

R E S O L U T I O N

WHEREAS, the Prince George's County Council, sitting as the District Council, authorized initiation of the *Water Resources Functional Master Plan* on October 14, 2008; and

WHEREAS, the Prince George's County Planning Board of The Maryland-National Capital Park and Planning Commission, in conjunction with the Prince George's County Council, pursuant to Section 27-644 of the Zoning Ordinance of Prince George's County, held a duly advertised joint public hearing on the *Preliminary Water Resources Functional Master Plan* on February 23, 2010; and

WHEREAS, the 2002 *Prince George's County Approved General Plan*; 2009 *Approved Master Plan of Transportation*; 2008 *Approved Public Safety Facilities Master Plan*; 1983 *Adopted and Approved Public School Sites Functional Master Plan*; 1993 *Glenn Dale-Seabrook-Lanham and Vicinity Master Plan*; 1993 *Landover and Vicinity Approved Master Plan*; 1993 *Subregion V Approved Master Plan*; 1994 *Bladensburg, New Carrollton and Vicinity (PA 69) Approved Master Plan*; 1994 *Melwood/Westphalia Approved Master Plan*; 1994 *Planning Area 68 Approved Master Plan*; 1994 *Subregion VI Study Area Approved Master Plan*; 1997 *College Park Metro-Riverdale Transit District Development Plan*; 2000 *Brentwood Mixed-Use Town Center Zone Development Plans and Design Guidelines*; 2000 *Addison Road Metro Sector Plan*; 2000 *The Heights and Vicinity Approved Master Plan*; 2001 *Anacostia Trails Heritage Area Management Plan*; 2001 *Greenbelt Metro Sector Plan*; 2002 *College Park US 1 Corridor Sector Plan*; 2004 *Riverdale Park Mixed-Use Town Center Zone Development Plans and Design Guideline*; 2004 *Approved Prince George's County Gateway Arts District Sector Plan*; 2004 *Morgan Boulevard-Largo Town Center Sector Plan and Sectional Map Amendment*; 2005 *Tuxedo Road-Arbor St.-Cheverly Metro Sector Plan*; 2005 *Green Infrastructure Plan*; 2006 *Bowie and Vicinity Approved Master Plan*; 2006 *East Glenn Dale Area Approved Sector Plan*; 2006 *Henson Creek-South Potomac Approved Master Plan*; 2006 *West Hyattsville Transit District Development Plan*; 2007 *Bladensburg Town Center Approved Sector Plan*; 2007 *Westphalia Approved Sector Plan*; 2008 *Capitol Heights Transit District Development Plan/Transit District Overlay Zone and Zoning Map Amendment*; 2008 *Branch Avenue Corridor Sector Plan and Endorsed Sectional Map Amendment*; 2009 *Port Towns Sector Plan and Sectional Map Amendment*; 2009 *Landover Gateway Sector Plan and Sectional Map Amendment*; 2009 *Marlboro Pike Sector Plan and Sectional Map Amendment*; 2009 *Subregion 5 Master Plan and Sectional Map Amendment*; 2009 *Subregion 6 Master Plan and Sectional Map Amendment*; 2010 *Glenn Dale-Seabrook-Lanham and Vicinity Sector Plan and Sectional Map Amendment*; and

WHEREAS, the *Water Resources Functional Master Plan* for Prince George's County is the functional master plan that provides citizens, non-profit organizations, the private sector, and government agencies with guidance on water resources for Prince George's County, pursuant to directives issued by the District Council when the *Prince George's County Approved General Plan* was approved in October 2002; and

WHEREAS, on April 8, 2010, the Planning Board received the transcript analysis of testimony from the February 23, 2010 joint public hearing on the *Preliminary Water Resources Functional Master Plan* and additional exhibits and plan correspondence, submitted before the close of the record on March 10, 2010; as well as testimony received from the Maryland Department of Environmental Planning received on March 19, 2010 after the close of record; and

WHEREAS, the Prince George's County Planning Board determined to amend the *Preliminary Water Resources Functional Master Plan* in response to the public hearing, and to adopt the functional master plan and transmit the plan with further amendments, extensions, deletions, and additions in response to the public hearing record, as follows:

**Underscore/Bold** indicates language added to the preliminary plan.

**[Brackets/Bold]** indicate language deleted from the preliminary plan.

### **CHAPTER III: PLANNING CONTEXT**

- page 21: add language. 12. *Implementation*: Strategies, policies, programs, and funding for growth and development, resources conservation, infrastructure, and transportation are integrated across local, regional, state, and interstate levels to achieve these visions.  
**Maryland Department of the Environment - Maryland Department of the Environment (MDE) implements a diversity of regulatory and planning programs to reduce the input of pollutants to surface and ground waters of the State. Reduction of nutrients from both point and nonpoint sources is the focus of the permit requirements, along with control of bacterial pollution from sewage treatment plants and toxic materials from any source.**<sup>1</sup>  
<sup>1</sup>[http://www.mde.state.md.us/Water/water\\_programs/index.asp](http://www.mde.state.md.us/Water/water_programs/index.asp)
- page 22: amend language. The Act was approved by the state in May 2009, and Prince George's County is required to update the stormwater ordinance to be in compliance with the requirements of the Act by May [2011] **2010.**
- page 22: add language. The Act was approved by the state in May 2009 and Prince George's County is required to update the stormwater ordinance to be in compliance with the requirements of the act by May [2011] **2010. The Maryland Department of the Environment (MDE) has published the 2009 Model Standard Stormwater Management Plan. While it may vary among counties because of specific local development ordinances, MDE will use this document as a template to ensure effective implementation of standard plans. MDE has proposed emergency regulation and they have a new guidance document Stormwater Management Regulations Guidance for Implementation of Local Stormwater Management Programs March 2010 that defines grandfathering as well as other local planning issues.**<sup>2</sup>  
<sup>1</sup><http://www.mde.state.md.us/Programs/WaterPrograms/SedimentStormwater/swm2007.asp>  
<sup>2</sup><http://www.mde.state.md.us/assets/document/Stormwater%20Guidance%20Document.pdf>
- page 22: amend language. [Nontidal Wetlands and Waterways Permits] **Wetlands and Waterways Program**—[MDE requires a permit to assure that activities in a waterway or floodplain do not create flooding on upstream or downstream properties, maintain fish habitat and migration, and protect waterways from erosion. Permits are required for certain projects within the 100-year floodplain such as dams and reservoirs, bridges and culverts, channelization, changes to the course or cross-section of a stream, and other similar projects.] **This MDE-housed program regulates activities in tidal wetlands as well as activities in**

waterways and floodplains. Authorizations are required for filling, dredging, grading, altering water levels, and destroying or removing vegetation. Applicants must demonstrate that there is no practicable alternative to conducting and activity in a wetland, unless the activity is water dependent, and must attempt to avoid or minimize impacts. Compensatory mitigation is required for wetlands lost through regulated activities. In addition, the Wetlands and Waterways Program produces educational materials and technical and planning guidance on various aspects of wetland management, and monitors the status of wetlands and trends in wetland conservation in Maryland.

#### **CHAPTER IV: GROWTH POLICIES AND LAND USE PLANNING**

- page 36: add language to reference water resource assessments per the next General Plan Growth Policy Update. This trend suggests that infill and redevelopment are less desirable to developers than greenfield development and county policies and incentives and disincentives would need to be strengthened to encourage more development in the Developed Tier. **The county's next General Plan Growth Policy Update will provide an opportunity to reassess planned development objectives relative to water resource protection.**
- page 39, figure 4: strike language. Conservation development pattern accommodating same density [of Storm Water] but with more land under forest and open space.
- page 40: amend language. The results of other configurations were normalized by the results of the forested baseline, which yielded 338 pounds of nitrogen per [day] year and nine pounds of phosphorus per [day] year from the 200-acre parcel.
- page 41: replace Table 4. Included as Attachment 1.
- page 43: add language. The county has current strategies to promote smart growth by encouraging development in Developed Tier centers and corridors and through adoption of the *Green Infrastructure Plan*. However, despite such policies, the cumulative impacts of countywide development trends indicate that most growth is occurring in the Developing Tier; therefore, stronger policies are needed to better guide and manage growth in a way that is more considerate of watershed and water resource impacts, especially in light of new and more stringent federal, state, and local regulatory requirements. **As additional data become available the ensuing Water Resources Plans should continue to update and refine NPS analysis appropriately.**
- page 47: add language. **Priority Funding Areas** - The state and county have designated Priority Funding Areas (PFA) (Map 5), that consist of existing communities, municipalities, and places where local governments want state investment to support future growth. The PFA boundaries were established before the county adopted the three tiers in the General Plan. **SB-276, passed in the 2009 Maryland legislative session, sets a statewide land use goal of increasing the current percentage of growth in Priority Funding Areas (PFAs) and decreasing the current percentage of growth outside of PFAs. SB-276 also requires local governments to develop a percentage goal towards achieving the statewide goal. The new annual report requirements under SB-276 will not be filed until July 1, 2011. Prince George's County should estimate its percentage of growth to be served by public water and sewer and if it will be sufficient to contribute to the achievement of the statewide land use goal. Statewide in Maryland, the current (as of 2006) percentage of growth in PFAs is 68%.<sup>2</sup>**  
<sup>2</sup>[http://www.mdp.state.md.us/msdc/PFA/Resid\\_Growth/by\\_County/PFA\\_cnty\\_index.htm](http://www.mdp.state.md.us/msdc/PFA/Resid_Growth/by_County/PFA_cnty_index.htm).
- page 48: Rename map 7 [Water and] Sewer Envelope[s] per 2008 Water and Sewer Plan.
- page 48: add language to clarify sewer envelop definition. **The 2008 Water and Sewer Plan** - The 2008 *Water and Sewer Plan for Prince George's County* documents existing water resources and

wastewater treatment capacities and identifies mechanisms needed to meet future demand. **The Sewer Envelope, as depicted in map #7, defines the boundary beyond which no community water and sewer facilities will be approved except in cases of public health and safety. Although the existing water and sewer boundaries established in the 2008 Water and Sewer Plan were established to conform to the General Plan Tier designations, excluding and/or limiting public water and sewer infrastructure in the Rural Tier, some discrepancies do exist. Notably some M-NCPPC properties inside the sewer envelope are not on a public wastewater system. This plan recommends the use of composting toilets at the public restroom facilities in order to eliminate private septic use within the sewer envelope.**

- page 53 Policy 1, new Strategy 6: add language  
**6. Develop programs and incentives that will maximize the preservation of forested land, which contributes the least amount of nutrient loading per acre.**
- page 53: Add language Policy 1, Strategy 4. Adjust the growth targets within the General Plan to target the majority of new growth within the Developed Tier; reduce growth in the Developing Tier **outside of designated Centers and Corridors**; and maintain little to no growth in the Rural Tier.
- page 53: Add language Policy 1, Strategy 5.  
5. Promote development and redevelopment of high density, mixed-use centers and corridors near transit stops in existing communities within the Developed Tier **and within the Centers and Corridors of the Developing Tier.**
- page 54: Amend language Policy 2, Strategy 2.  
2. Develop an **[more robust]** environmental checklist that requires developers to demonstrate that their development proposal **is consistent with [meets]** watershed goals and improves **or does not damage, inclusive of mitigation,** the overall health of all water resources, **proximate to the development,** within the watershed.

#### **CHAPTER V: WATERSHED PLANNING**

- page 66, Table 11: amend to attribute the 8-digit basin codes to MDE. Included as Attachment 2.
- page 67: amend language. The DNR-supported Watershed Restoration Strategy (WRAS) Program **[has coordinated the steady development of five new WRASs each year with others prepared by local governments] was developed to help coordinate local government efforts for the steady development of five new WRASs each year.**
- page 68, table 12: Revise to indicate the Anacostia is listed as impaired for trash (Debris/Floatables/Trash). Included as Attachment 3.

#### **CHAPTER VI: ENVIRONMENTAL RESOURCES AND LAND DEVELOPMENT**

- page 90, map 14: replace map for clarity. Included as Attachment 4.
- page 90: amend language. Prince George's County's scattered tidal and nontidal wetlands exist as submerged, forested, ponded, and shrub/scrub wetlands. **[As of 1989, Prince George's County had approximately 6.2 percent of its land covered by wetlands. A total of 19,470 acres were identified by the Fish and Wildlife Service National Wetlands Inventory. Digital information available from the National Wetlands Inventory as well as the Maryland Digital Orthophoto Quarter Quad (DOQQ) maps depict mapped wetlands. From these references MDE estimates that there are 22,530 mapped acres of vegetated wetlands.]** The State of Maryland maintains both Tidal and Nontidal Wetland Protection Acts.
- page 90: add language. Prince George's County's scattered tidal and nontidal wetlands exist as submerged, forested, ponded, and shrub/scrub wetlands.... The State of Maryland maintains both Tidal and Nontidal Wetland Protection Acts. **Although MDE is in the process of updating its Priority Areas for Wetland Restoration, Preservation, and Mitigation, it remains the most current**

local resource as an informational source and targeting guide for water quality protection and habitat conservation.<sup>1</sup> Stream and wetland mitigation sites, identified in the county, should be consistent with the recommendations in this document.

<sup>1</sup> [http://www.mde.state.md.us/assets/document/wetlandswaterways/CB\\_all.pdf](http://www.mde.state.md.us/assets/document/wetlandswaterways/CB_all.pdf)

- page 93: add language. Water is the connecting element in the cooperative planning of multiple environmental disciplines. During development and redevelopment in areas of the county noted as aquifer recharge areas all plans should be reviewed for imperviousness and recommendations to reduce the current impervious coverage to the maximum extent practicable should be included.
- page 98: add language. The effects of lawn and landscaping on the environment can be reduced if properties are properly managed by using organic alternatives applied correctly, decreasing the area requiring gas-powered tools, using native species that can be sustained with little watering and care, and using a different approach to maintenance practices. The state passed the Chesapeake Bay Phosphorus Reduction Act of 2009, SR-553, which bans phosphorus from being sold in lawn fertilizer (unless it is starter lawn fertilizer). The ban takes effect on April 1, 2011.<sup>3</sup>  
<sup>3</sup> <http://www.environmentmaryland.org/legislature/testimony/clean-water/clean-water/sb-553---chesapeake-bay-phosphorus-reduction-act>
- page 105: add language. Planning transportation infrastructure wisely is essential to improving the quality of water and reducing the quantity of water that enters streams, rivers, and the bay as stormwater runoff. Long-term infrastructure needs, as represented in MDOT's Consolidated Transportation Program (CTP)<sup>4</sup> or the State Highway Administration's (SHA) Highway Needs Inventory (HNI)<sup>5</sup>, significantly affect the placement and density of development within Prince George's County which in turn influence the local and regional water needs.  
<sup>4</sup> [http://www.mdot.maryland.gov/Planning/2009\\_ctp\\_tour/Index](http://www.mdot.maryland.gov/Planning/2009_ctp_tour/Index)  
<sup>5</sup> [http://www.sha.state.md.us/oppen/hni\\_PG.pdf](http://www.sha.state.md.us/oppen/hni_PG.pdf)
- page 105: add language. Industrial—Prince George's County was developed at a time when the waterways formed the backbone of the county's transportation network. Riverbanks, floodplains, and riparian buffers.... Industrial stormwater discharges are only permitted under the National Pollutant Discharge Elimination System Program and facilities are required to maintain a stormwater pollution prevention plan to mitigate polluted runoff. Maryland's Brownfields Revitalization Incentive Programs was established in February 1997 as part of Maryland's Smart Growth policy. This program is intended to promote economic development, especially in distressed urban areas, by identifying and redeploying underutilized properties. Reusing real property makes efficient use of existing infrastructure while providing an alternative to developing open space that contributes to urban sprawl. MDE's Brownfields Site Assessment and Voluntary Cleanup Programs (VCP) may provide valuable assistance to the county for the rehabilitation, redevelopment, revitalization or property acquisition of commercial or industrial property. These programs involve environmental site assessment in accordance with accepted industry and financial institution standards for property transfers.<sup>1</sup>  
<sup>1</sup> [http://www.mde.state.md.us/Programs/LandPrograms/ERRP\\_Brownfields/bf\\_info/index.asp](http://www.mde.state.md.us/Programs/LandPrograms/ERRP_Brownfields/bf_info/index.asp)
- page 108: add language Wetlands and Floodplains Policy 1, Strategy 1.
  1. Reduce, mitigate, or eliminate any potential flood hazards and prevent future flood hazards caused by new development on flood-prone land through rigorous enforcement of existing floodplain regulations.
- page 109: add language Groundwater and Aquifers Policy 1, **Strategy 4.**

4. **Reduce existing impervious surfaces during redevelopment, and limit impervious surfaces during development projects in aquifer recharge areas of northern Prince George's County.**
- page 112: add language Land Development Policy 1, Strategies 3, 4, 5.
  - 3. Acquire rights-of-way for transportation projects as opportunities for stormwater management as well as providing for bike lanes, sidewalks, shoulders, and utility easements **where feasible.**
  - 4. Design open section roads with bio-swales, encourage the use of pervious pavement, build to minimum pavement standards, and utilize nonstructural stormwater management in all new road projects **where practicable.**
  - 5. Retrofit highway medians and interchanges using ESD techniques and plant vegetation in highway rights-of-ways, such as clover leafs and diamonds near interchanges, median strips, and required buffers. **Where practicable,** ensure all transportation retrofits and new construction projects continue to provide safe transport for vehicles, bikes, and pedestrians.

## **CHAPTER VII: STORMWATER**

- page 106: amend language. Conservation subdivision design (CSD) is a green development strategy that can help communities preserve open space and natural areas in residential housing developments. Each time a property is developed into a residential subdivision, an opportunity exists for adding land to a communitywide network of open space. CSD rearranges the development on each parcel as it is being planned so that half (or more) of the buildable land is set aside as open space. **Conservation subdivision can provide open space amenities on land that has been designated appropriate for residential development but should be discouraged in areas of the county that are better suited for farm and forest preservation.** Without controversial “down zoning,” the same number of homes can be built in a less land-consumptive manner, allowing the balance of the property to be permanently protected and added to an interconnected network of community green spaces. This “density-neutral” approach provides a fair and equitable way to balance conservation and development objectives **where appropriate.**
- page 116: delete language. Stormwater runoff reaches streams very quickly following storms, allowing for minimal infiltration and causing decreased stream baseflows during dry times, thus increasing the frequency and intensity of flooding and accelerated stream erosion. **[Figure 1 shows graphically how changes in land uses impact the volume of stormwater runoff.]**
- page 122: amend language. **[The existing MS4 stormwater permit will be renewed in 2009 and several additional requirements are anticipated.] The county's existing MS4 stormwater permit expired in October, 2009, and a new one has not yet been issued. The old permit will remain in effect until Prince George's County receives an approved new permit. Several additional requirements are anticipated and DER will look to Montgomery County's approved permit for guidance.**<sup>1</sup>  
[1http://www.environmentmaryland.org/legislature/testimony/clean-water/clean-water/sb-553---chESApeake-bay-phosphorus-reduction-act](http://www.environmentmaryland.org/legislature/testimony/clean-water/clean-water/sb-553---chESApeake-bay-phosphorus-reduction-act)
- page 123, table 16: revise Table to address PCBs in the Anacostia (non-tidal) TMDL scheduled to be developed in 2010. Included as Attachment 5.
- page 139: amend language Stormwater Land Development Standards, Policy 1, Strategy 3, Bullet 5. **[Set maximums on] Establish targets for** areas of paved surfaces in development plans.

## **CHAPTER VIII: DRINKING WATER AND WASTEWATER**

- page 142: amend language. According to the terms of a long-standing agreement, WSSC has extended public water supply infrastructure to Charles County. Charles County will relieve their current demands on the Patapsco aquifer by **[1.8 mgd] 1.4 mgd** in the community of Waldorf through

extension of the WSSC surface water source public system. **Charles County has discussed purchasing additional water from WSSC, up to or exceeding 5 mgd.**

- page 142: add language. **The Washington Suburban Sanitary Commission (WSSC) is the eighth largest water and wastewater utility in the nation, with a network of more than 5,500 miles of fresh water pipeline and nearly 5,400 miles of sewer pipeline. WSSC has provided service to customers in Prince George’s and Montgomery Counties since 1918 and WSSC’s drinking water has always met or surpassed federal standards. WSSC is required to conduct and submit an annual water use audit to MDE as a condition of its water appropriation permit.**
- page 143: add language. The remaining county residents are served by private wells that are concentrated in the southwestern, southern, and eastern areas of the county. **Several properties throughout the county that fall within the Sewer Envelope are currently on private water and/or sewer system. Individual water supply and septic systems, as well as shared systems, can only support relatively low-density development. The following have been noted as Category 6 designations within the Sewer Envelope:**
  - **Greenbelt Park**
  - **Fort Lincoln Cemetery, Port Towns**
  - **Belt Woods**
  - **National Harmony Cemetery**
  - **Lincoln Memorial Cemetery, Suitland**
  - **Oxon Hill Farm**
  - **Rosaryville State Park**
  - **Louise M. Cosca Regional Park**

**Also several parcels at the Duval Woods development and the Magruder Tract West in Upper Marlboro, and the Timber Highlands in Accokeek have been noted as Category 6 designations within the Sewer Envelope.**

**It is not anticipated that any community water or shared septic systems in the county will require expansion within the WRE planning period. In the event that a system would require public water or wastewater, review by WSSC for available capacity in the water pressure zone and the sewer basin where the development is located would be required.**

- page 143: amend language. Additional public water systems within the county include the City of Bowie, located in Prince George’s County, a groundwater source distribution system [**that supplies up to 5.2 mgd of drinking water to the northern portions of the City of Bowie, and other smaller well water systems.] supplied by six wells which can provide up to the system’s 5.2 mgd capacity to serve the northern portions of the City of Bowie. The current demand is approximately 2 mgd and not expected to reach the system capacity within the planning period addressed in this document. However, the county should develop projections of the estimated water demand for the City of Bowie based on residential and non-residential population projections and the implementation of the city’s land use plan. If the demand is forecasted to be greater than the city’s groundwater appropriation permit, future land use plans should discuss ways to address this constraint.**
- page 149: amend language. [**Water Management Administration, MDE Permitting Administration] Wastewater Permits Program**
- page 153: add language. The WSSC WWTPs servicing Prince George’s County include Western Branch, Parkway, and Piscataway. These plants are all funded and scheduled for enhanced nutrient removal (ENR) upgrades in the next several years. The Blue Plains WWTP (owned and operated by D.C. Water and Sewer Authority) and Mattawoman WWTP (owned and operated by Charles County) also treat sewage from Prince George’s County and have ENR treatment upgrades underway. **The**

**Bowie WWTP has a permitted capacity of 3.3 mgd and currently treats approximately 2.2 mgd of wastewater conveyed to the plant from its mostly developed service area. Future flows are not expected to exceed the plant's capacity; however, the county should develop projections of the estimated wastewater demand for the City of Bowie based on residential and non-residential population projections and the implementation of the area master plan for growth to 2030 or to build-out. If the demand is forecasted to be greater than the city's WWTP capacity, future land use plans should discuss ways to address this constraint.** Additionally, the City of Bowie, in Prince George's County, has scheduled an ENR upgrade to its wastewater facility within the next year and a half.

- page 158: add language. **Sanitary Sewer Overflows (SSO)** is an unintentional discharge of untreated, raw sewage into local waterways. Overflows occur when there are too much infiltration and inflow into the sanitary system from surface water or groundwater infiltrating through cracks in the pipe infrastructure, particularly during significant rain events; rain water, snow-melt, or groundwater flowing into the sanitary system through roof drains or house leads connected to sewers; undersized sanitary systems with sewers and pumps that are too small to carry the sewage; system failures due to tree roots growing into the sewer; sections of sewer pipe settling or shifting so that pipe joints no longer match; stream incising below sewer pipes in streambeds, undermining their support causing the pipes to rupture; sediments, fats, oils, grease and/or other material building-up and causing blockages; equipment and pump failures; power failures; and human error.

**The environmental impact of SSOs is difficult to quantify; however, there are several related items that put them in context regarding WSSC's sewer system in Prince George's County. SSOs occur in wet weather and in dry weather. Wet weather SSOs are by far the fewest by number in the system, and are caused by power outages at sewage pumping stations, system limitations, and external inflow (ground and surface water). In order to control the sources of these overflows, WSSC has begun installing permanent electricity generators at critical locations, building permanent facilities to temporarily store high flows in a controlled manner, and inspecting and repairing leaky sewers in order to reduce inflow. Dry weather SSOs are by far the largest by number in our system. They are caused by blockages from grease, tree roots, trash, and cracked pipes. WSSC is addressing dry weather SSOs by implementing a Fats, Oils and Grease (FOG) program whereby restaurants are required to keep grease out of the sewers, and residents are encouraged to do the same. Nutrient concentrations would be variable based upon whether the SSO occurred in dry or wet weather, and the annual nutrient load would vary depending on whether it was a wet or dry year. In addition, a program is underway to inspect and remediate root blockages and cracked pipes. Also, by regulation, WSSC is prohibited from having SSOs and is fined by MDE when they happen.**

- page 165: add resource links, Policy 1, Strategy 9.

#### STRATEGIES:

Develop a water conservation plan for public and private drinking water systems that evaluates current and projected water use, assesses infrastructure, operations, and management practices, and describes cost effective actions to be taken to reduce water losses, waste, or consumption and increase the efficiency with which water is used, treated, stored, and transmitted.<sup>1,2</sup>

<sup>1</sup>[http://www.mde.maryland.gov/assets/document/water\\_cons/WCP\\_Guidance2003.pdf](http://www.mde.maryland.gov/assets/document/water_cons/WCP_Guidance2003.pdf)

<sup>2</sup><http://www.epa.gov/WaterSense/pubs/guide.html>

- page 166: add language Wastewater, Policy 1 , new Strategy 7
- 7. **Consider alternatives to surface water discharges, where applicable, by identifying land for future spray irrigation of treated wastewater if the direct discharge of effluent into a stream could become limited by a TMDL or the Bay Agreement nutrient allocations.**

## **CHAPTER IX: STEWARDSHIP AND IMPLEMENTATION**

- page 170: add language. The Water Resources Element (WRE) of the Prince George's County's General Plan has been developed as an integrated countywide ... similar planning efforts at various agencies and at various planning jurisdictional levels. **Ongoing coordination with MDOT, SHA, DER, DPW&T, SCD and other local and state agencies is critical to the long-term success of this plan's goals and policies.**
- page 184: add language as Intergovernmental Cooperation and Communication, Policy 3, new Strategy 1.
  1. **Bring together the county's and state's agencies and departments responsible for infrastructure planning and development to work as partners to evaluate more specifically the resource protection needs in watersheds.**
- page 189: amend language Regulatory Revision, Policy 2, Strategy 5
  5. Establish adequate public drinking water and public wastewater treatment capacities, appropriate septic treatment areas and methods, and well-water withdrawal capacity and availability **concurrent with various development plan approvals [prior to approval of development plans].**

## **APPENDIX I: NONPOINT SOURCE MODELING FOR PRINCE GEORGE'S COUNTY**

- page 163: add language. As noted previously, the tributary strategy BMPs included in the loading rates applied in this model run may be revised upon issuance of the basinwide TMDL. **By 2010, baywide TMDLs for nutrients and sediment are scheduled for completion. These will, in effect, overlay and adjust localized TMDLs to assure restoration of local and downstream conditions in the lower river estuaries and the bay. The presence of a TMDL is a sign that pollution control efforts must outweigh additional pollution impacts from future land use change, septic tanks, and WWTP flows to prevent further degradation of the waterbody. For the receiving waters in Prince George's County without a nutrient TMDL, a determination of the suitability of receiving waters cannot be made. However, for waterbodies with nutrient TMDLs, a preliminary assessment can be made. The pollution forecasts, although capable of comparing the relative benefits of different land use plans, are not precise enough to allow for a direct comparison to nutrient TMDLs. Prince George's County recognizes though that waterbodies with nutrient TMDLs can only be considered suitable receiving waters if future nutrient impacts are offset. This WRE includes recommendations for pollution control efforts to help achieve that goal. In addition, this WRE recommends refining the pollution forecast in the future to allow for direct comparison to nutrient TMDLs as information becomes available.**
- page 200: add language. The land use data provided for the nonpoint source modeling work was prepared in close coordination with the Planning Department's information management and planning personnel. **The City of Laurel's projected growth has been included in the projections prepared for the watershed in which it is situated.**
- page 200: amend language. The land use acreages, septic systems, and point source loads for initial and future development scenarios were compiled in a data input workbook entitled "Land Use Data.xls" and imported into PLAM model runs using external reference formulas. The loading rates used for the model were compiled in a data input workbook entitled "Load Rates.xls" and imported into PLAM model runs using external reference formulas. The majority of data inputs were identical to or based upon the data provided in the MDE-provided spreadsheets created for the WRE. However, **there were a few variances from the MDE model which were incorporated due to inherent county information (e.g., county land use categories) or format of county data (e.g., data on employment use of septic systems), or a few other reasons, and these variances are discussed**

**throughout this methodology section, and summarized at the end of Appendix I Attachment 1.**

Both sets of data inputs are described below.

- page 204: add language. Each TAZ polygon was then tagged with the watershed ID of the 8-digit watershed it was contained within. Each attribute was then summed by using the watershed ID to produce a new table (see Table 4) with totals of population, employment, and dwelling units by watershed and by year (2005, 2010, 2015, 2020, 2025, and 2030). **The population data for the City of Laurel was included as part of the Upper Patuxent subwatershed in Table 4.** The methodology was validated by both COG and county planners.
- page 243: amend language. The number of residential septic systems included in the 2007 initial conditions scenario was based on the number of households **in non-sewered areas [outside the county's sewer envelope]** as reflected in the county's 2005 population information, **and the county's 2030 population projections provided the number of households in non-sewered areas for the future 2030 land use scenarios. The number of households from the population data were allocated to the county's watersheds, resulting in septic system data inputs of 8,661 current versus 10,117 future households in the Patuxent watershed, and 7,423 current versus 9,295 future households in the Potomac watershed.** The nitrogen loads from septic systems were calculated using an estimated load per equivalent dwelling unit (EDU), as described in the Load Rate Data Inputs Section, below. The number of nonresidential septic systems included in the 2007 initial conditions scenario was based on the number of employees **in non-sewered areas [outside the county's sewer envelope]**, as reflected in the county's 2005 population information, **and the county's 2030 population projections provided the number of employees in non-sewered areas for the future 2030 land use scenarios. The number of employees from the population data were allocated to the county's watersheds, resulting in septic system data inputs of 5,317 current versus 12,721 future employees in the Patuxent watershed, and 12,402 current versus 16,276 future employees in the Potomac watershed.** The method of estimating nonresidential septic loads provided by MDE in the Water Resources Plan model is based on estimated nonresidential septic flow per nonresidential acre. Because the county's GIS system used for future land use projections does not delineate nonresidential acres **[outside the sewer envelope] in non-sewered areas**, this method was not applicable for future load estimates. Therefore, the county's available data reflecting the number of employees outside the sewer envelope were used with a conversion factor to estimate nitrogen loads based on factors provided in the MDE Water Resources Plan model as well as data provided by WSSC, as described in more detail in the Load Rate Data Inputs section, below. **The majority of residential and nonresidential septic systems are located in Rural Tier which is delineated fairly closely with the sewer envelope as illustrated in Maps 2 and 7 in Chapter IV. However, county planning information indicates a few small areas served by individual systems inside the sewer envelope, most notably in the 6-digit Western Branch, Washington Metro and Oxon Hill subwatersheds. The systems inside and outside the sewer envelope were included as inputs to the non-point source loading model described in subsequent sections.**
- page 244, Table 41: replace table. Included as Attachment 6.
- page 244, Table 41: amend notes [**Nitrogen and Phosphorus Load Data Sources:**  
**Nitrogen and Phosphorus Load Data Sources:**
  - **<sup>1</sup> Washington Suburban Sanitary Commission. \*Note: The Marlboro Meadows WWTP will not be operating in 2030. Flows will be directed to the Western Branch WWTP (as reflected in the loads data presented in this table). The Blue Plains WWTP treats flow from Prince George's County sewersheds but does not discharge into Prince George's County watersheds. Therefore Blue Plains loads were not included in the NPS nutrient modeling runs which were conducted to estimate nutrient loads to county watersheds.**

- <sup>2</sup> Loads for Bowie and Beltsville USDA WWTPs for 2005 and 2030 (assumed equal to the Maryland ENR total load caps) taken from Maryland's Tributary Strategy Statewide Implementation Plan, 2008. The Town of Bowie anticipates flows lower than the 3.3 mgd plant capacity in 2030, which would be expected to produce loads lower than the ENR caps if the plant is achieving ENR performance. The higher ENR caps therefore provide a conservative estimate of Bowie WWTP point source loads in lieu of plant-specific data, but should be revisited after the plant's ENR upgrades are brought into service, or upon any revisions to the terms of the plant's NPDES permit.

[<sup>1</sup>Washington Suburban Sanitary Commission

Maryland's Tributary Strategy Statewide Implementation Plan. Year 2030 loads for

<sup>2</sup>Bowie and Beltsville USDA WWTPs assumed equal to Maryland's ENR total load caps.

\*Note: The Marlboro Meadows WWTP will not be operating in 2030. Flows will be directed to the Western Branch WWTP (this is reflected in the loads data presented in this table).]

- page 246: add language. 40 gpd per employee\*/91 gpd per resident = 1 employee = 0.44 residents. Based on the current and future population data (described in the preceding Septic System Data Input section), in the Patuxent watershed, 8,661 current households and 5,317 current employees are estimated to yield an annual nitrogen load of 99,070 pounds, versus future scenarios in which 10,117 households and 12,721 employees are predicted to yield an annual nitrogen load of 118,919 pounds. In the Potomac watershed, 7,423 current households and 12,402 current employees are estimated to yield an annual nitrogen load of 98,037 pounds, versus future scenarios in which 9,295 households and 16,276 employees are predicted to yield an annual nitrogen load of 116,927 pounds. These estimated loads were used as the septic system data inputs for the nonpoint source modeling runs described in the next section.
- page 247: add language **NONPOINT SOURCE LOADING MODEL RUNS AND RESULTS**  
A number of model runs were conducted with PLAM to obtain information on the potential range of loading rates if land use acreages alone are changed and if BMPs are also changed. The land use acreage used as the basis for the model runs are encompassed in the initial conditions scenario (described on page 200), and the future trend and future ideal scenarios (described beginning page 207). These model runs included the following:
- page 250: add language. This model run illustrates the impact of current land use conditions on nutrient loads to the watersheds of Prince George's County. The impervious acres estimated for the future Ideal versus future Trend development scenarios demonstrate the benefits of the county's smart growth vision compared to existing development patterns, which would be expected to result in a 2% increase in the percentage of county land area covered by impervious surfaces by 2030. In contrast, the results of the Ideal scenario indicate impervious coverage increases can be controlled by increasing the rates of redevelopment and infill development versus the current trends toward greenfield development. By applying MDE's loading rates consistently over the Initial and Future scenarios, the nutrient impacts of modifying future degrees of development densities and land preservation are predicted to be small in comparison with current estimated loads, which demonstrates the need for improved land management methods to reduce loading rates from existing land in addition to improved development practices which result in reduced runoff and nutrient loads.
- pages 249, 252, 253, and 259, tables 42, 43, 44, and 46: Amend tables to show amount and percentage of impervious coverage for all model runs. Amended tables will include new notations to address data sources used to calculate the results shown for each model run. Included as Attachment 7.

- page 264: amend language. **SUMMARY OF FINDINGS FROM PRINCE GEORGE’S COUNTY MODELING** The results of Run 1 predict a net increase in future 2030 nutrient loads compared to the initial conditions. The predicted loads include data for terrestrial, septic, and point sources. **The analysis of wastewater point source and septic loads indicate that on a per capita basis, the annual nitrogen loads from populations served by septic systems average approximately 3.1 pounds per person, versus approximately 0.6 to 1.1 pounds per person for the populations served by wastewater treatment plants. The analysis of land use scenarios in [results of] Run 1 show that terrestrial loads are significant (averaging approximately 2.1 pounds nitrogen per person per year), and** that the alternate land use scenarios impact the amount of **impervious coverage and** nutrient loading generated from development, but these differences are masked by the magnitude of the existing loads which comprise a very large percentage of the future terrestrial loads. These results demonstrate the need for improved land management methods to reduce loading rates from existing land in addition to improved development practices that result in reduced runoff and nutrient loads.
- page 265: add language. The results of Run 2 (Septic Upgrades, Potomac and Patuxent 6-Digit Watersheds) show that a countywide program to upgrade half of the existing septic systems to achieve denitrification and a requirement that all new septic systems be denitrifying would only generate a small (approximately two percent) reduction in the countywide total nitrogen load. **However, on a per capita basis, this analysis shows that the annual loads per person could be reduced by approximately one-third by implementing this type of strategy, reducing the estimated nitrogen loads per person from approximately 3.1 pounds to 2.1 pounds per year. This reduced per capita load is still approximately two to four times higher than the estimated loads per person for populations served by advanced wastewater treatment plants.**
- page 265: add language **SUMMARY OF FINDINGS:** The Water Resources Plan provides a starting point and a tool for ongoing and future water quality impact assessments of the county’s watersheds. **As additional data become available the ensuing Water Resources Plans should continue to update and refine NPS analysis appropriately.**
- Page 267, Appendix I, Attachment 1: revise. Included as Attachment 8.

## **APPENDIX II: WSSC WASTEWATER CAPACITY PROJECTIONS**

- page 272A, Appendix II: Insert Parkway WWTP current and future wastewater discharge capacity. Included as Attachment 9.
- page 275A: add attachment. Sanitary Sewer Overflows (SSOs). Included as Attachment 10.
- page 275, Show wastewater flows to Blue Plains WWTP from Prince George’s County. Included in Attachment 6.

NOW, THEREFORE, BE IT RESOLVED, that The Maryland-National Capital Park and Planning Commission does hereby adopt the *Preliminary Water Resources Functional Master Plan*, said plan being an amendment the 2002 *Prince George’s County Approved General Plan; 2009 Approved Master Plan of Transportation; 2008 Approved Public Safety Facilities Master Plan; 1983 Adopted and Approved Public School Sites Functional Master Plan; 1993 Glenn Dale-Seabrook-Lanham and Vicinity Master Plan; 1993 Landover and Vicinity Approved Master Plan; 1993 Subregion V Approved Master Plan; 1994 Bladensburg, New Carrollton and Vicinity (PA 69) Approved Master Plan; 1994 Melwood/Westphalia Approved Master Plan; 1994 Planning Area 68 Approved Master Plan; 1994 Subregion VI Study Area Approved Master Plan; 1997 College Park Metro-Riverdale Transit District Development Plan; 2000 Brentwood Mixed-Use Town Center Zone Development Plans and Design Guidelines; 2000 Addison Road Metro Sector Plan; 2000 The Heights and Vicinity Approved Master*

*Plan; 2001 Anacostia Trails Heritage Area Management Plan; 2001 Greenbelt Metro Sector Plan; 2002 College Park US 1 Corridor Sector Plan; 2004 Riverdale Park Mixed-Use Town Center Zone Development Plans and Design Guideline; 2004 Approved Prince George's County Gateway Arts District Sector Plan; 2004 Morgan Boulevard-Largo Town Center Sector Plan and Sectional Map Amendment; 2005 Tuxedo Road-Arbor St.-Cheverly Metro Sector Plan; 2005 Green Infrastructure Plan; 2006 Bowie and Vicinity Approved Master Plan; 2006 Suitland Mixed-Use Town Center Zone Development Plan; 2006 East Glenn Dale Area Approved Sector Plan; 2006 Henson Creek-South Potomac Approved Master Plan; 2006 West Hyattsville Transit District Development Plan; 2007 Bladensburg Town Center Approved Sector Plan; 2007 Westphalia Approved Sector Plan; 2008 Capitol Heights Transit District Development Plan/Transit District Overlay Zone and Zoning Map Amendment; 2008 Branch Avenue Corridor Sector Plan and Endorsed Sectional Map Amendment; 2009 Port Towns Sector Plan and Sectional Map Amendment; 2009 Landover Gateway Sector Plan and Sectional Map Amendment; 2009 Marlboro Pike Sector Plan and Sectional Map Amendment; 2009 Subregion 5 Master Plan and Sectional Map Amendment; 2009 Subregion 6 Master Plan and Sectional Map Amendment; 2010 Glenn Dale-Seabrook-Lanham and Vicinity Sector Plan and Sectional Map Amendment; and*

BE IT FURTHER RESOLVED that an attested copy of the adopted functional master plan, and all parts thereof, shall be certified by the Commission and transmitted to the District Council of Prince George's County for its approval pursuant to Article 28, Annotated Code of Maryland and Section 27-645(c) of the Prince George's County Code; and

BE IT FURTHER RESOLVED that this adoption shall be recorded by an appropriate Certificate of Adoption containing the identifying signature of the Chairman of the Commission and shall be affixed to this resolution with a notation indicating: "This resolution is to be used in conjunction with the *Preliminary Water Resources Functional Master Plan.*"

\* \* \* \* \*

This is to certify that the foregoing is a true and correct copy of a resolution adopted by the Prince George's County Planning Board of The Maryland-National Capital Park and Planning Commission on the motion of Commissioner Vaughns, seconded by Commissioner Clark, with Commissioners Parker, Cavitt, Clark, Squires, and Vaughns voting in favor of the motion at its regular meeting held on Thursday, April 22, 2010, in Upper Marlboro, Maryland.

Adopted by the Prince George's County Planning Board this 22<sup>nd</sup> day of April 2010.

Patricia Colihan Barney  
Executive Director

By: Frances J. Guertin  
Planning Board Administrator