



Ten-Year Water and Sewer Plan, 2017-2026, Public Hearing Draft



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Description

Every three years the County prepares an update of the Ten-Year Comprehensive Water Supply and Sewerage Systems Plan. The County Executive recommended draft of the 2017-2026 update is currently under consideration by the County Council. The Public Hearing is scheduled for May 16th, at 7:30 PM. The update under consideration is a comprehensive redraft of the Plan, addressing water supply and sewage disposal issues and policies for the County.

Planning Department staff reviewed an earlier inter-agency draft of the plan last Fall, and have some additional edits and recommendations for the Planning Board to consider for transmittal to the County Council as part of the public hearing testimony.

Staff Recommendation: Transmission of Planning Department comments to the County Council.

Background and Process

In Maryland, the planning and coordination for sanitary services are delegated from the state to each county government. Montgomery County addresses this responsibility through the **Ten-Year Comprehensive Water Supply and Sewerage Systems Plan** (Water and Sewer Plan), which ensures that existing and future water supply and wastewater disposal needs are coordinated in a manner that:

- Is timely and cost-effective
- Is well integrated with land use planning efforts
- Protects the health, safety, and welfare of residents, businesses, and institutions
- Protects the quality of the environmental resources of the county, the state, and the Chesapeake Bay region
- Helps to improve the quality of the environmental resources of the county, state, and region

The Maryland Department of the Environment (MDE) requires the County to prepare a comprehensive update of the Water and Sewer Plan every three years. Between comprehensive updates, the County approves amendments to the plan (such as service area categories, new or revised policies, and technical information) through procedures described in Chapter 1 of the plan. Under state law, the County Council is responsible for approving the plan and its amendments.

The County Executive, acting through the Department of Environmental Protection (DEP), prepares the plan's comprehensive updates and provides recommendations to the Council for action on proposed amendments. DEP, with the assistance of other agencies, develops proposed amendments, typically those that involve policy issues or affect groups of properties. Property owners also propose amendments, usually those involving single properties or larger tracts intended for subdivision of new lots.

Service Planning Coordination with Land Use Planning

Coordination between the Water and Sewer Plan and local area master plans and sector plans is crucial to the development and water/sewer planning processes. Master and sector plans direct the character, pattern and density of development in the County's communities. The level of coordination between master plans and water/sewer service planning varies. A sector plan for downtown Bethesda, an area served exclusively by public systems, will address water and sewer service issues minimally. However, the approved master plan for Damascus, where the boundaries between areas recommended for service by public utilities as opposed to private water and sewer systems have changed, addresses the subject at greater length. For master plan areas, such as Damascus, DEP staff members are usually involved in the master plan development, review, and approval process from the early stages.

Purpose and Function of the Plan

The Water and Sewer Plan is a functional master plan for providing water and sewer services throughout Montgomery County. As such, it provides an important link between the County's land use and development planning and the actual construction of the water supply and sewerage systems needed to implement that planning effort.

The Water and Sewer Plan establishes policies that support the goals and objectives of the County's General Plan, as amended by local area and other master plans. These policies emphasize:

- The use of public water and sewerage systems along higher-density urban and suburban development areas, and
- The use of individual, on-site wells, and septic systems throughout lower-density suburban, rural, and agricultural areas.

The plan's policies are implemented in part by assigning water and sewer service area categories for all properties within the County. The service area categories:

- Designate whether properties are intended to be developed using (and are eligible for) public or private service, and
- Provide staging elements or a sequence for planning and providing public service.

The plan provides information on the County's existing water supply and sewerage systems from beginning to end. It includes everything from the point where raw water is drawn from a surface water body or groundwater supply, through delivery and use by the consumer, to the final treatment and disposal or reuse of wastewater effluent.

The plan provides projections for the future needs of water and sewerage systems, which result from land use planning studies, demographic projections, legal mandates, and policy requirements. It addresses these needs using a variety of approaches, such as:

- New, expanded, or replacement water and sewer facilities, such as transmission mains, pumping stations, storage tanks, or treatment plants,
- Expansion of existing water or sewerage systems, or the use of alternative systems, to address communities experiencing public health problems from failing wells or septic systems, and
- New or updated programs and service policies that address issues like changes in sanitary service technology, support for new development concepts and protection from undesired sanitary system expansion or on-site system use.

2017-2026 Draft Water and Sewer Plan Update

Over the course of time, the policies and information included in the Water and Sewer Plan require a comprehensive update. The County Executive has recommended the 2017-2026 update of the Water and Sewer Plan to the County Council. As part of this comprehensive update, all map changes and text amendments adopted since the previous update are also included.

The content of the County Executive Recommended Draft update of the *Ten-Year Comprehensive Water Supply and Sewerage Systems Plan* is as follows:

- **Executive Summary** (See Attachment 1)
- **Chapter 1: Objectives and Policies** provides 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, multi-use and individual systems; and the procedures by which the Plan is adopted, amended, and administered. <https://www.montgomerycountymd.gov/DEP/Resources/Files/Downloads/WS/2017-chapter1-draft.pdf>
- **Chapter 2: General Background** provides background information on the county's natural and man-made environment relevant to the provision of water and sewer service by both community and individual systems. <https://www.montgomerycountymd.gov/DEP/Resources/Files/Downloads/WS/2017-chapter2-draft.pdf>
- **Chapter 3: Water Supply Systems** provides information on the County's existing water supply systems and on planning efforts to ensure that the County's County, State, mid- and long-term water supply needs are satisfied in a manner consistent with public policy and the Plan's objectives. This chapter also addresses regional water supply planning issues, as they relate to the County. <https://www.montgomerycountymd.gov/DEP/Resources/Files/Downloads/WS/2017-chapter3-draft.pdf>
- **Chapter 4: Sewerage Systems** provides information on the County's existing wastewater disposal systems and on planning efforts to ensure that the County's mid- and long-term wastewater disposal needs are satisfied in a manner consistent with public policy and the plan's objectives. This chapter also addresses regional wastewater planning issues, as they relate to the County. <https://www.montgomerycountymd.gov/DEP/Resources/Files/Downloads/WS/2017-chapter4-draft.pdf>
- **Appendix A: Glossary** – Definitions of terms used throughout the text of the Plan. <https://www.montgomerycountymd.gov/DEP/Resources/Files/Downloads/WS/2017-appendix-a-draft.pdf>
- **Appendix B: Multiuse Systems** - An inventory of existing and approved large-capacity on-site water supply

and wastewater systems.

<https://www.montgomerycountymd.gov/DEP/Resources/Files/Downloads/WS/2017-appendix-b-draft.pdf>

- **Appendix C: Exceptional Service Policies and Recommendations** – A listing of policies and recommendations addressed in land use master plans that designate areas that are not consistent with the general service policies of the Plan.
<https://www.montgomerycountymd.gov/DEP/Resources/Files/Downloads/WS/2017-appendix-c-draft.pdf>
- **Appendix D: List of Contacts for Agencies** – A listing of local, municipal, State, and regional agencies that have a role in the Plan.
<https://www.montgomerycountymd.gov/DEP/Resources/Files/Downloads/WS/2017-appendix-d-draft.pdf>
- **Appendix E: Major Facilities and Institutions** – A listing of the major public facilities and institutions located in the County (specifically requested by the Maryland Department of the Environment).
<https://www.montgomerycountymd.gov/DEP/Resources/Files/Downloads/WS/2017-appendix-e-draft.pdf>
- **Water and Sewer Service Area Categories Maps** – Provide the service area categories designated in the Plan for all properties in the County, updated to January 2017.
<https://www.montgomerycountymd.gov/DEP/Resources/Files/Downloads/WS/cwsp-2016-water-ansi-e.pdf>
<https://www.montgomerycountymd.gov/DEP/Resources/Files/Downloads/WS/cwsp-2016-sewer-ansi-e.pdf>

The Department of Environmental Protection (DEP) is also working on a policy to address old (pre-1975) septic systems in the RE-1 zoned areas of the County. When complete, this policy will be presented to the County Executive. It is anticipated that this policy will be transmitted to the County Council for consideration as an amendment to this update, allowing it to proceed through the County Council’s review and adoption process without delay.

Staff Recommendations and Proposed Edits

Policy-Related Recommendations

1. Chapter 1 Objectives and Policies, Section II.F.1.a., General Plan and Local Area Master Plan Coordination, second paragraph

Recommendation: Modify text as follows:

“Master Plan recommendations for use of community and individual 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. Certain ~~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.)

[These edits are intended to avoid the appearance that there is an expectation that all master plans should contain this statement.]

2. Chapter 1 Objectives and Policies, Section II.G.4: Community Service for Private Institutional Facilities

Issue: The PIF policy has had the unintended consequence of attracting high intensity uses to areas that have been specifically planned for low-intensity development to protect sensitive natural resources and water quality. A wide range of normal protections such as zoning, master plan guidance, Special Protection Area legislation and environmental guidelines for development, may be negated by the Policy as currently formulated. This has made plan review in such cases problematic, since all regular policies and standards must be severely compromised to allow intensive uses on properties in areas never envisioned for those uses.

Recommendation: Require Private Institutional Facilities to comply with impervious limitations and other master plan guidance for environmentally sensitive and drinking water reservoir watersheds, for the protection of water quality.

3. Chapter 4, Section I.B.5. Pressure Sewer Systems

Issue: Recently, the decision was made to plan development in Ten Mile Creek using individual grinder pumps in parts of the Ten Mile Creek master plan area, due to the exceptionally environmentally sensitive nature of the watershed. This decision does not meet WSSC’s established criteria that only allows grinder pumps “when gravity service or service via a centralized wastewater pumping station are not feasible”. Given this recent decision, it seem appropriate for WSSC to modify their current grinder pump policy.

Recommendation: Require WSSC to modify their current Grinder Policy to allow their use in exceptionally environmentally sensitive areas where development is taking place.

Proposed Edits

Chapter 1: Objectives and Policies

Section I.D.2, Table 1-T1, Municipal Planning and Zoning Authority and Water/Sewer Systems:

1. For the City of Takoma Park, Land Use Planning Authority: change from “City” to “M-NCPPC”
2. For the Town of Kensington, Zoning Authority: Change from “Town” to “M-NCPPC”

Chapter 2: General Background

Section II.E.1.a, Poolesville Sole Source Aquifer:

1. This section describes and illustrates not only the Poolesville Sole Source Aquifer, but also the Maryland Piedmont Sole Source Aquifer. The section heading should be modified to include both, or a separate section should be created for the Maryland Piedmont Sole Source Aquifer.
2. Both Sole Source Aquifers are illustrated in separate figures and are referred to in the text, but do not have figure numbers.

Section II.E.4 Water Quality Conditions:

3. This section contains text, a table (Table 2-T3), and a figure (Figure 2-F5) pertaining to Montgomery County’s Water Use Class Designations, as set by the State. These designations pertain to general uses that are required to be supported by the surface waters within the State. These uses are too general to be used as a surrogate for water quality conditions, and were never intended by the State for that purpose. For this reason, the text, table, and figure related to Water Use Designations would be better placed in a separate section entitled “State Water Use Designations”.

Figure 2-F5: State Water Use Designations:

4. The lower portion of Northwest Branch is shown as Use Class IV-P. The figure should be modified to show the entire Northwest Branch watershed as Use Class IV (in conformance with the figure note).

Chapter 3: Water Supply Systems

Section V.B.2.: Sole Source Aquifer, and Figure 3-F10: US EPA Sole Source Aquifer in Montgomery County:

1. As described in Chapter 2: General Background, Section II.E.1. Groundwater, Montgomery County has two EPA Sole Source Aquifers: the Maryland Piedmont Sole Source Aquifer, and the Poolesville Sole Source Aquifer. Figure 3-F10 shows a combination of the two separate Sole Source Aquifers. The figure caption should be modified to state “Aquifers”, instead of “Aquifer”. The map legend for Figure 3-F10 should be modified to read: “Maryland Piedmont and Poolesville Sole Source Aquifers”.

Appendix A: Glossary:

1. A definition is provided for “Ground Water”, which appears as one word “groundwater”, elsewhere in the Plan. The usage should be consistent throughout the document.
2. Under “Multiuse Water Supply and Sewerage Systems”, the first bullet states: “A single water supply and/or sewerage system serving a single property”, which seems quite similar to the first sentences in the definitions of “Individual 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”; and “Individual 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 similarities in the language in these definitions is a bit confusing, and clarifications would be helpful.

Appendix C: Exceptional Service Policies and Recommendations

Section II.L.: Piney Branch Watershed:

1. Numbering format of Sewer Stages should be consistent.

Summary of Key Changes and Updates to the 2017 Water and Sewer Plan Update

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:

- **New General Updates:**
 - o Added information addressing MDE’s Septic Growth Tiers program as it relates to sewerage system planning and the County’s development review program.
 - o 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.
- **Updates to General Policies for Water and Sewer Service (Section II.F.):**
 - o Substantially reorganized and revised the general policy sections to better align water and sewer service policies with zoning and land use types (residential, rural, commercial, etc.). Each major section offers some background explanation or rationale for the various service policies.
 - o Added text to address the Water Resources Functional Master Plan; new since the 2003 Plan update.
- **Updates to Special Policies for Water and Sewer Service (Section II.G.):**
 - o Moved information on specific master plan policy recommendations, formerly in a table in this chapter, to Appendix C.
 - o Revised and restructured the discussion of community service to address area-wide well and septic system problems, based in part on interest on the part of citizen groups, other agency staff, and the Council to expand and clarify this discussion. Introduced the concept of a “*special sewer service area*”, to replace a “public health problem area”. Some material was adapted from the sanitary survey language adopted in 2016 for the Glen Hills service policies text amendment.
 - o Expanded the discussion of the policies addressing community service for properties abutting community service mains, including non-abutting service connections and
 - o For the Community Service for Private Institutional Facilities (PIF) policy:
 - Added an explanation about dedicated low-pressure sewer mains with respect to abutting properties not eligible for community sewer service.
 - Added the Council’s adopted exclusion of community service for PIF uses in the AR Zone.
 - Added application requirements for PIF-based category change requests, including submittal of a concept plan.
 - Added a requirement calling for the Council’s reconsideration of PIF-based category changes in cases where the PIF user subsequently and significantly changes a concept plan upon which the Council’s original category change action was based.
 - o For the Piney Branch Restricted Sewer Service Area policy, added language addressing the application of health problem study areas to the policy and the covenants required for

community sewer service under the Piney Branch Sewer Agreement Recommendations.

- **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 Program.
- **Updates to Replacement and Repair of Aging Community Systems (Section III.A.6.):**
 - Added a discussion of the issues involved with replacement and/or rehabilitation of community systems reaching the end of their useful lifespans.
- **Updates to Individual Systems (Section III.C.):**
 - Expanded the discussion of individual onsite systems, adding three new subsections providing information on wells, septic systems, and onsite systems problems.
 - Added the Council's adopted limitation on multiuse septic system design capacity for properties located in the AR Zone (formerly, the RDT Zone).
- **Updates to Administrative Delegation Policies (Section V.D.2.b.):**
 - Removed language allowing for approval of community water service for child lots and for denial of Plan amendments through the administrative delegation process.
- **Updates to Conditionally Approved Amendments (Section V.E.2.):**
 - Added a policy addressing conditionally-approved water and sewer category change amendments that lack a final approval action. The conditional approval will sunset five years from the date of the original category change action. A five-year optional extension is also provided.
- **Updates to Deferred Amendments (Section V.E.3.):**
 - Extended from 30 to 120 days the time elapsed since a deferred Plan amendment was last considered by the County Council that will require a new public notice for continued consideration (at the request of County Council staff).
- **New Policy Initiatives and Program Recommendations:** Included in this updated draft version of the Plan's Chapter 1, the following policy and program recommendations have been presented for considerations and include:
 - Added a new section to address service policies for municipalities, including a recommendation for the County and City to address Rockville's annexation process for properties currently using wells and septic systems. (Section II.F.)
 - Added a section discussing comprehensive management program for individual onsite systems and a recommendation that the County explore such a program. Included information on OLO's recent report, "Life Cycle Regulation for On-Site Wastewater Treatment Systems." (Section III.A.6)
 - Added a new section that addresses problems with the WSSC-Built Main Extension program and recommends that the County pursue a replacement program to better allocate extension costs to all those benefitting or potentially benefitting from new service (Section IV.A.2.c.).

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 current (2011-2015) ratings of stream conditions based on biological monitoring.
- Updates to the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit Program.
- Updates to Population dynamics and forecasting. The latest forecasts (Round 8.4 Cooperative Forecasting) of population, households, and employment were developed and published by MWCOG in October 2015 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 followings include major WSSC’s 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:
 - Patuxent Water Treatment Plant Replacement and Expansion
 - Drought Planning
 - Germantown/Clarksburg Area Projects
 - Standpipe Replacement Projects
- **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:
 - 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
- **New Policy Initiatives and Program Recommendations:** Included in this updated draft version of the Plan, few policy and program recommendations have been presented on water supply for considerations and include:
 - **Potential Use of Travilah Quarry for Additional Raw Water Storage:** The Travilah Quarry, which could supply up to 17 billion gallons of raw water storage, within several miles of the Potomac Water Filtration Plant.
 - **Investing in Major Water Supply System Infrastructure:** The importance of additional investment in aging water supply system infrastructure has been emphasized.
 - **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 emphasized as key factors in ensuring efficient use of water resources for water supply needs.

Chapter 4: SEWERAGE SYSTEMS

This Chapter describes the county's existing and planned community and private, individual sewerage systems. Principal focus items 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 a 5-year intervals and are based on Round 8.1 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.

- o 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.
- o 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 constraints 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 constraints 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 constraints under 2025 wet weather conditions.
 - V. **Rock Creek** – Capacity constraints 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 several 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.

Poolsville Service Area: - The Town of Poolsville 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 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 at the preliminary design stage and the expected completion date has been scheduled for the year 2021. 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, a 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; and
- V. Programs to assist lower-income individuals and communities in financing required relief systems.

ATTACHMENT

Executive Summary, 2017-2026 Ten-Year Comprehensive Water Supply and Sewerage Systems Plan

Executive Summary, 2017-2026 Ten-Year Comprehensive Water Supply and Sewerage Systems Plan

EXECUTIVE SUMMARY

The 2017 - 2026 Ten-Year Comprehensive Water Supply and Sewerage Systems Plan (Water and Sewer Plan or 2017 Plan) provides a substantial update and reorganization of the previous Plan. It includes updated information on County policies and plans, and continues to use Geographic Information System (GIS) technology to provide maps that more accurately present water and sewer planning and infrastructure information.

This 2017 Plan includes the adopted policies and plans contained in the prior Plan and also in subsequent adopted Plan amendments, while deleting outdated or no longer relevant material. DEP has added updated information from a number of 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 in an attempt to allow interested parties the opportunity to focus on issues that 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, public health, environmental protection and land-use issues 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 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

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:

Individual Systems (Sections II.G., III.B., & IV.D.)

This update provides an expanded discussion about individual, onsite systems: wells and septic systems. Individual systems have become an increasingly important issue for communities as those systems age and require replacement under updated, more-stringent State and County regulations.

Dry Water and Sewer Mains (Sections II.D. & III.A.3.)

The draft update removes the requirement for a developer to install dry water and/or sewer mains for projects in categories 3 and 4 where individual, onsite systems have been used in areas planned for future community sewer service. Some projects developed using dry mains constructed as far back as the 1970s and 1980s have never been connected to WSSC's community systems. These dry mains cannot be utilized for new community service without WSSC's evaluation of the need for main replacement or rehabilitation. Instead, an emphasis needs to be made on moving such projects forward with service area changes, if needed, and construction of new mains to implement community service, or to use individual systems under non-interim permits and revise the service areas to category 6.

General Water and Sewer Service Policies (Section II.F.)

The draft update reorganizes these policies to better align them with zoning and land use categories (e.g.; residential, rural, commercial, etc.). These policies also, as needed, account for the recent changes to the County's zoning code. Each major section offers some background explanation or rationale for the various service policies, something that had not necessarily been provided previously in all cases. In addition, the policies addressing the provision of community water service without community sewer (large-lot water service) have been updated to account for WSSC's current main extension financing system.

Special Policies for Water and Sewer Service (Section II.G.)

Master Plan Recommended Exceptions: Details about these areas have been moved from Chapter 1 to Appendix C. Mapping has been added to better locate and define the areas affected by these recommendations.

Community Service for Area-Wide Health Problems: This update provides more detailed information about the health area survey process, much of which was developed for the Glen Hills sewer policy text amendment approved under CR 18-423. Areas zoned AR are excluded from the survey process.

Abutting Mains Policy: New language in this policy addresses the use of non-abutting service connections and the application of the policy in cases involving the subdivision process.

Private Institutional Facilities (PIFs): This update restructures the PIF policy, largely from prior text, to create a more logical organization and provide additional background information on its

rationale. The update also provides an explanation regarding why dedicated low-pressure sewer main do not have the potential to serve other abutting properties. This addresses an aspect of the PIF policy under which the Council has operated for many years, but that was not specifically covered in Plan text. This update also includes language that requires the County Council's reconsideration of a category change approval in the event that a concept development plan, considered and accepted by the Council as part of a PIF-based action, is subsequently and significantly revised.

Onsite System Regulation Changes: The draft update adds an explanation concerning why the policy cannot be automatically applied to properties established before 1963.

Special and Restricted Service Areas: Details about service policies in these areas have been moved to Appendix C. Mapping has been added to better locate and define the affected areas.

Community Systems Facilities (Section III.A.)

Limited Access Water and Sewer Mains: The draft update includes text to clarify how a single main can be considered as limited access along only part of its length.

Capital Projects: The Plan updates this section to reflect changes in the use of capital projects in master plan staging, to more clearly define WSSC capital projects, and to briefly discuss capital programs for Rockville and Poolesville.

Environmental Considerations for Community Systems Construction: The Plan update adds text that addresses the additional community systems costs involved with addressing environmental considerations.

Facility Planning: This section is revised to include relatively new WSSC facility planning programs such as the Asset Management Program and Business Case Analysis.

Replacement and Repair of Aging Community Systems: This new section addresses the needs involved with replacement and/or rehabilitation of community systems reaching the end of their useful lifespans.

Individual Systems Facilities (Section III.C.)

Rural Sanitation Planning Program: This new section discusses the need for a comprehensive management program in the County for individual systems and makes a recommendation for a program to accomplish this.

Multiuse Water Supply and Sewerage Systems: Revised and updated text addresses policy constraints on multiuse systems, including capacity limits on multiuse systems in the AR Zone.

Community Systems Financing (Section IV.A.)

WSSC-Built Projects and Extension Subdistrict Projects: The WSSC-Built Project section has been revised to summarize this water/sewer main construction and financing program which has seen only minimal use since the past ten years. A proposal for a potential alternative program is provided in the new Extension Subdistrict Projects, a new section that suggests a program using extension subdistricts to better allocate extension costs to all those benefitting or potentially benefitting from new service. Further work on this concept will be needed as well as coordination with WSSC's assessment policies.

Service Connection Fees: The draft update has revised this section to 1) WSSC's two-tiered connection fee system, and 2) connection issues for SEP extension projects.

Adopting and Amending the Water and Sewer Plan (Section V.)

Triennial Comprehensive Update and Interim Amendment Processes: These revised sections more clearly address the triennial and interim Plan amendment processes, and better establish interim amendments as separate from, but contributing to the triennial update process.

Administrative Delegation Policies: The draft update proposes revisions for these sections to:

- Remove language referring to DEP’s denial of Plan amendments via the administrative process, it has never been used.
- Remove the policy addressing administrative actions for public water service for child lots.
- Replace the Direct Approval Process section with a new section addressing the Advance Action Process (health cases, abutting main & smaller multiuse systems).

Approved Amendments: This section includes text added to reinforce the new policy requiring the Council’s reconsideration of PIF-based category changes where the PIF user significantly changes a concept development plan upon which the Council’s original category change action was based.

Conditionally-Approved Amendments: Some Plan amendments, particularly category change requests, that receive a conditional approval action can sit dormant for many years without receiving a final approval action. In the interim, master plan and land use recommendations and service policies may change, affecting the validity of the conditions that existed at the time the conditional approval was granted. This update proposes a policy to establish five-year and ten-year sunsets for the final approval of conditionally approved amendments.

Deferred Amendments: To address a concern similar to the preceding conditional approval actions, this update recommends establishing a process for reviewing the status of deferred amendments and acting to deny such amendments, if appropriate based on new information. It also clarifies a process for deferred amendments that could subsequently qualify for an administrative action.

Chapter 2: GENERAL BACKGROUND

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

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 now 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.

Sanitary Districts: (Section I.B)

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.

Projected Water Supply System Needs: (Sections II.F, III.E.5, and IV.F)

Information is also 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 ((MWCOCG), 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:

- ❖ **Potential Use of Travilah Quarry for Additional Raw Water Storage: (Section II.C. through II.C.5)**
The Travilah Quarry, which could supply up to 17 billion gallons of raw water storage, within several miles of the Potomac Water Filtration Plant. This quarry has evaluated by WSSC 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 County and possibly the region.
- ❖ **Investing in Major Water Supply System Infrastructure: (Section II.E through II.E.6)**
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 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.
- ❖ **Local and Regional Water Conservation Programs: (Section II.F.2.c)**

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 emphasized as key factors in ensuring efficient use of water resources for water supply needs.

Chapter 4: SEWERAGE SYSTEMS

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.

Introduction and Background:

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.

Washington Suburban Sanitary District, Blue Plains WWTP, and IMA of 2012: (Sections I.A., I.B, and I.C)

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 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:

- ❖ **WSSC Flow Modeling Integration (Section I.B.2)**
The Plan urges WSSC to integrate its flow modeling systems with the MC:MAPS geographic information system, which can provide direct access to modeling information WSSC needs from the County.
- ❖ **Development of a Prioritized Listing of SSES Basins and a Financial Plan by WSSC (Section I.B.3)** WSSC 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 develop a prioritized list of SSES basins and a financial plan to address the needs these studies reveal.
- ❖ **County to Develop Program Addressing the Potential Sanitation Problems from Aging Individual, On-Site Systems in the County's Neighborhoods (Section V.B.3)**
The Plan recommends that 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 large-lot neighborhoods located outside the areas planned for community water and sewerage systems.

Solving the concerns about older neighborhoods using individual on-site systems may require new and innovative solutions beyond the provision of community water and/or sewer service. These may include, but are not limited to:

- Proactive, periodic on-site systems maintenance and inspection programs coordinated with public outreach and education on individual systems maintenance;
- 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;
- Future policies that address sewerage needs in the older large-lot subdivisions that encourage environmental protection and promote the adopted land-use plans adopted for these areas.

APPENDICES

The Plan's glossary has been moved to Appendix A. Capital program projects, previously summarized in Appendix A, are included in the Plan by reference to available documentation online. In appendix B, inventories of the County's multiuse systems (large-capacity, individual, onsite water and sewerage systems) have been combined into a single table including both multiuse water and sewer systems. Appendix C includes information on exceptional water and sewer service policy areas, moved there from Chapter 1. Appendix D includes updated municipal, county, state, and regional agency contact information. Appendix E, an addition to the Plan, includes an inventory of major public and institutional facilities in the county.
