

# Fredericksburg's Municipal Separate Storm Sewer System (MS4) Program

## Complying with the Chesapeake Bay Total Maximum Daily (TMDL) Special Condition



### Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment

December 29, 2010

U.S. Environmental Protection Agency  
Region 3  
Water Protection Division  
Air Protection Division  
Office of Regional Counsel  
Philadelphia, Pennsylvania

U.S. Environmental Protection Agency  
Region 3  
Chesapeake Bay Program Office  
Annapolis, Maryland

and

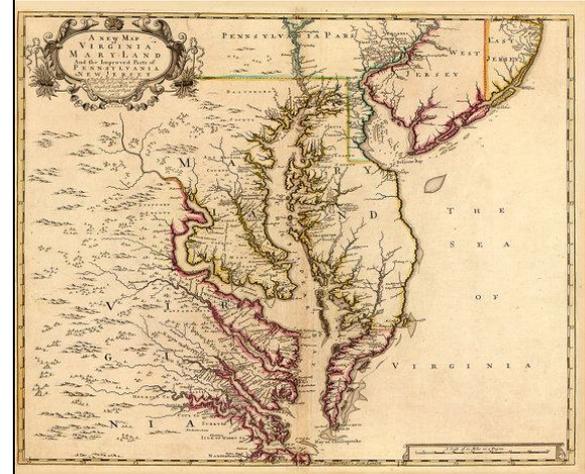
U.S. Environmental Protection Agency  
Region 2  
Division of Environmental Planning and Protection  
New York, New York

*in coordination with*

U.S. Environmental Protection Agency  
Office of Water  
Office of Air and Radiation  
Office of General Counsel  
Office of the Administrator  
Washington, D.C.

*and in collaboration with*

Delaware, the District of Columbia, Maryland, New York, Pennsylvania, Virginia, and West Virginia



June 30, 2015



## Regulatory Background

- Stormwater discharges from the approximate 40 jurisdictions in Virginia with Municipal Separate Storm Sewer System (MS4s) are regulated under the federal Clean Water Act and the Virginia Water Control Law.
- The City must comply with the Virginia General Permit for Discharges of Stormwater from Small MS4s (General Permit).
- The General Permit requires the City address six Minimum Control Measures (MCMs):
  - Public Education and Outreach
  - Public Participation
  - Illicit Discharge Detection and Elimination
  - Runoff from Construction Sites
  - Runoff from New Development and Redevelopment
  - Pollution Prevention/Good Housekeeping at City Activities



## General Permit Special Conditions

- Regulatory agencies develop Total Maximum Daily Loads (TMDLs) for impaired waterbodies in order to determine the amount of pollutants that can be discharged.
- MS4 jurisdictions are allocated a percentage of the pollutant loading.
- The General Permit includes Special Conditions that mandate the MS4 operator not discharge more pollutants than it is allocated.
- The General Permit has a Special Condition that mandates the City develop a TMDL Action Plan for pollutants discharged to the Chesapeake Bay in order to meet its allocation.

## What Pollutants Does the City Need to Address in its Chesapeake Bay TMDL Action Plan?

- Nutrients
  - Nitrogen
  - Phosphorus
- Sediment





## Where Does the City Have to Address These Pollutants?

- City owned properties where it **Applies Nutrients** (i.e., fertilizers) to a contiguous area that is one acre or more in size.
- Temporary activities such as land disturbance at construction sites. These sources are referred to as **Transitional Sources**.
- Stormwater runoff from areas of the City developed *after July 1, 2009*. These sources are referred to as **New Sources**.
- Stormwater runoff from areas of the City developed *before July 1, 2009*. These sources are referred to as **Existing Sources**.

## What Does the City Have to do in its TMDL Action Plan?

- Minimize nutrients from its nutrient application.
- Implement, to the maximum extent practicable, “Means and Methods” to address loads from New Sources and Transitional Sources.
- Reduce annual pollutant loads from Existing Sources.
  - Total reductions are based on the acreage serviced by the MS4, the type of urban land use (pervious or impervious), and EPA’s Chesapeake Bay Model.
  - Existing Source reductions can be phased over three five-year permit cycles.
    - 2013-2018 (Current) – The first 5% of the total required annual reductions.
    - 2018-2023 – The next 35% of the total required annual reductions.
    - 2023-2028 – The final 60% of the total required annual reductions.

## Minimizing Pollutants from Applied Nutrients

- The City is required to develop and implement **Nutrient Management Plans (NMPs)** at two city parks.
- The NMPs will cover 17 acres of fertilized park land.
- The City has partnered with the Tri-City County Conservation District to develop the NMPs.



Facility Name	Area (Acreage)	Latitude	Longitude
Dixon Street Park	15.0	38°17'13"N	-77°27'14"W
Old Mill Park	2.0	38°19'02"N	-77°28'03"W
<b>Total Acreage</b>	<b>17.0</b>		

## Addressing Pollutants from Transitional Sources

The City will address pollutants from Transitional Loads through the continued enforcement of the erosion and sediment control requirements found in the City Ordinance under its mandated **Virginia Erosion and Sediment Control Program (VESCP)**.





## Addressing Pollutants from New Sources

- The City was mandated by the State prior to July 1, 2009 to manage storm water as part of its General Permit requirements and its Chesapeake Bay Preservation Act.
- As a result, the City has sufficiently addressed the pollutant loads from all **New Sources** at the time of the development.
- The City will continue to implement its **Virginia Stormwater Management Program (VSMP)** in a manner that is consistent with Virginia State Law.



## Identifying Mandated Pollutant Reductions from Existing Sources

- The City is required to reduce pollutant loads in storm water runoff from 3,149 acres of developed land (Existing Sources) that discharged through its MS4 as of July 1, 2009.
- The City's responsibility for Existing Sources does not include properties that were undeveloped as of July 1, 2009, properties that were owned by federal or state governments (such as the properties of the National Park Service and Mary Washington University), or properties located within Virginia Department of Transportation right-of-way.



## Quantifying the Mandated Pollutant Reductions from Existing Sources

- The annual pollutant load reductions associated with the 3,149 acres of Existing Sources for the 2013-2018 MS4 General Permit cycle are:
  - Nitrogen 98.8 lbs.
  - Phosphorus 20.6 lbs.
  - Sediment 7,925.4 lbs.
- These reductions represent only 5% of the estimated total annual pollutant load reductions from Existing Source loads by the City of Fredericksburg. The remaining reductions will be required in future General Permit cycles through 2028.

## Addressing Pollutants from Existing Sources

- Fredericksburg is highly urbanized with little available land to install storm water retrofits.
- Fredericksburg will rely on annual street sweeping to meet the required reductions from Existing Sources during the first General Permit cycle.



Required Amount of Annual Street Sweepings Required to Meet the Required Existing Source Reductions						
Targets		Conversion Factors			Total Collections Required	
Pollutant	5% Reduction Target	Lbs. per Dry Weight	Particle Size Distribution	Dry Weight	Street Sweepings, lbs.	Street Sweepings, tons
Nitrogen	98.8	0.0025	1.00	0.70	<b>56,457.1</b>	<b>28.2</b>
Phosphorus	20.6	0.0010	1.00	0.70	29,428.6	14.7
TSS	7,925.4	1.00	0.30	0.70	37,740.0	18.9

## Additional Means the City will use to Address Existing Load Reductions

- The City previously required storm water reductions as redevelopment projects were constructed.
- The City is currently quantifying the total amount of pollutant reductions associated with these redevelopment projects and will take credit for these historical reductions.
- The City will continue to require pollutant load reductions from redevelopment.





## Results of Implementing the TMDL Action Plan

- The City will comply with the General Permit Special Condition for the Chesapeake Bay TMDL
- NMPs will be implemented on 17.0 acres of City park land
- The City will demonstrate adequate progress towards achieving its TMDL allocations consistent with the TMDL assumptions and requirements
- Implementation of the TMDL Action Plan will assist in meeting the 2014 City Council Goal 4: Sustainability and the Natural Environment



## Finalizing the TMDL Action Plan

- The General Permit requires that the City provide the community the opportunity to review and comment on the TMDL Action Plan prior to its completion.
- The community has two methods for submitting comments on its TMDL Action Plan:
  - The community may complete an electronic survey. The survey will be available on the City's Stormwater Management web page from August 11, 2015 until August 25, 2015.
  - The community may submit comments at the September 8, 2015 City Council Public Hearing.
- Submit the TMDL Action Plan to DEQ as part of its MS4 Annual Report before October 1, 2015.



## The City's Next Steps

- By March 2018, the City must develop the plan's next phase for implementation between 2018 and 2023. The next phase must:
  - Incorporate any changes to the TMDL as a result of federal changes to the Bay Model or the General Permit
  - Continue to control pollutant loads from Transitional Sources and New Sources
  - Implement the next round of pollutant reductions from Existing Sources, which requires that the City reduce the annual pollutant loads by an **additional 35%**
- A Plan for the Third Phase will be due in 2023.



The City encourages its citizens to review and provide comment on the City's Chesapeake Bay TMDL Action Plan

**Thank You from the City of Fredericksburg**