



MONTGOMERY COUNTY PLANNING DEPARTMENT
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

MCPB

Item # 8

10/15/09

MEMORANDUM

TO: Montgomery County Planning Board

VIA: Mark Pfefferle, Acting Chief *MP*
Green Division
Mary Dolan, Master Planner/Supervisor *MD*
Green Division

FROM: Mark Symborski, Planner Coordinator, (301) 495-4636 *MS*
Green Division

SUBJECT: Water Resources Element of the General Plan: The Water Resources Functional Master Plan

RECOMMENDATION: Approval to publish a Public Hearing Draft Water Resources Functional Master Plan and set the public hearing date for December 17, 2009.

In 2006, the State General Assembly adopted House Bill 1141 that requires a Water Resources Element to be incorporated into local governments' comprehensive plans addressing the effect of planned growth to 2030 on:

- drinking water supply adequacy
- wastewater treatment capacity
- the ability of stormwater management to maintain water quality standards

In Montgomery County, water supply is plentiful and generally well-managed. Public water and sewer is provided to most of the County's population. Drinking water comes from three sources: the Patuxent reservoirs, the Potomac River, and well water. These resources are afforded significant protection by the large amount of low-density zoned land in the Agricultural Reserve, as well as the natural areas throughout the County. Wastewater is collected and treated primarily at the Blue Plains treatment plant in the District of Columbia and at four smaller treatment facilities in Germantown, Damascus, Hyattstown, and Poolesville. These facilities operate at very high standards, applying advanced treatment before discharging to streams and rivers.

This plan was drafted to meet State requirements under House Bill 1141 and focuses on various issues and needs associated with ensuring adequate water supply and wastewater treatment capacity, and water quality, as the County continues to grow. Key issues include:

- Maintenance and repair of existing and future water and sewer infrastructure
- Compliance with water quality regulatory requirements
- Implementation of the County's Municipal Separate Storm Sewer System (MS-4) Permit
- Implementing new Environmental Site Design (ESD) to the Maximum Extent Practicable (MEP) requirements for all new development and redevelopment
- Interagency coordination and collaboration
- Accommodating future growth through green redevelopment and infill

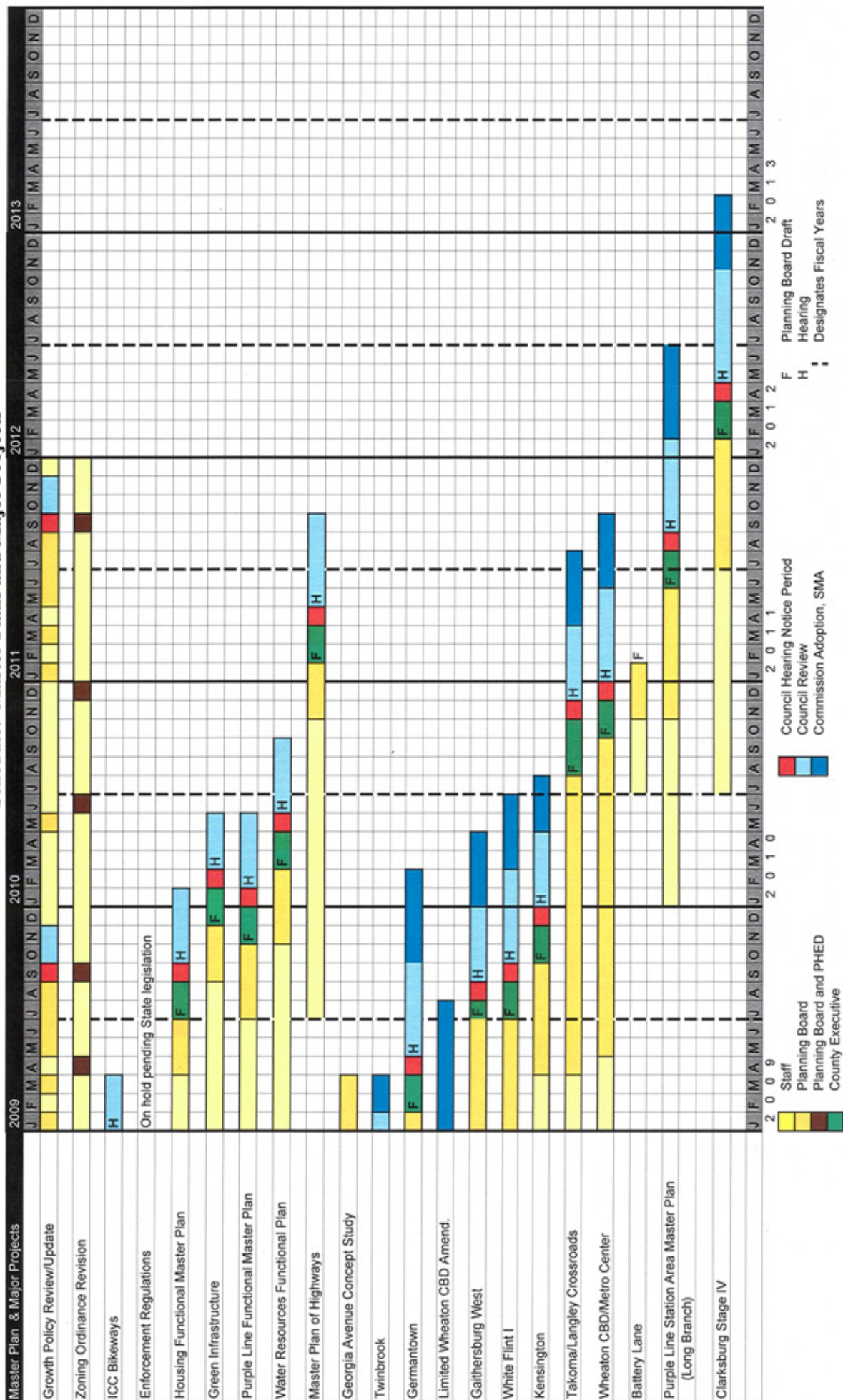
Although this plan satisfies the immediate HB1141 requirements, realizing the long-term goals of the State law and this Plan will require ongoing interagency cooperation, collaboration, and creativity as the water quality needs and regulatory requirements continue to increase. The need for inter-agency coordination is particularly important not only in view of the complexities of the issues, but also because of the wide distribution of water resource-related programs and responsibilities in many agencies. There is an urgent need to carry the work of the County's earlier Clean Water Task Force to address this needed collaboration to address the long-range issues and goals. This will affect our work program for many years.

We have reviewed comments from the Planning Board on the Proposed Plan Policies and Recommendations discussed at the September 17, 2009 Planning Board meeting. We have updated them accordingly, and have completed the attached Draft of the full text of the Plan. In addition, ten technical appendices are being prepared that will accompany the Public Hearing Draft of the Plan.

Next Steps

A Public Hearing draft of the Plan will be prepared and we anticipate bringing it draft to the Planning Board in mid November. See the attached master plan chart for the approved plan schedule.

MS:ss
Attachment



Water Resources Functional Master Plan

draft

October 2009

Montgomery County Planning Department
The Maryland-National Capital Park and Planning Commission

MontgomeryPlanning.org

Water Resources Functional Master Plan draft

Abstract

This report contains the text of the Draft Water Resources Functional master Plan (WRFMP). It amends *The General Plan (On Wedges and Corridors) for the Physical development of the Maryland-Washington Regional District in Montgomery and Prince George's Counties*, as amended.

The Plan provides information relating to County water and sewer service capacity in light of planned growth to 2030, summarizes an analysis to estimate the nutrient loadings on watersheds for existing and future conditions, and identifies the policies and recommendations to amend the General Plan that are needed to maintain adequate drinking water supply and wastewater treatment capacity to 2030, and meet water quality regulatory requirements as the County continues to grow. It is meant to satisfy the requirements of House Bill 1141.

Source of Copies

The Maryland-National Capital Park and Planning Commission
8787 Georgia Avenue
Silver Spring, MD 20910-3760

Online at www.MontgomeryPlanning.org/

The Maryland-National Capital Park and Planning Commission

The Maryland-National Capital Park and Planning Commission is a bi-county agency created by the General Assembly of Maryland in 1927. The Commission's geographic authority extends to the great majority of Montgomery and Prince George's Counties; the Maryland-Washington Regional District (M-NCPPC planning jurisdiction) comprises 1,001 square miles, while the Metropolitan District (parks) comprises 919 square miles, in the two counties.

The Commission is charged with preparing, adopting, and amending or extending *The General Plan (On Wedges and Corridors) for the Physical development of the Maryland-Washington Regional District in Montgomery and Prince George's Counties*.

The Commission operates in each county through Planning Boards appointed by the county government. The Boards are responsible for all local plans, zoning amendments, subdivision regulations, and administration of parks.

The Maryland-National Capital Park and Planning Commission encourages the involvement and participation of individuals with disabilities, and its facilities are accessible. For assistance with special needs (e.g., large print materials, listening devices, sign language interpretation, etc.), please contact the Community Outreach and Media Relations Division, 301-495-4600 or TDD 301-495-1331.

Draft

Water Resources Functional Master Plan

Prepared by the Montgomery County Planning Department
October 2009

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A functional master plan typically focuses on a particular subject or technical issue and covers an area larger than an area or sector master plan. Policies and recommendations established in functional master plans serve as umbrellas for guiding other master plans.

Together with relevant policies, functional master plans amend the General Plan and should be referred to by public officials when implementing and updating area and sector master plans.

THE PLAN PROCESS

The PUBLIC HEARING DRAFT PLAN is the formal proposal to amend an adopted plan. Its recommendations are not necessarily those of the Planning Board; it is prepared for the purpose of receiving public testimony. The Planning Board holds a public hearing and receives testimony, after which it holds public worksessions to review the testimony and revise the Public Hearing Draft Plan as appropriate. When the Planning Board's changes are made, the document becomes the Planning Board Draft Plan.

The PLANNING BOARD DRAFT PLAN is the Board's recommended Plan and reflects their revisions to the Public Hearing Draft Plan. The Regional District Act requires the Planning Board to transmit a plan to the County Council with copies to the County Executive who must, within sixty days, prepare and transmit a fiscal impact analysis of the Planning Board Draft Plan to the County Council. The County Executive may also forward to the County Council other comments and recommendations.

After receiving the Executive's fiscal impact analysis and comments, the County Council holds a public hearing to receive public testimony. After the hearing record is closed, the relevant Council's committee holds public worksessions to review the testimony and makes recommendations to the County Council. The Council holds its own worksessions, and then adopts a resolution approving the Planning Board Draft Plan, as revised.

After Council approval the plan is forwarded to the Maryland-National Capital Park and Planning Commission for adoption. Once adopted by the Commission, the plan officially amends the master plans, functional plans, and sector plans cited in the Commission's adoption resolution.

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Introduction

In 2006, the State General Assembly adopted House Bill 1141 that requires a Water Resources Element to be incorporated into local governments' comprehensive plans addressing the effect of planned growth to 2030 on:

- drinking water supply adequacy
- wastewater treatment capacity
- the ability of stormwater management to maintain water quality standards.

This Water Resources Functional Master Plan fulfills the law's requirements and will be updated every six years to incorporate advances in meeting its goal—to ensure adequate water and sewer service and water quality that meets regulatory standards as the County continues to develop.

Water Resources Plan Goal

County land use, growth, and stormwater management that is consistent with adequate drinking water supplies, wastewater treatment capacity, water quality regulatory requirements, and inter-jurisdictional commitments.

Water in Montgomery County

The State of Maryland and Montgomery County have long considered protection of the Chesapeake Bay and its tributaries, including our local streams, to be a high priority. Protection of land and water resources and stewardship of the Chesapeake Bay are put forth in the Planning Visions Act of 2009 that guides local comprehensive planning throughout the State.

Growth in The County has presented water quality challenges. Large surface parking lots, high levels of impervious surface associated with low density suburban development has resulted in degradation of our water resources. The current and future challenge is to insure that smarter growth helps us maintain and restore our streams and reservoirs as the County continues to grow.

Dealing with these challenges is beyond the scope of any one agency or plan, and will continue to require close coordination of many County, State, and federal programs and plans. Comprehensive sustainability planning is important to address the interconnectedness of all that we do to and on the land. By addressing all aspects of water resources management, this Plan will provide a basis for prioritizing and coordinating the shared goals and responsibilities of County agencies, municipalities, and citizens to produce optimal environmental benefits.

These plans and programs include:

- the County's stormwater (MS-4) permit and implementation plans
- watershed analyses and plans
- Total Maximum Daily Load (TMDL) implementation plans for non-point source pollution
- master and sector plans
- County Growth Policy
- the Water Supply and Sewerage Systems Plan
- regulatory/code review and changes.

Many of these are currently being prepared or revised. This Plan is just one component of an interagency approach to dealing with water resources and water quality issues.

Figures showing water supply and sewer systems.

In Montgomery County, water supply is plentiful and generally well-managed. Public water and sewer is provided to most of the County's population within the Priority Funding Area. Drinking water comes from three sources: the Patuxent reservoirs, the Potomac River, and well water. These resources are afforded significant protection by the large amount of low-density zoned land in the Agricultural Reserve, as well as the natural areas throughout the County. Wastewater is collected and treated primarily at the Blue Plains treatment plant in the District of Columbia and at four smaller treatment facilities in Germantown, Damascus, Hyattstown, and Poolesville. These facilities operate at very high standards, applying advanced treatment before discharging to streams and rivers.

Stormwater management is a much more difficult issue, especially in the built-up areas of the County. Many down-County communities developed before stormwater management policies were in place and stream conditions are generally fair or poor. Even the streams in areas with newer, higher density development in the Priority Funding Area often cannot be maintained in good condition, although new regulations promise better results. The difficulty of providing treatment to sufficient to prevent any degradation of stream conditions when there are high levels of imperviousness remains a challenge.

Figure showing watersheds and relationship to Chesapeake Bay.

This Plan explains the planning process for maintaining the capacity to provide drinking water, wastewater treatment, and absorption of stormwater to accommodate growth to 2030 and the challenges we face in achieving the goals of federal, State, and local governments.

A Strategic Framework

This Plan's goals, policies, and recommendations are intended to guide the efforts of multiple agencies, plans, programs, and work programs. Evolving water quality will require updating existing plans and programs, and new ones as we move forward.

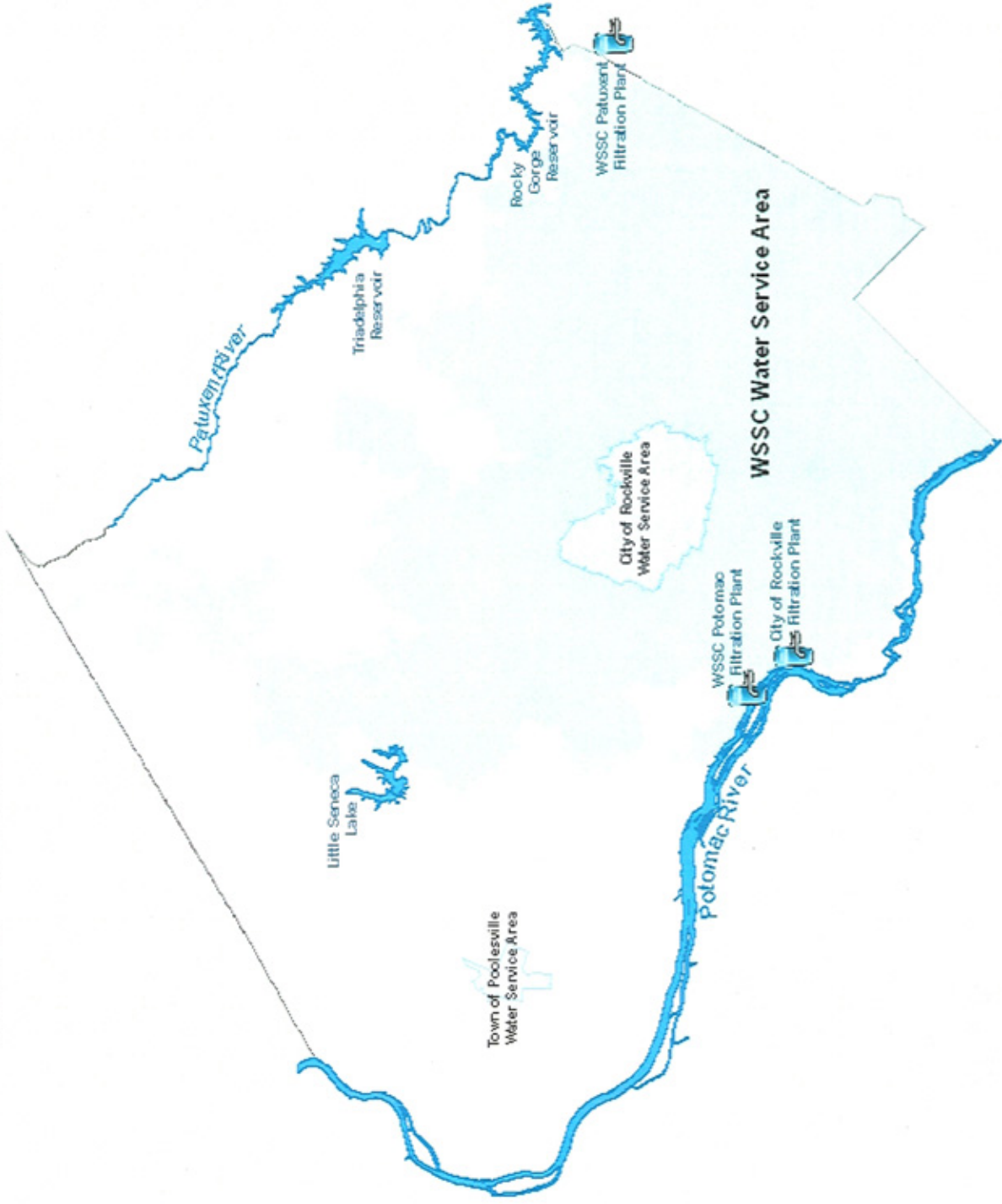
The strategic framework for implementing this Plan includes the land use plans, permitting processes, growth policy decisions, and site design and development practices described below.

Water resources-related planning occurs in many government agencies. For example, WSSC is a bi-county agency that provides water and sewer service to Montgomery and Prince Georges Counties. They work with the two Counties to ensure adequate water supply and wastewater capacity for planned development and redevelopment, and that development is not approved unless water and sewer adequacy is clearly demonstrated.

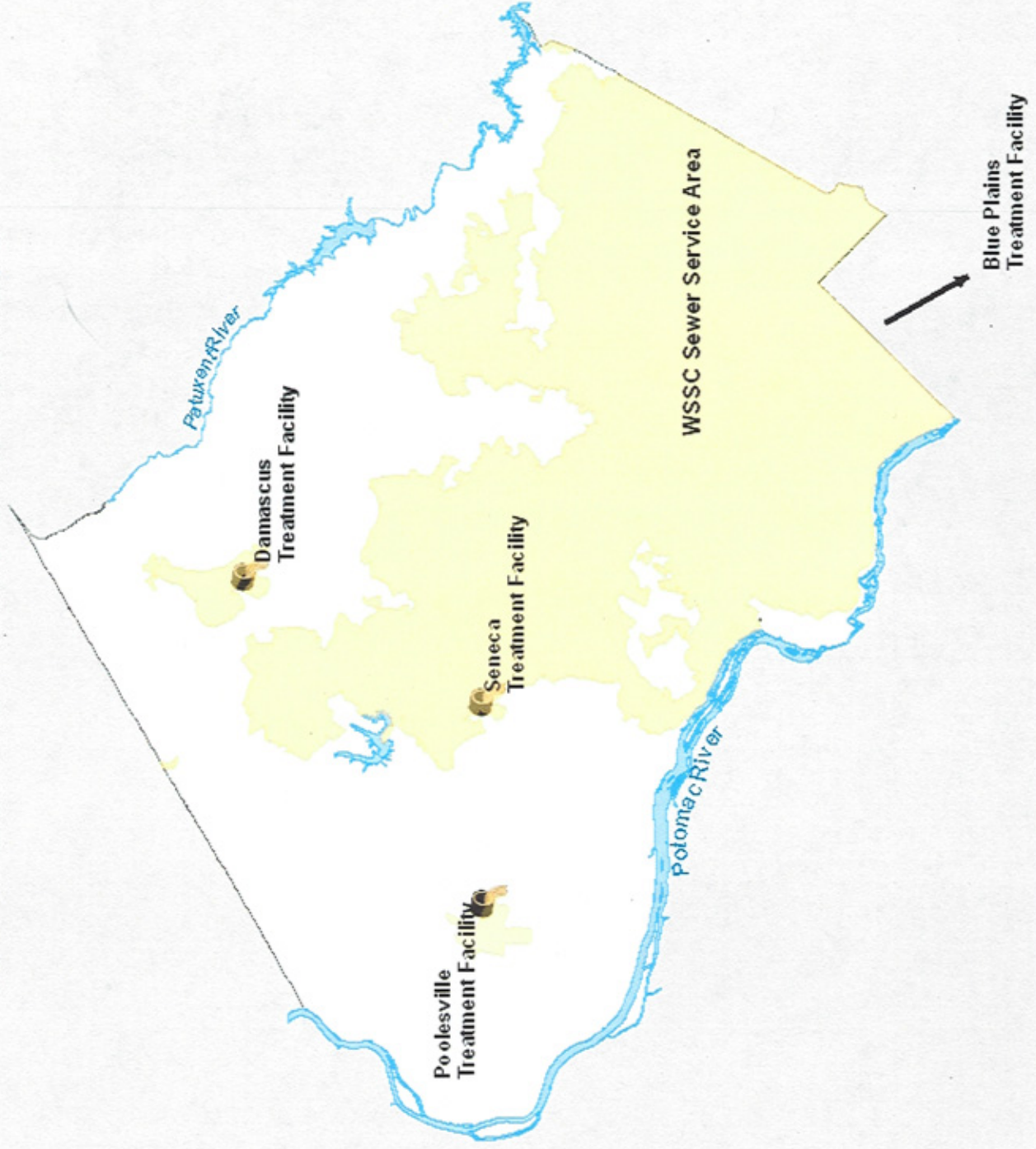
The Interstate Commission on the Potomac River Basin's (ICPRB) is a regional agency whose studies of the health and flow regime of the Potomac River and its tributaries are used by the Washington Suburban Sanitary Commission (WSSC) for their long-range capacity projections. ICPRB also coordinates Potomac source water protection activities.

The Metropolitan Washington Council of Governments' (MWWOG) is a regional agency that coordinates drought preparedness and management plans used by local jurisdictions. MWWOG also tracks monitoring data and works with local agencies on watershed and stormwater issues.

Water Service Areas and Facilities

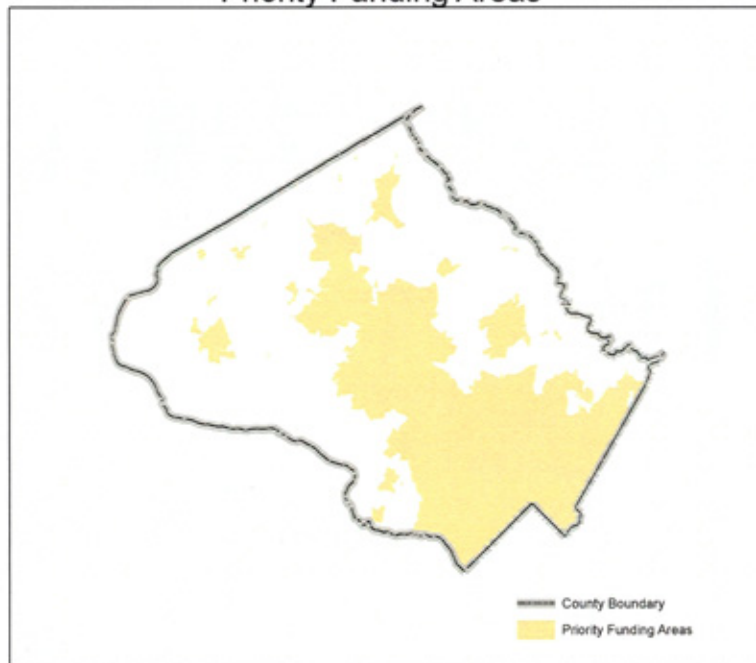


Sewer Service Areas and Facilities





Priority Funding Areas



Montgomery and Prince George's counties have their own 10-Year Water and Sewer Plans covering water, sewer, groundwater, and septic systems planning. Montgomery County's Department of Environmental Protection (DEP) is responsible for the County's *10-Year Comprehensive Water Supply and Sewerage Systems Plan*.

Many other agencies are responsible for programmatic and planning functions that address water resources issues. (Figure___.) (See Appendix A, and Chapter 1 of the *10-Year Comprehensive Water Supply and Sewerage Systems Plan*.)

Plans

The Planning Department is developing an overarching multi-faceted environmental policy and planning framework for Montgomery County. This Plan will be part of that framework. The component plans within environmental framework will be coordinated to inform and work together to realize multiple goals and maximize environmental benefits for the County. This Plan will provide important policy guidance for other functional master plans such as the *Land Preservation, Parks and Recreation (LPPR) Plan*, the *Countywide Green Infrastructure Functional Master Plan*, and the *Legacy Open Space Functional Master Plan*. Knowing where water quality needs are greatest will be important in prioritizing natural resource preservation, enhancement, and restoration efforts. Master plan coordination will increase both the success in achieving the goals and objectives of each plan, as well as the success of the various plans working together in meeting water resources requirements and goals.

The General Plan

The General Plan contains the comprehensive land use vision and development plan for Montgomery County. Goals and strategies are defined to guide land use, transportation, housing, environmental protections, and community design.

The General Plan Refinement of 1993 already contains specific goals, objectives, and strategies for water resources. This Plan does not replace that document, but supplies detailed policies and recommendations to reach the same objectives based on the requirements of HB1141. It also provides general guidance for detailed implementation that will occur in a number of plans and permit documents specified by law.

Master Plans

Master plans, including area, sector, and functional plans will be guided by this Plan. This guidance will continue the coordination of the General Plan's land use element with water and wastewater planning, and ensure long term water and sewer adequacy as the County grows. Other plans that deal with the County's natural resource issues, such as the Green Infrastructure Plan, will be coordinated with this Plan to help optimize water quality benefits associated with natural resource stewardship. Likewise, master and sector plans will also be revised periodically and implemented to maximize the water quality improvement and protection benefits in their particular geography. Specific decisions about the pattern, density, and zoning of development are established in master and sector plans and are updated periodically.

The Montgomery County 10-Year Comprehensive Water Supply and Sewerage Systems Plan

The *10-Year Comprehensive Water Supply and Sewerage Systems Plan* (Water and Sewer Plan) prepared by DEP documents the policies, needs, issues, and planned infrastructure related to public water and sewer systems, groundwater and septic systems, public health, environmental protection, and land use issues in Montgomery County. It gives both background information and a planning basis for the evaluation of water supply and sewerage system needs in the County, and coordination of these capacities and related infrastructure with planned development. The continued close coordination of the Water and Sewer Plan with the County's

GOVERNMENT RESPONSIBILITIES FOR WATER RESOURCES

State Agencies

- Maryland Department of Environment**
- Water and Sewer Plan approval
 - Comprehensive Plan Guidance and Approval
 - Impaired Water Listing
 - TMDL Program
 - Tier II Waters Antidegradation Program
 - Stormwater Manual
 - NPDES Program

- Maryland Department of Planning**
- Planning and Zoning Oversight
 - Comprehensive Plan review
 - Smart Growth Programs
 - Land Use Forecasts

- Maryland Department of Natural Resources**
- State Forestry Program
 - Bay Program Support
 - Park and Natural Resource Management

- Montgomery Soil and Water Conservation District (MSWCD)**
- Agricultural Management and Conservation Support
 - Soil Conservation
 - Water Quality
 - Nutrient Management
 - Agricultural BMP's

- D.C. Water and Sewer Authority**
- Blue Plains Wastewater Treatment Plan
 - Bi-County Agreement
 - Inter-Municipal agreement

- Interstate Commission on the Potomac River Basin (ICPRB)**
- Pollution Control and Prevention
 - Source Water Protection Partnership
 - Water Quality Technical Studies and Modeling
 - Drought Management Support
 - Water Supply Planning Analyses

- Metropolitan Washington Council of Governments**
- Forum for Coordination of Regional Actions
 - Water Supply
 - Watershed Protection
 - Anacostia Restoration
 - Water Conservation
 - Drought Management Plans
 - Water Emergency Response Plan
 - Regional Water-Related Databases
 - Urban Forestry
 - Regional Air Quality

- Maryland-National Capital Park and Planning Commission**
- General Plan
 - Area, Sector, and Functional Master Plans
 - Growth Policy
 - Park Planning Development
 - Natural Resources management
 - Recreation
 - Stream Monitoring in Parks
 - Zoning Code
 - SPA Imperviousness Requirements
 - Forest Conservation Program
 - Law, Regulations, Enforcement
 - Development Review
 - Environmental Guidelines
 - Environmental Inventory Approval
 - Special Exceptions and Mandatory Referrals
 - Forest Conservation Plans
 - Water Quality Plans in SPAs

Bi-County Agencies

- Washington Suburban Sanitary Commission**
- Water Supply and Sewerage Systems
 - Planning
 - CIP Program
 - Design
 - Construction
 - Operation
 - Maintenance

County Agencies

- Department of Environmental Protection**
- Environmental Policy and Compliance
 - Comprehensive Water and Sewer Plan
 - Countywide Stream Protection Strategy
 - Stream Monitoring
 - SPA Monitoring and Reporting
 - Watershed Management Planning
 - Forest Protection Strategy
 - CIP Program
 - NPDES/MS4 Program
 - Stormwater Management Facility Maintenance
 - Water Quality Protection Charge
 - Air Quality
 - Hazardous Waste
 - Solid Waste

- Department of General Services**
- Pollution prevention at County facilities
 - Abatement of existing pollution problems at County facilities
 - Inspection and maintenance of existing pollution devices at County facilities, including stormwater ponds
 - Building new retention and control devices at new and existing County facilities including ponds and containment buildings
 - Permits where applicable to a specific County site
 - County underground storage tanks (maintenance, permits, installation, and removal)

- Department of Transportation**
- Road Code
 - Road Planning, Design, and Construction
 - Bridge and Road Stream Crossings
 - Road Development Plan Review
 - Road SWM and S&E Control
 - ROW Maintenance

- Department of Permitting Services**
- Floodplain Review
 - Sediment and Erosion (S&E Control)
 - Site Plan Inspection and Enforcement
 - Stormwater Code
 - Stormwater Review, Inspection, Enforcement
 - Building Code
 - SPA S&E and SWM design goals
 - Well and Septic Regulations and Permitting

General Plan and master plans is vital in ensuring ongoing adequacy of water supplies and wastewater treatment capacity as the County continues to grow.

The Water and Sewer Plan also details the inter-agency coordination of planning and implementing the County's water and sewer service. It is closely coordinated with WSSC, reviewed by various local and State agencies, and approved by the County Council.

The currently adopted Water and Sewer Plan covers 2003-2012 and is being revised, with approval expected in 2010. The current plan is online at:

<http://www.montgomerycountymd.gov/deptmpl.asp?url=/content/dep/water/home.asp>

Water and Sewer Plan Goals and Objectives

The overall goal of the Water and Sewer Plan is to ensure that the existing and future water supply and sewerage system needs of Montgomery County are satisfied in a manner consistent with:

- emphasizing service to urban areas
- adopted land use recommendations
- provision of other services
- Smart Growth initiatives
- protection of surface and groundwater resources
- identifying water and sewer and public health needs and solutions.

Supporting information from the Water and Sewer Plan is provided in Appendices A through D of this Plan. Appendix A has information on objectives, policies, and inter-agency responsibilities. Appendix B contains general background information on characteristics of the natural environment, as well as the cultural background that includes the planning issues related to demographics, land use, and development. Appendices C and D have information that pertains to water supply and wastewater systems, respectively. Technical information regarding WSSC water and sewerage systems projections is provided in Appendices E and F of this Plan. The complete Water and Sewer Plan provides full details on all these aspects of water and sewer planning in Montgomery County.

Coordination with Land Use Element of the General Plan

The Water and Sewer Plan is closely coordinated with element of the General Plan. The County's growth projections based on master plan recommendations and zoning capacity are provided to MWCOG for their regional forecasts. The forecasts use area and sector master plans for land use, and the forecasts must be within the capacities allowed by existing or proposed zoning. This information is used in conjunction with countywide trends and what is likely to occur in the future. The projected growth is placed geographically based on master plans in relation to Traffic Analysis Zones (TAZs). Through this process, County forecast totals are developed for households, jobs, and population. (Municipalities with independent planning and zoning authority do their own forecasts, which are incorporated into the County totals.) These projections are used by DEP and WSSC in planning for existing and future adequacy of water supply and sewerage systems in the County. (See Appendix A, and Chapter 1 of the *10-Year Comprehensive Water Supply and Sewerage Systems Plan*.)

As master and sector plans are developed, DEP and WSSC are consulted regarding the adequacy of systems and the feasibility of any needed extensions. Once plans are approved, the County Council adopts a comprehensive amendment to the Water and Sewer Plan to cover any new areas planned for service. Individual requests for system extensions outside approved areas are judged for consistency with master plans. If the County Council approves, these areas are added as amendments to the Water and Sewer Plan.

Policies

Along with a coordinated framework of plans, the County has established development policies and zoning standards that contribute to preserving water quality.

Growth Policy

Reviewed biennially, this policy guides future development in Montgomery County, reinforcing smart growth principles and assuring that development is coordinated with the provision of infrastructure. The current Growth Policy supports smart growth within the Priority Funding Area that focuses new development on areas already served by water and sewer infrastructure and minimizes expansion of development into greenfield areas.

The County Council adopts the Growth Policy every two years based on Planning Board recommendations. The Policy sets the rules the Planning Board will use to consider subdivisions over the following two year period, in the context of the Adequate Public Facilities Ordinance (APFO). The APFO ensures that there is enough school and road capacity to accommodate development. Adequacy of water and sewer service is determined through the 10-Year Comprehensive Water Supply and Sewerage Systems Plan process.

The Growth Policy is shifting growth to redevelopment in transit-served areas to reduce the vehicle miles traveled relative to the population and job growth. It will also limit adverse effects of growth on water quality by accommodating that growth with a significantly smaller increase in imperviousness. Redevelopment and infill will become increasingly important strategies in growing smarter and will create opportunities for creative use of Environmental Site Design to increase water quality in urban areas.

The 2009-2011 Growth Policy draft is available online montgomeryplanning.org

The Agricultural Reserve

The General Plan position that the desired land use of the Agricultural Reserve is agriculture is supported by the details in the *Functional Master Plan for the Preservation of Agriculture and Rural Open Space*. It established two zones, Rural Density Transfer (RDT) and Rural Cluster (RC), in conjunction with a Transfer of Development Rights (TDR) system. The RDT zone requires a minimum of 25 acres per dwelling unit and the RC Zone allows one dwelling unit per five acres. These densities enable the County to limit development and preserve large amounts of land for agriculture.

The Agriculture and Open Space Plan also prohibits extending sewer and water to areas zoned RDT, unless to address public health problems. This has helped preserve agricultural uses and limited sprawl, thereby protecting water quality and supply. Continuing these policies will help guarantee these benefits in the future. (See, Appendix A, and Chapter 1 of *10-Year Comprehensive Water Supply and Sewerage Systems Plan*.)

To further agriculture, the County has recently passed a Building Lot Termination (BLT) program designed to extinguish remaining residential development rights on farms through the purchase of development rights. The purchased density will then go to mixed-use zones that are close to existing services and existing or proposed transit.

Agriculture is also supported by Department of Economic Development's (DED) Agricultural Land Preservation Easements program. This program protects and preserves agricultural land from development with the goal of 70,000 protected acres by 2012. As of June 2005, 64,998 acres have been permanently preserved, more than any other county in the nation (See Appendix J).

Regulatory Framework

Montgomery County Municipal Separate Storm Sewer System (MS-4) Permit

The County's MS-4 Permit is the principal implementation tool in meeting point source water quality regulatory requirements. DEP is the lead agency for implementing these permits, but most County agencies participate. Watershed analyses will be conducted to understand pollutant sources and optimize potential reductions and control options in meeting stormwater point source load reductions required by the County's new MS-4 Permit.

Site Design and Development Practices

Environmental Site Design (ESD), which is required by State regulations to be implemented to the Maximum Extent Practicable (MEP), is a vital component in realizing this Plan's goals and policies. ESD to MEP standards are applied to any remaining greenfield development in the County, as well as for infill and redevelopment projects. Redevelopment projects offer challenging constraints, but ESD approaches are especially important to meeting the goal of using redevelopment to improve water quality in urban areas.

Water Supply

Both the Water and Sewer Plan and other planning and program efforts address water supply by addressing water sources, its treatment and protection, and developing estimates for demand and future protection efforts.

Sources

Surface Water

The County's water supply comes from the Potomac and Patuxent Rivers. The Potomac is the larger source; WSSC withdraws water from the Potomac at Watkins Island near the mouth of the Watts Branch. WSSC operates two supply impoundments along the Patuxent River, the Triadelphia and Rocky Gorge Reservoirs, created by the Brighton and T. Howard Duckett Dams, respectively.

At low flow periods, the Potomac River source can be supplemented by The Jennings Randolph Reservoir near on the River's North Branch, 200 miles upstream from the Watkins Island intake, and by Little Seneca Lake in Western Montgomery County. WSSC operates this dam and release facility as part of the Metropolitan Low Flow Agreement.

Groundwater

In less densely-populated parts of Montgomery County, water is supplied primarily by wells supplied by groundwater. Approximately 80,000 residents rely on groundwater as their only source of water, with approximately 50,000 individual wells in use. Although most wells are located in areas not served by the community water supply systems, older wells may be found throughout the County. Only Poolesville's municipal wells are part of a community water supply system and this area has been designated by EPA as a sole source aquifer.

According to the Maryland Geological Survey (MGS) and the Department of Permitting Services (DPS), the County's groundwater is generally of good quality with fairly reliable flow rates. The levels of nitrates and natural pollutants are generally low. Local problems, especially low flow, occur during significant drought. But

the overall picture is good supported by the County's relatively thick soils, the low density development of the Agricultural Reserve, and the high level of care in installing septic systems over the years.

DPS's Well and Septic Section is responsible for administering and enforcing of County and State laws governing on-site, individual water supply systems. Problem areas identified in the Water and Sewer Plan are based on well information from DPS, and that Plan will continue to be the County's tool for identifying and addressing groundwater and well issues. (See Appendix C, and Chapter 3 of the *10-Year Comprehensive Water Supply and Sewerage Systems Plan*)

Treatment and Protection

Treatment Facilities

The County's drinking water is treated at two WSSC two filtration plants: the Potomac Water Filtration Plant, on River Road, and the Patuxent Water Filtration Plant, on Sandy Spring Road. These plants draw untreated water from the Potomac and Patuxent Rivers and process it into or drinking water.

The Agricultural Reserve and Water Resources

Montgomery County's Agricultural Reserve has served to protect water quality and supply. By keeping density and imperviousness low, the Reserve has limited sprawl and promoted Smart Growth. The Reserve has also served to protect drinking source waters in the County in both the Potomac River and the Patuxent River reservoirs. Low density has helped greatly to protect water quality and keep stream erosion low not only within the Reserve, but has also served to attenuate water quality impacts from more dense upstream areas in the central portion of the County.

In addition to surface water benefits, the Agricultural Reserve and associated policies have provided excellent protection of groundwater resources in the portion of the County outside of the water and sewer service envelope, where groundwater is the only source of drinking water. According to MGS hydrogeologists, low densities and imperviousness levels in the Agricultural Reserve have been instrumental in protecting groundwater quantity and quality. The County's intention to continue these policies will help safeguard groundwater as a reliable resource.

Potomac River Basin Drinking Water Source Protection Partnership

This voluntary association of 19 water suppliers and government agencies is focused on protecting drinking water sources in the Potomac River basin. Their 2005 plan for source water protection establishes priorities and projects for the coming years. This coalition of water utilities and management and regulatory agencies enables a comprehensive approach to protection. Through work groups, the Partnership is identifying a strategy for source water protection as recommended by assessments throughout the Potomac River basin.

Source Water Assessments

WSSC was directly involved with the production of the 2002 *Potomac River Source Water Assessment* and is using the results to guide the work of the Potomac River Source Water Partnership. The 2004 Patuxent River Source Water Assessment is used to guide the work of the Patuxent Reservoirs Watershed Protection Group (including the Patuxent Reservoirs Policy Board—which sets key policies for the reservoirs-- and the Patuxent Reservoirs Technical Advisory Committee—which advises the Policy Board) and as a guide in the development of the Patuxent Reservoirs TMDL. WSSC is directly involved in the source partnership for both the Potomac River and the Patuxent Reservoirs Technical Advisory Committee.

Water Conservation/Reuse

WSSC provides water conservation practices as inserts to its customer's monthly bills. The full detail is on their web site: <http://www.wsscwater.com/info/tips.cfm>

WSSC is a Core Member of MWCOC's Wise Water Use (Conservation) Campaign. The purpose of this campaign is to provide water saving tips to all water users within the metropolitan region. More information can be found at: http://www.mwcog.org/environment/water/watersupply/core_campaign_partners.asp

WSSC participates in the Chesapeake Water Environment Association (CWEA) Water Reuse Committee to assist with the development of new water reuse regulations—and WSSC was assigned to work with the Maryland Department of the Environment (MDE) on this effort. MDE has a phased approach for implementing new water reuse regulations. Phase 1 was a slight modification to the existing land treatment guidelines to create a new Class III effluent (high quality WWTP effluent) for unrestricted public access reuse (to water highway strips, public golf courses, school fields, etc., in addition to farmlands).

Phase 2 focuses on other uses—commercial, industrial, watering residential lawns, toilet flushing, etc—but the key will be to prevent cross-contamination, so new regulations are expected to prohibit water connections within private residences (so homeowners can't inadvertently tie the potable water lines to the non-potable pipe lines.) WSSC is using the new Virginia water reuse regulations as a baseline, and has begun reviewing and modifying them. A working draft for peer review is expected in early 2010. WSSC's chief plumbing inspector is also participating on the MDE committee—to ensure that adequate cross-connection prevention and other offset requirements are met.

The County's relative abundance of surface water supplies and the low densities in the areas that use well water has, so far, limited the need for water reuse. As climate change continues, this situation may change. Some types of water reuse considered viable elsewhere, such as agricultural application or power plant cooling, are not practicable in Montgomery County due to distribution problems (potential reuse areas are at higher elevations). In homes, current plumbing codes do not allow the use of greywater (water that has been used previously for washing) for flushing toilets or irrigation due to health concerns. The Water and Sewer Plan is the proper context for more detailed consideration of this issue.

The County has received requests for information on using roof runoff in the home, which does not involve the same level of health concerns as greywater. Further consideration of this option could be a potential first step in addressing the issue of water reuse in homes.

Regional Forecasts

ICPRB Water Supply Reliability Forecast

Every five years the ICPRB updates a twenty-year Water Supply Reliability Forecast for the Washington metropolitan area. It is used by WSSC to plan water and sewer infrastructure capacity. The 2005 forecast determined that the water supply system is highly reliable and will be adequate to meet growing demand through the next 20 years. The forecast will be updated in 2010 to extend to 2030.

Climate Change

The ICPRB Water Supply Reliability Forecast addresses water resources in the Potomac River basin under climate uncertainty using climate change and flow trend data. It recognizes the high degree of uncertainty associated with climate change research, noting the need for more focused study that includes an assessment of extreme conditions. The Forecast notes that additional study can clarify the potential impact of climate change on extreme hydrologic events such as drought. Under most scenarios examined, existing resources are sufficient for

projected population growth to 2030, but studies recommend considering the need to plan for mitigating potential climate impacts.

The Water Supply Reliability Forecast is available online at <http://www.potomacriver.org>

For information on water supply systems, see Appendix C, and Chapter 3 of the *10-Year Comprehensive Water Supply and Sewerage Systems Plan*.

Findings

The County has a strong water and sewer policy and program structure. The comprehensive interagency water and sewer planning process summarized above and in detail in the Water and Sewer Plan is designed to ensure that water supply is adequate for existing and future growth. WSSC periodically assesses water supply projections and demand based on planned growth to ensure this adequacy. The adequacy of the County's water supply is also discussed and documented in the Water and Sewer Plan.

Although comprehensive planning by DEP and WSSC has ensured the adequacy of water supplies to accommodate projected growth to 2030, there are still issues and challenges.

With only four percent of the County left for new development, and most of that in environmentally sensitive areas, accommodating future growth through redevelopment of existing built areas presents excellent opportunities for improving and funding water supply infrastructure. This approach also provides opportunities to grow even smarter and greener, in accordance with the State's Planning Visions Act of 2009. Recent master plan revisions have focused on redevelopment, and M-NCPPC is coordinating closely with DEP and WSSC to ensure that the plans' proposed zoning and densities can be accommodated by water supply infrastructure. Close coordination among the various agencies will continue to be a critical component of future planning, especially beyond 2030, to continue to ensure water supply adequacy.

Continuing to protect the Agricultural Reserve will also be important in limiting sprawl and protecting surface and groundwater sources. Continuing and evaluating existing programs and efforts to protect source waters, provide for life-cycle replacement and maintenance of water infrastructure, and protection of groundwater resources will also be important.

The following will continue to be important:

- close coordination of water and sewer planning with the County's land use plan and Growth Policy as the County continues to grow
- effective public outreach on water resources, conservation, and reuse

Appendices C and E contain technical summaries from the Water and Sewer Plan and WSSC projections, respectively, regarding projected water demand in light of planned growth compared with water supply capacity. The projections indicate that water supply is adequate for existing needs and will be adequate at least to the WRE planning horizon of 2030. (See Chapter 3 of the *10-Year Comprehensive Water Supply and Sewerage Systems Plan*.)

Wastewater

Both the Water and Sewer Plan and WSSC planning and program efforts address wastewater conveyance and treatment needs by developing estimates for existing and future demand, and by providing the wastewater capacity, maintenance, and replacements needed to meet those demands.

Treatment Systems

Wastewater Treatment Plants (WWTPs)

WSSC operates three wastewater treatment plants (WWTPs) in Montgomery County: the Seneca, Damascus, and Hyattstown WWTPs. But most of the County's sewage is treated at the Blue Plains WWTP, operated by the District of Columbia Water and Sewer Authority. The Town of Poolesville operates its own WWTP. In addition, there are a number of small privately operated WWTPs in Montgomery County.

National Pollutant Discharge Elimination System (NPDES) Permits

All wastewater treatment plants are required to have State-issued NPDES Permits that regulate what can be discharged to streams. The permits specify discharge limitations for each pollutant and specify reporting requirements.

Biological Nutrient Reduction (BNR) and Enhanced Nutrient Reduction (ENR)

WSSC uses BNR—a standard treatment using bacteria to reduce nutrients discharged from sewage treatment plants—and is planning and installing plant upgrades to ENR status, which will lower nutrients as much as the current technology will allow.

ENR upgrades are in various stages of design, construction, and application. Estimated completion dates are:

- Seneca WWTP operational 2013
- Damascus WWTP operational 2010
- Hyattstown WWTP below the ENR flow threshold
- Blue Plains WWTP operational 2017
- Poolesville WWTP operational 2010

Onsite Wastewater Treatment Systems

The more rural, less-densely populated parts of the County depend primarily on septic systems that discharge effluent to the ground. The areas dependent on septic systems generally coincide with the County's well service areas. Although most septic systems are located in areas not served by the community sewerage systems, as with wells, older septic systems are found throughout the County, including areas served by community systems. Some larger individual sewerage systems are referred to as "multi-use systems."

DPS's Well and Septic Section administers and enforces County and State laws governing on-site, individual sewerage systems. Based on information collected by DPS, problem areas are reported in the Water and Sewer Plan. The Water and Sewer Plan will continue to be the County's planning mechanism for identifying and addressing septic issues. (See Appendix D and Chapter 4 of the *10-Year Comprehensive Water Supply and Sewerage Systems Plan*)

Chesapeake Bay Restoration Fund for Septic Upgrades

Part of the State's Bay Restoration Fund is based on a fee assessed to each home served by an onsite wastewater system, and a portion of those fees is used for septic system upgrades. DPS has been actively working with septic system owners to utilize these funds for upgrading septic systems. DPS has applied to the State to assume responsibility for administering the Bay Restoration Fund monies for qualifying onsite systems in Montgomery County.

For information on wastewater systems, see Appendix D, and Chapter 4 of the *10-Year Comprehensive Water Supply and Sewerage Systems Plan*.

Findings

The comprehensive interagency water and sewer planning process summarized above and in detail in the Water and Sewer Plan is designed to ensure that wastewater treatment capacity is adequate for existing and future growth. WSSC periodically assesses water supply projections and demand based on planned growth to ensure this adequacy. The adequacy of the County's wastewater treatment is also discussed and documented in the Water and Sewer Plan.

Projections indicate that sewage treatment capacity is adequate for existing needs and at least to the planning horizon of 2030, including a six million gallon per day expansion to the Seneca WWTP that is currently underway. Appendices E and F of this Functional Plan contain summary graphics and tables regarding projected sewerage system needs in light of planned growth compared with sewage treatment capacity. Additional information regarding WWTP capacities in light of future growth may be found in Appendix D of this Functional Plan and in Chapter 4 of the *10-Year Comprehensive Water Supply and Sewerage Systems Plan*.

Although comprehensive planning by DEP and WSSC has ensured the adequacy of wastewater treatment capacity to accommodate projected growth to 2030, there are still issues and challenges.

With only four percent of the County left for new development, and most of that in environmentally sensitive areas, accommodating future growth through redevelopment of existing built areas presents excellent opportunities for improving and funding wastewater infrastructure. This approach also provides opportunities to grow even smarter and greener, in accordance with the State's Planning Visions Act of 2009. Recent master plan revisions have focused on redevelopment, and M-NCPPC is coordinating closely with DEP and WSSC to ensure that the plans' proposed zoning and densities can be accommodated by sewer infrastructure. Close coordination among the various agencies will continue to be a critical component of future planning, especially beyond 2030, to continue to ensure wastewater adequacy.

Continuing to protect the Agricultural Reserve will also be important in limiting sprawl and the expansion of wastewater infrastructure and sewage loads to WWTPs. Continuing and evaluating existing programs and efforts to provide for life-cycle replacement and maintenance of wastewater infrastructure and reductions of nutrient inputs from septic systems and wastewater infrastructure will also be important.

The following will continue to be important:

- close coordination of water and sewer planning with the County's land use plan and Growth Policy as the County continues to grow
- effective public outreach on wastewater and sewage system issues
- reducing nutrient loadings from wastewater treatment plants
- reducing water pollution from water and wastewater infrastructure
- reducing nitrogen from septic systems

Appendices D and F contain technical summaries regarding projected sewerage system needs in light of planned growth compared with sewage treatment capacity. The projections indicate that sewage treatment capacity is adequate for existing needs and at least to the planning horizon of 2030, including a six million gallon per day expansion to the Seneca WWTP that is currently underway. (See Chapter 4 of the *10-Year Comprehensive Water Supply and Sewerage Systems Plan*.)

Stormwater and Water Quality

Stormwater runoff generates additional flow and carries pollutants to receiving water bodies. Because of the close connection between stormwater and water quality, stormwater management is a vital component of protecting and improving water quality. Stormwater management is a constantly evolving field that has in recent years seen significant advancements in Best Management Practices (BMPs), both structural and non-structural, including Environmental Site Design (ESD) practices.

Both the Water and Sewer Plan and other planning and program efforts address stormwater and its effect on water quality by addressing sources, treatment techniques, and developing estimates for demand and future efforts. The County has also set up an extensive set of programs and policies to minimize stormwater impacts and the State's legal requirements for nutrient loadings and receiving waters are addressed below.

Sources

The County's storm drain system collects and discharges stormwater runoff in most developed areas. This system is considered as a pollutant point source under the Clean Water Act and the State TMDL Program. The County has been issued a NPDES permit to operate its storm drain system. This permit is also known as a Municipal Separate Storm Sewer System (MS-4) Permit.

Non-Point Sources

Areas without storm drains are considered non-point sources of pollution, contributing to the total load of pollutants governed under the TMDL program. In Montgomery County, these areas are mostly in the Agricultural Reserve. The non-point source pollutants are included only as part of the overall County TMDL allocation, and are not covered by the County's MS-4 Permit. As a result, there is currently no enforcement to ensure any needed load reductions from non-point sources can be achieved. If a water body remains impaired and there is no enforcement plan to achieve the entire TMDL including non-point sources, then theoretically, no further discharges could be allowed to that water body, including those resulting from land conversion. This scenario highlights the need for an implementation strategy with a clear regulatory framework and designated responsibilities. To ensure that loads are reduced across all contributing sources will require additional guidance from the State to fully address.

Treatment

In 2000, the County adopted the State Stormwater Management Manual as a minimum to guide its stormwater management program. In some instances, however, Montgomery County sets more stringent standards than the State. The County's stormwater management manual details a variety of structural and non-structural practices which are used to control stormwater quantity and quality according to specified standards.

The management of stormwater is regulated through the County's Stormwater Ordinance, which implements the State Manual with additional County requirements. In 2009, the State Stormwater Manual was revised to include requirements for enhanced stormwater management through the use of Environmental Site Design (ESD) techniques. All jurisdictions are required to revise their stormwater ordinances to reflect the new requirements.

Water Quality Monitoring

County Monitoring

The County DEP and the M-NCPPC Department of Parks monitor streams for benthic macro-invertebrates, fish, and habitat. The Department of Parks monitors on parkland and DEP covers the remainder of the County. DEP is the lead agency for County stream monitoring and maintains the County wide monitoring data database. The entire County is covered during a five-year cycle of watershed monitoring.

County monitoring shows that urban and suburban streams are generally in fair to poor condition while less densely developed watersheds often are in good and in some cases excellent condition. This pattern supports the correlation between higher levels of imperviousness and lower water quality, a trend that supports accommodating future growth in existing urban areas near transit as opposed to developing in greenfields, which would increase impervious cover. See Figure__ for the latest map of County stream monitoring results.

State Monitoring

The Maryland Department of the Environment maintains stream monitoring stations in Montgomery as part of a statewide network. Monitoring parameters include chemical, sediment, bacteria, trash, and stream biology, and the data is used to document water quality impairments statewide.

The State also maintains and updates the Integrated Report of Surface Water Quality a list of impaired waters. As required by federal law, the Report describes categories of water quality, and identifies waters with pollutant loads or conditions that require a TMDL limitation to reach the state standards. Waters that do not meet standards may require a state TMDL study to determine the maximum amount of an impairing substance or pollutant that a particular water body can assimilate and still meet water quality criteria. The Report also helps prioritize watersheds that should be restored and those in need of protection.

The State is developing a GIS-based system for mapping and reporting the information in the Integrated Report, projected to be available in 2010. Access to the State's detailed water quality data in GIS format will greatly improve its usefulness in County water quality analyses and planning. (See Figures__ for some key State water monitoring results. See Appendix G for additional State monitoring data.)

The Agricultural Reserve and Nutrients

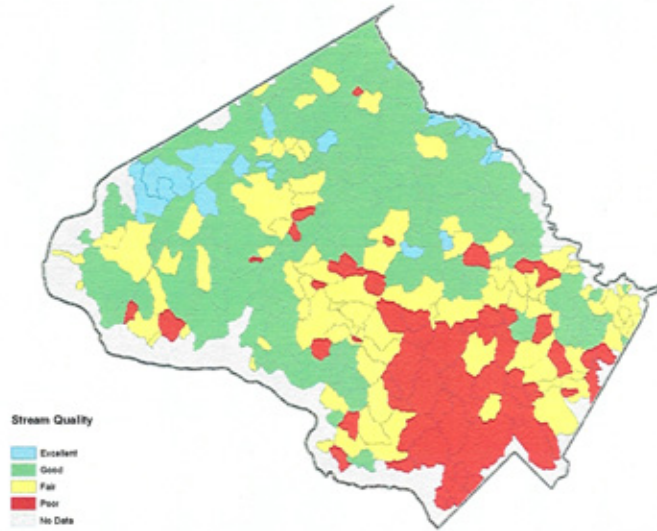
The County's Agricultural Reserve provides many water supply and quality benefits. Agriculture contributes less pollution than many other land uses, including urban land. This reinforces the need to continue to maintain the Reserve and accommodate growth through redevelopment and infill in existing urban areas. It should be noted, however, that agriculture has been identified by the EPA Chesapeake Bay Program as the leading contributor of nutrients to the Bay due to the amount of agricultural land in the Bay's watershed. While nutrients are significant pollutants in the Bay, they do not affect local streams as much and so the Agricultural Reserve's streams have relatively high overall water quality conditions.

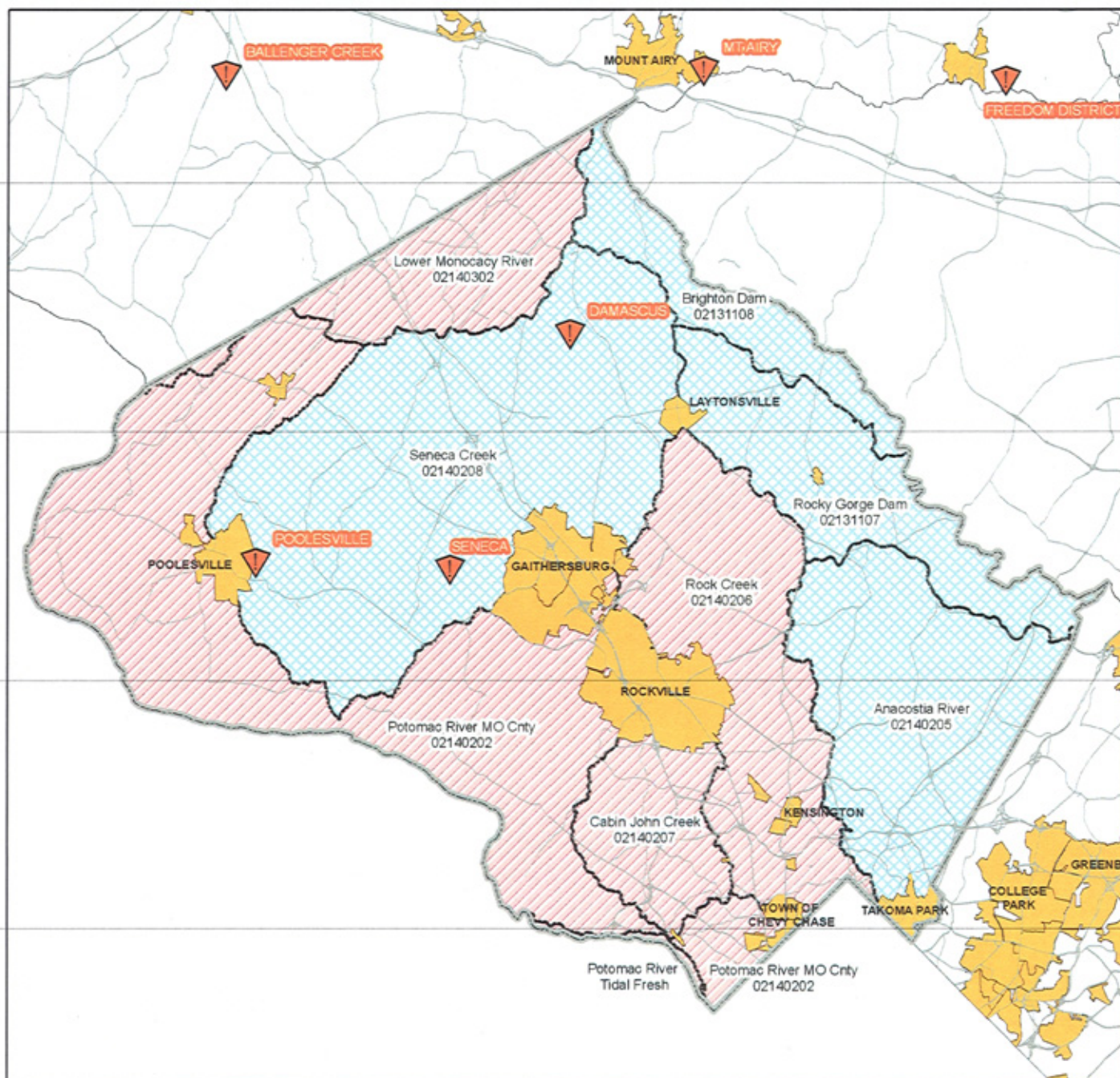
Although the benefits provided by the Agricultural Reserve generally outweigh its pollutant contributions (which have already been reduced through a series of regulations and conservation practices), the role of nutrients in the Bay and the pending Bay nutrient TMDLs, may require additional measures to further reduce nutrients in all sectors of the County, including the Agricultural Reserve.

Regulatory Framework

Many government agencies at the State, Regional, Bi-County, and County levels have responsibilities regarding water quality and stormwater management. Each agency has its own focus and jurisdiction under various laws and charters. This wide distribution of responsibilities at different levels creates a challenge in dealing with increasingly complex water resource issues and regulations. But with continued and enhanced efforts to

Stream Water Quality - 2007











Nutrient Impairments and TMDLs Montgomery County, Maryland

The impaired 8-digit watersheds and tidal segment shown here are based on the 2008 Integrated Report (combined 303(d) List and 305b Report) and may not reflect the exact area of impairment within that watershed. Please note that due to the size of the segment Potomac River Tidal Fresh within Montgomery County, it is difficult to distinguish its listing status. Please refer to the attached list for details. For current details regarding the IR please contact Matt Rowe @ 410-537-3578 or mrowe@mde.state.md.us. For current details regarding the TMDL Status, please contact Melissa Chatham @ 410-537-3937 or mchatham@mde.state.md.us.

Legend

Water Quality Status Impairment - Nutrients

-  Impaired
-  Impaired w/ TMDL Completed
-  Major WWTPs
-  Montgomery County
-  Municipalities
-  Major Roads



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Robert Summers, Deputy Secretary

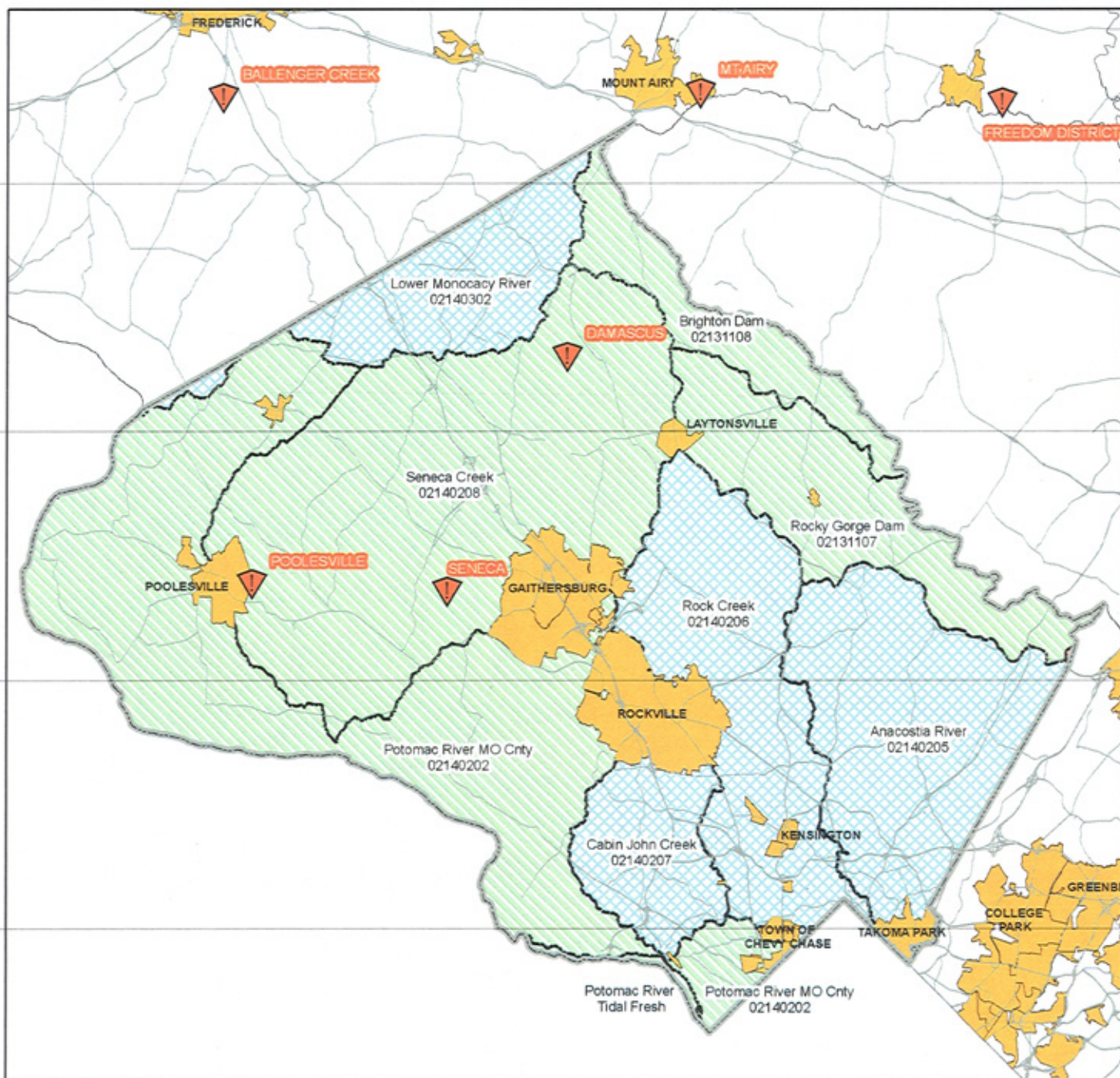
Data Sources: MDE - Impaired Watersheds
Major WWTPs
MDP - County Boundaries
SHA - Municipal Boundaries
Roads

5 2.5 0 5 10 Kilometers

2 1 0 2 4 6 8 10 Miles



Map Date - 7 July 2009 Rev. 2



Bacteria Impairments and TMDLs Montgomery County, Maryland

The impaired 8-digit watersheds and tidal segment shown here are based on the 2008 Integrated Report (combined 303(d) List and 305b Report) and may not reflect the exact area of impairment within that watershed. Please note that due to the size of the segment Potomac River Tidal Fresh within Montgomery County, it is difficult to distinguish its listing status. Please refer to the attached list for details. For current details regarding the IR please contact Matt Rowe @ 410-537-3578 or mrowe@mde.state.md.us. For current details regarding the TMDL Status, please contact Melissa Chatham @ 410-537-3937 or mchatham@mde.state.md.us.

Legend

Water Quality Status

Impairment - Bacteria

- Impaired
- Impaired w/ TMDL Completed
- Not Impaired

- Major WWTPs
- Montgomery County
- Municipalities
- Major Roads



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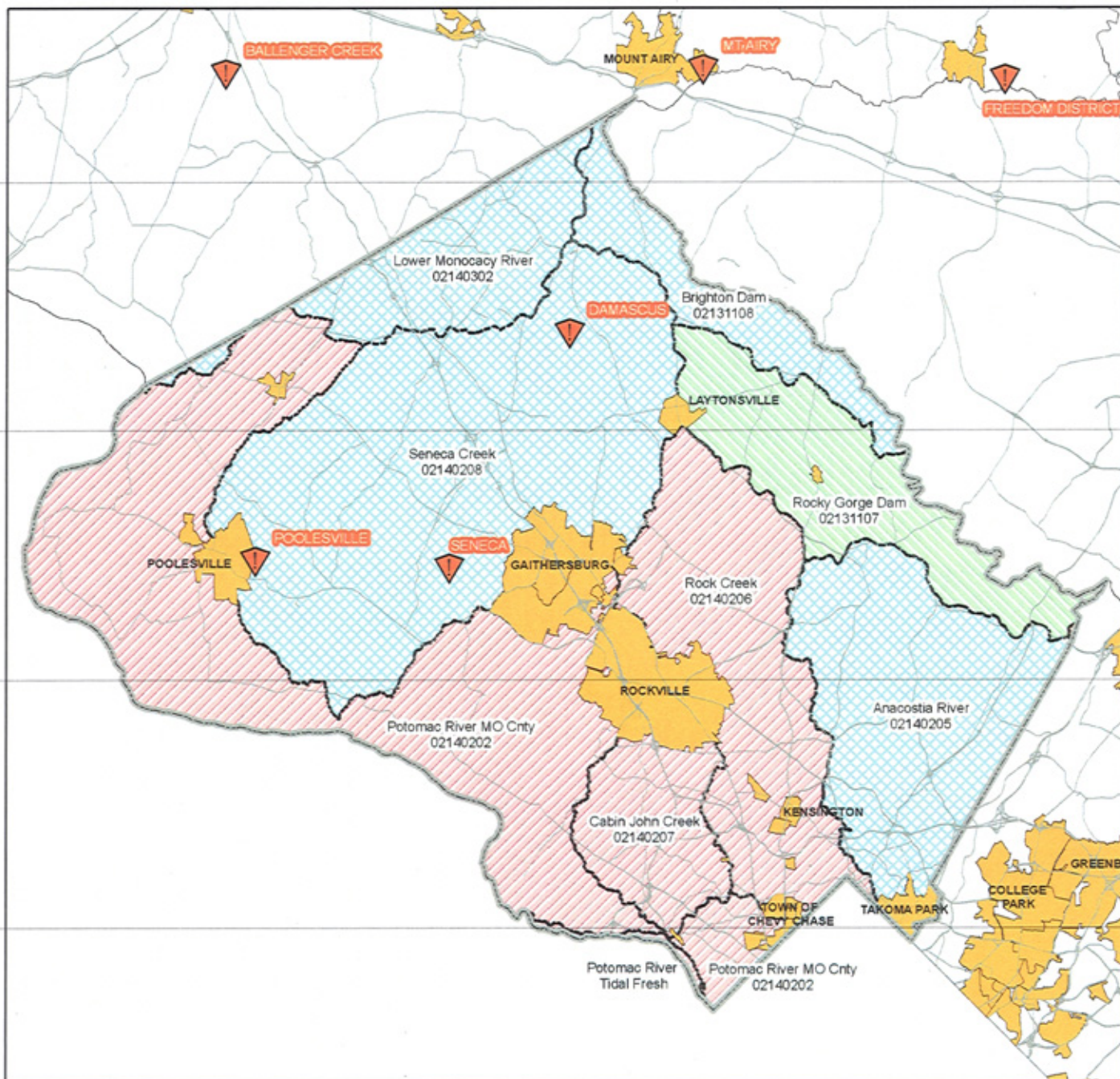
5 2.5 0 5 10 Kilometers

2 1 0 2 4 6 8 10 Miles



Data Sources: MDE - Impaired Watersheds
Major WWTPs
MDP - County Boundaries
SHA - Municipal Boundaries
Roads

Map Date - 7 July 2009 Rev. 2



Sediment Impairments and TMDLs Montgomery County, Maryland

The impaired 8-digit watersheds and tidal segment shown here are based on the 2008 Integrated Report (combined 303(d) List and 305b Report) and may not reflect the exact area of impairment within that watershed. Please note that due to the size of the segment Potomac River Tidal Fresh within Montgomery County, it is difficult to distinguish its listing status. Please refer to the attached list for details. For current details regarding the IR please contact Matt Rowe @ 410-537-3578 or mrowe@mde.state.md.us. For current details regarding the TMDL Status, please contact Melissa Chatham @ 410-537-3937 or mchatham@mde.state.md.us.

Legend

Water Quality Status

Impairment - Sediments

- Impaired
- Impaired w/ TMDL Completed
- Not Impaired

- Major WWTPs
- Montgomery County
- Municipalities
- Major Roads



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Data Sources: MDE - Impaired Watersheds
Major WWTPs
MDP - County Boundaries
SHA - Municipal Boundaries
Roads

5 2.5 0 5 10 Kilometers

2 1 0 2 4 6 8 10 Miles



Map Date - 7 July 2009 Rev. 2

coordinate and collaborate more effectively, progress can continue to be made in identifying and implementing solutions. (Figure__.)

State Water Quality Policies and Regulations

The State, through water quality standards and regulations, stormwater management regulations, and the National Pollution Discharge Elimination System (NPDES) Permits for point sources sets the regulatory requirements and standards that Montgomery County must meet to comply with State requirements.

Water Quality Standards

State and federal laws set annual or seasonal standards with quantifiable criteria to protect a water body, depending on its designated use. MDE uses these standards to ensure that water resources are useable for drinking water, swimming, fishing, industry, and agriculture. The standards are also used by permitting agencies to regulate discharges into water bodies.

The Clean Water Act requires local water quality standards to have three components:

- goals for each water body based on designated uses
- criteria to protect the designated uses
- an anti-degradation policy that maintains high quality waters.

These standards are the key criteria in determining whether a given water body is impaired.

Total Maximum Daily Loads (TMDLs)

A TMDL establishes the amount of pollution, plus a margin of safety, that a water body can assimilate and still meet water quality standards. All waters identified in Maryland's Integrated 303(d) List as needing a TMDL are studied by the State before a load limit is imposed. If a TMDL is imposed, responsible parties determine where pollutant reductions will be made.

When water quality monitoring data suggest that a listed impaired water body meets water quality standards, it can be removed from the list. Maryland is also pursuing alternative approaches to TMDLs that result in more rapid implementation measures to address water body impairments.

Figures__ show County watersheds that have received TMDLs

Through this process, it will be determined if County water bodies have sufficient capacity to assimilate the pollutants discharged to them.

Anti-degradation Policy and Tier II Water Listings

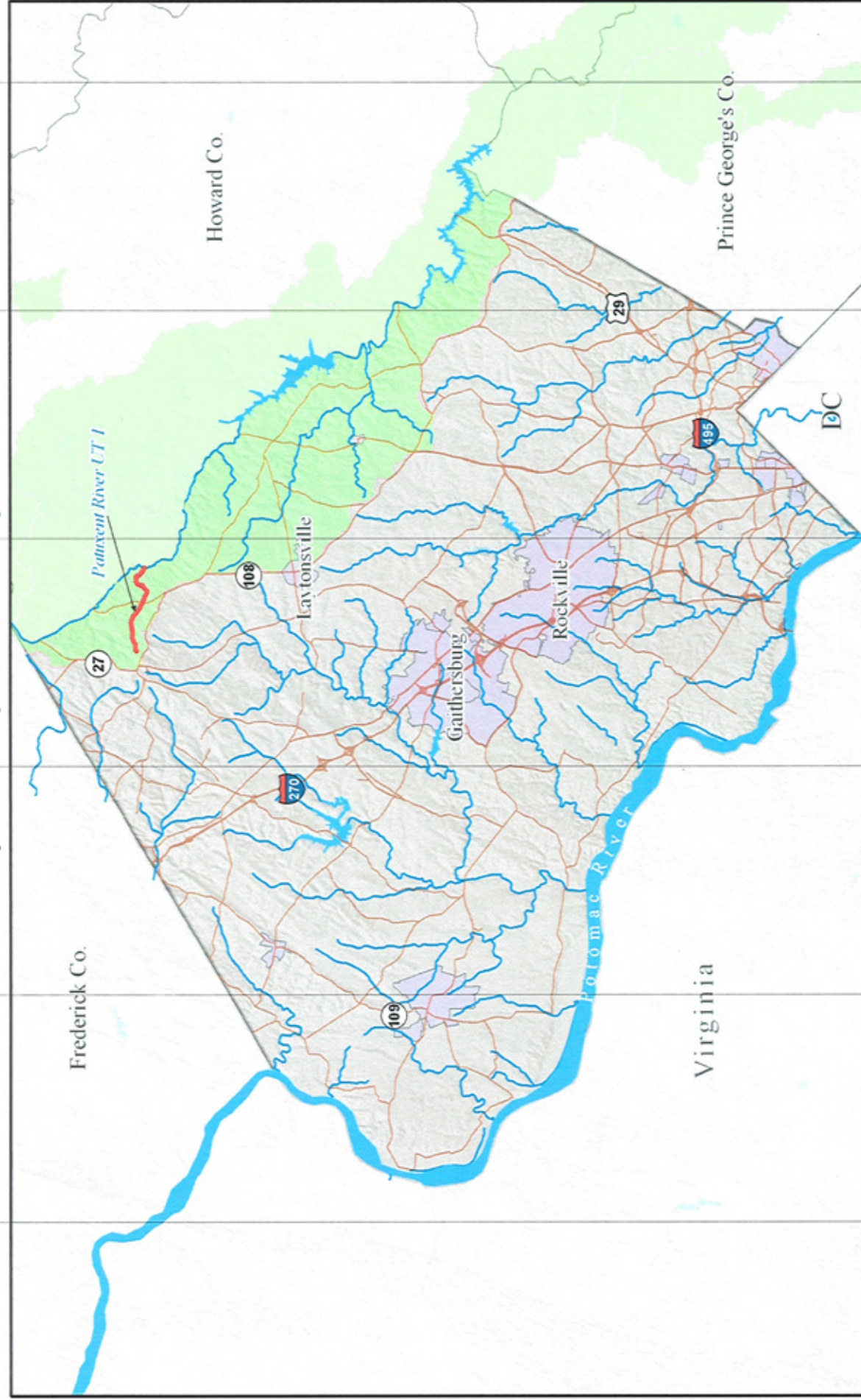
Under the State's anti-degradation policy, waters are classified in three tiers based on designated uses and criteria. Tier I waters are those that are required, at a minimum, to meet their designated use criteria.

Maryland's anti-degradation policy designates high quality waters that are at risk of degradation as Tier II waters. Any future growth or development in watersheds that contain Tier II waters will need to be planned and managed so as not to degrade the water resource to minimum conditions. For example, when preparing a master plan amendment for Damascus, the land area draining to a headwater stream of the Patuxent (designated by the state as Tier II waters) was rezoned to provide greater protection. See Figure__ for a map showing the current Tier II waters in the County.

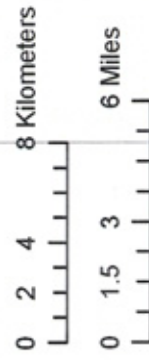
Water bodies of the highest quality are designated as Tier III (Outstanding National Resource Waters). No Tier III waters have been designated in Montgomery County at this time.

High Quality (Tier II) Waters in Montgomery County

[Code of MD Regulations 26.08.02.04-1]



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- Tier II Waters
- Major Roads
- Streams/Rivers
- Tier II Watersheds
- Municipal Boundary
- Montgomery County



Maryland Department of the Environment
Science Services Administration
Montgomery Park Business Center
1800 Washington Boulevard
Baltimore, Maryland 21200-1718
Date Map Prepared: May 2009

Stormwater Management Act of 2007

This State law requires local jurisdictions to implement Environmental Site Design (ESD) to the Maximum Extent Practicable (MEP). In support of this law the State has revised its Stormwater Management Manual. To comply with the law, jurisdictions are required to amend their stormwater ordinances to reflect the new State regulations, and to show how ESD will be implemented. The law also requires local ordinances to be reviewed and modified to remove impediments and facilitate ESD implementation. The County is committed to full compliance with the Stormwater Management Act.

County Water Quality Policies and Regulations

County stormwater policies and regulations are directed by State and federal requirements, and are undertaken cooperatively by DPS, DEP, DOT, DED, and M-NCPPC.

Code Revisions

Stormwater Ordinance Revisions

As the lead Montgomery County agency for stormwater management, the Department of Permitting Services is coordinating the revisions to the County Stormwater Ordinance to address the new State stormwater regulations. The new County regulations are due by May 2010.

Zoning Code Rewrite

The comprehensive revision of the County's Zoning Code will reorganize, revise, and simplify the Code. This work is being coordinated with the revisions to the County's Stormwater Ordinance, and will remove impediments to implementing ESD. Information on the Zoning Code Rewrite is available online at: montgomeryplanning.org

Road Code Revisions

The County Road Code was revised in 2008 to address a number of issues including the stormwater management in road right-of-ways, street trees, and runoff criteria. To comply with the Stormwater Management Act of 2007, the Road Code will be examined for consistency with new State ESD regulations.

MS-4 Permit

In 1990, the EPA established the Municipal Separate Storm Sewer System (MS-4) permit program to specifically control urban stormwater. These permits are part of the National Pollutant Discharge Elimination System (NPDES) established under the federal Clean Water Act of 1972.

The Maryland Department of the Environment (MDE) is responsible for issuing NPDES permits with the goal of eliminating non-stormwater pollutant discharges and reducing pollutants from the storm drain system to the "maximum extent practicable." Montgomery County's first permit was issued in April 1996 and requires compliance in seven areas: legal authority, source identification, discharge characterization, management programs, program funding, assessment of controls, and annual reporting on compliance status.

MDE has published a Final Determination for the County's current MS-4 permit, to be issued by the end of 2009. It will be more stringent, including the requirement to develop implementation plans to achieve the assigned MS-4 Permit waste load (i.e. point source) allocation for all EPA-approved TMDLs.

The permit will also require the County to manage runoff from an additional twenty percent of the County's impervious surface area not currently treated to the maximum extent practicable. Management techniques must include ESD practices as well as more conventional stormwater retrofits and stream restoration.

Meeting these requirements will be a technical and economic challenge and will be the focus of County agency watershed management and restoration. DEP will continue to be the lead agency for those affected by the permit including DPS, the Department of General Services (DGS), DOT, and Montgomery County Public Schools (MCPS). DEP will also be the lead agency for coordinating with other local agencies and municipalities with water resource responsibilities.

Environmental Guidelines

State law requires all local governments to protect sensitive areas during the development process. The Planning Board's Environmental Guidelines cover the protection of streams and their buffers, wetlands, steep slopes, floodplains, and rare, threatened and endangered species.

The Guidelines are coordinated with State and County programs and laws to protect and conserve sensitive environmental resources, including forest conservation legislation. They also implement strategies for non-point source pollution reduction, relying on appropriate land use design, stream buffer protection, and Best Management Practices.

The Clean Water Task Force

In 2006, the County Executive and County Council established the Clean Water Task Force to evaluate existing interagency coordination for water resources protection programs, and to examine in detail agency responsibilities for stormwater management and water resources protection.

Task Force members included the directors and high-level administrators from the Department of Environmental Protection, Department of Permitting Services, Department of Transportation, Montgomery County Public Schools, Maryland-National Capital Park and Planning Commission, and the Washington Suburban Sanitary Commission.

In 2007, Task Force members identified a number of high priority recommendations, including creating a Water Resources Protection Policy Committee to improve stormwater management approaches, encourage innovation, and integrate natural drainage and volume reduction design approaches into existing processes.

Some of the Task Force's recommendations are being implemented. Since the Task Force report, significant regulatory changes have occurred in stormwater management and water quality. To continue meeting standards, the recommendations should be revisited, particularly the recommendation to form a Water Resources Protection Policy Committee.

Special Protection Areas

The County has identified Special Protection Areas (SPAs) where existing water resources or other high quality and unusually sensitive environmental features and where proposed land uses would threaten their quality. The County's four SPAs are Upper Rock Creek, Upper Paint Branch, Piney Branch, and Clarksburg.

In SPAs, land use controls and management techniques help ensure that impacts from master planned development activities are mitigated to the maximum extent practicable. Examples of these controls include limiting imperviousness, planting forest buffers before construction, and additional protection of natural features as part of land development projects. Special engineered water quality protection measures include enhanced sediment and erosion control and redundant stormwater management structures that go beyond minimum standards.

Performance goals guide design and monitoring for each development project. DEP also performs watershed wide biological and water quality monitoring to study the overall effects of development on the watershed. The

monitoring data is used to evaluate the design and function of SPA Best Management Practices, link their performance to changing stream conditions, and guide future planning decisions.

Patuxent Primary Management Area

The 1984 *Patuxent River Policy Plan*, adopted by the Maryland General Assembly and the seven Patuxent watershed counties, was prepared by the Maryland Office of State Planning to direct local and State agencies in carrying out programs and regulatory decisions in the Patuxent River Watershed. It recommends that local governments enact a Primary Management Area, establishing a wide buffer around reservoirs and streams.

Montgomery County *Functional Master Plan for the Patuxent River Watershed* focuses on protecting stream systems and the two drinking water reservoirs, and reducing water quality impacts on downstream counties and the Chesapeake Bay. The Plan established the Patuxent River Watershed Primary Management Area where stream buffers are protected, development densities are limited, and extra Best Management Practices are used to control runoff from developing land and agriculture. These requirements are also incorporated in the Environmental Guidelines.

County Climate Protection Plan

In January 2009, the Montgomery County Sustainability Working Group (SWG) presented the County's first Climate Protection Plan to the County Executive and the County Council. The Plan starts the County along the path of reducing greenhouse gas emissions by 80 percent by 2050. Its 58 recommendations cover seven areas: renewable energy; residential building energy efficiency; commercial, multifamily and public building energy efficiency; transportation; forestry and agriculture; long-term planning; and education and outreach. A number of the recommendations will provide environmental benefits that overlap with water resources issues. These recommendations should be identified for priority implementation to achieve multiple environmental benefits.

Healthy and Sustainable Communities Project

Following the County Council's direction in the 2007 Growth Policy, Planning staff delivered an initial set of potential Healthy and Sustainable Communities policy goals and indicators, or ways to measure progress. These goals and indicators will help policymakers and community members judge how their policies, programs, and actions contribute to achieving goals such as clean air and water.

The Framework for Action [PDF] report, drafted with the County Department of Environmental Protection, evolved from public input gathered at a Healthy and Sustainable Communities workshop in 2007. The report's six goals and its indicators will help measure the County's collective efforts toward reaching those goals. This project is viewed as a starting point and will continue coordinated work with the County Executive to create more indicators to measure our mutual goals for housing, transportation, public safety, education, environment, and others.

Water Quality Analysis

Nutrient Loadings

As part of HB1141, the State requires a nutrient loading analysis for existing and 2030 land cover to estimate the amount of nutrients contributed by land uses in each watershed. In addition to the projected 2030 land cover under current growth plans, the State asked for an alternative 2030 land cover scenario.

Land Cover Data

The State's land cover data was updated and expanded with major roads, wetland areas, and mixed land use areas. Because the spreadsheet model provided by the State does not include loading factors for mixed uses, they were aggregated with other land cover types with comparable density already in the spreadsheet.

Scenario 1 was based on the County Growth Policy in conjunction with demographic and employment projections for 2030, building out greenfield areas projected to be developed by that time. Figure__ shows the Growth Map used to develop Scenario 1.

Scenario 2 is similar to Scenario 1, but with fewer of the remaining parcels in greenfield areas developed by 2030.

Nutrient Loading Results

The nutrient modeling results indicate only minor changes in nutrient loading between existing land cover and both 2030 scenarios, and even less difference between the two future scenarios (see Figures __). These results are not unexpected because there is little vacant land left in the County, and therefore no significant land conversion scenario options remain.

Accordingly, land use and development patterns will not significantly influence water quality. Strategies such as Environmental Site Design on redeveloped and infill properties, retrofitting older development, and stream restoration will be necessary to protect and improve water quality. Measuring the benefits of these strategies will require modeling on a finer subwatershed scale, which can also account for the effects of various management practices. This type of more detailed modeling will also be useful in implementing the new MS-4 Permit and non-point TMDL strategies.

(See Appendix H.)

Receiving Waters

Water bodies are suitable to receive discharges if they can assimilate pollutant loads and still meet State standards. This concept underlies the Total Maximum Daily Load program, which establishes the amount of pollutants that can be delivered to a water body from all sources without violating water quality standards. In establishing TMDLs, the Maryland Department of the Environment allocates specific pollutant loads to each permitted point source (wastewater treatment plant, industry, etc.). The remaining allowable load is allocated as non-point sources to that water body.

The State's TMDL program is supported by watershed-based water quality modeling that provides management targets. However, given the inherent uncertainty in watershed modeling, an adaptive management strategy and subsequent monitoring will be required to determine if a TMDL will be sufficient to meet water quality standards. Under an adaptive management strategy, management techniques are put in place, the results monitored, and the techniques are changed based on the monitoring results. For example, if monitoring shows that standards are not met, then more stringent stormwater management might be required. As a result, the ultimate suitability of receiving waters for discharges cannot be determined with any certainty in advance of implementing management strategies, but will be addressed as part of the overall TMDL implementation process. This is an issue that will require additional thought and coordination with the State as the County moves forward with MS-4 Permit implementation.

Through the MS-4 Permit, the County will be required to develop implementation plans to achieve the stormwater portion of point-source load allocations in those water bodies which have EPA-approved TMDLs. These implementation plans must address runoff from existing developed land and must be developed within one year

Growth Map

DRAFT

Growth Areas:

- Emerging District
- Greenfield / Brownfield
- Reinvestment Areas
- Other
- Metro 1/2 mile Buffer
- Colleges / Universities
- All Existing and Proposed Parkland (65,094 Acres)
- Agricultural Reserve
- Nonincorporated Zoning Authority (17,500 Acres)
- InterCounty Connector
- Metro Stations
- SABC Stations
- Corridor Cities Transitway (CCT)
- Purple Line Route and Station Alternatives
- Areas not otherwise identified are Established Neighborhoods



Growing Smarter
sustainable development
design

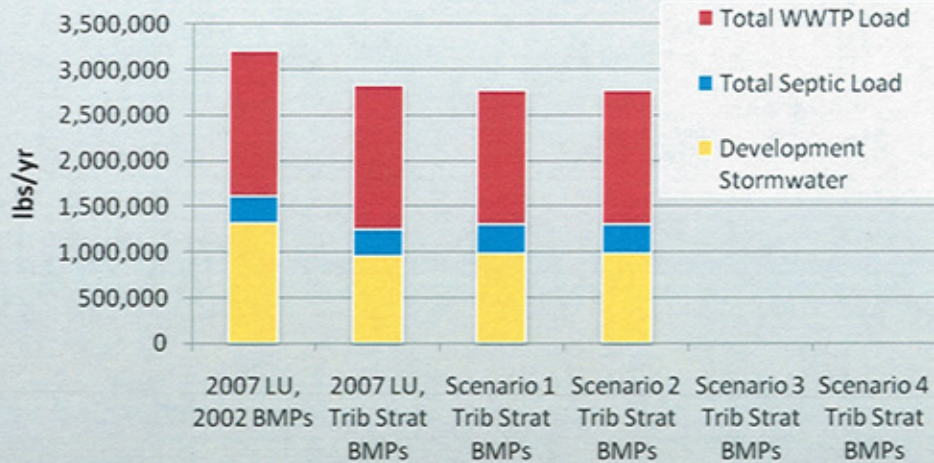


Prepared: Maryland Stateplan, SABC
Map Scale: Feet
Map produced by:
Hampshire County Planning Explorer Team
4 February 2009

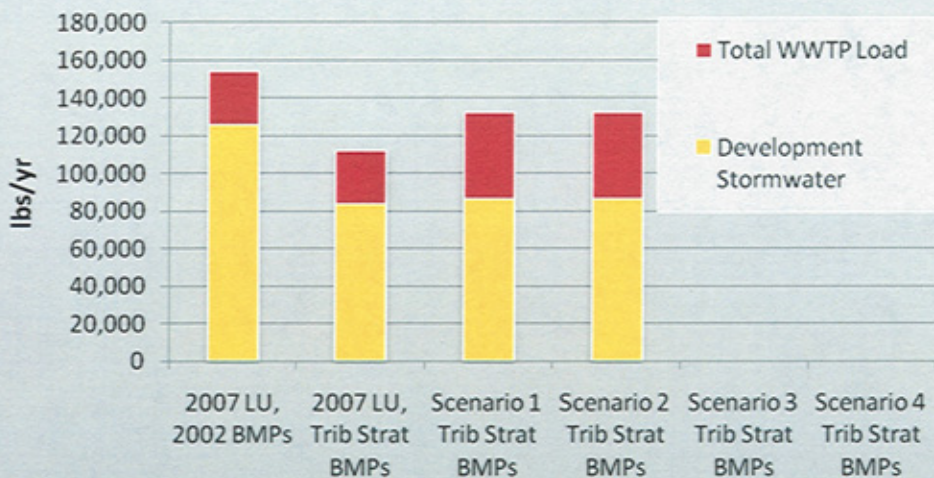


Site #	Name	Category
1	Site 1 / Research	Emerging District
2	White House / Town Center	Emerging District
3	Gathering West	Emerging District
4	Greenfield	Emerging District
5	COMBAT	Greenfield / Brownfield
6	Calvin Branch	Greenfield / Brownfield
7	Longley	Reinvestment Areas
8	Short Spring	Reinvestment Areas
9	Wharfedale	Reinvestment Areas
10	Oliver Town Center	Emerging District
11	Glenmont	Greenfield / Brownfield
12	Rock Property	Greenfield / Brownfield
13	Rock Property	Greenfield / Brownfield
14	Warrensville Town Center	Reinvestment Areas
15	Westfield	Reinvestment Areas
16	Washington	Emerging District
17	Washington Adventist Hospital Redevelopment	Other
18	Shaw	Emerging District
19	Shaw	Emerging District
20	ROST	Other
21	Federal Research Center at White Oak	Emerging District
22	NIH / Naval Medical Research Institute	Other
23	NIH / Naval Medical Research Institute	Other
24	Arden Hill	Emerging District

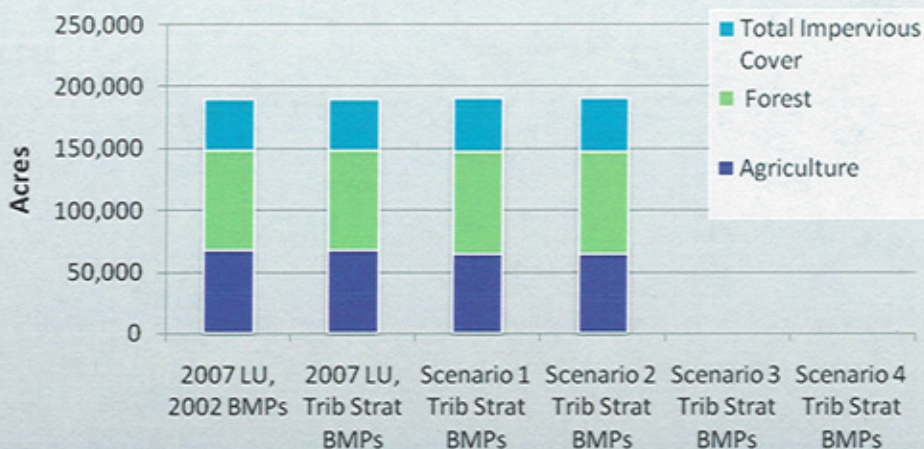
Nitrogen Loading from Development

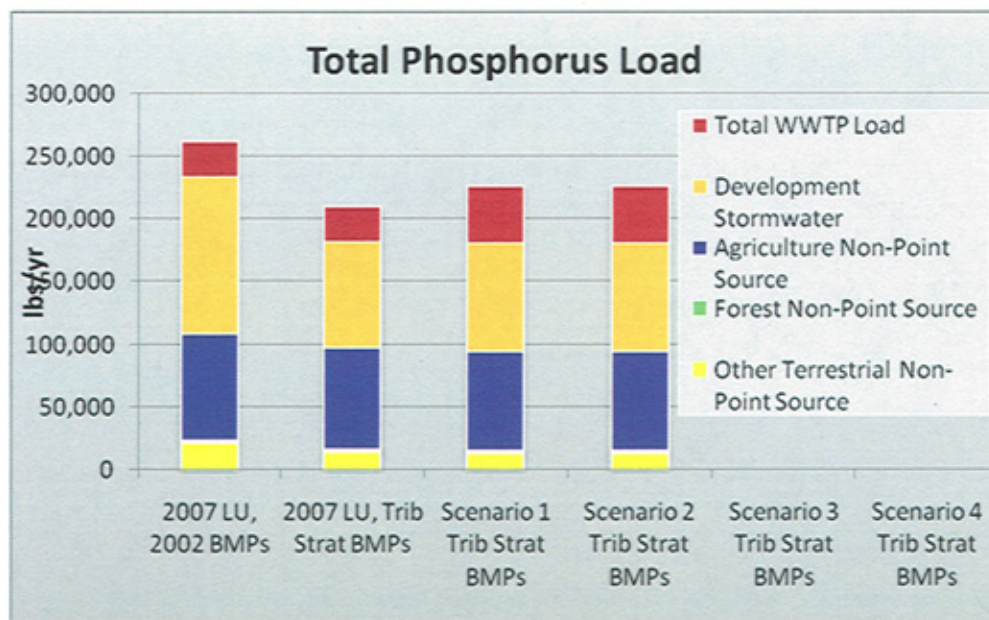
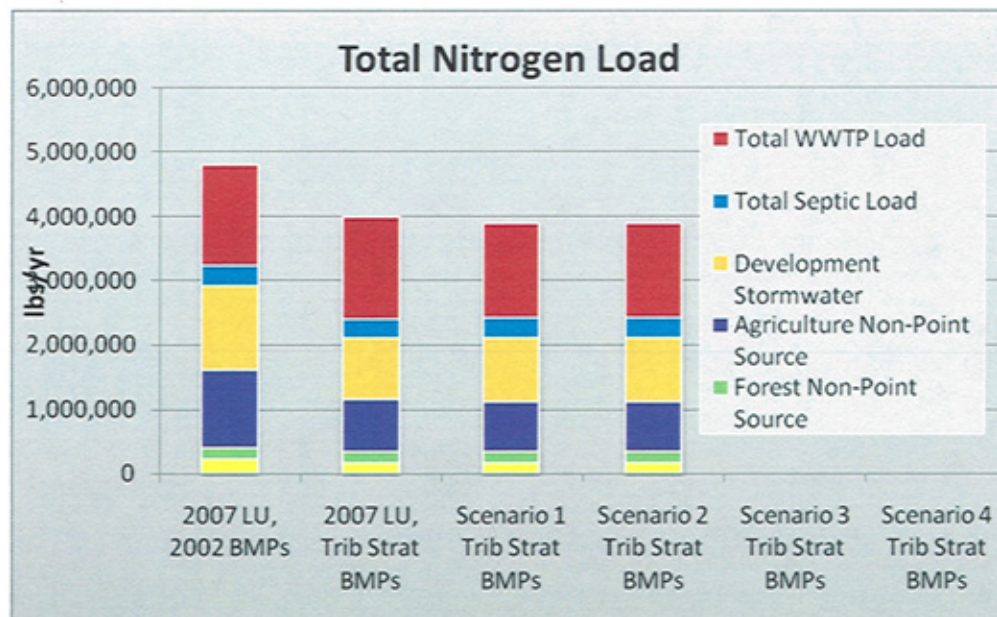


Phosphorus Loading from Development



Open Space & Impervious Cover





after the new Permit is issued, or within one year after subsequent TMDLs are approved by EPA. These watershed-based plans will include:

- specific and general BMP retrofit implementation
- non-structural BMPs (operational)
- acreages treated with BMPs
- estimated pollutant reductions
- estimated costs for installation and maintenance
- timeline for implementation towards meeting the MS4 permit stormwater allocations.

There are currently no regulatory requirements for TMDL implementation plans in the County other than through the MS4 Permit. The County's MS4 Permit does not cover the Cities of Gaithersburg, Rockville, and Takoma Park. It also does not cover Federal and State agencies, including the MNCPPC and WSSC. These jurisdictions and agencies already have or will be issued separate permits.

Although alternative development patterns are usually a consideration, along with stormwater management, in assessing the suitability of receiving waters, this will not be a significant factor in Montgomery County because there is so little vacant land left for development. Thus, the questions will center more on how Environmental Site Design, stormwater retrofits, pollution prevention, and redevelopment can be used to improve water quality over existing conditions and meet standards. For example, accommodating growth through concentrated redevelopment and infill will provide the opportunity to improve water quality, especially in areas built before stormwater management requirements. Because of this, the principal way the County's planned growth in its new Growth Policy can actually help protect and even improve water quality and the suitability of receiving waters to assimilate stormwater discharge.

Montgomery County already has in place two important programs for protecting sensitive watersheds, namely the Special Protection Area (SPA) program and the Patuxent Primary Management Area (PMA). These programs prescribe standards and measures appropriate to resources that merit additional levels of protection. Although these measures predate TMDLs and are therefore not indexed to water quality standards, they are examples of the County's ongoing efforts to implement measures that provide extra protection to sensitive watersheds.

The County's commitment to protecting sensitive and high quality watersheds, MS-4 implementation, ESD implementation, maintaining the Agricultural Reserve, protecting and enhancing natural resources, and accommodating future growth through redevelopment and infill will be instrumental in establishing and maintaining the suitability of receiving waters to receive discharges.

Findings

State and County monitoring data show that water quality is continuing to degrade in many portions of Montgomery County and regionally as growth continues, especially in older developed areas and areas with increasing impervious cover. In response, water quality regulatory requirements are also increasing. As a result, where and how the County grows and how it manages stormwater will be increasingly important in meeting water quality regulations.

New State regulations requiring ESD to the "maximum extent practicable" will help decrease the water quality impacts of growth, and County codes and regulations are being revised to remove impediments.

Because the County is currently near build-out, opportunities to realize significant changes in water quality through land use and alternative development patterns will not be available. For Montgomery County,

addressing water quality issues will center on retrofitting older development, pollution prevention, implementing ESD, and accommodating growth through redevelopment and infill. Designing redevelopment and infill projects in ways that reduce impervious cover such as parking lots, and improving stormwater management will help to improve water quality. With only four percent of the County left for new development, and most of that in environmentally sensitive areas, accommodating future growth through redevelopment of existing built areas presents excellent opportunities for improving stormwater quantity and quality control. This approach also provides opportunities to grow even smarter and greener, in accordance with the State's Planning Visions Act of 2009.

This approach is consistent with the EPA report, *Protecting Water Resources with Higher Density Development*, available online at www.epa.gov/smartgrowth.

Enhancing stewardship of natural areas including resource protection, conservation, enhancement and restoration will also be an important factor in achieving and maintaining water quality standards. Ongoing natural resource mitigation, enhancement, and restoration efforts will need to be prioritized and focused on areas most in need of water quality protection and/or improvement. This can be done by coordinating existing environmental programs and plan implementation with water resource needs as they.

Results of County technical analyses and MS-4 implementation plans, and TMDL implementation plans for non-point sources water quality implementation plans will help guide the implementation and updating of master plans, natural area protection, enhancement and restoration effort, stormwater management, and the development review process.

Other findings include:

- Regulatory requirements for water quality will require more effective stormwater management and environmental site design for new development, redevelopment, infill, and roads, as well as the retrofitting of older development.
- Increased inter-agency cooperation and collaboration will be essential to meet water quality standards and regulatory requirements.
- Use a watershed-based approach to identify and prioritize opportunities for improving and protecting water quality.
- Coordinating water quality improvement efforts with local and regional jurisdictions will be important in addressing TMDLs.

Policies and Recommendations

The following policies and recommendations address the main water resource-related issues addressed above including stormwater and water quality, and water supply and wastewater capacity. A separate section is devoted to land use and growth policy because these are key components in all water resources issues.

Land Use and Growth Policy

Policy 1. Plan future growth to not exceed water supply and wastewater treatment capacity.

Recommendations

- Continue to assure that future development and redevelopment is coordinated with the County's 10-Year Water and Sewer Plan and with WSSC.
- Reassess the Patuxent River Functional Master Plan, and update if needed to respond to and coordinate with the Patuxent Reservoirs Watershed Management Plan and the updated Patuxent River Policy Plan.

Policy 2. Ensure that future growth is consistent with Smart Growth principles.

Recommendations

- Accommodate future growth as much as possible through redevelopment and infill development in existing urban areas within the Priority Funding Areas.
- Continue to support agriculture as the preferred land use in the County's Agricultural Reserve.
- Evaluate the effectiveness of the Building Lot Termination (BLT) Program for limiting non-agricultural development in the Agricultural Reserve.

Policy 3. Plan future growth to minimize impacts to water resources.

Recommendations

- Design and implement redevelopment and infill to maximize water resources improvements over existing conditions.
- Evaluate and recommend new or enhanced incentives for constructing green buildings, green redevelopment, and green retrofitting of existing development to maximize water resource benefits.
- Integrate land use, zoning, redevelopment, and urban design planning and strategies into water resources protection and regulatory compliance programs and plans.
- Use results from approved water quality implementation plans, watershed studies, Special Protection Areas, and State and County water resource monitoring to guide the master plan update process.

Policy 4. Focus natural area protection, conservation, mitigation, enhancement, restoration and management to maximize water resources protection and quality.

Recommendations

- 4.2 Increase forest, wetland, meadow, stream buffer, and urban tree canopy area countywide, especially in watersheds with regulatory limits, water quality impairments, or Tier II designations.
- 4.3 Adopt a Tree Ordinance to increase urban tree canopy.
- 4.4 Revise the Forest Conservation Laws and Regulations and Trees Technical Manual as needed to increase the speed and success of reforestation efforts.
- 4.5 Continue to support natural land preservation and easement programs and activities, especially in watersheds with known water quality impairments.
- 4.6 Coordinate park planning and development with countywide efforts to address water quality regulatory requirements.
- 4.7 Develop and implement natural resource management plans for lands owned by local government agencies.
- 4.8 Identify ways to maximize water quality protection and improvement through protecting, restoring and enhancing natural areas.

Stormwater and Water Quality

Policy 5. *Manage stormwater and non-point source pollution to maximize water quality and quantity benefits, and meet regulatory requirements and inter-jurisdictional commitments.*

Recommendations

- 5.1 Develop and implement a collaborative interagency and external stakeholder process to effectively address existing and evolving water resource-related regulatory issues and needs.
- 5.2 Establish an overarching Water Resources Policy Coordination Committee as recommended by the Clean Water Task Force, and implement an institutional framework to assure broad-based interagency coordination and collaboration.
- 5.3 Coordinate activities in inter-jurisdictional watershed with municipalities, adjacent counties, and federal and state property-owners to meet water quality protection, compliance, and improvement needs.
- 5.4 Adopt guidelines, regulations, and practices, including rainwater harvesting and reuse, and identify improvements needed to maximize water quality improvement and protection associated with new development, redevelopment, infill, roads, and retrofitting of older development.
- 5.5 Work with MDE and other State and County agencies and municipalities to develop TMDL implementation plans for pollutant sources not covered by the County's MS4 Permit.
- 5.6 Use results from approved water quality implementation plans, watershed studies, Special Protection Areas, and State and County water resource monitoring to guide development review requirements.

- 5.7 Identify and pursue for priority implementation those recommendations of the County's Climate Protection Plan and any subsequent efforts of the Sustainability Working Group which will have direct benefits on water quality and quantity.

Policy 6. *Maintain effective public outreach and educational programs to convey the vital role of water resources and water quality to the County's overall health and sustainability.*

Recommendations

- 6.1 Evaluate existing efforts and implement more effective programs to foster a general awareness of the importance of viewing stormwater as a resource to be valued and used as much as possible.
- 6.2 Enhance stewardship, education, and outreach programs for all stakeholder groups to increase the voluntary implementation of pollution prevention and runoff management practices.
- 6.3 Continue the development, refinement, and promotion of on-line tools to raise awareness and encourage stewardship for water resources and promotion, of public management and water quality improvement.

Water Supply and Wastewater

Policy 7. *Continue to ensure adequate and safe water supply and wastewater conveyance throughout areas served by community systems.*

Policy 8. *Continue to ensure that the 10-Year Comprehensive Water Supply and Sewerage Systems Plan supports and is consistent with the land use component of the General Plan as amended by area and sector master plans.*

Policy 9. *Continue to use the Comprehensive Water and Sewerage Systems Plan to ensure that water supply and wastewater treatment capacities are sufficient for existing and planned development and redevelopment.*

Policy 10. *Continue to foster, through public outreach and education, a general awareness of the importance of viewing drinking water as a resource to be valued, conserved, and used as wisely as possible.*

Policy 11. *Continue programs and actions to minimize pollutant contributions to surface water and groundwater from water and wastewater infrastructure, and meet applicable water quality regulatory requirements.*

Recommendations

- 11.1 Continue to incorporate appropriate and progressive technology at wastewater treatment facilities to meet wastewater point source pollution limits, while allowing for planned growth.
- 11.2 Continue studies and programs to reduce inflow and infiltration into wastewater collections systems.
- 11.3 Continue programs to reduce sanitary overflows and pipe failures, in accordance with WSSC's Consent Decree agreement with EPA.

Policy 12. *Continue programs and actions to protect and recharge source water resources.*

Recommendations

12.1 Continue to promote and implement local and regional source water planning and recommended actions to protect the Potomac and Patuxent Rivers as drinking water sources.

12.2 Reduce nitrogen contributions to surface and groundwater from septic systems.

12.3 Continue to address well and septic system issues according to the policies and procedures included in the County's Water and Sewer Plan.

Implementation

Dealing with water resources issues comprehensively is beyond the scope of any one agency or plan. Consequently, this Plan establishes overarching policies and recommendations to guide more specific plans and implementation actions by a number of different entities.

Implementing and updating this Plan (as required by State law) will involve more detailed analyses, programs, and action strategies by a variety of stakeholder agencies that have responsibilities related to water resources. A coordinated and collaborative interagency approach consistent over many years will be needed to make progress in meeting this Plan's goals, including meeting water quality regulatory requirements that will continue to evolve. Continuing the work begun by the County's Clean Water Task Force will also be instrumental in achieving these goals. This Water Resources Plan is one component of a coordinated interagency approach to dealing with water resources and water quality issues and needs.

Table 1 shows the policies and recommendations by type and lead agency in a general way. It identifies the lead responsibility by different agencies even though all would have some level of involvement and role in achieving these recommendations.

The chart classifies the policies and recommendation by type. The Umbrella category is for overarching, long-term policies or recommendations. The Implementation category applies to implementation actions, to be accomplished in the short-term. Policies and recommendations in the Further Study category will need additional research to set more specific policy or implementation actions.

Table 1 Agency Water Resources Responsibilities

Recommendation Type and Interagency Implementation/Coordination	Policy/Recommendation Type			Lead Agency
	Umbrella	Implementation	Further Study	
Land Use Planning and Growth Policy				
Policy 1. Plan future growth to not exceed water supply and wastewater treatment capacity.	✓			M-NCPPC
Recommendations				
1.1 Continue to assure that future development and redevelopment is coordinated with the County's 10-Year Water and Sewer Plan and with WSSC.	✓			M-NCPPC
1.2 Reassess the Patuxent River Functional Master Plan, and update if needed to respond to and coordinate with the Patuxent Reservoirs Watershed Management Plan and the updated Patuxent River Policy Plan.		✓	✓	M-NCPPC
Policy 2. Ensure that future growth is consistent with Smart Growth principles.	✓			M-NCPPC
Recommendations				
▪ Accommodate future growth as much as possible through redevelopment and infill development in existing urban areas within the Priority Funding Areas.	✓			M-NCPPC
▪ Continue to support agriculture as the preferred land use in the County's Agricultural Reserve.	✓			M-NCPPC

Recommendation Type and Interagency Implementation/Coordination	Policy/Recommendation Type			Lead Agency
	Umbrella	Implementation	Further Study	
<ul style="list-style-type: none"> Evaluate the effectiveness of the Building Lot Termination (BLT) Program for limiting non-agricultural development in the Agricultural Reserve. 		✓		M-NCPPC
Policy 3. <i>Plan future growth to minimize impacts to water resources.</i>	✓		✓	M-NCPPC
Recommendations				
<ul style="list-style-type: none"> Design and implement redevelopment and infill to maximize water resources improvements over existing conditions. 		✓	✓	M-NCPPC /DPS/DEP
<ul style="list-style-type: none"> Evaluate and recommend new or enhanced incentives for constructing green buildings, green redevelopment, and green retrofitting of existing development to maximize water resource benefits. 			✓	M-NCPPC /DPS
<ul style="list-style-type: none"> Integrate land use, zoning, redevelopment, and urban design planning and strategies into water resources protection and regulatory compliance programs and plans. 			✓	M-NCPPC /DEP
<ul style="list-style-type: none"> Use results from approved water quality implementation plans, watershed studies, Special Protection Areas, and State and County water resource monitoring to guide the master plan update process. 		✓	✓	DEP/ M-NCPPC
Policy 4. Focus natural area protection, conservation, mitigation, enhancement, restoration and management to maximize water resources protection and quality.	✓		✓	M-NCPPC
Recommendations				
4.1 Increase forest, wetland, meadow, stream buffer, and urban tree canopy area countywide, especially in watersheds with regulatory limits, water quality impairments, or Tier II designations.		✓	✓	M-NCPPC /DEP
4.2 Adopt a Tree Ordinance to increase urban tree canopy.			✓	DEP
4.3 Revise the Forest Conservation Laws and Regulations and Trees Technical Manual as needed to increase the speed and success of reforestation efforts.		✓		M-NCPPC
4.4 Continue to support natural land preservation and easement programs and activities, especially in watersheds with known water quality impairments.	✓			M-NCPPC /DEP
4.5 Coordinate park planning and development with countywide efforts to address water quality regulatory requirements.			✓	M-NCPPC
4.6 Develop and implement natural resource management plans for lands owned by local government agencies.			✓	DEP/ M-NCPPC
4.7 Identify ways to maximize water quality protection and improvement through protecting, restoring and enhancing natural areas..			✓	DEP
Stormwater and Water Quality				
Policy 5. Manage stormwater and non-point source pollution to maximize water quality and quantity benefits, and meet regulatory requirements inter-jurisdictional commitments. <i>and</i>	✓			DPS/ DEP
Recommendations				
5.1 Develop and implement a collaborative interagency and external stakeholder process to effectively address existing and evolving water resource-related regulatory issues and needs.		✓		DEP

Recommendation Type and Interagency Implementation/Coordination		Policy/Recommendation Type			Lead Agency
		Umbrella	Implementation	Further Study	
5.2	Establish an overarching Water Resources Policy Coordination Committee as recommended by the Clean Water Task Force, and implement an institutional framework to assure broad-based interagency coordination and collaboration.			✓	DEP
5.3	Coordinate activities in inter-jurisdictional watershed with municipalities, adjacent counties, and federal and state property-owners to meet water quality protection, compliance, and improvement needs.		✓		DEP
5.4	Adopt guidelines, regulations, and practices, including rainwater harvesting and reuse, and identify improvements needed to maximize water quality improvement and protection associated with new development, redevelopment, infill, roads, and retrofitting of older development.		✓		DEP/ DPS/ DOT
5.5	Work with MDE and other State and County agencies and municipalities to develop TMDL implementation plans for pollutant sources not covered by the County's MS4 Permit.		✓		DEP
5.6	Use results from approved water quality implementation plans, watershed studies, Special Protection Areas, and State and County water resource monitoring to guide development review requirements.		✓	✓	DEP/ MNCPPC
5.7	Identify and pursue for priority implementation those recommendations of the County's Climate Protection Plan and any subsequent efforts of the Sustainability Working Group which will have direct benefits on water quality and quantity.			✓	M-NCPPC /DEP
Policy 6.	Maintain effective public outreach and educational programs to convey the vital role of water resources and water quality to the County's overall health and sustainability.	✓			DEP
Recommendations					
6.1	Evaluate existing efforts and implement more effective programs to foster a general awareness of the importance of viewing stormwater as a resource to be valued and used as much as possible.			✓	DEP
6.2	Enhance stewardship, education, and outreach programs for all stakeholder groups to increase the voluntary implementation of pollution prevention and runoff management practices.			✓	DEP
6.3	Continue the development, refinement, and promotion of on-line tools to raise awareness and encourage stewardship for water resources and promotion, of public management and water quality improvement.			✓	DEP
Water Supply and Wastewater					
Policy 7.	<i>Continue to ensure adequate and safe water supply and wastewater conveyance throughout areas served by community systems.</i>	✓			DEP
Policy 8.	<i>Continue to ensure that the 10-Year Comprehensive Water Supply and Sewerage Systems Plan supports and is consistent with the land use component of the General Plan as amended by area and sector master plans</i>	✓			DEP
Policy 9.	Continue to use the Comprehensive Water and Sewerage Systems Plan to ensure that water supply and wastewater treatment capacities are sufficient for existing and planned development and	✓			DEP/ WSSC

Recommendation Type and Interagency Implementation/Coordination		Policy/Recommendation Type			Lead Agency
		Umbrella	Implementation	Further Study	
	redevelopment.				
Policy 10.	Continue to foster, through public outreach and education, a general awareness of the importance of viewing drinking water as a resource to be valued, conserved, and used as wisely as possible.		✓	✓	DEP/ WSSC
Policy 11.	Continue programs and actions to minimize pollutant contributions to surface water and groundwater from water and wastewater infrastructure, and meet applicable water quality regulatory requirements.	✓			WSSC
Recommendations					
11.1	Continue to incorporate appropriate and progressive technology at wastewater treatment facilities to meet wastewater point source pollution limits, while allowing for planned growth.	✓			WSSC
11.2	Continue studies and programs to reduce inflow and infiltration into wastewater collections systems.	✓			WSSC
11.3	Continue programs to reduce sanitary overflows and pipe failures, in accordance with WSSC's Consent Decree agreement with EPA.	✓			WSSC
Policy 12.	Continue programs and actions to protect and recharge source water resources.	✓			DEP/ DPS
Recommendations					
12.1	Continue to promote and implement local and regional source water planning and recommended actions to protect the Potomac and Patuxent Rivers as drinking water sources.	✓			DEP
12.2	Reduce nitrogen contributions to surface and groundwater from septic systems.		✓		DPS/DEP
12.3	Continue to address well and septic system issues according to the policies and procedures included in the County's Water and Sewer Plan.	✓			DEP