

# Stormwater Management

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LOB #365:

## **STREAM AND WATER QUALITY IMPROVEMENT PROJECTS**

### **Purpose**

This program funds the design and construction of water quality projects necessary to mitigate the impacts to local streams and the Chesapeake Bay resulting from urban stormwater runoff and comply with the Chesapeake Bay Total Maximum Daily Load (TMDL) and Local TMDL requirements that are defined in the County's Municipal Separate Storm Sewer System (MS4) permit. Total Maximum Daily Load requirements for local streams and the Chesapeake Bay are the regulatory process by which pollutants entering impaired water bodies are reduced. The Chesapeake Bay TMDL was established by the EPA and requires MS4 communities as well as other dischargers to implement measures to significantly reduce the nitrogen, phosphorous and sediment loads entering waters draining to the Bay by 2025. Compliance with the Bay TMDL will require the County to undertake construction of new stormwater facilities, retrofit existing facilities and properties, and increase maintenance. Preliminary estimates indicate that the projects needed to bring the County's stormwater system into compliance with the Chesapeake Bay TMDL could cost between \$70 and \$90 million per year. This program also supports the implementation of projects generated by the 30 watershed master plans as well as flood control projects, citizen response projects and other special project needs meeting the established project implementation criteria.

### **Description**

This program includes the design and construction of water quality improvement projects such as stream and stormwater outfall restorations, retrofit of existing stormwater management facilities, implementation of low impact development techniques on County properties and the implementation of the approximately 1,700 water quality projects identified in the completed Countywide Watershed Management Plans.

The County is required to reduce Phosphorous, Nitrogen and sediment loads from its stormwater system by 9,740 pounds/year, 81,900 pounds/year and 8,140,000 pounds/year respectively by 2030 to comply with its current Chesapeake Bay TMDL requirements. The County must achieve Chesapeake Bay TMDL load reductions of 5 percent during the current MS4 permit cycle, which ends on March 31, 2020. The County must achieve 35 percent and 60 percent Chesapeake Bay TMDL load reductions during its next two five year permit cycles respectively. Project work plans are coordinated with the Board of Supervisors prior to annual budget adoption and initiation of design contracts. Projects are designed and constructed through engineering and construction contracts with private firms. Community involvement and feedback on needs and proposed designs is an integral part of the design process. The program has been managed by Stormwater staff since January 2000. This program provides professional project management, construction administration and quality control to assure implementation of stream restoration and water quality capital improvement program projects in a timely, safe, cost-effective, high quality and environmentally-sensitive manner. In addition, this program also provides the coordination and negotiation of partnerships with the towns of Vienna and Herndon, Fairfax County Public Schools and other County agencies to implement facilities to address existing stormwater deficiencies that contribute toward the County's Chesapeake Bay TMDL requirements.

Capital project funding sources include dedicated Stormwater funds, Pro-Rata share funds and Virginia Stormwater Local Assistance Grant Funds.

Major areas of responsibility of the implementation of the streams and water quality CIP program include:

- Project Development
- Project Planning and Land Needs
- Engineering Consultant Selection, Negotiation and Award
- Conceptual Design (15 percent Design)

# Stormwater Management

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- Value Engineering
- Construction Documents (100 percent Design)
- Permits
- Bidding
- Construction Management
- Project Warranty
- Other Major LOB Area Responsibilities include:
  - Preparation of Budget Cycle Submissions for Capital Projects for Annual Budget, Carryover Budget and Third Quarter Budget Review
  - Collaboration with Board of Supervisors members and the Fairfax County Park Authority in the preparation of the Annual Capital Improvement Program (CIP) for stormwater capital improvement projects
  - Managing Capital Project cash flow projections
  - Development and upkeep of the design scopes of work standard for stream restoration and projects
  - Implementation of Board of Supervisors-mandated policies such as Value Engineering
  - Preparation of regular project status reports
  - Management and accounting for design consultant contracts including negotiation of changes in contract scope
  - Management and accounting for construction contracts including negotiation of change orders for changes in scope of work
  - Negotiation of agreements for the implementation of stormwater projects within the towns of Vienna and Herndon respectively

This LOB provides the overall project management and construction management for stream and water quality CIP projects in all of the identified areas. This LOB provides direct management responsibility for planning, management and implementation of the County's stream and water quality CIP program for design and construction of stream restoration and water quality projects, and coordination of partnership projects with the towns of Vienna and Herndon, Fairfax County Public Schools and other County agencies capital improvement programs. This program utilizes an array of professional design consultants and construction contractors, in accordance with all applicable procurement regulations, to implement the CIP Program.

Funding within Fund 30090, Pro Rata Share Drainage Construction, also supports the Stream and Water Quality LOB. This funding supports storm drainage capital projects through contributions in accordance with the Pro Rata Share Program that was adopted by the Board of Supervisors on December 16, 1991 and subsequently amended on July 29, 1992 and January 27, 2015. The Pro Rata Share Program provides a funding source to protect water quality and improve drainage by collecting a proportionate share of the estimated cost of the County's stormwater improvement projects through the land development process. Pro Rata Share funds are generated from land development projects that will increase impervious area. Funding contributions range from \$3.0 to \$5.0 million per year. The streams and water quality projects mitigate the impacts to local streams and the Chesapeake Bay resulting from urban stormwater runoff and comply with the Chesapeake Bay Total Maximum Daily Load (TMDL) and Local TMDL requirements that are defined in the County's Municipal Separate Storm Sewer System (MS4) permit. Compliance with the Bay TMDL will require the County to undertake construction of new stormwater facilities and retrofit existing facilities and properties. Funding from this program also supports the studies, design and construction of projects to enhance public safety and better protect County property and infrastructure from flooding.

# Stormwater Management

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## Benefits

The Stream and Water Quality Improvement Projects LOB provides Fairfax County with quality, cost effective stream restoration and stormwater quality infrastructure in a safe, timely and environmentally-sound manner. This LOB area provides the following benefits:

- Stream and water quality improvement projects reduce the Nitrogen, Phosphorous and sediment loads entering state waters to comply with MS4 Permit and Chesapeake Bay TMDL requirements.
- Stabilizing and restoring streams and implementing water quality projects reduces the harmful effects of flooding and erosion, which may threaten or negatively impact public and private property and infrastructure and contribute to excessive loss of trees and land areas.
- Stream restoration projects improve water quality by re-engaging the stream with the natural flood plain during more frequent storm events.
- New and retrofitted stormwater management facilities improve water quality by providing greater retention time of stormwater runoff and filtration of pollutants.
- New and retrofitted stormwater management facilities reduce stormwater runoff volume through infiltration and vegetative uptake.
- Implements Board of Supervisors CIP program for stormwater projects in a timely, safe, cost-effective, high quality and environmentally sensitive manner.
- Provides assurance of quality and regulatory compliance for County stream restoration and stormwater quality improvement projects.
- Provides leadership in promoting the Board of Supervisors' Environmental Agenda making Fairfax County a leader in the state.
- Promotes a culture of safety and promotes safety awareness for staff and contractors.
- Contributes to the Strategic Plan for Economic Success by improving the value of Board of Supervisors and Fairfax County-owned property.
- Professional and proactive project budget and schedule management, and contract administration.
- Provide regular project reporting and coordination with wide array of stakeholders, including the community.
- Provide leadership role in preparation of annual CIP, capital budgets, project funding strategies, and cash flow projections.
- Collaborates with the community to assure awareness and support for County stream restoration and water quality improvement projects.
- Provides new and upgraded stormwater quality facilities necessary to meet MS4 permit and Chesapeake Bay TMDL requirements.
- Correlates with the County vision elements.

## Mandates

This LOB complies with the following laws and regulations:

- This LOB is fully mandated by the Federal Clean Water Act and the Virginia Department of Environmental Quality (DEQ) through the County's Municipal Separate Storm Sewer System (MS4) Permit. The MS4 permit is issued by the state to comply with the Federal Clean Water Act and it allows Fairfax County to discharge stormwater to local streams. Stream and water quality capital improvement projects must be implemented to comply with the Chesapeake Bay TMDL, TMDL's other than the Chesapeake Bay TMDL and Retrofitting on Prior Developed Lands Sections of the MS4 Permit.

# Stormwater Management

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- The Chesapeake Bay TMDL requires the County to reduce Phosphorous, Nitrogen and sediment loads from its stormwater system by 9,740 pounds/year, 81,900 pounds/year and 8,140,000 pounds/year respectively by 2030 to comply with its current Chesapeake Bay TMDL requirements.
- The County must achieve Chesapeake Bay TMDL load reductions of 5 percent during the current MS4 permit cycle, which ends on March 31, 2020.
- The County must achieve 35 percent and 60 percent Chesapeake Bay TMDL load reductions during its next two five year permit cycles respectively.
- The MS4 permit requires that the County develop Action Plans to address sediment TMDL's that have been identified in Popes Head Creek, Bull Run and Difficult Run, Bacteria TMDL's that have been identified in Accotink Creek (Upper and Lower), Four Mile Run, Bull Run, Pope's Head Creek, Difficult Run, Hunting Creek, Cameron Run, Holmes Run, Sugarland Run, Mine Run and Pimmit Run, and a Polychlorinated Biphenyls (PCB) TMDL on the tidal Potomac River.
- The County must complete at least 30 projects by 2020 to retrofit existing development with improved stormwater management.

## Trends and Challenges

This LOB faces the following trends and challenges:

- EPA and the state continue to enact more stringent stormwater requirements. In response to state law, the County adopted a Stormwater Ordinance on July 1, 2014 to comply with the state's more stringent stormwater regulations.
- The state and EPA have discussed enforcing TMDL compliance by 2025 instead of over three permit cycles, which would end in 2030.
- Many miles of streams and private amenity and stormwater management facilities that could be improved or retrofitted to help meet TDL requirements exist on private property. The County must acquire easements through either negotiation or condemnation in order to secure rights to implement and maintain capital improvement projects on private property. Limited opportunities on public land will require that the County develop methods to implement stormwater capital improvement projects on private property to comply with regulatory water quality requirements.
- Many community associations have super majority clauses as part of their covenants and Homeowner Association deeds that require anywhere from 75 percent to 100 percent owner approval before easements with the County can be executed.
- Moving targets for required Chesapeake Bay TMDL load reductions and project benefits/efficiencies.
- The number of local stream TMDL's will continue to increase. Currently, staff has projected that roughly 70 percent to 80 percent of the streams in the County are in fair to poor condition and likely would be considered impaired if assessed by the state. More local TMDL's will be established by the state as it continues to assess and formally designate stream impairments.
- Limited state and federal funds for stormwater projects. The cost to comply with the current Chesapeake Bay TMDL requirements is estimated to cost between \$70 million and \$90 million per year. Without state or federal funding, the burden to comply with this and other permit requirements will likely need to be funded by County property owners through the stormwater tax or a utility.

# Stormwater Management

## Resources

Category	FY 2014 Actual	FY 2015 Actual	FY 2016 Adopted
<b>LOB #365: Stream and Water Quality Improvement Projects</b>			
<b>FUNDING</b>			
<u>Expenditures:</u>			
Capital Projects	\$13,155,500	\$10,211,410	\$15,239,937
Total Expenditures	\$13,155,500	\$10,211,410	\$15,239,937
Total Revenue	\$8,151,411	\$14,745,771	\$15,239,937
<b>POSITIONS</b>			
Authorized Positions/Full-Time Equivalents (FTEs)			
<u>Positions:</u>			
Regular	0 / 0	0 / 0	0 / 0
Total Positions	0 / 0	0 / 0	0 / 0

## Metrics

Metric Indicator	FY 2013 Actual	FY 2014 Actual	FY 2015 Actual	FY 2016 Estimate	FY 2017 Estimate
Pounds of Phosphorous Removed	294	163	208	208	208
Pounds of Nitrogen Removed	1,211	1,215	1,774	1,774	1,774
Pounds of Total Suspended Solids (TSS) Removed	131,325	159,462	113,442	113,442	113,442

Current estimates of the federally mandated Chesapeake Bay Program require the County to reduce 9,740 pounds of Phosphorus, 81,900 pounds of Nitrogen, and 8,140,000 pounds of Total Suspended Sediment (TSS) to the Potomac River and Chesapeake Bay. MS4 Permit holders must achieve 5 percent of the required reductions in the first five years; 35 percent of the required reductions in the second five years; and 60 percent of the required reductions in the third five years.