

Montgomery County recognized the need to update not only these prior assumptions, but also to update and reevaluate the 1994 WSSC Strategic Sewerage Plan, based on the results of new capacity and flow analyses performed by both WSSC and WASA for the Blue Plains sewerage basins in the WSSD, the Potomac Interceptor, and the Blue Plains WWTP. This Water and Sewer Plan update represents a step in that continuing reevaluation process, bringing together these transmission and treatment capacity issues to make the following recommendation:

Water and Sewer Plan Recommendation

Based on the resolution of all the issues that resulted in the planning of Rock Run WWTP in late 1970s and early 1980s, it is now appropriate to remove the Rock Run WWTP from this sewerage system planning document and for the County to work with Prince George's County and WSSC to remove it from their plans. However, this Water and Sewer Plan does not make any recommendation concerning the disposition of the Rock Run WWTP site, which would be addressed, if necessary, through the appropriate review and coordination process by WSSC.

2. Seneca WWTP 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 natural slopes of 15 percent or greater are not common. 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.

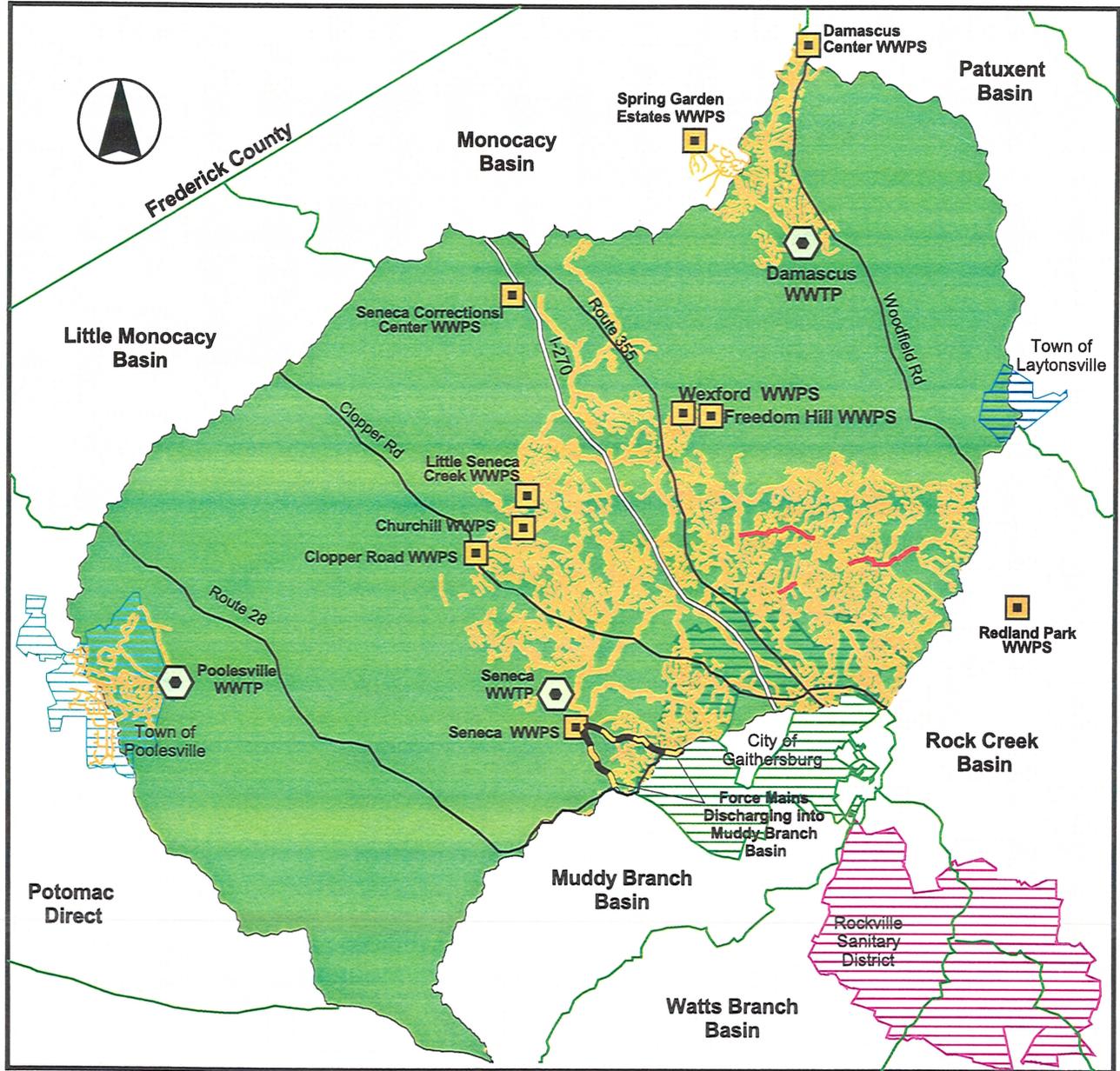
The expansion of the Seneca WWTP from 5.0 MGD to 20.0 MGD is presently at the final stages of construction. The facility design anticipates an eventual capacity expansion to 26.0 MGD. At the time of this Plan update, approximately 9 MGD of the wastewater generated in the Seneca Basin is conveyed to the Blue Plains WWTP for treatment via a pumpover to the Muddy Branch sewerage system. Because of existing conditions, the Seneca Basin is technically considered as part of the Blue Plains Service Area. Note that the Seneca Basin excludes the Damascus and Poolesville Service Areas, which are independent of the systems currently feeding into the Seneca and Blue Plains facilities. The Seneca WWTP expansion is expected to be completed in mid-2003, and all wastewater flows in this basin will be treated at the Seneca WWTP; no further wastewater flows will be transferred to the Blue Plains WWTP. Since the completion of the Seneca WWTP expected within the development time of this Plan, the sewer system in the Seneca Basin is addressed henceforth as the Seneca Service Area.

WSSC will continue to pump a small portion of the Seneca basin sewage flow into the Muddy Branch system for treatment at Blue Plains for an interim period following the start of operations at the expanded Seneca WWTP. These flows currently enter the Seneca system below the treatment plant's flow diversion. WSSC's Lower Seneca Facility Plan provides alternatives for conveying these sewage flows to the expanded plant. Implementation of this facility plan will result in the complete separation of the Seneca basin from the Blue Plains service area.

The removal of Seneca flows from the Blue Plains service area provides many benefits for the sewerage systems in Montgomery County and the Washington Suburban Sanitary District (WSSD). These benefits include:

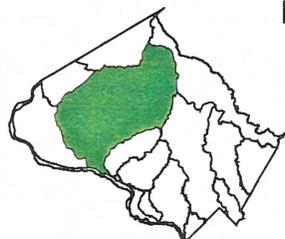
- Minimizing the length of new and relief sewers required, with associated environmental and community benefits.
- Alleviating capacity constraints in the Muddy Branch sewer system.
- Relieving capacity and flow limitations in the Potomac Interceptor.
- Opening up additional treatment capacity for the WSSC at the Blue Plains WWTP.

Figure 4-F19: Seneca Creek Basin Sewer Network



-  Sewer lines with 8 inch diameter and smaller
-  Sewer lines with diameter greater than 8 inches
-  Needs relief by 2010
-  Force Mains
-  Wastewater Pumping Station
-  Wastewater Treatment Plant
-  Town of Poolesville

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a. **Collection and Conveyance Systems** -- Approximately 25 percent of the Seneca Creek Basin is presently seweraged. In accordance with adopted land use master plans, approximately 35 percent of the basin will ultimately be seweraged. Sewerage service is presently provided by a system of trunk sewers which reach up into the Basin along Great Seneca Creek and Long Draught, Whetstone, Cabin, and Gunners Branches. 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.

Growth within the Seneca Creek Basin during recent years has significantly affected the need to plan wastewater facilities in this basin. 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 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.

The Seneca Creek Basin boundary, the sewerage system layout, and the approximate locations of future capacity constraints in the Great Seneca portion of the Seneca Creek Basin are shown in Figure 4-F19.

Projected flows based on forecasted population and other flow factors for the Seneca Creek Basin are summarized in Table 4-T18. These projections have been developed by the WSSC and are based on Round 6 Cooperative demographic forecasts.

Year	Annual Average Flow (mgd)	Peak Flow (mgd)
2005	17.11	41.92
2010	18.76	45.40
2015	20.64	49.36

WSSC evaluated the sewer system in the Seneca Creek Basin through the 1988 Western Montgomery County Facilities Plan (WEMCO), which was based on M-NCPPC Round 3.5 forecast populations and ultimate holding capacity. The Study identified a need for extensive relief of the Seneca Creek and Gunners Branch Trunk Sewers in order to meet projected capacity needs. Since then, WSSC has already constructed many of the relief sewers identified in WEMCO. Beyond the capacity constraints already being addressed by relief projects, WEMCO projected that 3,600 feet of the Great Seneca Trunk Sewer will have capacity constraints by the year 2010. Under ultimate development conditions, an additional 25,800 feet of the existing Great Seneca Trunk Sewer and its side branches will have capacity constraints as follows:

- Great Seneca Trunk Sewer 3,200 feet
- Whetstone Branch Sewer 5,100 feet
- Cabin Branch Sewer 17,500 feet

b. **Treatment Facility** -- The Seneca WWTP expansion is now near completion. The new treatment plant will have a 20 MGD treatment capacity, with the potential for expansion to 26 MGD ultimate capacity, and the following unit processes:

- **Primary Treatment:** Screening, grit removal
- **Secondary Treatment:** Activated sludge, secondary clarification

- **Advanced Treatment:** Phosphorus removal by chemical addition and settling, nitrification/denitrification, dual-media gravity filtration, post aeration
- **Disinfection:** Chlorination and dechlorination
- **Chemical addition:** Phosphorous removal, alkalinity adjustment, and pH control
- **Solids Conditioning:** Gravity belt thickeners and dewatering
- **Solids Disposal:** Land application of approximately 15 wet tons per day by contractor

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 WWTP 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 long-term sewage treatment needs.

3. Damascus WWTP 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 WWTP 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.

The Damascus sewerage system is owned and operated by the WSSC 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.

a. 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 Wastewater Treatment Plant (WWTP). The trunk sewer follows Magruder Branch from near Main Street in the Damascus commercial center downstream to the Damascus WWTP 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.

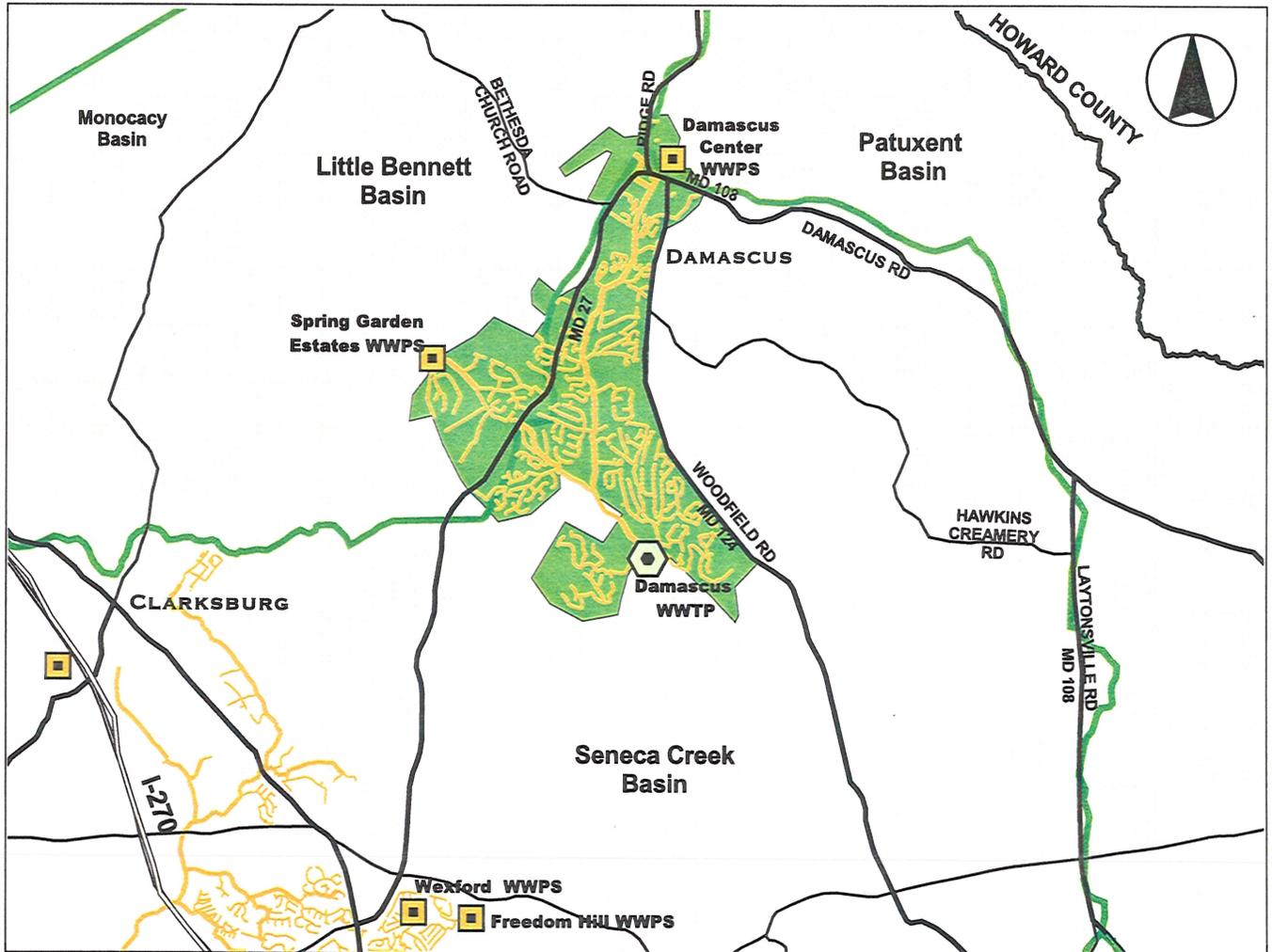
Two wastewater pumping stations convey flows from adjacent watersheds into the Damascus sewerage system. The Spring Garden WWPS pumps sewage flows generated in the Little Bennett Creek watershed on the west side of Damascus. The Damascus Center WWPS pumps flows generated in the Patuxent River watershed to the north of the Damascus commercial area. The Watkins Road WWPS pumps flows generated in the Wildcat Branch subwatershed of Great Seneca Creek, which does not drain into Magruder Branch, to the Damascus WWTP.

The wastewater collection and conveyance facilities within the Damascus service area currently have adequate capacity and there are no planned wastewater collection/conveyance projects or system modifications.

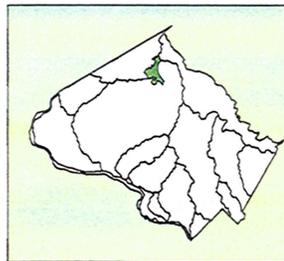
b. Treatment Facility -- The Damascus WWTP is located approximately six miles upstream of the Great Seneca Creek Trunk Sewer. The original 0.75-MGD Damascus WWTP was built in 1974 as a temporary, secondary treatment plant to replace poorly functioning septic systems and allow new commercial and residential 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 WWTP and recommended that the

Figure 4-F20: Damascus WWTP Service Area and Sewerage Systems



-  Sewer lines with 8 inch diameter and smaller
-  Sewer lines with diameter greater than 8 inches
-  Needs relief by 2010
-  Force Mains
-  Wastewater Pumping Station
-  Wastewater Treatment Plant



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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 through year 2010. The new plant employs the following treatment processes:

- **Primary Treatment** - Fine screen and grit removal
- **Secondary Treatment** - Extended aeration and secondary clarification
- **Advanced Treatment** - Phosphorus removal by chemical addition and nitrogen removal by Bardenpho (MLE); dual media gravity filters, pH adjustment, post aeration
- **Disinfection** - Ultra-violet light
- **Solids Conditioning** - polymer addition, dewatering with filter press and post lime stabilized
- **Solids Disposal** - Land application of approximately 2 wet tons per day by contractor

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 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 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.

The M-NCPPC's latest population projection (Round 6.2 Forecast, April 1996) is slightly lower in the Damascus Service Area than previously projected. Assuming other flow factors, such as infiltration/inflow, remain unchanged, the flow projections developed through the 1989 Damascus Sewerage Facilities Plan remain valid.

4. Hyattstown WWTP 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 agreed to build a community wastewater collection and treatment system to resolve chronic, long-term public health problems in Hyattsville 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 completed construction of the treatment plant in 1999.

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.

b. Treatment Facility -- The Hyattstown WWTP consists of a prefabricated, 15,000-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.

5. Mill Bottom Service Area -- Through an agreement between WSSC and Frederick County, the Rattlewood Golf Course receives community sewerage service from the Mill Bottom WWTP located near Interstate 70. The golf course is 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.

III. ROCKVILLE SANITARY DISTRICT

The City of Rockville owns and operates an independent sewerage collection system largely within the city limits. WSSC's systems convey the city's flows to the Blue Plains WWTP for treatment. The City is responsible for planning, design, construction, and financial activities related to the sewerage collection system. The area served by the City's sewerage systems lies outside the State's adopted limits of the Washington Suburban Sanitary District (WSSD). For the sake of convenience, this plan refers to the City's service area as the Rockville Sanitary District (RSD).

Although the RSD includes most of the City of Rockville, there are several areas within the city limits located within the WSSD and receive sewer service from WSSC. In some cases, the RSD extends beyond the city's existing corporate limits. Rockville desires to maintain its own sewerage system for two primary reasons: to control and manage development growth; and to provide less costly and more responsive sewer service. The City recommends that the WSSD/RSD boundary should remain unchanged. It was set based on topographic limits and the feasibility of the City versus WSSC to provide water or sewer service to an area. Rockville has a policy of providing community water and sewer service only to properties located within the city limits. Accordingly, properties located outside the city limits and outside the WSSD must annex into Rockville to receive community water and sewer service from the City. Over time, as the properties along the WSSD/RSD border develop, the RSD boundary and city limits will coincide, except where city overlaps the WSSD.

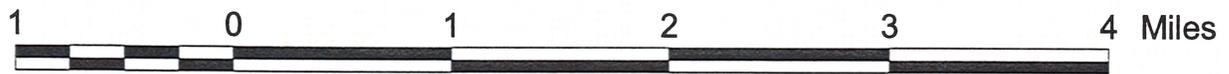
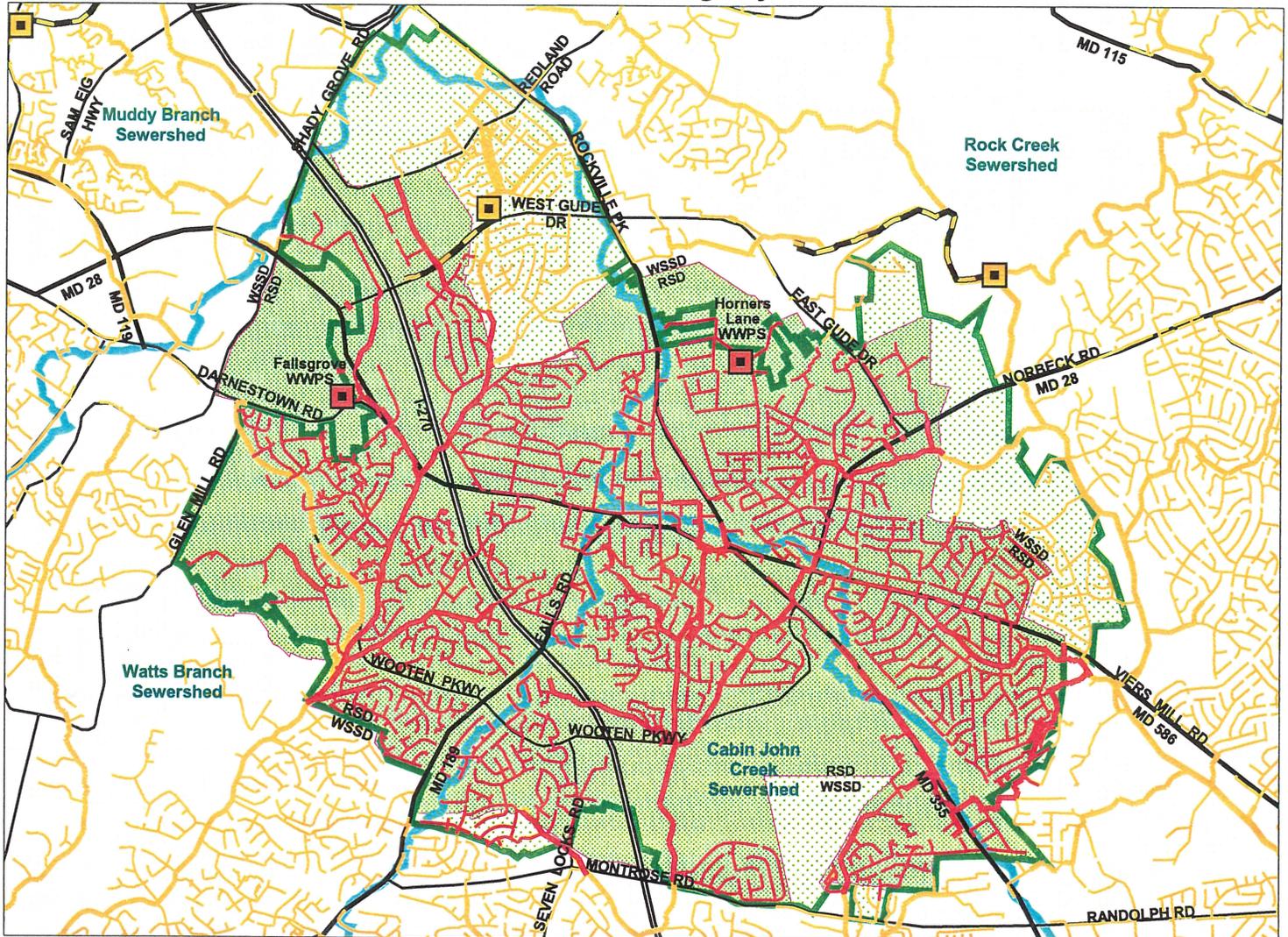
Water and Sewer Plan Recommendation
<p>The City of Rockville has a policy to only provide community sewerage service to properties within the Rockville corporate limits. Accordingly, properties must annex into the city in order to receive community service from Rockville's sewerage system. However, Montgomery County believes that a more flexible policy would be appropriate, given the need for both the City and WSSC to provide sewer service in a reasonable and cost-effective manner. The County intends to pursue this issue with the City in relation to the recommended discussions concerning the WSSD and RSD boundaries (see Chapter 3, Section III.A.).</p>

A. Intergovernmental Agreements -- The City's use of WSSC'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 sewerhed below Booze Creek. A 1966 agreement with WSSC 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 executed an agreement specifying that WSSC would provide up to an additional 0.4 MGD per fiscal year of treatment capacity to the City from the WSSC's proportionate share of Blue Plains capacity up to a total annual average City flow of 9.31 mgd. 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 may rent treatment capacity at Blue Plains not required by the City.

B. Financing Sewerage Systems -- Information on the City's sewerage systems financing is included in Chapter 1, Section IV.B.

C. Collection and Conveyance Systems -- The City's flow collection system consists of approximately 132 miles of sewer mains in the Watts, Cabin John and Rock Creek Basins (see Figure 4-F21). The City's system has a total of fourteen interconnections with the WSSC sewerage system. These include five WSSC inflows into the City's system and nine outfalls into WSSC's systems. Six of these outfalls are major

Figure 4-F21: Rockville Sanitary District and Sewerage Systems

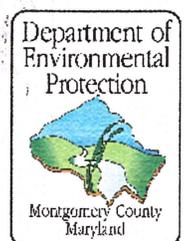


MAP LEGEND

- Rockville Sewer Mains
 - 8-Inch or Smaller Diameter
 - 10-Inch or Greater Diameter
 - Wastewater Pumping Stations
- WSSC Sewer Mains
 - 8-Inch or Smaller Diameter
 - 10-Inch or Greater Diameter
 - Wastewater Pumping Stations
 - Sewer Force Mains
- Sewersheds
- Major Roads
 - County Roads
 - State Roads and Highways
 - US & Interstate Highways
- City of Rockville Corporate Limits
- Rockville Sanitary District (RSD)



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interconnections with WSSC to convey flows to the Blue Plains Treatment Plant in the District of Columbia. Three 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.

Projected flows based on forecasted population and other flow factors for the City of Rockville are summarized in Table 4-T19, including Rockville-WSSC agreed flow limitations and projected flows from the City of Rockville to the Watts, Cabin John, and Rock Creek Basins for ultimate delivery to the Blue Plains WWTP.

A summary of planned Capital Improvement Program (CIP) projects that address wastewater conveyance constraints/ needs and improve service within the RSD is provided in Appendix A of this Plan.

YEAR		Cabin John Basin		Rock Creek Basin		Watts Branch Basin	
		Average (MGD)	Peak (MGD)	Average (MGD)	Peak (MGD)	Average (MGD)	Peak (MGD)
2005	Projected Flow	2.21	6.21	2.3	6.84	2.32	6.62
	WSSC-Rockville Flow Limitation	n/a	6.8*	n/a	9.84	n/a	8.0
	Balance	n/a	0.59	n/a	3.00	n/a	1.38
2010	Projected Flow	2.25	6.28	2.16	7.09	2.42	7.2
	WSSC-Rockville Flow Limitation	n/a	6.8*	n/a	9.84	n/a	8.0
	Balance	n/a	0.52	n/a	2.75	n/a	0.8
2015	Projected Flow	2.28	6.37	2.35	7.12	2.64	7.23
	WSSC-Rockville Flow Limitation	n/a	6.8*	n/a	9.84	n/a	8.0
	Balance	n/a	0.43	n/a	2.72	n/a	0.77

n/a: The agreements between the City and WSSC 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.

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's conveyance facilities. The use of these facilities is governed through several agreements, as described previously.

IV. 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 1,500 residences. The majority of the sewer service area is within the Dry Seneca Creek watershed.

A. Intergovernmental Agreements -- A 1984 agreement between WSSC and the Town of Poolesville allows WSSC to send up to 20,000 gpd from the Jonesville/Jerusalem area, located within in the WSSD, into

the Poolesville WWTP. The Department of Environmental Protection's (DEP's) review of recent WSSC flow monitoring indicated that sewage flows from proposed development projects in the Jonesville/Jerusalem area, when added to existing and committed flows, will come close to exceeding this maximum flow allowance. Consequently, this Plan limits future community sewer service in the Jonesville/Jerusalem area as specified in Chapter 1.

B. Infiltration and Inflow Control Program -- The Town of Poolesville continues to aggressively pursue the identification and removal of excessive infiltration and inflow (I/I) sources from its sewer collection system. Although the average groundwater infiltration rate is currently within acceptable limits for the facility (i.e. less than 150,000 gallons per day), excessive amounts of inflow enters the collection system during significant precipitation events. In January 2003, snowmelt and rainfall conditions resulted in daily peak inflows in excess of 2 MGD, and an average monthly inflow of 1.3 MGD. Flow monitoring activities during this period revealed that a significant portion of the inflow entered the collection system from the Wesmond subdivision. This neighborhood, was constructed in the 1970s, and its collection system consists primarily of terracotta pipes. To address the inflow problems in this community, the Town is currently planning to completely rehabilitate its collection system by inserting PVC liners within the existing pipes, including the portion of the laterals located within the public right-of-way. A pilot program to evaluate the feasibility and effectiveness of the relining program is planned in 2003. If the pilot project is successful, the total rehabilitation program would likely be implemented in 2003 at an estimated cost of almost \$2,000,000.

C. Financing Sewerage Systems -- Information on the Town's sewerage system financing is included in Chapter 1, Section IV.C.

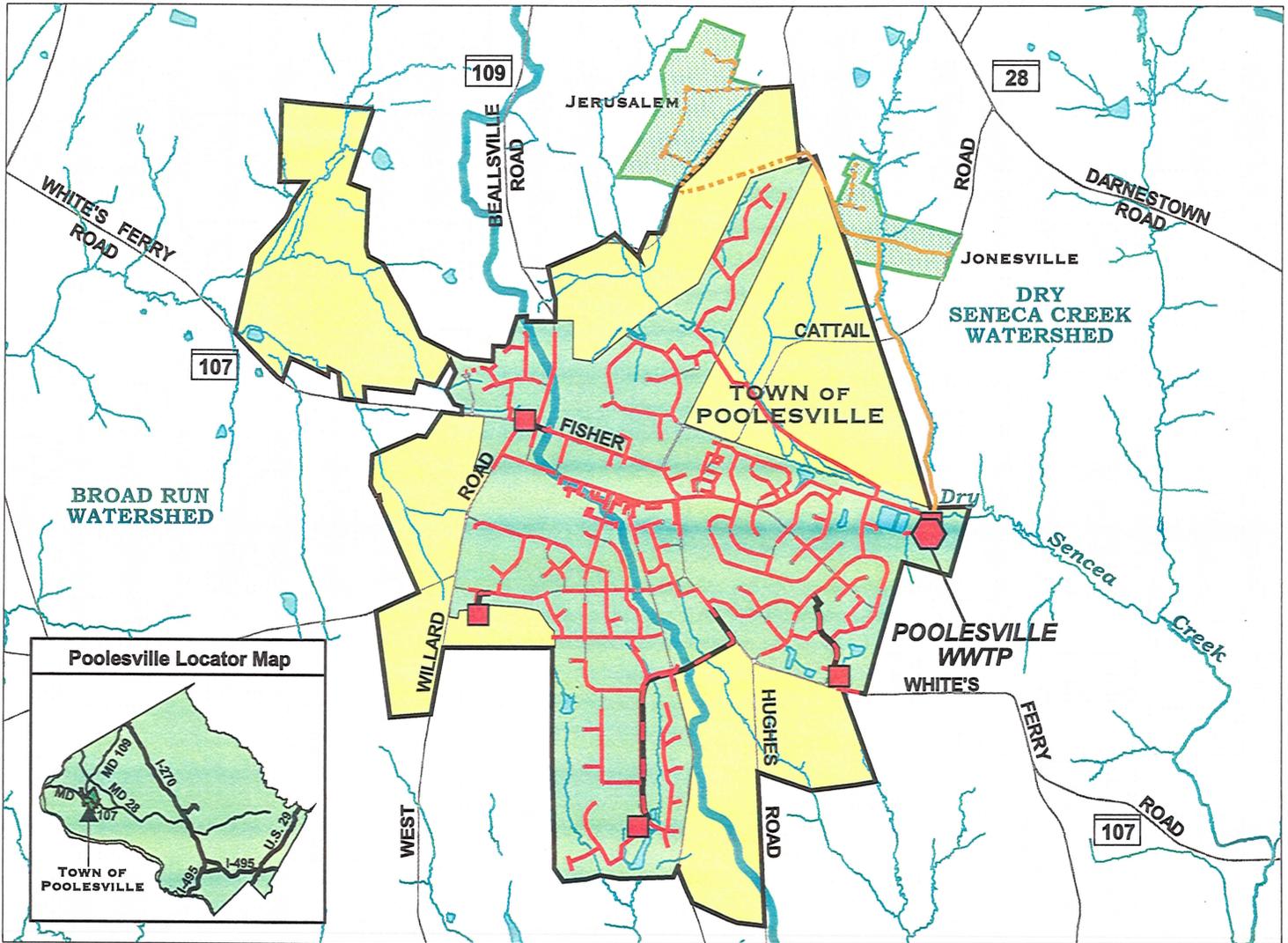
D. Collection and Conveyance Systems -- The Town's sewerage collection system consists of 90,000 linear feet of 6- to 18-inch diameter gravity sewers, 5,000 linear feet of 4- to 8-inch diameter force mains, and five permanent pumping stations ranging in capacity from 75 to 600 gallons per minute (see Figure 4-F22). Flows from two areas north of the town within the WSSD, 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.

E. Treatment Facilities -- The current Poolesville WWTP employs advanced treatment with a design capacity of 0.625 mgd. The plant is an activated sludge facility, utilizing three sequencing batch reactors (SBRs) to biologically treat the wastewater, including nitrification. The facility processes also chemically precipitate and remove phosphorus through aluminum chlorhydrate addition. The unit processes employed at the WWTP include:

- **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** - Dual media filtration - pressure vessels
- **Disinfection** - Ultraviolet Irradiation
- **Solids Conditioning** - Two stage aerobic digestion, chemical conditioners (polymer), belt filter press
- **Solids Disposal** - Land application

Although the Town's current WWTP effluent discharge permit expired on November 30, 2000, the permit still remains in effect until it is removed by the Maryland Department of the Environment (MDE). In the Fall of 2000, the Town formally requested MDE to renew the WWTP effluent discharge permit with a revised average daily treatment capacity of 750,000 GPD. In March 2003, MDE issued a new draft discharge permit, which includes new ammonia limitations and a total nitrogen load goal for the facility. At a yearly flow of 0.750 MGD, the Town's new discharge permit will likely contain a total nitrogen limitation of 6.6 milligrams/liter and will retain existing mass discharge limitations for biochemical oxygen demand (BOD), total suspended solids (TSS), and phosphorus (P). MDE has agreed to provide grant funding to the town for 50 percent of all costs associated with the WWTP enhancements to ensure compliance with the anticipated BNR requirements.

Figure 4-F22: Poolesville Community Sewerage Systems



MAP LEGEND

Poolesville Sewerage Systems

- Wastewater Treatment Plant
- Wastewater Pumping Stations

Sewer Mains

- Force Mains
- Gravity Sewer Mains
- Low-Pressure Sewer Mains

WSSC Sewer Mains

- Small-Diameter, Low-Pressure Mains
- 6"- to 8"-Diameter Gravity Mains

Town of Poolesville

Community Sewer Service Areas

- Existing/Planned Service
- No Planned Service
- WSSC Jonesville/Jerusalem Sewer Service Area

- Roads
- Major Watersheds
- Ponds - Lakes
- Streams



Montgomery County, Maryland
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phosphorus (P). MDE has agreed to provide grant funding to the town for 50 percent of all costs associated with the WWTP enhancements to ensure compliance with the anticipated BNR requirements.

To address both discharge and treatment capacity issues at the WWTP, the Town prepared a preliminary engineering report (PER) to investigate technical alternatives to upgrade and expand the facility. The PER concluded that the most reliable and cost-effective alternative to upgrade the facility was to replace the existing equipment with sequencing batch reactor (SBR) technology specifically designed for nutrient removal, including modifications to the influent distribution system, air distribution system, decanting system, and pressure filtration system. The proposed system will enhance nutrient removal by establishing an efficient anoxic cycle, increasing aeration efficiency within the basins, and increasing filter capacity for more efficient total nitrogen reduction during peak flows. The total estimated cost for the upgrade and expansion is approximately \$2.3 million (2003 dollars). The Town has received preliminary approval from MDE for a \$500,000 grant to assist with the funding of the upgrade. WSSC will participate proportionately in funding the treatment process upgrade.

DEP and MDE have conducted biological monitoring of Dry Seneca Creek both upstream and downstream of the Poolesville WWTP outfall. The resulting data indicates a stressed aquatic biological community downstream of the plant's discharge point. The Town has acknowledged sewage overflows into Dry Seneca Creek from the Jonesville/Jerusalem outfall main, resulting from a faulty diversion valve at the treatment plant which the plant operates during wet-weather, peak flow events. WSSC reinforced the manhole in October 2000, and the Town repaired the diversion valve in July 2001. The Town has also adopted operational changes for peak flow conditions at the plant to further reduce the potential for raw sewage overflows to the stream. However, MDE and DEP monitoring in 2002 continues to show degradation downstream of the plant's discharge outfall. As part of the hearing record for the Town's requested NPDES discharge permit, DEP urged that MDE include the following conditions as a requirement of the permit for the plant upgrade and expansion:

- An annual biological monitoring program of the conditions in Dry Seneca Creek upstream and downstream of the plant discharge outfall;
- A limit on the number of new sewer connections allowed for two years following the expansion of the plant to 0.75 MGD, with a review and acceptable finding by MDE of the plant's performance under the new permit requirements after two years before any additional sewer connections are approved;
- A best management practices plan/program to help control 1) excessive wastewater collection systems discharges to the plant and 2) unauthorized overflows from the plant; and
- A reporting system for all wastewater collection system overflows.

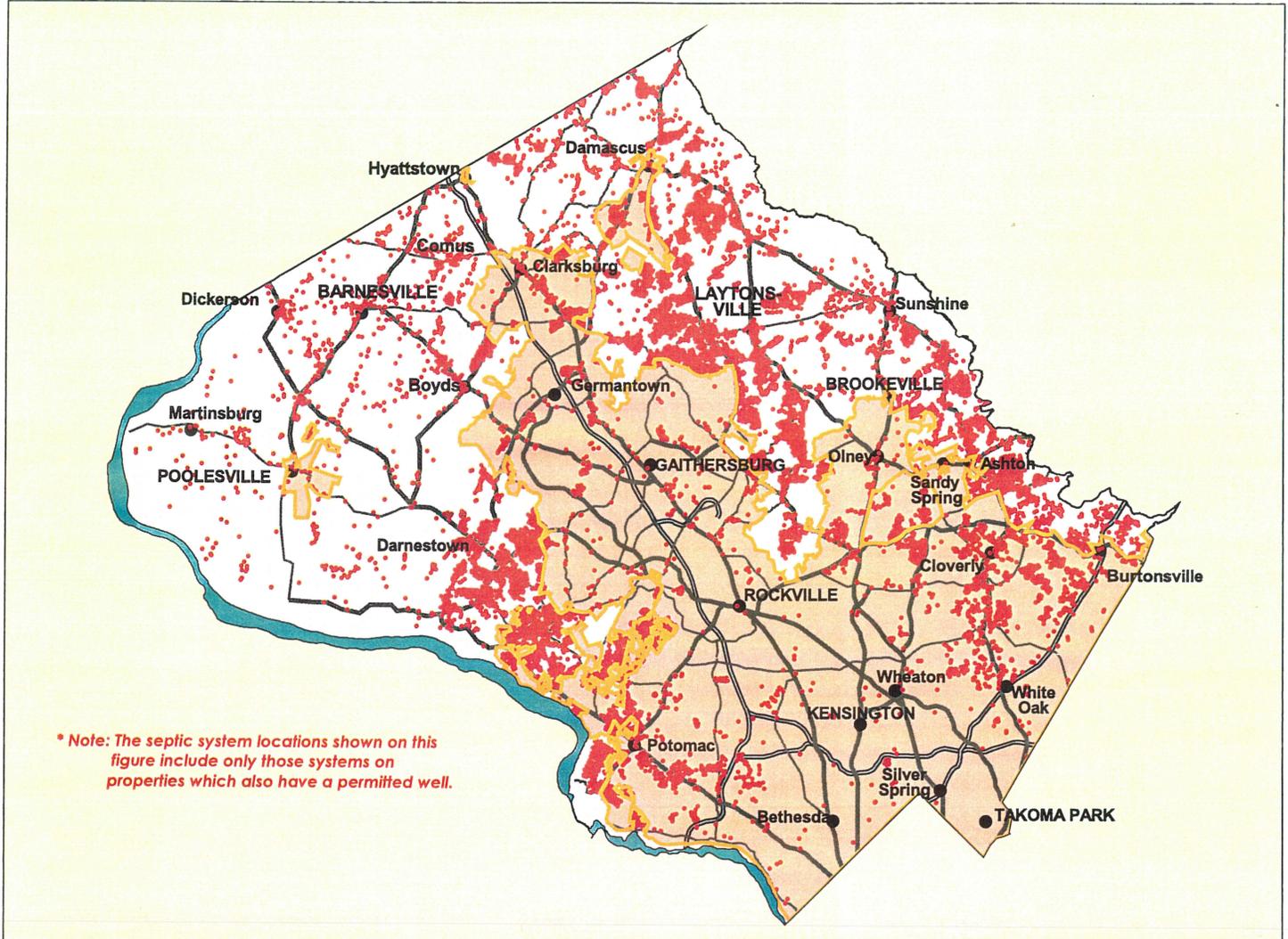
The final permit prepared by MDE included DEP's first and fourth recommendations addressing biological monitoring of Dry Seneca Creek and reporting requirements for wastewater collection system overflows. With regard to DEP's other proposed conditions, MDE advised that:

- the proposed 0.75 MGD design is acceptable and included in the County's Water and Sewer Plan;
- the 2 MGD peak capacity of the expanded plant is expected to address prior overflow conditions; and
- controlling excessive collection system flows and resulting overflows from the plant are addressed by the Clean Water Act, which considers all overflows reaching water bodies, such as Dry Seneca Creek, a violation.

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 septic systems which discharge effluent to the ground for their wastewater disposal needs. 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 of Clarksburg and around Damascus, then south and east along the Patuxent River watershed (see Figure 4-F23). Although most septic systems are located in areas not served by the community sewerage

Figure 4-F23: Permitted Septic Systems



MAP LEGEND

- Septic System Locations *
- Communities
- Major Roads
 - ▬ County Roads
 - ▬ State Roads and Highways
 - ▬ US & Interstate Highways
- ▭ General Community Sewer Envelope

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systems, older septic systems may occasionally be found scattered throughout the county, including areas served by community systems. Some larger individual sewerage systems are referred to as "multi-use systems." (See Section V.C.).

A. Septic Systems 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 sewerage systems, and authority delegated from 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 fulfills 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 systems, and by responding to complaints concerning on-site systems. Testing a property for a new septic systems involves two tests: 1) the water table test to determine the probable highest level of water-saturated soil, and 2) 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. 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 period 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 period.

B. Septic Problem Areas -- Although DPS does not currently maintain a comprehensive database of septic problems throughout the county, that agency has provided information concerning problem areas based on staff experience as identified in Table 4-T20 and are identified on Figure 4-F24.

Location	Problem	Potential Solutions	Recommendations/Actions Taken
Town of Boyds	<ul style="list-style-type: none"> ▪ failing septic systems, some on relatively small lots 	DPS recommends: <ul style="list-style-type: none"> ▪ community sewer service 	This will require further investigation by DEP and DPS. Sewer extension issues to this part of the county could have dramatic effects on development demand.
Hyattstown	<ul style="list-style-type: none"> ▪ failing septic systems, most on relatively small lots 	<ul style="list-style-type: none"> ▪ community sewer service ▪ innovative/alternative (I/A) systems for properties outside the sewer envelope 	Provided sewer service to replace failing septic systems.
Town of Laytonsville	polluted aquifer (hydrocarbons and nitrates)	<ul style="list-style-type: none"> ▪ community water service ▪ individual GAC filters ▪ handle old wells properly 	The County and WSSC are investigating the extension of community water service to the town and nearby properties. (See Section II.F.2.b.iii.)
South Burtonsville: Miles Rd., Duvall Rd., Tolson Pl., and Maple Hill Rd.	failing septic systems	<ul style="list-style-type: none"> ▪ community sewer service 	DEP continues to approve sewer category change requests within this area. The pending development of a new residential subdivision along Miles Rd. will bring additional sewer mains into the area, expanding the availability of service.
Damascus: Gue rd., Howard Chapel Dr., Ridge Rd. and adjacent areas	failing septic systems - unable to repair	DPS recommends: <ul style="list-style-type: none"> ▪ community sewer service 	Because of the implications of providing sewer service to these areas, they should be studied as part of the upcoming Damascus Master Plan revision.

Table 4-T20: Septic Problem Areas

Location	Problem	Potential Solutions	Recommendations/Actions Taken
Glen Hills - southwest side of Rockville	failing septic systems, poor soils	<ul style="list-style-type: none"> ▪ community sewer service ▪ innovative/alternative on-site systems 	The 2002 Potomac Subregion Master Plan calls for a comprehensive sanitary study of Glen Hills prior to the further extension of sewer mains into the area. The earliest DEP and DPS could undertake such a study is summer 2003.
Southlawn La. - Northeast side of Rockville	failing septic systems, poor soils	DPW and County DPS recommend community sewer service	Rockville is initiating a water and sewer feasibility study. The study will identify alternative locations for community water and sewer extension and recommend a specific project. Rockville will pursue main extensions via the special assessment process in 2004.
Rural communities - Barnesville, Comus (Slidell Rd.), and Beallsville	failing septic systems - unable to repair	DPS recommends: <ul style="list-style-type: none"> ▪ community sewer service ▪ innovative/alternative on-site systems 	These communities are beyond the reach of the County's existing and proposed community sewerage systems. Solutions for these problems may require a Hyattstown-type approach or different concepts such as community-based septic systems.

C. Multi-Use Sewerage Supply Systems -- As described in Chapter 1, multi-use sewerage supply systems are individual, on-site wastewater disposal systems with a capacity of 1,500 or more gallons per day. Because of their greater potential for environmental impacts, these systems require approve in the Water and Sewer Plan. These facilities are generally large-capacity septic systems, although some facilities use more advanced treatment systems. DEP coordinates the Plan approvals for these systems with DPS. Appendix B includes a listing of the multi-use sewerage facilities in Montgomery County approved in this Plan.

VI. REFERENCES

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"Strategic Sewerage Study", Seneca/Potomac Issue Report, WSSC, Greeley and Hansen, 1994.

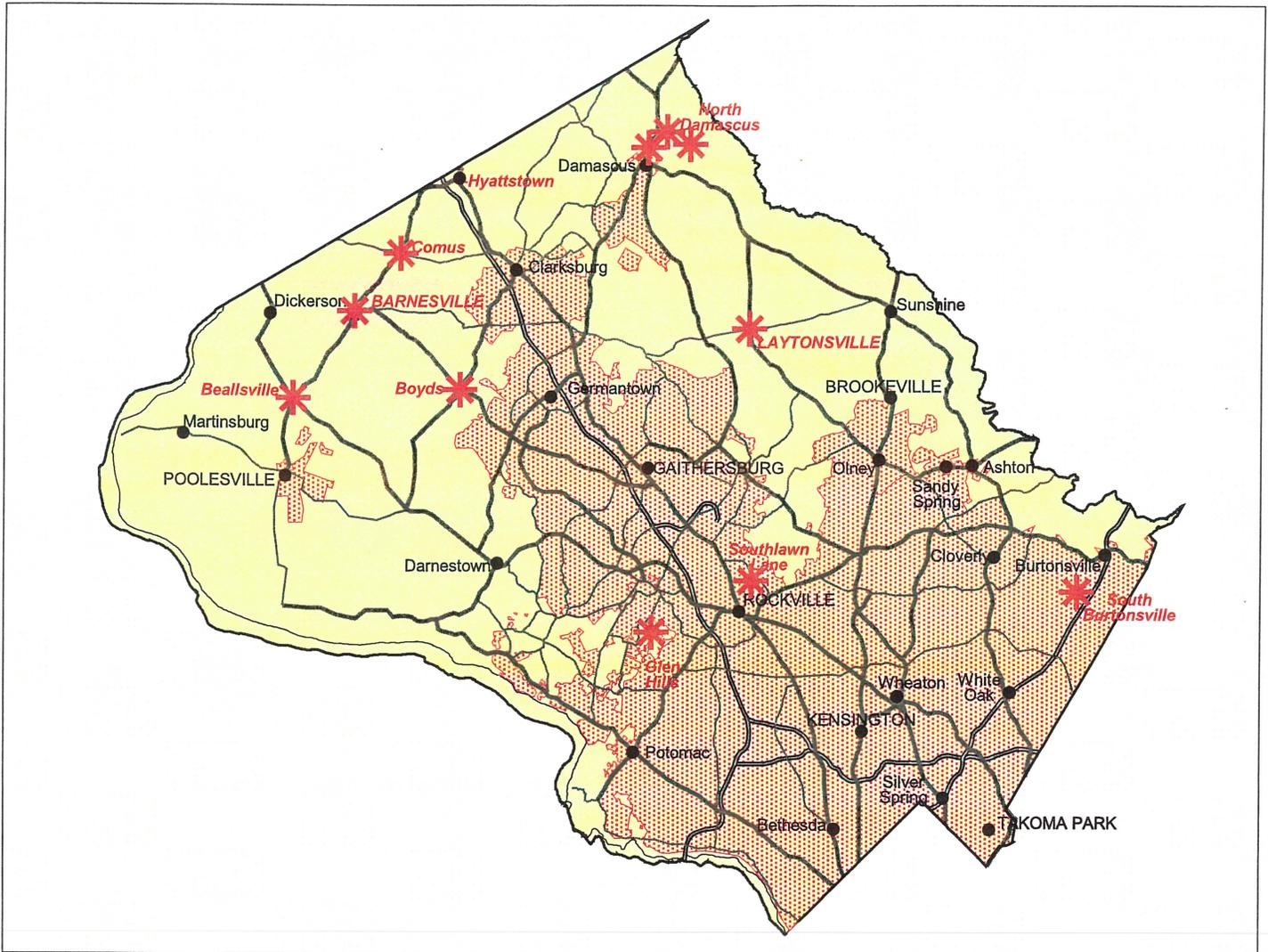
"WSSC Adopted Capital Improvement Program, Fiscal Year 2003-2008.

"A Comprehensive Long-Range Macro-Level Analysis of the WSSC Water Supply and Wastewater Systems", WSSC, Water Resources Planning Section, 1990.

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"Potomac Interceptor Engineering Study", Metropolitan Washington Council Of Governments, O'Brien and Gere, 1995.

Figure 4-F24: Septic System Problem Areas



MAP LEGEND

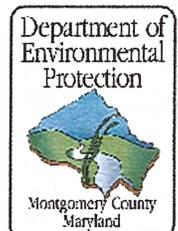
- Septic System Problem Areas***
- INCORPORATED COMMUNITIES
- Unincorporated Communities

Major Roads

- County Roads
- State Roads and Highways
- US & Interstate Highways
- General Community Sewer Service Envelope

* For additional information, refer to Table 4-T20.
 Source: DPS Well and Septic Section

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- "Rock Creek Transmission Relief Facility Plan", WSSC, Gannett and Fleming Corddy and Carpenter, 1983.
- "Damascus Area Sewerage Facility Plan", WSSC, O'Brien and Gere, 1989.
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