

Stormwater Management

LOB #373:

EMERGENCY RESPONSE / SNOW REMOVAL

Purpose

In addition to daily maintenance of the County's stormwater infrastructure, Stormwater Management Division functions as both a primary and supporting agency during emergency response operations. These operations occur year-round and include snow and ice control at County facilities, flood monitoring and mitigation, response to citizen complaints, and support of other response agencies during incidents.

Description

The Maintenance Operations Branch, 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. During the 2014-2015 seasons, Stormwater Management expended over 17,000 staff hours related to snow and ice control for 146 building complexes and 86 roadway segments. Snow removal services are provided on a 24 hour, seven day per week basis, regardless of holidays, weekends, or County operating status. During events, management of these services is accomplished by the Division Operations Center with crew dispatching, contractor and partner agency monitoring, and staffing calls center activities.

Stormwater Management addresses various aspects of these services throughout the year. Coordination with other agency liaisons occurs to ensure all facilities are addressed by the plan and priorities are clearly delineated. Each facility is assigned a priority based upon its critical function, with public safety facilities receiving the highest priority of service. Maintenance of snow and ice control equipment, vehicles, and materials is completed by Stormwater Management Program's employees in conjunction with Department of Vehicle Services' mechanics. Stormwater employees also distribute and maintain self-help equipment at all of the 146 facilities served. When forecasts are indicative of frozen precipitation, mobilization of resources generally begins 12 to 24 hours prior to the onset of precipitation. Beginning in 2014, storm preparation includes the application of a brine solution in advance of precipitation to aid with removal of accumulated snow and ice from vehicular areas.

Stormwater Management is assisted by the Division of Solid Waste, Wastewater Collection Division, Sheriff's Office, and Park Authority in clearing vehicular and pedestrian areas. Contractors are also incorporated as needed into the operations to augment County resources. During active precipitation, predetermined pedestrian areas and vehicular travel ways are plowed and treated to maintain basic access to high priority facilities. Once precipitation ceases, control operations expand to full clean-up of pedestrian and vehicular areas in all applicable facilities. Typical operations include plowing, hand shoveling, and dispersal of de-icing chemicals. Following a 2 to 6 inch snowfall the objective is to have all County facilities cleared within 18 hours. At full deployment, there are approximately 50 Stormwater employees engaged in operations working 12-hour shifts. Participation in snow duty is an obligation for all MSMD employees and voluntary for other divisions and agencies.

The Emergency Response program encompasses the "First Response" activities that Stormwater Management provides. 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, weekends, or County operating status.

Stormwater Management

The LOB provides assistance to Fire and Rescue and the Police Department on an average of 2 to 3 times per year. Stormwater crews and equipment are used in post-fire operations to demolish or stabilize damaged and dangerous structures. They may also move debris to facilitate final extinguishment of spot fires or aid investigators with access to evidence. Stormwater crews have been requested to assist the Police Department with securing and/or blocking access to locations through the use of heavy equipment. They may also aid with confined space entry situations associated with criminal investigations and animal rescues.

In addition to requests from other agencies, Stormwater Division provides a 24-hour emergency service to respond to citizen complaints. These program activities primarily focus on short-term mitigation of public safety hazards until follow-up programmatic services engage permanent solutions during normal business hours. This system is maintained in cooperation with the Wastewater Collection Division call center, whereby citizens have the ability to request assistance around the clock. Outside of normal business hours select off-duty Stormwater Management staffs are notified and investigate complaint issues. The division most often responds to after-hours complaints related to localized flooding, missing manhole lids, personal items lost down storm drains, and other concerns related to the stormwater infrastructure and facilities. As situations dictate, off-duty Stormwater staff deploys to address immediate concerns.

While citizen complaints are handled in a reactive posture, Stormwater Management staff maintains a proactive approach to larger events by monitoring forecasts and planning response operations. There are approximately 10 to 15 such occurrences annually. Staff electronically and physically monitors the 19 dams in the County during periods of heavy precipitation until the threat of flooding is over. Additionally, the Belleview and Huntington areas of the County are electronically and physically monitored due to the high potential for flooding in those low lying areas. Stormwater Management serves as the subject matter experts during periods of flooding in any area of the County. Following flooding, services help to return drainage systems that have overflowed back to a working status.

This LOB is performed with 0/12.0 FTE. The actual FTE time worked on any Agency 87 Transportation program during the year varies and is dependent upon the weather conditions. Snow and flood response takes precedence over the other programs and can result in extended staff time for emergency response.

Fund 40100, Stormwater Services, includes 23.0 FTE positions related to transportation operations maintenance provided by the Maintenance and Stormwater Management Division. All funding for the transportation-related salary expenses and equipment is recovered from Agency 87, Unclassified Administrative Expenses, in the General Fund.

Benefits

County facilities remain open or re-open within hours following a major storm event, thus allowing the business of the County government to continue. Safety and accessibility challenges are addressed in a detailed fashion by experienced personnel familiar with the individual facilities. The use of County resources to manage and perform most of the work rather than contract services permits a significant amount of scalability and flexibility within the response.

Citizens and other agencies benefit from a readily available pool of capable staff and specialized equipment to address life safety and property conservation challenges. The ability to place heavy equipment, personnel, and expertise on the scene within hours of a notification promotes an efficient return to normal conditions for citizens impacted by an emergency or event. A single emergency response activity can impact an individual citizen or thousands of citizens. Stormwater Division resources are a component of the County Emergency Operations Plan, Pre-Disaster Recovery Plan, Hazard Mitigation Plan, Debris Management Plan, Emergency Action Plan for dams, and Snow Removal Plan.

Stormwater Management

Mandates

This LOB is partially mandated by:

- Emergency Management Assistance
- Local Emergency Operations Plan
- Disaster Assistance
- Uniform Statewide Building Code

Trends and Challenges

The major challenges and trends associated with this LOB include:

- The requirement to participate in snow operations creates recruiting and retention challenges at all levels of the organization, from engineers and technicians to trades personnel. Alterations to the work schedule and prolonged absences from home create fatigue in the workforce and deter potential candidates from applying. Locating candidates for trade positions with prior snow plowing experience also presents challenges.
- The snow and ice control operations are often completed at the expense of other functions within the Stormwater Division. Staff and equipment are diverted from their regular duties or projects to focus on snow response. This creates an unpredictable work load on staff as resources remain fixed and levels of service are maintained.
- Snow removal operations accelerate corrosion and mechanical wear on Division equipment and vehicles. Vehicles are often in poor condition well before the standard replacement cycle engages. Vehicle components, including the cargo bed, steering, and brakes, frequently require replacement due to the damage caused by snow control chemicals.
- The number and complexity of County facilities included in the program increases as population increases and County services expand. New environmentally-friendly designs, complex parking configurations, tighter sites, and increasing use of parking garages all impact snow removal efforts. Traffic throughout the County, especially during inclement weather, has drastically impacted travel times for plowing and treating equipment. These challenges require different equipment, training, planning, and approaches as the fleet and staff positions remain steady. Some of the challenges have resulted in increased contracted services. In FY 2015, limited County staff resources required the use of a contractor to clear walkways in half of the County whereas DPWES previously handled all walkways countywide. Also, the new 24/7 Merrifield Center requires a level of service undeliverable by County resources, so a contractor has been engaged for full service snow and ice control at that facility.
- Increased pollution awareness has played a role in the selection and use of ice control chemicals. The impact of salt and brine solutions on water quality is a debated topic with no clear direction. Low-impact substitutes for the traditional salt or sand treatments are more costly and more difficult to obtain in bulk.
- As the County transitions from rural to suburban to urban areas the number of emergency responses will continue to increase. Population growth and density are anticipated to create more situations that require emergency intervention or response by Stormwater staff. Increased stormwater runoff volume due to development results in greater potential for aging infrastructure to become overwhelmed and create flooding conditions. Currently, most Stormwater Division staff do not reside in the County due to the cost of living. Many live an hour or more away with even greater travel times during inclement weather. This greatly increases response times when callback staffing is required for unexpected emergency response.

Stormwater Management

Resources

Category	FY 2014 Actual	FY 2015 Actual	FY 2016 Adopted
LOB #373: Emergency Response / Snow Removal			
FUNDING			
Expenditures:			
Operating Expenses	\$2,108,434	\$1,579,626	\$1,379,030
Work Performed for Others	0	0	(136,030)
Capital Equipment	92,516	56,720	57,000
Total Expenditures	\$2,200,950	\$1,636,346	\$1,300,000
Total Revenue	\$0	\$0	\$0
POSITIONS			
<i>Authorized Positions/Full-Time Equivalents (FTEs)</i>			
Positions:			
Regular	0 / 0	0 / 0	0 / 0
Total Positions	0 / 0	0 / 0	0 / 0

Stormwater Management

Metrics

Metric Indicator	FY 2013 Actual	FY 2014 Actual	FY 2015 Actual	FY 2016 Estimate	FY 2017 Estimate
Number of snow events	17	20	25	25	25
Snow contractor services cost	\$360,215	\$646,538	\$599,094	\$599,094	\$599,094
DPWES snow operations costs	\$977,868	\$1,491,616	\$1,186,780	\$1,186,780	\$1,186,780
Snow and ice control cost per facility	\$6,195	\$9,719	\$7,698	\$7,698	\$7,698
Number of facilities and road segments serviced	216	220	232	232	232

The number of snow events reflects a count of the total number of activations of MSMD resources in response to frozen precipitation. This includes limited, modified, and full mobilization events. The trend shows an incremental increase over the past three fiscal years. This is reflective of the severity of the weather as well as increased sensitivity to maintaining levels of service. The operational posture of snow removal assets is managed very conservatively to ensure that a response is available whenever there is a potential for accumulating precipitation. Events that previously would have passed without mobilization now receive more attention in order to provide more responsive services.

The snow contractor services cost displays the funds paid to contracted services for the snow and ice control at commuter facilities, walkways, and the new Merrifield Center. The percentage of the total operational costs associated with snow removal attributed to contracted services has steadily increased over the past three fiscal years. Contracted services accounted for 37 percent, 43 percent, and 50 percent of the total snow operation costs in FY 2013, FY 2014, and FY 2015 respectively. Increased numbers of facilities with constrained personnel resources have resulted in the larger percentage of contractor involvement.

The DPWES snow operations costs represent the total cost of snow and ice control operations for facilities under the MSMD Snow Removal Plan. This includes costs internal to MSMD, reimbursements to other DPWES partner agencies, Community Labor Force of the Sheriff's Office, and outside contractors. Expenditures include snow plows, chemical spreaders, snow blowers, backpack blowers, snow shovels, labor costs, and administrative supplies. This statistic is most closely tied to the intensity and frequency of storms during the season.

The snow and ice control cost per facility reflects the total cost of snow operations divided by the number of facilities serviced each fiscal year. This statistic is an indicator of the severity of the storms experienced during a fiscal year. More severe weather requires more concentrated efforts for each facility.

The number of facilities and road segments serviced is a count of the number of distinct locations within the scope of MSMD snow removal operations. These include fire stations, police stations, government centers, mass transit facilities, Public Safety Center, McConnell Public Safety and Transportation Operations Center (MPSTOC), health centers, libraries, community centers, and Fairfax County Road Improvement Program (FCRIMP) and default roadways. The number of facilities has steadily grown as the need for County services increases.