

Lines of Business

LOB #18:

OPERATIONS AND MAINTENANCE

Purpose

The Operations and Maintenance (O&M) Division performs preventative maintenance, minor repair services and emergency maintenance for County-owned and designated leased facilities. This ensures safe and comfortable facilities for all users and maintains capital assets, which provide County employees and residents with safe and functional facilities. O&M provides a broad spectrum of services that include operations and maintenance of County-owned and designated leased facilities and building sub-systems such as HVAC systems, electrical systems, fire suppression systems, structural components, back-up systems and building energy systems.

Description

The Operations and Maintenance (O&M) Division serves 244 facilities totaling approximately 10,669,125 square feet located throughout the County of Fairfax. The division also provides in-house preventive maintenance services, routine and emergency service calls, and repair and alteration services for County-owned and designated leased facilities.

General Building Maintenance Services including maintenance, repairs and minor renovations, such as:

- Scheduled repairs and maintenance
- Roof repairs
- Flooring, walls, ceilings and other building architectural elements
- Kitchen/bathroom counters, cabinets and partitions
- Window and door repairs and replacements
- Hand rails and building signs
- Maintenance of fire doors, fire extinguishers and all door hardware
- Painting of facilities' interiors and exteriors and removal of graffiti

For example, the O&M division inspects, repairs and performs preventive maintenance at over 244 County-owned and designated leased buildings, with nearly 5.37 million square feet of roof surfaces which equates to approximately 118 acres of roofs; over 2,126 fire extinguishers, inspected yearly and replaced every 6 years; and over 382 overhead doors, bay doors and security gates, inspected and maintained by in-house and contract staff.

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Electrical Services including maintenance, inspection, testing and repair of electrical equipment, such as:

- Life safety systems (emergency generators, fire alarm and fire suppression systems)
- Electrical circuits and receptacles, electrical distribution equipment, exhaust fans, hoods and motors
- Power supply and distribution systems
- Interior and exterior lighting systems

For example, the O&M division tests, maintains and operates 118 emergency generators producing over 26,886,000 watts of power for emergency lighting and back-up power, which is sufficient power to supply over 1,334 typical homes; 1,112 fire alarm and fire suppression systems; testing, inspecting and maintaining over 39,109 devices and components; and 1,621 electrical light and distribution systems with over 62,478 major components and lighting fixtures to maintain and inspect.

Mechanical Services including preventive maintenance, inspections, testing, and repairs of HVAC and plumbing systems, such as:

- Boilers, air conditioners, chillers, air handlers, heaters, pumps, gas furnaces, exhaust fans, cooling towers, roof top units, and heat pumps
- Energy management systems
- Domestic cold and hot water lines
- Water heaters
- Circulating pumps
- Building sanitary waste lines
- Building storm sewer lines
- Building natural gas piping
- Grease traps
- Oil/sand/grease interceptors
- Inspecting and approving repair work performed by maintenance contractors
- Inspecting and approving mechanical equipment replacement projects

For example, the O&M division tests, maintains and operates 2,441 air-conditioning and cooling systems, with over 9,120 individual cooling components; over 45,380 plumbing fixtures and components; over 30,814 filter replacements; 2,333 air-handlers and fans, with over 18,278 individual devices; and 1,716 heating sub-systems, with over 25,677 individual components.

Maintenance and services contracts are utilized to augment the division's in-house staff by outsourcing small maintenance/repairs which can be completed efficiently by partnering with private contractors who have specialized equipment and skillsets, such as: elevators/escalators; high voltage electrical systems and emergency generators; HVAC systems (complex chiller plants); bay doors and automatic pedestrian doors; fire sprinklers, fire alarms and security systems. For example, the O&M Contract Services section uses contracted services to provide project management of 47 total maintenance and repair contracts and 4,237 total tasks performed by maintenance and repair contracted vendors.

The Work Control Center and Warehouse services support: accurate work classification and expeditious dispatching; researching the status of work orders for others; data entry of all labor and material costs; ensuring that all materials required to perform a work order are identified on a stock request (SR), obtained in a timely manner and staged for the job; and maintaining the material status in a Computerized Integrated Facilities System (Tririga or alternative system) from receipt of the Service Request Requirement through material shop issuance.

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Benefits

The benefits associated with this line of business include:

- Provide safe, accessible and healthy building environment for the public and employees
- Conserve energy through utilization of technology and energy conservation measures
- Preserve County assets through proper planning, scheduling and preventive maintenance
- Provide a level of scheduled maintenance that prolongs the service life of building systems and minimizes breakdowns that disrupt facility operations
- Increase the life expectancy of facility components and equipment, resulting in a reduced life cycle cost
- Manage all maintenance and repairs to all facility systems and equipment in over 244 facilities encompassing more than 10,669,125 square feet of space
- Respond to over 39,000 service requests annually in addition to scheduled maintenance projects

Mandates

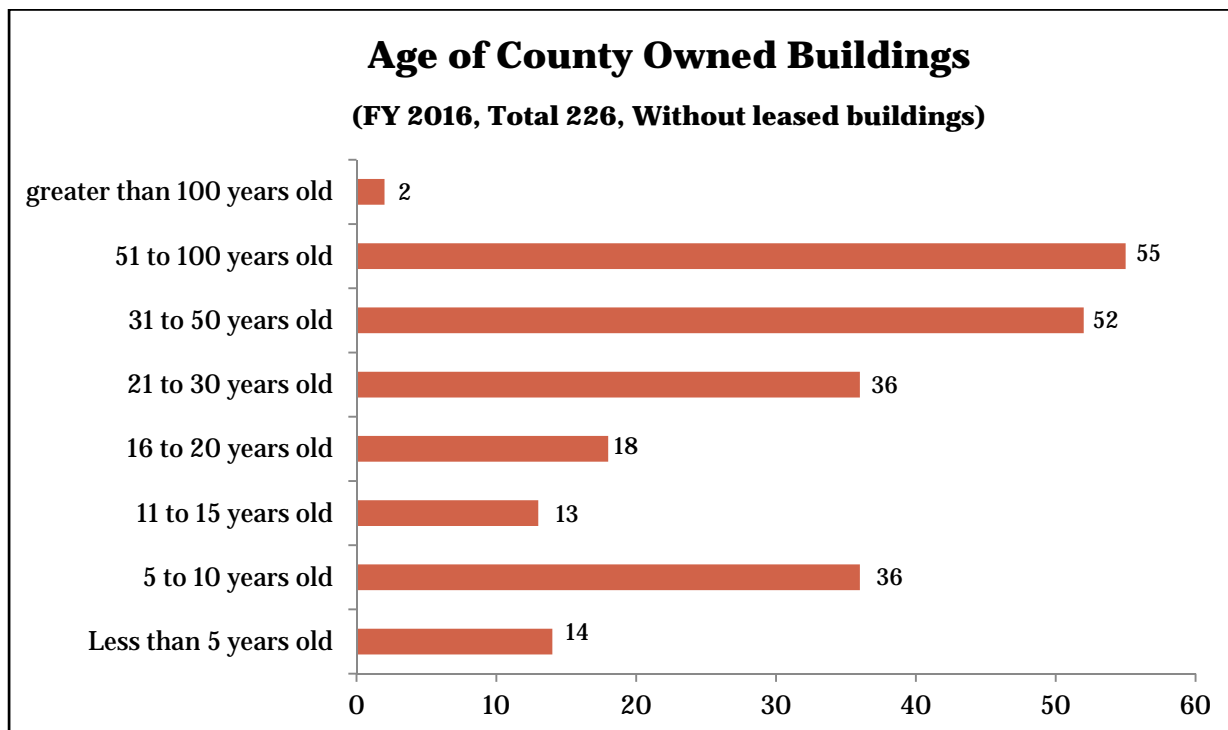
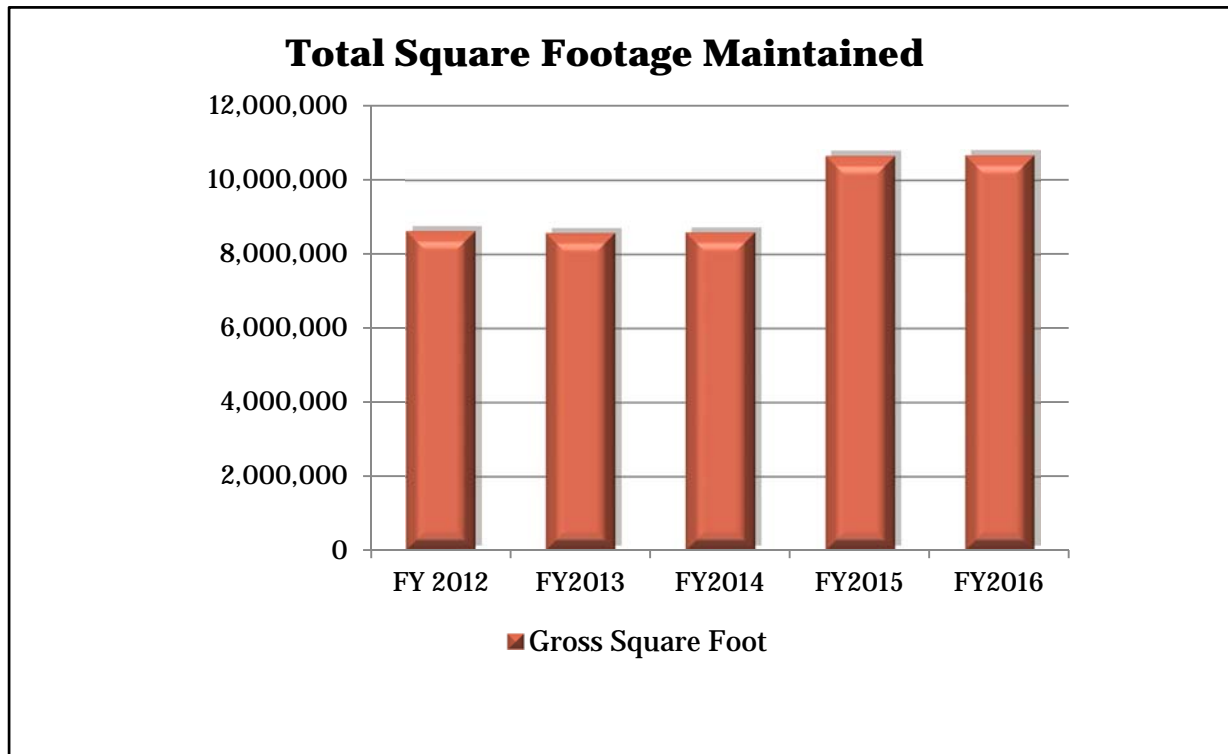
All of the following mandates must be adhered to in order to ensure a safe, accessible and healthy building environment for employees and the public as well as to ensure that the County meets the following legal requirements:

- State/County Building, Electrical, Plumbing, Mechanical, and Life Safety codes incorporate thousands of regulations that are derived from sources such as the Underwriters Labs, International Commercial or Residential Code (ICC/IRC), National Fire Protection Association (NFPA), International Building Code and the Commonwealth of Virginia Department of Labor and Industry.
- The Occupational Safety and Health Administration (OSHA) does not directly regulate facility design; however, the construction, operation and occupation of facilities must comply with OSHA regulations. O&M staff must ensure that facility operations and maintenance can be performed in compliance with 29 CFR 1910 and must not subject building occupants to conditions in violation of 29 CFR 1910.
- Americans with Disabilities Act (ADA). To comply with the Fairfax County and Department of Justice Settlement Agreement of 2011, operations and maintenance work is completed in compliance with the 2010 Federal ADA requirements.
- Virginia Department of Environmental Quality (DEQ) administers state and federal laws and regulations for air quality, water quality, water supply and land protection. For example, there are regulations governing underground generator fuel tanks, generator emissions and HVAC systems refrigerant.
- Through integrative design and application of sustainable design principles, as directed by the Board of Supervisors, all new construction projects and substantial renovations must achieve at a minimum a LEED Silver rating through the Leadership in Energy and Environmental Design (LEED) Green Building Rating System of the U.S. Green Building Council. To maintain certification, the O&M division must follow these guidelines in the use of materials and equipment in the performance of their work.
- The National Historic Preservation Act (NHPA) of 1966 mandates that owners are required to maintain and/or rehabilitate historic properties to the greatest extent possible in a manner that preserves their architectural character.

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Trends and Challenges

The two main trends are related to the total square footage maintained and the aging facilities. The total square footage maintained continues to increase as demonstrated below:



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As facilities grow older, maintenance requirements increase. Even as some facility systems are replaced throughout the Capital Renewal Program, maintenance requirements continue to increase due to the age of the majority of the County's facilities.

Other challenges are associated with specialized equipment/areas and maintenance staffing. There is an increased demand for the operation and maintenance of high-tech building systems, rooms, and/or equipment including but not limited to:

- Laboratories
- Isolation Rooms (communicable diseases)
- Data Centers
- Audio Visual Rooms
- Training Facilities (burn rooms, driving track, pistol range, etc.)
- Food Service
- Detention Facilities
- Evidence Storage
- Building/Energy Automation Systems and Intelligent Buildings, including:
 - 97 Building Automation Systems -monitor and control lighting, plumbing, HVAC and interlocking of items such as bay doors
 - Security Automation Systems - control security and alarm, access control and closed-circuit TV
 - 140 Fire Automation Systems work through an independent network and cabling systems to ensure continuous operation of fire systems

Maintenance staffing for FMD continues to be a challenge. In 2005, the International Facility Management Association (IFMA) surveyed over 650 Operations and Maintenance organizations to compile benchmarks. Over 650 facility organizations participated in the survey and the results were tabulated in IFMA's Operations and Maintenance Benchmarks Research Report #26. The report lists overall maintenance staffing levels based on facility size and a staffing ratio of 1-maintenance FTE per 47,000 rentable square feet. The Facilities Management Department currently employs 133 trades staff and supervisors to maintain approximately 8,987,178 RSF (Rentable Square Feet) and 8 support staff. When applying the IFMA benchmark, a total of 191.0 FTE positions are required to maintain FMD's current facilities. This equates to a staffing shortage of 58.0 FTE positions, which impacts maintenance response times and preventive maintenance hours.

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Resources

Category	FY 2014 Actual	FY 2015 Actual	FY 2016 Adopted
LOB #18: Operations and Maintenance			
FUNDING			
Expenditures:			
Compensation	\$7,938,883	\$8,030,125	\$8,155,191
Operating Expenses	7,012,730	6,631,993	6,424,968
Work Performed for Others	(601,032)	(735,268)	(417,986)
Capital Equipment	13,755	0	0
Total Expenditures	\$14,364,336	\$13,926,850	\$14,162,173
General Fund Revenue	\$0	\$0	\$0
Net Cost/(Savings) to General Fund	\$14,364,336	\$13,926,850	\$14,162,173
POSITIONS			
Authorized Positions/Full-Time Equivalents (FTEs)			
Positions:			
Regular	137 / 137	141 / 141	141 / 141
Total Positions	137 / 137	141 / 141	141 / 141

Metrics

Metric Indicator	FY 2013 Actual	FY 2014 Actual	FY 2015 Actual	FY 2016 Estimate	FY 2017 Estimate
Rentable Square Feet Maintained	7,235,526	7,247,687	8,987,178	9,001,541	9,232,715
Cost per Square Foot Maintained	\$2.40	\$2.47	\$2.57	\$2.02	\$1.96
BOMA Benchmark (repair/maintenance)	\$1.61~\$2.97	\$1.88~\$3.13	NA	NA	NA

BOMA = Building Owners and Managers Association (Washington DC/VA Market); Rentable = Occupied/Usable space; NA = BOMA Benchmark not available; the BOMA Benchmark is based on calendar years, therefore, the FY 2015 Actual is not available.

The metrics provided illustrate that the department is performing this line of business efficiently and it is benchmarked within industry parameters. This line of business relies heavily upon the use of contracted services to augment department staff in maintaining County facilities. This has resulted in efficiencies in providing services.