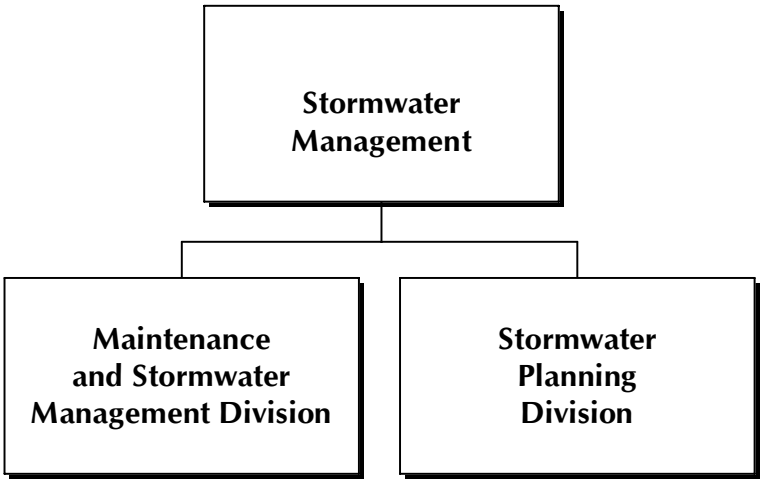
Stormwater Management



Mission

To develop and maintain a comprehensive watershed and infrastructure management program to protect property, health and safety; to enhance the quality of life; to preserve and improve the environment for the benefit of the public. To plan, design, construct, operate, maintain and inspect the infrastructure, and perform environmental assessments through coordinated stormwater and maintenance programs in compliance with all government regulations utilizing innovative techniques, customer feedback and program review; and to be responsive and sensitive to the needs of the residents, customers and public partners.

Focus

Stormwater Management (SWM) consists of the Maintenance and Stormwater Management Division and the Stormwater Planning Division. The two divisions develop, promote and implement strategies that protect the County's stormwater infrastructure and preserve and improve the natural ecosystem. In addition, the agency has an intricate supporting role in emergency response to flooding and other designated emergencies, as well as supporting functions in ongoing transportation and commercial revitalization initiatives. Planning, designing and maintenance efforts are provided through a combination of in-house County staff and contracted services.

Proper management of stormwater is essential to protect public safety; preserve property values; ensure environmental sustainability; and support environmental mandates, such as those aimed at protecting the Chesapeake Bay and the water quality of other local waterways. The construction of flood walls and berms, stabilization and restoration of streams, rehabilitation of dams, implementation of new Low Impact Development techniques and regional detention ponds are some of the techniques used to manage stormwater. The County's stormwater system, which includes 1,800 miles of storm drainage conveyance systems, 45,000 stormwater drainage structures, 1,104 publicly maintained stormwater management ponds and 2,261 privately maintained

THINKING STRATEGICALLY

Strategic issues for the department include:

- Prioritizing maintenance requirements to identify and address the most critical needs;
- Improving communication with all customers in the County; and
- Developing, implementing, and maintaining a comprehensive watershed management program to protect property and ensure environmental quality.

stormwater management ponds, is strained by an aging infrastructure and rapid urbanization that has occurred over the last twenty years. This, in combination with higher water quality standards that must now be addressed by local governments, necessitates a more significant, multiyear investment in terms of funding and staff resources. In response to this challenge, in FY 2006 the Board of Supervisors designated the approximate value of one penny from the County's Real Estate tax, to Fund 318, Stormwater Management Program. In FY 2008 the estimated value of one penny from the County's Real Estate tax, $22.7 million, was again dedicated to the Stormwater Management Program. Program objectives in FY 2008 will continue to assess and make needed repairs and enhancements to the County's storm drainage and stormwater management systems. The program objectives for FY 2008 include identification and prioritization of stormwater projects, and provides for accelerated implementation on projects that have already been identified by Stormwater Management. As watershed management plans are completed throughout the County, the list of stormwater control projects is updated. Project implementation strategies and goals are developed on a watershed basis. As projects are identified, revised project implementation funding requirements and implementation strategies are adjusted in the overall stormwater program goals.

Recognizing the growth in the Stormwater Management Program, and the projected growth in the number of construction projects generated from the completion of watershed management plans, continued staffing and resource management needs require innovative project management between County staff and contracted services. The internal and external partnerships created through outsourced efforts are providing increased opportunity for direct community involvement, and an overall increased understanding of critical challenges and issues related to stormwater management. The responsibilities and overall objectives for each division follow.

Maintenance and Stormwater Management Division

The Maintenance and Stormwater Management Division (MSMD) provides maintenance and rehabilitation services on existing stormwater infrastructure such as, stormwater pipes, catch basins, drainage channels, stormwater management facilities and dams. Stormwater maintenance services are provided in an effort to manage the conveyance of stormwater runoff, mitigate flooding and improve water quality entering water bodies as required by local ordinances and codes, as well as state and federal laws. MSMD provides inspection and oversight of privately maintained stormwater management facilities as required by the state and federal water quality permits.

In FY 2008 MSMD staff, with the assistance of contracted resources will continue the goal of digitally video inspecting, and video taping approximately 5 percent of the storm drainage systems for internal pipe joint separation, and pipe alignment failures. In addition to the internal pipe inspections, MSMD will physically walk and inspect 20 percent of the storm drainage inventory for external pipe system failures and deficiencies such as, cave-ins, blockages and structural failures. MSMD will design and construct approximately 50 drainage rehabilitation projects that are identified by the storm drainage inspection and assessment program. The stormwater assessment and inspection program will continue to focus on data collection, and field verification of approximately 1,500 undocumented facility locations, as well as move toward a focused and aggressive contracted inspection program. The inspections focus on regulatory requisites for the five-year inspection cycle of privately maintained facilities. The five-year private inspection cycle involves inspection of 20 percent, or approximately 452 privately maintained facilities with private maintenance agreements annually. In addition to the private inspection program, and part of the regulatory inspection requirement, the entire inventory of public detention pond facilities will be inspected in FY 2008. The annual public facility inspection cycle includes approximately 1,104 publicly maintained stormwater detention facilities. The use of contracted field inspectors, and additional contracted

technical research staff in this program will offset internal staffing shortfalls in the Stormwater assessment and inspection program. This outsourced effort will ensure compliance with regulatory requirements of the County's Municipal Separate Storm Sewer System (MS4) permit associated with the annual cycle of stormwater inspections. The stormwater assessment and inspection program is providing the identification and prioritization of needed facility retrofit and rehabilitation projects for the publicly maintained facilities, and the documentation of stormwater easements and maintenance agreement data for privately maintained facilities.

Additionally, MSMD maintains transportation facilities such as, commuter rail stations, park-and-ride lots, bus transit stations, and roadway segments that have not been accepted into the Virginia Department of Transportation (VDOT). Other transportation operations maintenance services include: maintaining public street name signs, repairing trails and sidewalks, which are upgraded to meet American with Disabilities Act (ADA) code requirements when necessary, and landscaping services along transportation routes in commercial revitalization districts.

In FY 2006, under the direction of the Fairfax County Board of Supervisors, maintenance service levels for the County owned bus shelter program were increased. In conjunction with the increased service levels in the bus shelter program and beginning in FY 2007, a joint effort between MSMD and the Fairfax County Office of the Sheriff related to bus shelter maintenance in Fairfax County, increased resources to the maintenance program through added assistance and support provided by the Community Labor Force (CLF). This effort will continue in FY 2008 with Fairfax County owned and operated bus shelters receiving more frequent trash removal, cleaning and maintenance services to provide cleaner and safer conditions for riders at these bus shelters.

MSMD provides support during emergency response operations. The division is responsible for snow removal from all County owned and maintained facilities including fire stations, police stations, mass transit facilities, government centers, libraries, health centers, and recreation centers. The division also provides equipment, labor and technical support to the Fire and Rescue Department, Police Department, Health Department and other agencies in response to emergency conditions (e.g. hazardous material spills, demolition of unsafe structures, removal of hazardous trees, etc.).

Stormwater Planning Division

The Stormwater Planning Division (SPD) provides stormwater planning, monitoring, and capital project design and floodplain management. This division administers the federally mandated National Pollutant Discharge Elimination System (NPDES) program, or the Municipal Separate Storm Sewer System (MS4) permit, and coordinates the work from various agencies in support of meeting the requirements of the permit. The MS4 permit is a five-year permit that regulates the discharge of local stormwater entering the state waterways. Negotiations between the state and County staff are currently ongoing, with the expiration of the current permit in January 2007. The permit renewal is anticipated to include increased regulatory requirements.

The Division is currently working with the Fairfax County Public Schools (FCPS) to assume the responsibility of the FCPS MS4 permit requirements. This consolidation effort will add approximately 225 additional stormwater management facilities to the County's existing inventory. Additional staff and resources have been provided to revise the County's current stormwater program and permit application process, complete the inventory of the School's facilities and initiate joint contracting programs. It is anticipated that developing a consolidated program will result in more effective delivery of services.

Stormwater Management

A component of the MS4 permit is to inspect and ensure effective maintenance of public and private stormwater facilities. As part of the MS4 permit, the division also conducts bio-assessment and bacteria monitoring to identify and correct non-stormwater discharges (illegal discharge and improper dumping) to the state waters. The monitoring program is being expanded to provide statistical performance data for existing and new stormwater control structures. The statistical data will aid in future project design strategies, and project implementation. In addition to the monitoring activities, the division's ecology branch also performs physical stream assessments on an inventory that consists of over 800 miles of streams in support of planning efforts, and maintains the GIS hydrological layer of the stream network. This GIS layer was recently enhanced through the perennial stream identification project.

This division also coordinates state mandated dam safety operation and maintenance certificates, emergency action plans related to flooding, watershed management efforts, public education and awareness initiatives, stream monitoring, physical stream assessments, and implementation of the County's drainage plan. SPD provides the design and general oversight of capital projects to correct drainage deficiencies, mitigate existing flooding conditions, rehabilitate failing storm drainage systems, retrofit older stormwater management facilities and stabilize eroding stream banks through innovative bioremediation methods.

SPD is responsible for the development and oversight of Fairfax County's Comprehensive Stormwater Management Program. The division remains current with a multitude of state and federal regulatory stormwater management requirements. As part of the MS4 permit, the division is in the phased process of completing planning in the 30 watersheds located in the County. In FY 2006 the current watershed planning process was evaluated. The evaluation provided an in-depth review of existing watershed planning processes and provides recommendations for improvements to the internal procedures as well as makes recommendations to improve external partnerships with public and special interest groups involved in the watershed planning efforts. In conjunction with the evaluation of the planning processes, an expedited planning schedule began in FY 2007. By the end of FY 2007, all 30 watersheds were in an active planning stage, and no additional funding for watershed planning is required as part of the FY 2008 budget recommendation. The benefit of the expedited schedule will ensure that Fairfax County meets its commitment to the Chesapeake Bay 2000 Agreement, by completing the watershed planning process by the year 2010. As watershed management plans throughout the County are completed, the project implementation strategies and goals for the project list are developed.

The division participates in several regional partnering efforts such as the Chesapeake Bay Preservation Area Designation and Management, and the 2000 Chesapeake Bay Agreement in support of removing the bay from the U.S. EPA's impaired waters list by the year 2010. These joint regional efforts assist in the management and reduction of nutrient and sediment loads to the Chesapeake Bay. The division oversees regulatory Clean Water Act requirements as they pertain to Total Maximum Daily Loads (TMDLs), in an effort to define, monitor and control the number of pollutants in streams that violate state water standards.

SPD also oversees and implements the County's Dam Safety program. Federal and state regulations provide inspections and engineering certification of dams to insure public safety. Currently there are 14 known water-impounding facilities (dams) in the County requiring state certification. There are 10 additional dams under consideration for state certification at this time. With increased funding for stormwater initiatives in FY 2008, SPD will continue to work toward bringing all state-regulated dams into compliance with state dam safety regulations. Additionally, in FY 2008 the effort to

install electronic flood control signalization to the County's largest hazard dam facilities will continue. The signalization process will provide greater flood monitoring capabilities through instantaneous water level condition assessment. This public safety improvement will provide an enhanced warning system that will link to an automated notification system for down stream property owners in the event of a potential catastrophic dam failure. The division is also responsible for coordination and providing assistance for floodplain management regulations pertaining to floodplain residential building requirements and national flood insurance standards.

To complete the regulatory and maintenance requirements of the agency, both divisions utilize the use of in-house County work forces and contracted services. In an effort to remain a leader in the stormwater management industry, the agency focuses on the increasing stormwater management requirements of an aging stormwater system inventory and the increased environmental performance requirements. The challenge of the agency is to maintain existing systems, while enhancing and retrofitting the degraded systems to meet stormwater management regulations as the County moves toward a full urban development in which the aged stormwater systems are approaching expected life spans. The County continually seeks public outreach opportunities to inform the public of water quality matters and environmental effects of stormwater runoff through various educational venues, public notices, and community support functions. The educational opportunities provide an understanding of environmental impacts related to stormwater runoff, and are geared toward youth involvement. The increased funding for stormwater management has provided significant opportunities for Fairfax County to improve deficient drainage systems and complete innovative stormwater control systems.

Budget and Staff Resources

Agency Summary

Category	FY 2007 Actual	FY 2008 Adopted Budget Plan
Authorized Positions/Staff Years		
Regular	132/ 132	132/ 132
Expenditures:		
Personnel Services	$6,823,161	$7,724,031
Operating Expenses	4,761,776	3,222,678
Capital Equipment	304,120	390,500
Subtotal	**$11,889,057**	**$11,337,209**
Less:		
Recovered Costs	($863,455)	($863,666)
Total Expenditures	**$11,025,602**	**$10,473,543**
Income:		
Street Sign Fabrication Fees	$3,470	$3,400
Miscellaneous Revenue	29,831	16,000
Total Income	**$33,301**	**$19,400**
Net Cost to the County	**$10,992,301**	**$10,454,143**

SUMMARY OF ALL AGENCY LOBS
(FY 2008 Adopted Budget Data)

Number	LOB Title	Net LOB Cost	Number of Positions	LOB SYE
29-01	Storm Drainage Program	$3,953,654	56	56.0
29-02	Stormwater Management Program	$3,396,137	53	52.5
29-03	Transportation Services Program	$1,540,347	10	10.5
29-04	Snow / Emergency Response Program	$1,583,405	13	13.0
TOTAL		**$10,473,543**	**132**	**132.0**

Note: Miscellaneous revenues of $19,000 are not included in LOB calculations.

LOBS SUMMARY

29-01: Storm Drainage Program

Fund/Agency: 001/29	Stormwwater Management
LOB #: 29-01	**Storm Drainage Program**
Personnel Services	$3,277,429
Operating Expenses	$988,303
Recovered Costs	($431,833)
Capital Equipment	$119,755
Total LOB Cost:	$3,953,654
Federal Revenue	$0
State Revenue	$0
User Fee Revenue	$0
Other Revenue	$0
Total Revenue:	$0
Net LOB Cost:	$3,953,654
Positions/SYE involved in the delivery of this LOB	56 / 56.0

▶ LOB Summary

STORM DRAINAGE PROGRAM OBJECTIVE:

The Storm Drainage maintenance program objective is to provide operational and maintenance services for the County's stormwater drainage conveyance systems, which includes pipes, manholes, channels, swales and streams. Two other Stormwater Management Lines of Business (LOB) are very closely related to, and integrated with, the Storm Drainage program. The Stormwater Management program LOB provides opportunities to improve the quality of storm water runoff, and the Emergency Response program LOB relates to the storm drainage program based on first response efforts associated with unanticipated rain events, such as hurricanes and floods. The storm drainage maintenance program requires the flexibility to be both pro-active in terms of preventative maintenance, and re-active in terms of response to unplanned and unforeseen storm events. The internal staff identified in support of this program provides support for both maintenance services,

and also support for Capital projects associated with storm drainage system improvements that are larger than typical drainage system maintenance issues.

STORM DRAINAGE INFRASTRUCTURE:

The County's stormwater system is an aging infrastructure and is strained by the continuous urbanization that has occurred in the County. The storm drainage systems are significantly impacted by development, redevelopment and infill throughout the County as the amount of ground surface imperviousness increases due to the construction of buildings, residential housing developments, roadways and commercial facilities. Storm water runoff velocities and volumes increase due to the expansion of impervious areas, causing the conveyance systems to be frequently overwhelmed. The storm drainage program provides maintenance and rehabilitation services on existing stormwater infrastructure such as, stormwater pipes, catch basins, improved and un-improved drainage channels, streams and flood plains.

Storm Drainage Inventory			
System Description	**Unit of Measure**	**Approximate Quantity**	**Comments**
Pipes	Miles	1,800	Underground or paved systems
Structures	Each	45,000	Catch Basin, Inlet, Outfall
Improved Channels	Miles	153	Concrete, Gabion, Rip-Rap
Flood Plain	Acres	20,000	Approximate

PRO-ACTIVE MAINTENANCE:

Inspection

In accordance with the County's MS4 permit, the storm drainage system is inspected on a five-year inspection cycle to comply with the Federal and State Water Quality Permit (2001). This inspection is performed by in-house staff that physically walk and inspect 20 percent of the storm drainage inventory for surface pipe system failures, inlet and outfall blockages and deficiencies such as cave-ins and structural failures. In addition to the surface inspection, the capital improvement program provides internal digital video inspecting and video taping on approximately 5 percent of the storm drainage systems annually. Research for easements, property boundaries and land rights is a required activity provided within the inspection program to determine property ownership and responsibility. Research efforts can be intensive, and are typically verified to satisfy the legal jurisdiction over the drainage system. The inspection program additionally provides support and assistance with field verifying and validating the internal Geographic Information Systems (GIS) mapping of the storm drainage network for system identification and system connectivity, as well as research and validation for the GIS easement layer. Work orders are generated for repairs to the system deficiencies found during the inspections. Typical work orders generated from the inspection program include, but are not limited to,

- Removal of major blockages in drainage systems;
- Repair of safety hazards such as cave-ins and missing manhole covers;
- Repair of drainage pipes and structures where damage impacts functionality.

Citizen Assistance

A citizen response program provides assistance to County residents for requests for services related to programs managed within this LOB. In FY 2007, the citizen response program, in its entirety, received approximately 2,500 requests for assistance. The subsequent complaint investigations generated 870 work orders. Of the 2,500 requests, 750 were characterized as storm drainage complaints. The 750 storm drainage complaints generated 662 written work orders related to the storm drainage maintenance program.

Storm Drainage Work Orders

The Storm Drainage program manages work flow through an in-house work order system. Work requirements are identified, characterized, managed and tracked through this system. The written work orders are assigned to in-house work crews, or outsourced with contracted services for system repairs and are organized, assigned and managed on the following Priority basis.

Storm Drainage Work Order Priority		
Priority	**Nature of Work**	**Target Response Time for Action**
1	Safety Deficiencies / System Failures / Emergency	Immediate Assignment
2	System Failure/ Critical / Non- Emergency	2 to 5 Week Assignment
3	Poor Condition / Non Critical / Non Emergency	Greater than 2 Month Assignment

The storm drainage program completed 620 written work orders in FY 2007 with a variety of maintenance scopes that required various lengths of duration in terms of time expended to complete the assignments. Of these 620 work orders, 89 were characterized as Priority one, 263 were characterized as Priority Two and 268 were characterized as Priority Three work orders. The number of written work orders completed does not include the 12,584 man-hours expended on the storm drainage standing work order used to capture related repetitive work not requiring individual site specific tracking. An example of this type of activity, as noted below, is related to inspecting trouble spot locations and similar type activities. The written work orders were primarily generated through the inspection program and citizen requests for assistance. The annual number of written work orders generated and completed varies from year to year based on a multitude of contributing factors such as numbers and severity of rain events. However, the numbers show an overall increase in trends as the County moves into an infill and redevelopment phase. Larger scale projects that have significant design and construction requirements are tagged and moved into the capital program as they relate to the infrastructure rehabilitation project.

Trouble Spots

A critical pro-active, preventative maintenance function of the storm drainage program is the periodic and systematic visual inspection of known trouble drainage systems. There are currently 77 storm drainage trouble spot locations throughout the County that are monitored on a routine basis to ensure the systems are open and in functioning condition. As well as the routine inspection of these locations, each system is inspected prior to any predicted major storm event. The pro-active inspections of these locations are related to blockage of drainage systems evidenced by historical repetitive system failures, and recurring localized flooding issues.

RE-ACTIVE MAINTENANCE:

Re-active maintenance is related to emergency response, and is a direct result of follow-up maintenance activities resulting from unplanned weather events such as hurricanes, tornadoes, floods, excessive snow melt, etc. The maintenance activities from unplanned events beyond the first

response emergency requirements include, but are not limited to, flood relief assistance to County residents, immediate drainage system inspections and repairs, follow-up drainage system cleaning and debris removal.

An example of re-active maintenance requirements in the storm drainage program is the follow-up response efforts related to the large scale flooding that occurred throughout the County in June, 2006. The County experienced rainfall that resulted in stream flows measured in the 50-100 year reoccurrence range. As a result, the LOB received 1,373 calls for assistance, and responded to, or inspected all of these locations in addition to the 2,500 citizen requests for assistance mentioned above. The June 2006 widespread flooding resulted in 88 locations requiring the initiation of County projects. Of these 88 locations, 9 flood alleviation construction projects have been completed, and 79 are currently in design. In addition to the 88 locations, the largest single area impacted was in Huntington community, where 160 homes were flooded by the overflow of Cameron Run. While several of the resulting issues have been funded out of capital projects in Fund 318, the same staff that supported the flood response is also required to support the maintenance program. Immediate maintenance requirements following the initial response included large scale efforts by storm drainage work crews to clean clogged and debris filled storm drainage systems in the flooded areas so that the systems could properly function as designed. The work crews additionally logged many hours providing support to flooded residents in pumping out flooded basements and assisting with debris removal.

TRENDS AND PROGRAM IMPACTS

Increased regulatory compliance requirements associated with the Municipal Separate Storm Sewer System (MS4) permit impose greater controls and mandated requirements for discharging local storm water runoff into state and federal waters. Additionally, new storm drainage system performance requirements related to infill and redevelopment is burdening the aged storm drainage infrastructure, as well as increasing the discharge velocities and volumes carried through natural waterways that the storm drainage systems discharge to. These issues, added to increasing system performance expectations, place extreme challenges on limited in-house resources and staff. Limited funding in operating budgets based on economic constraints is requiring the use of capital funds to meet typical routine maintenance requirements. While the programmatic service levels are being managed at consistent levels, increasing inventory and additional regulatory requirements combined with evolving infill issues is lowering service provision to minimum standards.

► Method of Service Provision

Storm Drainage program maintenance operations are accomplished through the use of both existing in-house County staff and contracted maintenance services. Normal hours of operation for maintenance staff are Monday through Friday, 7:30 a.m. to 4:00 p.m., and office personnel are 8:00 a.m. to 4:30 p.m. House flooding response, snow removal services and other emergency call-outs are responded to on a 24-hour basis, 365 days per year. All staff working for the LOB are designated as emergency personnel, and as such, are required to be available for service 24 hours per day, seven days per week. This LOB hosts a web based correspondence page so that County residents can communicate issues and concerns electronically 24 hours per day.

While the positions and staff year equivalents identified in support of the Storm Drainage program is equivalent to 56 staff years, all 132 staff positions in the Agency support the program and it is difficult to identify specific individual positions dedicated entirely to any one program.

▶ Mandate Information

This LOB is federally or state mandated. The percentage of this LOB's resources utilized to satisfy the mandate is 100 percent. See the January 2007 Mandate Study, reference page 28 for the specific federal or state code and a brief description.

29-02: Stormwater Management Program

Fund/Agency: 001/29	Stormwwater Management
LOB #: 29-02	**Stormwater Management Program**
Personnel Services	$3,073,688
Operating Expenses	$672,762
Recovered Costs	($431,833)
Capital Equipment	$81,520
Total LOB Cost:	$3,396,137
Federal Revenue	$0
State Revenue	$0
User Fee Revenue	$0
Other Revenue	$0
Total Revenue:	$0
Net LOB Cost:	$3,396,137
Positions/SYE involved in the delivery of this LOB	53 / 52.5

▶ LOB Summary

STORMWATER MANAGEMENT PROGRAM OBJECTIVE:

The Stormwater Management (SWM) maintenance program objective is to provide operational and maintenance services for the County's stormwater management facilities which address water quality and water quantity issues.

Increasing state and federal regulations related to stormwater management are aimed at improving water quality entering in the waterways. The County is operating under extension of the 2001 Municipal Separate Storm Sewer System (MS4) discharge permit that expired in FY 2007. Negotiations between the State of Virginia and Fairfax County, as well as negotiations between the state and many surrounding local communities, are continuing into FY 2008 as several issues related to permit compliance are defined and established. It is anticipated that Fairfax County will be under new and increased regulatory requirements in FY 2009. The increased requirements are anticipated to impact inspection cycles, monitoring efforts and enhanced restrictions for total maximum daily loads (TMDL) of harmful nutrients entering the streams and rivers within the County jurisdiction.

Stormwater, as defined by the Environmental Protection Agency (EPA), and referred to in the "Federal, Clean Water Act" and the State of Virginia MS4 permit, is non-point source pollution. Stormwater management facilities include Low Impact Techniques which are designed to reduce and/or treat stormwater at the source. Facilities are designed to detain and control stormwater release at predetermined velocities capturing trash and debris, and allow smaller sediments, harmful

nutrient particles and micro pollutants to remain within the basin for proper treatment. Many SWM facilities provide storage capacity for the drainage network that assists with flood control. Other filtration systems are designed to slow the release of stormwater discharge so various materials, or natural ground absorption, can filter the sediments and harmful nutrients. As in the storm drainage maintenance program, the SWM maintenance program requires the flexibility to be both pro-active in terms of preventative maintenance, and re-active in terms of response to unplanned and unforeseen storm events.

STORMWATER MANAGEMENT INFRASTRUCTURE:

SWM facilities that are maintained by the LOB vary in types and functionality designs. Facilities include, but are not limited to, Dry Stormwater Detention Ponds, Manufactured BMP's, Underground Chambers, Trenches and Roof Top detention and gardens. More recent development strategies are adding Low Impact Development (LID) facilities such as Rain Gardens, Rain Barrels, Green Roofs and Bioretention Facilities which manage and control stormwater.

Most SWM facilities come into the inventory system through the land development process, as development standards require stormwater management and control to be provided as a condition of development. Upon final acceptance through the inspection process in the County, those facilities meeting the criteria of providing "public through drainage" become the maintenance and operational responsibility of Fairfax County. This process adds approximately 30 to 35 new "Public" SWM facilities to the inventory annually. In addition, the LOB provides inspection and assistance to "Private" SWM facility owners. Most of these systems are commercially based, and do not provide "through public drainage".

The current inventory of stormwater management facilities is as follows.

Stormwater Management Facility Inventory			
Facility Type	**Unit of Measure**	**Public Facilities**	**Private Facilities**
Dry SWM Detention Ponds	EA.	1125	492
Wet SWM Detention Ponds		8	304
Manufactured BMP		1	98
Undergrounds		47	424
Trenches		33	354
Roof Tops		0	555
Bio-Retention		7	25
Parking Lots		0	48
Sand Filter		0	157
Wetland		1	1
Farm Pond		0	34
Perennial Streams	Miles	850	

PRO-ACTIVE MAINTENANCE:

The SWM program provides routine maintenance on a complex network of facilities that control the quantity and quality of stormwater runoff. Maintenance Operations is responsible for inspecting and maintaining 1,222 facilities and for inspection and regulatory oversight services for 2,492 privately maintained SWM facilities.

Inspection Requirements

The SWM inspections services provide engineering inspections for the 1,222 publicly maintained storm water facilities on a one-year inspection cycle and for the 2,441 privately maintained SWM facilities on a five-year cycle. Inspection programs are implemented to meet the inspection cycles required by the MS4 permit. Based on the water impounding function of storm water management ponds, the engineering inspections are required to insure that structural elements such as the dam embankments, inlet and outlet structures, side slopes and spillways are functioning as designed. Critical characteristics such as storage capacity and vegetative ground cover conditions are assessed during the inspections. Inspection services are managed by in-house staff and provided by contracted services. Work orders are generated from the inspections to correct deficiencies on publicly maintained SWM facilities and minor deficiencies are corrected through in-house maintenance. Larger deficiencies are typically contracted out for repairs. The inspection results for privately maintained SWM facilities are sent to private property owners, indicating the noted deficiencies, with required time frames established for correction of deficiencies. Staff is required to follow up to insure deficiencies are corrected. While the repairs to the private SWM facilities are the responsibility of the property owner, greater efforts are being provided to educate and inform private owners of best management practices through enhanced outreach efforts.

In addition to the engineering inspections, there is an aggressive effort to research and document the existing SWM inventory and to review and determine ownership and operational requirements for approximately 1,500 current facilities that don't have documentation. The inspection group is in the process of researching these facilities through field inspection and legal land record research to determine ownership and operational requirements of these facilities.

Maintenance Operations

Vegetation control is a key routine maintenance activity for SWM facilities. The publicly maintained facilities are mowed on an annual basis in coordination with the engineering inspections. The regional facilities are mowed on a five-per-year cycle to provide greater vegetation controls on these critical structures. The structural dam conditions need to be inspected for failures and animal burrows that could lead to dam failures. The vegetation control program administers herbicide applications for the regional SWM facilities to control unwanted trees and invasive woody stock and weeds, as trees and woody stock vegetation are extremely harmful to earthen dam embankment structures.

Sedimentation, erosion and flood control are critical maintenance activities provided by the SWM facilities. The primary requirement for this maintenance is to remove sediment build-up from the outlet structures so that the facilities can function as designed. Best Management Practices (BMP) SWM facilities are designed with very small (1" to 1.5") outlet orifices to increase the time required to drain the facilities to 24 to 36 hours. This extended draw down time provides more opportunity for unwanted pollutants to settle and attach to the vegetation on the pond floor, as well as reduces downstream volumes and velocities that result in stream erosion. The smaller orifices require in-house maintenance crews to continually clear the sediment and blockages from the structures to ensure they are operating correctly.

Due to the characteristics of standing and moving water on impounding structures, erosion and the control of it is a common maintenance activity for the SWM facilities.

Retrofit and re-establishment of basins is an increasing maintenance activity. As the SWM infrastructure increases in age, maintenance activities are required to remove silt build-up and re-

establish vegetation. This work is completed by both in-house and contracted services. In FY 2007, this program managed nine retrofit and/or sediment removal projects, including construction of wetlands and sediment forebays. Additionally, this section oversaw the completion of four regional stormwater management facilities that provide water quality and quantity controls for over 950 acres of drainage. A similar schedule of construction projects are planned for FY 2008 and FY 2009. As sediment removal projects are planned, the opportunity to retrofit the older BMP standards is included in the projects. Additionally, the LOB converts the older SWM facilities to the more recent BMP standards by installing outlet structure BMP plates and trash racks. Approximately 10 to 15 such upgrade projects are completed each year.

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As mentioned in the storm drainage maintenance program, work orders associated with the SWM program resulting from the inspection and the citizen response programs were completed by in-house maintenance crews in FY 2007. There were 170 citizen requests for service that were investigated and responded to. Additionally, 290 written work orders were completed. Of the completed work orders, 34 were characterized as Priority One, 242 were characterized as Priority Two, and 14 were characterized as Priority Three work orders. The number of written works orders completed does not include the 6,770 man-hours expended on the SWM standing work order used to capture related, repetitive work not requiring individual, site specific tracking.

Stream Protection

The monitoring of the stream conditions is performed by ecologists and engineers that provide assessments of the active perennial streams in the county. The streams are monitored for ecological and biological health. Additionally, the storm drainage systems are monitored for illegal and hazardous dumping activity. The MS4 permit requires monitoring activities at storm drainage systems outfalls to ensure illegal and hazardous dumping is not occurring within the drainage systems, or is identified, documented and reported upon occurrence. The different types of monitoring activities provided by the Planning and Monitoring Branch include, but are not limited to,

Monitoring Activity Types
Bacterial
Wet Weather
Dry Weather
Biological
BMP
Floatables
Industrial and High Risk
PHF-NMP-IPM (Herbicide/Pesticide)

In addition to the monitoring activities, this section provides stream condition assessments, which is determined using an Index of Biotic Integrity (IBI) that evaluates stream ecological health based on the community structure of bottom-dwelling aquatic invertebrates inhabiting the streams. The group also provides oversight of the riparian buffer planting program as it relates to Resource Protection Areas (RPA), as well as support to Land Development Services in review of site plans related to RPA districts, flood plains and detention waivers, and provides assistance to homeowners and citizens. Additional to the scientific support that the ecology section provides, the group is extremely active in public education and outreach efforts in support of environmental issues related to stream health and storm water runoff. They host an active outreach program within the public school system to bring attention to environmental issues to school aged children. Currently they are

also providing oversight and support to the watershed planning efforts related to the capital projects program.

RE-ACTIVE MAINTENANCE:

Very similar to the re-active maintenance requirements associated with the Storm Drainage program, re-active maintenance activities in the SWM program are related to unanticipated events such as floods, hurricanes, tornados and hazardous spills. Follow-up maintenance requirements beyond first response are always required, and demand substantial staff time to perform. The flood control aspects of the SWM maintenance program result in maintenance activities to unclog blocked structures, remove excessive debris and make repairs to damages caused by large storm events. The ever increasing age of the SWM facilities has an impact to emergency flooding problems as storm water storage capacity is diminished due to the intent of the facility to capture sediment. Geographic location with close proximity to residential properties requires re-active maintenance for flooding conditions to protect house and property flooding. Hazardous spills, whether intentional or by accident, require immediate and follow-up response actions associated with the SWM maintenance program.

TRENDS AND PROGRAM IMPACTS

Similar to the trends and impacts affecting the Storm Drainage program, the rapidly expanding program requirements, due to both the growth of the systems and to the increased regulatory compliance requirements, as well as increasing performance expectations, are placing extreme challenges on limited in-house resources and staff. Limited funding in operating budgets based on economic constraints is requiring the use of capital funds to meet typical routine maintenance requirements. While the programmatic service levels are being managed at consistent levels, increasing inventory and additional regulatory requirements combined with evolving infill issues is lowering service provision to minimum standards.

SUPPORTING PERFORMANCE MEASUREMT DATA

Objective

To ensure zero violations in order to maintain compliance with the terms of the federally mandated Municipal Separate Storm Sewer System (MS4) Permit, as part of the comprehensive Stormwater Management Program.

The objective of the performance measurement related to the SWM program was developed to help ensure that important elements of the program were managed. By meeting the objective of the performance measurement, the MS4 permit requirements related to SWM inspection cycles is within regulatory compliance. The measure ensures that the ever-increasing inventory is captured and reported.

► Method of Service Provision

SWM program maintenance operations are accomplished through the use of both existing in-house County staff, and contracted maintenance services. Normal hours of operation for maintenance staff are Monday through Friday, 7:30 a.m. to 4:00 p.m., and office personnel are 8:00 a.m. to 4:30 p.m. House flooding response, snow removal services and other emergency call-outs are responded to on a 24-hour basis, 365 days per year. All staff working for the LOB are designated as emergency personnel, and as such, are required to be available for service 24 hours per day, seven days per

week. The LOB hosts a web based correspondence page so that County residents can communicate issues and concerns electronically 24 hours per day.

While 52.5 staff year equivalents are identified in support of the SWM maintenance program all 132 staff positions in the Agency support the program.

► Mandate Information

This LOB is federally or state mandated. The percentage of this LOB's resources utilized to satisfy the mandate is 100 percent. See the January 2007 Mandate Study, reference page 28 for the specific federal or state code and a brief description.

29-03: Transportation Services Program

Fund/Agency: 001/29	*Stormwwater Management*
LOB #: 29-03	*Transportation Services Program*
Personnel Services	$614,738
Operating Expenses	$825,573
Recovered Costs	$0
Capital Equipment	$100,037
Total LOB Cost:	$1,540,347
Federal Revenue	$0
State Revenue	$0
User Fee Revenue	$0
Other Revenue	$0
Total Revenue:	$0
Net LOB Cost:	$1,540,347
Positions/SYE involved in the delivery of this LOB	10 / 10.5

► LOB Summary

The Transportation Services LOB is actually comprised of six different transportation programs that are administered by the Stormwater Management LOB. The six programs are not related to the primary functions of Stormwater Management maintenance programs. The following are the six programs, with projected position count/staff year equivalents (SYE) and projected FY 2008 program cost included.

Transportation LOB Programs			
Transportation Program	**No. Positions**	**SYE**	**Projected FY 2008 Program Cost**
Trails / Walkways / Pedestrian Bridges Program	5.00	5.75	$510,910
Fairfax County Roadway Maintenance Improvement Program	1.0	1.0	$128,796
Street Name Sign Program	1.0	1.75	$219,160
Park & Ride Maintenance Program	1.0	1.0	$1,427,168
Bus Shelter Maintenance Program	1.0	.5	$356,766
Commercial Revitalization Program	1.0	.5	$40,270
Totals	10.0	10.5	$2,683,070

Service levels were reduced to a response to complaint basis in many of these programs. Additionally, as will be identified below, several of these programs have capital project funds associated with them. The projected costs above represent administrative operational costs reflected in the maintenance operating program. Service and maintenance costs will be reflected in the appropriate Capital Fund LOB. The relationship between multiple funding sources when it is applicable will be identified within this LOB. The primary goal of these maintenance programs are in support of Fairfax County initiatives related to multi-modal transportation issues. While maintenance associated with these programs can be defined in similarity to the Storm Drainage and Stormwater Management maintenance programs in terms of pro-active and re-active maintenance requirements, the maintenance activities for the transportation programs focus more on routine and non-routine maintenance services as detailed under each program description provided below.

TRAILS / WALWAYS / PEDESTRIAN BRIDGE PROGRAM:

The Trails, Walkways, Pedestrian Bridge maintenance program provides maintenance services for the network of sidewalks and trails that fall under the responsibility of the Department of Public Works and Environmental Services. The maintenance program is managed in concert with trails managed by the Fairfax County Park Authority (FCPA) and the Fairfax County Trails Committee, and in coordination with VDOT. Routine maintenance services associated with the program are provided by both in-house staff and contracted services. There are three additional capital projects that provide implementation funding for trail and sidewalk projects as follows:

- Fund 303 – Project, 009406 – "ADA Compliance, (Countywide)"
- Fund 307 – Project, 002200 – "Emergency Maintenance of Existing Trails"
- Fund 307 – Project, X00407 – "Sidewalk Replacement/VDOT Participation"

It should be noted that the funding for capital projects is for project implementation only. Staffing for the capital projects is paid from the operating trails, sidewalks and pedestrian bridge maintenance program.

Trails / Walkways / Pedestrian Bridges Inventory		
Item	**Unit of Measure**	**Approximate Inventory**
Trails	Miles	225
Sidewalk	Miles	370
Bridges	Each	64

Routine Maintenance

Based on previous funding levels in this program, the service level for inspections was reduced to response to complaint issues only, with no pro-active inspection program provided. In FY 2007 there were 49 citizen requests for service. Of these 49 requests, 43 written work orders were generated, and 38 were completed in FY 2007. Of the 38 work orders, 18 were characterized as Priority One, 15 were characterized at Priority Two, and 5 were characterized as Priority Three work orders. The number of written work orders completed does not include the 5,740 man-hours expended on repetitive work not requiring individual, site specific tracking such as the annual clearing of trails and sidewalks that lead directly to schools in the County.

FAIRFAX COUNTY ROADWAY MAINTENANCE IMPROVEMENT (FCRMIP) PROGRAM:

The FCRMIP program provides maintenance for unimproved roads in Fairfax County. The original intent of the program was to upgrade the unimproved roads in the County to meet VDOT maintenance standards so that the roads could be accepted into the state maintenance systems. The service levels in this program provide response on a complaint basis only. The LOB manages one other capital project in Fund 303 that is related to roads in the County, which is used to address safety issues related to service drives and does not qualify for use on unimproved roadways. All work performed in FCRMIP program is provided by in-house work crews.

FCRMIP Inventory		
Item	**Unit of Measure**	**Approximate Inventory**
Unimproved Roads	Miles	7
Roadway Segments	Each	53

Routine Maintenance

Pro-active maintenance consists of street signage and road hazard inspections two times per year. Work orders are generated pertaining to severe and safety related road hazard deficiencies noted during the two annual inspections. All other maintenance performed on the unimproved roads is provided on a citizen complaint basis only. During FY 2007, only two written work orders were completed. They were 1 Priority One and 1 Priority Three work orders.

PUBLIC STREET NAME SIGN PROGRAM:

The Public Street Name Sign program provides maintenance services for fabrication and installation of the 38,000 public street name signs in the County. The program additionally supports other County Departments such as the Fairfax County Department of Transportation, Electoral Board, Construction Management Division, Fire and Rescue Departments and others in the fabrication and installation of project and informational signs.

Budget allocations in recent years lowered the service levels in this program. Additionally, in FY 2004 the "Targets of Opportunity" exercise reduced the staff in this program from 4.5 SYE to the current 1.75 SYE. The same reduction effort reduced material funding and lowered service levels to a response to complaints only basis.

Public Street Name Sign Inventory		
Item	**Unit of Measure**	**Approximate Inventory**
Street Name Signs	Each	38,000

Routine Maintenance

Prior to the reductions, the program had a pro-active service level that included annual inspection cycles, which made on-the-spot repairs as they were identified in the field. The service level today is re-active and based on response to citizen call-ins for generating repair work orders for missing and damaged street name signs. Reflective of the reductions in funding and personnel services in this program, the response time to correct sign deficiencies that are reported has risen from 3.3 days from receipt of complaint to correction of the deficiency, to the current average of 20 to 25 days. The rate of call-in requests has risen from an average of 738 to a current rate that is exceeding 1000 complaints annually.

Prior to the reduction in services in this program, and in response to direction provided by the Board of Supervisors, the program was in a pro-active phased process of converting the older green 3-inch blade street name signs to the more legible blue, 6-inch blade blue street name signs. The reduction in funding and personnel services has reduced this process to only converting the green signs when they are reported damaged or missing.

As previously mentioned, the staffing in this program is for one sign fabricator and one sign installer. The fabricator is assigned to support administrative functions in the communications center on a part time basis. The sharing of responsibilities for this position is based on the current approved funding for personnel services in the sign program. Funding for support for sign fabrication and installation services to other agencies is billed and paid for directly from the requesting agency.

In FY 2007, the sign services program received 1,105 citizens request for service. Of these requests for service, 959 work requests were responded to and completed. Additionally in FY 2007, the sign services program provided sign fabrication and installation services for 15 work requests from other inter County departments.

COMMUTER RAIL AND PARK-AND-RIDE MAINTENANCE PROGRAM:

The Commuter Rail and Park-and-Ride maintenance program provides grounds maintenance services to the 11 commuter facilities in the program inventory. Based on the FY 2007 performance measurement data for this program, these commuter facilities served approximately 4000 commuters per day, and supported approximately 1.7 million daily vehicle trips from private vehicles, busses and trains entering these facilities. The Commuter facilities are part of the multi-modal transportation effort to reduce Single Occupancy Vehicle trips to reduce air pollution and provide traffic congestion relief.

The maintenance program is administered for the Fairfax County Department of Transportation (FCDOT). There are no additional capital project funds available for the maintenance of these facilities. The maintenance services in this program are managed by 1.0 in-house SYE. The maintenance services for this program are provided 100 percent through contracted services. Funding for inventory increases during the past three budget cycles has helped offset the prior funding reductions that occurred during FY 2002 to FY 2005.

Commuter Rail and Park-and-Ride Program Inventory		
Item	**Unit of Measure**	**Inventory**
Park-and-Ride Facilities	Each	5
Virginia Railway Facilities	Each	4
Bus Transit Facilities	Each	2
Total	Each	11

Routine Maintenance

Routine maintenance services in this program include snow removal and routine site inspections and provide for grounds maintenance, as well as maintenance to parking surfaces, sidewalks, signage, landscaping, trash removal, bus shelters, benches, bicycle racks, fences, drainage systems and other site appurtenances. Routine maintenance services in this program are as follows:

- Grass Mowing
- Weed Control
- Turf Management
- Tree/Plant/Shrub Care
- Trash Removal
- Snow Removal
- Parking Lot Sweeping
- Bus Shelter Maintenance
- Site Inspection

Snow Removal

A critical routine maintenance service provided by the awarded contractor in this program is snow/ice removal services. As inclement weather conditions occur, ridership on public transportation systems typically increase due to the dangerous roadway conditions. Liability concerns are enhanced due to public usage of these facilities during inclement weather events. This maintenance program provides for pre-event, during event and post event snow/ice treatment. During inclement weather, roadways, sidewalks and pedestrian waiting areas are cleared of snow/ice and monitored throughout the event for recover and refreeze conditions. Post event snow/ice services are performed to provide safety for continuation of melt and refreeze conditions until the hazards no longer exist.

Non-Routine Maintenance

The site inspection provided by the awarded contractor requires monthly inspections of the routine maintenance services, and also provides inspection, reporting and work order generation to make repairs for non-routine site deficiencies such as:

- Parking Surface Deficiencies
- Parking Lot Striping
- Sidewalk Deficiencies
- Informational Sign Deficiencies
- Parking Lot Light Outages

General upkeep and routine maintenance services are crucial aspects of the success of this important transportation program based on the physical location of these commuter facilities within, and adjacent to, residential neighborhoods and commercial facilities. The program is based on requirements associated with attracting patronage to these critical facilities. The following FY 2007

Performance Measurement data results are provided for further indication of performance associated with this program.

BUS SHELTER MAINTENANCE PROGRAM:

In FY 2006, the Fairfax County Board of Supervisors (BOS) approved County maintenance of all bus shelters in the County, regardless of the bus shelter ownership. The BOS adopted a secondary (lower) service level for those bus shelters that were not owned and operated by the County, which include shelters that belong to Washington Area Metropolitan Transit Authority (WAMTA), VDOT and proffered bus shelters owned and maintained by private entities. Additionally in FY 2007, through a Memorandum of Understanding (MOU) with the Fairfax County Sheriffs Office, the Community Labor Force (CLF) program began providing maintenance services for a portion of the bus shelter inventory. The MOU divides the bus shelter inventory by four quadrants of the County and the CLF program provides bus shelter maintenance on the bus shelters in the two Eastern quadrants. Contracted services, under the direction of Stormwater Management, provide maintenance to the bus shelters in the two Western quadrants. There are no additional capital projects funds associated with maintenance of bus shelters. The bus shelters in this program that are owned and operated by the County are under the operational control of FCDOT, and are designed and built by the DPWES Planning and Design Division and Construction Management Division. Approximately 10 to 12 new bus shelters are added to the maintenance inventory annually.

Bus Shelter Program Inventory		
Item	**Unit of Measure**	**Inventory**
Fairfax County Owned Bus Shelters	Each	271
Bus Shelter Owned by Others	Each	92
Bus Shelters Maintained by Sheriffs Office	Each	187 of the 271

Routine Maintenance

The entire bus shelter maintenance program is managed by three staff members and administrative support totaling approximately 0.5 SYE.

Bus Shelter Program Service Levels		
	Maintenance Levels	
Maintenance Service	**County Owned Bus Shelter (271 Bus Shelters)**	**Others Owned Bus Shelter (92 Bus Shelters)**
Trash Removal from Container	3 per week	1 per week
Trash Removal from Grounds	3 per week	1 per week
Flyer Removal from Glass Panel	3 per week	1 per week
Power Wash Entire Shelter	1 per month	1 per month
Bus Shelter Inspection	1 per month	1 per month

The monthly inspections that are completed by the awarded contractor provide inspection of the routine service performance and reporting and work order generation for deficiencies that are noted.

Non-Routine Maintenance
The non-routine services in this program provide for repairs to the following items:

- Structural Bus Shelter Deficiencies
- Grounds Maintenance Issues
- Trash Container Deficiencies
- Shelter Bench Deficiencies
- Broken Glass Panels

Non-routine maintenance of broken bus shelter panels includes the immediate clean-up and removal of broken glass panels. There are approximately 70 to 100 glass panels broken and replaced in the bus shelter program on an annual basis.

COMMERCIAL REVITALIZATION PROGRAM (CRP) MAINTENANCE PROGRAM:
The Commercial Revitalization maintenance program was developed to provide maintenance services for the seven delineated commercial districts in Fairfax County. In FY 1997, the BOS approved the policy for County maintenance of improvements in commercial revitalization districts to provide routine grounds maintenance and care of landscape amenities that are installed by bond funds in the commercial districts. Of the seven delineated commercial districts and areas, four have active maintenance requirements. The other districts are in various stages of planning and design for streetscape projects. The funding for the active maintenance programs is provided in capital project Fund 303, project number 009422. The funding identified in the operating program is for the staff time of 0.5 SYE which provides the program oversight and a limited amount of in-house maintenance support. Greater details of the maintenance program will be provided in the LOB for Fund 303. The maintenance services in this program are 100 percent provided by contracted services for both routine and non-routine requirements.

Active Commercial Revitalization Maintenance Districts Inventory
Route One (Richmond Highway)
Annandale
Springfield
Bailey's Crossroads

Routine Maintenance
Routine maintenance services in this program provide for maintenance of streetscape elements, and also have overlapping maintenance responsibilities in the bus shelter maintenance program. All CRP districts have bus shelters that were built to match the various themes within each district. The routine maintenance services in this program are similar to those in the Park-and-Ride maintenance program, with the exception of snow removal and sweeping requirements as follows:

- Grass Mowing
- Weed Control
- Turf Management
- Tree/Plant/Shrub Care
- Trash removal
- Bus Shelter Maintenance
- Site Inspection
- Irrigation Maintenance

Non-Routine Maintenance

The routine monthly inspection reports generated by the awarded contractor verify and validate routine maintenance services, and provide reporting that generates work orders for non-routine deficiencies. Most non-routine work revolves around replacement of dead plant material and turf enhancement issues. Based on the consideration that the streetscape enhancements are built in extremely difficult maintenance locations within street medians and sidewalk areas, plant care maintenance is significant and survivability is low. A drought condition in these locations is typical and driving mishaps that damage tress and plants beds are frequent. In many cases, hand watering the plant material is the only viable option to provide water to the plants and turf areas. Informational signs and other streetscape elements such as lighting and seasonal flower rotations are handled on a non-routine maintenance basis.

TRANSPORTATION MAINTENANCE TRENDS AND PROGRAM IMPACTS:

The current trends and impacts to the Transportation maintenance program are not entirely the same as those impacting the Storm Drainage and Stormwater Management maintenance programs. While regulatory requirements impact the program, the regulations that prevail over the transportation program are currently more static, and tend to be less apt to change. The larger trends and impacts affecting this program are the continually increasing inventory and usage associated with the programs. The service levels in this program provide response on a complaint basis only. Due to limited staffing there is greater dependence on contracted resources.

► Transportation Program Method of Service Provision

The Transportation maintenance program operations are accomplished through the use of both existing in-house County staff and contracted maintenance services. Normal hours of operation for maintenance staff are Monday through Friday, 7:30 a.m. to 4:00 p.m., and office personnel are 8:00 a.m. to 4:30 p.m. House flooding response, snow removal services and other emergency call-outs are responded to on a 24-hour basis, 365 days per year. All staff working for the LOB are designated as emergency personnel, and as such, are required to be available for service 24 hours per day, seven days per week. The LOB hosts a web based correspondence page so that County residents can communicate issues and concerns electronically 24 hours per day.

While 10.5 staff year equivalents are identified in support of the Transportation maintenance program, many staff positions in the Agency support the program. Based on this staff resource deployment strategy, it is difficult to identify specific individual positions dedicated entirely too any one program.

► Mandate Information

This LOB is federally or state mandated. The percentage of this LOB's resources utilized to satisfy the mandate is 100 percent. See the January 2007 Mandate Study, reference page 28 for the specific federal or state code and a brief description

29-04: Snow and Emergency Response Program

Fund/Agency: 001/29	Stormwwater Management
LOB #: 29-04	Snow and Emergency Response Program
Personnel Services	$758,176
Operating Expenses	$736,040
Recovered Costs	$0
Capital Equipment	$89,188
Total LOB Cost:	$1,583,405
Federal Revenue	$0
State Revenue	$0
User Fee Revenue	$0
Other Revenue	$0
Total Revenue:	$0
Net LOB Cost:	$1,583,405
Positions/SYE involved in the delivery of this LOB	13 / 13.0

► LOB Summary

Snow Removal / Emergency Support and Directives Services

The Snow Removal / Emergency Support and Directives Services maintenance programs have been combined under a single LOB for purposes of simplification. They are grouped together because of the common maintenance program characteristics such as, first response requirements, unplanned events and critical response requirements associated with all three programs. Descriptions for each maintenance program follows.

Snow Removal and Other Emergency Support Services LOB			
Snow Removal and Other Emergency Support Services Programs	**No. Positions**	**SYE**	**Projected FY 2008 Program Cost**
Snow Removal Services / Emergency Response (Flooding ,Police, Fire & Rescue)	12.0	12.0	$1,463,382
Response to Directives (Health, Grass Mowing, Property Maintenance	1.0	1.0	$120,023

SNOW REMOVAL SERVICES:

Stormwater Management is responsible for snow removal services for the majority of Fairfax County owned and operated facilities including, but not limited to, Police Stations, Fire Stations, Government Centers, Libraries, Health Centers, Recreation Centers, Support Offices, County Maintained Roads and Department of Vehicle Services Facilities. Currently there are approximately 110 facilities, excluding the commuter facilities. Snow removal services are provided on a 24 hour, seven day per week basis, regardless of holidays and weekends. The communications center at the MSMD facility is open for dispatching work crews, and receiving calls for requests for service while snow removal services are operational.

Maintenance Operations

The snow removal services are provided on an established Priority basis that is based on the critical operational requirements of the facilities requiring the service. Facilities such as Police and Fire and Rescue are Priority One facilities. The Priority of the remaining facilities has been established as well, based on criticalness of the services provided. Snow removal operations are performed on pre-event, during event and post event basis. Snow removal operations are supported by other County Divisions for snow/ice clearing operations. The Division of Solid Waste, Waste Water Collection Division and Facilities Management Division all provide assistance with plowing and sidewalk clearing operations.

Snow Plowing Operations

During active snow fall, entrance ways and travel lanes are maintained and cleared of snow on a rotational basis until the snow stops falling. After the snow conditions have stopped, the clearing operations are expanded to full recovery efforts and all parking areas are cleared of snow and ice. After plowing operations have been performed during both phases of the operation, abrasives and deicing chemicals are applied to the roadway surfaces. The current service level is to be able to treat a 6" storm within 24 hours after the event has ended.

Sidewalk Clearing

Sidewalk clearing operations are performed on a Priority basis as well. During the event, entrance walkways are cleared of snow/ice and maintained on a rotational basis until the precipitation has stopped. After the precipitation has stopped, outer walkways are cleared. The majority of assistance for sidewalk clearing operations support is provided by the other Divisions listed above. The County does not provide sidewalk clearing for residential sidewalks that are the responsibility of private property owners. The current service level is to be able to treat a 6" storm within 24 hours after the event has ended, however many factors impact the ability to clear the walks.

SNOW REMOVAL PROGRAM TRENDS AND PROGRAM IMPACTS:

Experienced drivers with valid commercial driver's licenses are required to provide snow plowing operations, and are typically positions that the LOB has had difficulties in recruiting. It has been particularly difficult to recruit drivers experienced with snow plowing operations. The inventory requiring snow removal services has increased without expanding the workforce, which increases response time. In FY 2008, the LOB is attempting to use additional contracted services. A contractor will be entirely responsible for the plowing and sidewalk clearing operations in a given area. This is an attempt to increase performance to help meet rising expectations, as well as an attempt to off-set the increase in inventory.

EMERGENCY RESPONSE MAINTENANCE PROGRAM (FLOODING / POLICE / FIRE & RESCUE)

The Emergency Response maintenance program provides the "First Response" activities that Stormwater Management provides. The emergency response program provides support for immediate response to local and widespread flooding issues, storm events, hazardous material spills, support for Fire and Rescue and support for Police Department matters. A brief explanation of each service response will be provided below. All support services provided in this program are performed by in-house staff. Emergency support services are provided on a 24 hour, seven day per week basis, regardless of holidays and weekends.

First Response activities primarily focus on public safety issues that are performed until immediate hazards are mitigated, and follow-up programmatic services can replace emergency response

activities. In addition to the reporting and operational requirements associated with emergency response, the LOB provides a 24-hour hour emergency service to respond to citizen call-ins. This system is managed in cooperation with the Wastewater Collection Division, whereby, calls come in on a 24-hour basis, and Stormwater management staff are called and dispatched to investigate the complaint issues. Staff will respond immediately to safety matters such as missing manhole covers or potential house flooding concerns.

Emergency Response to Flooding and Storm Events

As mentioned above, staff is available 24-hours per day for citizens to call-in if they have flooding concerns. In addition, if there is a predicted or high probability that severe storms are forecast for the area, staff are scheduled to respond to possible flooding conditions and damages caused by high winds. There are approximately 10 to 15 such occurrences annually. Typical work that is required by work crews involves pump-out situations, drainage structure blockage removal, tree clearing operations and flood control. The LOB monitors the large dams in the County during potential flood situations until the threat of flooding is over. Additionally, the Belleview and Huntington areas located in the southern end of the County are physically monitored due to the high potential for flooding in those low lying areas. First response activities help residents with safety concerns. Performed services help to return drainage systems that have overflowed back to a working status.

Fire & Rescue and Police Response

The LOB provides assistance to Fire and Rescue and the Police Department on an average of 10 to 12 times per year. The responses are generally related to hazardous material spills as they impact storm drainage systems. Additionally, there have been several instances when Stormwater crews are called to provide heavy equipment assistance after fires have been extinguished. The equipment is used in operations to knock down, or help to stabilize, the damaged and dangerous structures. Stormwater work crews have been requested to assist the Police Department with securing and/or blocking access to locations through the use of heavy equipment as well.

EMERGENCY RESPONSE PROGRAM TRENDS AND PROGRAM IMPACTS:

Challenges and trends impacting the Emergency Response program are limited to inadequate resources to respond when needed. Additionally, the unanticipated aspect of emergency response is challenging. This type of response and training requirements for staff appear to be on an upward trend, with responses to emergency situations increasing every year. Aging infrastructure and development based on infill issues appears to be having an effect on the emergency response program as well. Increased volumes of water are creating more frequent overflow situations in the storm drainage systems.

The performance measurement associated with this LOB ensures that the emergency action plans that Stormwater is responsible for maintaining are updated annually, as identified in the performance measurement objective.

The "Output" indicator for updating 16 Emergency Action Plans (EAP) was met. The "Efficiency" indicator shows that the cost of the emergency response program per 100,000 Fairfax County residents was higher than projected and the "Service Quality" indicator shows that the dollar loss per 100,000 residents was greater than originally anticipated. Both the "Efficiency" and the "Service Quality" indicators were impacted by the flooding that occurred in the County during late June 2006. The unanticipated flooding resulted in a larger number of claims paid in FY 2007. This resulted in higher than projected program costs and greater than anticipated dollar loss per 100,000 county residents, as previously estimated. The result of the "Outcome" indicator illustrates that 100

percent of the EAP's required to be maintained were updated, thereby meeting the intent of the "Objective" to ensure that 100 percent of the EAP's are updated and operational to minimize impacts to Fairfax County citizens.

DIRECTIVE SERVICES MAINTENANCE PROGRAM:

Stormwater Management is required to abate both emergency and non-emergency directives related to health and safety violations issued by the Health Department, and grass mowing and tree removal directives issues by the Department of Planning and Zoning and the Division of Urban Forestry. More recently, the Department of Planning and Zoning and the Task Force Committee associated with Property Maintenance issues have been issuing property maintenance directives for correction of issues that property owners fail to correct. The directives are issued to Stormwater Management to perform corrective maintenance for the code violations that are listed as either emergency, which require immediate response, or non-emergency, which allows a greater time frame to respond. Upon completion of the services provided to abate the conditions, Stormwater must submit an invoice and bill to the property owner of title. Less than 50 percent of the bills that are submitted are collected.

Directive Maintenance

Maintenance activities in this program includes, but is not limited to,

- Grass Mowing Directives (Chapter 119 Code violation)
- Boarding-up of Vacant Properties (Chapter 46 Code violation)
- Tree Removal
- Vegetation Removal
- Installing Security Fences
- Installing Erosion Control Measures
- Removing Hazardous Material
- Removing Hazardous Structures
- Removing Dead Animals
- Well Abandonment

DIRECTIVE RESPONSE PROGRAM TRENDS AND PROGRAM IMPACTS:

The trend in this program is that all directives are clearly increasing. It should be noted that funding for the abatement services comes directly from funds provided for other maintenance programs listed in this LOB; there is not a dedicated funding source for this work. Additionally, the funds that are recovered by the private property owners are credited to the General Fund, and not back to the Stormwater Management operating budget. Additional impact to the program is the administrative time required in the abatement service notification and billing processes. This work is additive to the work load for the other maintenance programs that the LOB is already responsible for.

► Method of Service Provision

The Snow Removal / Emergency Response / Directives maintenance program operations are accomplished through the use of both existing in-house County staff and contracted maintenance services. Normal hours of operation for maintenance staff are Monday through Friday, 7:30 a.m. to 4:00 p.m., and office personnel are 8:00 a.m. to 4:30 p.m. House flooding response, snow removal services and other emergency call-outs are responded to on a 24-hour basis, 365 days per year. All staff working for the LOB are designated as emergency personnel, and as such, are required to be available for service 24 hours per day, seven days per week. The LOB hosts a web based

correspondence page so that County residents can communicate issues and concerns electronically 24 hours per day.

While the positions and staff year equivalents identified in support of the Snow Removal / Emergency Response / Directives maintenance program is 13, all 132 staff positions in the Agency support the program. The level of staff effort expended in this program is equivalent to 13 staff years. The full Agency staff supports and works across operating service programs, and capital improvement programs managed by the Agency, as required. Based on this staff resource deployment strategy, it is difficult to identify specific individual positions dedicated entirely too any one program. The 13 staff year equivalents identified include position classes such as Field Work Crews, Engineering Technicians, Engineers, Project Managers and Administrative support staff.

► Mandate Information

This LOB is both federally and state mandated. The percentage of this LOB's resources utilized to satisfy the mandate is 100 percent. See the January 2007 Mandate Study, reference page 28 for the specific federal or state code and a brief description.

AGENCY PERFORMANCE MEASURES

Objectives

- To ensure zero violations in order to maintain compliance with the terms of the federally mandated Municipal Separate Storm Sewer System (MS4) Permit, as part of the comprehensive Stormwater Management Program.

- To ensure that 100 percent of Emergency Action plans are updated and operational to minimize impact to Fairfax County citizens, as well as protect property from weather events and other emergency situations.

- To ensure that 100 percent of the Commuter Rail, Park-and-Ride and Bus Transit facilities maintained by the County are functional 365 days per year in support of Fairfax County alternative transportation initiatives in order to reduce air pollution.

- To incrementally initiate and complete development of Fairfax County's 30 watershed management plans in order to support the MS4 permit and meet Fairfax County's commitment of the Chesapeake Bay 2000 Agreement, and contribute to the removal of the Bay from the "Impaired Water" list by the year 2010.

Stormwater Management

Indicator	Prior Year Actuals FY 2006 Actual	Prior Year Actuals FY 2007 Estimate/Actual	Current Estimate FY 2008	Future Estimate FY 2009	LOB Reference Number
Output:					
Annual private stormwater management facility inventory (1)	2,261	2,320 / 2,441	2,600	2,800	29-02
Public stormwater management facilities inspected and maintained annually	1,104	1,136 / 1,222	1,300	1,330	29-02
Emergency Action plans updated	9	16 / 16	18	18	29-04
Average weekly private vehicle trips into maintained facilities	22,795	22,065 / 22,770	23,000	23,000	29-03
Average weekly commuter bus trips into maintained facilities	9,365	12,645 / 9,425	9,000	9,000	29-03
Average weekly train trips into maintained facilities	265	245 / 265	270	270	29-03
Watershed Plans completed	1	9 / 3	6	6	Fund 318
Efficiency:					
Annual cost per private stormwater management facility (1)	$82	$95 / $393	$355	$358	29-02
Cost of inspection and maintenance per public stormwater management facility	$988	$1,143 / $1,626	$1,494	$1,587	29-02
Cost of Emergency Response program per 100,000 population	$69,180	$81,609 / $128,095	$125,000	$125,000	29-04
Cost per transit trip	$0.39	$0.43 / $0.52	$0.51	$0.55	29-03
Average cost per square mile to develop watershed plans	$41,635	$37,600 / $27,260	$45,000	$45,000	Fund 318
Service Quality:					
Percent of private facilities inspected within the fiscal year	3%	20% / 19%	20%	20%	29-02
Percent of public facilities inspected and maintained within the fiscal year	46%	100% / 100%	100%	100%	29-02
Dollar loss per 100,000 population for claims paid as a result of annual emergency events	$2,483	$2,994 / $4,440	$3,500	$3,500	29-04
Annual commuter facilities complaints received	36	50 / 93	75	75	29-03
Cumulative percent of watershed plans completed based on drainage area	7.6%	48.6% / 35.9%	51.5%	80.8%	Fund 318
Outcome:					
MS4 permit violations received	0	0 / 0	0	0	29-02
Percent of Emergency Action Plans current	64%	100% / 100%	100%	100%	29-04
Percent of commuter facilities available 365 days per year	100%	100% / 100%	100%	100%	29-03
Annual percent of watershed plans completed	25.0%	100.0% / 33.3%	100.0%	100.0%	Fund 318

(1) The actual regulatory reporting period for the inspection cycle of "Private" and "Public" stormwater management facilities is on a calendar basis. The performance measure for the stormwater inspection and maintenance objective is on a fiscal basis. While the "Service Quality" indicator for actual inspections completed in FY 2006 indicates that the goal was not met in FY 2006, the regulatory requirement of inspecting 100 percent of the "Public" facilities, and 20 percent of the "Private facilities will be met within the 2006 regulatory calendar year requirement.