

HARFORD COUNTY PHASE II WATERSHED IMPLEMENTATION PLAN

DRAFT

NOVEMBER 18, 2011

I. OVERVIEW OF HARFORD COUNTY'S PROCESS

Harford County is located in northeastern Maryland at the headwaters of the Chesapeake Bay. It is bordered to the east by the Susquehanna River, a major tributary to the Bay contributing fifty percent of its freshwater input. To the north lies Pennsylvania and to the west Baltimore County. At its southern boundary the County borders Aberdeen Proving Grounds, a U.S. Army garrison occupying 72,500 acres of land and water in both Harford and Baltimore Counties. Three municipalities lie within Harford County: the Town of Bel Air, the City of Aberdeen, and the City of Havre de Grace. Harford County lies within two of the five major Chesapeake Bay basins in Maryland: Susquehanna River and Western Shore.

Harford County's approach to address the development of the Phase II Watershed Implementation Plan (WIP) was to establish a Core Team of County, municipal, State and federal staff with expertise in the various nutrient source sectors identified by the US EPA. The Core Team was composed of the Directors and Deputy Directors of the County and municipal Departments of Planning & Zoning and Public Works; County staff administering the NPDES MS4 Permit, the Water & Sewer Program, and Environmental Planning; and, representatives of the Health Department, Harford Soil Conservation District, and Aberdeen Proving Grounds. The Core Team met on a monthly basis to discuss current capacity, strategies to meet the nutrient load allocations, and two-year milestones. Core Team meetings will continue as the County develops its Phase II WIP by July 2, 2012.

Nutrient load allocations to meet the Chesapeake Bay TMDL were divided by the State among the various source sectors on an equity basis, so that each source sector in the County was given a nutrient load reduction to be met, notwithstanding costs. Nutrient reduction targets have been set for agriculture, major wastewater treatment plants, urban stormwater and septic systems. The Core Team is addressing each source sector and developing strategies to meet the nutrient load reductions; however, the County will consider costs per pound of nutrient reduction in developing its final strategy. Funding has not been addressed in this initial draft submittal.

Past Successes

Harford County has a long history of smart growth since the establishment of a Development Envelope in the 1977 Master Plan and Land Use Element Plan. The Development Envelope was established in order to focus development within a defined area served by public water and sewer. Since that time approximately 80% of the growth in the County has occurred within this envelope. The two major wastewater treatment plants serving the Development Envelope currently have BNR (biological nutrient removal), with ENR (enhanced nutrient removal) expected within the next few years. Resource protection programs within the County include the

Natural Resources District established in 1983, which requires a 75-foot buffer to nontidal wetlands and either a 75 or 150 foot buffer on streams at the time of subdivision and site plans; the Forest Conservation Program; floodplain regulations; and, the Chesapeake Bay Critical Area Program.

The County has administered a NPDES/MS4 Phase 1 Permit since 1994, which covers stormwater management, sediment and erosion control, and watershed planning. Under the requirements of the MS4 permit, watershed assessments that prioritize capital improvement projects are performed that include stormwater retrofits and stream restorations. Other nutrient activities include street sweeping, public outreach and tree planting incentives through the Growing Home Campaign.

Each of the municipalities in the County has a MS4 Phase II general permit, which includes compliance with stormwater management regulations, inspections of Best Management Practices (BMPs) for proper maintenance, and street sweeping. The City of Aberdeen has an extensive program for remediation of stormdrain inlets, pipes, and outfalls and also a dedicated funding source for this work. There is also an extensive inflow and infiltration program aimed at removing stormwater from the collection system which allows the advanced wastewater treatment plant to operate more efficiently.

A proactive approach to the use of best available technology (BAT) has been a standard of operations for the Harford County Health Department. The Health Department has had success in the installation of denitrifying septic systems using the Bay Restoration Fee. Fifty-one (51) BAT units have been installed in the Critical Area in the County and sixty-four (64) units have been upgraded outside of the Critical Area. In addition, the Health Department has worked to put existing large systems under Groundwater Discharge Permits (GDP) which require increased nitrogen reduction from the septic system effluent. In 2006 approximately 39 septic systems in the Campus Hills Estates and Campus Lakes subdivisions were required to be upgraded with nitrogen reducing technology in order to protect the Campus Hills Well Head Protection Area. The following commercial/institutional septic systems were upgraded with nitrogen reducing technology as well: Mountain Christian Church; Arena Club; Fallston High School; Fallston Middle School; Red Pump Elementary School; McDonalds on Schucks Road and Rt. 22; Bull on the Beach restaurant on Rt. 22; WaWa on Rt. 22; Food Lion in the Campus Hills Shopping Center; My Three Sons on Rt. 22 and Quick E Mart at Rts. 543 and 136. The Swan Creek Golf Course septic system in the Critical Area has been abandoned and 150 septic systems have been converted to holding tanks and routinely pumped.

The Harford Soil Conservation District has had much success in the implementation of BMPs on agricultural land in the County. All of the BMPs are tracked through Conservation Tracker through the Maryland Department of Agriculture.

II. COUNTY AREA PHASE II WIP STRATEGIES

The strategies presented herein are draft technical analysis developed by locality staff members. The strategies represent theoretically viable options that may prove to be not technically feasible and may be modified at the discretion of the locality. This document has not been adopted by the respective governing bodies for each locality. All commitments of resources to implement these strategies must be approved by those respective governing bodies.

Based on the inaccuracies in disaggregating the loads to a local level, it is difficult for the localities to develop effective management plans or to develop meaningful budget projections. The finalization of a plan to be presented to the governing bodies will not occur until the requirements and objectives are clearly outlined by the State and EPA.

Agriculture

Nutrient load reduction strategies are being addressed through an Agricultural Workgroup in the County and being reported through the Maryland Department of Agriculture.

Wastewater Treatment Plants

Enhanced nutrient removal (ENR) will be installed at the County's two major wastewater treatment plants. The largest plant, Sod Run, has a design capacity of 20 mgd. Construction is expected to begin by the end of the first quarter of 2012 and is anticipated to be completed by March 2015. The Joppatowne wastewater treatment plant has a design capacity of .95 mgd. Construction of ENR at this plant is expected to begin by May 2012 and is anticipated to be completed by July 2014. The County will be seeking legislative approval to implement an ENR fee in order to pay for the local share of costs for the upgrades.

Two of the three municipalities in Harford County own major wastewater treatment plants. The City of Havre de Grace's plant is already served by ENR. The City of Aberdeen expects to complete the upgrade of its wastewater treatment plant to ENR by 2013.

In addition, the County will pursue with the Board of Education the reconnection of the outfall of the minor wastewater treatment plant serving the North Harford High School to a nontidal wetland for tertiary treatment of wastewater. Several years ago when the wetland was established as a school project for treatment of the effluent the students at the school were able to demonstrate a significant reduction in nutrient levels.

Septic Systems

Phase II WIP implementation strategies for septic systems have focused on two main practices: hook-up of septic systems to public sewer and installation of denitrifying septic systems. The

Health Department will create a detailed report on nitrogen loads from septic systems in the County, including a detailed and accurate inventory of systems. This report will be used to determine actual nitrogen load data and to establish high priority areas. A tracking system that records new nitrogen loads and load reductions from denitrifying systems or hook-ups will be established.

Urban Stormwater

The County's and municipalities' strategy to address regulated urban stormwater is to continue implementation of the NPDES MS4 Permits. Since 2009 the County has been awarded Trust Fund grants to target the Wheel Creek subwatershed for stream restoration and retrofit projects. Small Watershed Action Plans have been developed for two watersheds, in addition to Wheel Creek, and are being developed for several more. Restoration will continue to be focused as determined by the Small Watershed Action Plans. The County will continue to negotiate the conditions of the draft MS4 permit with MDE in order to establish permit conditions that are clear and unambiguous, maximize water quality credits, and outline achievable goals considering costs. Subsequent to that renewal, the County will submit the required planning documents necessary to document restoration strategies to address the Chesapeake Bay TMDL.

Urban Nutrient Management Planning

Harford County anticipates investigating low-cost alternatives to address nutrients at the source before there is a need to provide treatment. Some of those alternatives are behavioral changes through public outreach for the citizens and businesses, reforestation, stream buffer plantings, street sweeping, and meadow plantings. Management practices on County-owned property will be analyzed and recommendations developed for opportunities such as those listed above as well as impervious cover reduction and stormwater BMP retrofits. Based on the finding for County-owned property, the County will investigate implementing a program for private properties.

Other

Harford County anticipates having a newly adopted Master Plan and Land Use Element Plan by the spring of 2012. This plan incorporates sustainability as a major element of the plan, and incorporates references to the nutrient reduction goals of the Chesapeake Bay TMDL and the local Phase II Watershed Implementation Plan. Strategies in the Plan focus on targeting additional growth into the Development Envelope, enhancing the Transfer of Development Rights Program, and eliminating the Rural Residential land use classification in the rural area, thus eliminating the potential for a substantial number of septic systems. In addition, the Plan calls for the development of a tracking mechanism to monitor the BMPs being undertaken to improve water quality and meet nutrient and sediment reduction goals.

III. 2012 – 2013 MILESTONES

Agriculture

Milestones will be submitted separately through the Maryland Department of Agriculture.

Wastewater Treatment

- Sod Run Wastewater Treatment Plant will be under construction for ENR. Construction will begin by the end of the first quarter of 2012 and is anticipated to be completed by March 2015.
- Joppatowne Wastewater Treatment Plant will be under construction for ENR. Construction will begin by May 2012 and is anticipated to be completed by July 2014.
- The County will be seeking legislative approval to implement an ENR fee to pay for the local share of the costs.
- North Harford High School minor wastewater treatment plant – pursue the reconnection of the outfall to the wetlands for additional treatment of the effluent.
- The Enhanced Nutrient Removal Project at the Aberdeen Advanced Wastewater Treatment Plant will be completed by 2013.

Septic Systems

Programmatic Milestones:

- Create a local task force to make recommendations for funding septic system upgrades and sewer connections.
- Create a detailed report on nitrogen loads from septic systems in Harford County. Use the report to determine actual nitrogen load data and to establish high priority areas.
- Establish a tracking system that records new nitrogen loads and load reductions from septic systems.

Anticipated Septic System Nitrogen Removal Projects:

- Harford Community College
Nitrogen Reducing Septic System Upgrade

- Harford Tech/Prospect Mill Elementary/John Archer
Nitrogen Reducing Septic System Upgrade
- Fallston High School/Fallston Middle School
Nitrogen Reducing Septic System Upgrade
- Father Martin Ashley
Nitrogen Reducing Septic System Upgrade *
* Timeframe for completion of the upgrade is unknown at this time (may be completed beyond 2013).
- Wright's Mobile Home Park (60 mobile homes)
Connection to public sewer (effluent to be treated @ ENR plant)
- 20 Single Family Dwellings
Existing Septic Systems upgraded with BAT units
- 30 Single Family Dwellings
Existing Septic Systems connected to Public Sewer

Urban Stormwater

Harford County:

Programmatic:

- Upgrade Water Resources portion of the County website
- Continue to negotiate the conditions of the MS4 permit with MDE
- Coordinate with MDE for the development of trading guidelines between other urban sectors within the County (non-regulated, municipalities, schools, and State Highway) (i.e. if SHA completes a project in Harford County, how is the credit assigned?)
- Upon approval of the MS4 permit, develop watershed assessment planning and restoration as required
- Investigate implementation of Urban Nutrient Management Plans on County-owned and School-owned properties
- Investigate budget needs to meet the requirements and develop strategies for funding gaps

Projects:

- Complete two (2) watershed restoration plans for 1,800 acres (270 impervious acres)
- Initiate four (4) watershed restoration plans for 5,200 acres (900 impervious acres)
- Construct six (6) stream restoration projects for 13,000 linear feet (130 impervious acres)
- Construct four (4) stormwater retrofit projects (52 impervious acres)
- Complete four (4) restoration designs
- Initiate three (3) restoration designs
- Continue to coordinate with City of Havre de Grace on the Lilly Run project
- Continue to coordinate with Town of Bel Air for restoration projects in Plumtree Run
- Continue to coordinate with SHA for a stream restoration in Plumtree Run

Town of Bel Air:

Programmatic:

- Investigate budget needs to meet the requirements and develop strategies for funding gaps

Projects:

- Forest Conservation / Tree City USA
Continue street tree plantings with no net loss policy. Initiate in-street stormwater bio-retention projects as part of pedestrian walkway improvement projects.
- Plumtree Run daylighting project
Remove existing piped section of Plumtree Run through Plumtree Park as part of an aquatic restoration/stormwater management project.
- Complete FEMA approved flood mitigation plan
- Partner with Harford County to plan and construct several watershed restoration projects on Plumtree Run
- April through October – monthly (weekly in downtown district) street sweeping

- October through December - weekly loose leaf pickup

City of Havre de Grace

Programmatic:

- Develop a complete data base of BMPs within the City
- Begin the budget process to convert the data base to a GIS.
- Search for grants to complete retrofits and implement BMPs identified
- Obtain information from MDE on the City's landmass and use plan to be able to use MAST for planning and reporting purposes.

Projects:

- The Community Legacy project that was recently passed by Council Resolution, which includes landscaping and environmental enhancements along tributaries at the north end of Juniata Street. Portions of this project are within the Chesapeake Bay Critical Area and will provide water quality benefits as well as beautification, signage to downtown, and improved pedestrian access. If funded through the State Community Legacy grant process, the project would proceed in FY13.
- The engineering design for Citizens Care Park (pending City Council approval). This has the potential to be a significant water quality retrofit project in old town Havre de Grace.
- Continued buffer enhancements in David Craig Park, ongoing at this time (may need to get a base-line on this site to get credit for current and near-future improvements; tree planting and 15- foot Critical Area Buffer as per City's Critical Area Program)
- Continued work for Lilly Run project, to include application for grant through Chesapeake Bay Trust for \$35,000 (Watershed Assistance Grant) to continue engineering for Joint Permit through MDE/Army Corps of Engineers. Also working through the Center for Watershed Protection to include the Lilly Run project in a piece through the Local Government Advisory Council to increase water quality benefits for proposed flood relief improvements for the Lilly Run stream system. This is a large, multifaceted project which will require a substantial amount of time to design, fund, and complete (a two-year milestone approach will be good to keep this project moving forward due to its complexity).

City of Aberdeen

Programmatic:

- Review current Road Code for reductions in impervious surface and the use of open section roadways where applicable.
- Work on a policy to offer stormwater credits on impervious area reductions throughout the City.
- Search for grants to complete retrofits and implement BMPs that will reduce nitrogen, phosphorus and sediment loadings. A City Grants Coordinator will be dedicated to this research.

Projects:

- Upgrade of the Swan Meadows residential development (200 homes) infrastructure to include: roads, water, sewer, and stormdrains.
- Identify various water quality initiatives throughout the City that can be utilized by developers to offset stormwater management requirements.
- Forest management in the City's 64.08 acre well field to allow for increased infiltration and enhanced forest regeneration which will net reductions in nutrients.
- The City has one (1) current retrofit scheduled for construction and there are several retrofits in the planning stage but they need a funding source.

IV. TRACKING, VERIFICATION AND REPORTING METHODS

Agriculture

Agricultural BMPs are tracked and reported through the Soil Conservation District's reporting to the Maryland Department of Agriculture.

Wastewater Treatment

Implementation of ENR at the major wastewater treatment plants is tracked through the County and municipal Departments of Public Works and through the Maryland Department of Environment via their funding programs.

Septic Systems

The County Health Department will establish a tracking system that records new nitrogen loads and load reductions from septic systems. Hook-ups to the County's public sewer system will be tracked by the Harford County Department of Public Works.

Urban Stormwater

The County will continue to submit all of the tracking and reporting through annual submittals under the MS4 permit. The municipalities will continue to submit annual reports to the Maryland Department of Environment under the MS4 General Permit.

- V. RELATIONSHIP OF LOCAL WATERSHED PLANNING FRAMEWORK TO PHASE II WIP (optional)
- VI. IDENTIFICATION OF TECHNICAL DISCREPANCIES, SUCH AS DATA CONCERNS, AND RECOMMENDED FUTURE STEPS TO ADDRESS THESE CONCERNS.

MAST

Because of the serious limitations of the current version of MAST, it is not a useful tool for local planning purposes. Some of these limitations are outlined below:

- Distribution of BMPs is applied as an equal percentage amongst all of the urban sectors within the baseline provided by MDE. Local implementation does not occur on a percentage basis. This makes the tool unhelpful in planning, from a local government perspective.
- Because local governments are still in the process of performing watershed evaluations, it is speculative to estimate the quantity of specific BMPs that can be implemented.
- The loads calculated from the baseline do not match those provided by EPA; therefore, the current version of MAST does not provide useful output to determine if load allocations are being met.
- Federal land has been disaggregated but State land has not.

DRAFT