FMD
CAPITAL RENEWAL PROGRAM

September 11, 2013

Current Facilities Inventory

FMD currently performs capital renewal on 193 facilities/structures* that total more than 8 million square feet of space

Primary Use Categories	
Administration Offices	3
Community Recreation Centers	8
Courts Sites	3
Detention Centers	9
Fire Stations	29
Police Stations	6
Health Care	4
Human Services	22
Libraries	20
Maintenance	17
Transportation	4
Parking Lots and Garages	11
Shelters	7
Specialty	4
Cell Towers Locations	13
Public Safety	29
Warehouses	4
Total Buildings	193

*Does not include leased facilities and volunteer Fire Stations

Current Facilities Inventory

73% of County facilities/structures are over 10 years old
63% of County facilities/structures are over 15 years old
54% of County facilities/structures are over 20 years old
34% of County facilities/structures are over 30 years old
23% of County facilities/structures are over 40 years old
13% of County facilities/structures are over 50 years old

Total replacement value of the 193 facilities/structures maintained by FMD and owned by the Board is $1,077,276,384

What is Capital Renewal?

- The replacement of major facilities/structures subsystems that are at the end of their service life
- A necessary reinvestment in facility infrastructure to ensure buildings continue to operate efficiently and satisfy their functional requirement
- Examples include, the replacement of roofs, HVAC systems, electrical systems, fire protection subsystems, parking lots, elevators, carpet and tile

What isn't Capital Renewal?

- Does NOT include routine maintenance and emergency repairs
- Capital renewal is NOT new building construction or a major renovation or expansion of existing facilities

Industry Standards

- Current industry standard for capital renewal reinvestment is 2% of the replacement value annually*
- Example: The average replacement value for only building subsystems is $150 per square foot annually. Therefore, $3.00 per square foot would be required to meet industry standards
- In FY 2013, County renewal support is estimated at $1.75 per square foot annually, which is $1.25 below the industry standard

Note: Does not include capital renewal when included in a major facility/structure renovation project or minor repairs and renewal items (painting, plumbing, electrical repairs) performed as needed by FMD staff.

*The Ohio State University, Peters Lufkins, Estimating the Restoration and Modernization Cost of Infrastructure and Facilities, 2005.

General Guidelines

Expected Building Subsystems Life Cycle

Roofs:		20 years
Electrical:	Lighting	20 years
	Generators	25 years
	Service/Power	25 years
	Fire Alarms	20 years
HVAC:	Equipment	15 years
	Boilers	15 to25 years
	Air Handling Units	15 to 20 years
	Building Controls	10 years
Plumbing:	Pumps	15 years
	Pipes and Fittings	30 years
	Fixtures	30 years
Finishes:	Broadloom Carpet	7 years
	Carpet Tiles	15 years
	Systems Furniture	20 to 25 years
Site:	Paving	15 years
Conveying Systems:		
	Elevator	15 years
	Escalator	15 years

http://www.cibse.org/pdfs/newOOMtable1.pdf

Facility Condition Assessments

- A facility condition assessment is used to develop a baseline of current facility conditions and to develop a multiyear maintenance plan. The plan provides the foundation to replace major facility systems by providing the following information:
  - Assessment reports/Cost estimates
  - Analysis of facility condition information
  - Life Cycle Analysis for component renewal
- Assessments include a complete visual inspection of roofs and all mechanical and electrical components for each facility
- In 2004, a comprehensive facilities condition assessment was conducted on 92 selected Fairfax County facilities (approximately 4.2 million square feet of space representative of older facilities)
  - Results from survey indicated an estimated total of $80 million needed through 2010 or approximately $13 million per year for these 92 facilities – representing only 54 percent of current inventory

FMD Rankings

- FMD prioritizes and classifies facilities/structures subsystems into five categories:
  - **Category F**: urgent/safety related, or endangering life and/or property
  - **Category D**: critical subsystems beyond their useful life or in danger of possible failure
  - **Category C**: life-cycle repairs/replacements needed where repairs are no longer cost effective
  - **Category B**: repairs needed for improvements if funding is available
  - **Category A**: good condition

- FMD categorizes facility/structure subsystems annually and assigns a ranking of F through A

Facilities Condition Assessment Results

August 2013

Grade	Mechanical/Plumbing Condition	Electrical Condition	Structure Condition	Total
F	21	36	38	95
D	20	70	33	123
C	43	34	40	117
B	66	19	60	145
A	43	34	22	99
Total Facilities	193	193	193	

- $51M Capital Renewal funding required to remedy all 95 Facility/Structure Condition Grade F's
- $76M Estimated Capital Renewal funding required to remedy all 123 Facility/Structure Condition Grade D's

FMD Ranking – Examples

CATEGORY	YEAR CONSTRUCTED	FACILITY NAME	REPLACEMENT DESCRIPTION	DEFICIENCIES	ESTIMATE
F	1991	Government Center	Replace Emergency Generators, ATS, Emergency Distribution Board and Generator fuel pump system. (Equipment Circa 1990)	Aged and obsolete system. Imminent failure.	$1,500,000
F	1992	Pennino Building	Replace AHU's and Fans.	Aged and obsolete system. Imminent failure.	$2,400,000
F	1991	Government Center	AHU replacement project. (this is a four phase project)	Aged and obsolete system. Imminent failure.	$14,500,000
F	1983	I66 Transfer Station	Replace Fire Suppression System.	Beyond expected life. Life safety.	$150,000
F	1970	Adult Detention Center	Replace water heater, two circulating pumps, two hot water storage tanks, valves, strainers, controls. East Wing.	Aged and obsolete system. Imminent failure.	$270,000
F	1940	Patrick Henry Shelter	Replace main electrical distribution system. Replace all sub-panels and apartment panels. (Equipment Circa 1987)	Aged and obsolete system. Imminent failure.	$200,000
F	1966	Criminal Justice Academy	Replace 2, 10 ton RTU's and 4, 5 ton RTU's. Demo of additional obsolete equipment.	Aged and obsolete system. Imminent failure.	$250,000
F	1970	Adult Detention Center	Renovate elevators 1, 2, 4, & 5. (construction Phase 1)	Beyond expected life. Possible Imminent failure.	$2,000,000

Example: Capital Renewal

Location: Pennino Building
Project Type: Plumbing
Completion Date: November 2012
Project Cost: $81,473
Project Description: Emergency systems failure project

- Replaced all plumbing and grease interceptor
- Replaced electrical wiring for disposal
- Replaced broken pipes in child daycare center kitchen floor
- Removed flooring and concrete (4 feet) to replace piping

Example: Capital Renewal

Location: Government Center
Project Type: Elevators Modernization Project
Completion Date: October 2013
Project Cost: $4,100,000
Project Description:

- Mechanical, electrical and safety control systems were 22 years old
- Recommended life cycle replacement on original equipment 15 years old
- Elevator cab and lobby notification devices did not meet ADA
- Modernize 14 traction elevators and 1 hydraulic elevator with mechanical, electrical, and safety system upgrades. End of life cycle project
- Install new traction machines, controllers, and other new mechanical components
- Install new fire alarm, safety devices, cab controls, corridor control stations, and signals
- Install new hydraulic elevator pump, hydraulic jack and components
- Upgrade lighting in elevator shaft pits, machine rooms, corridor lobbies, and cab interiors

Example: Capital Renewal

Location: James Lee Community Center
Project Type: HVAC Renewal Project
Completion Date: June 2013
Project Cost: $1,286,978
Project Description :

- Replaced 15 to 25 year old HVAC equipment that was expected to live 15 to 20 years
- Replaced HVAC system components that reached and/or exceeded useful life
- Replaced both cast iron boilers with condensing boilers and 2 hot water pumps and starters
- Remove old chiller and rooftop condenser
- Removed basement Air Handling Unit and installed new rooftop unit
- Added Mitsubishi splits for parks storage area and theater dressing room
- Installed a Mitsubishi City Multi for the day care area
- New VAV boxes were added and the existing control system was up graded

Massey Building – End of Building Life Cycle

Building deficiencies:

- Asbestos fireproofing throughout the building restricts or prohibits access to equipment, which is needed to make repairs
- Pre-cast concrete pieces are breaking off the exterior panels
- Overloaded electrical system with no spare capacity for new equipment. Breakers trip constantly because the electrical system is overloaded
- Outdated HVAC components – Repair parts are often not available. Experienced chiller failures (two in 2009 and one in 2013) that required people in the building to temporarily vacate and relocate
- Roof inefficiencies and aged plumbing fixtures are causing water leaks and hazards
- Obsolete fire alarm systems
- Aged lighting fixtures are causing safety concerns

The Massey Building is 43 years old and is at the end of its useful life. The facility was constructed using a 1960's office model, which is inadequate for a public safety headquarters in the 21st century. Among the critical components that cannot be changed, one must consider:

- Inadequate Square Footage
- Building Floor Plates
- Building Security
- ADA Accommodations
- Storage

Capital Renewal Program Challenges

- County facilities/Structures are aging and require continued investment
- Inventory of County facilities/Structures continues to increase
- Competing interests with required work for ADA and Energy Grant projects that is delaying Capital Renewal projects
- Capital Renewal requirements exceed existing staffing capacity
  - Recruitment of new staff and retention of existing staff

Summary of Recommended Actions

- Based on industry standards and the FY 2004 building condition assessments, $26M annually should be funded for capital renewal
  - Realistically, based on current workload capacity, FMD recommends $15 million annually to renew building subsystems
  - There is currently no Paydown (General Fund) funding in the FY 2014 budget for capital renewal as the short term borrowing program to reduce the backlog of projects (3 year program totaling $35 million) is still underway
  - Previous General Fund support for the Capital Renewal Program averaged $7.2 million (FY 2008 to FY 2010)

- Provide an additional $500,000 annually to fund building condition assessments
  - This will allow FMD to complete approximately 25 building subsystem assessments annually thus completing an assessment of every building once every 10 years

Questions