

**MONTGOMERY COUNTY**  
**2022-2031 Ten-Year**  
**COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**



**Montgomery County Comprehensive Water Supply and Sewerage Systems Plan**  
 County Council Approved 2022-2031 Plan

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## ***EXECUTIVE SUMMARY***

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The 2022 - 2031 Ten-Year Comprehensive Water Supply and Sewerage Systems Plan (Water and Sewer Plan or 2022 Plan) provides updates to the 2018 plan based on the latest available data and information. It includes updated information on County policies and plans.

This 2022 Plan includes the adopted policies and plans contained in the prior Plan and in subsequent adopted Plan amendments, while removing outdated or no longer relevant material. The Department of Environmental Protection (DEP) has added updated information from several sources that reflect new information from both technical sources and related County plans. This information has been reorganized in the Plan's text, figures, and maps with the intention of making it easier to understand and follow. Technical information has been summarized and presented on both a watershed and planning area basis to allow interested parties the opportunity to focus on issues that are organized by geographic area.

The purpose of the Comprehensive Water Supply and Sewerage Systems Plan is to provide an overview of the planning policies, needs, issues and planned infrastructure related to community and individual water and sewerage systems. The plan considers public health, environmental protection, and land-use issues as they relate to water and sewerage systems in Montgomery County. It is intended to provide both background information and a planning basis for the evaluation of water supply and sewerage system needs in the county. It is also expected to allow a more thorough context for developing, analyzing, and evaluating the issues related to the review and implementation of the WSSC Water Capital Improvement Program (CIP), including the timing and funding of identified projects. It seeks to achieve this purpose by:

- ❖ Outlining planning principles and policies that relate to land-use planning, infrastructure development, public health, and environmental protection;
- ❖ Describing current conditions of the water supply and sewerage systems relative to condition, capacity, availability, and related issues;
- ❖ Identifying and prioritizing community needs for improved water supply and sewerage infrastructure;
- ❖ Identifying planning and infrastructure projects needed to address existing or projected needs.

To achieve this purpose, the Water and Sewer Plan is organized into four chapters and several appendices. These four chapters address the following major subject areas:

### ***Chapter 1: OBJECTIVES AND POLICIES***

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This chapter includes an introduction to the Comprehensive Water Supply and Sewerage Systems Plan, identifying its purpose, legal context, and governance issues. It outlines the plan's goals and objectives for the orderly and cost-effective development of community water supply and sewerage systems and summarizes the Plan's structure and content. Chapter 1 describes the planning process used in Montgomery County to stage and implement water and sewer infrastructure improvements, including identification of policies and a review of the procedures for the adoption of amendments and/or modifications to the Plan. This chapter includes both general and special-condition policies that have been adopted by the County Council for the designation of community water and sewer service areas, which regulate water and sewerage system extensions, connections, and their staging.

The update of Chapter 1 continues a process of reorganization to assist those using the Plan. This particularly applies to those sections addressing governmental agency responsibilities, general

service policies, special and restricted service area policies, and water and sewerage systems policies and financing.

The preceding changes are largely structural to the Plan, moving sections together with a common theme to provide for clarity, better continuity, and less redundancy. Chapter 1 incorporates text amendments approved by the County since adoption of the prior Plan update. Chapter 1 also provides new information, policy directions, and recommendations, as follow (The numbering shown below corresponds to the subsections of the plan within the chapter):

## **II.: POLICIES FOR THE PROVISION OF WATER AND SEWERAGE SERVICE**

### **II.D.: Water and Sewer Service Development Policies by Service Area Designation**

The policy requirement that all new subdivisions in categories W-3 and S-3 must provide community water and sewer service has been modified for areas zoned for large-lot development (RE-1, RE-2, RE-2C, & RC). This modifies the policy that was revised in the 2018 Plan to require all subdivisions in planned service areas to use public systems. Experience showed that some exceptions in large lot areas (particularly Potomac) were justified.

### **II.G. Special Policies for Water and Sewer Service**

#### **II.G.3.: Community Service for Properties Abutting Community System Mains**

##### **II.G.3.a.: General Requirements**

The text addresses a recent situation where an owner of a qualifying property wanted an extension that would bring a sewer main directly opposite his house. This extension would have also allowed another non-qualifying property to have sewer service approved under the abutting mains policy. The text revision proposes allowing limited main extensions.

This section previously prevented an intervening property that would abut a new main extension from initiating the construction of all or part of the new main. Given the problems we have encountered with the financing of new mains, this requirement served to unduly limit flexibility for options to move new main construction forward. The policy is revised to now allow intervening owners to initiate new main construction.

##### **II.G.3.c.: Transfer of an Abutting Mains Single Service Connection Qualification**

The text addresses the transfer of an abutting mains connection “right” from one eligible property to another, commonly owned, ineligible property under strictly limited conditions. The policy was previously silent concerning the acceptability of such an action. Among other requirements, the two properties must be adjacent to each other, and both must abut a qualifying water or sewer main. The property donating the connection right surrenders the connection right then becomes ineligible for the abutting mains service connection.

##### **II.G.3.d. Multiple Abutting Community Service Connections**

This provision of the abutting mains policy is reworked to focus on providing multiple service connections for public service for only the number of properties that could clearly be approved for development by successful onsite systems testing. Previously, multiple abutting mains connections were based on an environmental benefit; however, this required only DEP’s estimation that onsite service was feasible, not confirmation of successful testing.

#### **II.G.4.: Community Service for Private Institutional Facilities**

Added a statement about the consistency of the private institutional facilities (PIF) policy with the Federal Religious Institutions Land Use and Institutionalized Persons Act (RLUIPA).

##### **II.G.4.b.: Further PIF Policy Considerations**

Revised the issue of limitations specifically on PIF uses as this could be as interpreted as prejudiced against religious institutions.



Added a proposal to adopt environmental overlay zones that would limit imperviousness in additional watersheds.

**II.G.4.c.: PIF Policy Category Change Application Requirements**

Added an emphasis on consistency with established imperviousness limitations. Noted that the County Council’s emphasis in considering concept development plans for PIF uses will be on issues addressing imperviousness and water and sewer main extensions.

**II.G.5.: Community Service for Commercial Land Uses**

This policy addresses the provision of community water and/or sewer service for properties with commercial land uses located outside the planned community service envelopes. The requirements for community service under this new policy closely mirror those of the private institutional facilities policy. Exceptions are that the commercial uses qualifying for community service do not need to be tax-exempt under the U.S. I.R.S. code and they cannot be located within the Rural and Rural Cluster Zones, in addition to the Agricultural Reserve Zone.

**III.: GENERAL POLICIES FOR WATER SUPPLY AND SEWERAGE SYSTEMS FACILITIES**

**III.A.4.: Environmental Considerations for Community Systems Construction**

This section was updated to reflect DEP’s current stream monitoring and water quality reporting procedures.

**III.A.5.: Facility Planning**

This and following sections were substantially revised to acknowledge changes to WSSC’s facility planning process over recent years. The 2018 update include a mash-up of old and new processes. This new version is more focused strictly on WSSC’s existing processes, including the Asset Management Program and Business Case review.

**III.A.5.b.: Interagency Coordination**

Added a recommendation to address and support further DEP and WSSC Water discussions regarding interagency coordination issues or the WSSC project development process.

**III.B: Municipal Community Systems**

Added a new introduction for municipal community systems to better fit into the structure of the chapter.

**III.C.: Individual Systems**

**III.C.4.d.: Onsite Systems Management Program**

**Water and Sewer Plan Recommendation: Individual Onsite Systems Management**

This recommendation has been updated to recognize where this program now stands.

DEP staff have supplemented onsite systems management programs research efforts by the Office of Legislative Oversight (OLO) with a report titled “Review of Conventional Onsite Treatment System Laws and Regulations” (March 2021). This report provides a more recent and broader inventory of onsite systems management programs in Maryland, neighboring states, and more distant jurisdictions.

**III.C.5.: General Policies for Multiuse Water Supply and Sewerage Systems**

**III.C.5.c.: Policy Constraints on Multiuse Sewerage Systems Capacities**

Exemptions from Design Capacity Restrictions

DEP has deleted one bullet (“Approved Systems – Existing multiuse sewerage systems and systems not yet built but which are approved and permitted by the Department of Permitting Services prior to February 14, 2006”) as it is no longer valid. According to DPS, uninstalled “approved

systems” permitted prior Feb. 14, 2006, are not allowed to proceed to construction without pursuing new permits. An unfulfilled permit is valid for only one (1) year from the date of issuance.

#### **IV.: WATER AND SEWERAGE SYSTEMS FINANCING**

##### **IV.A.1.b.: Systems Development Charge**

WSSC’s work on revising the SDC program is not resolved as of the date of the staff draft of this Plan. This section may be updated if the process moves forward to conclusion before the Council approves this Plan update.

##### **IV.A.2.b.: WSSC-Built Projects**

Some details of the WSSC-Built Projects program have been removed from this update of the Plan as the program is largely irrelevant today.

##### **IV.A.2.c.: Efforts to Address Underserved and Unserved Communities**

Reworked this section, focusing more on the current work of the Unserved and Underserved Communities subgroup. The subgroup is investigating improved means of providing public service main extensions to neighborhoods planned for public service but that lack access to existing mains. The subgroup’s report has been finalized, and along with a procedural and financial implementation plan, has been presented to elected officials in both Montgomery and Prince George’s Counties. WSSC-Water has drafted State legislation for a flat fee charge for proposed partial financing.

#### **V.: PROCEDURES FOR ADOPTING AND AMENDING THE WATER AND SEWER PLAN**

This update removes the term “interim” from amendments to the Plan that occur between the triennial, comprehensive updates. They are simply amendments to the current Plan.

##### **V.B.: Triennial Water and Sewer Plan Comprehensive Update**

Revised information about the State’s review of the Plan’s comprehensive update for consistency with State law.

##### **V.C.: Water and Sewer Plan Amendments**

These sections were restructured for clearer organization.

##### **V.C.1.: Property Owner-Initiated Category Change Requests**

Some details concerning WSCCR applications have been removed. This information is available in DEP’s application instructions packet, available on DEP’s web site. However, the PIF application information was retained.

Removed some of the background information on the WSCCR application fee as it’s been in place for 16 years, since 2005.

##### **V.C.2.: County-Initiated Area-Wide Category Map Amendments**

Added an expanded explanation of special community service areas (formerly public health problem areas).

##### **V.D: Review and Consideration of Plan Amendments**

Added text that expands the discussion of the primary reviewing agencies for service area category change requests and those agencies’ responsibilities in the process.

**V.E: Plan Amendment Actions**

**V.E.3: Deferred Amendments**

Deferral Timing

Added a specified maximum deferral period of three (3) years for deferrals after which the County Executive will return the amendment to the Council and recommend its denial.

**V.E.4.: Tabled Amendments**

Added language that recommends that amendments be tabled for no more than one year without subsequent consideration. Tabling of amendments is strictly at the Council's discretion.

**V.E.6.: Appeals**

Removed language concerning why an applicant might seek an appeal.

**Chapter 2: GENERAL BACKGROUND**

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Chapter 2 provides an overview of the natural and cultural environments in Montgomery County. This chapter identifies the environmental features and characteristics of the county that have a bearing on development patterns, natural resources and other factors related to the physical environment. DEP has used GIS-based graphics to depict information related to watersheds, stream classifications, topography, and other natural features, such as soils, geology and groundwater. This information provides the background for resource protection as it relates to water supply and sewerage system planning in Montgomery County.

This chapter also identifies the cultural environment that includes the planning issues related to demographics, land-use, and development. This information in coordination with the policies adopted in the county's General Plan and land-use master plans identifies the areas of the county that are subject to development in the future at densities that will require new or expanded water supply and/or sewerage systems.

**Chapter 3: WATER SUPPLY SYSTEMS**

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This chapter contains information about the various aspects of the county's water supply systems, including water supply sources, treatment, and distribution systems. It identifies the regional nature of the supply sources and the agreements that exist to address issues of water demand and drought management. There is also a discussion of the role of groundwater for both individual water supply systems and for the Town of Poolesville. In addition, the Chapter's discussion of rural sanitation issues includes a table which summarizes known well water supply problem areas in the County. This information provides a basis for further investigations and actions to address these rural sanitation concerns.

**I.B.: Water Supply Service Area - Sanitary Districts:**

DEP has maintained the previous Plan structure addressing the three major community water supply systems in the county individually: WSSC, Rockville, and Poolesville. These systems are examined in detail with regard to their treatment, transmission and storage systems. In the geographically extensive WSSC system, graphics relate the various pressure zones to planning areas in the county. This information is provided to assist persons using this plan to understand the relationships between identified water supply projects to the identifiable geographic areas and potential impacts to those areas. These system descriptions also include a summary of the system improvements and growth-related projects.

**II.F, III.E.5, and IV.F.: Projected Water Supply System Needs:**

Information is provided on the projected needs of the major water supply systems in the County. The long-range planning is projected out up to 2040, with interim planning dates for facility requirements. Regional, Bi-County and County-wide systems needs are reviewed based on information obtained from various reports and projected population growth in these areas. This information is supported by the regional population projections ((MWCOG), local land-use plans (M-NCPPC), regional water supply projections (ICPRB) and Bi-County water supply needs (WSSC). The projects that are planned to address these identified needs are summarized in the text of this chapter and in the appendices to the Plan, which incorporates the project summary information of WSSC's most recent Capital Improvement Program (CIP).

In addition to this documentation of the county's community water systems, Chapter 3 also presents policy recommendations and directions related to water supply systems for future guidance. The Chapter's major recommendations are summarized as follows:

- ❖ II.C. through II.C.5.: Potential Use of Travilah Quarry for Additional Raw Water Storage: The Travilah Quarry, with the potential to be developed into a 7.8-billion-gallon emergency raw water storage facility, is located within miles of the Potomac Water Filtration Plant. This quarry has been evaluated by WSSC Water and its regional water supply partners for several years and this Plan, encourages actions be taken to ensure its future availability to the water supply needs of the County and possibly the region.
  
- ❖ II.E through II.E.6.: Continue Investing in Major Water Supply System Infrastructure: Most of the water supply needs are addressed by the WSSC. As such, the Montgomery County Council directs the focus of WSSC's efforts in directing the WSSC's annual budget and the associated six-year Capital Improvements Projects (CIP). These documents in addition to this Plan allow the County Council to direct the policies and investments needed to meet the future needs of the County. In recent years the emphasis has been on investing in major water supply system infrastructure with a commitment to large diameter water main evaluations, rehabilitation, and replacement efforts, particularly for Pre-Stressed Concrete Cylinder Pipes (PCCP). Emphasis has also been placed on the sustainability of the small diameter water distribution pipes, adopting programs for the 1 percent replacement of these pipes. This program was adopted to allow a replacement interval of 100 years for these distribution mains, consistent with their expected useful life.
  
- ❖ II.F.2.c.: Local and Regional Water Conservation Programs: In reference to local and regional water conservation programs, Chapter 3 urges the County's public agencies to lead by example with respect to water conservation measures. These conservation efforts are promoted by several mechanisms that require continued review and evaluation to be effective. Plumbing codes, water rates, and unaccounted water use are emphasized as key factors in ensuring efficient use of water resources for water supply needs.

**Chapter 4: SEWERAGE SYSTEMS**

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Chapter 4 describes the planning basis for the sewerage systems in the County. It identifies the regional, Bi-County, and system relationships that are based on both political and geographic boundaries.

**Sewerage Systems Service Area - Sanitary Districts:**

The County's sewerage systems are defined according to the treatment plant service areas, sewer basins and planning areas located in the County. Similar to Chapter 3, updates to sewerage systems are structured individually based on the three major community sewerage systems in the



County which include the WSSC, the City of Rockville, and the Town of Poolesville. The WSSC system provides the majority of the community sewer service in the County. Accordingly, much of this chapter is dedicated to defining the regional agreements and policies that pertain to the WSSC system and how they relate to the provision of sewer service and capital project planning to meet anticipated system needs. The Chapter describes key policies, planning procedures, and references the Inter-Municipal Agreement (IMA) of 2012 as a significant long-range plan addressing the regional wastewater treatment needs of the region.

**I.A. Through I.C.: Washington Suburban Sanitary District, Blue Plains WWTP, and IMA of 2012:**

Over eighty percent of the wastewater collected in the community sewerage systems in Montgomery County is conveyed to the Blue Plains Wastewater Treatment Plant (WWTP) in Washington D.C. Accordingly, the provisions of the IMA that govern the terms and conditions of shared use of this facility with the District of Columbia, Fairfax County and other regional entities is described in detail. Important issues to the County relate to peak and average flow limitations to the sewers that convey flows to Blue Plains WWTP, allocated treatment capacities to the user jurisdictions and the capital improvement projects planned for this facility. Related to Blue Plains and the terms of the IMA are issues that involve the use of the facilities and the management of the sewage treatment process by-product, known as biosolids. The IMA of 2012 addresses the long-term use of this facility by Montgomery County and the region. This agreement was adopted with a ninety nine-year effective date that ensures the viable regional arrangement far into the future. Important to this duration are the mechanisms in the plan to allow it to be amended to meet future planning and regulatory requirements.

Chapter 4 reviews the needs for the sewerage system on a sewershed basis provided by WSSC through their hydro-dynamic modeling of the sewerage system, identifying areas or parts of the sewerage systems requiring relief, either now or in the future. Chapter 4 also provides a brief discussion on rural sanitation issues and includes a table which summarizes known septic system problem areas in the County. This information provides a basis for further investigations and actions to address these rural sanitation issues.

Chapter 4 also presents policy and program recommendations and directions related to sewerage systems for future guidance. The Chapter's major recommendations are summarized as follows:

- ❖ V.B.3.: To address concerns about potential sanitation problems from aging individual, On-Site systems in the County's neighborhoods: Currently the County is developing a maintenance program for implementation to address the potential sanitation problems from aging and improperly maintained individual onsite systems in the County. Details relative to the implementation of this maintenance program are currently under evaluation and development. Some of the main objective of this maintenance program include:
  - Development of a comprehensive inventory of all the on-site systems in the County.
  - Providing public education and community outreach.
  - Implementation of a preventive maintenance program through regular system pump-outs
  
- ❖ I.C.1.B.i: Blue Plains Service Area Projected Wastewater Treatment Needs: WSSC Water use of IMA allocated flow capacity of 169.6 MGD at the Blue Plains Wastewater Treatment Plant has been reduced to 163.6 MGD due to diversion of nitrogen and phosphorus load allocations (loads associated with 6 MGD) at the WSSC Water's Seneca Water Resource Recovery Facility. WSSC Water should initiate a process to explore the possibilities of restoring the full WSSC Water's allocated capacity in the Blue Plains Wastewater Treatment Plant.

## **APPENDICES**

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**Appendix A** - Includes the Plan's glossary. Capital program projects, previously summarized in Appendix A, are included in the Plan by reference to available documentation online.

**Appendix B** - Inventories the County's multiuse systems (large-capacity, individual, onsite water and sewerage systems) and has been updated.

**Appendix C** - Includes information on exceptional water and sewer service policy areas. Sections updated in Appendix C include:

### **II.E: GLEN HILLS STUDY AREA**

#### Service Recommendation & Comments:

Related to sewer service under the Potomac peripheral sewer service policy, added text about excluding properties at the periphery of the Rockville planned service area.

### **II.G: JONESVILLE AND JERUSALEM COMMUNITIES**

#### Service Recommendation & Comments:

Added text that addresses recent WSSC Water flow monitoring from the Jonesville and Jerusalem sewerage system into the Poolesville WWTP. This monitoring shows that these flows repeatedly exceed the agreed upon 20,000 gallons per day capacity, particularly during wet weather events. WSSC Water is investigating possible inflow and infiltration issues in the sewerage system. This section warns that, pending the outcome of this investigation, the County and WSSC Water may need to institute more stringent sewer connection limitations in the service area to minimize excessive flows to the WWTP. Alternately, WSSC Water could see if the Town is open to negotiations for increasing the amount of flow into the WWTP.

### **II.M.: POTOMAC AREA RE-1 AND RE-2-ZONED PROPERTIES**

#### Service Recommendation & Comments:

Added text that explains that the policy also needs to exclude properties adjacent to or confronting the planned sewer service envelope within the Rockville service area. Service available from the City has no bearing on county properties outside the City's planned service area. A similar restriction for the Town of Poolesville is not needed as no part of the Potomac Subregion Master Plan Area is adjacent to the town. Will modify the accompanying figure to match.

### **II.N. RIVERWOOD DRIVE**

#### Service Recommendation & Comments:

Explained that this restricted sewer service area is substantially larger than is necessary. Many parts of the restricted service area already have community sewer service. The areas excluded from the original restricted sewer service area are those with existing or direct access to community sewer service. The accompanying figure has been modified to match.

**Appendix D** - Includes updated municipal, county, state, and regional agency contact information.

**Appendix E** - Provides an inventory of major public and institutional facilities in the county.

**Appendix F** - Provides a summary of included updates and changes to the 2022-2031 Plan relative to the approved 2018-2027 Plan.

## **ATTACHMENTS**

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### **Attachment 1:**

Water & Sewer Service Area Category Maps)

### **Attachment 2:**

County Council Resolution No. 19- 1423

Key Changes and Updates to the 2018 – 2027 Montgomery County Comprehensive Water Supply and Sewerage Systems Plan – (The Ten-Year Plan)

# **CHAPTER 1**

## ***OBJECTIVES AND POLICIES***



MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN

County Council Approved Comprehensive Update

***CHAPTER 1: OBJECTIVES AND POLICIES***

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**I.: INTRODUCTION**

As in any community, the residents of Montgomery County, and the businesses and institutions that serve and support them, require adequate, reliable, and safe systems for fresh water supply and wastewater disposal. The sustainability of the community's human and natural environment relies on satisfying this need daily. In Maryland, the planning and coordination for this vital service is delegated from the State to and addressed by each County through the *Ten-Year Comprehensive Water Supply and Sewerage Systems Plan*. The delegation of planning from the State to the County requires that all growth and land use tools are consistent with the County's General Plan policies, goals, and objectives, and any adopted Sector Plan, functional plan or other sub-areas plan.

**I.A.: Plan Goals and Objectives**

The overall goal of the *Comprehensive Water Supply and Sewerage Systems Plan* ("the Water and Sewer Plan," "the Plan," or "CWSP") is to ensure that the existing and future water supply and sewerage system needs of Montgomery County are satisfied in a manner consistent with the following specific objectives:

- Satisfy the county's water supply and wastewater disposal needs in a cost-effective manner that protects the health, safety, and welfare of residents, businesses, and institutions; and that protects or improves the quality of the environmental resources of the county, the state, and the Chesapeake Bay region.
- Establish and implement general water and sewer service policies that serve to support the goals and objectives of the County's *General Plan*, "*On Wedges and Corridors*," and of its related local area sector and master plans. These policies emphasize the use of community systems along urban and suburban development corridors; the use of individual, onsite systems throughout lower-density, rural wedges; and consistency with the provision of other public services and facilities.
- Provide policy makers and implementing agencies with sufficient guidance and flexibility to address specific, exceptional water and sewer service issues, as needed. This recognizes that neither a master plan's service recommendations nor the Water and Plan's general service policies can anticipate every situation or circumstance involved in addressing water and sewer service needs in the county.
- Support the State of Maryland Smart Growth initiatives that direct State funding for public services and infrastructure to identified growth areas and promote the use of onsite water supply and wastewater disposal systems to limit development density in the Agricultural Reserve and lower-density wedge areas.
- Address needs and solutions, including recommendations for capital projects, of the complete community water supply and sewerage systems, from the point of withdrawal of the raw water supply to the point of final disposal or reuse of wastewater effluent, including the treatment or disposal of water and wastewater treatment by-products such as water filtration solids and biosolids (sewage sludge).
- Identify specific public health problems related to water supply and wastewater disposal throughout the county and recommend appropriate solutions, including community water and/or sewerage systems and capital projects if required. However, the cost and potential impacts of the extension of new community systems, especially in environmentally sensitive, low-density areas, requires that the County maintain an emphasis on the repair or replacement of existing onsite systems with standard onsite conventional or alternative technologies.
- Use an onsite systems management program to seek to protect or enhance groundwater and surface water resources throughout areas served by septic systems.

These objectives are accomplished in this Plan with the support and cooperation of the Washington Suburban Sanitary Commission (WSSC Water), the Maryland - National Capital Park and Planning Commission (M-NCPPC), municipal governments within Montgomery County, and various County agencies. The County also seeks the support and concurrence of Prince George's County regarding bi-county issues.

**I.B.: Chapter 1 Purpose**

The general purpose of Chapter 1 of the Comprehensive Water Supply and Sewerage Systems Plan is to set forth the laws, regulations, and policies upon which the Plan is based. This chapter includes the general, or county-wide, legal and policy issues pertinent to Montgomery County. Other legal and policy issues that are only relevant to a specific topic, such as regional water supply planning or biosolids management, are addressed in the chapter of the Plan related to that topic.

Chapter 1 presents the legal requirements for preparation of this Plan and the responsibilities of the government agencies involved in preparing this Plan and in managing the County's water supply and sewerage facilities. The remaining sections of this chapter present and discuss the policies and procedures for the provision of water supply and sewerage service, and the policies for water and sewerage systems facilities.

**I.C.: Legal Requirements**

Each County in Maryland is required by State law to have a comprehensive plan that addresses water supply and sewerage system needs for at least a ten-year period into the future. The specific legal requirement is embodied in Environment Article, Subtitle 5, "County Water and Sewerage Plans," Sections 9-501 through 9-521, of the Annotated Code of Maryland and the Code of Maryland Regulations, Title 26, "Environment", Subtitle 3, Chapter 1, "Planning Water Supply and Sewerage Systems" (COMAR 26.03.01.01 - .08). This Comprehensive Water Supply and Sewerage Systems Plan fulfills this legal requirement.

The Annotated Code establishes the authority for the Water and Sewer Plan and delegates that authority to the counties. The Annotated Code also establishes the procedures by which the counties prepare, adopt, and amend their water and sewer plans. Sections 9-515 through 9-518 provide policies specific to Montgomery and Prince George's Counties which supersede other related sections of the Code. Montgomery County is required to comprehensively review and update this plan triennially (once every three years.) COMAR 26.03.01.01, *et seq.*, specifies the requirements for format and minimum contents for each county's plan. In addition to the specific legal requirements for this document, this Plan addresses numerous Federal, State, and local laws and regulations that apply to the water supply, sewerage, and rural sanitation needs of the County. Many of these additional laws and regulations are discussed in the chapters of this Plan where they are most relevant.

**I.D.: Plan Structure and Content**

The structure and minimum content of this *Comprehensive Water Supply and Sewerage Systems Plan* is specified by the State laws and regulations referenced in Section I.C. of this chapter. The following briefly describes the structure of the Plan and the contents of each chapter:

- **Chapter 1: Objectives and Policies** - This chapter provides the legal requirements for the Plan; the County's overall objectives for water and sewer service; the policies addressing the provision of water and sewer service from community, multiuse and individual systems; and the procedures and organizational roles through which the County and State adopt, amend, and administer this Plan.
- **Chapter 2: General Background** - This chapter provides background information on Montgomery County's natural and man-made environment relevant to the provision of water and sewer service by both community and individual systems.
- **Chapter 3: Water Supply Systems** - This chapter provides information on the County's existing water supply systems and on planning efforts to ensure that the County's mid- and long-term water supply needs are and will be satisfied in a manner consistent with public policy and the plan's objectives. Regional planning issues, as they relate to the county, are also addressed.
- **Chapter 4: Sewerage Systems** - This chapter provides information on the County's existing sewerage systems and on planning efforts to ensure that the County's mid- and long-term sewerage needs are and will be satisfied in a manner consistent with public policy and the plan's objectives. Regional planning issues, as they relate to the county, are also addressed.
- **Appendices** - The appendices provide technical or reference information to supplement the Plan's four chapters. DEP updates portions of this information more frequently than the Plan's three-year comprehensive amendment cycle. Using an appendix for this information provides a more convenient method to accomplish these updates. DEP shall also post these updates on the Waterworks webpage of its website ([www.montgomerycountymd.gov/waterworks](http://www.montgomerycountymd.gov/waterworks)).

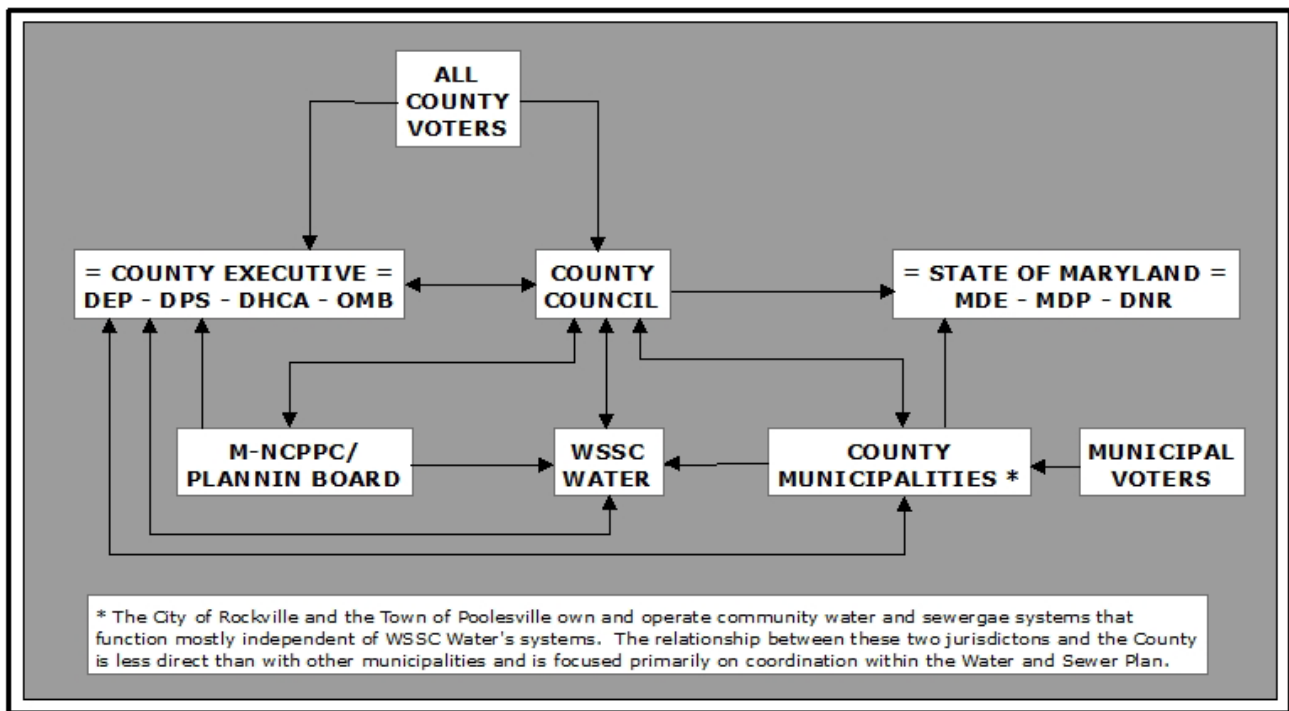
- Water and Sewer Service Area Category Maps** - These maps identify the water and sewer service area categories designated in this Plan for all properties within Montgomery County. Printed copies of category maps, for any specific area of the county, may be obtained from DEP. Category change actions approved between comprehensive updates of the Plan may also be viewed at the DEP Waterworks webpage. This webpage also provides a link to the County's online webmap viewer which includes water and sewer category designations for county properties.

The plan text is available online through the DEP "County Water and Sewer Plan" webpage at <https://www.montgomerycountymd.gov/water/supply/county-water-plan.html>.

**I.E.: Government Responsibilities for Water and Sewer Service**

The responsibilities of planning for the availability of and providing water and sewerage service in Montgomery County are multi-jurisdictional and depend on the cooperative efforts of County, bi-county, municipal, State, and regional agencies and authorities. This is especially true regarding the use of the Potomac River, a shared raw water source for several jurisdictions, and the Blue Plains Wastewater Treatment Plant (WWTP), a regional sewage treatment facility located in the District of Columbia. These governmental agencies, and their primary responsibilities, are described in the following sections. Figure 1-F1 depicts the interrelationships of the public and the government agencies primarily involved in preparing this Plan and in managing the water supply and sewerage systems serving Montgomery County.

**Figure 1-F1: Government Responsibilities for Water and Sewerage System Planning**



**I.E.1.: Montgomery County Government**

Under State law, Montgomery County has planning authority for the availability and adequacy of water and sewerage service and for land use planning in the county. The County government, through the County Council, also maintains the county's land use planning and zoning authority. The County coordinates the planning and development of water supply and sewerage facilities with County goals for land use, staging, adequate facilities, capital improvements, and environmental protection. The objective is to develop this *Ten-Year Comprehensive Water Supply and Sewerage Systems Plan* (CWSP) such that existing and planned water supply and sewerage systems are consistent with County land use planning. The CWSP incorporates all or part of subsidiary plans of the municipalities, sanitary districts, privately-owned facilities, and local, State, and federal agencies which have existing, planned, or programmed development within the county. The County reviews

and adopts the Water and Sewer Plan on a triennial basis, and reviews and acts on proposed plan amendments at intervals between mandated, triennial updates.

**I.E.1.a.: County Council**

The Montgomery County Council consists of nine elected Council members, four elected at large and five elected from councilmanic districts. The Council establishes a set of broad objectives and policies (including master plans, staging plans, and fiscal policy) to be followed in preparing the recommended Water and Sewer Plan. After receiving the triennial submission of the recommended plan from the County Executive and allowing a period for notification to public agencies and interested parties, the Council holds a public hearing on the Executive's recommended Plan. Following work sessions, the Council amends and formally adopts the Plan. The Council also receives one or more transmittals of amendments to the plan from the Executive each year. Following a public hearing, the Council acts on the proposed amendments and incorporates them, as appropriate, into the Plan. The Council similarly reviews and approves both the annual WSSC Water Capital Improvements Program (CIP) for water supply and sewerage projects and the annual WSSC Water operating budget.

Note that in the 2020 general election, county voters elected to increase the Council's membership from nine to eleven members: seven from councilmanic districts and four at large. The 2022 Council election will add these two additional members.

**I.E.1.b.: County Executive**

State law requires the County Executive to prepare a comprehensive update of the *Comprehensive Water Supply and Sewerage Systems Plan* for consideration by the County Council every three years. The Executive also prepares and submits recommended Plan amendments to the Council. These amendments can include text amendments and water/sewer category map amendments. Map amendments are usually in the form of individual requests for water and sewerage service area category changes (see [Section V](#). Procedures for Adopting and Amending the Water and Sewer Plan). The Executive transmits proposed amendments of the Plan for the Council's consideration and action one or more times each year. The Executive also transmits recommendations to the Council on:

- The proposed annual operating budget and capital improvements program (CIP) budget submitted annually by WSSC Water. The CIP budget addresses WSSC Water's major water supply and sewerage systems projects.
- The land use master plans and sector plans recommended to the Council by the County Planning Board.

Within the Executive Branch of the County government, the Executive's responsibilities are delegated to the following agencies:

**I.E.1.b.i.: Department of Environmental Protection (DEP)**

The Department's mission is to enhance the quality of life in our community by protecting and improving Montgomery County's air, water, and land in a sustainable way while fostering smart growth, a thriving economy and healthy communities. The Department maintains the primary functions of developing and administering the Water and Sewer Plan.

- DEP Water and Sewer Plan Administration - Within DEP, the Intergovernmental Affairs Division (IGAD) addresses the County's responsibilities for the management and coordination of policy development and planning of water supply and wastewater disposal systems. DEP staff develop updates and amendments to the Plan and reviews and prepares recommendations on proposed Plan amendments such as individual category change requests. DEP develops and maintains the geographic information systems (GIS) water and sewer category layers that result in the maps of the County's water and sewer service area categories. DEP issues interim update maps as necessary, based on approved Plan amendments. The County Council has delegated the authority to the Director of DEP to act under limited circumstances on Plan amendments. The policies addressing this administrative delegation authority are provided in [Section V.D.2](#). DEP staff conduct public hearings and meetings related to these proposed plan amendments.

DEP staff coordinate the review of WSSC Water's annual operating budget and capital improvement program (CIP) budget with the other county agencies such as the Office of Management and Budget (OMB). In administering the plan, staff are involved in a variety of programs including water quality protection, watershed management, water and sewerage capital facilities planning, development plan review, record plat approval, public health problem relief, master plan development, and related issues. DEP provides technical, policy, and research support not only to the Executive, but also to local government agencies such as the WSSC Water, the Maryland - National Capital Park and Planning Commission, and the County Council, and to regional agencies such as the District of Columbia Water and Sewer Authority, the Metropolitan Washington Council of Governments, and the Interstate Commission on the Potomac River Basin.

- DEP Related Water Quality and Resource Programs - Water resources protection programs serve to support drinking water source protection throughout much of the county. Most county watersheds contribute to public water supply provided by the Potomac River and the Patuxent River. DEP carries out a variety of programs to protect the county's water resources, including strategic watershed planning, water quality monitoring, watershed restoration, storm water facility maintenance, inspection and enforcement, and illicit discharge inspection and enforcement. A more comprehensive discussion of these programs is included in **Chapter 2, Section II.E.**

#### **I.E.1.b.ii.: Department of Permitting Services (DPS)**

Montgomery County's Department of Permitting Services (DPS) regulates new land development and building construction activities which affect storm flows, stormwater infiltration, stream base flows, and water quality. This includes sediment and erosion control and stormwater permitting, and associated plan review, inspection, and enforcement functions. DPS also issues well and septic system permits, street and storm drain permits, and administers the County's floodplain protection laws.

Within DPS, the Well and Septic Section has the responsibility delegated from the State to regulate and permit individual water supply and sewerage systems, usually wells and septic systems. The Well and Septic Section develops regulations addressing siting, testing, and permitting for these systems, currently Executive Regulation 28-93AM, "On-Site Water Systems and On-Site Sewage Disposal Systems in Montgomery County". DPS coordinates with DEP concerning cases involving public health problems caused by failing individual, onsite systems where a resolution of the problem involves the provision of community water and/or sewer service.

DPS staff administer a program which grants exemptions from WSSC Water systems development charges (SDC) for biotechnology, elder housing, and community revitalization projects (see **Section IV.A.1.b.**).

#### **I.E.1.b.iii.: Montgomery County Office of Agriculture**

Development and preservation issues—including water and sewer service—in the county's Agricultural Reserve requires coordination between DEP and the Office of Agriculture. The Office of Agriculture staff provide valuable information on State and local agricultural preservation programs and on individual agricultural properties seeking Water and Sewer Plan changes to support proposed development.

#### **I.E.1.b.iv.: Department of Housing and Community Affairs (DHCA)**

This Department administers grant and loan funding programs, generally from State and Federal funds, which provide financial assistance to property owners and communities seeking to repair, upgrade, or modify their water and sewer systems.

#### **I.E.1.b.v.: Office of Management and Budget (OMB)**

This Office oversees the operating and capital program budgets for County agencies, including the WSSC Water, with a primary emphasis on fiscal accountability and responsibility. OMB staff coordinate closely with DEP, WSSC Water, and County Council staff on their review of WSSC Water's budget submissions.

#### **I.E.2.: Municipalities**

State law requires that the County incorporate the subsidiary water and sewer plans of the municipalities into the County's Plan. The municipalities provide the Executive with information needed for the preparation of the recommended Plan and participate in reviewing the recommended Plan and any amendments, as appropriate.

WSSC provides water and sewer service for most municipalities in the county, except as explained in paragraphs following Table 1-T1.

The following municipalities are also responsible for their own planning and/or zoning authority:

<b>Table 1-T1: Municipal Planning and Zoning Authority and Water/Sewer Systems</b>				
<b>Municipality <sup>A</sup></b>	<b>Land Use Planning Authority</b>	<b>Zoning Authority</b>	<b>Water Service Provided by</b>	<b>Sewer Service Provided by</b>
City of Gaithersburg	City	City	WSSC Water	WSSC Water
City of Rockville	City	City	City, WSSC Water, & onsite systems	City, WSSC Water, & onsite systems
City of Takoma Park	M-NCPPC	M-NCPPC	WSSC Water	WSSC Water
Town of Barnesville	Town	M-NCPPC	Onsite systems	Onsite systems
Town of Brookeville	Town	Town	WSSC Water	WSSC Water
Town of Kensington	M-NCPPC	M-NCPPC	WSSC Water	WSSC Water
Town of Laytonsville	Town	Town	WSSC Water & Onsite systems	Onsite systems
Town of Poolesville	Town	Town	Town & onsite systems	Town & onsite systems
Town of Washington Grove	Town	Town	WSSC Water	WSSC Water

<sup>A</sup> See Figure 1-F2 for the locations of these communities.

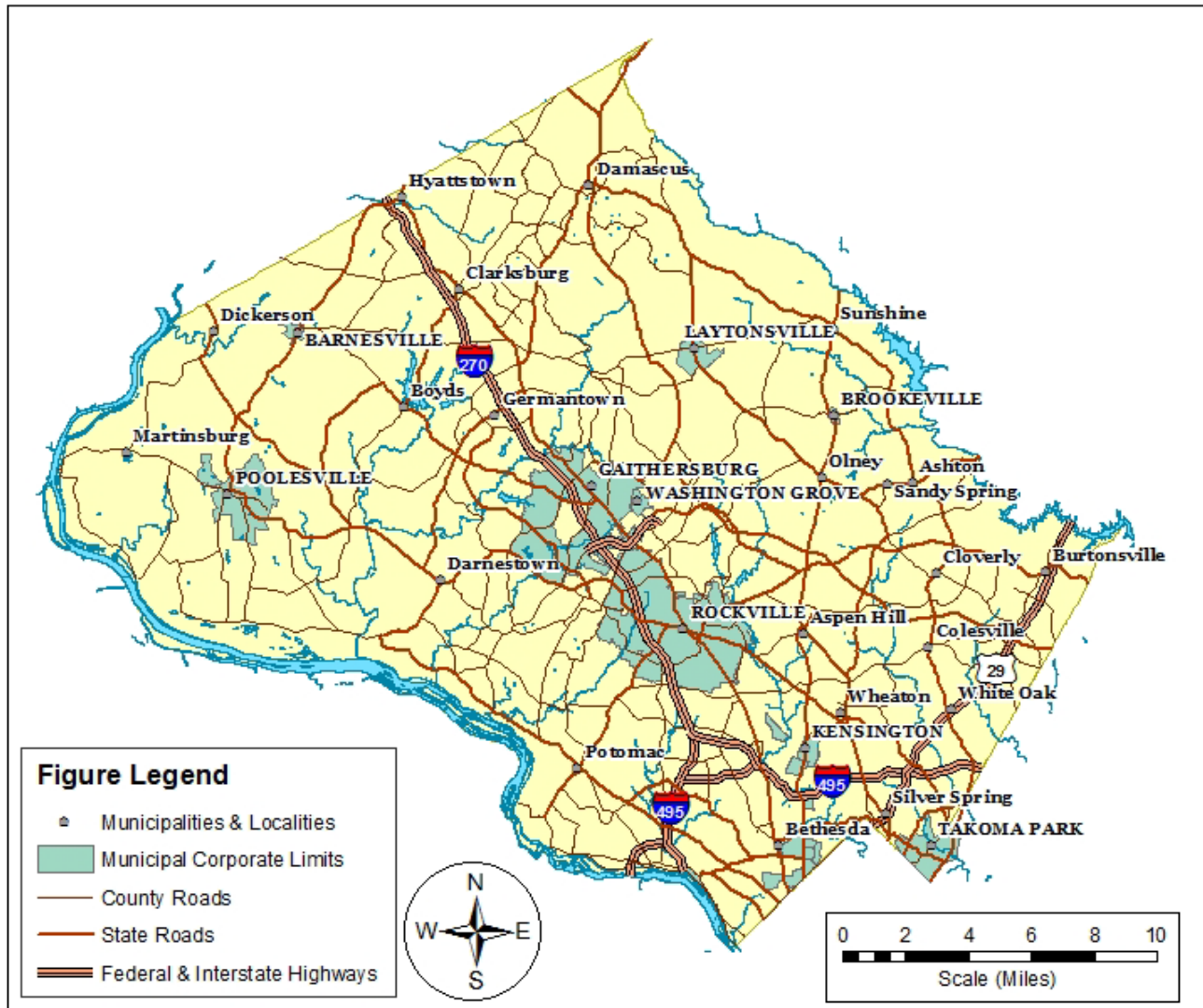
The City of Rockville and the Town of Poolesville are responsible for the operation of their own water supply and sewerage systems; some limited areas within the WSSD are served by these systems. Accordingly, the planning, design, and operation of their sanitary systems is largely independent of WSSC Water and the County. However, because of its dependence on WSSC Water sewer mains for the transmission of sewage flows to the Blue Plains Wastewater Treatment Plant, Rockville does coordinate with WSSC Water and the County on sewer service issues.

City of Rockville: Article X of the City of Rockville’s Charter designates the Mayor and Council as the Water and Sewer Board for Rockville, which grants broad authority and empowers the Board to construct, operate and maintain a water treatment plant, a water distribution system and a sanitary sewerage collection system. This authority for the operation of the water and sewerage systems includes the following:

- Employ and designate officials;
- Purchase all supplies and materials;
- Provide a suitable number of fire hydrants to protect City property from fire;
- Title to all property, plants and systems;
- Issue and sale of bonds;
- Raise sufficient annual revenue by ordinance;
- Pass and enforce ordinances to protect public health and to protect the water and sewerage systems;
- Require connections of all houses, buildings and other structures to water and sewer mains within the present or future corporate limits of the City;
- Make a reasonable charge for connection to the City’s water or sewer mains;
- May disallow construction or maintenance of private, onsite water supply or sewerage systems;
- May extend water and sewerage systems beyond the City limits;
- Grant the right of entry to employees in pursuit of official duties to access water or sewer installations;
- Prohibit pollution of the City water supply system;

- Enter into contracts with any party, Federal, State or other governmental body;
- Levy and collect special assessment taxes upon property for special benefits.

**Figure 1-F2: Montgomery County Municipalities and Localities**  
(Source: DEP-IGAD)



The City of Rockville provides water and sewer service to approximately 70% of the city, or approximately 13,000 accounts. The City treats raw water from the Potomac River and delivers the potable water to its customers through its water distribution system. The City collects wastewater from its customers through its collection system and delivers it to the Blue Plains Wastewater Treatment Plant through WSSC Water and DC Water collection systems. Other properties in the city, located within the WSSD are served by WSSC Water. Rockville City Code (Section 24-1b) requires properties to annex into the City’s corporate boundaries to receive water and sewer service. Rockville’s Mayor and Council ensure premium levels of service for their citizens (both residential and non-residential), including water and sewer service. Accordingly, this premium service is reserved for Rockville residents.

Town of Poolesville: The Town operates a series of municipal water supply wells and a water distribution system that serves the majority of properties within the town. The Town also operates a wastewater collection system and wastewater treatment plant (WWTP) that again serves most of the properties in the town. The WWTP plant also treats sewage from the WSSC Water service areas of Jonesville and Jerusalem.



Town of Laytonsville: The majority of properties in Laytonsville are approved for community water service from WSSC Water. Although it is within the WSSD, the town is outside of the planned community sewer service envelope.

Town of Barnesville: Barnesville is located within the WSSD, but outside the limits of the planned community water and/or sewer service envelopes.

### **I.E.3.: Bi-county Agencies**

The State of Maryland has chartered two bi-county agencies to serve Montgomery and Prince George's Counties: the Washington Suburban Sanitary Commission and the Maryland - National Capital Park and Planning Commission.

#### **I.E.3.a.: Washington Suburban Sanitary Commission (WSSC Water, WSSC)**

Established in 1918 under State legislation, WSSC Water provides community (public) water and sewerage systems throughout most of Montgomery and Prince George's Counties. The State's charter specifies the area served by WSSC Water, the Washington Suburban Sanitary District (WSSD), shown in Figure 1-F3. Montgomery and Prince George's Counties each appoint three of the six commissioners who head the WSSC Water, subject to confirmation by the respective county councils. The commissioners serve staggered, four-year terms. The chairperson of the Commissioners alternates annually between Montgomery and Prince George's Counties. The WSSC Water General Manager, the chief executive for all WSSC Water operations, as well as the Inspector General and the Board Secretary, report directly to the Commissioners.

WSSC Water is responsible for the design, construction, operation, and maintenance of the community water supply and sewerage systems within the WSSD. The agency constructs and maintains water mains, pumping stations, and water storage facilities to deliver treated drinking water from the Potomac and Patuxent filtration plants to connected households and businesses. WSSC Water also constructs and maintains sanitary sewer lines, pumping stations, and force mains to collect and transport wastewater to its wastewater treatment facilities (water resource recovery facilities) and to trunk sewers connecting to the regional Blue Plains wastewater treatment facility.

WSSC Water operates and maintains approximately 5,800 miles of water mains and 5,600 miles of sewer mains throughout the WSSD. WSSC Water will face a significant challenge during the tenure of this Plan in the form of rehabilitating aging water and sewer mains within its systems, many reaching and exceeding their expected useful life. WSSC Water issues plumbing permits for water and sewer service throughout the WSSD, both within its own community service areas and for areas within the WSSD using individual, on-site systems (wells and septic systems).

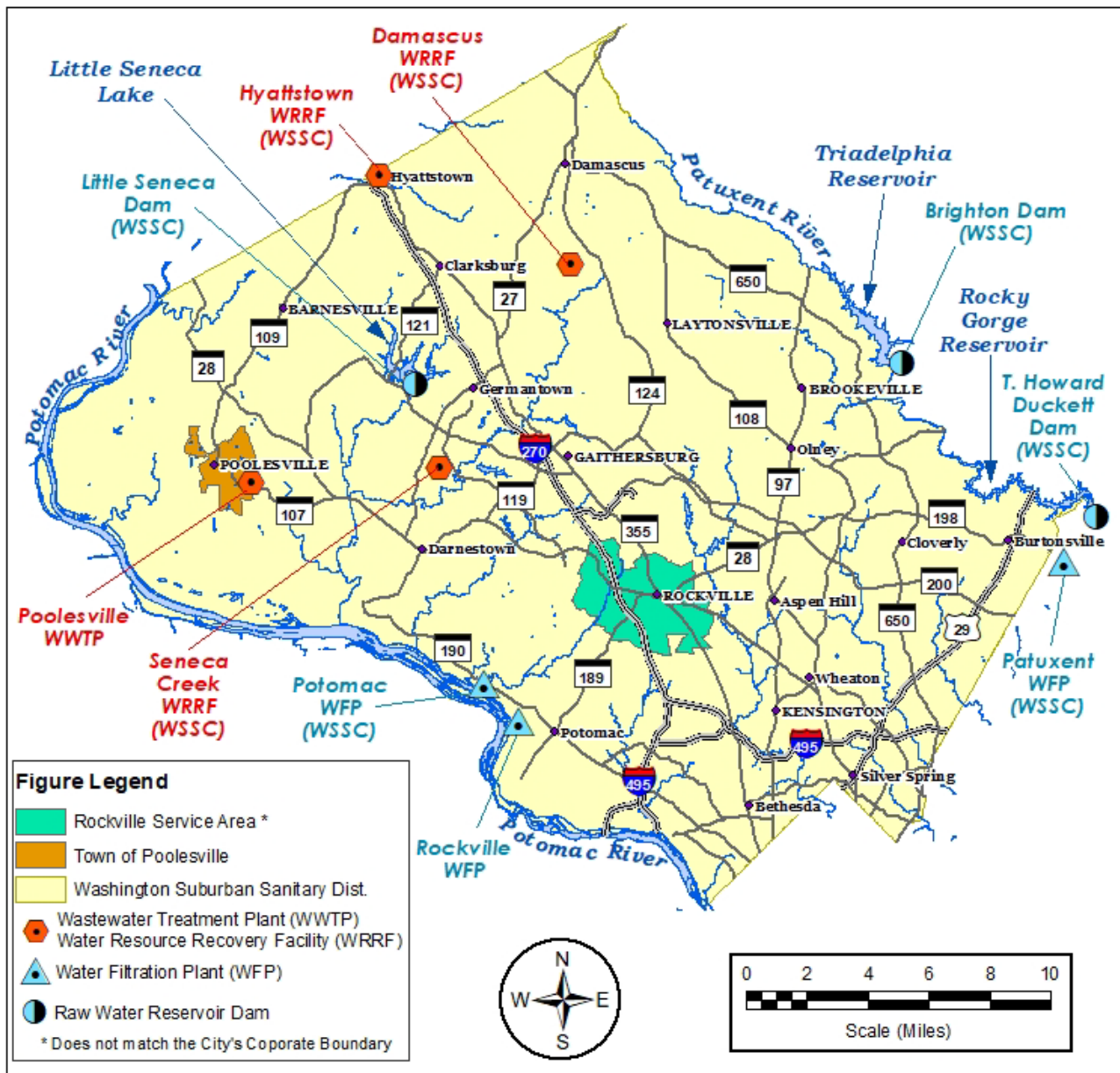
WSSC Water owns and operates water supply reservoirs on the Patuxent River and on Little Seneca Creek. The Triadelphia and Rocky Gorge Reservoirs on the Patuxent River supply raw water to WSSC Water's Patuxent Water Filtration Plant. WSSC Water uses the Little Seneca Lake Reservoir, located within Black Hill Regional Park in Germantown, to supplement flows in the Potomac River to the Potomac Water Filtration Plant during designated periods of drought. Discharges from Little Seneca Lake are coordinated through the Interstate Commission for the Potomac River Basin (see Section I.E.5.c). The agency has permits to operate and maintain water intakes and filtration plants, to withdraw and treat water from the Potomac River and the Patuxent River reservoir system for public water supply purposes. WSSC Water conducts extensive water quality analyses for the community water supply within the WSSD and provides water quality reports to its customers through federally mandated, annual Consumer Confidence Reports. These reports may also be obtained through the WSSC Water Public Communications Office or on WSSC Water's website at [www.wsscwater.com](http://www.wsscwater.com).

WSSC Water operates and maintains three wastewater treatment plants in the county, which WSSC Water recently renamed as water resource recovery facilities (WRRF):

- The Seneca WRRF on Great Seneca Creek near Germantown.
- The Damascus WRRF on Magruder Branch near Damascus
- The Hyattstown WRRF on Little Bennett Creek in Hyattstown.



**Figure 1-F3: Washington Suburban Sanitary District (WSSD) in Montgomery County**  
 (Source: DEP-IGAD)



These point source discharges are controlled through NPDES permits issued by MDE. WSSC Water conducts in-plant process monitoring of water filtration and wastewater treatment processes and maintains a water quality laboratory to support these operations. WSSC Water also conducts some raw water supply monitoring at its water sources and in-stream monitoring immediately upstream and downstream of its wastewater discharge points.

WSSC Water provides data and guidance to the Executive pertaining to capacity of the water supply and sewerage systems and to engineering and fiscal aspects of system expansion. WSSC Water's functions also include reviewing and commenting on the Recommended Comprehensive Water Supply and Sewerage Systems Plan and on proposed amendments, including water and sewer service area category change requests. For category change requests, WSSC Water addresses the technical feasibility of new community service, including system transmission and treatment capacities.

WSSC Water submits an annual operating budget and a Six-Year Capital Improvements Program (CIP) budget annually to the County for interagency review and for modification and adoption by the County Council. WSSC Water prepares and submits the CIP for major community water and sewerage projects to the County as part of its responsibility to plan and finance the water supply and sewerage system. WSSC Water and the Executive work together in the preparation of relevant portions of the WSSC Water's proposed CIP and related facility plans. The County incorporates the adopted WSSC Water annual CIP and subsequent amendments as updates to the Water and Sewer Plan, which serve to substantially fulfill the fiscal planning requirements of state law and regulations. WSSC Water implements the County-approved CIP for major water and sewerage facilities by designing, constructing, operating, and maintaining water systems and acquiring facility sites and rights-of-way. The two County Councils annually review and adopt the WSSC Water CIP and operating budgets. In the event that the two County Councils cannot agree on the capital and operating budgets, the Commission's recommended budgets are adopted by default.

WSSC Water is responsible for identifying potential environmental impacts from construction of proposed water and sewer lines and related infrastructure. Cooperating with other agencies through the Development Services Process, WSSC Water works to avoid and minimize environmental impacts of sewer line, water line, and other facility construction and maintenance activities to streams, floodplain, wetlands, parklands, and woodland buffers.

#### **I.E.3.b.: Maryland - National Capital Park and Planning Commission (M-NCPPC)**

State legislation created M-NCPPC in 1927 to protect open space and control development in Montgomery and Prince George's Counties. In 1939, the Maryland District Act provided planning and zoning authority to M-NCPPC. The agency is also responsible for park land acquisition and development and maintenance of the county's park system. Ten commissioners govern M-NCPPC, five each appointed by Montgomery and Prince George's Counties. The five members of the commission for each County also serve as a separate Planning Board to facilitate, review, and administer the matters affecting their respective counties. The Montgomery County Planning Board advises and assists the County Council in zoning, and master plan and related development issues. The Planning Board prepares draft master plans for Executive review and County Council consideration and approval. In support of the triennial update of the CWSP, M-NCPPC provides demographic information and population projections.

In carrying out its basic land use planning mission, M-NCPPC develops the County's *General Plan*, master and sector plans and functional master plans. Once approved by the County Council and adopted by the Planning Board, local area master plans, sector plans, and functional master plans amend the *General Plan*. Master plans are required to incorporate the seven Visions of the Maryland Economic Growth, Resource Protection, and Planning Act of 1992. M-NCPPC also conducts natural resource inventories necessary to support the development of land use plans. In executing its development review responsibilities, M-NCPPC evaluates proposed subdivisions and site plans for impacts on forests, specimen trees, slopes, wetlands, streams, wildlife, fisheries, and other natural features.

M-NCPPC coordinated the preparation and adoption of the 2010 *County-wide Water Resources Functional Master Plan* (WRFMP) as required by the Water Resources Element (WRE) of Maryland HB 1141, enacted in May 2006. This legislation required the County to amend the *General Plan*, considering existing and planned growth, to address the adequacy of the County's water supply capacity, wastewater treatment capacity, storm water quality and quantity management resources, and the water quality of its streams. The WRFMP serves as a guide for the County's *Ten-Year Comprehensive Water Supply and Sewerage Systems Plan*, other functional master plans, area master plans, and sector master plans. For more information on the WRFMP, see Section II.F.1.b and Chapter 2, Section III.A.2.

M-NCPPC provides guidance on and interpretation of land use, development, park and natural resources, and community planning issues to the County government. As required by State law (Annotated Code Sections 9-506(a)(1)(ii), 9-506(a)(2) and 9-516), this includes review and comment on the Recommended *Comprehensive Water Supply and Sewerage Systems Plan* and proposed amendments, including water and sewer service area category changes.

M-NCPPC is responsible for protecting, preserving, and managing natural resources in County parks, including streams, fish, wetlands, forests, and wildlife. Within the park system this is accomplished through a wide variety of ongoing programs including: 1) resource inventory functions; 2) reforestation; 3) wildlife and fisheries management; 4) aquatic and wetland habitat enhancement; 5) environmental and engineering review of construction plans; 6) direct performance or participation in design and construction, and construction management of proposed stormwater management facilities located on parkland, including stormwater retrofit and stream restoration projects; 7) maintenance of these facilities; and 8) water quality monitoring activities within park areas as necessary to support these specific functions.

#### **I.E..4.: State of Maryland**

The State of Maryland has delegated the responsibility to plan for the adequate provision of water and sewer service to Montgomery County. The following State agencies oversee that responsibility and other related planning and water quality programs:

##### **I.E.4.a.: Maryland Department of the Environment (MDE)**

Under State Law, the Maryland Department of the Environment (MDE) is responsible for the State's review and approval of this Water and Sewer Plan. MDE adopts and administers regulations that each county must follow in the preparation of its comprehensive plan, and acts to approve, approve with modifications, or disapprove the Plan or any Plan amendment submitted by the County. As part of this process, MDE seeks guidance from the Maryland Dept. of Planning for consistency with local and State planning use goals, policies and objectives.

MDE also:

- Coordinates State grant and loan programs for major water and sewer infrastructure improvements,
- Regulates the discharge of treated wastewater into State waters, through its permit issuing and monitoring programs.
- Regulates new development using septic systems through the State's septic growth tiers law (Senate Bill 236), which places limits on the number of septic systems allowed within new rural subdivisions. For more information on the County's Growth Tiers, see Section II.E.3.

##### **I.E.4.b.: Maryland Department of Planning (MDP)**

The State's Land Use Article provides the authority to local governments to enact laws and codes to implement the State's 12 Planning Visions (see [12 Planning Visions \(maryland.gov\)](https://www.maryland.gov/planning)) across each entity's jurisdictional oversight. Such laws and codes must be consistent with the land use goals and policies of the State. Pursuant to Section 9-507 (b)(2) of the Environmental article, MDP is required to review and comment on the County's Ten-Year Comprehensive Water Supply and Sewerage Systems Plan and any amendments thereto, for consistency with all State land use planning visions, policies and actions. Noted inconsistencies are provided to MDE for consideration prior to any plan or amendment approval, or revised permit is granted to proceed.

#### **I.E.5.: Regional Agencies**

Montgomery County's community water and sewer needs also involve agencies and jurisdictions outside the State of Maryland. The County and WSSC Water coordinate with the following agencies on the use of regional resources. These governmental agencies, and their primary responsibilities, are described as follows:

##### **I.E.5.a.: District of Columbia Water and Sewer Authority (DC Water)**

DC Water owns and operates the Blue Plains Wastewater Treatment Plant (WWTP) where the majority of Montgomery County's wastewater is treated. An independent authority of the District government, DC Water was created and began operating in 1996 under and pursuant to an act of the Council of the District entitled "Water and Sewer Authority and Department of Public Works Reorganization Act of 1996". DC Water's authorizing legislation provides, in part, for the total separation and control of funds from the District Government. The agency is governed by an eleven-member (Principal Members) Board of Directors with each member having an appointed alternate. The eleven-member Board of Directors includes six representatives from the District of Columbia, two from Prince George's County, one from Fairfax County, and two from Montgomery County,

The sewage treatment capacity at the Blue Plains WWTP for Montgomery County and Prince George’s County is allocated to WSSC Water in the 2012 Intermunicipal Agreement (IMA). The 2012 IMA is an agreement signed by the governing authorities of each of the member jurisdictions and their water and sewerage agencies. Accordingly, it is signed by the Mayor of Washington D.C., the County Council President and County Executive for Montgomery County, the County Council Chair and County Executive of Prince Georges County, the Chairman of the Board of DC Water and the Chair and Vice Chair of the WSSC Water. The IMA is the definitive regional agreement that sets out the Key Principles, Governance, Permit and Treatment Responsibilities, Financial Responsibilities, Flow and Load Allocations, Management and Administrative elements for the long-term regional utilization of the shared use of the conveyance and treatment systems for these jurisdictions utilizing the Washington D.C. sewerage system. This agreement remains in force until June 30, 2111 unless amended, replaced or terminated.

**I.E.5.b.: Metropolitan Washington Council of Governments (COG)**

The Metropolitan Washington area includes numerous municipal, county, and state governments in Washington, D.C., Maryland, and Virginia (See Figure 1-F4.). COG is the regional organization consisting of the Washington area’s 22 major local governments and their governing officials. Founded in 1957, COG provides a forum for coordinated action on issues of regional concern, including water supply and watershed protection. This includes updating the region’s water emergency response plan, assisting the water utilities and local elected governments in communicating concerns to regulatory agencies, and educating the region through conferences and publications on regional drinking water issues, such as water conservation. COG staff also coordinates and maintains regional databases on Potomac River water quality, water treatment plants, and wastewater plant discharges. COG’s Environmental and Public Works Directors Committee advises the COG Board on regional policy issues associated with drinking water, water quality, and wastewater treatment.

COG membership jurisdictions include:

Washington, District of Columbia			
<i>In Maryland:</i>	Town of Bladensburg	City of College Park	City of Takoma Park
	City of Bowie	City of Greenbelt	Frederick County
	City of Gaithersburg	City of Rockville	City of Frederick
	Prince George’s County	Montgomery County	Charles County
<i>In Virginia:</i>	City of Alexandria	Arlington County	City of Fairfax
	Fairfax County	City of Falls Church	City of Manassas
	Loudoun County	Prince William County	City of Manassas Park

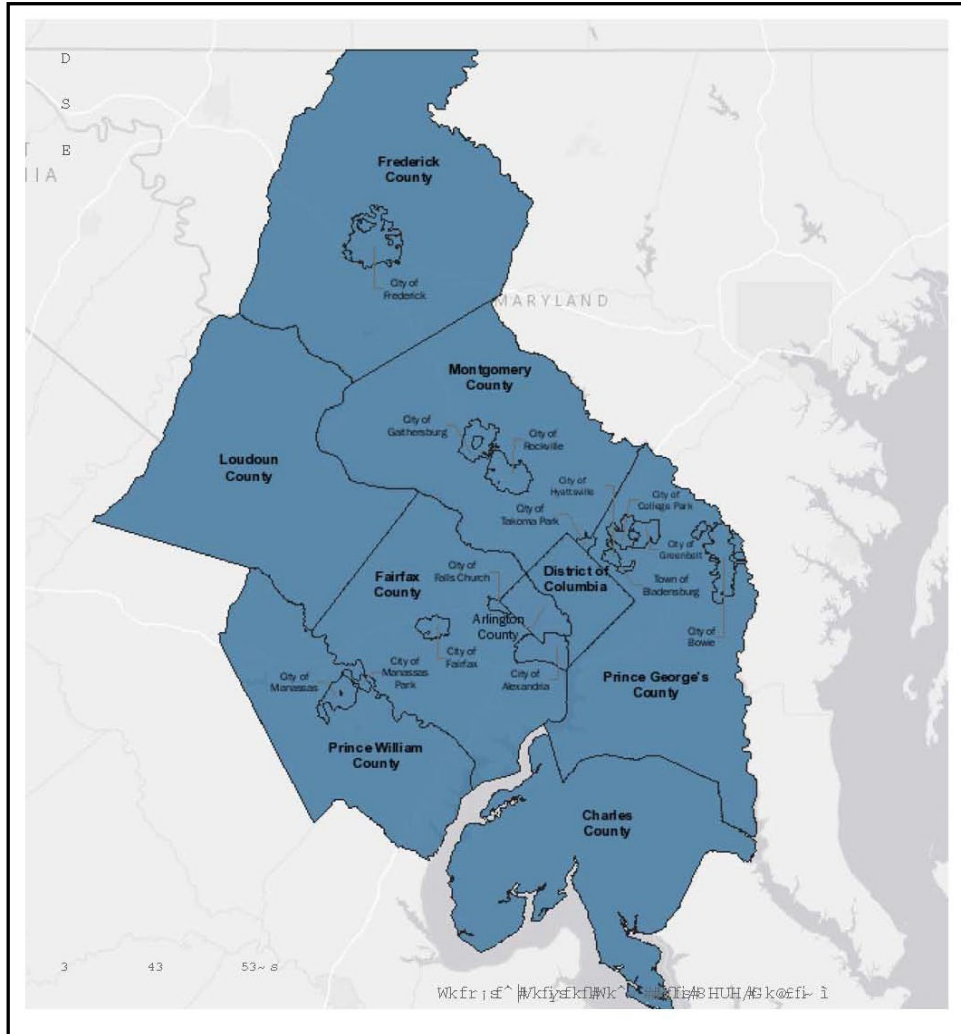
**I.E.5.c.: Interstate Commission on the Potomac River Basin (ICPRB)**

Raw water withdrawals from the Potomac River provide the majority of the county’s community water supply. ICPRB was created by interstate compact and approved by Congress in 1940 to: 1) help control and prevent pollution of the waters within the Potomac drainage area; 2) cooperate with, support, and coordinate activities of public and non-public entities concerned with water and associated land resources in the Potomac River basin; 3) promote public understanding of these issues and activities, and the need for enhancement of the basin’s resources; 4) conduct drought operations management support for Potomac River water resources allocation for the Washington Metropolitan Area; and 5) conduct short- and long-term water supply planning analyses. In carrying out its work, ICPRB works directly with WSSC Water, Fairfax County (Virginia) Water Authority, and the Washington Aqueduct Division of the U.S. Army Corps of Engineers.

In particular, the ICPRB Section for Cooperative Water Supply Operations on the Potomac (CO-OP) conducts drought operations management support for Potomac River water resources allocation for the Washington Metropolitan Area. In carrying out its work, CO-OP works directly with WSSC Water, the Fairfax County (Virginia) Water Authority, and the Washington Aqueduct Division of the Corps of Engineers. The CO-OP Section conducts a monthly Water Supply Outlook analyses which is provided to WSSC Water, to other water suppliers, and to other interested entities; conducts annual real-time drought operations exercises; produces water demand forecasts and resource adequacy assessments for 20-year planning horizons; maintains 24-hour

water resource emergency coordination; and operates releases from the region's water supply reservoirs during drought conditions.

**Figure 1-F4: COG Member Jurisdictions**  
(Source: Metropolitan Washington Council of Governments)



**II.: POLICIES FOR THE PROVISION OF WATER AND SEWERAGE SERVICE**

The water and sewer service policies addressed in this section of the Plan provide the basis for establishing what areas of the county will use community systems service versus individual systems service. The Plan uses water and sewer service area categories both to designate areas eligible for either community or individual service and to provide a staging element for the provision of community service. These policies provide guidance not only in evaluating individual and general service area change amendments, but also in the preparation of and water/sewer service recommendations for development in the County's land use master plans.

**II.A.: County Water and Sewer Systems**

The following provides a brief introduction to the types of water supply and sewerage systems used in Montgomery County. More-detailed information on these systems is available in later parts of this chapter and in Chapters 3 and 4.

Water supply systems consist of a source of water (whether groundwater or surface water), treatment and storage facilities, and a distribution system that provides potable water to a user's home or business.

Sewerage systems collect, treat and dispose of sewage or industrial wastes of a liquid nature from a user's home and business. Treated sewage effluent is disposed of either to the ground (above or below ground) or to a receiving surface water, such a stream or river.

Community water and sewerage systems serve two or more individual properties; the utility—either public or private—both owns and operates the system. The community water and sewerage systems serving the county are owned and operated by the Washington Suburban Sanitary Commission (WSSC Water), the City of Rockville, and the Town of Poolesville. Community systems in the county are sometimes referred to as “public” or “city” water and sewerage systems.

Individual Systems serve a single user on the user's property; they are owned and operated by the individual user. The user may be a private individual, a business, or a public or private institution. The most common individual water supply systems in the county are groundwater wells. The most common individual sewerage system in the county is a septic system. Individual well and septic systems are often referred to as “private” or “onsite” systems.

Multiuse Systems are individual on-site systems that have a water supply or wastewater disposal design flow of 1,500 or more gallons per day (gpd). As with individual systems, multiuse systems are owned and operated by an individual, a business, or a public or private institution, and most serve a single structure on a single property. More information is available in Section III.C.5. Capacity limitations imposed by this Plan on multiuse sewerage systems in the county's agricultural (AR) Zone are addressed later in this chapter at Section III.C.5.c.

Service connections and site utilities (also referred to as “hookups”) are two parts of the same pipe that ties a structure to water or sewer service mains. The **service connection** runs from the local water or sewer main to the customer's property line and may be installed by WSSC Water or by the user if part of a system extension permit (SEP) project. Once installed, it is owned and maintained by WSSC Water. The **site utility** runs from the property line to the structure being served and is installed, owned and maintained by the property owner. Some policies in this Plan restrict the provision of community water and/or sewer service to a single service connection only. In these cases, the term “connection” functions as shorthand for and includes both the service connection and site utility together (see Figure 1-F5).

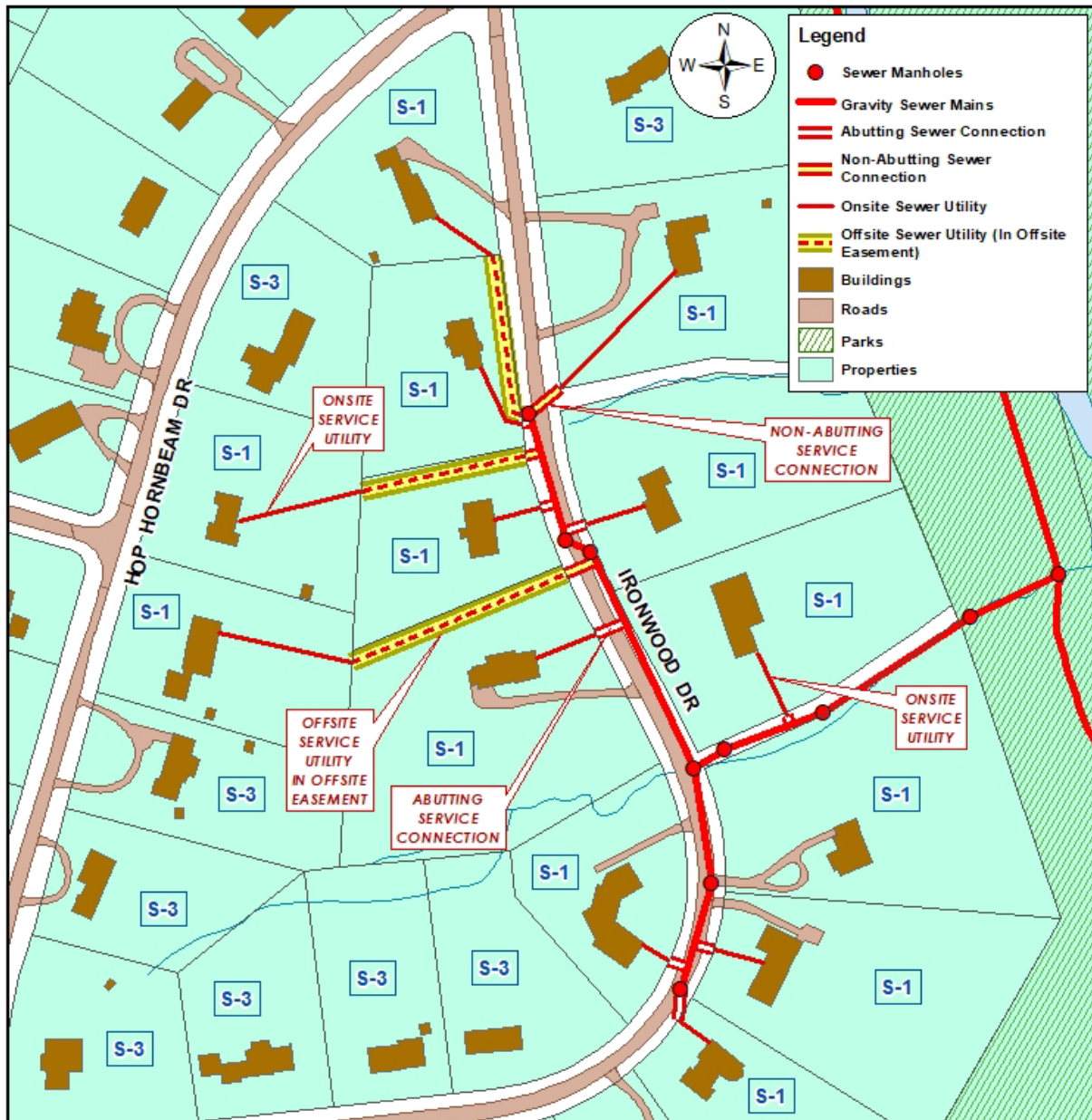
Note that a single service connection may serve more than one structure on a property. This can occur on properties where ancillary buildings (guest house, pool house, workshop, etc.) are allowed under the County's Zoning Ordinance. This applies only to more than one building on a *single* property.

Abutting service connections comprise the substantial majority of water and sewer service connections in the county. These connections, installed at a 90-degree angle to the service main, intersect the customer's property line. Some abutting sewer connections are provided from sewer manholes, allowing them to be constructed perpendicular to the manhole but at an angle of other than 90 degrees to a sewer main. WSSC Water's Development Services Code (see the link below) provides examples detailing under what conditions these sewer connections are considered abutting.

Non-abutting connections provide water and/or sewer service to properties that do not directly abut a water or sewer main. In some cases, the non-abutting connection runs further than usual through the public or WSSC Water right-of-way to reach the customer's onsite service utility. In other cases, the non-abutting connection provides service access to the customer's hookup that crosses another, intervening property by way of a private easement in order to reach the customer's property. Some non-abutting sewer connections are provided from sewer manholes, allowing them to be constructed perpendicular to the manhole at an angle of other than 90 degrees to the sewer main. Additional details concerning the use of abutting and non-abutting service connections are provided in WSSC Water's Development Services Code (see <https://www.wsscwater.com/work-with-us/codes-standards-policies-and-procedures/development-policies-procedures>). The use of abutting and non-abutting service connections in the context of the Plan's special service policies is explained further in Section II.G.3.



**Figure 1-F5: Sample House Connections and Site Utilities (Hookups)**  
 (Source: DEP-IGAD)



**Community Service Envelopes and Service Areas**

*Planned Community Water/Sewer Service Envelopes:* Those areas intended for community service under the County’s Water and Sewer Plan’s general service policies and local area master plans recommendations. Generally, this includes properties currently approved for such service and designated as categories W-1, S-1 or S-1, S-3. Areas planned for future community service (W-4, W-5, and S-4, S-5) are included in the planned service envelopes. Some properties that have not been considered under the service area category change process, and still designated as categories W-6 and/or S-6, may also be included in the planned service envelope.

*Existing Community Water/Sewer Service Areas –* Those properties approved for and with access to community water/sewer service, designated as categories W-1 and/or S-1.

*Planned Service Envelopes vs. Existing Service Areas* –A category W-1 and/or S-1 does not always identify properties included in the planned community service envelopes. Properties located outside the planned service envelopes are typically approved for community service using one of the special service policies in the County’s Comprehensive Water and Sewerage Plan (abutting mains, private institutional facilities, onsite system failures, etc.). As such, these properties, although designated as categories 1 or 3, are exceptions to the Plan’s general service policies and do not become part of the planned service envelopes.

The Plan’s Glossary (Appendix A) provides additional information on these and other terms.

**II.B.: County Council Authority and Responsibilities**

The County Council relies primarily on the water and sewer service policies adopted in this Plan and service recommendations provided in master plans in evaluating and acting on Plan amendments. However, the scope of the Council’s responsibilities goes beyond this Plan and includes issues such as the county-wide economic growth, public health and safety, transportation infrastructure, and public education. The Council has the authority and responsibility to consider such issues where they may affect its actions with respect to this Plan. Given this, the Council may reach conclusions regarding this Plan or its amendments which do not necessarily follow the policies provided in the following sections. In such cases, the Council’s amendment resolution will provide an explanation of the issues involved and rationale for actions that vary from these adopted policies. Such an action by the Council will require review by and confirmation from the Maryland Department of the Environment.

**II.C.: Water and Sewer Service Area Categories**

To provide for the orderly extension of community water and sewer service, State regulations (COMAR 26.03.01.04) have established category designations for water and sewer service areas. The water and sewer service area categories designated in this plan serve two functions:

- They identify those areas of the county approved or planned for community water and/or sewer service and those areas intended for service by individual systems; and
- They identify a mechanism for staging community service for those areas planned for community service, consisting of the application of the service categories W-1 through W- 5 and S-1 through S-5 described above to the properties within the county.

In addition, some areas of the county are noted for special service conditions or restrictions, including those specific properties where the County has approved the use of multiuse systems. Service area categories are shown on the water and sewer service area category maps which are a part of this plan.

**II.C.1.: Numbered Service Area Category Definitions**

The County has modified the State’s category definitions to more accurately reflect its planning process. All areas of the County are classified by this plan into one of the categories, except for rights-of-way for public roads, railroads, gas and electrical transmission lines which are not assigned a category. Although defined together here, the County does not always assign matching water and sewer categories, such as W-3 and S-3, to a single property. A property can be designated as categories W-1 and S-6, or as W-4 and S-5, etc.

The County’s water and sewer service area categories are as follows:

<b>Table 1-T2: Water and Sewer Service Area Categories</b>	
<b>Category Definition and General Description</b>	
<b>W-1 S-1</b>	<b>Properties approved for and generally with existing access to community (public) service.</b> This includes some properties which have direct access to existing mains, but which have not yet connected to existing community service. <sup>C</sup> <u>State definition</u> : Areas served by community systems which are either existing or under construction.



Table 1-T2: Water and Sewer Service Area Categories	
Category Definition and General Description	
W-2 S-2	<i>Categories W-2 and S-2 are not identified in the Montgomery County Plan. Properties that would be designated as categories W-2 and S-2 are included with those designated as categories W-3 and S-3. (State definition: Areas served by extensions of existing community and multi-use systems which are in the final planning stages.)</i>
W-3 S-3	<b>Properties approved for community (public) service, but without existing access to community service mains.</b> This category generally identifies properties that will need new water and/or sewer main extensions for the provision of community service. <u>State definition:</u> Areas where improvements to or construction of new community systems will be given immediate priority and service will generally be provided within two years or as development and requests for community service are planned and scheduled.
W-4 S-4	<b>Properties planned for future public service, but which need to use private, onsite systems (wells and septic systems) in the interim.</b> This includes areas generally requiring the approval of CIP projects or the release of master plan staging elements before service can be provided. <u>State definition:</u> Areas where improvements to or construction of new community systems will be programmed for the three- through six-year period.
W-5 S-5	<b>Properties planned for future public service, but which need to use private, onsite systems (wells and septic systems) on a long-term basis.</b> This category is frequently used to identify areas where land use plans recommend future service staged beyond the scope of the six-year CIP planning period. <u>State definition:</u> Areas where improvements to or construction of new community systems are planned for the seven- through ten-year period.
W-6 S-6	<b>Properties planned to use private, onsite systems (wells and septic systems), where community (public) service is not planned.</b> Category 6 includes areas that are planned or staged for community service beyond the scope of the Plan’s ten-year planning period, and areas that are not expected for community service on the basis of adopted plans. <sup>c</sup> Some areas designated as categories W-6 and/or S-6 also include properties located within the intended community water and sewer envelopes, but for which owners have not yet requested and had approved map amendments for categories 1 or 3. <u>State definition:</u> Areas where there is no planned community service either within the ten-year scope of this plan or beyond that time period. This includes all areas not designated as categories 1 through 5. •

The service area category definitions established by the State placed multiuse systems on a par with the category staging for community systems (*i.e.*, for W-1 and S-1: “Areas served by community *or multiuse systems* which are either existing or under construction.”) The County has found it impractical to establish and use a category staging sequence for multiuse systems. Designating categories W-1 and S-1 for sites with approved multiuse systems in rural areas, where most multiuse systems are established, led to confusion about the extent of community systems service. This Plan assigns categories for properties using multiuse systems under the standards provided above; properties approved for multiuse systems are specifically noted as such in the service area category database.

**II.C.2.: Service Area Special Conditions and Restrictions**

In specific cases, special conditions or restrictions are included with the service area category for a property affecting the provision of water and/or sewer service. For example, these conditions can specify the type of development suitable for community water and sewer service, specify the number of water or sewer hookups allowed, or explain why community service is provided to a site outside the community water and/or sewer envelope.

The following special service conditions are examples of those used on the water and sewer service area category maps:

- *Conditional Approval:* A conditional water/sewer category change approval is pending final action (see action document for details). For example: Maintain S-6, with advancement to S-3 conditioned on Planning Board approval of a cluster option development plan. This is not to be confused with a “conditional use” under the revised zoning code, formerly referred to as a special exception.
- *Single Hookup-Health:* Community service is restricted to one water hook up only for relief of a public health problem.

- *Single Hookup-Abutting*: Community service is restricted only to one water/sewer connection under the abutting mains policy.
- *PIF*: Community service is provided for use only for use by a private institutional facility (PIF).
- *Public Facility*: Community service is provided only for use by a public facility.
- *Cluster*: Community service is limited only to properties established under an approved cluster option (RE-1, RE-2C, RC Zones).

New conditions are sometimes created to address specific situations or new policies in this plan. The condition description applied to a particular site may be general in nature and it is advisable to research specific conditions or restrictions with the Department of Environmental Protection. A comprehensive listing of mapped water and sewer category conditions and restrictions, along with explanations for each, is found in Appendix A.

#### II.D.: Water and Sewer Service Development Policies by Service Area Designation

The following policies govern the provision of water and sewer service under each of the County's service area categories. Throughout this section, development policies use the following defined terms with respect to community water and sewerage service:

- **Community Service is Inadequate** - An existing community water supply or sewerage system may be considered **inadequate** by DEP when service is prohibited by an Order of MDE, WSSC Water, or Montgomery County, due to inadequate conveyance or treatment capacity. Individual systems are then allowed subject to the General Conditions for Interim Individual Systems (see Section III.C.3.).
- **Community Service is Not Available** - An existing community water supply or sewerage system may be considered **not available** by DEP when, upon application for service to a utility, the utility makes a determination that it is not feasible for economic or engineering reasons to provide community service at that time. Such cases may include, but are not limited to, projects where intervening mains are to be constructed by other developers or individuals, or projects where pumped sewer service is not feasible due to excessive grades or site elevations.

An existing community water supply or sewerage system may also be considered **not available** when DEP finds that it is an economic hardship for an individual house or other structure to be connected to the community system. In most cases this policy shall only be applicable to single residential hookups or to individual structures that are the equivalent of single residential hookups, not to subdivision projects. DEP may however allow exceptions for subdivisions in areas zoned for large lot development (RE-1, RE-2, and RE-2C).

Interim individual systems (wells and/or septic systems) approved under the preceding conditions shall be subject to the General Conditions for Interim Individual Systems (see Section III.C.3.).

This Plan previously required the installation of dry community systems for subdivisions initially developing on interim permit wells and septic systems. The County's experience with dry community systems reveals that most, if not all dry systems lack any plans for connections to existing community systems. This Plan generally requires that all subdivisions within approved community service areas (categories 1 and 3) utilize community service, no interim permit individual service is allowed. DEP may waive this requirement on a case-by-case basis for subdivisions in areas zoned for large lot development (RE-1, RE-2, RE-2C).

##### II.D.1.: Categories W-1 and S-1

Areas designated as categories W-1 and/or S-1 are intended to develop using community water supply and sewerage systems. As a general rule, **no new individual, on-site systems will be permitted** where an adequate community water or sewerage system is available. For a single, existing property, if an existing community water or sewerage system is **inadequate** or is **not available** as defined previously, then an individual water or sewerage system may be used for an interim period. Such individual systems shall be subject to the conditions established in this Plan as the General Conditions for Interim Individual Systems (see Section III.C.3.). This plan requires that all subdivisions within category 1 approved community service areas utilize community service, no interim permit individual service is allowed.

**II.D.2.: Categories W-2 and S-2**

Categories W-2 and S-2 are not used in this Plan (see Table 1-T2).

**II.D.3.: Categories W-3 and S-3**

Areas designated as categories W-3 and/or S-3 are intended to develop using community water supply and sewerage systems. However, for a single, existing property, interim individual water supply and sewerage systems may be permitted to be installed in the W-3 and S-3 service areas consistent with the General Conditions for Interim Individual Systems (Section III.C.3.). This Plan generally requires that all subdivisions within category 3 approved community service areas utilize community service, no interim permit individual service is allowed. DEP may waive this requirement on a case-by-case basis for subdivisions in areas zoned for large lot development (RE-1, RE-2, RE-2C).

**II.D.4.: Categories W-4 and S-4**

Areas designated as categories W-4 and/or S-4 are intended to eventually develop using community systems. Areas so designated are included within the planned community water and sewer service envelopes. WSSC Water may begin programming required water and sewer infrastructure, including capital projects as needed. However, areas designated as category 4 are not yet approved for the actual provision of community service. Given this, individual water supply and sewerage systems may be permitted to be installed in categories W-4 and S-4 consistent with the General Conditions for Interim Individual Systems (Section III.C.3.) and with COMAR 26.03.01, 26.03.05, and 26.04.02 - .04, and County Executive Regulations 28-93AM, "On-Site Water Systems and On-Site Sewage Disposal Systems in Montgomery County". This Plan does not require the construction of dry community systems for subdivisions within areas designated as categories W4 and S-4 which develop using individual onsite systems. DEP may recommend water and/or sewer map amendments to designate subdivisions developing on individual systems as categories W-6 and/or S-6.

**II.D.5.: Categories W-5 and S-5**

Areas designated as categories W-5 and/or S-5 are intended to eventually develop using community systems. Areas so designated are included within the planned community water and sewer service envelopes. WSSC Water may begin planning required water and sewer infrastructure, including capital projects as needed. However, these areas are not yet approved for the actual provision of community service. Given this, individual water supply or sewerage systems, not of an interim nature, shall be permitted to be installed in any portion of the County designated as categories W-5 or S-5, consistent with COMAR 26.03.01, 26.03.05, and 26.04.02 - .04, and County Executive Regulations 28-93AM, "On-Site Water Systems and On-Site Sewage Disposal Systems in Montgomery County". Individual systems may be installed within these areas on an indefinite basis without firm obligation to connect to a community system, when and if it becomes available.

This Plan does not require the construction of dry community systems for subdivisions within areas designated as categories W-5 and S-5 which develop using individual on-site systems. DEP may recommend water and/or sewer map amendments to designate subdivisions developing on individual systems as categories W-6 and/or S-6.

**II.D.6.: Categories W-6 and S-6**

Properties designated as categories W-6 and/or S-6 are intended to develop using individual water supply and sewerage systems; community service is not permitted. Individual systems, not of an interim nature, shall be permitted to be installed in any portion of the County so designated, consistent with COMAR 26.03.01, 26.03.05, and 26.04.02 - .04, and County Executive Regulations 28-93AM, "On-Site Water Systems and On-Site Sewage Disposal Systems in Montgomery County". Individual systems are installed on properties within these areas on a permanent basis with no expectation that they will receive service from community systems. Some areas so designated may be included within the planned community water and sewer service envelopes but have not yet received County approval for community service.

**II.E.: Water and Sewer Service Planning in the Development Review Process**

The provision of water and sewer service for new development is an integral part of the County's evaluation of development proposals. DEP's primary involvement in the County's development review process includes the following:

**II.E.1.: Development Plan Review**

The M-NCPPC Development Applications & Regulatory Coordination Division manages the County's Development Review Committee (DRC), an interagency group which meets regularly to review and evaluate proposed development plans. DEP is the lead agency in the DRC regarding water and sewer service planning issues. DEP staff report to the DRC on the consistency of the water and sewer service components of development proposals with respect to the County's Water and Sewer Plan. For a development proposal to proceed to the Planning Board for consideration, DEP staff need to confirm for M-NCPPC the consistency of the development plan with the policies and service area designations in the Water and Sewer Plan. DPS and WSSC Water staff also participate in this process with a focus on onsite and community water and sewerage systems design, respectively. At the request of the County Council, the DRC also reviews and comments on concept plans for private institutional facilities seeking service area category changes in areas located outside the planned community service envelopes.

Note that certain service policies in this Plan limit or restrict the provision of community service to:

- The use of specific cluster development options (RE-1, RE-2C, and RNC Zones, for example).
- The use of TDR development options (RE-1 and RE-2 Zones, for example).
- The development of specific uses, such as for private institutional facilities (PIFs).
- A single water or sewer connection only for a specific property and may further restrict the subdivision of such properties from more than one building lot where using community service.

**II.E.2.: Record Plat Review and Approval Process**

Record plats legally establish subdivided properties in the County's land records. DEP staff review record plats prior to recordation to ensure that the type of water and sewer service intended to serve the development proposed by the plat is consistent with policies and service area designations in this Plan.

**II.E.3.: State Growth Tiers**

The Maryland General Assembly approved the Sustainable Growth & Agricultural Preservation Act of 2012 (Senate Bill 236) during the 2012 General Assembly session. SB 236 requires local jurisdictions to establish and adopt growth tiers to control the number of new subdivisions dependent on the use of onsite septic systems. The purpose of the bill is to protect agriculture, control growth in rural areas, promote growth in areas that have infrastructure in place for it, and reduce nitrogen from septic systems, a primary pollutant of the Chesapeake Bay. The County Council amended the County's subdivision regulations to comply with the new law. Planning Department staff have prepared a Growth Tiers Map a Subdivision Regulation Amendment to incorporate the Map. The Growth Tiers Map shows the location of the four Tiers in the county.

- Tier I: Areas currently served by [community] sewer
- Tier II: Future Growth Areas planned for [community] sewer
- Tier III: Large Lot Development and "Rural Villages" on septic systems
- Tier IV: Preservation and Conservation Areas. No Major subdivisions (five or more lots) on septic systems except by exemption. Montgomery County has received certification from the Maryland Department of Planning (MDP) that exempts Montgomery County from this limitation, allowing major subdivisions on septic systems. The County's Agricultural Reserve will continue to protect agriculture and limit development in the County's rural areas through Transfer of Development Rights and very low-density residential development.

Tier designations are reviewed periodically by M-NCPPC and DEP staff to address sewer service designation changes in the Water and Sewer Plan. Additional information concerning Growth Tiers and the County's Growth Tiers Map is available at M-NCPPC's website:

[http://www.montgomeryplanning.org/gis/interactive/septic\\_tiers.shtm](http://www.montgomeryplanning.org/gis/interactive/septic_tiers.shtm). Growth Tiers information is also available from MDP at: [Local Government Tier Maps and MDP Response \(maryland.gov\)](http://www.montgomeryplanning.org/gis/interactive/septic_tiers.shtm) .

**II.F.: General Policies for Water and Sewer Service**

With few exceptions, all improved properties in Montgomery County require drinking-water supply and wastewater disposal. These services are provided either by community systems, owned and operated by public

utilities (WSSC Water, Rockville, or Poolesville) or by individual, onsite systems privately-owned and operated by the property owner and regulated by the State and the County.

The following policies provide general, county-wide guidance for the provision of both community water and sewer service and individual, private water and sewer systems. Implementation of these policies occurs in part through the designation of water and sewer service area categories in this Plan (see Section II.C.). The County Executive provides recommendations to the County Council for service area categories based on the policies included in this Plan addressing water and sewer service, land use, staging, and infrastructure.

Under specific and limited circumstances, case-by-case exceptions to these general service policies can be considered where community service is logical, economical, environmentally acceptable, and does not risk the extension of community service to non-eligible properties. The special service policies included in Section II.G. identify the conditions under which these exceptions can be considered, including public health problems, public facilities, properties abutting existing mains, etc.

Where service area category map amendments are consistent with the following general service policies, DEP may act to approve category change requests through the administrative delegation process, using the "consistent with existing plans" policy, Section V.D.2.

#### **II.F.1.: Consistency with Comprehensive Planning Policy**

This Plan provides for the systematic extension of community water and/or sewer service in concert with other public facilities to accommodate growth in areas along the higher-density development corridors as defined in the General Plan and in local area master plans that amend the General Plan. Individual, onsite facilities will provide water and/or sewer service in the General Plan's wedges (outside the corridors) intended for lower-density residential and agricultural development. Guidance for the type, amount, location, and sequence of growth is contained in the comprehensive planning policies of the County as considered and adopted by the County Council.

This Plan intends that water and sewer service decisions should follow and implement the land use and development guidance established in the County's General Plan and local area master and sector plans. A variety of factors influence policy decisions concerning the density or type of development for an area: overall land use guidance; transportation and school capacity; environmental protection; local and county-wide housing and commercial demand; compatibility with existing development; and suitability for individual, on-site systems. The proximity of water and/or sewer mains to an area of the county, also one of these factors, should not serve as the primary driver of these water and or sewer service policy decisions.

Community water and sewerage systems provide service in areas of moderate- to high-density residential development, and to commercial, mixed use, and industrial development. The density of this development does not allow the space on individual lots needed for the use of individual, onsite wells and septic systems. The majority of developed properties in rural and low-density areas are served by onsite water supply and wastewater disposal systems, wells and septic systems. In support of the County General Plan and Master Plans, the presumption is that all these areas will continue to be served using onsite systems consistent with this Plan's service policies.

This Plan recognizes that some rural and low-density areas of the county have moderate-density residential, employment, or industrial zoning. These areas are planned to remain outside of community service envelopes and will be served by individual, onsite water and sewer systems. Property owners and developers will need to recognize that the use of onsite systems may not allow these properties to achieve the maximum development density theoretically allowed under these zones.

#### **II.F.1.a.: General Plan and Local Area Master Plan Coordination**

The County's comprehensive planning policies are expressed in detail in the *General Plan, On Wedges and Corridors*, and in the various master and sector plans that serve as amendments to the General Plan. Functional master plans, such as the Water and Sewer Plan, support and implement these comprehensive planning policies. The Water and Sewer Plan should also consider other adopted or proposed policies of various agencies affecting land use, including guidelines for the administration of the Adequate Public Facilities

Ordinance. DEP staff participate in the master plan development and approval process, to address water and sewer service issues.

Master Plan recommendations for use of community and individual, onsite water supply and sewerage systems serve to support the master plans' land use and zoning recommendations. These recommendations are made with an understanding of the County's water and sewer service policies, as adopted in this Plan. Currently, master plans typically incorporate a statement that allows for the provision of water and sewer service within the master plan area in a manner consistent with the service policies included in the Water and Sewer Plan. This statement is intended to address *both* the general and special service policies in the Water and Sewer Plan. Where master plans make water and/or sewer service recommendations that are not in agreement with the policies of this Plan, an explanation and justification of those recommendations is provided in the master plan and subsequently identified in future Water and Sewer Plan updates (see Section II.G.1.).

Periodically, the County will update or amend a local area master or sector plan; a process that can result in changes in recommended land use, development densities, and water and sewer service for a part or parts of that master plan area. While these issues are under consideration by the Planning Board and the County Council, the Council typically defers decision on related water and sewer service issues in this Plan pending completion of the new master plan. Additional information about coordination between master plan updates and the Water and Sewer Plan amendment processes is located at Section V.E.3.

During the preparation of this 2022 update of this Plan, Montgomery County is preparing a major new revision to the General Plan, titled "Thrive Montgomery 2050."

#### **II.F.1.b.: Consistency with the Countywide Water Resources Functional Master Plan**

The Water Resources Element (WRE) of State HB 1141 requires the County to incorporate into its *General Plan: On Wedges and Corridors* (General Plan) water resources-related issues with regard to land use planning and projected growth. The intent of this legislation is to help the County identify methods and strategies needed to address how expected growth, as described in the General Plan, will affect and be affected by local water-related limiting factors such as water supply, wastewater disposal, stormwater management, non-point source pollution management, and water quality of receiving streams. The County may need to phase growth, change growth plans, or change methods to address water resource-based limitations, to avoid building moratoria, public health hazards, and adverse environmental impacts.

To fulfill the requirements under this law, the County developed a Water Resources Functional Master Plan (WRFMP), which the County Council approved in July 2010. As the County continues to grow, the WRFMP will provide the land use policy and planning framework to support compliance with water quality standards, Total Maximum Daily Loads (TMDLs) and Anti-Degradation regulations. This functional plan amends the General Plan and serves as a guide for the Water and Sewer Plan, other functional master plans, and area and sector master plans. In the course of developing this plan, M-NCPPC and DEP assessed the County's Water and Sewer Plan in light of the State's WRE requirements and related guidance. Portions of the Water and Sewer Plan that satisfy the WRE requirements were incorporated by reference in the WRFMP. Where the Water and Sewer Plan addresses programmatic, policy, or planning gaps, these will also be identified and addressed in the WRFMP.

#### **II.F.1.c.: Extraordinary Service Recommendations**

On occasion, the County Executive or representatives of another agency may make specific water and/or sewer service recommendations involving this Plan that are inconsistent with the County's comprehensive planning policies, or with other policies provided in this Plan. Such a recommendation is considered as an extraordinary service recommendation. Extraordinary service recommendations, when provided, will be accompanied by explanations showing what factors have changed significantly since the adoption of the original policies, and/or what elements of the comprehensive planning policies should be amended to more appropriately reflect current conditions or concerns. The explanation will identify what specific considerations are relevant to the individual recommendations, including as appropriate: economic and fiscal concerns; population estimates; planning; zoning and subdivision requirements; federal, state, regional, county, and municipal planning efforts; residential commercial and industrial needs; availability and adequacy of public facilities; energy conservation; water and

sewage treatment capacity; engineering constraints; environmental protection; and the alleviation of public health problems.

### **II.F.2.: Service Policies for Residential Development**

The decision to provide community water and sewer systems service, or to use individual, on-site systems, for residential development most often relies on development densities recommended by local area master plans and established by the County's Zoning Code. Service policies for residential uses in areas zoned for rural and agricultural development are addressed as part of subsequent sections (see Sections II.F.3.b. and II.F.6.).

#### **II.F.2.a.: Moderate- to High-Density Residential Development**

Areas zoned for moderate to high-density residential development (zoned R-60, R-200, TMD, etc.) will generally be served by community water and sewer systems. Moderate to high-density residential development (1 dwelling unit per one-half-acre or greater densities), with smaller-sized lots, cannot provide the area required for onsite wells and septic systems; they are more efficiently served by community water and sewerage systems. Development options such as cluster or transferable development rights (TDRs) serve to further reduce lot sizes and/or increase lot densities, which reinforces the need for community systems.

This Plan strongly discourages the provision of community water service without community sewer service to areas zoned for moderate-density residential development, such as for the R-200 Zone. In the rare cases where such service is approved, the development plan must provide adequate protection for ground and surface waters as discussed in Section II.F.9.b. A relatively few older properties in these areas may still use wells and/or septic systems.

#### **II.F.2.b.: Low-Density Residential Estate Development**

The RE-1 Zone (residential estate one-acre) and RE-2 Zone (residential estate two-acre) provide for low-density residential development. This also applies to the RE-2C Zone (residential estate two-acre cluster) where the standard (not cluster) development option is used. These zones are generally presumed to use individual, onsite systems. Land zoned for residential estate development often functions as the transition between areas planned for higher-density residential development and areas planned for rural or agricultural development. The presumed use of individual, onsite systems, especially septic systems, supports master plan goals for these transition areas. In addition to providing buffers for rural development and agricultural areas, they serve to protect high-quality streams, including those used for public water supply. The distances between residences in low density areas results proportionate increases in the cost of extending community service to each lot, making the use of community systems less cost effective.

Service policies in the residential estates zones tend to be complex, due in part to available development options. Rural estate development can occur under one of three options: the standard method, the cluster method, and the transferable development right (TDR) method. The RE-1 and RE-2C Zones provide for both standard and cluster development options; the RE-2 Zone provides for only the standard development option.

#### Standard Development

Development projects using the standard method will generally use individual, onsite septic systems for sewer service. Either community water service or individual, onsite wells may be used. At the lower development densities of the residential estate zones, lot sizes generally equal or exceed 1 acre. However, the use of individual, onsite systems does not necessarily guarantee a developer's ability to achieve minimum lot sizes, and accordingly, the maximum lot yield allowed under each zone. A specific site's suitability for septic systems will tend to control actual lot yields and resulting development density.

#### Cluster Development

The cluster development method provides potential environmental benefits over the standard method such as reduced water quality impacts due to less impervious area than for a standard development plan and use of dedicated open space for the preservation of sensitive environmental features. Under the cluster method option, lot sizes are expected to be smaller than under the standard method. The minimum size for RE-1 clustered lots is 15,000 sq. ft. and 25,000 sq. ft. for RE-2C clustered lots. Due to these smaller lot sizes, development occurring under this option will generally need to use community water and sewer systems to allow for cluster plans that accomplish desired environmental goals. Sewer service area category designations under

these circumstances will carry a notation limiting community sewer service for cluster development only. Local area master plans will usually provide guidance about where and under what conditions development may use the cluster method.

#### TDR Development

Only those properties within an overlay zone for transferable development right (TDR) receiving areas may use this development option. In these receiving areas, a developer may increase the number of residential units built on a specific site by purchasing TDRs from owners of property in the Agricultural Reserve (AR) Zone. This program, originated by Montgomery County in the early 1980s, seeks to:

- Protect and sustain the county's rural and agricultural communities.
- Provide an opportunity for compensation to rural property owners for reduced development density and lot yields.
- Direct development density from rural areas to higher-density areas with the appropriate infrastructure (roads, transit, schools, community water and sewer service, etc.).

Given the development densities proposed, properties zoned as TDR receiving areas require the provision of community water and sewer service. Often, the base zoning of these sites (R-60, R-200, etc.) establishes their eligibility for community service without the additional development density provided by using the TDR option. However, in cases where the base zoning of the property is **not** suitable for the provision of community service (typically the RE-1 and RE-2 zones), the provision of community service requires Planning Board approval of a preliminary subdivision plan that uses the TDR-development option. DEP may act to approve service area changes in these cases through the administrative delegation process, Section V.D.2.a.

#### Properties Ineligible for Cluster or TDR Development

Residential estate-zoned areas where cluster- or TDR-option development has occurred often include a mix of both large and small properties. Smaller properties, typically deeded or established before the current zoning, can lack the acreage needed to allow them to subdivide. Community service extensions provided to serve cluster and TDR development, or to serve nearby higher-density development, may abut or be in close proximity to these smaller properties. Where the provision of community service is found to be logical, economical, and environmentally acceptable, the County may consider the provision of community service for these smaller properties that lack subdivision potential, but without the cluster or TDR development options usually required for community service.

### **II.F.3.: Rural Residential Development**

Under the County's Zoning Code, low-density rural residential development is addressed by three zoning designations: Rural Neighborhood Cluster (RNC), Rural Cluster (RC), and Rural (R).

#### **II.F.3.a.: Rural Neighborhood Cluster (RNC) Zone**

Properties zoned RNC have two alternative development options: standard cluster and optional cluster. The choice between these options affects whether a project uses community or individual water and sewer service. The local area master plan will provide direction on the use of these cluster options.

#### Standard Cluster Method

The standard cluster method of development results in lower density neighborhoods on large lots. Development under the standard cluster method is presumed to use individual onsite systems, as established for the RNC Zone in the zoning ordinance. Service from the community water system may be considered if the project satisfies the requirements for community water service for large-lot development (see Section II.F.2.b.).

#### Optional Cluster Method

Development under the optional cluster method provides for the use of smaller lots and more open space preservation than under the standard cluster method. As a result, the Zoning Ordinance calls for the use of community water and sewer service to support development under the optional cluster method. Under the optional method, community water and sewer is provided to the areas of the site with clustered lots. In certain cases, community service is also available to larger conservancy lots, where the provision of community service



is deemed appropriate due to close proximity to clustered lots. DEP and M-NCPPC staff evaluate community service for conservancy lots as part of the subdivision review process.

Areas receiving community service will be shown as categories 1 or 3, as appropriate; all other areas of the RNC-zoned site will be shown in the Plan as category 6: intended for individual systems. The Plan's service area category maps will show this demarcation between community service and individual service areas on these sites following the inclusion of the recorded lots in the County's GIS property database.

#### **II.F.3.b.: Rural (R) and Rural Cluster (RC) Zones**

Areas zoned for rural development, the five-acre Rural (R) and Rural Cluster (RC) Zones are intended for service by individual, onsite water and sewer systems. The size of lots in these zones, in addition to the distance between lots and the distance from existing community service, generally dictates the use of individual wells and septic systems.

Community water service can be considered for sites within the RC zone, as specified by the Community Water Service without Community Sewer policy to support cluster-option development (see preceding Section II.F.2.b.). Final approval for water category changes will typically require the Planning Board's approval of a preliminary plan using the cluster development option. Water service area category designations under these circumstances will carry a notation restricting community water service for cluster development only. This policy does not apply to the Rural Zone.

Areas zoned for rural cluster development often include smaller properties that lack sufficient acreage for a new subdivision. These properties can also be considered for community water service on a case-by-case basis where such service is logical, economical and environmentally acceptable. The community water service option for the RC Zone does not extend to community sewer service.

#### **II.F.4.: Service Policies for Mixed Commercial and Residential Development**

Projects located in areas zoned for mixed residential and commercial development (CRN, CRT, and CR Zones) are often found at or in close proximity to higher-density residential areas or commercial centers. As such, they are intended for high- to moderate-development densities and will require the use of community water and sewer service to implement the uses proposed for these areas.

#### **II.F.5.: Service Policies for Employment and Industrial Development**

Most areas zoned for employment or industrial development are intended to develop at a density that will require the use of community water and sewer service, rather than individual, onsite systems. However, some commercial and industrial zones are located in rural communities beyond the limits of the community water and/or sewer service envelopes. These areas are presumed to use individual, onsite water supply and wastewater systems. Designations for the provision of community service or the use of individual onsite systems will be generally consistent with the type of service used for adjacent or nearby residential development, as guided by master plan development recommendations.

#### **II.F.6.: Service Policies for Agricultural Development**

Areas zoned for agricultural development, the twenty-five-acre agricultural or AR Zone (formerly Rural Density Transfer), are intended for service by individual, onsite water supply and wastewater treatment systems. This includes residential properties within these zones. The size of lots in these zones, the distances between lots, and the density and scale of development, makes these areas suitable for the use of individual, onsite wells and septic systems. Properties in the AR Zone are typically located at substantial distances from areas served by community systems. For development within the AR Zone, this Plan limits the size of individual onsite septic systems (see Section II.C.5.c.).

#### **II.F.7.: Service Policies for Land Uses Without Specific Zoning Classifications**

There are two primary land use types that do not have specific zones established in the County's Zoning Ordinance: institutional uses and parklands or park facilities. Many of these uses, due to their underlying zoning, are located within the planned community water and sewer service envelopes. The Plan's special service policies, which follow (Section II.G.), address situations where community service is proposed where these uses are located or propose to locate outside the established community service envelopes.

**II.F.8.: Service Policies for Incorporated Municipalities**

As discussed previously, State law directs that the County include in this Plan the water and sewer service planning prepared by local municipalities. Municipalities can use zoning codes that differ from the County's. The following provides a summary of municipal water and sewer service policies for the County's incorporated jurisdictions:

- Barnesville: The Town of Barnesville is located outside the County's planned community water and sewer service envelopes. All properties in the town use individual, on-site wells and septic systems.
- Brookeville: The Town of Brookeville is located at the northern edge of the County's planned community water and sewer service envelopes along the Georgia Avenue corridor. The Town intends that all improved properties within its limits will be served by WSSC Water community water and sewer systems.
- Laytonsville: Water service for the Town of Laytonsville is currently provided by a combination of on-site wells and community water systems. At the Town's request, the County has included the majority of the community within the planned community water service envelope. Wastewater disposal is handled by septic systems. Community sewer service is neither approved nor planned for Laytonsville.
- Poolesville: The Town of Poolesville's planned community water and sewer service envelopes include the majority of properties in the town. Exceptions include some areas zoned for rural development at the western end of the community. The provision of community service is directed by the Town's master plan which allocates new service based in part on the adequacy of the Town's community water supply system and capacity of the wastewater collection and treatment system. The County coordinates each new service request with the Town to ensure compliance with the Town's planning efforts. The Town owns and maintains its own community water and sewer systems, independent from those owned by WSSC Water.
- Rockville: The City of Rockville plans that all properties within the city will be served by community water and sewer service. The City provides water and sewer service to approximately 70% of the city, or approximately 13,000 accounts. Other properties in the city, located within the WSSD are served by WSSC Water. The City code requires that properties that seek water and sewer service from Rockville must annex into the City. These properties must be within the maximum expansion limits (MEL) as defined by the Municipal Growth Element of Rockville's Comprehensive Master Plan, which was adopted by the Mayor and Council on December 13, 2010. (See Figure 1-F6.)

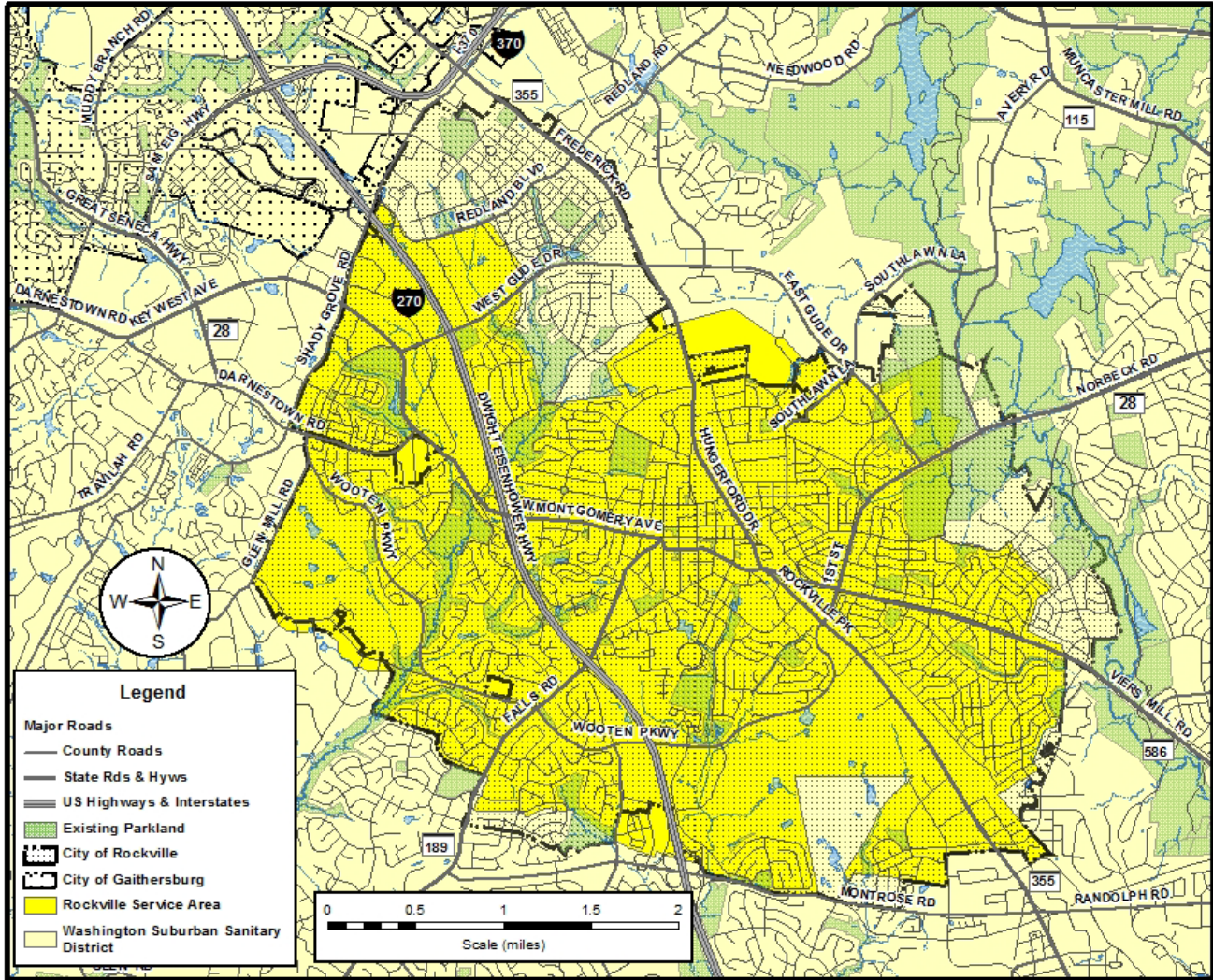
**Water and Sewer Plan Recommendation: Community Service for Non-Annexed Properties in Rockville's Service Area**

Some properties located within the City's MEL, but outside the City's corporate limits, depend on wells and septic systems. Also located outside of the WSSD, they are ineligible for community service from WSSC Water. These properties are found in both industrial and residential neighborhoods. The City's requirement for annexation to receive community water and sewer service ensures that properties and public infrastructure meet current City standards as part of the annexation process. It can be cost prohibitive for individual properties to meet infrastructure standards; accordingly, the City and County need to initiate discussion on service for these properties to find mutually agreeable solution for extending community service.

The following municipalities are located within the County's planned community water and sewer service envelopes and are served by WSSC Water. All improved properties are either served by or approved for community service. As a result, these communities do not prepare separate water and sewer plans; instead, they rely on the County's planning efforts in coordination with WSSC Water. A relatively few older properties in these communities may still use wells and/or septic systems.

- Town of Chevy Chase
- Village of Chevy Chase Section 3
- Village of Chevy Chase Section 5
- Town of Chevy Chase View
- Chevy Chase Village
- Village of North Chevy Chase
- Village of Drummond
- Village of Friendship Heights
- City of Gaithersburg
- Town of Garrett Park
- Town of Glen Echo
- Town of Kensington
- Village of Martin's Additions
- Town of Somerset
- Town of Oakmont
- City of Takoma Park
- Town of Washington Grove

**Figure 1-F6: Rockville City Limits and Municipal Water and Sewer Service Area**  
(Source: DEP-WWPG)



**II.F.9.: Coordinating the Provision of Community Water and Sewer Service**

This Plan generally focuses more attention on policies and issues addressing community water and sewer service than it does on individual, onsite systems. While individual systems primarily affect only the project site involved within a new development, the provision of community water and/or sewer service requires broader-based planning and coordination. Water and sewer main construction may cause offsite disruptions, require easements for new main construction, and potentially affect other property owners. Larger facilities for water and wastewater transmission and treatment may be affected by decisions to provide community service to a specific part of the county. The following subsections address overarching policies for the provision of community water and sewer service.

**II.F.9.a.: Providing Community Water and Sewer Service in Concert**

This Plan intends that community water service will be provided wherever community sewerage service is provided. Exceptions to this policy may occur where specific limitations of the community water system make it unreasonable to provide such service, or where community sewer service has been provided to address specific policy concerns such as public health problems or where properties abut sewer mains (see Section II.G.).

**II.F.9.b.: Providing Community Water Service Without Community Sewer**

In the mid-1980s, DEP conducted a study, "The Feasibility of Extending Public Water Service to Large Lot Development". The study concluded that community water service does not provide the same impetus for development density and lot yields as community sewer service. The study advocated the provision of community water service in areas zoned for lower-density development. In these areas, septic system suitability would still control development yields, maintaining the intent of master plan development recommendations. Community water service provides the advantages of a potable water source less prone to problems from drought and groundwater contamination and improved availability of fire protection. Community water service also provides the potential for improved septic system siting that result from eliminating setback constraints associated with water wells.

Where the provision of community water service to large lot areas promotes the land-use and development envisioned by the master plan and meets other economic and environmental standards, the approval of service and/or timing of service is appropriately handled by the adoption of water category changes as part of this Plan. Requests for water service to large lot areas may be considered for administrative approval under the "Consistent with Existing Plans" policy (Section V.D.2.a.) in cases where the Planning Board concurs that the extension of service is consistent with the land-use and development policies of the master plan.

The following policies provide the conditions that allow for the provision of community water service without community sewer service:

- **Zoning:** The provision of community water service without community sewer service is intended for areas zoned for lower density, "large lot" residential and rural development, and should be generally limited to those areas zoned RE-1, RE-2, RE-2C, Rural Neighborhood Cluster (RNC) standard option, and Rural Cluster (RC) cluster option.
- **Master Plan Intent:** The provision of community water service must conform to the land use policies of the applicable master plan. The policy of providing community water service to large lot areas was first adopted in the Water and Sewer Plan in 1990. Some master plans still in use, such as the *Preservation of Agriculture and Rural Open Space Master Plan (1980)*, were approved prior to the introduction of this policy. These older master plans do not specifically account for this policy in their water service recommendations. The decision to extend or restrict water service should focus on conformance with master plan land-use and development recommendations, rather than on generalized water service areas identified in these older master plans.
- **Water Resources Protection:** Development with community water service and septic systems must be consistent with the protection of surface and ground waters. To assure this goal, DEP may require hydrogeologic studies of proposed development projects to assess potential impacts to ground and surface water quality from the use of individual sewerage systems. In order to address concerns about the clustering of septic systems in areas where zoning permits lot sizes of less than 40,000 square feet, DEP may, through the development review process, recommend minimum or average minimum lot sizes of 40,000 square feet for new development using community water service and individual sewerage systems.
- **Water Main Extensions:** Water main extensions planned and constructed under the provisions of this policy should follow a pattern that supports an orderly and logical expansion of the community water system and water service envelope. "Leap-frogging," or extending service through significant areas of land ineligible for community water service should be avoided.

**II.F.10.: Community Service and Capital Projects Dependency**

The provision of community water and/or sewer service to an area or to a specific site may require capital water and/or sewer projects not included in the current capital program or not otherwise identified and endorsed by this Plan. In considering individual water/sewer service area change requests, DEP will generally address such cases using one of the following alternatives:

- Dependency on WSSC Water-Financed and Constructed Capital Projects - Map amendments may be initially approved for categories W-4/S-4 or W-5/S-5, with conditional approval for categories W-3/S-3. Final advancement to categories W-3/S-3 by the Director of DEP (see Section V.E.2.) will depend on inclusion of the capital projects in the Water and Sewer Plan, either through WSSC Water's approved capital program, by a Council-approved Plan text amendment which identifies and adopts the required projects, or by other Council-approved actions.
- Dependency on Developer-Financed and Constructed Capital Projects - Map amendments may be granted for categories W-3/S-3 in cases where WSSC Water has advised that the required capital projects will be addressed by a dependency through the water and/or sewer systems expansion process (SEP) program. The approval of categories W-3/S-3 allows the development project to proceed through M-NCPPC subdivision plan review and approval and on to WSSC Water for approval. WSSC Water requires the water/sewer authorization to depend on the approval and/or construction of the required capital projects, which cannot proceed until the County Council has approved the appropriate funding through the WSSC Water CIP.

**II.G. Special Policies for Water and Sewer Service**

The Plan's general service policies address water and/or sewer service issues for the majority of development recommendations found in local area master plans. However, a master plan's general recommendations and this Plan's general service policies cannot anticipate every possible service situation. Many of the following special service policies were developed from specific cases where the County Council, in addressing an exceptional situation, found sufficient cause to establish its action as a precedent for other similar situations that follow. The Council adopted these policies in order to provide consistent policy guidance, rather than relying on case-by-case interpretations.

While the preceding general service policies have broad application across the county, the following special service policies usually apply only in very specific circumstances. They are nevertheless valid service policies adopted by the County Council, acting as the State's delegated authority for the Water and Sewer Plan.

**II.G.1. Master Plan Recommended Exceptions**

The previous discussions of the Water and Sewer Plan's service policies have noted that in order to implement specific development and land use strategies, master plans may make recommendations for water and/or sewer service that vary from this Plan's general policies. Where a master plan makes such a recommendation, it must also include an appropriate justification for the recommended departure from the general service policies. DEP coordinates closely with M-NCPPC concerning the water and sewer service recommendations developed in local area master plans. Exceptions to the general service policies are recommended in the following master plan areas:

- Burtonsville Crossroads Neighborhood Plan (2012) (refer to Appendix C, Section II.J).
- Cloverly Master Plan (1997) (refer to Appendix C, Sections II.A & II.Q).
- Damascus Master Plan (2006) (refer to Appendix C, Sections II.B & II.C).
- Olney Master Plan (2005) (refer to Appendix C, Section II.P).
- Potomac Subregion Master Plan (2002) (refer to Appendix C, Sections II.D, II.E, II.J, II.L, & II.M).
- Upper Rock Creek Watershed Master Plan (2004) (refer to Appendix C, Sections II.H).

Refer to Appendix C for details about the exceptional service policy recommendations included in each of the preceding master plans.

**II.G.2.: Community Service to Relieve Onsite System Concerns**

Public health concerns can result from failures of individual, onsite water supply or wastewater disposal systems, including the failure of those systems. Onsite systems usually—but not exclusively—serve properties located outside the planned community service envelopes, where development is intended for service using wells and septic systems. This is consistent with the planning for and designation of lower-density residential, rural, and agricultural areas.

As a result, most properties using individual, onsite systems are often in areas where relief of failures using community service is neither logical nor economical. In these cases, first consideration for mitigation of a failure will focus on onsite relief measures. A feasible onsite remedy must satisfy onsite systems permitting requirements, as verified by DPS. However, some failures do occur in areas within or near areas served by community systems. Issues involving concerns with and failures of individual water supply and sewerage systems are addressed in more detail in Section III.C.4.a.

**II.G.2.a.: Single Property Onsite Systems Concerns**

In the majority of onsite systems failures reported to DPS, relief is provided by an onsite repair or replacement. However, upon documentation of that failure by the Director of DPS or a designee, community water and/or sewer service may be provided to an improved property to resolve an onsite systems failure. If a water or sewer main extension is required or if the availability of service is unclear, DEP, in coordination with WSSC Water, will evaluate whether the provision of community service is feasible. In cases where DEP determines that the provision of community service is not feasible, DEP will report this back to the DPS Well and Septic Section. DPS then determines the best possible onsite solution for the onsite systems failure. Note that the State of Maryland, typically through MDE, may also direct the use of community service to relieve an onsite system failure.

Unless a case requires consideration by the County Council, *DEP may direct WSSC Water to begin and expedite the process to provide community service regardless of the existing service area category.* The utility does not need to wait for the County to grant a service area change approval to plan, design, and implement community service. DEP will follow up this action with the needed category change through the administrative delegation process. The inability of an unimproved property to allow for a permitted septic system does not provide justification to allow the provision of community service to that property alone under this policy.

Within the Planned Community Service Envelopes

Where DPS determines that an existing onsite system failure as occurred, the property involved may already have a category 1 or 3 service area designation. This allows WSSC Water to proceed with expediting the provision of community service. However, where a property lacks an appropriate category designation for community service, DEP may direct WSSC Water to proceed with the provision of service, as explained previously. Because the provision of community service is for a property located within an area already planned for community service, DEP may act to approve related service area changes through the administrative delegation process, under the “Consistent with Existing Plans” policy, Section V.D.2.a.

Outside the Planned Community Service Envelopes

The first consideration for relief of an existing onsite systems failure will focus on onsite mitigation measures. However, some cases occur where DPS determines that onsite measures cannot relieve the failure. In cases involving documented failures, with no reasonable onsite relief measure and with readily available community service, DEP may act to approve related service area changes through the administrative delegation process, under the “Community Service for Public Health Problems” policy, Section V.D.2.a. Readily available community service is that which allows for community service for a property using either a directly abutting or a WSSC Water-approved non-abutting service connection, not a main extension. Otherwise, onsite system failures found outside the planned community service envelopes and related service area category changes will be addressed by the County Council. Depending on the circumstances affecting such cases, the County Executive may transmit appropriate recommendations to the Council outside the usual semi-annual cycle of Plan amendments.

In cases addressed by this policy, community service will generally be limited to a single water and/or sewer hookup for existing properties. The provision of community service under this policy shall not be used as

justification for the connection of nearby lots or parcels if they would not otherwise be entitled to connect to community systems.

#### Development and Subdivision Considerations

In areas planned to use onsite water and/or sewer systems, the County's decisions to provide community water and/or sewer service and approval for related service area changes are not intended to change existing development patterns originally based on the suitability of onsite systems use. To this end, properties outside the planned service envelopes cannot be subdivided into more than one lot where approved for public water and/or sewer service under this policy.

#### **II.G.2.b.: Area-Wide Onsite Systems Concerns**

In some situations, the number and/or the pattern of onsite systems failure cases could indicate broader-scale concerns rather than just an isolated, individual case. A function of this Plan is to survey and identify, as necessary, areas where future, long-term use of individual, onsite systems may be constrained, and to recommend solutions for those concerns. The County will make this determination by conducting an onsite system survey, as detailed in the following section. The survey, for a limited, specified area, will consider existing onsite system records, potential physical and regulatory constraints, and the history of onsite system problems. If survey results indicate a need for community service to mitigate existing or anticipated problems, DEP can recommend establishing a special community service area. All special community service areas recommended for action under this policy require consideration and approval by the County Council. Upon the approval of a special community service area, the Council may also approve category changes for community water and/or sewer service for that special service area under this policy.

The County's designation of a special community service area will allow property owners within these communities to take advantage of WSSC Water's expedited service process and main construction subsidies. Individual properties within an existing or pending special service area that are documented by DPS as having onsite systems failures may still be addressed using the procedures outlined in Section II.G.2.a., above.

In addition to onsite systems survey requests from individual property owners (see outside the planned service envelopes in the following section), DPS may also identify and recommend to DEP potential onsite systems survey areas.

#### **II.G.2.c: Establishing Onsite Systems Survey Areas**

##### Within Planned Community Service Envelopes

The need for onsite system surveys for properties is limited as the area involved is already intended for community service. Surveys are sometimes conducted to establish an area eligible for public health subsidies from WSSC Water to help cover the cost of the extension of a water/sewer main and to expedite the planning and construction of needed main extensions.

Outside planned community service envelopes, onsite systems surveys are typically initiated by an individual property owner, or a group of owners, who identify an area of concern for DEP to investigate. At least one property owner requesting a survey must demonstrate that the existing onsite system has failed, as verified by DPS. DPS must also find that the onsite system failure cannot reasonably be resolved by an onsite repair or permitted replacement of that system. This determination may require an onsite system inspection by DPS and a qualified contractor. A previous inspection may also satisfy this requirement, if acceptable to DPS.

In cases involving septic systems, DPS must determine that the onsite system failure cannot be addressed reasonably by using a conventional replacement system (deep trench, shallow trench, or sand mound), by innovative and alternative onsite replacement systems, or by new technologies as they are approved for use by the State and County (e.g., graywater systems and waterless toilets). Note that in the case of septic systems, reasonable relief methods do not include the use of a holding tank.

The inability of an unimproved property to allow for a permitted well or septic system does not provide a property owner with justification to request an onsite system health survey. DEP may include unimproved properties



within a survey area as appropriate, except where an unimproved property is at the outside limit of a draft survey area.

Once DEP accepts qualified properties for an onsite systems survey, staff will evaluate conditions of other properties in the immediate vicinity for inclusion in the survey area. For establishing a survey area, DEP considers factors such as similar zoning, lot size, and onsite system type and age; logical community service areas and main extension alignments; and physical conditions (such as streams, soils, slopes, and topography). Based on this evaluation, DEP will formally designate a draft survey area.

Once DEP establishes a draft survey area, staff will notify all property owners prior to the beginning of the survey process. At this point, any owner may choose to formally withdraw their property from inclusion in the survey. An owner's withdrawal of a property requires a written and signed notification from the owner to DEP. Once withdrawn from a survey, the subject property will not be recommended for inclusion in either any special service area or related service area category change. However, DEP may use and present the results of the research gained for withdrawn properties as part of the overall survey evaluation. DEP may also consider an owner's request to withdraw a property after a survey commences on a case-by-case-basis. Excluded properties may be considered for community service if they subsequently satisfy the abutting mains policy (Section II.3.G).

#### **II.G.2.d: Conducting Onsite Systems Surveys to Address Area-Wide Health Problems**

The survey begins with DEP's final determination of the survey area. All participating property owners (*i.e.* those who have not withdrawn their properties from the survey) will be required to provide access to their properties for purposes of a DEP/DPS site visit. DEP and DPS staff will contact owners in advance of a scheduled site visit. DEP and DPS may also request that owners provide any available documentation of onsite systems inspections or maintenance. Staff will not pursue a site visit from those owners who choose to withdraw from the survey. DEP cannot require the owners of properties that DEP has added to a survey area to conduct septic system inspections by DPS.

DEP will hold a public meeting for the property owners and other interested individuals and public interest groups, prior to finalizing its survey findings. Following coordination with other agencies, as needed, DEP will present its findings and recommendations in a report for consideration by the County Executive. This report will include DEP's recommendations for special community service areas and related category changes, as appropriate. The Executive will transmit survey findings, as appropriate, to the County Council for consideration.

The anticipated time frame for an onsite system survey starts with DEP's final designation of a well or septic system survey area and concludes with MDE's decisions concerning the County Council's action regarding the survey results and recommendations. This process is generally expected to take no more than one year, depending on agency workload, including work on other onsite system surveys. An exception to this schedule is for surveys in the Glen Hills Study Area where research conducted for the Glen Hills Area Sanitary Study already provides some background information concerning existing conditions. For those areas of Glen Hills that qualify as "higher priority areas" (see Appendix C, pg. C-4), the schedule for transmittal of an Executive recommendation to the Council is three (3) months after DEP's designation of the survey area.

Standard procedures for onsite system surveys are available on DEP's website at [Private Well and Septic Systems | Department of Environmental Protection, Montgomery County, MD](#).

#### **II.G.3.: Community Service for Properties Abutting Community System Mains**

Under specific and limited circumstances, community water and/or sewer service may be provided to properties that abut an existing or approved water and/or sewer main. Except in cases where this policy specifically requires the County Council's consideration and action, DEP may grant approval for abutting service hookups through the administrative delegation process, under the "Community Service for Properties Abutting Community System Mains" policy, Section V.D.2.a.



**II.G.3.a.: General Requirements**

The provision of community service under this policy requires that the property, or a structure on the property, must have been established prior to the extension of the abutting water or sewer main. Residential, institutional, and commercial uses qualify as existing structures; barns, garages, or other types of outbuildings do not qualify. Satisfaction of this requirement qualifies the property for a single public service hookup. Neither the construction of a building on an unimproved property, nor the addition to or replacement of an existing structure, invalidates the application of this policy. The provision of community service under this policy shall not be used as justification for the connection of nearby lots or parcels if they would not otherwise be entitled to connect to community systems.

Technical Feasibility of Service Connections

The provision of community service under this policy also requires that service from the abutting main must be technically feasible. Major water and sewer transmission mains and sewer force mains cannot support individual service connections and hookups, and therefore do not qualify abutting properties for community service under this policy. Service from low-pressure, small-diameter sewer mains may also be restricted, depending on the type or number of users proposed. WSSC Water's current pump/pressure system policies do not permit both residential and non-residential (commercial/institutional) uses to connect to the same low-pressure main, requiring instead separate, dedicated mains for each separate non-residential use.

A property owner may request DEP's approval of a new water or sewer main extension to the existing abutting main to position the main directly aligned with the building on the property. This can allow for a shorter onsite service utility between the main and the structure or serve to avoid affecting an environmental constraint on the site (stream, forest stand, etc.). The new main extension cannot extend past the point where it can best provide a logical connection to the existing outfall from the building to the septic tank. (See figure 1-F7, following.) DEP, DPS, and WSSC-Water will confer on these cases and determine the allowed length of the additional main extension.

The requested main extension may offer abutting mains connections to other confronting properties provided that they are only improved properties or recorded building lots. These confronting properties must be served from the extended main; no additional extensions are allowed. DEP may grant an exception to this limitation in cases where an extension is needed for the relief of a failed onsite system. In cases where a service area category change is needed for a confronting property, the category change is not suitable for an advance action (see Section II.G.3.e.). The confronting properties will carry a notice that disallows any similar, additional main extensions. As with the general provisions of this abutting mains policy, a property newly abutting a new main extension is limited to a single service connection from the new main. Further, in such cases, the additional subdivision of the newly abutting property based on the provision of an abutting service connection is not allowed. Service connections from the extended main to other newly abutting properties must be direct connections from the main. Non-abutting service connections are not allowed in these cases.

Planned Community Service Mains

The implementation of this policy applies to both existing and planned service mains. Where a category change approval is based on new mains planned and approved by WSSC Water, actual service depends on the construction of that main by the applicant for that main. The owner of a property with a restricted abutting mains approval based on construction of a new main can independently initiate the construction of all or part of that new main.

Non-Abutting Service Connections

A non-abutting water or sewer connection may allow for the provision of community service under this policy. A non-abutting connection is typically located within either a public road right-of-way or a WSSC Water main easement. The associated house service utility must be located on *only* the customer's property receiving community service. The use of an offsite service hookup in an easement crossing another intervening property is not allowed. Non-abutting service connections require specific approval from WSSC Water.

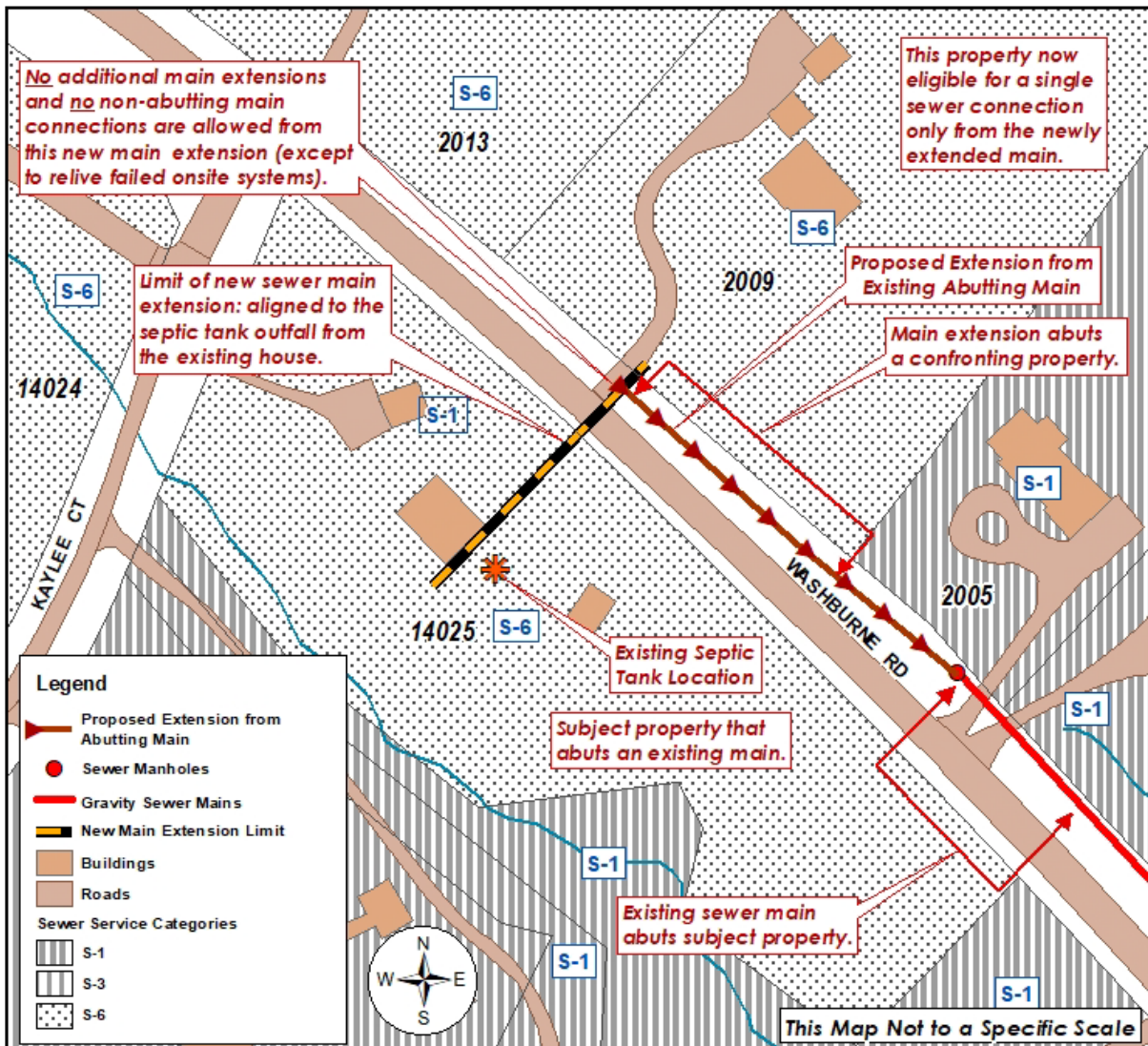
Policies for the use of non-abutting service connections differ between this Plan's policies and WSSC Water's. In this Plan, the preceding policy concerning non-abutting service connections will determine whether a property

qualifies for community service under the abutting mains policy. Most often, such a property is located outside the planned community service envelope and is considered for community service only because it satisfies this special service policy. WSSC Water’s policy for non-abutting service connections addresses cases involving access to a community system main where the County has already approved the property for community service. Typically, these properties are within the designated planned community service envelope.

In summary:

- The Water and Sewer Plan’s policy concerning non-abutting service connections affects decisions about which properties may receive community service.
- WSSC Water’s non-abutting connection policy affect decisions about the best way to serve a property once the Plan has established that property for community service.

**Figure 1-F7: New Extensions from Abutting Community Service Mains**  
(Source: DEP-IGAD)



Abutting Mains Policy Exclusions

This policy will not apply in the following circumstances:

- *Private Institutional Facilities* - The application of this policy does **not** include the provision of community service for private institutional facilities (PIFs) located outside planned community service envelopes. These cases must be addressed separately through the PIF policy (see Section II.G.4.).
- *Limited Access Service Mains* - This policy cannot be applied in cases where the County Council has expressly restricted access to the abutting main as specified under the Limited Access Water and Sewer Mains policy (see Section III.A.1.).

**II.G.3.b.: Single Connections for Only One Property**

A single water and/or sewer connection only is allowed for an individual property or for a structure that satisfies the policy requirements under Section 3.a. preceding. The application of the policy is most often for a single property in the same geometric configuration that existed at the time an abutting main was approved or constructed. However, the policy does allow for exceptions, as follows:

Allowed Property Changes

A change in the property configuration due to the following circumstances does not invalidate this allowed single connection:

- Dedication of land for a public use such as a road right-of-way or park land.
- An exchange of land between a *qualifying* property and an adjacent property, qualifying or not, provided the overall number of qualifying lots—and therefore the allowed number of service connections—remains the same. Under this provision, *at least one* property must have qualified for a single hookup under this policy *before* the lot line adjustment occurred. A lot line adjustment only to acquire frontage along a main does not justify an abutting mains approval.
- The inclusion of additional contiguous, commonly owned properties, if those properties are combined through subdivision with the qualifying property into a single property. Only one single water and/or sewer connection for the entirety of the combined properties will be approved in such cases, so that the provision of community service does not promote the further subdivision of additional lots. Final approval of a category change will require the Planning Board's approval of the subdivision plan or plat assembling the properties.

Remainders of Qualifying Properties

The allowed single service connection may also be assigned to an existing property that is the remainder of a property that would have originally qualified for a single hookup under Section II.G.3.a. above. For approval of single service hookups, these properties must satisfy both of the following conditions:

- The residual property proposed for community service abuts the existing or approved main; and
- The allowed service hookup has not been used elsewhere on the property that originally qualified for the single service hookup. Community service provided elsewhere on the original property where consistent with both Water and Sewer Plan general service policies and with master plan recommendations shall not be considered to have used this one allowed service connection.

DEP may grant approval for this single connection under the administrative delegation process included in this chapter, as noted previously in Section II.G.3., provided that either:

- All of the residual properties involved are still under common ownership, or
- None of the other residual properties from the original abutting property could qualify under this policy for the allowed connection because they do not abut the subject water or sewer main.

However, DEP shall refer to the County Council any cases where two or more residual properties that could qualify for the single service connection are under different ownership. DEP will attempt to notify the owners of

those qualifying properties of the pending category change request amendment and of the Council's hearing for that amendment.

#### Single Community Service Connections in Proposed Subdivisions

Some properties that qualify for a single community service connection under this policy will also be proposed for new subdivisions. In these cases, this policy may allow for a new lot using community service in addition to those lots approved using individual, onsite systems. Qualifying projects will need to satisfy the following conditions:

- The original property had to satisfy the general policy requirements for a single community service connection under Section II.G.3.a, preceding.
- The property in the subdivision receiving the single community service connection must receive service by either a direct connection or non-abutting connection to the water or sewer main. The conditions for the use of a non-abutting connection apply as explained in Section II.G.3.a., preceding.
- Final approval of a category change under this condition will require the Planning Board's approval of a preliminary plan that specifies the lot receiving the allowed community water and/or sewer connection.

Properties located within the Piney Branch Restricted Sewer Access Area and the Glen Hills Study Area do not qualify for this subdivision provision of the abutting mains policy concerning sewer connections. The policy is not intended to promote the creation of additional subdivision lots in these areas. A single sewer connection may be provided in a subdivision to one qualifying lot that could be served by an individual septic system.

#### **II.G.3.c.: Transfer of an Abutting Mains Single Service Connection Qualification**

The transfer of an available abutting mains service connection "right" from a qualifying property to another property that does not qualify for a connection right may be considered under this policy on a case-by-case basis. The approval of such a transfer of a service connection right will require that DEP make the following findings during a category change review process:

- Both properties must abut the water or sewer main with the donating property confirmed by DEP to be eligible for a single connection via the abutting mains policy.
- Both properties must be contiguous (i.e. share a property boundary).
- Both properties must be under common ownership.
- If improved, the property with the existing abutting mains connection right must have a fully functioning septic system that satisfies all current septic system permitting requirements, including an established septic reserve area, under State and County law as verified by the Department of Permitting Services.
- The property donating the existing abutting mains connection right will no longer be eligible for public service through the abutting mains policy.
- Approval of the connection right transfer will be conditioned upon Planning Board confirmation of the receiving property as a building lot.

Provided that DEP determines that preceding requirements are satisfied, a service area category change may be approved through the administrative delegation process.

#### **II.G.3.d: Multiple Abutting Community Service Connections**

In order to limit the effects of development supported by community systems in areas intended to use individual, on-site well and septic systems, the preceding "abutting mains" policies limit service to a single service connection. However, situations may arise where a reasonable accommodation can be made for more than one service connection for a subdivision site that abuts an existing or approved water or sewer main. The use of community service, particularly sewer service, may allow for an improved lot layout over that required using onsite systems.

The approval of multiple community service connections requires all of the following conditions be satisfied:

- The property proposed for subdivision qualifies for a single service connection under Section II.G.3.a. above.

- One proposed lot qualifies for a connection to community service under the basic policy. Each additional proposed building lot in the subdivision must be established on the basis of an approved onsite systems permit for a well and/or a septic system by DPS. The total number of lots approved using community service must not exceed the number of lots that would otherwise be allowed using the one allowed “abutting mains” hookup plus permitted onsite systems.
- All community service infrastructure must be contained within the subdivision site; no offsite infrastructure is allowed. Easements for main extensions and offsite service utilities may be established within the project site. On-site main extensions, if required, must not make community service available to any other properties otherwise ineligible for community service.
- Final approval for a service area category change under this policy will require the Planning Board’s approval of a preliminary subdivision plan for the subject site.

Category change actions considered under this subsection must be addressed by the County Council and do not qualify for consideration under the administrative delegation process.

#### **II.G.3.e.: DEP Advance Approval of Single Abutting Connections in Categories 4, 5, and 6**

DEP may direct WSSC Water to provide an allowed single water and/or sewer connection for a residential use on a property not currently designated for community service (categories 4, 5, or 6) upon confirmation of the following:

- DEP staff confirmation that the property qualifies for service under this policy, and does not require consideration and action by the County Council for approval; and
- DEP receipt of a valid category change request application for the property.

Only in such cases may DEP approve service for a residential use from an abutting main in advance of granting the actual service area category approval. Commercial and institutional uses must first receive the required service area change.

#### **II.G.4.: Community Service for Private Institutional Facilities**

This Plan defines private institutional facilities (PIFs) as buildings constructed for an organization that qualifies for a federal tax exemption under the provisions of Section 501 of Title 26 of the United States Code (Internal Revenue Service).

Private institutions, needing space to locate and grow, sometimes look to less-expensive land zoned for lower-density development. This land is often located outside of the community water and/or sewer service envelopes. The County Council adopted a special service policy addressing PIF uses with three primary goals in mind:

- To continue to support, where the provision of community service is reasonable, the county’s private institutional facilities, which the Council recognizes as having an important role in their communities and for their residents;
- To provide more objective and consistent criteria in evaluating PIF cases; and
- To limit the potential impact of water and sewer main extensions constructed outside the community service envelopes for the sole purpose of supporting PIF uses.

#### Aspects of the Religious Land Use and Institutionalized Persons Act of 2000

The County understands the intent of the Religious Land Use and Institutionalized Persons Act of 2000 (RLUIPA). The County further accepts RLUIPA as a means of ensuring against discrimination to religious institutions in the County’s land use and zoning codes. The PIF policy acts to grant opportunities for the provision of community water and sewer service for non-profit institutions (that can include religious institutions) that are not otherwise afforded to residential and commercial development in areas located outside planned public service envelopes.

Restrictions included in the PIF policy serve to limit the applicability of the policy to address appropriate development and environmental concerns, not to discriminate against any specific type of land use or institution.

County zoning and land use standards still apply equally to institutional uses as they do to residential and commercial development for the same area. The County works to ensure that master plan recommendations concerning the provision of community apply in a manner consistent with both the PIF policy and RLUIPA.

#### PIF Sites Within the Planned Community Service Envelopes

Note that for private institutional facilities located within the planned water and/or sewer community service envelopes, service area category changes may be approved by DEP through the administrative delegation process (Section V.D.2.a.: Consistent with Existing Plans). For a specific site, the planned water and sewer service envelopes differ in some areas due to the general service policies (Section II.F.) included in this Plan.

#### PIF Sites Outside the Planned Community Service Envelopes

The County Council will address category change requests seeking the provision of community water and/or sewer service to such facilities located outside of the planned community service envelopes on a case-by-case basis by the policies provided in the following sections. Under this circumstance, category change requests for PIF uses have specific application requirements. Refer to Section II.G.4.e. for relevant information.

The County Council has come to place greater emphasis on the review of a concept plan for projects seeking the approval of community water and/or sewer service under the PIF policy. PIF-based category change cases often propose more intense development of a site than would be expected on a property zoned for lower-density development. As a result, one of the Council's more significant concerns is the amount of impervious area proposed for the project. Typically, the Council's approval of a category change for a PIF use is based on an understanding that the PIF user's final development plan will be consistent with the concept plan considered by and acceptable to the Council, especially concerning impervious area.

The use of community service outside the planned community service envelopes can imply inconsistency with the general recommendations of local area master plans. However, many master plans are silent on the specific issue of community service related to exceptional service policies in this Plan, such as the PIF policy. The County Council typically interprets these situations as suitable for the application of this policy.

Some circumstances will result in properties that are specifically excluded from the application of this policy; see Section II.G.4.a., below.

In cases where the County Council supports a requested category change for a PIF use, the Council will typically choose to condition a category change approval on either:

- The Planning Board's approval of a preliminary subdivision plan that the Board finds to be in conformance with local area master plan recommendations; or
- The Planning Board's approval of a preliminary subdivision plan which conforms substantially with the concept plan reviewed by the County Council.

Please refer to Section V.E.2. for additional information concerning conditionally approved Water and Sewer Plan amendments, including the five- to -ten-year sunset provisions for final approval actions.

#### Sites Abutting Existing Water and/or Sewer Mains

For cases where existing or approved water or sewer mains abut or will abut a property, the Council may consider the approval of service area category amendments for sites with an existing PIF use and for sites proposed for a new or relocating PIF use, excluding those zoned AR (see Section II.G.4.c).

#### Sites Requiring New Water and/or Sewer Main Extensions

For sites where the provision of community service for a PIF use requires the construction of new water and/or sewer mains, the Council shall apply the following criteria:

- For existing PIF uses, service area category amendments may be approved for sites only where required water and/or sewer main extensions do not threaten to open undeveloped land to development contrary to the intent of the relevant local area master plan.
- For new or relocating PIF uses, service area category amendments may be approved for sites where required new water and/or sewer main extensions will not make community service available to

additional properties that are otherwise not eligible for community service under the general policies of this plan.

WSSC Water policies require that where low-pressure systems provide sewer service to a non-residential use, that system must be dedicated to only one user and cannot provide service to intervening properties, whether for residential or non-residential uses. This policy will therefore allow a dedicated, low-pressure sewer main extension for a PIF use to abut properties ineligible for community sewer service.

Care must be taken to ensure that any associated gravity outfall from a low-pressure sewer system otherwise satisfies these requirements.

New WSSC Water wastewater pumping facilities are not allowed where their only purpose is to serve PIF uses. (See Section II.G.4.c., following.)

Consistent with the Limited Access Water and Sewer Mains policy (see Section III.A.1), water and sewer main extensions outside the acknowledged community service envelopes, where required, shall be designated "Limited Access". Where community sewer service for a PIF use will be provided by low-pressure mains, those mains shall be dedicated only to that PIF use and generally not eligible for additional service connections. This is consistent with WSSC Water's policy of requiring that non-residential pump/pressure sewer system users have systems dedicated to only that use. The County and WSSC Water may make limited exceptions to this requirement to allow for the relief of failed septic systems, where such service is technically feasible.

PIF uses may receive service from limited access water or sewer mains where the Council has specifically approved access to those mains. The provision of community service under this policy shall not be used as justification for the connection of intervening or nearby lots or parcels if they would not otherwise be entitled to connect to community systems.

Under its Systems Extension Permit (SEP) process, WSSC Water requires that all commercial and institutional service applicants construct and pay for the community systems main extensions and related facilities needed to serve their projects.

#### **II.G.4.a.: PIF Policy Exclusions**

The following circumstances restrict the application of the PIF policy in cases where community service is sought.

##### PIF Uses Affected by Specific Master Plan Service Policy Recommendations

This policy cannot be used to justify the provision of community service where a local area master plan specifically recommends against the use of community service for PIF uses, or for any use in general.

##### PIF Uses on Sites Zoned Agricultural Reserve (AR)

To help preserve the integrity of the land-use plan for the County's agricultural reserve, neither community water nor sewer service shall be used to support existing or proposed PIF uses within the Agricultural Reserve (AR) Zone. This prohibition shall apply to all PIF cases regardless of whether public service requires either new main extensions or only service connections to an existing, abutting main.

The only exception allowed to this prohibition is to allow for community service to relieve health problems caused by the failure of on-site systems, as documented by the Department of Permitting Services (DPS). In the case of a public health problem, DEP and DPS staff will need to concur that the provision of community service is a more reasonable alternative to a replacement of the failed on-site system, either by conventional or alternative technologies. WSSC Water and DEP staff will need to concur that the provision of community service is technically feasible.

Note that this Plan, with the preceding agricultural preservation goals in mind, also places limitations on the size of individual, on-site septic systems used within the AR Zone (see Section II.G.4.c).

**PIF Uses in Existing Residential Structures**

The Council may deny service area category amendments for PIF uses located outside the acknowledged water and/or sewer envelopes where main extensions are required for private institutional facilities seeking community service for existing residential structures. This could result in the extension of community water and/or sewer service for structures which would not otherwise be eligible for such service, and which could return to residential use.

**PIF Uses Requiring New WSSC Water Pumping Facilities**

In cases where more than one PIF use proposes to locate on a site requiring a pump and low-pressure main extension, WSSC Water requires that each institutional facility have a separate pump and pressure main system. The County and WSSC Water will not support the provision of community sewer service for a PIF use where that service will require a WSSC Water-owned and operated wastewater pumping station that does not also support community sewer service for other non-PIF uses consistent with the service policies of this Plan.

**II.G.4.b.: Further PIF Policy Considerations**

The PIF policy has accomplished its intended goals in many cases, although the practical application of the policy in other cases remains controversial. These more controversial cases have raised additional policy questions about the criteria for to evaluate PIF category change requests. Among these are the following:

- Should the policy place limitations on the length of water and /or sewer main extensions needed to serve qualifying PIF uses?
- Should the policy include additional prohibitions on community service for PIF uses in other zones besides the AR Zone?

Outside of the CWSP and the PIF policy, should broader County policies consider the following issues:

- Whether County policies should include limitations on the amount of allowed impervious surfaces for either all uses or all non-residential uses, whether universal or based on zoning criteria, and subsequent enforcement of approved impervious surface limitations. Should the County enact additional environmental overlay zones with imperviousness limitations in additional watersheds or subwatersheds the County determines to need additional protection?
- Should County policies be concerned about the effect of PIF uses on nearby communities with respect to compatibility, noise, traffic, etc.?

**II.G.4.c.: PIF Policy Category Change Application Requirements**

Applicants seeking category change approvals under the PIF policy need to provide the following information in addition to the category change application form:

- Name of and contact information for the proposed institutional use if that institution does not already own the property.
- Statement of the institution's non-profit, federal tax-exempt status from the U.S. Internal Revenue Service.
- A concept plan for the site of the proposed institutional use that has first been considered by the M-NCPPC Development Review Committee (DRC) under that agency's concept plan review process. The County Council's consideration of the reviewed concept plan will focus on impervious area and on water and sewer main extensions. The concept plan needs to include:
  - Proposed activities, seating capacity, and auxiliary uses (day care, private school, etc.).
  - Proposed building footprints, parking and driveway areas, and other paved surfaces in sufficient detail to provide an estimate of impervious surface area. Imperviousness must be consistent with specific, established imperviousness limitations imposed by County regulations.
  - Concepts for water and/or sewer main extensions, as needed.

The category change application needs to include a copy of the reviewed concept plan and a copy of the comments for the plan provided by the DRC agencies.



**II.G.4.f.: County Council Reconsideration of PIF Concept Plan Changes**

The discussion of the review of PIF policy cases (Section II.G.4.b) explains the Council's consideration of a concept development plan for the proposed PIF use, which in part is the basis for a category change approval action. However, if the PIF user makes significant changes (prior to service being provided to the approved PIF use) to the development plan from the plan considered at the time of the Council's action, the County will require reconsideration of the original approval action by the County Council. This shall also apply for cases where the proposed PIF user changes from the original user. The M-NCPPC Planning Department will evaluate the revised concept plan with respect to the original plan and report its findings to DEP and the Council concerning significant changes that would warrant the Council's reconsideration.

**II.G.5.: Community Service for Commercial Land Uses**

This policy addresses the provision of community water and sewer service for commercial land uses located outside the planned community service envelopes. This is to help support commercial service (such as grocery and convenience stores, medical offices, and day-care facilities) in lower-density areas of the county where residents may otherwise have to travel many miles to avail themselves of these services. Properties eligible for consideration for community service are those with existing or proposed commercial uses as defined in the Montgomery County Zoning Ordinance.

The provisions of this commercial uses service policy (allowances, restrictions, procedural requirements) parallel those established in the Private Institutional Facilities (PIF) policy (see II.G.4, preceding), with the following exceptions:

- The commercial uses considered under this policy do not have to qualify as tax-exempt under Section 501 of Title 26 of the United States Code (Internal Revenue Service).
- Neither community water nor sewer service shall be used to support existing or proposed commercial uses within the Agricultural Reserve (AR), Rural (R), and Rural Cluster (RC) Zones.
- Water and sewer main extensions for these properties are required to stay within public rights of way and avoid sensitive environmental features such as streams and forests.
- Properties with residential structures converted or proposed to be converted to a commercial use may be considered for community service.

Properties that have submitted category changer requests for community service for an existing or proposed commercial use prior to the approval of this policy are not required to submit a concept plan for consideration by the Development Review Committee.

**II.G.6.: Community Service for Public Facilities**

Public facilities are defined as government-owned buildings or facilities; this includes facilities for municipal, county, state, state-chartered, and federal government agencies. Service area changes needed for community water and sewer service to serve those public facilities sited within the planned community service envelopes through the administrative delegation process (Section V.D.2.a: Consistent with Existing Plans). For locations outside the planned community service envelopes, DEP may act to approve service area changes for existing and proposed public facilities through the administrative delegation process, Section V.D.2.a: Public Facilities. The provision of community service under this policy shall not be used as justification for the connection of intervening or nearby lots or parcels if they would not otherwise be entitled to connect to community systems.

**II.G.7.: Community Service for Properties Affected by Public Improvements**

Community water and/or sewer service may be approved for a property where public infrastructure improvements such as road construction will directly remove, damage, or otherwise adversely affect that property's individual, onsite well or septic system. DEP shall coordinate the review of these requests, as appropriate, with the County's Department of Transportation (DOT). DEP may act to approve service area changes for these properties through the administrative delegation process, Section V.D.2.a: Public Facilities. The provision of community service under this policy shall not be used as justification for the connection of intervening or nearby lots or parcels if they would not otherwise be entitled to connect to community systems.

**II.G.8.: Community Service for Community Development Projects**

Community water and sewer may be provided in support of community development projects which have previously been approved following a public hearing. Such projects may include officially designated renewal and redevelopment areas, neighborhood and community improvement programs, projects approved for productivity housing, rural village programs, historic preservation projects, and housing subsidized by Federal, State or local government, upon the recommendation of the Director of the County Department of Housing and Community Affairs. DEP may act to approve service area changes in these cases through the administrative delegation process, Section V.D.2.a: Community Development. The provision of community service under this policy shall not be used as justification for the connection of intervening or nearby lots or parcels if they would not otherwise be entitled to connect to community systems.

**II.G.9.: Community Water Service for Child Lots**

Community water service may be provided to support the subdivision of lots for the children of the owners of qualifying properties. Montgomery County's zoning and subdivision regulations make special provisions for the creation of these lots which are generally located in the more rural areas of the county, primarily in the Rural Cluster (RC), Rural and Agricultural Reserve (AR) Zones. The size of the lots to be considered for service under this policy is intended to be in the range of those included in the water service for large lot provisions in Section II.F.9.b: between 1 and 5 acres. The provision of community water service must comply with existing agricultural easements applying to the property.

Approval of a service area change to allow community water service must depend on Planning Board approval of a preliminary plan for the proposed child lot. In areas zoned AR, where child lot cases are handled as minor subdivisions without the preparation of a preliminary plan, service area changes will depend on an M-NCPPC notice to DEP that the subdivision plat is ready for Planning Board approval.

Water service in these cases is generally intended to be provided from abutting water mains, although water main extensions can be considered where those extensions are consistent with the requirements for large lot development, as previously cited. The provision of community service under this policy shall not be used as justification for the connection of intervening or nearby lots or parcels if they would not otherwise be entitled to connect to community systems.

**II.G.10.: Community Service for Properties Affected by Onsite Systems Regulations Changes**

Community water and/or sewer service, restricted to a single water and/or sewer connection, may be provided to a parcel or a recorded lot that meets both of the following conditions:

- The applicant must demonstrate that the lot was recorded by plat based on successful sewage percolation or water supply tests at that time, but due to change in regulation, the lot can no longer satisfy State and County regulations for individual, on-site systems; and
- Community service can be provided in a cost-effective and environmentally acceptable manner.

Prior to 1963, septic testing was not required in order to establish a recorded building lot using septic service in Montgomery County. The absence of successful test results because testing was not required does not satisfy the requirement under this policy. This circumstance cannot be used to justify the provision of community sewer service under this policy.

DEP may act to approve service area changes for properties satisfying the preceding criteria through the administrative delegation process, Section V.D.2.a: Individual Systems Regulations Changes. The provision of community service under this policy shall not be used as justification for the connection of intervening or nearby lots or parcels if they would not otherwise be entitled to connect to community systems.

**II.G.11.: Reverse Category Changes**

The County may approve "reverse" service area changes from categories 1, 3, or 4 to categories 5 or 6 in cases where development established using individual, onsite systems will be unlikely to need or have access to community service within the lifetime of the Plan. Although DEP staff shall be primarily responsible for identifying areas eligible for reverse changes, individual property owners may also seek reverse category changes. DEP may act on reverse service area category changes through the administrative delegation

process (Section V.D.2.a: Consistent with Existing Plans). DEP may also act through the administrative process (Section V.D.2.c) to update service area category 1 areas to category 3, to better identify those properties without immediate access to community service.

This Plan recommends against changes from water and sewerage service area categories 1, 3, or 4 to categories 5 or 6 strictly for the following purposes: of

- Avoiding the assessment of front-foot benefit charges (see Section IV.A.2.b.).
- Avoiding a DEP or DPS requirement to connect to community water and/or sewer mains, and abandon existing onsite systems, where those mains are available to provide service.

The County Council will address applications for reverse category changes for the preceding purposes.

#### **II.G.12. Special and Restricted Community Service Areas**

In addition to the preceding policies, the County may also designate specific areas for or restrict specific areas from community water and/or sewer service in order to achieve specific development goals, to promote environmental protection, or to address other specific concerns. The approved special and restricted community service areas are identified as follows (more detailed information and mapping for each affected area is provided in Appendix C):

- Hyattstown Special Sewer Service Area (refer to Appendix C, Section II.F).
- Jonesville and Jerusalem Special Sewer Service Area (refer to Appendix C, Section II.G.).
- Laytonsville Restricted Water Service Area (refer to Appendix C, Section II.I).
- Oaks Landfill Special Water Service Area (refer to Appendix C, Section II.K.).
- Piney Branch Restricted Sewer Service Area (refer to Appendix C, Section II.L.).
- Riverwood Drive Sewer Restricted Service Area (refer to Appendix C, Section II.N.).

#### **II.G.13.: Community Service Errors**

On occasion, WSSC Water has mistakenly connected community service to properties designated as service area categories 4, 5, or 6; actions inconsistent with the policies in this Plan. Most often these situations involve cases where existing mains abut and can provide service to the subject property without the need for new main extensions. The County has no intent to revoke or suspend service to properties currently receiving community service provided in error. In cases where such errors are discovered prior to the release of service however, DEP may, depending on the circumstances involved, direct WSSC Water to suspend the connection and/or plumbing permitting process prior to the actual provision of service. The provision of community service in error shall not be used either as justification for the connection of intervening or nearby lots and parcels or for the creation of additional building lots on a site already receiving community service if they would not otherwise be entitled to connect to community systems.

### **III.: GENERAL POLICIES FOR WATER SUPPLY AND SEWERAGE SYSTEMS FACILITIES**

The preceding policy sections of Chapter 1 generally address the conditions under which the County determines an area of the county, or a specific property, receives water supply and wastewater disposal service; by community systems or by individual, onsite systems. The following sections address policies concerning the community and individual water supply and sewerage systems that provide that service.

#### **III.A.: Washington Suburban Sanitary Commission Community Systems**

As defined by the State, community systems are owned and operated by a State-designated public entity such as a municipality or county government. In the case of the Washington Suburban Sanitary District (WSSD) that encompasses most of Montgomery County (see figure 1-F3), that public entity is the State-chartered Washington Suburban Sanitary Commission (WSSC Water). Within the WSSD where new community service water and/or sewerage systems are needed to support either planned or existing development, WSSC Water is the agency responsible for the approval, permitting, construction (in certain cases), operation, and maintenance of those systems. Details about the financial processes used by WSSC Water for this purpose are presented in Section IV.

**A community water supply system** provides potable water to residential, institutional and commercial customers. The system generally consists of:

- A raw water source (either a surface water intake or groundwater wells) that feeds into a facility for water treatment that creates potable water.
- A system of pumping facilities, major water transmission mains, and storage facilities that move potable water from the treatment facility throughout the sanitary district.
- A system of local distribution mains with connections to provide service customers' homes and businesses.

**A community sewerage system** collects, treats, and safely disposes of sewage or industrial wastes of a liquid nature from residential, institutional and commercial customers. The system generally consists of:

- A system of local collection mains, with connections that accept wastewater from customers' homes and businesses, that feed into subsequently larger systems of mains. Most of these mains operate by gravity; some use individual pumps feeding into pressure sewers.
- A system of major sewer trunk transmission mains, wastewater pumping stations, and force mains (as needed) to move collected wastewater through the sanitary district to a treatment facility.
- A wastewater treatment facility designed to meet State and Federal environmental standards, with an effluent discharge either to the ground or to a receiving surface water, such a stream or river.

The following information and policies are generally related to the provision of community water and sewer service by WSSC Water. Policies specific to the community systems owned and operated by the City of Rockville and the Town of Poolesville are addressed in the sections of Chapters 3 and 4 relevant to those communities. With some exceptions, properties within these two municipalities are not part of the WSSD.

### **III.A.1.: Limited Access Water and Sewer Mains**

In order to implement the goals and requirements of this Plan, water and sewer mains may need to traverse areas of the county not usually eligible for community water and/or sewer service. Those mains are referred to in this Plan and in Plan amendments as **limited access** mains. The properties that these limited access mains traverse or abut are not eligible for community service except where they would qualify for community service under the specific provisions of the community water and sewer service policies (Section II.G.). The proximity of existing water and/or sewer mains to a particular property is therefore neither the sole nor primary factor considered in determining eligibility for the provision of community water and/or sewer service under the general community service policies in this Plan.

A single water or sewer main may be considered as a limited access main along only part of its length. Only that part of the main located within or adjacent to properties outside the community service envelope is considered as limited access. Where the same mains traverse areas located within the community service envelope, they do not carry the limited access designation. Conditions that affect the provision of community service such as master plan recommendations, zoning, and community service policies may change over time. These changes have the potential to affect the limited access status of a specific main.

The County Council may also specifically designate water and sewer mains as limited access by an amendment to this Plan. These limited access mains traverse areas of the county normally eligible for community service under the general policies of this plan, but where such service is limited or restricted by an action of the Council. The Plan amendment will specify under what conditions community service may be provided from, or extended from, the limited access main. The County Council has identified all or part of the following water and sewer mains as limited access mains:

- Piney Branch Trunk Sewer and Tributary Mains (see Section II.G.11.b.)
- Riverwood Drive Sewer Extension (see Section II.G.11.c.)
- Jonesville and Jerusalem Area Sewer Mains (see Section II.G.11.d.)
- Laytonsville Water Main Extension (see Section II.G.11.f.)

**III.A.2.: Capital Projects**

The provision of community service to an area or to a specific site may require capital water and/or sewer projects not included in the current capital program or otherwise identified and endorsed by this Plan. WSSC Water capital water and sewerage projects include:

- Water mains 16 or more inches in diameter
- Water treatment, storage, and pumping facilities
- Gravity sewer mains 15 or more inches in diameter and sewer force mains 4 or more inches in diameter
- Sewage treatment, pumping, and storage facilities.

Developers building capital-sized water or sewer mains—of no more than 2,000 feet in length—under the System Expansion Permit (SEP) process (see Section IV.A.2.) have the option of whether to include the project in the WSSC Water capital improvements program (CIP). System Development Charge (SDC) credits are available for any project designated as included in the CIP.

Capital improvement water and sewerage programs for the City of Rockville and Town of Poolesville include the types of projects described previously for WSSC Water. These municipalities also typically include local water and sewer main extension and repair projects in their CIPs as well.

In the past, new development staging recommended in master plans was coordinated with the scheduling of needed capital projects in WSSC Water's CIP. The 1994 Clarksburg Master Plan is the most recent example. Currently, this level of coordination applies more on a case-by-case basis to redevelopment and infill projects where upgrades to existing facilities sometimes requires increased transmission capacity needs. DEP coordinates the inclusion of those required capital projects in the WSSC Water annual CIP consistent with the goals and policies of this Water and Sewer Plan.

**III.A.3.: Dry Community Systems**

This Plan previously required that developers install dry community water supply and sewerage systems for projects where the County intends to provide community service, but where community systems are not currently adequate or available (Section II.D). As explained in the referenced section, the County has found that the program does not achieve the intended goal of eventually connecting properties provided with dry systems to the overall community system network. Some projects from the 1970s and 1980s using dry mains have never been connected to WSSC Water's community systems. New subdivisions planning to use community systems need to provide those systems without the use of interim permit individual systems. Note that DEP may waive this requirement for subdivisions in areas zoned for large-lot development (RE-1, RE-2, and RE-2C Zones).

**III.A.4.: Environmental Considerations for Community Systems Construction**

Consistent with the objectives of this Plan and to the greatest extent reasonable, the planning and construction of community water supply and sewerage systems must be accomplished with the goal of protecting and mitigating potential damage to the environmental resources of the County. Community water and sewerage systems construction have the potential to disturb, damage or fragment streams and stream valleys, wetlands, steeply sloped areas, parks and woodlands, and historical and archeological sites. Wherever possible and reasonable, such disturbances should be avoided or mitigated using alternate main alignments, extra-depth or extra-shallow mains, contour mains, low-pressure/grinder pump sewerage systems, and other appropriate measures. Stream and wetlands crossings, intrusion into stream and wetland buffers, and alignments through forested areas should be avoided wherever possible and minimized where unavoidable. State laws restrict construction across and adjacent to streams within State-designated Use III and IV watersheds from seasons of the year which are critical for maintaining water quality and specific aquatic species.

In addition to the State's classification system, DEP monitors stream conditions across the county. The monitoring data provides insight into the current and historical health of the county's watersheds and indicates how the streams have changed over time. Current stream monitoring data can be accessed on the Montgomery County Watershed Health Map. (<https://www.montgomerycountymd.gov/water/streams/watershed-health.html>) This has replaced the publication of the *County-Wide Stream Protection Strategy* (CSPS).

The need for new community systems to support development, and the potential effect of those systems on environmental resources, factors into land use planning decisions, particularly regarding community sewerage systems. This may result in land use recommendations for lower-density development in environmentally sensitive areas that do not require community systems. Environmental concerns related to community sewerage systems may also be mitigated by using central or onsite pumping systems that avoid sewer main construction along sensitive stream valleys or other environmentally sensitive areas. The use of central pumping systems is generally accepted throughout the WSSD on a limited basis, where conditions *require* their use. Central pumping facilities place increased operation and maintenance costs onto WSSC Water and can divert Systems Development Charge funding from general system improvements to developer dependent projects. WSSC Water policies allow for the use of onsite pumping (typically, grinder pumps) and low-pressure sewerage systems in limited circumstances and again, only where needed. However, the use of individual pumping systems increases the cost of providing community sewer service for each structure served, increases electrical costs and requires long-term maintenance for individual users. The County and WSSC Water have recognized that additional community service costs, including those for central and onsite pumping facilities, can be justified for purposes of environmental resource protection. Depending on the size of a project, WSSC Water may conduct a facility plan in cooperation with the County and M-NCPPC to examine community systems alternatives with respect to environmental concerns.

### **III.A.5.: Facility Planning**

Prior to project implementation, WSSC Water obtains, through the Capital Improvements Program (CIP) process, funding approval from the Counties for any facility planning project requiring a significant expenditure or perceived as potentially controversial.

Alternately, WSSC Water requires developers who will construct capital facilities as part of their projects to initiate and finance the facility plan process. Since the institution of WSSC Water's System Extension Permit (SEP) procedures for developer-financed and built infrastructure (see Section IV.A.2.a), this process has become a more common way to handle the addition of new capital projects.

The planning process may vary depending on the nature of the project, its purpose within the community system, its impact to the environment and to the community, regulatory requirements, required level of service, risk mitigation, and costs. In some cases, projects may require less planning, if for example they have little or no impact to the community such as improvements to existing facilities within WSSC Water property. In other cases, projects may require new facilities that require easements and/or land acquisition or may serve an entirely new service area and will require extensive planning efforts. Other projects may not require easements or land acquisition but may significantly affect the community and require extensive planning efforts. In some instances, the planning process may not be initiated by a business case (see Section III.A.5.a, below), but instead may be the result of some of the following examples: proposed land use and zoning changes, a proposed expansion of the designated growth areas within the County; a request for additional or new capacity allocations to wholesale customers, new regulatory requirements, and other long-term planning issues.

The following summarizes WSSC Water's facility planning process:

- **Need Identification:** Done by the Asset Management Program (AMP) proactively through the Asset Management Plans or reactively by processing a specific urgent need.
- **Project Initiation Form:** The need is documented using a project initiation form that identifies and documents variables such as cost, risk, level of service, and alternatives. Information documented in the form is utilized to validate and prioritize a project.
- **Validation:** The need is reviewed by the appropriate division manager, the systems asset strategy manager, the department director, the network asset strategy manager, and the Asset Management Office manager. It is voted on by a committee including representatives from the Asset Management Office and the following departments: Engineering and Construction, Production, Utility Services, General Services, and Finance.
- **Business Case Evaluation:** A business case evaluation is performed for projects with more than one feasible alternative that can address the need.

- ESP Approval or CIP Request and Prioritization: Funding is assigned if the project approved for implementation with Engineering Support Program I(ESP) funds. For projects recommended for implementation as a Capital Improvement Program (CIP) project, the project enters the review and approval process as required by Title 23, Subtitle 3, of the Annotated Code of Maryland. Based on cost, risk, and level of service criteria, the project is given a prioritization score. In the event that budgetary constraints prevent the implementation of all projects, these prioritization scores are used as guidelines for deciding which projects should be deferred or curtailed.
- Transmittal for Implementation or CIP Request: If the project is approved for implementation under the ESP, it is transmitted to the division responsible for implementation. If the project is recommended for CIP funding, it is included in a proposed CIP budget or as a proposed amendment to an approved CIP budget.

**Water and Sewer Plan Recommendation: Interagency Coordination for WSSC Water Project Development**

Over the past several years WSSC Water has changed the project development process with all needs first being reviewed and validated through the Asset Management Program. While WSSC Water has and continues to plan to include interaction with Montgomery County DEP and M-NCPPC on existing and future relevant projects, the County continues to have discussions with WSSC Water on the extent of County involvement

**III.A.5.a: Asset Management Program**

Beginning in 2007, WSSC Water embarked on the development of a comprehensive Asset Management Program (AMP) that was fully implemented in 2018. WSSC Water considers the AMP a working program that will undergo a continuous improvement process. The program is intended to help achieve one of WSSC Water’s strategic priorities: to plan, renew and sustain its infrastructure to meet customer expectations through innovative, cost-effective technology and asset management practices. The two goals of the asset management program are to identify infrastructure needs for a period 30 years into the future; and to establish and institutionalize an asset management process within WSSC Water. The purpose of these goals is to meet the required level of service in the most cost-effective manner, at an acceptable risk, through the management of assets for present and future customers.

AMP plans are developed at the enterprise, network, and system levels for each category and subcategory of assets. The enterprise level incorporates systems under four networks:

- Water, including water treatment; pump stations and specialty valves; transmission and distribution; and dams and reservoirs systems
- Wastewater, including wastewater pumping stations, collection, treatment, and storage systems.
- Communications, including Supervisory Control and Data Acquisition (SCADA), telephone, security, radio, antenna, microwave, and data systems.
- Support Services, including systems associated with land and buildings

Asset Management Plans are developed for each facility within the preceding sub-system categories. Every asset management plan contains asset registry information which is managed through use of Decision Support System modelling software. Decision Support Tools are then used in conjunction with life expectancies, life cycle costs, level of service, business risk exposure and other factors to develop strategies to maintain and replace the assets in a sustainable manner. An asset management plan generally:

- Presents a concise summary on the state of the WSSC Water infrastructure assets.
- Describes the performance of WSSC Water in meeting several Levels of Service goal metrics
- Summarizes risk and informs on the most critical assets
- Provides recommendations for prioritizing investments to sustain the infrastructure and meet WSSC Water’s strategic objectives.
- Proffers plans to improve business processes and operations

**III.A.5.b.: Interagency Coordination Through Mandatory Referrals**

M-NCPPC reviews WSSC Water projects through the Mandatory Referral process, as part of a public forum, as required by State law. Although the Planning Board's decisions for projects are non-binding, the Board often provides recommendations that improve the compatibility of these projects with both the natural and human environment. These recommendations also provide the Board's formal position for the Council on these projects.

**III.A.5.c.: Public Outreach Program**

WSSC Water includes community outreach efforts throughout the facility planning process, with the goals of providing public information, encouraging community understanding, acquiring confidence and support from elected officials and the community in its planning process, and recommending alternatives. In its outreach program, WSSC Water uses meetings (citizen advisory committees), publications (brochures and newsletters), formal notices (newspaper display ads), and visual aids (static displays, slide shows, and videos).

The public outreach process also includes the opportunity for public comment as part of the mandatory referral of WSSC Water facility plans to the Planning Board as described in the preceding subsection. In this process, the Board holds an independent public hearing on the project, and provides official, non-binding comments to WSSC Water, which incorporate specific land use and policy concerns along with appropriate community concerns presented as testimony.

As addressed in the following subsection, the County Council's annual consideration of WSSC Water's capital budget provides citizens and community groups a forum for speaking directly to elected officials about both specific projects and the budget in general. In addition to the Council's public hearing, all Council deliberations in committee and as a body are open to the public.

The public outreach program is intended to improve WSSC Water's responsiveness and sensitivity to community concerns, seeking community support for addressing public health and growth management needs. WSSC Water pursues community support with the understanding that, due to competing goals, community involvement in the planning process does not always result in complete community acceptance of a proposed project. An effective planning process often includes compromises needed to achieve overall project goals.

**III.A.5.d.: Development of the Capital Improvements Program**

The Asset Management Program (AMP) is the driving force in the development of the Capital Improvement Program (CIP). The planning and development of new assets is developed from the program through the Project Needs Validation Process. This process begins with the identification of a "need," which may originate due to new development demands, capacity constraints, expected facility life and performance, health and safety concerns, regulatory requirements, financial efficiency and obsolescence, risk and climate resiliency issues, or other performance considerations. The need is evaluated by the Project Needs Validation Committee which decides if the information provided is sufficient to validate the need.

If a validated need has more than one alternative solution, then the project moves forward to undergo the Business Case process. The business case begins with the development of all possible and feasible alternatives to address the project need, including the "do nothing" and "status quo" alternatives for a baseline comparison. The alternatives then undergo a preliminary screening to evaluate local, State and Federal permitting and regulatory constraints, community impacts, accessibility and constructability, and cost. In some cases, WSSC Water pursues input from M-NCPPC and Montgomery County DEP before a project enters the CIP. A screening process narrows the list of candidate alternatives for a subsequent analysis that evaluates life cycle costs, risk reduction analysis, and a sensitivity analysis.

The optimum solution is then selected for recommendation and presented to the Project Needs Validation Committee for approval and placement into the proposed subsequent capital budget. A project team reviews and approves the work effort in the business case. The team includes AMP project managers, System Asset Strategy managers, Planning Division staff, Budget staff, and external stakeholders. These stakeholders can include officials from local and County Government agencies, customers, residents, business owners, and community interest groups. Comments will be solicited and factored into the development of the business case.



If there are no alternatives, the project is reviewed for Engineering Support Program (ESP) or CIP funding availability. Due to exigencies of certain projects, exclusion of the business case process may be warranted. Such exclusions require approval from the Project Needs Planning Committee. Business cases may be comprehensive or abbreviated.

The planning process for any new facility some cases may continue after the business case is completed. Thorough and complete planning work is necessary in order to eliminate any uncertainties in the scope of the project before it is handed off to the project delivery team for execution.

#### **III.A.5.e.: Implementation Through the Capital Improvements Program**

The implementation of a facility plan is initiated by the full funding of the project in the WSSC Water CIP. Each proposed project receives a WSSC Water staff recommendation which staff transmit to the WSSC Water General Manager at the conclusion of the facility planning process. The General Manager either endorses or modifies the staff recommendation and submits the project to the WSSC Water Commissioners. The Commissioners in turn transmit the WSSC Water decision on the project to the Counties for inclusion in the CIP and the *Comprehensive Water Supply and Sewerage System Plan*.

DEP prepares any necessary amendments to the Water and Sewer Plan and includes any relevant comments on the CIP Project for the County Executive's consideration. The County Executive reviews and if necessary, modifies DEP's recommendations, then transmits the CIP amendments to the County Council. The Council conducts a public hearing on the project recommendations as part of the Water and Sewer Plan and/or the CIP adoption processes. The Montgomery County Planning Board may also review or comment on the facility plan as part of the Council's public hearing process or as part of a designated mandatory referral process.

A project's adoption in the WSSC Water CIP by the two County Councils completes the facility plan adoption process. The annual approval of the WSSC Water CIP budget by both Montgomery and Prince George's Counties serves to amend the water and sewer facilities chapters of this Water and Sewer Plan. The CIP provides a proposed design and construction schedule for projects WSSC Water expects to implement within the six-year planning period of the CIP. The adopted CIP schedule also identifies the necessary funding sources for the project.

The annual approval of the WSSC Water CIP program constitutes amendments to Chapters 3 and 4 of this Water and Sewer Plan.

#### **III.A.5.f: Advance Acquisition of WSSC Water Sites and Buffer Plantings**

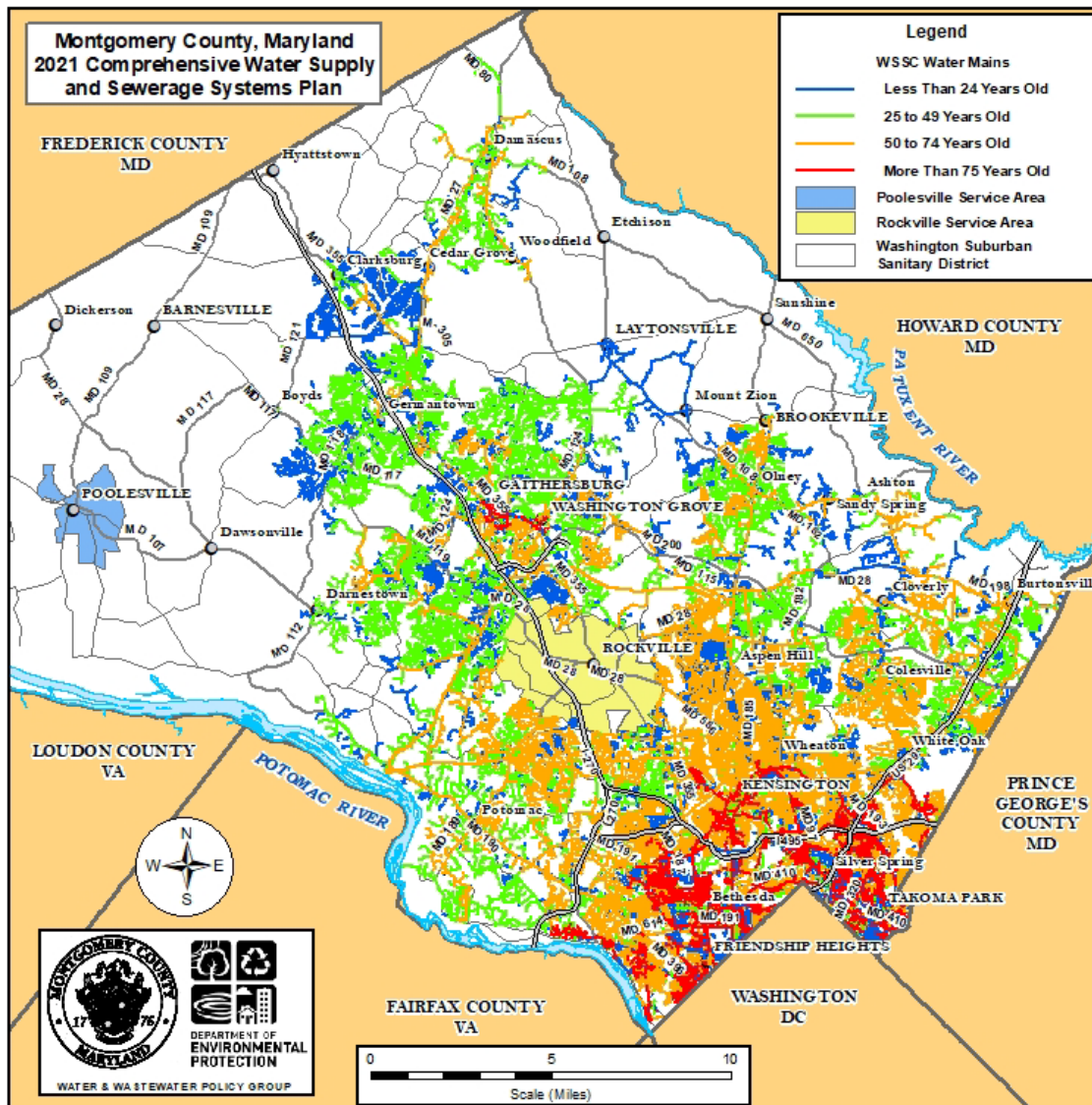
WSSC Water should proceed with planning the location of future facilities at the earliest opportunity following County approval of capital projects, including public outreach and community involvement from the impacted area. These facilities include sites for treatment plants, pump stations, storage tanks and rights-of-way for water and sewer lines. Advance acquisition of necessary sites is encouraged, through the CIP process, in areas that development potential and/or siting are identified as significant to appropriate facility planning. When WSSC Water acquires a site that needs buffering by landscaping from either present or future development, WSSC Water will develop a landscaping plan, including a public outreach effort to encourage the involvement of the impacted community.

#### **III.A.5.g.: Repair, Replacement and Rehabilitation of Aging Community Systems**

WSSC Water has recognized that the age of its community system's existing mains plays greater role in pipe breaks and failures with each passing year. (See Figure 1-F8, below.) For community water systems, WSSC Water reports that by 2025, an estimated 50 percent of the entire water distribution system will reach or exceed its estimated useful life. There are approximately 2,000 miles of cast iron pipe in the distribution system (pipes less than 16 inches in size), of which, over 85 percent will exceed their estimated useful life by 2025. As an initial step to minimize inconvenience to customers, to reduce water losses, and to mitigate potential environmental complications, WSSC Water has established procedures to quickly address water main breaks and leaks when they occur.

In 2005, the U.S. Environmental Protection Agency (EPA) and WSSC Water entered into an agreement on a consent decree concerning sanitary sewer overflows (SSOs) throughout the WSSC Water sewerage system. Under the decree, WSSC Water will make repairs and improvements to the collection system to minimize, and to eliminate wherever possible, future overflows. WSSC Water has developed an initial 12-year action plan to address these infrastructure concerns. WSSC Water has extended this original plan through the court to extend the rehabilitation schedule required to implement the required projects. As the consent decree program winds down, programmatic infrastructure renewal continues, with the Asset Management Program providing areas of priority.

Figure 1-F8: Construction Year of WSSC Water Mains  
(Source: DEP-IGAD)



WSSC Water has long maintained a water main lining and replacement program. However, the problem of aging infrastructure needed a more strategic, long-term approach to possible solutions. In response, WSSC Water has implemented an infrastructure investment plan that provides a roadmap to refurbishing and replacing the Commission's systems over time. This program was prepared in cooperation with officials from Montgomery and Prince George's Counties. Priority areas in this program are informed annually by the Asset Management program.

**III.B: Municipal Community Systems**

The City of Rockville and the Town of Poolesville own and operate community water supply and wastewater systems. These municipal systems include local distribution and collection systems that are separate from those owned and operated by WSSC Water. As previously explained, Rockville operates a water treatment plant that draws raw water from the Potomac River. The City's wastewater collection system drains to WSSC Water sewer mains for treatment at the Blue Plains Wastewater Treatment Plant. Poolesville draws its water supply from a series of municipal wells. Wastewater treatment is provided by the Poolesville Wastewater Treatment Plan.

**III.B. Rockville Community Systems**

Rockville's Water Resources Element (WRE), which was adopted by the Mayor and Council in December 13, 2010, supplements the water resource provisions of the Comprehensive Master Plan. The WRE assesses the adequacy of existing drinking water and wastewater infrastructure capacity to accommodate projected growth through 2040, and identifies infrastructure concerns, including diminished capacity due to aging, that may restrict predicted population and economic growth. The WRE ensures that comprehensive land use plans and future growth consider both the opportunities and limitations presented by a community's water resources. The WRE is incorporated into the City's Comprehensive Master Plan.

The 2010 WRE concluded that the City has adequate water supply and sewerage treatment facilities to meet projected demand to 2040. The WRE recommended the following actions for the water system: investigate and repair the 24-inch transmission main from the Water Plant to the distribution system; replace and/or rehabilitate aging water mains in poor condition; resolve water age concerns of the three storage tanks; ensure potable water meets or exceeds the Safe Drinking Water Federal and State laws; upgrade and expand the Water Plant, as well as activating the Glen Mill Pump Station, to produce up to 14 million gallons per day (MGD) (updated planning projections are 12 MGD); and encourage per capita reduction in water use. The WRE recommended the following actions for the sanitary sewer system: complete mapping of the entire system; continue annual camera inspection and rehabilitation, repair and/or replacement of the aging mains in poor condition; improve the accuracy of estimating the extraneous flow (infiltration and inflow) into the sewer systems; continue implementing the fats, oils and grease (FOG) abatement program; maintain access to sanitary sewer system infrastructure; and develop city-wide hydraulic models, for each of the three sanitary sewer basins, to predict wastewater flow and ensure adequate transmission capacity.

Rockville City Code (Section 24-12) requires the City to make a determination for all development, per adopted Water and Sewer Adequacy Standards, that there is adequate water and sewer capacity before a development is approved. This determination is made through Rockville's Water and Sewer Authorization (WSA) process, which is mandated by the Adequate Public Facilities Ordinance (Section 25-20-01). Applicants seeking to develop in Rockville must submit a WSA application outlining the proposed water and sewer system demands. If the public systems do not have sufficient capacity the developer is required to mitigate the deficiencies. Mitigating system deficiencies include extending public water and/or sewer mains to provide service to properties that are not proximate to existing public water and/or sewer mains. The required water and/or sewer mitigation must be approved and permitted before the development building permits are issued. Additionally, the water and/or sewer mitigation must be constructed and accepted for public service before the development occupancy permits are issued.

Rockville City Code (Section 24-37(C)(1)) requires the property owner to hire a master plumber to locate and clear sewer stoppages in sewer connections. If the stoppage is in the service connection (between the public sewer main and right-of-way line), the City will install a clean out. If the service connection is damaged the City will repair or replace it. The property owner is responsible for maintaining and repairing the service hookup (connection between the house and the right-of-way line). If a water leak is identified on a water connection, the City will determine if the leak is the water service connection (between the public water main and right-of-way line) or at the meter and will repair the leak. Otherwise, the property owner will be notified and must hire a master plumber to repair the leak.

Properties with an existing connection to Rockville's water and/or sewer systems must replace the existing service connection when the property is being redeveloped, unless the applicant demonstrates that the condition and material of the existing service connection meets current standards.

In addition to the overall City of Rockville and WSSC Water sewer flow agreements, DPW coordinates APFO/APFS review of water and sewer service with WSSC Water for private development projects in the City that are either within or near the boundary of the WSSD. This coordination provides for early identification of system improvements that will be needed to sustain long range planning goals of both WSSC Water and the City of Rockville.

### **III.B.2.: Town of Poolesville**

Poolesville allows residential and commercial/institutional uses to connect to low-pressure mains; each connection is examined based upon use and conditions of intended use.

### **III.C.: Individual Systems**

Individual water supply and sewerage systems are owned and operated by the user, whether for a private residence, or for a commercial or institutional use. Individual systems are also sometimes referred to as "private" or "onsite" water and sewerage systems. The majority of individual systems in the county are groundwater wells and septic disposal systems. The user of the individual system holds the responsibility for its appropriate use and maintenance, and for repair or replacement should the system fail. The following sections introduce the various types of individual, onsite systems and address specific associated policy considerations. Much of the policy discussion concerning individual onsite systems and under what conditions onsite are appropriate to support development is included in Section II.F.

The Department of Permitting Services (DPS) permits and regulates individual water supply and sewerage systems through its Zoning Division, Well and Septic Section, under [On-Site Systems Regulations](#), Executive Regulation 28-93AM, "On-Site Water Systems and On-Site Sewage Disposal Systems in Montgomery County.". Individual systems regulations consider new development as both new structures and expansion or replacement of existing structures. DEP has recently updated its webpages addressing onsite wells and septic systems: see [www.montgomerycountymd.gov/wellandseptic](http://www.montgomerycountymd.gov/wellandseptic).

#### **III.C.1. Individual Water Supply Systems**

An individual water supply system provides potable water to a single residential, institutional or commercial user, usually from a well located on the user's property. The system generally consists of a groundwater well with a submersible pump that connects directly to the user's home or business. The well is drilled down through rock to a depth substantially below the level of the water table. This allows the well shaft to store water for periods of increased water demand. As the pump removes water from the well shaft, groundwater flows in, replacing what has been used, although not necessarily at the same rate as it was withdrawn. The user may also require onsite water treatment and an above ground storage or pressure tank.

Most areas of the county do not require testing before drilling a new well. Permits from the County and State are required prior to drilling. A certificate of potability is required before a well is permitted to provide water for human consumption. Current standards for new development require that a user identify three well locations for each building lot, the initial well site and two reserve well sites for future use in the event of a well failure.

#### **III.C.2. Individual Sewerage Systems**

An individual sewerage system collects, treats, and safely disposes of sewage from a residential, an institutional or a commercial user, usually through an in-ground septic system located on the user's property. The first part of the system consists of a septic tank (connected directly to the user's building) where solids separate from liquid effluent and settle to the bottom of the tank. Proper septic system maintenance advises that an owner arrange for pumping solids from the tank at least once every two to five years. Liquid effluent from the tank flows into an underground drainfield, a network of trenches that distribute the effluent across a broad area below the ground surface. Aerobic bacteria in the soil below the drainfield provide the final step in the treatment process as the effluent percolates down from the drainfield. The treated effluent then flows into the water-saturated soil, also referred to as the water table.

Permitting for a new septic system requires a water table test and a percolation test. The water table test determines the depth from the surface of the ground to the water table, the soil saturated with groundwater. This is needed to insure adequate depth between the bottom of the septic system trench and the water table for aerobic bacterial treatment of effluent in the soil. Once septic effluent enters the water table, treatment by aerobic bacteria essentially stops. The percolation test determines the rate that septic effluent travels downward through the soil. If the percolation rate is too slow, effluent will back up in the system, leading to discharge to the surface of the yard or a backup into the building. If the rate is too fast (not typically a problem with soils in Montgomery County), effluent will not stay in the soil long enough for adequate treatment.

Most individual sewerage systems currently installed in the county for new development are deep-trench septic systems. Deep-trench systems are one of three types of “conventional” individual sewerage systems allowed for new development under current regulations. The others are shallow-trench septic systems (or shallow tile systems) and sand mound systems. In this context, new development refers to new buildings, replacement buildings, and to buildings with substantial additions. Innovative alternative (I/A) septic systems may be permitted only in order to replace failed systems. I/A systems may include elements such as more advanced first-stage treatment, aerobic treatment and/or pressure dosing systems that distribute effluent over several areas of the property on a scheduled, rotating basis. Additional discussion of individual septic systems and their characteristics is included in Chapter 4, Section V.

To address nitrogen contributions to the Chesapeake Bay from septic systems, the State had previously implemented a program that uses best available technology (BAT) for nitrogen removal for all new and replacement septic systems. BAT systems are installed in the septic tank and typically use an aeration process, needing electricity to run. The State requires homeowners with BAT systems to have a contract with a maintenance company to help ensure proper operation of the system.

In November 2016, the State revised the BAT program to require universal BAT system installation only in Bay Critical Areas. No Critical Areas exist in Montgomery County. Outside of Critical Areas, BAT systems will still be required for:

- All multiuse septic systems with a design capacity of 5,000 or more gallons per day.
- Any septic system as required by a local government in order to protect public health or the waters of the State.

State requirements for maintenance contracts and system warranties remain in effect for all BAT systems.

Acknowledging that individual systems have a finite lifetime, State and County regulations promote the sustainability of these water supply and sewerage systems by requiring the establishment of permitted areas for reserve or backup systems for a property to use when an existing system fails. As discussed in Section II.F., the policies included in this Plan intend that privately-owned, onsite facilities will provide water supply and wastewater disposal service for properties in the rural, “green wedge” areas of the County.

### **III.C.3.: Individual Systems with Interim Permits**

Not all properties intended and approved for community water and sewer service have access to community service mains. The extension of new community service mains has become increasingly expensive, especially for individual property owners. When a property owner needs to install a new or replacement individual system under this condition, DPS issues the permit for the onsite system as an “interim” permit. Individual systems with interim permits provide water and/or sewer service in areas where existing community systems are not adequate, not available, or not programmed to be provided within two years to six years (water and/or sewer categories 1 through 4). The following “General Conditions for Interim Permit Individual Systems” shall apply in these cases:

#### General Conditions for Interim Individual Systems

- Interim permit systems shall be determined by the County's DPS to be adequate, safe, and in compliance with State and local regulations, including COMAR 26.03.01, 26.03.05, and 26.04.02 - .04,

and COMCOR Chapter 27A, "On-Site Water Systems and On-Site Sewage Disposal Systems in Montgomery County";

- Interim Permits for individual onsite systems shall bear a notice regarding the interim nature of the permit and stating that connection to a community system shall be made within one year after such system becomes available, and that the construction of such interim systems shall in no way impede or restrict the extension of community sewerage and water systems or create a public health hazard or nuisance in the process; and
- Provisions shall be made to locate the individual systems so as to permit a future connection to the community system in the most economical and convenient manner.
- Construction of dry community water and/or sewerage systems where interim permit individual systems are installed is no longer a requirement of this Plan. Please refer to Section III.A.3. for relevant information concerning dry community systems.

### **III.C.4.: Individual Water and Sewerage Systems Problems**

Although designed to work for decades, individual systems will need regular maintenance, occasional repair, and eventual replacement. Ignoring needed maintenance and repairs will likely shorten the expected life of an individual system.

#### **III.C.4.a.: Individual Systems Failures**

When an individual, onsite system fails to function properly, the owner of that individual system has the responsibility for having it repaired or replaced. In some situations, the property owner becomes aware of a problem very quickly, such as when sewage backs up into the house. In other situations, a problem, such as a septic system installed partly within the water table, may go unnoticed for a longer period of time. A failure does not always require a complete system replacement to resolve; in some cases, other mitigation actions are sufficient to resolve a problem:

- A repair, such as replacing a broken pipe or a broken baffle in a septic tank.
- Improved maintenance, such as more-frequent pumping of the septic tank.
- User changes, such as better awareness of what can and cannot be put into the septic system and of clothes washing and bathing scheduling.

The repair and replacement of individual, onsite systems need to occur in accordance with County and State regulations, as administered by DPS.

#### **III.C.4.b.: Aging Individual Systems**

As housing stock and their individual, onsite systems age, the County makes every reasonable effort to transition these houses to new onsite systems to continue the use of onsite system service. This is consistent with master plan service recommendations and this Plan's service policies. This may place limitations on building expansions and other property improvements. However, some areas may face a potential problem in sustaining specific homes and businesses and perhaps entire neighborhoods that currently use these systems. Some of these neighborhoods, built in the 1950s and 1960s, were created using standards that allowed the use of individual systems:

- For lots that are now too small to support both wells and septic systems under current regulations.
- On soils inappropriate for septic systems under today's testing standards because of high water tables and shallow fractured rock.
- With sanitary system technologies that no longer satisfy current regulations, such as hand-dug wells, septic seepage pits and lagoons, and septic overflow pipes.

Wells installed prior to the County's current standards may have been hand-dug, may lack a protective liner (casing), or may be too shallow for adequate flows. Older wells sometimes lack an adequate separation (or setback) from buildings and septic systems.

Older onsite sewerage systems use several varieties of underground discharge structures such as seepage lagoons, dry wells, and seepage pits no longer allowed under current regulations. Some older septic systems include overflow pipes that prevented overloaded, failing systems from backing sewage up into buildings. Overflow pipes can allow untreated sewage discharges through the pipe either onto the ground surface or into drainages features such as ponds, streams or roadside swales. When discovered, overflow pipes need to be removed; and this may result in an eventual failure of the septic system.

State Individual Systems and Public Health Problems and County regulatory changes since the 1960s include requiring the identification of septic system reserve areas for future drainfields; septic system testing to avoid poor soils, shallow or fractured rock; and establishing adequate groundwater well setbacks from septic systems, structures, and water resources (streams, wetlands, etc.)

DPS may allow outdated wells and septic systems to serve existing structures provided they continue to function adequately. However, DPS has the option to require installation of a replacement well and/or septic system that satisfies current regulations in cases where:

- An existing well or septic system that suffers a failure or where such a failure is imminent.
- Property improvements (expansion or replacement of an existing structure, new swimming pool, etc.) are proposed that could constrain the location of existing or future onsite systems.
- Subdivision of an existing property served by individual, onsite systems will change property lines and affect allowed setbacks.

#### **III.C.4.c: Individual Systems and Public Health Concerns**

Existing public health concerns (as defined in this Plan) can result from the failure of existing individual, onsite systems. In addition, potential public health problems can occur where the County determines that onsite systems may not be capable of providing adequate water supply or wastewater disposal service in the future. Onsite system failures may result in problems that can affect public and environmental health due to contact with inadequately treated sewage or contaminated drinking water, or due to an inadequate drinking water supply. Existing onsite well failures typically result from an inadequate water yield or groundwater contamination. Existing onsite septic system failures are typically characterized by inadequately treated sewage on the surface of a yard or backing up into a building. Additional information on these subjects is provided in the Glossary in Appendix A.

Typically, properties served by individual systems are in areas planned for low-density development where access to community systems is not considered logical or economical. In many cases of individual system failures reported to DPS, relief is provided by an onsite repair or replacement, rather than by community service. However, in some cases where individual systems have failed, owners may not be able accomplish a repair or replacement consistent with current regulations, as determined by DPS. Changes to individual systems regulations over the past decades have resulted in improved standards for human and environmental health. However, these regulatory changes can have the potential to hinder efforts to replace existing individual systems with new systems that satisfy current standards. Section II.G.2. of this chapter discusses the conditions where community service can be used to relieve public health problems resulting from individual systems failures.

#### **III.C.4.d.: Onsite Systems Management Program**

The County has seen a shifting emphasis in community planning from major new development expansion to infill and redevelopment of existing neighborhoods. A similar approach—changing emphasis from major expansion of the community service envelopes towards more neighborhood-based efforts—will be required to address the sustained use of individual systems in the Water and Sewer Plan. This will be important in areas where potential sanitation problems from aging individual systems have the potential to affect older neighborhoods and to affect rural neighborhoods where water supply and wastewater disposal service is presumed to use individual, onsite systems, rather than community water and sewerage systems. Onsite wells and septic systems all need routine maintenance to promote sustainability.

In Montgomery County, once a well or septic system is installed and operating, there will very likely be no further contact between the owner and the County government regarding that system until it fails. There have been

minimal opportunities for public education, and there have been no regular maintenance reminders, inspections, or testing. Accordingly, the County has initiated an onsite systems management program to promote the long-term sustainability of individual onsite wells and septic systems. The County Council approved the program as part of the 2018 update of the Water and Sewer Plan.

Improving the way in which the County government addresses rural sanitation issues and public health problem cases resulting from the failure of wells and septic systems will require approaches from several fronts. The combined efforts of several agencies will be needed, including DEP, DPS, M-NCPPC, WSSC Water, and MDE. While DPS maintains the responsibility for permitting and regulating individual systems in the County, that agency is not charged with performing systematic, long-range planning for rural sanitation systems management. Other than the designation of areas intended for service from individual systems and addressing public health cases, recent versions of the Water and Sewer Plan (prior to the 2018 update) have had little to say about rural sanitation planning. This Plan update is taking the first steps towards addressing that oversight.

#### **Water and Sewer Plan Recommendation: Individual Onsite Systems Management**

An onsite systems management program will be important for maintaining both human and environmental health in areas where 1) potential sanitation problems from aging individual, onsite systems have the potential to affect older neighborhoods, 2) and where rural neighborhoods are located outside the effective reach of community water and sewerage systems.

The County has worked on the development of a functioning onsite systems database that will inventory and maintain ongoing records of the existing wells and septic systems throughout the county. Following the database development, the County has begun an outreach program to property owners who have onsite wells and septic system. This initial outreach will direct owners to DEP's webpage for well and septic systems and provide an opportunity to register for email delivery of additional outreach information.

Furthering this effort, DEP has developed legislation that will require property owners to pump-out their septic tanks at least once every five (5) years. Periodically pumping solids out of the septic tank is one of the most straightforward ways to ensure proper functioning of a septic system. This pump-out interval a common feature of many onsite systems maintenance programs throughout the country. DEP's proposed legislation also proposes a partial reimbursement for the pump out cost for property owners credited from the Water Quality Protection Charge. For each documented septic tank pump-out, the County will receive an impervious area reduction credit towards its Municipal Separate Storm Sewer System (MS4) Permit Program.

Beyond these steps, the County may consider in the future an ongoing inspection program that would require periodic inspections on onsite septic systems to try to identify potential failures before they become critical problems. Another possible step in a management program would be requiring that properties using wells and septic systems that have existing access to water and sewer mains to connect to community systems.

Addressing the concerns of some neighborhoods that rely on individual onsite systems may require new and innovative solutions that may include, but are not limited to:

- Alternative community distribution, collection and treatment systems;
- Shared water and/or sewerage systems owned by local communities and operated by authorized agencies or utilities (see Section III.D.);
- Alternative financing for relief systems (community or otherwise), including but not limited to special assessment subdistricts, grants or loans from government resources, or utility subsidies;
- Programs to assist lower-income individuals and communities in financing required relief systems.



At the request of the County Council, the County's Office of Legislative Oversight (OLO) researched the use of onsite systems management programs throughout the country. OLO's investigation has resulted in a report to the Council titled, "[Life-Cycle Regulation for On-Site Wastewater Treatment Systems](#)" (OLO Memorandum Report 2017-5). The OLO report presents background about individual onsite systems; addresses five management models developed by the U.S. Environmental Protection Agency; presents four case studies on management systems from Florida, North Carolina, Ohio, and Virginia; and provides OLO staff observations based on the information gathered. DEP staff have supplemented OLO's efforts with a report titled "Review of Conventional Onsite Treatment System Laws and Regulation" (February 2021). This report provides a more recent and broader inventory of onsite systems management programs in Maryland, neighboring states, and more distant jurisdictions.

### **III.C.5.: General Policies for Multiuse Water Supply and Sewerage Systems**

Most individual systems in the county serve residential uses; a typical four-bedroom house needs a septic system with a design capacity of 600 gallons per day (gpd). However, some individual systems in the county have substantially larger design capacities. This Plan identifies "multiuse systems" as individual, onsite systems having a design capacity that equals or exceeds 1,500 gpd. Multiuse systems are generally provided for commercial or institutional uses in areas not intended to use individual systems, not community water and sewer service.

The term "multiuse", as established by State regulations, refers to onsite systems owned and operated by a single user, not to an onsite system with more than one user. (That type of onsite system would more likely be classified by the State as a "shared system", as discussed in Section III.D.) For the purposes of this Plan, multiuse systems include the following:

- A single water supply and/or sewerage system serving a single property;
- A single water supply and/or sewerage system serving two or more commonly-owned, contiguous properties with a common function (religious institution, nursing home, etc.);
- More than one water supply and/or sewerage system serving a single property with a cumulative design capacity of 1,500 or more gpd.

Most multiuse water supply systems use groundwater wells. Most multiuse sewerage systems are septic systems with large design capacities. Other types of multiuse sewerage systems are discussed in Chapter 4. Refer to Appendix B for the inventory and characteristics of the County's multiuse water supply and sewerage systems.

#### **III.C.5.a.: Multiuse System Flow Requirements**

Multiuse water and sewerage systems are defined by the systems' design capacity. The design capacity of a multiuse water supply system is the maximum water flow the system is designed to deliver to the user in one day. The design capacity of a multiuse sewerage system is the maximum waste flow that the system is designed to collect and either treat or store in one day. Septic tanks—the first stage in the sewage treatment system—are designed to hold twice the design capacity, or two days' worth of flow. The design capacity is sometimes referred to as the "peak capacity" of the system.

The County's adopted multiuse system minimum design flow requirement of 1,500 gallons per day (gpd), is more stringent than the State's requirement of 5,000 gpd. The County adopted this lower flow threshold in order to give the County better information on the location of individual, onsite systems with capacities in excess of those required for strictly residential uses. This will help the County identify areas where several multiuse systems together may create cumulative impacts on ground and surface waters which would be difficult to evaluate on a case-by-case basis. The identification of these systems in the plan also allows for a more comprehensive review of proposals for multiuse systems in areas where the provision of community service is not anticipated.

In some cases, DPS may allow users to reduce the size of their septic drainfields by a technique referred to as "flow averaging." This technique is used for facilities that have a substantially more intensive use on one or two days in a week, such as a place of worship. Flows from peak use days are stored and released at a slower,

daily rate throughout the rest of the week. The County will still classify qualifying systems as a multiuse sewerage system based on the design flow, not the lower daily discharge flow.

### **III.C.5.b.: Approval and Regulation of Multiuse Systems**

All multiuse systems in the County must be approved as formal map and text amendments to this Plan. Multiuse systems are identified in Appendix B of the Plan text, and on the water and sewer category and systems maps. The provision of such systems will be consistent with the protection of surface and ground waters and shall require the concurrence of the DPS. In order to ensure this protection, DEP may, upon consultation with the DPS, require hydrogeologic studies of the potential effects of the proposed systems on ground and surface water resources.

### **III.C.5.c.: Policy Constraints on Multiuse Sewerage Systems Capacities**

The characteristics of the land on which they sit (permeability, water table depth, etc.) typically constrain the approval and use of individual septic systems. The County has established additional limitations on individual wastewater systems use in the Agricultural Reserve (AR) Zone. These limitations exist to encourage land uses that protect the environment and conform with the character of the low-density, rural nature of the County's agricultural lands, as envisioned by the Agricultural and Rural Open Space Master Plan (1980).

#### Design Capacity Restrictions

The maximum design capacity for new multiuse sewerage systems serving properties in the AR Zone must not exceed the lesser of the following capacity limits:

- No more than 4,800 gallons per day (gpd); or
- The equivalent design capacity from the potential residential development of the site under the current zoning requirement standards. The equivalent residential design capacity calculation will be based on the design capacity for a four-bedroom single-family house: 600 gallons per day (gpd), or 150 gpd per bedroom. Examples:
  - A property in the AR Zone that could accommodate 4 homes, or dwelling units (d.u.), under the zoning standards, with 4 TDRs retained, would be allowed to pursue permitting of a multiuse sewerage system with a maximum design capacity of up to 2,400 gpd (6 d.u. x 600 gpd/d.u. = 2,400 gpd).
  - A property in the AR Zone that could accommodate 12 homes, with 12 TDRs retained, would be allowed to pursue permitting of a multiuse sewerage system with a maximum design capacity of up to 4,800 gpd. A design capacity of 7,200 gpd (12 d.u. x 600 gpd/d.u. = 7,200 gpd) for the maximum theoretical yield for the property exceeds the overall maximum design flow limit of 4,800 gpd.

#### Exemptions from Design Capacity Restrictions

The following systems and uses are exempt from the design capacity limits for individual, multiuse systems in the AR Zone established previously under this section.

- Small Onsite Systems – Onsite sewerage systems with a design capacity of less than 1,500 gpd, which do not qualify as multiuse sewerage systems under this Plan;
- Agricultural Uses – Permitted agricultural uses, either by right or by special exception;
- Public Facilities – Publicly-owned and/or operated uses; and
- Existing System Expansion – The expansion of existing onsite sewerage systems, provided each of the following criteria are met:
  - The ownership of the property has not changed since February 14, 2006;
  - The property acreage has not been increased since February 14, 2006; and
  - The use of the property has not changed since February 14, 2006, as determined by the Department of Environmental Protection and the Department of Permitting Services. Documentation for this purpose may include permits, consent agreements, or covenants related to the establishment of the subject individual septic system.

The preceding design capacity restrictions are not intended to obstruct the replacement or repair of existing multiuse sewerage systems in the AR Zone. This Plan favors the onsite repair and replacement of multiuse systems in the AR Zone over the extension of public water and sewer service, provided that the onsite system adequately protects public health and environmental quality.

### **III.C.6. Non-Potable Onsite Water Supply Systems**

Non-potable well water systems provide a water supply for irrigation, watering farm animals, and other activities not related to human consumption. These wells can be established in areas of the county designated as categories W-4, W-5 and W-6 with the appropriate permits from DPS and MDE. Requests for non-potable wells in areas served or intended to be served by community water supply systems (categories W-1 through W-3) are addressed by DEP on a case-by-case basis through its:

- Consideration of its consideration of onsite system exceptions for properties designated as water categories W-1 and W-3'
- Review and sign-off on State Water Appropriation and Use Permit applications.

### **III.C.7.: State and County Responsibilities**

The State of Maryland, through MDE, has delegated much of the permitting and oversight responsibilities for individual water supply and sewerage systems in Montgomery County to DPS, specifically through the Well and Septic Section. However, the State's permit approval is still required for multiuse systems with a capacity of 5,000 or more gpd. In cases where an MDE-issued State Water Appropriation and Use Permit is required to establish a well or wastewater disposal system, DEP is responsible for the County's approval of applications for those permits.

### **III.D.: Shared Water and Sewerage Systems**

A shared system serves two or more independently owned properties with a water supply system (water source, treatment and transmission to users) and/or sewerage system (collection from users, treatment and discharge). The components of shared systems are owned collectively by those served by the system (such as a community or homeowners association). The system is operated and maintained by a public or quasi-public agency as approved by the State and County. The concept involves shared systems that include small rural residential neighborhoods or two or more rural commercial and/or institutional uses. Montgomery County neither has any existing shared systems nor a mechanism to approve and establish them at this time.

## **IV.: WATER AND SEWERAGE SYSTEMS FINANCING**

The following sections provide a summary of financing methods for the three community water supply and sewerage systems serving Montgomery County: the WSSD, the City of Rockville, and the Town of Poolesville.

### **IV.A.: Washington Suburban Sanitary District**

The planning, design, land acquisition, and construction of water supply and sewerage system infrastructure is financed by two separate programs in the WSSD: the Major Systems and General Construction Programs.

#### **IV.A.1.: Major Facilities Program**

The WSSC Water major facilities program includes projects adopted in the WSSC Water CIP: water and sewage treatment plants, pumping stations, storage facilities, and program size mains. Program size mains are water mains 16 inches in diameter and larger and sewer mains 15 inches in diameter and larger. WSSC Water finances these projects through water supply and sewage disposal bonds, developer contributions, systems development charges (SDC), grant funds, Maryland Department of the Environment Water Quality State Revolving Loans, and other less significant sources. Bonds to construct program-size facilities (not attributed to growth) are amortized through revenues generated primarily by basic water and sewer user charges. Rate-supported debt is used to fund capital projects providing general system and environmental regulation-related improvements. Capital projects which support only new system growth are constructed through the System Extension Permit (SEP) process with either SDC funds or solely financed under Memoranda of Understanding (MOU) by the Applicant/developer, or are constructed by WSSC Water with SDC funds, so that current water

and sewer user rates do not support new growth. This also applies to capital projects which only in part support new growth. For the construction of major facilities, WSSC Water provides credit against SDC fees (in the amount of 50 percent of the estimated total construction fees) to the developer financing capital projects. Once the developer completes construction and WSSC Water performs a final audit, WSSC Water initiates quarterly reimbursements based on available SDC funds in the geographic area served by the facility.

In certain cases, WSSC Water may authorize a developer to not only construct, but to also maintain and operate, elements of the community system. Most often, these are private, onsite, central wastewater pumping stations serving commercial development. WSSC Water may also authorize the construction of private interim wastewater pumping stations to serve residential development pending the construction of permanent, WSSC Water-owned and -operated facilities. WSSC Water shall coordinate the approval of these private facilities with DEP prior to their authorization, especially where those facilities could appear, or have appeared, as projects in the WSSC Water CIP.

#### **IV.A.1.a.: Water Consumption and Sewer Usage Charges**

These charges are both based on metered water consumption, with the rate charged per 1,000 gallons determined by the customer's Average Daily Consumption (ADC) during the billing period. WSSC Water has a four-tier rate structure that is approved annually prior to the beginning of the fiscal year. WSSC Water's bills also include an account maintenance fee and infrastructure investment fee, based on the size of the service meter, covering the basic cost of maintaining a customer account and contributing to the infrastructure reconstruction costs.

WSSC Water uses revenue from these sources to maintain and operate the water supply and sewerage systems and to pay the principal and interest on:

- Water Supply Bonds which are issued to finance the planning, design, and construction of capital facilities: dams and reservoirs, filtration plants, water pumping stations, water storage facilities, and large supply pipelines (from water source to filtration plant and from plant to local distribution lines); and
- Sewage Disposal Bonds, which are issued to finance the planning, design, and construction of capital facilities: trunk lines, sewage pumping stations and treatment facilities (including contributions to construction costs paid to the District of Columbia Water and Sewer Authority for any construction/improvement of the regional system used by the WSSC Water).

WSSC Water reviews and establishes the water and sewer rates annually as part of its operating and capital budget process. The County Councils of both Prince George's and Montgomery Counties then must review and approve these budgets.

#### **IV.A.1.b.: Systems Development Charge**

WSSC Water assess the Systems Development Charge (SDC) to new customers within the WSSD to pay for capital improvements of the water and sewerage system to accommodate growth. Starting in July 1998, the Maryland General Assembly approved an increase in the allowed SDC fees, changes to the SDC calculation, and changes to the criteria addressing who is required to pay the charge. WSSC Water exempts existing houses from the SDC requirement if both the house and the main providing service predate the establishment of the SDC in 1993.

Maryland has established a program to grant full or partial exemptions from the SDC for four types of development projects:

- biotechnology projects,
- elderly housing projects,
- youth education projects, and
- revitalization area projects.

Youth education is an additional category that refers to projects on properties used primarily for recreational and educational programs, for services to youth, and for child-care and after-school care.

Under this program, Montgomery County may authorize up to \$500,000 in SDC exemptions annually; the County has established that each individual development project considered is eligible for a maximum exemption of \$50,000 per year. The exemption program is administered by and additional information is available from the County's Department of Permitting Services (see Appendix D).

Maryland has also established a program to grant exemptions from SDC for affordable housing projects. Customers requesting SDC exemptions for proposed construction of affordable housing units submit their requests to the County, which reviews their request to determine if the proposed building(s) meets the legislative criteria for a SDC exemption established in the Annotated Code of Maryland, under Division II of the Public Utilities Article. Once the County determines that the designated affordable housing units qualify for this waiver, the County mails a written request to WSSC Water requesting the waiver for the applicant. WSSC Water's issuance of a waiver is solely based on the County's assertion that the units meet the SDC exemption criteria.

#### **IV.A.1.c.: State Funding**

As part of the Chesapeake Bay Program, the State of Maryland previously provided limited funding for nutrient removal at existing wastewater treatment plants. Starting in 2004, the State assesses a fee on all wastewater system users with the intent of providing a funding source for programs to reduce the effects of wastewater disposal on the Chesapeake Bay. The Bay Restoration Fund collects a fee totaling \$60.00 annually from users served by wastewater treatment plants. These fees are estimated to generate annual revenues of \$65.0 million for treatment plant improvements. The focus of the program will be on the 66 major facilities discharging in the Bay and its tributaries, although other facilities may also be addressed. The program also collects an annual fee of \$60.00 from households using septic systems. This part of the program will generate annual revenues estimated at \$12.6 million that will be used to upgrade septic systems—with its highest priority on failing systems in the Bay's Critical Areas—and to provide cover crops. The program also provides grants for service connection costs for property owners abandoning onsite septic systems and connecting to community sewer service. Funding for septic systems outside the Critical Areas (such as in Montgomery County) are a relatively low priority for the program.

Additional information on the funding of WSSC Water's water and sewerage infrastructure is available from the WSSC Water Budget Division.

#### **IV.A.2.: Local Service Extension Programs**

These WSSC Water programs allow for the construction of smaller, non-CIP-sized water and sewer mains, primarily along streets adjacent to or abutting users' properties. Capital-sized water and sewer main extensions up to 2,000 feet in length can be considered as local service extensions and may be funded using this method. Funds are provided primarily through developer contributions and to a lesser extent through general construction bonds. Developer financing of new water and sewer mains is required under the System Extension Permit (SEP) process. For water and sewer mains constructed by WSSC Water, the general construction bonds are financed by front foot benefit assessment charges and deficit payments

##### **IV.A.2.a.: Developer-Built Projects**

Legislation approved by the Maryland General Assembly in 1998 phased out the traditional front foot benefit assessment financing mechanism (see Section IV.a.2.b, following) for most service projects in the WSSD. This made developers responsible for designing, financing, and constructing all new main extensions serving residential subdivisions of two or more homes, any commercial use, and any institutional facilities. The law provides for exceptions to this requirement for individual homes or properties and to relieve health hazards. The applicant then dedicates the completed mains to WSSC Water for operation and maintenance. WSSC Water's procedures for developer initiated main extensions are included in the "System Extension Process (SEP)" section of its Development Services Code of Regulations.

Developers typically recoup their costs for new mains by levying a private version of the front foot benefit assessment. Private water/sewer infrastructure assessments are not regulated by either WSSC Water or the County. As with many costs and fees associated with property ownership, there is a requirement for the disclosure of the water/sewer assessment at the time of sale of a new property.

**IV.A.2.b.: WSSC Water-Built Projects**

WSSC Water's regulations provide for service extensions to be designed and constructed by the Commission for individual property owners and for communities with documented health hazards. This process, which is known as the "WSSC Water Built Process", provides an avenue for existing homeowners in communities without public water or sewer service to request service extensions from WSSC Water. Although the cost of design and construction of service extensions requested through WSSC Water's Built Process must be borne by project the homeowners who are applying for service, WSSC Water provides a subsidy for communities that are experiencing documented health hazards. Under this system, extension costs are financed through General Construction Bonds issued by WSSC Water to construct these local water and sewer lines. Property owners pay back the principal and interest on these bonds to WSSC Water through front foot benefit assessments and project deficit charges.

This process has gone largely unused during the past ten to fifteen years owing to escalating costs for these projects. Front-foot assessments from larger subdivision projects that now use the SEP program no longer subsidize extension costs for these smaller projects. Prior versions of this Plan, including the 2018 update, provide more details about this program.

**IV.A.2.c.: Efforts to Address Underserved and Unserved Communities**

The high costs of new water and sewer main construction often make service extensions unaffordable for most individual property owners. The excessive cost of main extensions has detrimental effects the County's water and sewer planning efforts. The lack of affordable community service tends to force homeowners towards using individual, onsite systems in areas either where the County's water and sewer planning policies intend the use of community service or where community service would relieve public health problems. Given these conditions, WSSC Water can no longer fulfill its responsibility to provide community water and sewer service to areas designated for such service by the County as applied to individual properties.

Current Extension Cost Issues

Legislative changes to the Public Utilities Article adopted by the Maryland General Assembly in 1998 resulted in sharply escalating main extension costs where they were financed through the WSSC Water-built extension program. Those changes moved the responsibility for water and sewer main construction and financing to developers and property owners. Under the WSSC Water-built system prior to 1998, water and sewer service extensions were financed by WSSC Water ratepayers, with a portion of the costs for most development projects recovered through the front foot assessment financing system and the remaining deficit cost charged to the applicant. Larger subdivision projects, where extensions were generally less expensive to construct per foot of new main, tended to subsidize the smaller, more expensive extensions for individual homes. With the implementation of the System Expansion Process (SEP) program, WSSC Water lost the major sources of front foot revenues. Without that subsidy, individual applicants using the WSSC Water-built extension program now bear all of the true cost of these service extensions.

The General Assembly also enacted changes in the law that eliminated the mandatory connection requirement for all homeowners with access to a newly constructed public water and sewers. This change has made it difficult to address underserved properties on a community basis because homeowners have to voluntarily agree to share in the costs of a service extension.

Applicants have found that even relatively short service main extensions have become financially prohibitive. Front foot assessment rates have not kept pace with the loss of revenues from subdivision projects and with the escalation of extension costs. As a result, front foot assessments no longer pay for new extension projects. Deficit charges, paid only by the project applicant to fill the financing gap, have risen substantially beyond the reach of most property owners, even though WSSC Water now allows applicants to pay the deficit charge cost over time.

WSSC Water's health hazard subsidy's value has not changed since WSSC Water instituted it the 1970s, making it worth less and less over time as compared to rising extension costs. Further, WSSC Water's current policies allow front foot assessment charges to offset the health hazard subsidy, which substantially reduces or eliminates the subsidy's practical usefulness.

The fact that no new WSSC Water-built projects have been initiated in at least fifteen years highlights these extension financing problems.

System Expansion Process (SEP) projects can be used by both developers and individual property owners. For individual owners, however, the SEP program requirement that applicants provide their own engineering, project management and financing for projects can easily result in total costs in the hundreds of thousands of dollars. In some cases, extension costs have exceeded the assessed value of an individual property. The technical resources needed for these projects are also beyond the reach of most homeowners, requiring the engagement of contractors such as engineering firms. This situation has resulted in the technical and financial infeasibility of water and sewer extensions for existing houses even when service is needed.

**Water and Sewer Plan Recommendation: Unserved and Underserved Communities**

The extension of community water and sewer service must be a reasonably affordable and competitive alternative to individual, onsite systems for individual property owners located within those areas of the county intended by this Plan for community water and/or sewer service. The Unserved and Underserved Communities Subgroup is working to develop an alternative to the WSSC Water-Built main extension program that will seek to an affordable water and sewer main extension process for individual property owners.

Unserved and Underserved Subgroup of the Bi-County Infrastructure Financing Committee

A working group of WSSC Water, Montgomery County, and Prince George's County staff began to examine the preceding issues in 2006 with the intent of finding a solution to the extension financing issue for individual property owners. The results of this effort raised many issues to the WSSC Water management, but it was felt that the issues were significant enough that a broader Bi-County–WSSC Water approach to possible solutions was needed. A new working group started in 2012 as the Unserved and Underserved Communities Subgroup, an offshoot of the WSSC Water Bi-County Infrastructure Financing Group. The subgroup examined problems with existing financing systems and concluded the following:

- That Montgomery and Prince George's counties both have thousands of properties within their planned community service envelopes that are either unserved (lacking community water and sewer service) or undeserved (lacking either community water or in most cases sewer service).
- That changes to the main extension financing system had left the WSSC Water-built main extension program broken and not workable in its current form.
- That WSSC Water and the Counties need to develop a new financing system that will again allow for affordable main extensions.
- That WSSC Water and the Counties need to reexamine and update the WSSC Water health problem subsidy.
- That all properties potentially and directly benefitting from a new main extension need to pay their fair share of the cost of that main front foot benefit assessments need to be based on all benefitting property owners (abutting the new main) paying their proportional costs.
- That WSSC Water and/or the Counties will need to subsidize costs for new extensions to existing, individual properties to assist in making them affordable.

The working group's 2014 initial report to WSSC Water and the Counties, "Water and Sewer Extension Needs for Existing Neighborhoods", recommended a financing alternative identified as "subdistrict projects." In brief, under this new concept, a County would identify a qualifying area within the planned community service envelope in need of a new water and/or sewer main extension. The need for new service may occur due to health problems in the area or a recognized need for service on the part of property owners. Property owners in the candidate subdistrict would need to provide some level of agreement with establishing the subdistrict. On the recommendation of the County Executive, the County Council would decide to identify this area, as an extension subdistrict in the County's Water and Sewer Plan. If approved, WSSC Water would begin the process to design and build the needed main extensions.

Following the preparation of the 2014 subdistricts report, the effort to create a new extension financing system stagnated for several years. In late 2018 a new WSSC Water and bi-county working group formed to reexamine

the unserved and underserved (U&U) communities issue. There was a concern that the prior subdistrict proposal would still result in unaffordable costs for new community service. This working group focused more closely on the financing issue, looking for alternate revenue sources to help offset the high costs of new main extensions. Several proposals are currently under consideration, including rate payer subsidies from WSSC Water, subsidies from County property tax revenues, and State grants and low-interest loans. However, in ongoing discussions the working group members have recognized that the subdistrict concept may still have value in organizing service extension locations and specific projects.

The workgroup has also developed a general implementation plan for this extension concept that includes a proposed financing system for the proposed main extensions. Implementation would divide financial responsibilities for new main extensions between affected property owners, the Counties, and WSSC-Water. State and Federal funding would also be pursued, as available. The workgroup presented its findings to WSSC Water Commissioners, both County Executives, the Prince George's County Council, and the Montgomery County Council Transportation and Environment Committee, receiving support to move forward with its proposals from each.

#### **IV.A.3: Service Connection Fees**

These fees are paid with the property owner's application for a WSSC Water service connection installed between the water and/or sewer main and the customer's property line. WSSC Water uses a two-tiered connection fee system, based on whether a connection is installed either during or after water and sewer main construction. The differing fees reflect the fact that service connections are substantially cheaper to install while a new main is under construction. Adding connections to already built mains will involve new excavations, tapping the existing main, and possibly breaking and repairing street pavement. WSSC Water's charges for "improved" connections added onto completed mains are approximately three to four times the utility's fees for "non-improved" connections built onto a main during construction. WSSC Water sets these fees based on the average cost of such connections throughout its service area.

To assist residential property owners with escalating service connection fees, WSSC Water offers a deferred payment option which allows residential customers to defer the cost of water and/or sewer service connections to their annual tax bill over a period of 23 years. For additional information and current connection fees, refer to the "Customer Service" pages on WSSC Water's website at [www.wsscwater.com](http://www.wsscwater.com). MDE, through the Bay Restoration Fund (BRF) offers grants for sewer service connections for properties converting from septic system service to community sewer service. BRF funds are allocated to the County on an annual basis and can be used until the annual fund allocation runs out. Funding is coordinated through DPS.

Onsite water and sewer utilities (hookups), non-abutting (offsite) utilities, and any onsite booster, ejector, or grinder pump systems are financed solely by the property owner or developer.

WSSC Water does not regulate service connection costs on SEP projects for new customers. Further, developers are under no obligation to offer new service connections to owners of existing properties along the right-of-way of a new SEP-built main. This presents yet another disincentive for property owners using individual, onsite systems to convert over to community service when it becomes available. Potential new customers typically cannot connect to a new SEP main until after it is completed and dedicated to WSSC Water. As a result, WSSC Water charges these connections at its more expensive "developed area" rates. This practice also raises concerns about the Plan's now unenforced requirement that users of interim permit, individual systems (Section III.C.3.) connect to community service within one year of the time that community service becomes available.

#### **IV.A.4.: Aging Infrastructure Costs**

With growing concerns about aging water and sewer mains, WSSC Water has instituted an infrastructure investment fee to the agency's quarterly bills. As of July 1, 2017, residential customers pay a \$12.00 per quarter charge, or \$48.00 annually. These funds, paid by all WSSC Water customers, will finance the Commission's ongoing programs to repair and replace water and sewer mains that are reaching the end of their usefulness. WSSC Water evaluates priorities for these programs through its Asset Management Program. Please see Section III.A.7. for additional information.



**IV.B.: City of Rockville**

Rockville's water and sewer systems are supported by enterprise funds (Water Fund and Sewer Fund). Rockville uses enterprise funds to account for operations financed and operated in a manner similar to private business enterprises where the cost of expenses, including both operations and capital are financed or recovered from the users of the services rather than general taxpayers. The Water and Sewer fund budgets are presented on the full accrual basis of accounting, with revenue being recognized when earned and expenses being recognized when they are incurred. It is Rockville's policy to fund current operating expenditures with current year revenues, inclusive of debt service. A five-year projection of revenue and expenditures for the Water and Sewer Funds is prepared each fiscal year to provide strategic perspective to each annual budget process. Rockville establishes annual fees and rates for the Water and Sewer Funds at levels which fully cover the total direct and indirect operating costs and all capital outlay and debt service.

Revenue for the Water and Sewer Funds is comprised of usage charges, ready to serve charges, capital contribution charges, miscellaneous service charges, interest, and accumulated earnings. Usage charges are billed quarterly or monthly to customers based on the size of the water meter and metered water consumption. Rockville is currently considering reconfiguring its rate structure based on class of service (i.e., single family, multi-family, non-residential) as opposed to the size of the meter. The structure will be tiered based on usage. The ready to serve charge is a fixed fee, based on the water meter size, and is billed quarterly or monthly. The ready to serve charge is increasing at a faster rate than the usage charge to support the fixed fee expenses of the infrastructure renewal programs.

Rockville City Code (Section 24-53) requires applicants to pay a capital contribution charge when making a new connection, or upsizing an existing water meter, to Rockville's water or sanitary sewer systems. The amount of the charge is established by resolution of the Mayor and Council. It provides for a partial credit if the meter is being upsized. The capital contribution charge, which must be paid before the connection is made, is intended to recover the unit cost of capacity from new or enlarged connections to the water and/or sewer systems.

The City makes payments to WSSC Water for operating and capital expenditures at the Blue Plains WWTP, which in turn WSSC Water pays to DC Water. Operating expenses are initially billed based on estimated costs and flow rates. These expenses are periodically reconciled based on actual Blue Plains operating expenses and actual wastewater flow rates. Capital expenses at Blue Plains WWTP are billed based on Rockville's treatment capacity, which is 9.31 MGD. Capital expenses within DC Water outside of the treatment plant are based upon actual flow within the sewer system. These are characterized as "Outside the Fence" projects such as the Potomac Interceptor.

The reserve policy for the Water and Sewer Funds provides for Rockville to maintain a cash reserve equal to six months of operating expenses for each fund. However, the Water and Sewer Funds are currently not compliant with this policy. Over nearly the last ten years Rockville's significant investments to rehabilitate and replace Rockville's aging water and sewer infrastructure; as well as the significant capital investments and process improvements at Blue Plains; have outpaced the revenue. Rockville uses a sophisticated rate model to assess revenue and expenditures over a ten-year period and to establish water and sewer usage rates, as well as the ready to serve charges. Rockville anticipates compliance with the reserve policy by the end of FY2023 for the sewer fund and FY2024 for the water fund.

**IV.C.: Town of Poolesville**

The Town of Poolesville uses several methods to fund construction and operations of its water and sewerage systems. The funding mechanisms consist of combined water and sewer user fees, impact fees on new construction, and developer-funded water system extensions. The Town has adopted escalating variable water and sewer rate schedule costs, which increases with increased water usage, to cover operation and maintenance. The escalating variable water and sewer usage fees are based on metered water use and were established to promote water conservation. According to the Town of Poolesville, as of 2021, the combined water and sewer fee is \$11.48 per 1,000 gallons of water used during the quarterly billing period. When revenues do not cover the cost of the system, they are supplemented with revenues from the general tax fund. The Town does not levy front foot benefit assessments. Developers are responsible for building the local water and sewer service mains. Facility expansions are funded through impact fees on new construction.

**IV.D.: Individual Systems Financing**

Property owners and developers using individual, onsite systems, such as wells and septic systems, pay for the planning, testing, permitting, and installation of those systems. The issue of replacing aging individual, onsite systems is discussed in more detail in Section III.C.4.b. Repair and replacement costs for individual, onsite wells and septic systems also fall to the property owner. Of concern is the property owners' ability to finance the cost of replacement systems. Currently, this is in general less costly than extending community service; however, the costs involved with drilling a new well or installing a new septic system are not inconsequential, running as much as \$20,000 for a complete replacement of a deep trench septic system. The need for sand mounds, pumping systems, or advanced treatment systems (aerobic pre-treatment, dosing, etc.) may add substantially to the cost of a replacement system.

Property owners do not always plan for the costs involved in replacing an individual, onsite water and sewerage system. This is sometimes nurtured by an attitude that wells and septic systems offer "free" service to their owners, as opposed to the utility billing for community service. Also, someone who occupies a house using individual systems for only a few years may not have to consider this expense at all, handing it off instead to the next owner or the one after.

**V.: PROCEDURES FOR ADOPTING AND AMENDING THE WATER AND SEWER PLAN**

Under State law, the authority to adopt and amend the *Comprehensive Water Supply and Sewerage Systems Plan* resides with the Montgomery County Council. State law requires that the County Executive—working through the Department of Environmental Protection (DEP)—recommend, and that the Council adopt, a comprehensive update of the Water and Sewer Plan at least once every three years. Prior to this current update, the Council approved the most recent comprehensive Plan update in 2018.

The County also considers amendments for specific parts of the Plan on a regular basis during the time between the comprehensive updates. These amendments usually involve:

- Requests from property owners to change water and sewer service area categories.
- Proposed service area category changes originated by the County to address area-wide category changes or category map corrections.
- Final category change approvals for changes first granted a conditional approval.
- Text amendments that update either technical and informational issues or involve Council-approved policy issues.

The following sections address the processes for comprehensive Plan updates and Plan amendments.

**V.A: County Election-Year Prohibition**

This Plan prohibits the County Council, or any committee of the Council, from holding a public hearing for or from deliberating or acting on any comprehensive update to the *Comprehensive Water Supply and Sewerage Systems Plan* after October 31<sup>st</sup> of a year in which the Council is elected (2022, 2026, etc.) until the newly elected Council has taken office. A similar prohibition applies to the Council's consideration of Plan amendments (see Section V.D.1.). The administrative delegation process for Plan amendments (see Section V.D.2.), conducted by DEP, is not affected by this provision, neither is an individual Council member's required review of amendments under the administrative delegation process.

**V.B.: Triennial Water and Sewer Plan Comprehensive Update**

The following provides an outline of the current process involved with preparing and adopting the triennial comprehensive update of the Water and Sewer Plan.

- The Preliminary Staff Draft Plan developed by the Intergovernmental Affairs Division of DEP, incorporates all Plan amendments approved since the last comprehensive update, revisions suggested by DEP staff, and technical updates solicited from State, County, and municipal agencies. DEP circulates the Preliminary Staff Draft Plan to the reviewing agencies and municipalities. The

comprehensive update provides an optimal opportunity to incorporate into the County's Plan the subsidiary plans of the municipalities. DEP staff address and, as necessary, incorporates agency comments into the Plan to Create the DEP Staff Draft Plan for consideration by the County Executive.

- Upon the review and concurrence of the County Executive, the update becomes the Executive Draft Plan, which is then transmitted to the County Council for its consideration. At that time, the Executive Draft Plan becomes a matter of public record.
- The County Council schedules a public hearing on the Executive Draft Plan, conducted by either the full Council or the Transportation, Infrastructure, Energy, and Environment (T&E) Committee.
- After the hearing record is closed, the T&E Committee holds work sessions to consider the draft plan, agency comments, and public testimony provided during the hearing process.
- The Plan with the T&E Committee's changes incorporated becomes the Final Draft Plan, which the County Council, as a body, will consider for adoption.
- Once adopted, the draft becomes the Council's Approved Plan. The County Executive then has ten (10) working days to review the Council's action and, if necessary, to request reconsideration of all or part of the approved plan.
- Following the Executive's review, the County provides copies of the Council's Approved Plan to the Maryland Department of the Environment (MDE) for State review, including the Department of Planning (MDP) and the Department of Natural Resources (DNR). MDE must approve the Plan or disallow the Plan either in whole or in part within sixty (60) days of its receipt of the Council's Approved Plan. MDE is also allowed two forty-five (45) day review extensions. If MDE disallows any part of the Plan, the County has six (6) months from the date of MDE's notification to formally challenge MDE's decision.

#### **V.C.: Water and Sewer Plan Amendments**

During the time in between comprehensive triennial updates, the County considers many requests for changes, or amendments, to the Plan as explained in the following sections. As proscribed by the Plan's policies, some amendments will require consideration by the County Council (Section V.D.1). Other amendments will qualify for the administrative Delegation (AD) process managed by DEP (Section V.D.2).

Plan amendments proceed through an interagency review process that includes M-NCPPC, WSSC Water, and DPS. Other agencies contacted on an as-needed basis include but are not limited to: Montgomery County Public Schools; Prince George's County; municipalities such as Rockville, Poolesville, or Gaithersburg; and the U.S. National Park Service. DEP's intent is to provide review packets to these agencies on a quarterly basis. Agency comments on and DEP's internal review of these cases are then used to determine an appropriate action path for each amendment.

Timing for the Council and administrative processes is intended to follow the general schedules provided in the following sections. However, Plan amendments may also be considered outside the usual schedule, upon the discretion and agreement of the County Council and DEP, for those cases involving exceptional circumstances such as severe hardships, public or quasi-public facilities, and other projects of significant public interest.

The following sections provide further information on amendments to the Plan.

#### **V.C.1.: Property Owner-Initiated Category Change Requests**

Individual requests from property owners for water and/or sewer service area category changes make up the majority of Plan amendments considered between comprehensive triennial updates. Most commonly, property owners file requests with DEP seeking approval of categories 1 or 3 to allow the provision of community service where it is not currently approved given the existing categories designated in the Plan. Other requests filed have sought approval for multiuse, onsite systems (see Section III.C.5.) or for changes to existing service area restrictions (see Section II.C.2.)

#### Application Process for Individual Service Area Category Change Requests

Applications for service area category requests filed by the property owner may be submitted to the Department of Environmental Protection at any time of the year. Request applications and instructions are available by contacting DEP staff (see Appendix D) or the DEP category change requests webpage at

[www.montgomerycountymd.gov/waterworks](http://www.montgomerycountymd.gov/waterworks). The documents available on this webpage include directions and requirements for filing a category change request application.

DEP has additional application requirements for category change cases involving service area category amendments for private institutional facilities (PIFs); refer to Section II.G.4.e. Applicants filing requests for these facilities will need to refer to instructions included in the category change request instructions packet.

#### Category Change Application Fees

As established under Executive Regulation MCER 2-05 (Chapter 45 of the County Code) DEP requires an application fee for most category change request applications. The application fee schedule is included with each category change request instruction packet provided to potential applicants. These application fees are not intended to act as an enterprise fund, supporting the entire cost for the category change program. Certain types of requests are exempt from the application fee as detailed in the Executive Regulation and category change application instruction packet. Neither does DEP charge an application fee for properties that staff recommend for inclusion in County-initiated general water/sewer category map amendments (see Section V.C.2).

#### **V.C.2.: County-Initiated Area-Wide Category Map Amendments**

DEP initiates, develops and recommends area-wide category change amendments, usually to implement service area category changes to allow for the provision community water and/or sewer service. These area-wide amendments are commonly referred to as general water/sewer map amendments.

Area-wide general map amendments typically address service area changes for an area on the scale from one or more blocks up to a small neighborhood. The County's long history of handling category change requests on a case-by-case (lot-by-lot, parcel-by-parcel) basis has resulted in many neighborhoods in piecemeal transition from categories 4, 5 or 6 to categories 1 or 3. These are usually areas within the planned community service envelopes as developed from the Plan's general service policies and in the related local area master plan. However, they still require a specific approval for category changes that will allow for the provision of community service. DEP's long-term goal is to use general category map amendments to the greatest extent possible to reduce the number of individual map amendments (category change requests) filed by property owners and developers.

When the County Council approves the designation of a special community service area as part of the Plan, the recommendation to do so from the County Executive is typically accompanied by a general category map amendment. Special community service areas are the result of onsite system surveys conducted by DEP and DPS to evaluate existing health problems and long-term feasibility for onsite system use in a specific area of a community. The County Council determines whether an area qualifies as a special community service area based on the results of the onsite systems survey and a recommendation provided by the County Executive. DEP prepares the map amendment for special community service areas designated as categories 4, 5, or 6. The map amendment proposes to change water and/or sewer service area categories for properties included in the designated special service area to categories 1 and/or 3 as needed. This category change action allows any of these properties to proceed with the provision of community service, regardless of whether that property has an active health problem. The purpose is to encourage the extension of community service into the designated health area before properties find a need for community service to relieve an onsite system failure.

Other general amendment cases involve a need to correct mapping or service errors and to update service area categories as determined by DEP. Mapping errors occur where the County has not correctly mapped approved service area changes. Service errors occur where either the sanitary utility (WSSC Water, Rockville, or Poolesville) has provided community service to properties not approved for community service in this Plan, or where multiuse systems exist that are not currently included in the Plan.

Plan amendments may also include updates provided by municipalities to service area categories and/or the Plan text. The County includes these updates into the Plan as directed by State law to incorporate the subsidiary plans of the County's municipalities.

**V.C.3: Interim Water and Sewer Category Map Updates**

DEP is responsible for preparing interim updates of the plan's service area category maps. Improvements in mapping technology resulting from the use of the County's computer-based geographic information system (GIS), MC:MAPS, should now allow for the preparation of more up-to-date maps than the triennial updates required by the State. These interim updates are based on category change actions, map revisions and corrections, and informational updates approved since the last interim or triennial update. The interim update maps, which do not require approval by the Council, represent the County's official record for water and sewer service area categories pending the triennial updates approved by the County Council.

DEP has developed a schedule for interim updates for the service area category maps; providing comprehensive category update on an annual or semi-annual basis. Use of the GIS-based database by county agencies and its distribution to agencies such as WSSC Water and M-NCPPC will result in a significant step forward in helping to provide more up-to-date category information to the public and development industry.

**V.C.4.: Text Amendments**

While the majority of changes to the Plan text occur as part of the triennial update process, text amendments occur from time to time. Text amendments of a policy nature are usually initiated by the County Council. At the direction of the Council, DEP staff develop these amendments in response to a policy issue that the Council wants to implement before the next triennial comprehensive Plan update. Examples of text amendments to the 2003 Plan include restrictions on community service for private institutional facilities (PIFs) and on multi-use system capacities, both addressing the Agricultural Reserve (AR Zone).

Text amendments may also include non-policy, informational updates to the Plan text such as updates to capital project listings, amendments that acknowledge or account for policy changes elsewhere in the Plan, and updates to WSSC Water sewage flow measurement data.

**V.D: Review and Consideration of Plan Amendments**

Two primary pathways are used to consider and act on Plan amendments: the County Council's legislative review process and DEP's administrative delegation review process. For amendments requiring interagency review, DEP collects requests on a quarterly basis, with collection periods closing at the end of September, December, March and June of each fiscal year. DEP transmits packets of requested amendments to the agencies in the month following the close of each quarterly group. Agencies typically have 30 days to provide comments back to DEP. The reviewing agencies typically include the following:

- DPS, for issues concerning individual onsite systems and onsite system suitability.
- M-NCPPC, for issues concerning master plans and land use planning
- WSSC-Water, for issues concerning the feasibility of providing community water and sewer service, including system transmission and treatment capacities. WSSC-Water also advises DEP whether there are technical or policy issues that would complicate the provision of community service or that would make community service infeasible.
- Municipalities, on a case-by-case basis, for issues concerning local planning and infrastructure.

**V.D.1.: County Council Legislative Process**

The Council's legislative review process begins with DEP staff developing recommendations for these amendments, which then proceed through a review process that typically includes the DEP Director, County Executive staff, and finally the County Executive. The County Executive transmits a group or packet of requested Plan amendments to the County Council for consideration and action. The Plan's intent is that DEP will initiate this process twice each fiscal year: in the fall and in the spring.

The Council's process proceeds as follows:

- Following the receipt of the Executive's transmittal, the Council introduces the amendments and schedules a public hearing. State law requires that the County provide State and local agencies with a notice of public hearings thirty (30) days in advance of the hearing.
- For public outreach, the County Council is required to post a public notice of the hearing that must appear once at least ten days in advance of the hearing date in a newspaper of general circulation in the county. In addition to these notices, DEP provides a notice of the hearing to the amendment

applicants and to other interested parties. DEP also makes reasonable efforts to notify adjacent and confronting property owners and local public interest, homeowners, civic and environmental groups.

- The Planning Board will meet to consider M-NCPPC staff recommendations for each amendment. The Board then forwards its recommendations to the County Council.
- The Council holds its public hearing, either in full session or in a meeting of the Transportation, Infrastructure, Energy, and Environment (T&E) Committee.
- Following the public hearing, the T&E Committee holds a work session on the amendments where the committee members consider recommendations from the County Executive, Planning Board and Council staff and hearing testimony. The committee then forwards a draft resolution to the full Council for consideration. .
- The full Council then considers the committee recommendations, develops a final resolution of actions on the proposed amendments, and subsequently adopts a that resolution.
- The Executive has ten days following adoption of the resolution to comment on the Council's action before the action is final. The Council then forwards the resolution to the Maryland Department of the Environment (MDE) for review and concurrence. (See Section V.D.3. below for information about the State's consideration of Plan amendments.

#### **V.D.2.: DEP Administrative Delegation Process**

The County Council has delegated the authority to act on Water and Sewer Plan amendments under limited circumstances to the Executive branch through the Director of DEP. DEP may act to approve or conditionally approve an amendment. This administrative authority is intended for amendments that are non-controversial with regard to Water and Sewer Plan issues and policies. As such, the authority is discretionary, and the Director of DEP may, at his or her discretion, defer action on any potential administrative amendment to the County Council.

Administrative public hearing actions are intended to follow a quarterly schedule, with amendments from each quarterly agency review packet proceeding through a separate administrative action. The administrative process proceeds as follows:

- DEP staff develop recommendations for these amendments, where agency reviews (M-NCPPC, WSSC Water, DPS, etc.) are consistent with administrative approval. DEP then schedules an administrative public hearing. State law requires that the County provide State and local agencies with a notice of public hearings thirty (30) days in advance of the hearing. This includes the County Council whose members must concur with the proposed administrative action.
- For public outreach, the County is required to post a public notice of the hearing that must appear once at least ten days in advance of the hearing date in a newspaper of general circulation in the county. In addition to these notices, DEP provides a notice of the hearing to the amendment applicants and to other interested parties. DEP also makes reasonable efforts to notify adjacent and confronting property owners and local public interest, homeowners, civic and environmental groups.
- The Planning Board will meet to consider M-NCPPC staff recommendations for each amendment. The Board then forwards its recommendations to DEP.
- DEP holds the public hearing conducted by either the DEP Director or by a designated a staff member from the Intergovernmental Affairs Division (IGAD). The hearing record is typically held open for one (1) week following the hearing.
- DEP staff prepare a Summary of Action for the amendments for the Director's signature. The document provides a summary of the public hearing testimony, Planning Board recommendations, Council members comments, and category change actions. DEP then forwards the action to MDE for review and concurrence. (See Section V.D.3. below for information about the State's consideration of Plan amendments

IGAD will remove from the administrative delegation process any proposed amendments actions initially recommended by staff for administrative actions and redirect them to the County Council for consideration at the direction of one or more of the following:

- The Planning Board, voting as a body.
- One or more individual Council members.
- The DEP Director.

Amendments redirected from administrative actions are typically included with the next regular semiannual transmittal of amendments from the County Executive to the County Council, and are subject to the Council's public review process, including a public hearing.

#### **V.D.3: State Consideration of Plan Amendments**

Following the Executive's review, the County provides copies of the Council's Approved Plan to the Maryland Department of the Environment (MDE) for State agency review, including the Department of Planning (MDP) and the Department of Natural Resources (DNR). Within 60 days of its receipt of the County's action, MDE must approve the amendments, disallow the amendments either in whole or in part, or declare a 45-day review extension. MDE may also require a second 45-day review extension that would require a notice from MDE to the County, the County's delegation to the General Assembly, and the Governor. If MDE has neither acted nor declared the need for a review extension by any of these three deadlines, the Plan is approved as adopted by the County Council by default. If MDE disallows any part of the amendment action, the County has 180 days from the date of MDE's notification to formally challenge MDE's decision. Once the County grants an approval or conditional approval through either the Council or administrative processes, application may proceed with development plans and WSSC Water service requests at their own risk pending State concurrence of those action.

#### **V.D.2.a: Administrative Delegation Policies**

The specific policies and procedures under which DEP may act on a proposed amendment, and the requirements for such actions, are outlined as follows. Only those amendment requests satisfying one of the following administrative policies will be considered for this process: DEP may act to approve or to conditionally approve amendments under the following policies with the concurrence of the Planning Board voting as a body, the individual Council members, and the DEP Director.

##### Community Service Consistent with Existing Plans

DEP may act on service area category changes consistent with the recommendations of the local area master plan and the general policies of this Water and Sewer Plan as specified under Section II.F.: General Policies for Water and Sewer Service.

##### Community Service for Public Health Concerns

DEP may act on service area changes to allow community service for properties to relieve existing or anticipated public health concerns, as specified under Section II.G.2.: Community Service to Relieve Public Health Problems. Under this administrative authority, only one residential water and/or sewer hookup may be provided to qualifying lots or parcels. Proposed amendments that clearly satisfy the requirements of the public health concerns policy and lack any complications or controversy, may be considered for advance action under Section V.D.2.b.

##### Community Service for Properties Abutting Community Mains

DEP may grant service area changes to allow community service for properties which abut existing or authorized water and/or sewer mains, as specified under Section II.G.3.b.: Community Service for Properties Abutting Existing Mains. Under this administrative authority, only one residential water and/or sewer connection may be provided to the whole of qualifying lots or parcels. Proposed amendments that clearly satisfy the requirements of the abutting mains policy and lack any complications or controversy, may be considered for advance action under Section V.D.2.b.

##### Community Service for Service for Public Facilities

DEP may act on service area category changes for public facilities and for private buildings affected by public projects, as specified under Sections II.G.5. Community Service for Public Facilities, and II.G.6, Community Service for Properties Affected by Public Improvements.

Community Service Allowed by Individual Systems Regulations Changes

DEP may act on service area category changes for properties which satisfy the specific requirements of Section II.G.9.: Community Service Due to Individual Onsite Systems Regulations Changes.

Community Service for Community Development Projects

DEP may act on service area category changes for projects defined as community development projects as specified under Section II.G.7.: Community Service for Community Development Projects.

Multiuse Onsite Systems

DEP may amend the water and sewer category maps to identify sites approved for multiuse onsite water supply and/or sewerage systems. (See Section III.C.5. for additional information on multiuse systems.) Appropriate accompanying text amendments identifying the proposed multi-use systems may be handled under the provisions of the Plan's administrative policies, Section V.D.2.c., although DEP staff will typically handle the required text amendment for a particular multi-use system through the same administrative process as is used for the related map amendment. The approval of such systems shall be consistent with the protection of surface and groundwater and shall require the concurrence of the Department of Permitting Services. In order to ensure this protection, DEP may, upon consultation with the DPS, require hydrogeologic studies of the potential effects of the proposed systems on ground and surface water resources.

**V.D.2.b: Administrative Delegation Advance Action Process**

Under limited circumstances, DEP may act to approve a qualifying map amendment in advance of an administrative public hearing process to help expedite straightforward cases. DEP must have received a category change request application for the subject property for an advance action to proceed. As a practice and for purposes of efficiency, DEP will generally consider these amendments later along with those proceeding through quarterly administrative hearings.

Community Service for Public Health Concerns

DEP may act on service area category changes to allow community service for properties to relieve existing or anticipated public health concerns, as specified under Section II.G.2.: Community Service to Relieve Public Health Concerns. Under this administrative authority, only one residential water and/or sewer connection may be provided to qualifying lots or parcels. DEP may provide an advance approval and request that WSSC Water expedite community service for qualifying properties. The formal administrative approval action may occur after DEP's advance approval action and, in some cases where existing community service is immediately available, after that service has been provided. DEP's advance action is in the form of a notice to WSSC Water to proceed with and expedite community service to the property, regardless of the existing service area category. Applicants may proceed with WSSC Water service requests at their own risk pending completion of the administrative action.

Community Service for Properties Abutting Community Mains

DEP may act on service area category changes to allow community service for properties which abut existing or authorized water and/or sewer mains, as specified under Section II.G.3.b.: Community Service for Properties Abutting Community System Mains. Under this administrative authority, only one residential water and/or sewer connection may be provided to the whole of qualifying properties. DEP may provide an advance approval and request that WSSC Water expedite community service for qualifying properties. The formal administrative approval action may occur after DEP has directed WSSC Water to provide community service to a property and in some cases after WSSC Water has provided that service. DEP's advance action is in the form of a notice to WSSC Water to proceed with community service to the property, regardless of the existing service area category. Applicants may proceed with development plans and WSSC Water service requests at their own risk pending completion of the administrative action.

Multiuse Onsite Systems

DEP may act in advance to amend the water and sewer category maps to identify sites approved for multiuse water supply and/or sewerage systems. Only smaller-capacity multi-use systems, those with a peak capacity of less than 5000 gallons per day (gpd), may be addressed under this authority. Advance action for text amendments identifying these multi-use systems may also be addressed under this authority. Applicants may



proceed with development plans and onsite system permitting at their own risk pending completion of the administrative action.

**V.D.2.c.: Administrative Delegation Staff Approval Process**

DEP's action on plan amendments under the following administrative policies shall require only an interagency review, as appropriate. The approval authority resides with the DEP Director of his or her designee, who may directly approve the amendments. Neither a public hearing, nor interagency concurrence for administrative approval, nor County Council review and concurrence for administrative approval, shall be required, unless required by the Director of DEP.

Water and Sewer Map Corrections, Revisions, and Informational Updates

DEP may amend service area categories as necessary to correct verified service area mapping and other errors. These cases most often involve revisions to identify properties with existing community service not shown on the category maps and to correct improperly mapped prior amendments. Informational updates for the maps addressing existing or proposed infrastructure, right-of-way dedication or abandonment, and other non-policy issues may also be approved.

Service area category changes from W-3 and W-1 and from S-3 and S-1 (approved community service areas) and vice versa may occur to reflect the actual status of community service and do not require a formal approval action by either DEP staff or the DEP Director. DEP staff document these changes as needed in the service area category database.

Interim Permit Individual Systems

DEP may amend the water and sewer category maps to identify sites approved for interim onsite wells and septic systems, as specified under Section III.C.3., subheading: General Conditions for Interim Individual Systems.

Water and Sewer Service Area Category Map Interim Updates

Interim water and sewer map updates are based on approved amendments to the Water and Sewer Plan: category changes, map corrections and revisions, and informational updates. DEP updates these GIS-based maps to show these amendments on a more frequent schedule than the State's required triennial comprehensive updates, providing more up-to-date information to the public, to the development industry, and to public agencies. DEP will update the GIS database as water and sewer map amendments are approved in order to maintain an accurate and current record of the county's service area categories. DEP's administrative approval of the published maps adopts them as the interim official record of the County's approved service area categories, pending the County Council's approval of the triennial update of the plan.

Informational Plan Text Amendments

DEP may approve text amendments which provide informational updates to the Water and Sewer Plan. These may include, but are not limited to, information updates concerning approved community water supply and sewerage systems infrastructure, information concerning multi-use water supply and sewerage systems, and general background information concerning the county and its municipalities. Informational updates may relate to specific water and/or sewer service area category change requests under consideration for approval through the administrative delegation process. Text amendments for other than informational updates, or that concern policy issues, will not be included for administrative approval and will be referred to the County Council.

**V.E: Plan Amendment Actions**

County Council and administrative actions on plan amendments usually fall into one of the following types:

**V.E.1: Approved Amendments**

An approval action adopts the proposed map or text amendment into the Plan. In some cases, the County may decide to modify the approval somewhat from the original request. An approval for a category map amendment may also include service conditions or restrictions that limit the scope of the approval. See Section II.C.2. for examples of these condition and restrictions. An amendment approval is not formally adopted until MDE notifies the County of the agency's concurrence with the amendment. The applicant can proceed with development approvals and water/sewer service authorizations, at the applicant's risk, during the State's review period.

**V.E.2: Conditionally Approved Amendments**

A conditional action grants tentative approval to a proposed amendment to the Plan. The resolution of administrative action shall clearly state the condition(s) for final approval. An actual or final approval of the amendment will require that the conditions for final approval either be satisfied or be made moot. It is incumbent upon the applicant to notify DEP and document that the condition(s) for final approval has been satisfied. The DEP Director shall then grant final approval of the amendment in accordance with the original action and notify the applicant and all appropriate agencies of the change to the Plan.

The County Council's conditional approval of category change requests for private institutional facility (PIF) is typically based on the Council's review and acceptance of a concept plan for the proposed use. If the PIF user subsequently and significantly alters that concept plan (prior to the extension of service), DEP can require the Council's reconsideration of the original category change action. Upon consultation with and recommendations from M-NCPPC staff, DEP will determine when changes to the concept development plan warrant the Council's reconsideration.

Conditional Approval Expiration

Over time, circumstances affecting a Plan amendment with an outstanding conditional approval may change from those existing at the time the County acted on the amendment. These changes may include, but are not limited to, master plan land use and zoning recommendations, water and sewer service policies, and sanitary system availability. Therefore, conditional approvals granted starting in FY 2017 are valid for a period of up to five (5) years from the original date of the County's action granting the conditional approval. DEP may grant, upon the applicant's written request, an extension of up to five (5) years beyond the original five years. After this five- or ten-year period without resolution of the required conditions, DEP will prepare a final category change action that will revert the property back to its original service area categories. Once denied by DEP, reconsideration of such an amendment will require the applicant to file a new request with DEP and proceed through an appropriate review and action process. Conditional approvals adopted for County-initiated general water/sewer map amendments are exempted from this sunset policy.

**V.E.3: Deferred Amendments**

A deferral action places the County's consideration of a proposed Plan amendment on hold pending the completion of some other action. Actions that defer Plan amendments must clearly state the reason for deferral and what action or milestone is needed in order to reconsider the amendment. A deferral may result from the need for additional information which is not readily available to properly evaluate an amendment. A deferral can also occur to allow another process, such as a master plan or rezoning case, to proceed before making a decision on the amendment.

Deferrals typically occur in the County Council's consideration process for the following circumstances:

- *Incomplete Information:* There is a need for additional information not readily available in order to properly evaluate an amendment, such as a proposed main alignment or specifics about a proposed development plan.
- *Master Plan Revision in Progress:* There is a need to complete a master plan revision process that has the potential to affect water/sewer service recommendations and therefore the evaluation of a water/sewer service amendment. This Plan considers that a master or sector plan is "in progress" at the time the M-NCPPC staff draft of the plan is complete. Exceptions to the preceding policy are allowed where the County Council and the Planning Board concur that more expedient review and action—including administrative delegation—is appropriate for a particular amendment, and the proposed action is:
  - Consistent with existing master plan recommendations;
  - Consistent with water and sewer planning policies; and
  - Not affected by the master plan update, which is not expected to change relevant policies.
- *Other Land Use and Zoning Decisions:* There is a need to allow another process—often involving land use or zoning issues—to proceed before making a decision on the Water and Sewer Plan amendment. These can include decisions on local zoning map amendments, zoning ordinance text amendments,

and special exceptions. These decisions are either relevant to the decision on water and sewer service or could be unduly biased by the County Council's action on the issue of water and sewer service.

- *Impending amendments and comprehensive updates to the Water and Sewer Plan*

#### Deferral Timing

Deferral must not become the final resting place of any proposed Plan amendment. Unless a deferred amendment is withdrawn by the applicant, the County must take an action on that amendment (approval, conditional approval, or denial). Generally, the deferral period is intended to last no more than one year before an action on the amendment is anticipated. However, a one-year deferral period is a guideline, not a regulation. DEP will use this one-year time frame as a check on the status of deferred amendments. The other land use planning and regulatory processes that are frequently involved in deferred amendments do not always follow precise, predictable schedules. However, DEP will monitor the progress of deferred amendments to avoid situations where cases slip into an indefinite, unending holding pattern. Should a deferral period extend three (3) years beyond the expected time frame, and lacks an expected resolution, the County Executive will recommend that the Council deny the amendment. The applicant can then file for a new amendment when conditions better favor that request.

#### Process Options Following Deferral

Upon resolution of the reason for a deferral, an amendment may be brought back for further consideration by the Council. To promote an orderly public process, whenever possible a previously deferred amendment should be resubmitted to the Council as part of a semiannual amendment packet from the County Executive. If a previously deferred amendment is resubmitted to the Council outside of the Executive's semiannual amendment transmittal process, then the Council shall proceed according to the following processes, as appropriate:

- *Deferred Amendments with Significant Changes:* If the details of the proposed amendment have changed (for example, the proposed water or sewer extension is changed significantly or the proposed use of the property to be served has changed) since the item last went to public hearing, then the Council must hold a new public hearing for the amendment. The Council must provide at least 15 days' notice to the reviewing agencies: DEP, DPS, WSSC Water, M-NCPPC, and MDE, and to all parties that submitted either oral or written testimony on the amendment at the Council's prior public hearing. The Council must also advertise the public hearing at least 15 days before the public hearing date. The Council may schedule a committee or Council work session on the item to occur any time after the public hearing. However, the meetings must be listed on the Council or Committee agenda at least ten days before the work session.
- *Deferred Amendments with No Significant Changes:* If the details of the proposed amendment have not changed since the item last went to public hearing (for example, the water and/or sewer alignment is the same and the applicant's plans for use of the property to receive service have not changed), then the Council is not required to hold a new public hearing. A Committee or Council meeting on this request must be listed on the Council agenda at least ten (10) days before the meeting. In addition, if more than 90 days have elapsed since a prior Council meeting on the amendment, then the Council must provide a notice of the new meeting to the reviewing agencies, to the applicant, and to all parties that submitted either oral or written testimony on the amendment at the prior public hearing. Although an additional public hearing is not required, the Council President can choose to hold a public hearing for this deferred request.
- *Deferred Amendments Qualifying for Administrative Approval:* If the resolution of the deferral issue has created conditions that satisfy the Plan's administrative approval policies (see Section V.D.2.), then DEP may recommend the amendment for administrative action. DEP will generally include qualifying amendments as part of the next available administrative hearing process. The amendment must proceed through an administrative cycle that includes preparation and review of a staff recommendation, a 30-day agency notice, a 10-day public notice, and a public hearing. Although not required, the Council's deferral decision may include a note that addresses the possibility of subsequent consideration through the administrative delegation process.

**V.E.4.: Tabled Amendments**

The T&E Committee or the full Council may temporarily set aside work on a proposed Plan amendment by “tabling” its consideration. The reasons for tabling an amendment are varied and not always directly related to the substance of the water and sewer issues involved. For example, an amendment might be tabled to allow for discussions between the County or another party and the applicant, or to allow for additional research on the part of the applicant or County staff. As with deferred amendments, tabling is not intended to be indefinite and should not last for more than one (1) year without the Committee’s or the Council’s subsequent consideration.

**V.E.5.: Denied Amendments**

A decision to deny a requested Plan amendment effectively ends its consideration by the County, leaving the Plan unchanged. Unless accepted by DEP because of changed conditions, applicants may not resubmit a new application for a denied amendment for a period of one (1) year following the date of the denial action.

**V.E.6.: Appeals**

State law does not include a formal appeal process for the County’s actions on the Plan or its amendments. The most common method of “appealing” an action is to again file the requested amendment with DEP consistent with the denial policy preceding (Section V.E.5).

State law does provide for a ten-day review of the Council’s actions on the Plan by the County Executive, who may then recommend for the Council’s consideration any revision or amendment the Executive deems necessary. Although the State of Maryland has a review period for approval and oversight of the County’s Plan amendments through MDE and MDP, the State’s review does not function as an appeals process.

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# **CHAPTER 2**

## ***GENERAL BACKGROUND***

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**Montgomery County Comprehensive Water Supply and Sewerage Systems Plan***Chapter 2: General Background*County Council Approved 2022-2031 Plan

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**I. INTRODUCTION:**

Chapter 2 presents general background information about the County relevant to issues involving water supply, sewerage systems, rural sanitation planning, and water resources. The chapter presents this information in two general categories: the natural environment and the cultural environment. The various characteristics of the natural environment including geology, topography, soils and water resources—strongly affect water supply, sewerage, and rural sanitation needs, problems, and solutions in the County. A second group of relevant characteristics are classified as the cultural, or human-made, environment, which include patterns and density of existing and proposed residential, commercial, and institutional development; and the various legal requirements, policies, and plans that shape the cultural environment. However, it should be noted that much of the data presented in this chapter are generalized information about Montgomery County’s 500-square-mile area.

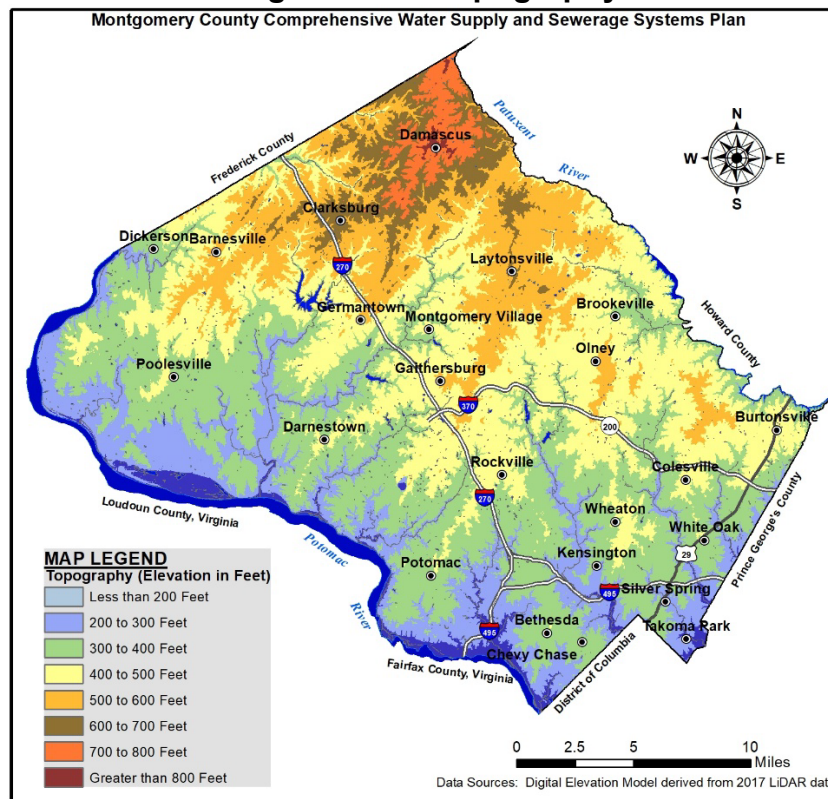
**II. NATURAL ENVIRONMENT:**

This section addresses natural, physical features of the County which affect the feasibility, nature, location, design, and implementation of community and individual water and sewerage systems. For example, the basic topography of the County is a significant factor in determining the location and design of water storage facilities and wastewater pumping stations and sewer lines. Soil and geologic characteristics are a major factor in determining the suitability of specific areas of the County for on-site wastewater systems such as septic tanks. Other data presented are similarly relevant to the Plan’s subsequent chapters.

**II.A. Topography:**

The general topography of Montgomery County, as illustrated in Figure 2-F1, is dominated by

**Figure 2-F1: Topography**



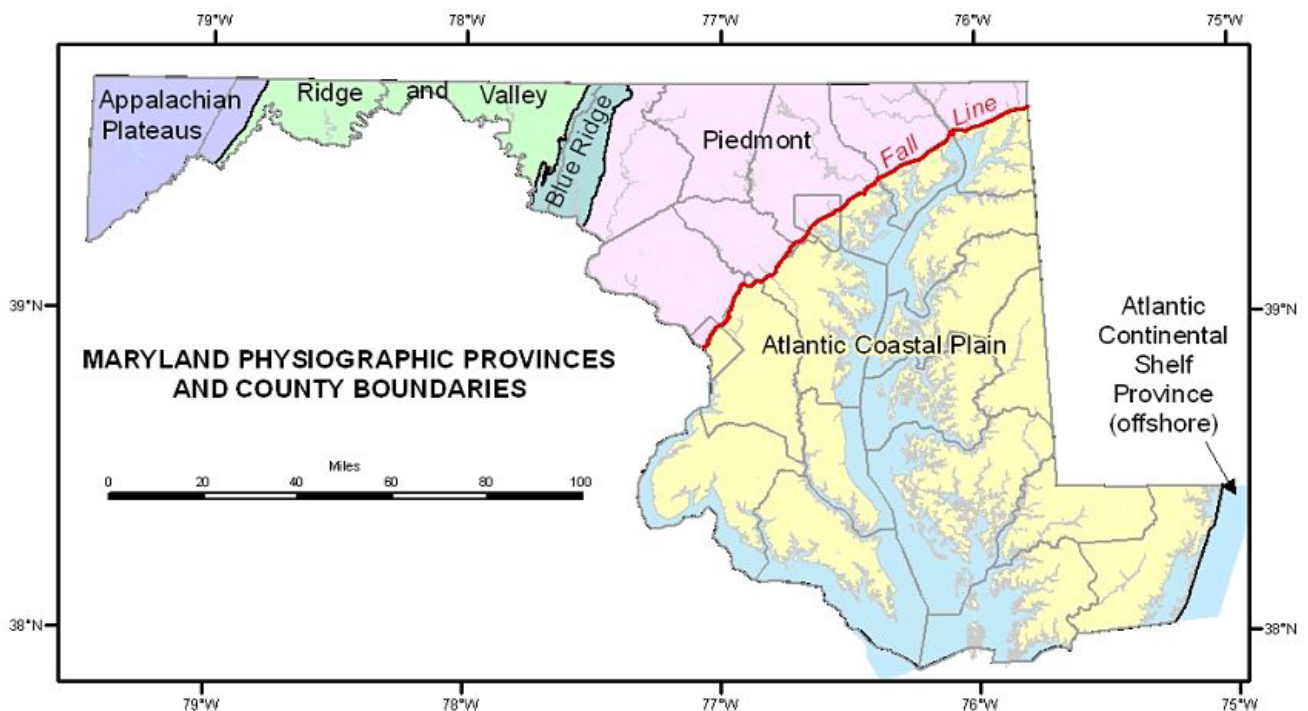
a rolling plain or "low hill" landscape. Hills are concentrated in the northern part of the County adjacent to the major stream valleys. The highest point in the County is 873 feet above sea level; the lowest point, 52 feet above sea level. The average elevation gradient is 29 feet per mile.

**II.B. Climate:**

Montgomery County's average winter temperature is 35 degrees Fahrenheit (F), with an average daily minimum of 25 degrees F. The summer average temperature is 74 degrees F, with an average daily maximum of 86 degrees F. Average total annual precipitation is approximately 40 inches. Of this, more than 22 inches (55 percent) usually falls during the period from April through September.

**II.C. Geology:**

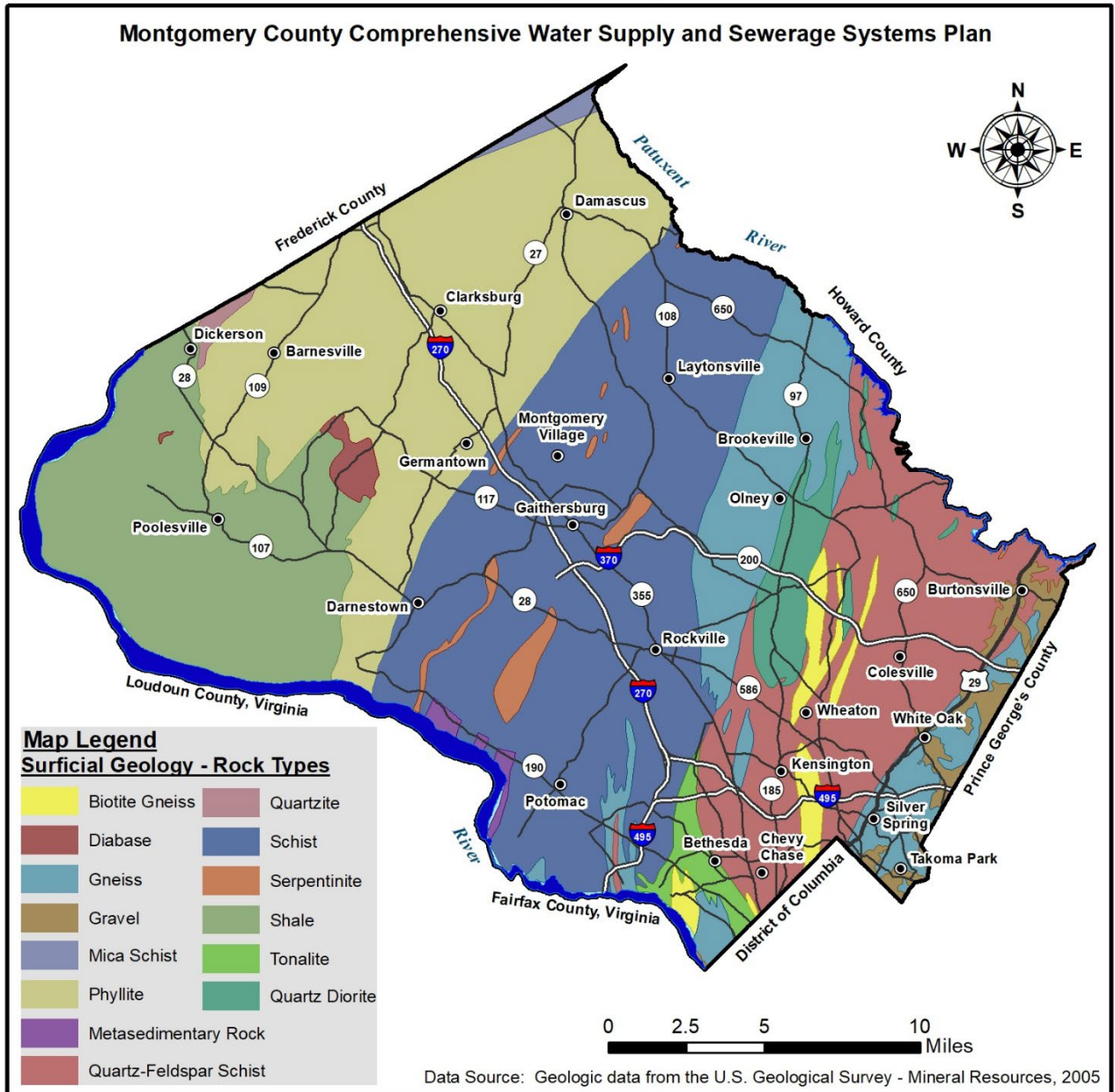
From the Atlantic coast on the east to the Appalachian Plateau on the west, Maryland has a great variety of geology and landforms. Maryland is part of six physiographic provinces (shown in the figure below). A physiographic province is a geographic area in which the geology (including lithology and structure) and climate history have resulted in landforms that are distinctly different from adjacent areas.



As shown the County lies almost entirely within the Piedmont physiographic province where the bedrock consists predominantly of metamorphic rocks of Paleozoic age.

Consolidated sedimentary rocks of Early Triassic age occupy a down-faulted basin in the western part of the County. On hills and ridges along the County's eastern border, small erosional remnants of unconsolidated Cretaceous sedimentary rocks extend westward from the Coastal Plain in Prince George's County. Please refer to Figure 2-F2 for additional information.

**Figure 2-F2: Geologic Map**



**II.D. Soils:**

A general description of Montgomery County soil types/groups and the areas where these soil types can be found are provided in Table 2-T1.

**Table 2-T1: County Generalized Soils Descriptions**

<b>Soil Groups</b>	<b>Area*</b>	<b>Description</b>
Glenelg-Gaila-Occoquan	41%	Nearly level to strong sloping, well drained, deep and very deep soils that are loamy throughout. This soil type is found in the central part of the County and extends to the east and south. It is found on broad ridge-tops and side slopes.
Brinklow-Baile-Occoquan	16%	Nearly level to moderately steep, well and poorly drained, moderately deep soils that are loamy throughout. This soil type is found in the northern part of the County. It is found on broad ridge-tops and side slopes.
Urban land-Wheaton-Glenelg	16%	Nearly level to strongly sloping, well drained, very deep soils that are loamy throughout. This soil type is found in primarily in the Germantown area and in southern and eastern portions of the County. It is found on broad ridge-tops and side slopes.
Penn-Brentsville-Readington	14%	Nearly level to steep, well and moderately well drained, moderately deep and deep soils that are loamy throughout. This soil type is found in the western part of the County. It is found on broad ridge-tops and side slopes.
Blocktown-Brinklow-Linganore	10%	Gently sloping to steep, well drained and moderately deep soils that are loamy throughout. This soil type is found in the northern part of the County. It is found on broad ridge-tops and side slopes.
Chillum-Croom-Beltsville	3%	Nearly level to steep, well drained and moderately well drained, very deep soils. This soil type is found in the eastern part of the County along the Prince George's County line. It is found on broad ridge-tops and side slopes.

*\* Percent area of the County.*

**II.E. Water Resources:**

The County's water resources affect many aspects of its water supply and wastewater management needs. Surface water flows, influenced by the underlying geology, have created the County's hills and valleys, establishing its watersheds. The resulting topography strongly influences the structure and alignment of wastewater collection systems and the need for various water supply pressure zones. Surface water resources provide the majority of the County's community water supply. Surface waters also receive treated flows from several water resource recovery facilities (wastewater treatment plants). Groundwater depth and availability strongly affects individual water supply and sewerage systems, municipal water systems dependent on wells (such as Poolesville), and also provides the base flow to surface waters and streams.

**II.E.1. Groundwater:** Groundwater is an abundant, but finite natural resource that sustains the County's natural ecosystems. It is the source of crucial, continuous base flows to County's streams and wetlands as well as providing drinking water for about 10% of the County's residences.

As indicated previously, the County lies almost entirely within the Piedmont physiographic province where the bedrock consists predominantly of metamorphic rocks of Paleozoic age. A good portion of the groundwater in these units occurs in the soil and weathered surface mantle which has an average thickness of 10-75 feet. Most groundwater is stored in cracks, fractures, joints, and pores of the underlying rock.



Groundwater in the Piedmont is predominantly derived from precipitation that percolates downward through the soil and rock until it reaches the water table (the point below which the ground is saturated with water). The saturated zone below the water table is called an aquifer. Most aquifers in the County are unconfined aquifers, meaning that there is no overlying impermeable layer to protect ground water from surface-based sources of contamination.

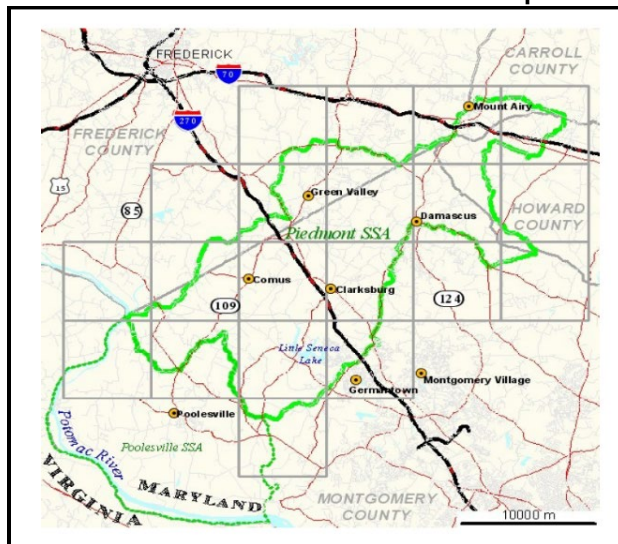
The average annual depth of the groundwater table in Montgomery County varies considerably from place to place depending on the type of geology, soil cover, soil, and the topographic situation, as well as the annual rainfall. For example, at an observation well at Fairland, in the Wissahickon schist of the eastern part of the County, average annual depth to groundwater is between 8 to 10 feet. The comparable depth at an observation well at Damascus in the ljamsville phyllite, in a more rugged topography, is between 30-45 feet. In scattered wells in the Manassas (New Oxford) siltstones and sandstones, the water table lies at about 70-120 feet.

Wells in the County are unlikely to cost-effectively provide sufficient quantities of water for municipal supply. Only the Town of Poolesville municipal water supply system depends on groundwater supply. Depending upon the host rock, groundwater well yields average from less than 1 gallon per minute to more than 25 gallons per minute. Under the County's regulations, permitted domestic wells must yield a minimum of 1 gallon per minute.

**II.E.1.a. Maryland Piedmont and Poolesville Sole Source Aquifers:** The Safe Drinking Water Act gives the U.S Environmental Protection Agency (EPA) the authority to designate aquifers which are the sole or principal drinking water source for an area, and which, if contaminated, would create a significant hazard to public health.

In August 27, 1980, EPA announced the designation of sections of western Montgomery County as part of the Maryland Piedmont Sole Source Aquifer. Most of the County that is outside of the water and sewer service envelope is in the Maryland Piedmont SSA. The boundaries of the Maryland Piedmont Sole Source Aquifer are shown below.

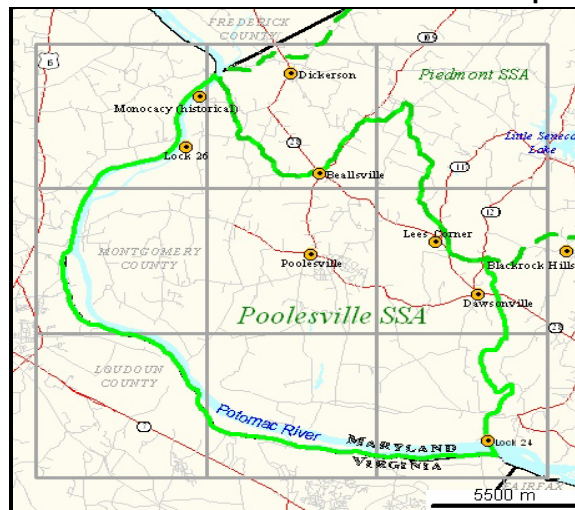
**Boundaries of Piedmont Sole Source Aquifer**



The EPA defines a Sole Source Aquifer (SSA) as one which supplies at least 50% of the drinking water consumed in the area overlying the aquifer. EPA guidelines also require that these areas have no alternative drinking water sources(s) which could physically, legally, and economically supply water to all who depend on the aquifer for drinking water. The Sole Source Aquifer Program provides federal overview of federally-funded projects within SSA's. Projects that could potentially contaminate areas designated as SSA's cannot receive federal funds.

In 1998, the citizens of Poolesville, Maryland successfully petitioned for extending the Maryland Piedmont Sole Source Aquifer to include the Town of Poolesville as a Sole Source Aquifer. As a result, the Regional Administrator of Region III of the U.S. Environmental Protection Agency (EPA) determined that the portion of the Piedmont aquifer system that underlies Poolesville and the surrounding area in western Montgomery County, Maryland (denominated as "Poolesville Area Aquifer System") is the sole or principal source of drinking water for this area and if the aquifer system were contaminated would create a significant hazard to public health. The addition of the Poolesville Area Aquifer System to the existing SSA, shown in the following figure extended the Maryland Piedmont SSA from State Route MD28 (approximate boundary) to the Potomac River, between Little Monocacy River and Seneca Creek's confluence with the Potomac River.

**Boundaries of Poolesville Sole Source Aquifer**



The aquifer system underlying the Poolesville area is within the Piedmont Lowland physiographic province. All municipal drinking water in the Poolesville area is supplied by ground water which is extracted from the underlying aquifer system by a series of public water supply wells. Residents outside of Poolesville obtain their drinking water from private wells. (For more information on the SSA, see Chapter 3, section V.B.2).

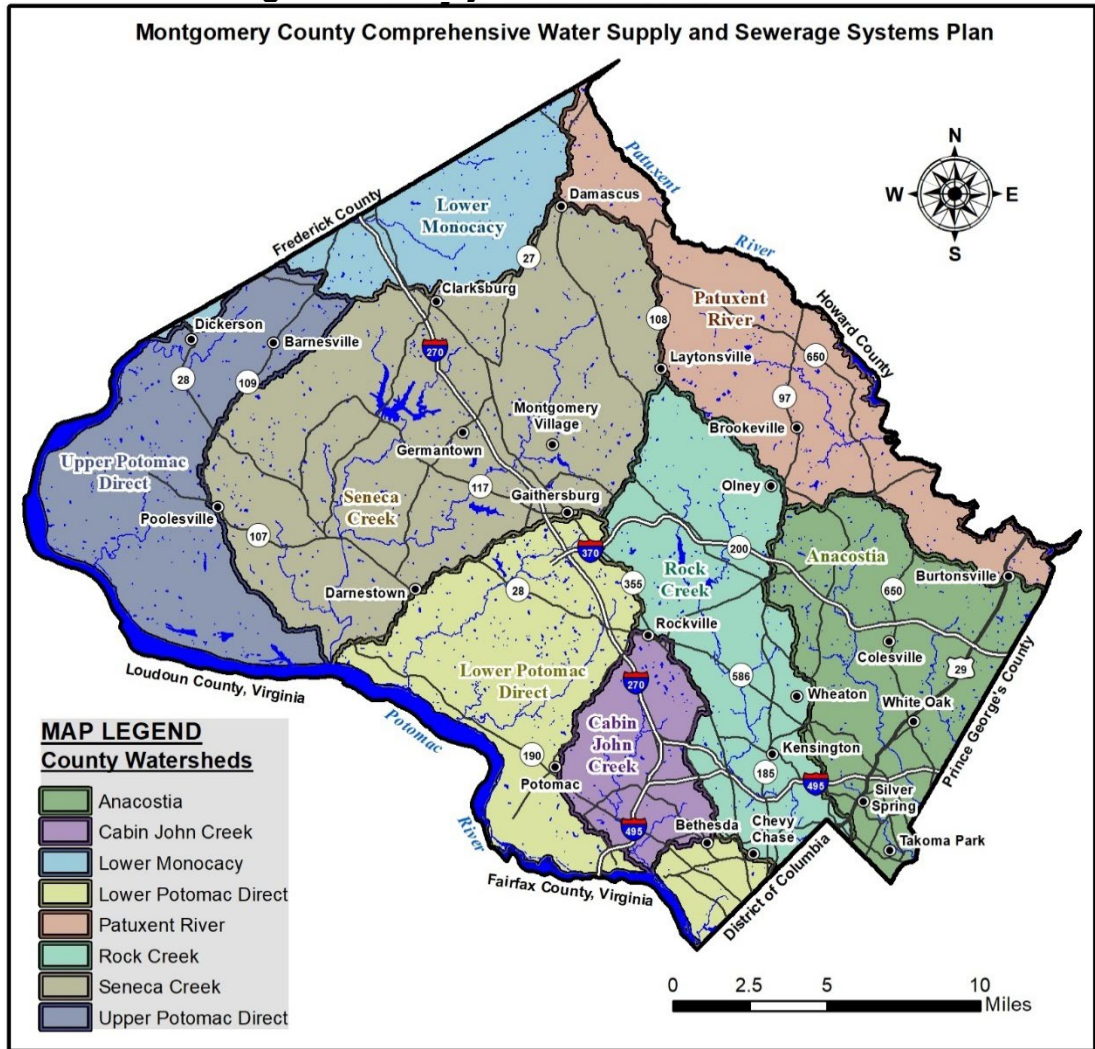
**II.E.2. Surface Water and Watersheds:**

The County's rivers, lakes, and streams provide drinking water, recreational opportunities, and vital habitat for aquatic and terrestrial wildlife. Surface water resources from the Potomac and Patuxent Rivers provide the majority of the County's community water supply needs of the County through WSSC Water and the City of Rockville water treatment facilities.

Surface water comes from both groundwater influx, which provides the base flow in streams, and from precipitation events and related run-off from rain and snow, which provide additional flows in excess of the base flow. Essentially all water impoundments in the County, including large lakes and small ponds are man-made. The largest lakes were built for flood and sediment control and water supply. Ultimately, all waterways within the County flow into the Chesapeake Bay.

As shown in Figure 2-F3, surface waters in Montgomery County flow within 9 major watersheds, which include 1500 miles of streams flowing into four major rivers: the Anacostia, the Monocacy, the Patuxent, and the Potomac River.

**Figure 2-F3: Major Watersheds**



The Potomac River borders the County to the west and southwest, the Patuxent River borders the County to the northeast. Twelve percent (12%) of the County drains to the Anacostia River which, in turn, drains to the Potomac River. Ten percent (10%) of the County drains to the Monocacy River which, in turn, drains to the Potomac River just upstream of the Montgomery-Frederick County border. Twelve percent (12%) of the

County drains to the Patuxent River. The remaining sixty-six percent (66%) of the County drains wither directly into the Potomac River or one of its major tributaries within the County. The County’s watersheds and their associated drainage areas are listed on Table 2-T2.

<b>Table 2-T2: County Watershed Drainage Areas</b>			
<b>Watershed</b>	<b>Area (acres)</b>	<b>Watershed</b>	<b>Area (acres)</b>
<b>Anacostia River Watersheds</b>	<b>38,062</b>	<b>Potomac River (Direct) Watersheds</b>	<b>206,231</b>
Little Paint Branch	3,496	Broad Run	9,227
Northwest Branch	19,603	Cabin John Creek	15,836
Paint Branch	9,453	Dry Seneca Creek	12,335
Sligo Creek	5,510	Great Seneca Creek	45,679
<b>Monocacy River Watersheds</b>	<b>31,903</b>	Horsepen Branch	6,733
Bennett Creek	6,179	Little Falls Branch	3,184
Fahrney Branch	829	Little Seneca Creek	25,145
Furnace Branch	493	Minehaha Branch	909
Little Bennett Creek (2 parts)	12,831	Muddy Branch	12,163
Little Monocacy River	11,571	Upper and Lower Potomac River Direct	18,155
Monocacy River Direct	340	Rock Creek	39,363
<b>Patuxent River Watersheds</b>	<b>38,498</b>	Rock Run	3,211
Hawlings River	18,017	Watts Branch	14,291
Lower Patuxent River	7,226	<b>Total County Watersheds</b>	<b>314,694</b>
Upper Patuxent River	13,255		

*Source: Countywide Stream Protection Strategy, Feb. 1998*

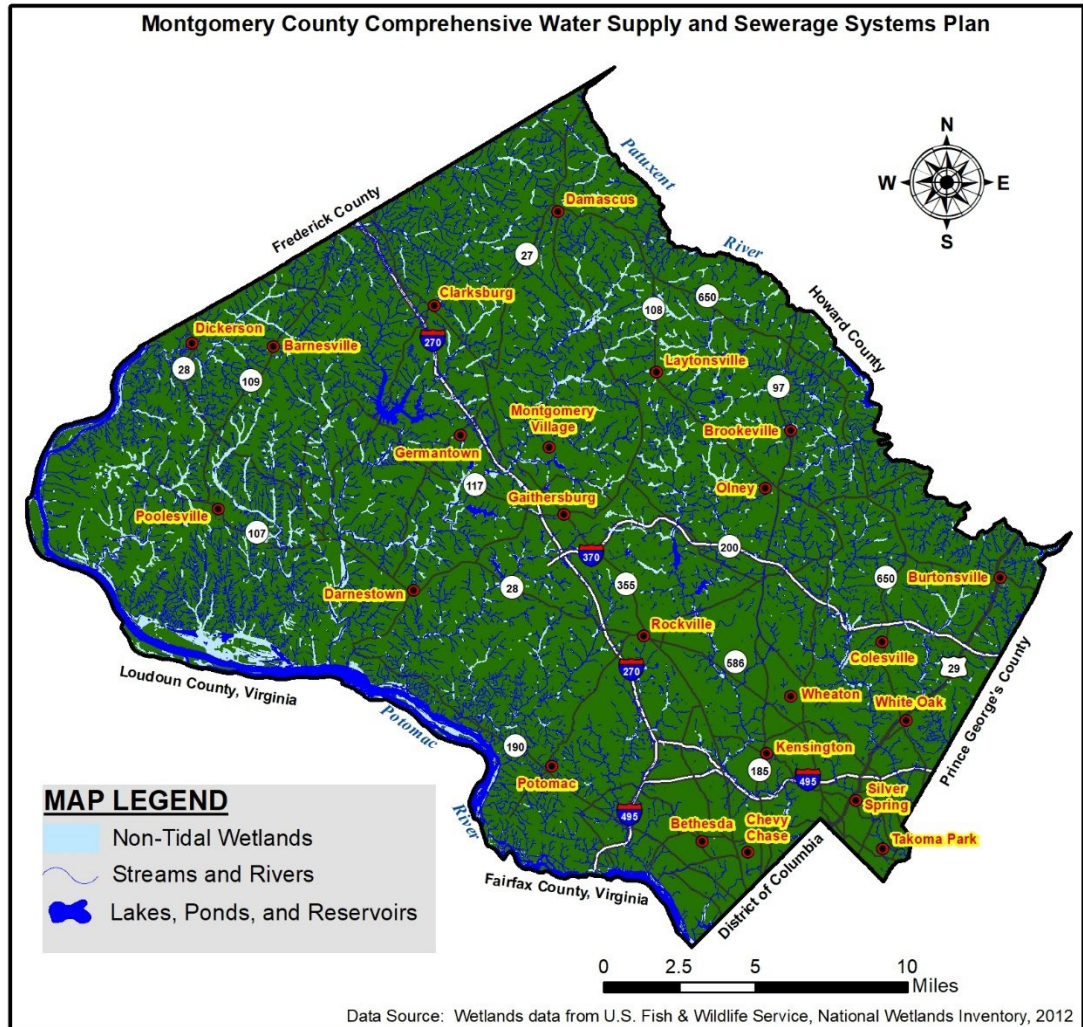
The County’s surface water drainage pattern provides a template for the alignment of much of its community sewer transmission main network. Most sewer mains operate by gravity and generally follow the “low flow” path downhill towards treatment or pumping facilities. This, of necessity, often requires the construction of sewer mains in close proximity to the County’s rivers and streams. Surface waters also receive treated flows from the County's four publicly-owned water resource recovery facilities (wastewater treatment plants) which include Seneca, Damascus, Poolesville and Hyattstown water resource recovery facilities.

**II.E.3. Wetlands:**

The important role of wetlands as natural filters in maintaining water quality is acknowledged at the federal, state, and local levels. It is recognized that loss of wetlands leads to decreased water quality protection, flood control, and wildlife habitat. Wetlands are vulnerable to off-site, indirect impacts such as hydrologic alterations and pollution. The County’s wetland areas are shown in Figure 2-F4, Non-Tidal Wetlands.



**Figure 2-F4: Non-Tidal Wetlands**



Regulations regarding the definition of, and allowable impacts to wetlands, continue to evolve. Wetlands are defined by the Planning Board's *Guidelines for Environmental Management of Development in Montgomery County*, January 2000, as "an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation."

Information on the location of major wetland areas in the county is available through National Fish and Wildlife Service maps. The M-NCPPC, Montgomery County Planning Department requires more accurate delineations of wetlands by a developer's engineer during the development review process. This detailed delineation is also required by federal and state agencies as a part of their wetland permit review processes

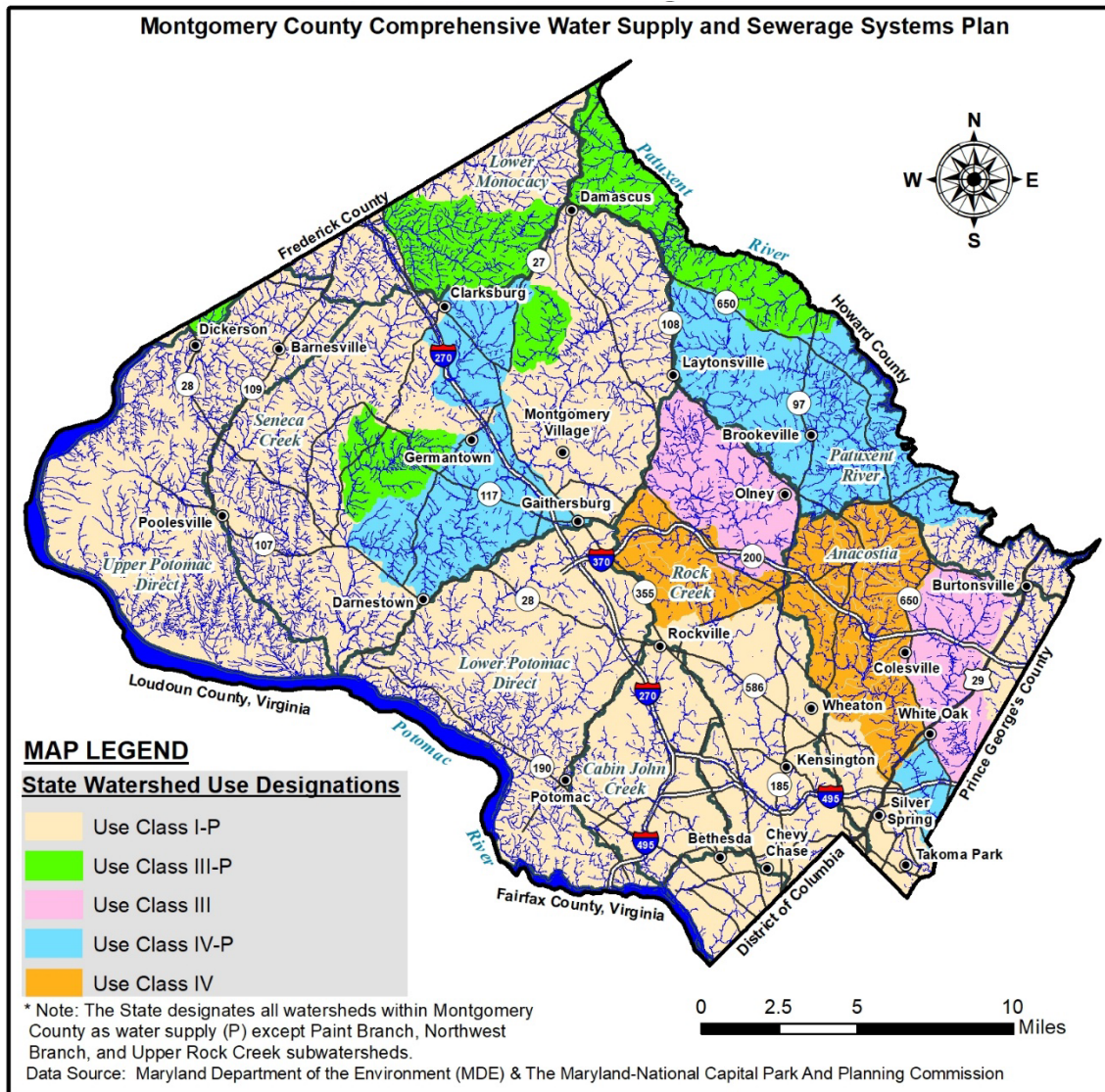
**II.E.4. State Water Use Class Designations:**

Maryland Department of the Environment (MDE) water quality standards place the surface waters of the State into water use designations with specific water quality criteria. The County's waters are covered under use designations listed below in Table 2-T3 and mapped on Figure 2-F5. More detailed information regarding the County's water quality conditions can be accessed at:

<https://www.montgomerycountymd.gov/water/>

<b>Table 2-T3: State Watershed Use Designations</b>	
<b>Designation</b>	<b>Definition</b>
<b>Use Class III</b>	<b>Natural trout waters:</b> Waters which are suitable for the growth and propagation of trout, and which are capable of supporting self-sustaining trout populations and their associated food organisms.
<b>Use Class III-P</b>	<b>Natural trout waters and public water supply:</b> Waters which include all uses identified for Use III waters and are used as a public water supply.
<b>Use Class IV</b>	<b>Recreational trout waters:</b> Waters which are capable of holding or supporting adult trout for put and take fishing, and which are managed as a special fishery by periodic stocking and seasonal catching (cold or warm waters).
<b>Use Class IV-P</b>	<b>Recreational trout waters and public water supply:</b> Waters which include all uses identified for Use IV waters and are used as a public water supply.
<b>Use Class I</b>	<b>Water contact recreation and protection of aquatic life:</b> Waters which are suitable for: water contact sports, play and leisure time activities where the human body may come in direct contact with the surface water; fishing; the growth and propagation of fish (other than trout); other aquatic life, and wildlife; agricultural water supply; and industrial water supply.
<b>Use Class I-P</b>	<b>Water contact recreation, protection of aquatic life and public water supply:</b> Waters which are suited for all uses identified in Use I and are used as a public water supply.
<b>Use Class II</b>	<b>Shellfish harvesting waters:</b> Waters where shellfish are propagated, stored or gathered for marketing purposes; and where there are actual or potential areas for the harvesting of oysters, softshell clams, hardshell clams, and brackish water clams. <i>(Note: There are no Use II waters within Montgomery County.)</i>

**Figure 2-F5: State Water Use Designations**



**II.E.5. Water Quality Programs:**

Since the 1990s, Montgomery County has maintained a stream monitoring program measuring biological communities (fish and benthic macroinvertebrates), physical habitat, and other physiochemical parameters.

Fish and benthic macroinvertebrate communities are excellent indicators of water quality. They must survive and reproduce in the full range of water quality and habitat conditions that occur throughout the year. If water quality or habitat conditions are poor for too long, sensitive species cannot survive and won't be collected during sampling.

Over the course of 5-year cycles, samples are collected from all the County's sub-watersheds. The data from these samples, including the number and type of organisms found, are input into a multi-metric analysis called an Index of Biotic Integrity (IBI). Scores are generated from these IBIs categorize stream conditions as Poor, Fair, Good, or Excellent.

- **Poor stream condition** is a combined IBI score (fish and bugs) of 0-41. Poor conditions most often occur in places where changes made by humans to the natural environment have substantially altered the structure of the biological community. These areas are often highly developed or urban and don't have good stormwater management.
- **Fair stream condition** is a combined IBI score of 42-63. These conditions occur most often in places anthropogenic stressors have impacted an area, but the area still supports viable biological communities. This condition describes many streams in suburban areas with some stormwater management, as well as areas that have had major agricultural impacts. The biological communities in fair streams are dominated by species that are tough and can survive in most conditions but may have a few organisms that are sensitive to stressors left.
- **Good stream condition** is a combined IBI score of 64-88. These conditions are often found in the less developed areas of the county, suburban areas with the latest stormwater management techniques, and areas with lots of protected land in their watershed. Many of the County's sensitive species can survive in these streams. Stream bugs like dragonflies and caddisflies are common. Fish like sculpins, darters, and longnose dace are common in these streams as well.
- **Excellent stream condition** must have a combined IBI score of 89-100. Most often, only highly forested watersheds with minimal development are in excellent condition. Here our most sensitive fish and stream bugs live. Fish like trout, shield darters, and comely shiners are found. Highly sensitive stream bugs like stoneflies and mayflies are common in these watersheds.

Based on the collected information and results, the County assesses and prioritizes the potential for improving conditions in degraded streams. Potential for improvements and work prioritization was based upon the degree of existing or planned watershed development and the estimated effectiveness of practical and appropriate management tools available for mitigation. The County's current ratings of stream conditions, based on biological monitoring, are shown in Figure 2-F6.

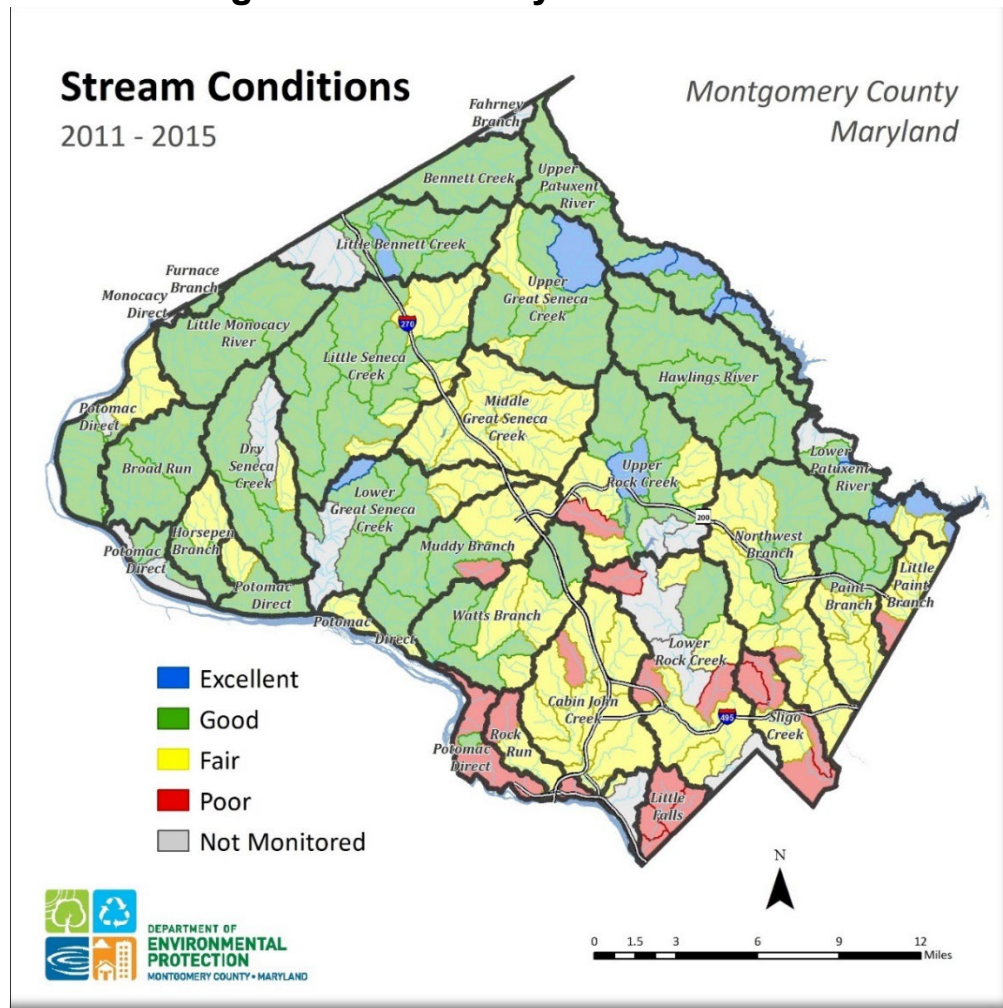
The County has also long recognized the need to protect its groundwater resources. Approximately 80,000 County residents rely on groundwater as their only source of water supply.

In 2002, the DEP along with citizens, work groups, and the County Council, developed the Water Quality Protection Charge to fund the maintenance of stormwater management facilities and alleviate the dangerous impacts of stormwater pollution.

From 2003-2012, all residential properties and approximately 40% of nonresidential properties including non-profit organizations, places of worship and private schools paid the WQPC.



Figure 2-F6: County's Stream Conditions



In order to meet state water quality regulatory requirements and to comply with the new State Law (Section 4-202-1 of the Environment Article of the Maryland Code), in 2013 Montgomery County expanded the WQPC to include all property owners in the County. Further, the WQPC was changed for residential properties from a flat rate to an equitable system based on how much impervious area is on the property.

**II.E.5.a. County Water Quality Goals:**

In November 1994, Montgomery County adopted water quality goals as follows (Montgomery County Code, Chapter 19, Article IV):

- Protect, maintain, and restore high quality chemical, physical, and biological conditions in the waters of the state in the County;
- Reverse the past trends of stream deterioration through improved water management practices;
- Maintain physical, chemical, biological, and stream habitat conditions in County streams that support aquatic life along with appropriate recreational, water supply, and other water uses.

- Restore County streams, damaged by inadequate water management practices of the past, by reestablishing the flow regime, chemistry, physical conditions, and biological diversity of natural stream systems as closely as possible.
- Help fulfill interjurisdictional commitments to restore and maintain the integrity of the Anacostia River, the Potomac River, the Patuxent River, and the Chesapeake Bay.
- Promote and support educational and volunteer initiatives that enhance public awareness and increase direct participation in stream stewardship and the reduction of water pollution.

These goals are applied to guide the planning and implementation of the County's water resources protection programs.

**II.E.5.b. Water Resources Management Programs:**

Several local agencies administer coordinated programs to manage and protect County water resources. These programs help protect streams, water quality, and aquatic life by regulating and mitigating the impacts of land use change as it occurs in County watersheds. For example, requirements for stormwater management and Environmental Site Design applied at the time of new land development involve a variety of active and passive techniques to reduce the amount of surface runoff, sediment and pollutants generated and introduced into the stream system, and involve the use of small-scale stormwater management practices, nonstructural techniques, and better site planning to mimic natural hydrologic runoff characteristics and minimize the impact of development on water resources.. These measures are designed to maximize runoff infiltration into the soil profile and reduce peak runoff flows delivered to streams. They also help maintain stream base flows, limit erosion and other damage to stream habitat and aquatic resources and complement localized flood protection. Some programs regulate wells and septic systems to protect groundwater water quality. Others apply a variety of monitoring, inspection, enforcement, maintenance, and educational programs to track water quality and limit pollution discharges.

**II.E.5.c. State and Federal Programs:**

For most urban areas like Montgomery County, what goes into our storm drains (stormwater) makes its way into our local streams. Those streams are part of larger watersheds that lead to major rivers, like the Potomac River, and eventually the Chesapeake Bay. Because our waters are interconnected and not defined by county or state lines, the federal government regulates everything that goes through storm drain systems. The federal government regulates storm drains through a permit process called the National Pollutant Discharge Elimination System (NPDES), Municipal Separate Storm Sewer System (MS4) Permit Program.

In Maryland, the U.S. Environmental Protection Agency (EPA) has delegated the authority for issuing all NPDES permits in the state, including the MS4 Permits, to the Maryland Department of the Environment (MDE). Read more about the Maryland MS4 Permitting program.

The MS4 Permit Program was established to reduce stormwater pollution throughout the United States. The primary goal of the program is to restore and maintain the chemical, physical, and biological integrity of the nation's waters.

The County's Permit requires the prohibition of pollutants in stormwater and unauthorized discharges to the MS4, restoration of poor-quality streams by achieving required pollutant reduction, and other activities to help meet water quality protection goals. Runoff must be captured, slowed and treated by stormwater best management practices.

The Department of Environmental Protection is the lead department coordinating a multi-department/agency response to meet the requirements of the MS4 Permit. The permit is a key driver of the County's strategic watershed restoration program.

**II.E.5.d Montgomery County's MS4 Permit:**

The Department of Environmental Protection is the lead department coordinating the County's multi-department/agency response to meet the requirements of the MS4 Permit. The permit is a key driver of the County's strategic watershed management program. The MS4 Permits are issued for a five-year cycle. The County's current MS4 Permit was issued on November 5, 2021, by the Maryland Department of the Environment and expires on November 4, 2026. During the permit term, the County is required to:

- By November 4, 2026, the County shall complete the restoration of 1,814 impervious acres that have not been treated to the maximum extent practicable by implementing stormwater BMPs, programmatic initiatives, or alternative control practices in accordance with the 2021 Accounting Guidance
- Show progress toward meeting the Total Maximum Daily Loads (TMDLs) Wasteload Allocations (WLAs) approved by the U.S. Environmental Protection Agency (EPA).
- Reduce trash and litter county-wide.
- Develop and implement a public outreach and education program that focuses on reducing stormwater pollution and litter
- Conduct preventive maintenance inspections of all Stormwater management facilities
- Implement laws and programs to reduce stormwater and pollution
- Submit annual progress reports to MDE.

**II.E.5.e. Chesapeake Bay Protection:**

Maryland, Virginia, Pennsylvania, Washington D.C., the U.S. Environmental Protection Agency, and the Chesapeake Bay Commission signed the 1987 Chesapeake Bay Agreement to provide comprehensive guidance for minimizing the negative impacts of land activities in the Chesapeake Bay drainage area. The Agreement provides specific goals for improving the Bay such as a 40 percent reduction in nutrient pollution by the year 2000.

Montgomery County is a member of the Mid-Potomac Tributary Team and Patuxent River Commission which Maryland established to develop the agency/citizen/business partnerships necessary to meet this target in these Bay tributaries. Additional information on the principal government agencies which help manage the County's water resources are included in Chapter 1, Section I.E.

### **III. CULTURAL ENVIRONMENT:**

This section presents data on projected growth and densities required for planning the public facilities addressed by this Plan. For example, the projected population of the County is a major determinant of future water supply demands and wastewater flows and needs. Projected changes in land use from rural categories to suburban and urban uses direct where community water and sewerage systems will be needed in the future. The changes can result in impervious areas, increasing peak stormwater runoff flows that affect streams and create stormwater management needs.

#### **III.A. Legal Requirements and Other Policy Guidance:**

Legal and policy guidance and requirements for water supply, sewerage, stormwater management, and rural sanitation planning are provided by Federal, State, and County governments and by regional agreements. The County government's major relevant policy vehicles are outlined below. The staging mechanisms of these policy and regulatory tools provide for managing the timing and extent of growth in the County. As an important element in growth management and staging, the Comprehensive Water Supply and Sewerage Systems Plan (CWSP) accounts for the land use plans and staging policies of individual areas of the County, for the current status of development in each area, and for the future expectations of population, employment, and housing trends. In this way, the Water and Sewer CWSP can project the County's future water supply and sewerage systems needs and coordinate those needs with development in the County.

**III.A.1. General Plan:** The General Plan provides a comprehensive framework for guiding physical development and managing limited resources in the County. The main purpose of the General Plan includes:

- the general location, function, intensity, and pattern of various land uses,
- provides direction for integrating future development and redevelopment with existing development,
- addresses the relationship between human activity and the built and natural environment,
- addresses the varying needs and desires of a diverse and changing County population and economic community,
- promotes connections among all areas of the County and between the County and the region.

The current Montgomery County's comprehensive land use plan, the General Plan, was adopted in 1964 and refined in 1993. Currently the Montgomery County is undertaking an update/revision to its General Plan, the revision is being called **Thrive 2050**. Thrive 2050 is the update to Montgomery County's long-range policy framework for guiding future land use and growth for the next 30 years. Thrive Montgomery 2050 will help guide future land use planning; countywide policies and associated future infrastructure decisions and initiatives. The link below provides access to the latest draft version of Thrive 2050 plan.

<https://montgomeryplanning.org/wp-content/uploads/2020/06/Final-staff-report-vision-goals-policies-and-actions-for-6-11-20-PB-.pdf>

The General Plan is an evolving and dynamic policy document containing generalized concepts that provide the basis for more specific area master plans, functional plans, and sector plans. Each of these master plans, sector plans, and functional plans, after

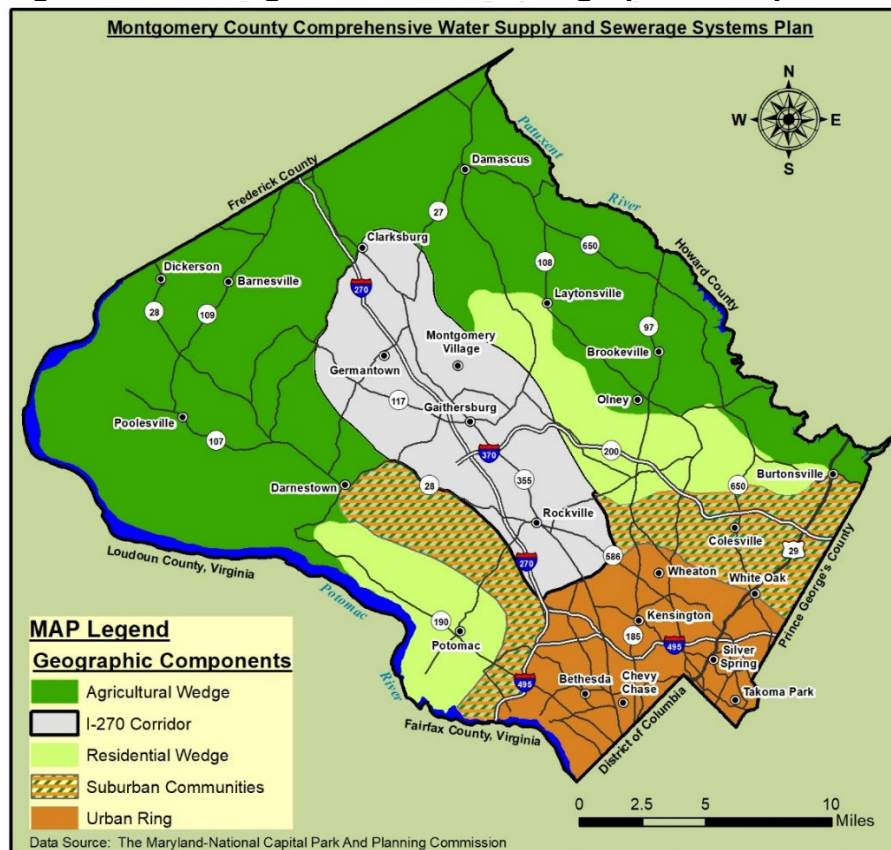


approval by the County Council and adoption by the M-NCPPC, constitutes an amendment to the General Plan. Master plans can provide specific water and sewer policies which are then implemented by the CSWP. As the county's longest-range and most visionary document, the General Plan provides a broad image for the county's evolution and establishes a framework to make that vision become a reality. It is specific enough to provide clear guidance for realizing its vision, while retaining enough flexibility to respond to unforeseeable circumstances as they arise.

The General Plan establishes a basic policy of concentrating development in a ring around the District of Columbia, and along major transportation corridors extending outward from this ring. The corridors are separated from each other by rural or low-density wedges. The initial 1964 General Plan developed this Wedges and Corridors Concept, which the County reaffirmed in a 1969 update and refined in 1993. This concept is viewed as the means to avoid sprawl, and, instead, to achieve an efficient, orderly, and attractive pattern of development.

During the 1993 General Plan Refinement the County was divided into four geographic components: the Urban Ring, the Corridors, the Suburban Communities, and the Wedges. With the exception of the Wedges, the borders between these areas are gentle transitions, not stark interruptions of an otherwise continuous pattern. Each area is defined in terms of appropriate land uses, scale, intensity, and function. The geographic components are illustrated in Figure 2-F7.

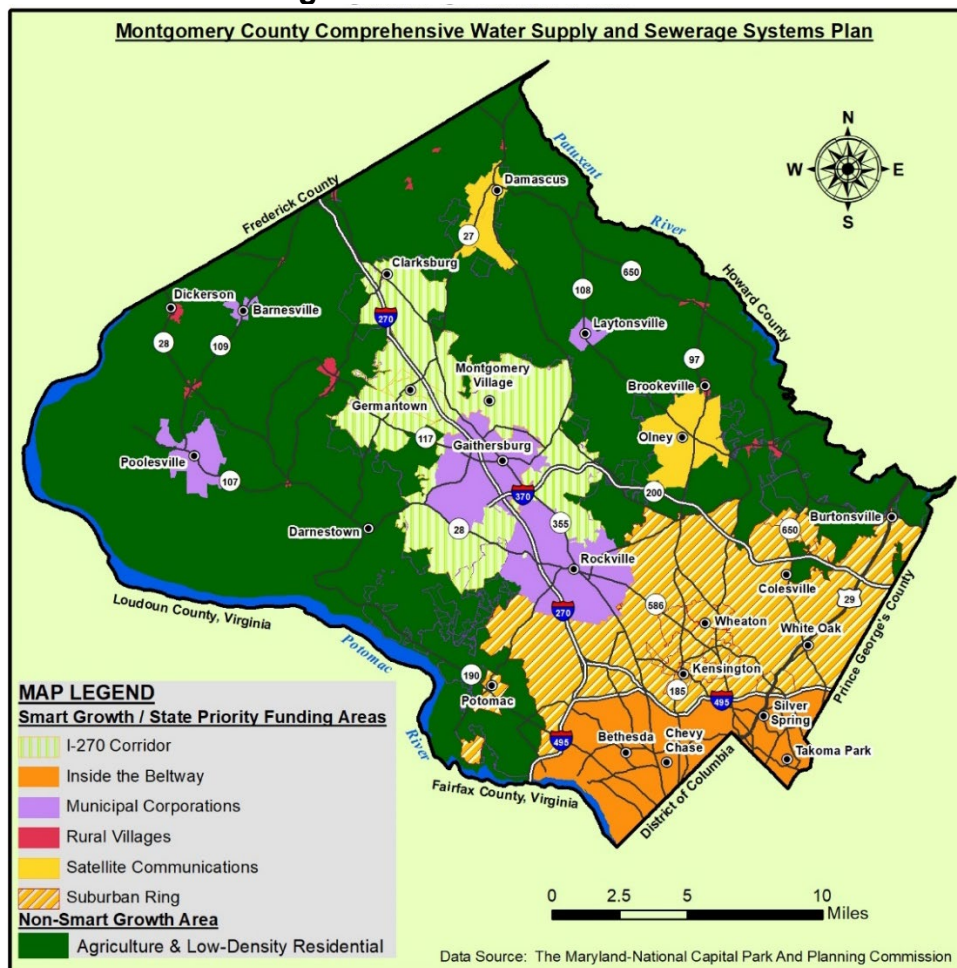
**Figure 2-F7: Wedges & Corridors Geographic Components**



An objective of the CSWP is to plan for community service to implement and reinforce the Wedges and Corridors Concept. Wedge preservation policies are complemented by the limitation of community water and sewer service, except as may be necessary to resolve public health problems and permit limited expansion of existing settlements.

The Wedges and Corridors concept reinforces and coordinates closely with Maryland's Smart Growth program. Under the Smart Growth Priority Funding Areas Act of 1997, the program's purpose is to limit sprawl development by directing State funding to areas where local governments want State investment to support future growth: higher-density development areas, redevelopment areas, and municipalities identified as Priority Funding areas. The legislation covers growth-related projects under most State programs that encourage or support growth and development. These can include highways, water and sewer construction, economic development assistance, and State leases or construction of new office facilities. In practice, State funding for water and sewer infrastructure in Montgomery County is primarily focused on improvements to water filtration and water resource recovery facilities. In following the guidance of the General Plan and its accompanying local area master and sector plans, this Water and Sewer Plan supports the Smart Growth program. The County's designated State Smart Growth/Priority Funding areas are shown in Figure 2-F8.

**Figure 2-F8: Smart Growth Areas**



**III.A.2. Water Resources Element for the General Plan:** The Water Resources Element (WRE) is one of several major new local planning requirements added to state law in 2006. Section 1.03 (iii) of Article 66B of the Annotated Code of Maryland mandates that all Maryland counties and municipalities that exercise planning and zoning authority prepare and adopt a water resources element in their comprehensive plans.

The purpose of the Water Resources Element is to ensure that future County and municipal comprehensive plans and opportunities and limitations presented by local and regional water resources. WREs are intended to improve local jurisdictions' contribution to the protection of state land and water resources; to the protection of public health, safety and welfare; and to meeting local and state smart growth policies. It provides a link between the Land Use Plan and plans for the provision of drinking water supplies, wastewater treatment and discharge and capacity and stormwater management.

The County fulfilled its WRE requirement with the Water Resources Functional Master Plan (WRFMP), which amends the County's General Plan. The approved and adopted WRFMP provides information on County water and sewer service capacity in light of planned growth to 2030, summarizes an estimate of nutrient loadings on watersheds for existing and future conditions, and identifies policies and recommendations that are needed to maintain adequate drinking water supply and wastewater treatment capacity to 2030, and meet water quality regulatory requirements as the County continue to grow. The WRFMP, plus other related documents, can be accessed on line at:

[http://www.montgomeryplanning.org/environment/water\\_resources\\_plan/index.shtm](http://www.montgomeryplanning.org/environment/water_resources_plan/index.shtm)

**III.A.3. Staging Plans and Policies:** Guidance for the staging of development is contained in the General Plan, in the Annual Comprehensive Planning Policies Report, in various master plans, and in policies developed to guide the administration of the Adequate Public Facilities Ordinance.

**III.A.4. Adequate Public Facilities Ordinance:** The Adequate Public Facilities Ordinance (an adjunct to the Subdivision Ordinance) places conditions on the County Planning Board's subdivision or recordation of land based on the availability of existing and programmed public facilities, such as transportation systems, water and sewerage systems, schools, police, fire and health facilities.

**III.A.5. Capital Improvements Program:** The Capital Improvements Program (CIP) is the document through which the County government decides the extent and timing of the provision of its public facilities. This is a six-year planning document that identifies the extent, timing, and funding of approved capital projects. The water supply and sewerage systems capital planning originate at WSSC Water with coordination with County agencies. This WSSC Water CIP is reviewed and approved jointly by the Prince George's County Council and the Montgomery County Council. Appendix A provides a listing and brief description of currently approved capital water supply and sewerage systems projects throughout the County.

**III.B. Land use and Zoning:**

The amount of land in Montgomery County is fixed; how it is used is not. Every piece of land in the County is subject to zoning laws that determine how the land can be used and what

public facilities and amenities are needed to provide service to the community. The County Council is the final authority on land use matters. The Council approves changes in the Zoning Ordinance.

The land area of the County is approximately 505 square miles, or about 323,000 acres. The county is populated by one million people and projected to gain an additional 200,000 residents in the next 25 years. It has settled into a slower growth phase as dwindling supplies of developable land and burdened transportation capacity no longer sustain rapid growth. Only 18 percent of the county is available for development on undeveloped land. This percentage is a huge reduction from the last General Plan revision, when more than 40 percent of the county was available undeveloped land.

The pattern of residential growth in the County has basically followed the Wedges and Corridors Concept since the adoption of the General Plan. Figures 2-F9 and 2-F10 represent the geographic distribution of households, population densities, and general boundaries of community water and sewer envelopes in 2015. Approximately 97% of the population in Montgomery County is served by community water and approximately 93% of the population in Montgomery County is served by community sewer.

**Figure 2-F9 – Land Use, Zoning, Population density, and General community Water Service Envelope**

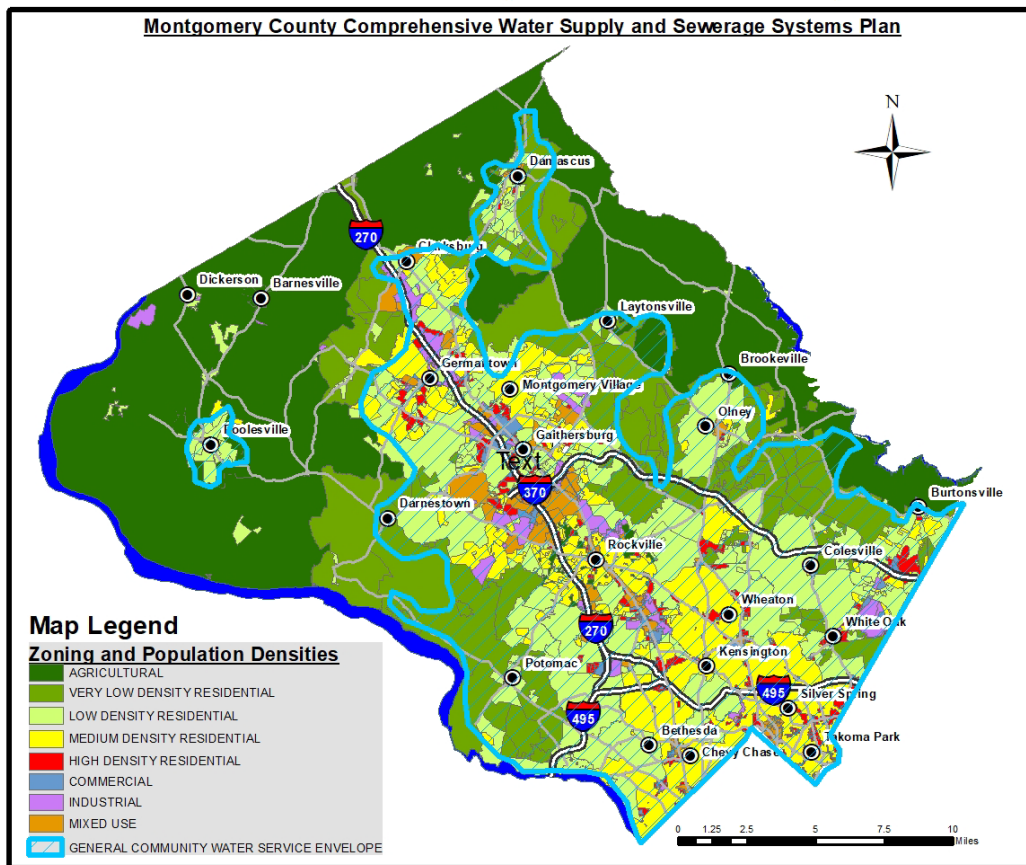
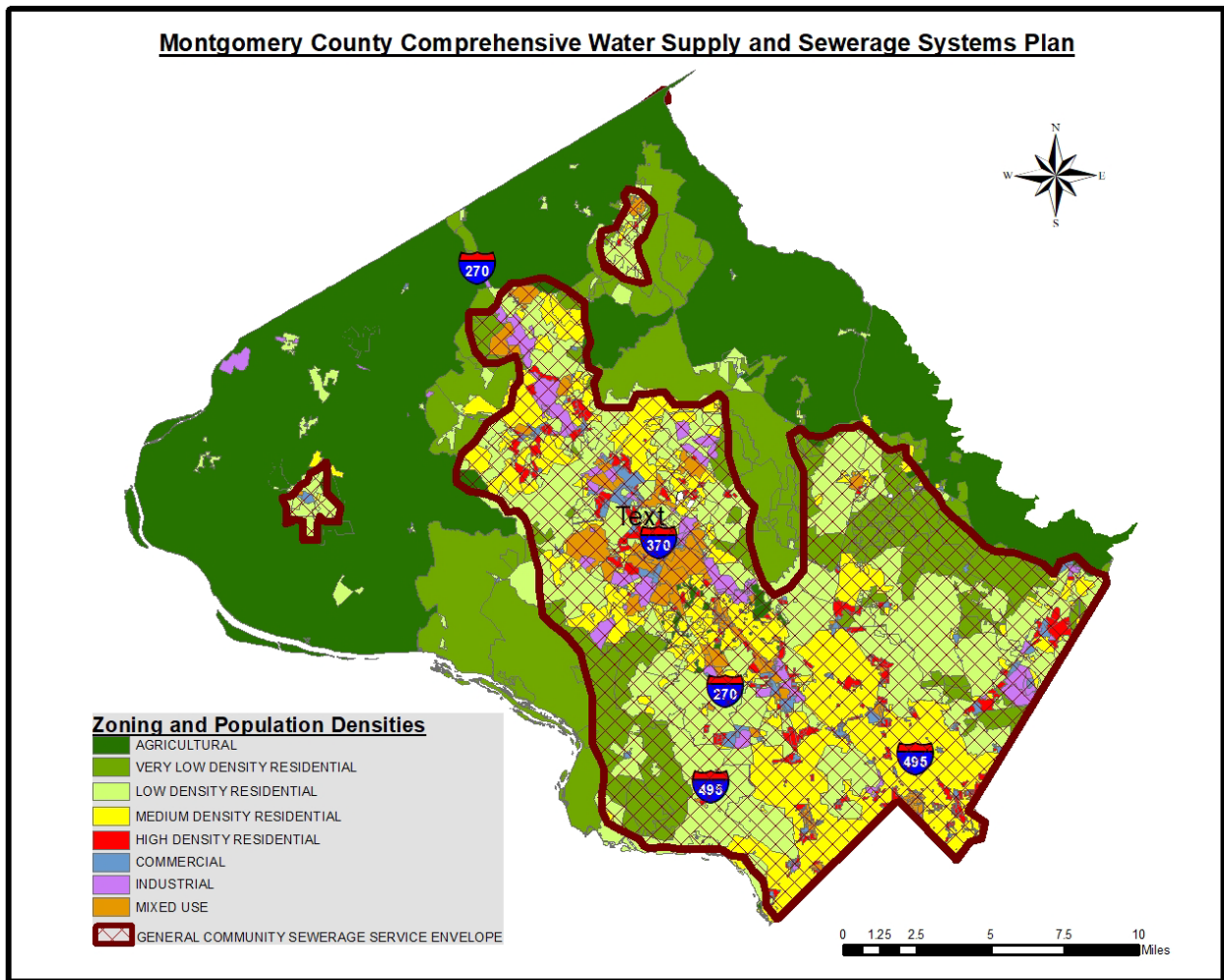




Figure 2-F10 – Land Use, Zoning, Population density, and General Community Sewerage Service Envelope

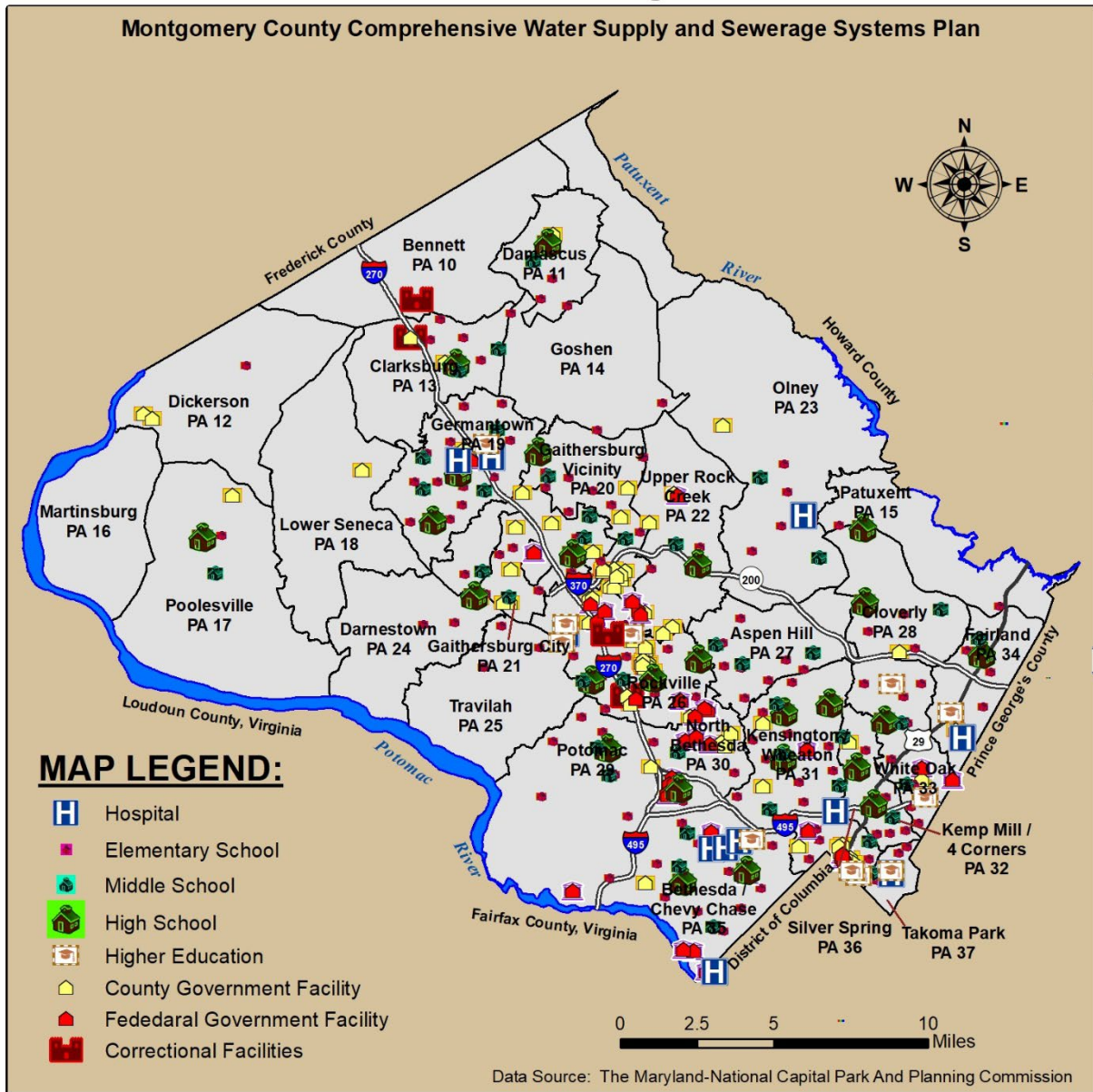


### III.B.1 Planning Areas:

The Montgomery County Planning Department is responsible for developing master plans for development and analyzing various types of information to help public officials plan for Montgomery County's future. Each community within Montgomery County has a master plan that creates a comprehensive view of land use trends and future development.

Plans recommend land uses, zoning, transportation, schools, parks, libraries, and fire and police stations as well as address housing, historic preservation, pedestrian and trail systems and environmental issues. The County's Planning Areas are shown in Figure 2-F11. Also, shown in figure 2-F11 are major public institutions and facilities such as public schools, hospitals, and major government complexes. A listing of all major public institutions and facilities can be found in Appendix E.

Figure 2 – F11: M-NCPPC Planning Areas



**III.C. DEMOGRAPHICS:**

Population dynamics and forecasting is one of the main factors in developing plans for the County’s future water supply and sewerage system needs. In cooperation with the Metropolitan Washington Council of Governments (MWCOC), the Research and Special Projects Division of M-NCPPC produces long-range forecasts of population, employment and housing for Montgomery County and areas within the County. Forecasts are based on analysis of data from a variety of sources, including local development, population and economic trends; models of the Washington, D.C. area population and economic base; and published state and federal statistical resources.

The latest forecasts (Round 9.1 Cooperative Forecasting) of population, households, and employment were developed and published by MWCOC in October 2018 through a

cooperative process involving the Council of Governments, its member jurisdictions, the Baltimore region, the states and other planning agencies.

Table 2-T4 include a summary of Population, households and at-place (place of work) employment data for Montgomery County produced through Round 9.1 Cooperative Forecasting. Data is presented in five-year increments from 2015 (Base Year) through 2045. For the most current population forecasting publications or to obtain additional details on MWCOG Round 9.1 Cooperative Forecasting, please refer to the following link:

<https://www.mwcog.org/documents/2018/10/17/cooperative-forecasts-employment-population-and-household-forecasts-by-transportation-analysis-zone-cooperative-forecast-demographics-housing-population/>

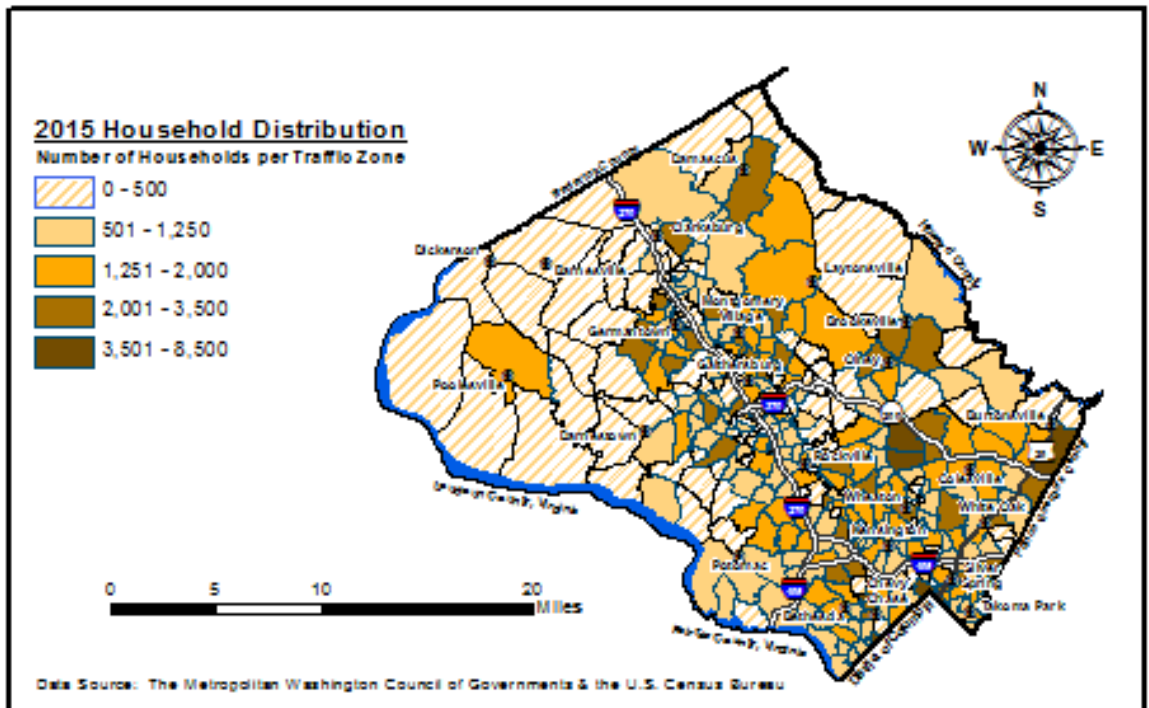
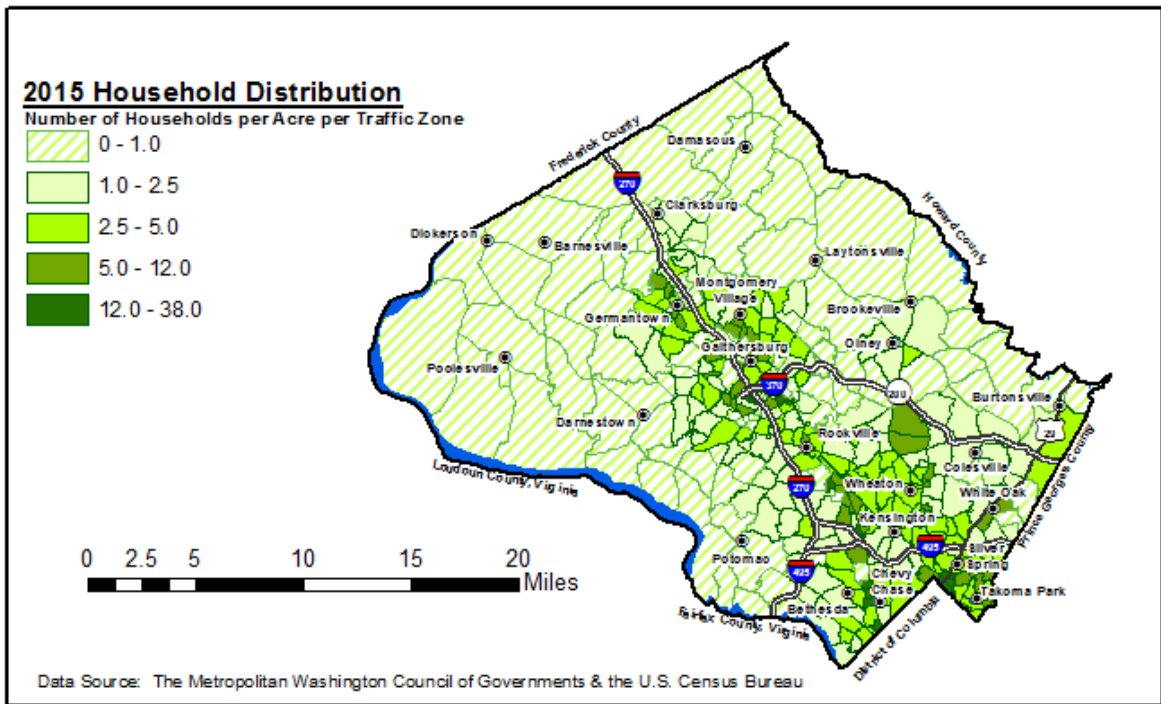
Also, for a more specific population trends in different jurisdictions or planning areas within Montgomery County, please refer to:

<https://montgomeryplanning.org/tools/research/forecasting/>

<b>Table 2-T4: County-Wide Population, Household and Employment Forecasts</b>							
<b>Year</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>	<b>2045</b>
<b>Total Population</b>	1,015.3	1,052.0	1,087.3	1,128.8	1,167.7	1,197.1	1,223.3
<b>No. of Households</b>	374.9	391.2	405.7	422.3	438.1	450.9	461.9
<b>Total Employment</b>	520.2	543.5	572.5	604.5	627.4	653.9	678.8

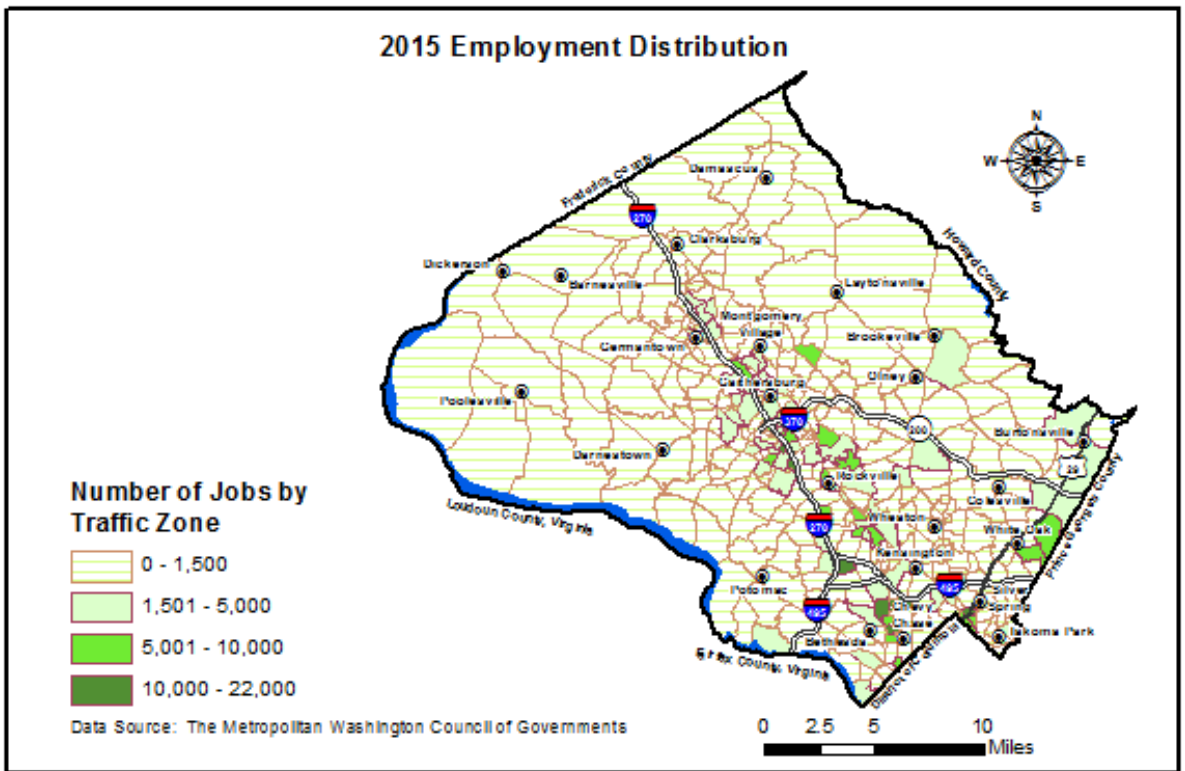
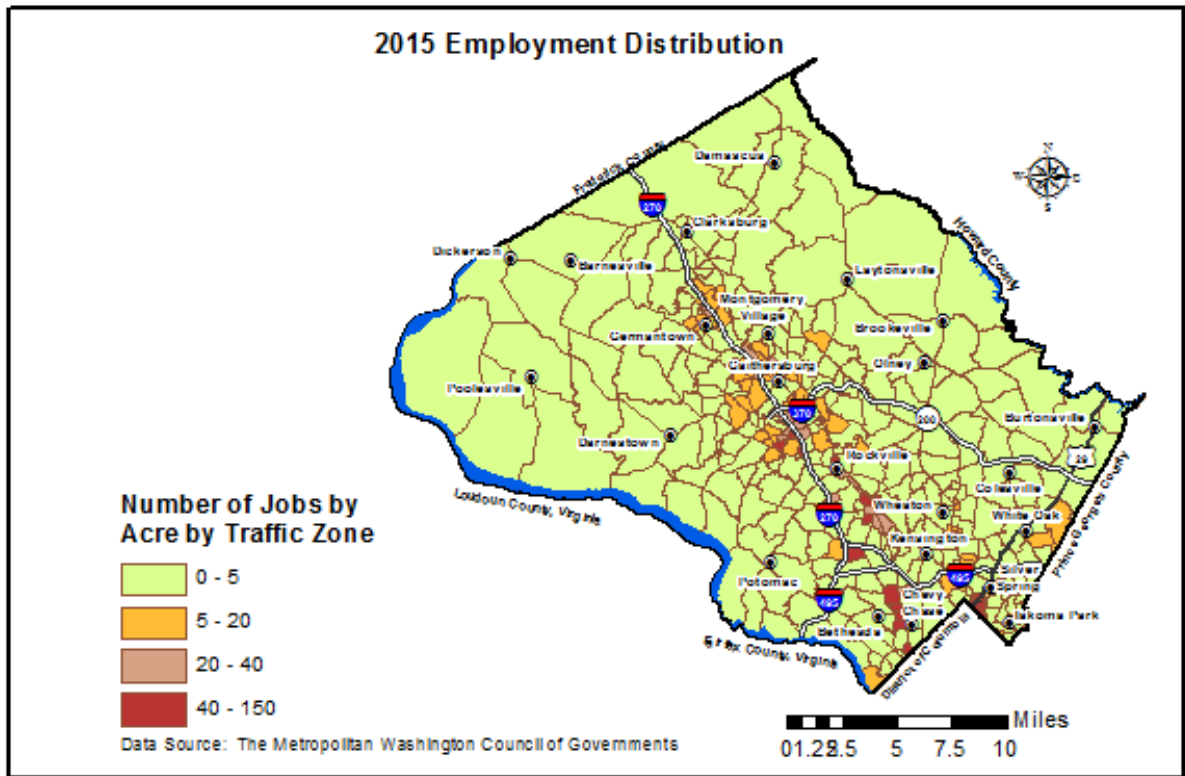
*Note:* "Total Population" includes all residential population from households and institutions.  
*Source:* Round 9.1 Forecast (M-NCPPC, Research and Technology Center, & MWCOG – October 2018)

As shown in the following figures; consistent with past trends, the I-270 Corridor is expected to lead all other planning areas in household population growth over the 2015 to 2045 forecast period, both in the rate of growth and in actual household population. Most of this population growth will occur in areas with sanitary service from existing or proposed community water and sewerage systems.



Also, the distribution of employment locations in the County has followed the Wedges and Corridor pattern of the General Plan, as illustrated in the following figures.





The darkest patterns indicate the highest concentration of jobs. Traffic zones with more than 5,000 jobs are generally located in the Urban/Suburban Ring and in the I-270 Corridor. In the Ring, the highest concentrations are in the four central business districts, the City of Rockville, and the Rock Spring and West Farm office/industrial park areas. Employment is generally intense throughout the I-270 Corridor and centered along I-270 for the most part, with the Airpark to the northeast the most distant intensive location. In addition, the larger town and the satellite communities of Olney and Damascus have significant numbers of jobs, generally providing goods and services to local residents.

# **CHAPTER 3**

## ***WATER SUPPLY SYSTEMS***

**CHAPTER 3: WATER SUPPLY SYSTEMS**

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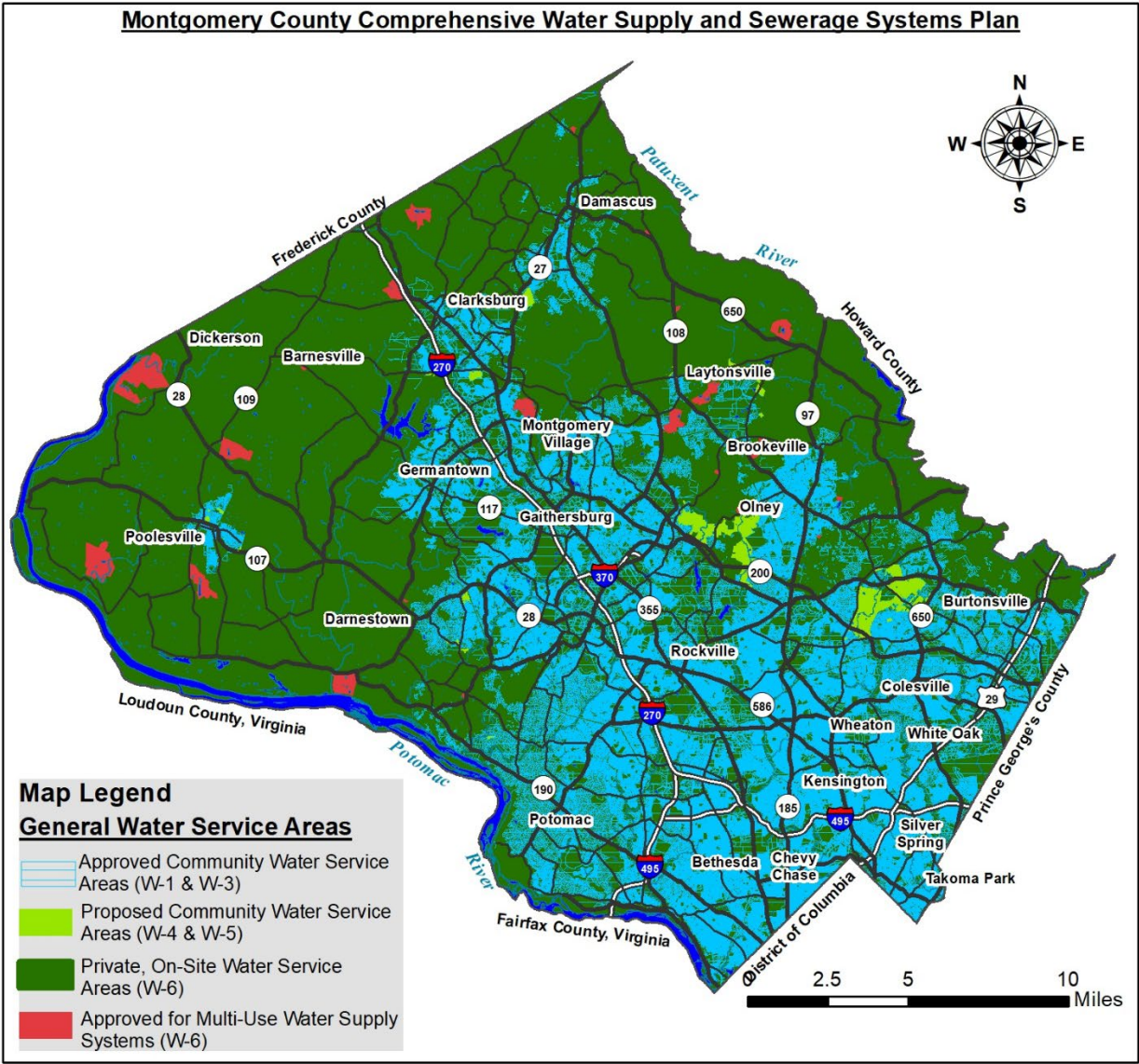
## **I: INTRODUCTION**

This chapter addresses the County's water supply, demand, treatment, and distribution issues. It discusses the major water supply facilities that have been approved by various federal, state, and local agencies in recent years to provide for the mid- and long-range water supply needs of the County and the Washington Metropolitan Region. This chapter provides information addressing water consumption, water system transmission, storage facilities, planning, and financing issues, and projected water treatment and area distribution systems' needs. As part of a long-term strategy to provide adequate service to increasing regional population and reducing treatment costs, this Plan recognizes the importance of protecting the quality of water supply resources.

**I.A: Water Service Area Categories:**

As discussed in Chapter 1, this Plan classifies all areas of the county into one of five category designations for water service areas. The categories range from areas currently served by community systems (W-1), to areas where improvements to or construction of new community systems will be planned in the future (W-3, W-4, and W-5), to areas where there is no planned community service (W-6). Note that in practice, Montgomery County does not use category W-2, which the State uses to designate areas where community water system projects are in the final planning stages. Montgomery County does not find this planning designation useful due to its short duration relative to that of this Planning document. Figure 3-F1 shows a generalized distribution of water service area categories throughout the county. For additional detailed information on water service categories, please refer to Chapter 1 section II.D.

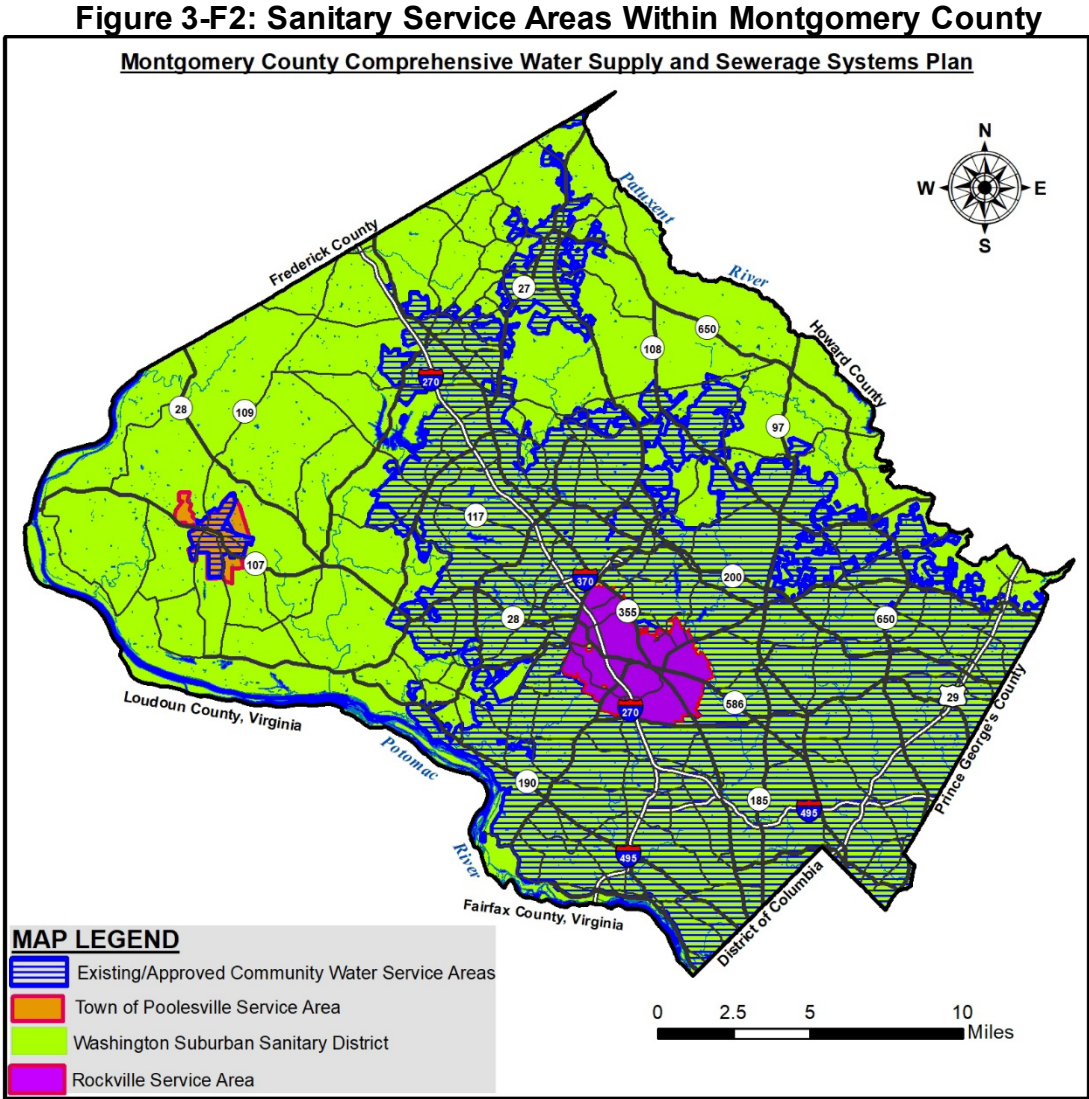
**Figure 3-F1: Montgomery County Water Service Areas**





**I.B: Sanitary Service Areas:**

The County is divided into three publicly owned and operated sanitary service areas or districts. As shown in Figure 3-F2, these districts are: The Washington Suburban Sanitary District (WSSD), the largest system, serving most of the county; and two smaller municipal districts, one owned and operated by the City of Rockville and the other by the Town of Poolesville. Each district has its own designated water supply source(s), water treatment facilities, and water distribution systems; these districts also manage wastewater services. Information for the districts serving Rockville and Poolesville was provided primarily by those municipalities and incorporated into this Plan consistent with State law.



This chapter addresses each of these districts independently, starting with the WSSD, with a primary focus on community water systems and service. Within each sanitary district, some properties are served by individual, on-site systems, rather than community systems. The vast majority of these individual systems are within the WSSD, though they are not served by the WSSC Water. Information on individual, on-site systems, or rural sanitation service (individual wells), follows at the end of the chapter.

## **II: WASHINGTON SUBURBAN SANITARY DISTRICT (WSSD)**

The WSSD, established by State law in 1918, includes most of Montgomery and Prince George's Counties, and encompasses a total area of approximately 1000 square miles in both counties. Although the WSSD covers much of the majority of the county, WSSC Water does not provide community water and sewer service everywhere within the district. Guided by the policies included in this Plan, the provision of community water service within Montgomery County generally follows the patterns initially established by the County's General Plan for land use and development "On Wedges and Corridors" (see Chapter 2). The General Plan is further refined by area master plan updates. Community water and sewer service was initially established and planned for the southern part of the county, sometimes referred to as the "urban ring" that follows the Interstate 495 Capital Beltway. Community service then extends north along three major transportation corridors planned for higher density development:

- The U.S. Route 29 (Colesville Road/Columbia Pike) corridor to Burtonsville.
- The State Route 97 (Georgia Avenue) corridor to Olney.
- The U.S. Interstate 270/State Route 27 (Ridge Road) corridor to Clarksburg and Damascus.

County water service policies also allow for some limited provision of community service to lower-density areas adjacent to and between these major corridors.

Community service in the WSSD depends on surface water supply from two major rivers: The Potomac River and the Patuxent River. Elsewhere, primarily in the western and northeastern parts of the county, water service depends on individual, on-site systems, which utilize groundwater resources. Under an agreement with WSSC Water, Frederick County supplies community water service to the Rattlewood Golf Course, operated by the Montgomery County Revenue Authority and located at the northernmost tip of the county, approximately 4-1/2 miles north of Damascus. The community water supply is provided by three groundwater wells located in Frederick County in the Mill Bottom water supply system.

### **II.A: Government Responsibilities:**

The responsibilities for planning for and providing water service within the WSSD are multi-jurisdictional and depend on the cooperative efforts of municipal, County, WSSC Water and regional authorities. This is especially true with regard to the Potomac River, a shared raw water source for several jurisdictions. These agencies include the following:

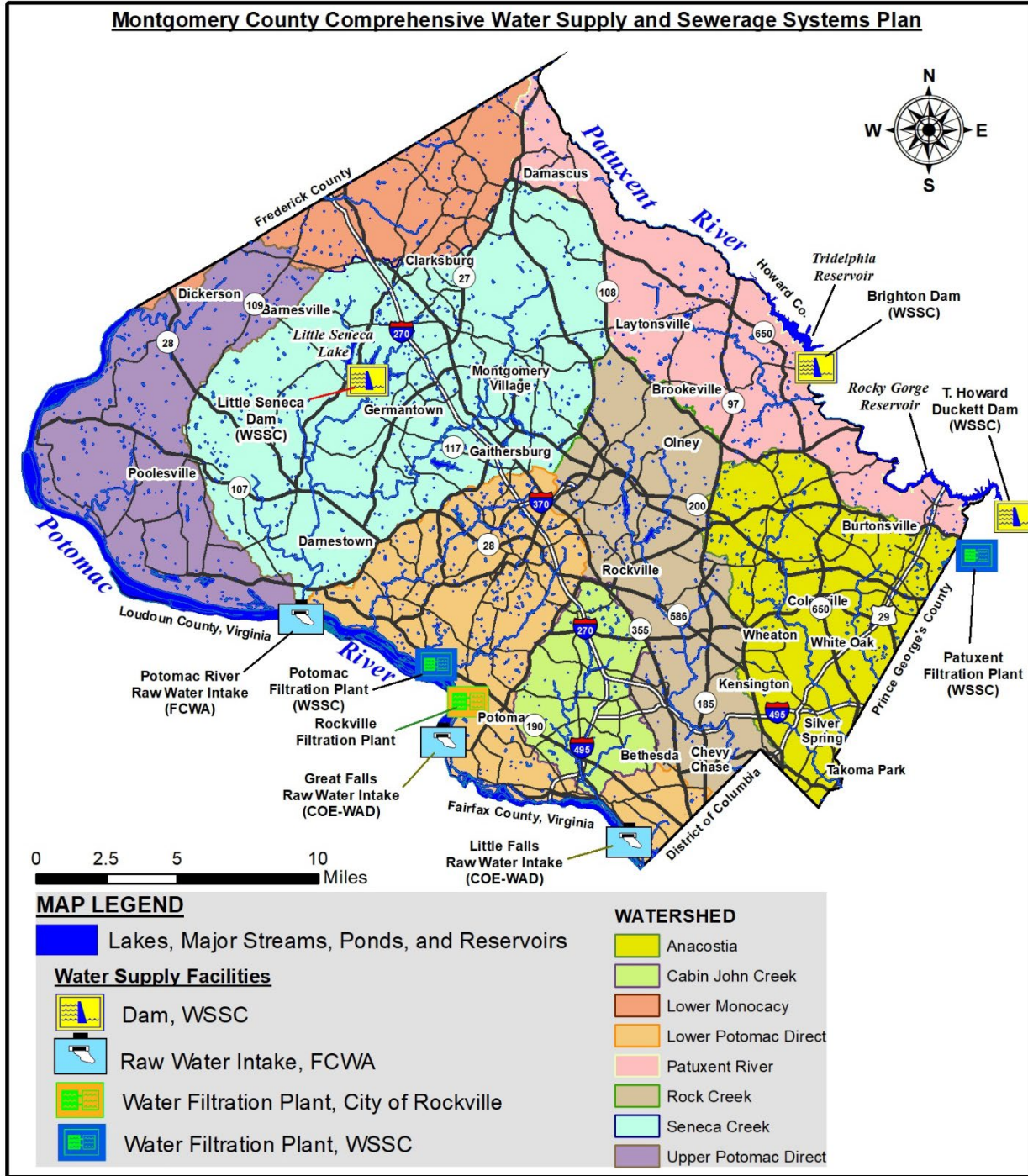
- Montgomery County Government:
  - Department of Environmental Protection (DEP)
  - Department of Permitting Services (DPS)
- Washington Suburban Sanitary Commission (WSSC Water)
- Maryland - National Capital Park and Planning Commission (M-NCPPC)
- Interstate Commission on the Potomac River Basin (ICPRB)
- Metropolitan Washington Council of Governments (COG)
- State of Maryland:
  - Department of the Environment (MDE)

These agencies, and their primary responsibilities and programs, are described in detail in Chapter 1, Section I.E.

**II.B: Water Supply Sources:**

Community water service in the WSSD depends on surface water supplied from the Potomac and Patuxent Rivers on opposite sides (west and east) of the county as shown in Figure 3-F3.

**Figure 3-F3: WSSC Water Surface Water Supply Sources**



**II.B.1: Potomac River:** The Potomac River is the larger of the two sources of surface water supply for Montgomery County. The river forms the southwestern border of Montgomery County with Virginia and serves as the source of drinking water to many communities in Maryland, Virginia, West

Virginia, and Washington D.C. The Potomac River supplies over 40 billion gallons of water annually to the bi-county area of Montgomery and Prince George's Counties. WSSC Water withdraws water from the Potomac River at Watkins Island, approximately two miles upstream from Great Falls, near the mouth of Watts Branch.

In the Metropolitan area, the Potomac River is also a major source for Washington, D.C. (supplied by the Washington Aqueduct Division [WAD] of the U.S. Corps of Engineers), the City of Rockville, and the Fairfax County Water Authority (FCWA). All three utilities withdraw raw water from the Potomac River along the reach of the river adjacent to Montgomery County. The WAD withdraws water from the river at Great Falls and at Little Falls; Rockville withdraws water near its treatment plant at Sandy Landing Road; FCWA withdraws water from the Virginia side of the river near Great Seneca Creek and the Seneca Pool.

In addition, there are two other significant water intakes located a short distance upstream of the WSSC Water and City of Rockville intakes, these are: The Town of Leesburg and Loudoun County in Northern Virginia.

Three impounded water supplies can supplement flows directly to the Potomac River during periods of low flow. The Jennings Randolph Reservoir is located near Bloomington, Maryland, on the North Branch of the Potomac River on the State boundary with West Virginia, 200 miles upstream from the WSSC Water Potomac intake. This reservoir was completed in 1981 and provides 30 billion gallons of raw water storage with 13 billion gallons currently allocated to water supply. The Washington Metropolitan Area (WMA) water suppliers (WSSC Water, Fairfax Water Authority, and DC) have purchased ownership of this storage capacity from the Federal government. The remaining capacity is for flood control and environmental flow augmentation. The Jennings Randolph Reservoir (formerly, the Bloomington Reservoir) is operated by the U.S. Army Corps of Engineers (COE). The Savage River Reservoir in Garrett County is owned and maintained by the Upper Potomac River Commission who operates it with guidance provided by the U.S. Army Corps of Engineers. It is used to supply local needs and supplement releases from Jennings Randolph for the WMA water suppliers, which contribute 80 percent of its operating and maintenance costs.

The third impoundment, Little Seneca Lake, built for water supply, is located near Boyds in western Montgomery County, and impounds 4 billion gallons of raw water. WSSC Water operates the dam and release facility as part of the (metropolitan) Water Supply Coordination Agreement. Releases from this reservoir are coordinated with releases from the Jennings Randolph Reservoir (JRR) to provide short duration water supply until releases from the JRR have traveled to the WMA. Table 3-T1 lists information on the impounded water supplies within Montgomery County (both Potomac and Patuxent River), which are also shown on Figures 3-F3 and 3-F4.

**II.B.2: Patuxent River:** The Patuxent River forms the northeastern border of Montgomery County with Howard County and serves as another major source of water supply for the two counties supplied by WSSC Water. There are two water supply impoundments along the Patuxent River owned and operated by WSSC Water, the Triadelphia and the Rocky Gorge Reservoirs, created by the Brighton and T. Howard Duckett Dams, respectively. They are used mainly for water supply (10.65 billion gallons), with additional excess capacity (1.25 billion gallons). The Triadelphia Reservoir dam is located at Brighton Road in Montgomery County. The reservoir is located generally northeast of Olney and Brookeville and has a storage capacity of 6.45 billion gallons. The T. Howard Duckett dam is located approximately two miles northwest of Laurel, in Prince George's County. The resulting Rocky Gorge reservoir, located generally north of Laurel, Burtonsville and Spencerville, has a storage capacity of 5.5 billion gallons. Table 3-T1 lists the existing impounded water supplies along the Patuxent River, which are also shown on Figures 3-F3 and 3-F4.



**Table 3-T1: Inventory of Existing Impounded Water Supplies  
in Montgomery County**

Source	Potomac River	Patuxent River	
Owner Name	Public: <sup>A</sup> Little Seneca Lake (Little Seneca Dam)	WSSC Water: Triadelphia Reservoir (Brighton Dam)	WSSC Water: Rocky Gorge Reservoir <sup>E</sup> (T. Howard Duckett Dam)
Crest Elevation (above sea level) <sup>F</sup>	385 feet	350 feet 366.45 feet	270 feet 286.45 feet
Spillway Length	300 feet	234 feet	189 feet
Total Length of Dam	600 feet	995 feet	840 feet
Height of Crest Above Stream Bed	77 feet	66.45 feet	125.45 feet
Flooded Area at Crest Elevation	467.5 ac, @ 385'	513.6 ac. @ 350' 815.5 ac. @ 366.4'	402.8 ac, @ 270' 623.8 ac. @ 286.4'
Shore Line Length at Crest Elevation	-	19 miles	35 miles
Area of Land Owned	606 acres <sup>A</sup>	3,909 acres	3,143 acres
First Overflow of Dam Crest	1985	1944	1955
Capacity of Reservoir <sup>G</sup>	3.92 billion gallons (BG)	5.81 BG @ 363.4' 6.45 BG @ 366.4' <sup>B</sup>	4.84 BG @ 283.4' 5.49 BG @ 286.4' <sup>C</sup>
		<b>Total Capacity = 10.65 (11.9 <sup>D</sup>) billion gallons</b>	
Safe Yield	-	<b>45.3 MGD</b>	
Average daily withdrawal	-	<b>50.6 MGD</b>	

<sup>A</sup> Financed by WSSC Water, Army Corps of Engineers, and Fairfax County Water Authority.  
<sup>B</sup> Normal storage is 5.8 billion gallons; capacity is 6.45 billion gallons.  
<sup>C</sup> Normal storage is 4.8 billion gallons; capacity is 5.5 billion gallons.  
<sup>D</sup> Normal storage is 10.65 billion gallons; capacity is 11.9 billion gallons.  
<sup>E</sup> AKA T. Howard Duckett Reservoir  
<sup>F</sup> The first values represent pool elevations of the reservoirs, the second values represent the elevation of the top of the spillway.  
<sup>G</sup> Water levels are typically kept 3.0 feet below mean pool levels.

Figures 3-F4: Major Water Supply Reservoirs Serving the Washington Region



Montgomery County Comprehensive Water Supply and Sewerage Systems Plan

**II.C: Water Supply Sources Programs and Policies:**

The use of water supply sources in this region is managed and protected through a number of Federal and regional programs and agreements. The following include a brief description of some of these programs and policies currently in place.

**II.C.1: Regional Drought Management in the Potomac River Basin:** In order to provide regional service during drought conditions and ensure that there is adequate flow in the River to meet the environmental flow-by, the Cooperative (CO-OP) Section of the Interstate Commission of the Potomac River Basin (ICPRB) coordinates releases from the Jennings Randolph Reservoir, located near Bloomington, Maryland, on the North Branch of the Potomac River, and the Little Seneca Lake in the County on Little Seneca Creek. These two sources of water augment the Potomac River during periods of extreme low flow in the Washington Metropolitan area. The agencies that have intakes in Montgomery County and which are considered the Regional Water Supply system during a drought are: 1) The Washington Suburban Sanitary Commission, 2) the Fairfax County Water Authority (FCWA), and 3) the Washington Aqueduct Division (WAD) of the Corps of Engineers that serve the District of Columbia, Arlington, Falls Church, and a small portion of Fairfax County. The City of Rockville, the Town of Leesburg, and Loudoun County Sanitation Authority also draw their water from the Metropolitan area of the Potomac River.

There are a number of agreements among the region's utilities describing how the water is allocated and used during drought conditions. The agreements, included in chronological order in Table 3-T2, are:

**Table 3-T2: Potomac River Regional Drought Agreements**

Signatories	Major Provisions
<b>Low Flow Allocation Agreement (LFAA) (1978)</b>	
<ul style="list-style-type: none"> <li>▪ State of Maryland</li> <li>▪ State of Virginia</li> <li>▪ District of Columbia</li> <li>▪ U.S. Army Corps of Engineers</li> <li>▪ WSSC Water</li> <li>▪ FCWA</li> </ul>	<p>This agreement establishes allowable withdrawals among major water users of the Potomac River during periods when there is not sufficient supply to allow unrestricted withdrawals. As a result of the 1982 Regional Water Supply Agreements, the chance of invoking the LFAA is projected to be less than 5 percent during a repeat of the worst drought of record.</p>
<b>Modification No. 1, Potomac River Low Flow Allocation Agreement (1982)</b>	
<ul style="list-style-type: none"> <li>▪ State of Maryland</li> <li>▪ State of Virginia</li> <li>▪ District of Columbia</li> <li>▪ U.S. Army Corps of Engineers</li> </ul>	<p>This amendment to the LFAA provides for releases from the Jennings Randolph and Savage Reservoirs and Little Seneca Lake to be subject to the allocation formula of the LFAA. Most importantly, as long as there are legally enforceable Regional Water Supply Agreements, the 1988 freeze provision of the LFAA will be inoperative. The 1988 freeze provision would have limited FCWA, WSSC Water, and District of Columbia withdrawal ratios to 1988 actual levels unless a water supply agreement was reached. Since the District of Columbia is the largest withdrawer of water, the District would have attained a disproportionately large share of water versus need over time. The Regional Water Supply Agreements are predicated on all water users obtaining water as needed and the sharing of resources.</p>
<b>Water Supply Coordination Agreement (1982)</b>	
<ul style="list-style-type: none"> <li>▪ Corps of Engineers</li> <li>▪ Fairfax Co. Water Authority</li> <li>▪ WSSC Water</li> <li>▪ District of Columbia</li> <li>▪ ICPRB.</li> </ul>	<p>This agreement establishes the precedents that the major water suppliers will operate systems in a coordinated manner during a drought and that water withdrawal will be based on need, not on the relative share paid for water storage facilities. This agreement also identifies the CO-OP section of the Interstate Commission of the Potomac River Basin (ICPRB) as the agency to administer provisions of the Drought Related Operations Manual, such as issuing long-range water supply projections and directing releases from Jennings Randolph and Little Seneca lakes during a drought. The water utilities fund the activities of the CO-OP section as follows: WSSC Water - 50 percent, FCWA - 20 percent, and DC - 30 percent.</p>
<b>Agreement for Future Water Supply Storage Space in the Bloomington Reservoir (1982)</b>	
<ul style="list-style-type: none"> <li>▪ District of Columbia</li> <li>▪ Corps of Engineers</li> <li>▪ WSSC Water</li> <li>▪ Fairfax Co. Water Authority</li> </ul>	<p>This agreement entitles the District of Columbia, the Fairfax County Water Authority and the WSSC Water to 36.78 percent of Jennings Randolph Reservoir storage capacity known as future supply. The Metropolitan Areas share would equal 13.37 billion gallons when the reservoir is full. In return, the three non-federal signatories are required to pay 27.4% of the construction cost (local share estimated at \$54.2 million, includes interest over 50 years), 34.75% of the cost of major replacement items and 28.56% of the annual operation and maintenance costs. Jennings Randolph water not contracted for water supply is used for water quality improvement in the North Branch of the Potomac River. Water Quality releases upstream also indirectly benefit local jurisdictions by delaying the time when low flows are experienced in the Washington area. The WMA water utilities fund the capital, operations, and maintenance costs for the water supply storage in the Jennings Randolph Reservoir.</p> <p><i>Note: The Maryland Potomac Water Authority (MPWA) was created in 1978 to coordinate local governments in the acquisition of water storage of the Jennings Randolph Reservoir. However, the Novation Agreement of 1982 which provided for purchasing of storage by the District of Columbia, the Fairfax County Water Authority and WSSC Water transferred the function of the MPWA to the other three parties.</i></p>
<b>Bloomington Payment Agreement (1982)</b>	
<ul style="list-style-type: none"> <li>▪ Fairfax Co. Water Authority</li> <li>▪ District of Columbia</li> <li>▪ WSSC Water</li> </ul>	<p>This agreement delineates the three major water users individual responsibility to pay for Jennings Randolph water supply in the agreed to ratios. This agreement was necessitated because the Corps of Engineer required that payments had to be guaranteed. The District of Columbia was unable to make such a guarantee because their budget must be approved annually by Congress. Under the provisions of the agreement, should a user default in payment, another user can make the payment and sue the defaulter for payment plus penalty. In addition, the defaulter loses right to use Jennings Randolph water supply while in default.</p>

**Table 3-T2: Potomac River Regional Drought Agreements**

<b>Signatories</b>	<b>Major Provisions</b>
<b>Little Seneca Lake Cost Sharing Agreement (1982)</b>	
<ul style="list-style-type: none"> <li>▪ District of Columbia</li> <li>▪ Fairfax Co. Water Authority</li> <li>▪ WSSC Water</li> </ul>	<p>This agreement establishes the cost shares and payment mechanisms to fund construction of Little Seneca Lake in Montgomery County. Capital and operating and maintenance cost were distributed according to the following ratios: WSSC Water 50%; District of Columbia 40%; and Fairfax County Water Authority 10%.</p>
<b>Savage Reservoir Maintenance and Operation Cost Sharing Agreement (1982)</b>	
<ul style="list-style-type: none"> <li>▪ District of Columbia</li> <li>▪ Fairfax Co. Water Authority</li> <li>▪ WSSC Water</li> <li>▪ Allegany County, Md.</li> <li>▪ Upper Potomac River Commission (UPRC)</li> </ul>	<p>This agreement addresses water releases from the Savage Reservoir, which as relatively basic, were intended to neutralize releases from the Jennings Randolph Reservoir, which were expected to be acidic due to upstream mine drainage. This dilution effect can be viewed as additional water supply gained without requiring local funds for the construction of the Savage Reservoir. The signatories exclusive of the UPRC have agreed to fund the annual operations and maintenance, and replacement and repair costs of Savage Reservoir according to the following percentages: Fairfax County Water Authority 16%; District of Columbia 24%; WSSC Water 40%; and Allegany County 20%. (See the preceding discussion of the reservoir for additional information.)</p>
<b>Metropolitan Washington Water Supply Emergency Agreement (1994)</b>	
<ul style="list-style-type: none"> <li>▪ District of Columbia</li> <li>▪ Arlington, Fairfax, Loudoun, Montgomery, Prince George's and Prince William Counties</li> <li>▪ Towns or Cities of Alexandria, Bowie, College Park, Fairfax, Falls Church, Gaithersburg, Greenbelt, Manassas, Rockville, Takoma Park, and Vienna</li> <li>▪ Council of Governments</li> <li>▪ Fairfax Co. Water Authority</li> <li>▪ Loudoun Co. Sanitation Auth.</li> <li>▪ WSSC Water</li> </ul>	<p>This agreement establishes three plans for coordinating regional actions in the event of emergencies that affect water supply from the Potomac River to the Washington Metropolitan Region. The first plan provides a regional response mechanism for health-related emergencies in the Washington Aqueduct Division system. The second plan provides a mechanism for emergencies that affect more than one of the utilities that withdraw raw water from the Potomac River. The final plan describes the routine planning and cooperative operating procedures which have significantly reduced the risk of drought affecting the region's water supply. Background information describing the conditions leading up to the plan and the procedures for updating it is also provided.</p>
<b>Metropolitan Washington Water Supply and Drought Awareness Response Plan: Potomac River System (2000)</b>	
<ul style="list-style-type: none"> <li>▪ District of Columbia</li> <li>▪ Arlington, Fairfax, Loudoun, Montgomery, Prince George's and Prince William Counties</li> <li>▪ Towns or Cities of Alexandria, Bowie, College Park, Fairfax, Falls Church, Gaithersburg, Greenbelt, Manassas, Rockville, Takoma Park, and Vienna</li> <li>▪ Council of Governments</li> <li>▪ Fairfax Co. Water Authority</li> <li>▪ Loudoun Co. Sanitation Auth.</li> <li>▪ WSSC Water</li> </ul>	<p>This COG plan provides implementation steps during drought conditions for the purpose of coordinated regional response. The Plan consists of two interrelated components: a regional year-round plan emphasizing wise water use and conservation; and a water supply and drought awareness and response plan. The water supply and drought awareness plan contains four stages:</p> <ul style="list-style-type: none"> <li>· Normal: Wise Water Use Program</li> <li>· Watch: voluntary water conservation measures</li> <li>· Warning: voluntary water restrictions</li> <li>· Emergency: mandatory water restrictions</li> </ul> <p>This plan is primarily designed for those customers who use the Potomac River for their drinking water supply source. The Plan will eventually be expanded to incorporate all water supply systems throughout the region.</p>



**II.C.2: Regional Drought Operations:** During times of declared drought, the regional water supply system will operate according to the Drought Operations Manual of the 1982 Water Supply Coordination Agreement (WASA). Operations rules and procedures for reducing the impacts of severe droughts in the Potomac River for the Washington Metropolitan Area Water Suppliers are as follows:

- Make the most efficient use of all water supply facilities, including but not limited to the Potomac River, Jennings Randolph Lake, Occoquan Reservoir, Vulcan Quarry, Triadelphia Reservoir, Rocky Gorge Reservoir, and Little Seneca Lake to meet the water supply needs for the Washington Metropolitan Area who are parties to the WASA.
- Maintain the probability of invoking the Restriction Stage of the Potomac River Low Flow Allocation Agreement at less than 5 percent during a repeat of the historical low stream flow record.
- Maintain the probability of entering the Emergency Stage of the Potomac River Low Flow Allocation Agreement at less than 2 percent with full reservoirs on June 1 of any year.
- Maintain the probability of not refilling any reservoir used for Washington Metropolitan Area water supply to 90 percent of useable capacity by the following June 1 at less than 5 percent during a repeat of the historical low stream flow record.
- Maintain flows in the Potomac River below Seneca Pool as agreed to by the signatories to the Potomac River Low Flow Allocation Agreement.
- Minimize conflict between normal utility operations and drought operations.
- Provide consistency with the requirements of the Potomac River Low Flow Allocation Agreement.

The underlying principle in this operating procedure is to reduce unneeded reservoir releases by making larger releases only as necessary to meet potable water supply needs. The capability of existing suppliers can be substantially extended in this manner. The Water Supply Coordination Agreement for cooperative system management is the critical element which allows the users to obtain the maximum benefits of existing resources and reduce water wastage. During a drought, WAD and the CO-OP Section of the ICPRB play key roles in determining the operation of the Regional Water Supply System. The WAD is charged with determining when to declare alert, restriction, or emergency drought stages under the LFAA. If a restriction or emergency stage is declared, the WAD allocates each user's fair share of withdrawal based on previous usage. The CO-OP Section is responsible for coordinating water withdrawals to make the most efficient use of all water supply facilities. To accomplish this objective, CO-OP produces forecasts of water supply and need, and estimates how much water the WSSC Water and FCWA will likely need to withdraw from non-Potomac River supplies on a daily basis. The CO-OP in consideration of the needs of the WAD, WSSC Water, and FCWA, also directs releases from Jennings Randolph Reservoir and Little Seneca Lake. The signing of the Water Supply Agreements of 1982 and the completion of Little Seneca Lake in the fall of 1984 resulted in a regional consensus that area raw water supply needs are satisfied, at least through the year 2020.

The 2015 Washington Metropolitan Area Water Supply Study by ICPRB/CO-OP evaluated future water demand and resource adequacy for the period 2015 – 2040. This study concluded that, under a repeat of conditions similar to severe historic droughts and without including potential impacts from climate change, *... "by 2035 the current water supply system will experience considerable stress, with mandatory water use restrictions required in the WMA. By 2040 there is likelihood that storage in the Little Seneca Reservoir will become exhausted."* The water demand forecasts were based on population projections by the Metropolitan Washington Council of Governments to the year 2040 (Round 8.3).

In response to the 2015 Water Supply study, the CO-OP utilities funded a follow-up study by the ICPRB to identify and evaluate water supply strategies to meet future challenges of growing regional demand for water including consideration of potential impacts of climate change on water resources. This study, completed in 2017, considered both and operational measures to ~~add~~ increase water supply capacity to meet future regional water supply needs and to implement operational changes to optimize the existing resources. Structural alternatives included the future potential use of quarries in Maryland and Northern Virginia for raw water storage. One such quarry that was identified is located at Piney Meetinghouse Road in Montgomery County, known as the Travilah quarry. Operational strategies included expanded coordinated operation of existing and planned water supply facilities and improved flow forecast models for the Potomac River.

Subsequently, the ICPRB published the 2020 WMA Water Supply study in September 2020. The study reaffirmed the need for supplemental storage to mitigate drought flows in the Potomac River stating, "Under all the 2040 Lower Flow scenarios, the addition of Travilah Quarry is necessary to avoid system failure in a severe drought." Beyond 2040 the benefits of the additional raw water storage from quarries remain but further population growth and potential impacts from climate change on flows on the Potomac and Patuxent Rivers may require that additional storage or other practices be implemented in the future. The impacts of climate change will continue to be evaluated as more information is available to gauge the impacts of climate change on hydrology.

As a result of the above regional planning efforts and recommendations, in Fiscal Year 2021, WSSC Water created a new CIP project entitled the Regional Water Supply Resiliency Project, which includes planning, preliminary engineering, community outreach, and coordination with elected officials for a regional raw water supply reservoir and raw water conveyance system to serve the long-range water supply needs of the Washington metropolitan region. The outcome of this work would better define the scope, budget and schedule of the project. This project was adopted by Montgomery and Prince George's Counties during the FY2021 CIP budget approval process. The capital project is contingent upon funding assistance and will proceed only if all other funding solicitation efforts by other agencies are not successful. Subsequently, the work effort to explore and obtain Federal Funding assistance and to perform the general planning effort began soon afterwards by the ICPRB, WSSC Water, and other CO-OP utilities.

In August 2021 an application for federal funding assistance under the Water Resource Development Act (WRDA) 7001 process was submitted for the completion of a Feasibility Study to further evaluate and support the recommendation of the regional planning efforts. If authorized and appropriated, this work, which will be completed by the U.S. Army Corps of Engineers, will be the first step of many that will be required in the WRDA program to eventually obtain the remaining Federal Funding assistance required to execute the project. In the 2022 USACE Report to Congress on Future Water Resource Development the Metropolitan Washington Region was identified as eligible for authorization of a feasibility study under the WRDA program. In addition, the U.S. House of Representatives included authorization for a study in its version of WRDA 2022 (H.R. 7776), which passed the lower chamber on June 8, 2022. As of June 30, 2022, the Senate has yet to its version of WRDA 2022 and efforts are underway to lobby the relevant members of Congress. Once the WRDA 2022 is passed by both the House and Senate and signed by the President, then it will need to be appropriated. Appropriations could occur either under an FY23 or FY24 spending bill or in a possible reconciliation package.

**II.C.3: Potomac River Environmental Flow-By:** As a heavily used water resource, the Potomac River requires careful management to ensure its value for the utilities which draw its water and the health of its natural ecosystem. Part of the purpose of the preceding group of agreements is to ensure that the river has an adequate flow-by through and downstream from the Washington region sufficient to maintain its biological health, even under severe drought conditions. These agreements are consistent with a minimum recommended flow-by of 100 million gallons per day (Potomac River Environmental Flow-by Study, 1981) to support the biological health of the river system.

**II.C.4: Potomac Water Filtration Plant Source Water Assessment:** MDE and WSSC Water completed a source water assessment (SWA) for the Potomac River and WSSC Water Water's water filtration plant in 2002. The SWA addressed issues involved with the quality and safety of the raw water the plant draws from the river for treatment and does not directly address finished water quality. From its findings, the SWA recommended the development and implementation of a source water protection plan for the Potomac Plant and for other similar facilities which draw their source water from the river. The SWA predicted the following potential improvements as a result of the successful implementation of such a plan:

- Reducing the solids loading to the plant,
- Reducing the magnitude and frequency of high pH, high natural organic matter (NOM) events which result from algal, phytoplankton, and macrophyte activities in the Potomac and its tributaries,
- Improving protection from pathogens including *Cryptosporidium* and *Giardia*,
- Reducing the number and severity of taste and odor episodes which occur in the WSSC Water system, and
- Reducing ammonia levels and chlorine demand in the raw water.

Following the completion of the SWA, WSSC Water actively worked with other utilities and relevant governmental agencies to establish the Potomac River Basin Drinking Water Source Protection Partnership (Partnership). The Partnership was formed in 2004. The Partnership is a voluntary organization of drinking water suppliers and government agencies working to protect drinking water sources, thereby safeguarding both public health and the environment. Partnership member agencies (as of 2016) include:

- Berkeley County Public Service Water Authority, West Virginia
- City of Frederick, Maryland
- City of Hagerstown, Maryland
- City of Rockville, Maryland
- DC Water
- District of Columbia Department of Energy & Environment
- Fairfax County Water Authority
- Frederick County, Maryland
- Interstate Commission on the Potomac River Basin
- Loudoun Water, Virginia
- Maryland Department of the Environment
- Pennsylvania Department of Environmental Protection
- Town of Leesburg, Virginia
- United States Environmental Protection Agency, Region III
- United States Geological Survey
- Virginia Department of Environmental Quality
- Virginia Department of Health

- Washington Aqueduct Division, U.S. Army Corps of Engineers
- Washington County, Maryland
- Washington Suburban Sanitary Commission
- West Virginia Department of Health and Human Resources
- West Virginia Department of Environmental Protection

The WSSC Water has actively worked within the Partnership framework to develop a strategy of outreach and environmental programs to protect the Potomac drinking water supply, which serves more than 4 million people. Through work groups and active discussion at Partnership meetings, the Partnership is implementing a strategy for carrying forward source water protection as recommended by the source water assessments conducted throughout the Potomac basin, as well as important source water protection issues as they emerge.

Highest priority issues for the Partnership in 2016 are enhancing chemical contaminant knowledge in the Potomac watershed, implementing improvements to regional spill response, and source water protection activities related to toxic and non-toxic algae. In light of the West Virginia Elk River MCHM spill and the North Carolina Dan River coal ash spill in 2014, several utility members in the Partnership, together with Metropolitan Washington Council of Governments, retained a consultant to update the 2002 SWA data of potential point-source contaminants upstream of the D.C. metropolitan area water intakes. The Partnership plans to use this data to update their understanding of upstream risks, and to prioritize both outreach efforts to upstream contaminant owners and early warning and response efforts. The Partnership also plans to implement further improvements to cooperative spill response, based on lessons learned during an exercise with the Colonial Pipeline and the response to an actual latex spill in the upstream North Branch Potomac River in 2015. Finally, much national attention has been given recently to toxic algal blooms, arising from nutrient pollution, that annually affect drinking water systems around the county. While such blooms have not been commonly observed in the Potomac River, the Partnership recognizes the severe risk such blooms present to the safety of drinking water. Thus, the Partnership is devoted to advancing source water protection activities that prevent and minimize impacts of toxic and non-toxic algal blooms.

Within the separate workgroups, the Partnership also continues to monitor other high priority issues such as emerging contaminants, pipeline safety, road salts, water quality standards, stormwater, engaging upstream stakeholders and forests protection. Since 2013, the Partnership has been tracking results of sampling by water utilities in the Potomac River Basin for the third round of Unregulated Contaminant Monitoring Rule (UCMR3); a workshop was held in October 2013. The urban issues workgroup recently sponsored an information session on chloride trends in urban-affected watersheds. Utility members in the Partnership are also supporting a project under Water Research Foundation and U.S. Endowment for Forestry and Communities to evaluate benefits to upstream forest protection on drinking water quality and treatment costs.

**II.C.5: Patuxent Reservoirs Watershed Protection Agreement:** The Patuxent Reservoirs Watershed Protection Group (PRWPG) was formed by agreement in October 1996 to protect the long-term biological, physical, and chemical integrity of the Triadelphia and Rocky Gorge Reservoirs and the contributing 132 square mile watershed. This group consists of a Policy Board and a Technical Advisory Committee (TAC). Signatories to the agreement include Montgomery County, Howard County, Prince George's County, the Montgomery and Howard Soil Conservation Districts, the M-NCPPC, and the WSSC Water. To protect the Patuxent Reservoirs Watershed, those signatories have developed and continue to implement a multi-

barrier watershed management approach to assure the integrity of a continued supply of high quality, potable water at reasonable cost.

Initially an Action Plan was written to begin implementing the multi-barrier watershed management approach. The plan listed action items in three categories: data analysis and collection tasks, implementation tasks, and public information tasks. In 2003, the PRWPG adopted a revised action plan. This revised list of action items or work plan, titled *Performance Measures and Goals for Priority Resources*, represents a continuation of the commitment to coordinate protection efforts in coming years. This table contains goals, performance measures, implementation items, and a timeline to achieve each goal for six priority resources selected by the TAC. Those priority resources include the followings:

1. Reservoir/water supply
2. Terrestrial habitats
3. Stream systems
4. Aquatic biota
5. Rural character and landscapes
6. Public awareness and stewardship

Since then, the signatories and support agencies have successfully accomplished many tasks including:

- Expanded reservoir and tributary water quality monitoring necessary for status and trends analysis
- Developed a GIS-based watershed loading model linked to a reservoir eutrophication model to predict changes in reservoir water quality based on changes in watershed land cover characteristics
- Implemented an inter-agency funded, local-cost share program for streamside agricultural best management practices. This program was recently updated and expanded to attract greater participation.
- Established a network of programs and contacts through local agencies, schools, and citizen groups for more effective public outreach on watershed awareness and reservoir protection
- Established riparian forest buffers along reaches of the Reddy Branch and the Hawlings River.
- Completed the watershed restoration project for Cherry Creek in Howard County.
- In recognition of the interagency accomplishments, the US EPA awarded the PRWPG its Clean Water Partner for the 21<sup>st</sup> Century in 2003.

The member agencies regularly evaluate the program progress to date, the establishment of quantifiable measures to judge success in protecting priority resources, the feasible rates of projects and control strategies implementation, and the need to revise or add additional goals. Many important studies have been accomplished since the PRWPG was formed. For example, in 2008, PRWPG completed the *Sediment Study* and the *Forest Management and Recreation Use Study*. In 2009, an *Interim Watershed Management Report* was prepared.

Outreach activities to further public awareness of watershed issues have included the H2O Fest Watershed Festival, a Patuxent River Cleanup Day, and the annual Family Campfire.

In 1998, the Maryland Department of the Environment (MDE) identified both reservoirs as impaired by nutrients and identified Triadelphia Reservoir as impaired by sediment; consequently, MDE determined that the reservoirs were unable to achieve State water quality

standards for their designated uses. To address these impairments, the US Environmental Protection Agency (EPA) approved Total Maximum Daily Loads (TMDLs) for both reservoirs in November 2008. A phosphorus TMDL was established for each reservoir, and a sediment TMDL was established for Triadelphia Reservoir (29% reduction required). Significant phosphorus load reductions are required (58% for Triadelphia Reservoir, 48% for Rocky Gorge Reservoir) to meet Maryland’s water quality standards. (Maryland Department of the Environment. June 2008. *Total Maximum Daily Loads of Total Phosphorus and Sediments for Triadelphia Reservoir (Brighton Dam) and Total Maximum Daily Loads of Total Phosphorus for Rocky Gorge Reservoir, Howard, Montgomery and Prince George’s Counties, Maryland.* Baltimore, MD.)

In 2016, an assessment was completed estimating the progress made from 2000-2015 towards achieving the pollutant reduction goals specified in the TMDLs for the reservoirs. Urban stormwater management and agricultural best management practices (BMPs) were tallied and modeled pollutant load reductions were generated. Pollutant load estimates were also derived for land use changes, such as land converted from agricultural to residential land uses. Refer to the table below for progress towards achieving the TMDL goals.

<b>Pollutant</b>	<b>TMDL Goal</b>	<b>Progress to Date</b>	<b>Gap Remaining</b>
Total Phosphorus (Rocky Gorge Reservoir)	<b>58%</b>	<b>10%</b>	<b>48%</b>
Total Phosphorus (Triadelphia Reservoir)	<b>48%</b>	<b>17%</b>	<b>31%</b>
Sediment (Triadelphia Reservoir)	<b>29%</b>	<b>8%</b>	<b>21%</b>

The 1982 “Water Supply Coordination Agreement” also affects the use of the Patuxent River’s reservoirs relative to the agreement’s Drought Operations Manual. See Section II.C.1 for additional information.

**Plan Recommendation:**  
**Potential Use of Travilah Quarry for Additional Raw Water Storage**

This Plan recommends acquisition of Federal Funding assistance to validate the previous planning studies in accordance with the Water Resource Development Act (WRDA) 7001 process as the first step in obtaining funding authorization from the U.S. Congress for the overall project. After the necessary funding is in place for subsequent phases of work, the goal is to ultimately develop an additional emergency raw water supply that would benefit not only WSSC Water customers but also much of the Washington Metropolitan Region. Once complete, this project will convert a quarry located within close proximity to the Potomac Water Filtration Plant into an approximate 7.8-billion-gallon water supply facility. This quarry has been evaluated by WSSC Water and the Interstate Commission on the Potomac River Basin for several years and this Plan, encourages actions be taken to ensure its future availability to the water supply needs of the WSSC Water service area and the Washington Metropolitan Region.

**II.D - Water Treatment Facilities:**

The WSSC Water operates two major water filtration plants in its sanitary district which provide water treatment for Montgomery County. These plants draw "raw" or untreated water from the Potomac and Patuxent Rivers and process it into "finished" water suitable for public consumption based on the latest Federal and State drinking water quality standards. Location of these plants and their current capacities and other information are provided in Figure 3-F3 and Table 3-T3.

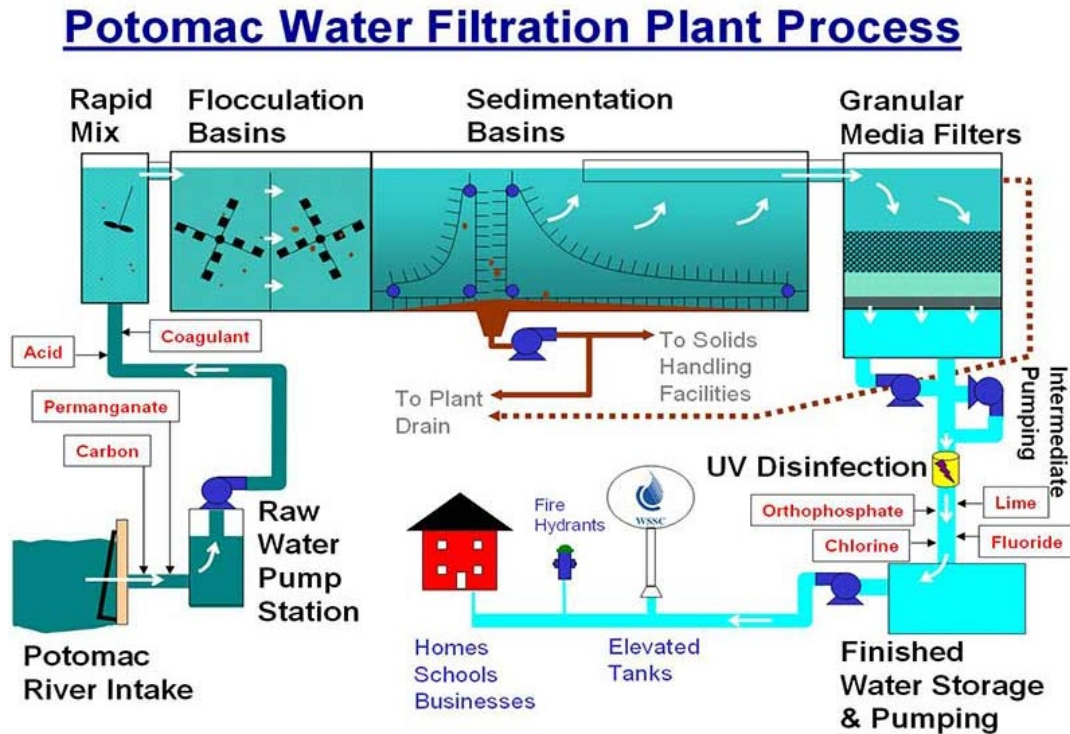
**Table 3-T3: WSSC Water Water Treatment Facilities**

Facility Owner/Operating Agency Plant Location & Coordinates	Water Source Treatment Type	Rated Plant Capacity Average Production Maximum Peak Flow Storage Capacity *	Sludge and/or Filter Backwash	Status/Comments
<b>Potomac Filtration Plant</b> WSSC Water River Road N439,000/E727,000	Potomac River Conventional treatment including coagulation (either polyaluminum chloride or ferric sulfate), flocculation, sedimentation, filtration, ultraviolet disinfection (UV), chlorination, fluoridation, and pH adjustment (hydrated lime) and orthophosphate for corrosion control. Seasonal Low pH Enhanced Coagulation using sulfuric acid addition prior to coagulation to minimize chlorine disinfection byproduct formation (typically employed from May to October).	capacity: 288 MGD production: 112 MGD peak flow: 156 MGD storage: 19.3 MG	Much of the solids volume originating from the Potomac River and treatment processes are removed through the solids handling facility and are then land-applied	Various treatment processes have recently been renovated and upgraded. These include: <ul style="list-style-type: none"> <li>• UV Disinfection Facility</li> <li>• Backwash Pumping Station</li> <li>• Intermediate Pumping Stations (IPS)</li> <li>• Lime Feed Facilities</li> <li>• Upgrade of Sulfuric Acid System</li> <li>• Ferric Sulfate and Caustic Soda Feed Systems</li> <li>• Sedimentation Basin Equipment Upgrades</li> <li>• Filter Underdrain Replacement (32 filter units)</li> </ul>
<b>Patuxent Filtration Plant</b> WSSC Water Sandy Spring Road (Prince George's Co.)	Patuxent River (Rocky Gorge Reservoir) coagulation (polyaluminum chloride), flocculation, sedimentation, filtration, chlorination, fluoridation, and lime adjustment of pH and orthophosphate for corrosion control, and ultra violet disinfection	capacity: 72.0 MGD production: 51 MGD peak flow: 69 MGD storage: 18.4 MG	Sludge/filter backwash is treated at a new on-site solids handling facility and hauled off site for disposal at a landfill.	Phase II improvements to the treatment facilities have been completed. Improvements include: <ul style="list-style-type: none"> <li>• Construction of an on-site residual handling facility to manage residual solids.</li> <li>• Construction of a 6<sup>th</sup> treatment train, two new filters, and the addition of UV reactors on all 12 individual filters.</li> </ul>

See Figure 3-F3 for the locations of these facilities.  
 See Table 3-T11 for information on the City of Rockville's filtration plant.  
 \* Production and Peak Flow values are based on calendar year 2018 data.

**II.D.1 - Potomac Water Filtration Plant:** This facility, located on River Road (Route 190) at Lake Potomac Drive, two miles upstream from Great Falls, serves both Montgomery and Prince George's Counties. The plant draws water from the Potomac River just downstream from the mouth of Watts Branch. The Potomac Water Filtration Plant has a State-permitted maximum intake capacity of 300 million gallons per day (MGD), and a rated treatment capacity of 288 MGD.

However, the plant generally operates in a range of 105 to 150 MGD. The diagram below shows the Potomac Water Filtration Plant treatment process.



Anticipating future demand, WSSC Water has studied and is currently implementing various treatment process improvements at the plant to reliably meet the projected demands and updated drinking water quality standards.

**II.D.2 - Patuxent Water Filtration Plant:** This facility is located on Sandy Spring Road (Route 198) at Sweitzer Lane near Laurel in Prince George's County, approximately one-half mile east of the Montgomery County border. Although the plant serves primarily Prince George's County, its effective reach extends west into Montgomery County to approximately Georgia Avenue (Route 97). The plant draws water from the Rocky Gorge Reservoir on the Patuxent River. In 2005, WSSC Water completed a comprehensive replacement and expansion of the aging critical components of the Patuxent Filtration Plant. -Anticipating a need to improve water supply system redundancy in the WSSD, WSSC Water is recently completed a second phase of improvements at the plant. The Phase II of the Patuxent Water Treatment Plant Implementation project includes improvements to the treatment processes, resulting in a nominal treatment capacity of 72 MGD, and the ability to provide up to 110 MGD of emergency treatment capacity. The full emergency treatment capacity at the Plant will not be fully realized until the new raw water pipeline and pumping station are completed. A fourth raw water pipeline and modification and expansion of the Rocky Gorge Water Pumping Station will increase the raw water pumping / transmission capacity of the Plant, to a peak rated capacity of 110 MGD. Most of the plant's processed water is gravity fed to the WSSC Water system in Prince George's County. Pumping and transmission capacity also exists to provide approximately 12 MGD to the Montgomery High Zone and 36 MGD to the Montgomery Main Zone. Anticipating a need to improve water supply system redundancy in the WSSD, WSSC Water is currently implementing a second phase of improvements at the plant which will expand its sustained capacity to 72 MGD and its peak rated capacity to 110 MGD.



**II.E - Water Distribution and Storage Systems:**

WSSC Water delivers finished drinking water from its treatment plants to consumers throughout the WSSD community water service area in Montgomery County by a series of pumping facilities and transmission mains. Providing adequate water service also requires strategically located water storage facilities serving sections of the county. The following sections discuss these distribution and storage systems.

**II.E.1 - Water Service Pressure Zones:**

The WSSD community water service area within Montgomery County is divided into separate pressure zones. These are grouped into two major zones, as shown in Figure 3-F5: The Montgomery County Main Zone serves the southern and eastern parts of the county, and the Montgomery County High Zone serves the northern and western parts. The division between these two major pressure zones traverses the county west to east through western Potomac, Travilah, Rockville, Norbeck, Cloverly, and Fairland. Each of the major zones consists of several smaller pressure zones as shown in Table 3-T4. The Montgomery County Main Zone also provides service to pressure zones in Prince George's County.

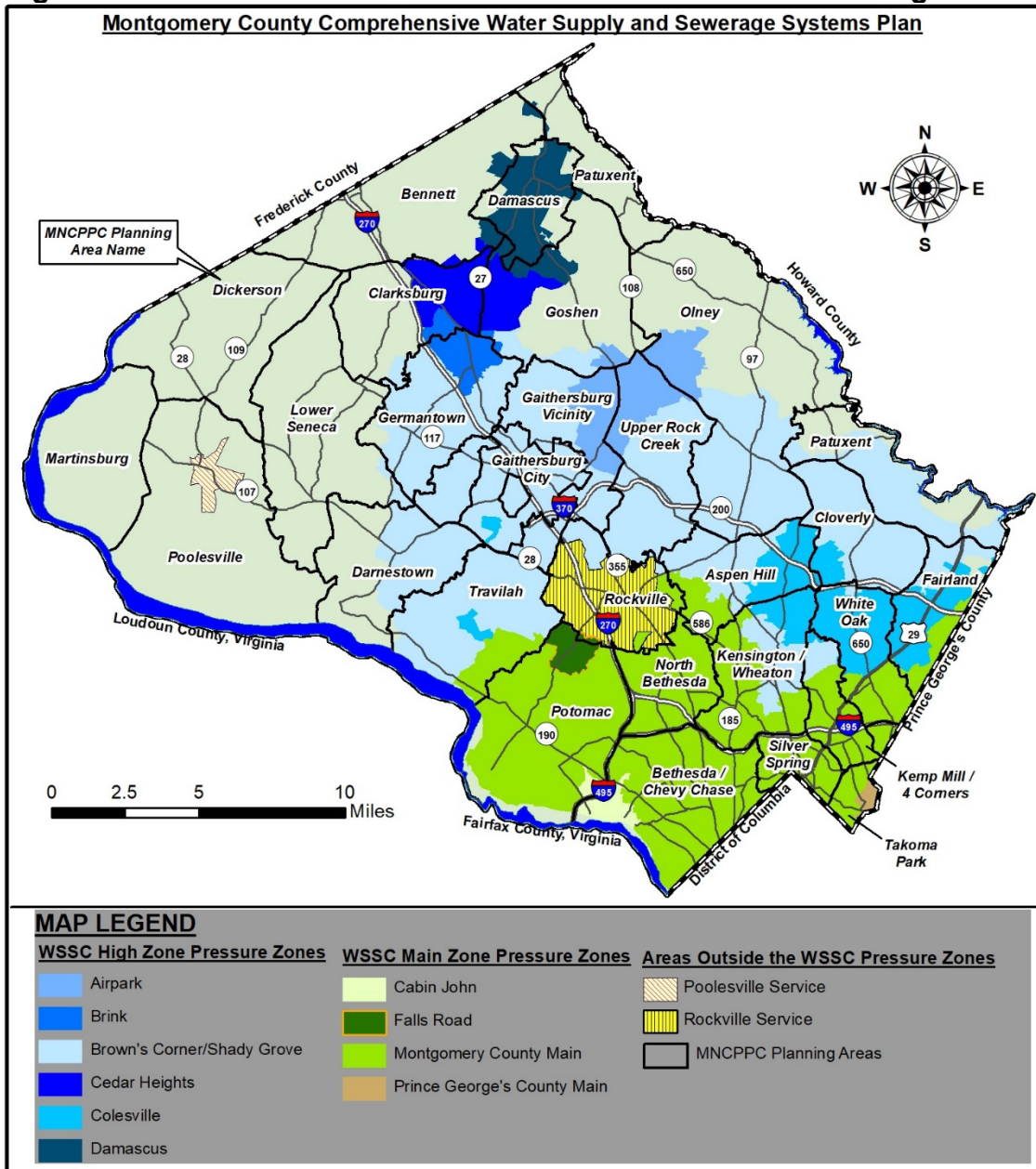
<b>TABLE 3-T4: WSSC Water Major Water Pressure Zones in Montgomery County</b>					
		<b>Pressure Zones</b>	<b>Normal Hydraulic Grade</b>	<b>Primary Water Supply Source</b>	
MAJOR PRESSURE ZONES	Montgomery County Main Zone	Montgomery Co. Main Zone	495 feet	Potomac Plant	
		Cabin John Zone	350 feet	Montgomery County Main Zone	
		Falls Road Zone	552 feet	Montgomery County Main Zone	
	Montgomery County High Zone	Potomac Plant	Colesville Zone	560 feet	Shady Grove Zone
			Shady Grove Zone	660 feet	Potomac and Patuxent Plants
			Air Park Zone	685 feet	Shady Grove Zone
		Potomac Plant	Laytonsville Zone	750 feet	Air Park Zone
			Brink Zone	760 feet	Shady Grove Zone
			Cedar Heights Zone	836 feet	Brink Zone
			Damascus Zone	960 feet	Cedar Heights Zone
Prince George's County Main Zone*		320 feet	Potomac and Patuxent Plants		

*\*There is a small portion of Takoma Park served by the Prince George's County Main Zone Pressure Zone*

WSSC Water divides areas of the county into water pressure zones based primarily on ground elevations. Each pressure zone must have its own source or sources of supply (storage), transmission systems (i.e., pumping stations or pressure reducing valves and transmission mains), and storage facilities to transport water from the sources to the points of use. A water supply source for a pressure zone is usually a storage tank and/or another adjacent pressure zone. Water supply to zones at higher elevations must be pumped, while water supply to lower

elevations must be controlled by pressure regulation valves. The water supplied to each zone is maintained at a pressure sufficient to provide adequate quality and quantity of service to the consumers in that zone. The water system within each of these zones may be designed to serve the population of that zone as well as adjacent zones. Because of the large area and the number of pressure zones within the County, the availability of mutual backup support capabilities is extremely important. This is accomplished through the use of interconnected pressure zones, the two sources of supply, and water storage facilities. Table 3-T4 lists the hydraulic grade and primary water supply for the major pressure zones within Montgomery County, showing which zones are interdependent with others. WSSC Water establishes new pressure zones and adjusts zone boundaries in response to projected development demands and improvements to system efficiency. The existing layout of major pressure zones in Montgomery County is shown in Figure 3-F5.

**Figure 3-F5: WSSC Water Pressure Zones and MNCPPC Planning Areas**



**II.E.2 - Water Pumping Stations:** Community water service in the Montgomery County portion of the WSSD depends on pumping systems from both the Potomac and Patuxent filtration plants. Because all finished water leaving the Potomac Plant must be pumped, the plant output cannot exceed its finished water pumping capacity. The Potomac Plant Main Zone Pumping Station has a pumping capacity of 249 MGD; the High Zone pumping station provides a pumping capacity of 88 MGD. The Patuxent Main Zone Pumping Station has a capacity of 36 MGD; the Patuxent Plant High Zone Pumping Station has a capacity of 12 MGD. (Note: Water leaving the Patuxent Plant for Prince George's County may also flow by gravity). These pumping stations at the filtration plants are complemented by other stations located throughout the county to maintain consistent water pressures required by pressure zones at higher elevations (see Figure 3-F6). Capacities of water pumping facilities are shown on Table 3-T5.

**Figure 3-F6: WSSC Water Distribution System and Facilities**

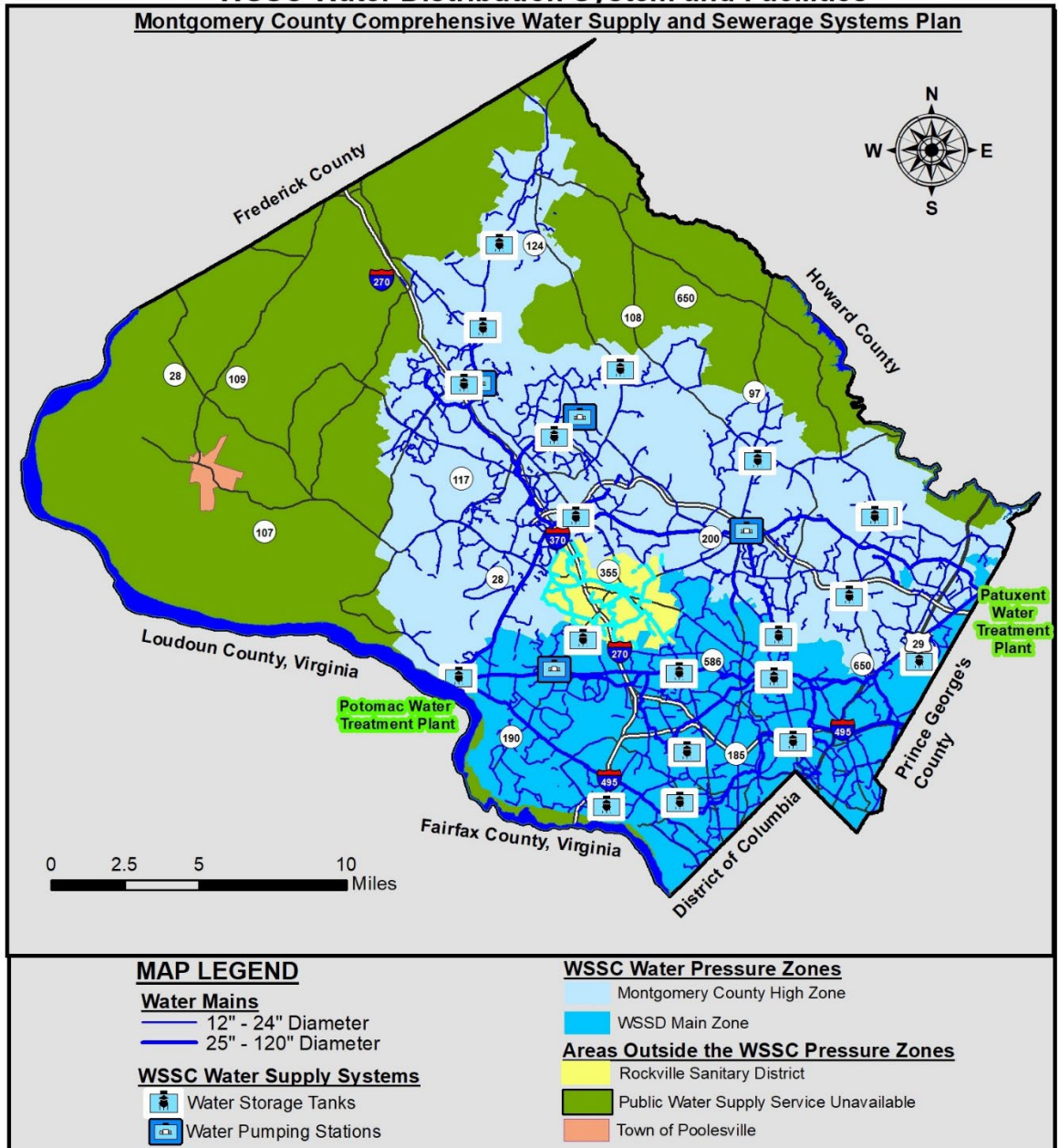


Table 3-T5: WSSC Water Pumping Facilities		
MAJOR PRESSURE ZONE	Pumping Station	Capacity (MGD)
Montgomery County Main Zone	Potomac Plant	249.0
	Patuxent Plant	36.0
	Falls Road	7.8
Montgomery County High Zone	Potomac Plant	88.0
	Patuxent Plant	12.0
	Air Park	5.4
	Laytonsville	3.0
	Brink	8.0
	Cedar Heights	4.5
	Colesville	5.0
	Goshen Road	10.0
	Neelsville	10.8
	Norbeck	15.0
	Wheaton	25.5

**II.E.3 - Water Transmission Mains:** Major water transmission mains move finished water from WSSC Water’s pumping stations into the various pressure zones, to their associated storage facilities, and ultimately to the smaller, local service mains which serve consumers. These mains generally decrease in diameter as they progress through the system from supply to the point of consumption, depending upon their relationship with other elements of the network. Major transmission lines (over 12 inches in diameter) are shown in Figure 3-F6. Transmission mains leading from the Potomac Filtration Plant consist of 36-inch and 60-inch lines for the High Zone; and 48-inch, 66-inch, and 96-inch diameter lines for the Main Zone. In 2015, construction was completed on the 84-inch Potomac Bi-County Supply Main in the Main Zone. This project significantly increased transmission capacity from the Potomac Water Treatment Plant to the Montgomery County Main Zone and to Prince George’s County. Transmission lines leading from the Patuxent Filtration Plant consist of 20-inch, 24-inch, 30-inch, and three 42-inch lines.

**II.E.4 - Water Storage Facilities:** Associated with each water pressure zone are water storage facilities. These finished water storage facilities are important elements of the water distribution system, performing the following essential functions:

- Provide equalization storage during periods of peak water demand in order to reduce peak loads required on sources of water supply, filtration plants, pumping stations, and transmission pipelines.
- Provide an essential reserve capacity in meeting fire service demand and provide water pressure during short-term interruptions caused by localized power failures or the need for system repairs.
- Provide "cushions" to pump against while maintaining pressures within the distribution system in certain cases. The cushioning effect of stored water helps prevent damage to piping and other water distribution appurtenances arising from inadvertent surges in pumped water pressure and resultant damage from "water hammer" effects.

- Reduce capital costs required for relatively expensive transmission mains by strategic placement of adequate storage facilities.
- Permit the use of pumping equipment during periods of off-peak electrical demand.
- Provide better stabilized system flow rates and pressures over entire water service areas.

The determination of how much storage capacity each pressure zone and each individual facility requires varies widely between utilities. There are no national standards for determining acceptable levels for each of these storage purposes. WSSC Water has set its storage standards based on the generally accepted levels of reliability and risk. WSSC Water designs its water storage facilities to meet the following three storage volume criteria:

- **Equalization Storage:** Meets hourly fluctuations in demand, satisfying all hourly demands in excess of the maximum day demand.
- **Fire Protection Storage:** Provides high flow rates for fire protection required during a major fire automatically without the reliance on mechanical pumping systems, preventing substantial drawdowns or reversals in water system pressure.
- **Emergency Storage:** Maintains service during emergencies such as pipeline breaks, power outages, and equipment failure, providing 4 hours of maximum day demand.

In light of more recent operational, water quality and foreseen drinking water regulations with more stringent standards; WSSC Water has recently reevaluated and revised its criteria for water storage facilities. The revised storage volume criteria may be generally summarized as follows:

- **Equalization Storage:** 15% of the maximum day demand.
- **Fire Protection Storage:** 0.63 Million Gallons.
- **Emergency Storage:** 4 hours of maximum day demand.

When designing and siting a proposed water storage facility, WSSC Water staff first consider the need for elevated, gravity-fed storage within a pressure zone. Elevated storage provides advantages over ground-level, pumped storage in terms of greater system reliability and faster response time to flow demands. Because elevated storage structures have a greater potential for affecting the visual landscape of a neighborhood, WSSC Water designs and constructs facilities in an architecturally desirable manner to minimize the impact on the surrounding neighborhood. In rare cases, ground-level or below-ground-level storage may provide gravity-fed storage to a pressure zone, but only where sufficiently high ground elevations exist which allow for such facilities. WSSC Water develops siting studies for water storage facilities with the involvement of local community. WSSC Water traditionally locates water storage facilities within or at the periphery of the community water service envelope, which minimizes both transmission costs and intrusion into areas not intended for community service.

WSSC Water's efforts to develop aesthetically pleasing storage facilities are widely recognized. Examples of this practice in both Montgomery and Prince Georges County include the Germantown Elevated Storage Tank--or the "Big Blue Ball"-- on the Montgomery College campus, which is painted to resemble the Earth as seen from space; and the Airpark Tank near Montgomery Village in eastern Gaithersburg, which is designed to resemble a cluster of farm silos and the Patuxent Wildlife Research Center elevated water storage tanks which blend in with the natural setting of the environment. WSSC Water currently has 27 water storage facilities distributed throughout Montgomery County. Including the water storage reservoirs at the Potomac and Patuxent Filtration Plants, total available storage capacity is approximately 127 million gallons. The capacity of individual public potable storage facilities is indicated on Table 3-T6. The locations of WSSC Water's water storage facilities are shown in Figure 3-F6.



<b>Table 3-T6: WSSC Water Storage Facilities Serving Montgomery County</b>	
<b>Water Storage Facility</b>	<b>Total Capacity Million Gallons</b>
<b>MAIN ZONE</b>	
Alta Vista Standpipe	0.475
Bradley Hills Standpipe 1	2.5
Bradley Hills Standpipe 2	2.62
Cabin John Elevated Tank	0.5
Falls Road Standpipe	3.24
North Woodside Standpipe	7.52
Wall Lane Standpipe	2.5
Wheaton Reservoir 1	4.0
Wheaton Reservoir 2	4.0
Wheaton Reservoir 3	15.0
Wheaton Reservoir 4	10.28
<b>HIGH ZONE</b>	
Air Park Elevated Tank	2.0
Brink Elevated Tank	1.0
Brink Reservoir	10.0
Cedar Heights Reservoir	2.45
Clarksburg Elevated Tank	1.0
Colesville Elevated Tank	2.2
Colesville Reservoir	1.0
Damascus Elevated Tank	1.5
Germantown Elevated Tank	2.0
Glenmont Elevated Tank	0.5
Goshen Road Reservoir	4.0
Hampshire Greens Elevated Tank 1	1.25
Hampshire Greens Elevated Tank 2	1.25
Hampshire Greens Elevated Tank 3	1.25
Laytonsville Elevated Tank	0.5
Olney Elevated Tank	1.5
Shady Grove Elevated Tank	3.0
<b>TREATMENT PLANTS</b>	
<b>Potomac Plant Reservoirs</b>	<b>19.3</b>
<b>Patuxent Plant Reservoirs</b>	<b>18.4</b>
<b>TOTAL</b>	<b>126.8</b>

**I.E.5 - Distribution System Interconnections:** WSSC Water serves or has system interconnections with the jurisdictions shown in Table 3-T7. Some of these jurisdictions have agreements with WSSC Water for water supply as everyday supply, and/or for emergencies only and/or to meet peak demands. If all supply commitments to other jurisdictions were fully utilized, including current withdrawals where no agreement exists, the total withdrawals would exceed 14 MGD.

<b>Table 3-T7: Interconnections with the WSSC Water System</b>		
<b>Jurisdiction</b>	<b>Allowable Withdrawal</b>	<b>Average Withdrawal</b>
City of Bowie <sup>A</sup>	Not specified – emergency only	Not currently metered
Charles County	1.4 MGD	1.8 MGD <sup>B</sup>
Howard County	5.0 MGD	4.0 MGD
City of Rockville <sup>C</sup>	8.0 MGD	Negligible
Washington, DC	Not specified	Negligible

<sup>A</sup> Within Prince George's County.  
<sup>B</sup> The additional withdraw has been allowed by WSSC Water as it has proven to be seasonally beneficial since it enhances water storage turnover which, in turn, assists in water quality within the far end of the water system. Charles County is currently performing a water supply alternatives study due to concerns with competing interests in the aquifer from which they withdraw. An increase in water supply allocation from WSSC Water is one of several alternatives being explored. At the conclusion of this study, regardless of whether an additional allocation from WSSC Water is requested, WSSC Water will enter into discussions with Charles County to amend the water supply agreement."  
<sup>C</sup> Within Montgomery County; see Table 3-T13 for specific interconnection locations.

**II.E.6 - Water Supply System Redundancy:** This plan promotes general water supply system designs where large water pressure zones, such as the Montgomery County Main Zone and the Montgomery County High Zone, have equal and adequate protection from prolonged major service interruptions. Such service interruptions could include a filtration plant outage similar to that which occurred in 1977, which resulted in 15 hours of complete shutdown and 2.5 days of partial shutdown, or breaks in major transmission mains, or any other occurrence that could substantially reduce water service to WSSC Water customers. WSSC Water designs the water supply system within some pressure zones to allow it to also serve an adjacent pressure zone. WSSC Water uses interconnected pressure zones, the two sources of supply, and water storage facilities to accomplish this important mutual backup support capability. There are a limited number of interconnections and potentially water treatment capacities between the District of Columbia and WSSC Water systems in Montgomery and Prince George's Counties. However, the size and number of the interconnections are insufficient to adequately supply all water demands between the systems during emergency situations. At this time, there are no system interconnections which provide for substantial system redundancy from outside the WSSC Water service area. However, as of the date of this plan, the Metropolitan Washington Council of Governments (MW-COG) recently completed a Regional Water System Redundancy Study with water systems in the D.C. Metropolitan Area. The objective of the study was to evaluate infrastructure improvements to enhance the reliability of the regional water system through increased raw and treated water interconnections. The description of the related work and on-going efforts are previously described in Section II.C.2.

The Patuxent Pumping Station that serves Montgomery County can provide up to 12 mgd to the High Zone and 36 mgd to the Main Zone during an emergency. WSSC Water has initiated planning for an expansion of this filtration plant's capacity (see Section II.F.2.).

**Plan Recommendation: Continue Investing in Major Water Supply System Infrastructure**

Most of the water supply needs are addressed by the WSSC Water. As such, the Montgomery County Council directs the focus of WSSC Water's efforts by approving the WSSC Water's annual budget and the associated six-year CIP. These documents in addition to this comprehensive water supply and sewerage systems plan allow the County Council to direct the policies and investments needed to meet the future needs of the County. In recent years the emphasis has been on investing in major water supply system infrastructure with a commitment to large diameter water main evaluations, rehabilitation and replacement efforts, particularly for the Pre-Stressed Concrete Cylinder Pipes (PCCP). Emphasis has also been placed on the sustainability of the small diameter water distribution pipes, adopting programs for the 1 percent replacement of these pipes. This program was adopted to allow a replacement interval of 100 years for these distribution mains, consistent with their expected useful life.

**II.F - Projected Water Demand and Supply System Needs:**

A critical role of the County's Water and Sewer Plan is not only addressing current water supply needs, but also projecting and adequately planning for future water needs based on the County's growth forecasts and historic water demand. The following sections provide the basis for and determination of future community water demand in Montgomery County. The Plan also provides a summary of the major capital facilities needed to satisfy that projected demand.

**II.F.1 - Overall Water Supply System Demand:** Table 3-T8 presents WSSC Water's daily average and maximum water production levels since 1995. Based on analysis of the latest water production and consumption data, WSSC Water has developed the following water demand per unit to be used for growth projections and planning water system improvements:

- Single-Family Dwelling Unit (SFDU):-----177.0 gallons per day (gpd)
- Employees:-----36.1 gpd
- Multi-Family Dwelling Unit (MFDU):-----146.8 gpd



<b>Table 3-T8: WSSC Water Historic Water Production</b>			
<b>Year</b>	<b>Average Production (MGD)</b>	<b>Maximum Day Production (MGD)</b>	<b>Ratio</b>
1995	167.1	233.9	1.40
1996	161.3	198.9	1.23
1997	164.7	245.8	1.49
1998	166.6	219.8	1.32
1999	168.2	263.4	1.57
2000	162.0	200.8	1.24
2001	167.4	253.2	1.51
2002	164.8	221.8	1.35
2003	164.3	206.5	1.26
2004	168.1	210.4	1.25
2005	171.9	226.2	1.32
2006	169.2	224.9	1.33
2007	172.4	222.8	1.29
2008	162.7	251.1	1.54
2009	163.0	210.0	1.29
2010	175.4	232.8	1.33
2011	169.4	225.4	1.33
2012	163.9	226.2	1.38
2013	158.6	205.7	1.30
2014	161.7	205.0	1.27
2015	164.9	200.0	1.21
2016	164.7	208.6	1.27
2017	162.7	209.7	1.29
2018	163.0	212.9	1.31
2019	162.7	202.8	1.25
2020	161.1	222.2	1.38

*Note: Data includes all of the WSSC Water service area (Montgomery and Prince George's Counties)  
MGD: Million Gallons/Day  
Source: WSSC Water-Planning Division – January 2021*

WSSC Water has prepared water demand projections through the year 2040 for Montgomery County (Table 3-T9), using COG/M-NCPPC Round 8.1 population forecasts and current water use factors for single-family dwelling units, multi-family dwelling units, and employees.

**Table 3-T9: Projected Average Daily Water Demands for Montgomery County**

Calendar Year	Total Production - Million Gallons per Day (MGD)		
	Main Zone	High Zone	Total
2025	43.601	56.202	99.803
2030	44.991	60.906	105.897
2035	46.122	63.136	109.258
2040	47.252	65.364	112.616

Note: Based on Round 8.1 Growth Forecasts and Per-Unit Production:

- Single-Family Dwelling Unit (SFDU): 177.0 gallons/day (gpd)
- Employees: 36.1 gpd
- Multi-Family Dwelling Unit (MFDU): 146.8 gpd

Source: WSSC Water Planning Division (2016 Water Production Projections)

To account for hourly variation in consumption and for the use and refilling of water storage facilities, consumption criteria must span at least a 24-hour time period. To account for seasonal variations, the criteria specifies the 24-hour period of greatest projected consumption within a given year, generally referred to as the maximum day consumption. The specific numbers are obtained by multiplying the average daily consumption for the year and the maximum day factor and distributing the result over a typical 24-hour consumption pattern. The maximum day demand factor is the ratio of the peak day demand to the average day demand and is used in sizing the capacity of the water system facilities. The current maximum day demand factor used by WSSC Water is 1.43 for system wide facilities, based on a 20% probability exceedance. Table 3-T10 lists WSSC Water’s daily average and maximum water production projections and planned capacity for the Washington Suburban Sanitary District.

**Table 3-T10: Projected Average Daily Water Demands WSSD**

Calendar Year	Projected Demand (MGD)		Planned Capacity (MGD)* (Available Treatment Capacity) Daily Maximum
	Daily Average	Daily Maximum	
2025	188.9	267.2	398.0
2030	197.8	279.6	398.0
2035	203.3	287.7	398.0
2040	208.7	295.2	398.0

\* This is planned or available treatment capacity at both Potomac and Patuxent treatment facilities. The Daily Maximum Production at the Potomac Plant is 288 MGD. The Patuxent Plant is currently undergoing upgrades that will increase its capacity to 72 MGD (nominal) and 110 MGD (emergency).  
 NOTE: The above data is based on the 2016 Water Production Projections report by WSSC Water Planning Division.

As shown in the preceding table, total water consumption is anticipated to increase in the future, as the population increases. Estimated water consumption at full development represents the average consumption expected when all parcels of land are developed to the extent allowed under current zoning classifications. Since zoning classifications for individual parcels may change and the consumption factors used may also change, the full estimated development needs for production may change and are not shown in the preceding table.

The water demand projections noted above are based on the 2016 Water Production Projections Report. The 2016 update accounts for the local, regional, and national trends in per capita consumption which has been steadily declining due to water-saving fixtures and appliances. The rate of decline may shorten over time as market saturation occurs with plumbing upgrades to existing homes.

**II.F.2 - Projected Water Supply System Needs:** WSSC Water's standard practice to address the projected water supply system needs within WSSD is based on and in response to near-future and long-term (5 and 10-year priorities) needs and will be included in the WSSC Water's annual Capital Improvement Program (CIP). This includes projects related to needs assessment, planning, and project implementation involving facility upgrade and expansion.

WSSC Water uses several methods to fund the construction and operation of the water supply system needs. Detailed information concerning WSSC Water's funding methods is included in Chapter 1, Section IV.A. The current WSSC Water CIP budget document, and those for some prior years, are available through WSSC Water's budget webpage at: <https://www.wsscwater.com/budget>.

For specific information on any of these projects, please contact the appropriate agency or municipality.

WSSC Water recently completed a Water System Master Plan in which the overall capital needs of its water supply system was examined over the next 30 years. This included raw water supply, water treatment, water transmission system and distribution networks. The plan also addressed existing and future capacity needs, regulatory requirements, and rehabilitation/repair/replacement needs. The results of the Master Plan identified that, in general, the system performs well and demonstrates that previous investments in transmission have built a robust and reliable distribution network. Improvements were identified to further increase the system reliability under outage conditions and the ability to serve areas from multiple sources, which will be critical to continued good service while major replacement projects are under construction and demand increases in the future.

**II.F.2.a - Projected Source Water and Treatment Facility Needs:** The following sections include brief descriptions of major WSSC Water's current and planned studies and facilities needed to meet the projected treatment capacity at each of its water treatment plants.

- **Potomac Solids Handling:** The Potomac Water Treatment Plant's existing solids handling facility was designed to handle only a portion of the plant's solid load. Under terms of a 2016 Consent Decree, WSSC Water will study and plan facilities to capture additional solids from both sedimentation basins and filter backwash water, to comply with a new NPDES permit. Short-term improvements are under construction and remaining long-term improvements are in design.
- **Source Water Protection:** Several efforts share the objective of protecting the source water in order to maintain a reliable water source. WSSC Water is an active participant in source water partnerships for both the Potomac River and Patuxent Reservoirs. WSSC Water works closely with the Interstate Commission on the Potomac River Basin, which is an advisory, non-regulatory interstate compact agency of the Potomac basin states. Additionally, a project to update the 2002 Potomac River Source Water Assessment by identifying upstream potential chemical contaminants is anticipated was completed in 2016. WSSC Water also completed an Oil Spill Emergency Response Study in 2014 with the knowledge of the Colonial Pipeline river crossing just a few miles upstream of the

Potomac Water Filtration Plant's intake. Additionally, as noted above, WSSC Water and its ICPRB CO-OP partners are working on the planning work and funding opportunities involved with the Regional Water Supply resiliency project which includes the use of the Travilah quarry as a raw water reservoir for emergency use.

- **Potomac Basin Corrosion Mitigation Project:** This recently completed project was designed to replace metallic components in the Plant's eight (8) sedimentation basins with materials more suitable to the seasonal low pH environment that results from the Commission's Annual Low pH Enhanced Coagulation Program designed to reduce chlorine byproduct formation in the WSSC Water Distribution System.
- **Potomac Submerged Channel Raw Water Intake:** This study is to develop alternatives and examine the construction of a new submerged channel raw water intake in the Potomac River. This raw water intake would serve as an alternate to the existing Potomac intake at the river channel's bank below the plant at the C&O Canal National Park. The implementation of this project would provide for several objectives including:
  - Provide an additional barrier against drinking water contamination (particularly *Giardia* cyst and *Cryptosporidium* oocysts) by drawing better and more consistent and stable raw water quality.
  - Enhancing plant operational reliability by avoiding the current problems associated with ice and vegetation blocking the existing bank withdrawal.
  - Provide desired operational redundancy during emergency situations.
  - Provide significant treatment cost reduction associated with solids handling and transportation, chemical use, and energy consumption.

Due to the proposed work required as part of the consent decree, in addition to the planning work associated with the Regional Water Supply Resiliency Project, the need for this project has diminished. As a result of this, in addition to budgetary constraints, this project has been suspended and will be re-evaluated for its need in the future.

- **Potomac Filter Air Scour Improvements:** This project will allow for better cleaning of the media filters.
- **2019 – 2020 AWIA Risk and Resiliency Assessment:** This project is being conducted by WSSC Water's Homeland Security Division and will assess the vulnerability of WSSC Water's infrastructure to outside threats. The project includes a source water risk assessment of the drinking water sources. This project is scheduled to be completed in March 2020.
- **Patuxent Water Treatment Plant Replacement and Expansion:** Phase II of the Patuxent Water Treatment Plant Implementation project was recently completed. The goal of the project is to support future growth and would include an expansion of an additional 16 MGD of nominal treatment capacity and the ability to provide up to 110 MGD of emergency capacity. A fourth raw water pipeline and modification and expansion of the Rocky Gorge Water Pumping Station will increase the raw water pumping / transmission capacity of the Plant. The additional treatment capacity at the Plant will not be fully realized until the new raw water pipeline and pumping station are completed. New ultraviolet disinfection facilities have recently been added to the Plant in order to comply with EPA regulations for *Cryptosporidium* treatment.
- **Brighton Dam Maintenance:** Maintenance of the gates for the Brighton Dam is being conducted. Dredging work is also being conducted at the forebays.

**Drought Planning:** WSSC Water continues to maintain the Little Seneca Lake, a reservoir in Germantown that can supplement the raw water supply in the Potomac River in the case of

drought. The County recognizes that increased siltation and contamination in Little Seneca Lake may occur from the increased impervious surface coverage (new roads, sidewalks, houses, etc.) in the three main tributaries feeding the reservoir. In order to slow the rate of increase of runoff pollution entering the reservoir, the County has placed caps on imperviousness for new developments planned in the Ten Mile Creek watershed, along with reforestation goals. Additionally, as noted in Section II.C.2, in response to the 2015 Water Supply study, the CO-OP utilities funded a follow-up study by the ICPRB to identify and evaluate water supply strategies to meet future challenges of growing regional demand for water including consideration of potential impacts of climate change on water resources. This study, completed in 2017, considered structural measures to add water supply capacity to meet the future regional need and operational changes to optimize the existing resources. Structural alternatives included the future potential future use of quarries in Maryland and Northern Virginia for raw water storage. Operational strategies included expanded coordinated operation of existing and planned water supply facilities and improved flow forecast models for the Potomac River. The work effort to explore and obtain Federal Funding assistance and the general planning effort is underway by WSSC Water and other CO-OP utilities for implementing the recommendations of the 2017 study.

**II.F.2.b - Projected Distribution and Storage System Needs:** This section includes brief descriptions of and explanations for major projects that are either currently underway or planned to address the water distribution system needs in the Montgomery County High Zone and Main Zone.

- **Germantown/Clarksburg Area Projects:** These transmission and storage projects are in response to the growth in the up-county area, primarily in Germantown and Clarksburg. These projects have been identified in the General Plan, the Clarksburg Master Plan, the Montgomery County High Zone Facility Plan, the 1990 M-NCPPC Round 5 population forecasts, and numerous other studies.
- **Standpipe Replacement Projects:** The recent replacement of the Olney and Shady Grove Standpipes with elevated storage tanks will improve the control of chlorine (disinfectant) by-product residuals in the water supply system. Both standpipes had relatively large non-useable water storage that can contribute to by-product residuals problems.

**II.F.2.c - Programs for Sustained Water Conservation and Waste Reduction:** WSSC Water has a variety of programs to promote water conservation. These efforts include:

- **Water Conservation Plan:** Maryland Department of the Environment (MDE) requires the WSSC Water to prepare a Water Conservation Plan as a condition of the Water Appropriation Permit for the Potomac Water Filtration Plant. The objective of this Water Conservation Plan is to provide an overview of the water conservation initiatives undertaken by WSSC Water as required in the Water Appropriation Permit.

This Water Conservation Plan follows the guidelines and format presented in MDE's *Guidance for Maryland Public Water Systems and Best Management Practices for Improving Water Conservation and Water Efficiency* published in 2010 and the U.S Environmental Protection Agency's *Water Conservation Plan Guidelines* published in 1988.

The WSSC water conservation goals are also based on long term water resources management and infrastructure funding policy. The goals will enable the most efficient use of the existing water resources and save valuable resources over the long term, while

providing safe and reliable drinking water to the community. WSSC Water's Water Conservation goals include;

- Conducting an annual water audit to account and control water loss
  - Improving the utilization and extending the life of existing facilities
  - Improving drought or emergency preparedness
  - Educating customers about the value of water
  - Protecting and preserving environmental resources
  - Promoting environmental stewardship and sustainability
- **Public Outreach and Education Programs:** WSSC Water provides educational brochures which promote the importance of water conservation (including its relationship to reduction of wastewater loads) and to acquaint County citizens with the "tools" available to accomplish conservation. Special projects focus on water-saving and to promote the use of "common sense" tools of conservation in existing customer units. These projects include the distribution of WSSC Water's Bottle Kit/Dye Pill distribution and 3 gpm shower flow controls, water-saving idea and conservation poster contests, sponsorship in cooperation with the Montgomery County Recreation Department of "Plumbing Repair Clinics"; and other activities timed to reinforce and to support the WSSC Water's public education efforts.

WSSC Water is also a partner in COG's Wise Water Use campaign, a regional program which is coordinated with the 2002 Metropolitan Washington Water Supply and Drought Awareness Response Plan for the Potomac River System. The campaign represents the plan's response to "normal" water supply conditions and includes many ideas for water conservation by users. WSSC Water provides the largest single source of funding for the regional campaign.

- **Plumbing Code:** Federal regulations require the installation of water saving fixtures (e.g., toilets, shower heads, and sink faucets) in new installations and in all applications where plumbing fixtures are being replaced. In 2007, the WSSC Water Plumbing Code incorporated the International Plumbing Code (a model code) that enables greater regulatory consistency with surrounding jurisdictions and employs the latest federal regulations and industry standards for water conservation. Approximately every 2 to 3 years WSSC Water publishes and updated version of the Plumbing and Fuel Gas Code, with the most recently updated version published in 2018. In addition, the WSSC Water is working with Montgomery County DEP to develop Water Re-use regulations that will reduce potable water dependencies. Re-use considerations include Graywater and Rainwater Harvesting Systems where recycled and treated non-potable water can be used at certain plumbing fixtures such as toilet and urinal flushing or as make-up supply to various closed mechanical systems.
- **Rate Structure:** WSSC Water uses a conservation-oriented water/sewer rate structure, which is based on Average Daily Consumption (ADC) in each metered billing period. The rate structure, in effect, charges lower rates per 1,000 gallons for the individual customer unit's total volume of consumption in the lower level of ADC. The billing rates are scaled up on progressively increasing 4 steps as the customer unit's ADC moves up. WSSC Water's rate structure was recently updated in 2019, after conducting a rate study. The new simplified rate structure was developed to accommodate changing customer demand while also helping customers save money by encouraging wise water use.

**Plan Recommendation: Local and Regional Water Conservation Programs**

In reference to local and regional water conservation programs, this Plan urges the County's public agencies to lead by example with respect to water conservation measures. These conservation efforts are promoted by several mechanisms that require continued review and evaluation to be effective. Plumbing codes, water rates and unaccounted water use emphasized as key factors in ensuring efficient use of water resources for water supply needs.

**II.F.3 - Cross-Connection Control Program:** The WSSC Water operates a Cross-Connection Control Program to minimize the risk of contamination to the public and private water distribution systems. Federal and State regulations require this program be administered by all water purveyors

- a. **Backflow** - Contamination is possible at various end use plumbing fixtures and water utilizing equipment due to backflow unless *backflow preventers* are installed to eliminate the condition.
- b. **New Plumbing Systems** - New plumbing systems shall have the proper level of backflow prevention as mandated and inspected through the permitting and inspection processes currently required by the WSSC Water Plumbing Code. Typically, water supplied to utilizing equipment with a high degree of hazard requires installation of a testable backflow prevention assembly to isolate that equipment and only allow water to flow into (and not back from) that hazard.
- c. **Follow Up Enforcement** – Testable backflow preventers require annual testing by property owners to ensure the assembly is functioning within acceptable parameters. WSSC Water employs two methods to ensure program compliance:
  - i. **Administrative** – WSSC Water will utilize an interactive database with the capacity to send reminders and/or trigger greater enforcement actions where tracked backflow prevention assembly testing is not kept current.
  - ii. **Inspections** – WSSC Water will utilize field inspections to ensure required testing is being performed and to visually inspect for system alterations or deficiencies that result in unprotected water outlets and issue corrective directives accordingly.

**II.F.4 - Facility Planning:** WSSC Water performs a comprehensive alternatives study, called a business case, for each major project to evaluate all practical and feasible alternatives. A triple bottom line approach is utilized that evaluates life cycle costs, risk reduction, environmental, social and other considerations. For new facilities within the community, this work effort includes extensive public outreach to governmental organizations, community groups, and local residents in order to incorporate public input into the technical work. (Please refer to Chapter 1, Section III.A.5 of this Plan for additional information).

**II.F.5 - Financing the Water Supply System:** Financing of water supply and sewerage systems projects at WSSC Water are provided through Capital Improvement Program (CIP). Each proposed project receives a WSSC Water staff recommendation which staff transmit to the WSSC Water General Manager at the conclusion of the facility planning process. The General Manager either endorses or modifies the staff recommendation and submits the project to the WSSC Water Commissioners. The Commissioners in turn transmit the WSSC Water decision on the project to the Counties for inclusion in the CIP and the Comprehensive Water Supply and Sewerage System Plan.



DEP prepares any necessary amendments to the Water and Sewer Plan and includes any relevant comments on the CIP Project for the County Executive's consideration. The County Executive reviews and if necessary, modifies DEP's recommendations, then transmits the CIP amendments to the County Council. The Council conducts a public hearing on the project recommendations as part of the Water and Sewer Plan and/or the CIP adoption processes. The Montgomery County Planning Board may also review or comment on the facility plan as part of the Council's public hearing process or as part of a designated mandatory referral process.

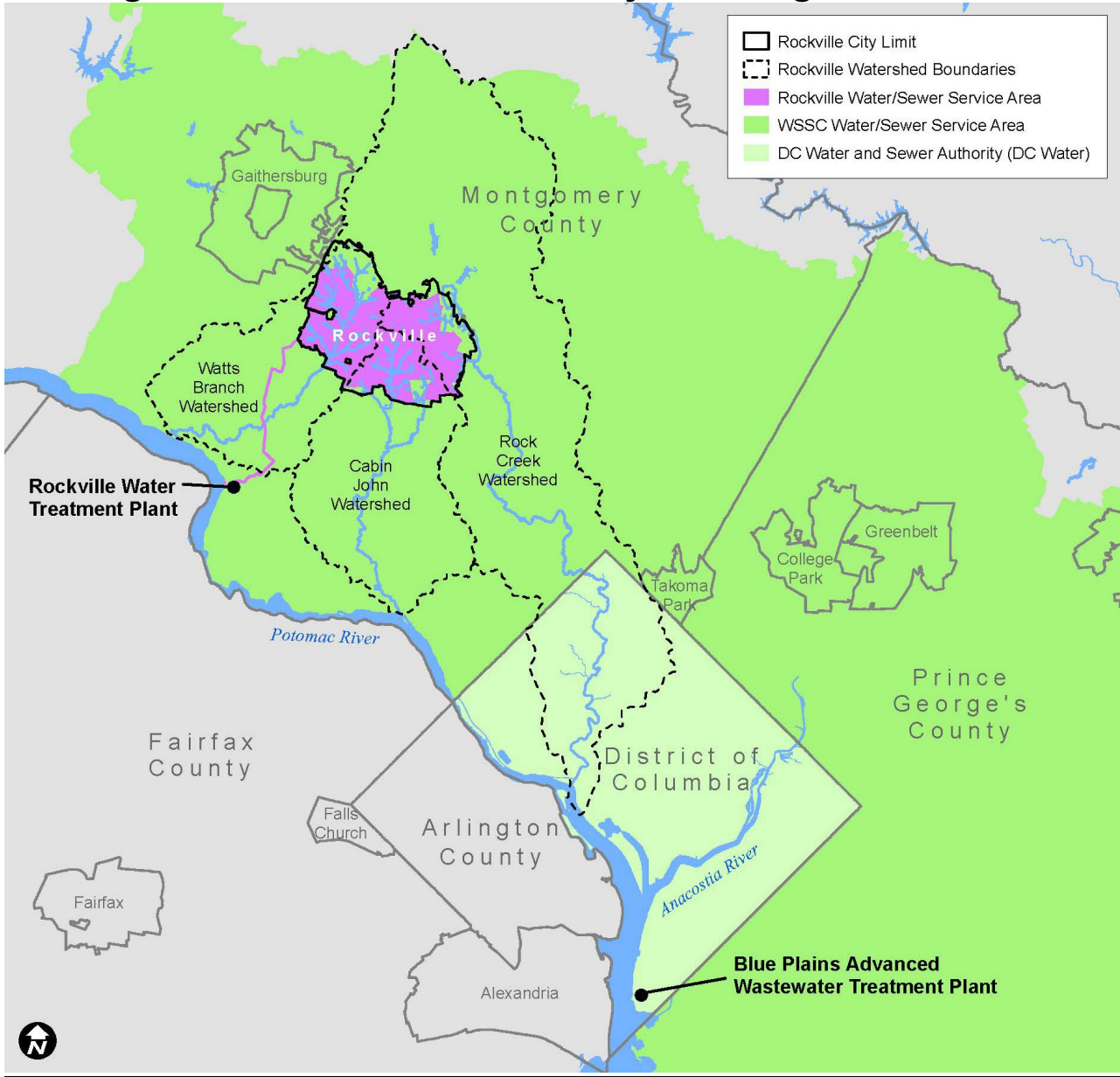
A project's adoption in the WSSC Water CIP by the two County Councils completes the facility plan adoption process. The annual approval of the WSSC Water CIP budget by both Montgomery and Prince George's Counties serves to amend the water and sewer facilities chapters of this Water and Sewer Plan. The CIP provides a proposed design and construction schedule for projects WSSC Water expects to implement within the six-year planning period of the CIP. The adopted CIP schedule also identifies the necessary funding sources for the project.

WSSC Water uses several methods to fund the construction and operation of water supply and sewerage system. Detailed information concerning WSSC Water's funding methods is included in Chapter 1, Section IV.A. The current WSSC CIP budget document, and those for some prior years, are available through WSSC Water's budget webpage at:  
<https://www.wsscwater.com/budget>.

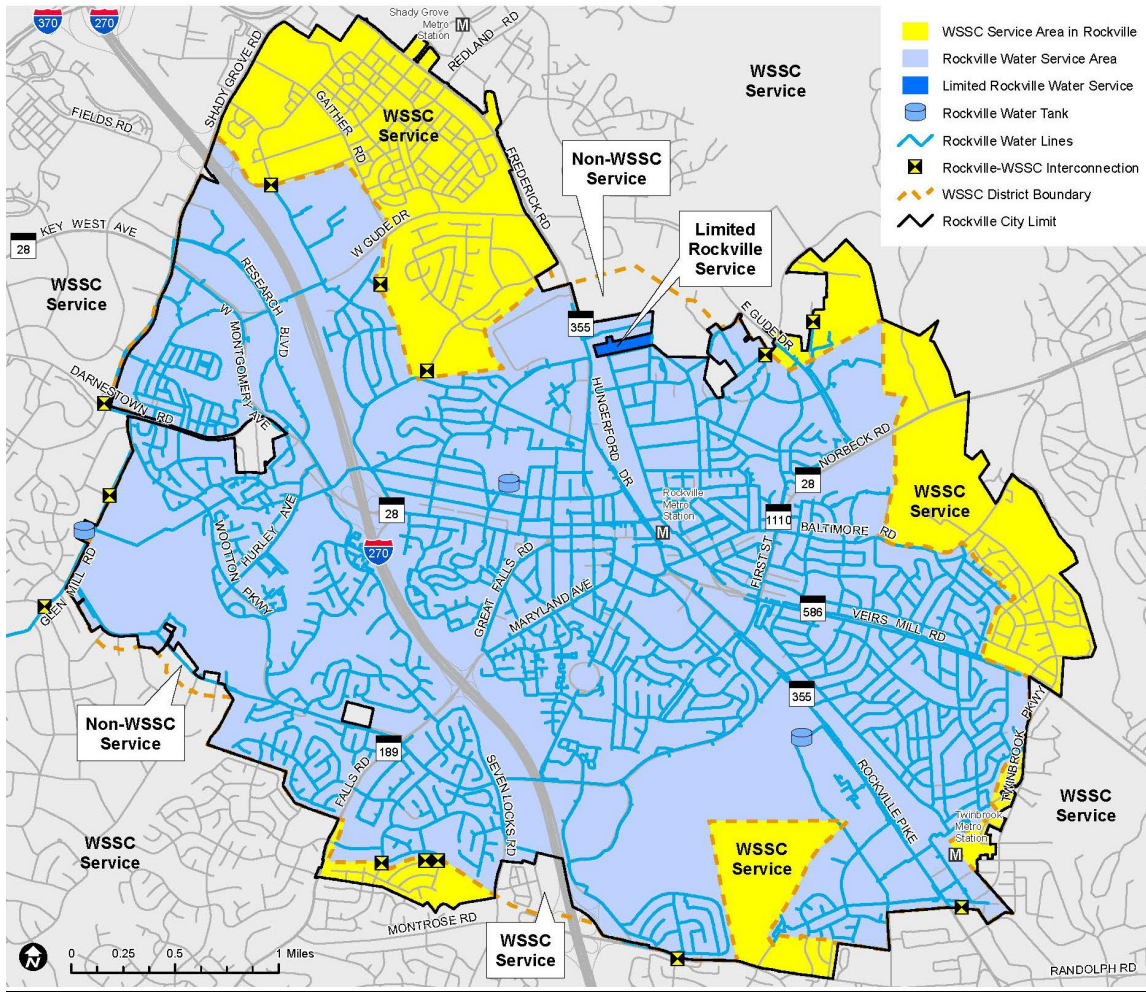
### III: ROCKVILLE SERVICE AREA

The City of Rockville (Rockville) owns and operates its own water supply system, separate from the WSSC Water community system, from source water to distribution. Rockville provides community water service to an area located within the corporate limits of Rockville and outside the designated limits of the Washington Suburban Sanitary District (WSSD). Properties located within the Rockville's maximum expansion limit (MEL) and outside the WSSD are eligible to receive water service from Rockville upon annexation into corporate City limits of Rockville. The approximate boundaries of the Rockville Service Area are shown in Figures 3-F7 and 3-F8

**Figure 3-F7: Rockville Water System Regional Context**



**Figure 3-F8: Water Service Areas in Rockville—Municipal and WSSC Water**



**III.A: Service Policies**

Approximately 70 percent of Rockville residents and businesses receive their water from the City's Filtration Plant and distribution system. The remaining 30 percent receive water from WSSC Water. Periodically, Rockville's corporate boundary changes through property annexations. Historically, most annexations were driven by the property's location outside the WSSD. By code, Rockville provides water and sewer service only to properties located within its corporate limits. Accordingly, Rockville requires that properties located within the MEL, and outside of both the corporate limits and the WSSD must annex into Rockville to receive public water and sewer. (See Figure 3-F8).

**III.B: Water Supply Source**

Rockville draws raw water from the Potomac River at an intake structure located on the east bank of the river at Sandy Landing Road on the C&O Canal, approximately 0.8 miles southeast of Swains Lock and five miles southwest of the city. Aside from several interconnections with WSSC Water's water supply system (see Section II.E.3.), this facility functions as Rockville's only water supply source.

Rockville received its first Water Appropriation and Use Permit from the State of Maryland in 1958. The State issued this permit for a daily average of 5.5 MGD and a maximum daily withdrawal of 8.0 MGD. In May 2002, the State issued a Water Appropriation and Use Permit to Rockville increasing

the daily average to 7.1 MGD and increasing the maximum daily withdrawal to 12.1 MGD. In 2014, the State issued a Water Appropriation and Use Permit to Rockville, without any changes from the 2002 permit.

**III.C: Water Source Policies and Drought Management**

Because they share a common raw water source; the Potomac River, Rockville and WSSC Water also share some of the same policies and agreements affecting their use of the river, especially during drought events. Rockville abides by the 1978 “Low Flow Allocation Agreement” when the restriction stage is declared in the Washington Metropolitan area as required by Maryland Department of the Environment (MDE) Water Management Administration. Rockville is accorded the same status as WSSC Water, under the Maryland Drought Monitoring and Response Plan. Rockville is also a signatory of the 1994 "Metropolitan Washington Water Supply Emergency Agreement" and the COG Drought Management Plan (See Section II.B.). Notwithstanding, Rockville has an agreement, executed in 2010, with WSSC Water allowing Rockville to request as much as 8 MGD of water from the WSSC Water system to respond to emergencies and to meet peak demands. Rockville’s water supply system benefits from water supply releases from the Jennings Randolph Reservoir and Little Seneca Lake.

**III.D: Water Treatment Facility**

The Rockville Water Filtration Plant (WTP) has intake capacity of 14 MGD and a treatment capacity of 8 MGD. As water demands are nearly flat, decreasing slightly over the last ten years even though customer growth is increasing slightly, Rockville has no plans within the next ten years to expand the treatment capacity of its WTP. Consistent with regional and national trends in the water industry, the average daily production has declined from 4.88 MGD in 2011 to 4.34 MGD in 2020 and the average maximum daily production has declined from 7.5 MGD in 2011 to 6.56 MGD in 2020. (See Table 3-T11.)

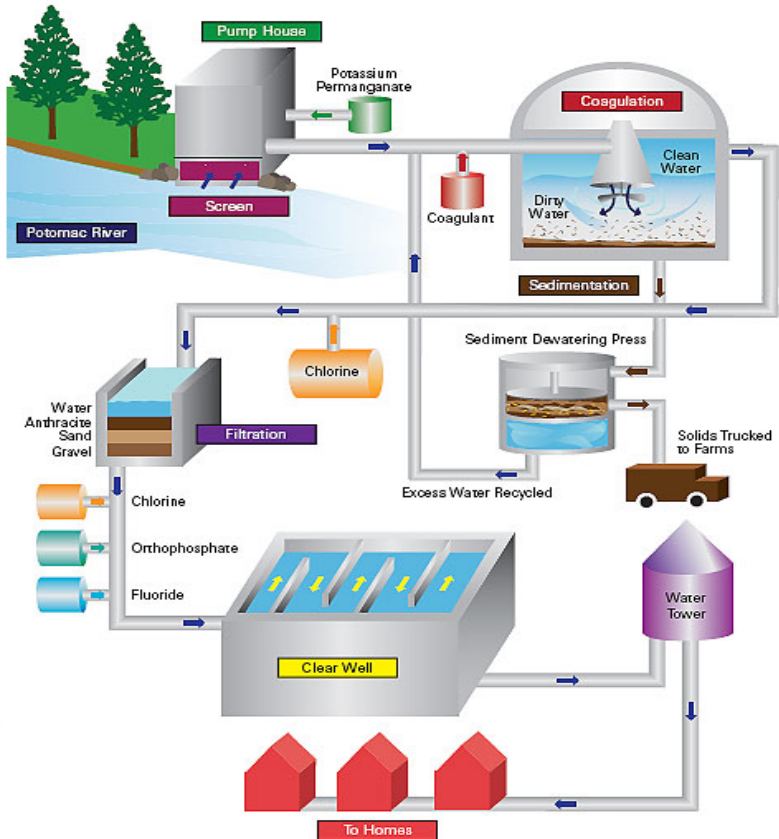
<b>Table 3-T11: Rockville Service Area Water Treatment Facility</b>				
<b>Facility Owner/Operating Agency Plant Location &amp; Coordinates</b>	<b>Water Source Treatment Type</b>	<b>Rated Plant Capacity Average Production Maximum Peak Flow Storage Capacity</b>	<b>Sludge and/or Filter Backwash</b>	<b>Status/Comments</b>
<b>Rockville Filtration Plant</b> City of Rockville Sandy Landing Road N433,000/E734,500	Potomac River sodium hydroxide, ferric chloride, flocculation, filtration, chlorination, fluoridation	capacity:8.0 MGD production: 4.7 MGD peak flow: 8.0 MGD storage: 11.2 MG	land application	Expansion to 12 MGD capacity approved in 2011. Interconnections with WSSC Water allow the City to draw up to an additional 8 MGD from WSSC Water in emergencies.
See Table 3-T3 for information on WSSC Water’s filtration plants.				

Between 1996 to 2004 Rockville implemented multiple CIP projects to upgrade its then 40-plus-year



old Water Filtration Plant to meet the 1986 amendments to the Safe Drinking Water Act of 1974. Although the main objectives of most of these projects were to update the old plant and to meet higher EPA standards, Rockville also designed and implemented these projects to meet projected higher water demand. Since 2009 Rockville continued to implement CIP projects primarily to meet EPA’s Stage 2 Disinfectants and Disinfection Byproducts Rule, but also to continue to upgrade the now 60-year old Plant. These projects are addressed under Section III.E.5. Figure 3-F9 is a schematic diagram of the City of Rockville Treatment Process.

**Figure 3-F9 City of Rockville Treatment Process**



*Diagram of Rockville’s water treatment process.*

Rockville may pursue a modification to the Water Treatment Plant which would allow Rockville to periodically discharge spent water back to the Potomac River. This will require approval from MDE. In 1996 Rockville began operating its water plant as a “zero discharge” water plant as directed by MDE. Before 1996, the plant discharged sediment-laden water back to the Potomac River, as WSSC Water is still allowed to do today. When the Potomac River is experiencing continuous high turbidity, which mixes a high amount of sediment with water coming into the plant, the filter press that removes the sediment can become over-taxed. Because of the zero-discharge regulation, the entire plant ceases operations until the situation is resolved. Also, during times of rapidly changing raw water quality, the plant can be filled quickly with water that has not had the proper chemical dosages. This will immediately shut down the plant. The plant staff will then recirculate this inadequately treated water through the treatment train until the water has been determined to meet all regulations for finished water. During these times of filter press shut down or plant shut down, Rockville purchases water from WSSC Water to supply potable water to its customers. An alternative solution is for MDE to remove the zero-discharge designation and to allow Rockville to periodically discharge spent water back to the Potomac River, like WSSC Water.

**III.E: Water Supply Distribution and Storage System**

Rockville maintains its own water distribution system, supplying water service to residents, businesses, and institutions within the Rockville corporate limits and outside the WSSD. The major elements of that system are as follows.

**III.E.1: Pumping and Major Transmission Facilities**

Treated water leaving the Rockville Water Filtration Plant is pumped through 27,940 feet of 24-inch prestressed, steel cylinder, concrete pipe before it enters the distribution system at Glen Mill Road and Veirs Drive. In 2006 Rockville constructed a pump station on Glen Mill Road to meet projected growth demands of the water system. However, similar to the overall Washington Metropolitan area, Rockville’s per capita demand is decreasing and accordingly Rockville has not experienced growth of the water demand as previously anticipated. Therefore, the existing Water Filtration Plant is still capable of providing water to meet peak water demand for Rockville customers. Rockville has only one primary water service pressure zone (Main Zone) with three smaller pressure zones (Tower Oaks, Rockville Pike and Twinbrook Zone) controlled by pressure reducing valves and no intermediate pumping stations. The major distribution system consists of 24-inch, 20-inch, and 16-inch trunk mains. (See Figure 3-F8.)

**III.E.2: Water Storage Facilities**

The City has three potable water storage facilities ranging in capacity from 0.2 to 8.0 million gallons (MG) with total storage capacity of 11.2 MG. One of the storage tanks, Talbot Street Tank (1 MG), was removed from service in 2014. Therefore, Rockville no longer includes the 1 MG of storage in the capacity determination. The capacities of individual public potable storage facilities are indicated in Table 3-T12.

<b>Table 3-T12: Water Storage Facilities - City of Rockville</b>	
<b>Storage Facility</b>	<b>Capacity (Million Gallons)</b>
Carr Avenue Tank	3.0
Filter Plant Clearwell	0.2
Hunting Hill Tank	8.0
Talbot Street Tank*	0.0
<b>Total</b>	<b>11.2</b>

*\*Removed from service in 2014. Talbot Street tank has been disconnected from the system and will be demolished in the future.*

**III.E.3: Water System Redundancy**

Existing interconnections with the WSSC Water’s water system are listed on Table 3-T13. These interconnections serve primarily to increase the flow for available fire protection and to serve as an automatic emergency water source. In 2016 WSSC contacted Rockville to explore disconnecting some of the interconnections along Glen Mill Road and to date, no action has been taken. The maximum allowable withdrawal from WSSC Water is 8 MGD based on Rockville’s 2010 agreement with WSSC Water. Since 2010, Rockville’s withdrawals from the WSSC Water system have ranged from 0.1 MG to 568 MG; with the lower withdrawal amounts typically associated with intermittent WTP outages and the larger withdrawal amounts typically associated with prolonged WTP outages for plant upgrades or significant system failures resulting in prolonged water purchase. In 2010 Rockville withdrew approximately 568 MG during a three-month period, while Rockville repaired its 24-inch transmission main. Rockville typically uses WSSC Water to support planned outages to make improvements at the WTP. Occasionally, Rockville uses WSSC Water during non-planned outages at the WTP, which occur when system components fail or during a significant water main break.

<b>Table 3-T13: Existing Interconnections with WSSC Water - City of Rockville</b>			
<b>Diameter Size (inches)</b>	<b>Location</b>	<b>Diameter Size (inches)</b>	<b>Location</b>
12	Redland Rd. and Piccard Dr. <sup>+</sup>	8	Stratton Dr. and Dunster La.
10	College Pkwy. north of Nelson St.	24	Glen Mill Rd. and Circle Dr.**
8	Wintergreen Terr. and Larkspur Terr.	24	Glen Mill Road and Lakewood Drive**
12	Southlawn La. south of E. Gude Dr. <sup>+</sup>	24	Glen Mill Rd. and Lloyd Rd.**
16	Rockville Pk. and Rollins Ave.*	24	Glen Mill Rd. and Pheasant Drive**
12	Montrose Rd. and Farm Haven Dr.	24	Glen Mill Rd. and Valley Drive**
8	Dead end of Rothgeb Drive*	6	Dunster Lane and WSSD Boundary
6	Canterbury Way and WSSD Boundary	12	Shady Grove Rd. and Darnestown Rd. <sup>+</sup>

*\* Piped connection is unconfirmed*  
*\*\*WSSC Water may remove the interconnection in the future*  
*+ Pressure reducing valve at this location*

**III.E.4: Projected Water Demand**

The average daily production for 2020 was 4.34 MGD with a maximum day of 6.6 MGD. The average daily production for 2010 was 5.04 MGD with a maximum day of 7.3 MGD. Water production has trended downward slightly over the last ten years, even though Rockville’s service population is slightly increasing, as shown below.

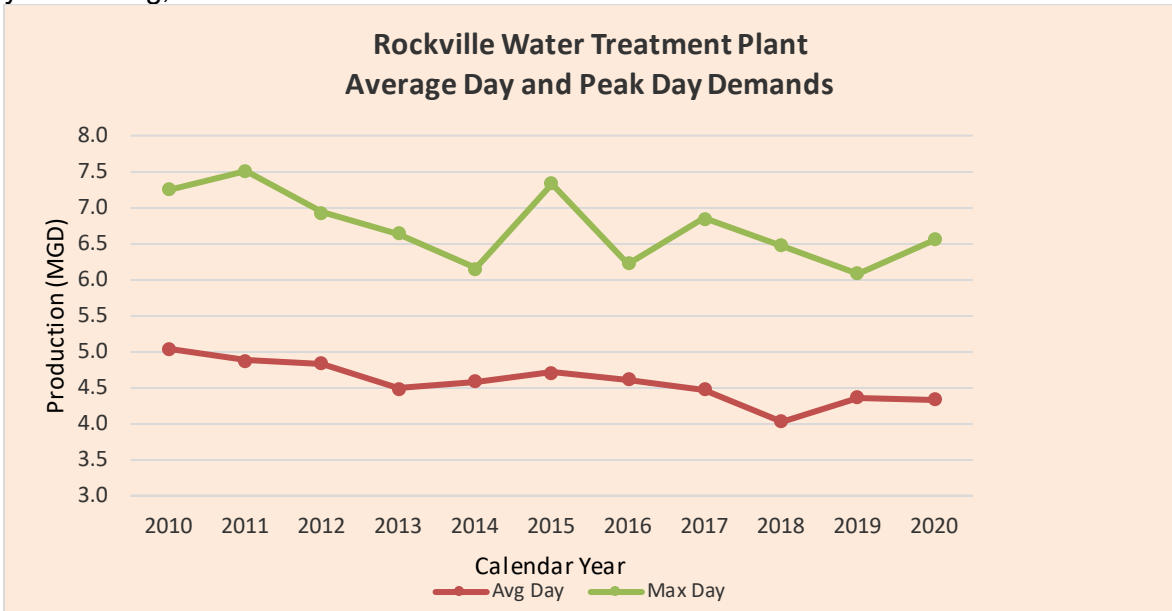


Table 3-T14 shows the following information: population projections for that part of Rockville outside the WSSD (Rockville’s service customers), projected water demands, and planned water plant capacity. The average day demand for 2017 was 4.48 MGD with a maximum day demand of 6.85 MGD. The maximum daily demand is projected to be 8.9 MGD in 2040, exceeding the Plant’s existing capacity.

<b>Table 3-T14: Projected Water Supply Demands and Planned Capacity City of Rockville</b>				
<b>Calendar Year</b>	<b>Rockville Service Population</b>	<b>Projected Demand (MGD)</b>		<b>Planned Capacity (MGD) Daily Maximum</b>
		<b>Daily Average</b>	<b>Maximum Daily</b>	
2017*	49,700	4.48	6.85	8.0
2040	65,700	5.63	8.9	9.0

Source: Water Resources Element (WRE) of the City of Rockville 2040 Comprehensive Plan  
 Note: Average peaking factor of 1.5 was used based on WTP production records from 2006 to 2015.  
 \*Actual

**III.E.5: Projected Water Supply System Needs**

Between 1996 to 2004 Rockville implemented multiple CIP projects to upgrade its then 40-plus-year old Water Filtration Plant and to meet the 1986 amendments to the Safe Drinking Water Act of 1974. Although the main objectives of most of these projects were to update the old plant and to meet higher EPA standards, the City also designed and implemented these projects to meet projected higher water demand. The first major Water Plant project, which was completed in 1996, was the addition of the filter press. Other projects that were completed in the early 2000’s include Rehabilitation of the Intake Structure (1999), Clarifier Upgrade (2000), Filter Rehab (2003), Water Plant Pump Upgrade (2005) and the Glen Mill Pump Station (2006). Since 2009 Rockville continued to implement CIP projects primarily to meet EPA’s Stage 2 Disinfectant and Disinfection Byproducts Rule, but also to continue to upgrade the now 60-year old Plant. In 2009 Rockville received American Recovery and Reinvestment Act (ARRA) funding to upgrade and improve energy efficiency of the HVAC systems; raw water, solids transfer, chemical feed, and solids press pumps; instrumentation; and control panels. Other recent CIP projects include:

- WTP Upgrades: Residual Handling, Ferric Chloride and Air Scour (2016);
- SCADA Improvements (2016);
- Water Main Rehabilitation (2008 – current); and
- Water Tanks Rehabilitation (Hunting Hill and Carr Ave (2017)).

In 2008 Rockville initiated a program to rehabilitate the water mains within the distribution system. The primary goal of this program is to improve flow for fire protection. The water main rehabilitation program also improves localized water quality and over time will decrease the number of water main breaks. Rockville’s water main rehabilitation program is on a 100-year cycle; water mains will be rehabilitated or replaced every 100 years. Initially, Rockville is focusing on removing cast iron water mains, which are severely tuberculated, and replacing them with lined ductile iron water mains.

Rockville will continue to address aging infrastructure issues at the Water Treatment Plant and more stringent environmental regulations as they are promulgated by EPA and MDE.



Projected water treatment and area distribution system projects intended to address aging infrastructure, EPA regulations and anticipated demands for Rockville water service include:

- Water Main Rehabilitation to improve fire flow within the distribution system
- WTP Electrical, Roof, and HVAC Upgrades to replace outdated electrical components
- WTP Raw Water Infrastructure Protection to protect the concrete duct bank in the stream
- WTP Safety Improvements to change from chlorine gas to bulk sodium hypochlorite for disinfection process
- WTP and Distribution System Assessment to develop a master plan
- Commercial water meter replacements for aging meters
- WTP Filter Media Replacement to replace media in two of the four filters
- WTP – Clarifier Improvements to extend the life of Clarifier No. 1
- SCADA at WSSC Water Interconnects to provide real time monitoring of WSSC Water usage

### **III.E.6: Financing Water Systems**

Information on the City's water systems financing is included in Section IV.B of Chapter 1. Additional information on Capital Program for the City of Rockville is available at:

<https://www.rockvillemd.gov/951/Budget-Financials>

## **IV: TOWN OF POOLESVILLE:**

The Town of Poolesville, located in western Montgomery County (see Figure 3-F1), has operated its own community water supply, storage, and distribution system since 1964. It is the only community water supply system in the County which relies on groundwater for its source water supply. Poolesville's water supply system serves only residences, businesses, and institutions within the town, forming a sanitary district concurrent with the Town's corporate limits and exclusive from the WSSD.

### **IV.A: Water Supply Source:**

The Town presently has 10 municipal groundwater wells in operation, which have a combined total average constant sustainable yield per day of 728 gallons per minute (gpm), or 1,048,320 gpd (assumes 24 hours pumping).

All of Poolesville's wells are equipped with flow regulating valves and have been set to specific pumping rates to ensure that each wells' major water bearings zones are not dewatered. These rates were determined by continuous 30-day pumping of individual wells during drought conditions and do not take into account any interference that may occur between wells if they were pumped simultaneously for 30 days.

Poolesville's groundwater quality is very good and requires minimal treatment. All wells are treated with chlorine, as mandated by the Safe Water Drinking Act. In addition, well #2 utilizes a cartridge filtration unit due to signs of possibly being under the direct influence of surface water. Well #7 & 9 are tied together for one point of entry and are equipped for radon and uranium removal.

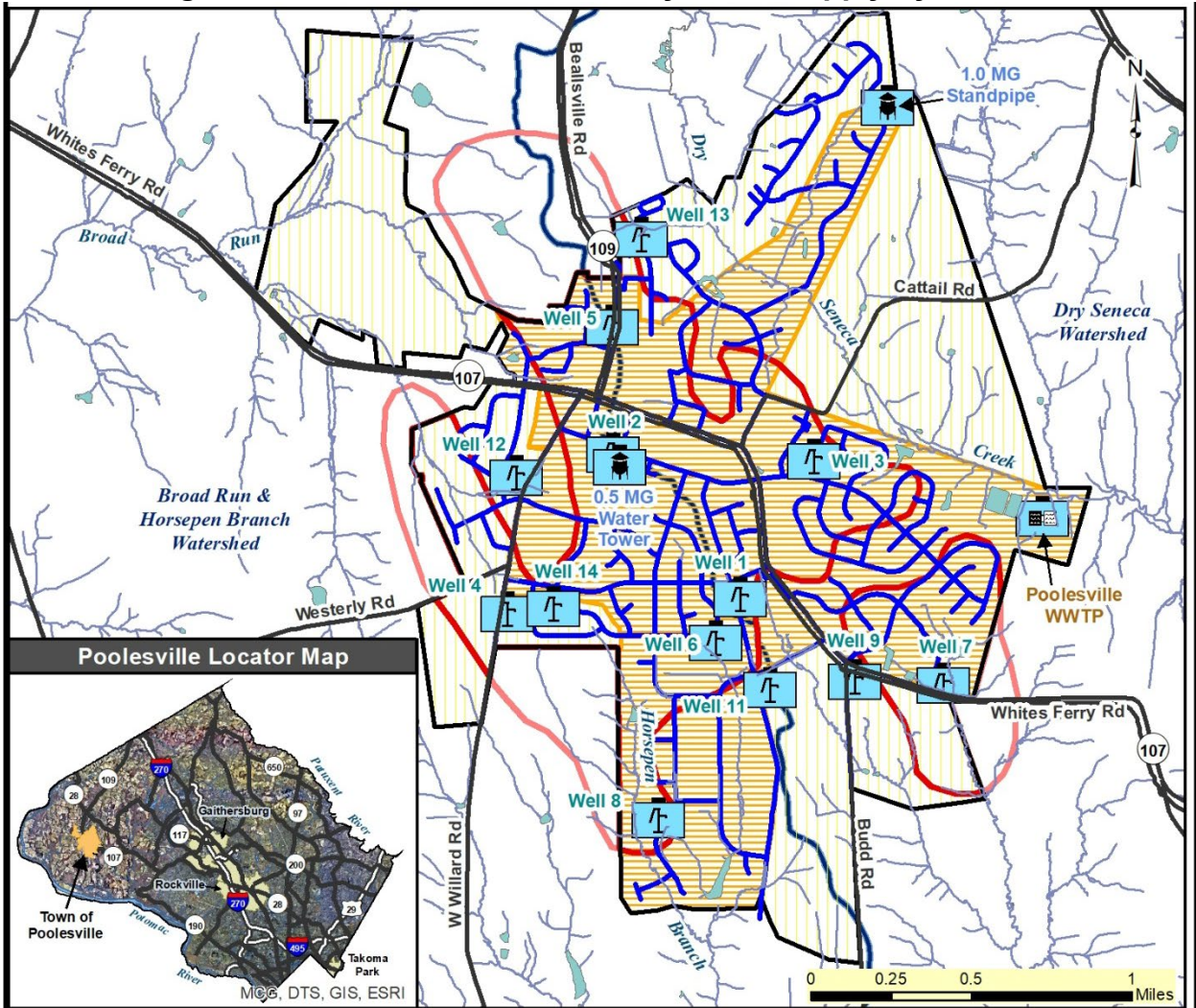
The Town is currently in the process of developing Well 14 and combining with Well 4. All permits are being reviewed by Montgomery County Department of Permitting Services and Maryland Department of the Environment has approved the plans and specification for the project. It is anticipated that Wells 4 & 14 shall be online by the end of 2022. All of these wells are part of the built-in place redundancy policy adopted by the Town in the early 2000's. All new wells will also be equipped with radon removal systems, although no Federal standards exist for drinking water.

The Town currently withdraws groundwater from the New Oxford Formation aquifer and has four watersheds within its corporate boundaries: Horsepen Branch, Broad Run, Dry Seneca Creek, and Russell Branch. In 2008, MDE issued the Town new Water Appropriation and Use (WAU) permits for the Horsepen Branch, Dry Seneca Creek, Broad Run and Russell Branch watersheds. The total of the four watershed appropriation permits is 650,000 gpd for an annual daily average and 910,000 gpd for the daily average of the month of maximum use.

According to MDE, on a yearly basis the Town has a total daily average of 651,000 gpd (452 gpm) of groundwater theoretically available within the corporate boundaries. The permitted groundwater yields for both the Horsepen and Russell Branch watersheds are essentially "tapped out." The Dry Seneca Creek and Broad Run watersheds have an additional 52,500 gpd (36 gpm) and 92,500 gpd (64 gpm) of available groundwater supply on a daily average basis, respectively.

The Town wells and available groundwater supply per watershed are described on Tables 3-T15 and 3-T16, respectively, and are mapped in Figure 3-F10.



**Figure 3-F10 Poolesville Community Water Supply Systems**



**Montgomery County Comprehensive Water Supply and Sewerage Systems Plan**

**MAP LEGEND**




**Community Water System Wells**

-  Poolesville Water Storage Tanks
-  Active Production Well



**Poolesville Water Mains**



**Community Water Service Areas**

-  Existing / Planned Service
-  No Planned Service
-  Town of Poolesville - Corporate Limits

**Wellhead Protection Areas\***

-  Areas Within Poolesville
-  Areas Outside Poolesville (Outside the Town's Control)

\* For Poolesville Wells 1 - 8 only; protection areas for new wells have not been determined yet.

<b>Table 3-T15: Available Groundwater Supply by Watershed – Town of Poolesville</b>						
<b>Watershed - Community System Wells</b>	<b>Area (Acres)</b>	<b>Theoretically Available Groundwater (gpd)</b>	<b>Ave. Daily Allocation (gpd)</b>	<b>Max. Monthly Average Allocation (gpd)</b>	<b>Potential Well Yields (gpd)</b>	<b>Ave. Daily Remaining Available Groundwater (gpd)</b>
Horsepen Branch Wells 2,4,6 8,11&14	588	149,00	293,00	388,000	597,600	0
Broad Run Well 12	551	140,000	47,500	66,600	66,600	92,500
Dry Seneca Creek Wells 3, 5, & 13	973	247,000	194,500	273,400	303,400	52,500
Russell Branch Wells 7,& 9	450	115,000	115,000	182,000	359,000	0
<b>Totals</b>	<b>2,562</b>	<b>651,000</b>	<b>680,000</b>	<b>910,000</b>	<b>1,326,600</b>	<b>145,000</b>

<b>Table 3-T16: Inventory of Existing Community System Wells – Town of Poolesville</b>									
<b>MDE Appropriation Permit</b>	<b>Well Name or Number</b>	<b>Aquifer</b>	<b>Coordinate Location</b>	<b>Depth (Feet)</b>	<b>Diameter (Inches)</b>	<b>Ave. Constant Sustainable Yield (gpm) <sup>A</sup></b>	<b>Potential Daily Yield (gpd) <sup>B</sup></b>	<b>Water Quality</b>	
#M01970G007 (10)	2	New Oxford Formation	N477,190 E682,120	453	6	100	144,000	Good	
#M01970G107 (01)	3		N477,190 E685,030	285	6	60	86,400	Good	
#M01970G007 (10)	4		N477,000 E680,000	600	6.5	40	50,400	Good	
#M01970G107 (01)	5		N479,350 E681,850	500	6	100	144,000	Good	
#M01970G007 (10)	6		N474,000 E684,000	500	6	110	187,200	Good	
#M01970G207 (01)	7		N543,500 E687,500	700	8	45	72,000	Good	
#M01970G007 (10)	8		N472,000 E637,500	500	8	65	86,400	Good	
#M01970G207 (01)	9		N534,100 E1,198,275	800	8	125	179,600	Good	
#M01970G007 (11)	11		39.132923- 77.406878	1,200	8	100	144,000	Good	
#M02004G006 (01)	12		39.142113- 77.421577	466	8	72	108,000	Good	
#M02004G003 (01)	13		39.153584- 77.415215	500	8	51	93,600	Good	
#M01970G007 (13)	14		N:1192536.19 E:535288.11	500	8	35	50,400	Good	
<b>TOTAL</b>						<b>903</b>	<b>1,300,320</b>		

<sup>A</sup> Based on well yield data and pump tests performed by the Town. Source: Town of Poolesville.  
<sup>B</sup> Assumes 24 hours of pumping per day.  
<sup>C</sup> The Town removed Well #10 from service due to iron bacterial contamination.

**IV.B: Source Water Protection Programs:**

Poolesville's groundwater is generally of high quality. It meets all current drinking water standards and requires minimal treatment before it reaches the tap. In recent years, the Town has developed protective legislation to reduce the threat to groundwater from contamination arising from stationary sources. A threat from mobile sources of contamination will always remain from tank trucks carrying such products as gasoline, home heating fuel and pesticides. Appropriate contingency plans for this occurrence has been developed as part of the Wellhead Protection Plan and Emergency Response Plan. The Town will continue to develop one or more additional well fields as far removed from potential sources of contamination as possible. Further, the Town will pursue abandonment of In-Town private well and septic systems to limit this as a potential source of groundwater contamination. The Town views their Wellhead Protection Area as all land within the corporate boundaries and, in some cases, extending beyond the corporate limits. The Wellhead Protection Plan ensures a degree of certainty that the present planning process that reviews new development applications and changes in use provides protection for the Town's water supply.

Naturally occurring alpha emitters have been found in Poolesville's ground water, as well as in other area communities using ground water across the nation. Alpha emitters are naturally occurring radioactive elements in the earth's crust, and radioactive decay products. The most common alpha emitters in drinking water are radium, radon and uranium. Most of the radionuclides in drinking water occur naturally and are not considered a public health concern at very low levels. Due to the presence of some higher concentration of alfa emitters in Poolesville groundwater supply, the Town has installed uranium treatment systems on three of its wells and is planning to install additional radon removal systems in the future. The Town of Poolesville monitors for alfa emitters and the results are reported to MDE on regular basis. The Town's drinking water quality meets State and Federal regulatory compliance levels for Alpha Emitters and the results are published in the Town's Annual Water Quality Report.

The U.S. EPA has designated the Town's groundwater supply as part of a Sole Source Aquifer. Please refer to Section V.B.2. on this Chapter for additional information.

**IV.C: Water Distribution System:**

The Town of Poolesville has one pressure zone maintained by nine well pumps and two storage facilities. These two water storage facilities have a combined capacity of 1.5 million gallons. The storage facilities provide the Town with several days of capacity to respond to unexpected and non-catastrophic events such as well pump malfunction or water line breaks (see Figure 3-T8). The one-million-gallon ground level standpipe storage tank has a booster pump station with a capacity of 1500 gpm. Under normal operating conditions, the standpipe tank operates via gravity. The Town has approximately 120,000 feet of water mains ranging in diameter from 1" to 16".

**IV.D: System Redundancy:**

The Town of Poolesville currently has no immediate means of obtaining additional water supply other than the Town's existing wells. The two closest potential connection points with the WSSC Water's water system are located in Darnestown along Route 28 and south of Darnestown along River Road and are a considerable distance (approximately seven and twelve miles, respectively) from Poolesville (no planning has been initiated to provide for future interconnections). The Potomac River, a possible source of surface water, is located approximately 4 miles from the Town.

Although the Town does not have an alternate source, redundant wells have been drilled and placed in service beyond the allowable withdrawal permit in the event of a watershed being

contaminated or any other catastrophic event that might impact a portion of the well system. Nonetheless, the Town has recently applied to the Maryland Department of the Environment (MDE) to add an additional redundant Well #14 to the system. Construction of the well, if approved, should take place sometime during 2022.

**IV.E: Projected Growth and Water System Demand:**

The Town’s current 10-year Master Plan, adopted in December 2011, establishes a population not to exceed 6,500 in the foreseeable future. In March 2002, the Town adopted a policy whereas the existing wells connected to the system are for current residents. Any additional residential construction shall be based on a calculation of three hundred twenty-five (325) gallons per day per residence.

The Town has developed Water Capacity Management Plan. The Plan identifies wells that must be brought online by developers prior to the issuance of allocation to remain in compliance with the above policy. Although the permitted withdrawal will be consistent with MDE’s 325 gpd/household, the additional capacity will provide for redundancy, drought conditions, and fire protection. The plan remains in place as about 98 of the 145 taps listed in the Town’s Water and Sewer Allocation Plan are in service.

Table 3-T17 summarizes the Town of Poolesville's past and projected population along with projected water supply demands and planned capacity for the town.

<b>Table 3-T17: Projected Water Supply Demands and Planned Capacity</b>						
<b>Town of Poolesville</b>						
<b>Design Year</b>	<b>Population</b>			<b>GPCD<sup>A</sup> (gallons)</b>	<b>CAPACITY (MGD)<sup>B</sup></b>	
	<b>Total</b>	<b>Served</b>	<b>Unserved<sup>C</sup></b>		<b>Average<sup>D</sup></b>	<b>Peak Monthly Demand</b>
2020	5,300	5,280	20	100	0.650	0.910
2025	6,500	6,480	20	100	0.650	0.910
2030	6,500	6,480	20	100	0.650	0.910

<sup>A</sup> Gallons Per Capita Per Day (GPCD) for the year 2020 based on actual data. Future GPCD projections estimated by the Town.

<sup>B</sup> For planning purposes, the Town estimates the peak monthly demand to be 1.5 times the average monthly demand.

<sup>C</sup> Unserved population utilizes private, individual wells.

<sup>D</sup> The Town of Poolesville's water capacity is permitted and capable of meeting the total expected population growth of 6,500 residents. To ensure an adequate water supply for current and future residents, the Town expanded the water supply capacity to meet future needs prior to the allocation of water taps and new Development. The 2019 actual average daily demand was 505,288 gallons per day (GPD) and a peak monthly demand of 571,149 GPD. It is anticipated that by 2030, the Comprehensive population cap not to exceed 6,500 residents will be met and the capacities and demand will be approximately 650,000 GPD with a peak monthly demand of 910,000 GPD.

**IV.F: Projected Water Supply System Facility Needs:**

To provide system redundancy, the Town continues to require developers to construct wells identified by the Town during the 2001 well search program. Growth has been slow and steady, and plans put in place addressing capacity and growth continue to be implemented and will continue until the planned build out is complete.

The 1.5-million-gallon storage capacity currently provided in the Town is sufficient to serve the ultimate population. The Town has an adequate water supply for existing residents. As future developments are approved more water sources will be added to the water distribution system as included on Table 3-T18.

<b>TABLE 3-T18 Immediate, 5-, and 10-Year Priorities for Water Supply Development Town of Poolesville</b>							
Fiscal Year	Location	Description	Estimated Costs			Project Status - Construction Start	
			Total	Federal and/or State	Local	Immediate Priority Projects	Five and Ten Year Period Projects
2022	West Willard Rd	Well #14 & 4 well House	\$1,200,000		\$1,200,000	X	
Open	Cattail Rd	Well#15 & Well House	\$1,250,000		\$1,250,000		X

**IV.G: Financing Water Systems:**

Information on the Town's water system financing is included in Section IV.C of Chapter 1. Additional information on Capital Program for the Town of Poolesville is available at

<https://poolesvillemd.gov/wp-content/uploads/2020/07/FY2021-Budget-BUDGET-CAP-BUDGET5-27-2020-FINAL-FINAL.pdf>



## **V: INDIVIDUAL WATER SUPPLY SYSTEMS AND RURAL SANITATION**

In the more rural, less-densely populated parts of Montgomery County, residents, businesses and institutions depend primarily on groundwater supplied by wells for their water supply. Approximately 80,000 county residents rely on groundwater for their only source of water supply. The areas dependent on groundwater wells form an irregular crescent starting in the southwestern part of the county, sweeping around to the west, then north of Clarksburg and around Damascus, then south and east along the Patuxent River watershed (see Figure 3-F11). The county has approximately 20,000 individual wells in use. Ground water wells are used not only for potable water supply, but also for uses such as irrigation, industrial processes, and ground water monitoring. Most wells are located in areas outside of the community water service envelope. However, Figure 3-F11 shows that some wells may be found within areas planned for community systems, often where community water system main have not yet been constructed.

Of the wells within the county, only Poolesville's municipal wells are part of a community water supply system. This Plan refers to private or non-municipal wells as "individual water supply systems," consistent with State law. Some larger individual water supply systems are referred to as "multiuse systems." (See Section V.D.).

Some information concerning wells and rural water supply systems that might logically be included in the following sections of Chapter 3 is consolidated in Chapter 1 with similar information concerning individual sewerage systems. One of the intents of this update of the Water and Sewer Plan is to start focusing attention on individual systems and concerns regarding rural sanitation. For the time being, Chapter 1 of this Plan provides a more convenient venue for these issues.

### **V.A: Groundwater Supply Geologic Conditions:**

All of the bedrock in the county is fractured to some extent, some formations more than others. Wells that intercept fractures usually provide the best groundwater yields. However, fractures do not normally extend great distances, and there is little or no interconnection between adjoining basins or sub-basins. Drainage divides for surface streams also define the boundaries for subsurface water movement. The flow in streams following the dissipation of storm flows is known as base flow and represents the gradual discharge of groundwater to the surface.

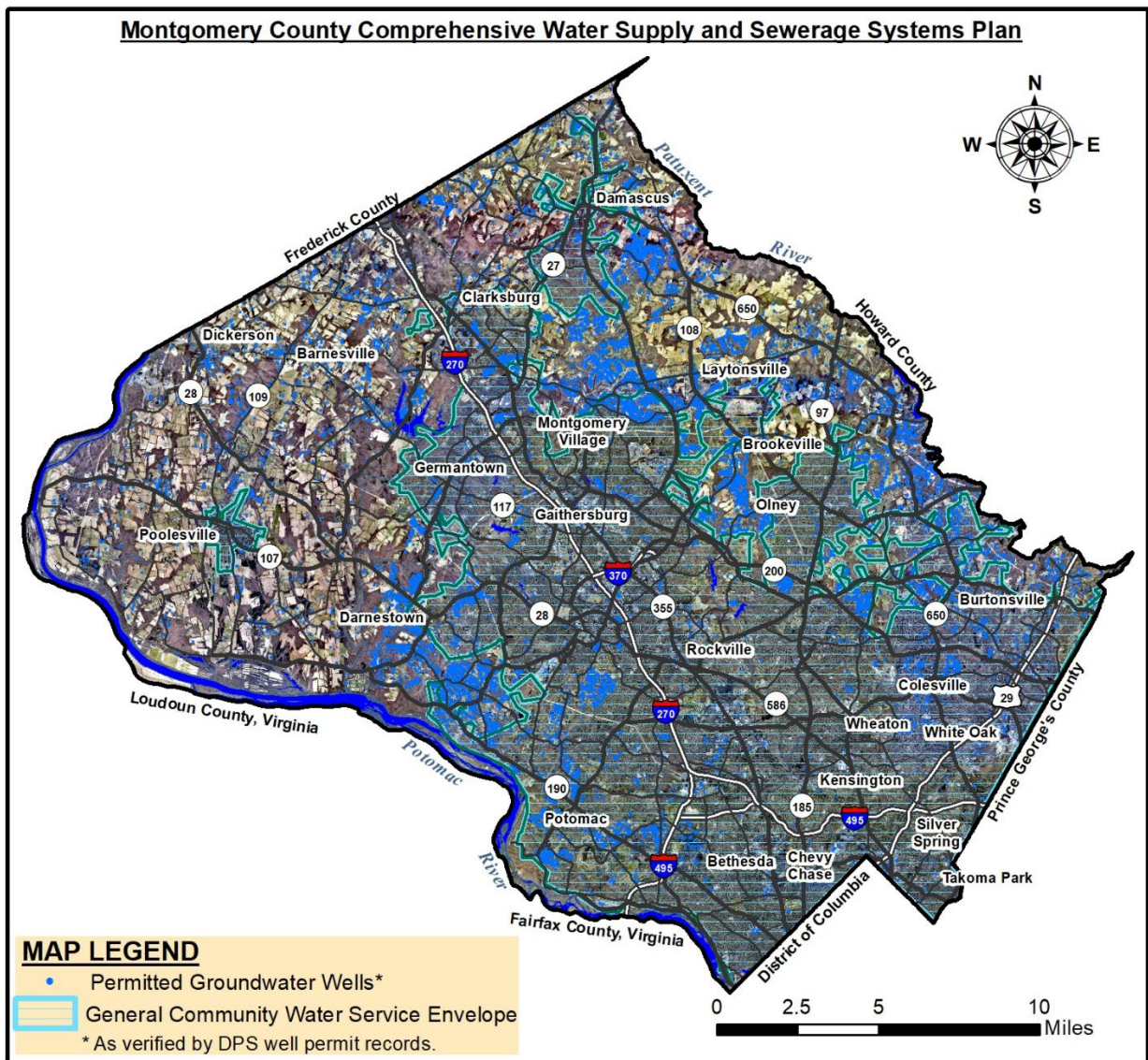
Most of Montgomery County is located in the Piedmont physiographic province. A thin section of Coastal Plain sediments overlays the crystalline rocks of the Piedmont formations in the area east of U.S. Route 29. The crystalline rocks of the Piedmont are chiefly phyllites and schist. In the southwestern portion of the county, red and gray siltstone and sandstone sedimentary formations overlay the crystalline rock. Most of the area underlain by schists or Coastal Plain sediments have already been developed on the WSSC Water or Rockville public water systems. Remaining areas in these geologic units are within the proposed water service envelope or are planned for relatively low-density development.

Moderately shallow soils with bedrock outcrops, particularly in stream valleys, characterize the Phyllite rock underlying the western and northwestern portions of the county. Although these areas have some of the lowest well yields of any area of the county, these yields are generally adequate for individual dwellings and businesses. Water quality is considered good; it seldom requires treatment for use, and there are no known areas of widespread pollution though localized pollution is a problem in some areas.

The southwestern portion of the county is characterized by sedimentary deposits of shale, sandstone and siltstone, which provide the source of water for the Town of Poolesville. The Town uses all the water withdrawn from the sedimentary area for potable use. These sedimentary deposits, along with the phyllite areas, are not considered good aquifers from the standpoint of yield. Water in the sedimentary rock strata is chiefly found in fractures and crevices. Since the soil and overburden above the bedrock is thin, it offers little opportunity for groundwater storage. The yield of wells in this area can decline dramatically during extended drought periods, as has been experienced by the Town of Poolesville. During normal rainfall periods, well yields remain constant and adequate.

The water in the sedimentary area tends to be hard and mildly alkaline. Occasionally iron and/or manganese needs to be removed for aesthetic reasons. The water quality in this area is similar to water quality in other sedimentary areas of Maryland and Virginia that have primarily rural agricultural land uses and is generally considered to be good.

**Figure 3-F11: Permitted Groundwater Wells**



**V.B: Groundwater Regulations and Protection Programs:**

The following programs regulate the establishment and use of groundwater wells and protect the county's groundwater resources.

**V.B.1: Well Permitting** - The County's Department of Permitting Services (DPS), Well and Septic Section, is responsible for the administration and enforcement of County and State laws and regulations governing on-site, individual water supply systems. This authority is delegated from the State's Department of the Environment (MDE). Relevant regulations are included in COMAR 26.03.01, 26.03.05, and 26.04.02 -.04, and in County Executive Regulation 28-93AM "On-Site Water Systems and On-Site Sewage Disposal Systems in Montgomery County."

DPS accomplishes these responsibilities by:

- Reviewing preliminary plans and record plats for properties served by on-site systems.
- Issuing permits for and inspecting the construction of new and replacement wells. In most areas of the county, wells are drilled without preliminary monitored by DPS. The capacity of drilled wells is checked by a draw test prior to final permitting.
- Sampling water supplies for potability. New wells for potable uses are normally sampled for nitrates, coliform bacteria, and turbidity.
- Responding to complaints about onsite systems.

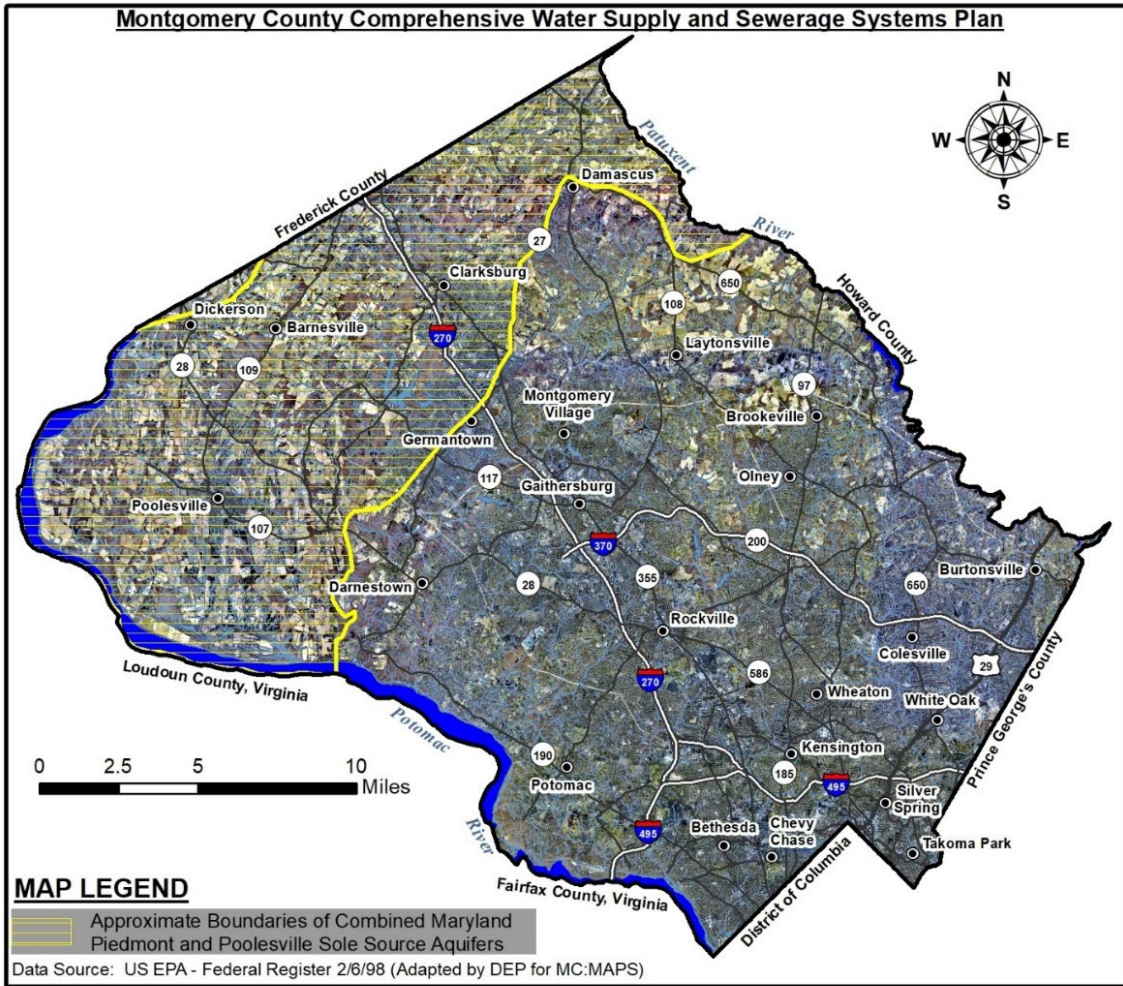
On-going well monitoring is done when some subsequent licensure or approval is required, such as childcare licenses, group or nursing homes, food service facilities, or swimming pools. There are no requirements for ongoing monitoring of wells used solely for single family residences. A typical residential demand is often calculated at 500 GPD per average single-family residence for septic system design purposes. COMAR regulations require a well yield of at least one gallon per minute (or 1,440 gallons per day) and at least 500 gallons of water to be available during one two-hour period each day.

MDE maintains a permitting authority for commercial, institutional, and residential subdivision projects through its Water Appropriation and Use permit. This permit is also required for wells for non-potable uses such as irrigation or commercial uses. As the County authority responsible for water and sewer service planning, DEP reviews and signs off on these permits to ensure that they comply with the Water and Sewer Plan.

**V.B.2: Sole Source Aquifer** - The Sole Source Aquifer Program, established under Section 1424(e) of the Federal Safe Drinking Water Act of 1974, authorizes the Administrator of the U.S. Environmental Protection Agency (EPA) to designate aquifers as the "sole or principal" source of drinking water for an area. The program provides for EPA review of projects receiving federal financial assistance planned for the sole source aquifer area to determine their potential for contaminating the aquifer and creating a significant hazard to public health. EPA may approve, disapprove, or approve conditionally with modification a project using federal funds. In 1980 and 1998, EPA designated some of parts of western Montgomery County as Sole Source Aquifer and included the Piedmont and Poolesville sole source aquifers. The approximate boundaries of combined Piedmont and Poolesville sole source aquifers is shown in Figure 3-F12. For more information on the sole source aquifers, see Chapter 2, section II.E.1.



**Figure 3-F12: US EPA Sole Source Aquifers in Montgomery County (Piedmont and Poolesville Aquifers)**



**V.C.: Ground Water and Well Problems:**

Individual ground water wells fail for a variety of reasons:

- Contamination of the ground water from an onsite or offsite source, including but not limited to fuel leaks and spills, bacteria from leaking septic systems, and nitrates from fertilizers.
- Contamination of the well from bacteria.
- Inflow to the well from a surface water or shallow ground water source.
- Failure of the submerged well pump or water treatment systems.
- Structural failure of the well, especially older, shallow, hand-dug wells.
- Insufficient ground water flow into the well.

For the majority of areas located outside the planned community water service envelope, DPS addresses these problems with onsite solutions, such as water treatment systems, equipment repairs or replacement, well disinfection, and replacement wells. In areas with available community water service DPS will typically recommend connection to the community water system.

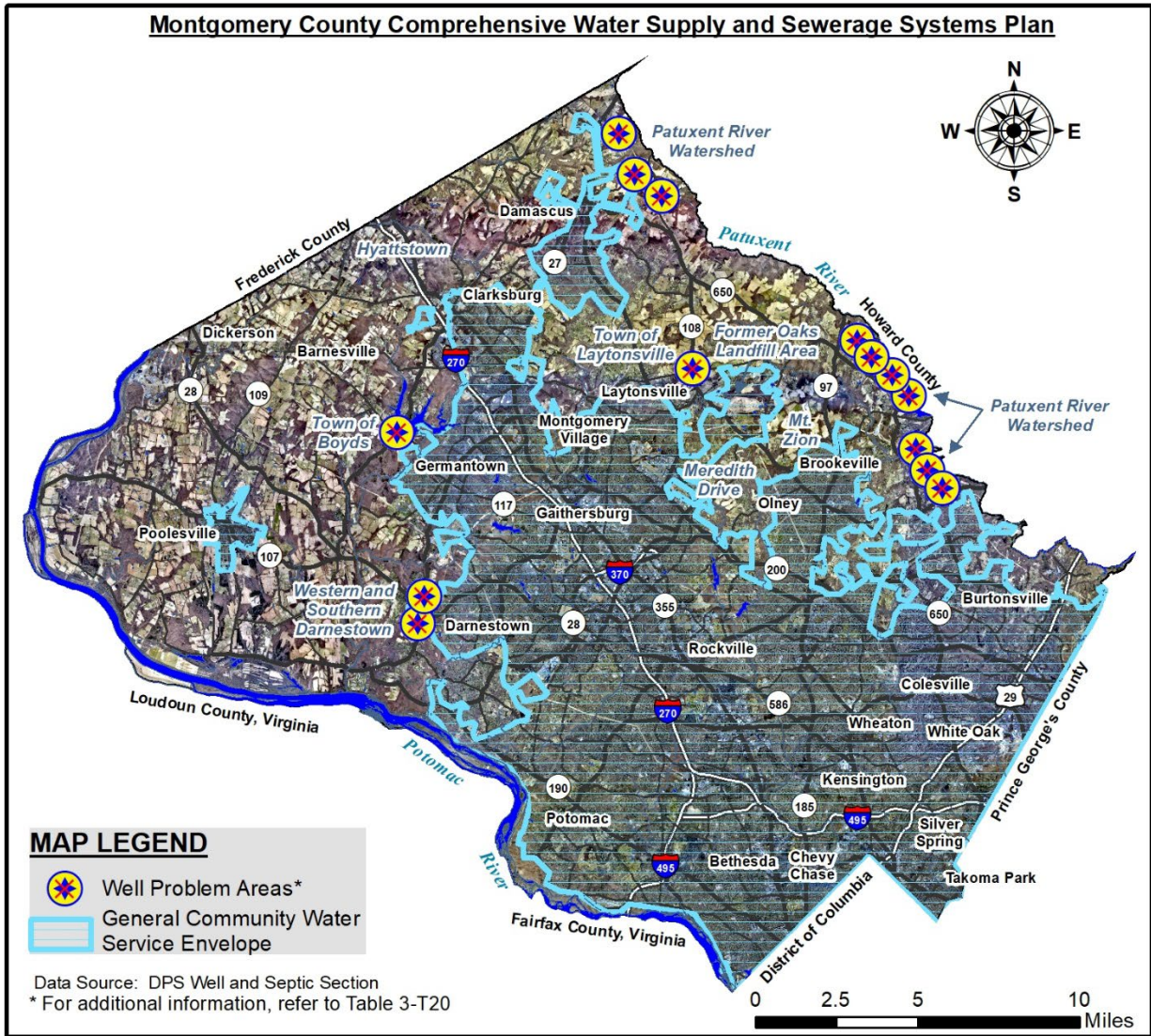
Some of the preceding problems, particularly ground water contamination, have the potential to affect not just one well, but also surrounding wells. In such cases, DPS may recommend a joint well survey of the affected area with DEP, especially where community water service is in close proximity.

Although DPS does not currently maintain a comprehensive database of well yields and contamination problems throughout the county, that agency has provided information concerning groundwater problem areas based on staff experience as identified in Table 3-T19 and are identified on Figure 3-F13.

<b>Table 3-T19: Groundwater and Well Problem Areas</b>			
<b>Location</b>	<b>Problem</b>	<b>Potential Solutions</b>	<b>Actions Taken</b>
<b>Outstanding Problem Areas</b>			
Town of Boyds	polluted aquifer	<ul style="list-style-type: none"> <li>▪ community water service</li> <li>▪ individual GAC filters</li> </ul>	DPS is addressing well problems in this area as they come forward.
Town of Laytonsville	polluted aquifer (hydrocarbons and nitrates)	<ul style="list-style-type: none"> <li>▪ community water service</li> <li>▪ individual GAC filters</li> <li>▪ handle old wells properly</li> </ul>	The Town requested approval for community water service, which the County approved in the Plan in 2001. A WSSC Water community water system is completed and in service to the town and nearby properties. However, residents and businesses have been slower to connect to the system than anticipated. More coordination with the Town government may be needed to help move water service forward in the community.
Patuxent River Watershed: <ul style="list-style-type: none"> <li>▪ northeast of Damascus</li> <li>▪ Between Routes 108 and 97</li> </ul>	low well yields		DPS requires pre-testing of wells for adequate yields in these areas. Some areas have limited access to community water service.
Western & Southern Darnestown	elevated nitrate levels		DPS has required advanced treatment on larger, multi-use septic systems in this area. Properties near Routes 28 and 112 have access to community water service.

Additional information on well problems, relief measures, and County service policies is found in Chapter 1, Section III.B.

Figure 3-F13: Well Problem Areas



**V.D.: Multiuse Water Supply Systems:**

As described in Chapter 1(Section III.B.5.), multiuse water supply systems are defined as individual, on-site water systems with a capacity of 1,500 or more gallons per day (gpd). Because of their greater potential for impacts on ground water resources and neighboring wells, these systems require approval in the Water and Sewer Plan. These facilities are generally large-capacity well water systems, although some facilities use more advanced treatment systems. Almost all depend on groundwater for their water supply. DEP coordinates the Water and Sewer Plan amendments for these systems with DPS. Appendix B includes a listing of the multiuse water supply facilities in Montgomery County approved in this Plan.

For multiuse water supply system with capacities of 5,000 or more gpd, review and approval from MDE is also required. MDE mandates semi-annual operations reports for systems of this size.



# **CHAPTER 4**

## ***SEWERAGE SYSTEMS***



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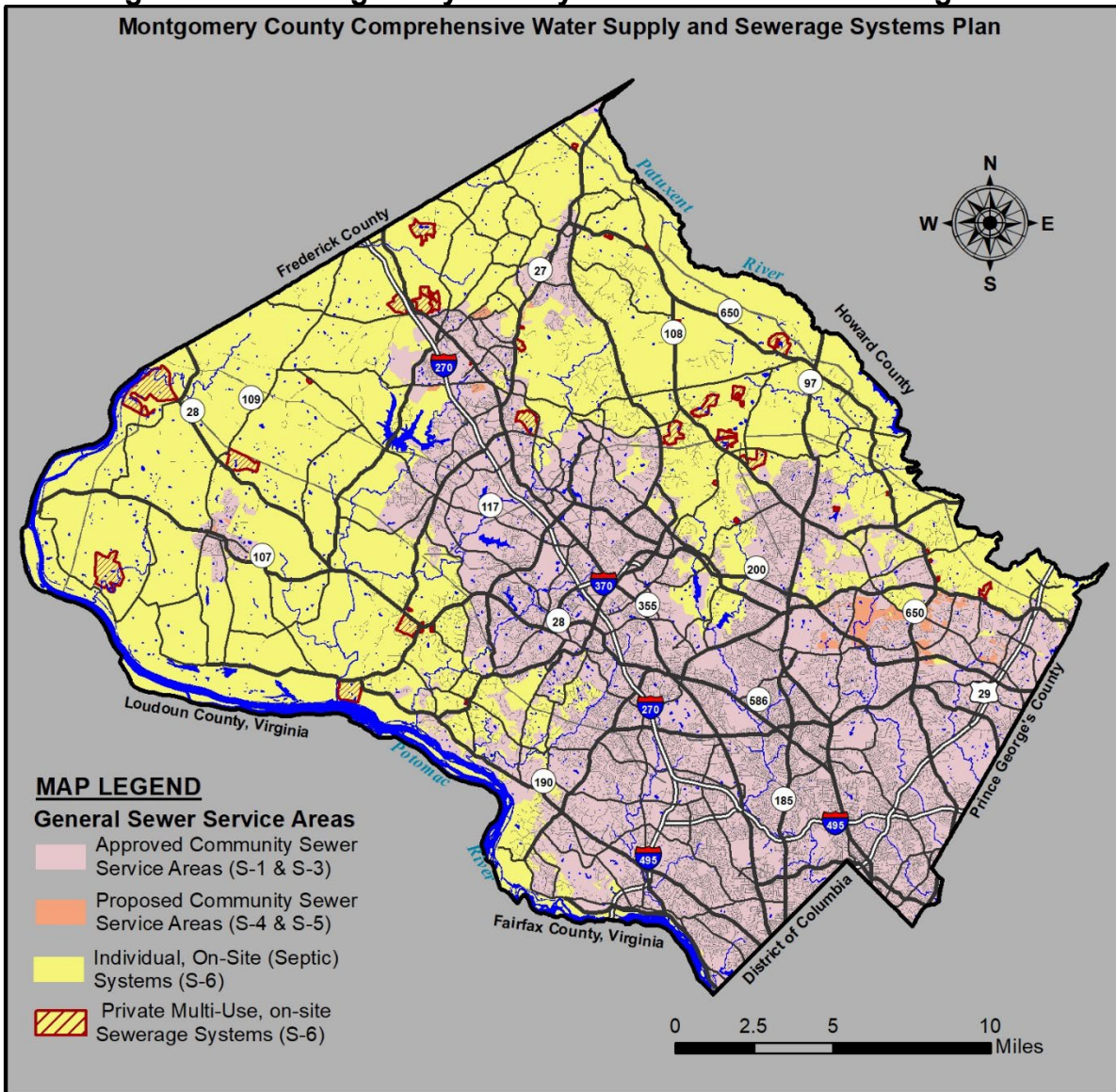
## **INTRODUCTION AND BACKGROUND:**

This Chapter describes the County's existing and planned community and private, individual sewerage systems. It incorporates components and related discussions of major programs, policies, and issues

concerning sewerage systems serving the residents and businesses in Montgomery County. It also projects sewerage collection/conveyance and treatment system need.

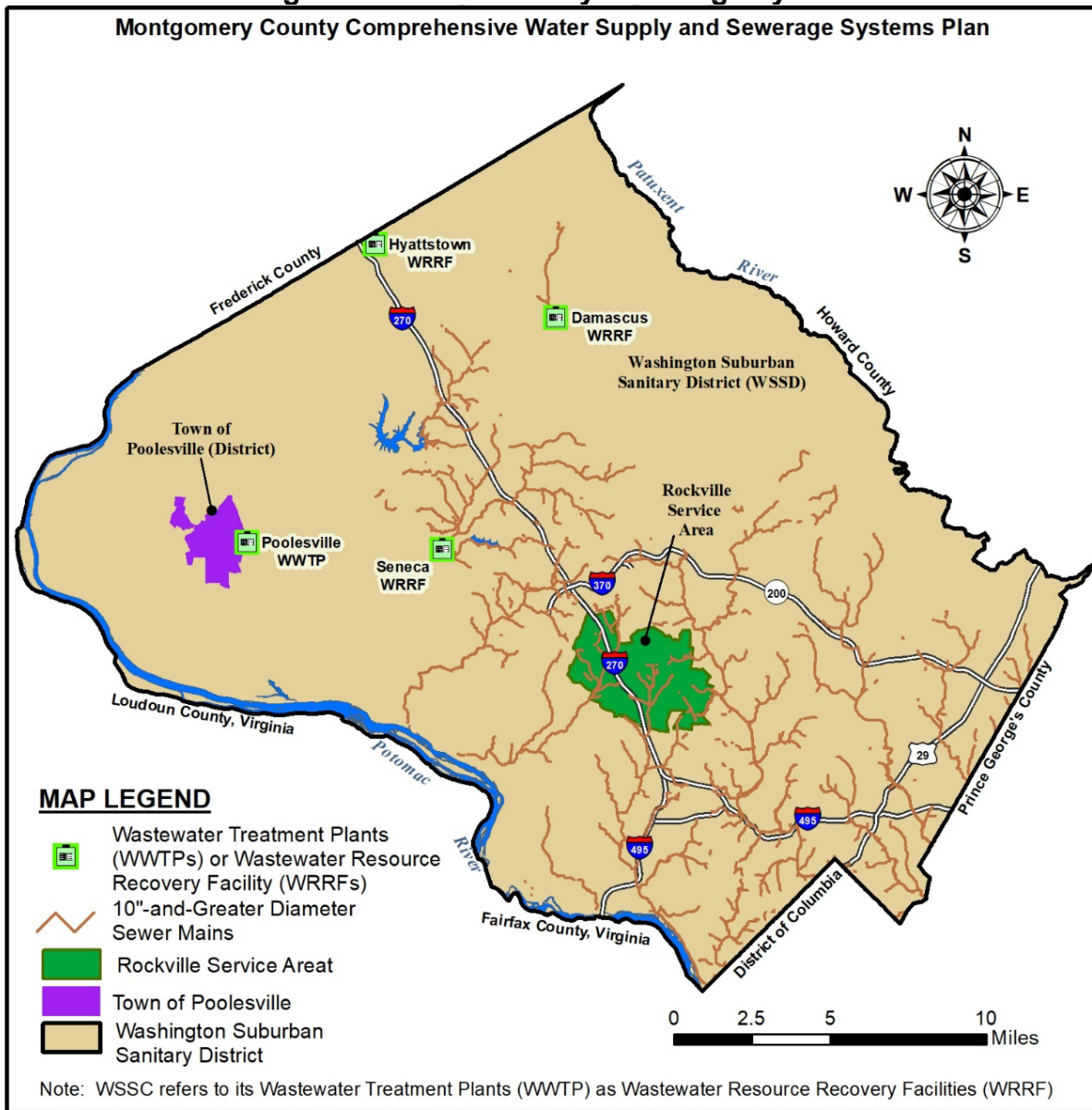
As discussed in Chapter 1, this Plan classifies all areas of the County into one of five category designations for sewer service areas. The categories range from areas served by community systems (S-1) to areas where improvements to or construction of new community systems will be planned in the future (S-3, S-4, and S-5) to areas where there is no planned community service (S-6). (In practice, Montgomery County does not use category S-2, which designates areas where community sewerage system projects are in the final planning stages.) Figure 4-F1 shows a generalized distribution of sewer service area categories throughout the County. For additional detailed information on sewer service area categories, please refer to Chapter 1.

**Figure 4-F1: Montgomery County Sewer Service Area Categories**



A sewer service area can be defined by a sewage system operating authority, and/or by a geographic or structural separation of a group of related treatment and transmission facilities. The County is divided into three publicly-operated and largely separate sanitary service areas or districts: The Washington Suburban Sanitary District (WSSD), the largest system, serving most of the County; and two smaller municipal districts operated by the City of Rockville and the Town of Poolesville. (See Figure 4-F2.)

**Figure 4-F2: Community Sewerage Systems**



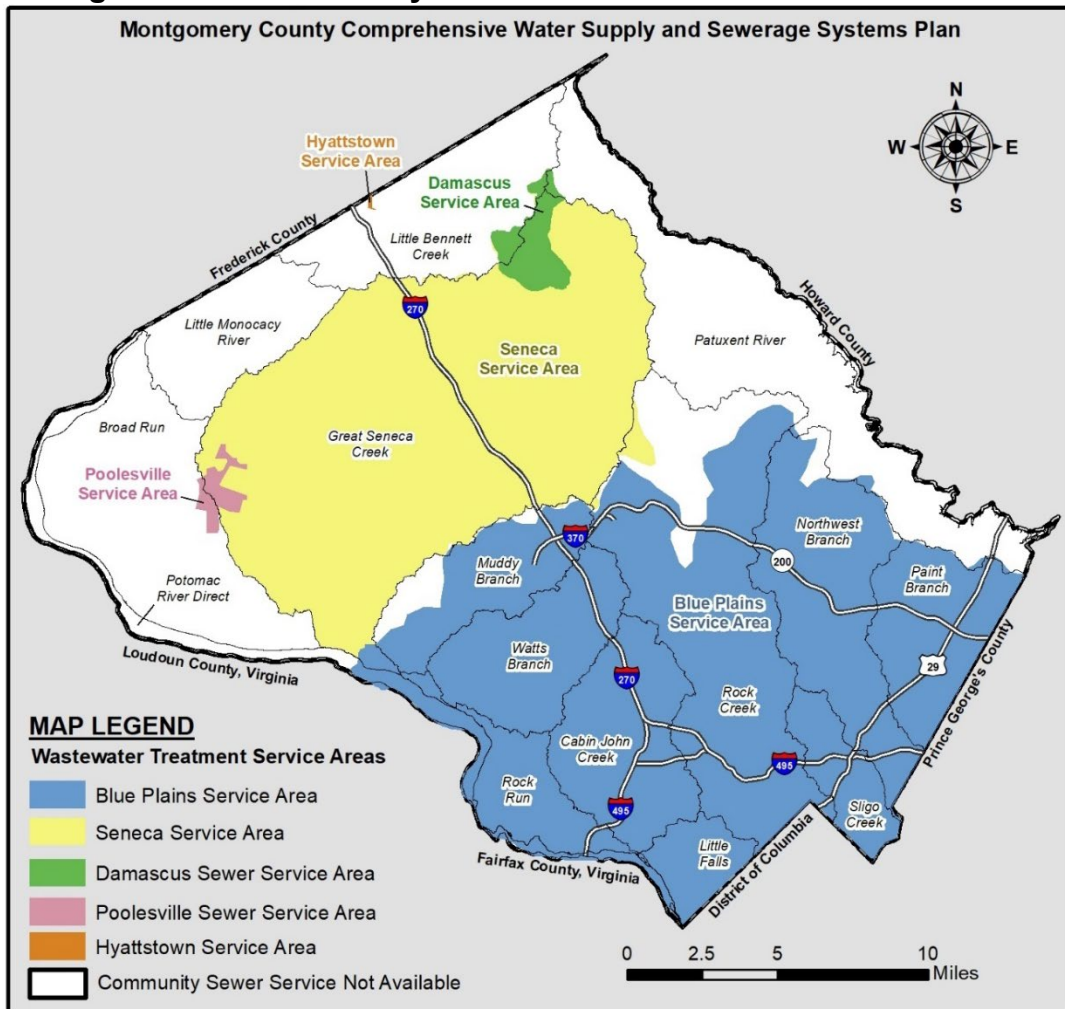
Each service area is served by its own sewage collection and transmission systems. Sewage from the WSSD is treated at several local plants operated by WSSC Water and at one regional facility, the Blue Plains Wastewater Treatment Plant (WWTP), located in the District of Columbia. *(It should be noted that WSSC Water refers to its wastewater treatment plants (WWTP) as water resource recovery facilities (WRRF).* Flows from Rockville Service Area eventually enter the WSSD system for transmission to and treatment at the Blue Plains WWTP. The Town of Poolesville's treatment plant, for the most part, serves only the town itself. Information for the City of Rockville Service Area and the Town of Poolesville has been provided primarily by those municipalities and is incorporated into this Plan consistent with State law.

Some properties within each service area are served by individual, on-site systems, rather than community systems. Information on individual, on-site systems follows at the end of the chapter. Based on function, there are two components to a wastewater management system: collection/conveyance facilities and treatment/recovery facilities. A wastewater treatment service area



is a geographic region comprised of a section of one or several sewer basins (watersheds), where both collection/conveyance and treatment/recovery are provided. Presently five community wastewater treatment service areas provide service within Montgomery County: Blue Plains, Seneca, Damascus, Hyattstown, and Poolesville. Except for the Town of Poolesville, which is largely independent from WSSD, the rest of community wastewater service areas are within the WSSD. It should also be noted that the Rockville Service Area (RSA) is located within the Blue Plains service area. Figure 4-F3 shows the areas served by each of these five wastewater treatment service areas. (Note: Not shown in the map is a golf course receiving community sewer service through the Mill Bottom WWTP located in Frederick County near Interstate 70. The golf course operated by the Montgomery County Revenue Authority and is located at the northernmost tip of the County, directly north of Damascus. No other properties in Montgomery County in the vicinity of the golf course are eligible to receive community sewer service.)

**Figure 4-F3: Community Wastewater Treatment Service Areas**

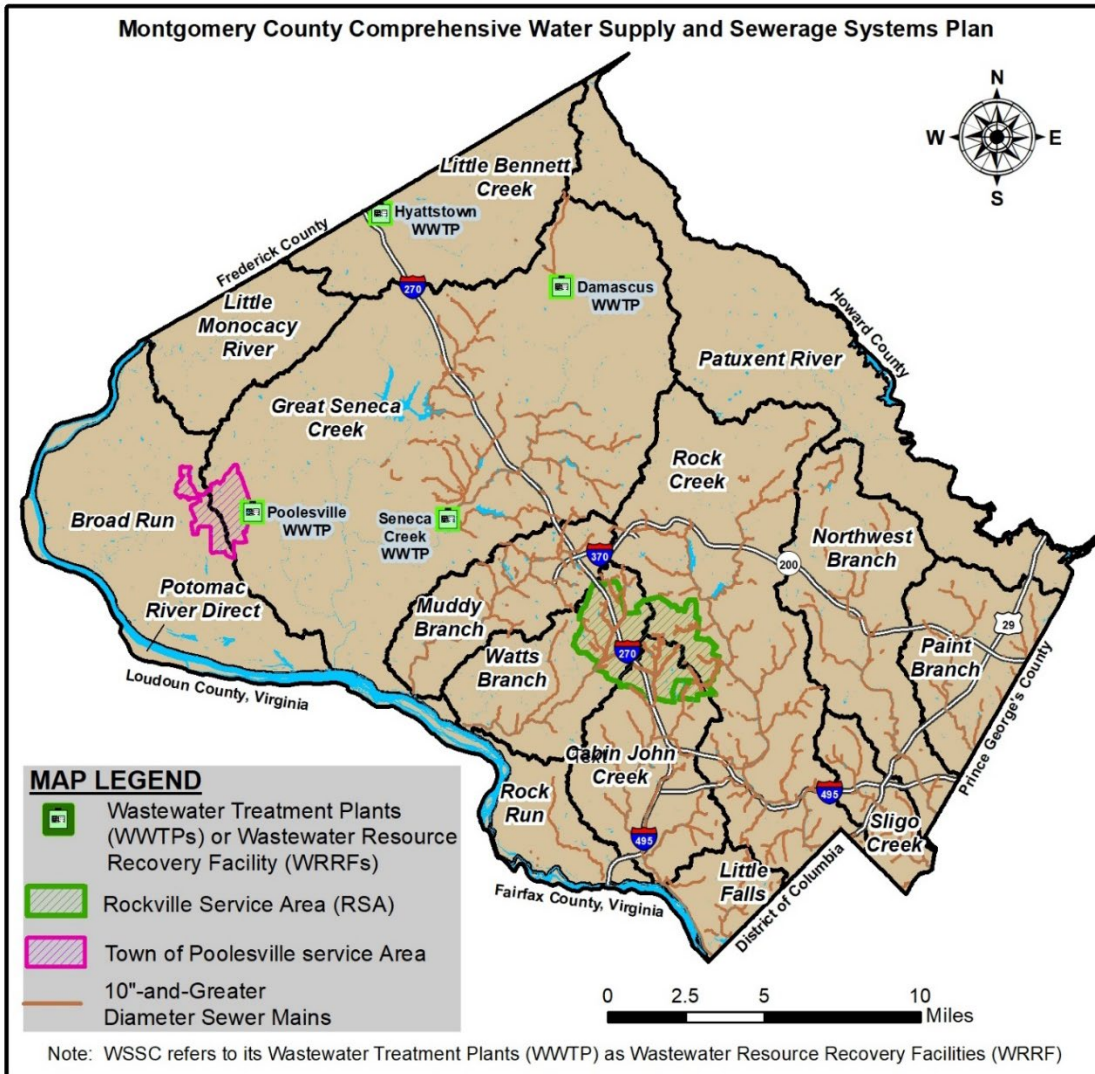


The County is bounded by two rivers: The Potomac to the southwest and the Patuxent to the northeast. Most of the County’s streams flow into the Potomac River, either through local tributaries, such as Watts Branch, Rock Creek, Cabin John Creek, and Great Seneca Creek, or through watersheds that drain to two major tributaries outside the County: The Anacostia and Monocacy Rivers. The southeastern part of the County, south of Olney and east of Georgia Avenue, drains toward the Anacostia River, and includes the Sligo Creek, Northwest Branch, Paint Branch, and Little Paint Branch watersheds. Portions of the northwest part of the County drains toward the Monocacy River, and include the Little Monocacy River, Bennett Creek, and Little Bennett Creek watersheds. The northeastern part of the County, along the border with Howard County, drains toward the Patuxent River.



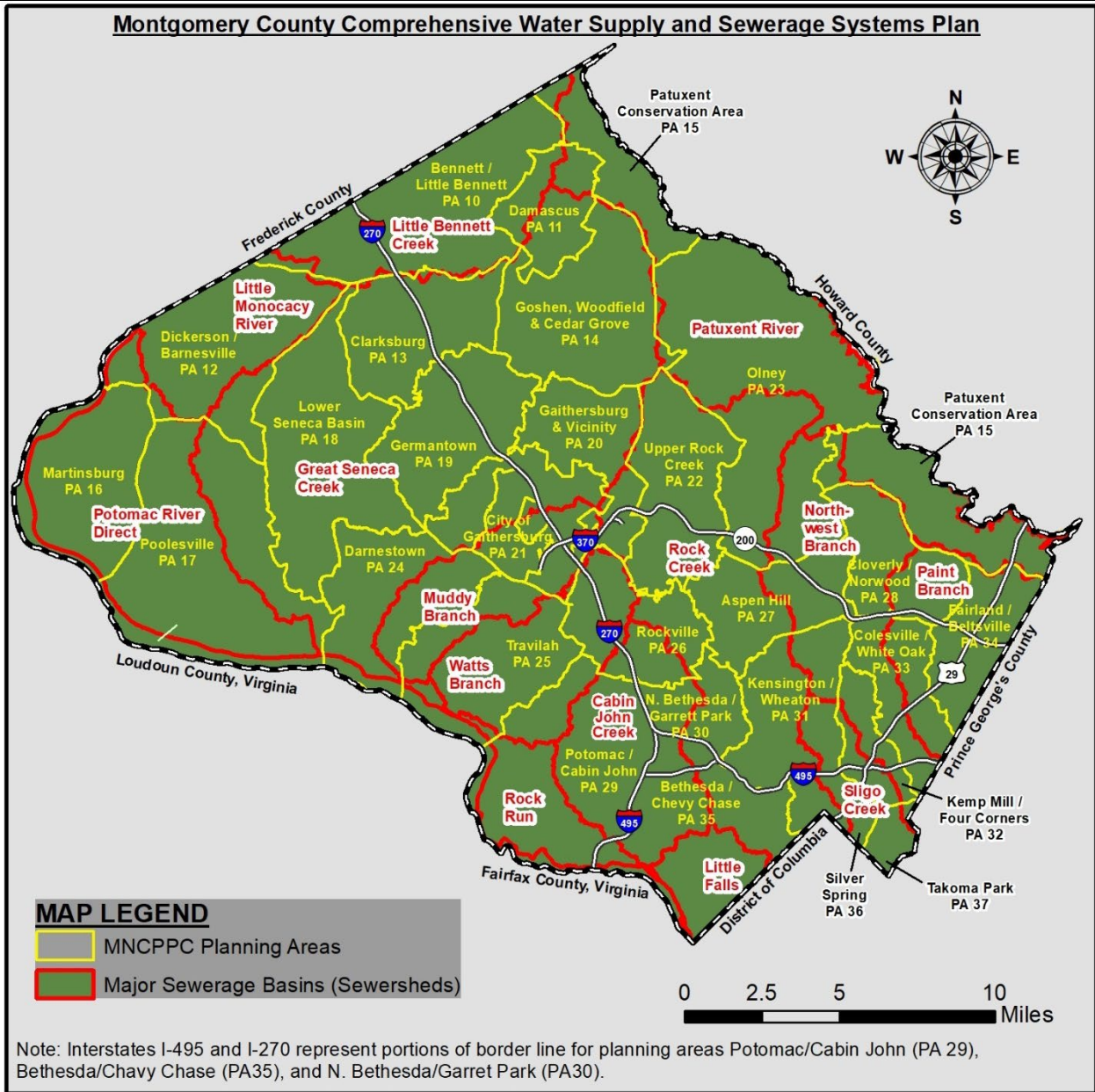
To take advantage of gravity to the greatest extent possible, sewage collection and conveyance systems generally follow streams and waterways within various drainage basins. Because of this, the sewer basins (or sewersheds) in this chapter are often referred to by the name of their related watershed (e.g., Watts Branch, Seneca Creek, etc.). Through major trunk lines and pumping facilities, the sewage flows from individual sewersheds are collected and conveyed for their eventual treatment at a wastewater treatment/recovery plant. The major drainage basins in the County are shown in Figure 4-F4.

**Figure 4-F4: Major Sewerage Basins (Sewersheds)**



The County is also divided into 27 land use planning areas, each area forming a fairly cohesive district bounded by a major highway or natural border such as a stream valley. These planning areas have been established by legislative action of the County Council. An overlay of the drainage basins and planning areas is shown in Figure 4-F5.

**Figure 4-F5: Major Sewerage Basins and Planning Areas**



All of the County's community sewerage systems, wastewater treatment service areas, sewersheds, and planning areas contained in each community sewerage systems, are listed in Table 4-T1.

Table 4-T1: Montgomery County Sewer Service Areas			
Community Sewerage Systems	Treatment Plant Service Area	Sewer Basins	Planning Areas
WASHINGTON SUBURBAN SANITARY DISTRICT	BLUE PLAINS	Muddy Branch	Aspen Hill ..... (PA 27)
		Rock Creek	Bethesda-Chevy Chase..... (PA 35)
		Watts Branch	Cloverly - Norwood..... (PA 28)
		Cabin John Creek	Colesville - White Oak ..... (PA 33)
		Rock Run	Fairland - Beltsville..... (PA 34)
		Little Falls Branch	Gaithersburg Vicinity..... (PA 20)

<b>Table 4-T1: Montgomery County Sewer Service Areas</b>			
		Sligo Creek Paint Branch Northwest Branch  <i>Note: See Figure 4-F5 for detailed information on the relationships between sewer basins and planning areas in the Blue Plains and other treatment plant service areas.</i>	Gaithersburg & Washington Grove.. (PA 21) Germantown..... (PA 19) Kemp Hill Four Corners ..... (PA 32) Kensington - Wheaton..... (PA 31) North Bethesda - Garrett Park..... (PA 30) Olney..... (PA 23) Patuxent Watershed Conservation.. (PA 15) Potomac -Cabin John..... (PA 29) Rockville..... (PA 26) Silver Spring..... (PA 36) Takoma Park..... (PA 37) Travilah..... (PA 25) Upper Rock Creek Watershed..... (PA 22)
	<b>SENECA</b>	Seneca Creek	Damestown ..... (PA 24) Clarksburg..... (PA 13) Gaithersburg Vicinity..... (PA 20) Gaithersburg & Washington Grove.. (PA 21) Germantown..... (PA 19)
	<b>DAMASCUS</b>	Portions of Seneca Creek, Patuxent, and Monocacy River	Damascus..... (PA 11)
	<b>HYATTSTOWN</b>	Monocacy River	Bennett & Little Bennett..... (PA 10)
	<b>POOLESVILLE*</b>	Portions of Seneca Creek	Poolesville..... (PA 17)
<b>ROCKVILLE SERVICE AREA</b>	<b>BLUE PLAINS</b>	Portions of Cabin John, Watts Branch and Rock Creek	Rockville..... (PA 26)
<b>TOWN OF POOLESVILLE</b>	<b>POOLESVILLE</b>	Portions of both Seneca Creek and Potomac River	Poolesville..... (PA 17)
* The Poolesville WWTP serves the communities of Jonesville and Jerusalem in the WSSD.			

**I. THE WASHINGTON SUBURBAN SANITARY DISTRICT:**

The Washington Suburban Sanitary District (WSSD), established by State law, includes most of Montgomery and Prince George's Counties, encompassing a total area of approximately 1000 square miles. Within Montgomery County, areas excluded from the WSSD include most of the City of Rockville and the Town of Poolesville. Sewer service areas managed by the Washington Suburban Sanitary Commission (WSSC) within Montgomery County include the areas served by the Blue Plains, Seneca, Damascus, and Hyattstown collection and treatment systems. WSSC Water also manages a small portion of the WSSD that is served by the Poolesville WWTP (Jonesville and Jerusalem areas). The City of Rockville, also part of the Blue Plains service area, manages its own collection and conveyance systems, but relies on Blue Plains for treatment of the wastewater generated in this area. The Town of Poolesville manages its own sewerage system, including collection, conveyance and treatment systems within the Town's boundaries.

Guided by policies specified in this Plan, the provision of community sewer service within Montgomery County generally follows the patterns established by the County's General Plan for development, "On Wedges and Corridors." Community service is established and planned for the central and southern part of the County, following three major transportation corridors of higher density development in these areas:

- The U.S. Route 29 (Columbia Pike) corridor to Burtonsville,
- The Georgia Avenue (State Route 97) corridor to Olney. And
- The U.S. Interstate 270/State Route 27 (Ridge Road) corridor to Clarksburg and Damascus.

Elsewhere, primarily in the western and northeastern areas of the County, wastewater disposal service generally depends on individual, on-site systems, which discharge their effluent for treatment in private on-site septic systems.

**I.A. Government Responsibilities:**

The responsibilities for water supply planning within the WSSD are multi-jurisdictional and benefit from the cooperative efforts of municipal, County, State, Federal, and regional authorities. This is also true with regard to the Blue Plains WWTP, a wastewater treatment facility jointly used by several area jurisdictions. The agencies assisting in these planning efforts include the following:

- Montgomery County Government
  - Department of Environmental Protection (DEP)
  - Department of Permitting Services (DPS)
- Washington Suburban Sanitary Commission (WSSC)
- Maryland - National Capital Park and Planning Commission (M-NCPPC)
- Montgomery County Planning Department
- District of Columbia Water and Sewer Authority (DC WATER)
- Metropolitan Washington Council of Governments (COG)
- State of Maryland
  - Department of the Environment (MDE)
  - Department of Planning (MDP)

These agencies, and their primary responsibilities and programs, are described in more details in Chapter 1, Section I.D.

**I.B. Programs and Policies:**

The following pages provide an overview of the major policies and programs relating to WSSC Water’s role and functions in providing sewer services within Montgomery County’s portion of the WSSD.

**I.B.1. Facility Planning, Project Development and Project Approval Processes:**

Information on WSSC Water Facility Planning process is consolidated in Chapter 1, Section III.A.5.

**Interjurisdictional Agreements:**

Montgomery County is benefitted by the shared use of several wastewater conveyance and treatment systems. The Washington Metropolitan Area has two major regional sewerage facilities that serve the region. These facilities include are the Potomac Interceptor (PI) sewer and the Blue Plains WWTP. The shared use of these facilities has been governed by a series of regional agreements dating to the 1950's. Other shared facilities are localized within Montgomery County. The following is a summary of major Intermunicipal agreements with shared facilities affecting the flow of wastewater and available treatment capacity for Montgomery County.

**Blue Plains Intermunicipal Agreement (IMA)** - The parties to the Blue Plains Intermunicipal Agreement (IMA) include the District of Columbia Water and Sewerage Authority (D.C. Water), Montgomery and Prince George’s counties, Maryland; WSSC, and Fairfax County, Virginia. This agreement is a regional contract defining the responsibilities of the signatories for managing the finances and operations for wastewater collection and treatment services and related biosolids management for the Blue Plains Service Area. The agreement was revised and updated in 2012 in order to provide an updated and relevant document for present and future issues. The Agreement called the “the 2012 IMA”:

- Defines the rights, obligations and responsibilities of the signatories regarding the use and management of facilities for wastewater transmission and treatment and for biosolids management.
- Allocates average and peak flows to the major interceptor sewers leading to the Blue Plains WWTP.
- Allocates the Blue Plains WWTP treatment capacity.
- Arranges for sharing among the signatories’ capital facility costs in proportion to capacity allocation and for sharing facility operating costs in proportion to actual flow.



- Defines the process of making future planning decisions.
- Provides a mechanism for continuing coordination, cooperation and communication among the signatories.
- Supports a continuing water quality monitoring and evaluation program.
- Incorporates all applicable regional agreements for the joint use of the Blue Plains WWTP.

**WSSC Water- Rockville Agreements** - The City of Rockville's sewage collection system conveys flows to six different interconnections with WSSC Water pipelines for ultimate delivery to the Blue Plains WWTP. The city's use of WSSC Water conveyance facilities has been defined through several transmission agreements. A 1956 agreement provides for the City to discharge a peak flow of 6.8 MGD into the Cabin John Basin; the City's negotiated capacity in the Cabin John basin downstream of Booze Creek increases to 8.0 MGD. A 1966 agreement provides for a maximum discharge of 8.0 MGD to the Watts Branch Basin. The City of Rockville is also permitted to discharge a peak flow of 9.84 MGD into the Rock Creek Basin. In 1975, the City of Rockville and WSSC Water executed a treatment capacity agreement which specified that WSSC Water would provide up to an additional 0.4 MGD per fiscal year of treatment capacity to Rockville from the WSSC Water's proportionate share of Blue Plains WWTP capacity, up to a total annual average City flow of 9.31 MGD. The City acknowledges that it has not purchased sufficient peak capacity in all sewers to convey an annual average of 9.31 MGD to the Blue Plains Wastewater Treatment Plant.

**WSSC Water- Poolesville Agreements** - A 1984 agreement between WSSC Water and the Town of Poolesville allows WSSC Water to discharge a maximum quarterly average daily flow of 20,000 GPD from the Jonesville and Jerusalem communities just north of the town in the WSSD into the Poolesville WWTP for treatment.

**I.B.2. Wastewater Flow Analysis:**

Flow projections are based on the County's adopted land use plans and approved service areas for future growth and are in accordance with the County's latest master plans for development. The projected future flows are estimated in proportion to population projections with an allowance for planned commercial and industrial growth and factors such as infiltration (extraneous groundwater) and inflow (water discharged into sewer systems from roof leaders, area drains, etc.). WSSC Water is responsible for conducting wastewater flow measurements and flow analysis for all areas within the WSSD. Various aspects of WSSC Water's flow management system are discussed in the following sections.

**Flow Monitoring:** WSSC Water's program for field monitoring of sewage flows provides continuous data on the status of peak and average wastewater flows throughout the WSSC Water system. The current monitoring system consists of permanent stations which telemeter flow data to a central computer. Fifty permanent sewer flow monitors and seven permanent rain gauges have been installed throughout the various sewer basins in Montgomery County. In addition, WSSC Water uses temporary flow meters which it can install at various locations for special studies. The following table presents Permanent flow meter and gauge locations for all the sewer basins are shown in Table 4-T2.

<b>Table 4-T2: WSSC Water Montgomery County Sewer Meters and Rain Gauges by Watershed</b>			
<b>Sewer Basin</b>	<b>Flow Meters</b>	<b>Rain Gauges</b>	<b>Billing Meters</b>
Cabin John	8	1	5
Little Falls	5	0	1
Muddy Branch	2	0	0

Northwest Branch	3	1	2
Paint Branch <sup>1</sup>	4	0	0
Rock Creek	4	1	2
Rock Run	22	3	5
Seneca Creek <sup>2</sup>	0	0	1
Sligo Creek 1	17	2	1
Watts Branch	9	0	0
Total	78	9	19
<sup>1</sup> <i>Montgomery County only</i>			
<sup>2</sup> <i>Includes Magruder Branch (Damascus) and Jonesville/Jerusalem (Poolesville)</i>			

The Planning Division within the Engineering and Construction Department at WSSC Water is responsible for the maintenance and operation of the Consolidated Engineering System (CES), a computerized record keeping system which tracks the status of unconnected sewer commitments by geographic area (basin), type of future connection (residential, commercial, etc.), estimated average daily flow contribution, and expected connection date. WSSC Water uses data from the CES to calculate remaining available treatment capacity in a particular service area, and to assist in projecting future sewage flows at various points in the transmission system. The CES tracks future additional flow on the basis of authorizations granted by the WSSC, plumbing permits and actual hookups.

**Flow Reporting and Tracking:** WSSC Water generates the following reports on a regular basis:

- Semiannual Available Capacity Report – WSSC Water produces a bi-annual available capacity report for its wastewater treatment service areas. This report is distributed to state regulatory and County government agencies. The report that WSSC Water develops tracks plumbing permits, hookups, and outstanding authorizations in a wastewater treatment plant service area to determine whether existing wastewater flows and future committed flows approach wastewater treatment plant capacity.
- Capacity Management Plans –The Maryland Department of the Environment (MDE) has issued guidelines for the development of Water and Wastewater Capacity Management Plans for those jurisdictions that control the allocation of water and sewer. These management plans are useful planning tools to ensure that the municipalities have adequate water and sewer facilities to service proposed developments and to provide guidance in developing annual Municipal Sewage Capacity Reports when required. A Wastewater Capacity Management Plan must be submitted to MDE if the most recent three-year average flow is over 80% of its design capacity or if it is anticipated to exceed 80% in the following year. As of the date of this Plan, there are no wastewater treatment facilities that are regulated by MDE that receive Montgomery County flow that require the submission of such Plans.
- Flow Projections for Montgomery County Sewer Service Areas – This report is issued on an as-needed basis. Forecasts are by major wastewater treatment areas, as determined by WSSC Water staff. Predicted sanitary flow is based on current M-NCPPC growth forecasts and the latest unit flow factors projected for 5-, 10-, 15-, and 20 -year periods.

- **Unit Flow Factor Report for the WSSC Water Service Area** – This report is produced periodically and presents current unit flow factors to be used in the wastewater flow projections. It includes evaluation of the prior winter's water consumption for various user categories to detect any trends in projected sanitary flow. This report includes a reasonable allowance for unit infiltration/inflow based on rainfall and groundwater level probability analyses.

**Wastewater System Modeling** - Beginning in 2006, WSSC Water developed, calibrated, and evaluated 21 sewer basin dynamic hydraulic models in its Sanitary District under the Consent Decree's Article Five (V) requirements (Judge Messite, U.S. Civil Action No. PJM-04-3679, December 7, 2005). The calibrated models are used to estimate the impact of peak wastewater flows on collection system existing capacity, identify portions of the collection system where capacity is insufficient for present and/or future wastewater flow, plan sewer improvements, and make determinations regarding future development of the collection system.

The model included sewers of 10 inches in diameter and greater and also some 8-inch diameter lines required for model connectivity or where recurrent capacity-related overflows (at the time of the Consent Decree settlement) occurred. The models were built using WSSC Water asset information in its existing mainframe Sewer Model Database and populated in its Geographic Information System (GIS). Once, the model network was built by importing of the GIS data and verified, the models were calibrated for existing dry weather flows based on WSSC Water permanent flow metering data. The model network flows were calibrated to two historic wet weather events and then verified using a third independent verification event. Future flows using dry weather conditions were developed based on demographic projections of sewer household and employment increases and applied WSSC Water unit wastewater flow factors.

The models were then applied using the synthetic design storms (see bullets below) as set in the Consent Decree requirements and the modeling reports noted the observed results from the model simulations:

- Baseline dry-weather flows;
- 2-year (total storm volume of 3.11 inches over 24 hours) Soil Conservation Service Type II rainfall distribution;
- 10-year (total storm volume of 4.78 inches over 24 hours) Soil Conservation Service Type II rainfall distribution; and
- 10-year, 24-hour SCS Type II rainfall distribution with year 2020 growth in households and employment.

Beginning in 2009, WSSC Water reevaluated its 21 sewer basin hydraulic models for its capital sewers (15-inches and larger) and wastewater facilities using an actual event storm distribution, from a wet weather event experienced in the WSSC Water Service Area occurring on a May 8, 2008. This rainfall event caused significant flooding in the Sanitary District. This May 8, 2008, storm distribution is currently used for the 2-year and 10-year design "storms of record" for WSSC Water hydraulic modeling studies (these storms are referred to as the WSSC Water Design Storms).

From these modeling studies, WSSC Water plans to work with Montgomery County regarding the development and implementation of facility planning studies to address collection system capacity constraints. In addition, the modeling studies will supplement other Consent Decree projects conducted by other WSSC Water organizational teams, such as trunk sewer walks, basin Sewer System Evaluation Surveys (SSES), and the resulting rehabilitation projects identified to reduce or remove sources of excessive infiltration and inflow.

For future sewer system capacity planning, WSSC Water developed a new regulation using its dynamic sewer system hydraulic model and the WSSC Water design storms (WSSC Water Regulation 11.165 for reviews conducted as part of the Hydraulic Planning Analyses (HPA)



conducted under WSSC Water Development Services Process. The procedure is used to determine the impact of significant proposed development (generating 100,000 gallons or greater base sanitary flow) on the downstream CIP-size (15 inches in diameter and above) sewer system and wastewater conveyance facilities under significant wet weather conditions. The procedure also establishes requirements for proposed development connecting into or upstream of CIP-size trunk sewers or wastewater pumping stations above projected overflows based on existing dry weather flow and the 2-year WSSC Water design storm.

- Under Article Seven (VII) of the Consent Decree, WSSC Water is required to conduct Performance Assessments of the work undertaken in Articles Two (Sewer System Evaluation Surveys or SSES) and Six (Sewer Repair, Replacement, and Rehabilitation Plans or SR<sup>3</sup> Plans) for each Sewer Basin in the Collection System. As part of the Performance Assessments, WSSC Water will quantify the reduction of I/I in each SSES Basin. (The Performance Assessment shall be completed for each Sewer Basin no later than 18 months after complete implementation of the SR3 Plan for each Sewer Basin.

The Performance Assessment report shall be prepared no later than 90 days after completion of the Performance Assessment, and submitted to MDE, EPA and the citizens listed as 'plaintiffs-intervenors' in the Consent Decree. To date, Performance Assessments have been completed in six (6) of WSSC Water's sewer basins. As part of the SSES, initially developed sewer models will be updated for each basin. Three (3) sewer models have been updated, with the updates of several more basins in progress.

**Transmission System Capacity Requirements and Moratorium Policies** - For planning purposes, the WSSC Water conducts comprehensive analyses on a regular basis to determine the wastewater conveyance needs within the WSSD. In conjunction with these analyses, Montgomery County has developed and adopted policies to prioritize the County's conveyance capacity needs as shown in Table 4-T3. WSSC Water must follow these criteria and policies for each basin classification, by designating part or all of each sewerage drainage basin in the County as an **Adequate Capacity Basin**, a **Potential Overflow Basin**, or an **Existing Overflow Basin**, depending upon the transmission system's ability to handle sewerage flows. For existing and potential overflow basins these designations will be limited to the area above and tributary to the problem that causes the designation. References to the "Director" refer to the Director of the Montgomery County Department of Environmental Protection. For additional information on Transmission System Capacity Requirements and Moratorium Policies, please refer to Table 4-T3 on next page. WSSC Water is currently updating the sewer basin models and the sewer basin designations will be updated upon completion.

**Table 4-T3: WSSC Water Sewerage Basin Designations and Policies**

<b>Sewerage Basin Designations, Descriptions, and Policy</b>	<b>Adequate Capacity Basin</b>	<b>Descriptions</b>	Part or all of any basin in which regular overflows and user backups have not been experienced and the observed or calculated peak sewage flow, allowing for an appropriate wet weather reserve, does not exceed the sewer operating capacity. Under WSSC Water Regulation 11.165, these are sewer basins that do not meet the criteria for the other two designations described below.
		<b>Policy</b>	WSSC Water may permit additional sewer hookups and commitments subject to the availability of adequate treatment capacity.
		<p>Basins <i>Currently under this</i> Designation:  <i>The sewer basin designations will be updated upon completion of the sewer model updates.</i></p>	
	<b>Potential Overflow Basin</b>	<b>Descriptions</b>	Under WSSC Water Regulation 11.165, proposed development upstream generating 100,000 gallons or more base sanitary flow (BSF) that causes or exacerbates overflows in WSSC Water’s collection system or facilities under existing dry weather flow conditions plus the 10-year WSSC Water Design Storm.
		<b>Policy</b>	WSSC, after consultation with the Director, should declare by resolution that it will <b>not</b> permit additional sewer hookups or commitments which would significantly increase the probability of sewer overflows or user backups until a facility plan is initiated or relief measures are under construction. The WSSC Water may continue to permit additional sewer hookups or commitments which would result in peak sewer operating capacity being exceeded if the calculated peak sewage flow will not result in an increased significant probability of overflows or user backups prior to completion of a relief project. The identical exemptions defined for immediate public health hazards, public service buildings, and individually-owned abutting lots in the policy for Existing Overflow Basins below also apply to this policy for Potential Overflow Basins.
		<p>Basins <i>Currently under this</i> Designation:  <i>The sewer basin designations will be updated upon completion of the sewer model updates.</i></p>	
	<b>Existing Overflow Basin</b>	<b>Descriptions</b>	Part or all of any basin which is experiencing regular sewage overflows or user backups such that an immediate public health problem exists. "Regular" is defined as having already occurred and projected to occur more than once in ten years, other than maintenance-related occurrences. Also, under WSSC Water Regulation 11.165, proposed development upstream of identified (known or modeled) overflows in WSSC Water’s collection system or facility under existing dry weather conditions plus the 2-year WSSC Water Design Storm.
		<b>Policy</b>	WSSC, after consultation with the Director, should declare by resolution that it will <b>not</b> permit additional sewer hookups or commitments which would increase the frequency of overflows or user backups until relief measures are underway with a projected completion date of a year or less. Exemptions: public service Buildings approved by the Director, and existing unconnected buildings creating immediate public health hazards as determined by the WSSC Water or the Director are exempt from any sewer hookup or commitment prohibition. Lots serving existing or proposed individually-owned single-family dwelling units abutting an existing sewer line and which the applicant owned or contracted for prior to the date of the moratorium resolution are exempt from any sewer hookup or commitment prohibition.
		<p>Basins <i>Currently under this</i> Designation:  <i>The sewer basin designations will be updated upon completion of the sewer model updates.</i></p>	

**I.B.3. Sanitary Sewer Overflows:**

Sanitary sewers serve a vital function in the transport of wastewater from the customer to the treatment plant. Wastewater either flows by gravity or is pumped to the nearest wastewater treatment plant. WSSC Water's wastewater collection system is comprised of over 5578 miles of sewer line and fifty-two wastewater pumping stations. Sanitary sewer overflows (SSOs) occur when an obstruction partially or completely blocks the flow in a sewer main. Wastewater backs up in the line and eventually overflows from a manhole. There are a number of possible causes of SSOs including grease buildup, tree root penetration, pipe deterioration, undersized sewer lines, excess infiltration or inflow of stormwater and power outages at sewage pumping stations.

The greatest number of WSSC Water's overflows are due to blockages caused by grease, tree roots, or other foreign objects and a small percentage are caused by owner outages. Less than one percent are caused by "wet weather," i.e. the inflow of storm water. Montgomery County DEP and WSSC Water are fundamentally committed to excellence in the safeguarding of public health and the protection of the environment and are aggressively implementing a number of programs to minimize future sanitary sewer overflows.

### **MDE Reporting Requirements for SSOs**

WSSC Water follows the Code of Maryland Regulations COMAR 26.08.10 for all SSO reporting.

### **USEPA- Consent Decree on SSOs Background**

In December 2005, the Washington Suburban Sanitary Commission (WSSC) entered into a Consent Decree with the U.S. Environmental Protection Agency (EPA), the State of Maryland and four Citizen Groups on an action plan to significantly minimize, and eliminate where possible, sanitary sewer overflows (SSOs). The Citizens Groups were the Natural Resources Defense Council (NRDC), the Anacostia Watershed Society (AWS), the Friends of Sligo Creek (FOSC), and the Audubon Natural Society. On January 19, 2006, the Court entered the First Amendment to the Consent Decree to add Patuxent Riverkeeper to the definition of Citizens Groups. The sanitary sewer system is being inspected and rehabilitated. The agreement estimates approximately \$1.3 billion in improvements to the WSSC Water's wastewater collection system, provides \$4.4 million for additional environmental improvement projects and includes a \$1.1 million civil penalty.

The following provides a short description of the requirements within each article of the remedial measures section of the Consent Decree and progress made to date:

#### **Article 1: Collection System Characterization Report**

WSSC Water shall submit a Map of the Collection System, identification of sewer basins that contribute flow to the Collection System, identification of sanitary sewer discharges (SSDs), and cause and conditions that contributed to SSDs. Each year in the Annual Report, the WSSC Water will submit an SSD Update Map and Report for the preceding year.

#### **Progress to Date:**

- Submitted Map and Report of the collection system showing the past 5 years of SSOs.
- Submitted SSD Update Map and Report in 10 Annual Reports.

#### **Article 2: Collection System Evaluation**

The WSSC Water shall perform Collection System Evaluations (CSEs). The CSE is to include Sewer System Evaluation Surveys (SSESs) on the SSES basins, and other inspections of the Non-SSES Basins and the implementation of a WSSC Water Trunk Sewer Inspection Program. The WSSC Water shall perform SSESs in nine sewer basins in eight years. The WSSC Water shall conduct a Trunk Sewer Inspection Program of all Sewers Segments 15-inches in diameter and larger. The WSSC Water shall evaluate the condition of sewer segments that are less than 15 inches in diameter and have been in service for more than 20 years by performing Closed Circuit Television (CCTV) and manhole inspections in the Non-SSES basins. Semi-annual and

annual water quality monitoring will be conducted in all sewer basins. The WSSC Water must CCTV any sewer segment of the collection system where an SSD has occurred.

**Progress to Date:**

- The Collection System Evaluations and the SSEs for nine basins shown in the following table have been completed.

<b>SSES Basins</b>	<b>Status</b>
Beaverdam	Regulators approved on June 8, 2011
Broad Creek	Regulators approved on December 6, 2006
Cabin John	Regulators approved on April 19, 2010
Little Falls	Regulators approved on February 14, 2013
Northeast Branch	Regulators approved on February 14, 2013
Parkway	Regulators approved on August 13, 2013
Piscataway	Regulators approved on March 20, 2012
Rock Run	Regulators approved on February 14, 2013
Watts Branch	Regulators approved on February 14, 2013

- Water Quality Monitoring Plan was submitted and approved by the MDE and the EPA. Conducted nine yearly or fifteen full (annual/semiannual) rounds of the Water Quality Sampling Reports.
- Inspected 825.21 miles of sewer as part of the initial Trunk Sewer Inspection Program. The Initial Program is 100% complete. Completed inspection of 17,218 manholes as part of the program.
- Phase II of the Trunk Sewer Inspection is 100% complete. Phase III of the Trunk Sewer Inspection Program commenced during the third quarter of 2016. A total of 607 miles (73.5%) of trunk sewers were inspected as part of Phase III work.
- CCTV'd and cleaned 1,189 miles (100% complete) of sewer in the Non-SSES basins.

**Article 3: Fats, Oils, & Grease (FOG)**

WSSC Water has developed and maintains a Food Service Establishment (“FSE”) database based on Health Department databases, including a field for the compliance status of each FSE. WSSC Water continues to implement a Fats, Oils, and Grease (FOG) permit program for all grease generating FSEs. WSSC Water has performed baseline inspections of all FSEs within 5 years of the EPA and the MDE approval of the Modified FOG Program, and issue permits to all FSEs within 5 years. WSSC Water has reported on the effectiveness of their FOG control program.

**Progress to Date:**

- FOG Permit and Modified FOG Program Plan were submitted and approved by the MDE and the EPA. Updates of the implementation of the approved changes to the FOG Program are submitted annually.
- Plumbing Code approved. Implemented on May 1, 2007, and has been subsequently been updated several times, the latest being in 2018.
- The WSSC Water adopted new grease abatement regulations November 1, 2008 and has improved upon them through 2019.
- FOG permitting began on May 15, 2007. In less than five years, on November 29, 2010, the WSSC Water issued 100% of the permits (5,149) and submitted certification to the MDE and the EPA.
- WSSC Water has submitted and obtained approval of the current FSE’s listing (inventory) on an annual basis since 2007.
- WSSC Water has submitted update FOG Map annually.

- WSSC Water has submitted the certification on the required completion of the 10%, 25%, 40%, and 55% of the Baseline inspections due. Submitted 100% Baseline Inspections on May 18, 2012. Inspected over 8,000 FSEs as part of the Baseline inspections.
- Submitted and received approval from the EPA and the MDE on modifications to the FOG program specifically the Modified FOG Program Plan and the FSE Discharge Permit in 2009, then subsequently “modernized” and updated the Modified FOG Program in 2018.
- Submitted and obtained approval from the MDE and the EPA, for an extension to the permit deadlines. New deadlines are:
  - o Issue 60% of all permits by December 30, 2009 – complete
  - o Issue 100% of all permits by December 30, 2010 – complete
  - o Complete all baseline inspections by June 7, 2012 – complete
  - o Submit report to the MDE and the EPA on the effectiveness of the FOG Program by December 7, 2012 – complete
  - o The FOG Control Program Effectiveness Report was submitted on November 26, 2012. WSSC Water receives new FSE listings from the Health Department on an annual basis. Current total of FSEs (history of all FSE’s that have existed since 2007) in database are 13,261. WSSC Water issues permits to qualifying FSEs within 30 days of permit application. There have been 8,849 permits issued through December 1, 2019 and 4,805 FSEs actively open with a valid permit.

**Article 4: Flow Monitoring**

The WSSC Water shall perform flow monitoring to identify portions of the Collection System that may not have sufficient capacity to accommodate present or anticipated future flows, to plan sewer improvements, and to make determinations regarding future development of the Collection System. The WSSC Water shall maintain existing network of 120 flow monitors and 11 rain gauges.

**Progress to Date:**

- Submitted map identifying all locations of rain gauges and flow meters.
- Submitted certifications that the WSSC Water has complied with Article 4.B.1-8.
- Submitted updated map in the Annual Reports. There were 11 new meters installed, and four existing meters relocated in 2014.

**Article 5: Collection System Modeling**

The WSSC Water shall use a computer model of the Collection System to identify portions of the Collection System that may not have sufficient capacity to accommodate present or anticipated future flows, to plan sewer improvements, and to make determinations regarding future development of the Collection System. Computer modeling of at least 965 miles of sewer will be completed within five years.

**Progress to Date:**

- The Collection System Modeling was completed on August 17, 2007. The modeling requirement was completed ahead of the Consent Decree requirements.
- Certification of modeling completion is submitted with each SR<sup>3</sup> Plan.

**Article 6: Sewer Basin Repair, Replacement, Rehabilitation Plans (SR<sup>3</sup>) and Schedule**

The WSSC Water shall prepare a SR<sup>3</sup> Plan for each sewer basin in the Collection System after completion of all sewer evaluations. The WSSC Water shall consider the following improvements as examples of work to be included and be performed in the SR<sup>3</sup> Plans:

**Progress to Date:**

- The status of SR<sup>3</sup> plans are included in the following table:

Submittal Date	SR <sup>3</sup> Plans	Regulatory Approval	Est. Substantial Completion	Actual Basin Completion
11/15/2011	Beaverdam Branch	7/10/2012	09/2019	6/29/2020
6/26/2009	Broad Creek	4/19/2010	10/2017	8/4/2020
8/17/2009	Cabin John	4/19/2010	05/2017	3/25/2020
6/2/2011	Dulles Interceptor	7/10/2012	12/2015	12/29/2015
6/2/2011	Horsepen Branch	7/10/2012	05/2017	10/06/2015
7/16/2010	Lower Anacostia	12/20/2010	01/2017	8/28/2018
12/3/2010	Mattawoman	10/20/2011	03/2015	7/10/2015
6/2/2011	Monocacy	7/10/2012	10/2015	10/06/2015
6/2/2011	Muddy Branch	7/10/2012	01/2018	09/24/2019
6/26/2009	Northwest Branch	4/19/2010	11/2017	12/1/2020
5/22/2009	Oxon Run	4/19/2010	10/2021	
3/8/2010	Paint Branch	7/28/2011	7/2021	
6/2/2011	Patuxent Center	7/10/2012	09/2014	10/6/2015
6/26/2009	Rock Creek/ Patuxent North	4/19/2010	04/2017	5/31/2019
6/2/2011	Seneca Creek	7/10/2012	02/2017	5/03/2019
5/22/2009	Sligo Creek	4/19/2010	04/2021	
6/2/2011	Western Branch	7/10/2012	5/2021	
6/21/2012	Piscataway	11/5/2012	06/2017	10/1/2020
12/13/2012	Little Falls	08/13/2013	4/2021	
12/13/2012	Watts Branch	08/13/2013	09/2020	12/30/2020
12/13/2012	Rock Run	08/13/2013	02/2017	2/28/2020
1/24/2013	Northeast Branch	08/13/2013	12/2021	
3/27/2013	Parkway	08/13/2013	11/2017	9/10/2020

**Article 7: Performance Assessments**

The WSSC Water shall conduct a Performance Assessment of the work performed under Article Two and Six to determine the effectiveness of the evaluations and corrective actions performed in each basin. The assessment must include an evaluation of the number and causes of SSDs and Building Backups, quantify the reduction of Inflow/Infiltration (I/I) in each Sewer Basin that is the subject of an SSES, determine whether the WSSC Water has adequately prioritized rehabilitation work, evaluate the type and effectiveness of the Preventive Maintenance and Proactive Maintenance practices, and evaluate the effectiveness of the frequency of Preventive Maintenance and Proactive Maintenance practices.

**Progress to Date:**

- Performance Assessment (PA) will start when basin rehabilitation is complete (no later than 18 months after complete implementation of each SR<sup>3</sup> Plan).

Basin Name	Start PA	End PA (Deadline)	Submit PA
Patuxent Center	10/2/2014	4/2/2016	7/1/2016
Mattawoman	7/10/2015	1/10/2017	4/10/2017

Basin Name	Start PA	End PA (Deadline)	Submit PA
Monocacy	10/06/2015	04/06/2017	07/05/2017
Dulles Interceptor	12/29/2015	06/29/2017	09/27/2017
Horsepen	10/06/2015	04/06/2017	07/05/2017
Lower Anacostia	08/28/2018	02/28/2020	05/28/2020
Rock Creek / Patuxent North	05/31/2019	11/30/2020	02/28/2021
Seneca Creek	05/03/2019	11/03/2020	02/01/2021
Muddy Branch	09/24/2019	03/24/2021	06/22/2021

**Article 8: Illegal Stormwater Discharges**

The WSSC Water shall through the use of CCTV and smoke and dye testing during the performance of the Collection System Evaluations actively seeks to identify and eliminate Illegal Stormwater Discharges.

**Progress to Date:**

- Procedure for enforcement strategy is complete.
- No Illegal Stormwater Discharges have been identified thus far.

**Article 9: Information Management Systems**

The WSSC Water shall maintain an Information Management System which will include an MMIS and GIS system to track sanitary sewer discharges (SSDs) and identify sources.

**Progress to Date:**

- Submitted certification that the Information Management System complies with the minimum requirements.
- Submitted annual certifications that the WSSC Water has complied with Article 9.B (Update GIS within 120 days of becoming aware that attribute data is incorrect or incomplete).

**Article 10: Pump Stations**

The WSSC Water shall continue to implement a Pump Station Preventive Maintenance Program and periodically review and update Pump Station standard operating procedures. WSSC Water must submit 30-, 90-, or 180-day reports for Pump Station related sanitary sewer discharges (SSDs). The WSSC Water shall submit Facility Plans for Anacostia and Broad Creek. Every 5 years the WSSC Water shall reevaluate its Pump Stations to assure that each Pump Station is of sufficient size and capacity to handle expected wastewater flows.

**Progress to Date:**

- WSSC Water continues to submit reports for Pump Station sanitary sewer discharges (SSDs).
- Anacostia WWPS Storage Facility Plan was approved by the MDE and the EPA. Final Construction Completion on December 30, 2013.
- Broad Creek Facility Plan was approved by the EPA and the MDEA request for an extension due to Force Majeure conditions was approved by EPA on October 9, 2012 and by MDE on October 3, 2012. Consistent with those approvals, the final permit was received on June 3, 2016, and a revised Facility Plan Schedule was submitted on June 23, 2016. The revised Facility Plan Schedule was approved by MDE on September 26, 2016, and by the EPA on February 3, 2017. Notice to Proceed was issued to the Contractor on January 5, 2017. Substantial completion of construction was issued in January 2020. .
- Submitted annual certifications that the WSSC Water has complied with Article Ten, B.4 for review and update of the Pump Station Standard Operating Procedures.
- Completed 47 Pump Station Re-evaluations for the first five years in February 2009. The subsequent re-evaluation reports were submitted with the Annual Report in 2010 and



2015. The latest update of the Pump Station Capacity Evaluation Report is currently being developed. The finalized analysis will be submitted with the upcoming Annual Report.

**Article 11: Collection System Operation and Maintenance Plan**

The WSSC Water has submitted a comprehensive Operation and Maintenance Plan for the Collection System, including its Gravity Sewer Segments, Force Mains, Pump Stations, and components to provide for the proper operation and maintenance of equipment. The WSSC Water shall evaluate the collection system using the criteria set forth in the Consent Decree within 5 years of implementing the O & M Plan in Phase I and II. In Phase III, every five years the WSSC Water will clean additional sewers that reach at least 21 years of service during the prior 5 years and are not cleaned as part of Phase I and II.

**Progress to Date:**

- Operations and Maintenance Plan was submitted and approved by the MDE and the EPA.
- Phase I Sewer Segment Cleaning in Non-SSES Sewer Basins is 100% complete. (1,145.23 miles cleaned)
- Phase II Sewer Segment Cleaning in the SSES Basins is 100% complete. (1,540 miles cleaned)
- Phase III Sewer Segment Cleaning
- 353.2 miles have been cleaned to date (100%)
- Phase IV - In 2017, an estimated 285 miles of sewer were identified for Phase IV sewer cleaning. Of this estimate, 249 miles have been cleaned to date.

**Article 12: Emergency Response Plans (ERPs)**

The WSSC Water developed and implemented Emergency Response Plans (ERPs) to adequately respond to the occurrence of SSDs and Buildings Backups.

**Progress to Date:**

- ERPs were submitted and approved by the MDE and the EPA
- Submitted revised ERPs in the Annual Reports
- Submitted certifications stating the WSSC Water has complied with elements of the approved ERPs annually.

**Article 13: Reporting and Record Keeping**

The WSSC Water shall provide the following information for Sanitary Sewer Discharges (SSDs):

- Verbal reports of all SSDs within 24 hours to the MDE
- A written report for all SSDs within five days to the EPA and the MDE
- Post all written reports on the WSSC Water web site within 10 days

**Progress to Date:**

- Submitted annual certifications stating the WSSC Water has complied with the requirements of Article 13, B.1-2, and C-F.
- Building Backup reports are submitted quarterly.

**Supplement Environmental Projects (SEP)**

The WSSC Water shall purchase Patuxent Reservoir Buffer Properties and Easements for Water Supply Protection. The WSSC Water has finalized and signed a Memorandum of Understanding (MOU) with the Maryland Environmental Trust (MET). Under the MOU, MET will develop outreach tools, contact landowners, bring promising prospects to the WSSC, negotiate terms, record deeds, and monitor land in perpetuity. The WSSC Water will assist MET in targeting landowners by assisting with GIS, public outreach, and appraisals.

In addition, the Western Branch WRRF shall denitrify by methanol or Micro C 3000 or appropriate carbon source addition to the treatment stream during the next three winter seasons. The winter season is defined as November through March.

**Progress to Date**

- The Patuxent Reservoir SEP scope of work was approved by the MDE and the EPA. The SEP was complete by December 7, 2010.
- As of December 31, 2010, \$3,397,881.16 was spent for land purchases, settlement fees, environmental site assessments, appraisals and title searches. The Western Branch WRRF denitrification SEP was approved by the MDE and the EPA and was completed in March 2007. Total cost was \$1,671,834.00.
- The SEP Completion Report was submitted on January 31, 2011 and was approved by the regulators.

**2015 Amendment to Consent Decree**

In November 2015, WSSC Water requested an amendment to the Consent decree to extend the timeframe to complete specific facets of the work that have been delayed due to permitting issues for work to be performed within wetlands, at stream crossings, Federal and State Parklands, or other similarly sensitive areas. Although permit applications have been submitted to the applicable agencies, the extent and complexity of the permit approval process has required more time than originally anticipated. A six-year extension for this specific work was requested. Approval from the U.S. District Court was authorized in July 2016.

**MDE Reporting Requirements for SSOs**

Furthermore, the State of Maryland has placed new emphasis on its requirement to report all SSOs to the Department of the Environment (MDE) within twenty-four hours of their occurrence, as well as the need to notify the public whenever an SSO has any significant potential to affect public health or the environment. MDE has provided guidance suggesting that wastewater utilities need to work closely with local environmental and health departments to identify any such potential impacts and to notify the public when warranted. WSSC, in conjunction with Montgomery and Prince George's Counties, has developed procedures for this coordination and public notification.

**Plan Recommendation: Development of a Prioritized Listing of SSES Basins and a Related Financial Plan by WSSC**

WSSC Water has been addressing a comprehensive maintenance, operations and management system for the past ten years. These issues affect capital expenditures, sewer overflow conditions, and regional agreements. This Plan suggests that WSSC Water develop a prioritized list of SSES basins and a financial plan to address the needs these studies reveal.

**I.B.4. Sewer Sizing Policies:**

WSSC Water's Design Manual provides both general and specific sewer design criteria and designates the WSSC Water Development Services Group with the responsibility for sizing the new sewer mains to be constructed within a proposed development. In general, sewer systems are designed for ultimate flow within the drainage area unless the WSSC Water determines that the County's land use policies allow for a lesser requirement.

For sewers serving a complete sewershed, the ultimate sewage flow is determined by assuming that the entire basin will develop in accordance with approved master plans. Sewer systems which serve only part of a sewershed are sized to serve the entire sewershed. Normally, sewer systems are

designed to function by gravity. In certain circumstances gravity sewers may be allowed to flow under a slight surcharge condition but will be determined on a case-by-case basis.

**I.B.5. Pressure Sewer Systems:**

Where gravity sewers are not appropriate for use, WSSC Water can approve the use of pumping stations and force mains or grinder pumps and low-pressure sewers. Pumping systems are used where there are no receiving gravity sewers lower in a drainage basin (as in the Hawlings River watershed), or where the construction of gravity mains needed to connect with the existing gravity sewage system is either uneconomical or environmentally unacceptable.

**Grinder Pumps:**

Grinder pumps are small, individual package pumping units connected to small-diameter low-pressure sewer mains and are used to provide sewer service in areas where gravity sewer is not feasible and is recommended by WSSC Water based on policies and procedures. Grinder pumps work by grinding the sewage in a slurry which is then pumped into the low pressure sewer main. Most of the grinder pump applications in the Washington Suburban Sanitary District (WSSD) provide service to an individual home or user. They are usually located within private property and are owned, maintained, and operated by the homeowner.

The design and construction of low pressure sewer systems with grinder pumps are based on the assumption that the specified pumps will be installed, maintained, and replaced in-kind (when necessary) in a satisfactory manner by the homeowner. Conceptually, this should result in a fairly reliable wastewater conveyance system; however, the potential exists for a lower level of service than that expected of more conventional systems. Grinder pumps are equipped with alarms that notify the homeowner of equipment malfunctions; however, the alarms are not fail-safe and conditions could exist whereby a sewage back-up within the home occurs without the homeowner being warned in advance. Back-ups could also arise from the homeowner's lack of proper grinder pump maintenance. Grinder pumps should be checked regularly for proper operation by a qualified service provider on a regular basis. Grinder pump maintenance is an added expense to the homeowner. Since grinder pumps operate from the electricity supplied from each individual home, homeowners must be cognizant that during power outages they should not use faucets, toilets, tubs and showers to avoid sewage back-ups in their home unless they have a back-up power source such as a portable or whole-house generator. Without such a power back-up, it can be extremely inconvenient during long power outages. The cost of electricity and generator power sources is an added expense to the homeowner. The life of a grinder pump varies and depends partly on the homeowner's level of maintenance. Pumps will have to be replaced periodically at the homeowner's expense. Replacing the grinder pump with another model different than what was originally specified can lead to system problems not only for the homeowner but potentially for other grinder pumps connected to the same pipe network since the pumps are designed to work in unison. A replacement pump that operates at a lower shut-off head than the previous pump could cause the pump output to be less or shut-off when many pumps within the system are running. Conversely, a replacement pump that operates at a higher shut-off head than the previous pump could affect other grinder pumps within the network by reducing their output. Both conditions could cause sewage back-ups within homes. Low pressure sewer systems that contain long distances of pipeline between the pumps and the outfall into the closest gravity sewer can result in long-detention times of sewage within the pressure sewer. This can create odorous conditions at the outfall and a nuisance to nearby homeowners. In summary, it is incumbent upon each individual homeowner to properly install, maintain and replace their grinder pump to maximize the reliability of the low-pressure sewers. Although it may cost less to construct low pressure systems with grinder pumps, publicly-owned centralized pumping stations are considered to provide a higher level of service to the WSSC Water customer due to redundant pumps, emergency back-up power, and shorter pipeline detention times.

As a result of the above issues, WSSC Water has established procedures on selecting grinder pumps in lieu of more conventional systems. The WSSC Water 2019 Development Services Code currently governs the use of grinder pumps in the WSSD. The procedure supersedes the previous policies and clarifies WSSC Water policy concerning the implementation of grinder pumps for sewer service.

- Establishes that grinder pumps can only be used when gravity service or service via a centralized wastewater pumping station are not feasible;
- Establishes that a Grinder System Review Committee reviews, on a case-by-case basis, development projects proposing the use of grinder systems;
- Requires that an applicant/engineer provide sewer service alternatives analysis for WSSC Water review for development proposed with 50 or more grinder pumps;
- Clarifies and documents current WSSC Water practice regarding the use of grinder systems for non-residential customers;
- Provides procedures established to minimize and mitigate the potential for odor problems in grinder systems.

#### **I.B.6. Infiltration and Inflow (I/I) Control Program:**

Infiltration of groundwater into aging, defective or damaged sewers and the inflow of water from sources such as direct connections of roof leaders, area drains, drains from springs and swampy areas, and manhole covers may contribute to sewage collection system overloading or may deplete the capacities of wastewater conveyance and treatment facilities.

WSSC Water has reviewed its collection system data and is aware of excessive I/I in several of the sewer basins in the WSSD. Over the past several years, WSSC Water performed comprehensive sewer studies in the County's Rock Creek, Cabin John, Little Falls, Rock Run and Watts Branch Basins. The resulting recommendations from the studies included corrective actions for specific problems identified in manholes and sewer pipelines. Work is currently ongoing throughout the County to repair, replace and rehabilitate deteriorating elements of the system through the Sewer Reconstruction Program.

The I/I control program also directly supports renewed federal initiatives for controlling Sanitary Sewer Overflows (SSOs) which include facility and manhole overflows as well as basement back-ups. Using I/I assessment techniques, WSSC Water explores the causes for each SSO event, and seeks resolutions to prevent future occurrences. Survey tools deployed during I/I or related work (physical inspection of manholes, TV inspection of sewers) yield rehabilitation recommendations which are implemented in the Sewer Reconstruction Program. In this manner, WSSC Water routinely detects and corrects leaking as well as non-leaking structural defects.

#### **I.B.7. Industrial Pretreatment Program:**

WSSC Water implements a federally mandated pretreatment program, the Industrial Discharge Control Program (IDCP). The IDCP has four primary goals:

- To monitor and control the discharge of industrial waste into the sanitary sewer system.
- To prevent the discharge of pollutants which will interfere with the operation of wastewater treatment plants, including interference with sludge use and disposal.
- To prevent the discharge of pollutants which will pass through the treatment works or otherwise be incompatible with such works.
- To improve opportunities to recycle and reclaim municipal and industrial wastewater and sludge.

The program also helps protect WSSC Water personnel and WSSC Water sewerage systems by regulating the discharge of toxic, corrosive, and other prohibited substances into the sanitary sewer. IDCP requirements apply to all industrial users within the WSSD and include those industrial users whose wastewater is treated at the District of Columbia Water and Sewer Authority's Blue Plains

Advanced Wastewater Treatment Plant (WWTP) and Charles County WWTP. WSSC Water regulates industrial users in the WSSD through a variety of activities including field investigations, wastewater monitoring, permitting, compliance reviews, and enforcement measures. In order to comply with WSSC Water discharge limitations, some industrial users are required to install pretreatment equipment to treat their wastewater prior to discharging it to WSSC Water's sanitary sewers. In some cases, the equipment may be relatively minor (e.g., silver recovery units or oil/water separator); in other cases, the required level of pretreatment can be extensive (e.g., pH neutralization and dissolved air flotation).

WSSC Water achieves the pretreatment program's goals by performing the following primary functions:

- **Investigation/Monitoring** -- WSSC Water conducts on-site investigations of industrial users, evaluating industrial user processes, chemical usage, types and volumes of wastes generated, potential for slug discharges, and methods of waste disposal. Compliance monitoring is conducted independently of the industrial user to determine whether their discharges meet WSSC Water standards and any applicable federal standards. Grab and composite samples of the industrial user's process wastewater are collected using manual and automatic sampling methods. Analytical results are then compared to WSSC Water limits and any applicable federal standards to determine the industrial user's compliance status.
- **Discharge Permit Applications** -- Discharge permit applications are sent to industrial users to determine if they should be permitted through the IDCP. WSSC Water issues discharge authorization permits to those industries qualifying as significant industrial users (categorical and non-categorical). The discharge permits authorize industrial users to discharge their process wastewater to WSSC Water's sanitary sewer system, specifying discharge limitations, restrictions and self-monitoring requirements. The permitted industrial user is required to perform monitoring of its wastewater discharges and report the results to WSSC. IDCP staff review the user industry's self-monitoring reports to determine compliance with its authorized discharge limitations. This review also assures that the sample collection, preservation, and analyses performed by, or on behalf of, the industrial user are conducted in accordance with approved methodologies and that the results accurately represent the industry's discharges.
- **Enforcement Action** -- WSSC Water takes enforcement actions against those industrial users who violate discharge limits or fail to comply with other regulatory requirements. Enforcement actions can include notices of violation, civil citations with monetary penalties, directives, administrative orders, and termination of water/sewer service.
- **Data Management** -- Through its pretreatment program, WSSC Water maintains electronic and hardcopy files and databases of information on industrial users. This information includes the results of industrial investigations, analytical data from the industrial user as well as WSSC, permit information (including limitations and special conditions), and enforcement actions taken against violators. WSSC Water recovers a portion of the pretreatment programs costs through an annual fee assessed to the permitted industrial users. The varying annual fees are based on the anticipated level of effort associated with the industrial users within specific industrial categories. In addition to activities associated with regulating industrial users, WSSC Water also evaluates the wastewater characteristics of its wastewater treatment plants (Damascus, Parkway, Piscataway, Seneca and Western Branch. *It should be noted that WSSC Water refers to its wastewater treatment plants (WWTP) as water resource recovery facilities (WRRF).* On an annual basis WSSC Water also conducts sampling of the influent and effluent of each plant for EPA designated priority pollutants. The analytical data is used to develop local limits for industrial users and to evaluate treatment plant compliance with water quality standards. WSSC Water is also required to report its monitoring results for each treatment plant to the Maryland Department of the Environment.

#### **I.B.8. Fats, Oils and Grease (FOG) Program:**

WSSC Water implements a FOG Program that is aimed at controlling fats, oils, and grease discharges from Food Service Establishments (FSEs) and to educate the public about proper

disposal of FOG from their homes. Based on the Environmental Protection Agency's (EPA's) records, it has been estimated that FOG contributes to 40-60% of all Sanitary Sewer Overflows (SSO's) nationwide. WSSC Water's current percentage is approximately 28%, with the vast majority occurring in residential neighborhoods. Although WSSC Water had implemented a FOG Program since the 1990's, a late 2005 mandate allowed the program to grow and become more formal.

The creation of the modern WSSC Water Fats, Oils, and Grease (FOG) Program was necessitated by the Sanitary Sewer Overflow Consent Decree negotiated with the United States Department of Justice, the Environmental Protection Agency, and the Maryland Department of the Environment. The Consent Decree includes requirements to proactively inspect all food service establishments (FSEs) within the WSSC Water service area and take appropriate enforcement action against those facilities which do not comply with the WSSC Water's Plumbing and Fuel Gas Code with regard to the installation of treatment devices and compliance with discharge standards. Overflows caused by fats, oils and/or grease blockages are a primary area of focus for the FOG Program.

The basics of this Program include monitoring and controlling the discharge of fats, oils, and grease from FSEs, investigating sanitary sewer blockages and overflows caused by FOG discharges, and initiation of enforcement action to ensure appropriate corrective measures are taken. Staff performs investigation, permitting, and monitoring activities to ensure compliance with Federal, State, and WSSC Water discharge requirements by FSEs and other WSSC Water non-domestic customers. Program staff also perform customer outreach and provide compliance assistance to regulated customers, and they also administer necessary billing functions associated with the recovery of costs for FOG Program implementation. Staff ensures that all periodic FOG-related activities are reported to the appropriate State and/or Federal agencies (via the Utility Services Division) as required by the Consent Decree.

When an FSE receives a County Health Department license to operate, it also must be reviewed for potential fats, oils and/or grease discharges of a measurable (greater than 0.01%) quantity. WSSC Water will determine if the FSE is exempt from the standard, is to only follow "Best Management Practices" (BMPs) for compliance or must install a grease abatement system (GAD) to complement the required BMP practices. Examples of FSEs required to have GADs include, but are not limited to restaurants, cafeterias, hotel kitchens, church kitchens, school kitchens, hospital cafeterias, bars, convenience stores, food courts in shopping centers, ice cream parlors, specific types of coffee shops, small dairy shops, deli counters, food stores, and catering service kitchens.

The FSE must comply with the WSSC Water Plumbing and Fuel Gas Code in all aspects of FOG production, capture and treatment/disposal at its facility. The WSSC Water FOG staff will outline the regulatory requirements applicable to the FSE upon an initial inspection of the site.

Since GADs must be maintained to be effective, WSSC Water also monitors the disposal practices of the FSEs, including their use of contractual FOG disposal companies and waste haulers. WSSC Water does not clean, collect, store nor dispose of FSE FOG produced from the FSE's GAD. It is the full responsibility of the FSE to acquire the licensed and certified FOG collection and disposal contractor or company.

#### **I.B.9. Wastewater Treatment System Requirements - General Provisions:**

In addition to discharge and construction permit requirements on existing and new treatment plants administered by the State of Maryland, Montgomery County shall review and approve all new facilities and all significant modifications to existing facilities within the County. All new community and multi-use treatment systems and points of discharge shall be specifically delineated in this Plan prior to the issuance of final construction and discharge permits by the State of Maryland. In addition, the County government may require stricter levels of treatment where warranted by

projected receiving water quality impacts resulting from the discharge. These requirements also apply to all individual systems exceeding 1,500 gallons per day average daily flow and all individual systems of any size requiring a groundwater or surface water discharge permit, except heat pump discharges. Permit applicants have the burden of adequately demonstrating to the County that the proposed facilities will not have a significant, detrimental impact on the surrounding community or receiving waters.

Proposed modifications to existing treatment facilities, including both system upgrading and expansion, are also subject to the County's approval. This includes any proposed community multi-use or individual system treatment facility or discharge point modification which requires a State construction and/or discharge permit. Any modifications requiring MDE's review and approval shall also require prior incorporation of the proposed modification in this Plan, as either a text amendment or as an adopted capital improvement program (CIP) project. Specific proposals for new or modified facilities shall be submitted to the Director of DEP with supporting documentation as required by the Director.

The State of Maryland, as part of its efforts to improve the ecological health of the Chesapeake Bay, is investigating the impact of lowering the wastewater treatment plant nitrogen discharge standard from 8 milligrams per liter (mg/l) to 3 mg/l. This new standard would affect all of the wastewater treatment plants serving Montgomery County, and would have significant financial implications for WSSC Water and DC WATER with regard to the facility upgrades and treatment process improvements needed to comply with the lowered standard.

#### **I.B.10. Financing Sewerage Systems:**

Financing of water supply and sewerage systems projects at WSSC Water are provided through Capital Improvement Program (CIP). WSSC Water The implementation of a facility plan is initiated by the full funding of the project in the WSSC Water CIP. Each proposed project receives a WSSC Water staff recommendation which staff transmit to the WSSC Water General Manager at the conclusion of the facility planning process. The General Manager either endorses or modifies the staff recommendation and submits the project to the WSSC Water Commissioners. The Commissioners in turn transmit the WSSC Water decision on the project to the Counties for inclusion in the CIP and the Comprehensive Water Supply and Sewerage System Plan.

DEP prepares any necessary amendments to the Water and Sewer Plan and includes any relevant comments on the CIP Project for the County Executive's consideration. The County Executive reviews and if necessary, modifies DEP's recommendations, then transmits the CIP amendments to the County Council. The Council conducts a public hearing on the project recommendations as part of the Water and Sewer Plan and/or the CIP adoption processes. The Montgomery County Planning Board may also review or comment on the facility plan as part of the Council's public hearing process or as part of a designated mandatory referral process.

A project's adoption in the WSSC Water CIP by the two County Councils completes the facility plan adoption process. The annual approval of the WSSC Water CIP budget by both Montgomery and Prince George's Counties serves to amend the water and sewer facilities chapters of this Water and Sewer Plan.

The CIP provides a proposed design and construction schedule for projects WSSC Water expects to implement within the six-year planning period of the CIP. The adopted CIP schedule also identifies the necessary funding sources for the project. The annual approval of the WSSC Water CIP budget constitutes amendments to Chapters 3 and 4 of this Water and Sewer Plan



WSSC Water uses several methods to fund the construction and operation of the sewerage system. Detailed information concerning WSSC Water's funding methods is included in Chapter 1, Section IV.A. The current WSSC Water CIP budget document, and those for some prior years, are available through WSSC Water's budget webpage at <https://www.wsscwater.com/budget>.

### **I.C. Existing and Planned Sewerage Systems and Projected Needs:**

The sewage collection and conveyance system within the WSSD consists of approximately 5,600 miles of gravity and force mains ranging from 6 to 102 inches in diameter and 51 wastewater pumping stations, including 24 stations in Montgomery County. This section presents an overview of the County's long-term sewerage system needs and anticipated constraints within each service area and individual sewershed. The anticipated sewerage system needs and constraints on the major components of WSSC Water's transmission and treatment facilities are planned and programmed in the WSSC Water CIP (Capital Improvements Program) to address the County's current and/or short-term wastewater conveyance or treatment needs. The CIP projects include funding and schedules for planning, design, land acquisition, and construction of facilities. These facilities often support new development in accordance with the County's approved plans and policies for orderly growth and development. Other projects are for system improvements and/or for compliance with environmental regulations and policies.

Flow projections within the WSSD are based on the County's latest adopted master plans and demographic projections for development and approved service areas for future growth. Based on the Maryland-National Capital Park and Planning Commission (M-NCPPC) household and employment growth estimates, WSSC Water develops flow projections to determine the approximate time a planning decision for each facility should be made. Wastewater flow forecasts are developed from detailed analyses of existing flow records and projected additional future flow based on projected demographics, wastewater flow per household and per employment, and other factors such as infiltration (extraneous groundwater) and inflow from rainfall. Population forecasting and flow projection are based on the best available data at the time the planning is conducted. WSSC Water re-evaluates actual conditions, project needs, etc. before implementing proposed projects. The latest projected flows for individual sewered basins in Montgomery County are provided in the latter sections of this Plan. WSSC's evaluation of the County's long-range sewerage system needs are based on these projections.

"Planned Sewerage Systems" refers to those projects which have been approved and programmed in a relevant Capital Improvements Program (CIP). A summary of capital projects planned and currently underway to upgrade and expand the sewerage systems serving the County and/or to address facility maintenance needs are listed in the current CIP budget document and are available through WSSC Water's budget webpage at:

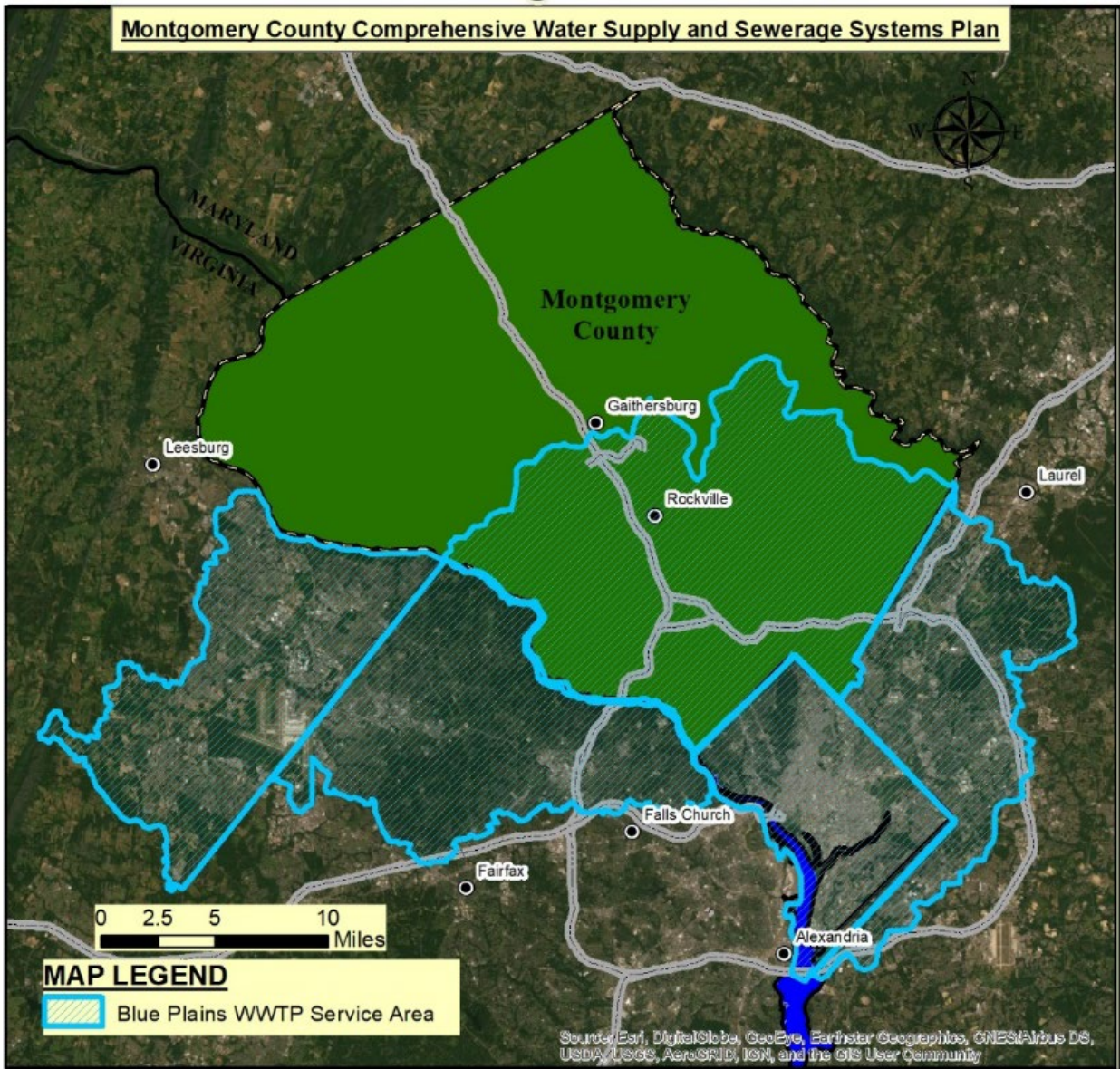
<https://www.wsscwater.com/budget>

#### **I.C.1. Blue Plains Service Area:**

Approximately 85% of the municipal wastewater generated in Montgomery County is treated at the Blue Plains WWTP, a facility located along the Anacostia and Potomac Rivers in Washington, D.C., and operated by DC WATER. The Montgomery County's flow contribution to the Blue Plains WWTP accounts for approximately 40 percent of the total flow at the facility. The Blue Plains

Service Area in Montgomery County encompasses much of the central and eastern part of the County as shown in Figure 4-F6. The Blue Plains service area also includes the Rockville Service Area. More detailed information on the City of Rockville’s sewerage systems is included in Section II of this Chapter.

**Figure 4-F6: Blue Plains Regional Boundaries**

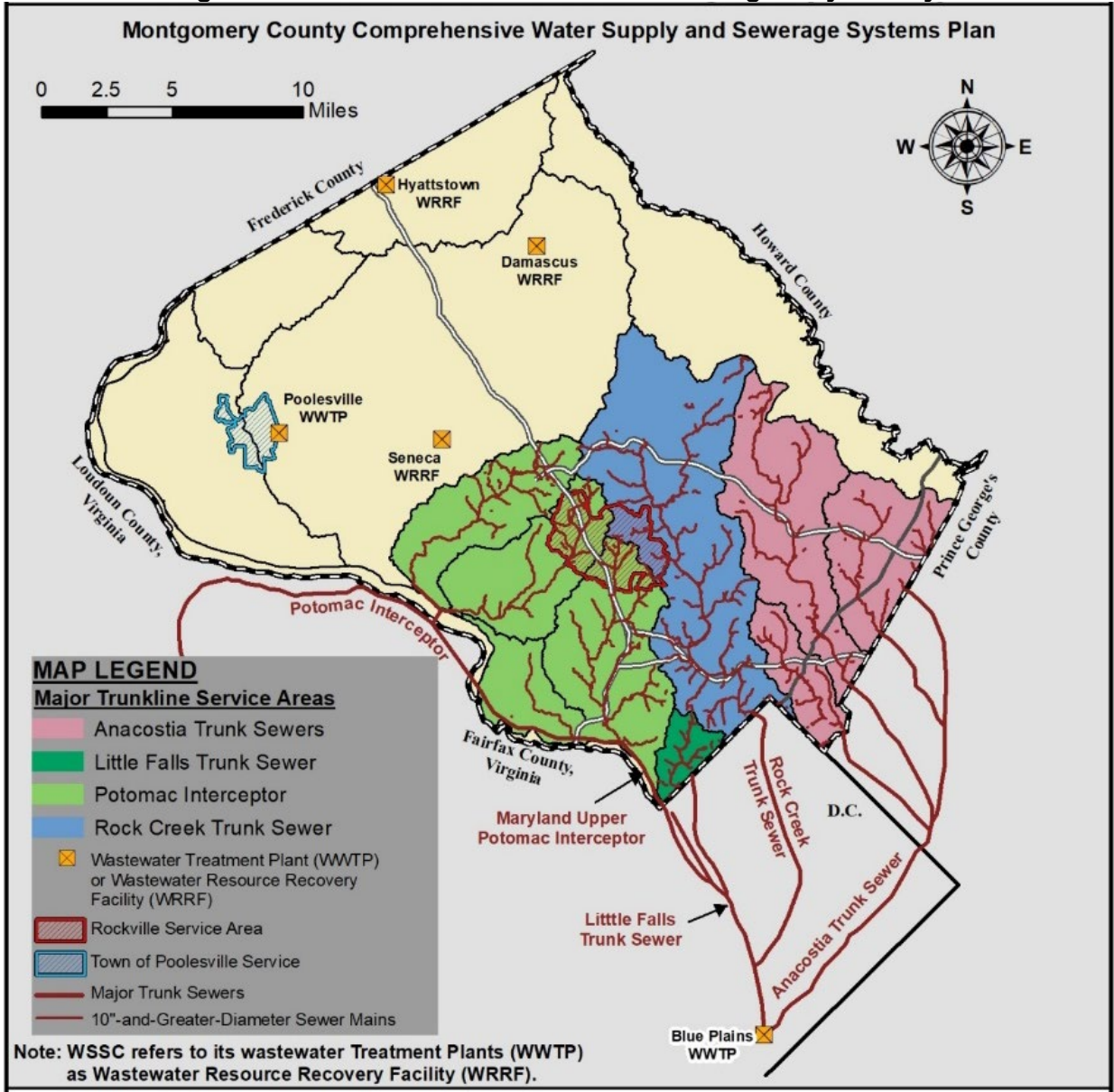


**I.C.1.A. Blue Plains Service Area Collection and Conveyance Systems:**

The principal sewer lines which convey the County’s wastewater to the Blue Plains WWTP include the Potomac Interceptor (PI), the Maryland-Upper Potomac Interceptor (MUPI), the Rock Creek Trunk Sewers, the Little Falls Trunk Sewer, and the Anacostia Trunk Sewers. The general location and the sewer basins served by these major sewer lines are shown in Figure 4-F7.



Figure 4-F7: Blue Plains Service Area in Montgomery County



All the major sewer lines transmitting flows to the Blue Plains WWTP are subjected to annual average and peak flow limitations identified in the Intermunicipal Agreement (IMA) of 2012. The IMA annual average and peak flow limitations for the above sewer lines are listed in Table 4-T4.

Table 4-T4: Average Basin Flows and IMA Limitations for the Montgomery County Portion of the Blue Plains Service Area			
Sewer Basin	Receiving Interceptor	IMA Limit (MGD)	
		Annual Average	Peak
Muddy Branch	PI	8.4	28.3

Cabin John	MUPI & PI	16.4	60.3
Rock Run	PI	1.3	5.6
Watts Branch	PI	5.8	16.5
Little Falls	UPI	7.6	20.8
Rock Creek	RCTS	33.5	56.6
Other Basins*	Anacostia & PI	N/A	N/A
<b>Total to Blue Plains WWTP</b>		N/A	N/A
*Other Basins include flows from Anacostia and direct connections to the Potomac Interceptor.			
Notes:			
- All data include flows from the City of Rockville			
- Anacostia is a Bi-County Basin and capacity is available to both Counties on first come-first served basis.			
- Flows from Montgomery County to the Anacostia Trunk Sewer are from the Northwest Branch, the Paint Branch, and the Sligo Creek Sewer basins.			
PI = Potomac Interceptor		MUPI = Maryland Upper Potomac	
RCTS = Rock Creek Trunk Sewers		NA = Not Analyzed or Not Applicable	

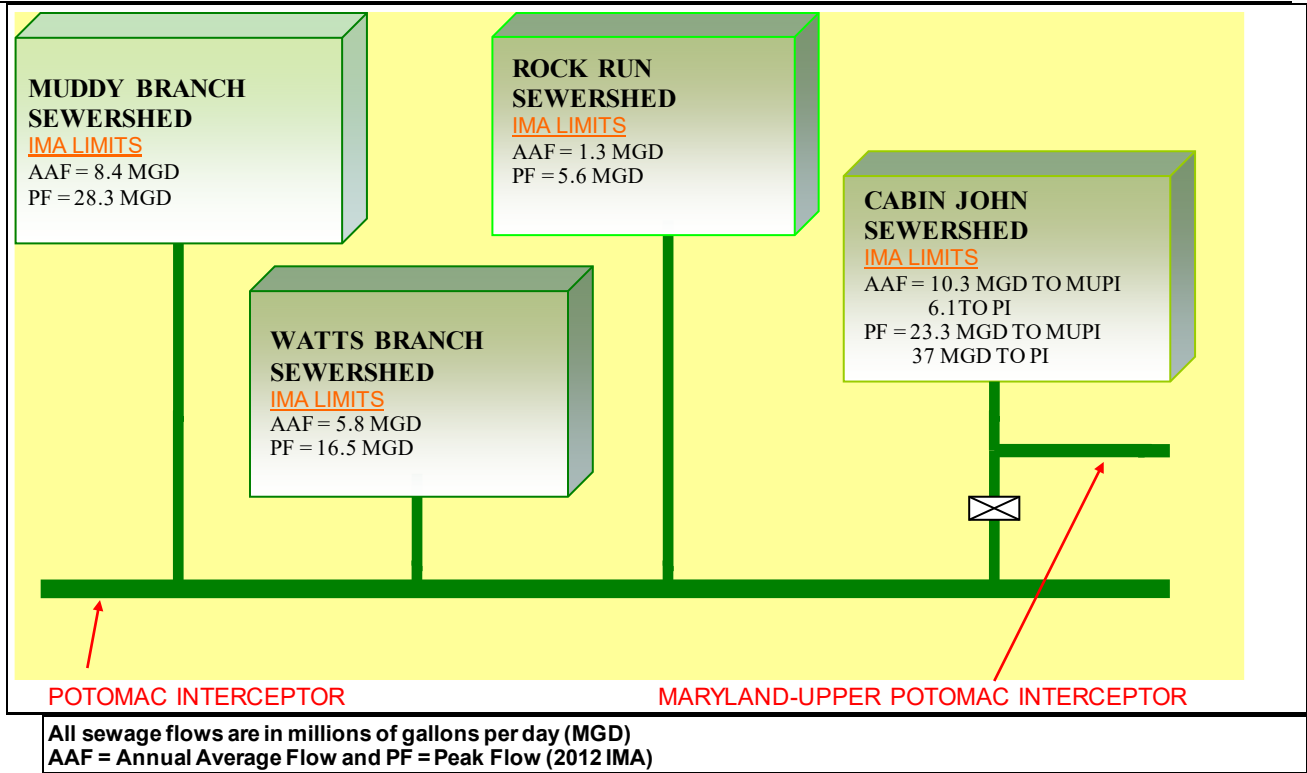
**I.C.1.A.i. Potomac Interceptor and Tributary Sewersheds:**

In June 1960, the U. S. Congress authorized the U.S. Corps of Engineers to design and construct the Potomac Interceptor (PI), an interceptor sanitary sewer to connect Dulles International Airport with the District of Columbia system. The PI system was built with sufficient transmission capacity to provide sewer service for projected community growth and development in the adjacent areas in the States of Maryland and Virginia. Because of the original purpose of this sewer, it is also referred to as the “Dulles Interceptor” by some of its user jurisdictions. The PI was completed in 1963 and consists of 42 miles of sewer line. DC Water is charged with the operation and maintenance of the interceptor, paid for as defined in the Intermunicipal Agreement (IMA) of 2012.

The Potomac Interceptor receives wastewater from various sewerage basins (sewersheds) along the length of its main stem and drains into the Upper Potomac Interceptor Relief Sewer (UPIRS) in the District of Columbia. To take full advantage of its hydraulic capacity and to control the flow, the PI has been interconnected at several locations with other principal sewers such as the Maryland-Upper Potomac Interceptor (MUPI). Sewersheds served within Montgomery County by the PI include the Muddy Branch, Watts Branch, and Rock Run basins. The Maryland Upper Potomac Interceptor (MUPI) is the upstream continuation of the UPIRS upstream across the District boundary where it carries flow principally from the Cabin John sewershed. Flows in excess of the MUPI’s capacity are diverted to the PI through the PI-MUPI interconnection.

Flows from the County’s sewersheds to the PI are regulated through the Intermunicipal Agreement (IMA) of 2012. Figure 4-F8 is a schematic of the Potomac Interceptor and the tributary sewersheds from Montgomery County along its main stem. Also shown are the IMA flow limitations. Existing and projected flows from various sewersheds in Montgomery County to the PI relative to the IMA flow limitations are also discussed in this section.

**Figure 4-F8: Montgomery County Wastewater Flows to the Potomac Interceptor**



In 2000, the Blue Plains user jurisdictions tasked COG to develop a dynamic hydraulic model of the PI in order to adequately characterize the existing flows in the interceptor and evaluate the capacity of this vital regional sewerage facility. The dynamic model was completed and its results presented to the user jurisdictions in 2002. The model's analyses indicate that the PI has enough capacity to convey flows to Blue Plains for the following 25 years, The PI dynamic hydraulic model will be useful as a tool to evaluate and plan various strategies for managing future wastewater flows in the basins that contribute flows to the PI.

Recent inspections conducted by DC Water of the entire Potomac Interceptor system indicated the need for rehabilitation of numerous sections of the interceptor due to corrosion and settled deposits. Following its inspection, DC Water is performing a major rehabilitation project to improve and prolong the life of the 60- year-old system. The project will provide for rehabilitating segments of the Potomac Interceptor which accepts flows from Virginia's Fairfax and Loudoun Counties, and Maryland's Montgomery County. Since DC Water is charged with the operation and maintenance of the interceptor, this rehabilitation project is managed by DC Water and funded by jurisdictional users defined in the Intermunicipal Agreement (IMA) of 2012.

The project is currently included in the DC Water FY 2020 – FY 2029 Capital Improvement Projects with Project ID/Project Title "LZ – Potomac Interceptor – Rehab Phase 2." The project provides funding for engineering services for design, permitting, bid, construction and related system improvements. Based on the FY 2020 estimate, the stated project cost is \$161,677,680. The work will be done in phases at various locations throughout the length of the interceptor. WSSC Water is responsible for a share of total cost based on funding agreements for Multi-Jurisdictional Use Facilities defined in the Intermunicipal Agreement (IMA) of 2012. Under the IMA, capital cost shares are based on each jurisdiction share of allocated capacity to the total capacity; for this project the cost share will be determined by the IMA parties for each location where work is to be performed. Please refer to the latest Adopted DC Water Capital Improvement Program for additional information and details

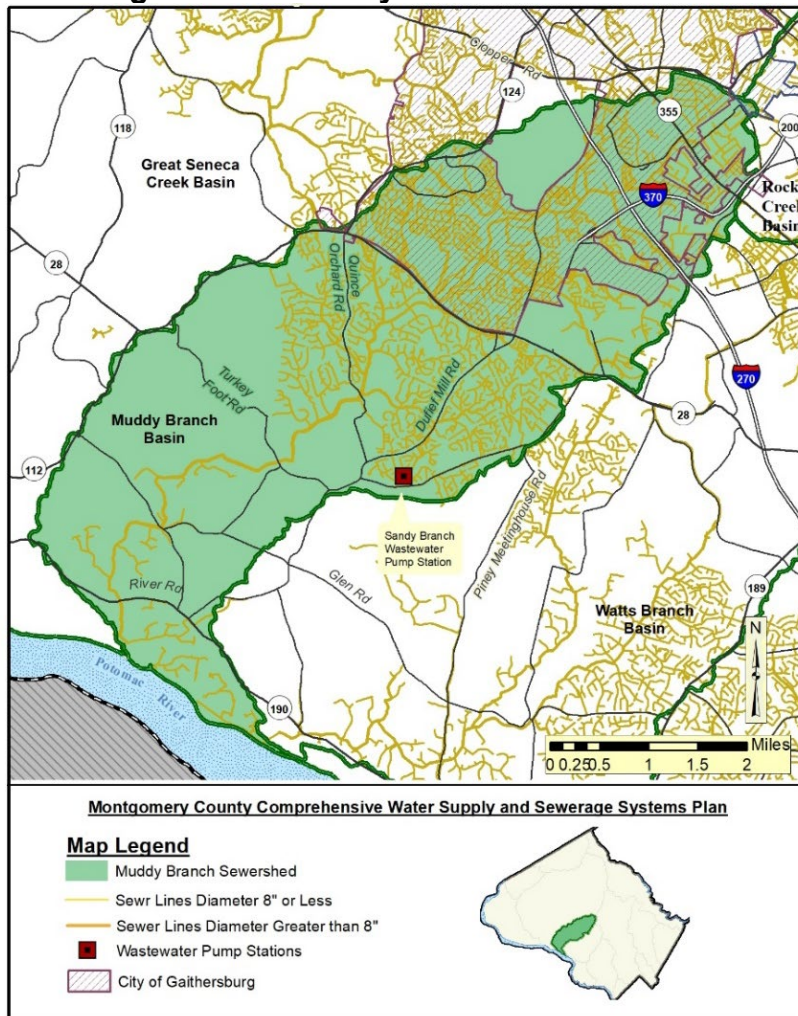
The following sections provide a general basin-by-basin description of existing and planned sewerage systems and projected needs for the sewersheds in Montgomery County served by the Potomac Interceptor.

**I.C.1.A.i.a. Muddy Branch Basin:**

The Muddy Branch basin originates in Gaithersburg in the central part of the County. The Muddy Branch stream flows generally southwest and enters the Potomac River near Pennyfield Lock. The upper part of the basin is developed with moderate to high-density residential, commercial and institutional uses. The lower half of the basin has significantly lower density, characterized by large-lot residential development which uses septic systems.

**Existing Systems:** Wastewater collection service is provided by a system of trunk sewers which extends up into the basin along the main stem of Muddy Branch. The Muddy Branch Basin boundary and the sewerage systems layout of the Muddy Branch sewer lines are shown in Figure 4-F9.

**Figure 4-F9: Muddy Branch Sewer Network**



Wastewater flows generated in Muddy Branch Basin are discharged into the Potomac Interceptor system and conveyed to the Blue Plains WWTP in the District of Columbia. WSSC Water currently maintains five permanent flow monitoring stations in this basin. The Muddy Branch basin also receives pumped flows from the Sandy Branch WWPS near Travilah Road. Based on current and future flows and other factors, WSSC Water regularly evaluates and categorizes all of its pump stations to allow for proper planning to handle expected wastewater flows. Based on the latest WSSC Water evaluation



conducted in 2020, the Sandy Branch Pump Station was classified under category “C”. Category “C” includes pump stations with the following conditions:

- Projected future peak flows exceed the tested safe pumping capacity
- Projected future peak flows can be pumped with all pumps operating and therefore do not produce an overflow
- A capacity-related overflow has not been reported
- Run time for the last pump may or may not be excessive

The current estimated flows and safe and maximum pumping Capacities for the Sandy Branch Pump Station are listed below.

Wastewater Pump Station	Average Dry Weather Flow (MGD) <sup>1</sup>	Estimated Peak Flow (MGD) <sup>2</sup>	Safe Capacity (MGD) <sup>3</sup>	Maximum Capacity (MGD) <sup>3</sup>
<b>Sandy Branch</b>	0.108	0.432	0.42	0.448

- 1- The average dry weather flows are estimated from pump station flow data (2017 to 2019)
- 2- The estimated peak flows are based on the Maryland Peak Flow Curve
- 3- The Safe and Maximum capacities are based on pump tests conducted in 2019.

**Projected Needs:** Projected future (year 2040) flows based on forecasted population and other flow factors for the Muddy Branch Basin are summarized in Table 4-T5.

Year		Average (MGD)	Peak (MGD)
<b>2040</b>	Projected Flow	8.51	25.64
	IMA Limitation	8.40	28.3
	Balance	-0.11	+2.66

Source: WSSC  
 Notes: -2040 projections (Round 8.1) are based on WSSC Water Sewer Model.

As noted herein before, the Muddy Branch sewer basin was identified for improvements as outlined in Article 6 of the Consent Decree. The improvements required by the Sewer Repair, Replacement and Rehabilitation (SR3) Program are completed for the Muddy Branch Basin. As such, the subsequent Performance Assessment as required in Article 7 of the Consent Decree, is currently underway for this basin. Therefore, in the interim, WSSC Water is utilizing its Regulation 11.165 to evaluate the impact of new development on the system. These system evaluations utilize the base system conditions at the time of the WSSC Water’s sewer model development and reevaluation as well as future system conditions. WSSC Water’s Planning Division is currently working on updating the basin hydraulic computer model for the Muddy Branch Basin. Once completed, the updated model will be used to identify capacity constraints and solutions to mitigate.

Prior to beginning the work associated with the repairs, replacements, and rehabilitation, capacity constraints under 2025 wet weather conditions were identified in the following areas:

- 7,500 feet of trunk sewers along the main stem in Muddy Branch

**I.C.1.A.i.b. Watts Branch Basin:**

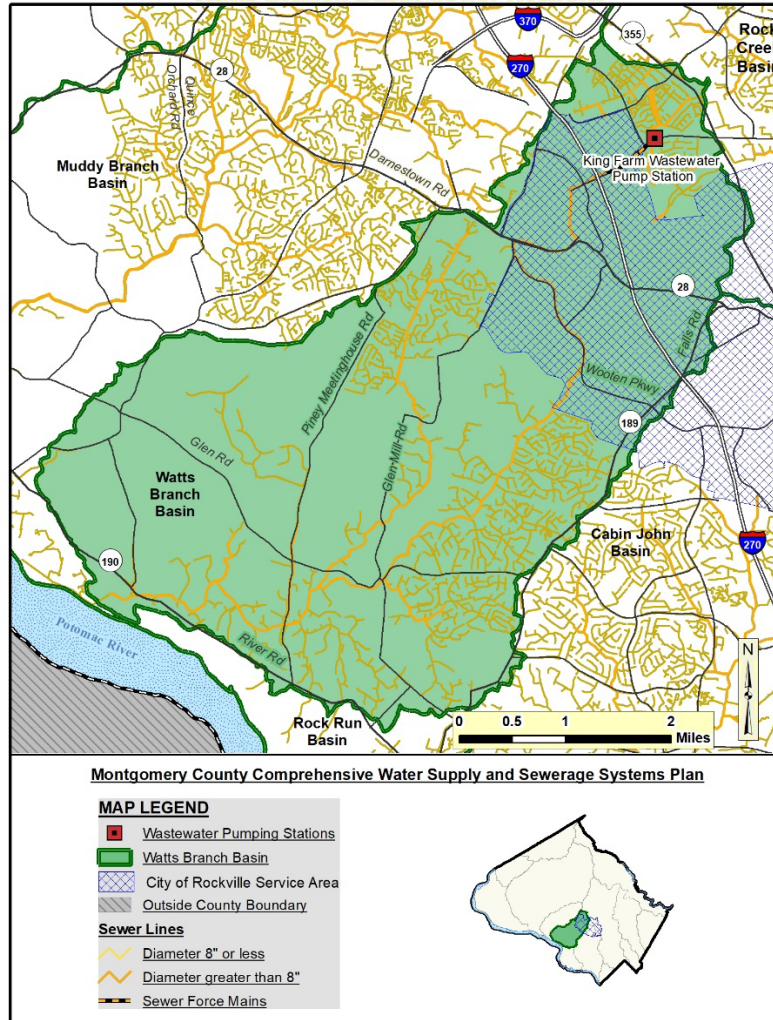
The Watts Branch basin originates in Rockville in the central part of the County. The Watts Branch stream flows generally southwest through western Potomac and enters the Potomac River just west and upstream from the WSSC Water Potomac Water Filtration Plant.

**Existing Systems:** Sewer service in Watts Branch Basin is presently provided by a trunk sewer system extending along Watts Branch which generally flows from northeast to southwest. The Watts Branch



Basin serves an area of 22.6 square miles and includes a portion of the City of Rockville. WSSC Water operates two permanent flow monitoring sites in the Watts Branch Basin: one at the point of connection with the City of Rockville system and one at the lower end of the basin where the trunk sewer connects with the PI. The sewerage system is shown in Figure 4-F10.

**Figure 4-F10: Watts Branch Basin Sewer Network**



Wastewater collected from the Watts Branch Basin is discharged to the PI and is treated at the Blue Plains Wastewater Treatment Plant. Discharges to the Potomac Interceptor are regulated through the Blue Plains IMA of 2012 and the 1966 Rockville-WSSC Water Agreement. The capacity of the Watts Branch trunk Sewer is divided between the City of Rockville and the WSSC Water by their 1966 agreement. The peak flow capacity of Rockville’s component of the trunk sewer is approximately 8 MGD, which corresponds to an average wastewater flow of 3 MGD. The trunk sewer’s remaining capacity is allocated to flows collected from the WSSD.

The wastewater flows from the King Farm Wastewater Pumping Station is discharged into the Watts Branch sewer system which discharges into Potomac Interceptor and ultimately treated at the Blue Plains WWTP. Based on current and future flows and other factors, WSSC Water regularly evaluates and categorizes all of its pump stations to allow for proper planning to handle expected wastewater flows. The latest WSSC Water’s evaluation conducted in 2020, the King Farm Pump Station was classified under category “A”. Category A includes pump stations with the following conditions:

- Projected future peak flows are less than the tested safe pumping capacity

- The pump run time is less than 15 hours over the three year period
- Capacity related overflows do not occur.

The current estimated flows and safe and maximum pumping capacities for the King Farm Pump Station are listed below.

Wastewater Pump Station	Average Dry Weather Flow (MGD) <sup>1</sup>	Estimated Peak Flow (MGD) <sup>2</sup>	Safe Capacity (MGD) <sup>3</sup>	Maximum Capacity (MGD) <sup>3</sup>
<b>King Farm</b>	<b>1.192</b>	<b>3.705</b>	<b>4.90</b>	<b>6.90</b>

1: The average dry weather flows are estimated from pump station flow data (2017 to 2019)

2: The estimated peak flows are based on the Maryland Peak Flow Curve

3: The Safe and Maximum capacities are based on pump tests conducted in 2019.

**Projected Needs** -- Projected future (year 2040) flows and related IMA limits for the Watts Branch Basin are summarized in Table 4-T6. The WSSC Water Planning Division has generated this information through their Sewer Basin Model.

<b>Table 4-T6: Future Wastewater Flows to the Potomac Interceptor from Watts Branch Basin</b>			
Year		Average (MGD)	Peak (MGD)
<b>2040</b>	Projected Flow	5.16	16.84
	IMA Limitation	5.80	16.50
	Balance	<b>+0.64</b>	<b>-0.34*</b>

Source: WSSC  
 Notes: - 2040 projections (Round 8.1) are based on WSSC Water Sewer Model.  
 - Data include flows from the City of Rockville.  
 \* Flows in excess of IMA Limits are off-set by underutilization of the PI upstream at Muddy Branch.

The Watts Branch sewer basin was identified for improvements as outlined in Article 6 of the Consent Decree. The improvements required by the Sewer Repair, Replacement and Rehabilitation (SR3) Program are completed for the Watts Branch Basin. As such, the subsequent Performance Assessment as required in Article 7 of the Consent Decree, will begin shortly for this basin. Therefore, in the interim, WSSC Water is utilizing its Regulation 11.165 to evaluate the impact of new development on the system. These system evaluations utilize the base system conditions at the time of the WSSC Water’s sewer model development and reevaluation as well as future system conditions. WSSC Water’s Planning Division will begin working on updating the basin hydraulic computer model for the Watts Branch Basin shortly. Once completed, the updated model will be used to identify capacity constraints and solutions to mitigate.

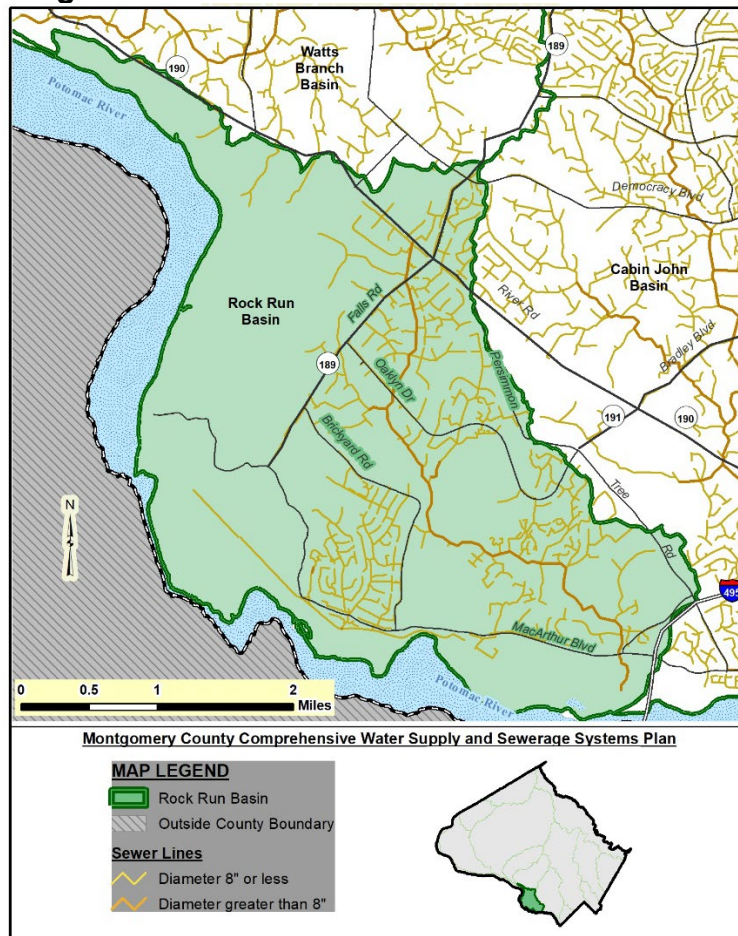
Even though the projected annual average flows from the Watts Branch basin are slightly above the IMA limits, this is not a major concern. Flows into the PI from the Muddy Branch basin, upstream from Watts Branch, have been significantly reduced due to the diversion of flows to the expanded Seneca WRRF which were previously routed through the Muddy Branch sewerage system to the PI. Based on the previously conducted studies by the WSSC Water indicate that the basin's conveyance facilities will be able to handle the basin's anticipated wastewater flows through the year 2040. Based on ultimate flow projections, the entire Watts Branch trunk sewer from Rockville-WSSD boundary downstream to the PI will require relief sometime before year 2040. Future wastewater capacity constraints will be affected by the timing and type of development occurring on some of the major development sites within the sewershed.

**I.C.1.A.i.c. Rock Run Basin:**

The Rock Run basin is located in the southern part of the County. For the purposes of this Plan, the basin includes areas served by sewerage systems which feed directly to the PI, rather than through the Rock Run Trunk Sewer due to local topography and proximity. Rock Run originates in Potomac Village and flows southeast into the Potomac River near Carderock. Development within the basin is largely residential, with higher densities dependent on community sewer service generally east of Falls Road (Route 189).

**Existing Systems** - Wastewater collected within the Rock Run Basin is discharged by gravity into the PI system and conveyed to the Blue Plains WWTP in the District of Columbia. The Rock Run Basin is a relatively small basin, with predominantly moderate to low density zoning. The wastewater collection and conveyance facilities within the Rock Run Basin are adequate; there are no planned wastewater collection/conveyance projects, or proposed system modifications. The Rock Run Basin boundary and its major sewer lines are shown in Figure 4-F11.

**Figure 4-F11: Rock Run Basin Sewer Network**



**Projected Needs** – Projected future (year 2040) flows based on forecasted population and other flow factors and related IMA limits for the Rock Run Basin are summarized in Table 4-T7.

<b>Table 4-T7: Future Wastewater Flows to the Potomac Interceptor from Rock Run Basin</b>			
<b>Year</b>		<b>Average (MGD)</b>	<b>Peak (MGD)</b>
<b>2040</b>	Projected Flow	1.09	5.64
	IMA Limitation	1.30	5.60
	Balance	+0.21	-0.04

Table 4-T7: Future Wastewater Flows to the Potomac Interceptor from Rock Run Basin		
Year	Average (MGD)	Peak (MGD)
Source: WSSC		
Notes: - 2040 projections (Round 8.1) are based on WSSC Water Sewer Model.		

As noted herein before, the Rock Run sewer basin was identified for improvements as outlined in Article 6 of the Consent Decree. The improvements required by the Sewer Repair, Replacement and Rehabilitation (SR3) Program are completed for the Rock Run Basin. As such, the subsequent Performance Assessment as required in Article 7 of the Consent Decree, is currently underway for this basin. Therefore, in the interim, WSSC Water is utilizing its Regulation 11.165 to evaluate the impact of new development on the system. These system evaluations utilize the base system conditions at the time of the WSSC Water’s sewer model development and reevaluation as well as future system conditions. WSSC Water’s Planning Division is currently working on updating the basin hydraulic computer model for the Rock Run Basin. Once completed, the updated model will be used to identify capacity constraints and solutions to mitigate.

Prior to beginning the work associated with the repairs, replacements, and rehabilitation to satisfy 2025 conditions, capacity constraints were identified in the following areas under wet weather conditions:

- 5,495 feet along the main stem of Rock Run Branch Trunk Sewer

**I.C.1.A.ii. Maryland-Upper Potomac Interceptor:**

The Maryland-Upper Potomac Interceptor (MUPI) receives wastewater from the Cabin John basin, including parts of the City of Rockville, and from several mini-sewer basins within the Cabin John area along the Potomac River. The MUPI has a maximum capacity of 18.7 MGD. A 30-inch sewer line connects the MUPI to the PI just downstream from where wastewater from Cabin John Trunk Sewer discharges to the MUPI. When flow from the Cabin John Basin reaches the MUPI's maximum capacity, an automatic valve diverts the excess flow to the Potomac Interceptor. Both the MUPI and the PI drain into the Upper Potomac Interceptor (UPI) and Upper Potomac Interceptor Relief Sewer (UPIRS) in the District of Columbia.

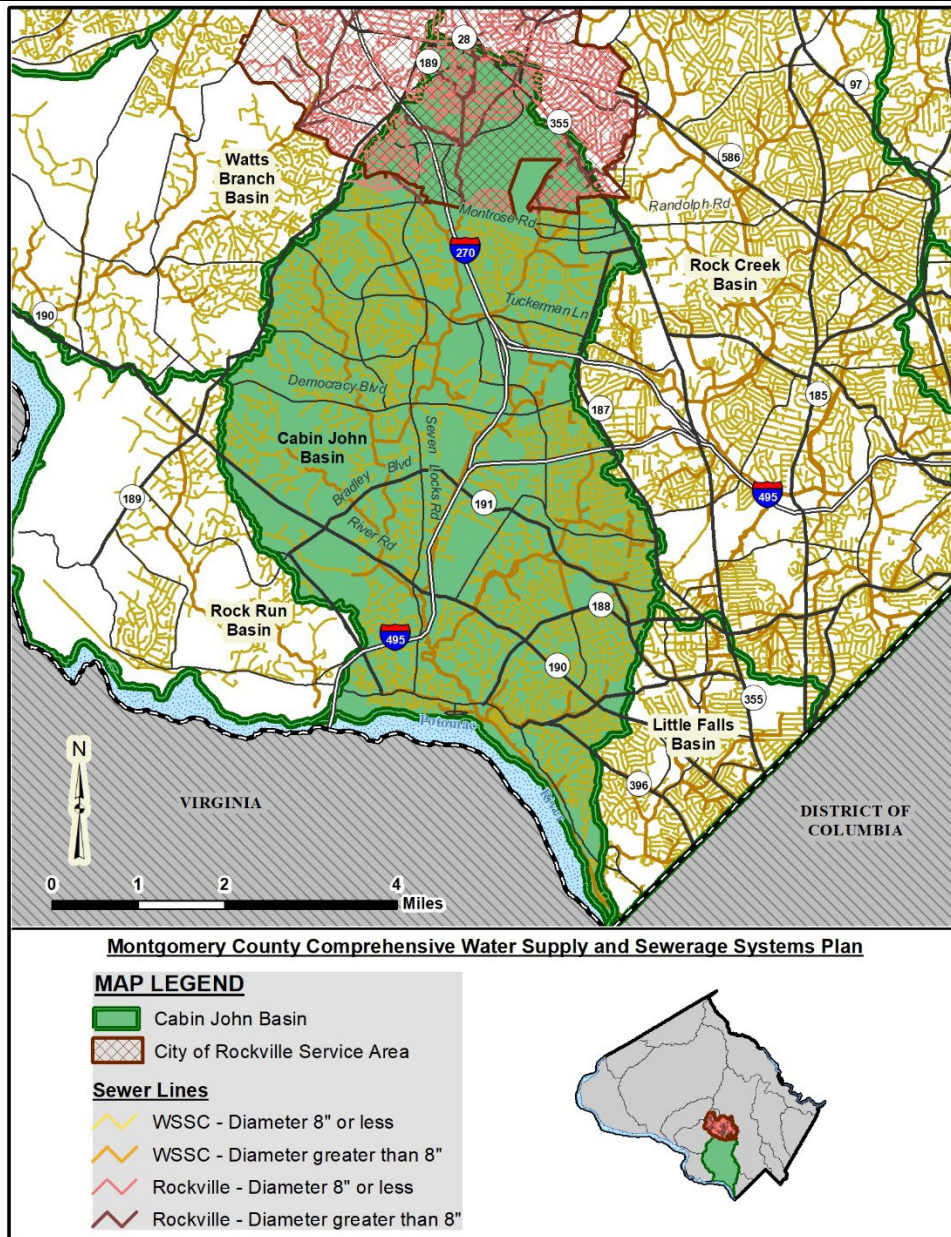
**I.C.1.A.ii.a. Cabin John Basin:**

The Cabin John basin encompasses the entire 33 square mile drainage area of Cabin John Creek and includes portions of the Bethesda, Cabin John, Glen Echo, and Potomac communities, and portions of the City of Rockville. The stream originates in Rockville and flows south into the Potomac River near the Interstate 495 American Legion Bridge in Cabin John.

**Existing Systems** -- Service within the basin is presently provided by a system of trunk sewers reaching up along Cabin John Creek, which runs generally from north to south, crossing Montrose Road, Democracy Boulevard, Interstate 495, and River Road. Major trunk sewer lines in this basin include the Buck Branch Trunk, the Minnehaha Branch Trunk, Booze Creek Trunk, and the Snakeden Branch Trunk. The sewerage system and basin boundaries are shown in Figure 4-F12.

**Figure 4-F12: Cabin John Basin Sewer Network**





Collected wastewater flows by gravity down the basin's sewer mains into the MUPI, then flows into the Upper Potomac Interceptor Relief Sewer in the District of Columbia, and is treated at the Blue Plains WWTP. Wastewater flows from this basin to the MUPI and the PI systems are regulated through the 2012 Blue Plains IMA. The WSSC Water's allocated capacity from this basin to MUPI is divided between the City of Rockville and the WSSC Water as specified in the Rockville-WSSC Water Agreement of 1956.

The Cabin John basin is heavily to moderately developed. The total annual average and peak flows allocated to the Cabin John basin in the MUPI-PI crossover system equals 16.4 MGD and 60.3 MGD respectively.

The wastewater collection and conveyance facilities within the Cabin John basin are currently inadequate and a planned wastewater collection/conveyance projects or proposed system modifications will be along a stretch of the Cabin John Trunk Sewer just north of Interstate 495, near River Road. As of the date of this Plan, development interests with property upstream of the areas with

constraints have begun discussing with WSSC Water system improvements required to overcome these constraints in accordance with WSSC Water Regulation 11.165.

**Projected Needs** -- Projected future (year 2040) flows based on Round 8.1 forecasted population and other flow factors for the Cabin John Basin are summarized in Table 4-T10. This table presents projected flows from the Cabin John Basin to the MUPI-PI crossover system and the IMA limitations. As can be seen, the projected annual average flows from this basin will exceed the IMA limits. This should not be a major concern since flows into the PI from the Muddy Branch basin, upstream from the Cabin John sewer shed, are significantly reduced due to the diversion of flows to the expanded Seneca WRRF. Flows from the Seneca sewerage systems were previously routed through the Muddy Branch sewerage system to the PI.

<b>Table 4-T8: Future Wastewater Flows to the Maryland-Upper Potomac Interceptor (MUPI) and the Potomac Interceptor (PI) from the Cabin John Basin</b>					
Year		Cabin John Basin Flows			
		Average (MGD)		Peak (MGD)	
2040	Projected Flow		14.90		58.17
	IMA Limitation	MUPI	10.3	16.40	23.3
		PI	6.1		37
	Balance		+1.5		+2.13

Source: WSSC  
 Notes: 2040 projections (Round 8.1) are based on WSSC Water Sewer Model. Data include flows from the City of Rockville

As noted herein before, the Cabin John sewer basin was identified for improvements as outlined in Article 6 of the Consent Decree. The improvements required by the Sewer Repair, Replacement and Rehabilitation (SR3) Program are completed for the Cabin John Basin. As such, the subsequent Performance Assessment as required in Article 7 of the Consent Decree, is currently underway for this basin. Therefore, in the interim, WSSC Water is utilizing Regulation 11.165 to evaluate the impact of new development on the system. These system evaluations utilize the base system conditions at the time of the WSSC Water’s sewer model development and reevaluation as well as future system conditions. WSSC Water’s Planning Division will begin working on updating the basin hydraulic computer model for the Cabin John Basin shortly. Once completed, the updated model will be used to identify capacity constraints and solutions to mitigate.

Prior to beginning the work associated with the Consent Decree repairs, replacements, and rehabilitation, relief/augmentation to satisfy 2025 conditions were identified in the following areas:

- 3,300 feet of relief sewer along Cabin John Creek near River Road and the Capital Beltway (this relief sewer was constructed in relation to an upstream development project as described previously).

**I.C.1.A.iii. Rock Creek Basin:**

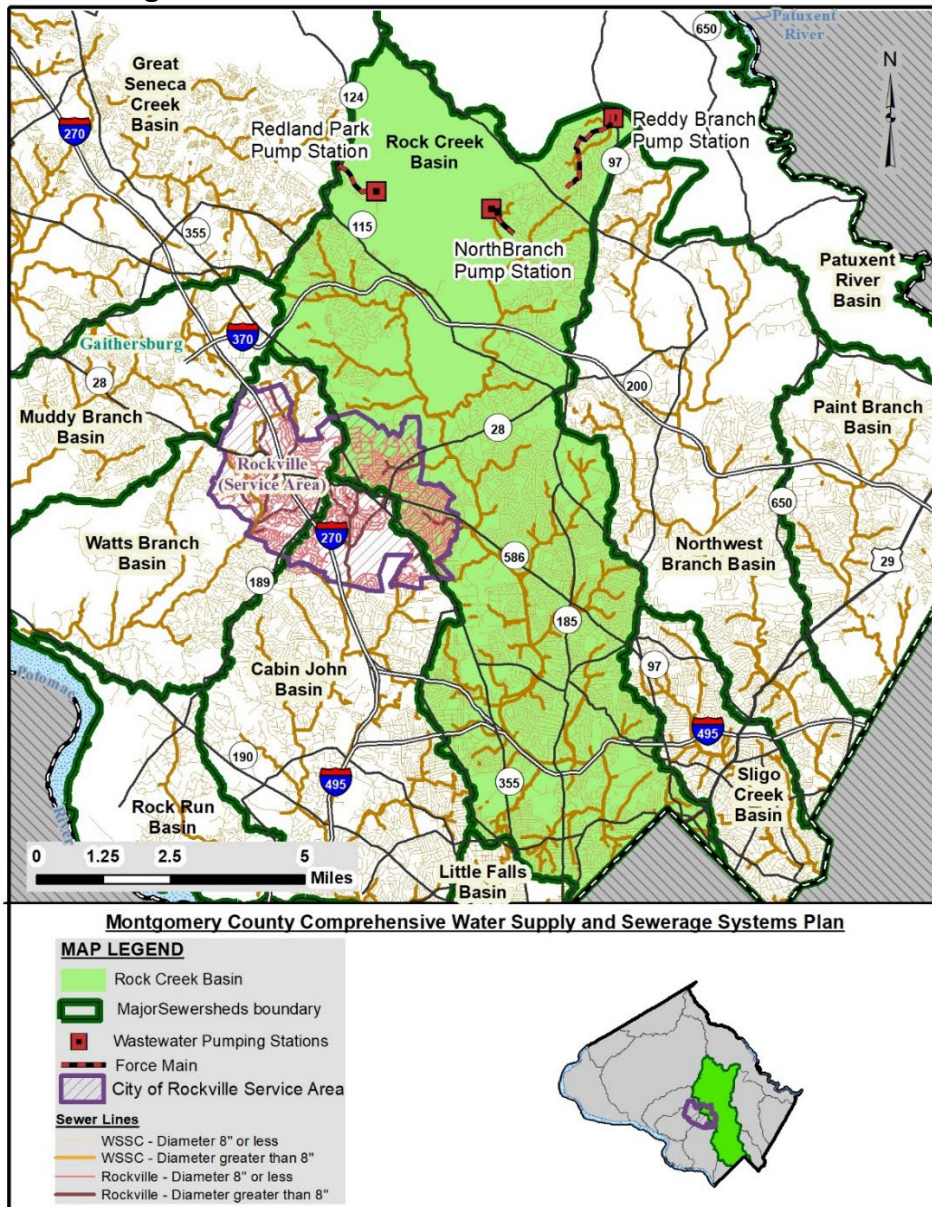
The Rock Creek basin is located in the southern and central parts of the County. The headwaters of Rock Creek originate in largely rural areas between Olney and Laytonsville. The stream flows generally south and enters the District of Columbia near Chevy Chase. The basin boundaries are roughly defined on the west by the Old Georgetown Road/Rockville Pike corridor and on the east by Georgia Avenue, and include portions of the following planning areas: Bethesda-Chevy Chase, Silver Spring, North Bethesda-Garrett Park, Kensington-Wheaton, Rockville, Aspen Hill, Olney, Gaithersburg, and the



Upper Rock Creek Watershed. Rock Creek is the most intensely developed sewer basin in Montgomery County.

**Existing Systems** -- The Rock Creek Trunk Sewers consist of two parallel gravity interceptor sewers which carry the accumulated wastewater from of the Montgomery County's portion of the Rock Creek Basin south into the District of Columbia and to the Upper Potomac Interceptor Relief Sewer and ultimately treated at the Blue Plains WWTP. The Rock Creek Basin boundary and the major sewer lines layout in this basin are shown in Figure 4-F13.

**Figure 4-F13: Rock Creek Basin Sewer Network**



Substantial amount of the County's current and anticipated development depends on the sewerage infrastructure in the Rock Creek Basin. The basin receives flows from much of the development and redevelopment planned for the Bethesda, Grosvenor, Nicholson, Rockville, and Shady Grove areas in the west and the Silver Spring, Wheaton, and Olney areas in the east.

The limited wastewater transmission capacity in the Rock Creek Trunk Sewers at the point where they enter the District of Columbia has been a major constraint in meeting the wastewater conveyance needs



in the Rock Creek Basin since the early 1980s. The 2012 IMA limits the peak flow from Montgomery County through the Rock Creek Basin to the Blue Plains WWTP at 56.6 MGD. The IMA also limits the trunk sewers' annual average flow to 33.5 MGD.

In 1983, the "Rock Creek Transmission Relief Facility Plan" provided for relief of existing surcharging and overflows in the Rock Creek sewers. This study recommended the construction of the Rock Creek Storage Facility, which WSSC Water built in 1991 just south of Randolph Road. This facility offloads and stores excess peak flows from the trunk sewers; the stored wastewater is gradually returned to the trunk sewers during times of lower flow. The storage facility provides flexibility in meeting the IMA peak flow limit of 56.6 MGD. It has been determined by WSSC Water that the Rock Creek Storage Facility provides an additional 24 MGD to the IMA peak flow limit of 56.6 MGD (1994 WSSC Water Strategic Sewer Study).

In addition to the pump station at the Rock Creek Storage Facility, there are three other operating pump stations in this basin and include Reddy Branch, North Branch, and Redland Park pump stations.

A portion of the wastewater generated in the Olney area in the Hawlings River (Patuxent River) Watershed is pumped into the Rock Creek Basin through the Reddy Branch WWPS, located just east of Brookeville. The North Branch Pump Station pumps flows from development located north of Bowie Mill Road into a gravity sewer main at Cashell Road, conveying those flows to the North Branch Trunk Sewer. This pump around was constructed to avoid extending the North Branch Trunk Sewer upstream through environmentally sensitive park land.

Based on current and future flows and other factors, WSSC Water regularly evaluates and categorizes all of its pump stations to allow for proper planning to handle expected wastewater flows. The latest WSSC Water's evaluation conducted in 2020, the Reddy Branch Pump Station has been classified under category "B". Category "B" pump stations have either been recently modified or are planned to be modified. Both the North Branch and Redland pump stations have been classified under category "A". Category A includes pump stations with the following conditions:

- Projected future peak flows are less than the tested safe pumping capacity
- The pump run time is less than 15 hours over the three-year period
- Capacity related overflows do not occur.

The current estimated flows and safe and maximum pumping capacities for the three pump stations in Rock Creek Basin are listed below.

Wastewater Pump Station	Average Dry Weather Flow (MGD) <sup>1</sup>	Estimated Peak Flow (MGD) <sup>2</sup>	Safe Capacity (MGD) <sup>3</sup>	Maximum Capacity (MGD) <sup>3</sup>
Rock Creek Storage Facility	0.00	0.00	N/A <sup>4</sup>	N/A <sup>4</sup>
Reddy Branch	0.828	2.735	2.16	3.04
North Branch	0.183	0.733	1.08	1.41

1: The average dry weather flows are estimated from pump station flow data (2017 to 2019)

2: The estimated peak flows are based on the Maryland Peak Flow Curve

3: The Safe and Maximum capacities are based pump tests conducted in 2019.

4: This is a storage facility used temporarily to store excess flows during high flow events. No testing data is available.

**Projected Needs** – Table 4-T9 summarizes projected flows from the Rock Creek Basin, based on Round 8.1 forecasted population and other flow factors, and the related IMA limitations at the District of Columbia line.

<b>Table 4-T9: Future Wastewater Flows to the Rock Creek Trunk Sewer</b>			
<b>Year</b>		<b>Average (MGD)</b>	<b>Peak (MGD)</b>
<b>2040</b>	Projected Flow	32.1	68.08
	IMA Limitation	33.5	56.6 (+24)
	Balance	+1.4	-12.52

Source: WSSC

Notes: - 2040 projections (Round 8.1) are based on WSSC Water Sewer Model.  
 - WSSC Water has assumed that the Rock Creek Storage Facility (WSSC Water Strategic Sewerage Study of 1994) provides an additional 24 MGD to the IMA peak flow limit of 56.6 MGD.  
 - Data include flows from the City of Rockville

As noted herein before, the Rock Creek sewer basin was identified for improvements as outlined in Article 6 of the Consent Decree. The improvements required by the Sewer Repair, Replacement and Rehabilitation (SR3) Program are completed for the Rock Creek Basin. As such, the subsequent Performance Assessment as required in Article 7 of the Consent Decree was completed in February 2021. WSSC Water’s Planning Division is currently working on updating the basin hydraulic computer model for the Rock Creek Basin. Once completed, the updated model will be used to identify capacity constraints and solutions to mitigate.

**I.C.1.A.iv. Little Falls Sewerage System:**

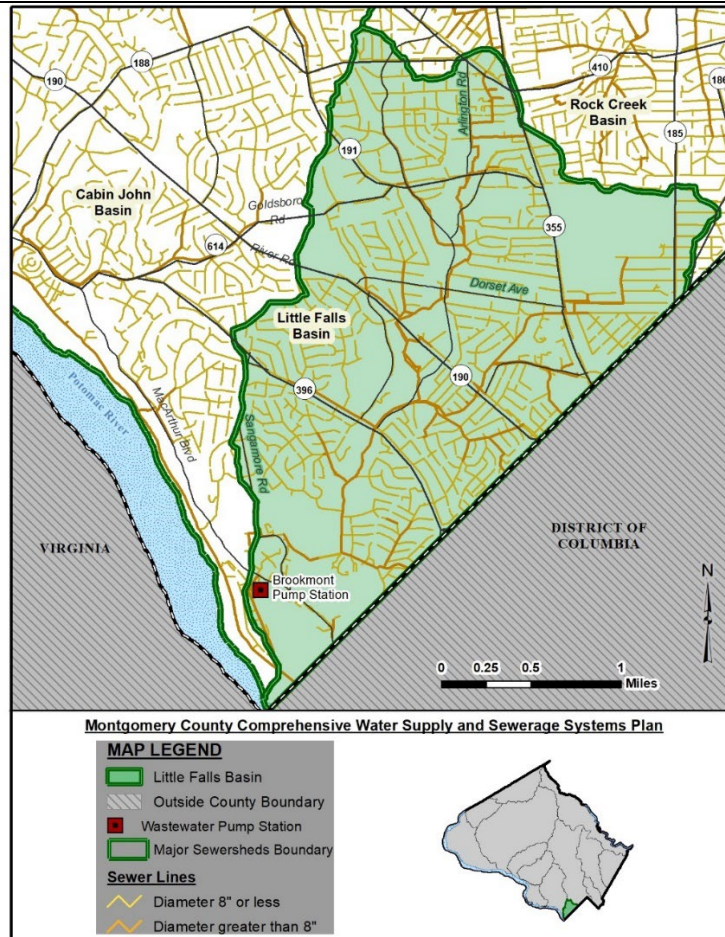
The Little Falls Basin is relatively small and substantially developed. The basin encompasses the southern portions of the communities of Bethesda and Chevy Chase, near the District of Columbia.

**Existing Systems** -- The Little Falls Trunk Sewer receives wastewater from the Little Falls basin and conveys it into the Upper Potomac Interceptor Relief Sewer (UPRIS) in the District of Columbia, where these flows are treated at the Blue Plains WWTP. Flows from the Little Falls Trunk Sewer into the UPRIS are regulated by the 2012 Blue Plains IMA. Figure 4-F14 shows the Little Falls Basin boundary and its major sewer lines.

Sewerage service is presently provided by a system of trunk sewer lines reaching up into the basin along Little Falls Branch, with a major extension north of Massachusetts Avenue along Willett Branch. The wastewater collection and conveyance facilities within the Little Falls Basin are adequate and there are no planned wastewater collection/conveyance projects or proposed system modifications.

- The Brookmont Pumping Station is used to divert wastewater flows into Little Falls Basin. Based on current and future flows and other factors, WSSC Water regularly evaluates and categorizes all of its pump stations to allow for proper planning to handle expected wastewater flows. The latest WSSC Water’s evaluation conducted in 2020, the Brookmont Pump Station was classified under category “B”. Category “B” pump stations have either been recently modified or are planned to be modified.

**Figure 4-F14: Little Falls Basin Sewer Network**



The current estimated flows and safe and maximum pumping capacities for the King Farm Pump Station are listed below.

Wastewater Pump Station	Average Dry Weather Flow (MGD) <sup>1</sup>	Estimated Peak Flow (MGD) <sup>2</sup>	Safe Capacity (MGD) <sup>3</sup>	Maximum Capacity (MGD) <sup>3</sup>
<b>Brookmont</b>	<b>0.003</b>	<b>0.013</b>	<b>0.08</b>	<b>0.10</b>

- 1: The average dry weather flows are estimated from pump station flow data (2017 to 2019)
- 2: The estimated peak flows are based on the Maryland Peak Flow Curve
- 3: The Safe and Maximum capacities are based on pump tests conducted in 2019

**Projected Needs** – Table 4-T10 summarizes projected flows, based on Round 8.1 forecasted population and other flow factors, and IMA flow restrictions for the Little Falls Basin.

Year		Average (MGD)	Peak (MGD)
<b>2040</b>	Projected Flow	5.06	19.88
	IMA Limitation	7.60	20.8
	Balance	+2.54	+0.92

Source: WSSC  
 Notes: - 2040 projections (Round 8.1) are based on WSSC Water Sewer Model.

As indicated in the preceding table, WSSC Water does not expect the annual average and peak flows from the Little Falls Basin to exceed the IMA limitations. Based on the latest WSSC Water wastewater

flow, it has been determined that the Little Falls trunk sewer has adequate capacity to receive the projected wastewater flows through 2040.

As noted herein before, the Little Falls sewer basin was identified for improvements as outlined in Article 6 of the Consent Decree. The improvements required by the Sewer Repair, Replacement and Rehabilitation (SR3) Program are still underway for the Little Falls Basin. As such, the subsequent Performance Assessment as required in Article 7 of the Consent Decree, will begin shortly for this basin. Therefore, in the interim, WSSC Water is utilizing its Standard Procedure REG-IFSM-EC-2016-007 to evaluate the impact of new development on the system. These system evaluations utilize the base system conditions at the time of the WSSC Water's sewer model development and reevaluation as well as future system conditions. WSSC Water's Planning Division will begin working on updating the basin hydraulic computer model for the Little Falls Basin shortly. Once completed, the updated model will be used to identify capacity constraints and solutions to mitigate.

#### **I.C.1.A.v. Anacostia Interceptor System:**

This sewerage system originated in the 1930's and is one of the oldest within the WSSD. Sewer service is presently provided to more than 80 percent of the Anacostia River Basin in Montgomery County, encompassing an area of about 39 square miles, and including communities in the following planning areas: Fairland - Beltsville, Colesville - White Oak, Cloverly - Norwood, Kemp Mill - Four Corners, Takoma Park, Silver Spring, Kensington - Wheaton, Aspen Hill, and Olney. Nearly all of the sewered portion of Eastern Montgomery County is situated within the upper reaches of the Anacostia River Basin. The Paint Branch sewer basin includes the watersheds of both Paint Branch and Little Paint Branch.

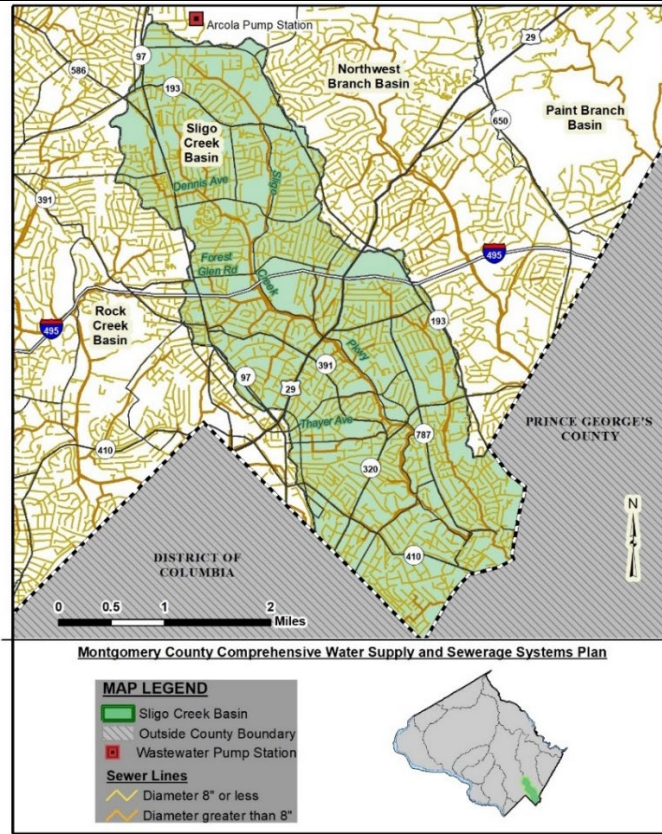
**Existing Systems** – The Anacostia Interceptor System receives wastewater from both Prince George's and Montgomery Counties. The wastewater collection system consists of a network of trunk sewers reaching up along Sligo Creek, and Long, Northwest, Little Northwest, Buckhorn, Hollywood, Paint, and Little Paint Branches. The wastewater flows by gravity down the basin through Prince George's County to the Anacostia Pumping Station near the District of Columbia adjacent to the Anacostia River. From there, the wastewater is pumped through a force main to a gravity sewer parallel to the Anacostia River, then on to the Blue Plains WWTP for treatment. WSSC Water's use of the tributaries to Anacostia Interceptor System is governed by both the 2012 IMA and the Bi-County Agreement.

Major sub-basins served by the Anacostia Interceptor System in Montgomery County include Paint Branch, Northwest Branch, and Sligo Creek. A brief description of the sewerage systems in each of these three sub-basins follows.

**I.C.1.A.v.a. Sligo Creek Basin** --The Sligo Creek Basin is relatively small and substantially developed, covering an area from downtown Wheaton south to downtown Silver Spring. The trunk sewer parallels Sligo Creek and enters the Prince George's County east of the Silver Spring commercial center. The boundaries of this basin is shown in Figure 4-F15.

The Arcola Pumping Station is the only wastewater pumping station used to divert wastewater flows into the Sligo Creek from the adjacent Northwest Branch Basin. Based on current and future flows and other factors, WSSC Water regularly evaluates and categorizes all of its pump stations to allow for proper planning to handle expected wastewater flows. The latest WSSC Water's evaluation conducted in 2020, the Arcola Pump Station was classified under category "B". Category "B" pump stations have either been recently modified or are planned to be modified.

#### **Figure 4-F15: Sligo Creek Basin Sewer network**



The current estimated flows and safe and maximum pumping capacities for the Arcola Pump Station are listed below.

Wastewater Pump Station	Average Dry Weather Flow (MGD) <sup>1</sup>	Estimated Peak Flow (MGD) <sup>2</sup>	Safe Capacity (MGD) <sup>3</sup>	Maximum Capacity (MGD) <sup>3</sup>
<b>Arcola</b>	<b>0.015</b>	<b>0.061</b>	<b>0.105</b>	<b>0.112</b>

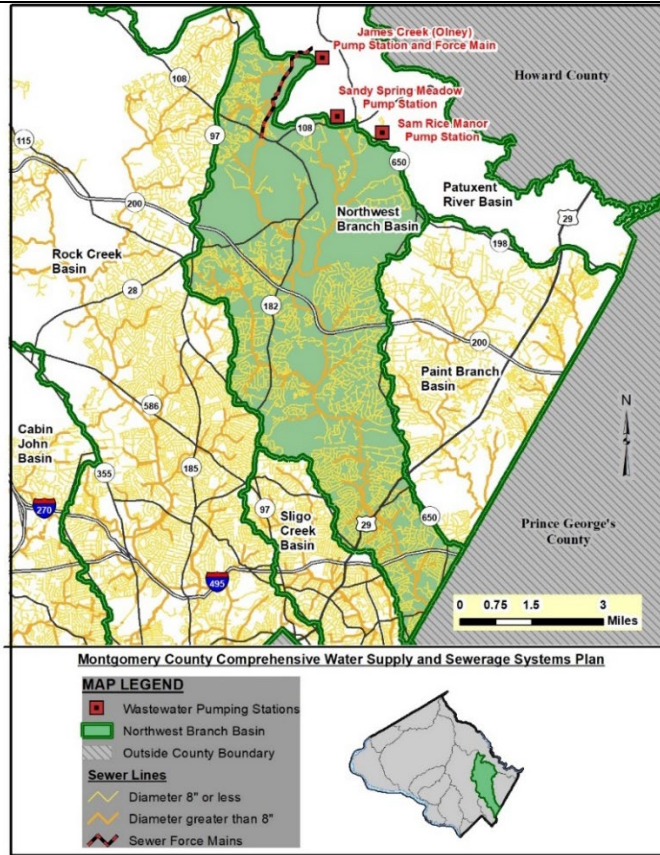
1: The average dry weather flows are estimated from pump station flow data (2017 to 2019)  
 2: The estimated peak flows are based on the Maryland Peak Flow Curve  
 3: The Safe and Maximum capacities are based on pump tests conducted in 2019.

**I.C.1.A.v.b. Northwest Branch Basin** -- The Northwest Branch Basin is situated in the eastern parts of the County between Rock Creek Basin on the West and the Paint Branch Basin on the East. The Basin includes good portions of Cloverly/Norwood (PA28) and Colesville/White Oaks (PA 33) Planning Areas and the eastern boundaries of this basin are roughly defined on the New Hampshire Avenue/MD 650. The headwaters of the Northwest Branch, a tributary to Anacostia River, originate in the upper parts of the basin and flows in southeasterly direction into the Prince George’s County. The Northwest Branch Basin is shown in Figure 4-F16.

In addition to the wastewater generated within the Northwest Branch watershed, the sewer system in this basin also receives wastewater flows pumped from other adjacent watersheds through three pumping stations. In the Olney Planning Area, the James Creek (Olney) WWPS pumps flows from the Hawlings River Watershed (from the area generally north of Route 108 and east of Georgia Avenue). In the Cloverly - Norwood Planning Area, flows are pumped from the Hawlings River Watershed (north of Route 108) through the Sandy Spring Meadows WWPS; flows are also pumped from the Patuxent River Watershed (northeast of New Hampshire Avenue) through the Sam Rice Manor WWPS.

**Figure 4-F16: Northwest Branch Basin Sewer Network**





Based on current and future flows and other factors, WSSC Water regularly evaluates and categorizes all of its pump stations to allow for proper planning to handle expected wastewater flows. The latest WSSC Water’s evaluation conducted in 2020. The Sam Rice WWPS was classified under Category “B”. Category “B” pump stations have either been recently modified or are planned to be modified. The Olney WWPS was classified under category “B-”. Category B- pump stations are designated as having deficient peak flows with the scope of the upgrades expanded to include associated force mains.

The Sandy Spring Meadows WWPS was classified under category “A”. Category A includes pump stations with the following conditions:

- Projected future peak flows are less than the tested safe pumping capacity
- The pump run time is less than 15 hours over the three year period
- Capacity related overflows do not occur.

The current estimated flows and safe and maximum pumping capacities for all three pump stations in Rock Creek Basin are listed below.

Wastewater Pump Station	Average Dry Weather Flow (MGD) <sup>1</sup>	Estimated Peak Flow (MGD) <sup>2</sup>	Safe Capacity (MGD) <sup>3</sup>	Maximum Capacity (MGD) <sup>3</sup>
<b>James Creek (Olney)</b>	<b>00.390</b>	<b>1.458</b>	<b>4.70</b>	<b>5.15</b>
<b>Sandy Spring Meadows</b>	<b>0.020</b>	<b>0.081</b>	<b>0.136</b>	<b>0.177</b>
<b>Sam Rice Manor</b>	<b>0.020</b>	<b>0.079</b>	<b>0.108</b>	<b>0.115</b>

1: The average dry weather flows are estimated from pump station flow data (2017 to 2019)

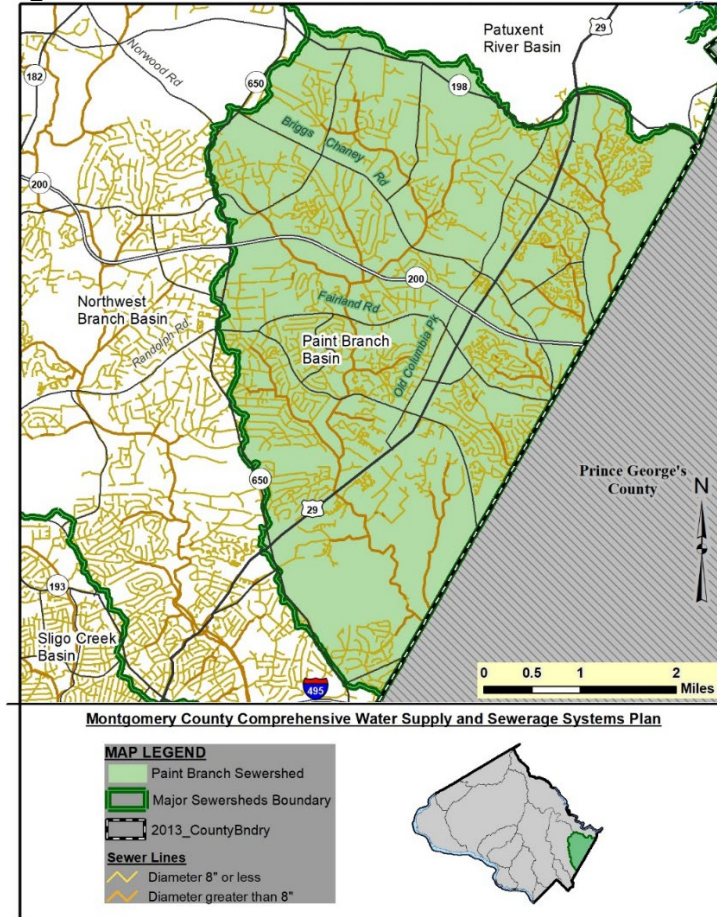
2: The estimated peak flows are based on the Maryland Peak Flow Curve

3: The Safe and Maximum capacities are based on pump tests conducted in 2019.

**I.C.1.A.v.c. Paint Branch Basin** -- The Paint Branch Trunk Sewer traverses much of the southeastern part of the Montgomery County. Trunk sewers parallel Paint Branch and its major

tributaries, including Little Paint Branch. The Paint Branch Trunk Sewer enters Prince George's County in the White Oak area. The Paint Branch sewer basin is shown in Figure 4-F17.

**Figure 4-F17: Paint Branch Basin Sewer Network**



**Projected Needs** -- The available sewer capacity in the Anacostia Interceptor System service area is shared between Prince George's and Montgomery Counties on a first come-first served basis as specified in the Bi-County Capacity Agreement. Projected annual average and peak flows in this basin, which includes flows from both counties, are compared to the IMA limitation in Table 4-T11.

Table 4-T11: Future Wastewater Flows from Anacostia River Basin			
Year		Average (MGD)	Peak (MGD)
2040	Projected Flow	68.90	185.00
	IMA Limitation	83.20	185
	Balance	+14.30	0.00

Source: WSSC Water  
 Notes: - 2040 projections (Round 8.1) are based on WSSC Water Sewer Model.

As indicated in the preceding table, the combined projected annual average flows from both Montgomery and Prince George's Counties in the Anacostia Interceptor system will not exceed the IMA limitation before 2040. WSSC Water's peak flow which is pumped into the DC system from the WSSC Water Anacostia Pumping Station in Prince George's County is constrained to a maximum of 199 MGD due to pressure limitations on the Anacostia Force Main within DC. The recently completed Anacostia



Storage facility (on the pumping station site) helps attenuate peak flows in order not to exceed the IMA limit of 199 MGD.

WSSC Water is utilizing its Standard Procedure, REG-IFSM-EC-2016-007 to evaluate the impact of new development on this basin system. These system evaluations utilize the base system conditions at the time of the WSSC Water's sewer model development and reevaluation as well as future system conditions.

**Sligo Creek Basin** -- Much of the development potential in Sligo Creek is limited to redevelopment of existing commercial areas, such as the downtown areas of Silver Spring and Wheaton. Although, the basin was identified for improvements as outlined in Article 6 of the Consent Decree, WSSC Water does not anticipate future sewage capacity constraints or overflows within Montgomery County.

**Northwest Branch Basin** – This basin is currently identified as a Potential Overflow Basin. A small length of gravity sewer (about 200 feet) is identified as having capacity constraints under projected future wet weather conditions. Currently, there are no planned CIP projects in this basin.

The Northwest Branch sewer basin was identified for improvements as outlined in Article 6 of the Consent Decree. The improvements required by the Sewer Repair, Replacement and Rehabilitation (SR3) Program are completed for the Northwest Branch Basin. As such, the subsequent Performance Assessment as required in Article 7 of the Consent Decree, will begin shortly for this basin.

**Paint Branch Basin** -- Major sewer lines tributary to Anacostia Interceptor System in this basin have adequate capacity at present, and there are no planned CIP projects in this basin. However, considerable growth is expected to occur in this area along the U.S. Route 29 corridor.

WSSC Water has determined through its sewer modeling that that 17,000 feet of sewer in the Paint Branch basin within Montgomery County will have capacity constraints under projected future wet weather flow conditions. As noted herein before, the Paint Branch sewer basin was identified for improvements as outlined in Article 6 of the Consent Decree. The improvements required by the Sewer Repair, Replacement and Rehabilitation (SR3) Program are still underway for the Paint Branch Basin. Since this work is not completed as of the update of this plan, as well as subsequent Performance Assessment as required in Article 7 of the Consent Decree, the impact of the improvements have yet to be determined

#### **Anacostia Storage Facility:**

Anacostia Storage Facility was constructed in June 2013 near the Anacostia No. 2 Wastewater Pump Station (WWPS) and has volume of 7 million gallons (MG). The facility was designed to store wastewater flows from the Anacostia interceptor systems in excess of 199 mgd limit, usually during significant wet weather events, to DC Water's wastewater system. The storage facility includes five storage cells. Weirs and sluice gates control the wastewater flow between cells. The facility is designed to use the head in the storage tank to drain a portion of wastewater flow through the force main to minimize re-pumping. A 48-inch influent line diverts the flow from and drains to the Anacostia No.2 WWPS 72-inch (east) force main from Cell 1 of the storage facility. A 30-inch effluent line east of the facility drains the remaining wastewater from the storage tanks to a 66-inch gravity sewer which redirects the flows to the wet well to be re-pumped. Valves on the influent and effluent lines control the flow to and from the storage facility.

#### **I.C.1.B. Blue Plains Service Area Treatment Facility:**

All the wastewater generated in the Blue Plains Service Area is treated at the Blue Plains Wastewater Treatment Plant (WWTP) located in Washington D.C. The District of Columbia Water and Sewer Authority

(DC WATER) owns, operates, maintains, and is responsible for the design and construction of all projects at the plant.

The Blue Plains WWTP has been the primary wastewater treatment facility for the Washington Metropolitan Area since its original construction in 1938. The facility has been improved and expanded over the years to provide better quality effluent and to increase capacity for population growth in the plant's service area. The principal jurisdictions using the Blue Plains facilities include: The District of Columbia; portions of Arlington, Fairfax and Loudoun Counties in Virginia; and most of Montgomery and Prince George's Counties in Maryland. The utilities serving these jurisdictions pay their proportionate share of capital and operating costs based on their treatment capacity allocation and actual flow to the plant. The use of this treatment plant is governed by the Blue Plains Intermunicipal Agreement (IMA) of 2012.

The Blue Plains WWTP receives approximately 80% of the wastewater generated in Montgomery County. As shown in Figure 4-F6, this service area encompasses much of the central and eastern part of the County which includes Muddy Branch, Rock Creek, Watts Branch, Cabin John Creek, Rock Run, Little Falls Branch, Northwest Branch, Paint Branch, and Sligo Creek Basins.

The current total annual average allocated capacity at the Blue Plains WWTP is 370 MGD, the design capacity of this plant. Table 4-T12 summarizes the actual flows received at Blue Plains during 2019 from each jurisdiction.

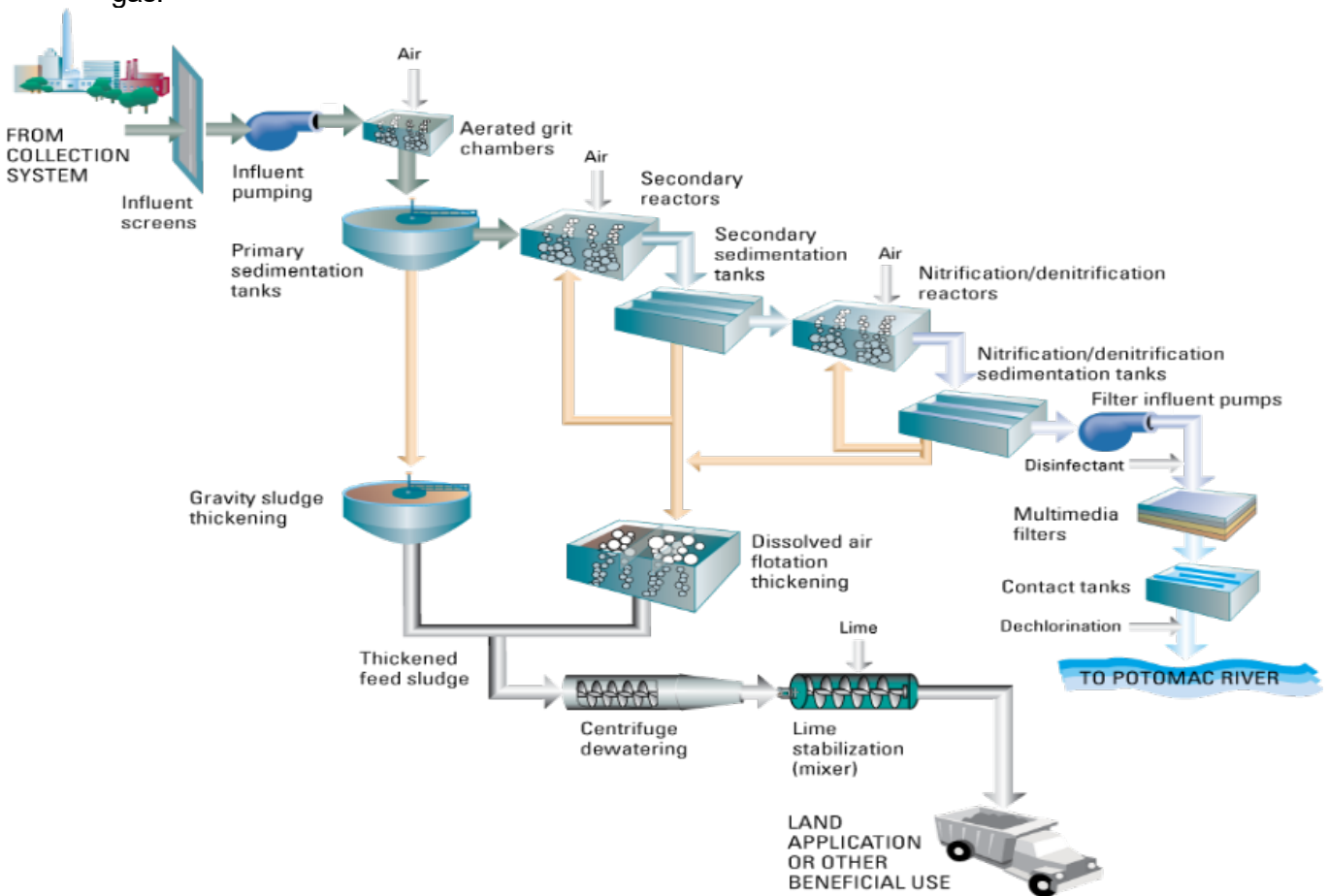
<b>Table 4-T12: 2019 Actual Daily Average Wastewater Flows to the Blue Plains WWTP and IMA Limitations</b>				
<b>2019</b>	<b>Total Flows to Blue Plains (MGD)</b>	<b>District of Columbia Flows (MGD)</b>	<b>WSSC Water Flows (MGD)</b>	<b>All Other Jurisdiction Flows (MGD)</b>
January	341.1	146.2	146.7	48.3
February	343.5	146.8	148.6	48.1
March	361.0	159.0	153.1	49.0
April	307.5	134.0	129.0	44.5
May	331.8	151.3	131.9	48.6
June	298.3	138.0	118.2	42.1
July	310.5	152.9	115.1	42.5
August	280.2	135.4	104.8	39.9
September	256.3	105.6	110.5	40.2
October	266.9	121.1	104.8	40.9
November	258.3	101.0	115.5	41.9
December	270.8	119.8	107.7	43.3
<b>Annual Daily Average</b>	<b>302.2</b>	<b>134.2</b>	<b>123.8</b>	<b>44.1</b>
<b>IMA Limitation</b>	<b>370.0</b>	<b>152.5</b>	<b>169.6</b>	<b>47.9</b>

Source: WSSC  
 Notes: 1- WSSC Water use of allocated flow capacity is limited to 163.6 MGD due to diversion of nitrogen and phosphorus load allocations (loads associated with 6 MGD) to the WSSC Water's Seneca Water resource recovery facility.  
 2- The Allocated Flow Capacity of 47.9 MGD for other jurisdiction include wastewater from Fairfax and Loudoun counties, Dulles Airport, Town of Vienna, and other small users.

The unit processes employed at the Blue Plains WWTP includes the followings and are shown schematically below.

- **Primary Treatment:** Screening, grit removal, primary clarification with metal salt addition for phosphorus removal

- **Secondary Treatment:** Activated sludge, addition of metal salts for phosphorus removal and secondary clarification
- **Advanced Treatment:** Nitrification with chemical addition, final clarification and filtration, denitrification
- **Disinfection:** Chlorination with sodium hypochlorite
- **Dechlorination:** Sulfur Dioxide
- **Solids Conditioning:** Centrifuge and belt filter dewatering
- **Solids Handling:** Land application by outside contractors and incineration at Fairfax County. Also, recent additions to Solids Handling include:
  - Thermal Hydrolysis – the first application in the U.S., and largest in the world;
  - Anaerobic Digestion – resulting in a 50% reduction and improvement to Class A of residual biosolids; and;
  - Combustion Turbines – generating 30% of the WWTP’s electric power needs from the digester gas.

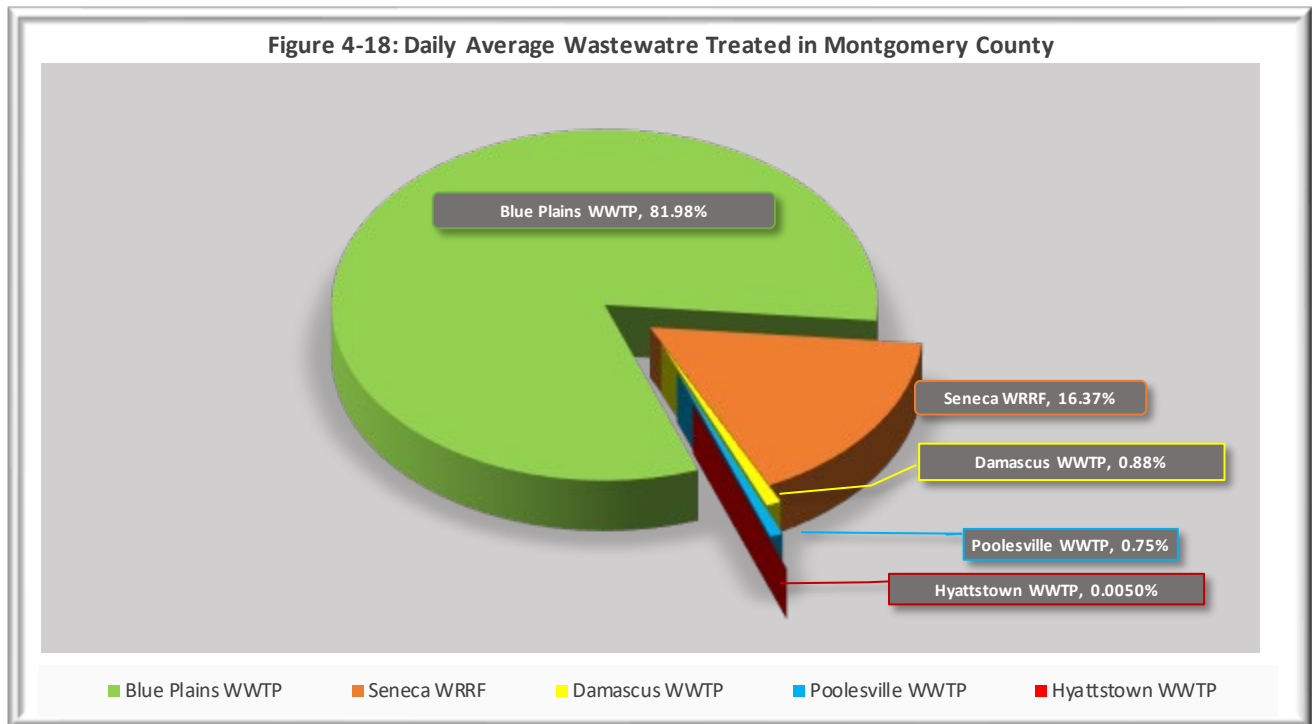


A summary of capital projects planned and currently underway to upgrade and expand the wastewater treatment plants serving the County and/or to address facility maintenance needs are listed in the current CIP budget document and are available through WSSC Water’s budget webpage at: <https://www.wsscwater.com/budget>.

Based on data from all five publicly owned wastewater treatment plants serving Montgomery County, as presented in Table 4-T13, the approximate daily average of wastewater generated in Montgomery County during the past few years has been about 90 MGD. ((It should be noted that WSSC Water refers to its wastewater treatment plants (WWTP) as water resource recovery facilities (WRRF). As shown in Figure 4-F18, the Blue Plains WWTP receives approximately 85 percent of all community-system wastewater generated in Montgomery County.

Table 4-T13: Wastewater Generated in Montgomery County in 2019*		
Service Area	Treatment Facility	Daily Average Flow Treated (MGD)
Blue Plains	Blue Plains WWTP	74.59**
Seneca	Seneca WRRF	14.899
Damascus	Damascus WRRF	0.803
Hyattstown	Hyattstown WRRF	0.004991
Poolesville	Poolesville WWTP	0.688
<b>TOTAL</b>		<b>90.985</b>

\* Community systems only.  
 \*\* Montgomery County's flows to Blue Plains WWTP has been approximated within 5% margin of error. The main reason for this approximation is that sewersheds (Anacostia) within Blue Plains Service Area receive wastewater flows from both Montgomery and Prince George's counties.  
 (It should be noted that WSSC Water refers to its wastewater treatment plants (WWTP) as water resource recovery facilities (WRRF).



**I.C.1.B.i. Blue Plains Service Area Projected Wastewater Treatment Needs:**

Projected flows based on forecasted population and other flow factors for Blue Plains service area are summarized in Table 4-T14. This data, produced by WSSC, is based on COG's Round 9.1 Cooperative demographic forecasts and WSSC Water's latest wastewater flow factors. As shown in this table, the County's projected wastewater treatment needs within the Blue Plains service area will be met well beyond the year 2040.

<b>Table 4-T14: Projected Flows and Available Treatment Capacity in the Blue Plains Service Area</b>				
<b>Sewer Basin</b>	<b>Projected Average Flows (mgd)<sup>1</sup></b>			
	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>
Anacostia <sup>2</sup>	65.1	67.3	70.1	71.8
Cabin John <sup>3</sup>	14.8	15.1	15.4	15.8
Little Falls	5.32	5.58	5.68	5.73
Muddy Branch	7.52	7.82	8.22	8.98
Rock Creek <sup>3</sup>	32.4	34.7	35.8	37.3
Rock Run	1.09	1.09	1.11	1.11
Watts Branch <sup>3</sup>	4.66	4.87	5.08	5.21
Other Prince George's County Flows <sup>4</sup>	7.43	7.60	7.79	8.05
<b>TOTAL <sup>5</sup></b>	<b>138.3</b>	<b>144.1</b>	<b>149.1</b>	<b>153.9</b>
<b>Blue Plains WWTP</b>	<b>WSSC Water Allocated Treatment Capacity (mgd)</b>			
	<b>169.6</b>	<b>169.6</b>	<b>169.6</b>	<b>169.6</b>
	<b>WSSC Water Available Treatment Capacity (mgd)</b>			
	<b>31.3</b>	<b>25.5</b>	<b>20.5</b>	<b>15.7</b>

1 - Projected Average Flows based on WSSC Water sanitary sewer model and MWGOG Round 9.1 Demographic Projections  
 2 - Anacostia Flows include flows from Prince George's County  
 3 - Includes flows from the City of Rockville  
 4 - Includes flow from Oxon Run sewer basin  
 5 - Does not include flows from smaller basins directly connected to the Potomac Interceptor

**Plan Recommendation: WSSC Water - IMA Allocated Flow Capacity and Related Nitrogen and Phosphorus Load Allocations**

WSSC Water use of IMA allocated flow capacity of 169.6 MGD at the Blue Plains Wastewater Treatment Plant has been reduced to 163.6 MGD due to diversion of nitrogen and phosphorus load allocations (loads associated with 6 MGD) at the WSSC Water's Seneca Water Resource Recovery Facility. WSSC Water should initiate a process to explore the possibilities of restoring the full WSSC Water's allocated capacity in the Blue Plains Wastewater Treatment Plant.

**I.C.2. Seneca WRRF Service Area:**

The Seneca Service Area includes substantial portions of the Great Seneca Creek and Little Seneca Creek watersheds and serves the communities of Gaithersburg, Germantown and Clarksburg (see Figure 4-F19). The Great Seneca Creek watershed is the largest watershed in Montgomery County with a drainage area of approximately 128 square miles. A rolling, hilly topography is characteristic throughout this drainage basin and steep slopes are found along some of the principal stream valleys. The I-270 corridor is the major development corridor extending from Bethesda to Clarksburg. For the

most part, the areas within the watershed outside the I-270 corridor are low density residential and agricultural land uses, and are largely served by individual, on-site septic systems.

Until 2003, most of the wastewater generated in Seneca Basin was conveyed to the Blue Plains WWTP for treatment via a pumpover to the Muddy Branch sewerage system and was technically considered as part of the Blue Plains Service Area. The expansion of the Seneca WRRF from 5.0 MGD to 20.0 MGD provided for the treatment of all the wastewater generated in this basin and the transfer of flows to Blue Plains WWTP was discontinued. The facility design for Seneca WRRF expanded capacity to 26.0 MGD. This was enabled by a transfer of 6 MGD of nitrogen and phosphorus load allocation from WSSC Water's allocation at the Blue Plains WWTP.

The removal of Seneca flows from the Blue Plains service area provided many benefits for the sewerage systems in Montgomery County and the Washington Suburban Sanitary District (WSSD). These benefits include:

- Minimizing the length of new and relief sewers required, with associated environmental and community benefits.
- Alleviating capacity constraints in the Muddy Branch sewer system.
- Relieving capacity and flow limitations in the Potomac Interceptor.

#### **II.C.2.A. Collection and Conveyance Systems:**

Approximately 25 percent of the Seneca Creek Basin is presently sewered. In accordance with adopted land use master plans, approximately 35 percent of the basin will ultimately be sewered. Sewerage service is presently provided by a system of trunk sewers which reaches up into the Basin along Great Seneca Creek and Long Draught, Whetstone, Cabin, and Gunners Branches. The Seneca Creek Basin boundary and the sewerage system layout in the Great Seneca portion of the Seneca Creek Basin are shown in Figure 4-F19.

Sewers also extend upstream from the Little Seneca Pumping Station along Little Seneca Creek. The Churchill Pumping Station also serves a portion of this basin. The Redland Park WWPS and Force Main pump flows from the Sheffield (Redland Park) subdivision, located in the upper part of the Rock Creek Watershed, into the Seneca Creek Basin near the County Airpark. The Redland Park Pump Station serves approximately 150 homes in the Redland Park Subdivision and Lindburgh Drive.

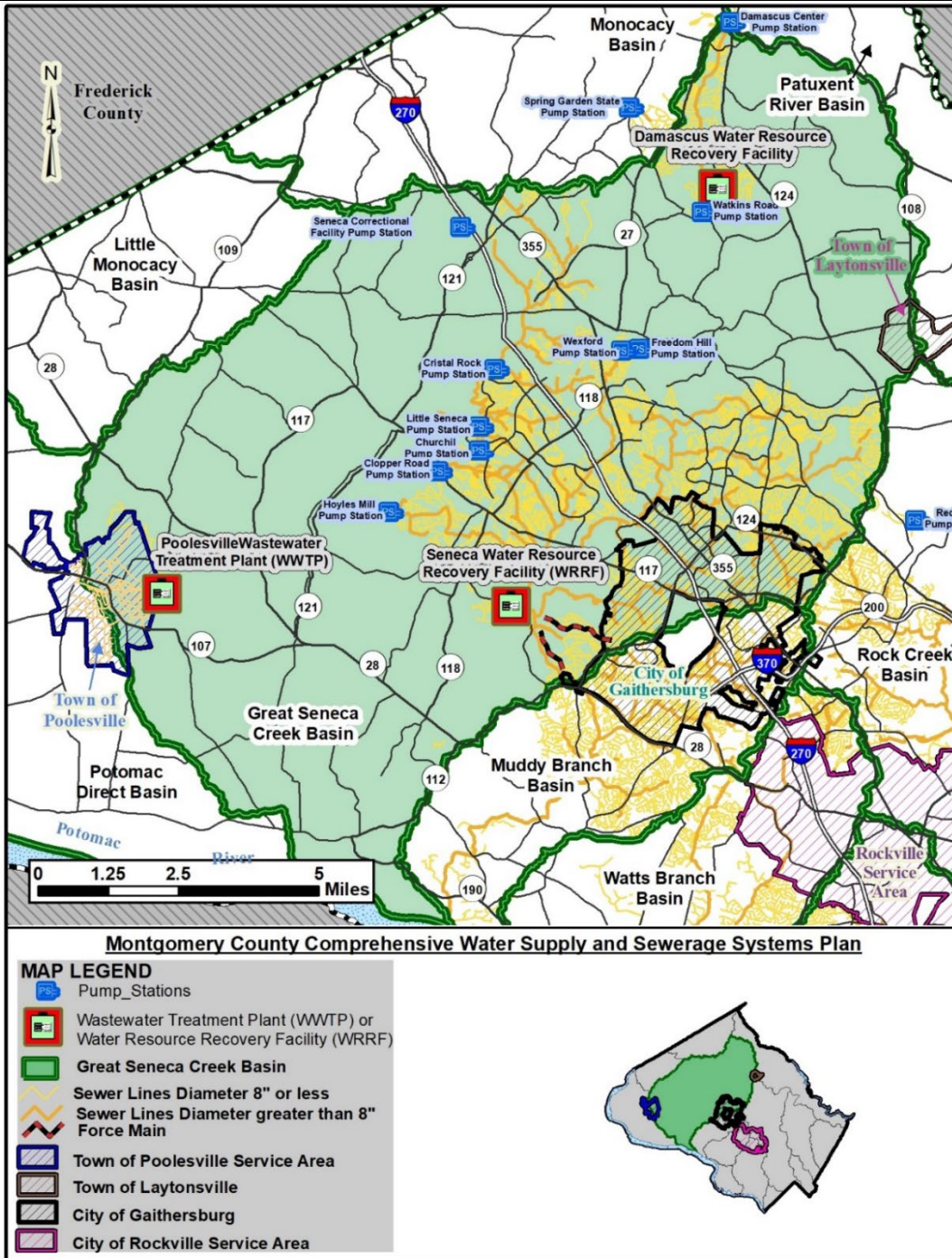
Sewers extend to serve recent development in the Clarksburg Area along Cabin Branch. The new Cabin Branch Pump Station went online in September 2019. The pumping station serves approximately 400 homes along Clarksburg Road, west of Cabin Branch. The pumping station has a design capacity of 0.9 MGD.

Based on current and future flows and other factors, WSSC Water regularly evaluates and categorizes all of its pump stations to allow for proper planning to handle expected wastewater flows. The latest WSSC Water's evaluation conducted in 2020, all the wastewater pumping stations except the Churchill and Seneca Correction Facility Pumping stations diverting flow into or out of the Seneca Service Area have been classified under category "A". Category A includes pump stations with the following conditions:

- Projected peak flows are less than the tested safe pumping capacity
- The pump run time is less than 15 hours over the three-year period
- Capacity related overflows do not occur.

#### **Figure 4 F19: Seneca Creek Basin Sewer Network**





The Churchill WWPS has been classified under Category “B-”. Category B- pump stations are designated as having deficient peak flows with the scope of the upgrades expanded to include associated force mains.

The Crystal Rock Pump Station was constructed to divert flows from the Little Seneca Pump Station. However, flows at the Seneca Pump Station have not increased to make operation of the Crystal Rock Pump Station necessary as of this update. The Seneca Correctional Facility Wastewater Pumping Stations was classified under Category “A-.” This classification was earned because estimated peak flows are less than the safe capacity but all pumps were in operation for more than 30 hours total over

the evaluation period. The current estimated flows and safe and maximum pumping capacities for all the pump stations in Seneca Service Area are listed below.

Wastewater Pump Station	Average Dry Weather Flow (MGD) <sup>1</sup>	Estimated Peak Flow (MGD) <sup>2</sup>	Safe Capacity (MGD) <sup>3</sup>	Maximum Capacity (MGD) <sup>3</sup>
Cabin Branch	----	----	1.030	1.515
Churchill	0.190	0.758	1.00	1.60
Clopper Road	0.374	1.409	1.80	3.20
Crystal Rock <sup>4</sup>	--	----	23.85	26.10
Freedom Hill	0.021	0.085	0.30	0.45
Hoyles Mill	0.218	0.871	1.86	2.52
Little Seneca	3.688	9.495	8.20	9.50
Redland Park	0.027	0.106	0.235	0.302
Seneca Correctional Center	0.065	0.259	0.80	1.00
Wexford	0.120	0.480	0.98	1.25

1: The average dry weather flows are estimated from pump station flow data (2017 to 2019)

2: The estimated peak flows are based on the Maryland Peak Flow Curve

3: The Safe and Maximum capacities are based on pump tests conducted in 2019

4: The Crystal Rock Pump Station is constructed but not operational yet

5: The Cabin John WWPS was put into service in September 2019. Limited flow data was available for this pump station.

The basin has been one of the most active basins in the County in providing new wastewater services during recent years. A summary of the Seneca Creek sewerage system projects approved by the County in the WSSC Water Capital Improvements Program (CIP) for the current fiscal year is provided in Appendix A; these projects address wastewater conveyance constraints/needs and improve service in the Seneca Creek Basin.

WSSC Water’s Planning Division is currently working on updating the basin hydraulic computer model for the Seneca Creek Basin. Once completed, the updated model will be used to identify capacity constraints and solutions to mitigate.

Projected flows based on forecasted population and other flow factors for the Seneca Creek Basin are summarized in Table 4-T15. These projections have been developed by the WSSC Water and are based on Round 9.0 Cooperative demographic forecasts.

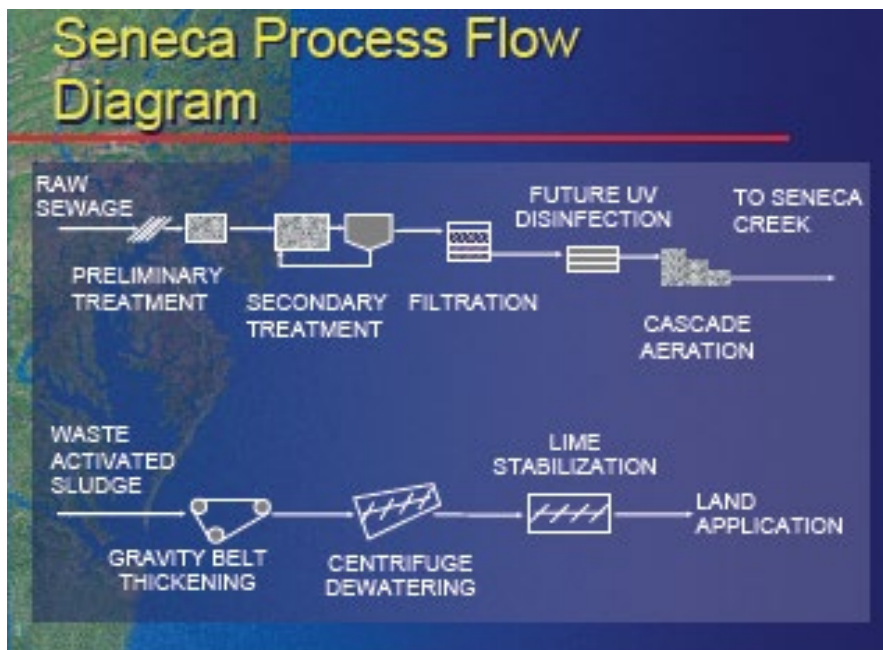
Table 4-T15: Future Wastewater Flows from the Seneca Creek Basin	
Year	Annual Average Flow (MGD)
2015	14.89
2045	20.45

**I.C.2.B. Seneca Treatment Facilities:**

Since January 2015, the Seneca WRRF is now designed as an ENR (Enhanced Nutrient Removal) Facility with a 26 MGD ultimate capacity employing the following unit processes:

- Preliminary treatment: Course bar screening at the Influent Pumping Facility (IPF), and fine bar screening and grit removal at the Preliminary Treatment Facility (PTF)

- Advanced treatment: ENR (enhanced nutrient removal) utilizing the Bardenpho process with Methanol Addition (External Carbon) for Nitrification/De-Nitrification (5 basins). Phosphorus removal by chemical addition of Aluminum Sulfate (Alum).
- Final Clarification (4 clarifiers). Dual media (sand and gravel) gravity filtration (20 filters). Post aeration of final effluent
- Disinfection: Provided by Ultraviolet Light (UV) system (added in 2007 replacing chlorination/de-chlorination)
- Chemical Addition: Methanol for Nitrogen removal. Aluminum Sulfate for Phosphorus removal.
- Alkalinity adjustment and pH control if needed (acid and caustic addition)
- Solids Conditioning: Gravity Belt thickeners & centrifuge dewatering (both with polymer addition). Stabilization by mixing with Lime (Calcium Oxide).
- Solids Disposal: Land application by contractor of approximately 1700 wet tons per month average.



**Plan Recommendation: Limit Pumpovers from Other Basins into Seneca to Preserve the Projected Treatment Capacity at the Seneca WRRF**

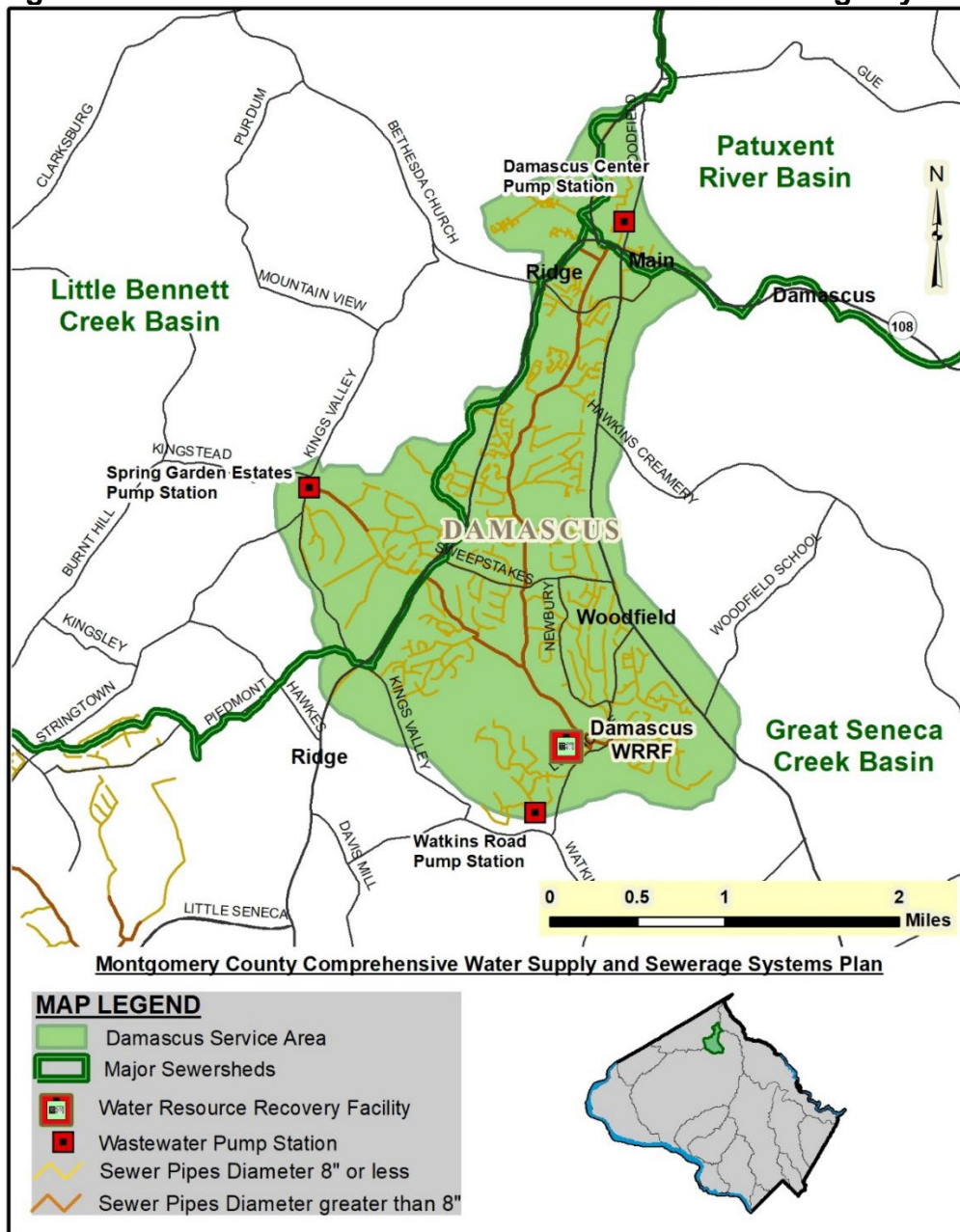
Unlike some other major sewersheds in the County such as Rock Creek or Northwest Branch, the Seneca Creek Basin does not receive significant inflows of wastewater pumped in from other watersheds. In order to preserve projected treatment at the Seneca WRRF for proposed development within the basin, this plan proposes to continue this policy. However, small-scale pumpovers which do not significantly or cumulatively affect treatment capacity, such as the Redland Park project, may occur. This policy would be reevaluated as part of any future analysis of County's long-term wastewater treatment needs.

**I.C.3. Damascus WRRF Service Area:**

The Damascus Service Area is centered along the ridges of three major drainage basins in upper Montgomery County which include the headwaters portions of Seneca Creek, Patuxent River, and the Monocacy watersheds. Even though most of the Damascus Service Area is within the Seneca Creek Basin, it is not connected to the sewer network that drains into the Seneca WRRF system because of considerable distance between Damascus and Germantown. Most of the existing service area lies within the Magruder Branch Valley between Routes 27 and 124. The treatment plant and sewerage system are shown in Figure 4-F20.



**Figure 4-F20: Damascus WRRF Service Area and Sewerage System**



The Damascus sewerage system is owned and operated by the WSSC Water and therefore, sewerage system planning, financing, and other associated programs/policies in Damascus service area are generally identical to those of the Washington Suburban Sanitary District.

**I.C.3.A. Damascus Collection and Conveyance Systems:**

Much of the sewerage system in Damascus Service Area was constructed in early 1970's. The Magruder Branch Trunk Sewer transports wastewater from the collection system to the Damascus Water Resource Recovery Facility (WRRF). The trunk sewer follows Magruder Branch from near Main Street in the Damascus commercial center downstream to the Damascus WRRF influent pump station, located near Log House Road. The trunk sewer capacity varies along its length from 3.25 MGD to 18.24 MGD (Damascus Sewerage Facility Plan). The influent pumping station which conveys the collected wastewater into the treatment plant has a 5.0 MGD capacity (Little Seneca Creek Sewerage Facility Plan, 1982). These capacities are consistent with the peak flow needs of the system.

Three wastewater pumping stations convey flows from adjacent watersheds into the Damascus sewerage system or directly to the Damascus WRRF. The Spring Garden WWPS pumps sewage flows generated in the Little Bennett Creek watershed on the west side of Damascus. The Damascus Center WWPS pumps flows generated in the Patuxent River watershed to the north of the Damascus commercial area. The Watkins Road WWPS pumps flows generated in the Wildcat Branch sub-watershed of Great Seneca Creek to the Damascus WRRF. Based on current and future flows and other factors, WSSC Water regularly evaluates and categorizes all of its pump stations to allow for proper planning to handle expected wastewater flows. The latest WSSC Water’s evaluation conducted in 2020, the Spring Gardens Estates and Damascus Center pump stations have been classified under category “B”. Category “B” pump stations have either been recently modified or are planned to be modified. The other pump station (Watkins Road pump station) diverting flows to the Damascus sewerage systems has been classified under category “A-”. Category A includes pump stations with the following conditions:

- Projected future peak flows are less than the tested safe pumping capacity
- The pump run time is less than 15 hours over the three year period
- Capacity related overflows do not occur.

Category “A-” pump stations have estimated peak flows less than the safe capacity.

The current estimated flows and safe and maximum pumping capacities for all the three pump stations are listed below.

Wastewater Pump Station	Average Dry Weather Flow (MGD) <sup>1</sup>	Safe Capacity (MGD) <sup>3</sup>	Maximum Capacity (MGD) <sup>3</sup>
Damascus Center	0.032	0.31	0.442
Spring Gardens Estates	0.071	0.550	0.68
Watkins Road	0.018	0.134	0.169

1: The average dry weather flows are estimated from pump station flow data (2017 to 2019)

2: The estimated peak flows are based on the Maryland Peak Flow Curve

3: The Safe and Maximum capacities are based on pump tests conducted in 2019.

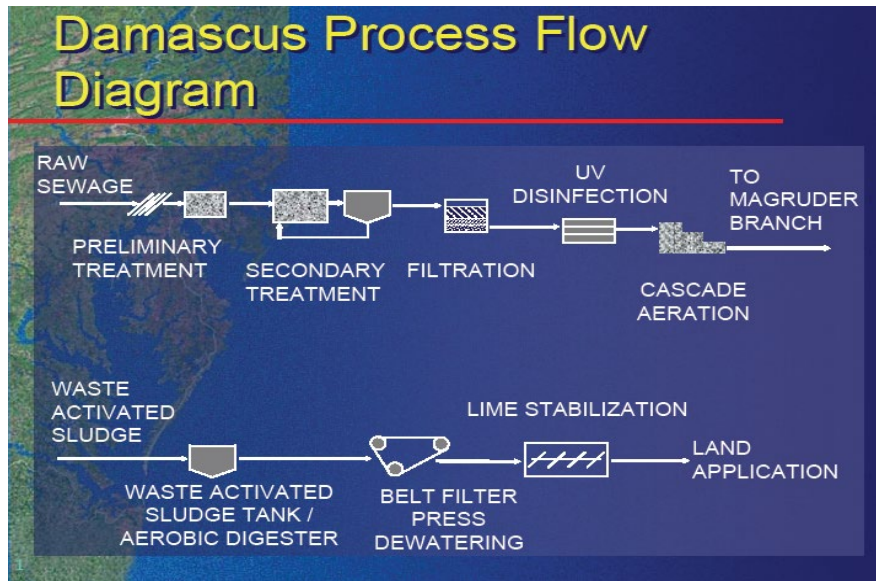
The Damascus service area is currently identified as an Adequate Capacity Basin. Due to capacity concerns, the existing Spring Gardens Estates Wastewater Pumping Station and associated force main will be replaced. Once site selection for the pumping station is complete, preliminary design for the pumping station and force main will be completed. Also, preliminary design for the replacement of the existing Damascus Center WWPS and force main is underway. The existing pump station and force main were acquired and modified by WSSC Water some years ago after original implementation as an on-site system for the Damascus Shopping Center. The existing pump station and force main will be relocated and replaced. WSSC Water is also utilizing its Standard Procedure REG-IFSM-EC-2016-007 to evaluate the impact of new development on the system. These system evaluations utilize the base system conditions at the time of the WSSC Water’s sewer model development and reevaluation as well as future system conditions.

**I.C.3.B. Damascus Treatment Facilities:**

The Damascus WRRF is located approximately six miles upstream of the Great Seneca Creek Trunk Sewer. The original 0.75-MGD Damascus WRRF was built in 1974 as a temporary, secondary treatment plant to replace poorly functioning septic systems and allow new commercial and residential development in the area. In 1979 the plant was upgraded to include filtration and tertiary processes for the removal of phosphorus. In 1990, to provide additional treatment as Damascus grew and flow increased, the plant was re-rated by MDE to a 0.90 MGD facility.

To provide adequate treatment capacity for future growth, the “Damascus Area Facilities Plan” in 1989 identified the need for additional treatment capacity at the Damascus WRRF and recommended that the interim plant be replaced with a permanent facility with an expanded average daily flow of 1.5 MGD. The new 1.5 MGD plant, completed in 1999, provides treatment capacity for the Damascus Service Area. Since January 2014, Damascus WRRF is now designed as a 1.5 mgd capacity ENR (Enhanced Nutrient Removal) facility. The new plant employs the following treatment processes:

- Preliminary treatment: Channel grinders at the Influent Pumping Facility (IPF), and fine bar screening and grit removal at the Preliminary Treatment Facility (PTF)
- Secondary Treatment: Extended aeration (4 aeration basins), Bardenpho (MLE), Activated Sludge Process, and Secondary Clarification (2 clarifiers)
- Advanced treatment: ENR (enhanced nutrient removal) utilizing the Bardenpho process with external carbon addition for Nitrification/De-Nitrification (4 basins). Phosphorus removal by chemical addition of Aluminum Sulfate (Alum). Final Clarification (2 clarifiers). Dual media (sand and gravel) gravity filtration (4 filters). Post aeration of final effluent
- Disinfection: Ultraviolet Light (UV) system
- Chemical Addition: External Carbon for Nitrogen removal. Aluminum Sulfate for Phosphorus removal. Alkalinity adjustment and pH control if needed (acid and caustic addition)
- Solids Conditioning: Belt Filter Press dewatering (with polymer addition). Stabilization by mixing with Lime (Calcium Oxide).
- Solids Disposal: Land application by contractor of approximately 90 wet tons per month average



Sewage collection and treatment needs in the Damascus service area are provided based on anticipated development and land use patterns recommended in the Damascus Master Plan. WSSC Water evaluated long term (year 2010) wastewater collection and treatment needs in this service area in 1983 through the “Damascus Sewerage Study”. The study concluded that the collection and conveyance systems in the Damascus service area have adequate capacity to handle the projected flows at least through the year 2010. In 1989, WSSC Water conducted the “Damascus Sewerage Facility Plan,” estimating the projected 2010 annual average and peak wet weather wastewater flows for the Damascus service area to be approximately 1.50 MGD and 4.3 MGD, respectively. The findings were based on the existing flow factors and the M-NCPPC Intermediate Fall 1986 Population Forecast.

Projected flows based on demographic forecasts and other flow factors for the Damascus Service Area indicate that existing treatment facility will handle all expected wastewater flows from this service area for the foreseeable future.



**I.C.4. Hyattstown WRRF Service Area:**

The Hyattstown Service Area includes the Hyattstown Historic District, located along Frederick Road (Route 355) between Hyattstown Mill Road and Frederick County. The Hyattstown community consists of approximately fifty residential and commercial structures. In 1997, Montgomery County and WSSC Water agreed to build a community wastewater collection and treatment system to resolve chronic, long-term public health problems in Hyattstown resulting from failed septic systems. This sewerage system was primarily intended to be limited to the existing historic Hyattstown community, with an allowance for some growth within this area in conformance with the existing zoning and historic district designation. In 1998, the Montgomery County Council also approved community service for the Hyatt Center. Portions of this property, which abut the historic district, are located in both Montgomery and Frederick Counties, and the shopping center itself is located in Frederick County. The County Council approved sewer service for this site located outside Hyattstown historic district, due to the potential for this facility's septic systems to contaminate domestic wells in Hyattstown located downgrade from the shopping center. WSSC Water completed construction of the treatment plant in 1999.

**I.C.4.A. Collection and Conveyance System:**

The wastewater collection system uses a conventional gravity sewer line located primarily within the existing right-of-way of Frederick Road (Route 355) and consists of approximately 2,500 feet of 8-inch diameter PVC piping. This system will handle all expected wastewater flows from the Hyattstown community for the foreseeable future.

**I.C.4.B. Treatment Facility:**

The Hyattstown WRRF consists of a prefabricated, 15,000 gallons per day (gpd) package treatment plant with extended aeration that discharges treated effluent to Little Bennett Creek. The construction of the treatment facility was completed in 1998. The existing treatment facility will handle all expected wastewater flows from this sewerage system for the foreseeable future.

Hyattstown WRRF is a small packaged Secondary Treatment plant designed for 15,000 gallons per day and typically averages about 5,000 to 6,000 gallons per day. The new plant employs the following treatment processes:

- Preliminary treatment: Course bar screen and Basket Strainer before grinder pumps
- Secondary Treatment: Extended Aeration Activated Sludge Process (2 basins), with Secondary Clarification
- Disinfection: Ultraviolet Light (UV) system
- Solids Disposal: Liquid Solids stored on site, pumped out & transferred to Damascus WRRF for solids processing in 4,000 gallon loads about every other month.

**II. ROCKVILLE SERVICE AREA:**

The City of Rockville owns and operates an independent sewerage collection system within the corporate city limits. The City is responsible for planning, design, construction, and financing the sewage collection system. All of the City's flow is conveyed from the Rockville Service Area sewers through the WSSC Water's collector sewers and the DC Water's Potomac Interceptor (PI) to the Blue Plains WWTP for treatment.

The City provides community sewerage service to an area located within the corporate limits of Rockville and outside the designated limits of the Washington Suburban Sanitary District (WSSD). Properties located within the City's maximum expansion limit (MEL) and outside the WSSD are eligible to receive sewer service from Rockville upon annexation into the corporate limits of Rockville. The City of Rockville provides sewer service to approximately 70% of Rockville. The remainder of Rockville is located within the WSSD and receive sewer service from WSSC.

**II.A. Intergovernmental Agreements:**

The City’s use of WSSC Water’s conveyance facilities has been defined by several transmission agreements. A 1956 agreement allows the City to discharge a peak flow of 6.8 MGD into the Cabin John Basin. The City has also purchased 8.0 MGD peak capacity for a portion of the Cabin John sewershed below Booze Creek. A 1966 agreement with WSSC Water allows for a maximum discharge of 8.0 MGD to the Watts Branch Basin. The City is also permitted to discharge a peak flow of 9.84 MGD into the Rock Creek Basin. In 1975, the City and the WSSC Water executed an agreement specifying that WSSC Water would provide 9.31 MGD of WSSC Water’s total treatment capacity at Blue Plains WWTP. Rockville acknowledges that the City has not purchased sufficient peak capacity in all sewers to convey 9.31 MGD to the Blue Plains WWTP. Furthermore, the 1975 agreement provides that the WSSC Water may rent treatment capacity at Blue Plains not needed by the City.

In addition to the overall City of Rockville and WSSC Water sewer flow agreements, DPW coordinates APFO/APFS review of water and sewer service with WSSC Water for private development projects in the City that are either within or near the boundary of the WSSD. This coordination provides for early identification of system improvements that will be needed to sustain long range planning goals of both WSSC Water and the City of Rockville.

**II.B. Financing Sewerage Systems:**

Information on the City’s sewerage systems financing is included in Section IV.B of Chapter 1. Additional information on Capital Program for the City of Rockville is available at: <https://www.rockvillemd.gov/951/Budget-Financials>

**II.C. Collection and Conveyance Systems:**

The City’s flow collection system consists of approximately 148 miles of sewer mains in the Watts Branch, Cabin John and Rock Creek Basins (see Figure 4-F21). The City’s system has a total of fourteen interconnections with the WSSC Water sewerage system. These include five WSSC Water inflows into the City’s system and nine outfalls into WSSC Water’s systems conveying flow to the Blue Plains Advanced Wastewater Treatment Plant in the District of Columbia. Six of these outfalls are major interconnections with WSSC, of which four of these major outfalls are metered.

The City has two wastewater pumping stations. One is located at the corner of Frederick Avenue and North Horners Lane. The second is located in the Fallsgrove community on Route 28.

Wastewater Pump Station	Average Dry Weather Flow (MGD) <sup>1</sup>	Estimated Peak Flow (MGD) <sup>2</sup>	Minimum Safe Capacity (MGD) <sup>3</sup>	Maximum Capacity (MGD) <sup>4</sup>
North Horner Lane	0.033	0.132	0.26	0.52
Fallsgrove	0.434	1.596	0.76	1.52

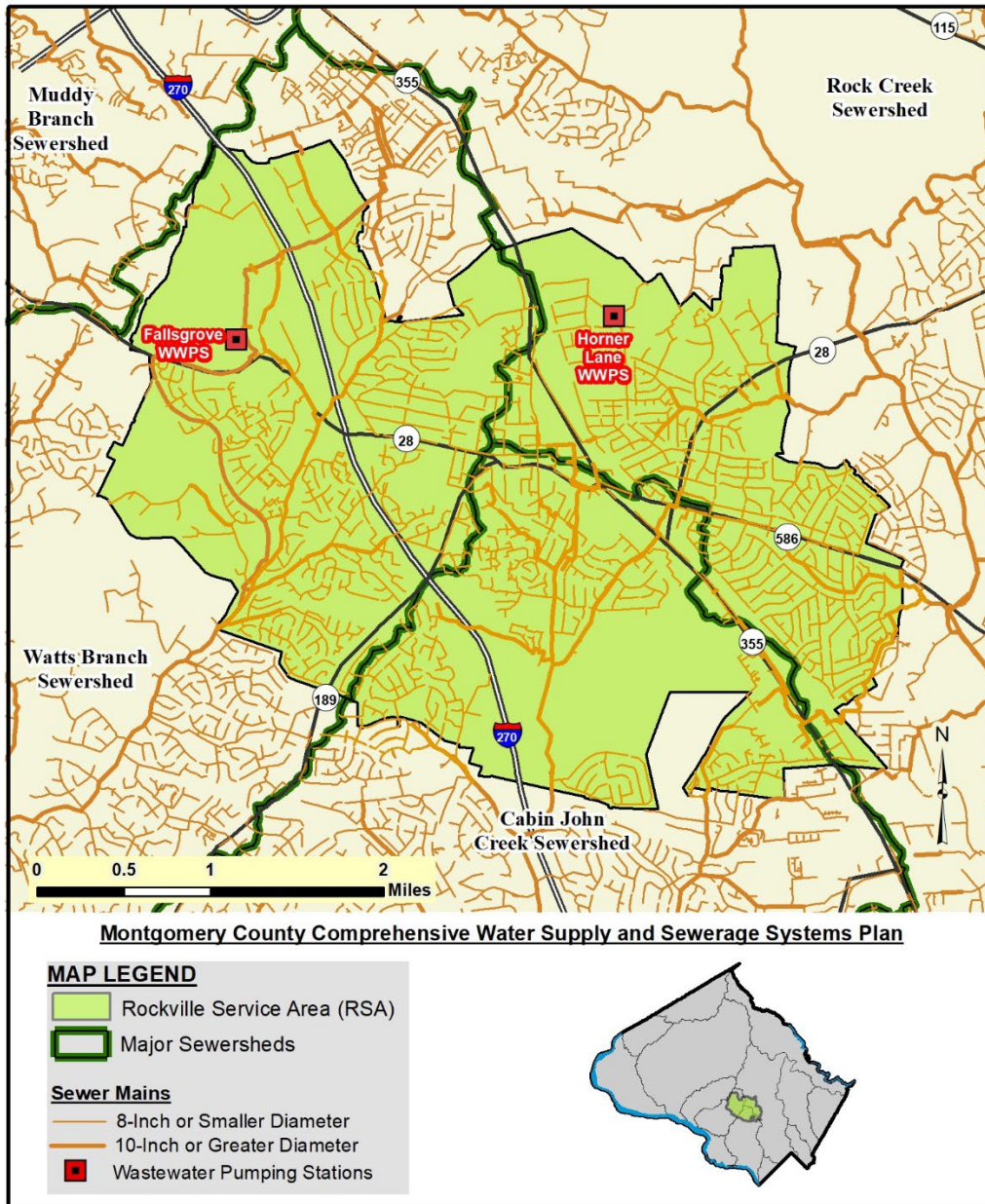
1: The average dry weather flows are based on estimated flow using flow factors from 110 properties with a mix of residential and light industrial uses for the North Horners WWPS and from 591 properties with a mix of residential, office, and retail uses for the Fallsgrove WWPS

2: The Estimated Peak Flows are based on Maryland Peak Flow Curve

3: The Minimum Safe Capacities are determined to be at least half of the Maximum Capacities assuming one pump out of service at each of the duplex pump stations.

4: The Maximum capacities were determined with drawdown testing in June of 2017.

**Figure 4-F21: Rockville Service Area and Sewerage Systems**



Projected flows based on forecasted population and other flow factors for the City of Rockville are summarized in Table 4-T16, including Rockville-WSSC Water agreed flow limitations and projected flows from the City of Rockville to the Watts Branch, Cabin John, and Rock Creek Basins for ultimate delivery to the Blue Plains WWTP.

<b>Table 4-T16: Projected Wastewater Flows from the City of Rockville and WSSC-Rockville Flow Limitations.</b>							
YEAR		Cabin John Basin		Rock Creek Basin		Watts Branch Basin	
		Average (MGD)	Peak (MGD)	Average (MGD)	Peak (MGD)	Average (MGD)	Peak (MGD)
2015 To	Actual Flow	2.14	5.35	2.02	5.05	1.97	4.93
	WSSC-Rockville	n/a	6.8*	n/a	9.84	n/a	8.0

**Table 4-T16: Projected Wastewater Flows from the City of Rockville and WSSC-Rockville Flow Limitations.**

YEAR		Cabin John Basin		Rock Creek Basin		Watts Branch Basin	
		Average (MGD)	Peak (MGD)	Average (MGD)	Peak (MGD)	Average (MGD)	Peak (MGD)
2019	Flow Limitation						
	Balance	n/a	1.45	n/a	4.79	n/a	3.07
2040	Projected Flow	2.36	5.90	2.22	5.56	2.18	5.44
	WSSC-Rockville Flow Limitation	n/a	6.8*	n/a	9.84	n/a	8.0
	Balance	n/a	0.9	n/a	4.28	n/a	2.56

n/a: The agreements between the City and WSSC Water only specify peak sewage flow limitations for each sewer basin; the average flows limitation is for the City as a whole, not for each basin.

\* The City's allowed peak flow downstream of Booze Creek is 8.0 MGD.

The actual 2018 average flow was provided by WSSC.

In 2017, 0.477 MGD of Average Wastewater Flow was diverted from the Cabin John Basin to the Rock Creek Basin with the completion of the City's East Rockville Sanitary Sewer Capacity Improvement project.

Peak flows are based on a historical peaking factor of 2.5 times the average wastewater flow.

2040 projections are from Rockville's Water Resources Element (WRE). The 5-year average flow (FY15-19) was 6.13 MGD with a projected increase of 0.63 MGD through 2040.

Total projected Average Wastewater Flow for 2040 is 6.76 MGD per the 2021 Water Resources Element of the City of Rockville's Comprehensive Plan.

The City of Rockville has two wastewater CIP projects in the adopted FY2021 Budget: Blue Plains Wastewater Treatment Plant and Sewer Rehabilitation and Improvements. The Blue Plains Wastewater Treatment Plant CIP project funds the City's share of the capital improvements within the DC-Water and WSSC Water conveyance systems and the City's share of capital improvements at the Blue Plains Wastewater Treatment Plant. The City does not control the projects within these systems and facilities, so therefore has no control over the spending.

The Sewer Rehabilitation and Improvements CIP project funds the rehabilitation, repair, and/or replacement of the City's sanitary sewer infrastructure. The City considers three factors when assessing the sanitary sewer infrastructure: the physical condition, the capacity to safely convey wastewater without surcharge or overflow, and the proximity to other City programmed work.

Rockville inspects its sanitary sewer infrastructure using comprehensive closed-circuit television (CCTV) condition assessments performed in a preventive maintenance program. The CCTV assessment provides a visual assessment to rate the condition of the sewer. The highest scoring (poorest condition) sewer segments are prioritized for rehabilitation, repair or replacement depending on the need. Excessive maintenance issues identified by Operations and Maintenance staff (such as repeated sewer backups) are also considered.

The City supplements its CCTV inspections with a system wide screening using the Sewer Line Rapid Assessment Tool (SL-RAT) on a biannual basis. The SL-RAT tool utilizes sound waves to screen individual sewer segments for potential blockage conditions. Assessing the sewer in this fashion allows the City to focus its cleaning efforts on the segments with the greatest need for maintenance and proactively reduces the potential for mainline blockages and sanitary sewer system overflows.

Through flow monitoring and hydraulic modeling, the City assesses the capacity of the sewer system to determine its ability to safely convey wastewater flow. Sewer pipes that are at the highest risk for surcharging or overflow are prioritized for rehabilitation, repair, and/or replacement.

Sewer infrastructure close to stream restoration and stormwater management facility improvement projects are also prioritized to allow the sewer rehabilitation, repair, and/or replacement work to take advantage of construction access created for other programmed work within Environmentally Sensitive Areas.

Due to funding constraints, programmed projects in the Sewer Rehabilitation and Improvements CIP project have been deferred to FY2022.

**II.D. Treatment Facilities:**

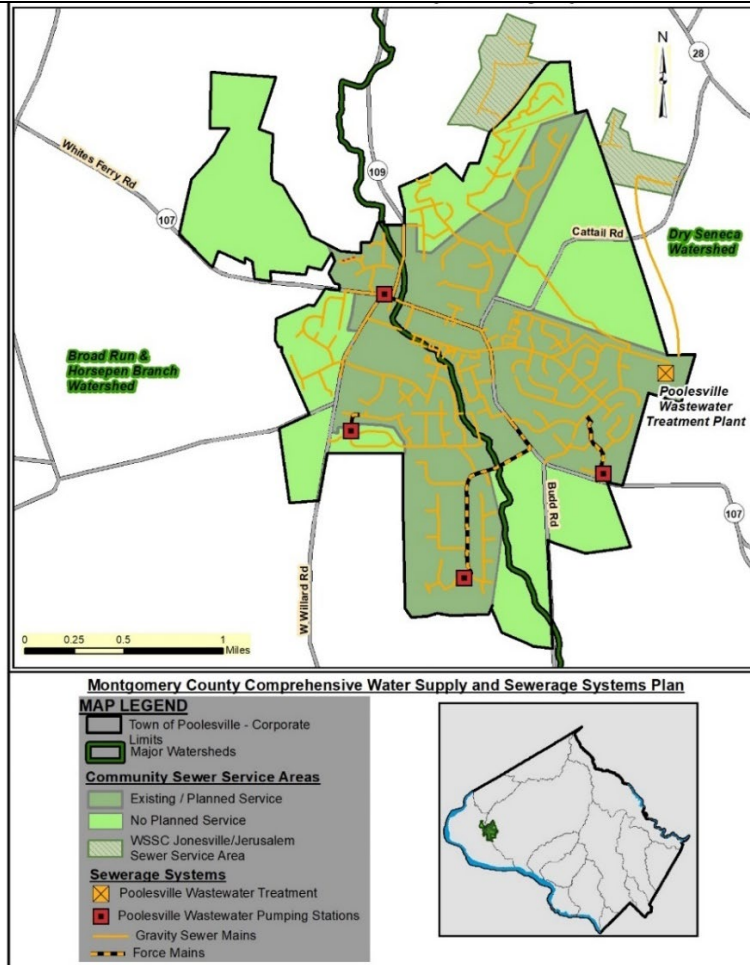
Rockville is located within the Blue Plains Service Area and is served by the Blue Plains WWTP. The City does not own or operate any separate wastewater treatment facilities. The City's wastewater is ultimately delivered to the Blue Plains WWTP through WSSC Water's and DC-Water's conveyance facilities. Rockville owns 9.31 MGD treatment capacity of WSSC Water's 169.9 MGD allocated treatment capacity. The use of these facilities is governed through several agreements, as described previously.

**III. TOWN OF POOLESVILLE SERVICE AREA:**

The Town of Poolesville operates its own sewerage system, which has been in operation since 1964, and is the only publicly owned sewerage system in Montgomery County with total self-sufficiency outside the Washington Suburban Sanitary District. The existing facility serves approximately 1,900 residences. The majority of the sewer service area is within the Dry Seneca Creek watershed.

**Figure 4-F22: Town of Poolesville Community Sewerage Systems**





**III.A. Intergovernmental Agreements:**

A 1984 agreement between WSSC Water and the Town of Poolesville allows WSSC Water to send up to 20,000 gpd of wastewater from the Jonesville/Jerusalem area, located within in the WSSD, to the Poolesville WWTP. A review of more recent WSSC Water flow monitoring for Jonesville/Jerusalem area has shown wastewater flows in the system regularly exceeding the 20,000 GPD agreement limits.

In 2021, WSSC Water provided DEP with recent sewage flow records for the sewerage system serving these communities. These records show that sewage flows periodically exceed the 20,000 GPD limit in the agreement with the Town. WSSC Water staff believe that these excessive flows result from infiltration and/or inflow into the system and are conducting an investigation into the problem. Pending the outcome of WSSC Water’s investigation and possible mitigation actions, the County may need to consider additional sewer connection restrictions in this service area, establishing a moratorium on new connections except for cases involving septic system failures. Another option is for WSSC Water and the Town to renegotiate the original flow agreement to allow WSSC Water additional treatment capacity at the Poolesville WWTP for this service area. (Please refer to Appendix C, Section II.G of this Plan for additional information).

**III.B. Infiltration and Inflow (I&I) Control Program:**

Since 2004, the Town has been aggressively eliminating Inflow and Infiltration (I&I) from the sewer collection system. The initial I&I elimination program consisted of several repairs in the sewer sections located in the oldest parts of Town and included a total relining of terracotta mains and public portion of the laterals located in the Wesmond Subdivision. This initial program took several years to complete and at a cost of over 2.2 million dollars.



Phase 2 of the I&I elimination program covered the total relining of "transite" mains and public portions of the laterals in the Westerly subdivision. This project cost over 2.4 million dollars and was completed in the Spring of 2015. Phase 3 consisted of installing "top hats" on laterals in mains that had been previously relined in the downtown commercial areas of Town. Phase 4 will be the next phase to be executed which is rehabilitation of various manholes throughout the system.

The Town is actively applying for grants to enhance its funding and speed up its ability to conduct rehabilitation projects.

The Town continues to actively identify I&I and have recently deployed real time smart meters in a series of manholes that operate via satellite and allow operators and engineers to monitor.

I & I identification and removal is an ongoing endeavor and the Town is committed to using the latest technology to assist.

WSSC Water owns and operates sewer lines from the Jonesville and Jerusalem areas that are suspected as contributing a significant amount of I & I to the WWTP.

**III.C. Financing Sewerage Systems:**

Information on the Town's sewerage system financing is included in Section IV.C of Chapter 1. Additional information on Capital Program for the Town of Poolesville is available at

<https://poolesvillemd.gov/wp-content/uploads/2020/07/FY2021-Budget-BUDGET-CAP-BUDGET-5-27-2020-FINAL-FINAL.pdf>.

**III.D. Collection and Conveyance Systems:**

The Town's sewerage collection system consists of 95,000 linear feet of 6- to 18-inch diameter gravity sewers, 5,700 linear feet of 4- to 8-inch diameter force mains, and six permanent pumping stations ranging in capacity from 75 to 600 gallons per minute (see Figure 4-F22). Flows from two areas north of the town within the WSSC, Jonesville and Jerusalem, are also conveyed to the town's sewerage system. A combined low-pressure and gravity sewerage system in these areas conveys flows to an outfall sewer feeding into the Town's treatment plant. These mains are owned and maintained by WSSC.

Wastewater Pump Station	Average Dry Weather Flow (MGD) <sup>1</sup>	Estimated Peak Flow (MGD) <sup>2</sup>	Safe Capacity (MGD) <sup>3</sup>	Maximum Capacity (MGD) <sup>3</sup>
Stoney Springs	0.02	0.04	0.0864	0.108
Elgin Road	0.005	0.09	0.16128	0.2016
Fisher Avenue	0.031	0.12	0.2304	0.288
Hunters Run	0.15	0.22	0.6912	0.864
Seneca Chase	0.01	0.05	0.5419	0.864
Oxley Farm	0.0025	0.01	0.16128	0.2016

1: The average dry weather flows are based on actual 2019 flow data.

2: The estimated peak flows are based on actual 2019 data.

3: The Safe and Maximum capacities are based on 80% and 100%, respective, of the run time of the pumps recorded during 2019.

**III.E. Treatment Facilities:**

The Town of Poolesville owns and operates a permitted 750,000 gallon per day Wastewater Treatment Plant (WWTP) with a hydraulic capacity of 2,000,000 gallons per day. This sequence batch reactor type facility was upgraded in 2010 to a biologically enhanced nutrient removal (ENR) system using an anoxic zone for denitrification. It is anticipated construction of a denitrification filter system will begin to meet MDE requirements. The facility processes also chemically precipitate and remove phosphorus through aluminum chloralhydrate addition. The unit processes employed at the WWTP includes:

- **Primary Treatment** - Grinder, chemical addition (phosphorus removal), rotary filter screen, compactor
- **Secondary Treatment** - Activated sludge process (including nitrification) and clarification occur within the same reactor
- **Advanced Treatment** - Anoxic treatment, Dual media filtration - pressure vessels
- **Disinfection** - Ultraviolet Irradiation
- **Solids Conditioning** - Two stage aerobic digestion, chemical conditioners (polymer), belt filter press
- **Solids Disposal** - Land fill

The Town has received a MDE grant for the design of a denitrification filtration system with methanol injection. The plans should be permitted by the end of 2020 and ready for the bidding construction phase. Estimates and grant funding approval for the implementation should be completed sometime in Fiscal Year 2022 followed by construction.

### III.F. Wastewater Capacity Management Plan:

The Town of Poolesville has developed a Wastewater Capacity Management Plan. The Plan utilizes a three-year rolling average of discharge flows from the WWTP to determine the available capacity for development allocation. By January 31 each year, the Town is required to develop and submit to the MDE a Municipal Sewage Capacity Report. The reports will include the three most recent years of flow data contained in the Discharge Monitoring Reports. To determine the annual average flow, the monthly average flow for each month will be averaged with the other monthly averages.

According to the MDE, use of an estimated 250 gallons per day (gpd) per single-family dwelling or 100 gpd per person is a common practice. Considering this typical domestic usage, the Town's allocation of 325 gallons per day per household is calculated to include an allowance for Infiltration and Inflow(I&I).

Currently the Town anticipates the construction of a possible 161 residential units within the next ten years. The Town uses 325 gallons per day for each unit for estimating flows to the WWTP. Based on the above numbers, within the next ten years the wastewater flows to the Town's WWTP will be increased by an additional 52,325 gallons per day. As part of the restoration of the existing infrastructure the Town is aggressively developing a plan to minimize the current excessive existing I&I problems.

Based upon 3.2 persons per single family house. The following methodology will be used to manage wastewater capacity and to control the distribution of capacity to avoid burdens to the system and to maintain sufficient set aside to accommodate the system.

- Calculate the past three-year averages
- Add the number of allocated (not connected) sewer connections that the local government has provided a written commitment
- Subtract this sum from the permitted 750,000 gpd

The remaining balance is the **net available wastewater capacity** This capacity allocation will be based on 325 GPD/household.

### IV. BIOSOLIDS MANAGEMENT:

Biosolids is a term adopted in recent years to refer to the municipal wastewater solids formerly referred to as sewage sludge. These solids are the residuals from the primary, secondary, tertiary, and enhanced nutrient removal treatment processes at wastewater treatment plants. The residuals are usually thickened and dewatered into a "cake" that generally consists of about 20-30 percent solids. Both federal and state regulations define the stabilization or pathogen reduction techniques required to allow these solids to be recycled as biosolids. The most common methods to cycle biosolids are generally as soil amendments and fertilizers. Industrial pretreatment regulations help to ensure that

metals and/or toxics are not significant components of biosolids. Both the EPA and MDE strongly support the beneficial reuse of biosolids.

Biosolids are defined by State law as solid waste. The significance of this designation is that MDE requires the County to report on the planning and management of biosolids in the County’s Solid Waste Management Plan. Biosolids planning and management information is reported in the Solid Waste Management Plan. This Plan is contained in the following sections of this document for the purpose of continuity, since biosolids are a bi-product of wastewater treatment and must be managed as part of the wastewater treatment plant operations.

**IV.A. Biosolids Production in Montgomery County:**

As described in previous sections of this Chapter, approximately 85% of all the wastewater generated in Montgomery County is treated at the Blue Plains WWTP in the District of Columbia. The remaining 15% is treated at the treatment plants within Montgomery County. These plants include the Seneca WRRF, Damascus WRRF, and Poolesville WWTP. *(It should be noted that WSSC Water refers to its wastewater treatment plants (WWTP) as water resource recovery facilities (WRRF).* An estimated total of 80 wet tons per day (wtpd) of biosolids are produced from the treatment of the wastewater at the three mentioned WRRFs in the County. A small amount of biosolids (less than 1 wtpd) generated at the Hyattstown Water Resource Recovery Facility are transferred to the Damascus WRRF to be included in biosolids processing. The approximate biosolids production for each treatment plant is included in the following table.

<b>APPROXIMATE DAILY BIOSOLIDS PRODUCTION (Montgomery County -2019)</b>	
<b>Treatment Service Area</b>	<b>Daily Production (wtpd)</b>
Seneca WRRF	70
Damascus WRRF	6
Poolesville WWTP	4

WSSC Water is responsible for the management of the biosolids generated from the Seneca and Damascus WRRFs. WSSC Water Water pays for a share of the biosolids generated at Poolesville WWTP based on the flow into the facility from a portion of the WSSC Water Water service area in Montgomery County.

The quantity of biosolids generated at Blue Plains from Montgomery County is estimated in proportion to the wastewater flow from Montgomery County that flows to the Blue Plains WWTP. Wastewater flows from Montgomery County makes up approximately 25-30% of the total flow to the Blue Plains. Based on 2020 data, the approximate quantity of biosolids production at the Blue Plains WWTP from Montgomery County wastewater is estimated to be 120 wet tons per day (wtpd).

**IV.B. Biosolids Disposal and Reuse:**

Generally, most of the biosolids from the WSSC Water treatment plants in Montgomery County (Seneca, Damascus, and Hyattstown WRRFs), are reused through land application program on farmlands. Biosolids that are land applied are subject to requirements of State-issued sewage sludge utilization permits and the nutrient management plans that set the application rates based on site specific conditions. The locations of the permitted sites are determined by the contractor that manages the material. The procurement process requires that each bidder have the necessary permitted sites to manage the biosolids generated at the respective utility. Historically, these sites have been on the Eastern Shore, Frederick, Howard, Carroll, and Prince George’s, and Montgomery counties in Maryland; or in Virginia and Pennsylvania. Active permitted land application sites for

biosolids in Montgomery County are listed in Table 4-T17. The land application sites in Montgomery County receive biosolids generated from a number of wastewater treatment plants in the surrounding area including the Seneca and Damascus.

<b>Facility Number</b>	<b>Permit Number</b>	<b>Expiration Date</b>	<b>Property Location</b>
64230	2008-SAG-5370	03/05/2014	Poolesville
36724	2010-SAG-5066	08/03/2016	Dickerson

*Source: Maryland Department of the Environment – 2016*

As part of a significant long-range program to improve the biosolids management practices at the Blue Plains WWTP, the DC Water completed major facility improvements to its solids treatment facilities in 2017. The improvements included thermal hydrolysis pasteurization, anaerobic digestion and dewatering using belt presses. The facilities reduce the mass of solids by converting a significant portion into methane gas. The methane gas is beneficially reused onsite to generate electricity and heat energy for heating the pasteurization processes and digesters.

All the biosolids generated at the Blue Plains WWTP are currently beneficially reused through a diverse recycling program including land application to improve the soil for agricultural production on farms and commercial marketing as organic fertilizer and soil amendment.

Even though the DC Water is responsible for the Blue Plains Biosolids Management Program, other parties and stakeholders such as WSSC Water may be involved in planning and the decision-making process.

WSSC Water has recently completed a major facility planning study to explore and determine the best alternative in managing its future biosolids produced from all of its water wastewater treatment plants within both Montgomery and Prince George’s counties. The focus of this facility plan was to examine and develop a comprehensive program providing for the best alternative to process biosolids in a manner that is environmentally beneficial and is also economically feasible. The selected alternative included the design and construction of a central bio-energy project comprised of thermal hydrolysis, mesophilic anaerobic digestion, dewatering and combined heat and power facilities. The project is underway with completion expected by calendar year 2024. When complete, some of the expected environmental and economic benefits would include:

- Significant reduction in biosolids quantity.
- Production of digester gas as renewable fuel which will be used to produce heat and electric power.
- Producing high quality (Class-A) biosolids which can be used more widely than the Class-B biosolids currently produced.

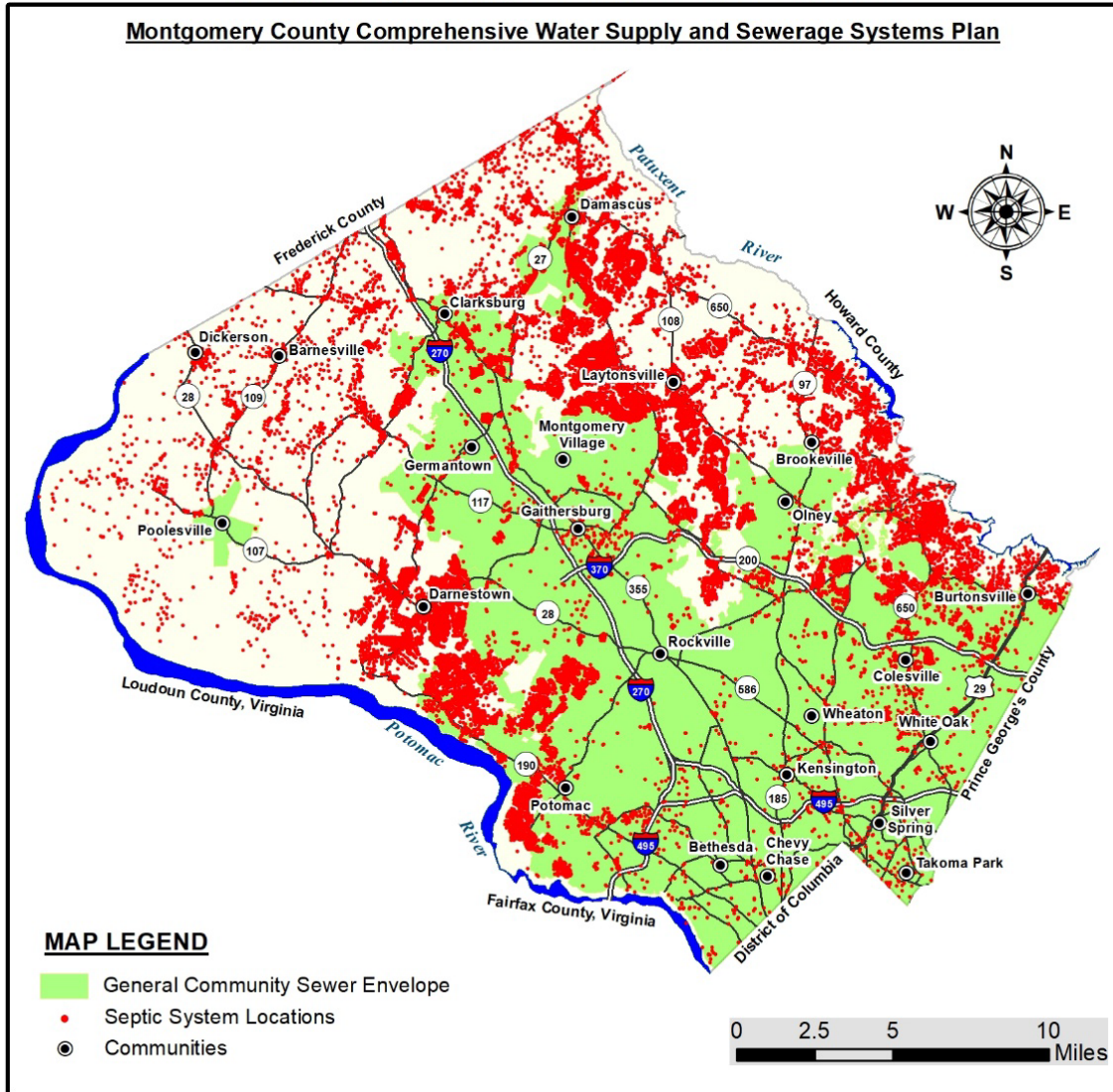
**V. INDIVIDUAL WASTEWATER DISPOSAL SYSTEMS AND RURAL SANITATION**

In the more rural, less-densely populated parts of Montgomery County, residents, businesses, and institutions depend primarily on individual septic systems for their wastewater disposal needs. Septic systems typically provide primary treatment in an underground septic tank, and then discharge the remaining effluent to the ground for biologic treatment.

The areas dependent on septic systems generally coincide with the County’s well service areas, forming an irregular crescent starting in the southwestern part of the County, sweeping around to the west, then north towards Clarksburg and around Damascus, then south and east along the Patuxent River watershed (see Figure 4-F23). Most septic systems are located in areas not served by the community

sewerage systems, the lower-density “wedges” referred to in the County’s General Plan, “On Wedges and Corridors.” However, older septic systems are also found scattered throughout the County’s community sewer systems service area, often where development occurred before community systems were available. Larger individual sewerage systems are referred to as “multiuse systems.” For additional information on Individual Systems in the County please refer to Chapter 1, Section III.B. of this Plan.

**Figure 4-F23: Montgomery County Permitted Septic Systems**



**V.A. Septic Systems Permitting:**

The County's Department of Permitting Services (DPS), Well and Septic Section —under authority delegated from the Maryland Department of the Environment (MDE) —is responsible for the administration and enforcement of County and State laws and regulations governing onsite, individual sewerage systems. Relevant State regulations are included in COMAR 26.03.01, 26.03.05, and 26.04.02 -.04. The County’s regulations are included in COMAR Chapter 27A, „ On-Site Water Systems and On-Site Sewage Disposal Systems in Montgomery County.”

DPS fulfills these responsibilities by reviewing preliminary plans and record plats for properties served by individual, on-site systems; by issuing permits for and inspecting the construction of new and replacement systems; and by responding to complaints concerning on-site systems. Testing a property for new septic systems involves two tests:

- The water table test to determine the probable highest level of water-saturated soil. The water table test can only be done the late winter through early spring when the water table is at its highest level. The duration of the water table testing season depends on overall precipitation conditions for the preceding year or years. Dry conditions, particularly prolonged droughts, can require DPS to shorten the duration of the water table testing season.
- The percolation test to determine the speed at which fluids percolate through the soil. The percolation test may be done at almost any time of the year. However, if a water table test is required for a site the percolation test must follow a successful water table test.

As part of these testing procedures, DPS also checks for shallow, fractured rock. Additional regulatory constraints may also affect finding a suitable location for a septic system on a property.

Under the County's current on-site system regulations, new construction (a new structure or a significant expansion of an existing structure) may use only trench or sand-mound septic systems that satisfy COMAR Chapter 27A. New lots are usually required to have sufficient area that satisfies testing standards for an initial drainfield and three reserve drainfield areas for later use. New lots using sand mound septic systems and existing lots installing replacement septic systems are required to have space for an initial drainfield and two reserve areas.

More background information on individual, on-site wastewater disposal systems is included in Chapter 1 of this plan.

### **V.B. Septic System Concerns:**

The following circumstances are among those that may indicate inadequate functionality, operational failure, and/or site constraints of a septic system which may also contribute to public health concerns:

- The presence of inadequately treated sewage rising to the surface of the ground or backing up into a building;
- A frequent need to pump out a septic system in order to keep overflows or backups from happening;
- Evidence of a sewerage system discharging inadequately treated sewage into ground or surface waters, drainfields constructed within the water table or on fractured bedrock, or an overflow pipe that allows the surface discharge of inadequately treated sewage;
- An existing building that can be served only by a sewage holding tank;
- A structure, previously served by an on-site system, that cannot be rebuilt because of a failure to locate a replacement on-site system that satisfies current permitting requirements.

In addition, the expectation that existing onsite septic systems cannot be replaced to support existing development once they fail, can present anticipated public health concerns.

### **V.B.1. Aging and Replacement of Individual Sewerage Systems:**

Individual systems regulations have changed over time resulting in changes to individual systems standards and technologies. Each regulatory change has provided for individual systems that are safer for both the human and natural environment.

Older individual sewerage systems may:

- Use several varieties of outdated underground discharge structures such as seepage lagoons, dry wells, and seepage pits.
- Have overflow pipes that prevented overloaded, failing systems from backing up sewage into buildings. Unfortunately, this allowed for sewage discharges onto the ground surface through the overflow pipe, some into drainages such as roadside stormwater swales.
- Have been installed on soils inappropriate for septic systems under today's testing standards because of conditions such as high-water tables and shallow fractured rock.



The County may allow outdated wells and septic systems to serve existing structures provided they continue to function adequately. However, DPS has the option to require a replacement septic system that satisfies current regulations in cases where:

- An existing septic system suffers a failure or where such a failure is imminent.
- Overflow pipes need to be removed, which may result in an eventual failure of the septic system.
- Property improvements (expansion or replacement of an existing structure, new swimming pool, etc.) are proposed, including cases where original permit records are not available.
- Subdivision of an existing property served by individual, onsite systems will change property lines and affect allowed setbacks.

**V.B.2. Site and Areas with Sustainability Concerns for Septic Systems:**

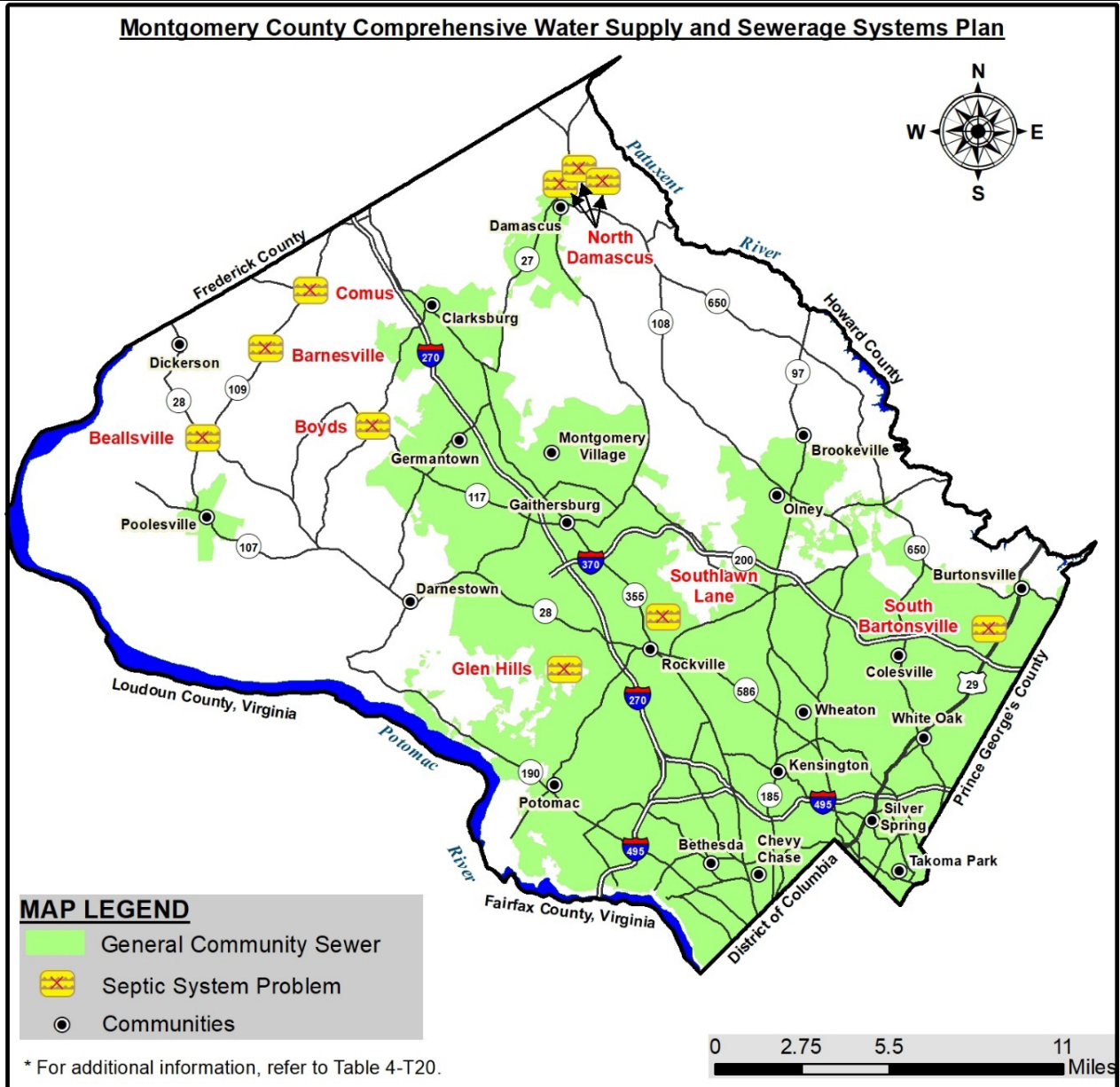
Site suitability and sustainability concerns for septic systems are not always limited to a single lot or parcel. Soil properties such as slow percolation rates, shallow water table or bedrock, etc. can affect a larger area and involve many properties. Areas where evidence shows that there are existing or potential concerns with septic systems that may affect several properties are designated and inventoried as areas of potential public health concerns in this Plan.

As existing housing stock and the individual onsite systems depend on age, the County may face potential concerns in sustaining not just specific homes and businesses, but parts of neighborhoods that currently use these systems. Some of these neighborhoods, built in 1950s and 1960s, were created:

- On lots that are now too small to support both wells and septic systems under current regulations. A typical residential septic system needs at least 10,000 sq. ft. of land for initial and reserve field areas. Septic systems in the Patuxent River Watershed, with its water supply reservoirs, require 70 percent more reserve area than elsewhere in the County.
- On sanitary system technologies that no longer satisfy current regulations (seepage pits, sewage lagoons, overflow pipes, etc.).

Although DPS does not currently maintain a comprehensive database of septic concerns throughout the County, that agency has provided information concerning areas of potential concerns based on staff experience and are shown on Figure 4-F24. The areas with sustainability concerns for septic systems in the County with additional information are also listed in Table 4-T18.

**Figure 4-F24: Areas with Septic System Sustainability Concerns in Montgomery County**



**Table 4 -T18: Communities with Existing and Potential Septic System Sustainability Concerns**

Location	Problem	Potential Solutions	Recommendations/Actions Taken
Town of Boyds	▪ failing septic systems, some on relatively small lots	DPS recommends: ▪ community sewer service	The provision of community sewer service will require further investigation by DEP and DPS. Sewer extension issues to this part of the County could have dramatic effects on development demand.
South Burtonsville: Miles Rd., Duvall Rd., Tolson Pl., and Maple Hill Rd.	failing septic systems	▪ community sewer service	DEP continues to approve sewer category change requests within this area. The development of a new residential subdivision along Miles Rd. has brought new sewer mains into the area, expanding the availability of public service.
Clarksburg Historic District	failed septic systems, poor soils unsuited for septic system use, relatively small property sizes	▪ community sewer service	DEP continues to coordinate sewer service extension proposals with WSSC, DPS and DGS. Service extensions and pumping facilities may need to be coordinated with community sewer service for new development in the Ten Mile Creek watershed.
Damascus: Gue Rd., Howard Chapel Dr., Ridge Rd. and adjacent areas	failing septic systems - unable to repair	DPS recommends: ▪ community sewer service	Properties in the vicinity of Ridge Rd. and Tune Ave. have been approved for community sewer service. Extension costs and community cooperation appear to be deterrents to implementing needed low-pressure systems to relieve these problems.  The approval and extension of community to service to other, more distant neighborhoods (Gue Rd., Howard Chapel Dr.) pose greater challenges in terms of required sewer infrastructure. Sewer service for these areas could require specific septic system and sewer systems facility studies.
Glen Hills - southwest side of Rockville	failing septic systems, poor soils	▪ community sewer service ▪ innovative/alternative on-site systems	Based on a study of septic systems in the neighborhood conducted DEP, in March 2016 the County Council revised sewer service policies for this area to match policies applied to RE-1-zoned areas elsewhere in the County. The neighborhood had been subject to a more restrictive service policy resulting from the 2002 Potomac Subregion Master Plan.
Southlawn La. - Northeast side of Rockville	failing septic systems, poor soils	Rockville DPW and County DPS recommend community sewer service	Rockville conducted a feasibility study to provide sewer service to the community in this area. Public sewer was not constructed due to lack of commitment from private property owners to annex into Rockville and pay for sewer extension. However, in 2013 Rockville constructed and put into service a water main to improve public water to the community. Abutting properties could receive service once they annex into Rockville City limits.
Rural communities: • Barnesville • Beallsville • Comus (Slidell Rd.)	failing septic systems - unable to repair	DPS recommends: ▪ community sewer service ▪ innovative/alternative on-site systems	These communities are beyond the reach of the County's existing and proposed community sewerage systems.
Frederick Road N. of Comus Road	Failing septic systems, poor soils, small property sizes	▪ community sewer service	The provision of community sewer service will require further investigation by DEP and DPS.

**V.B.3. Individual Systems Maintenance Program:**

In Montgomery County, once a well or septic system is installed and placed into operation, there will very likely be no further contact between the owner and the County regarding the operation and maintenance of that system until it fails. While DPS maintains the responsibility for permitting and regulating individual systems in the County, that agency is not charged with performing systematic, long-range planning to address rural sanitation systems. Other than the designation of areas intended for service from individual systems and evaluating public health areas (failures or problematic systems), previous versions of the Water and Sewer Plan have had little to say about rural sanitation planning.

Currently the County is developing a maintenance program for implementation to address the potential sanitation problems from aging and improperly maintained individual onsite systems in the County. Details relative to the implementation of this maintenance program are currently under evaluation and development. Some of the main objective of this maintenance program include:

- Development of a comprehensive inventory of all the on-site systems in the County.
- Providing public education and community outreach.
- Implementation of a preventive maintenance program through regular system pump-outs

Additional information on Individual Systems Maintenance Program can be found in Chapter 1, Section III.C.2 through III.C.4.

#### **V.B.4. Multiuse Sewerage Systems:**

As described in Chapter 1, multiuse sewerage systems are individual, onsite wastewater disposal systems with a design capacity of 1,500 or more gallons per day GPD). Multiuse systems require both category map and text amendments in this Plan. Multiuse sewerage with capacities on 5,000 or more GPD also requires review and approval by the Maryland Department of the Environment. These facilities are generally large-capacity septic systems, although some facilities use more advanced treatment systems. DEP coordinates Plan approvals for these systems with DPS. Appendix B includes a listing of the multiuse sewerage facilities in Montgomery County approved in this Plan.

Most multiuse sewerage systems are standard septic systems with large design capacities. Other types of multiuse sewerage systems include:

- Spray irrigation systems – These systems often work well with a seasonal use such as a golf course. Any flows generated over the colder part of the year must be stored for later spray application during the growing season.
- Small wastewater treatment plants - A few facilities, such as the Mirant Generating Station in Dickerson and the Bretton Woods Country Club in western Potomac, operate what are essentially small wastewater treatment plants. (Because these facilities serve and are owned by an individual user, this Plan still classifies them as individual systems.)
- Surface water discharge systems - A few facilities also operate using a direct surface water discharge, rather than subsurface groundwater discharge. The Mirant generating facility and the County's Resource Recovery Facility, also in Dickerson, release treated effluent to the Potomac River via a State issued discharge permit (NPDES). Other multiuse systems use low-pressure dosing systems, aerobic pre-treatment systems, etc.

All of these are characterized as multiuse systems, despite their differences in treatment methods, because of how they are owned and operated, by what type of facility they serve, and finally because of their size.

In 2006, the County Council adopted multiuse sewerage systems capacity limitations for properties located within the County's AR Zone (then the RDT zone). The limitations are intended to keep the size of non-residential development in the County's agricultural reserve area consistent with the generally smaller scale uses typically associated with development presently allowed by zoning in the agricultural zone. Refer to Chapter 1, Section III for additional information.

# **Appendix A**

## **GLOSSARY**



To understand the policies governing the provision of water and sewerage service in the county, it is helpful understand the definitions of terms used throughout this text. The following includes relevant definitions – many taken from the State regulations governing planning of water supply and sewerage systems (COMAR 26.03.01.01) – used in this Plan:

**Best Available Technology (BAT) System**

An aeration system used in a septic tank to improve Nitrogen removal from septic systems. Maryland Dept. of the Environment (MDE) regulations require installation of BAT systems for new septic system service and for some replacement septic systems within Bay Critical Areas. Within Montgomery County, located outside of any established Critical Areas, the County's Dept. of Permitting Services determines the need for BAT systems for new and existing septic systems.

**Capital Contribution Charge (City of Rockville only)**

A fee paid by new users of Rockville's water and sewerage systems, which the City uses to finance the capital cost of sanitary systems growth and improvements.

**Capital Improvements Program (CIP)**

Provides for the programming of planning, design, land acquisition, and construction on a yearly basis for major water and sewerage facilities. These facilities include project such as water filtration plants, sewage treatment plants, major water and sewer transmission mains, pumping stations, and storage facilities. The adopted WSSC CIP is incorporated annually into the County's CIP when approved by the Montgomery and Prince George's County Councils. Community system capital budgets are available as follows:

- WSSC: The current CIP budget document, and those for some prior years, are available through WSSC's budget webpage at <https://www.wsscwater.com/budget>.
- City of Rockville: Capital program information is available at <http://www.rockvillemd.gov/index.aspx?NID=1071>.
- Town of Poolesville: Capital program information is available at <http://www.poolesvillemd.gov/296/Budget>.

**Community Service Envelopes and Service Areas**

Planned Community Water/Sewer Service Envelopes – Those areas intended for community service under the County's Water and Sewer Plan's general service policies and local area master plans recommendations. Generally, this includes properties currently approved for such service and designated as categories W-1, S-1 or S-1, S-3. Areas planned for future community service (W-4, W-5, and S-4, S-5) are included in the planned service envelopes.

Note that not all properties located within the planned community service envelope are currently approved for such service and designated categories 1, 3, 4 or 5. Most requests for service area category changes seeking community service are granted through a case-by-case consideration. As a result, some properties designated as W-6 and S-6 may also be within the planned service envelopes because they have never had requests filed for a category change. Also see the "Planned Service Envelopes vs. Existing Service Area" discussion following.

Existing Community Water/Sewer Service Areas – Those properties approved for and with access to community water/sewer service, designated as categories W-1 and/or S-1.

A variation of the existing service areas could be considered as an approved service area. This would add those properties designated as service area categories W-3 and S-3 to the Existing Service Areas.

The majority of properties within existing service areas are connected to community systems. However, some properties continue to use individual, onsite systems even though community service is available. Note that some properties within existing service areas are located outside of the planned service envelopes; please see the following discussion.

Planned Service Envelopes vs. Existing Service Areas – Every property that is approved for and has access to community service (W-1, S-1) becomes part of the existing water/sewer service areas. However, a category change approval for such a property does not necessarily make it part of a planned service envelope.

Properties located outside the planned service envelopes are typically approved for community service (categories 1 or 3) through one of the special service policies in the County's Comprehensive Water and

Sewerage Plan (abutting mains, private institutional facilities, onsite system failures, etc.) or under another justification as determined by the County Council. As such, these properties, although designated as categories 1 or 3, are exceptions to the Plan's general service policies and do not become part of the planned service envelopes.

This distinction is important in the Potomac Subregion Master Plan area where the master plan recommends the use of a peripheral sewer service policy, addressing properties located at the edge of the planned sewer envelope. Again, properties approved for S-1 or S-3 under this service policy do not add to or become part of the planned service envelope. This was intended to avoid a domino effect that could eventually extend sewer service well beyond the limits of the planned service envelope.

**Community Sewerage System**

A publically-owned system serving two or more individual properties, for the collection and disposal of sewage or industrial wastes of a liquid nature, including various devices for the treatment of the sewage and industrial wastes. The community sewerage system is often referred to as the public sewerage system, or as public sewer service, in other documents.

**Community Water Supply System**

A publically-owned source of water and a distribution system, including treatment and storage facilities, serving two or more individual properties. The community water supply system is often referred to as the public water system, or as public water service, in other documents.

**Ejector Pump and Grinder Pump**

Onsite pumping systems are used to move sewage flows uphill to a point where the flow can then move by gravity to a transmission main or onsite treatment system. An ejector pump is used to lift sewage from the lower floors of a building to a gravity outfall on the property. A grinder pump typically feeds into a small-diameter, low-pressure main. Grinder pumps may be used as part of a larger low-pressure sewerage system that serves anywhere from a few houses to an entire subdivision. WSSC's grinder pump, low-pressure system policies require that a low-pressure sewerage system, for a non-residential use, is dedicated to only that user. No other grinder pumps are allowed to tie in.

**Existing Service Area**

An area that is currently served; individual properties within the area are generally connected to the community system.

**Front Foot Benefit Assessment (FFBA)**

An annual charge levied on properties abutting water and sewer mains in the Washington Suburban Sanitary District that partially pays for the extension of local service mains financed by general construction bonds. Additional information is provided in Chapter 1, Section IV.A.2.b. and in Chapters 3 and 4 of this Plan.

**Ground Water Well (or Water Well)**

A well supplies water to a single residential, institutional or commercial user, usually from a well located on the user's property. The primary focus of this Plan is on wells used for potable water supply. However, other wells are sometimes used for purposes such as irrigation, watering of livestock, industrial processes, and geothermal heating and cooling. The system generally consists of a groundwater well with a submersible pump that connects directly to the user's home or business. The well is drilled down through rock to a depth substantially below the level of the water table. This allows the well shaft to store water for periods of higher water demand. As the pump removes water from the well shaft, groundwater flows in replacing what has been used, although not necessarily at the same rate. The user may also require on-site water treatment and an above ground storage/pressure tank.

**Holding Tank**

A tank, buried under the surface of a user's yard, for the purpose of holding sewage until it is pumped out by a licensed septic hauler. A holding tank is typically used in cases where no other individual, onsite septic system can be used and where community sewer service is not available. Holding tanks are used only to serve existing buildings, and not for new construction or expansion of an existing structure. Depending on usage, a holding tank will fill and need to be pumped out every two to four weeks. No useful sewage treatment occurs in the holding tank, as it would in a septic tank.

**Individual, Onsite Sewerage System**

A single system of piping, treatment tanks or other facilities serving only a single property and disposing of sewage or individual wastes of a liquid nature, in whole or in part, on or in the soil of a property. Typically, an individual sewerage system in the county is a septic system. Septic systems treat sewage through the use of a septic settling tank and subsurface drainfields which discharge their effluent to the ground. Microorganisms in the soil continue to treat the effluent as the fluid percolates through the soil profile.

**Individual, Onsite Water Supply System**

A single system of piping, pumps, tanks, or other facilities utilizing a source of ground or surface water to supply (potable water) to a single property. The most common individual water supply system in the county is a groundwater well. Wells use a pump to draw groundwater stored in the well shaft into the user's house or business.

**Interim Individual Water Supply or Sewerage System**

An individual system established within an existing or planned community service area for an interim period only and intended to be abandoned and replaced by community service within one year of the availability of community service.

**Limited Access Water and Sewer Mains**

Limited access water and sewer mains traverse or abut properties which this Plan designates as generally ineligible for community water and/or sewer service, either by the general policies in this Plan or by a specific action of the County Council restricting service.

**Multiuse Water Supply and Sewerage Systems**

Individual on-site systems, whether owned or operated by an individual or group of individuals under private or collective ownership, serving a group of individuals, and having a treatment capacity of 1,500 gallons or more per day (gpd). Multiuse water supply systems utilize a source of ground or surface water to provide potable water, and consist of wells, piping, pumps, tanks, and/or other facilities. Multiuse sewerage systems collect and dispose of sewage and consist of various devices for the treatment and discharge of sewage. For the purposes of this plan, multi-use systems include the following:

- A single water supply and/or sewerage system serving a single property;
- A single water supply and/or sewerage system serving two or more commonly-owned, contiguous properties with a common function (religious institution, nursing home, etc.); and
- More than one water supply and/or sewerage system serving a single property with a cumulative capacity of 1,500 or more gpd.

**Municipal Service Area**

(See "Sanitary Districts" below.)

**Municipal Well**

A groundwater well that provides water for a community water supply system. In Montgomery County, only the Town of Poolesville uses municipal wells to provide a potable water supply to its customers.

**Onsite System Failures**

Individual, onsite system failures can result from causes such as age, contamination, insufficient maintenance, of structural problems. The following situations are among the most common that constitute an onsite systems failure:

- The presence of inadequately treated sewage rising to the surface of the ground or backing up into a building, resulting from a hydraulic overload of the septic tank and/or the drainfield. Proper septic system operation typically requires tank pumping every two to five years for preventative maintenance.
- Evidence of a septic system discharging inadequately treated sewage into ground or surface waters. This includes problems such as drainfields constructed within the water table, constructed on fractured bedrock, or constructed with an overflow pipe. Overflow pipes typically allow the discharge of inadequately treated sewage from the septic system into a drainage feature such as a swale, pond, or stream. Failures may also result from structural problems involving the septic tank or drainfields.

- A well with inadequate water quantity yield. (State minimum standard is 1 gallon per minute.)
- A well with inadequate water quality, resulting from either an inflow of surface water or contamination of the groundwater source.
- A well that does not satisfy current regulatory standards, including hand-dug wells, wells without adequate sleeves/casing, etc. A structural failure of the well may result, such as a side wall collapse

An excessive need to pump out a septic tank, usually on the order of several times in a year, to keep the septic overflows or backups from happening, can also signal a septic system failure. Other excessive actions indicating a septic failure may include curtailing the use of laundry, kitchen, and/or bathroom facilities to prevent overflows or backups. These situations can be considered as temporarily mitigated failures in that the property owner has intervened to prevent the failure from causing a public health problem (see below).

Relief measures for individual, onsite system failures generally fall into one of three categories:

- Onsite Repair – The repair of an onsite well or septic system typically involves a straightforward process that does not require DPS to issue a permit. Repairs can include replacing a broken pipe or septic tank baffle, clearing a clogged pipe, or replacing a pump. Repairs may also involve an improved maintenance schedule or the use of practices compatible with onsite systems.
- Onsite Replacement – An onsite systems replacement occurs where a major component of the well and/or septic system no longer functions as intended. A replacement will require DPS to issue a new permit for a new well, septic tank, and/or septic drainfield. Some septic system drainfield replacements can be considered as single replacements, where one new drainfield is feasible, but without the identification of reserve areas for future use. A full replacement for a septic system includes a new drainfield and an approved reserve area for future drainfields.
- Community Service – Community service is provided, if feasible, either where community service is already planned or where DPS determines that no reasonable onsite relief measure is feasible.

### **Public Health Problems – Existing and Potential**

Individual, onsite well and septic system failures may result in problems than can affect public and environmental health due to contact with inadequately treated sewage or contaminated drinking water, or due to an insufficient drinking water supply.

Existing Public Health Problems: The determination by DPS that a property suffers from the failure on an onsite well or septic system to function as originally designed. Solutions for failed onsite systems may require a new well or septic system permit. New septic system permits are required for the replacement of the septic tank and/or drainfield or pit. In other cases, a repair, such as the replacement of a broken pipe, or change in use or maintenance, may suffice to address the failure.

Potential Public Health Problems: The expectation, based on a determination by the County, that the replacement of existing onsite wells and/or septic systems may not be capable of supporting existing development, resulting in future public health problems. Early identification of areas or neighborhoods where these conditions exist may result in corrective measures that will help to avoid future individual systems failures.

### **Sanitary District**

The entire area where the responsibility of providing community water and sewer service as identified in this plan falls to a single agency. The Washington Suburban Sanitary District (WSSD), which encompasses most of Montgomery and Prince George's Counties, is served by the WSSC as defined in State laws establishing WSSC. Two areas within the County are excluded from the WSSD:

- The Rockville Municipal Service Area, served by the City of Rockville's community water and sewerage systems; this service area does not always coincide with the City's corporate limits. (See Chapter 1, Section II.F.8.)
- The Poolesville Municipal Service Area, coincides with the Town of Poolesville corporate limits and is served by the Town's community water and sewerage systems.

**Septic System**

An underground system that collects, treats, and safely disposes of sewage from a residential, an institutional, or a commercial user, most often on the user's property. The first part of the system consists of a **septic tank** (connected directly to the user's building) where solids separate from liquid effluent and settle to the bottom of the tank. Liquid effluent from the tank flows into an underground **septic drainfield**, a network of trenches that distribute the effluent across a broad area below the ground surface. Aerobic bacteria in the soil below the drainfield provide the final step in the treatment process as the effluent percolates down from the drainfield. The treated effluent then flows into the water table.

Several different types of septic system are in use throughout the county. For additional information, please refer to Chapter 1, Section III.C.2.

**Sewer Service Area**

That area served, or potentially served, by a system of sanitary sewers connected to a treatment plant, or, in a very large system, sub-areas as delineated by the County.

**Special Water or Sewer Service Area**

An area designated by the County Council where the provision of community water and/or sewer service is approved to provide relief for existing failures and/or potential health problems. Special service areas may be located either within or outside the planned community service envelopes.

**Systems Development Charge (SDC)**

A fee paid by new users of the WSSC's water and sewerage systems which WSSC uses to partially fund the capital cost of water and sewer system growth and improvement.

**Water Service Area**

That 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.

**Water/Sewer Service Connection**

The portion of the service pipe for a structure located between the local service main and the property line, or between the main and the sanitary easement for the main. Within the WSSD, the house connection is the responsibility of the WSSC. Additional details concerning the use of abutting and non-abutting service connections are provided in WSSC's Development Services Code (<https://www.wsscwater.com/business-construction/developmentconstruction-services.html>).

**Abutting Service Connection:** A service connection constructed at a right angle to a service main running directly to the customer's property line. Some abutting sewer connections are provided from sewer manholes, allowing them to be constructed perpendicular to the manhole but at an angle of other than 90 degrees to the sewer main.

**Non-Abutting Service Connection:** A service connection used by WSSC in cases where an existing community system water or sewer main does not directly abut a customer's property. They are typically used in cases where an intervening property blocks access to the main, or where a service connection, built at a 90 -degree angle to the main providing service, will not intersect with the user's property line. Some abutting sewer connections are provided from sewer manholes, allowing them to be constructed perpendicular to the manhole and not at an angle of 90 degrees to the sewer main. Additional information and an illustration are provided in Chapter 1, Section II.A. & Figure I-F4.

**Water/Sewer Site Utility**

The portion of the service connection for a structure located between the property line and the structure served. A single water or sewer site utility may serve more than one structure on a given property. In exceptional cases, site utilities may also be located within an easement on an adjacent property; these site utilities are installed in some cases where WSSC allows service from a non-abutting connection." Within the WSSD, the site utility is the responsibility of the property owner. Water and sewer site utilities were formerly referred to as "hookups."

**Water/Sewer Service Area Category**

The water and sewer service area categories designated in this plan serve two functions:

- They identify those areas of the county approved or planned for community water and/or sewer service and those areas intended for service by individual systems; and
- They identify a mechanism for staging community service for those areas planned for community service, consisting of the application of the service categories W-1 through W- 5 and S-1 through S-5 described above to the properties within the county.

In addition, some areas of the county are noted for special service conditions or restrictions, including those specific properties where the County has approved the use of multi-use systems. Service area categories are shown on the water and sewer service area category maps which are a part of this plan.

**Water/Sewer Service Area Category Conditions and Restrictions**

The following special service conditions and restrictions are used on the County’s water and sewer service area category maps and in the service area category database: Space limitations on most map presentations require the use of shortened notes, as provided in the following table, to represent somewhat more involved, corresponding concepts.

<b>Table A-T1: Water/Sewer Service Area Category Conditions and Restrictions</b>		
<b>Map/Database Note</b>	<b>Applies to</b>	<b>Explanation</b>
Abutting Dry Main	Water & Sewer Categories	A dry water or sewer main, intended for future community service, abuts this property. The main is not currently in service as it is not connected to the community water system.
Affected by Public Improvements	Water & Sewer Categories	Community water or sewer service is provided where public infrastructure improvements such as road construction will adversely affect the property’s individual, on-site well. *
Cluster	Water & Sewer Categories	Community water or sewer service is limited to properties established under an approved cluster option only (RE-1, RE-2C, RC Zones).
Conditional Approval	Water & Sewer Categories	A conditional water or sewer category change approval is pending final action (see action document for details).
Deferred	Water & Sewer Categories	A decision on a requested water or sewer category change is pending before the Council (see action document for details).
Health-Predates CWSP/Envelope	Water & Sewer Categories	Community water or sewer service, addressing a public health problem, existed prior to the service envelope established in the Water & Sewer Plan. *
Interim On-Site System	Water & Sewer Categories	The property is approved for an interim (non-permanent) permit well or septic system.
Multiuse System	Water & Sewer Categories	The property is approved for a multiuse (large-capacity) on-site water supply or wastewater disposal system. The multiuse system has a design capacity of at least 1,500 gallons per day. An inventory of multiuse water supply and sewerage systems is provided as Appendix B in the Water and Sewer Plan.
No Hookup Allowed-Abutting	Water & Sewer Categories	Community water or sewer service cannot be provided from the main abutting this property. The service hookup, allowed for the original abutting parcel, was approved for another qualifying property.
Non-Standard Onsite System	Only Sewer Categories	This property is approved for a non-standard, individual onsite septic system (alternative or innovative system, substandard system, holding tank). <i>(Does not apply to water service area categories.)</i>



Table A-T1: Water/Sewer Service Area Category Conditions and Restrictions		
Map/Database Note	Applies to	Explanation
Oaks Agreement	Only Water Categories	Community water service provided under the County’s agreement with local property owners to provide water service in the vicinity of the Oaks Sanitary Landfill near Laytonsville. *
Onsite System Reg. Changes	Water & Sewer Categories	Community water or sewer service is provided to a property affected by changes to on-site water supply systems regulations. *
Other (Contact DEP)	Water & Sewer Categories	Other or multiple service conditions or restrictions apply to this property; please contact DEP staff for additional information.
PIF	Water & Sewer Categories	Community water or sewer service is provided for use only by a private institutional facility (PIF) only; see action document. *
PIF-Specified User	Water & Sewer Categories	Community water or sewer service is provided for use only by a private institutional facility (PIF) only. The approval action further restricts service to only a single, specified user; service for any other user is not allowed without a subsequent amendment to the Water and Sewer Plan. *
Piney Br. Sewer Agreement	Water & Sewer Categories	Community sewer service is provided under the conditions of the Piney Branch Restricted Sewer Access Policy, as established by a covenant including the Piney Branch Sewer Agreement. *
Piney Br. Single Property	Only Sewer Categories	Community sewer service is provided for a single existing property under the conditions of the Piney Branch Restricted Sewer Access Policy. No subdivision or resubdivision of the property is allowed without a subsequent amendment to the Water and Sewer Plan. *
Potomac Peripheral Sewer Service	Only Sewer Categories	Community sewer service is provided for properties at the edge of the master plan’s recommended sewer service envelope. This designation does <u>not</u> create an expansion of the recommended sewer envelope. * (Does not apply to water service area categories.)
Predates CWSP/Envelope	Water & Sewer Categories	Community water or sewer service existed prior to the service envelope established in the Water & Sewer Plan. *
Predates Master Plan	Water & Sewer Categories	Community water or sewer service was provided or committed prior to current master plan recommendations and/or community service policies. *
Public Facility	Water & Sewer Categories	Community water or sewer service is provided only for use by a public facility. *
RNC Optional Cluster	Water & Sewer Categories	Community water or sewer service is limited to properties established under an approved RNC Zone optional cluster method only. Properties not approved for community service (open space and some conservancy lots) retain category W-6.
Single Hookup-Child Lot	Only Water Categories	Community water service is provided for a child lot only. * (Child lots are sometimes allowed in low-density areas for the child of the owner of a larger property.)
Single Hookup-Abutting	Water & Sewer Categories	Community water or sewer service is restricted to one water hook up only under the abutting mains policy. *
Single Hookup-Health	Water & Sewer Categories	Community water or sewer service is restricted to one water hook up only for relief of a public health problem. *

<b>Table A-T1: Water/Sewer Service Area Category Conditions and Restrictions</b>		
<b>Map/Database Note</b>	<b>Applies to</b>	<b>Explanation</b>
Single Hookup-Piney Br. Abutting	Only Sewer Categories	Community sewer service, restricted to only a single sewer hookup, is provided under the abutting mains provision of the Piney Branch Restricted Sewer Access Policy. The provision of this sewer hookup cannot be used to promote subdivision or resubdivision of this property. *
TDR	Water & Sewer Categories	Community water or sewer service is limited to properties established under an approved TDR development option only.
Utility Service Error	Water & Sewer Categories	Community water or sewer service is provided due to a service error by the utility. *
* <i>The provision of community service under this policy shall not be used as justification for the connection of intervening or nearby lots or parcels if they would not otherwise be entitled to connect to community systems.</i>		

# **Appendix B**

## ***MULTIUSE WATER AND SEWER FACILITIES***

**MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**  
**Appendix B: Multiuse Water and Sewer Facilities**  
 County Council Approved 2022-2031 Plan

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**I. INTRODUCTION**

The State requires that the County approve and inventory multiuse water supply and sewerage systems in the Water and Sewer Plan. This Plan defines multi-use systems as individual on-site systems, whether owned or operated by an individual or group of individuals under private or collective ownership, serving a group of individuals, and having a treatment capacity of 1,500 gallons or more per day (gpd). The County’s minimum system capacity requirement is more stringent than the State’s minimum 5,000 gpd requirement. This is intended to help identify where “smaller” multiuse systems may have cumulative impacts on groundwater resources. Figure B-F1 is a map showing the general distribution of multiuse systems in the county.

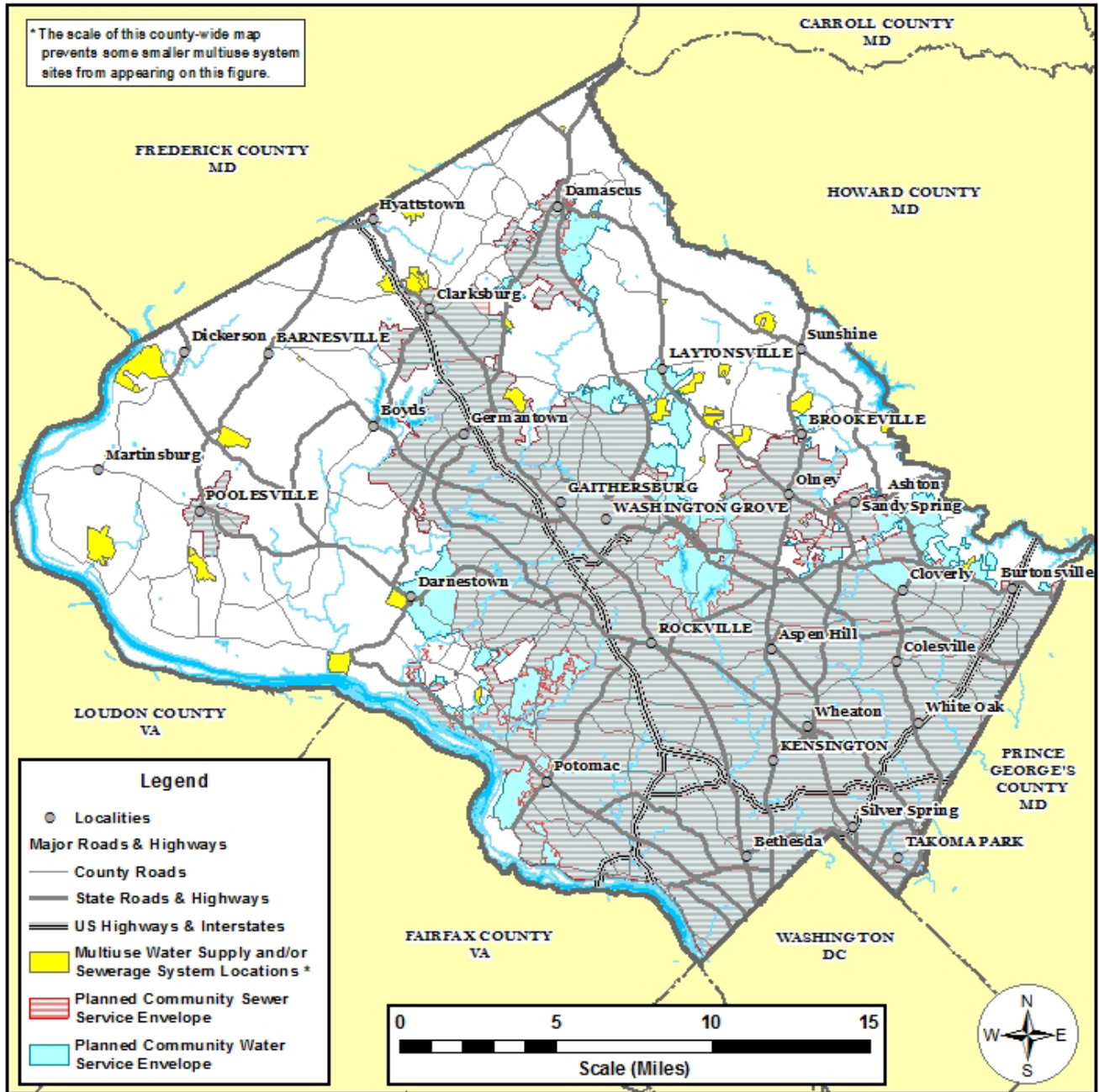
Multiuse water supply systems utilize a source of ground or surface water to provide potable water, and consist of wells, piping, pumps, tanks, and/or other facilities. Most often in Montgomery County, multi-use water systems use groundwater wells. Multiuse sewerage systems collect and dispose of sewage and consist of various devices for the treatment and discharge of sewage. These are usually large-capacity septic systems. For the purposes of this Plan, multiuse systems include the following:

- A single water supply and/or sewerage system serving:
  - a single property; or
  - two or more commonly-owned, contiguous properties with a common function (religious institution, nursing home, etc.); and
- More than one water supply and/or sewerage system serving a single property with a cumulative capacity of 1,500 or more gpd.

Table B-T1 compiles available information on the multiuse water supply and sewerage systems in the county. Note that in some cases, a site with a multiuse sewerage system uses community water service and *vice-versa*.

**MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**  
**Appendix B: Multiuse Water and Sewer Facilities**  
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**Figure B-F1: Multiuse Systems Locations in Montgomery County**



**MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**

**Appendix B: Multiuse Water and Sewer Facilities**

County Council Approved 2022-2031 Plan

<b>Table B-T1: Inventory of Existing and Approved Multiuse Water Supply and Sewerage Systems</b>		
<b>Facility</b>	<b>Multiuse Water Supply System</b>	<b>Multiuse Sewerage System</b>
<b>Facility Name</b> Owner/Operator (If Different than Facility) Location Comments (Status/Expansion)	Water Source Treatment & Sludge/Backwash Disposal System Capacities (Rated, Ave., Max., Stor.) State Coordinates	Type of Treatment Design Capacity Point of Discharge & Permit No. State Coordinates
<b>PUBLIC FACILITIES</b>		
<b>Darnestown Elementary School</b> MCPS 15030 Turkey Foot Rd., Darnestown <u>Sewer:</u> 5000 gal. tank. 6 out of 8 original seepage pits in use. No reserve area established.	<i>Served by WSSC community water supply system.</i>	Treatment: 5000-gallon septic tank, soil absorption via seepage pits Design capacity: 4,500 GPD Ground discharge. Permit not required
<b>Federal Regional Center</b> U.S. Government - FEMA 5321 Riggs Rd., Mt. Zion No comments	<i>Served by WSSC community water supply system.</i>	Treatment: not specified on permit. Design capacity: .....10,000 GPD Surface water discharge: Hawlings River. Permit 93-DP-2542 Coordinates: N500,864 / E770,000
<b>Laytonville Elementary School</b> MCPS 21401 Laytonville Rd. (MD 108), Laytonville <u>Water:</u> Converted to community water service, June 2015. <u>Sewer:</u> Original system consisted of one seepage pit. No other records for the system found. In 1988 a reserve area was established and reduced by 25% due to unpermitted grading by B.O.E. (2014-2015 school year: 429 students & 56 staff)	<i>Served by WSSC community water supply system.</i>	Treatment: unknown Design capacity: unknown Ground discharge. Permit not required
<b>Laytonville Golf Course</b> Mont. Co. Revenue Auth. 7130 Dorsey Rd., Laytonville No comments	Source: groundwater	Treatment: septic tank, soil absorption via low-pressure dosing system Design capacity: .....4,900 GPD Ground discharge. Permit not required.
<b>Little Bennett Regional Park – Campground</b> M-NCPPC 23701 Frederick Rd. (MD 355) - Clarksburg <u>Sewer:</u> The park maintenance facility, part of this system, has been approved for community sewer service, but has not been switched over to community sewer service.	<i>Served by WSSC community water supply system.</i>	Treatment: septic tank, soil absorption via drainfields Design capacity: .....7,000 GPD Ground discharge; permit not required. Coordinates: N718,000 / E518,000
<b>Little Bennett Regional Park – Golf Course</b> M-NCPPC 25900 Prescott Road, Clarksburg <u>Sewer:</u> Adjacent driving range at 26001 Prescott Rd. has flow of 500 gpd to septic system*	Source: Groundwater	Treatment: septic tank, soil absorption via drainfields Design capacity: .....5,000 GPD Ground discharge; permit not required.
<b>Maryland National Guard</b> State of Maryland Riggs Road - Mt. Zion No comments	<i>Served by WSSC community water supply system.</i>	Treatment: septic tank, with soil absorption via sand filter Design capacity: .....3,000 GPD Discharge: tributary to Hawlings River Coordinates: N500,614 / E771,311



**MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**

**Appendix B: Multiuse Water and Sewer Facilities**

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<b>Table B-T1: Inventory of Existing and Approved Multiuse Water Supply and Sewerage Systems</b>		
<b>Facility</b>	<b>Multiuse Water Supply System</b>	<b>Multiuse Sewerage System</b>
<b>Facility Name</b> Owner/Operator (If Different than Facility) Location Comments (Status/Expansion)	Water Source Treatment & Sludge/Backwash Disposal System Capacities (Rated, Ave., Max., Stor.) State Coordinates	Type of Treatment Design Capacity Point of Discharge & Permit No. State Coordinates
<b>Monocacy Elementary School</b> MCPS 18801 Barnesville Rd., Dickerson <u>Sewer:</u> No records of permitted system found. Notes in file indicate the system consists of tank(s) and seepage pits and there is no reserve area, when the system fails they will have to go a holding tank. 2014-2015 school year: 161 students & 22 staff	Source: Groundwater Treatment: Chlorination	Treatment: Septic tank, soil absorption via seepage pits Design capacity: unknown Ground discharge; no permit record.
<b>NIH Animal Farm</b> National Institutes of Health/USDHHS 22763 Elmer School Rd., Poolesville <u>Water:</u> Facility Study Proposed	Source: groundwater Treatment: Chlorination. Disposal: None Rated Capacity:.....151,000 GPD Average Production:.....42,000 GPD Maximum Peak Flow:.....59,000 GPD Storage Capacity:..... 150,000 gal.* Coordinates: N472,000 / E665,000 *elevated storage	Treatment: activated sludge Design capacity: .....10,000 GPD Surface water discharge: Broad Run. Permit no. 91-DP-2529 Coordinates: N471,066 / E664,523
<b>Poolesville Golf Course</b> Mont. Co. Revenue Auth. 16601 West Willard Rd. - Poolesville No comments	Source: groundwater	Treatment: Stabilization lagoon, soil absorption and evaporation via spray irrigation Design capacity: .....8,000 GPD Ground discharge; permit not required. Coordinates: N469,910 / E680,408
<b>Resource Recovery Facility</b> Mont. Co. DEP & Northeast Maryland Waste Disposal Authority 21204 Martinsburg Rd. - Dickerson No comments	Source: groundwater Treatment: Chlorination. Disposal: None. Rated Capacity:.....144,000 GPD Average Production:.....144,000 GPD Maximum Peak Flow:.....72,000 GPD Storage Capacity:..... 15,000 gal. Coordinates: N498,300 / E670,050	Treatment: Package treatment plant, with neutralization tank, dual media filter Design capacity: .....122,400 GPD Surface water discharge: Potomac River via PEPCO discharge canal. Permit not required Coordinates: N498,300 / E670,050
<b>PRIVATE FACILITIES: COMMERCIAL</b>		
<b>Blue Mash Golf Course</b> Same 5821 Olney Laytonsville Rd. (MD 108), Laytonsville No comments	<i>Served by WSSC community water supply system.</i>	Treatment: spray irrigation (growing season only); ground discharge Design capacity: .....5,000 GPD Surface discharge permit issued by MDE
<b>Bretton Woods Recreation Center</b> International Monetary Fund 15700 River Road - Seneca No comments	Source: Ground water Rated capacity:.....1,500 GPD Average production:..... Maximum flow:..... Storage capacity: .....	Treatment: activated sludge Design capacity: .....15,000 GPD Surface water discharge: Un named Tributary to Potomac River. Permit no. 90-DP-2754 Coordinates: N452,200 / E706,500
<b>Dickerson Generating Station</b> Gen On Mid-Atlantic LLC (formerly Mirant Mid-Atlantic) Martinsburg Rd. -- Dickerson Facility formerly owned by PEPCO.	Source: Potomac River Treatment: Clarification, filtration, & chlorination. Disposal: Hauled out Rated capacity:.....56,000 GPD Average production:.....26,000 GPD Maximum flow:.....56,000 GPD Storage capacity: .....none Coordinates: N520,000 / E668,000	Treatment: Activated sludge Design capacity: .....10,000 GPD Surface water discharge: Potomac River via discharge canal. Permit MD002640 Coordinates: N501,800 / E669,992

**MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**

**Appendix B: Multiuse Water and Sewer Facilities**

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<b>Facility</b>	<b>Multiuse Water Supply System</b>	<b>Multiuse Sewerage System</b>
<b>Facility Name</b> Owner/Operator (If Different than Facility) Location Comments (Status/Expansion)	Water Source Treatment & Sludge/Backwash Disposal System Capacities (Rated, Ave., Max., Stor.) State Coordinates	Type of Treatment Design Capacity Point of Discharge & Permit No. State Coordinates
<b>Four Streams Golf Course</b> Members Club at Four Streams, Inc. 19501 Darnestown Rd. (MD 28), Beallsville No comments.	Source: groundwater	Treatment: Septic tanks and soil absorption via subsurface fields with low pressure distribution. Design capacity: .....2,750 GPD Ground discharge; permit not required.
<b>Johnson's Flower &amp; Garden Center</b> Same 5011 Olney Laytonsville Rd. (MD 108), Laytonsville <u>Sewer:</u> Expansion proposed	Source: groundwater.	Treatment: Septic tanks and soil absorption via drain fields Design capacity: ..... 2,000 GPD* Proposed:
<b>Layton Village Shopping Center</b> same 6830 Laytonsville Rd. (MD108), Laytonsville 2-building strip shopping center	Source: groundwater.	Treatment: septic tanks, aerobic treatment unit, soil absorption via drain fields Design capacity: .....2,500 GPD Ground discharge; permit not required.
<b>Laytonsville Veterinary Practice &amp; Sundown Kennel</b> SAnme 5910 Sundown Rd. - Laytonsville Formerly the Sundown Road Veterinary Clinic.	Source: Groundwater Treatment: None. Disposal: None Rated capacity:.....1,500 GPD Average production:.....1,500 GPD Maximum flow:.....1,500 GPD Storage capacity: .....none Coordinates: N507,000 / E763,000	Treatment: septic tank, soil absorption via drain fields Design capacity: .....1,500 GPD Ground discharge; permit not required. Coordinates: N507,000 / E763,000
<b>Montgomery Country Club</b> Same 6601 Olney Laytonsville Rd. (MD 108), Laytonsville No comments	Source: groundwater Treatment: none. Disposal: none	Treatment: septic tanks, soil absorption via drain fields with a low-pressure dosing distribution system Design capacity: .....8,000 GPD Ground discharge; permit not required. Coordinates: N498,500 / E762,800
<b>Potomac Oak Center*</b> Travilah Oak LLC 12940-12960 Travilah Rd., Potomac Shopping center <u>Sewer:</u> Replacement septic system installed *Previously "Glenvilah Center."	Source: groundwater	Treatment: Septic tanks with aerobic treatment, soil absorption via drainfields Design capacity: .....5,000 GPD Ground discharge; permit not required.
<b>Ruppert Nurseries*</b> Same 23601 Laytonsville Rd. (MD 108), Laytonsville Proposed facility: Approved preliminary plan 1-05090, 1,900 GPD *Formerly Yesteryear Farm Country Inn	Source Groundwater Treatment: none. Disposal: none Coordinates: N513,400/E759,300	
<b>Seneca Highlands Harris Teeter Grocery Store</b> Same 14101 Darnestown Rd. (MD 28), Darnestown <u>Sewer:</u> Addition of aerobic treatment and additional reserve areas allowed an expansion from 3,200 gpd to 4,000 gpd in 2005.	Served by WSSC community water supply system.	Treatment: Aerobic treatment unit, septic tank, soil absorption via deep drain fields Design capacity: .....4,000 GPD Ground discharge; permit not required. Coordinates: N464,000 / E717,000

**MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**

**Appendix B: Multiuse Water and Sewer Facilities**

County Council Approved 2022-2031 Plan

<b>Table B-T1: Inventory of Existing and Approved Multiuse Water Supply and Sewerage Systems</b>		
<b>Facility</b>	<b>Multiuse Water Supply System</b>	<b>Multiuse Sewerage System</b>
<b>Facility Name</b> Owner/Operator (If Different than Facility) Location Comments (Status/Expansion)	Water Source Treatment & Sludge/Backwash Disposal System Capacities (Rated, Ave., Max., Stor.) State Coordinates	Type of Treatment Design Capacity Point of Discharge & Permit No. State Coordinates
<b>PRIVATE FACILITIES: INSTITUTIONAL</b>		
<b>Armenian Youth Center of Greater Washington</b> Same Darnestown Rd. (MD 28), Darnestown <u>Water:</u> Water category W-3. <u>Sewer:</u> Proposed facility for 6,500 GPD; MDE groundwater discharge permit required	<i>Will be served by WSSC community water supply system.</i>	<i>Pending facility.</i>
<b>The Barnesville School</b> Same Barnesville Road & Peach Tree Road, Barnesville <u>Water:</u> Expansion to 4,200 GPD is proposed <u>Sewer:</u> Expansion to 0.0042 mgd proposed for school expansion to 280 staff/students	Source Groundwater Treatment: none. Disposal: none Rated capacity:.....4,200 GPD Average production:..... Maximum flow:..... Storage capacity:..... Coordinates: N504,000 / E698,000	Treatment: septic tank, soil absorption via drain fields Design capacity: .....3,100 GPD Ground discharge; permit not required. Coordinates: N503,500 / E700,500
<b>Camp Bennett</b> Central Union Mission 20501 Georgia Ave. (MD 97), Brookeville Church camp	Source: groundwater	Treatment: septic tanks and soil absorption via drain fields. Design capacity: .....4,640 GPD Ground discharge; permit not required.
<b>Camp Brighton Woods</b> Girl Scout Council of the National Capital 120 Brighton Dam Rd., Brighton <u>Sewer:</u> Lodge #3 approval pending reserve area establishment.	Source: groundwater	Treatment: Design capacity: .....2,980 GDP total Lodge # 1- 2000 gpd, lodge #2 – 980 gpd, Ground discharge; permit not required.
<b>Camp Friendship/Camp Sunshine --</b> Carol Jean Cancer Foundation 16819 Damascus Road (MD 108), Sunshine No comments	Source Groundwater Treatment: none. Disposal: none Rated capacity:.....10,000 GPD Average production:..... Maximum flow:..... Storage capacity:..... Coordinates: N510,000/E770,600	Treatment: septic tank, soil absorption via drain fields Design capacity: .....10,000 GPD Ground discharge; permit not required. Coordinates: N510,000 / E770,600
<b>Cedar Ridge Community Church</b> Same 2430 Spencerville Rd. (MD 198), Spencerville <u>Sewer:</u> Interim septic system; site approved for community sewer service, category S-3.	<i>Served by WSSC community water supply system.</i>	Treatment: Septic tank, soil absorption via low pressure dose trenches Design capacity: .....2,800 GPD Ground discharge; permit not required.
<b>Darnestown Presbyterian Church --</b> Same 15120 Turkey Foot Rd., Darnestown  <u>Sewer:</u> Three existing systems serve the sanctuary building (*capacity not known), an education building, and a residence. Proposed expansion of the existing onsite system for the sanctuary to a design capacity of 2,400 GPD. Project is pending DPS approval.	<i>Served by WSSC community water supply system.</i>	<u>Existing systems:</u> Design Capacity: ..... at least 1,700 MGD* Ground Discharge Permit not required  <u>Proposed system:</u> Design Capacity: .....1,490 GPD Ground Discharge Permit not required  <u>Total with proposed system:</u> Design Capacity: .....3.190 GPD Coordinates N523,448 / E1,231,277

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**Appendix B: Multiuse Water and Sewer Facilities**

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<b>Facility Name</b> Owner/Operator (If Different than Facility) Location Comments (Status/Expansion)	Water Source Treatment & Sludge/Backwash Disposal System Capacities (Rated, Ave., Max., Stor.) State Coordinates	Type of Treatment Design Capacity Point of Discharge & Permit No. State Coordinates
<b>First Baptist Church of Damascus</b> same 8850 Damascus Rd. (MD 650), Damascus <b>Sewer:</b> Preliminary plan approved for proposed church expansion. 3080 gpd, low pressure dose trench system to be installed	<i>Church served by WSSC community water system. (Parsonage served by existing, non-multiuse well.)</i>	Data?
<b>Emmanuel Seventh Day Adventist Church</b> Same 18800 New Hampshire Ave (MD 650), Brinklow Formerly Brinklow Seventh Day Adventist Church.	Source: groundwater	Treatment: septic tank, soil absorption via drain fields Design capacity: .....4,000 GPD Ground discharge; permit not required.
<b>Garden of Remembrance Memorial Park</b> Garden of Remembrance Memorial Park., Inc. 14321 Comus Rd., Clarksburg Proposed facility	Source Groundwater Treatment: none. Disposal: none Rated capacity:.....1,500 GPD Average production .....: Maximum flow:..... Storage capacity:..... Coordinates: N516,100/E713,000	Treatment: septic tank, soil absorption via drain fields Design capacity: .....1,500 GPD Ground discharge; permit not required. Coordinates: N515,100 / E714,300
<b>Glenstone II Museum</b> Glenstone Foundation (private) 12100 Glen Rd., Potomac  <u>Water:</u> Community water service approved (category W-3) that will be the primary water supply system for this facility.	Source Groundwater Treatment: filtration, softening, chlorination, pH control. Disposal: backwash to public sewer Rated capacity:.....58,000 GPD Average production: .....9,500 GPD Maximum flow:.....19,000 GPD Storage capacity:..... 6,000 gal. Coordinates: N506,100 / E1,241,000	<i>Served by WSSC community sewer system</i>
<b>Hampshire View Baptist Church</b> Same 360 Ednor Rd., Norwood Formerly Wheaton Independent Baptist Church  <u>Water:</u> Interim facility; community water service dependent on main extension to Hampshire Greens site	Source Groundwater Treatment: none. Disposal: none Rated capacity:..... Average production: ..... Maximum flow:..... Storage capacity:.....	<i>Served by WSSC community sewerage system.</i>
<b>Kingdom Hall of Jehovah's Witnesses</b> Same 16825 New Hampshire Ave. (MD 650), Cloverly.	<i>Served by WSSC community water supply system.</i>	Treatment: septic tank and soil absorption via drain fields Design capacity: .....2,000 GPD Ground discharge; permit not required
<b>John Wesley United Methodist Church</b> Same 22420 Frederick Rd. (MD 355), Clarksburg	<i>Served by WSSC community water system.</i>	Treatment: septic tank and soil absorption via drain fields Design capacity: .....2,000 GPD Ground discharge; permit not required.
<b>Montgomery Evangelical Free Church</b> Same 19100 Muncaster Rd., Redland	Source Groundwater Treatment: none. Disposal: none Rated capacity:..... Average production: ..... Maximum flow:..... Storage capacity:.....	Treatment: septic tank and soil absorption via drain fields Design capacity: .....2,250 GPD Ground discharge; permit not required.
<b>Montgomery United Methodist Church</b> Same 28325 Kemptown Rd. (MD 80), Damascus	<i>Served by WSSC community water supply system.</i>	Treatment: septic tank and soil absorption via drain fields Design capacity: .....1,500 GPD Ground discharge; permit not required.

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**Appendix B: Multiuse Water and Sewer Facilities**

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<b>Facility Name</b> Owner/Operator (If Different than Facility) Location Comments (Status/Expansion)	Water Source Treatment & Sludge/Backwash Disposal System Capacities (Rated, Ave., Max., Stor.) State Coordinates	Type of Treatment Design Capacity Point of Discharge & Permit No. State Coordinates
<b>New Hope Presbyterian Church</b> 17930 Bowie Mill Rd., Olney Proposed facility	Source Groundwater Treatment: none. Disposal: none Rated capacity:.....2,100 GPD Average production:..... Maximum flow:..... Storage capacity:..... Coordinates: N480,000 / E777,000	Treatment: septic tank, soil absorption via low-pressure dosing system Design capacity: .....2,100 GPD Ground discharge; permit not required. Coordinates: N480,000 / E777,000
<b>Potomac Valley Assembly of God</b> Same 22901 Ridge Rd. (MD 27), Clarksburg No comments.	<i>Served by WSSC community water supply system.</i>	Treatment: septic tank, soil absorption via drain fields Design capacity: .....3,500 GPD Ground discharge; permit not required.
<b>Seneca Academy</b> same 15601 Germantown Rd. (MD 118), Darnestown Formerly The Circle School Proposed Facility	Source Groundwater Treatment: none. Disposal: none Rated capacity:.....3,750 GPD Average production:..... Maximum flow:.....3,750 GPD Storage capacity:.....none Coordinates: N465,700 / E714,700	Treatment: anaerobic treatment tanks, soil absorption via drain fields Design capacity: .....3,750 GPD Ground discharge; permit not required. Coordinates: N465,200 / E715,200
<b>Spencerville Seventh Day Adventist Church</b> same 16325 New Hampshire Ave. (MD 650), Cloverly	<i>Served by WSSC community water supply system.</i>	Treatment: 6000-gallon septic tank, soil absorption via drain fields Design capacity: .....3,000 GPD Ground discharge; permit not required.
<b>Tri-County Baptist Church</b> Same Damascus Rd. (MD 108), Damascus	Source Groundwater Treatment: none. Disposal: none Rated capacity:.....4,500 GPD Average production:..... Maximum flow:.....4,500 GPD Storage capacity:.....none Coordinates: N525,500 / E754,700	Treatment: septic tank, soil absorption via drain fields with dosing/resting system Design capacity: .....4,500 GPD Ground discharge; permit not required. Coordinates: N525,100 / E755,300
<b>Upper Seneca Baptist Church</b> Same 23401 Davis Mill Rd., Cedar Grove Our records show that the new address of this property is 23425 Davis Mill Road	<i>Served by WSSC community water supply system.</i>	Treatment: 2500-gallon septic tank and soil absorption via drain fields Design capacity: .....1,500 GPD Ground discharge; permit not required.
<b>Visitation Catholic Church &amp; Mary of Nazareth Catholic School</b> Catholic Archdiocese of Washington 14139 Seneca Rd. (MD 112), Darnestown Formerly The Darnestown School Sewer: Construction of a church on the site has used up remaining allowed septic capacity	<i>Served by WSSC community water supply system.</i>	Treatment: septic tank, soil absorption via drain fields Design capacity: .....20,000 GPD Ground discharge; permit not required. Coordinates: N462,000 / E716,000
<b>Westbrook and Hickory Grove Group Homes</b> Brooke Grove Foundation Slade School Rd., Sandy Spring Water & Sewer: Separate systems serving several structures on one site; a portion of the overall Brooke Grove Foundation site has access to and is served by community water and sewer service. Future connection to community systems is planned.	Source Groundwater Treatment: chlorination, pH control. Disposal: none Rated capacity:.....10,500 GPD Average production:..... Maximum flow:..... Storage capacity:.....none Coordinates: N480,000 / E780,900	Treatment: septic tank, leach fields Design capacity: .....10,500 GPD Ground discharge; permit not required. Coordinates: N480,150 / E780,900

# **Appendix C**

## ***EXCEPTIONAL SERVICE POLICIES AND RECOMMENDATIONS***



**MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**  
**Appendix C: Exceptional Service Policies and Recommendations**

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**I. INTRODUCTION**

Discussions of the Water and Sewer Plan’s service policies have noted that in order to implement specific development and land use strategies, a master plan may recommend policies for water and/or sewer service that vary from this Plan’s general policies. (See Chapter 1, Sect. II.G.1. & II.G.11.) When a master plan makes such a recommendation, it includes an appropriate justification for the recommended departure from the general service policies. DEP staff coordinate closely with M-NCPPC staff with regard to the water and sewer service recommendations developed in local area master plans.

In addition, the County may also designate specific areas for or restrict specific areas from community water and/or sewer service in order to achieve specific development goals, to promote environmental protection, or to address other special concerns

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These exceptional policy and recommendation areas are scattered widely throughout the county. The following sections consolidate and summarize these areas into a more convenient format as a part of this Plan. For additional information concerning these issues, please refer to the master plans and County Council resolutions cited below.

**II. SPECIFIC SERVICE AREAS**

The following sections identify and explain the areas in the county where exceptional water and/or sewer service policies apply.

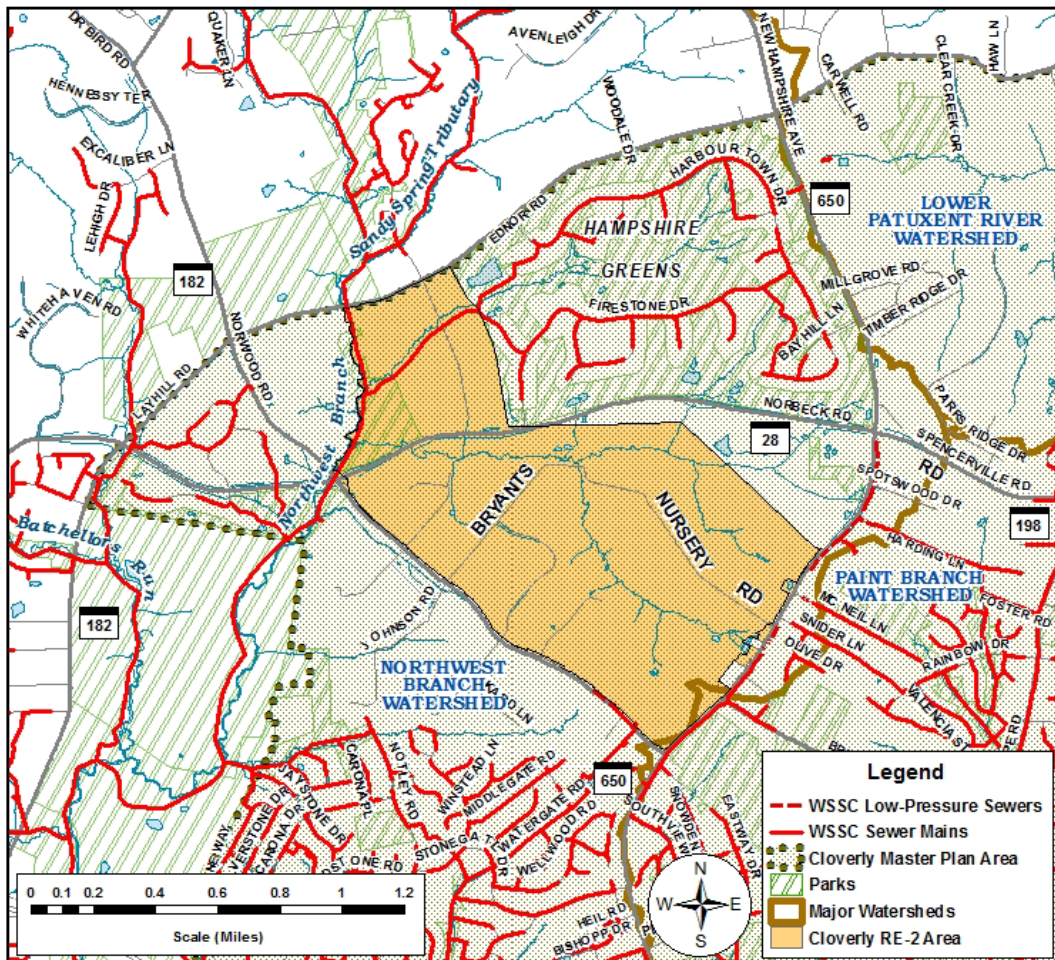
**II.A. CLOVERLY AREA RE-2 ZONE**

**Restricted Community Sewer Service Area:** Established by the 1997 Cloverly Master Plan

**Subject Area:** Area zoned RE-2 bounded by Norwood Rd., New Hampshire Ave. (MD 650), Hampshire Greens, and Northwest Branch.

**Service Recommendation & Comments:** The master plan recommends against community sewerage systems serving residential, commercial, or institutional development except to relieve public health problems, or to address other specific Water and Sewer Plan policies. The Council has previously interpreted that this recommendation may allow for, but does not necessarily guarantee, the approval for community sewer service for cases involving the Plan's special service policies, such as public health problems, properties abutting sewer mains, and private institutional facilities (PIFs). (See Figure C-F1.)

**Figure C-F1: RE-2 Zone in the Cloverly Master Plan Area**



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### **II.B: DAMASCUS AREA GRANDFATHERED PROPERTIES**

**Special Community Sewer Service Area:** Recommended by the 2006 Damascus Master Plan

Subject Area: Older, smaller properties zoned RE-1, RE-2, & RE-2C at the edge of the 1985 recommended sewer envelope; generally, along Ridge Rd. and Woodfield Rd.

Service Recommendation & Comments: Included within the master plan's recommended community sewer envelope are several clusters of older properties that are generally smaller than that allowed by the current zoning. The age and size of these properties led DEP staff to believe that they present the potential for public health problems in the future, as existing, often undocumented, septic systems fail and owners lack adequate space to replace them. These properties were chosen for inclusion in the recommended sewer envelope in part because of their close proximity to existing or proposed community sewer service areas. Their inclusion in the Damascus sewer service envelope will allow owners to pursue community sewer service before their septic systems fail.

The extension of community sewer service to these areas is primarily intended to maintain the existing housing stock and development patterns. This recommendation will result in community sewer service becoming available for a few vacant properties included in these neighborhoods. However, community sewer service is not intended to promote substantial new development in these areas, especially the wholesale redevelopment of existing neighborhoods.

Note that the Damascus Master Plan area includes many more properties with similar circumstances except that they lack close proximity to community sewer service. One of the challenges the County will face here and in other rural areas involves how to address failing septic systems in these communities.

### **II.C: DAMASCUS AREA RE-2C ZONE**

**Restricted Community Sewer Service Area:** Recommended by the 1985 and 2006 Damascus Master Plans

Subject Area: Generally south of Damascus Rd. (Rte. 108) between Woodfield Rd. (MD 124) and Great Seneca Creek.

Service Recommendation & Comments: The master plan recommends against the provision of community sewer service for much of the RE-2C zoned area around Damascus, regardless of whether or not that development is using the RE-2C cluster option. Community sewer service is available under this zone only where included in the master plan's recommended service envelope. To increase residential development in the vicinity of the Damascus Town Center, the 2006 master plan recommended rezoning of some RE-2C properties to RNC that were located at or near the edge of the 1985 recommended sewer envelope. Development on these rezoned sites is intended to use the optional cluster method, with the provision of community water and sewer service required. (See Figure C-F2)

### **II.D: DARNESTOWN TRIANGLE**

**Restricted Community Sewer Service Area:** Recommended by the 1980 and 2002 Potomac Subregion Master Plans

Subject Area: The R-200-zoned, triangular-shaped area bounded by Darnestown Rd. (Rte. 28), Jones La., and Turkey Foot Rd. (See Figure C-F3)

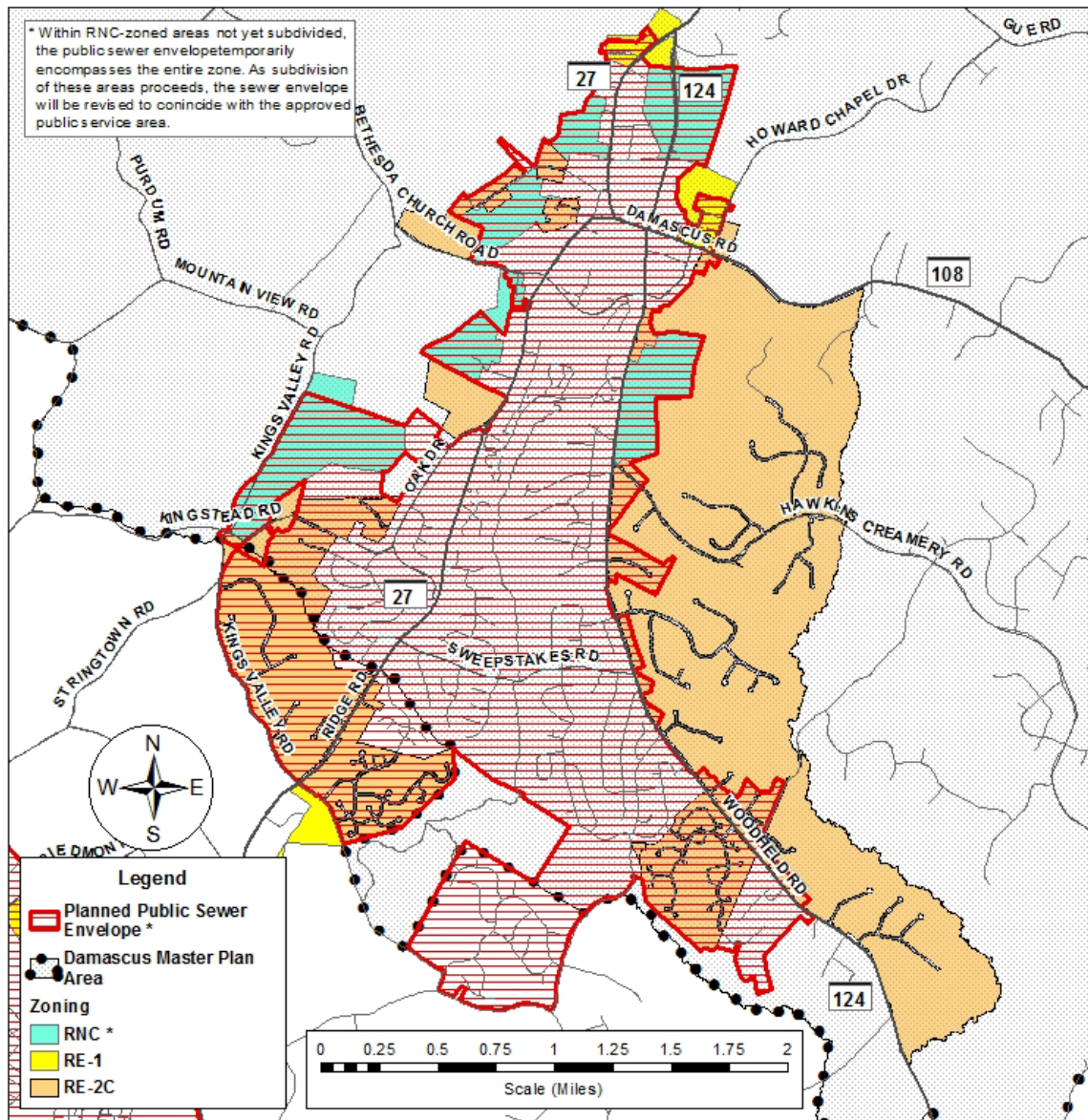
Service Recommendation & Comments: Although zoned for half-acre development that would usually require community sewer service, the master plan recommends against the provision of community sewer service in this area, except to relieve public health problems or to provide single sewer hookups to properties which satisfy the "Abutting Mains" policies (See Chapter 1, Sections II.G.1. & II.G.2.)

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**Figure C-F2: Damascus Area RE-2C Zone**



**II.E: GLEN HILLS STUDY AREA**

**Sewer Service Policy Area:** Established by Council Resolution No. 18-423 (3/8/16)

**Subject Area:** Residential development zoned RE-1 as identified in the Glen Hills Area Sanitary Study.

**Service Recommendation & Comments:** In March 2016, the County Council adopted Resolution No. 18-423 that established sewer service policies for the Glen Hills area, as shown below (see Figure C-F4). These service policies resulted from a study of general septic system suitability in the area conducted by DEP. This study had been recommended by the 2002 Potomac Subregion Master Plan. Pending the Council's consideration of the study's results, the provision of new community sewer service in the Glen Hills area was limited to properties with septic system failures documented by DPS

The Council's 2016 resolution established the following sewer service policies for the study area:

- Individual, on-site septic systems are the primary wastewater disposal method consistent with the area's standard-type development under the RE-1 Zone.

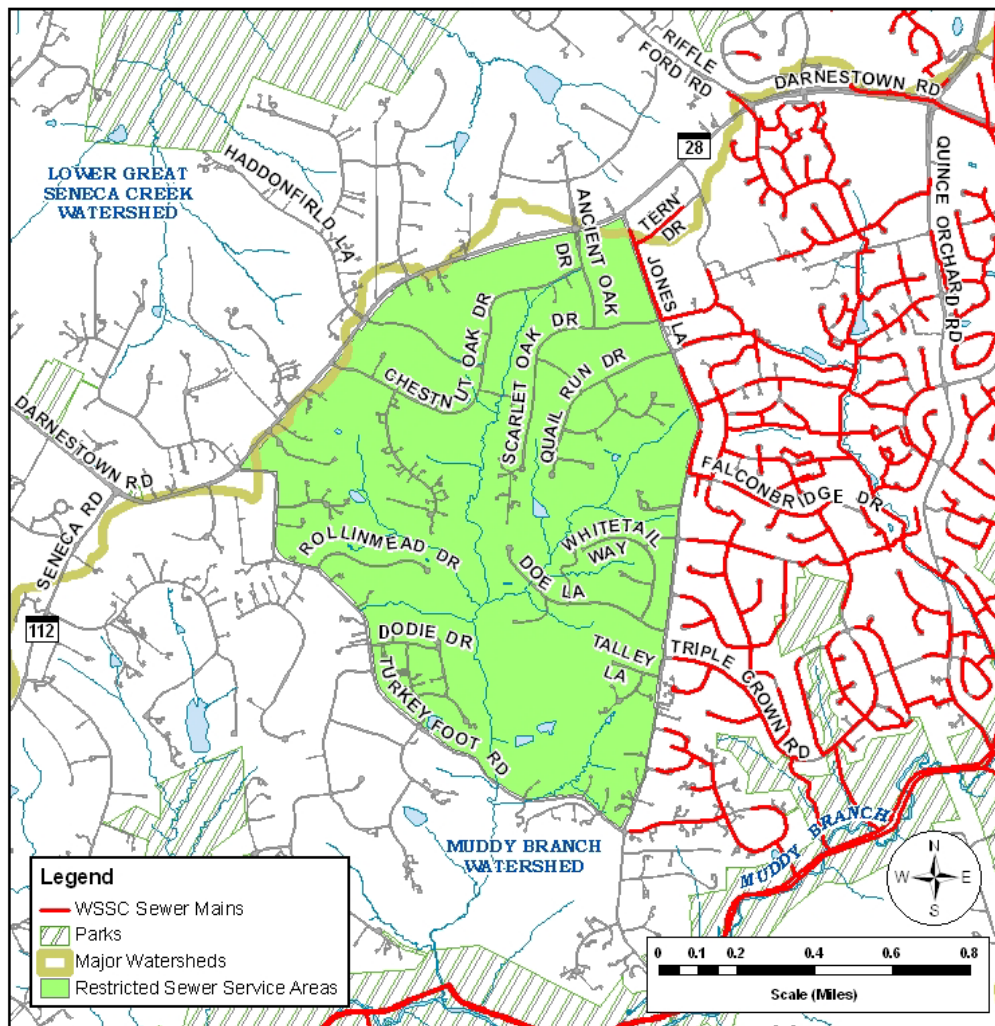


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Figure C-F3: Darnestown Triangle Restricted Sewer Service Area



- Community sewer service can be considered only under the following conditions for:
  - Properties in need of relief from public health problems resulting from documented septic system failures (Sections II.G.2.a.).
  - Properties included within a specifically designated special sewer service area (Section II.G.2.b.). The septic system survey process used to establish these areas is outlined in the Council's resolution and in Chapter 1, Section II.G.2.b: Area-Wide Onsite Systems Concerns, *et seq.* The research conducted for the Glen Hills Area Sanitary Study will allow DEP to streamline the survey process for properties in these neighborhoods. Once DEP has established a survey area, an Executive recommendation for the Council concerning that area is expected within approximately three (3) months. A decision by the Council is generally expected within three months after that. DEP will give a higher priority for surveys that include properties located within Review Areas (RAs) established in the Glen Hills Study and those with documented septic system problems. DEP will give a lower priority to survey areas outside of RAs or where DPS has not identified existing septic problems. The County has approved one special sewer service area in Glen Hills for part of the South Overlea Drive Septic Survey Area. The County Council under CR 18-888 (July 25, 2017) acted to include 16 of 24 properties surveyed by DEP and DPS within a special sewer service area. The County Council's 2018 action to approve this Plan update changed the County's

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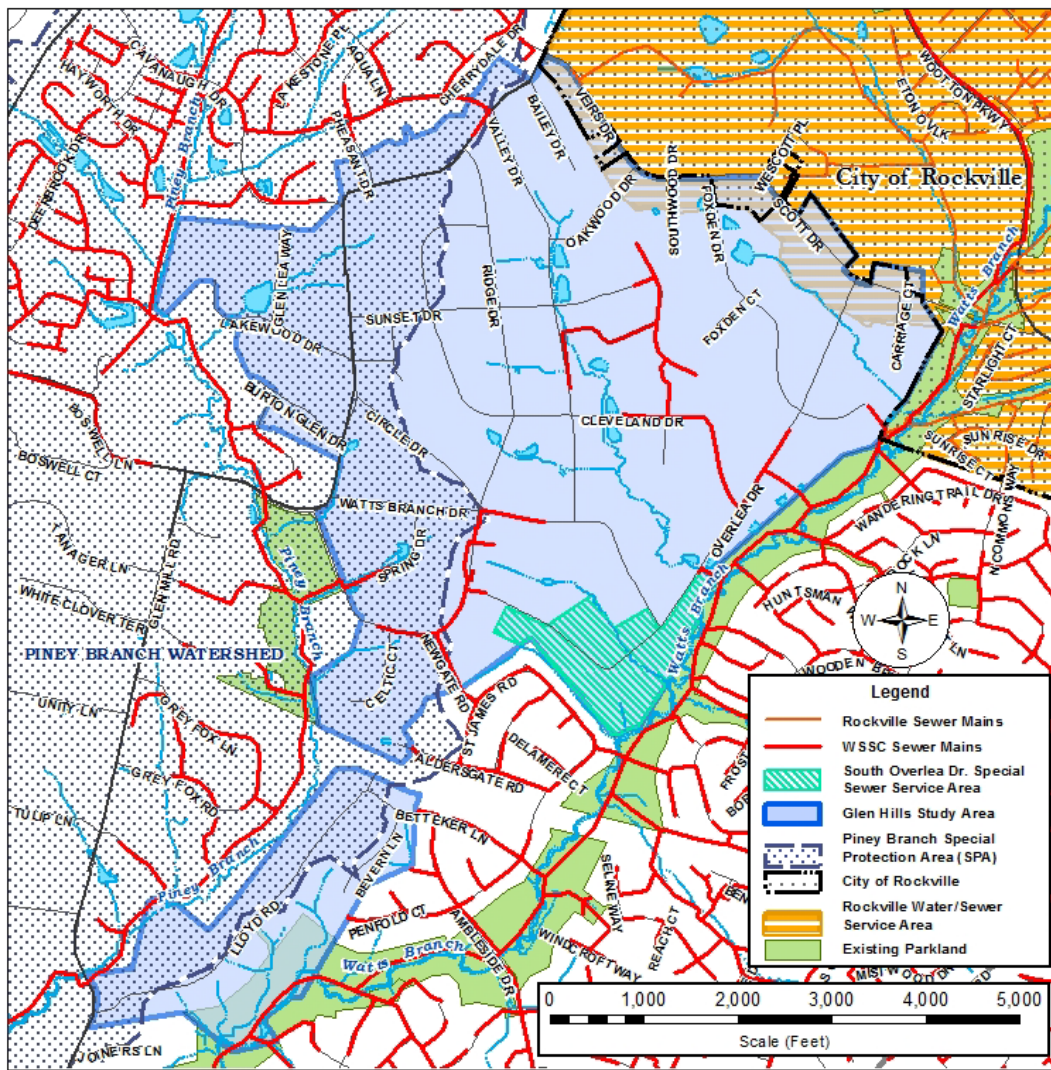
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approach to the consideration of area-wide health problems where located outside the planned community service envelope. Establishing a septic system survey requires the inclusion of at least one property that has a DPS-documented septic system failure (see Chapter 1, Sections II.G.2.b. – d.).

- Properties that abut existing or planned sewer mains and that satisfy the requirements of the “abutting mains” policy (Section II.G.3.)
- Properties at the edge of the Potomac Master Plan planned public sewer envelope, that abut and/or confront properties within the envelope, consistent with the Potomac area peripheral sewer service policy. (Consistent with this policy however, properties at the periphery of the planned sewer envelope within the Piney Branch watershed and at the periphery of the City of Rockville’s planned service area are excluded.)
- Properties within the study area and within the Piney Branch subwatershed that satisfy the requirements for community sewer service under the Piney Branch restricted sewer service policy (Section II.G.11.b.).

**Figure C-F4: Glen Hills Sewer Service Policy Area**



Property owners shall not use the provision for a single sewer hook-up under any of the four Glen Hills area sewer policy provisions cited above to support subdivision or resubdivision of existing properties into more than one lot.



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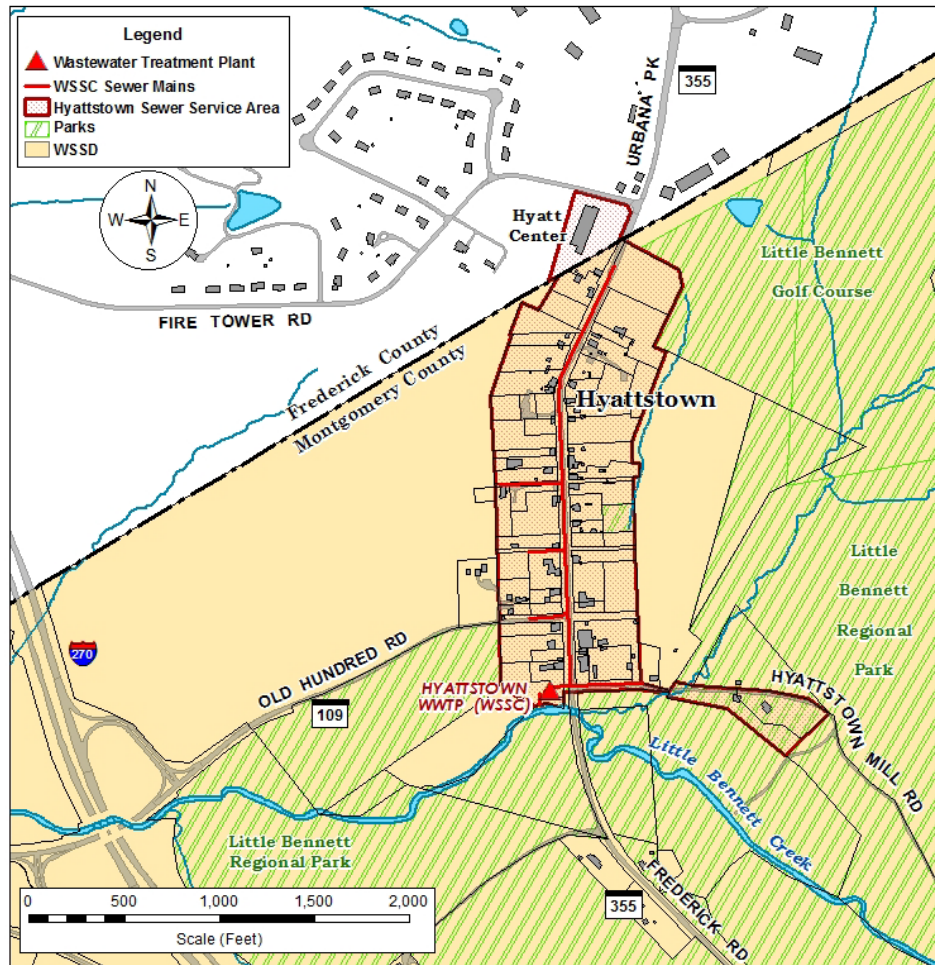
### II.F: HYATTSTOWN HISTORIC DISTRICT

**Special Community Sewer Service Area:** Recommended by the 1994 Clarksburg Master Plan and Hyattstown Special Study Area. Established by Council Resolution No. 13-89 (4/4/95)

Subject Area:

- Properties zoned R-200 and NR-0.75 in the community of Hyattstown
- Nearby portion of Little Bennet Regional Park, east of Hyattstown along Hyattstown Mill Rd.
- Adjacent commercial development at the Hyatt Center in Frederick County

Figure C-F5: Hyattstown Special Sewer Service Area



Service Recommendation & Comments: The County approved the provision of community sewer service to the Hyattstown area in 1994, as part of the Clarksburg Master Plan. Sewer service was needed to relieve chronic, ongoing septic problems in the community, some of which had required condemnation of specific properties. In order to provide this service, WSSC constructed the Hyattstown Wastewater Treatment Plant near the intersection of Frederick Road (Rte. 355) and Old Hundred Road (Rte. 109). The provision of community sewer service in this area is restricted to the Hyattstown Historic District, with only one allowed exception. The County Council subsequently approved the provision of community sewer service to the commercial Hyatt Center site located adjacent to the Montgomery County limits in Frederick County. The septic system for that facility had failed and had the potential to affect wells in the Hyattstown community.

Hyatt Center commercial site, located adjacent to and north of the historic district, partially within Frederick County. This action addressed public health problems resulting from the failure of the center's septic system, which had the potential to affect potable water wells in Hyattstown. (See Figure C-F5.)

### II.G: JONESVILLE AND JERUSALEM COMMUNITIES



# MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN

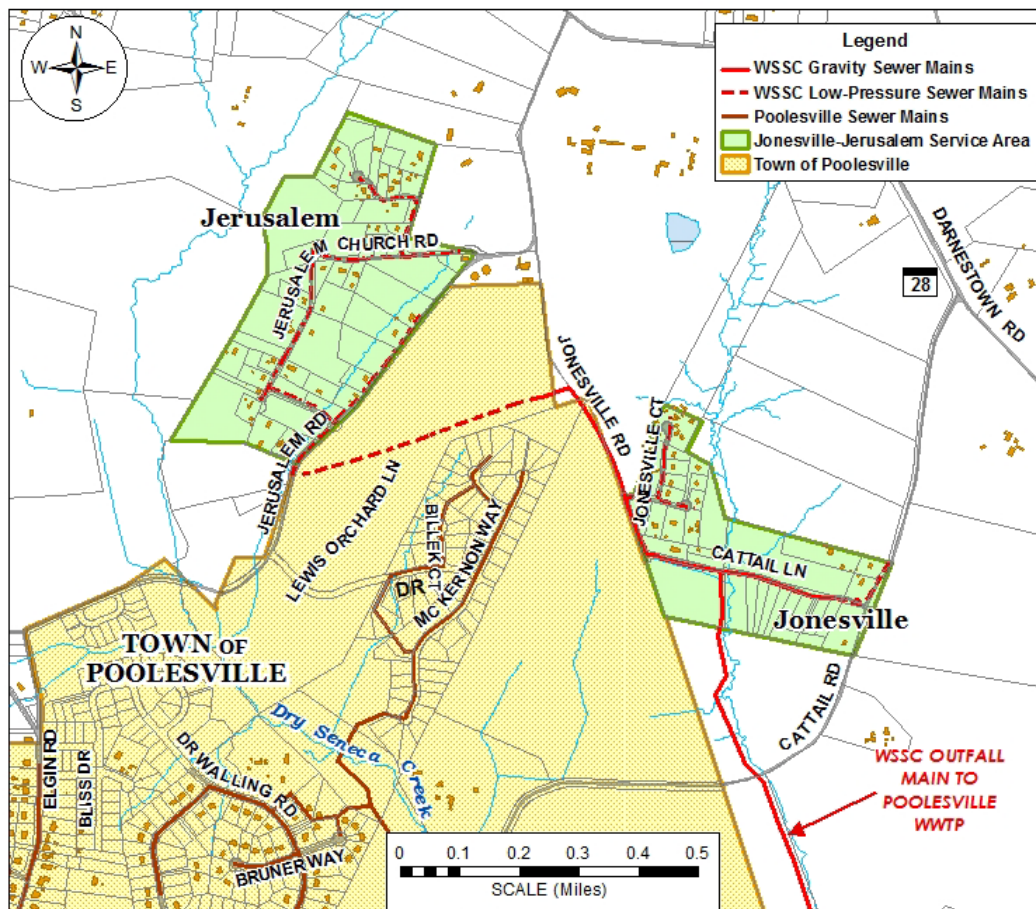
## Appendix C: Exceptional Service Policies and Recommendations

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**Special Community Sewer Service Area:** Established by Council Resolution No. 10-941

Subject Area: RMH-200-zoned properties at the north end and outside of the Town of Poolesville.

**Figure C-F6: Jonesville and Jerusalem Special Sewer Service Area**



Service Recommendation & Comments: The County approved the provision of community sewer service to these two neighborhoods in the vicinity of the Town of Poolesville to relieve public health problems associated with failing septic systems (see Figure C-F6). The County also found it difficult to replace and upgrade the neighborhoods' substandard housing stock because of relatively small lots and inadequate septic suitability of the ground. The special service area is restricted to the areas zoned RMH-200. Under a 1984 agreement with the Town, located adjacent and to the south, WSSC has an allocation of 20,000 gallons per day (gpd) treatment for this service area at the Town's wastewater treatment plant. Due to topographic constraints, properties in much of the service area require the use of grinder pumps and low-pressure sewer mains to receive service. The provision of community sewer service to these communities has allowed for the relief of numerous failed septic systems and for the ongoing renovation and replacement of housing stock. Some limited subdivision of existing parcels has also occurred in these communities using community sewer service. Sanitary service in the Jonesville/Jerusalem area does not include community water service, either from WSSC or from Poolesville; these areas depend on individual wells.

DEP's analysis in 2002 of WSSC's flow monitoring of the Jonesville/Jerusalem system showed that existing and committed flows, combined with anticipated flows (accounting for a single connection for each of the remaining, existing houses and vacant properties in the service area), will use 90- to 93-percent of the allotted 20,000 gpd treatment capacity. This Plan must ensure that adequate capacity in the negotiated WSSC allocation remains to address potential public health problems, as it is unlikely that the Town will have available or be willing to provide additional sewage treatment capacity for WSSC in the future. Therefore, community sewer service will support existing development and the limited development of existing, vacant properties in the special service area; but will not support further multiple-lot subdivision of existing properties. WSSC shall provide new

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community sewer service in the Jonesville/Jerusalem service area only under circumstances which, as of October 2001, satisfy one of the following conditions:

- A single permitted sewer connection previously approved by the WSSC (this condition may allow for more than one connection for an existing property);
- A single sewer connection for an existing house or its replacement; or
- A single sewer connection for an existing, vacant property.

These restrictions generally preclude the use of community sewer service for subdivision purposes. However, there remain a few properties where the ground is suited for new septic systems. This policy does not prohibit the approval of development plans using septic systems or a mix of community service and septic systems. Under sewer category S-1, DEP will need to approve exceptions for the installation of septic systems in this area.

In 2021, WSSC Water provided DEP with recent sewage flow records for the sewerage system serving these communities. These records show that sewage flows periodically exceed the 20,000 GPD limit in the agreement with the Town. WSSC Water staff believe that these excessive flows result from infiltration and/or inflow into the system and are conducting an investigation into the problem. Pending the outcome of WSSC Water's investigation and possible mitigation actions, the County may need to consider additional sewer connection restrictions in this service area, establishing a moratorium on new connections except for cases involving septic system failures. Another option is for WSSC Water and the Town to renegotiate the original flow agreement to allow WSSC Water additional treatment capacity at the Poolesville WWTP for this service area.

**II.H: LAYTONIA RE-1 ZONE**

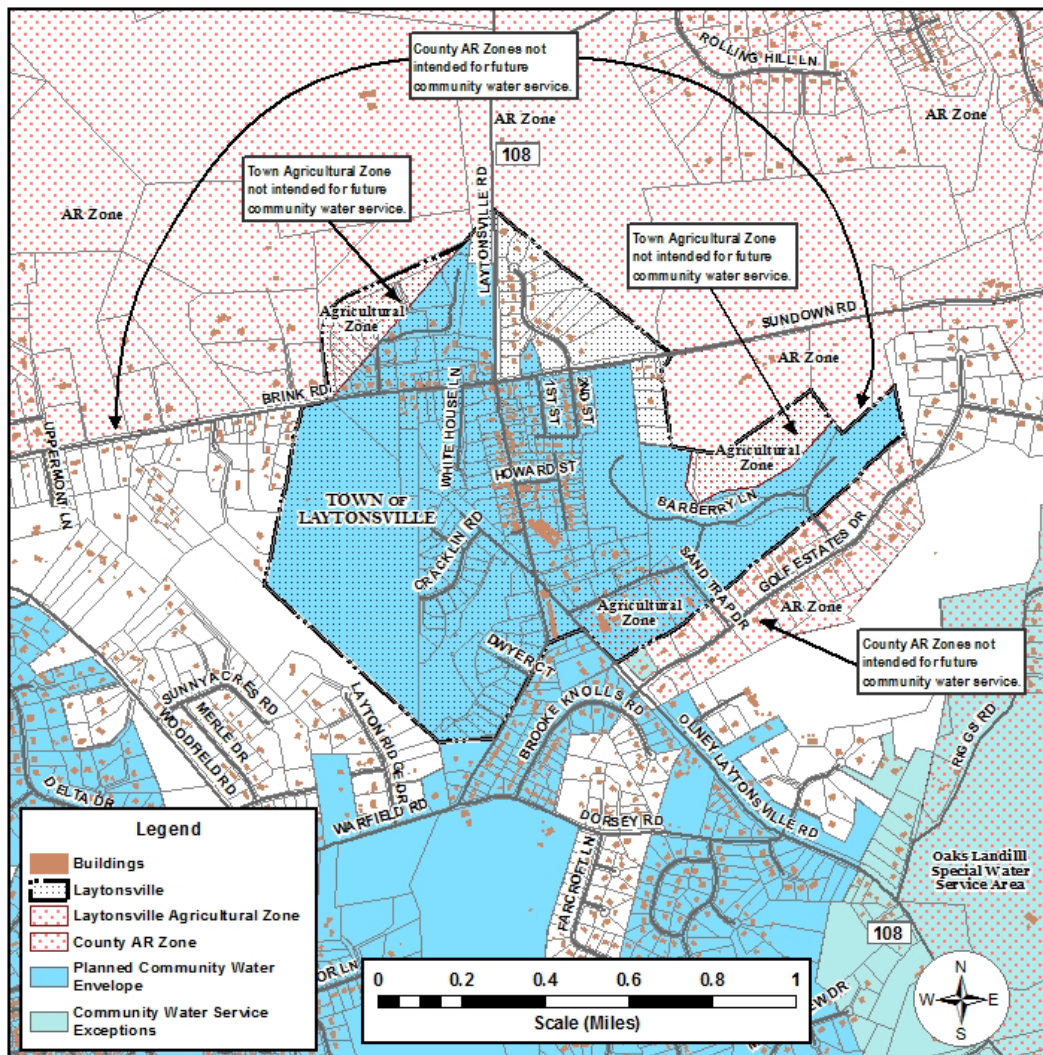
**Special Community Sewer Service Area:** Recommended by the 2004 Upper Rock Creek Master Plan Service Recommendation & Comments: Provide community sewer service to existing and proposed public facilities for the Pope Farm Nursery, Laytonia Recreational Park, and Muncaster Recreational Park.

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**Figure C-F7: Laytonia Area RE-1 Public Facility Sewer Service Areas**



**II.I: LAYTONSVILLE**

**Restricted Water Service Area:** Established by Council Resolution No. CR 14-857 (5/8/01); modified by Resolution No. 16-237 (7/10/07).

**Subject Area:** Areas zoned AR adjacent to or near the Town of Laytonville. (See Figure C-F8.)

**Service Recommendation & Comments:** In considering the possible extension of community water service to the Town of Laytonville, the County Council expressed strong concerns about the potential annexation and development demand created by such service, particularly with regard to properties zoned for agricultural preservation adjacent to the town. In May 2001, under CR 14-857, the Council acted to permanently restrict the provision of community water service from any properties in the town currently zoned Agriculture and from any properties adjacent to or near the town within the county zoned RDT (now zoned AR). Although the Plan's policies generally preclude community water service to properties zoned for one unit per 25-acre density, the Council's intent is to withhold the provision of community water service from these properties regardless of their future zoning if annexed into the town and rezoned. The Council did allow for the provision of service to a portion of one Agriculture-zoned property in the town occupied by a commercial horticultural nursery.

**Figure C-F8: Restricted Water Service Areas in and Near Laytonville**

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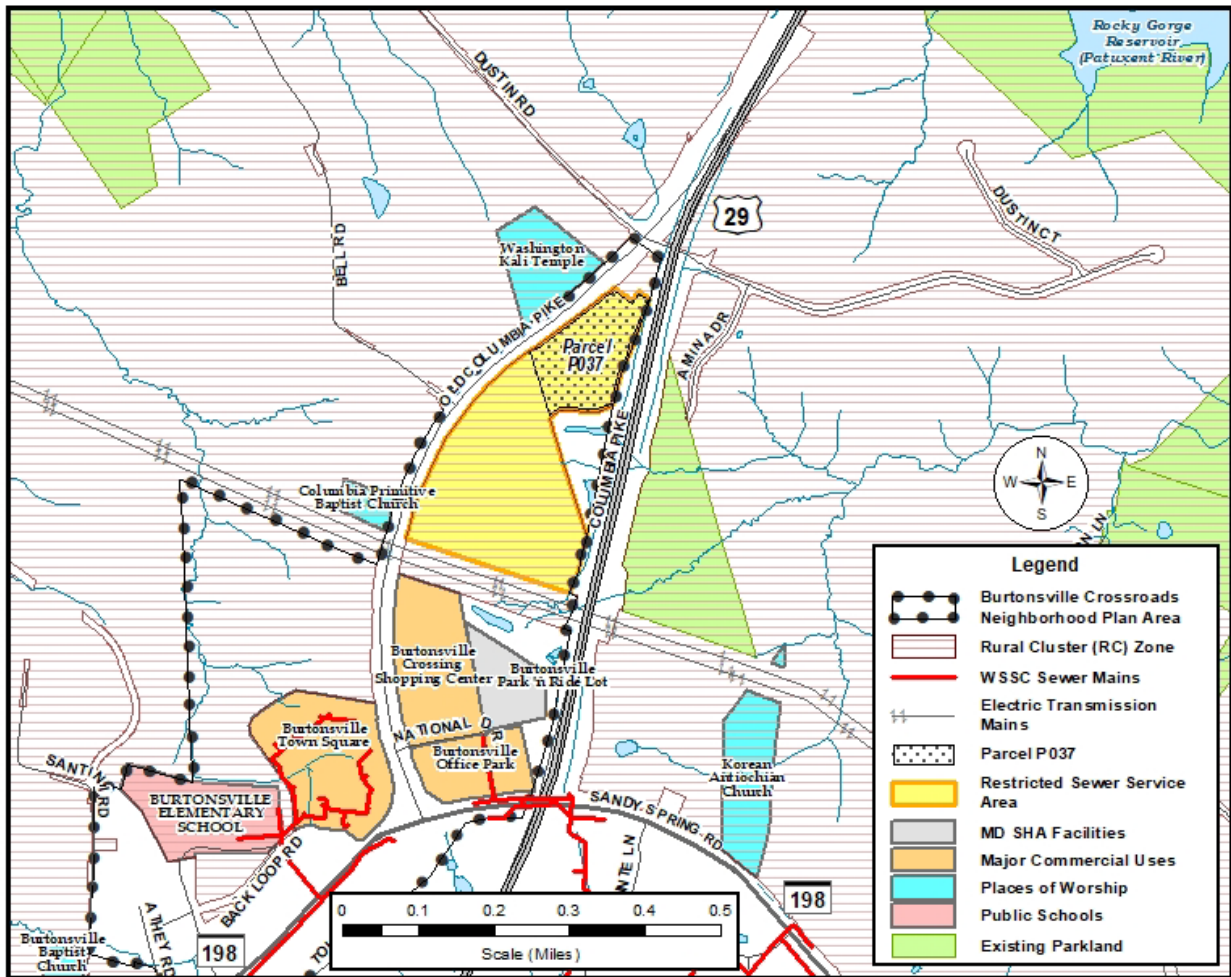
### II.J: NORTH BURTONSVILLE

**Restricted Community Sewer Service Area:** Recommended by the 2012 Burtonsville Crossroads Neighborhood

**Subject Area:** Zoned RC between Old Columbia Pike and Columbia Pike (U.S. Hwy. 29) north of the P.E.P.Co. power lines alignment, and south of Dustin Rd. (See Figure C-F9.)

**Service Recommendation & Comments:** The 2012 master plan recommends against the provision of community sewer service for any reason within this area. This reverses a service recommendation in the prior 1997 Fairland Master Plan that raised the possibility of service for a conditional (special exception) use in this region.

Figure C-F9: Restricted Sewer Service Area in North Burtonsville



### II.K.: OAKS LANDFILL VICINITY

**Special Community Water Service Area:** Established by Council Resolution No. 13-336 (11/14/95)

**Subject Area:** Properties located within or partly within the Assumed and Potential Groundwater Influence Areas of the Oaks Landfill

**Service Recommendation & Comments:** The County approved the extension of community water service to the vicinity of the Oaks Landfill, located between Mt. Zion and Laytonsville, in 1995 (see Figure C-F10). The extension of community water service provides public water for approximately 155 eligible, existing dwellings in the community surrounding the landfill site. DEP investigated low-level groundwater contamination in the northwestern area of the Oaks Landfill starting in 1992. While the level of contamination was less than the

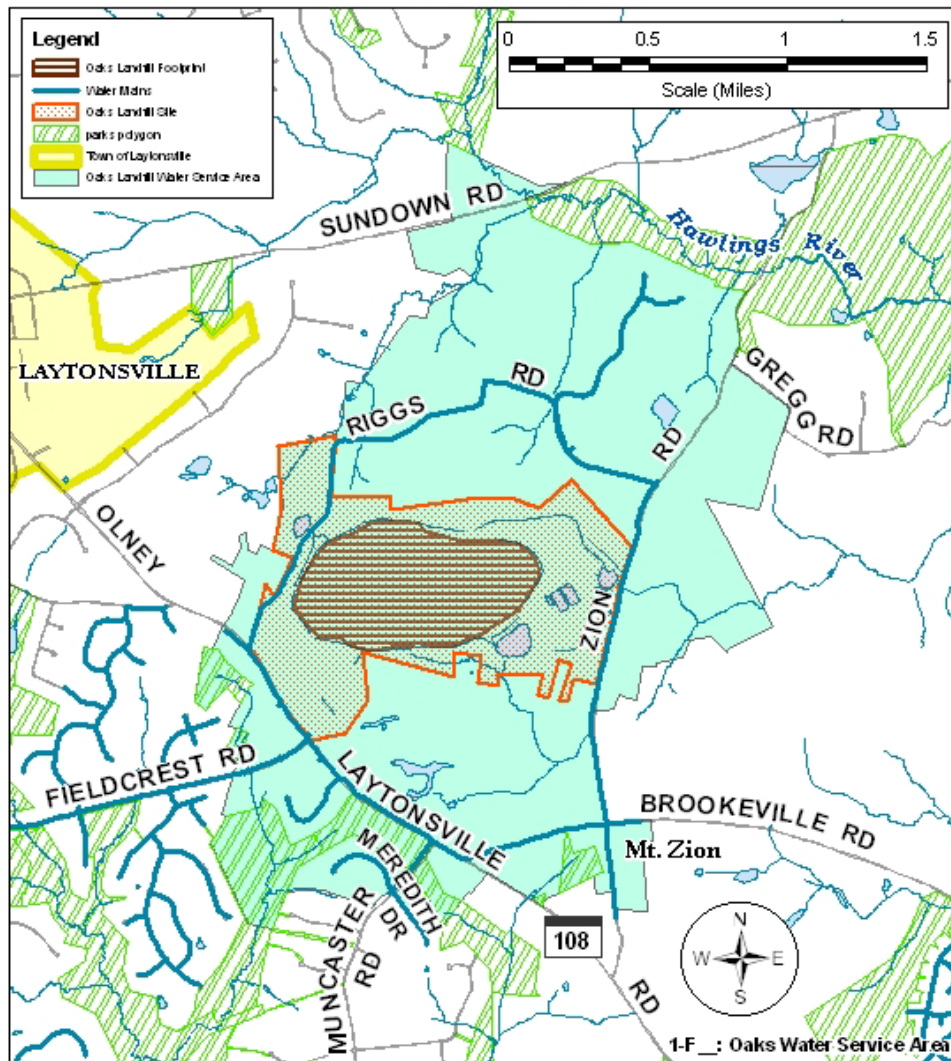


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Maximum Contaminant Limits established by the U.S. Environmental Protection Agency under the Safe Drinking Water Act, it remained persistent. Community water service is provided to this vicinity to relieve anxiety in the community and to avoid potential long-term costs due to an extensive domestic well sampling program in the community. The County's actions are in accordance with provisions of the 1983 Oaks Landfill Mediated Agreement, an agreement between the County and the community near the landfill. The County's Solid Waste Disposal Fund financed the cost of providing community water service within this special service area, including the ongoing payment of water service bills for existing residents. WSSC completed construction the majority of the new the water supply system mains in 1998.

**Figure C-F10: Oaks Landfill Special Water Service Area**



The special water service area envelope, which encompasses parts of the Olney and Upper Rock Creek Planning Areas, includes the potential service area from the 1983 mediated agreement plus other properties in the vicinity that can logically be served by the community water system. The potential service area described in the agreement is based on the Oaks Landfill potential groundwater influence area, which is the "boundary that establishes the maximum potential water service area to be considered for an alternative water supply system," according to a consultant's 1981 hydrogeologic report of the landfill vicinity. Part of the special service area within the Olney Planning Area is zoned Agricultural Reserve (AR), which is not normally recommended for community water service in this Plan. The provision of water service to these AR-zoned areas does not establish a precedent for community water service for similarly-zoned properties outside of the special water service area.

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This special water service area also includes the Mt. Zion community at the intersection of Zion and Brookeville Roads, located only partly within the landfill's potential groundwater influence area. The alignment of the Oaks water main extension, which follows public roads, comes through Mt. Zion, offering service to properties abutting the new main. However, many of the homes in this community had substandard, hand-dug wells which were considered as public health problems and were relieved by the provision of community water service. The County also provided for a water service extension along Meredith Drive east of Muncaster Road where a groundwater contamination problem, unrelated to the Oaks Landfill, had affected many homes using wells.

**II.L.: PINEY BRANCH WATERSHED**

Restricted Community Sewer Service Area: Current version established by Council Resolution No. 15-396 (11/18/03) and recommended by the 2002 Potomac Subregion Master Plan.

Subject Area: Natural drainage area of Piney Branch, a tributary of Watts Branch.

Service Recommendation & Comments: The provision of community sewer service within this watershed is regulated by the Piney Branch Restricted Sewer Access. This policy was amended in 2002 in accordance with the recommendations in the updated 2002 master plan. (See Figure C-F11.)

In 1991, the County Council established a policy to restrict the availability of community sewer service in the Piney Branch Watershed which is designated as one of the county's Special Protection Area watersheds. Through the Piney Branch Sewer Restricted Access Policy, the Council sought to limit the growth of public sewer-dependent development within and near this environmentally-sensitive watershed, particularly within the areas of the watershed zoned for one- and two-acre development. The Council subsequently amended the policy in March 1997 under CR 13-830 and again in October 2002 under CR 14-1481. By these actions, the Council has specifically designated the Piney Branch Trunk Sewer and its tributary mains as **Limited Access** mains (see Section III.A.1.).

This restricted access policy was recently reexamined in the context of interrelated land use, zoning, and sewer service recommendations in the 2002 Potomac Subregion Master Plan; the following conditions reflect the policy changes recommended by the new master plan. In order to be eligible for community sewer service, properties within the Piney Branch watershed must satisfy at least one of the following six conditions:

- **Master Plan Sewer Staging:** Properties designated as Sewer Stages 1 or II in the 1980 Potomac Subregion Master Plan.
- **Trunk Sewer Right-of-Way:** Properties that the Piney Branch Trunk Sewer right-of-way either traverses or abuts, including properties adjacent to and commonly owned with these abutted or traversed properties as of December 3, 1991,
- **Prior Sewer Category Approvals:** Properties with approval or conditional approval for sewer categories S-1 or S-3 as of December 3, 1991,
- **Public Health Problems:** Properties with documented public health problems resulting from failed septic systems, and properties included within a Council-designated special sewer service area, where the provision of public sewer service is logical, economical, and environmentally acceptable,
- **Abutting Sewer Mains:** Properties that abut existing or approved sewer mains and which satisfy the policy requirements for Section II.G.3.: Community Service for Properties Abutting Community System Mains – Single Hookups for Only One Property. Applicants shall not use the provision of a single sewer hookup to support subdivision or resubdivision of these properties into more than one lot. (This condition does not restrict sewer service provided to properties satisfying condition ii., preceding.)
- **Cluster Development:** Properties zoned RE-2C located in the southeast corner of the intersection of Boswell Lane and Piney Meetinghouse Road which develop using the cluster method.

All other properties within the Piney Branch watershed are restricted from community sewer service, whether from the Piney Branch sewerage system or from other adjacent sewerage systems.

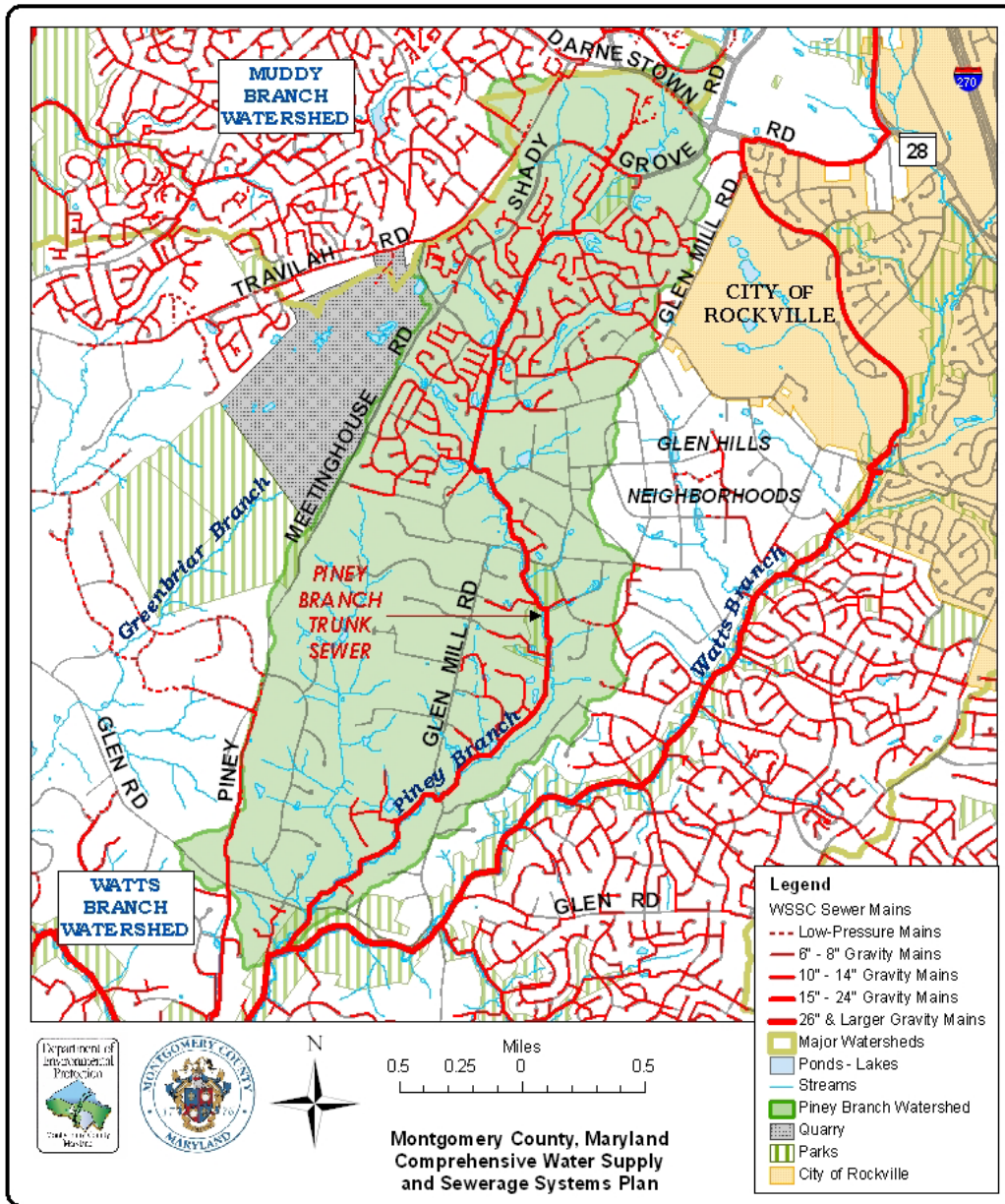


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**Figure C-F11: Piney Branch Watershed and Restricted Sewer Service Area**



Developers seeking to subdivide parcels into building lots using community sewer service in the Piney Branch subwatershed are required to record, as a covenant running with the properties, the Piney Branch Sewer Agreement Recommendations as a condition for the approval of sewer categories S-1 or S-3. Properties established prior to 1988, and for which only a single sewer connection is sought, are exempt from this requirement. Contact DEP staff (see Appendix D) for copies of the draft covenant and the required recommendations.

**II.M.: POTOMAC AREA RE-1 AND RE-2-ZONED PROPERTIES**

**Special Community Sewer Service Policy:** Recommended by the 2002 Potomac Subregion Master Plan

**Subject Area:** Properties zoned RE-1 or RE-2-at the edge or “periphery” of the master plan’s recommended community sewer service envelope

**Service Recommendation & Comments:** The master plan’s recommendations concerning for community sewer service properties zoned for rural estate development (RE-1 and RE-2) depart from those in the 1980 master plan. The previous master plan had allowed for the consideration of sewer service for rural estate zones. The 2002 master plan follows in line with the Water and Sewer Plan’s general service policies for rural estate zones.

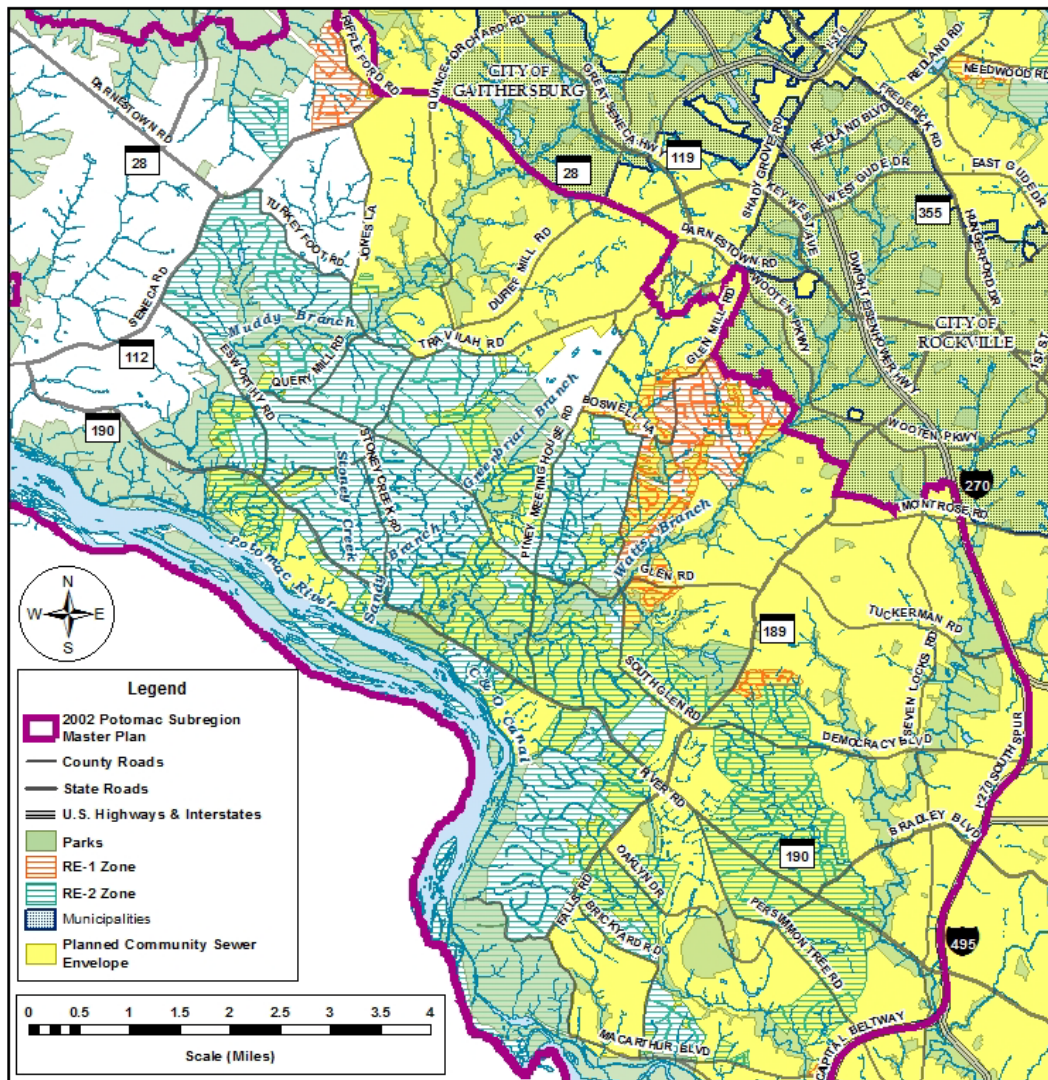
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However, the new master plan also recognizes that before 2002, the approval and provision of community sewer service within these zones occurred on a case-by-case basis, resulting in an irregular sewer service envelope. The master plan recommends that RE-1- and RE-2-zoned properties located at the edge or periphery of the recommended community sewer envelope may be *considered* for community sewer service on a case-by-case basis. In such cases:

- The property under consideration must abut or confront another property within the master plan's designated sewer service envelope.
- The extension of community sewer service is intended to follow existing public rights-of-way and must not affect streams, stream valley buffers, or other environmentally-sensitive areas.

• **Figure C-F12: Potomac Area Community Sewer Envelope and RE-1 and RE-1 Zones**



In addition to the preceding essential requirements, several years of experience implementing this policy have resulted in the acceptance of guidelines that further refine the evaluation of and recommendations for potential cases.

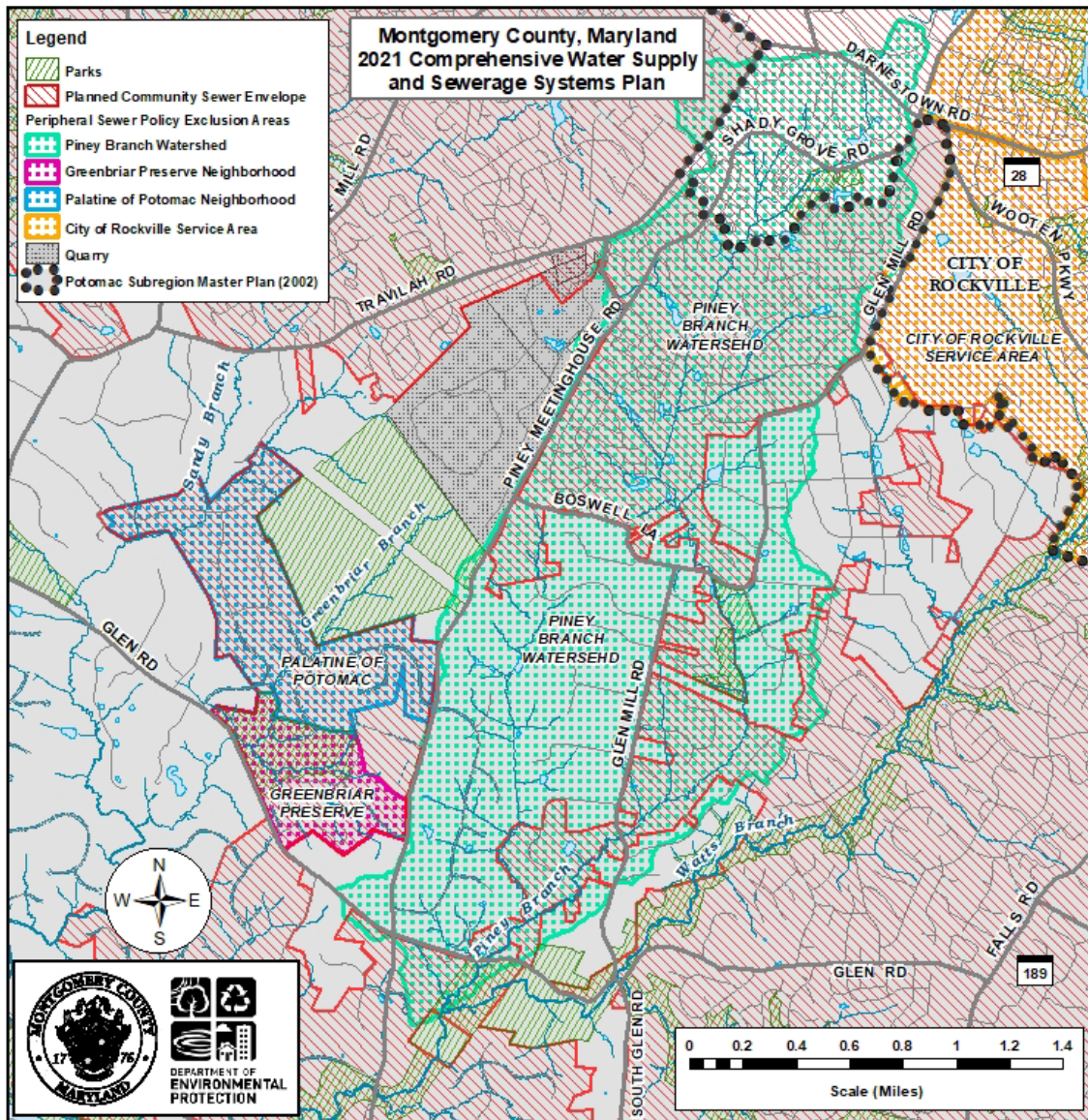
- Properties that confront the sewer envelope across broad public rights-of-way should also be in relatively close proximity to other properties approved for sewer service on their own side of that right-of-way.
- The selection of sewer main extensions, wherever possible, should minimize the number of properties abutting new sewer main extensions



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**Figure C-F13: Potomac Area Peripheral Sewer Service Policy Exclusion Areas**

Note that the 2002 master plan specifically recommends excluding properties within or at the edge of the



following neighborhoods from the use of this policy (see Figure C-F13):

- The Piney Branch subwatershed
- The Palatine of Potomac neighborhood
- The Greenbriar Estates neighborhoods.

The preceding exclusion areas previously included the Glen Hills neighborhoods. The 2002 master plan recommended reconsideration of this exclusion following the completion of the Glen Hills Area Sanitary Study. However, the recommendations provided with the study did not address this policy. The 2017 Water and Sewer Plan update removes the Glen Hills area exclusion, except for those properties at the periphery of the planned sewer envelope within the Piney Branch watershed.



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Also excluded from using this policy are properties that would abut or confront the planned community sewer service envelope within the City of Rockville.

**II.N. RIVERWOOD DRIVE**

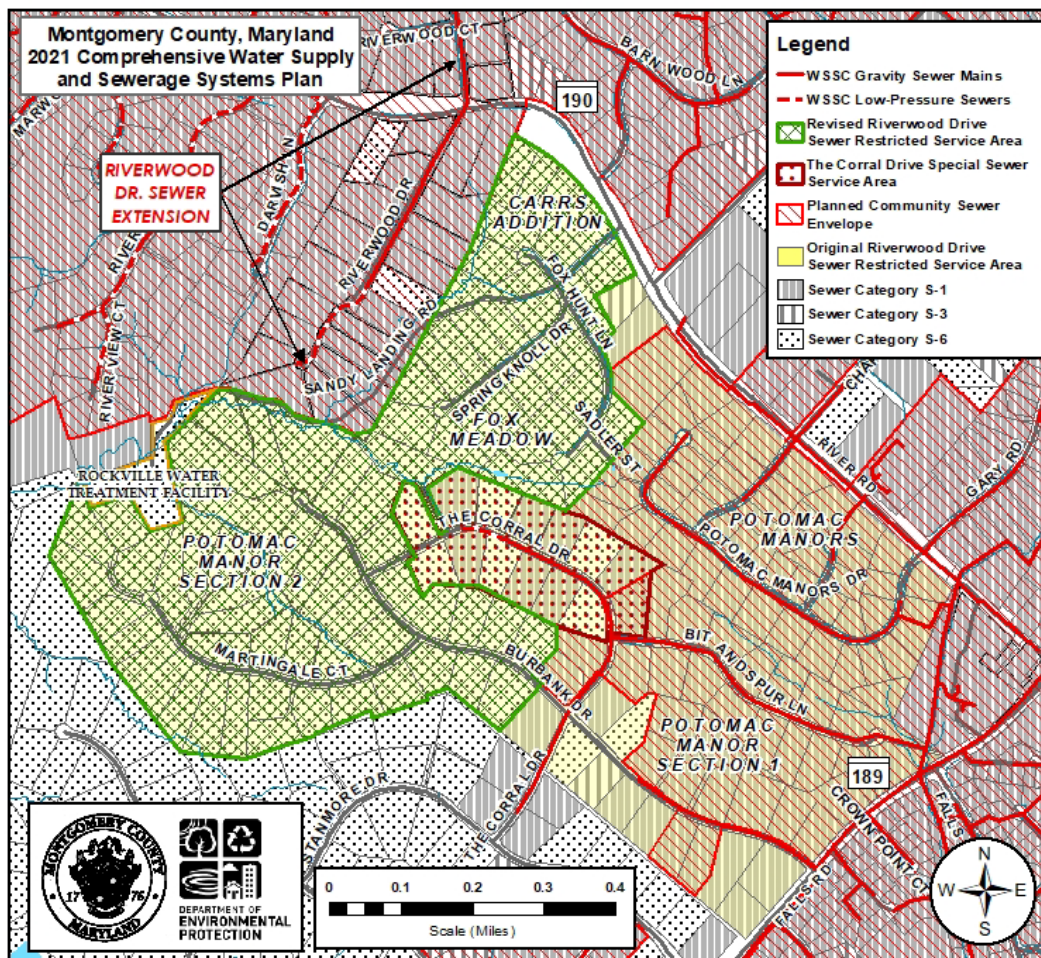
**Restricted Sewer Service Area:** Established by Council Resolution 13-1205 (3/10/98)

**Subject Area:** Fox Meadow, Carrs Addition, and Potomac Manor Section 2 subdivisions.

**Service Recommendation & Comments:** In March 1998 under CR 13-1205, the County Council approved the extension of community sewer service to properties located along Riverwood Drive south of River Road in Potomac (see Figure C-F14). In approving this service, the Council restricted the number of sewer hookups allowed for the Kitchen Property located at the southern end of the street, and further restricted the sewer main extension from serving properties in nearby neighborhoods in order to limit the extension of sewer service in the areas zoned for two-acre development south of River Road.

DEP's recent review of this restricted sewer service area revealed that it is more extensive than is needed to limit sewer service from the Riverwood Dr. sewer main extension south of River Rd. Much of the original restricted service area already has community sewer service. Other areas in Potomac Manor are not reasonably accessible due to the steep stream valley along Sandy Landing Rd. Except where community service is required to relieve public health problems, the Riverwood Drive sewer main, and potential future extensions from that main, are restricted from serving the following subdivisions: Fox Meadow, Carrs Addition, and part of Potomac Manor Section 2 as shown on Figure C-F14.

**Figure C-F14: Riverwood Drive Sewer Restricted Service Area**



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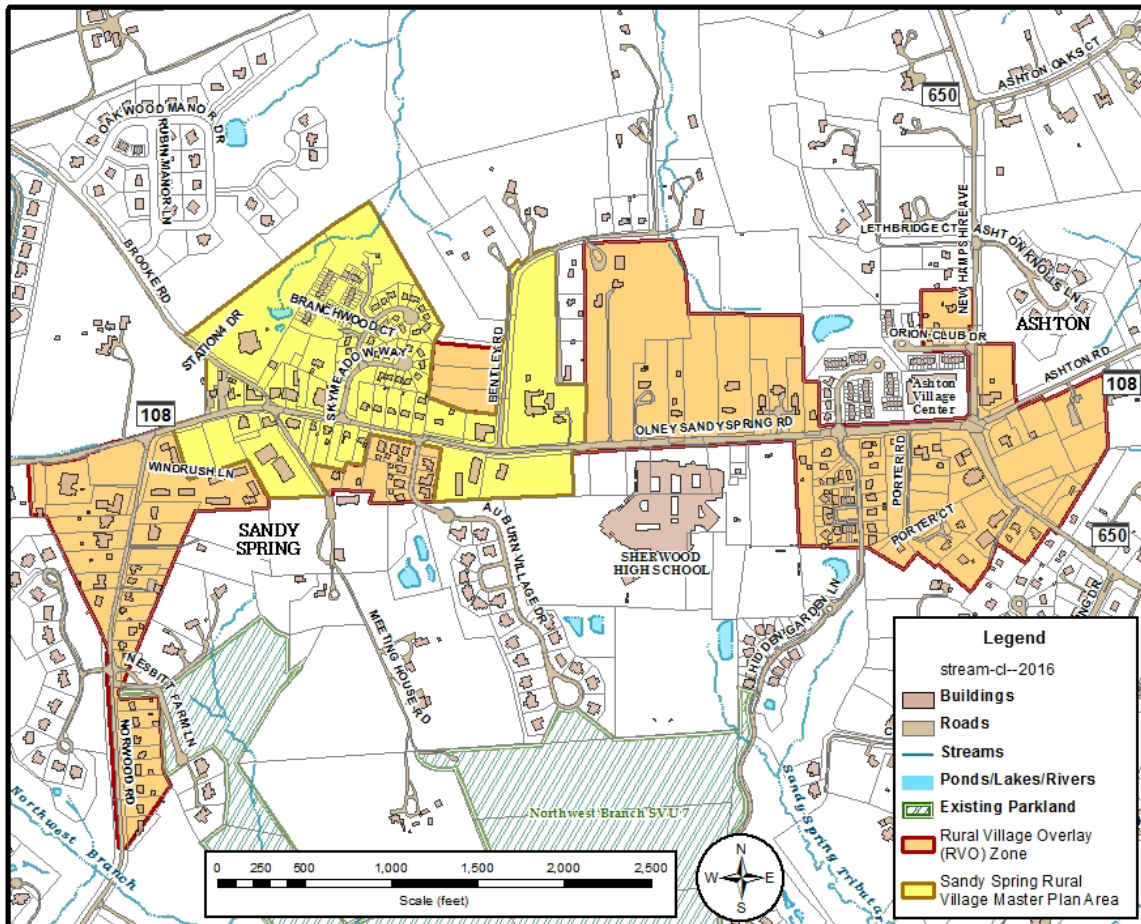
### II.O.: SANDY SPRING AND ASHTON AREA

**Rural Village Overlay (RVO) Zone Special Community Water and Sewer Service Area:** Recommended by the 1998 Sandy Spring – Ashton Master Plan.

Subject Area: Sandy Spring and Ashton along MD Route 108

Service Recommendation & Comments: The RVO Zone is a floating zone applied to specific development projects in the Sandy Spring and Ashton areas to improve and provide for more flexible site design and to provide for smaller lots without increasing density. Base zoning under the floating zone varies, and not all have zoning suitable for community service. (For example, RC-zoned properties are not usually eligible for community sewer service.) However, the master plan calls for the provision of community water and sewer service to support development using the RVO Zone standards. Service area changes in some cases will need to be conditioned and restricted on the use of the RVO Zone standards. (See Figure C-F15.)

Figure C-F15: Sandy Spring & Ashton Area



**Sandy Spring Rural Village Special Community Water and Sewer Service Area:** Recommended by the 2015 Sandy Spring Rural Village Master Plan.

Subject Area: Sandy Spring Rural Village Master Plan area

Service Recommendation & Comments: The 2015 master plan update for Sandy Spring reconfirms the water and sewer service recommendations established by the previous 1998 master plan. Specifically, the 2015 master plan recommends, “Provide [community] water and sewer to commercial, mixed commercial/residential and residential uses within the Plan area.” The 2015 master plan supersedes the previous master plan, and therefore, both special community service areas are shown on the following figure, C-F15.

### II.P.: SOUTHEAST QUADRANT OF OLNEY

**Restricted Community Sewer Service Area:** Recommended by the 2005 Olney Master Plan



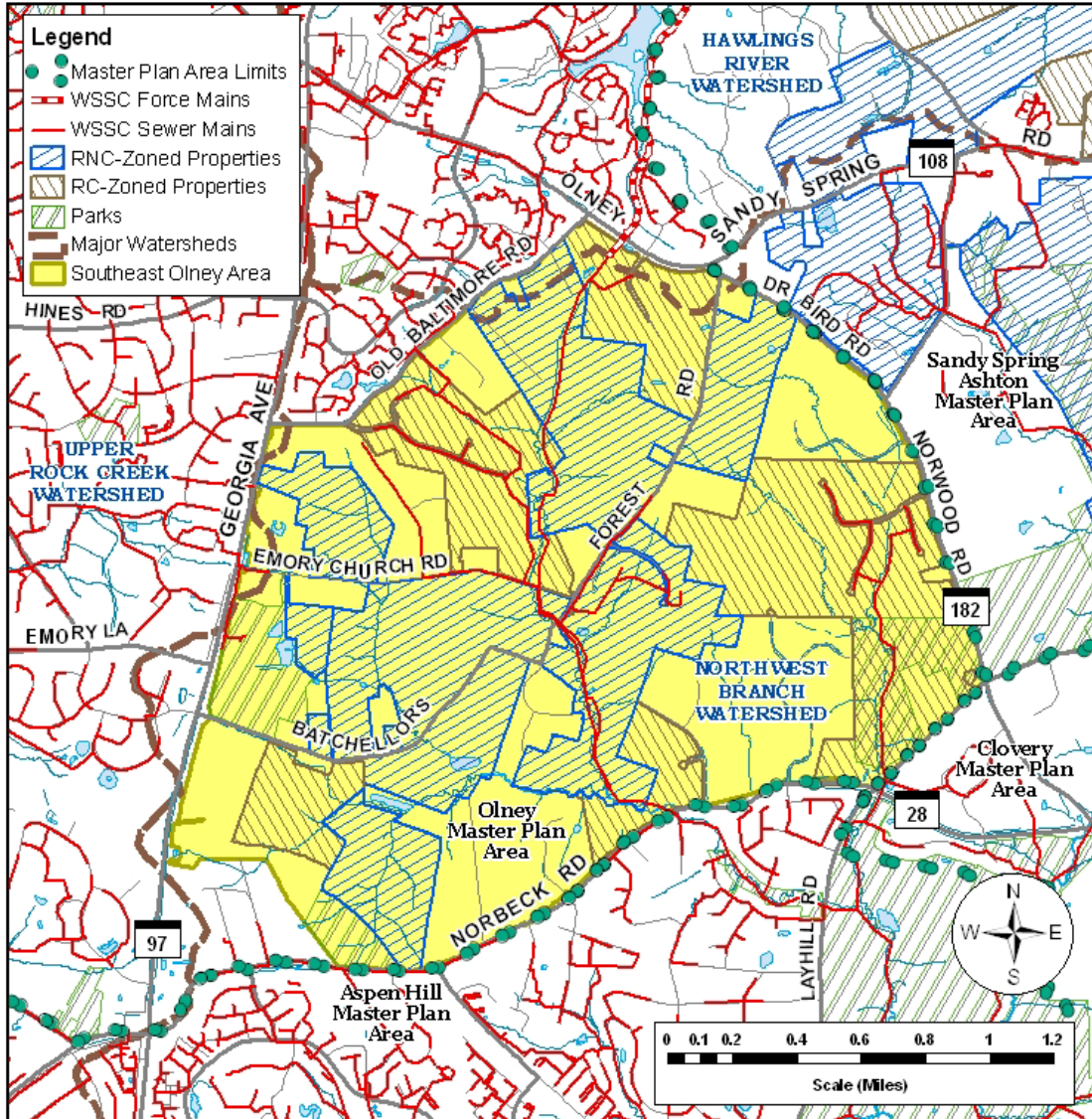
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Subject Area: Bounded by:

- Georgia Ave. (MD 97) and Old Baltimore Rd. to the west
- Norwood Rd. and Dr. Bird Rd. to the east
- Olney Sandy Spring Rd. (Rte. 108) to the north
- Norbeck Rd. (MD 28) to the south

**Figure C-F15: Southeast Quadrant of Olney**



Service Recommendation & Comments: The master plan recommends community water and sewer service for certain properties zoned Rural Neighborhood Cluster (RNC) located in this area of Olney. However, the master plan emphasizes the need to avoid the construction of new sewer main extensions along undisturbed tributaries of Northwest Branch. The RNC-zoned sites, and the areas intended for optional-method cluster development, were selected in part to allow for optimizing the use of gravity sewer service extensions to existing sewer mains while protecting stream valleys.

Under the 1980 master plan, properties in this area could receive community sewer service only if they were rezoned (as part of the Olney sectional zoning map amendment) from RE-2 to Rural Cluster (RC) and if projects used the RC cluster development option. To allow other properties to use this option, the Council created the Low Density Rural Cluster (LDRC) Zone, a floating zone that could be applied to specific properties. The Council removed this recommendation from the 2005 master plan, and rezoned to RC the few properties previously zoned LDRC.



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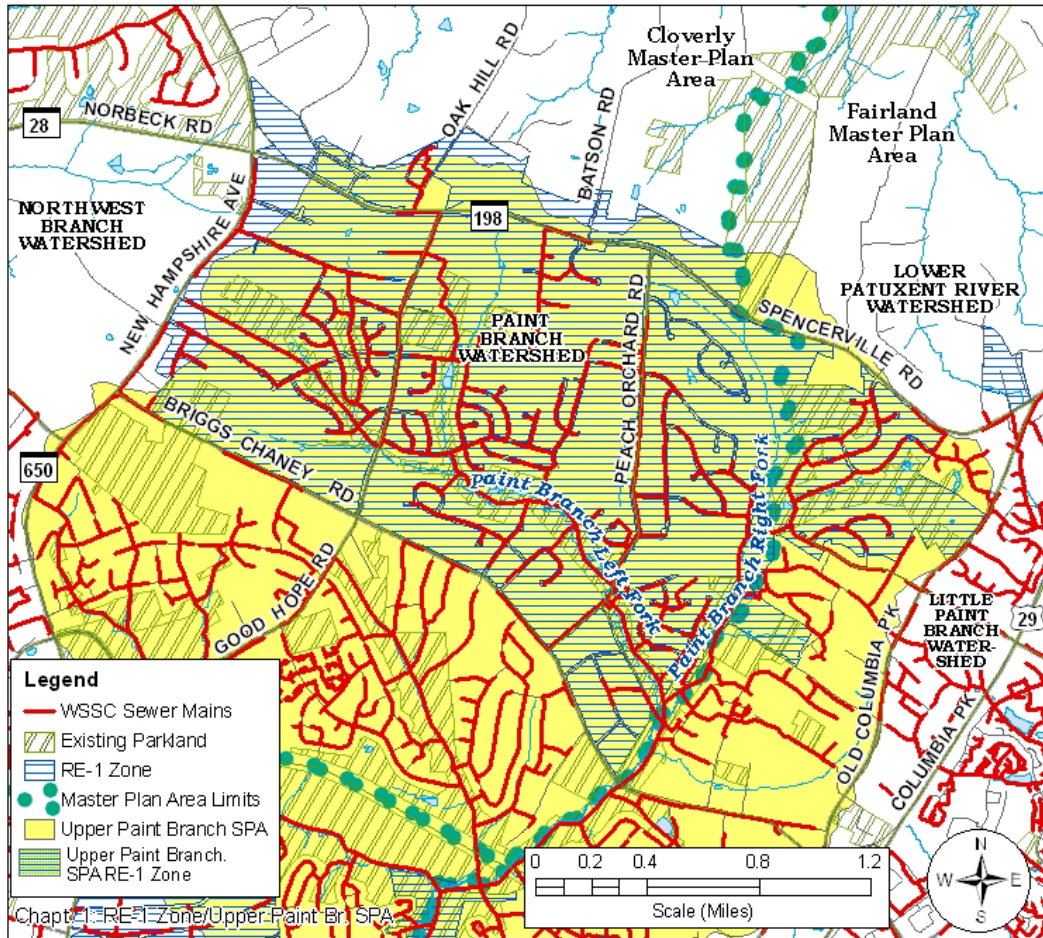
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**II.Q.: UPPER PAINT BRANCH SPECIAL PROTECTION AREA**

**Upper Paint Branch SPA Sewer Service Area:** Recommended by the 1997 Cloverly and 1997 Fairland Master Plans

**Subject Area:** Areas zoned RE-1 located within the Upper Paint Branch Special Protection Area/Environmental Overlay Zone (See Figure C-F16).

**Figure C-F16: Upper Paint Branch Special Protection Area**



**Service Recommendation & Comments – Cloverly Master Plan:** The master plan recommends that community sewer service may be considered where logical and economical, and where the provision of community service provides an environmental benefit over development occurring using on-site septic systems. This condition is usually evaluated as part of the subdivision plan review.

**Service Recommendation & Comments – Fairland Master Plan:** The master plan recommends that community sewer service may be considered where logical, economical, and environmentally acceptable.

# **Appendix D**

***LOCAL, MUNICIPAL, STATE, AND REGIONAL AGENCIES***

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**Appendix D: Local, Municipal, State, And Regional Agencies**

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Appendix D provides information on contacting many of the local, state and regional agencies involved in Montgomery County’s water and sewer planning process, as cited throughout the chapters of this Plan.

<b>Table D-T1: Local, Municipal, State, and Regional Agencies</b>	
<b>Agency Name</b>	<b>Contact Information</b>
<b>MONTGOMERY COUNTY AGENCIES</b>	
<b>Department of Environmental Protection (DEP)</b>	Web: <a href="http://www.montgomerycountymd.gov/dep">www.montgomerycountymd.gov/dep</a>
Intergovernmental Affairs Division Water Supply and Wastewater Unit	Phone: <b>311</b> (From within Montgomery County) <b>240-777-0311</b> (From outside the county) fax: 240-777-7715 Address: 2425 Reedie Drive, Fourth Floor Wheaton, Maryland 20902
<b>Department of Permitting Services (DPS)</b>	Web: <a href="http://www.montgomerycountymd.gov/dps">www.montgomerycountymd.gov/dps</a>
Division of Land Development Well and Septic Section WSSC Systems Development Charge (SDC) Exemptions	Phone: <b>311</b> (From within Montgomery County) <b>240-777-0311</b> (From outside the county) fax: 240-777-6314 Address: 2425 Reedie Drive, Seventh Floor Wheaton, Maryland 20902
<b>BI-COUNTY AGENCIES (Montgomery and Prince George’s Counties)</b>	
<b>Maryland - National Capital Park and Planning Commission (M-NCPPC)</b>	Web: <a href="http://www.montgomeryplanning.org">www.montgomeryplanning.org</a>
Community Outreach and Media Relations	Address: Montgomery Regional Office 2425 Reedie Drive, Fourteenth Floor Wheaton, MD 20902
Intake and Regulatory Coordination	Phone: 301-495-4600
Down-county Planning	Phone: 301-495-4550
Mid-county Planning	Phone: 301-495-4580
Upcounty Planning	Phone: 301-495-4630
Information Counter	Phone: 301-495-4645
<b>Washington Suburban Sanitary Commission (WSSC Water)</b>	Web: <a href="http://www.wsscwater.com">www.wsscwater.com</a>
Water and Sewer Emergencies (24 hours)	Address: Richard G. Hocevar Building 14501 Sweitzer Lane Laurel, Maryland 20707
Contact Center/Customer Relations	Phone: 301-206-4002
Development Services Division	Phone: 301-206-4001 301-206-WSSC (9772) Email: <a href="mailto:custserv@wsscwater.com">custserv@wsscwater.com</a>
Permits Services Section	Phone: 301-206-8650
	Phone: 301-206-4003 Email: <a href="mailto:onestopshop@wsscwater.com">onestopshop@wsscwater.com</a>

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<b>Table D-T1: Local, Municipal, State, and Regional Agencies</b>	
<b>Agency Name</b>	<b>Contact Information</b>
<b>MUNICIPAL AGENCIES (Montgomery County)</b>	
<b>City of Rockville</b>	Web: <a href="http://www.rockvillemd.gov/">www.rockvillemd.gov/</a>
Department of Public Works	Phone: 240-314-8500 email: <a href="mailto:pw@rockvillemd.gov">pw@rockvillemd.gov</a> Address: Rockville City Hall 111 Maryland Avenue, First Floor Rockville, Maryland 20850
Public Works Utility Emergencies (24 Hours)	Phone: 240-314-8567
<b>Town of Poolesville</b>	Web: <a href="http://www.poolesvillemd.gov/">www.poolesvillemd.gov/</a>
	Phone: 301-428-8927 Fax: 301-286-3359 email: <a href="mailto:townnhall@poolesvillemd.gov">townnhall@poolesvillemd.gov</a> Address: P.O. Box 158 Poolesville, Maryland 20837 Town Hall: 196721 Beall Street
Water and Sewer Emergencies	Phone: 240-286-3389 or 240-286-3359
<b>MARYLAND STATE AGENCIES</b>	
<b>Department of the Environment (MDE)</b>	Web: <a href="http://www.mde.state.md.us">www.mde.state.md.us</a>
Water and Science Administration	Phone: 410-537-3000 Toll Free: 866-633-4686 Address: 1800 Washington Boulevard Baltimore, Maryland 21230
Water/Sewer Pollution Emergencies	Phone: 866-633-4686 (866-MDE-GOTO)
<b>Department of Planning (MDP)</b>	Web: <a href="http://www.planning.maryland.gov">www.planning.maryland.gov</a>
	Phone: 410-767-4500 Email: <a href="mailto:DLMDP-Webmaster_MDP@maryland.gov">DLMDP-Webmaster_MDP@maryland.gov</a> Address: 301 West Preston Street, Suite 1101 Baltimore, Maryland 21201
<b>Department of Natural Resources (DNR)</b>	Web: <a href="http://www.dnr.maryland.gov">www.dnr.maryland.gov</a>
	Phone: 410-974-3846 Toll Free: 877-620 8367 (877-620-8DNR) Address: Tawes State Office Building 580 Taylor Avenue Annapolis, Maryland 21401-2397
<b>REGIONAL AGENCIES</b>	
<b>District of Columbia Water and Sewer Authority (DC WASA)</b>	Web: <a href="http://www.dewater.com">www.dewater.com</a>
	Phone: 202-287-2000 Fax: 202-787-2333 Email: <a href="mailto:info@dewater.com">info@dewater.com</a> Address: 5000 Overlook Avenue, SW Washington, DC 20032

**MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**  
**Appendix D: Local, Municipal, State, And Regional Agencies**  
 County Council Approved 2022-2031 Plan

<b>Table D-T1: Local, Municipal, State, and Regional Agencies</b>	
<b>Agency Name</b>	<b>Contact Information</b>
<b><i>Metropolitan Washington Council of Governments (MWCOG)</i></b>	Web: <a href="http://www.mwcog.org">www.mwcog.org</a> Phone: 202-962-3200 Fax: 202-962-3201 Address: 777 North Capitol Street, NE Washington, DC 20002
<b><i>Interstate Commission of the Potomac River Basin (ICPRB)</i></b>	Web: <a href="http://www.potomacriver.org">www.potomacriver.org</a> Phone: 301-984-1908 Address: 30 West Gude Drive, Suite Rockville, Maryland 20850

# **Appendix E**

## ***MAJOR PUBLIC FACILITIES AND INSTITUTIONS***



**MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**

**Appendix E: County's Major Public Facilities and Institutions**

County Council Approved 2022-2031 Plan

**MONTGOMERY COUNTY MAJOR PUBLIC FACILITIES AND INSTITUTIONS**

<b>INSTITUTION</b>	<b>NAME</b>	<b>ADDRESS</b>	<b>CITY</b>
<b>MONTGOMERY COUNTY GOVERNMENT</b>	Agricultural Services	18410 Muncaster Rd	Derwood
	Automotive Equipment Section	1283 Seven Locks Rd	Rockville
	Bethesda Depot/AES	1283 Seven Locks Rd	Rockville
	Board of Elections	18753 N Frederick Ave	Gaithersburg
	Board of Investment Trustees	11 N Washington St	Rockville
	Carver Educational Services Center	850 Hungerford Dr	Rockville
	Colesville Depot	14335 Cape May Rd	Colesville
	Commuter Services	8401 Colesville Rd	Silver Spring
	Council Office Building	100 Maryland Ave	Rockville
	Damascus Depot	26149 Ridge Rd	Damascus
	Dedrick Annex	1400 Spring St	Silver Spring
	Department of Economic Development	111 Rockville Pik	Rockville
	Department of Liquor Control	201 Edison Park Dr	Gaithersburg
	Department of Transportation	101 Orchard Ridge Dr	Gaithersburg
	Dickerson Composting Facility	21210 Martinsburg Rd	Dickerson
	District Court of MD - Rockville	191 E Jefferson St	Rockville
	District Court of MD - Silver Spring	8552 Second Ave	Silver Spring
	DREAMS Records Center	8532 Anniversary Cir	Gaithersburg
	Edward U Taylor Science Materials Center	19501 White Ground Rd	Boysds
	Equipment Maint/Transit Op Ctr (EMTOC)	16624 Crabbs Branch Way	Rockville
	Executive Office Building	101 Monroe St	Rockville
	Facilities Customer Services	1301 Seven Locks Rd	Rockville
	Family Justice Center	600 Jefferson Plz	Rockville
	Fire and Explosives Investigations	8663 Grovemont Cir	Rockville
	Fleet Management Division	16630 Crabbs Branch Way	Rockville
	Gaithersburg Depot	16640 Crabbs Branch Way	Rockville
	Gaithersburg Depot	17000 Crabbs Branch Way	Rockville
	Gaithersburg Warehouse	8516 Anniversary Cir	Gaithersburg
	Gray Courthouse	27 Courthouse Sq	Rockville
	Housing Opportunities Commission	10400 Detrick Ave	Kensington
	Human Resources	2301 Research Blv	Rockville
	Materials Management	2 Metropolitan Ct	Gaithersburgh
	MC Airpark Maintenance	7940 Airpark Rd	Gaithersburg
	MC Animal Shelter	14645 Rothgeb Dr	Derwood
MC Correctional Facility	22880 Whelan La	Boysds	
MC Detention Center	1307 Seven Locks Rd	Rockville	
MCE Federal Credit Union	20 Courthouse Sq	Rockville	
MCFRS Central Maintenance Facility	14935 Southlawn La	Rockville	
MCFRS Warehouse	701 Dover Rd	Rockville	
MCG	21 Maryland Ave	Rockville	
MCG	51 Monroe St	Rockville	
MCPS Bethesda Depot	10901 Westlake Dr	Rockville	

**MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**

**Appendix E: County's Major Public Facilities and Institutions**

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<b>MONTGOMERY COUNTY MAJOR PUBLIC FACILITIES AND INSTITUTIONS</b>			
<b>INSTITUTION</b>	<b>NAME</b>	<b>ADDRESS</b>	<b>CITY</b>
<b>MONTGOMERY COUNTY GOVERNMENT</b>	MCPS Center for Technology Innovation	4 Choke Cherry Rd	Rockville
	MCPS Clarksburg Maintenance Depot	13100 Shawnee La	Clarksburg
	MCPS Concord Center	7210 Hidden Creek Rd	Bethesda
	MCPS Department of Materials Management	580 N Stonestreet Ave	Rockville
	MCPS Emory Grove Center	18100 Washington Grove La	Gaithersburg
	MCPS Food Services	16644 Crabbs Branch Way	Rockville
	MCPS Lincoln Center	595 N Stonestreet Ave	Rockville
	MCPS Metro Park North Office	7361 Calhoun Pl	Rockville
	MCPS Oakgrove Building	2096 Gaither Rd	Rockville
	MCPS Office of Staff Development	20010 Century Blv	Germantown
	MCPS Professional Library	9636 Gudelsky Dr	Rockville
	MCPS Randolph Maintenance Depot	1801 Randolph Rd	White Oak
	MCPS Rocking Horse Road Center	4910 Macon Rd	Rockville
	MCPS Shady Grove Maintenance Depot	16651 Crabbs Branch Way	Rockville
	MCPS Spring Mill Offices	11721 Kemp Mill Rd	Silver Spring
	MCPS West Farm Transportation Depot	11920 Bournfield Way	Silver Spring
	Montgomery County Circuit Court	50 Maryland Ave	Rockville
	Nicholson Court Small Transit Shop	4925 Nicholson Ct	Kensington
	Oaks Landfill Leachate Treatment Facility	20500 Zion Rd	Laytonsville
	Office of the Public Defender	199 E Montgomery Ave	Rockville
	Park and Planning Commission	8787 Georgia Ave	Silver Spring
	Park and Planning Hillandale Office	10611 New Hampshire Ave	Hillandale
	Parking Meter Maintenance	8110 Fenton St	Silver Spring
	Poolesville Depot	19200 Jerusalem Rd	Poolesville
	Pre-Release and Re-Entry Services	11651 Nebel St	Rockville
	Pre-Trial Services	12500 Ardennes Ave	Rockville
	Property Management	10400 Connecticut Ave	Kensington
	Public Safety Headquarters	100 Edison Park Dr	Gaithersburg
	Radio Communications Services	16647 Crabbs Branch Way	Rockville
	Real Estate Development	3930 Knowles Ave	Kensington
	Recreation Department	4010 Randolph Rd	Silver Spring
	Recycling Center	16105 Frederick Rd	Derwood
	Red Brick Courthouse	29 Courthouse Sq	Rockville
	Resource Recovery Facility	21204 Martinsburg Rd	Dickerson
	Rockville Center	255 Rockville Pik	Rockville
	SCBA	8653 Grovemont Cir	Rockville
	Shady Grove Transfer Station	16101 Frederick Rd	Derwood
	Silver Spring Depot/BMF Transit Shop	8710 Brookville Rd	Silver Spring
	USAR Warehouse	12100 Darnestown Rd	North Potomac
	MC Correctional Facility	22880 Whelan La	Boysd
MC Detention Center	1307 Seven Locks Rd	Rockville	

**MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**

**Appendix E: County's Major Public Facilities and Institutions**

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<b>MONTGOMERY COUNTY MAJOR PUBLIC FACILITIES AND INSTITUTIONS</b>			
<b>INSTITUTION</b>	<b>NAME</b>	<b>ADDRESS</b>	<b>CITY</b>
<b>FEDERAL GOVERNMENT</b>	Adelphi Laboratory Center (Army Research Lab)	2800 Powder Mill Rd	Adelphi
	Consumer Product Safety Commission	4340 East West Hwy	Bethesda
	Dalecarlia Water Treatment Plant	5900 MacArthur Blv	Washington
	Department of Energy	19901 Germantown Rd	Germantown
	FDA Center for Biologics Evaluation and Research	1401 Rockville Pik	Rockville
	FDA Center for Devices and Radiological Health	1350 Piccard Dr	Rockville
	FDA Center for Veterinary Medicine	7519 Standish Pl	Rockville
	FDA Office of Combination Products	15800 Crabbs Branch Way	Rockville
	FDA Office of Criminal Investigations	7500 Standish Pl	Rockville
	FDA Office of Science and Engineering Labs	10903 New Hampshire Ave	White Oak
	Foundation for Adv Ed in the Sciences	9101 Old Georgetown Rd	Bethesda
	HHS Agency for Healthcare Research and Quality	540 Gaither Rd	Rockville
	HHS Food And Drug Administration	5600 Fishers La	Rockville
	HHS Indian Health Service	801 Thompson Ave	Rockville
	HHS Subst Abuse & Mental Health Services	1 Choke Cherry Rd	Rockville
	Intelligence Community Campus - Bethesda	4600 Sangamore Rd	Bethesda
	Internal Revenue Service	11510 Georgia Ave	Wheaton
	Nat Envrmtl Satellite Data and Info Service	1335 East West Hwy	Silver Spring
	Nat Inst on Alcohol Abuse and Alcoholism	5635 Fishers La	Rockville
	National Cancer Institute	6116 Executive Blv	Bethesda
	National Center for Research Resources	6701 Democracy Blv	Bethesda
	National Institutes of Health	9000 Rockville Pik	Bethesda
	National Institute of Standards and Technology	100 Bureau Dr	Gaithersburg
	National Oceanic and Atmospheric Admin	1315 East West Hwy	Silver Spring
	National Weather Service	1325 East West Hwy	Silver Spring
	Naval Surface Warfare Center Carderock	9500 MacArthur Blv	Glen Echo
	NIH Center for Information Technology	10401 Fernwood Rd	Bethesda
	NIH Extramural Outreach and Info Resources	6701 Rockledge Dr	Bethesda
	NIH Neuroscience Center	6001 Executive Blv	Bethesda
	NIH Two Democracy Plaza Offices	6707 Democracy Blv	Bethesda
	NOAA National Ocean Service	1305 East West Hwy	Silver Spring
	NOAA Office of Marine and Aviation Ops	8403 Colesville Rd	Silver Spring
	Ntl Inst of Allergy and Infectious Diseases	6610 Rockledge Dr	Bethesda
	Nuclear Regulatory Commission	11545 Rockville Pik	Rockville
	Public Health Service - Commissioned Corps	1101 Wootton Pkw	Rockville
	Uniformed Services University of Health Sciences	4301 Jones Bridge Rd	Bethesda
	US Army Garrison Forest Glen	2460 Linden La	Silver Spring
	USDA Derwood Service Center	18410 Muncaster Rd	Derwood
	Walter Reed National Military Medical Center	8901 Wisconsin Ave	Bethesda
	Washington Aqueduct Little Falls Pump Station	6201 Clara Barton Pkw	Glen Echo

**MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**

**Appendix E: County's Major Public Facilities and Institutions**

County Council Approved 2022-2031 Plan

<b>MONTGOMERY COUNTY MAJOR PUBLIC FACILITIES AND INSTITUTIONS</b>			
<b>INSTITUTION</b>	<b>NAME</b>	<b>ADDRESS</b>	<b>CITY</b>
<b>ELEMENTARY SCHOOLS</b>	Arcola ES	1820 Franwall Ave	Silver Spring
	Ashburton ES	6314 Lone Oak Dr	Bethesda
	Bannockburn ES	6520 Dalroy La	Bethesda
	Beall ES	451 Beall Ave	Rockville
	Bel Pre ES	13801 Rippling Brook Dr	Silver Spring
	Bells Mill ES	8225 Bells Mill Rd	Potomac
	Belmont ES	19528 Olney Mill Rd	Olney
	Bethesda ES	7600 Arlington Rd	Bethesda
	Beverly Farms ES	8501 Post Oak Rd	Potomac
	Bradley Hills ES	8701 Hartsdale Ave	Bethesda
	Brooke Grove ES	2700 Spartan Rd	Olney
	Brookhaven ES	4610 Renn St	Rockville
	Brown Station ES	851 Quince Orchard Blv	Gaithersburg
	Burning Tree ES	7900 Beech Tree Rd	Bethesda
	Burnt Mills ES	11211 Childs St	Silver Spring
	Burtonsville ES	15516 Old Columbia Pik	Burtonsville
	Candlewood ES	7210 Osprey Dr	Rockville
	Cannon Road ES	901 Cannon Rd	Silver Spring
	Capt James E Daly ES	20301 Brandermill Dr	Germantown
	Carderock Springs ES	7401 Persimmon Tree La	Bethesda
	Cashell ES	17101 Cashell Rd	Rockville
	Cedar Grove ES	24001 Ridge Rd	Germantown
	Chevy Chase ES	4015 Rosemary St	Chevy Chase
	Clarksburg ES	13530 Redgrave Pl	Clarksburg
	Clearspring ES	9930 Moyer Rd	Damascus
	Clopper Mill ES	18501 Cinnamon Dr	Germantown
	Cloverly ES	800 Briggs Chaney Rd	Silver Spring
	Cold Spring ES	9201 Falls Chapel Way	Potomac
	College Gardens ES	1700 Yale Pl	Rockville
	Cresthaven ES	1234 Cresthaven Dr	Silver Spring
	Damascus ES	10201 Bethesda Church Rd	Damascus
	Darnestown ES	15030 Turkey Foot Rd	Gaithersburg
	Diamond ES	4 Marquis Dr	Gaithersburg
Dr Charles R Drew ES	1200 Swingingdale Dr	Silver Spring	

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<b>MONTGOMERY COUNTY MAJOR PUBLIC FACILITIES AND INSTITUTIONS</b>			
<b>INSTITUTION</b>	<b>NAME</b>	<b>ADDRESS</b>	<b>CITY</b>
<b>ELEMENTARY SCHOOLS</b>	Dr Sally K Ride ES	21301 Seneca Crossing Dr	Germantown
	Dufief ES	15001 DuFief Dr	Gaithersburg
	East Silver Spring ES	631 Silver Spring Ave	Silver Spring
	Fairland ES	14315 Fairdale Rd	Silver Spring
	Fallsmead ES	1800 Greenplace Ter	Rockville
	Farmland ES	7000 Old Gate Rd	Rockville
	Fields Road ES	1 School Dr	Gaithersburg
	Flora M Singer ES	2600 Hayden Dr	Silver Spring
	Flower Hill ES	18425 Flower Hill Way	Gaithersburg
	Flower Valley ES	4615 Sunflower Dr	Rockville
	Forest Knolls ES	10830 Eastwood Ave	Silver Spring
	Fox Chapel ES	19315 Archdale Rd	Germantown
	Gaithersburg ES	35 N Summit Ave	Gaithersburg
	Galway ES	12612 Galway Dr	Silver Spring
	Garrett Park ES	4810 Oxford St	Garrett Park
	Georgian Forest ES	3100 Regina Dr	Silver Spring
	Germantown ES	19110 Liberty Mill Road	Germantown
	Glen Haven ES	10900 Inwood Ave	Silver Spring
	Glenallan ES	12520 Heurich Rd	Silver Spring
	Goshen ES	8701 Warfield Rd	Gaithersburg
	Great Seneca Creek ES	13010 Dairymaid Dr	Germantown
	Greencastle ES	13611 Robey Rd	Silver Spring
	Greenwood ES	3336 Gold Mine Rd	Brookeville
	Harmony Hills ES	13407 Lydia St	Silver Spring
	Highland ES	3100 Medway St	Silver Spring
	Highland View ES	9010 Providence Ave	Silver Spring
	Jackson Road ES	900 Jackson Rd	Silver Spring
	JoAnn Leleck ES	710 Beacon Rd	Silver Spring
	Jones Lane ES	15110 Jones La	Gaithersburg
	Judith A Resnik ES	7301 Hadley Farms Dr	Gaithersburg
	Kemp Mill ES	411 Sisson St	Silver Spring
	Kensington Parkwood ES	4710 Saul Rd	Kensington
Lake Seneca ES	13600 Wanegarden Dr	Germantown	
Lakewood ES	2534 Lindley Ter	Rockville	

**MONTGOMERY COUNTY COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN**

**Appendix E: County's Major Public Facilities and Institutions**

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<b>MONTGOMERY COUNTY MAJOR PUBLIC FACILITIES AND INSTITUTIONS</b>			
<b>INSTITUTION</b>	<b>NAME</b>	<b>ADDRESS</b>	<b>CITY</b>
<b>ELEMENTARY SCHOOLS</b>	Laytonsville ES	21401 Laytonsville Rd	Laytonsville
	Little Bennett ES	23930 Burdette Forest Rd	Clarksburg
	Lois P Rockwell ES	24555 Cutsail Dr	Damascus
	Lucy V Barnsley ES	14516 Nadine Dr	Rockville
	Luxmanor ES	6201 Tilden La	Rockville
	Maryvale ES	1000 First St	Rockville
	Meadow Hall ES	951 Twinbrook Pkwy	Rockville
	Mill Creek Towne ES	17700 Park Mill Dr	Rockville
	Monocacy ES	18801 Barnesville Rd	Dickerson
	Montgomery Knolls ES	807 Daleview Dr	Silver Spring
	New Hampshire Estates ES	8720 Carroll Ave	Silver Spring
	North Chevy Chase ES	3700 Jones Bridge Rd	Chevy Chase
	Oak View ES	400 E Wayne Ave	Silver Spring
	Oakland Terrace ES	2720 Plyers Mill Rd	Silver Spring
	Olney ES	3401 Queen Mary Dr	Olney
	Pine Crest ES	201 Woodmoor Dr	Silver Spring
	Piney Branch ES	7510 Maple Ave	Takoma Park
	Poolesville ES	19565 Fisher Ave	Poolesville
	Potomac ES	10311 River Rd	Potomac
	Rachel Carson ES	100 Tschiffely Square Rd	Gaithersburg
	Ritchie Park ES	1514 Dunster Rd	Rockville
	Rock Creek Forest ES	8330 Grubb Rd	Chevy Chase
	Rock Creek Valley ES	5121 Russett Rd	Rockville
	Rock View ES	3901 Denfeld Ave	Kensington
	Rolling Terrace ES	705 Bayfield St	Takoma Park
	Ronald McNair ES	13881 Hopkins Rd	Germantown
	Roscoe R Nix ES	1100 Corliss St	Silver Spring
	Rosemary Hills ES	2111 Porter Rd	Silver Spring
	Rosemont ES	16400 Alden Ave	Gaithersburg
	S Christa McAuliffe ES	12500 Wisteria Dr	Germantown
	Sargent Shriver ES	12518 Greenly Dr	Silver Spring
	Sequoyah ES	17301 Bowie Mill Rd	Derwood
	Seven Locks ES	9500 Seven Locks Rd	Bethesda
Sherwood ES	1401 Olney Sandy Spring Rd	Sandy Spring	
Sligo Creek ES	500 Schuyler Rd	Silver Spring	
Somerset ES	5811 Warwick Pl	Chevy Chase	



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<b>MONTGOMERY COUNTY MAJOR PUBLIC FACILITIES AND INSTITUTIONS</b>			
<b>INSTITUTION</b>	<b>NAME</b>	<b>ADDRESS</b>	<b>CITY</b>
<b>ELEMENTARY SCHOOLS</b>	South Lake ES	18201 Contour Rd	Gaithersburg
	Spark M Matsunaga ES	13902 Bromfield Road	Germantown
	Stedwick ES	10631 Stedwick Rd	Montgomery Village
	Stone Mill ES	14323 Stonebridge View Dr	North Potomac
	Stonegate ES	14811 Notley Rd	Silver Spring
	Strathmore ES	3200 Beaverwood La	Silver Spring
	Strawberry Knoll ES	18820 Strawberry Knoll Rd	Gaithersburg
	Summit Hall ES	101 W Deer Park Rd	Gaithersburg
	Takoma Park ES	7511 Holly Ave	Takoma Park
	Thurgood Marshall ES	12260 McDonald Chapel Dr	Gaithersburg
	Travilah ES	13801 DuFief Mill Rd	North Potomac
	Twinbrook ES	5911 Ridgeway Ave	Rockville
	Viers Mill ES	11711 Joseph Mill Rd	Silver Spring
	Washington Grove ES	8712 Oakmont St	Gaithersburg
	Waters Landing ES	13100 Waters Landing Dr	Germantown
	Watkins Mill ES	19001 Watkins Mill Rd	Montgomery Village
	Wayside ES	10011 Glen Rd	Potomac
	Weller Road ES	3301 Weller Rd	Silver Spring
	Westbrook ES	5110 Allan Ter	Bethesda
	Westover ES	401 Hawkesbury La	Silver Spring
	Wheaton Woods ES	4510 Faroe Pl	Rockville
	Whetstone ES	19201 Thomas Farm Dr	Gaithersburg
	William B Gibbs Jr ES	12601 Millestone Manor La	Clarksburg
	William T Page ES	13400 Tamarack Rd	Silver Spring
	Wilson Wims ES	12520 Blue Sky Dr	Clarksburg
	Wood Acres ES	5800 Cromwell Dr	Bethesda
	Woodfield ES	24200 Woodfield Rd	Gaithersburg
	Woodlin ES	2101 Luzerne Ave	Silver Spring
Wyngate ES	9300 Wadsworth Dr	Bethesda	

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<b>MONTGOMERY COUNTY MAJOR PUBLIC FACILITIES AND INSTITUTIONS</b>			
<b>INSTITUTION</b>	<b>NAME</b>	<b>ADDRESS</b>	<b>CITY</b>
<b>MIDDLE SCHOOLS</b>	A Mario Loiederman MS	12701 Goodhill Rd	Silver Spring
	Argyle MS	2400 Bel Pre Rd	Silver Spring
	Benjamin Banneker MS	14800 Perrywood Dr	Burtonsville
	Briggs Chaney MS	1901 Rainbow Dr	Silver Spring
	Cabin John MS	10701 Gainsborough Rd	Potomac
	Col E Brooke Lee MS	11800 Monticello Ave	Silver Spring
	Earle B. Wood MS	14615 Bauer Dr	Rockville
	Eastern MS	300 E University Blv	Silver Spring
	Forest Oak MS	651 Saybrooke Oaks Blv	Gaithersburg
	Francis Scott Key MS	910 Schindler Dr	Silver Spring
	Gaithersburg MS	2 Teachers Way	Gaithersburg
	Herbert Hoover MS	8810 Post Oak Rd	Potomac
	John Poole MS	17014 Tom Fox Ave	Poolesville
	John T Baker MS	25400 Oak Dr	Damascus
	Julius West MS	651 Great Falls Rd	Rockville
	Kingsview MS	18909 Kingsview Rd	Germantown
	Lakelands Park MS	1200 Main St	Gaithersburg
	Martin Luther King MS	13737 Wisteria Dr	Germantown
	Montgomery Village MS	19300 Watkins Mill Rd	Montgomery Village
	Neelsville MS	11700 Neelsville Church Rd	Germantown
	Newport Mill MS	11311 Newport Mill Rd	Kensington
	North Bethesda MS	8935 Bradmoor Dr	Bethesda
	Parkland MS	4610 W Frankfort Dr	Rockville
	Redland MS	6505 Muncaster Mill Rd	Rockville
	Ridgeview MS	16600 Raven Rock Dr	Gaithersburg
	Robert Frost MS	9201 Scott Dr	Rockville
	Roberto Clemente MS	18808 Waring Station Rd	Germantown
	Rocky Hill MS	22401 Brick Haven Way	Clarksburg
	Rosa M Parks MS	19200 Olney Mill Rd	Olney
	Shady Grove MS	8100 Midcounty Hwy	Gaithersburg
	Silver Spring International MS	313 Wayne Ave	Silver Spring
	Sligo MS	1401 Dennis Ave	Silver Spring
	Takoma Park MS	7611 Piney Branch Rd	Takoma Park
	Thomas W Pyle MS	6311 Wilson La	Bethesda
Tilden MS	11211 Old Georgetown Rd	Rockville	
Westland MS	5511 Massachusetts Ave	Bethesda	
White Oak MS	12201 New Hampshire Ave	Silver Spring	
William H Farquhar MS	16915 Batchellors Forest Rd	Olney	

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<b>INSTITUTION</b>	<b>NAME</b>	<b>ADDRESS</b>	<b>CITY</b>
<b>HIGH SCHOOLS</b>	Albert Einstein HS	11135 Newport Mill Rd	Kensington
	Bethesda-Chevy Chase HS	4301 East West Hwy	Bethesda
	Clarksburg HS	22500 Wims Rd	Clarksburg
	Col Zadok Magruder HS	5939 Muncaster Mill Rd	Rockville
	Damascus HS	25921 Ridge Rd	Damascus
	Gaithersburg HS	101 Education Blv	Gaithersburg
	James Hubert Blake HS	300 Norwood Rd	Silver Spring
	John F Kennedy HS	1901 Randolph Rd	Silver Spring
	Montgomery Blair HS	51 E University Blv	Silver Spring
	Northwest HS	13501 Richter Farm Rd	Germantown
	Northwood HS	919 University Blv W	Silver Spring
	Paint Branch HS	14121 Old Columbia Pik	Burtonsville
	Poolesville HS	17501 Willard Rd	Poolesville
	Quince Orchard HS	15800 Quince Orchard Rd	North Potomac
	Richard Montgomery HS	250 Richard Montgomery Dr	Rockville
	Rockville HS	2100 Baltimore Rd	Rockville
	Seneca Valley HS	19401 Crystal Rock Dr	Germantown
	Sherwood HS	300 Olney Sandy Spring Rd	Sandy Spring
	Springbrook HS	201 Valleybrook Dr	Silver Spring
	Thomas S Wootton HS	2100 Wootton Pkw	Rockville
	Walt Whitman HS	7100 Whittier Blv	Bethesda
	Walter Johnson HS	6400 Rock Spring Dr	Bethesda
Watkins Mill HS	10301 Apple Ridge Dr	Gaithersburg	
Wheaton HS	12601 Dalewood Dr	Wheaton	
Winston Churchill HS	11300 Gainsborough Rd	Potomac	
<b>HIGHER EDUCATION</b>	Care Xpert Academy	13321 New Hampshire Ave	Silver Spring
	Griggs University	12501 Old Columbia Pik	Silver Spring
	Johns Hopkins University - Montgomery County	9601 Medical Center Dr	Rockville
	Montgomery College - Germantown Campus	20200 Observation Dr	Germantown
	Montgomery College - Rockville Campus	51 Mannakee St	Rockville
	Montgomery College - Takoma Park	7600 Takoma Ave	Takoma Park
	National Labor College George Meany Campus	10000 New Hampshire Ave	Silver Spring
	School of Art + Design at Montgomery College	930 King St	Silver Spring
	Uniformed Services University	4301 Jones Bridge Rd	Bethesda
	University of Maryland - Shady Grove Center	9630 Gudelsky Dr	Rockville
	Washington Adventist University	7600 Flower Ave	Takoma Park

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<b>MONTGOMERY COUNTY MAJOR PUBLIC FACILITIES AND INSTITUTIONS</b>			
<b>INSTITUTION</b>	<b>NAME</b>	<b>ADDRESS</b>	<b>CITY</b>
<b>HOSPITALS</b>	Germantown Emergency Center	19731 Germantown Rd	Germantown
	Holy Cross Germantown Hospital	19801 Observation Dr	Germantown
	Holy Cross Hospital	1500 Forest Glen Rd	Silver Spring
	Montgomery General Hospital	18101 Prince Phillip Dr	Olney
	National Institute of Health (NIH)	9000 Rockville Pik	Bethesda
	Shady Grove Adventist Hospital	9901 Medical Center Dr	Rockville
	Suburban Hospital Healthcare System	8600 Old Georgetown Rd	Bethesda
	Walter Reed National Military Medical Center	8901 Rockville Pik	Bethesda
	Washington Adventist Hospital	7600 Carroll Ave	Takoma Park

# **Appendix F**

***Key Changes and Updates to the 2018 – 2027  
Montgomery County Comprehensive Water Supply  
and Sewerage Systems Plan – (The Ten-Year Plan)***

Listed below are an overall summary of changes and updates included in the draft 2022-2030 Ten-Year Plan relative to the adopted 2018-2027 Plan.

## **Chapter 1: OBJECTIVES AND POLICIES**

This chapter includes an introduction to the Comprehensive Water Supply and Sewerage Systems Plan, identifying its purpose, legal context, and governance issues. This chapter includes both general and special-condition policies that have been adopted by the County Council for the designation of community water and sewer service areas, which regulate water and sewerage system extensions, connections, and their staging.

The update of Chapter 1 continues a process of reorganization to assist those using the Plan. The preceding changes are largely structural to the Plan, moving sections together with a common theme to provide for clarity, better continuity, and less redundancy. Chapter 1 incorporates text amendments approved by the County since adoption of the prior Plan update. Chapter 1 also provides new information, policy directions, and recommendations, as follow:

- **Onsite System Exceptions (Section II.D.):**
  - The 2018 Plan removed requirements for dry system mains; and established that all subdivisions within service area categories 1 and 3 will use community service, rather than interim permit individual onsite systems. However, the policy now allows for consideration of exceptions that would allow for interim permit onsite systems in areas zoned for large lot development.
  
- **Updates to Special Policies for Water and Sewer Service (Section II.G.):**
  - For the Community Service for Abutting Mains Policy - Revised the policies for community service for properties abutting community service mains (II.G.3.):
    - Limited extensions of existing abutting mains may be considered in cases where an extension would allow for better placement of the service connection relative to the building receiving new service. This would also allow another property that abuts the new extension to qualify for community service under this policy (II.G.3.a). Properties that abut new main extensions are limited to one connection per property and new connections will be limited to improved properties and recoded building lots. That allowed connection cannot support subdivision or resubdivision of that newly abutted property.
    - A new provision allows for the transfer of an abutting mains connection “right” from one eligible property to another, commonly owned, ineligible property under strictly limited conditions. Among other requirements, the two properties must be adjacent to each other, and both must abut a qualifying water or sewer main. The property donating the connection right surrenders the connection right then becomes ineligible for the abutting mains service connection. (II.G.3.c.)
    - The option for multiple service connections under this policy is revised to require onsite system testing to determine the number of connections that may be replaced by dwelling units using public systems service. (II.G.3.d.)
  - For the Community Service for Private Institutional Facilities (PIF) policy:
    - Added a statement about the relationship between the PIF policy and the Federal Religious Institutions Land Use and Institutionalized Persons act (RLUIPA).
    - Revised the “Additional Considerations” section to clarify the difference between policy changes that could be addressed via the Water and Sewer Plan (e.g., PIF limitations in



- other zones besides the AR Zone) and changes that would have to be addressed via other venues (e.g., watershed regulations). (II.G.4.b.)
- Clarified that the Council’s consideration of concept plans for new PIF cases and PIF use revisions will be focused primarily on imperviousness and new main extension issues. (II.G.4.c and II.G.4.d.)
- Added an emphasis on consistency with established imperviousness limitations. (II.G.4.c.)
- The Community Service for Commercial Land Uses policy addresses the provision of water and/or sewer service for properties with commercial land uses located outside the planned community service envelopes. The requirements for community service under this new policy closely mirror those of the private institutional facilities policy. Among the exceptions included are that the commercial uses qualifying for community service do not need to be tax-exempt under the U.S. I.R.S. code and they cannot be located within the Rural and Rural Cluster Zones, in addition to the Agricultural Reserve Zone. (II.G.5.)
- **Updates to WSSC Facility Planning Process (Section III.A.5.):**
  - Added text provided by WSSC to address new aspects of the facility planning process, including WSSC’s Asset Management and Business Case Evaluation Programs.
  - Added a recommendation for continuing coordination efforts between WSSC Water and the County concerning the facility planning process.
- **Updates to Individual Systems (Section III.C.):**
  - Updated the Onsite Systems Management Program discussion to explain where the program stands now and the proposed legislation for a septic tank pumping requirement. (III.C.4.d.)
  - Removed a condition from the Exceptions from Design Capacity Restrictions that addresses individual onsite systems with approved permits prior to February 14, 2006, as those permits would no longer be valid. (II.C.5.c.)
- **Updates to Water and Sewerage Systems Financing (Section IV.):**
  - Removed some information from the WSSC Water-Built Projects program from this update of the Plan as the program is largely irrelevant today. (IV.A.2.b.)
  - Updated the discussion concerning Efforts to Address Underserved and Unserved Communities to reflect the current status of the WSSC Water – Bi-county Work Group,
- **Updates to Review and Consideration of Plan Amendments (Section V.D.)**
  - Added text that expands the discussion of the primary reviewing agencies for service area category change requests and those agencies’ responsibilities in the process.
- **Updates to Plan Amendment Actions (Section V.E.):**
  - Specified that Deferred Amendments still pending after three years will be returned to the Council’s attention with a recommendation for denial from the County Executive. (V.E.3.)

## **Chapter 2: GENERAL BACKGROUND**

Chapter 2 provides an overview of the natural and cultural environments in Montgomery County. Updated new information in this chapter include:

- Updates to the County’s latest ratings of stream conditions based on biological monitoring.
- Updates to the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System Permit Program (AKA the MS4 Permit Program).

- Updates to Population dynamics and forecasting. The latest forecasts (Round 9.1 Cooperative Forecasting) of population, households, and employment were developed and published by MWCOG through a cooperative process involving the Council of Governments, its member jurisdictions, the Baltimore region, the states and other planning agencies.

### **Chapter 3: WATER SUPPLY SYSTEMS**

This chapter contains information about the various aspects of the county's water supply systems; including water supply sources, treatment, and distribution systems. Updated new information in this chapter include:

- **Updates to Projected Water Supply Demand:** Based on analysis of the latest water production and consumption data, WSSC has also developed the following water demand per unit to be used for growth projections and planning water system improvements:
  - Single-Family Dwelling Unit (SFDU):-----177.0 gallons per day (gpd)
  - Employees:-----36.1 gpd
  - Multi-Family Dwelling Unit (MFDU):-----146.8 gpd

The above numbers have been developed using COG/M-NCPPC Round 8.1 population forecasts.

- **Updates to Projected Water Supply System Needs:** The following includes WSSC's major current and planned studies and facilities needed to meet the projected treatment capacity at each of its water treatment plants.
  - Potomac Solids Handling
  - Source Water Protection
  - Potomac Basin Corrosion Mitigation Project
  - Potomac Submerged Channel Raw Water Intake
  - Potomac Filter Air Scour Improvements
  - 2019 – 2020 AWIA Risk and Resiliency Assessment
  - Patuxent Water Treatment Plant Replacement and Expansion
  - Brighton Dam Maintenance
  - Germantown/Clarksburg Area Projects
  - Standpipe Replacement Projects
- **Updates to Tables, Figures, Graphics, and other Technical Data:** All the tables, figures, and graphics have been updated to reflect the latest data, information, and trends. These include:
  - Water Service Area Category Maps
  - Water Service Area maps
  - Planning areas and pressure zones
  - Water supply sources for each service area
  - Well problem areas
  - Inventory of existing impounded water supplies
  - Existing and projected water supply demands, trends, and planned capacities for each service area (WSSD, City of Rockville, and the Town of Poolesville)
  - Inventory of existing and approved Multi-Use Water Supply Systems

- **Updates to Programs and Policies:** Included in this updated Plan are revisions to a few program and policies mainly by WSSC to meet regulatory requirements and its financial needs and include:
  - Water Conservation Plan
  - Public Outreach and Education Programs
  - Plumbing Code
  - Water consumption Rate Structure

## **Chapter 4: SEWERAGE SYSTEMS**

This Chapter describes the county's existing and planned community and private, individual sewerage systems. Main focus and updates included in this chapter include:

- **Updates to Wastewater Flow Analysis and Projections:** The updated wastewater flow projections used in this Chapter are developed on 5-year intervals and are based on Round 9.1 Cooperative demographic forecasts and WSSC's latest wastewater flow factors. Wastewater flow forecasts are developed from detailed analyses of existing flow records and projected additional future flow based on projected demographics, wastewater flow per household and per employment, and other factors such as infiltration (extraneous groundwater) and inflow from rainfall. Population forecasting and flow projection are based on the best available data at the time the analysis is conducted.
- **Updates to Planned Sewerage System Needs:** Based on the latest population projections and using Wastewater System Modeling, WSSC identifies the potential impact of current and future wastewater flows on sewerage system capacities. The Wastewater System Modeling is also used to identify collection system needs such as capacity constraint due to insufficient capacity for present and/or future wastewater flows and plan needed improvements. Updates to planned sewerage systems based on the latest flow analysis for each service area and individual sewer basin include:
  - **Blue Plains Service Area:** Approximately 85% of the municipal wastewater generated in Montgomery County is treated at the Blue Plains WWTP. This service area encompasses much of the central and eastern part of the county which includes Muddy Branch, Rock Creek, Watts Branch, Cabin John Creek, Rock Run, Little Falls Branch, Northwest Branch, Paint Branch, and Sligo Creek Basins. The Blue Plains service area also includes the Rockville Sanitary District.
    - Projected Treatment Capacity Needs: Produced by WSSC and based on COG's Round 8.1 Cooperative demographic forecasts and WSSC's latest wastewater flow factors. The County's projected wastewater treatment needs within the Blue Plains service area will be met well beyond the year 2025.
    - Projected Transmission and Conveyance Needs: Projected needs for all sewersheds discharging to the Blue Plains WWTP are listed below. These projections are based on COG's Round 8.1 Cooperative demographic forecasts and WSSC's latest wastewater flow factors.
      - I. Muddy Branch - 7,500 feet of trunk sewers along the main stem in Muddy Branch may have capacity constrains under 2025 wet weather conditions.
      - II. Watts Branch - Basin's conveyance facilities will be able to handle the basin's

anticipated wastewater flows through the year 2025

- III. Rock Run - 5,495 feet along the main stem of Rock Run Branch may have capacity constrains under 2025 wet weather conditions.
- IV. Cabin John - 3,300 feet of relief sewer along Cabin John Creek near River Road and the Capital Beltway may have capacity constrains under 2025 wet weather conditions.
- V. Rock Creek – Capacity constrains under 2025 wet weather conditions near Reddy Branch Wastewater Pumping Station and a tributary to Mill Creek Branch
- VI. Little Falls - Based on the latest WSSC wastewater flow, it has been determined that the Little Falls trunk sewer has adequate capacity to receive the projected wastewater flows through 2025.
- VII. Anacostia Interceptor System – Flows discharged into Anacostia Interceptor System from Montgomery County include Sligo Creek Basin, Northwest Branch Basin, and Paint Branch Basin - Much of the development potential in Sligo Creek is limited to redevelopment of existing commercial areas, such as the downtown areas of Silver Spring and Wheaton. Although, the basin is identified as a Potential Overflow Basin, WSSC does not anticipate future sewage capacity constraints or overflows within Montgomery County. The Northwest Branch Basin is currently identified as a Potential Overflow Basin. A small length of gravity sewer (about 200 feet) is identified as having capacity constraints under projected future wet weather conditions. Major sewer lines in Paint Branch Basin have adequate capacity at present, and there are no planned CIP projects in this basin. However, considerable growth is expected to occur in this area along the U.S. Route 29 corridor. WSSC has determined through its sewer modeling that that 17,000 feet of sewer in the Paint Branch basin within Montgomery County will have capacity constraints under projected future wet weather flow conditions.

- **Seneca Service Area:** - Projected flows based on forecasted population and other flow factors for the Seneca Service Area have been developed by the WSSC and are based on Round 8.1 Cooperative demographic forecasts. The basin has been one of the most active basins in the County in providing new wastewater services during recent years. There are a number of active projects in this service area to address wastewater conveyance constraints/needs and improve service in the Seneca Creek Basin. The Seneca WWTP has adequate capacity to treat the 2025 projected flows.
- **Damascus Service Area:** - Projected flows based on demographic forecasts and other flow factors for the Damascus Service Area indicate that existing treatment facility will handle all expected wastewater flows from this service area for the foreseeable future.
- **Poolesville Service Area:** - The Town of Poolesville has developed a Wastewater Capacity Management Plan. The Plan utilizes a three-year rolling average of discharge flows from the WWTP to determine the available capacity for development allocation.

- **Updates to Sanitary Sewer Overflows Consent Decree:** In December 2005, the Washington Suburban Sanitary Commission (WSSC) entered into a Consent Decree with the U.S. Environmental Protection Agency (EPA), the State of Maryland and four Citizen Groups on an action plan to significantly minimize, and eliminate where possible, sanitary sewer overflows (SSOs). The Citizens Groups were the Natural Resources Defense Council (NRDC), the Anacostia Watershed Society (AWS), the Friends of Sligo Creek (FOSC), and the Audubon Natural Society. On January 19, 2006, the Court entered the First Amendment to the Consent Decree to add Patuxent Riverkeeper to the definition of Citizens Groups. The sanitary sewer system is being inspected and

rehabilitated. The agreement estimates approximately \$1.3 billion in improvements to the WSSC's wastewater collection system, provides \$4.4 million for additional environmental improvement projects and includes a \$1.1 million civil penalty.

A short description of the requirements of the Consent Decree and additional details regarding the current status and the remedial measures progress to date have been provided in the Plan.

- **Updates to Biosolids Management:** - WSSC has recently completed a major facility planning study to explore and determine the best alternative in managing its future biosolids produced from all of its wastewater treatment plants within both Montgomery and Prince George's counties.

The focus of this facility plan was to examine and develop a comprehensive program providing for the best alternative to process biosolids in a manner that is environmentally beneficial and is also economically feasible. The recommended and approved alternative included the design and construction of a central bio-energy project comprised of Thermal Hydrolysis, Mesophilic Anaerobic Digestion, and Combined Heat and Power facilities. The project is currently under construction and is expected completion date has been scheduled for the year 2024. When complete, some of the expected environmental and economic benefits would include:

- Significant reduction in biosolids quantity.
- Production of digester gas as renewable fuel which will be used to produce heat and electric power.
- Producing high quality (Class-A) biosolids which can be used more widely than the Class-B biosolids currently produced.

As part of their updated Biosolids Management Program (BMP), the DC-Water is currently at the final phases of constructing major facilities to upgrade its biosolids processing and management practices. The upgraded biosolids processing plant when complete will largely replace the current lime stabilization with thermal hydrolysis and anaerobic digestion.

- **Updates to Tables, Figures, Graphics, and other Technical Data:** All the tables, figures, and graphics contained in the current approved Plan have been updated to reflect the latest data, information, and trends. These include:
  - Wastewater Service Area Category Map for Montgomery County
  - Wastewater Service Area district maps
  - Planning areas and sewersheds
  - Projected Transmission and Conveyance Needs for individual sewersheds
  - Wastewater treatment plant service area maps
  - Projected wastewater treatment capacity needs for all wastewater treatment plants
  - Current and projected safe capacities for all wastewater pumping stations
  - Individual sewershed maps
  - Existing and projected wastewater flows for individual sewersheds
  - Projected facility needs for individual sewersheds
  - Projected facility needs for all districts and treatment service areas
  - Inventory of existing and approved Multi-Use sewerage systems
- **New Policy Initiatives and Program Recommendations:** Included in this updated draft version of the Plan, few policy and program recommendations relative to County's Sewerage systems have been presented for considerations and include:

- ❖ **WSSC - IMA Allocated Flow Capacity and Related Nitrogen and Phosphorus Load Allocations at the Blue Plains WWTP:** WSSC use of IMA allocated flow capacity of 169.6 MGD at the Blue Plains Wastewater Treatment Plant has been reduced to 163.6 MGD due to diversion of nitrogen and phosphorus load allocations (loads associated with 6 MGD) at the WSSC's Seneca Wastewater Treatment Plant. WSSC should initiate a process to explore the possibilities of restoring the full WSSC's allocated capacity in the Blue Plains Wastewater Treatment Plant.
  
- ❖ **County to Develop Program Addressing the Potential Sanitation Problems from Aging Individual, On-Site Systems in the County's Neighborhoods:** The County should create, budget, and implement appropriate programs to research, prioritize, and address the potential sanitation problems from aging individual, on-site systems facing the County's neighborhoods. This will be especially important for rural neighborhoods located outside the effective/efficient reach of community water and sewerage systems. Solving the concerns about older neighborhoods using individual on-site systems may require new and innovative solutions beyond the usual provision of community water and/or sewer service. These may include, but are not limited to:
  - I. Proactive, periodic on-site systems maintenance and inspection programs coordinated with public outreach and education on individual systems maintenance;
  - II. Alternative community distribution, collection and treatment systems;
  - III. Shared water and/or sewerage systems, owned by local communities and operated by authorized agencies or utilities
  - IV. Alternative financing for relief systems (community or otherwise), including but not limited to special assessment districts, grants or loans from government resources, or utility assistance programs;
  - V. Programs to assist lower-income individuals and communities in financing required relief systems.

## **APPENDIX C: EXCEPTIONAL SERVICE POLICIES AND RECOMMENDATIONS**

This appendix complies existing areas with either exceptional service allowances or exceptional service restrictions.

- In the Glen Hills Study Area section, added that properties within the City of Rockville cannot be used as justification for sewer category change approvals under the Potomac peripheral sewer service policy. (II.E.)
- In the Jonesville and Jerusalem section, added language addressing repeated sewage flow events exceeding WSSC Water's negotiated 20,000 gallons per day maximum flow into the Poolesville Wastewater Treatment Plant. Noted that, pending WSSC Water investigations into possible infiltration and inflow within its sewerage system, the County and WSSC Water may need to consider either further service restrictions in the service area or renegotiation on flow limits with the Town.
- In the Potomac Area RE-1 and RE-2-Zoned Properties section, added that properties within the City of Rockville cannot be used as justification for sewer category change approvals under the Potomac peripheral sewer service policy. (II.M.)
- In the Riverwood Drive section, reduced the area of the existing restriction, removing those areas served by community sewerage systems and with existing and access to existing community sewerage systems. (II.N.)



# **Attachment 1**

***Montgomery County Comprehensive Water Supply  
and Sewerage Systems Plan***

***2022 - 2031 PLAN***







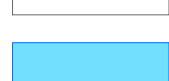






***(Executive Draft)***

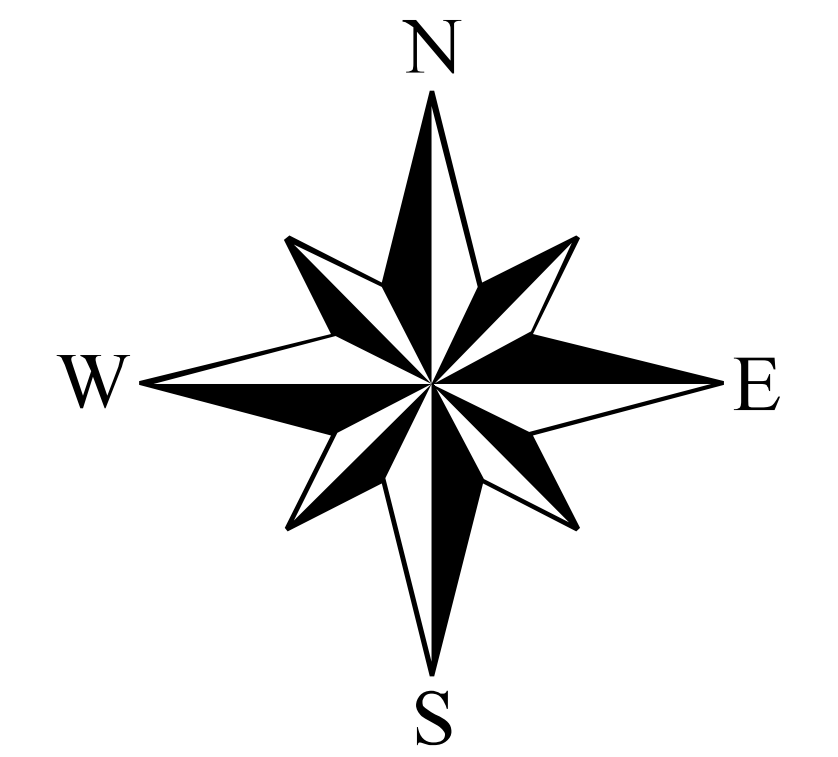
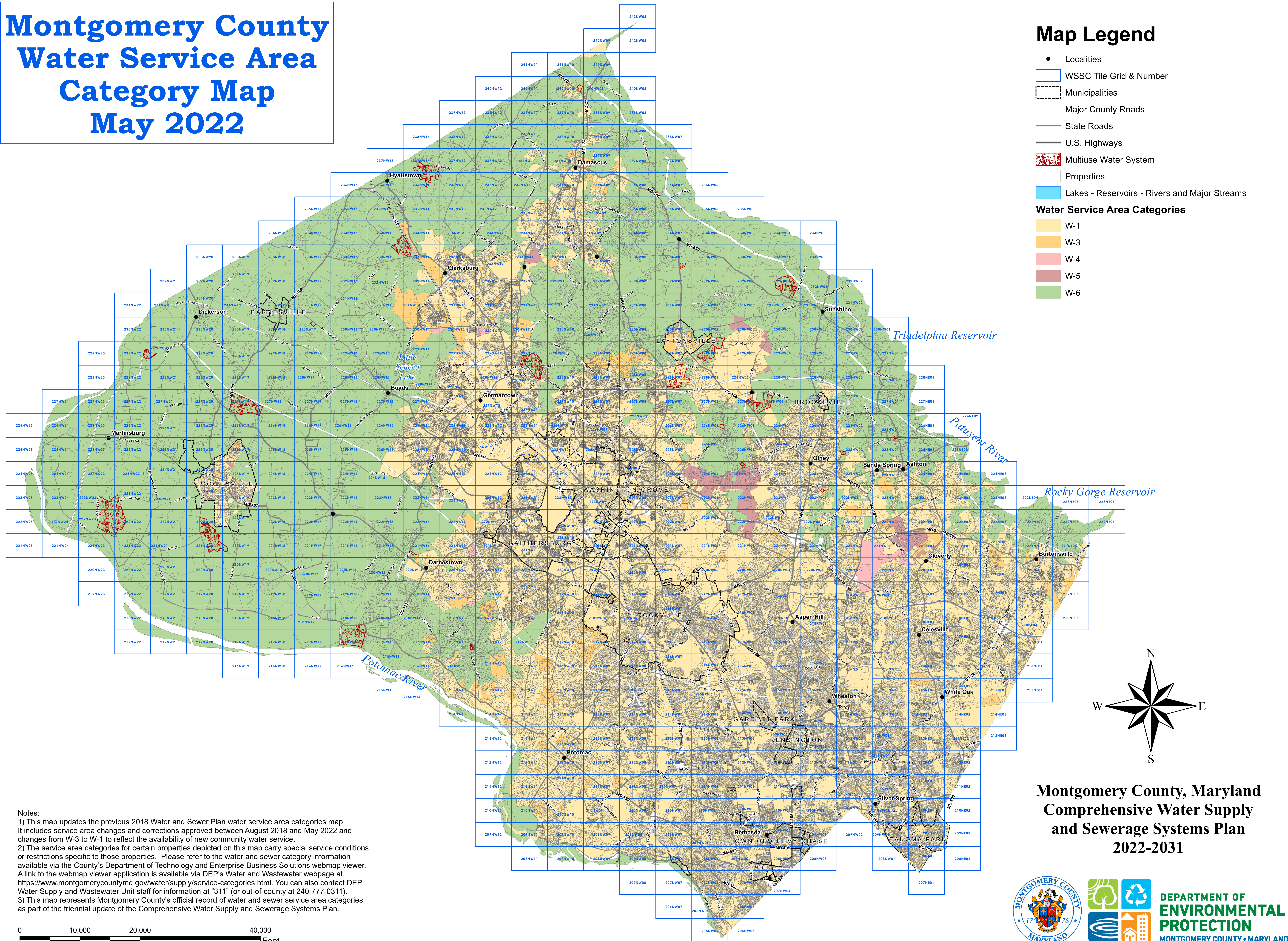
**(Water & Sewer Service Area  
Category Maps)**



# Montgomery County Water Service Area Category Map May 2022

## Map Legend

- Localities
  -  WSSC Tile Grid & Number
  -  Municipalities
  -  Major County Roads
  -  State Roads
  -  U.S. Highways
  -  Multiuse Water System
  -  Properties
  -  Lakes - Reservoirs - Rivers and Major Streams
- ### Water Service Area Categories
-  W-1
  -  W-3
  -  W-4
  -  W-5
  -  W-6



## Montgomery County, Maryland Comprehensive Water Supply and Sewerage Systems Plan 2022-2031



Water Supply & Wastewater Unit

### Notes:

- 1) This map updates the previous 2018 Water and Sewer Plan water service area categories map. It includes service area changes and corrections approved between August 2018 and May 2022 and changes from W-3 to W-1 to reflect the availability of new community water service.
- 2) The service area categories for certain properties depicted on this map carry special service conditions or restrictions specific to those properties. Please refer to the water and sewer category information available via the County's Department of Technology and Enterprise Business Solutions webmap viewer. A link to the webmap viewer application is available via DEP's Water and Wastewater webpage at <https://www.montgomerycountymd.gov/water/supply/service-categories.html>. You can also contact DEP Water Supply and Wastewater Unit staff for information at "311" (or out-of-county at 240-777-0311).
- 3) This map represents Montgomery County's official record of water and sewer service area categories as part of the triennial update of the Comprehensive Water Supply and Sewerage Systems Plan.

0 10,000 20,000 40,000  
Feet

0 2.5 5 10  
Miles



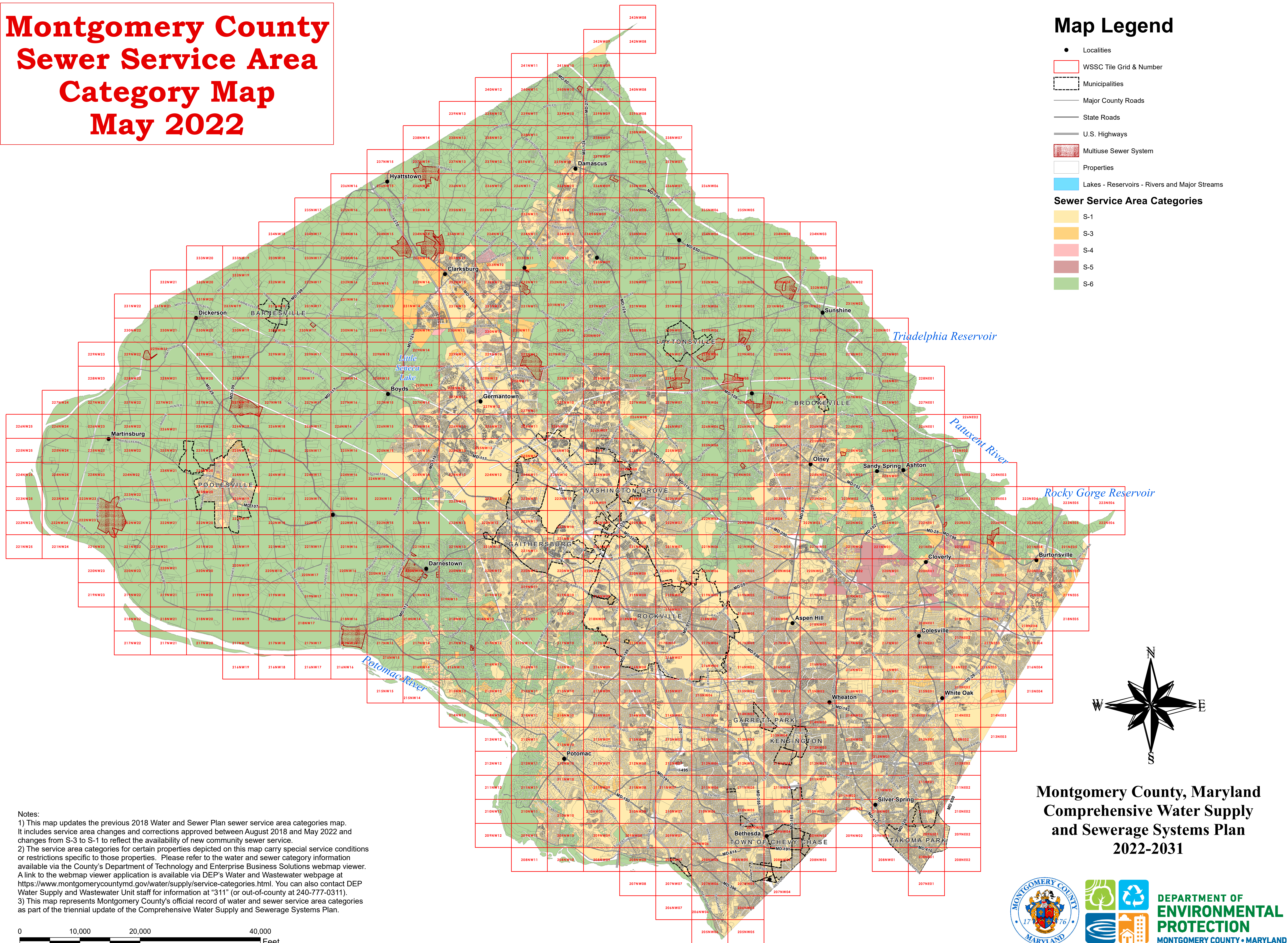
# Montgomery County Sewer Service Area Category Map May 2022

## Map Legend

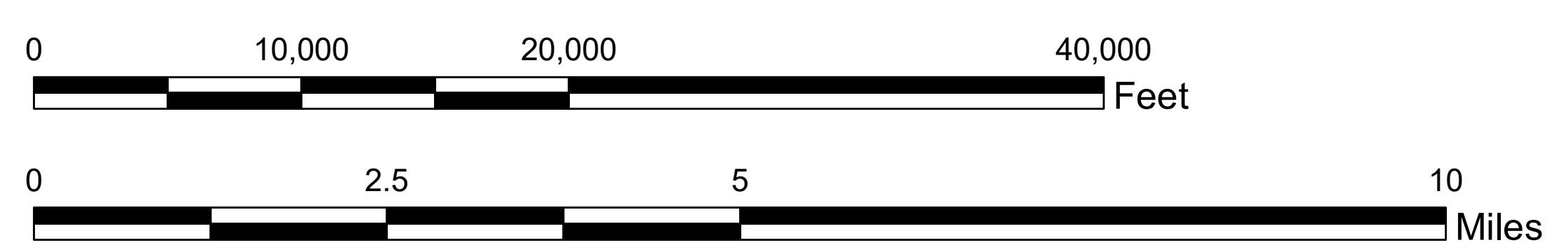
- Localities
- ▭ WSSC Tile Grid & Number
- ▭ Municipalities
- Major County Roads
- State Roads
- U.S. Highways
- Multiuse Sewer System
- Properties
- Lakes - Reservoirs - Rivers and Major Streams

### Sewer Service Area Categories

- S-1
- S-3
- S-4
- S-5
- S-6



Notes:  
 1) This map updates the previous 2018 Water and Sewer Plan sewer service area categories map. It includes service area changes and corrections approved between August 2018 and May 2022 and changes from S-3 to S-1 to reflect the availability of new community sewer service.  
 2) The service area categories for certain properties depicted on this map carry special service conditions or restrictions specific to those properties. Please refer to the water and sewer category information available via the County's Department of Technology and Enterprise Business Solutions webmap viewer. A link to the webmap viewer application is available via DEP's Water and Wastewater webpage at <https://www.montgomerycountymd.gov/water/supply/service-categories.html>. You can also contact DEP Water Supply and Wastewater Unit staff for information at "311" (or out-of-county at 240-777-0311).  
 3) This map represents Montgomery County's official record of water and sewer service area categories as part of the triennial update of the Comprehensive Water Supply and Sewerage Systems Plan.



## Montgomery County, Maryland Comprehensive Water Supply and Sewerage Systems Plan 2022-2031



Water Supply & Wastewater Unit



# **Attachment 2**

***Key Changes and Updates to the 2018 – 2027  
Montgomery County Comprehensive Water Supply  
and Sewerage Systems Plan – (The Ten-Year Plan)***

**County Council Resolution  
No. 19- 1423**

Resolution No.: 19-1423  
Introduced: June 14, 2022  
Adopted: October 25, 2022

**COUNTY COUNCIL  
FOR MONTGOMERY COUNTY, MARYLAND**

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Lead Sponsor: County Council

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**SUBJECT:** Ten-Year Comprehensive Water Supply and Sewerage Systems Plan, 2022-2031

**Background**

1. Section 9-501 et seq. of the Health-Environmental Article of the Maryland Code requires the governing body of each county to adopt and submit to the State Department of the Environment a comprehensive County Plan, and on a triennial basis comprehensively review its Plan.
2. In accordance with the State law on December 30, 1969, by Resolution No. 6-2563, the County Council adopted a Comprehensive Ten-Year Water Supply and Sewerage Systems Plan, which was approved by the State Department of the Environment.
3. The County Council has from time to time amended the Plan.
4. On June 2, 2022, the County Executive submitted the Recommended Montgomery County 2022-2031 Comprehensive Water Supply and Sewerage Systems Plan.
5. Recommendations on the 2022-2031 Comprehensive Water Supply and Sewerage Systems Plan were solicited from the Maryland-National Capital Park and Planning Commission, Washington Suburban Sanitary Commission staff, and affected municipalities.
6. A public hearing was held on July 12, 2022.
7. The Transportation and Environment Committee held worksessions on September 12, 2022 and October 3, 2022.
8. The County Council held a worksession on October 18, 2022.

**Action**

The County Council for Montgomery County, Maryland approves the following resolution:

The County Executive's Recommended Montgomery County 2022-2031 Comprehensive Water Supply and Sewerage Systems Plan is approved with the following changes, as shown in the attachments to this resolution.

This is a correct copy of Council action.

  
\_\_\_\_\_  
Judy Rupp  
Clerk of the Council



**Approved 2022 – 2031 Water and Sewer Plan: Summary Table of Text Revisions**

In preparing the final version of the Approved 2022 – 2031 Water and Sewer Plan, the Montgomery County Department of Environmental Protection (DEP) made numerous revisions and updates to the June 2022 draft Plan text, as transmitted by the County Executive. Many of these changes were minor in nature, including editing corrections and minor wording revisions. In addition, DEP updated several of the GIS-generated map appearing throughout the text. The following table provides a summary of the more significant policy and other major revisions to the Executive's draft text.

<b>APPROVED 2022 – 2031 COMPREHENSIVE WATER SUPPLY AND SEWERAGE SYSTEMS PLAN Revisions to the County Executive's Recommended June 2022 Draft Plan</b>		
<b>Section/Figure/Table Revised*</b>	<b>Initiated By</b>	<b>Revision</b>
<b>EXECUTIVE SUMMARY</b>		
(pgs. ES-1 to ES-8)	DEP	Revised the Executive Summary, as needed, to reflect other changes in the Plan text (as identified below)
<b>CHAPTER 1: OBJECTIVES AND POLICIES</b>		
Section I.E.3.a. Washington Suburban Sanitary Commission (pg. 1-13)	Washington Suburban Sanitary Commission (WSSC Water)	Expanded the discussion of WSSC Water's role in the category change amendment process.
Section II.G.3.: Community Service for Properties Abutting Community System Mains (pg. 1-37)	County Council	In the text under <u>Technical Feasibility</u> , concerning new main extensions to existing abutting mains. Added that confronting properties eligible for community service from the main extension must be either improved or a recorded building lot.
Section II.G.3.c.: Transfer of an Abutting Mains Single Service Connection Qualification (pg. 1-40)	Transportation and Environment (T&E) Committee	Added new text under the abutting mains policy that allows, under strictly limited circumstances, the transfer of an abutting mains connection right from one qualifying property to another adjacent, commonly owned, ineligible property.
Section II.G.5.: Community Service for Commercial Land Uses (pg.1-45)	T&E Committee	Added a new section that addresses the provision of community service for commercial land uses located outside of the planned community water and sewer envelopes.
Section IV.A.2.c.: Efforts to Address Underserved and Unserved Communities (pg. )	County Council	Updated the discussion of the <u>Unserved and Underserved Subgroup</u> to include recent efforts to move the program forward, including the subgroup's final report, a general implementation plan, and presentations to WSSC Water Commissioners and elected officials from both Counties.
Section V.D: Review and Consideration of Plan Amendments (pg. 1-73)	WSSC Water & DEP	Expanded the discussion of the roles that the reviewing agencies play in the category change amendment review process.
<b>CHAPTER 2: GENERAL BACKGROUND</b>		
II.E.5.d Montgomery County's MS4 Permit (Page 2-17)	DEP	- Updated the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System Permit Program (AKA the MS4 Permit Program).
<b>CHAPTER 3: WATER SUPPLY SYSTEMS</b>		
Section II.C.2: Regional Drought Operations (Page 3-14)	WSSC Water	Updated the text to reflect revised operations rules and procedures for reducing the impacts of severe droughts in the Potomac River for the Washington Metropolitan Area Water Suppliers.
Plan Recommendation: Potential Use of Travilah Quarry for Additional Raw Water Storage (Page 3-19)	WSSC Water, DEP	Updated language on Plan Recommendation for Potential Use of Travilah Quarry for Additional Raw Water Storage
<b>CHAPTER 4: SEWERAGE SYSTEMS</b>		
Note: No substantive revisions to the County Executive's draft.		

**Approved 2022 – 2031 Water and Sewer Plan: Summary Table of Text Revisions**

<b>APPENDIX A: GLOSSARY</b>		
Note: No substantive revisions to the County Executive's draft.		
<b>APPENDIX B: MULTIUSE SYSTEMS</b>		
Note: No substantive revisions to the County Executive's draft.		
<b>APPENDIX C: EXCEPTIONAL SERVICE POLICIES AND RECOMMENDATIONS</b>		
Section II.N. RIVERWOOD DRIVE (pg. C-18 & Fig. C-F14)	County Council	Reduced the area proposed for removal from the Riverwood Drive restricted sewer service area. Part of the Potomac Manor Section 2 subdivision that currently lacks access to community sewer service will also remain in the restricted sewer service area. Made minor text changes to conform with this change.
<b>APPENDIX D: AGENCIES</b>		
Note: No substantive revisions to the County Executive's draft.		
<b>APPENDIX E: MAJOR FACILITIES AND INSTITUTIONS</b>		
Note: No substantive revisions to the County Executive's draft.		
<b>APPENDIX F: SUMMARY OF CHANGES</b>		
(pgs. F-1 – F-20)	DEP	Revised the appendix, as needed, to reflect other changes in the Plan text (as previously identified)

**Approved 2022 – 2031 Water and Sewer Plan: Substantive Revisions to the Executive Draft Plan**

[Bracketed Text] = Approved Deletions

Underscored Text = Approved Additions

((Notes))

**EXECUTIVE SUMMARY**

*((The following text revisions cited in the Executive Summary were included to reflect revisions elsewhere in the Plan text.))*

**CHAPTER 1 Section**

**II.G. Special Policies for Water and Sewer Service**

**II.G.3.: Community Service for Properties Abutting Community System Mains**

**II.G.3.a.: General Requirements**

((Page ES-2))

**II.G.3.c.: Transfer of an Abutting Mains Single Service Connection Qualification**

The text addresses the transfer of an abutting mains connection “right” from one eligible property to another, commonly owned, ineligible property under strictly limited conditions. The policy was previously silent concerning the acceptability of such an action. Among other requirements, the two properties must be adjacent to each other, and both must abut a qualifying water or sewer main. The property donating the connection right surrenders the connection right then becomes ineligible for the abutting mains service connection.

((Page ES-3))

**II.G.5.: Community Service for Commercial Land Uses**

This policy addresses the provision of community water and/or sewer service for properties with commercial land uses located outside the planned community service envelopes. The requirements for community service under this new policy closely mirror those of the private institutional facilities policy. Exceptions are that the commercial uses qualifying for community service do not need to be tax-exempt under the U.S. I.R.S. code and they cannot be located within the Rural and Rural Cluster Zones, in addition to the Agricultural Reserve Zone.

((Pages ES2- - ES 4))

**IV.A.2.c.: [Replacing the WSSC-Built Extension Program] Efforts to Address Underserved and Unserved Communities**

Reworked this section, focusing more on the current work of the Unserved and Underserved Communities subgroup. The subgroup is investigating improved means of providing public service main extensions to neighborhoods planned for public service but that lack access to existing mains. [The subgroup’s report is being finalized.] The subgroup’s report has been finalized, and along with a procedural and financial implementation plan, has been presented to elected officials in both Montgomery and Prince George’s Counties. WSSC-Water has drafted State legislation for a flat fee charge for proposed partial financing.

((Page ES-4))

**V.D: Review and Consideration of Plan Amendments**

Added text that expands the discussion of the primary reviewing agencies for service area category change requests and those agencies’ responsibilities in the process.

((Page ES-7))

**Appendix C**

**II.N. RIVERWOOD DRIVE**

Service Recommendation & Comments: Explained that this restricted sewer service area is substantially larger than is necessary. Many parts of the restricted service area already have community sewer service. [In other areas, the technical limitations of extending sewer service across the cut for Sandy Landing Rd., 100 feet deep in some parts, makes such extensions impractical. The only areas that need to remain within the restricted sewer service area are Carrs Addition and Fox Meadow.] The areas excluded from the original restricted sewer service area are those with existing or direct access to community sewer service. The accompanying figure has been modified to match.

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**CHAPTER 1**

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**I.E.3.a.: Washington Suburban Sanitary Commission (WSSC Water, WSSC)**

((Page 1-13))

*((Text added to clarify WSSC-Water's role in the category change review process.))*

...

WSSC Water provides data and guidance to the Executive pertaining to capacity of the water supply and sewerage systems and to engineering and fiscal aspects of system expansion. WSSC Water's functions also include reviewing and commenting on the Recommended Comprehensive Water Supply and Sewerage Systems Plan and on proposed amendments, including water and sewer service area category change requests. For category change requests, WSSC Water addresses the technical feasibility of new community service, including system transmission and treatment capacities.

**II.G.3.: Community Service for Properties Abutting Community System Mains**

**II.G.3.a.: General Requirements**

Technical Feasibility of Service Connections ((underscored as in the text, not added language))

((Page 1-37))

*((Text added to clarify which confronting properties, that abut new main extensions, can receive service connections from those mains. The intent is to not allow these main extensions to promote unapproved development.))*

...

The requested main extension may offer abutting mains connections to other confronting properties provided that they are only improved properties or recorded building lots. These confronting properties must be served from the extended main; no additional extensions are allowed. DEP may grant an exception to this limitation in cases where an extension is needed for the relief of a failed onsite system. In cases where a service area category change is needed for a confronting property, the category change is not suitable for an advance action (see Section II.G.3.e.). The confronting properties will carry a notice that disallows any similar, additional main extensions. As with the general provisions of this abutting mains policy, a property newly abutting a new main extension is limited to a single service connection from the new main. Further, in such cases, the additional subdivision of the newly abutting property based on the provision of an abutting service connection is not allowed. Service connections from the extended main to other newly abutting properties must be direct connections from the main. Non-abutting service connections are not allowed in these cases.

**II.G.3.: Community Service for Properties Abutting Community System Mains**

**II.G.3.c.: Transfer of an Abutting Mains Single Service Connection Qualification** ((Page 1-40))

*((A new policy added at the direction of the T&E Committee to allow a "connection right" under the abutting mains policy to transfer from a qualifying property to an adjacent, co-owned property that does not qualify for an abutting mains connection.))*

The transfer of an available abutting mains service connection "right" from a qualifying property to another property that does not qualify for a connection right may be considered under this policy on a case-by-case basis. The approval of such a transfer of a service connection right will require that DEP make the following findings during a category change review process:

- Both properties must abut the water or sewer main with the donating property confirmed by DEP to be eligible for a single connection via the abutting mains policy.
- Both properties must be contiguous (i.e. share a property boundary).
- Both properties must be under common ownership.
- If improved, the property with the existing abutting mains connection right must have a fully functioning septic system that satisfies all current septic system permitting requirements.

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including an established septic reserve area, under State and County law as verified by the Department of Permitting Services.

- The property donating the existing abutting mains connection right will no longer be eligible for public service through the abutting mains policy.
- Approval of the connection right transfer will be conditioned upon Planning Board confirmation of the receiving property as a building lot.

Provided that DEP determines that preceding requirements are satisfied, a service area category change may be approved through the administrative delegation process.

**II.G.5.: Community Service for Commercial Land Uses**

((Page 1-45))

*((A new policy added at the direction of the T&E Committee to allow for the limited provision of community service for properties with commercial uses located outside the planned community service envelopes.))*

This policy addresses the provision of community water and sewer service for commercial land uses located outside the planned community service envelopes. This is to help support commercial service (such as grocery and convenience stores, medical offices, and day-care facilities) in lower-density areas of the county where residents may otherwise have to travel many miles to avail themselves of these services. Properties eligible for consideration for community service are those with existing or proposed commercial uses as defined in the Montgomery County Zoning Ordinance.

The provisions of this commercial uses service policy (allowances, restrictions, procedural requirements) parallel those established in the Private Institutional Facilities (PIF) policy (see II.G.4, preceding), with the following exceptions:

- The commercial uses considered under this policy do not have to qualify as tax-exempt under Section 501 of Title 26 of the United States Code (Internal Revenue Service).
- Neither community water nor sewer service shall be used to support existing or proposed commercial uses within the Agricultural Reserve (AR), Rural (R), and Rural Cluster (RC) Zones.
- Water and sewer main extensions for these properties are required to stay within public rights of way and avoid sensitive environmental features such as streams and forests.
- Properties with residential structures converted or proposed to be converted to a commercial use may be considered for community service.

Properties that have submitted category changer requests for community service for an existing or proposed commercial use prior to the approval of this policy are not required to submit a concept plan for consideration by the Development Review Committee.

**IV.A.: Washington Suburban Sanitary District****IV.A.2.: Local Service Extension Programs****IV.A.2.c.: Efforts to Address Underserved and Unserved Communities**

((Pages 1-67 – 1-68))

Unserved and Underserved Subgroup of the Bi-County Infrastructure Financing Committee ((underscored as in the text, not added language))

*((A revision to update the status of the program since the preparation of the Executive draft Plan.))*

Following the preparation of the 2014 subdistricts report, the effort to create a new extension financing system stagnated for several years. In late 2018 a new WSSC Water and bi-county working group formed to reexamine the unserved and underserved (U&U) communities issue. There was a concern that the prior subdistrict proposal would still result in unaffordable costs for new community service. This working group focused more closely on the financing issue, looking for alternate revenue sources to help offset the high costs of new main extensions. Several proposals are currently under consideration, including

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rate payer subsidies from WSSC Water, subsidies from County property tax revenues, and State grants and low-interest loans. However, in ongoing discussions the working group members have recognized that the subdistrict concept may still have value in organizing service extension locations and specific projects. [The workgroup will present its findings to WSSC Water and the governing bodies of the two counties when finalized.]

The workgroup has also developed a general implementation plan for this extension concept that includes a proposed financing system for the proposed main extensions. Implementation would divide financial responsibilities for new main extensions between affected property owners, the Counties, and WSSC-Water. State and Federal funding would also be pursued, as available. The workgroup presented its findings to WSSC Water Commissioners, both County Executives, the Princes George's County Council, and the Montgomery County Council Transportation and Environment Committee, receiving support to move forward with its proposals from each.

**V.D: Review and Consideration of Plan Amendments**

((Page 1-73))

*((Text added to clarify the roles of the reviewing agencies in the category change request review process.))*

Two primary pathways are used to consider and act on Plan amendments: the County Council's legislative review process and DEP's administrative delegation review process. For amendments requiring interagency review, DEP collects requests on a quarterly basis, with collection periods closing at the end of September, December, March and June of each fiscal year. DEP transmits packets of requested amendments to the [reviewing] agencies in the month following the close of each quarterly group. Agencies typically have 30 days to provide comments back to DEP. The reviewing agencies typically include the following:

- DPS, for issues concerning individual onsite systems and onsite system suitability.
- M-NCPPC, for issues concerning master plans and land use planning
- WSSC-Water, for issues concerning the feasibility of providing community water and sewer service, including system transmission and treatment capacities. WSSC-Water also advises DEP whether there are technical or policy issues that would complicate the provision of community service or that would make community service infeasible.
- Municipalities, on a case-by-case basis, for issues concerning local planning and infrastructure.

**CHAPTER 2****II.E. Water Resources:****II.E.5. Water Quality Programs:**

((Pages 2-16 - 2-17))

*((Updated the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System Permit Program (AKA the MS4 Permit Program)).*

**II.E.5.d Montgomery County's MS4 Permit:**

The Department of Environmental Protection is the lead department coordinating the County's multi-department/agency response to meet the requirements of the MS4 Permit. The permit is a key driver of the County's strategic watershed management program. The MS4 Permits are issued for a five-year cycle. [The County's current MS4 Permit was issued on February 16, 2010 and expired on February 15, 2015. Until a new permit is issued, MDE administratively continues the County's 2010 permit. When a permit is administratively continued, all the terms and conditions of the existing permit remain fully effective and enforceable.] The County's current MS4 Permit was issued on November 5, 2021, by the Maryland Department of the Environment and expires on November 4, 2026. During the permit term, the County is required to:



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- By November 4, 2026, the County shall complete the restoration of 1,814 impervious acres that have not been treated to the maximum extent practicable by implementing stormwater BMPs, programmatic initiatives, or alternative control practices in accordance with the 2021 Accounting Guidance
- Show progress toward meeting the Total Maximum Daily Loads (TMDLs) Wasteload Allocations (WLAs) approved by the U.S. Environmental Protection Agency (EPA).
- Reduce trash and litter county-wide.
- Develop and implement a public outreach and education program that focuses on reducing stormwater pollution and litter
- Conduct preventive maintenance inspections of all Stormwater management facilities
- Implement laws and programs to reduce stormwater and pollution
- Submit annual progress reports to MDE.

*((The remaining four paragraphs in this section were deleted from the text.))*

**CHAPTER 3****II.C: Water Supply Sources Programs and Policies:****II.C.2: Regional Drought Operations:**

*((Pages 3-14 – 3-15))*

*((Updated the text to reflect revised operations rules and procedures for reducing the impacts of severe droughts in the Potomac River for the Washington Metropolitan Area Water Suppliers))*

...

In response to the 2015 Water Supply study, the CO-OP utilities funded a follow-up study by Montgomery County Comprehensive Water Supply and Sewerage Systems Plan Chapter 3: Water Supply Systems Executive Draft 2022-2031 Plan Page 3-15 the ICPRB to identify and evaluate water supply strategies to meet future challenges of growing regional demand for water including consideration of potential impacts of climate change on water resources. This study, completed in 2017, considered structural measures to add water supply capacity to meet the future regional need and operational changes to optimize the existing resources. Structural alternatives included the future potential future use of quarries in Maryland and Northern Virginia for raw water storage. Operational strategies included expanded coordinated operation of existing and planned water supply facilities and improved flow forecast models for the Potomac River. The work effort to explore and obtain Federal Funding assistance and the general planning effort is underway by WSSC Water and other COOP utilities for implementing the recommendations of the 2017 study.

Subsequently, the ICPRB published the 2020 WMA Water Supply study in September 2020. The study reaffirmed the need for supplemental storage to mitigate drought flows in the Potomac River stating, "Under all the 2040 Lower Flow scenarios, the addition of Travilah Quarry is necessary to avoid system failure in a severe drought." Beyond 2040 the benefits of the additional raw water storage from quarries remain but further population growth and potential impacts from climate change on flows on the Potomac and Patuxent Rivers may require that additional storage or other practices be implemented in the future. The impacts of climate change will continue to be evaluated as more information is available to gage the impacts of climate change on hydrology.

As a result of the above regional planning efforts and recommendations, in Fiscal Year 2021, WSSC Water created a new CIP project entitled the Regional Water Supply Resiliency Project, which includes planning, preliminary engineering, community outreach, and coordination with elected officials for a regional raw water supply reservoir and raw water conveyance system to serve the long-range water supply needs of the Washington metropolitan region. The outcome of this work would better define the scope, budget and schedule of the project. This project was adopted by Montgomery and Prince George's Counties during the FY2021 CIP budget approval process. The capital project is contingent upon funding assistance and will proceed only if all other funding solicitation efforts by other agencies are not successful. Subsequently,

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the work effort to explore and obtain Federal Funding assistance and to perform the general planning effort began soon afterwards by the ICPRB, WSSC Water, and other CO-OP utilities.

In August 2021 an application for federal funding assistance under the Water Resource Development Act (WRDA) 7001 process was submitted for the completion of a Feasibility Study to further evaluate and support the recommendation of the regional planning efforts. If authorized and appropriated, this work, which will be completed by the U.S. Army Corps of Engineers, will be the first step of many that will be required in the WRDA program to eventually obtain the remaining Federal Funding assistance required to execute the project. In the 2022 USACE Report to Congress on Future Water Resource Development the Metropolitan Washington Region was identified as eligible for authorization of a feasibility study under the WRDA program. In addition, the U.S. House of Representatives included authorization for a study in its version of WRDA 2022 (H.R. 7776), which passed the lower chamber on June 8, 2022. As of June 30, 2022, the Senate has yet to its version of WRDA 2022 and efforts are underway to lobby the relevant members of Congress. Once the WRDA 2022 is passed by both the House and Senate and signed by the President, then it will need to be appropriated. Appropriations could occur either under an FY23 or FY24 spending bill or in a possible reconciliation package.

**Plan Recommendation: Potential Use of Travilah Quarry for Additional Raw Water Storage**

((Page 3-19))

*((Updated language on Plan Recommendation for Potential Use of Travilah Quarry for Additional Raw Water Storage))*

[This Plan recommends a more comprehensive re-evaluation of the potential benefits to the regional and WSSC Water's water supply systems. Travilah Quarry is located within several miles of the Potomac Water Filtration Plant and could provide at least 7.5 billion gallons of raw water storage. This quarry has been evaluated by WSSC Water for several years and this Plan, along with the Potomac Subregion Master Plan encourages actions be taken to ensure its future availability to the water supply needs of the WSSC Water service area and the Washington Metropolitan Region.]

This Plan recommends acquisition of Federal Funding assistance to validate the previous planning studies in accordance with the Water Resource Development Act (WRDA) 7001 process as the first step in obtaining funding authorization from the U.S. Congress for the overall project. After the necessary funding is in place for subsequent phases of work, the goal is to ultimately develop an additional emergency raw water supply that would benefit not only WSSC Water customers but also much of the Washington Metropolitan Region. Once complete, this project will convert a quarry located within close proximity to the Potomac Water Filtration Plant into an approximate 7.8-billion-gallon water supply facility. This quarry has been evaluated by WSSC Water and the Interstate Commission on the Potomac River Basin for several years and this Plan, encourages actions be taken to ensure its future availability to the water supply needs of the WSSC Water service area and the Washington Metropolitan Region.

**APPENDIX C****II.N. RIVERWOOD DRIVE**

(Pages C-18 – C-19 &amp; Figure C-F14)

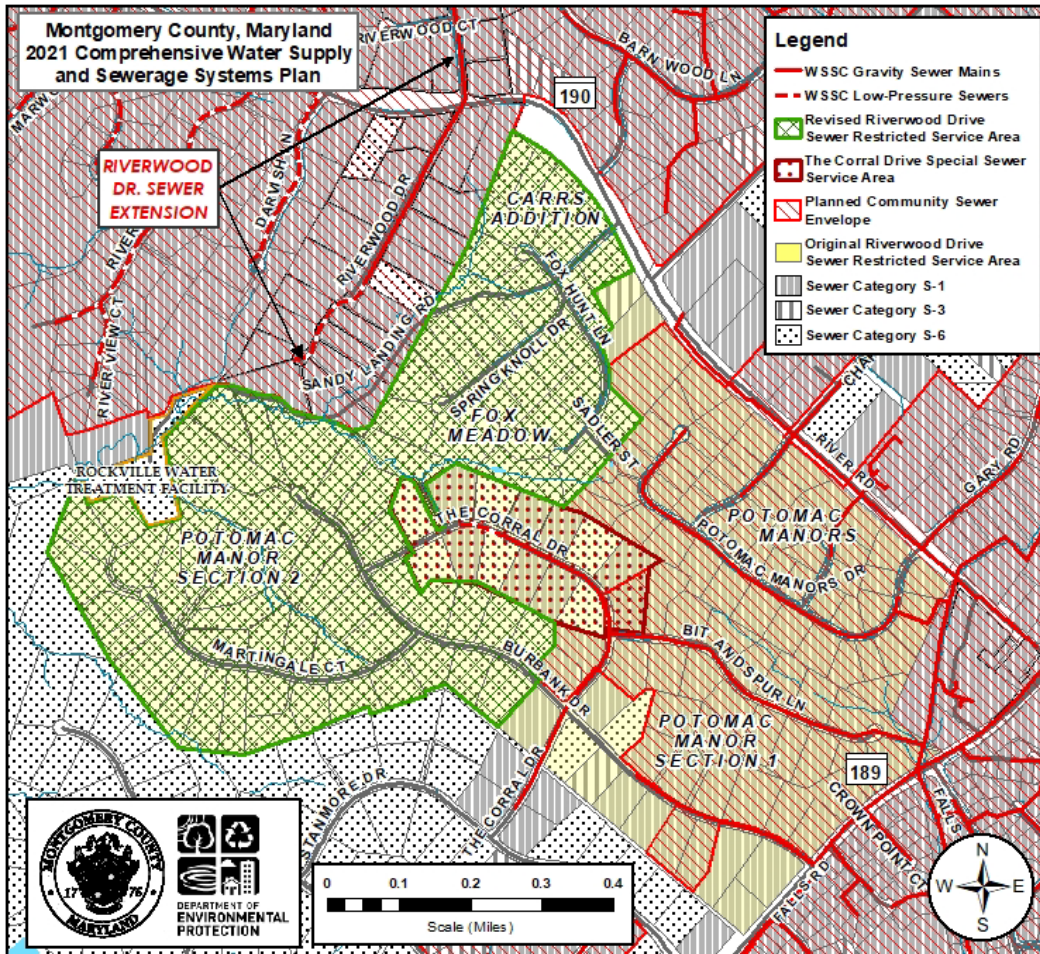
*((The area proposed for removal from the restricted sewer service area was revised at the recommendation of County Council staff. This left most of the Potomac Manor Section 2 subdivision in the restricted sewer service area in addition to the other two subdivisions.))*

...

DEP's recent review of this restricted sewer service area revealed that it is more extensive than is needed to limit sewer service from the Riverwood Dr. sewer main extension south of River Rd. Much of the original restricted service area already has community sewer service. Other areas in Potomac Manor are not reasonably accessible due to the steep stream valley along Sandy Landing Rd. Except where community service is required to relieve public health problems, the Riverwood Drive sewer main, and potential future extensions from that main, are restricted from serving the following subdivisions: Fox Meadow, [and] Carrs Addition, and part of Potomac Manor Section 2 as shown on Figure C-F14.

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**Figure C-F14: Riverwood Drive Sewer Restricted Service Area**  
((The following figure replaced the original figure provided in the Executive’s draft Plan))



**APPENDIX F**

((The following text revisions cited in Appendix F were included to reflect revisions elsewhere in the Plan text.))

**CHAPTER 1 Section**  
((Page F-1))

- **Updates to Special Policies for Water and Sewer Service (Section II.G.):**
  - For the Community Service for Abutting Mains Policy - Revised the policies for community service for properties abutting community service mains (II.G.3.):
    - Limited extensions of existing abutting mains may be considered in cases where an extension would allow for better placement of the service connection relative to the building receiving new service. This would also allow another property that abuts the new extension to qualify for community service under this policy (II.G.3.a). Properties that abut new main extensions are limited to one connection per property and new connections will be limited to improved properties and recoded building lots. That allowed connection cannot support subdivision or resubdivision of that newly abutted property.

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- A new provision allows for the transfer of an abutting mains connection “right” from one eligible property to another, commonly owned, ineligible property under strictly limited conditions. Among other requirements, the two properties must be adjacent to each other, and both must abut a qualifying water or sewer main. The property donating the connection right surrenders the connection right then becomes ineligible for the abutting mains service connection. (II.G.3.c.)

...

- The Community Service for Commercial Land Uses policy addresses the provision of water and/or sewer service for properties with commercial land uses located outside the planned community service envelopes. The requirements for community service under this new policy closely mirror those of the private institutional facilities policy. Among the exceptions included are that the commercial uses qualifying for community service do not need to be tax-exempt under the U.S. I.R.S. code and they cannot be located within the Rural and Rural Cluster Zones, in addition to the Agricultural Reserve Zone. (II.G.5.)

**APPENDIX C Section**((Page F-7))

- In the Riverwood Drive section, [proposed to reduce the area of the existing restriction as part of the existing area already has public sewer service and other parts of the existing area are not accessible from the Riverwood Drive sewer main.] reduced the area of the existing restriction, removing those areas served by community sewerage systems and with existing and access to existing community sewerage systems. (II.N.)