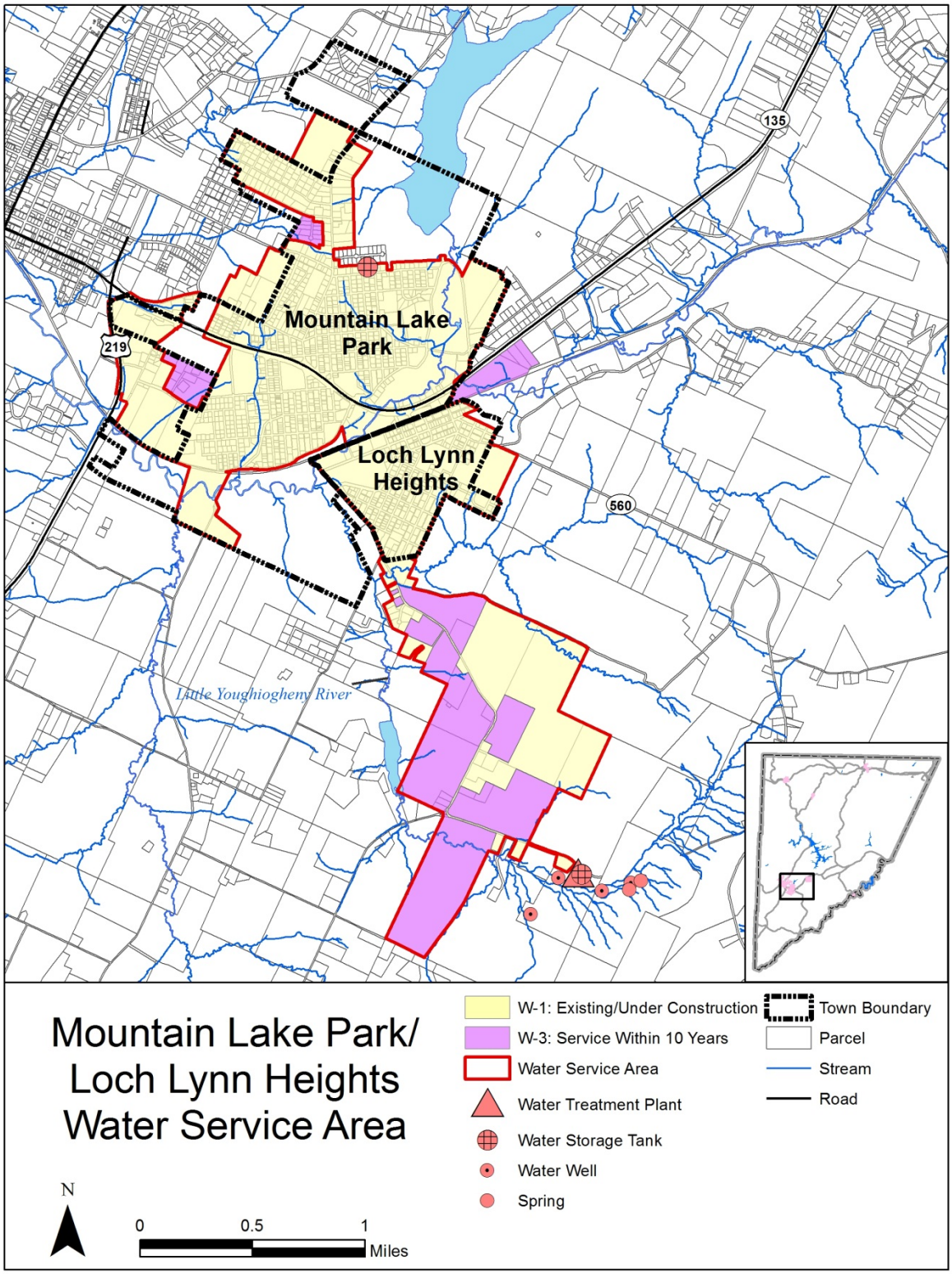


Figure 3-10 Oakland

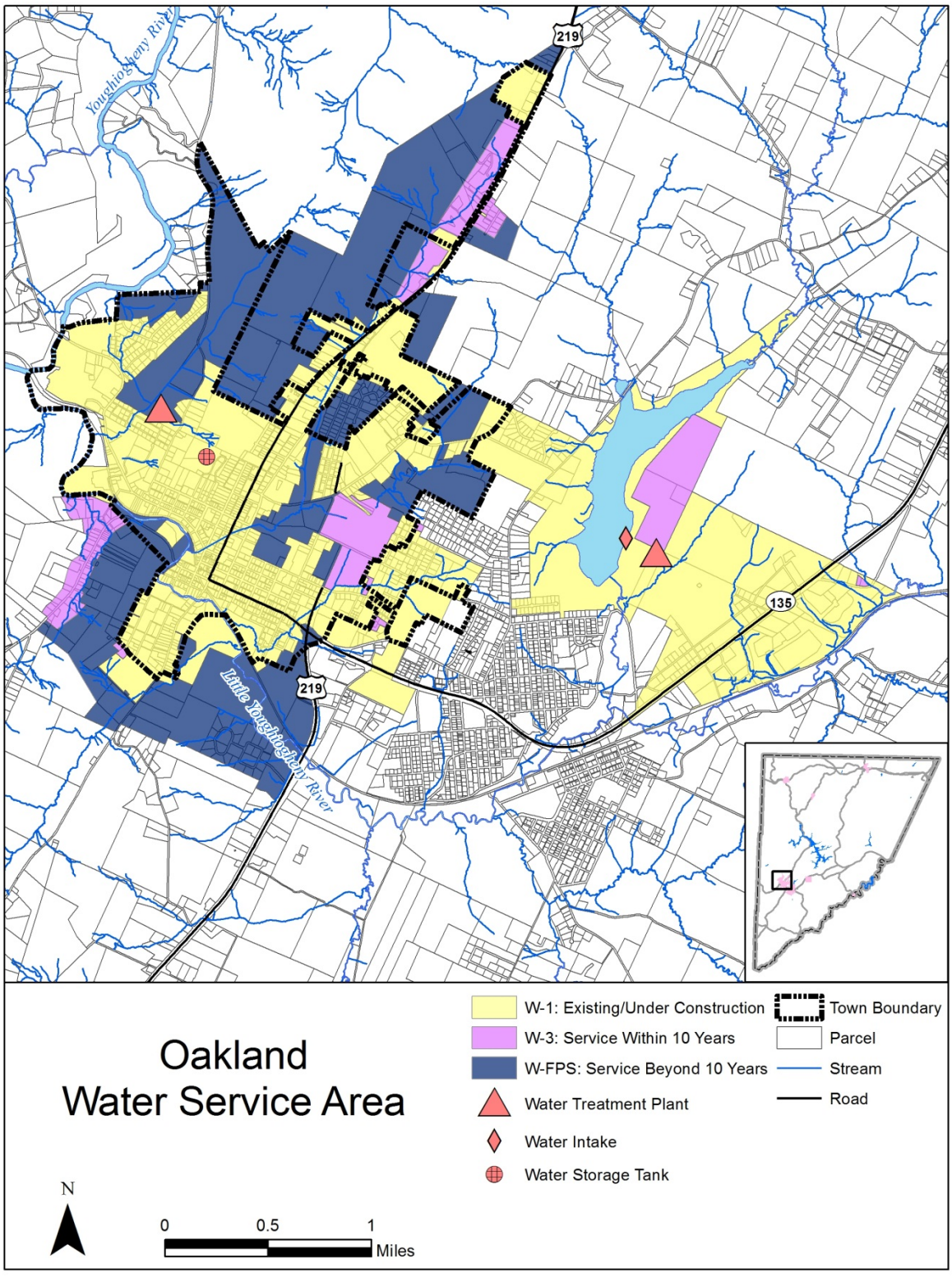


Figure 3-11 Bloomington

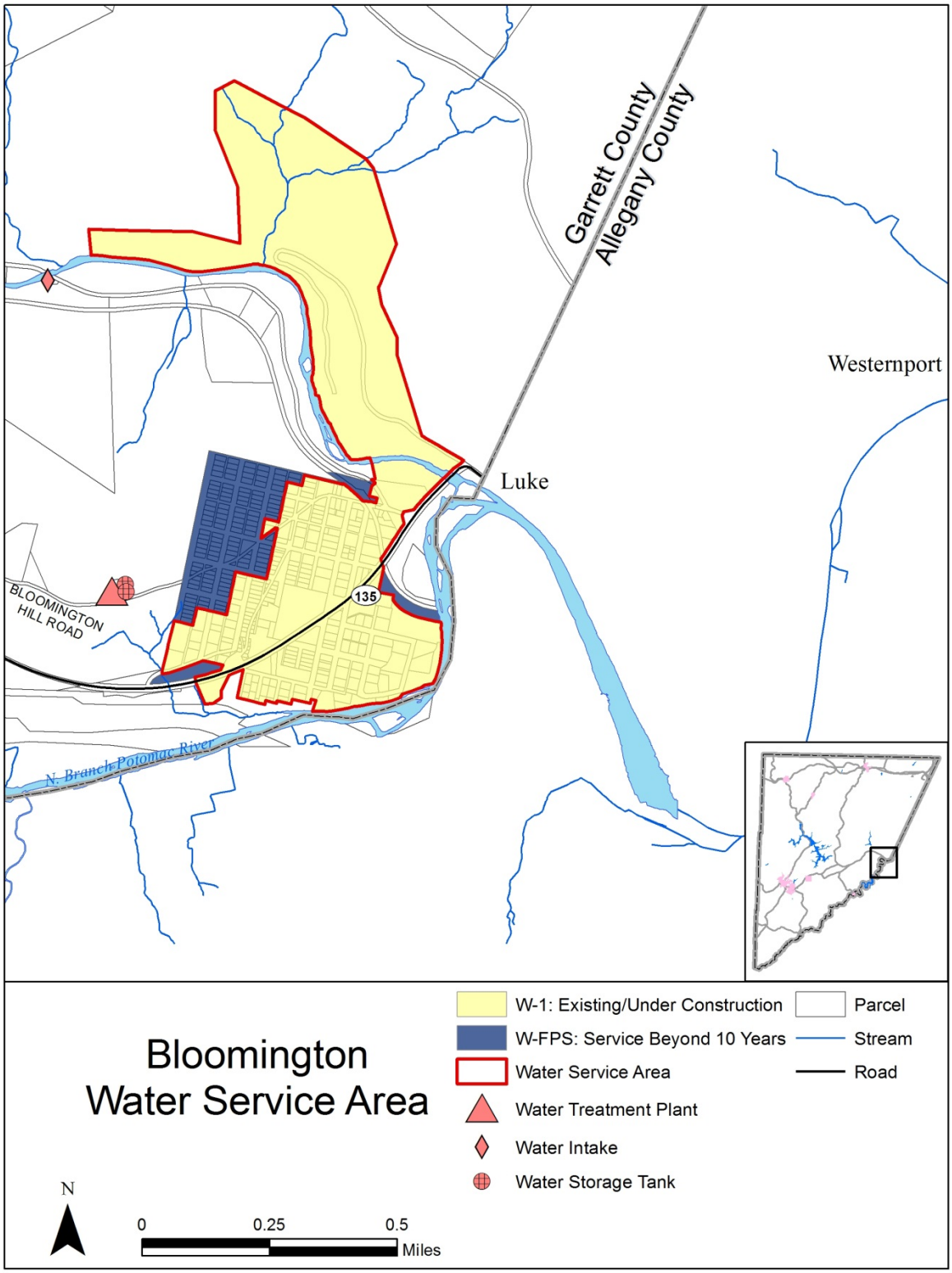


Figure 3-12 Gorman

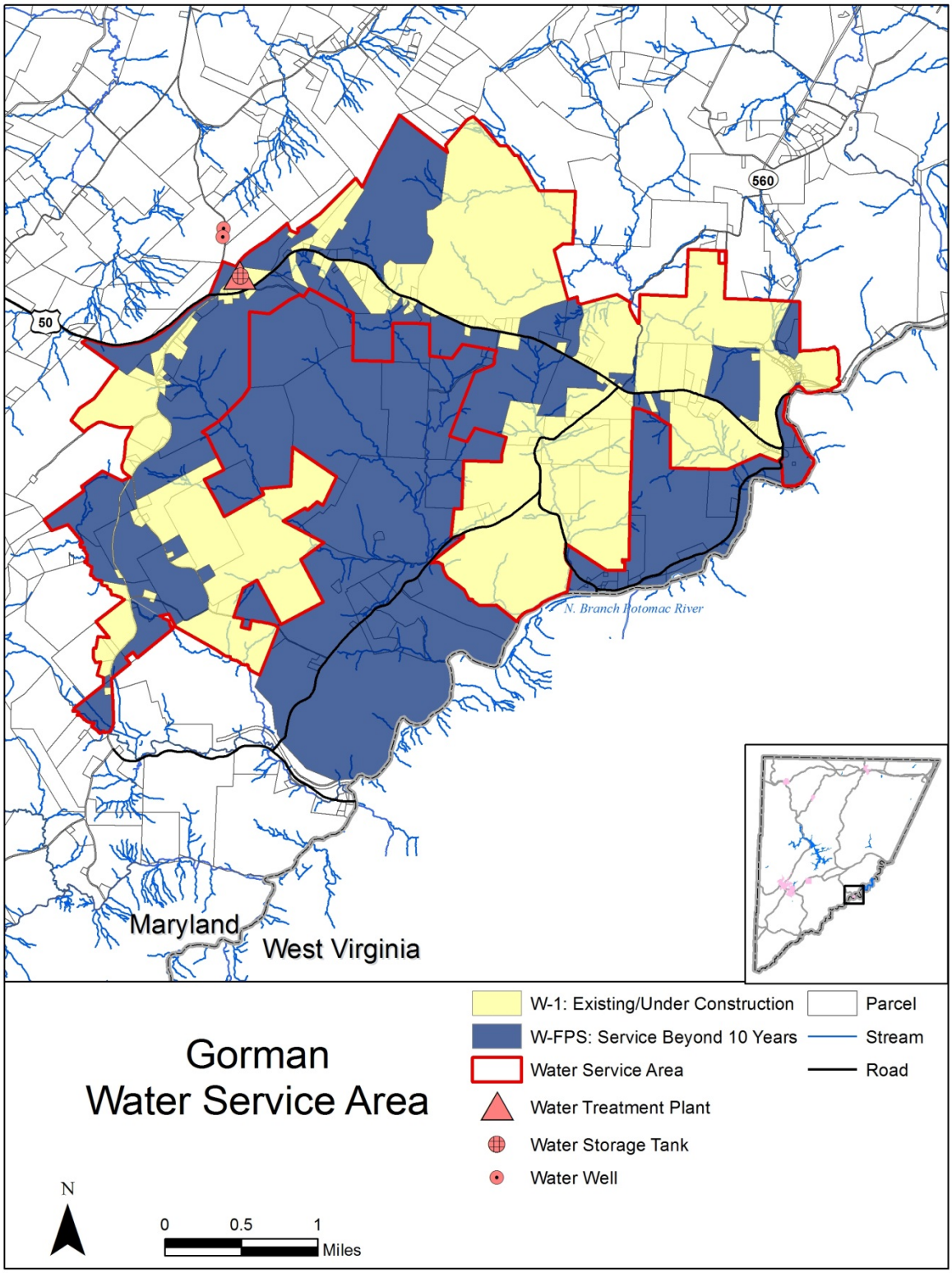


Figure 3-13 Kitzmiller

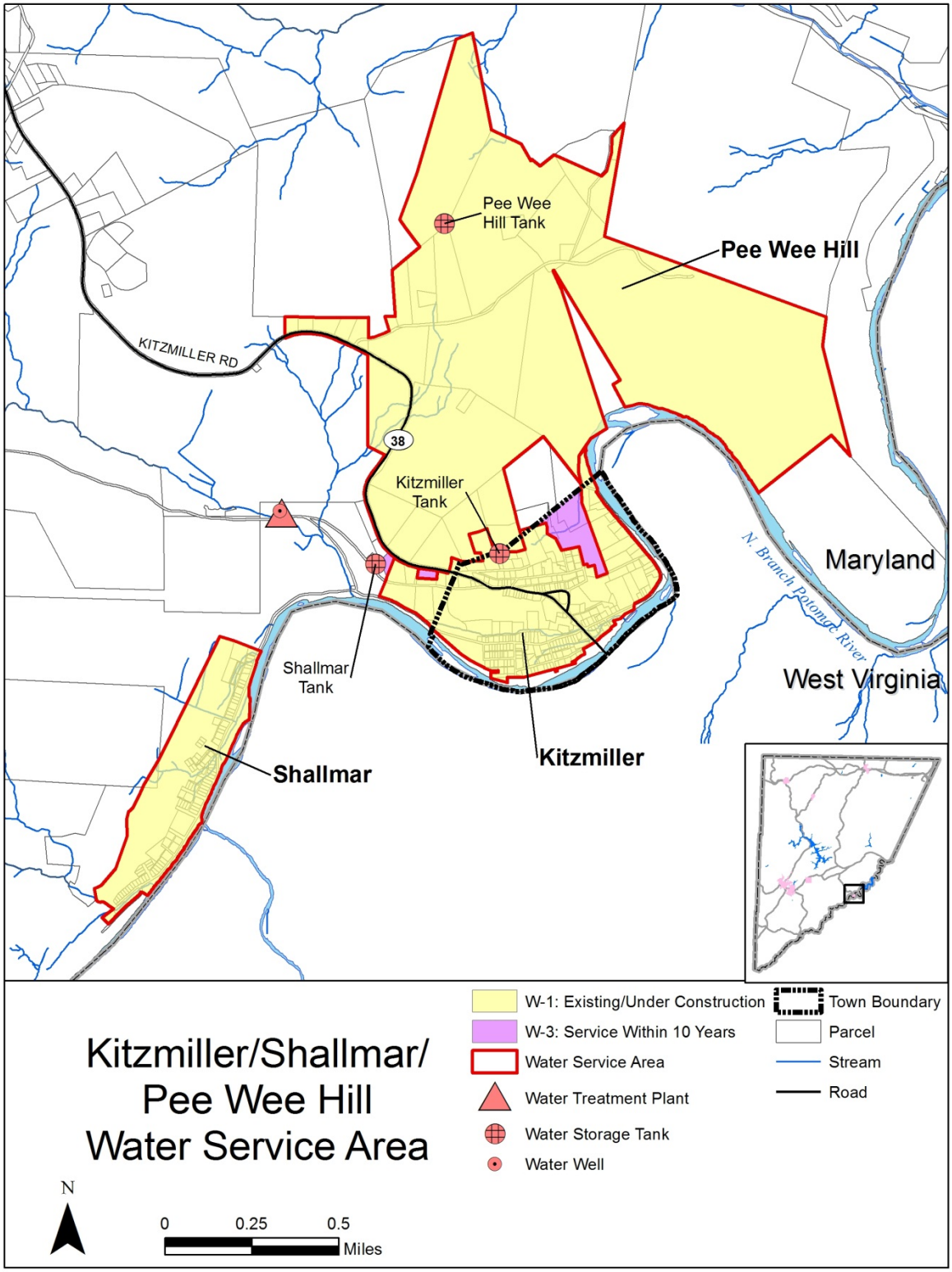


Figure 3-14 Crellin

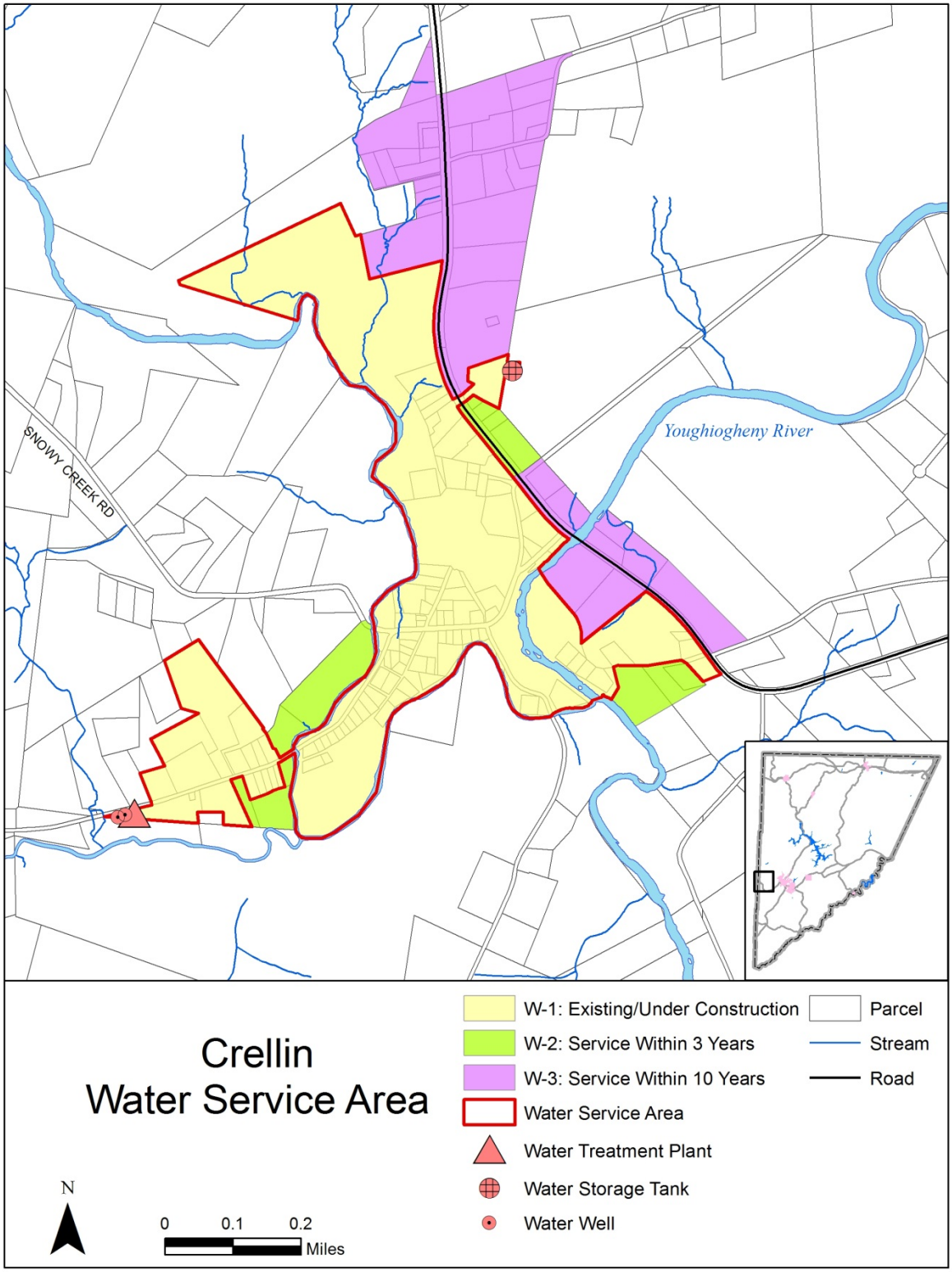


Figure 3-15 Friendsville

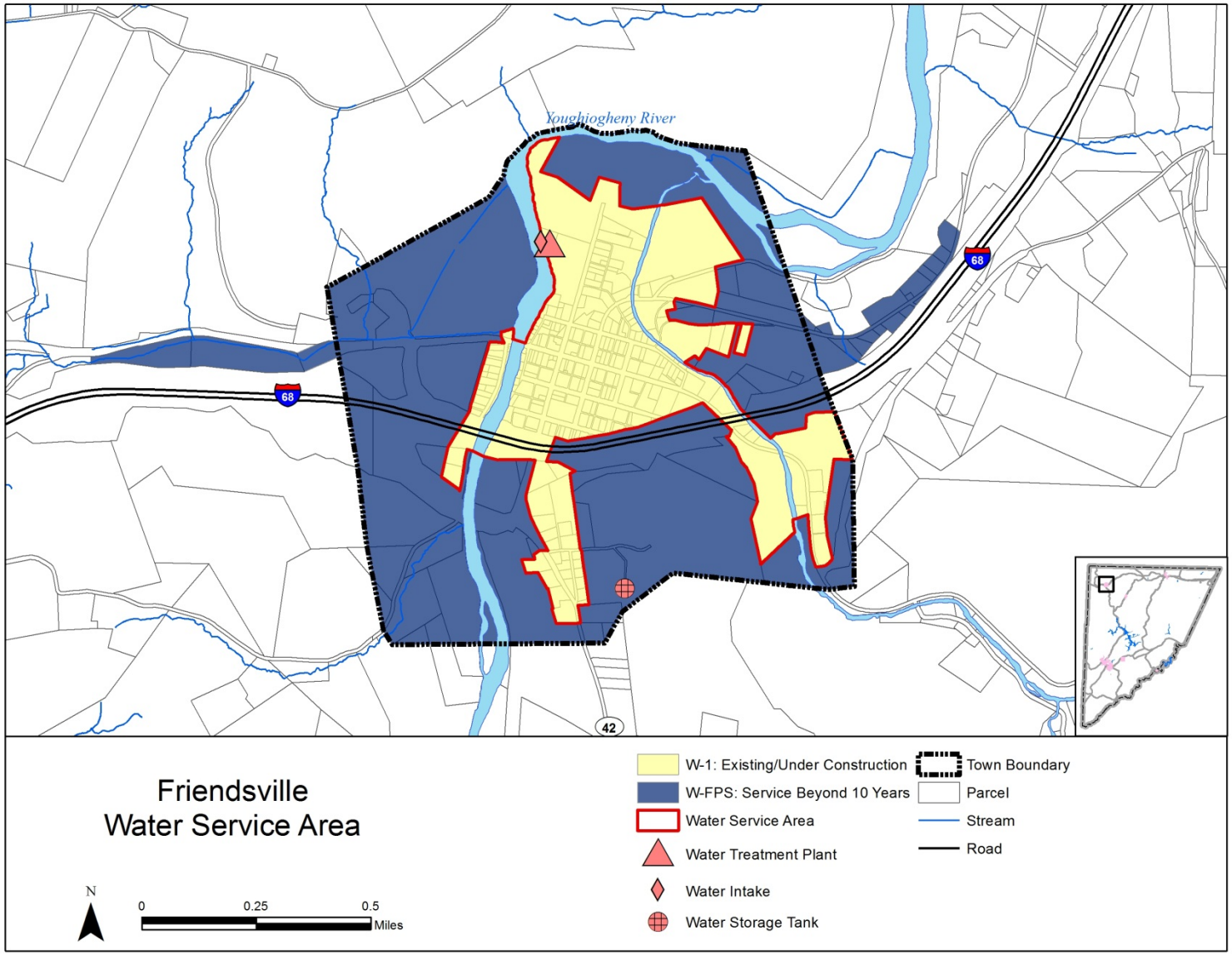
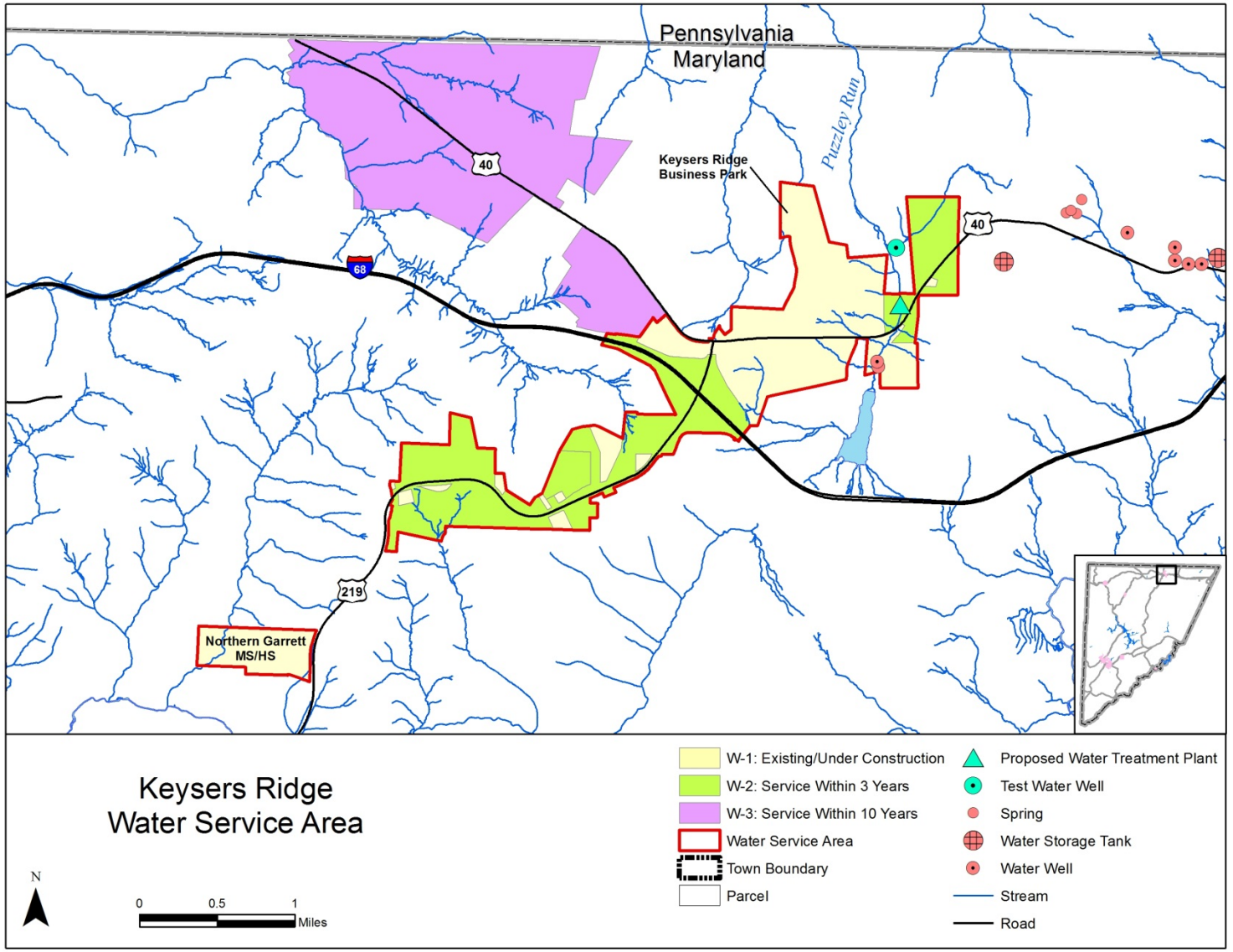


Figure 3-16 Keysers Ridge



4. Sewerage Systems

This chapter provides information the County will use to plan, operate, and maintain safe and adequate community and multi-use sewerage systems and protect the County's environmental resources.

All proposed sewerage system improvements are consistent with the 2008 Comprehensive Plan's land use and infrastructure policies and with the policies in Chapter 1 of this Water and Sewerage Master Plan (the Plan). The public sewerage systems described in this chapter are in areas the County has designated as growth areas to receive the infrastructure investment necessary to support economic development and to absorb the County's projected population and housing unit growth.

Data tables describing the County's sewerage systems and maps depicting those systems are included at the end of this Chapter. [1]

4.1 Sewerage Systems

4.1.1 Bear Creek Watershed

4.1.1.1 Town of Accident

The Town of Accident, with a 2010 population of 325, is located along US 219 north of Deep Creek Lake. The Town has approximately 170 housing units, a small number of businesses, and the Central Garrett Industrial Park.

Existing system

The Town's sewerage system was built in the 1970s. In 1987 a 2,130-foot 8-inch collector sewer line extension was installed to the Central Garrett Industrial Park, and provides service to the 68-acre park. The entire Town system consists of approximately 23,400 LF[2] of 6, 8, and 10-inch diameter gravity flow collector and interceptor sewers connecting to the WWTP at 427 South Main Street near the southern boundary of the Town. The WWTP has current discharge permit effluent limitations based on an average daily flow of 50,000 gpd.

Wastewater inflow to the facility passes through a bar-screen and then through a flow splitter vault that divides wastewater for further treatment. Wastewater flow up to 50,000 gpd diverted after the flow splitter vault is treated by two trains of activated sludge units (each consisting of digester, aeration basin and clarifier), sand filter, post-aeration chamber and ultra-violet (UV) disinfection system. Wastewater flow exceeding 50,000 gpd diverted after the flow splitter vault gets partial treatment using a flow equalization basin and UV disinfection.

[1] Note, to assist the State in its review, this Plan numbers the tables in order, but the table titles at the end of the chapter also gives the Table numbers as prescribed in COMAR.

[2] Facility Plan, Thrasher Engineering (approved by MDE 2-15-2002).

Effluent from both processes is then combined in the final effluent collection chamber (for effluent sampling and flow measurement). Treated sewerage is discharged to an unnamed tributary of the South Branch Bear Creek. The sludge generated by the facility is trucked to the Deep Creek WWTP for treatment and disposal.

The Town of Accident owns its sewerage system and contracts with Garrett County to operate it.

South Branch Bear Creek is a designated Tier II water and subject to the State's antidegradation policy to maintain water quality in high quality (or Tier II) waters (see Chapter 2).

Service Areas

The existing service area closely follows the Town boundary, with the exception of Accident elementary school, east of the Town on Accident Bittinger Road. No service area expansions are planned within three years. In the 3 to 10 year planning period, service may be extended to an approximately 26-acre area south of town on the east and west sides of US 219 (Figure 4-2).

Currently unserved areas within the Town boundaries, mostly on the north and west sides of Town, are shown as future planned service areas (beyond 10 years).

There is no sanitary district associated with the Town of Accident.

Problem Areas and Future Needs

The Town's sewerage system has suffered from persistent problems with inflow and infiltration (I/I)[3]. Based on the discharge flow data (2009- 2011), MDE estimated the annual average flows for 2009, 2010 and 2011 at 58,000 gpd, 77,000 gpd and 119,000 gpd respectively[4]. The 2011 flow was over twice the rated design capacity of 50,000 gpd. In 2012 average flows were 78,800 gpd (Table 4-1). Peak flows were as high as 150,000 gpd.

In 1990 the State issued an Order to the Town requiring that a Sanitary Sewer System Evaluation Report be prepared in order to reduce I/I in the collection system. Following completion of the report and issuance of a second Order, two sanitary sewer collection system improvements project were completed in 1994 and 1996. After further evaluation of the collection system in 1998, it was deemed necessary to eliminate continuing high flows, bypassing and effluent violations during snow melts and precipitation events.

In December 2000, the Town contracted engineering services to further evaluate the sewage collection system for I/I and the treatment process at the wastewater treatment plant in order to address requirements of a new Complaint and Consent Order issued by MDE in October, 2000. In 2001 the Town submitted to MDE a Facility Plan detailing improvements necessary to comply with the new Order. MDE approved the Facilities Plan on February 15, 2002.

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[3] Inflow is water from storm events entering the system through roof drains, sump pumps, foundation drains, and similar sources. Infiltration is groundwater entering the system through leaking pipes, manholes, and other elements. I/I takes up sewer capacity that should be reserved only for wastewater, effectively limiting the system's overall capacity.

[4] Accident Wastewater Treatment Plant Summary Report & Fact Sheet MDE 1-14-13.

In September 2005 Contract 1 – Sanitary Sewer Inflow and Infiltration Remediation (Phase 1A) was completed consisting of lining of the existing 8-inch and larger vitrified clay sanitary sewer lines in conjunction with manhole rehabilitation, replacements and installation of water tight lids.

Phase 1B, Sanitary Sewer Lateral Replacements, consisted of the replacement of each active customer's service lateral pipeline from the main sewer line to the customer's property line. This work was completed in September 2008. The lateral reconnection project was followed by a sanitary sewer system smoke test in November 2010 to identify the remaining problematic areas in the collection system. The test identified several private-property areas as well as main collection system areas that potentially could cause I/I.

Phase 1C, Wastewater Collection System Upgrade, was completed in September 2013. The work included pipe bursting of existing 8-inch PVC and 6-inch terracotta pipelines, removal and replacement of existing manholes with new water tight castings, additional service lateral reconnections including smoke testing and videotaping, purchase and installation of two flow monitors for the equalization tanks, and installation of an Auger Monster Modular Headworks System for grinding and screening of influent. The Town also purchased and installed an influent sampler in order to comply with requirements contained in the new draft discharge permit (January 2013).

As of late 2013 the Town is performing a flow study to determine the effects of the I/I projects.

The Final Phase of the project, once flow is stabilized, will include further improvements to the WWTP in order to enhance the treatment process and increase the plant's treatment capacity.

The facility is currently being operated under Consent Order No. CO-03-0064 issued by MDE on January 23, 2003. In 2004 the Town submitted a discharge permit renewal application to MDE requesting an increase in the daily discharge flow to 90,000 gallons for a facility upgrade and expansion.

In June 2013 MDE issued a new discharge permit for the Accident WWTP. Noting that wastewater flows exceed the rated design capacity of 50,000 gpd on a routine basis, the permit requires submittal of i) an Action Plan to keep track of measures to bring the facility into compliance, ii) a Municipal Sewage Flow Capacity Report and iii) a Wastewater Capacity-Management Plan. The permit also states (in summary) that a future capacity increase to 90,000 gpd may be approved provided i) MDE concurs that wastewater flows have been reduced and stabilized, ii) the Town completes a Tier II water anti-degradation review study, and iii) MDE concludes that the WWTP will not adversely impact the stream it discharges to.

Planned and Recommended Improvements

Upgrade the Wastewater Treatment Plant from 50,000 gpd to 120,000 gpd including extended aeration process, an equalization basin to attenuate peak flows, new influent flow controls, treatment units, generator, and disinfection units. As an alternative the Town is considering

discontinuing use of its WWTP and pumping all of its collected flow to the Deep Creek Lake WWTP.

4.1.1.2 Other Systems

The Garrett County Airport on Bumble Bee Road and the McHenry Business Park are partially within the Bear Creek watershed. They have existing sewer service from the Deep Creek Lake sewerage system.

In 2009 (Resolution 2009-2) the County amended the 1997 the Water and Sewerage Master Plan by expanding the Deep Creek Lake Sewerage Service Area to include the approximately 360-acre Whiteface Farm property immediately south of the Garrett County Airport. Of the 360 acres, approximately 190 acres were for the McHenry Business Park, 50 acres south of the business park were for a proposed workforce housing development, and the remaining approximately 120 acres were to remain as open space.

Also in the Bear Creek watershed, but served by the Deep Creek Lake Sewerage Service Area, is the Sweet Rewards subdivision on Klotz Farm Road.

Garrett County Public Schools operates a WWTP for the Northern Middle and High School, and Camp Hickory Environmental Education complex. Discharge permit effluent limitations are based on an average daily flow of 50,000 gpd. Sludge from the WWTP is currently permitted for disposal at the Deep Creek Lake WWTP.

4.1.2 Casselman River Watershed

4.1.2.1 Town of Grantsville

The Town of Grantsville, with a 2010 population of 766, is located north of the I-68 / MD 495 interchange. The Town has approximately 400 housing units, a business district, the Northern Garrett Industrial Park, and the Goodwill Mennonite Home comprising a skilled nursing home, assisted living apartments and a retirement village.

Existing system

The Town of Grantsville owns and operates the Grantsville WWTP located north of Route 40 alt, on the east side of town near the Casselman River bridge. Four collection systems convey sewage to the plant: the Town of Grantsville's system; the Goodwill Mennonite Home system; the Chestnut Ridge system east of the town; and the Jennings system south of the Town.

Town of Grantsville

The Town owns and operates its collection system which serves most properties within the Town. The Northern Garrett Industrial Park is in the Town but is south of I-68. An 8-inch gravity and pressure sewer line was completed in 1993 and conveys wastewater from the industrial park to the collection system and the WWTP (approximately 3,000 linear feet).

The WWTP was first built in 1989. An addition was made in 1995 to accommodate flow from the Chestnut Ridge and the Jennings collection systems. The plant uses the rotating biological contactor (RBC) variant of the biological nutrient removal (BNR) process including primary clarifiers, submerged rotating biological contactors, final clarifiers, UV disinfection and cascade post aeration. Sludge from the WWTP is treated in two aerobic digesters and the stabilized liquid sludge is land-applicated or transported to the Deep Creek Lake WWTP for processing.

Discharge from the WWTP is to the Casselman River, a designated Use IV water which is protected for holding or supporting adult trout for put-and-take fishing. The WWTP has current discharge permit effluent limitations based on an average daily flow of up to 600,000 gpd. Average daily flow in 2012 was approximately 78,200 gpd.

Goodwill Mennonite Home system

The Goodwill Mennonite Home was annexed into the Town in 2006, though the Town began treating wastewater from the home in the 1990s. Garrett County owns and maintains the collection system (approximately 5,000 linear feet) and an associated pump station. The system currently serves approximately 90 ERUs (Table 4-1).

Chestnut Ridge Collection System

Garrett County owns and operates the Chestnut Ridge Collection System which conveys wastewater to the Grantsville WWTP. The system has approximately 15,000 to 20,000 linear feet of sewer line and currently serves approximately 144 ERUs (Table 4-1).

The Chestnut Ridge area, north and south of the I-68 US 219 interchange, is a designated growth area and a PFA. The collection system was completed in 1996 replacing on-site septic systems and individual treatment plants for several businesses including an approximately 100-room Comfort Inn hotel (formerly Holiday Inn) and the Penn Alps Restaurant and Artisan Village[5]. The Chestnut Ridge system consists of the following components:

- Gravity sewer lines extending: i) from the Casselman River to Hill Top (near the intersection of US 40 and US 219; ii) north of US 40 along US 219; iii) south of US 40 to I-68 and along I-68 to US 219 (Chestnut Ridge Road); and iv) south of I-68 to and along Ellis Drive.
- Sewage pump station on the south side of US 40, south of the Penn Alps development.

A master meter records sewerage flow from Chestnut Ridge and the Garrett County Sanitary District pays the Town of Grantsville for treatment based on flow.

Jennings Collection System

Jennings is a small, mostly residential community located along MD 495 about four miles south of Grantsville. The area had failing septic systems, and a 1997 study recommended a small diameter, variable–grade, gravity collection system to convey effluent to the Grantsville WWTP

[5] Based on an area wide facility plan, completed in 1987.

for treatment[6]. The Jennings service area was created in 1998 and the County completed project construction in 2000. The system comprises:

- Septic tanks at each connection.
- Approximately 40,660 linear feet of 6-inch, and 22,400 linear feet of 4-inch variable grade sewer line.
- A mainline pump station was installed in 2013 north of the MD 495/Jennings Road intersection to enhance flows to the Grantsville WWTP.

Garrett County owns and operates the Jennings Collection System. The system currently serves approximately 82 ERUs including Clayburn, Inc., a refractory plant, as well as some homes between Jennings and Grantsville along Maple Grove Road (Table 4-1).

Service Areas

Figure 4-3 shows the existing Grantsville sewerage service area along with the Chestnut Ridge, and Jennings collection systems. See also Figures 4-4, 4-5, and 4-6. No service area expansions are planned for the upcoming one to three year period (S-2). Several areas are shown as being served within 10 years (S-3) including: south of Meadowview Drive to I-68; west of Springs Road (MD 669); north along Springs Road to the Pennsylvania line; east of Dorsey Hotel Road; and north along and east of US 219 (Chestnut Ridge Road). These areas are consistent with growth areas indicated in the Garrett County Comprehensive Plan.

No additional future service area expansions (beyond 10 years) are currently planned.

Problem Areas and Future Needs

The Town's sewer lines and WWTP date from the 1980s and are becoming dated.

The ultraviolet disinfection system at the Grantsville WWTP has two racks. One is approximately 15 years old and needs to be replaced, the other one is four years old.

Planned and Recommended Improvements

Replace the ultraviolet disinfection system rack at the Grantsville WWTP.

4.1.2.2 Finzel

Finzel is an unincorporated community straddling the Casselman and Savage River watersheds with an estimated population of approximately 550 (US Census American Fact Finder). Finzel does not have sewerage service. Some homes have marginal or failing septic systems that the Garrett County Health Department Environmental Health Services addresses on an ongoing basis.

[6] Jennings Community Sewage Disposal Study, April 4, 1997.

4.1.3 Deep Creek Watershed

4.1.3.1 Deep Creek Lake

Deep Creek Lake is the County's center for growth and development. The lake and surrounding area have become the County's most important economic engine as a result of tourism and year-round and seasonal housing. As of 2005 the watershed contained approximately 5,560 housing units, the largest number in the County. Many of these units are seasonal.

Existing system

Planning for sewer service in the Deep Creek Lake area dates back to the 1970s. The Garrett County Sanitary District published its evaluations of alternatives for sewer service and its recommendations in 1975. The first part of the Deep Creek Lake sewerage system became operational in November 1984 with several phases added since. The system includes over 75 miles of sewer line.

The Deep Creek Lake sewer service area now extends around most of the west, north and east sides of the Lake. The irregular shape of the Lake and the need to convey sewerage to a single WWTP on the west side of the Lake away from the shoreline make the Deep Creek Lake service area unusual compared to a conventional gravity sewerage system. The system has topographic and environmental demands requiring alternative means of wastewater handling. A key feature of the system is that much of it is composed of small diameter-pressure sewers connected to individual grinder pump installations.

The interceptor sewer system begins on the west shore of Deep Creek Lake along Marsh Hill Road, proceeds north to McHenry and then south along Deep Creek Drive intercepting sewer lines from Mosser Road, Gravelly Run Road and Rock Lodge Road. It further proceeds under Deep Creek Lake at the Deep Creek Bridge to a main line pump station (#2-2) at the intersection of Lake Shore Drive and US 219.

Wastewater from the southeast (Glendale-Zeddock Miller Road, Deep Creek Lake State Park, Paradise Point, Harvey's and Beckman's peninsulas, and Thousand Acres) is conveyed along Glendale Road to a main line pump station (#3-2) at the intersection of Glendale Road and US 219.

Wastewater from the south (Sand Flat Road) is conveyed north along US 219 to pump station #3-2. Wastewater from pump station #3-2 is conveyed north along US 219 to pump station #2-2). Wastewater from pump station #2-2 is conveyed west along Lake Shore Drive and Mayhew Inn Road to the WWTP.

The following is a list of pump stations and locations:

Pump Station ID #	Location
1-1	Mayhew Inn Road
2-1	Lake Shore Drive
2-2	Intersection of Lake Shore Drive & US 219

	(Garrett Highway)
3-1	US 219
3-2	Intersection of US 219 and Glendale Road
5-1	Glendale Road
6-1	Deep Creek Drive
6-2	Deep Creek Drive
7-1	Rock Lodge Road
7-2	Rock Lodge Road
8-1	Marsh Hill Road
8-2	Marsh Hill Road
8-3	Marsh Hill Road
8-4	Marsh Hill Road
11-1	Paradise Heights Road
11-2	Moonrise Drive (Harvey's Peninsula)
11-3	Glenlake Road (Beckman's Peninsula)

The system includes two 900,000-gallon sewage storage tanks, one on Glendale Road near the intersection with US 219 and another in McHenry on Town Center Drive. Both tanks are equipped with aeration and odor control. Each tank can hold the flow of 1,000 ERUs for a three-day period and also provide emergency storage in the event of a line rupture or major pump station failure.

The Deep Creek Lake WWTP is located at 762 Mayhew Inn Road near the Deep Creek Lake Dam. Treated wastewater is discharged to Deep Creek Stream at a point approximately one mile east of its confluence with the Youghiogheny River. In the mid 1980s the design capacity of the Deep Creek Lake sewerage system was 600,000 gpd (approximately 1,800 ERUs). The design did provide for 500 additional ERUs but this surplus capacity was used up by development that occurred after the system was completed and a temporary moratorium had to be imposed.

Upgrades and expansions of the plant from 0.6 MGD to 2.2 MGD were undertaken in stages with the upgrade completed in 2006[7]. The treatment plant process units include fine screening (rotary belt), grit removal, extended aeration activated sludge via oxidation ditch technology (biological treatment), secondary clarification with chemical addition for phosphorus removal, UV disinfection, and cascade post aeration. The solids handling facilities include gravity sludge thickening, aerobic digestion, and centrifuge dewatering. The solids facilities are designed to produce Class B biosolids suitable for land application.

The WWTP has current discharge permit effluent limitations based on an average daily flow of up to 2,200,000 gpd (2.2 mgd). Average daily flow in 2012 was approximately 334,700 gpd[8]. The Deep Creek Lake WWTP was laid out for a potential mirrored (duplicate) expansion on the

[7] The March 2011 Discharge Permit states "The permittee shall notify the Compliance Program of the Water Management Administration when the facility expansion to 2.2 mgd design capacity is completed"

[8] With a permitted discharge of over 0.5 mgd the Deep Creek Lake WWTP is a "major" WWTP. However, it is not on the State's list of approximately 66 major facilities because it does not discharge to a Chesapeake Bay tributary.

north side of the plant property. Ultimately, the site could accommodate a total of 3.9 MGD of treatment capacity. However, based on the capacity modeling for this Water and Sewerage Plan (see below), such an expansion will not be needed through 2033.

Meadow Mountain

Meadow Mountain is a small collection system created in 2000 to serve the Deep Creek State Park Road and Brant Road areas and to correct problems associated with failing septic systems. Approximately 78 homes are connected to the system which includes approximately 14,600 linear feet of 6-inch and 3-inch pressure sewer main along State Park Road, Brant Road, and Meadow Mountain Lane sized to accommodate a maximum daily demand of 70,500 gpd. The Deep Creek Lake State Park facilities were connected to the Meadow Mountain collection system in 2011. The sewer main connects to the main Deep Creek Lake sewerage system at the Glendale Bridge.

Service Areas

Figure 4-7 shows the existing Deep Creek Lake sewerage service area. As noted above, the service area extends around most of the west, north and east sides of the Lake. On the west side the service area takes in portions of Marsh Hill, including the entire Wisp Resort Planned Residential Development (PRD), and, to the south, portions of Roman Nose Hill. To the north, the service area takes in McHenry and extends into the south part of the Bear Creek Watershed to serve the Garrett County Airport and the Whiteface Farm property[9], and the Sweet Rewards subdivision (Klotz Farm Road). To the east, the service area includes Beckmans Peninsula, Harveys Peninsula, and the Thousand Acres PRD.

In the current to three year planning period the County plans to extend sewer service from the southern end of Marsh Hill Road to Shingle Camp Road and Stockslager Road. This extension is also known as the Western Conveyance System (see below under Planned and Recommended Improvements). Sewer service is available to the area north of McHenry along Pysell Road and this area is shown as S-2 on Figure 4-7.

In the three to ten year planning period the County plans to extend sewer service to several areas including:

- Sky Valley
- Portions of Roman Nose Hill
- An area south of Roman Nose Hill
- Portions of the Mountainside Development
- Area near Shingle Camp Road and Sandy Shores Road
- Sunset Ridge (Sunset Ridge Drive)

[9] See discussion above under Bear Creek watershed.

- Aspen Woods East (a proposed development north of McHenry west of Pysell Road)
- Northglade Hills (Clark Lohr Road).

Several areas are shown as future planned service areas (beyond 10 years) including:

- Infill areas in and around McHenry
- An area north of McHenry including Springwood Acres
- Approximately 560-acre infill area south of Roman Nose Hill
- Areas along North Glade Road
- Small area (approximately eight lots) along 219 south of Glendale Rd/219 intersection
- Area along Sand Flat Road south of US 219
- A number of areas around the entire southern end of the Lake: Paradise Ridge, Blakeslee, Pergin Farm, Turkey Neck, Hazelhurst, and Green Glade. This future project is referred to as the Southern Conveyance system.

  This inclusion is in response to petition[10] that was presented to the Garrett County Sanitary Commission in 2002 to create a sewer service area in the Green Glade, Hazelhurst and Turkey Neck areas. Letters of opposition were also received. A preliminary analysis was completed reflecting the need for increased capacity in the Deep Creek Lake WWTP and construction of a new conveyance system from the proposed service area directly to the wastewater treatment plant.

These areas are consistent with the Garrett County Comprehensive Plan and the Deep Creek Watershed zoning ordinance. The Comprehensive Plan included a careful study of the impacts of growth and divided the southern part of the Deep Creek Lake watershed into Lake Residential 1 and Lake Residential 2 land use categories (see the Comprehensive Plan, Section 4.4, and Figures 2-10, 2-11, and 2-12 in Chapter 2 of this Water and Sewer Plan).

Problem Areas and Future Needs

Several areas in the southern and eastern parts of Deep Creek Lake have marginal or failing septic systems, including Turkey Neck, Green Glade, Hazelhurst and Sky Valley. These failures risk polluting groundwater and contributing to pollution in Deep Creek Lake. As shown on Figure 4-7 and described in the previous section, the County intends to serve Sky Valley in the three to ten year period and the southern part of the Lake in the future (beyond 10 years).

A mobile home park located on Ferguson Circle in McHenry has marginal or failing septic systems. Sewer is available to serve the park (see S-2 area along Pysell Road) and the park should be encouraged to connect to the public system.

[10] Creation of service areas by petition must be in accordance with Title 9, Subtitle 649 of the Environment Article of the Annotated Code of Maryland

Capacity modeling for this Water and Sewerage Plan shows that there will be capacity at the Deep Creek Lake WWTP to serve the planned service area extensions. Table 4-1 shows that the extensions would add approximately 2,680 ERUs to the system (or approximately 0.7 mgd) versus current capacity of approximately 1.86 mgd)[11].

The project to extend sewer to the southern end of the Lake is referred to as the Southern Conveyance System. Preliminary engineering for this system was conducted in the mid 2000s. A detailed engineering design study (Preliminary Engineering Report) needs to be developed for this system extension.

Deep Creek Lake has some water quality issues, especially sediment. Most sediment remains in the lake and does not affect the Deep Creek stream below the dam. A State/County cooperative watershed management plan study is underway as of 2013 to examine sediment and other water quality concerns.

Planned and Recommended Improvements

Construction of the Western Conveyance system is expected to begin in 2014 and to take one to two years. The project includes construction of a new pump station (8-2A) on Marsh Hill Road and installation of approximately 35,000 L.F. of 16-inch pressure sewer line from the new pump station to the Shingle Camp Terrace, Sandy Beach Road and Stockslager Road areas.

The proposed route then proceeds adjacent to a present power line right-of-way around the dam to the terminus at the Deep Creek Lake WWTP. An alternative route under Deep Creek Lake to the WWTP is under consideration. The new conveyance system will provide public sewerage service to residents in the area and allow existing flows currently pumped from areas north of Deep Creek Bridge to pump station 2-2 to be redirected through the Western Conveyance thus relieving pressure on pump station 2-2 and the conveyance system along Lake Shore Drive and Mayhew Inn Road.

4.1.4 Georges Creek Watershed

There are no community or multi-use sewerage systems in the George's Creek watershed.

[11] See Table 4.1 row 7, columns F, K, and L.

A 9-13-13 Summary of ERUs for Deep Creek Lake shows 4,049 ERUs receiving service and an additional 2,322 inactive or reserved for a total of 6,371. Compared to a capacity of 8,380 (2.2 mgd/262.5), this leaves 2,009 ERUs available for allocation. Some of the 2,575 ERUs that would be added to the system through 2033 are included in the 2,322 inactive or reserved ERUs (so that the 2,575 ERUs that would be added to the system through 2033 would not exceed the 2,009 ERUs available for allocation).

4.1.5 Little Youghiogheny River Watershed

4.1.5.1 Trout Run

Existing system

Garrett County operates the Trout Run WWTP located on Norris Welch Road just south of the Town of Mountain Lake Park, at the confluence of Trout Run and the Little Youghiogheny River. Five collection systems convey sewerage to the plant: Deer Park, Shady Acres, Weber Road, Mountain Lake Park, and Loch Lynn Heights. Garrett County owns and operates the Deer Park, Shady Acres, and Weber Road collection systems (see Figures 4-8, 4-9, 4-10, and 4-11).

Discharge from the Trout WWTP is to the Little Youghiogheny River 3.84 miles upstream of its confluence with the Youghiogheny River. The last major upgrade of the WWTP was completed in 1989. Components include:

- debris baskets
- aerated lagoon
- intermediate pumps for pumping of the facultative/storage lagoon effluent to the spray distribution system onto the intermittent sand filters
- a hydrographic control release (HCR) system consisting of an automatic control valve, ultrasonic level sensors and a microprocessor based controller
- cascade post-aeration
- influent lift pumps
- facultative/storage lagoon
- three intermittent sand filters
- ultraviolet light disinfection

The WWTP has current discharge permit effluent limitations based on an average daily flow of up to 900,000 gpd. Average daily flow in 2012 was approximately 245,800 gpd (Table 4-1). Maximum average daily peak flow was 834,583 gpd (Table 4-2). Because the Trout Run WWTP has storage lagoons Garrett County also tracks influent flows. The maximum average daily influent flow in 2012 was 1.3 mgd. The plant produces no sludge.

Both the Little Youghiogheny River and the Youghiogheny River rivers are designated as Use III-P natural trout and public water supply waters. The Little Youghiogheny River is on the 303(d) list as impaired waters for total suspended solids, nitrogenous and carbonaceous BOD, fecal coliform, and combination benthic/fishes bio-assessments (see Chapter 2). The State protects such streams using more stringent temperature and dissolved oxygen water quality criteria than are used in less sensitive streams.

The Plant does not discharge into the Chesapeake Bay drainage basin; therefore the State has not required Enhanced Nutrient Removal (ENR) treatment to be installed. A Total Maximum Daily Load (TMDL) approved by the Environmental Protection Agency (EPA) on January 29, 2001, allocated nitrogenous and carbonaceous BOD waste loads to the Plant. A TMDL approved by EPA on February 7, 2007, allocated a sediment load of 89.7 Tons/year, and on December 3, 2009 an EPA approved TMDL allocated an E. coli fecal bacterial load of 1,567 Billion MPN/year to the facility. Due to the facility having the reasonable potential to exceed the receiving stream's copper water quality criteria, copper limitations contained in the current State issued Discharge Permit will become effective October 1, 2014.

The Little Youghiogheny River has low flow typically in the summer months between June 1 and October 31. The effect of the protection criteria is to limit the volume of treated wastewater the County can discharge from the WWTP especially in the summer when low oxygen levels or oxygen depletion caused by the discharge has the greatest adverse impact on the aquatic life.

A stream gage with a weir and Parshall flume is used to measure stream flow. During the low flow period, the WWTP is operated in the hydrographic release mode using the hydrographic controlled release equipment. Stream flow measurements from the gage are used to determine the allowable wastewater release and BOD_5 (dissolved oxygen) and TKN (nitrogen) loading rates that may be released. However, because of inadequate storage capacity there have been violations of the State's water quality protection criteria (see below under Problem Areas).

Mountain Lake Park - collection system

The Mountain Lake Park collection system is the largest of the five collection systems conveying sewerage to the Trout Run WWTP. The system handles approximately 870 accounts. The Town owns and operates the system.

A five-phase project has been underway since 2003 to upgrade and rehabilitate the Mountain Lake Park collection system including installation of approximately 38,700 linear feet of PVC sanitary sewers, 219 manholes, and other incidental work. Phases 3 and 3A were completed in 2009/2010 and the next phase (Phase 4) has been designed but needs funding (see below under Problem Areas).

Loch Lynn Heights - collection system

The Loch Lynn Heights - collection system serves approximately 230 accounts Rehabilitation of the Loch Lynn Heights collection system began in 2005 and was completed in 2012. The system includes approximately 34,700 linear feet of gravity pipe, 126 manholes, 22 mainline clean outs and 146 customer clean outs.

The Town owns and operates its system. The Town notes it now has excellent mapping of its system including locations of manholes and cleanouts on drawings and in GIS.

Deer Park collection system

The County created the Deer Park Sanitary District in 1993. Prior to this the Town had no sewerage collection or treatment facilities. The option to connect to the Trout Run WWTP was deemed preferable to building a separate treatment facility, and interconnection was completed in 1997.

The collection system consists of septic tanks and small diameter gravity sewers at the house connections. Two pump stations collect the sewage and pump it into a force main conveying the flow along MD 135 to a manhole in the Shady Acres area. The system has approximately 10 miles of sewer line.

Approximately 210 accounts are on the system.

Shady Acres - collection system

Shady Acres refers to the area adjacent to the east of Mountain Lake Park north and south of MD 135 including the Southern Garrett County Industrial Park and the Southern Garrett Business and Technology Park. In 1989, in association with improvements at the Trout Run WWTP, the County installed approximately 10,500 linear feet of collection and interceptor sewers in the Shady Acres Sanitary District and constructed an approximately 2,500 foot long sewer interceptor to connect to the Mountain Lake Park interceptor system. Approximately 60 accounts are on the system.

Weber Road - collection system

The Weber Road collection system collects sewerage from a Maryland State Highway Administration maintenance facility on Weber Road South as well as Yough Glades elementary school, and a few private businesses and dwellings and conveys it to the Mountain Lake Park collection system. The system has approximately 15 accounts.

Service Areas

Figure 4-8, 4-9, and 4-10 show the existing Trout Run sewerage service area.

No service area expansions are planned within 10 years. Future service areas (FPS, beyond 10 years) are proposed for several areas:

- Approximately 830-acre area mostly north of MD 135 between Mountain Lake Park and Deer Park.
- Three areas northeast, southeast and southwest of Deer Park.
- Two areas south and east of Loch Lynn Heights.
- Small infill area southwest of Mountain Lake Park (SHA Drive).

These areas are consistent with the Garrett County Comprehensive Plan which included a careful study of the growth areas for the four towns in the Little Youghiogheny watershed. The projected

change in ERUs through 2033 is approximately 280 and this increase would not exceed the WWTP capacity.

Problem Areas and Future Needs

Trout Run WWTP

As noted above, discharge from Trout Run WWTP is subject to temperature and dissolved oxygen water quality criteria because the Little Youghiogheny River is a designated as Use III-P waters[12]. When the County cannot discharge it must store the effluent and the storage capacity has sometimes been inadequate to hold the accumulated sewage flows without discharging. Inflow and infiltration from the collection systems increases the flow volume to the plant and exacerbates the storage problem.

The County intends to develop a Preliminary Engineering Report to evaluate the current wastewater treatment plant process and performance and to provide economical and reasonable alternatives for improvements in order to meet the conditions and requirements of the WWTP discharge permit. The Preliminary Engineering Report will be prepared in accordance with U.S. Department of Agriculture, Rural Utilities Service, Bulletin 1780-3, Preliminary Engineering Report – Wastewater Facilities.

Loch Lynn Heights

Installation of clean outs and monitoring points on lateral sewer lines is needed for locations that were not addressed during the rehabilitation project completed in 2012.

Mountain Lake Park

The Town needs to complete the next phase (Phase 4) of the upgrade and rehabilitation of the Mountain Lake Park collection system. Phase 4, "Town of Mountain Lake Park Phase 4- Sewer and System (I & I) Improvements and Upgrades", is to replace approximately 4,750 LF of 8-inch sewer pipe, 450 linear feet of 2-inch pressure sewer, 35 manholes, and a sewage lift station[13]. Design is complete, but the phase is awaiting funding. The Town applied to MDE for funding in 2013 but the project was not funded.

4.1.5.2 Town of Oakland

Existing system

The Town of Oakland owns and operates the Oakland Wastewater Treatment Plant located at 27 Oakland-Rosedale Road on the Little Youghiogheny River, in Oakland. The wastewater plant was built in the late 1980s. As noted above under Trout Run, the Little Youghiogheny River has limited assimilative capacity. Effluent from the Oakland Wastewater Treatment Plant (WWTP) is conveyed via a discharge line running approximately 1.0 mile north of the WWTP, and is

[12] Discharge Permit for Trout Run Wastewater Treatment Plant State Discharge Permit 08-DP-1 046.

[13] The project is called Phase 4 but it will technically be the 5th phase of rehabilitation. There was a phase 3 and phase 3A so it will technically be the 5th phase of rehabilitation projects.

discharged to the Youghiogheny River at the confluence with the Little Youghiogheny River. The Youghiogheny River, like the Little Youghiogheny is designated as a Use III-P waters and is subject to temperature and dissolved oxygen water quality criteria.

The Oakland WWTP has current discharge permit effluent limitations based on an average daily flow of up to 900,000 gpd. The average daily flow at the plant in 2012 was approximately 445,000 gpd. Wastewater treatment includes combination grit chamber/solids removal followed by a series of four aerated lagoons: Lagoon 1 has submersible course aeration; Lagoons 2 and 3 have biolac fine-bubble aeration; and Lagoon 4 has an up-draft nitrification chamber for TKN & ammonia removal. The effluent discharge is treated by UV disinfection.

Improvements have been made to the treatment plant since it was built, as much of the equipment reached and/or exceeded its useful life. One-half of the UV equipment and panels have been replaced or upgraded, some of the blowers and pumps have been replaced, much of the aeration system/equipment has been replaced, and improvements have also been made to the pump stations. After 20 years of treatment plant operations, it was necessary to remove sludge from the lagoon system. Over 200 tons of sludge have been removed. It is anticipated that this will be necessary in another 10 to 20 years in order to keep the plant operating at optimal conditions.

In the late 1980s, at the same time the WWTP was built, the Town did extensive work to its collector system. The system includes a siphoning chamber located behind the South Eighth Street/Agway area. As a result, the entire system relied on gravity flow to one of two pump stations; to the Main Pump Station along Route 39 or to the Bradley Run Pump Station near Liberty Street.

Since the 1980s improvements and extensions have been added to the collector system. Three additional pump stations have been added, including one on North Fourth Street, one along Memorial Drive and one to serve the Lowes/North Oakland area. Additional sewer lines were added, including one mile of pressure system for the Lowes/North Oakland area. The Oakland Collector system now includes approximately 26 miles of wastewater collector lines.

Service Areas

Figure 4-11 shows the existing and proposed Town of Oakland sewerage service areas. No service area expansions are planned for the upcoming three year period (S-2). Within 10 years (S3) the Town anticipates providing service to the following areas:

- An area between Dennett Road and East High Street,
- A small area near Southern Garrett High school,
-
- Some unserved properties on the south and east sides of Town, near the intersection of Weber Road and Oakland Drive, near Hamill Street, and properties near Dennett Road.

Several areas are shown as future planned service areas (beyond 10 years) including:

- Approximately 700-acre area west of US 219 between the town boundary by N. 2nd Street, Oakland Sang Run Road, and the Lowes Store, including North Bradley Lane.
- Two areas east of US 219 corridor on the north side of Town.
- Infill areas in the central part of and northeast sides of Town, including Windy Lane.
- Area south and east of South Third Street, to include the current Sears property and Pleasant Hills Estates area, connecting to US 219 South. Service to this area would require an amendment to the County Comprehensive Plan as it is currently designated as Rural**.**
- Area south west of the town boundary in the MD 39/Rosedale area. Residents have asked for Town services, and the Town will seek funding to provide service to these areas and to the Shaffer Hill area. Service to portions of this area would require an amendment to the County Comprehensive Plan as the area west of MD 39 is currently designated as Rural**.**

Except as noted, these areas are consistent with the future growth areas indicated in the Garrett County Comprehensive Plan. Oakland has the treatment plant capacity to add these areas to its wastewater system, but lacks the funding to cover the cost of installing new mains.

Problem Areas and Future Needs

As the WWTP components continue to reach normal use expectancy, the Town replaces them in order to remain in compliance of discharge limitations. The Town anticipates needing future replacements due to normal wear and tear and the need for upgrades.

Like many collector systems, Oakland has some problems with infiltration and is interested in doing a study to identify major problem areas for upgrade and replacement of failing lines. In addition, there are concerns with the Main Pump Station as well as the Bradley Run Pump Stations, with regard to a need for re-designing these pump stations to include a bar screen for safer and more efficient operations. Operators of the system have also identified a possible need for an algae control system to improve treatment plant operations.

Oakland has also identified a need for system wide- digital mapping of its wastewater collector system.

Other systems

White Oak Mobile Home Park on Upper White Oak Road has approximately 20 homes. The septic systems are marginal or failing, and a new drainfield location has been identified.

4.1.6 North Branch Potomac River Watershed

4.1.6.1 Bloomington

Existing system

Garrett County developed a sewerage system for Bloomington 1987. The collection system consists of gravity sewers and grinder pump units with pressure sewers. The system has approximately 16,000 linear feet of sewer line.

The WWTP has current discharge permit effluent limitations based on an average daily flow of up to 50,000 gpd. Average daily flow in 2012 was approximately 12,400 gpd. The treatment plant has a bar screen, flow equalization, activated sludge, post aeration and UV disinfection.

Treated effluent from the WWTP is discharged to the North Branch Potomac River. The North Branch is designated as Use I-P water protected for water contact recreation, aquatic life and public water supply. Sludge from the WWTP is transported to the Deep Creek Lake WWTP for processing.

Service Areas

Figure 4-12 shows the existing and proposed Bloomington sewerage service areas. No service area expansions are planned for the upcoming three year period (S-2). Within 10 years (S3) the County anticipates providing service to some unserved properties on the west sides of the community, west of Hampshire Avenue and Brick Row.

Problem Areas and Future Needs

None for this planning period.

4.1.6.2 Gorman

Existing System

Garrett County developed a sewerage system for Gorman 1988. The collection system consists of septic tanks at each connection and 4-inch variable grade gravity collector and interceptor sewer lines, a pump station and effluent pumps in low areas that cannot be served by gravity.

The WWTP treats septic tank effluent from each residence and local business. Effluent is pumped to the WWTP and treated with a septic holding tank, open air sand filters, and UV disinfection. The WWTP has current discharge permit effluent limitations based on an average daily flow of up to 8,500 gpd. Average daily flow in 2012 was approximately 1,000 gpd.

The treated effluent is discharged into the North Branch of the Potomac River. As noted above under Bloomington, the North Branch is designated as Use I-P water protected for water contact recreation, aquatic life and public water supply. The sand filter system generates little if any sludge.

Service Areas

Figure 4-13 shows the existing and proposed Gorman sewerage service areas.

No service area expansions are planned for the upcoming three year period (S-2). Within 10 years (S-3) the County plans to expand service south approximately 0.5 miles along US 50. This will serve the Althouse Hill Road area that has failing septic systems.

Problem Areas and Future Needs

The sand filter walls at the WWTP need to be rebuilt with concrete. The open air sand filters are subject to weathering and weed growth. A roof structure is needed to protect the filters.

4.1.6.3 Kitzmiller

Existing System

Garrett County developed a sewerage system for Kitzmiller in 1987. The collection system consists of 8-inch gravity sewers and grinder pump units with small diameter pressure sewers.

The WWTP treats sewerage using an activated sludge process with sewage holding tanks, aeration and clarification, UV disinfection and cascade post aeration. The treated effluent is discharged into the North Branch of the Potomac River at the plant, and sludge is treated and disposed in reed beds. As noted above under Bloomington, the North Branch is designated as Use I-P water protected for water contact recreation, aquatic life and public water supply.

The WWTP has current discharge permit effluent limitations based on an average daily flow of up to 40,000 gpd. Average daily flow in 2012 was approximately 8,100 gpd.

Service Areas

Figure 4-14 shows the Kitzmiller sewerage service areas. No service area expansions are planned for the upcoming three year period (S-2). Within 10 years (S-3) the County anticipates providing service to the Oak Street area north of Kitzmiller Road.

Two infill areas on the north side of Town, within the town boundary are shown as future planned service areas (beyond 10 years).

Problem Areas and Future Needs

There is need to enclose the rear portion of the WWTP with side walls where the sand filters had previously been located.

Kempton

Kempton is a former coal town at the head of the North Branch of the Potomac River. The community now has approximately 10 to 20 homes connected to a community collection system dating to the 1920s and which likely needs to be replaced. A sanitary survey should be undertaken to investigate the situation. A potential solution for wastewater treatment would be wetland treatment.

4.1.7 Savage River Watershed

There are no community sewerage systems in the Savage River Watershed.

The MES operates a septic tank and sand filter wastewater treatment plant at New Germany State Park with a permitted discharge basis of 6,000 gpd. Sludge from the WWTP is disposed of by hauling to the Garrett County Landfill.

Problem Areas and Future Needs

Finzel is an unincorporated community straddling the Savage River and Casselman watersheds with an estimated population of approximately 550 (US Census American Fact Finder). Some homes have marginal or failing septic systems that the Garrett County Health Department Environmental Health Services addresses on an ongoing basis.

Swanton is an unincorporated community with an estimated population of approximately 60 (US Census American Fact Finder). A number of homes are located on a narrow level bank close to Crab Tree Creek stream and effluent from septic systems flows quickly into stream. It does not appear that the septic systems are failing; rather the concerns are the discharge into the stream and the close proximity of septic systems and wells). A sanitary survey should be undertaken to investigate the situation and recommend potential solutions.

4.1.8 Youghiogheny River Watershed

4.1.8.1 Crellin and Hutton

Existing System

Garrett County developed a sewerage system for Crellin in 1990. The system now also serves the community of Hutton approximately one mile northwest of Crellin. The combined system serves approximately 150 ERUs.

The collection systems consist of septic tanks located at each connection and gravity sewers. The Hutton system has two main line pump stations that convey effluent to the WWTP which is located at 237 West Ashby- Ellis Road in Crellin. Wastewater is treated with a recirculation tank, open air sand filters, UV disinfection and post step aeration.

The combined system has approximately 30,000 linear feet of sewer lines.

The WWTP has current discharge permit effluent limitations based on an average daily flow of up to 27,000 gpd. Average daily flow in 2012 was approximately 13,400 gpd.

Effluent from the WWTP is discharged into the Youghiogheny River at Hutton Road (MD 39) near the bridge over the Youghiogheny River. Discharge from the Crellin WWTP is subject to temperature and dissolved oxygen water quality criteria because the Youghiogheny River is a designated as Use III-P water. Sludge from the septic tanks is transported to the Deep Creek Lake WWTP for treatment.

Service Areas

Figure 4-15 shows the existing and proposed Crellin and Hutton sewerage service areas. Note that the narrow extension in the south west corner of the service area is for the water treatment plant.

During the upcoming three year period (S-2) the County intends to extend service along MD 39 to properties south of Hutton and at the southern end of Crellin to parcels that front existing lines. Future planned service areas (beyond 10 years) are just north of Crellin, mostly on the east side of MD 39 in the vicinity of Gank Road.

Problem Areas and Future Needs

The proposed service extensions would add, potentially, approximately 47 ERUs by 2023 and 66 ERUs by 2033 (Table 4-1). By 2023, the additions would create a total flow of 25,700 gpd which is within 80% of the 27,000 gpd discharge permit effluent limitations[14]. By 2033 the additional flow would be approximately 30,000 gpd, exceeding the current permit effluent limitations.

Note that these projections are based on an average flow of 262.5 gpd per ERU (see Chapter 1 of this Water and Sewerage Plan). Actual average flow per ERU to the Crellin WWTP is 85 gpd (Table 4-1). If this low flow is maintained for the additional service areas, the total flow would be less than 80 percent of the effluent limitations.

The County will need to carefully monitor sewerage flow to the WWTP and, should flows exceed 80 percent of the effluent limitations, begin planning for ways to reduce discharge to the Youghiogheny River.

The sand filter walls at the WWTP need to be rebuilt with concrete. The open air sand filters are subject to weathering and weed growth. A roof structure is needed to protect the filters.

4.1.8.2 Friendsville

Existing System

Construction of the Town's original sewage collection system and wastewater treatment plant commenced in 1973. The collection system is constructed of vitrified clay (terra-cotta) pipe and has approximately 14,810 LF of 8-inch collection pipe, 1,160 LF of 8-inch outfall sewer from the treatment plant, one pump station, approximately 520 LF of pressure sewer and 69 total manholes.

Garrett County took ownership of the sewerage system in 1996, and continues to own and operate it. It serves approximately 230 ERUs.

[14] Table 4-1 includes the 80% analysis as an indication of potential capacity issues for the County to monitor and plan to address. The 80% figure is drawn from MDE's capacity management planning methodology.

Wastewater flows to the Friendsville WWTP located at 849 First Avenue, Friendsville. The WWTP has current discharge permit effluent limitations based on an average daily flow of up to 125,000 gpd. The plant has a 300,000 gallon flow equalization tank for excessive flows. Wastewater is treated using activated sludge secondary treatment unit with chlorine disinfection and dechlorination with SO2.

Effluent from the WWTP is discharged into the Youghiogheny River just north of the WWTP. Discharge from the Friendsville WWTP is subject to temperature and dissolved oxygen water quality criteria because the Youghiogheny River is a designated as a Use III-P water. Sludge from the WWTP is transported to the Deep Creek Lake WWTP for treatment.

Average daily flow in 2013 was approximately 80,200 gpd. This is a significant decrease over the 2012 flow of approximately 106,900 gpd when the plant was using an estimated 24,000 to 28,000 gpd of drinking water for chlorination/dechlorination. This practice was discontinued in April 2013 and the operation now uses recycled treated wastewater.

Service Areas

Figure 4-16 shows the existing and proposed Friendsville sewerage service areas. Note that the existing area includes a State Highway Administration rest area on I-68 approximately three miles east of town. This line was constructed in 1992.

During the upcoming three year period (S-2) the County intends to extend service west of town along MD 42, Friendsville Road.

On the east side of Town, the line to the State Highway Administration rest area provides the potential for service east of town along Friendsville Addison Road, north of I-68. This area is shown as S-2. Twelve residences along with a trailer court consisting of seven dwellings are located within the area that presently does not have public sewer service. The Garrett County Health Department Environmental Health Services has identified properties within the area that have failing on-site sewage disposal systems and/or direct discharge into Bear Creek, and has requested that public sewerage service be extended to the area in order to abate public health issues.

Problem Areas and Future Needs

The Friendsville system has suffered from persistent problems with inflow and infiltration (I/I) and several projects have been undertaken in an attempt to understand and address the problem.

In 2004, a study was completed to evaluate the system for and to make corrective recommendations. The study indicated that in the spring and during periods of high groundwater levels, I/ I flows alone exceeded the permitted plant capacity (flows up to 1 MGD during heavy rain events). The study also indicated that infiltration was more of an influence on the system which is consistent with terra-cotta pipe systems in a low area with sandy soil conditions. The proposed project had two components:

- Rehabilitation of four areas of main sewage collection lines which are heavily influenced by infiltration (completed in 2010 using the U –liner process)
- Elimination of inflow into lateral house connections. In 2006, Garrett County conducted smoke testing of lateral connections in order to identify I/I sources. The testing resulted in the identification of 22 properties with I/I problems. Corrections are ongoing.

Due to average daily flows peaking near treatment plant capacity, a limited number of ERUs only are available for connection to the system. The limitation on available sewer capacity has hindered commercial and residential expansion within the town. Therefore, I/I issues must be corrected to enable the town to grow.

An existing 300,000 gallon steel flow equalization tank has deteriorated; the sides are leaking and the roof was damaged due to snow and ice load, such that it cannot be used. The County proposes to replace the existing steel tank with a 300,000 gallon precast post-tensioned concrete tank. Included in the project would be replacement of the diffusers located inside the tank and the security fencing around the structure.

4.1.8.3 Keysers Ridge

Keysers Ridge is a future sewerage service area around the interchange of I-68 with US 219 and National Pike (Alternate US Route 40). See Figure 4-17.

Bruceton Farm Service, Inc. (BFS) owns a package WWTP at 4168 National Pike that serves a McDonalds restaurant and a BFS office/ fuel loading facility. Discharge permit effluent limitations are based on an average daily flow of up to 14,000 gpd[15] The WWTP has a single-train rotating Biological Contact (RBC) unit with pre-aeration, clarifier, UV disinfection & post-aeration. Effluent is discharged to an unnamed tributary of Puzzley Run upstream of Lake Louise. Garrett County operates the WWTP under contract. Average daily flow for 2012 was approximately 2,200 gpd. Sludge from the WWTP is transported to the Deep Creek Lake WWTP for treatment.

The Garrett County Comprehensive Plan identifies Keysers Ridge as a growth area that includes the 240-acre Keysers Ridge Business Park on Route 40 north of the interchange. Development of a Keysers Ridge WWTP, which would treat wastewater from the business park and surrounding areas, has been a long term county goal that has been dependent on occupancy at the business park.

The County has a wastewater discharge permit for the future Keysers Ridge WWTP. It was issued in May 2011 based on an average daily flow of up to 50,000 gpd. The discharge point would be to Puzzley Run downstream of Lake Louise. WWTP development cost estimates

[15] The discharge permit is titled BFS (Bruceton Farm Services) Truck Stop, but the truck stop was not developed. There is a nearby restaurant (Little Sandys at the intersection of Rt. 219 and Rt. 40) but wastewater from here is hauled to the Deep Creek Lake WWTP for treatment.

range from approximately $1.6 million to approximately $3 million depending on whether one, two or three phases are built at one time.

According to the BFS wastewater discharge permit, when the proposed Keysers Ridge wastewater treatment plant is completed in a such way to handle the 14,000 gpd flow allocation to the truck stop, the BFS WWTP will be taken out of service and no longer discharge to the stream. The Keysers Ridge future planned service area also contains some existing homes that could be served by a future WWTP.

The FY 2014 Garrett County capital improvements program includes a $3 million line item for industrial park sewer. As of 2013 the Garrett County Economic Development Department is seeking federal and/or state funding to help support the project. The plant would be located on lot 9 of the existing Keysers Ridge Business Park. The proposed treatment method comprises zenon modular membrane bioreactors. Phase 1 of the plant would be designed for a total of 100,000 gpd. However, this would be built in two expandable treatment trains of 50,000 gpd each. Under Phase 1 one train would be installed along with all the necessary infrastructure to support the second 50,000 gpd train.

Puzzley Run is a Tier II water (high water quality) and is subject to the state's anti-degradation policy – see Chapter 2, section 2.2. Any expansion above the current discharge permit of 50,000 gpd will require a discharge permit modification, and an anti-degradation review would be a pre-requisite for any modification.

4.1.8.4 Other Systems

Camp Sonrise Mountain is a 120-acre camping facility and retreat center on Caney Valley Road near Friendsville. The facility has a small extended aeration WWTP that discharges into a tributary of the Youghiogheny River. Garrett County has a contract with the owner to provide operation supervision, maintenance and laboratory services for this system. Sludge from the WWTP is transported to the Deep Creek Lake WWTP for treatment.

The MES operates a WWTP with lagoon, sand filter and chlorination at Swallow Falls State Park with a permitted discharge basis of 62,000 gpd. No sludge is produced.

Tables

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Table 4-1 (COMAR Table No. 9)**								-					
2	**Projected Sewerage Demand and Planned Capacity**													
3		**WWTP Permitted Discharge Basis (gpd)**	**Equivalent Residential Units Served, 2013 (Resi-dential and Non-Residential)**	**Average Daily Flow (gpd), for 2012, unless noted in comments**	**Average daily flow per ERU**	**Available Capacity (Average)**	**Projected New Total ERUs that will be served by 2023 (Residential and Non-Residential)**	**Projected New Total ERUs that will be served by 2033 (Residential and Non-Residential)**	**Projected change in ERUs 2013 to 2023**	**Projected change in Sewer Demand 2013 to 2023 (gpd); gray highlight shows systems where change exceeds or is within 80% of available capacity (Col F). Pink highlight; change exceeds capacity.**	**Projected total Sewer demand in 2023 (gpd) (Col D + Col J); gray highlight shows systems where change exceeds or is within 80% of permitted discharge (Col B). Pink highlight; change exceeds capacity.**	**Projected change in ERUs 2013 to 2033**	**Projected change in Sewer Demand 2013 to 2033 (gpd); gray highlight shows systems where change exceeds or is within 80% of available capacity (Col F). Pink highlight; change exceeds capacity.**	**Projected total Sewer demand in 2033 (Col D + Col M); gray highlight shows systems where change exceeds or is within 80% of permitted discharge (Col B). Pink highlight; change exceeds capacity.**
4	Accident, Town	50,000	200	78,800	394	(28,800)	217	232	17	4,490	83,290	32	8,403	87,203
5	Bloomington	50,000	127	12,400	98	37,600	131	135	4	932	13,332	8	1,970	14,370
6	Crellin / Hutton	27,000	158	13,400	85	13,600	205	224	47	12,365	25,765	66	17,328	30,728
7	Deep Creek Lake	2,200,000	4,049	334,700	83	1,865,300	4,997	6,728	948	248,905	583,605	2,679	703,186	1,037,886
8	Meadow Mountain - collection system		78								-			
9	Friendsville	125,000	229	80,216	350	44,784	250	272	21	5,540	85,756	43	11,291	91,507
10	Gorman	8,500	19	1,000	53	7,500	35	39	16	4,082	5,082	20	5,120	6,120
11	Grantsville, Town	600,000	671	78,200	117	521,800	793	828	122	31,898	110,098	157	41,228	119,428
12	Chestnut Ridge - collection system		144			-								
13	Goodwill Retirement Community collection system		90			-								
14	Jennings - collection system		82			-								
15	Keysers Ridge (future)	50,000	-	-		50,000	11	55	11	2,915	2,915	55	14,441	14,441
16	Kitzmiller	40,000	182	8,100	45	31,900	189	196	7	1,865	9,965	14	3,678	11,778
17	Oakland, Town	900,000	1,755	444,500	253	455,500	1,830	2,006	75	19,668	464,168	251	65,915	510,415
18	Trout Run	900,000	1,466	245,800	168	654,200	1,523	1,748	57	14,970	260,770	282	74,055	319,855
19	Mountain Lake Park - collection system					-								
20	Loch Lynn Heights - collection system					-								
21	Deer Park - collection system					-								
22	Shady Acres - collection system					-								
23	Weber Road - collection system					-								
24	Total		9,250											
25	Notes													
26	1. Address data provided by Garrett County Dept. of Planning & Land Development address point database and MD PropertyView parcel centroids. See electronic version of spreadsheet for detailed methodology.													

	A	B	C	D	E	F	G	H	I	J	K
1	**Table 4-2 (COMAR Table No. 10)**										
2	**Inventory of Existing Wastewater Treatment Facilities**										
3	**Facility Name**	**System Type Municipal, Other Public, or Private**	**Type Treatment**	**Point of Discharge**	**Permitted Discharge Basis (gpd)**	**Peak Flow, 2012 (for WWTPs with flow volume concerns)**	**Plant Location (lat long)**	**Outfall (discharge) location**	**Plant Location Description**	**Owner**	**Operating Agency**
4	Accident WWTP	Municipal	Wastewater flow up to 50,000 gpd is treated by two trains of activated sludge units. Flow over 50,000 gpd gets partial treatment using a flow equalization basin and large sized UV system	Unnamed tributary of South Branch Bear Creek.	50,000	170,167 (peak average daily flow)	39.619529, -79.323092	39.617817, -79.323944	427 South Main Street, Accident	Town of Accident	Dept of Public Works
5	Bloomington WWPT	Municipal	Bar screen, flow equalization, activated sludge, post aeration and UV disinfection	North Branch Potomac River	50,000		39.476482, -79.068642	39.476667, -79.068333	121 Owens Ave, Bloomington	Garrett County	Dept of Public Works
6	Crellin WWTP	Municipal	Recirculation tank, sand filters, UV disinfection and post step aeration	Youghiogheny River	27,000		39.391209, -79.463381	39.390278, -79.464167	237 West Ashby-Ellis Road, Crellin	Garrett County	Dept of Public Works
7	Deep Creek Lake WWTP	Municipal	Rotary belt screen, grit removal, oxidation reactor, clarifiers, aerobic digester, gravity thickener and UV disinfection	Deep Creek Stream, below Deep Creek Lake dam and approximately ½ mile from Youghiogheny River.	2,200,000		39.508424, -79.406432	39.505183,-79.397399	762 Mayhew Inn Road, (Deep Creek Lake) Oakland	Garrett County	Dept of Public Works
8	Friendsville WWTP	Municipal	Activated sludge secondary treatment unit with chlorine disinfection & dechlorination with SO2	Youghiogheny River	125,000	174,667 (peak average daily flow)	39.669529, -79.408094	39.669539,-79.40712	849 First Avenue, Friendsville	Garrett County	Dept of Public Works
9	Gorman WWTP	Municipal	Septic holding tank, sand filter, and ultra violet radiation disinfection	North Branch Potomac River	8,500		39.293715, -79.343656	39.295 -79.339444	338 Steyer Gorman Road, Gorman	Garrett County	Dept of Public Works
10	Grantsville WWTP	Municipal	Bar screen, grit collection & comminutor, primary clarifiers, submerged rotating biological contactors, final clarifiers, UV disinfection & cascade post aeration	Casselman River	600,000		39.697027, -79.144474	39.69814,-79.143577	10223 National Pike, Grantsville	Town of Grantsville	Town
11	Kitzmiller WWTP	Municipal	Sewage holding tanks, activated sludge (aeration and clarification), UV disinfection and cascade post aeration	North Branch Potomac River	40,000		39.39482, -79.181702	39.394167 -79.181667	202 East Main Street, Kitzmiller	Garrett County	Dept of Public Works
12	Oakland WWTP	Municipal	Grit/solids removal, aeration, Total Kjehldahl nitrogen (TKN) & ammonia removal and UV disinfection	Youghiogheny River	900,000		39.25705, -79.420327	39.421022 -79.424186	27 Oakland-Rosedale Road, Oakland	Town of Oakland	Town
13	Trout Run WWTP (serves Mountain Lake Park, Loch Lynn Heights, Weber Road, Shady Acres & Deer Park)	Municipal	Aerated lagoon, storage lagoon, sand filters, UV disinfection and cascade post-aeration. June 1st to Oct. 31st, discharges are dependent upon stream flow.	Little Youghiogheny River	900,000	834,583 (maximum average daily flow)	39.389265, -79.392267	39.3899 -79.3897	1156 Norris Welch Road, Oakland	Garrett County	Dept of Public Works
14	New Germany State Park	Other Public	Septic tank and recirculating sand filter	Poplar Lick Run	6,000		39.631475, -79.123641	39.630556 -79.129722	349 Headquarters Lane, Grantsville	Maryland Department of Natural Resources	MES
15	Swallow Falls State Park	Other Public	Lagoon, sand filter, chlorination	Youghiogheny River	62,000		39.493981, -79.425322	39.453611, -79.449722	222 Herrington Lane, Oakland	Maryland Department of Natural Resources	MES
16	Northern Middle and High School; Camp Hickory complex	Other Public	Extended aeration, filtration and post-aeration	Cove Run	50,000		39.665517,-79.302642	39.665278, -79.301944	604 Pride Parkway, Accident	Garrett County Public Schools	Garrett County Public Schools
17	BFS Truck Stop (McDonalds)	Private	Single-train Rotating Biological Contact (RBC) unit with pre-aeration, clarifier, UV disinfection & post-aeration	Unnamed tributary of Puzzley Run	14,000		39.688971, -79.243088	39.693979, -79.227777	4168 National Pike (Keysers Ridge), Grantsville	Bruceton Farm Service, Inc., Morgantown, WV	DPW operates under contract with owner
18	Camp Sonrise Mountain	Private	Activated Sludge with UV disinfection	Tributary of Youghiogheny River (outfall is located in Maryland)	7,000		39.719523, -79.431428	39.720833 -79.432778	490 Caney Valley Road, Markleysburg, PA	Allegheny Region Churches of God	Dept of Public Works
19											
20	**Notes**										
21	1. This table lists systems first by System Type then alphabetically										
22	2.. WWTPs on this table have a minumum flow of 5,000 gallons per day (average). COMAR 26.03.01.01 definition of multi-use sewerage systemSmaller plants are not included.										
23	3. The terms Municipal, Other Public, and Private are defined for use in this Water and Sewerage Plan. Municipal means owned by the County or by an incorporated town. Other public means owned or operated by a public or quasi-public agency such as the Maryland Environmental Service or Garrett County Public Schools										
24	Sources: MDE Tempo database of issued permits, custom run 6-26-13, by Water Management Administration, Water Resources Planning. This dataset was compared to listings from the 1997 Water and Sewerage Plan, and EPA's Permit Compliance System (PCS) and Integrated Compliance Information System (ICIS) databases The following permit categories from the Tempo database are not included in the table: Coal Mine (CM); Hydrostatic Testing (HT); Mineral Mine (MM); No Exposure Certification (SW); Discharge Permits: coal mines, power plants (e.g., Deep Creek Hydroelectric Station , storage (e.g. Accident Compressor Station); Swimming Pool (SI)										

	A	B	C	D
1	**Table 4-3 (COMAR Table No. 11)**			
2	**Waste Water Treatment Problem Areas**			
3	**System/ Waste Water Treatment Plant**	**Problem Description**	**Location**	**Planned Correction and Date if Known**
4	Accident	Severe I/I, average daily flows up to 150,000 gpd (in 50,000 capacity plant). In 2003 the town was issued a consent order by MDE due to instances of wastewater overflow.	Townwide	A June 2013 discharge permit requires submittal of i) an Action Plan to keep track of measures to bring the facility into compliance, ii) a Municipal Sewage Flow Capacity Report and iii) a Wastewater Capacity-Management Plan. As of late 2013 the Town is performing a flow study to determine the effects of the I/I projects.
5	Crellin/Hutton	WWTP facility needs upgrades to the sand filters	WWTP	Construct new walls around the sand filters and a roof to cover the filter beds. Anticipated construction in 2014-2015.
6	Deep Creek Lake	Bring public sewer to western side of the Lake south of the WISP Resort PRD. Allow flows to be redirected south to the WWTP rather than directing all flows down the east side of the Lake. (Western Conveyance)	Southern end of Marsh Hill	Western conveyance system planned to begin construction in 2014.
7	Deep Creek Lake	Marginal or failing septic systems.	Several areas in the southern and eastern parts of Deep Creek Lake	Southern Conveyance System; service beyond 10 years.
8	Friendsville	Need to eliminate inflow into lateral house connections	Collection System	Rehabilitation of four areas of collection lines were completed in 2009-2010. Evaluation of the collection system is on-going.
9	Friendsville	Flow equalization tank has deteriorated; the sides are leaking and the roof was damaged due to snow and ice load.	WWTP	The County proposes to replace the existing steel tank with a 300,000 gallon precast post-tensioned concrete tank. A funding application was submitted to MDE Jan 2013
10	Friendsville	Failing or marginal septic systems discharging to Bear Creek	Maple Street	This area is shown as S-2 on the service area map for future service extension.
11	Gorman	WWTP facility needs upgrades to the sand filters	WWTP	Construct new walls around the sand filters and a roof to cover the filter beds. Anticipated construction in 2014-2015.
12	Grantsville, Town	Ultraviolet disinfection system rack is approximately 15 years old. Needs replacement	WWTP	Funding application submitted to MDE Jan 2013
13	Oakland, Town	I/I into sewer collection system components	Townwide	Study to identify major problem areas, then upgrade and replacement of failing lines
14	Oakland, Town	Need to redesign Main Pump Station and Bradley Run Pump Stations to include a bar screen for safer and more efficient operations.	Oakland	
15	Oakland, Town	Possible need for an algae control system to improve WWTP operations	Oakland WWTP	
16	Trout Run - WWTP	The sand filters are subject to damage by wind and need repair or replacement with an alternative treatment method. Storage capacity during low stream flow when discharge is restricted needs to be evaluated and upgraded.	156 Norris Welch Road, Oakland, Maryland (south of Mountain Lake Park).	Need to do a preliminary engineering study for potential upgrade or other solution. This is the County's top priority for sewer system improvement.
17	Trout Run - Mountain Lake Park Town collection system	I/I into aged sewer collection system components, has resulted in excessive flow volumes to Trout Run WWTP, and in effect to the Little Youghiogheny River	Mountain Lake Park	Phase 4 system rehabilition project designed and submitted for funding in 2013..
18	**Private Septic System Problem Areas**			
19	Deep Creek Lake: Turkey Neck, Sky Valley, Green Glade and Hazelhurst at the south end of Deep Creek Lake	Marginal and failing septic systems on older, small lots	East and south sides of Deep Creek Lake.	These areas are proposed to be connected with Deep Creek Lake WWTP in the S3 and Future Planned Service periods. (Southern Conveyance)
20	Deep Creek Lake: Mobile Home Park on Ferguson Circle	Failing septic systems	Ferguson Circle, McHenry	This area is shown as S-2 on the service area map for future service extension.
21	Gorman	Failing septic systems	Althouse Hill Road area	This area is shown as S-3 on the service area map for future service extension.
22	Finzel	Failing or marginal septic systems.	Finzel Road	Ongoing corrections
23	Kempton (old mining town)	Community collection system from the 1920s needs to be replaced.	Southern tip of County, head of the North Branch of the Potomac River	Conduct a Sanitary Survey. An on-site wetland treatment system may be an alternative for this problem.
24	Oakland	Small lots, failing septic systems.	Rosedale and Shaffer Hill Road (south west side of the Town)	This area is shown as FPS on the service area map for future service extension. Financial assistance for construction of the system will be necessary in order to meet affordability levels.
25	Swanton (dwellings located along Crabtree Creek)	Houses located on narrow level bank close to Crab Tree Creek stream; effluent from septic systems flows quickly into stream. (Septic systems not failing – concern is the discharge into stream and close proximity of septic systems and wells)	Swanton	A sanitary survey needs to be conducted in this area in order to identify failing or marginal systems.
26	White Oak Mobile Home Park	Marginal/failing septic systems +/- 20 homes	Upper White Oak Road	Several drainfields exist for this property and repairs/upgrades are ongoing.

	A	B	C	D	E	H	I
1	**Table 4-4 (COMAR Table No. 13)**						
2	**Immediate 5 and 10 Year Priorities for Sewerage Development**						
3	**Location**	**Description**	**County Priority (High, medium, low)**	**Priority (years) Immediate, 2 to 5, 6 to 10**	**Estimated Cost (2013$)**	**Funding**	**Notes**
4	Accident, Town	Upgrade the Wastewater Treatment Plant from 50,000 gpd to 120,000 gpd including extended aeration process, an equalization basin to attenuate peak flows, new influent flow controls, treatment units, generator, and disinfection units.	High	2 to 5	$3,750,000	MDE	Before the project can move forward the Town must comply with the requirements of the June 2013 WWTP discharge permit. As an alternative the Town is considering discontinuing use of its WWTP and pumping all of its collected flow to the Deep Creek Lake WWTP.
5	Crellin/Hutton	The sand filter walls at the WWTP need to be rebuilt with concrete. The open air sand filters are subject to weathering and weed growth. A roof structure is needed to protect the filters	High	Immediate	$20,000	County	
6	Deep Creek Lake Western Conveyance System	New pump station and sewer line to serve Shingle Camp Terrace, Sandy Beach Road and Stockslager Road areas. Will allow existing flows pumped from Deep Creek Drive and Marsh Hill Road to be redirected. For connections to Deep Creek Lake WWTP.	High	Immediate	$4,849	Garrett County. Local funding.	Design is complete; easement acquisition being finalized; construction in spring/summer 2014
7	Deep Creek Lake Southern Conveyance System	The project to extend sewer to the southern end of the Lake is referred to as the Southern Conveyance System. Preliminary engineering for this system was conducted in the mid 2000s. A detailed engineering design study (Preliminary Engineering Report) needs to be developed for this system extension.	Medium	2 to 5	$100,000	Garrett County Sanitary District	
8	Friendsville	Replace 300,000 gallon flow equalization tankn with a 300,000 gallon precast post-tensioned concrete tank. Included in the project would be replacement of the diffusers located inside the tank and the security fencing around the structure	High	Immediate	$504,000	MDE	Funding application submitted to MDE Jan 2013
9	Friendsville	Eliminate inflow into lateral house connections	Medium	2 to 5		Homeowner responsibility	
10	Gorman	The sand filter walls at the WWTP need to be rebuilt with concrete. The open air sand filters are subject to weathering and weed growth. A roof structure is needed to protect the filters	High	Immediate	$20,000	Garrett County Sanitary District	
11	Grantsville, Town	Ultraviolet disinfection system rack is approximately 15 years old. Needs replacement	High	Immediate	$23,000	MDE $21,000, Town Contribution $2,000	Funding application submitted to MDE Jan 2013
12	Kempton	Conduct Sanitary Survey to investigate marginal/failing septic systems	Low	6 to 10	$10,000		
13	Keysers Ridge	Construction of WWTP to serve business park (County economic development project,	High	2 to 5	$3,100,000	$1.5 million	Funding application submitted in 2013 to the Development Administration (EDA) for first phase of construction.
14	Kitzmiller	enclose the rear portion of the WWTP with side walls where the sand filters had previously been located.	Medium	2 to 5	$10,000	Garrett County Sanitary District	
15	Loch Lynn Heights, Town	Installation of clean outs and monitoring points on lateral sewer lines.	Medium	2 to 5			
16	Mountain Lake Park, Town	Phase 4 of rehabilitation and replacement of existing sanitary sewer system. (Sewer and System (I & I) Improvements and Upgrades). Replace approximately 4,750 LF of 8-inch sewer pipe, 450 LF of 2-inch pressure sewer, 35 manholes, and a sewage lift station.	High	Immediate	$777,000	CDBG, MDE	As of January 2013, design is complete. Project is ready for submission for permits and bidding. Funding application submitted to MDE Jan 2013
17	Oakland, Town	Redesign Main Pump Station and Bradley Run Pump Stations to include a bar screen for safer and more efficient operations.	High	Immediate	$400,000	MDE	
18	Oakland, Town	Study to identify major problem areas for upgrade and replacement of failing lines	High	Immediate	$300,000	MDE	
19	Oakland, Town	Algae control system to improve WWTP operations	Medium	2 to 5	$150,000	MDE	
20	Oakland, Town	Upgrades to failing/outdated WWTP equipment	Medium	2 to 5	$200,000		
21	Oakland, Town	Correction of I/I into sewer collection system components. System wide line replacements for failing lines & I/I correction	High	Immediate	$1,000,000	MDE	Town would like to begin working on this immediately, as funding permits
22	Oakland, Town	Line extensions to areas with failing septics	Low	6 to 10			
23	Oakland, Town	Secure system-wide digital mapping of sewerage collection system, systemwide	Low	6 to 10	$50,000	MDE	
24	Swanton	Conduct a Sanitary survey to investigate discharge into the stream and the close proximity of septic systems and wells	Medium	2 to 5	$10,000		
25	Trout Run	Preliminary Engineering Study Evaluate the current wastewater treatment plant process and performance and to provide economical and reasonable alternatives for improvements to the process and performance in order to meet the current and future conditions and requirements of the State Discharge Permit	High	Immediate	$50,000	Garrett County Sanitary District	

Sewerage Service Area Maps

Figure 4-1 Garrett County Sewerage Service Areas

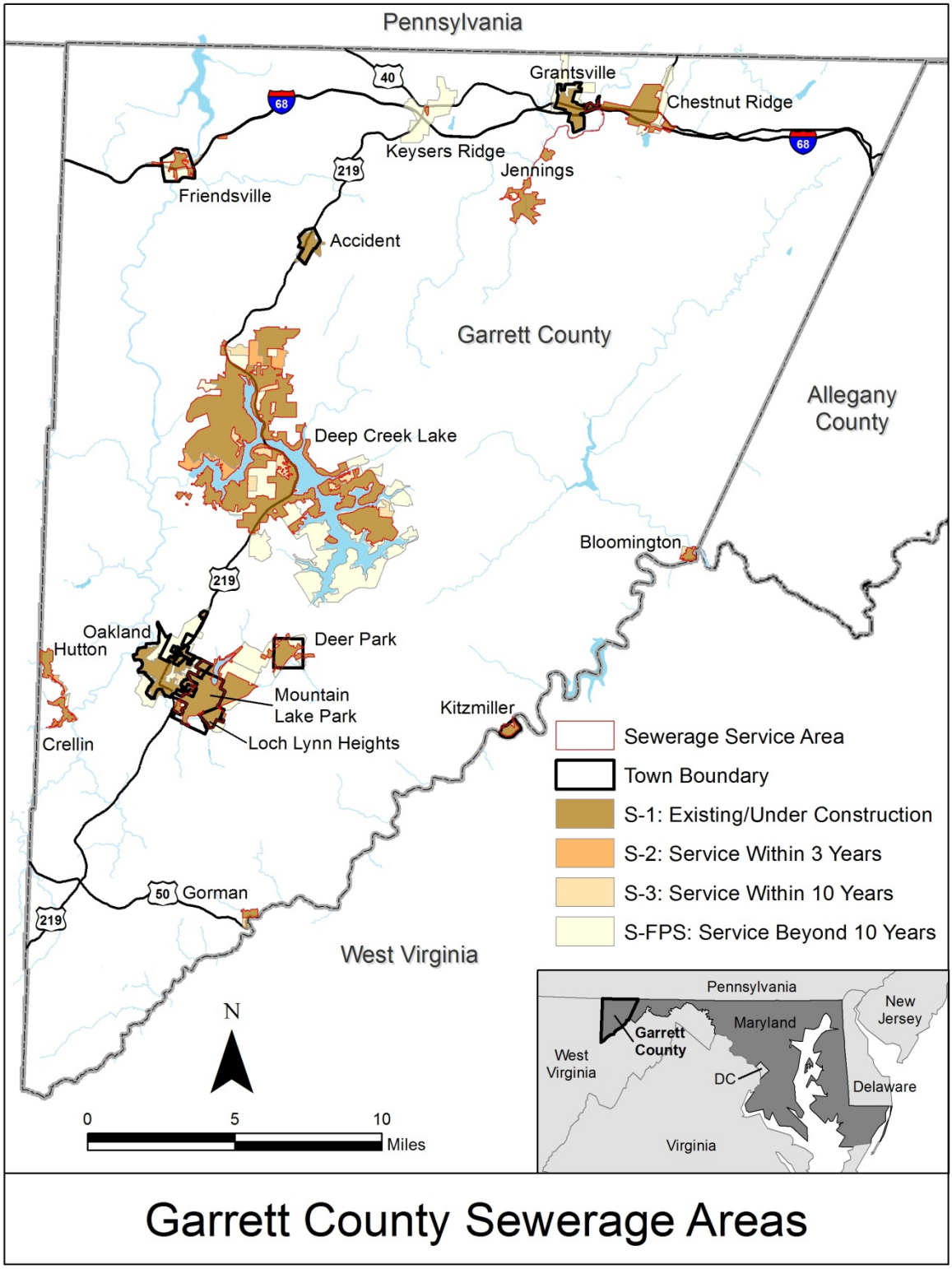


Figure 4-2 Accident

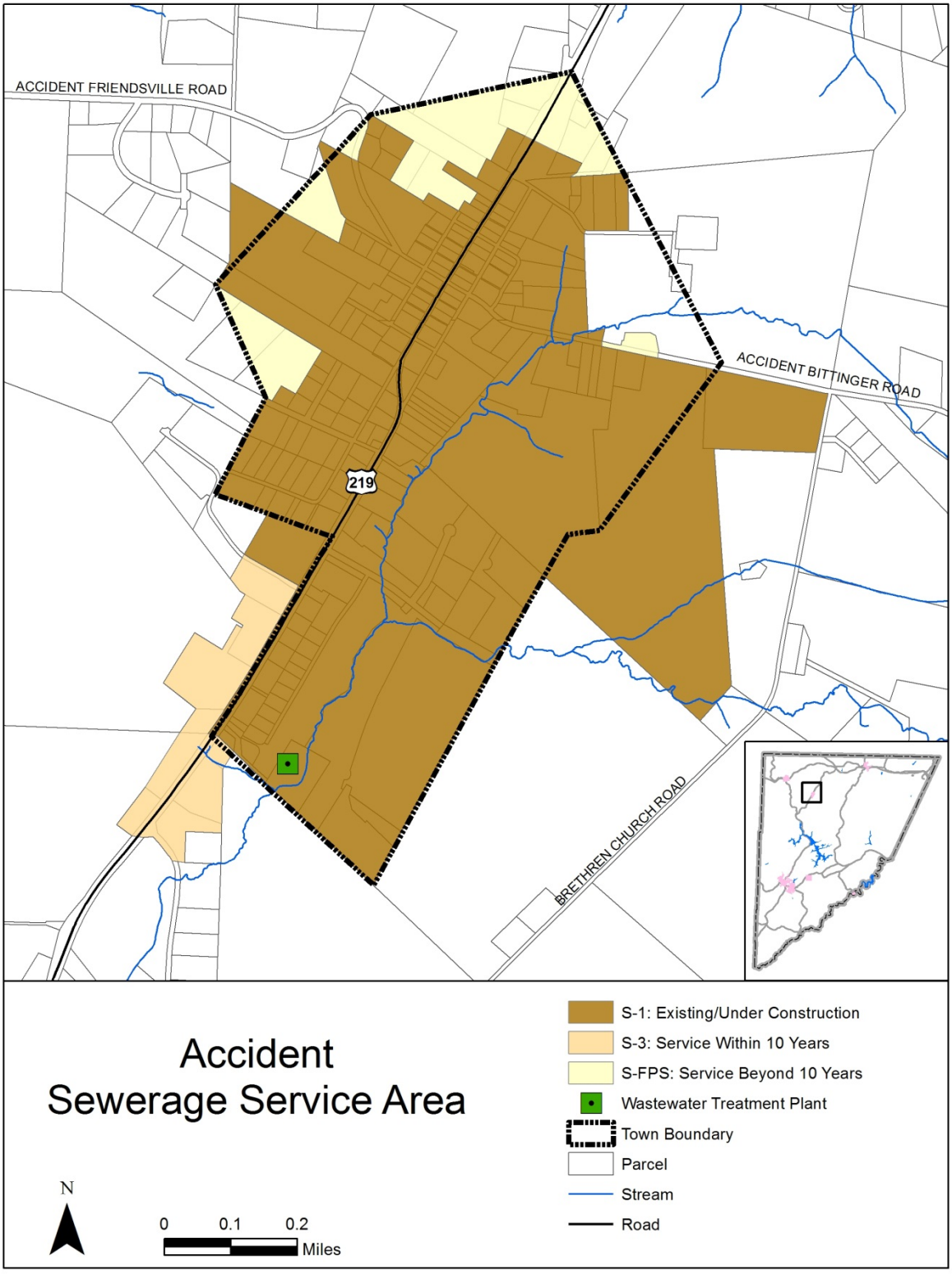


Figure 4-3 Grantsville

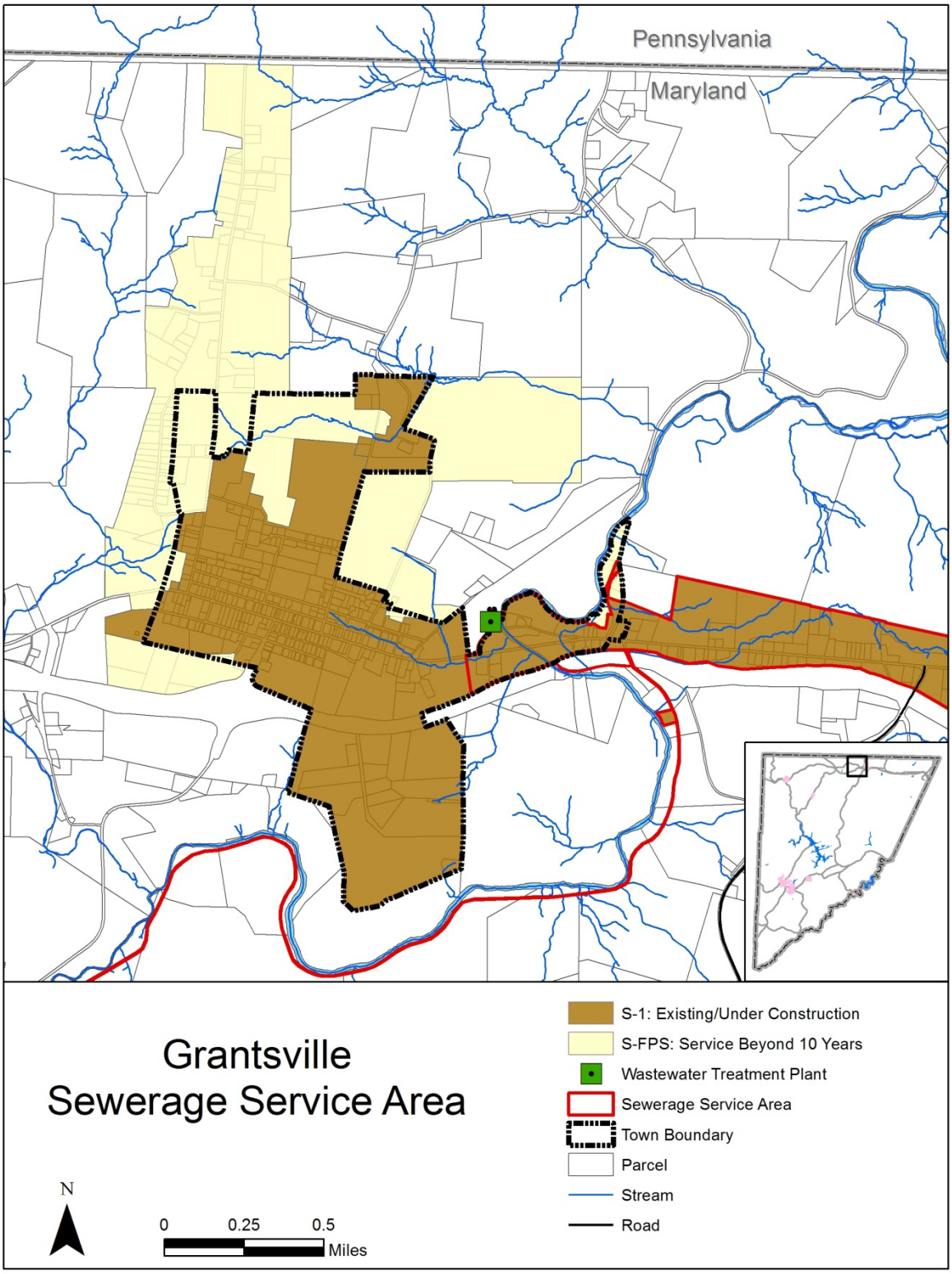


Figure 4-4 Chestnut Ridge

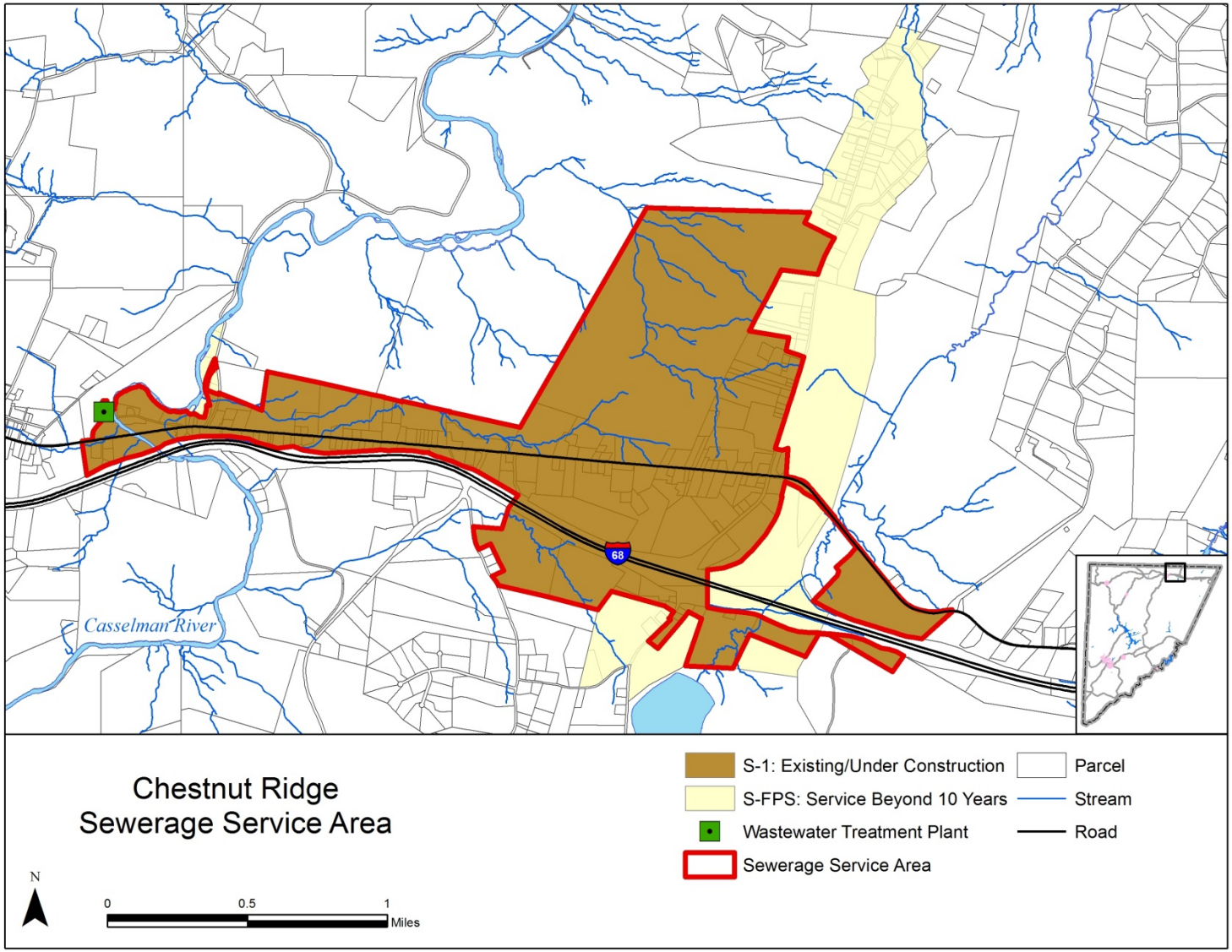


Figure 4-6 Jennings

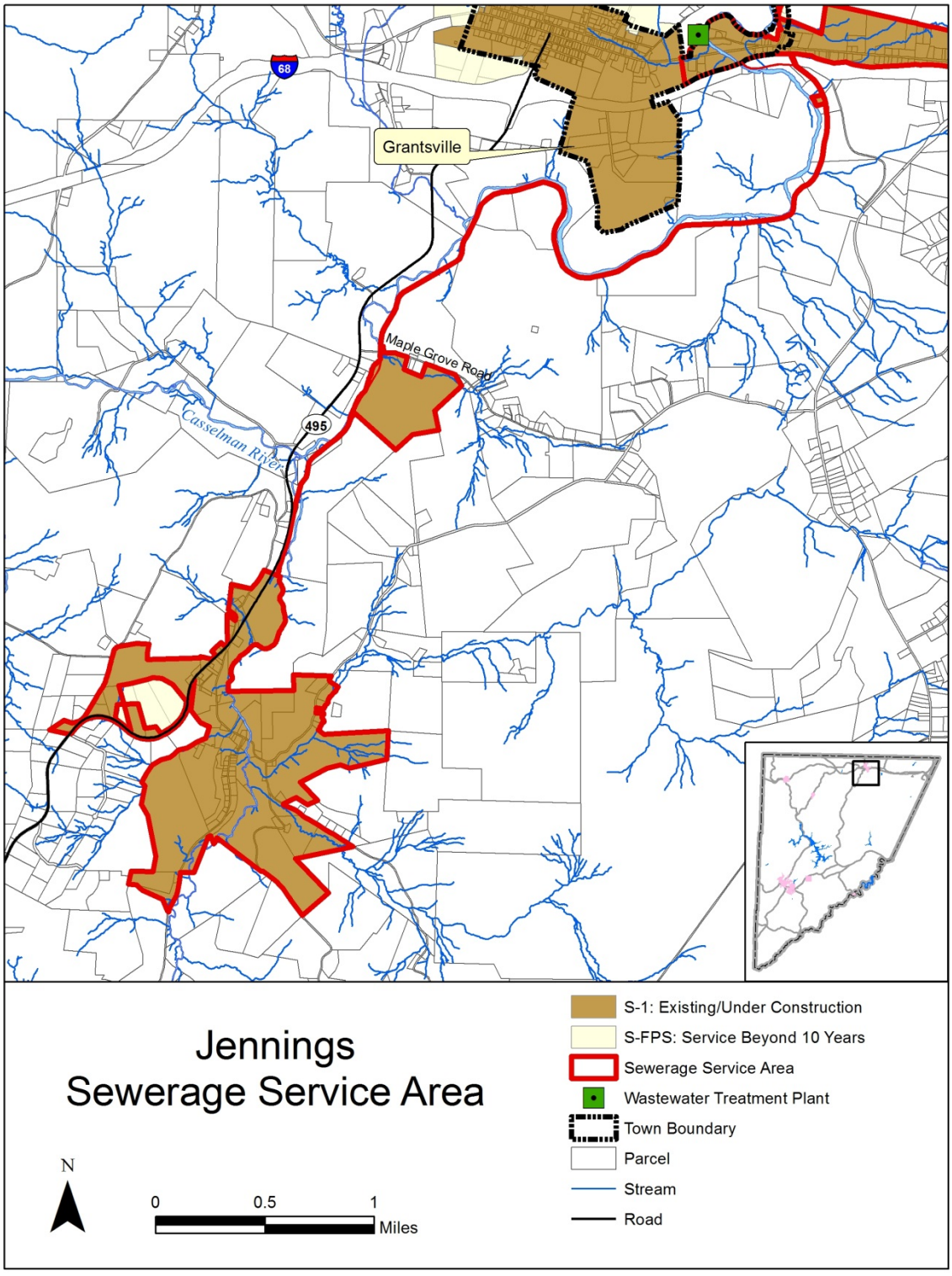


Figure 4-7 Deep Creek Lake

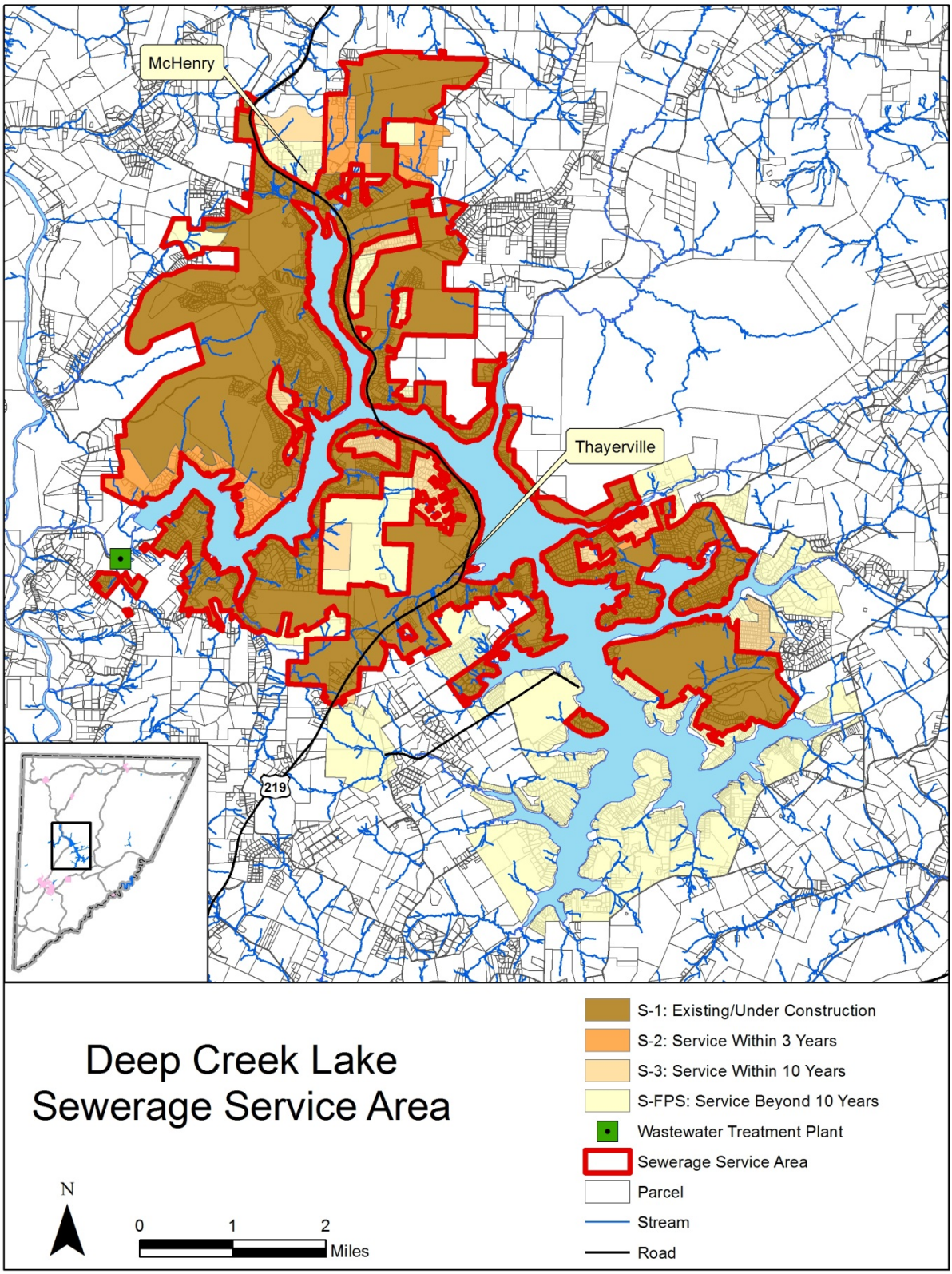


Figure 4-8 Oakland – Trout Run Overview

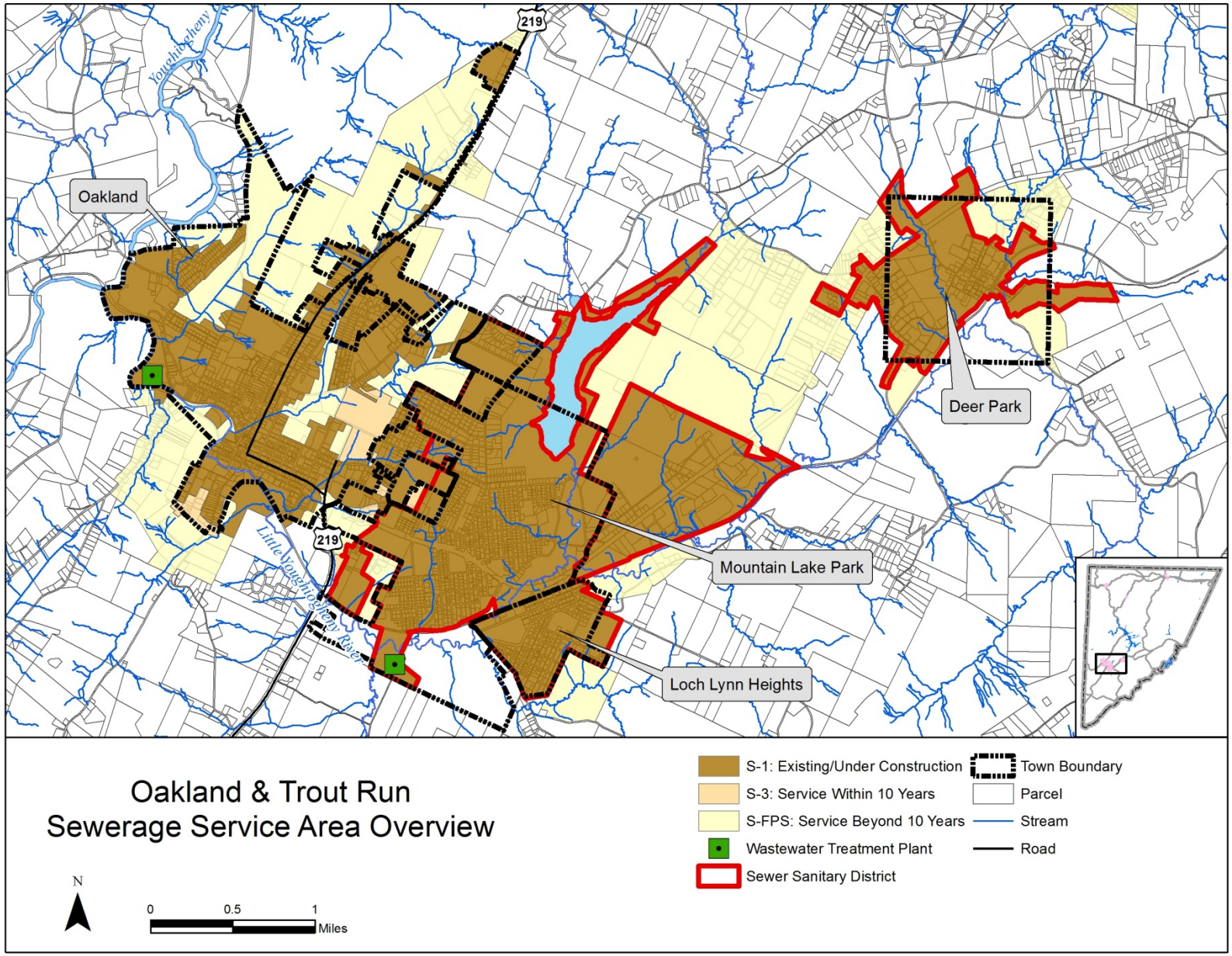


Figure 4-9 Mountain Lake Park, Loch Lynn Heights

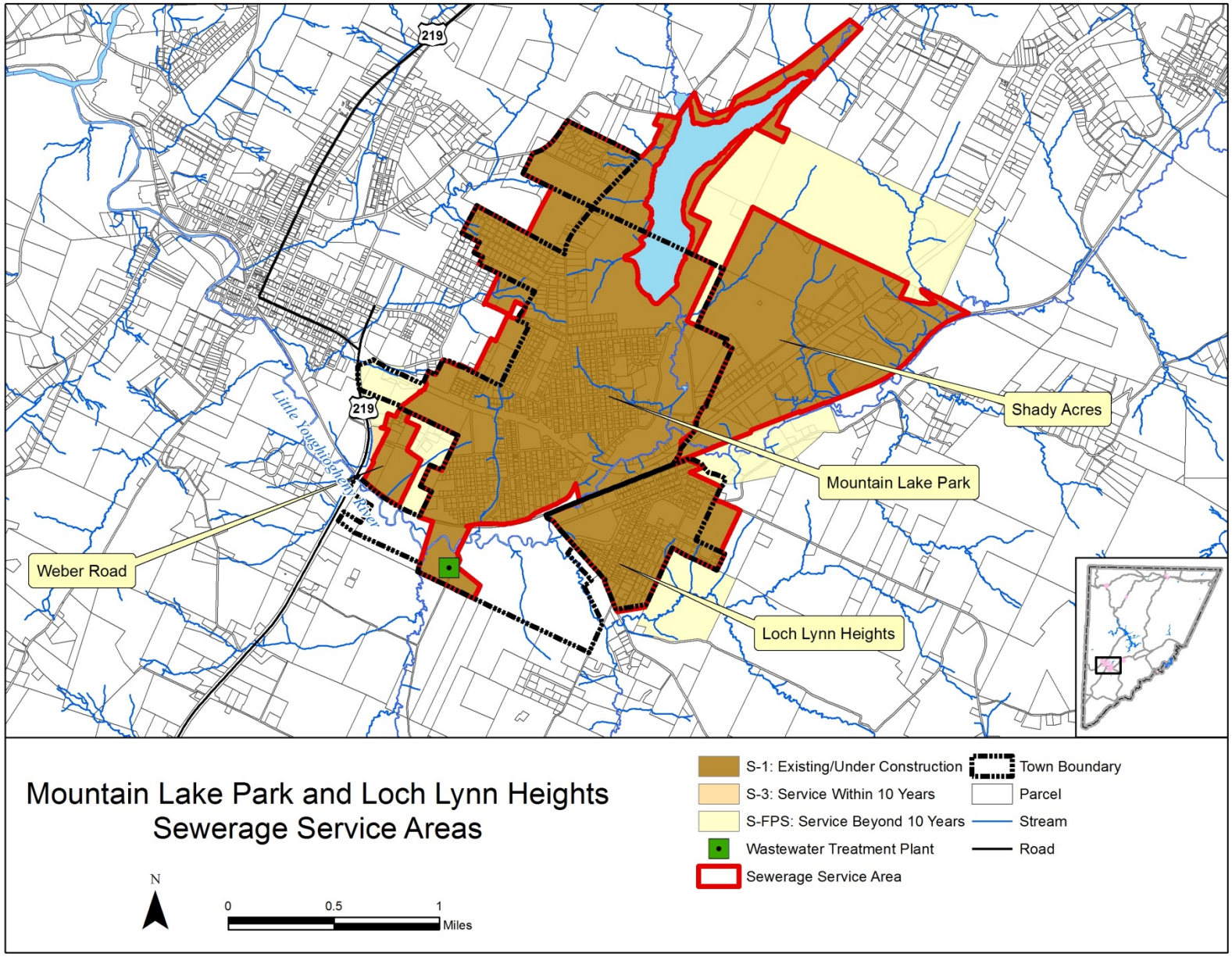


Figure 4-10 Deer Park

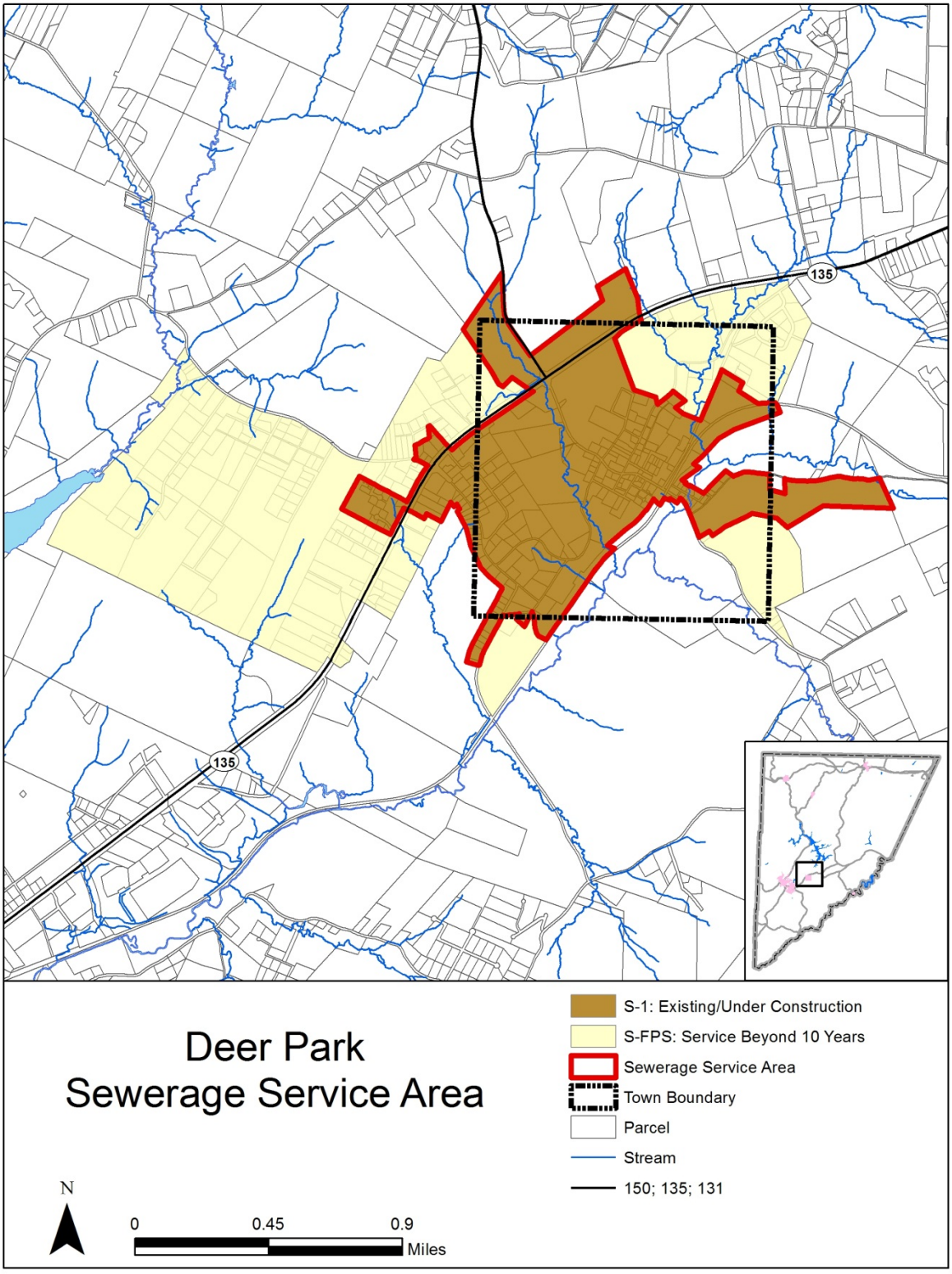


Figure 4-11 Oakland

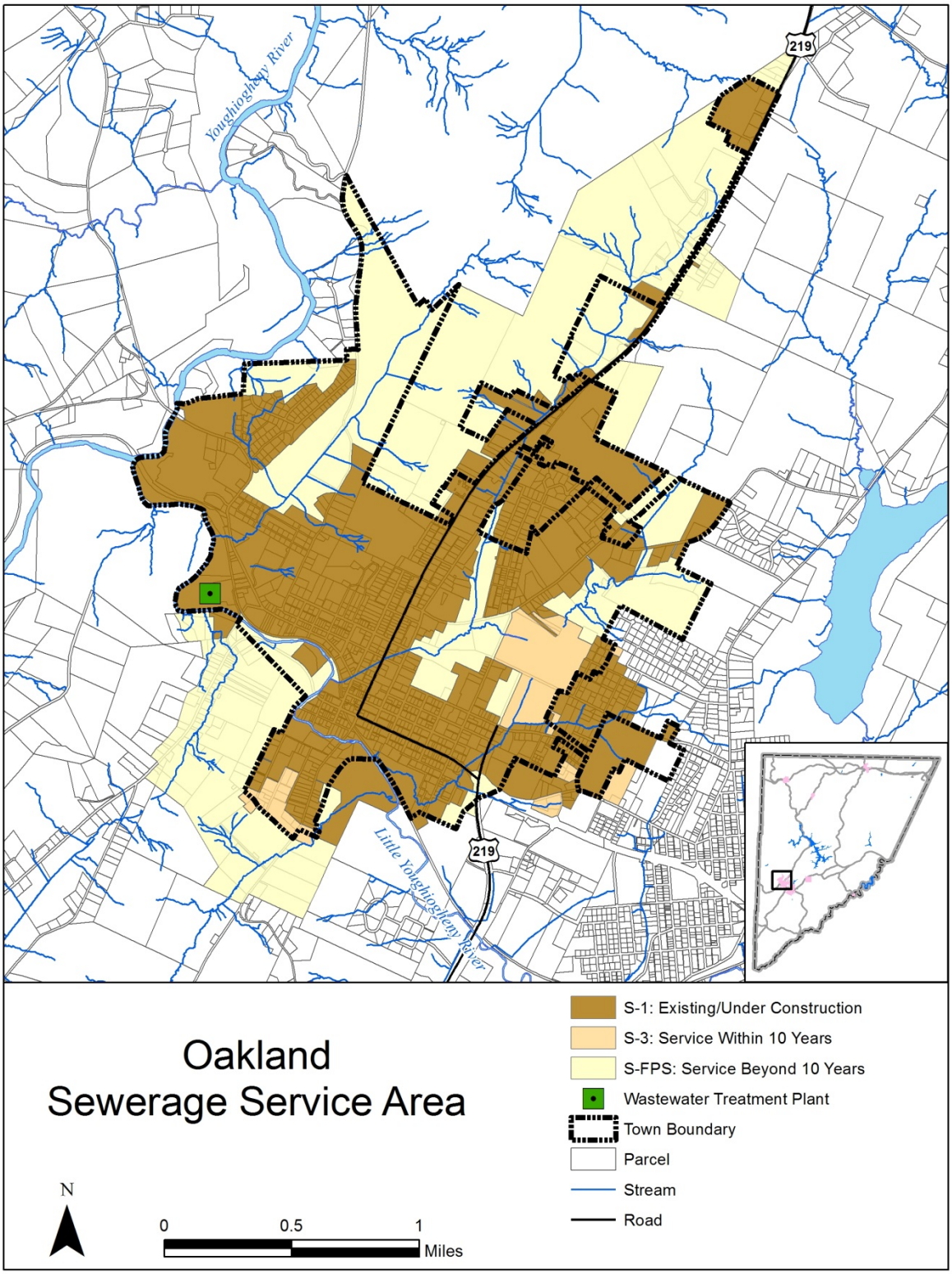


Figure 4-12 Bloomington

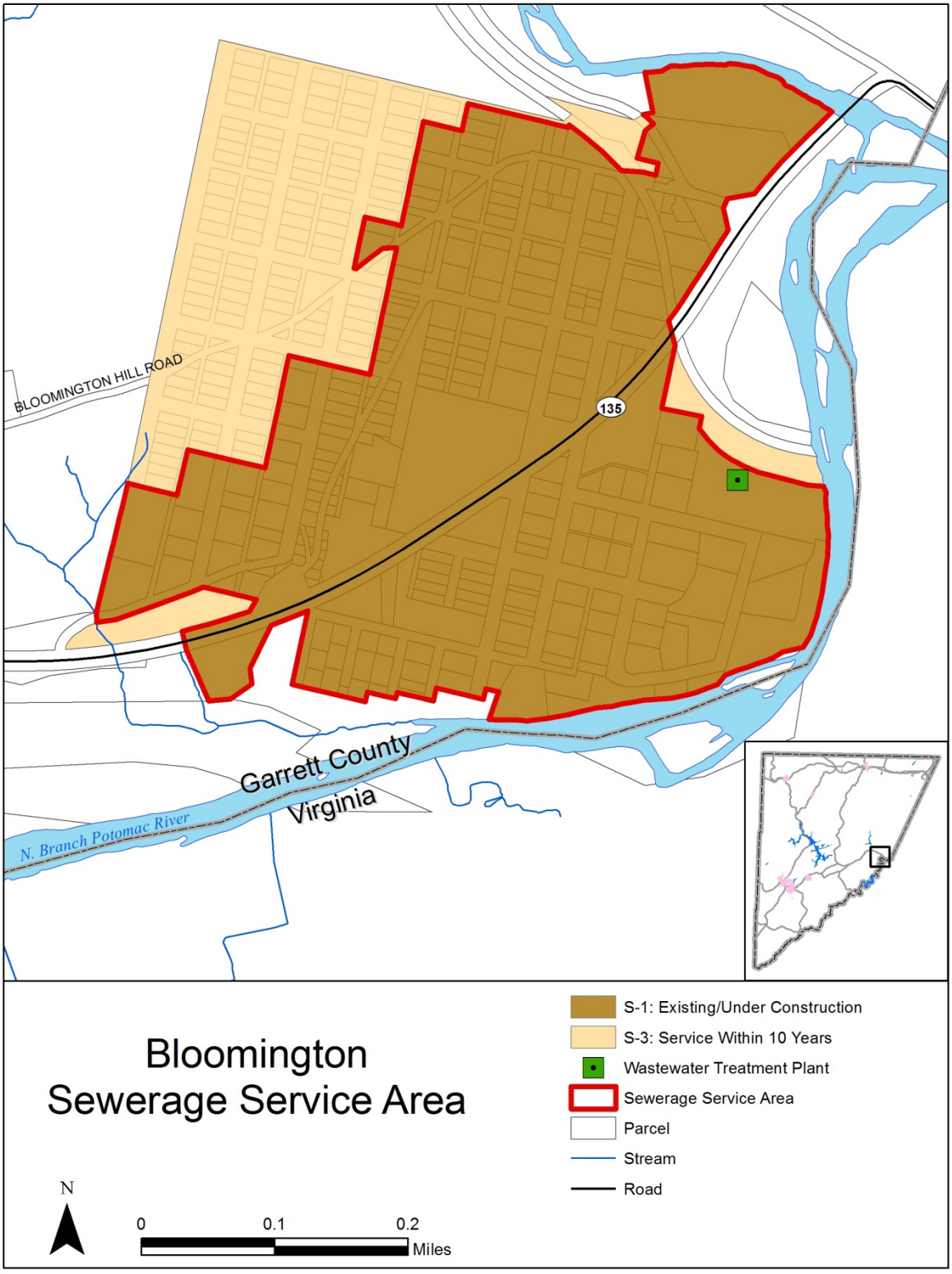


Figure 4-13 Gorman

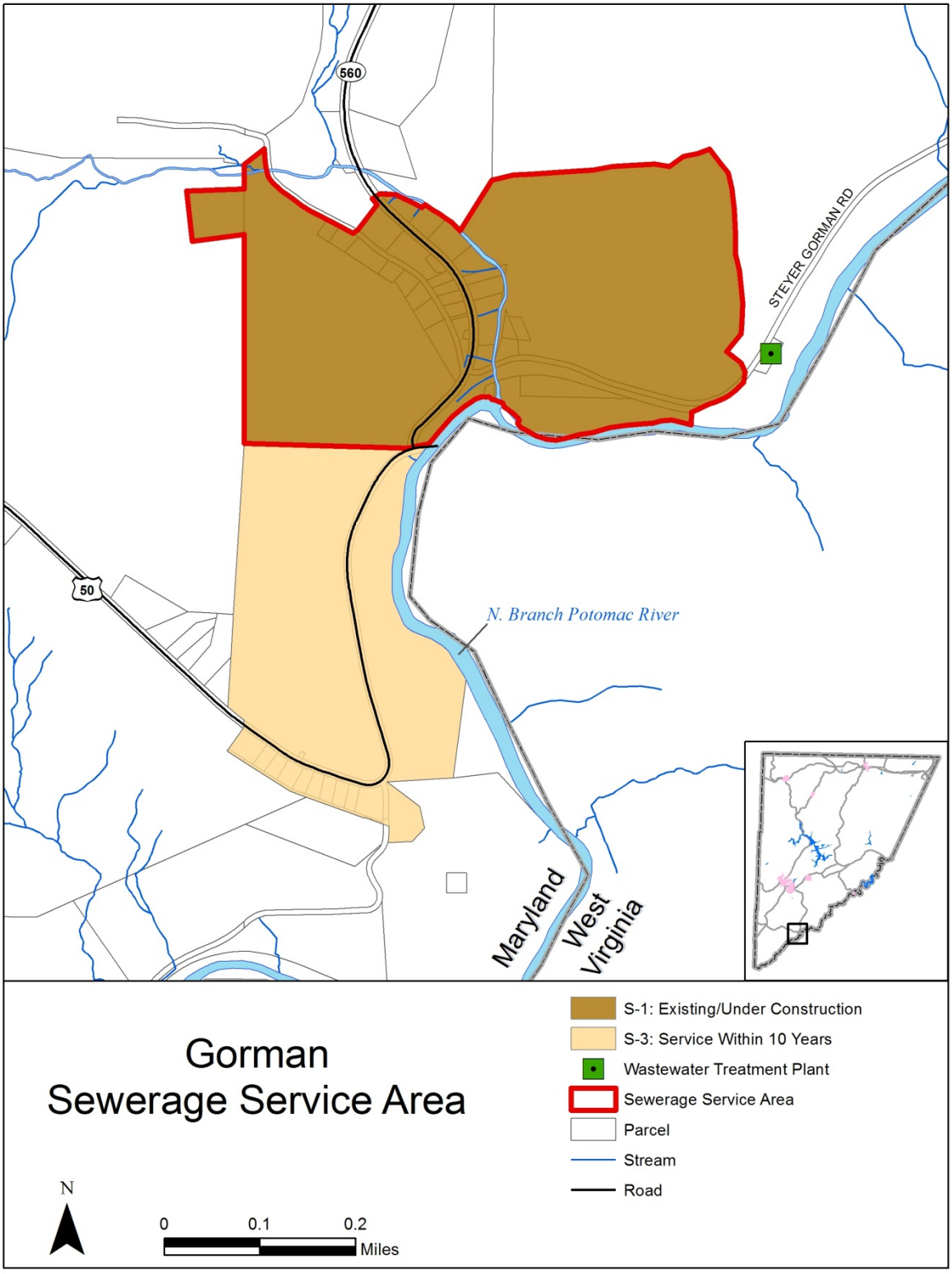


Figure 4-14 Kitzmiller

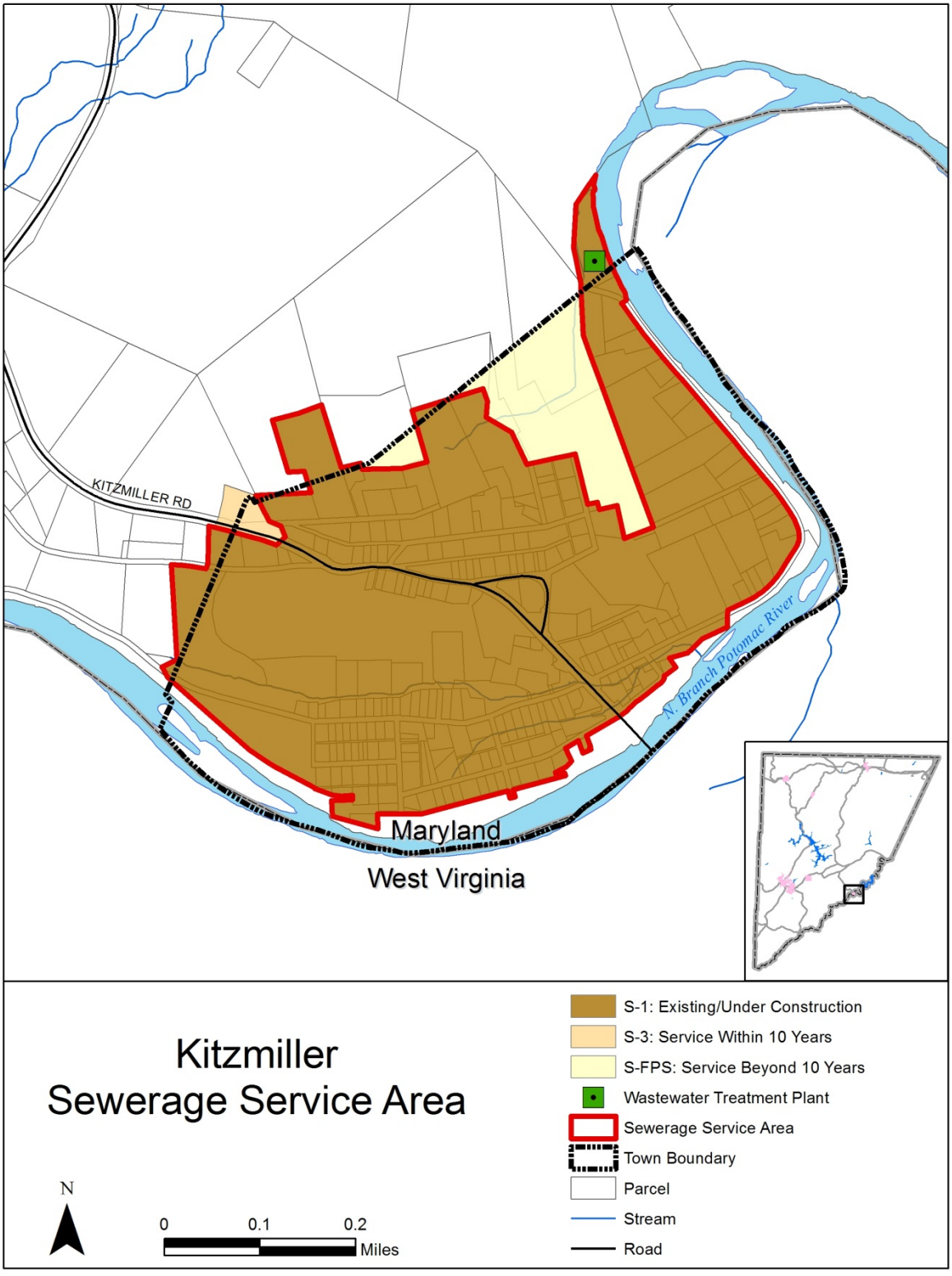


Figure 4-15 Crellin

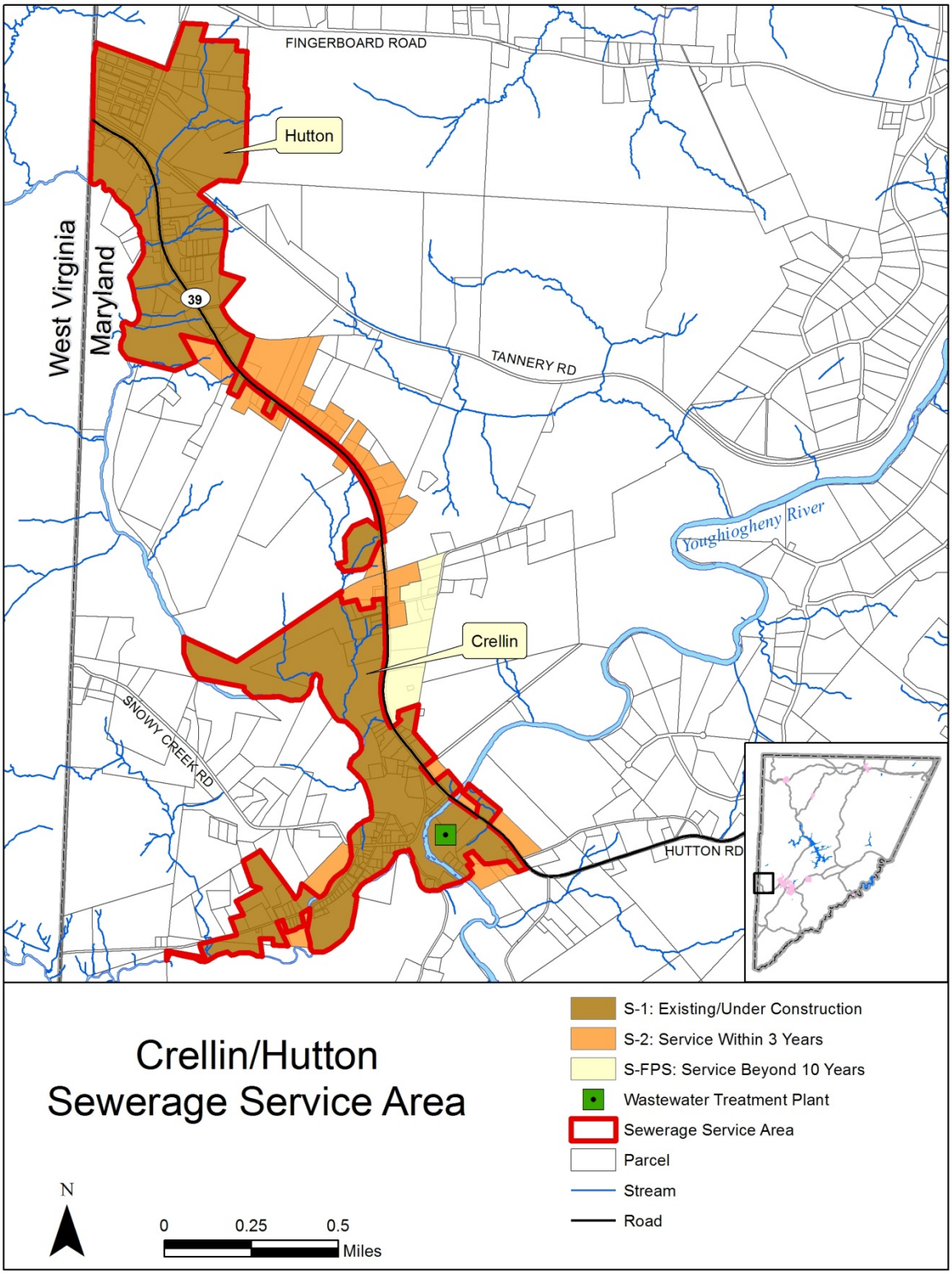


Figure 4-16 Friendsville

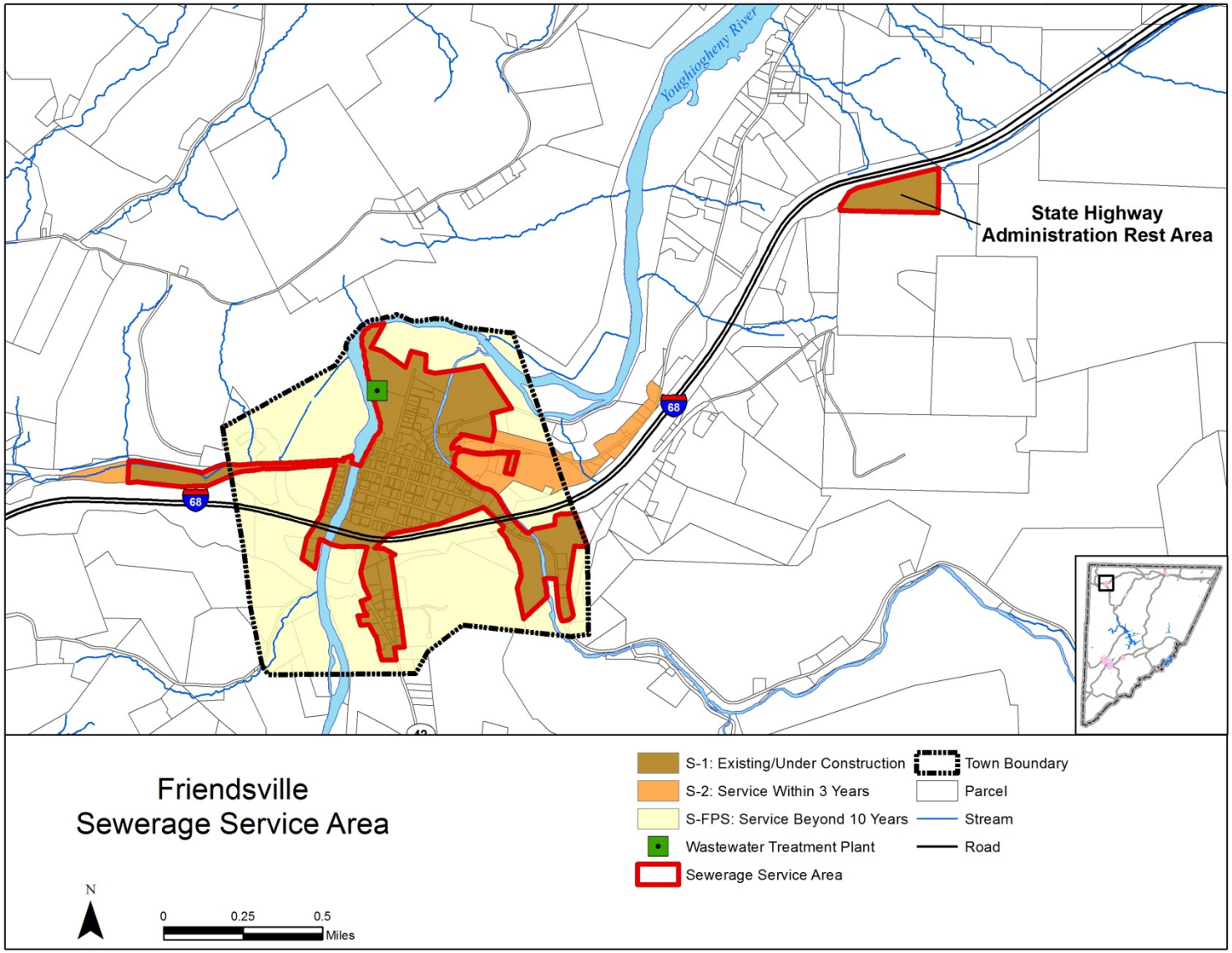
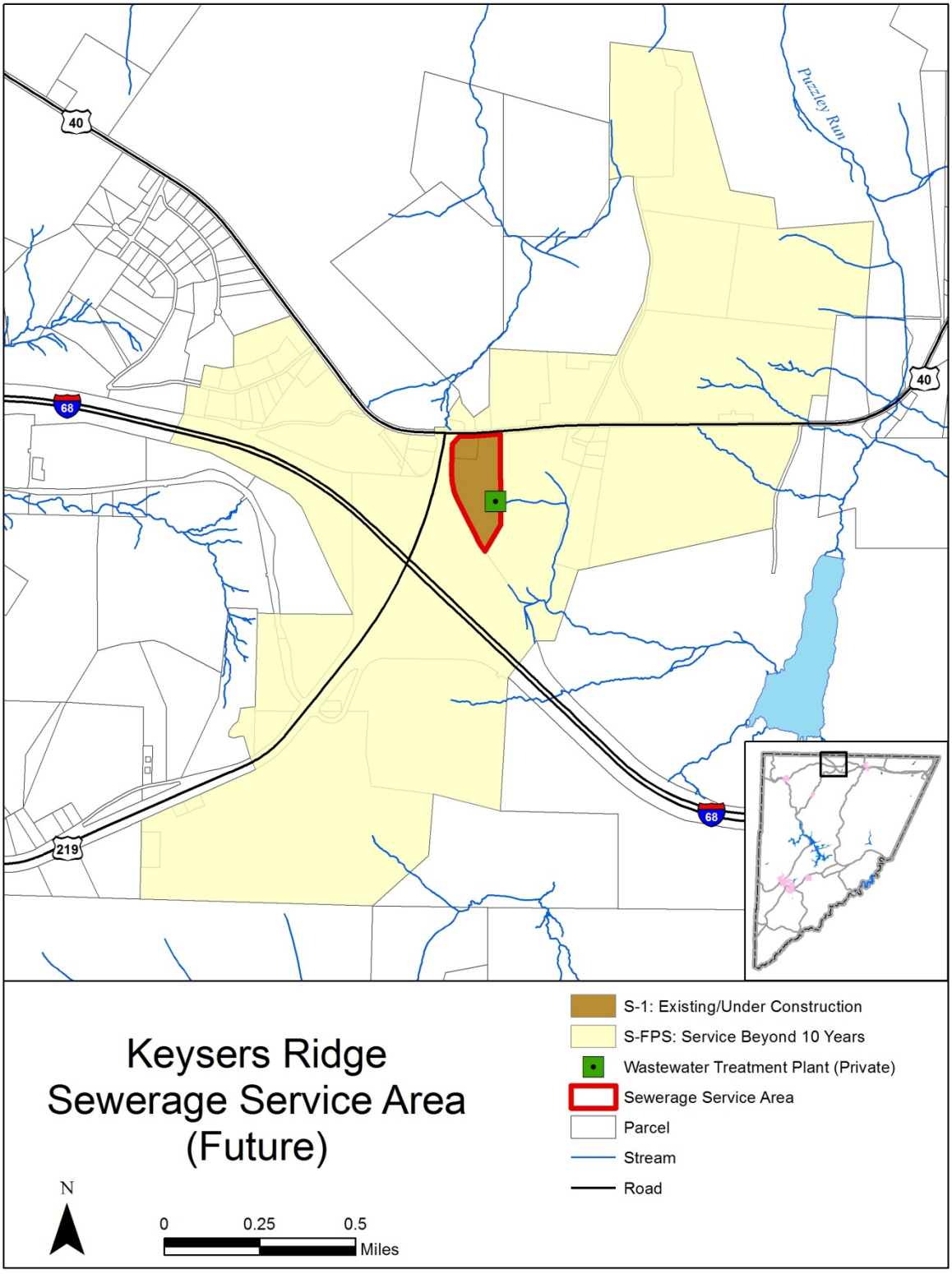


Figure 4-17 Keysers Ridge



Appendix

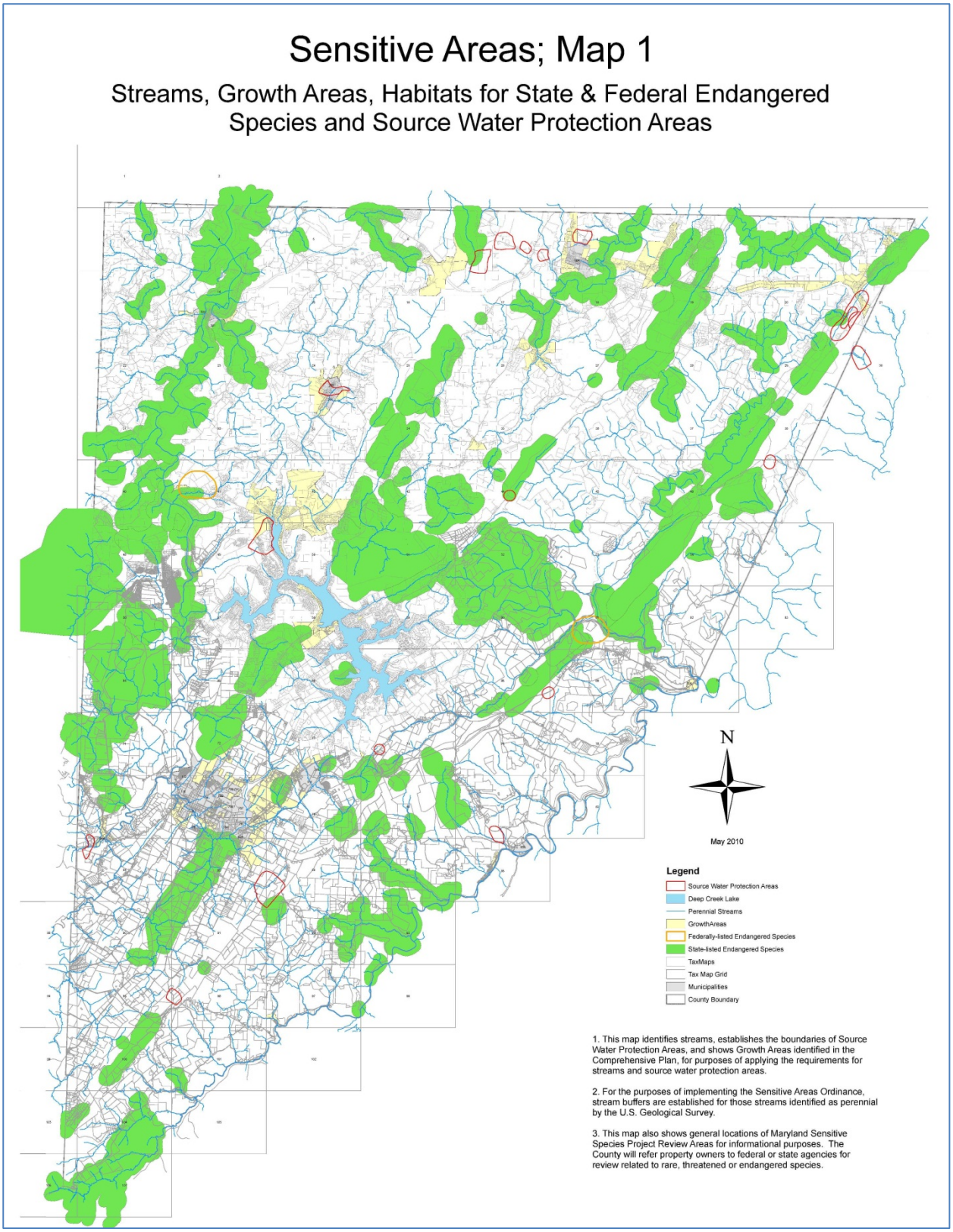
Appendix 1 Source Water Area Protection Maps

The first map is from the County's Sensitive Areas Ordinance adopted May, 2010. Studies since 2010 have updated the protection areas shown on this map.

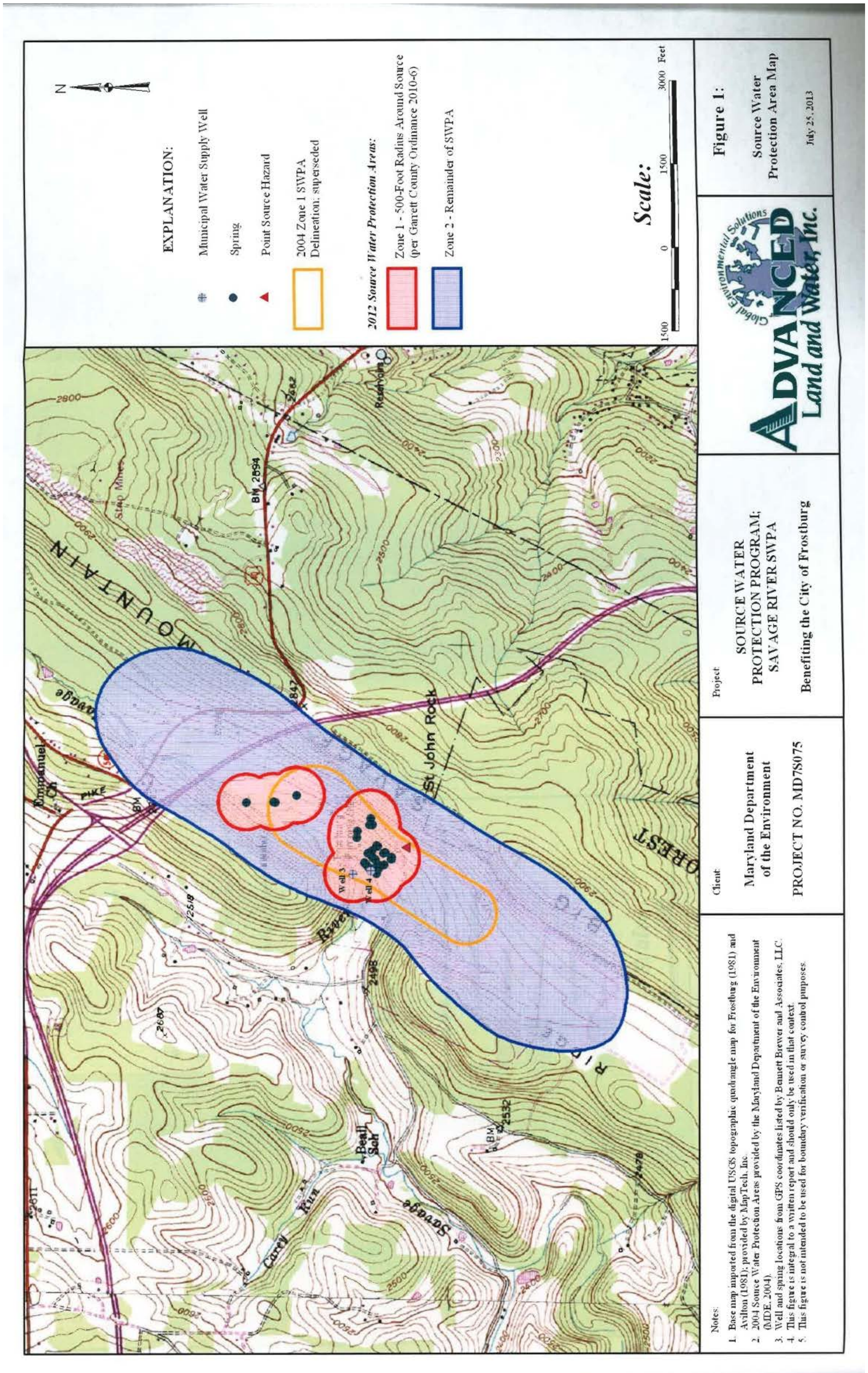
As of 2013 updated areas have been prepared for the McHenry, Mountain Lake Park, Frostburg and Midland/Lonaconing water systems. These maps follow the countywide map. Following these maps are detaile Source Water Area Protection Maps for the County's other municipal systems.

The countywide map may be downloaded from the Garrett County website (garrettcounty.org).

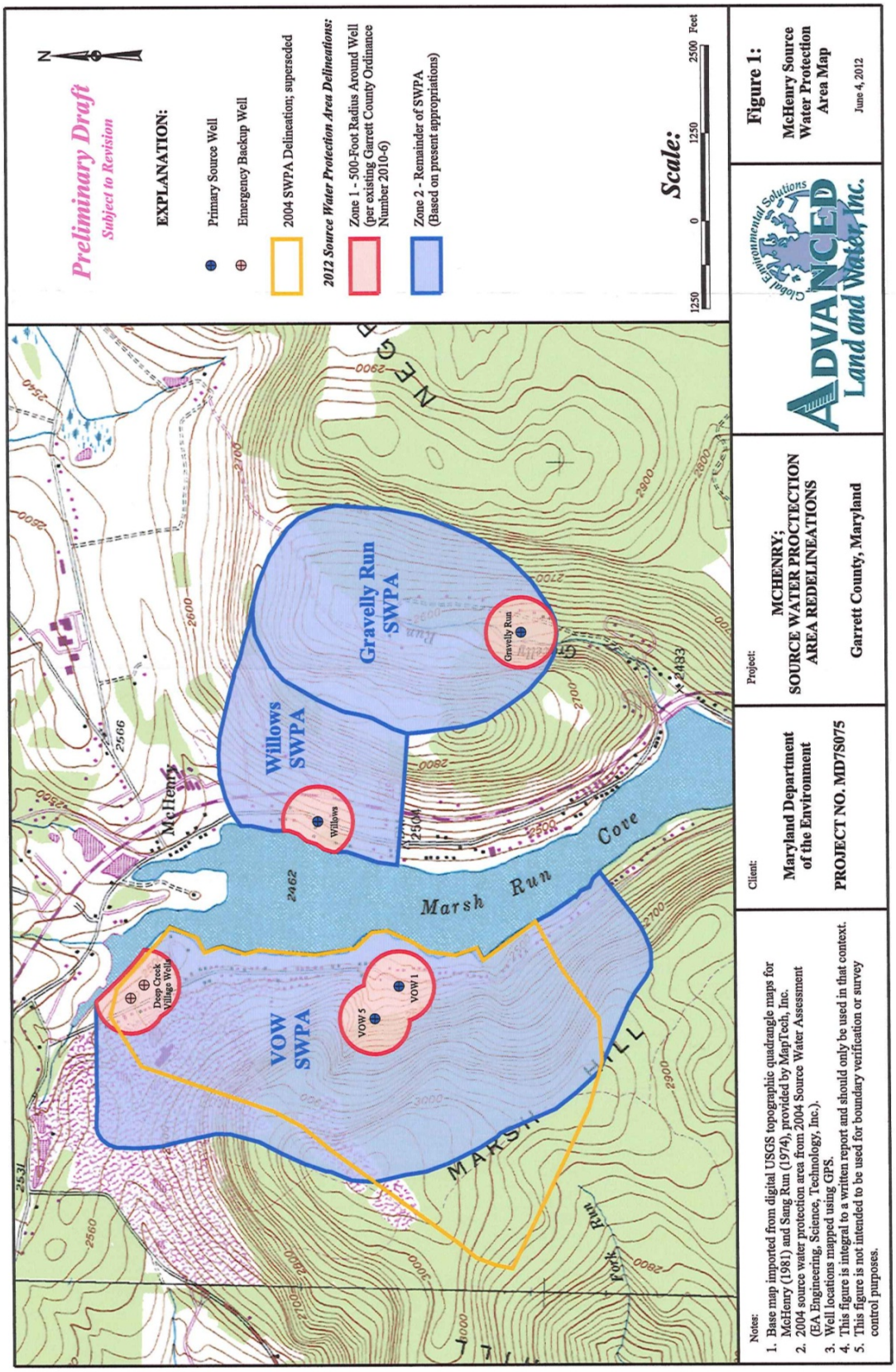
Countywide Map, 2010.



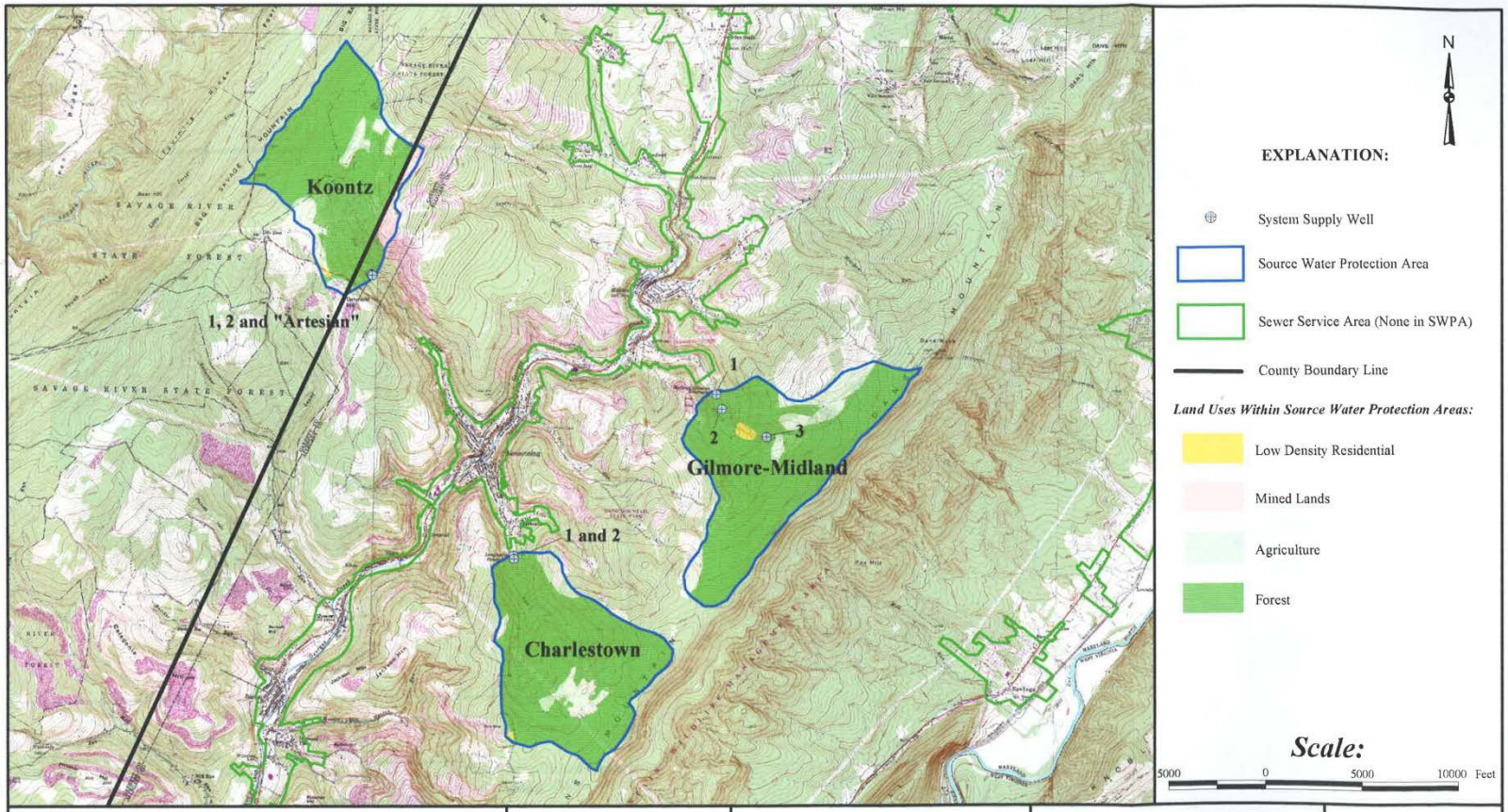
Frostburg


EXPLANATION:
Municipal Water Supply Well
Spring
Point Source Hazard
2004 Zone 1 SWPA Delineation, superseded
2012 Source Water Protection Areas:
Zone 1 - 500-Foot Radius Around Source (per Garrett County Ordinance 2010-6)
Zone 2 - Remainder of SWPA
N
Scale:
1500 0 1500 3000 Feet
Figure 1:
Source Water Protection Area Map
July 25, 2013
ADVANCED Land and Water, Inc.
Global Environmental Solutions
Project:
SOURCE WATER PROTECTION PROGRAM; SAVAGE RIVER SWPA
Benefiting the City of Frostburg
Client:
Maryland Department of the Environment
PROJECT NO. MD78075
Notes:
1. Base map imported from the digital USGS topographic quadrangle map for Frostburg (1981) and Avilton (1981); provided by MapTech, Inc.
2. 2004 Source Water Protection Areas provided by the Maryland Department of the Environment (MDE, 2004).
3. Well and spring locations from GPS coordinates listed by Bennett Brewer and Associates, LLC.
4. This figure is integral to a written report and should only be used in that context.
5. This figure is not intended to be used for boundary verification or survey control purposes.
Well 3
Well 4
St John Rock
MOUNTAIN
Savage River
Carey Run
Beall Sch
Emmanuel Ch
Reservoir
Strip Mines

McHenry



Midland Lonaconing



Notes:
1. Base map mported from the digital USGS topographic quadrangle maps for Lonaconing and Barton (1981); provided by MapTech, Inc.
2. Source Water Protection Areas from the Department of the Environment.
3. County boundary line from Garrett County Planning and Land Development.
4. Sewer service areas and land use information from Maryland Dept. of Planning.
5. This figure is integral to a written report and should only be used in that context.
6. This figure is not intended to be used for boundary verification or survey control purposes.

Client:

Maryland Department of the Environment

PROJECT NO. MD7S075

Project: **SOURCE WATER PROTECTION PROGRAM**

Benefiting the Midland-Lonaconing-Barton Water System

Allegany County, Maryland

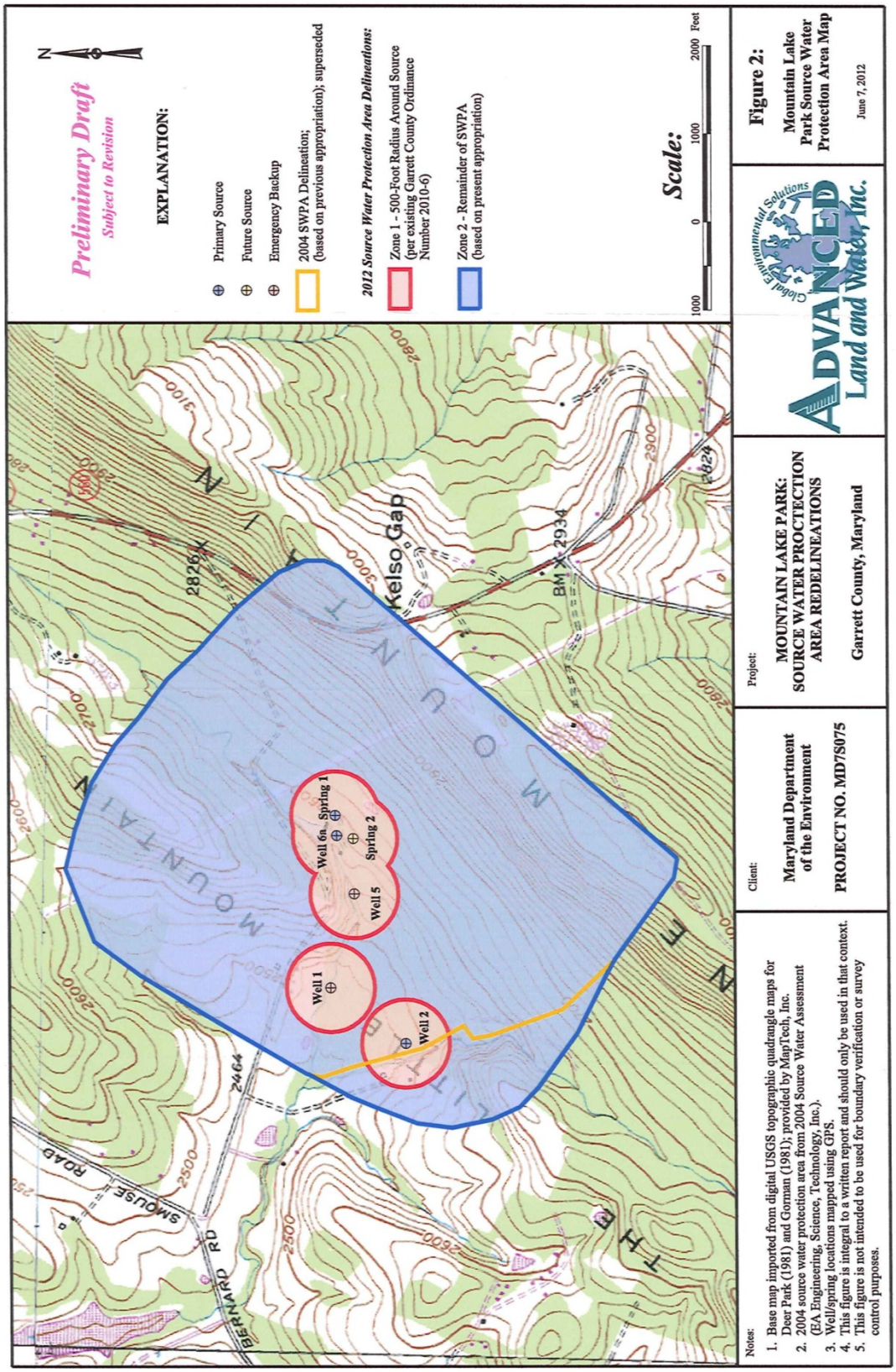
ADVANCED Land and Water, Inc.

Figure 1:

Source Water Protection Map

July 22, 2013

Mountain Lake Park



Accident

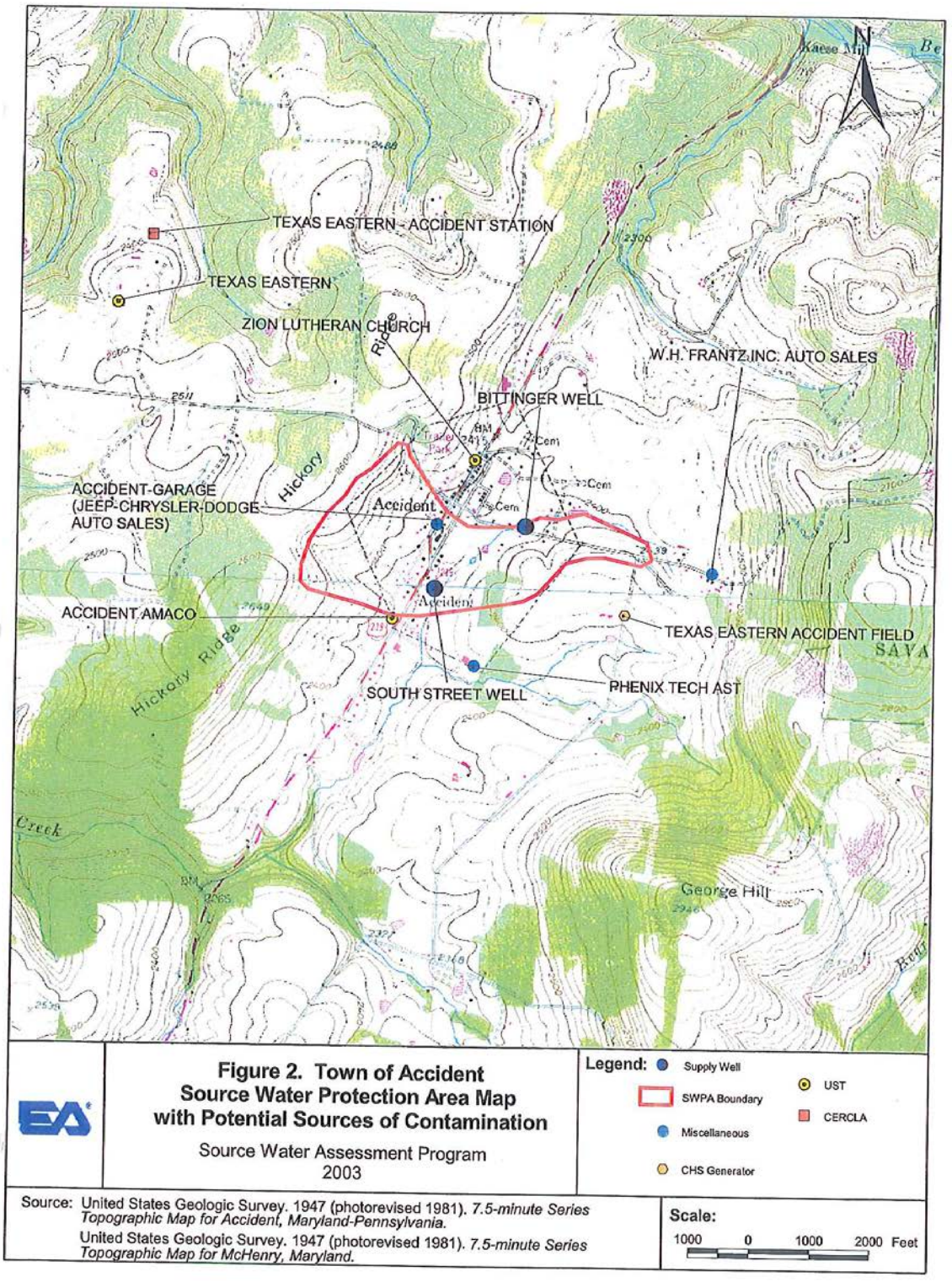


Figure 2. Town of Accident
Source Water Protection Area Map
with Potential Sources of Contamination

Source Water Assessment Program
2003

Source: United States Geologic Survey. 1947 (photorevised 1981). *7.5-minute Series Topographic Map for Accident, Maryland-Pennsylvania.*
United States Geologic Survey. 1947 (photorevised 1981). *7.5-minute Series Topographic Map for McHenry, Maryland.*

Crellin

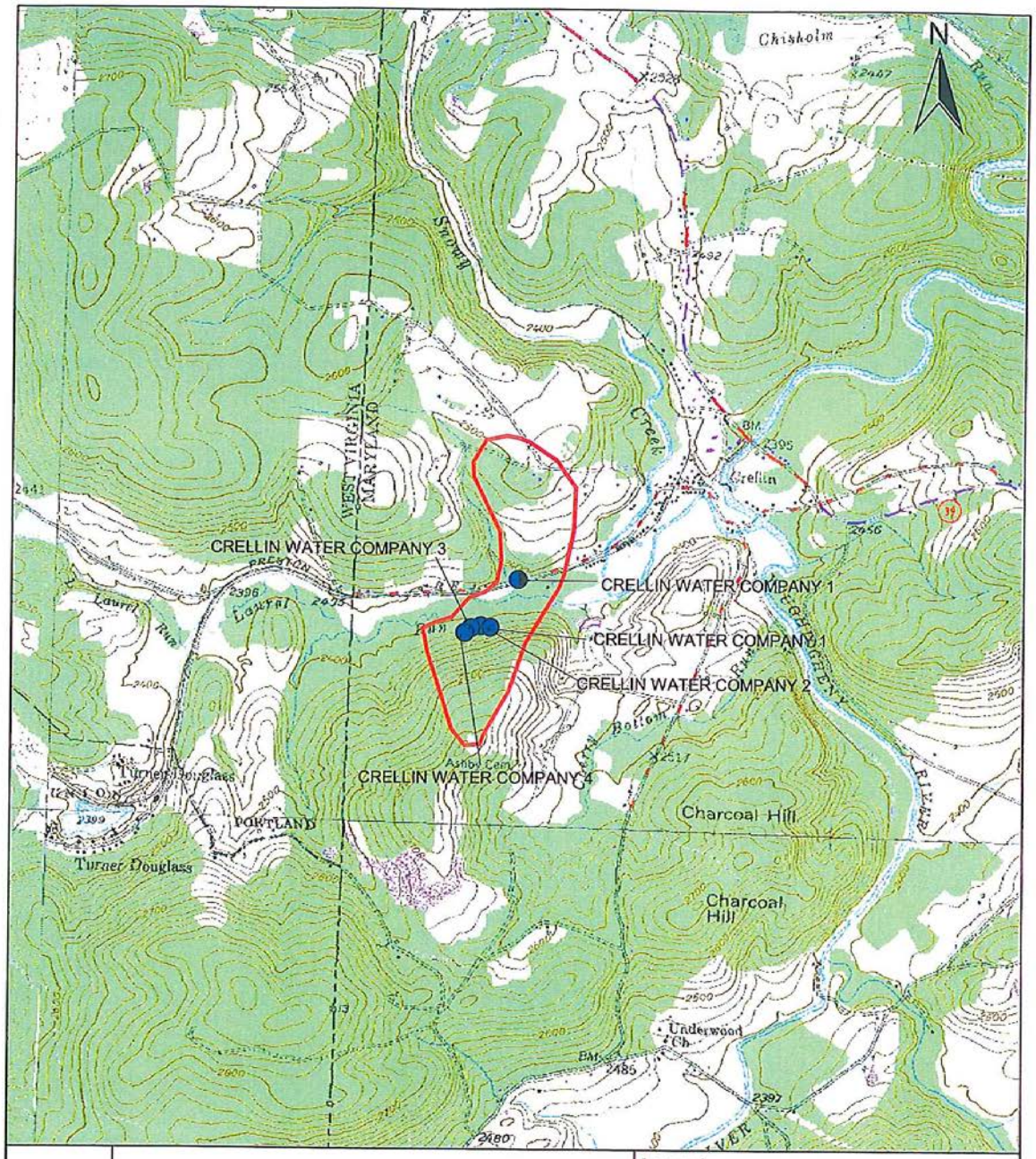


Figure 2. Town of Crellin
Source Water Protection Area Map
with Potential Sources of Contamination

Source Water Assessment Program
2003

Legend:
- Supply Well
- Supply Spring
- SWPA Boundary

Source: United States Geologic Survey. 1948 (photorevised 1974). *7.5-minute Series Topographic Map for Oakland, Maryland-West Virginia.*
United States Geologic Survey. 1948 (photorevised 1981). *7.5-minute Series Topographic Map for Table Rock, Maryland- West Virginia.*

Scale:
1000 0 1000 2000 Feet

Gorman

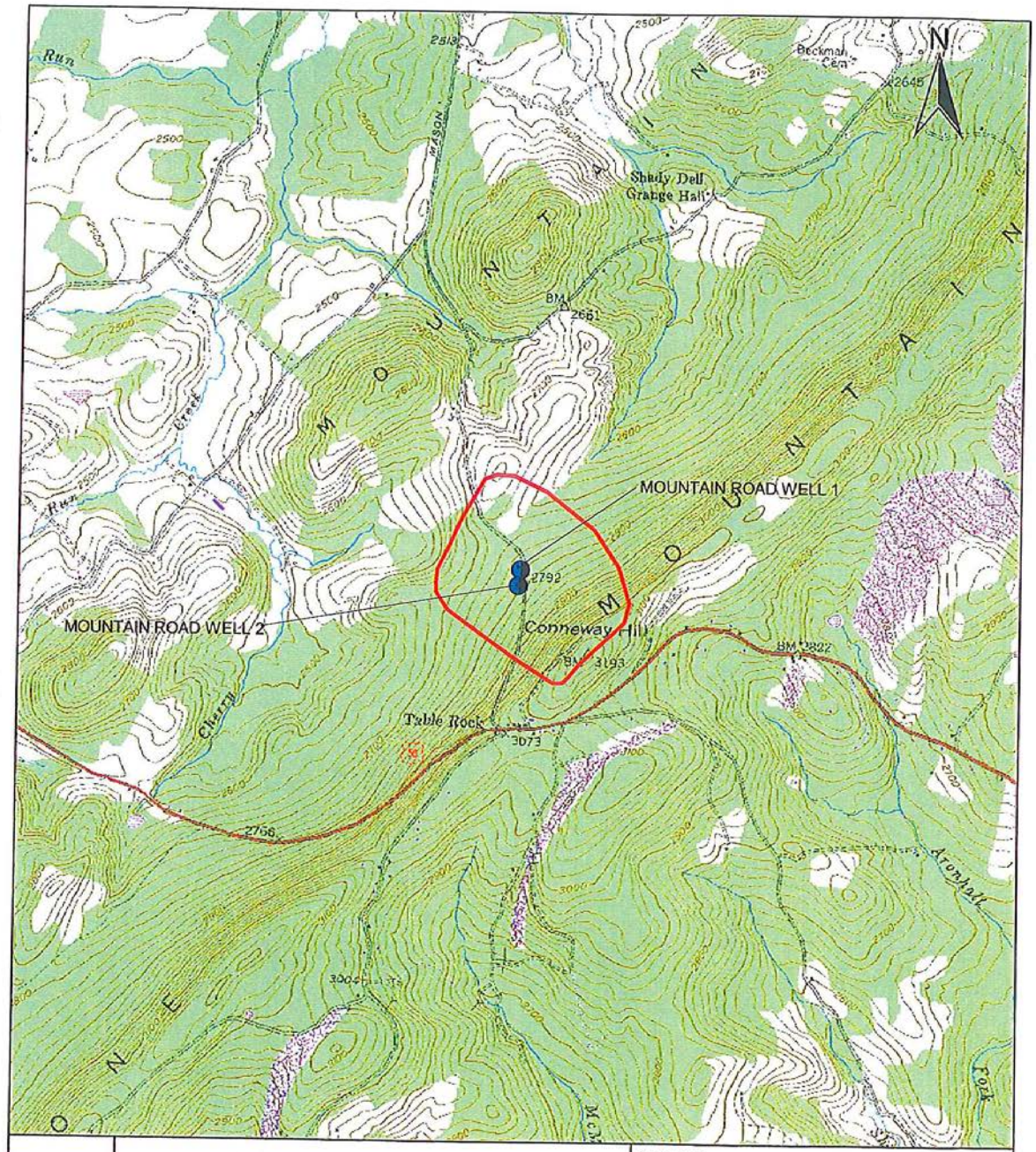


Figure 2. Town of Gorman
Source Water Protection Area Map
with Potential Sources of Contamination

Source Water Assessment Program
2003

Legend:

Supply Well

SWPA Boundary

Source: United States Geologic Survey. 1948 (photorevised 1981). *7.5-minute Series Topographic Map for Table Rock, Maryland-West Virginia.*

Scale:

1000 0 1000 2000 Feet

Grantsville

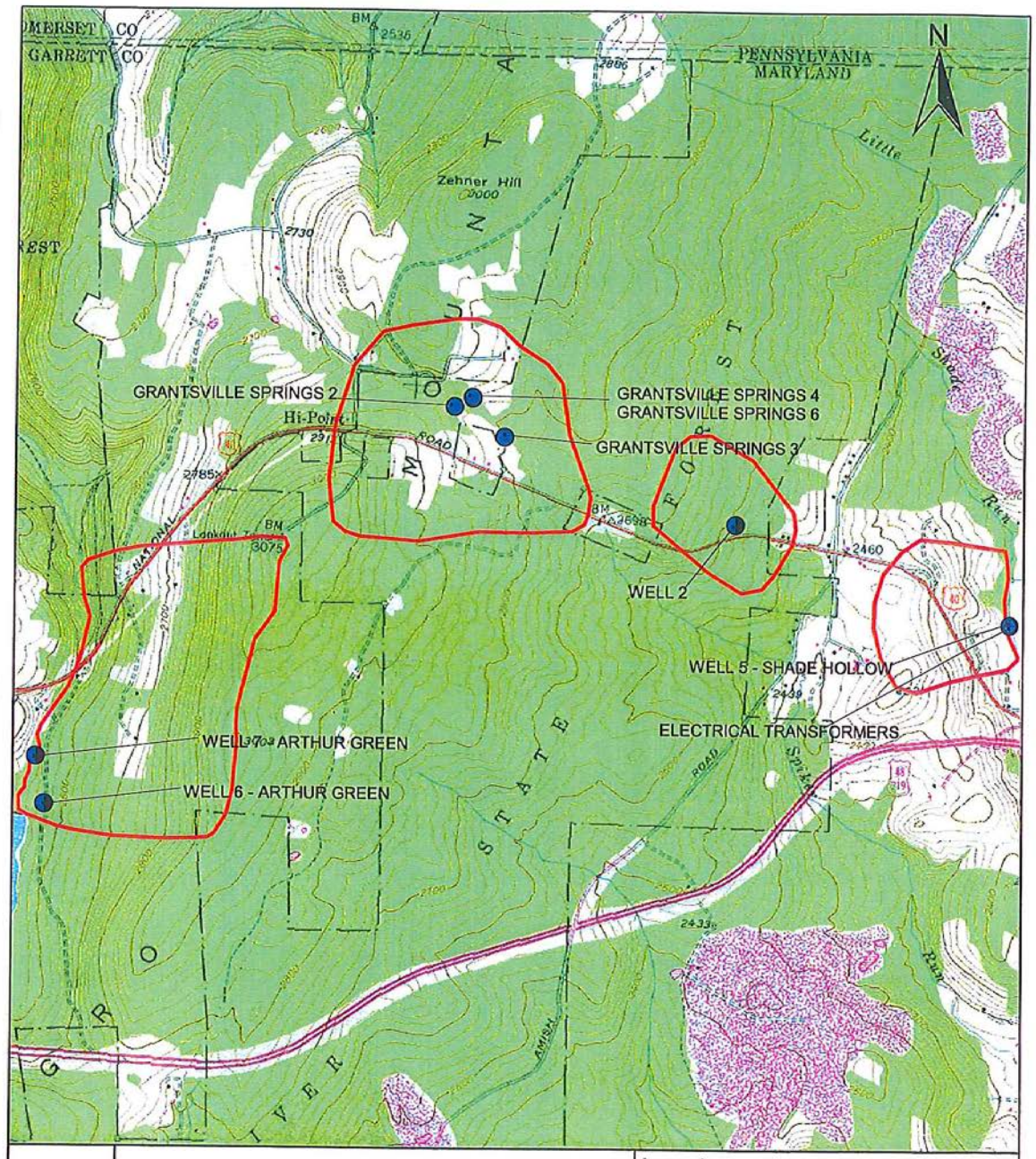
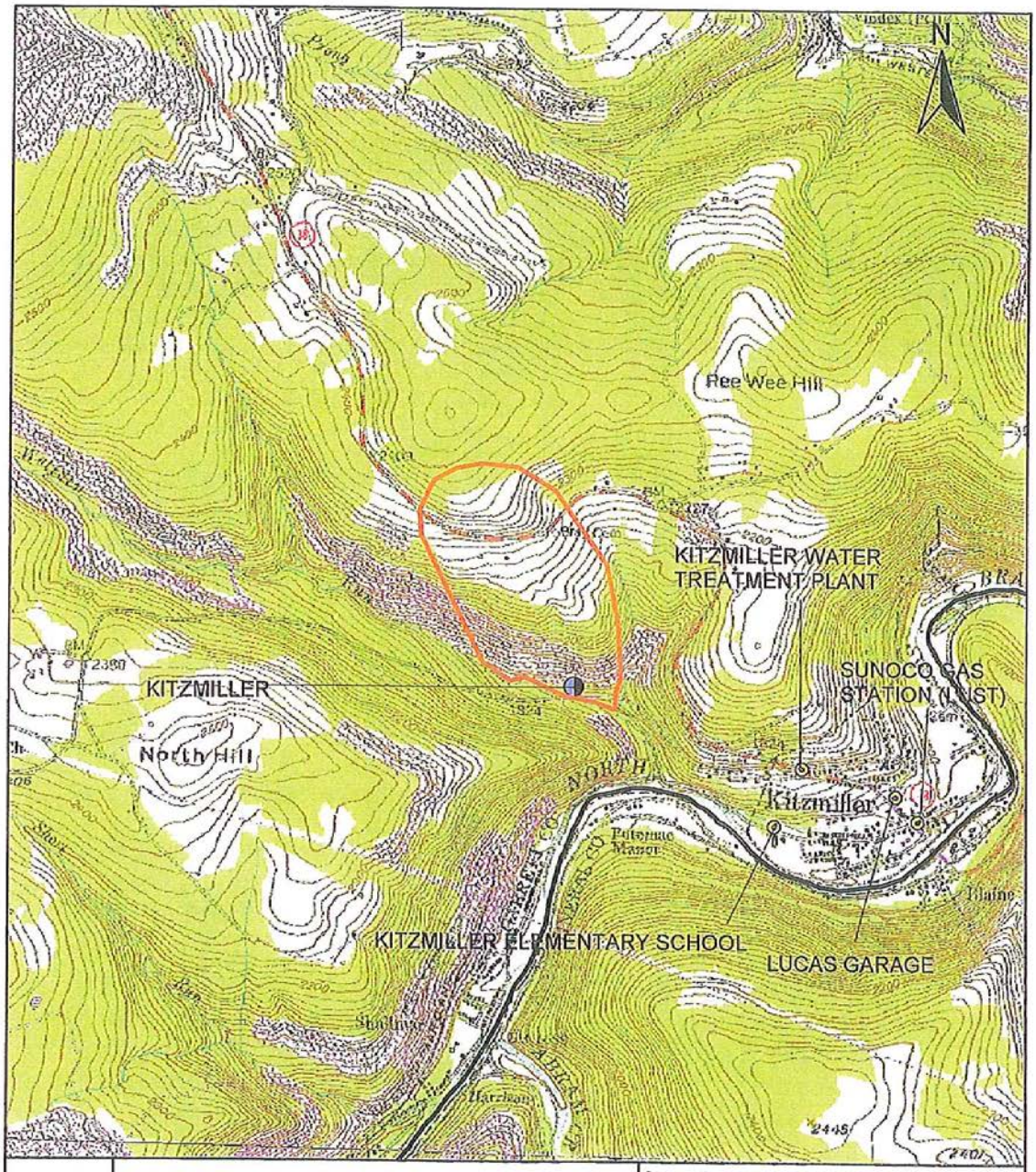


Figure 2. Town of Granstville Source Water Protection Area Map with Potential Sources of Contamination

Source Water Assessment Program
2003

Source: United States Geologic Survey. 1994. *7.5-minute Series Topographic Map for Grantsville, Maryland-Pennsylvania.*

Kitzmiller


N
Ree Wee Hill
KITZMILLER WATER TREATMENT PLANT
SUNOCO GAS STATION (LUST)
KITZMILLER
North Hill
Kitzmiller
KITZMILLER ELEMENTARY SCHOOL
LUCAS GARAGE
Figure 2. Town of Kitzmiller
Source Water Protection Area Map
with Potential Sources of Contamination
Source Water Assessment Program
2003
Legend:
Supply Well
SWPA Boundary
LUST
UST
Source: United States Geologic Survey. 1948 (photorevised 1981). 7.5-minute Series
Topographic Map for Kitzmiller, Maryland-West Virginia.
United States Geologic Survey. 1949 (photorevised 1981). 7.5-minute Series
Topographic Map for Mount Storm, West Virginia-Maryland.
Scale:
1000 0 1000 2000 Feet

Appendix 2 McHenry Water System Connection Policy

THE BOARD OF GARRETT COUNTY COMMISSIONERS
203 South Fourth Street - Courthouse - Room 207, Oakland, Maryland 21550
www.garrettcounty.org · countycommissioners@garrettcounty.org
301-334-8970 301-895-3188 FAX 301-334-5000

Board of Commissioners
Gregan T. Crawford
Robert G. Gatto
James M. Raley

County Administrator
R. Lamont Pagenhardt
County Attorney
Gorman E. Getty III

POLICY 2011-2

Mandatory Connection to the McHenry Water System

Explanation

The Garrett County Sanitary District, Inc. (the "District") operates the McHenry Water System (the "Water System"). On December 7, 2010, the Board of County Commissioners of Garrett County (the "Board"), as the governing body of the District, held a public hearing and adopted a Resolution amending the boundaries of the McHenry Water Service Area. The boundaries, as amended, include all areas where the Water System has been constructed. A copy of the Amended Service Area Map dated December 7, 2010, is attached hereto and incorporated herein.

The provisions of Section 9-661, of the Environment Article of the Annotated Code of Maryland (the "State Code"), require the District to notify each abutting property owner of the completion of the Water System, and further require that each abutting property owner, upon receipt of the notice, make appropriate connections of the plumbing system on the property to the connector constructed by the District within a time period established by the District.

The Board, as the governing body of the District, is required to comply with the provisions of the State Code and believes that it is appropriate that the requirement for connecting to the Water System be clearly reflected in a stated policy so that the public will understand the connection requirement.

Mandatory Connection Policy

1. In accordance with the provisions Section 9-661 of the State Code, when the Water System is declared to be complete and ready for the delivery of water, every abutting property, after receiving notice from the District, shall make the appropriate connection as follows:

a. For each newly constructed or renovated dwelling and/or commercial structure for which a construction and occupancy permit is required, connection shall occur prior to the Use and Occupancy Permit being issued.

b. For each property that experiences a change in ownership, connection shall occur prior to the recordation of a deed transferring ownership of the property.

c. For each property that experiences a well failure, connection shall occur when the Garrett County Environmental Health Department determines that a well failure exists.

d. For each property where a private water supply tests positive for bacteriological contamination, connection shall occur within sixty (60) days of the date of the positive test results.

e. For each Vacation Rental Unit licensed under the provisions of the Transient Vacation Rental Unit Ordinance of Garrett County, Maryland, connection shall occur within five (5) calendar years from the date of the notice establishing completion of the Water System.

f. For each property served by a Community Water System, connection shall occur within five (5) calendar years from the date of the notice establishing completion of the Water System. A Community Water System shall mean a system that has at least fifteen (15) service connections that are used by year-round residents or a system that regularly serves at least twenty-five (25) year-round residents.

g. For each property served by a Non-Transient, Non-Community Water System, connection shall occur within five (5) calendar years from the date of the notice establishing completion of the Water System. A Non-Transient Non-Community Water System shall mean a system that is not a community water system and that regularly serves at least twenty-five (25) of the same individuals over six (6) months per year.

h. For each property served by a Transient Non-Community Water System, connection shall occur within five (5) calendar years from the date of the notice establishing completion of the Water System. A Transient Non-Community shall mean a system that does not regularly serve at least twenty-five (25) of the same individuals over six (6) months per year.

i. For all other properties located within the boundaries of the McHenry Water Service Area as set forth on the Amended Water Service Area Map, connection shall occur within ten (10) calendar years from the date of the notice establishing completion of the Water System.

Amortization of Connection Charge

2. In accordance with the Amortization Policy, Policy 2005-5, water connection charges for each property may be amortized over a term of years in order to assist the property owners in addressing and meeting the cost for connection to the Water System. For properties that are required to connect within the ten (10) year connection period, the interest rate for amortizing the connection charge, shall be one percent (1%) per annum, simple interest. The term of the amortization shall not exceed fifteen (15) years. For connections occurring after the ten (10) year mandatory connection period, the interest rate and amortization term shall be in accordance with the terms and conditions of Amortization Policy, Policy 2005-5. All other terms and conditions of Policy 2005-5 remain in full force and effect and shall apply to mandatory connections in the Water System.

Ready-to-Serve Fee and Minimum Quarterly Billing

3. The District's Water Rate Schedule provides for assessment of a Ready-To Serve (RTS) fee that is equal to fifty percent (50%) of the operation and maintenance fee. The RTS fee is intended to cover the cost to maintain infrastructure capacity associated with customer's potential need. The fee is also levied on unimproved lots for the benefit derived by those lot owners from the availability of water infrastructure.

For those properties subject to this Mandatory Connection Policy for which connection has not occurred, billing of the RTS fee will commence five (5) years from the date of the notice establishing completion of the Water System. Billing of the minimum quarterly operation and maintenance fee will commence ten (10) years from the date of the notice establishing completion of the Water System.

Upon connection to the Water System, a property shall be subject to the normal quarterly operation and maintenance fee as established by the District's Water Rate Schedule.

4. This Policy shall become effective on the 18th day of October, 2011.

BOARD OF COUNTY COMMISSIONERS
OF GARRETT COUNTY, MARYLAND

Gregan T. Crawford, Chairman

Robert G. Gatto, Commissioner

James M. Raley, Commissioner

ATTEST:

R. LAMONT PAGENHARDT
County Administrator

McHenry Water Service Area

Adopted December 7, 2010