

Fund 30020

Infrastructure Replacement and Upgrades

Focus

Fund 30020, Infrastructure Replacement and Upgrades, supports the long-term needs of the County's capital assets to maximize the life of County facilities, avoid their obsolescence, and provide for planned repairs, improvements and restorations to make them suitable for organizational needs. Infrastructure replacement and upgrade is the planned replacement of building subsystems such as roofs, electrical systems, HVAC, plumbing systems, windows, carpets, parking lot resurfacing, fire alarms, and emergency generators that have reached the end of their useful life. Without significant reinvestment in building subsystems, older facilities can fall into a state of ever-decreasing condition and functionality, and the maintenance and repair costs necessary to operate the facilities increase. Fairfax County will have a projected FY 2019 facility inventory of over 10 million square feet of space (excluding schools, parks and housing facilities). This inventory continues to expand with the addition of newly constructed facilities, the renovation and expansion of existing facilities and the acquisition of additional property. With such a large inventory, it is critical that a planned program of repairs and restorations be maintained. In addition, the age of a major portion of this inventory of facilities is reaching a point where major reinvestments are required in the building subsystems.

Many County facilities have outdated HVAC and electrical systems that are susceptible to failure or are highly inefficient energy users. Sites are identified and each individual project involves a two-step process to complete both design and construction. Roof replacement, repairs, and waterproofing are conducted in priority order based on an evaluation of maintenance and performance history. Repairs and replacement of facility roofs are considered critical to avoid the serious structural deterioration that occurs from roof leaks. By addressing this problem in a comprehensive manner, a major backlog of roof problems can be avoided. Carpet replacement and parking lot resurfacing are evaluated annually and prioritized based on the most critical requirements for high traffic areas. In addition, emergency generators and fire alarm systems are replaced based on equipment age, coupled with maintenance and performance history. Critical emergency repairs and renovations are accomplished under the category of emergency building repairs. These small projects abate building obsolescence and improve the efficiency and effectiveness of facilities and facility systems. The following table outlines, in general, the expected service life of building subsystems used to project infrastructure replacement and upgrade requirements, coupled with the actual condition of the subsystem component:

General Guidelines for Expected Service Life of Building Subsystems

Electrical

Lighting	20 years
Generators	25 years
Service/Power	25 years
Fire Alarms	15 years

Plumbing

Pumps	15 years
Pipes and fittings	30 years
Fixtures	30 years

HVAC

Equipment	20 years
Boilers	15 to 30 years
Building Control Systems	10 years

Finishes

Broadloom Carpet	7 years
Carpet Tiles	15 years
Systems Furniture	20 to 25 years

Fund 30020

Infrastructure Replacement and Upgrades

General Guidelines for Expected Service Life of Building Subsystems

<u>Conveying Systems</u>		<u>Site</u>	
Elevator	25 years	Paving	15 years
Escalator	25 years		
		<u>Roofs</u>	
		Replacement	20 years

Each year, the Facilities Management Department (FMD) prioritizes and classifies infrastructure replacement and upgrade projects into five categories. Projects are classified as Category F: urgent/safety related, or endangering life and/or property; Category D: critical systems beyond their useful life or in danger of possible failure; Category C: life-cycle repairs/replacements where repairs are no longer cost effective; Category B: repairs needed for improvements if funding is available, and Category A: good condition.

In April 2013, the County and School Board formed a joint committee, the Infrastructure Financing Committee (IFC), to collaborate and review both the County and School’s Capital Improvement Program (CIP) and infrastructure upgrade requirements. One of the goals of the Committee was to develop long-term maintenance plans for both the County and Schools, including annual requirements and reserves. The committee conducted a comprehensive review of critical needs and approved recommendations to support the development of a sustainable financing plan to begin to address current and future capital requirements. The Committee found the analysis of financial policy, the review of the condition of hundreds of facilities, and the scarce options for financing to be challenging. A Final Report was developed and approved by the Board of Supervisors on March 25, 2014, and the School Board on April 10, 2014. The Report includes support for conducting capital needs assessments, new policy recommendations for capital financing, including a capital sinking fund and increased annual General Fund supported funding, the adoption of common definitions related to all types of maintenance, support for County and School joint use opportunities for facilities, and continued support for evaluating ways to further reduce capital costs.

The Board of Supervisors approved the establishment of the Capital Sinking Fund as part of the *FY 2014 Carryover Review*. To date, a total of \$26,767,431 has been dedicated to capital sinking funds and allocated for infrastructure replacement and upgrades to the following areas: \$14,722,086 for FMD, \$5,353,485 for Parks, \$2,676,744 for Walkways, \$2,676,744 for County owned Roads and \$1,338,372 for Revitalization. Projects have been initiated in all of these program areas from the sinking fund allocation. FMD has initiated several larger scale projects with the \$14,722,086 allocated to the Sinking Fund, including HVAC system component replacements at the Patrick Henry Library and the Herndon Fortnightly Library; emergency back-up generator replacements at the Government Center, Pennino Building and Herrity Building; replacement of the reflective coating, flashing and caulking of the roofs at the Pennino Building, James Lee Community Center and Bailey’s Community Center; windows replacement at the Hollin Hall building; structural repairs at the Patrick Henry Library; and a structural analysis and review of the visitor garage at the Fairfax County Judicial Center.

As discussed with the IFC, the requirement for County infrastructure replacement and upgrades is estimated at \$26 million per year. This estimate is based on current assessment data, as well as industry standards (2 percent of the current replacement value). Based on current staffing levels, the complexity of many of the projects, and the timeline for completing replacement and upgrade projects, it is estimated that approximately \$15 million per year would be a good funding goal. Due to budget constraints, in FY 2019, an amount of \$1,700,600 is included to address six of the top priority Category F projects. In addition,

Fund 30020 Infrastructure Replacement and Upgrades

funding in the amount of \$8,237,400 will be proposed as part of the *FY 2018 Third Quarter Review* for a total of \$9,938,000 in FY 2019 identified projects. These projects, all Category F, will address emergency building repairs, fire alarm system replacement, parking lot and garage repairs, HVAC system upgrades, roof repairs and waterproofing, emergency generator replacement, elevator/escalator repairs, and electrical system upgrades/repairs. The following table provides specific project details of the projects that are proposed to be funded at the *FY 2018 Third Quarter Review* and the projects proposed in the FY 2019 Advertised Budget Plan.

FY 2019 INFRASTRUCTURE REPLACEMENT AND UPGRADE PROGRAM					
PRIORITY	PROJECT TYPE	FACILITY	CATEGORY	EXISTING CONDITIONS/DEFFICIENCIES	ESTIMATE
PROJECTS PROPOSED TO BE FUNDED AS PART OF THE FY 2018 THIRD QUARTER REVIEW					
1	Plumbing	Hollin Hall	F	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Increased failures · Multiple water leaks 	\$150,000
2	Electrical	Hollin Hall	F	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Increased failures · Old technology · Replacement per Building Assessment 	\$234,000
3	Roof	Hollin Hall	F	<ul style="list-style-type: none"> · Water leaks · Maintenance and repairs no longer feasible · Disruption to building operations/end users · Increased utilities cost · Replacement per Building Assessment 	\$366,000
4	Plumbing	Adult Detention Center (West Wing)	F	<ul style="list-style-type: none"> · Immediate need - will not impact larger Adult Detention Center renovation project · Parts no longer available (proprietary) · Maintenance and repairs no longer feasible · Increased failures · Old technology · Replacement per Building Assessment 	\$150,000
5	Electrical	Government Center (Data Center Uninterrupted Power Source (UPS) Batteries)	F	<ul style="list-style-type: none"> · Increased equipment failure · Safety hazard 	\$125,000
6	Electrical	Judicial Visitor Garage (Garage B Lighting)	F	<ul style="list-style-type: none"> · Increased equipment failure · Old technology · Disruption to users · Safety hazard 	\$507,000
7	Generator	West Centreville Fire Station	F	<ul style="list-style-type: none"> · Out of Code Compliance · Maintenance and repairs no longer feasible · Increased failures · Old technology 	\$350,000
8	Generator	Kingstowne Fire Station	F	<ul style="list-style-type: none"> · Out of Code Compliance · Maintenance and repairs no longer feasible · Increased failures · Old technology 	\$350,000
9	Building Envelope	Sully Government Center	F	<ul style="list-style-type: none"> · Water leaks and air infiltration · Disruption to building operations/end users · Increased utilities cost 	\$56,000
10	Building Envelope	Great Falls Library	F	<ul style="list-style-type: none"> · Water leaks and air infiltration · Disruption to building operations/end users · Increased utilities cost 	\$52,000

Fund 30020 Infrastructure Replacement and Upgrades

FY 2019 INFRASTRUCTURE REPLACEMENT AND UPGRADE PROGRAM					
PRIORITY	PROJECT TYPE	FACILITY	CATEGORY	EXISTING CONDITIONS/DEFFICIENCIES	ESTIMATE
PROJECTS PROPOSED TO BE FUNDED AS PART OF THE FY 2018 THIRD QUARTER REVIEW					
11	Building Automation System	Juvenile Detention Center	F	<ul style="list-style-type: none"> · Partial funding · Increased utilities costs · Maintenance and repairs no longer feasible · Increased failures resulting in inability to control building temperature · Old technology 	\$322,400
12	Elevator	Jennings Judicial Center	F	<ul style="list-style-type: none"> · Increased failures · Maintenance and repairs no longer feasible · Old technology · Does not meet current code requirements 	\$1,350,000
13	Paving	Mt. Vernon Police & Government Center	F	<ul style="list-style-type: none"> · Surface has failed · Safety hazard · Cost increases if delayed 	\$325,000
14	Paving	James Lee Community Center	F	<ul style="list-style-type: none"> · Surface has failed · Safety hazard · Cost increases if delayed 	\$350,000
15	Fire Alarm	Hollin Hall	F	<ul style="list-style-type: none"> · Increased maintenance required to keep system operational · Replacement parts are difficult to obtain · Obsolete system 	\$180,000
16	Fire Alarm	Mt. Vernon Police & Government Center	F	<ul style="list-style-type: none"> · Increased maintenance required to keep system operational · Priority system · Replacement parts are difficult to obtain 	\$177,000
17	Fire Alarm	North Point Fire Station	F	<ul style="list-style-type: none"> · Increased maintenance required to keep system operational · Replacement parts difficult to obtain · The Siemens Panel is no longer supported by the manufacturer · Obsolete equipment 	\$136,000
18	Roof	Juvenile Holding Building	F	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Water leaks · Disruption to building operations/end users 	\$265,000
19	Roof	Herrity Building	F	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Water leaks · Disruption to building operations/end users · Increased utilities cost 	\$1,225,000
20	Roof	Jennings Judicial Center	F	<ul style="list-style-type: none"> · Holes in the membrane, blisters and open seams · Water leaks · Standing water. Roof lacks adequate slope to drain properly · Failed caulking · Increased utilities cost 	\$230,000
21	Building Envelope	Jennings Judicial Center Expansion	F	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Water leaks eminent · Disruption to building operations/end users · Safety concerns 	\$350,000
22	Interior Repairs	North Point Fire Station	F	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Water leaks and mold · Disruption to building operations/end users 	\$105,000

Fund 30020 Infrastructure Replacement and Upgrades

FY 2019 INFRASTRUCTURE REPLACEMENT AND UPGRADE PROGRAM					
PRIORITY	PROJECT TYPE	FACILITY	CATEGORY	EXISTING CONDITIONS/DEFFICIENCIES	ESTIMATE
PROJECTS PROPOSED TO BE FUNDED AS PART OF THE FY 2018 THIRD QUARTER REVIEW					
23	Interior Repairs	Crosspoint Fire Station	F	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Disruption to building operations/end users 	\$107,000
24	Paving	James Lee Community Center	F	<ul style="list-style-type: none"> · Surface has failed · Safety hazard 	\$255,000
25	Paving	Fair Oaks Fire Station	F	<ul style="list-style-type: none"> · Surface has failed · Safety hazard 	\$172,000
26	Paving	Mott Community Center	F	<ul style="list-style-type: none"> · Surface has failed, large cracks run vertically and horizontally across the basketball court · Safety hazard 	\$140,000
27	HVAC	Springfield Warehouse	F	<ul style="list-style-type: none"> · Parts no longer available (proprietary) · Maintenance and repairs no longer feasible · One roof top unit has failed and cannot be repaired. One area of the building receives minimal heat and typically only reaches a high temperature of 55 to 60 degrees. · Old technology 	\$160,000
28	Various	Building Assessments			\$48,000
Subtotal					\$8,237,400
PROPOSED FY 2019 PROJECTS					
29	HVAC and Building Automation System	Hollin Hall	F	<ul style="list-style-type: none"> · Parts no longer available (proprietary) · Maintenance and repairs no longer feasible · Increased failures · Old technology · Replacement per Building Assessment 	\$750,000
30	HVAC and Building Automation System	Stevenson Place	F	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Increased failures and reduced effectiveness · Increased utilities costs 	\$208,000
31	HVAC	Jennings Judicial Center Expansion	F	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Increased failures and reduced effectiveness · Increased utilities costs 	\$275,000
32	HVAC	Government Center	F	<ul style="list-style-type: none"> · Increased maintenance required · Leaks from the HVAC system are penetrating the building, damaging finishes and causing mold to form 	\$210,000
33	Building Automation System	Boys Probation House	F	<ul style="list-style-type: none"> · Parts no longer available (proprietary) · Maintenance and repairs no longer feasible · Increased failures · Old technology 	\$170,000
34	Building Automation System	Juvenile Detention Center	F	<ul style="list-style-type: none"> · Partial funding · Increased utilities costs · Maintenance and repairs no longer feasible · Increased failures resulting in inability to control building temperature · Old technology 	\$87,600
Subtotal					\$1,700,600
Grand Total					\$9,938,000

In addition to the above projects identified as part of the FY 2019 plan, FMD has identified many additional Category F and D projects. Analysis of these requirements is conducted annually and projects may shift categories, become an emergency and be funded by the emergency systems failures project, or be eliminated based on other changes, such as a proposed renovation project.

Fund 30020

Infrastructure Replacement and Upgrades

The specific projects funded in FY 2019 include:

HVAC Systems

Funding in the amount of \$1,700,600 will support HVAC system component replacements at a variety of locations. This funding includes \$750,000 for the replacement of the HVAC and the control system at Hollin Hall based on increased failure of the equipment, the difficulty in procuring obsolete parts, and outdated technology. The system requires increased maintenance efforts due to age and stress on the system. Failure to replace this system can lead to increased energy usage, periodic loss of control of the system, and a disruption to the building. Funding of \$275,000 is included for the replacement of the cooling tower, motors, and belts at the Jennings Judicial Center due to increased failures and reduced effectiveness. Funding of \$210,000 is included for the replacement of the rooftop ductwork at the Government Center in order to extend the useful life of the ductwork by an estimated seven to ten years. The existing ductwork has outlived its useful life, which leads to water and condensation leaking into the building and damaging the finishes. Funding of \$208,000 is included for the replacement of the building control unit, boiler, and hot water pumps at Stevenson Place based on increased failures and utility costs. Funding of \$170,000 is included for the replacement of the building automation system at the Boys Probation House based on obsolete technology and increased failures. This will integrate the system and allow for remote monitoring and control of the system. Lastly, funding of \$87,600 is included for design work only associated with the replacement of the building automation unit, boilers, and pumps at the Juvenile Detention Center based on obsolete technology and increased failures and utility costs. It is anticipated that the remaining funding to complete this project will be included in the *FY 2018 Third Quarter Review*.

Changes to FY 2018 Adopted Budget Plan

The following funding adjustments reflect all approved changes in the FY 2018 Revised Budget Plan since passage of the FY 2018 Adopted Budget Plan. Included are all adjustments made as part of the FY 2017 Carryover Review, and all other approved changes through December 31, 2017.

- ◆ **Carryover Adjustments** **\$29,043,261**

As part of the *FY 2017 Carryover Review*, the Board of Supervisors approved an increase of \$29,043,261 due to the carryover of unexpended project balances in the amount of \$20,527,657 and an adjustment of \$8,515,604. This adjustment includes the appropriation of revenues in the amount of \$451,313 received in FY 2017 associated with reimbursements from the Virginia Department of Transportation (VDOT) and the Virginia State Police for their share of the operational costs at the McConnell Public Safety and Transportation Operations Center (MPSTOC) as well as the state share of future projected capital renewal requirements at this facility, and an increase of \$1,500,000 to support emergency systems failures that occur at aging County facilities throughout the year. In addition, an increase of \$6,564,291 is transferred from the General Fund for the Capital Sinking Fund for FMD in accordance with recommendations of the Infrastructure Financing Committee (IFC). The Capital Sinking Fund is funded by committing 20 percent of the unencumbered Carryover balances not needed for critical requirements.

A Fund Statement and a Summary of Capital Projects are provided on the following pages. The Summary of Capital Projects may include some projects without a Total Project Estimate amount. These projects are considered "continuing" projects or projects for which funding is necessary on an ongoing basis (e.g., a contingency or planning project).

Fund 30020

Infrastructure Replacement and Upgrades

FUND STATEMENT

Fund 30020, Infrastructure Replacement and Upgrades

	FY 2017 Actual	FY 2018 Adopted Budget Plan	FY 2018 Revised Budget Plan	FY 2019 Advertised Budget Plan
Beginning Balance	\$18,441,320	\$0	\$20,978,970	\$0
Revenue:				
MPSTOC Reimbursement ¹	\$451,313	\$0	\$0	\$0
Total Revenue	\$451,313	\$0	\$0	\$0
Transfers In:				
General Fund (10001)	\$10,503,138	\$1,825,953	\$8,390,244	\$1,700,600
General Construction and Contributions (30010) ²	0	0	1,500,000	0
Total Transfers In	\$10,503,138	\$1,825,953	\$9,890,244	\$1,700,600
Total Available	\$29,395,771	\$1,825,953	\$30,869,214	\$1,700,600
Total Expenditures	\$8,416,801	\$1,825,953	\$30,869,214	\$1,700,600
Total Disbursements	\$8,416,801	\$1,825,953	\$30,869,214	\$1,700,600
Ending Balance³	\$20,978,970	\$0	\$0	\$0

¹ A total of \$451,313 represents revenue received from the Virginia Department of Transportation (VDOT) and Virginia State Police associated with the state share of operating costs at the McConnell Public Safety and Transportation Operations Center (MPSTOC). These funding reimbursements will be held in projects for future replacement requirements. State reimbursement is based on actual operational expenditures, eliminating the need to reconcile estimates and actuals each year.

² A Transfer In from Fund 30010, General Construction and Contributions, to Project 2G08-005-000, Emergency Systems Failures, in Fund 30020, Infrastructure Replacement and Upgrades, was necessary to support emergency systems failures that occur at aging County facilities throughout the year. Funding will provide for emergency repairs at County facilities in the event of a major systems failure such as a large HVAC system, or other unforeseen event.

³ Capital projects are budgeted based on the total project costs. Most projects span multiple years, from design to construction completion. Therefore, funding for capital projects is carried forward each fiscal year, and ending balances fluctuate, reflecting the carryover of these funds.

Fund 30020

Infrastructure Replacement and Upgrades

FY 2019 Summary of Capital Projects

Fund 30020, Infrastructure Replacement and Upgrades

Project	Total Project Estimate	FY 2017 Actual Expenditures	FY 2018 Revised Budget	FY 2019 Advertised Budget Plan
Building Energy Management Systems (GF-000021)		\$21,341.00	\$38,495.00	\$0
Capital Sinking Fund for Facilities (GF-000029)	14,722,086	2,606,397.20	12,115,688.80	0
Electrical System Upgrades and Replacements (GF-000017)		17,992.13	366,359.52	0
Elevator/Escalator Replacement (GF-000013)		688,569.60	332,002.59	0
Emergency Building Repairs (GF-000008)		42,589.43	213,793.06	0
Emergency Generator Replacement (GF-000012)		110,717.57	1,636,026.87	0
Emergency Systems Failures (2G08-005-000)		899,536.05	4,069,078.30	0
Fire Alarm System Replacements (GF-000009)		338,724.50	2,362,643.46	0
HVAC System Upgrades and Replacement (GF-000011)		3,514,916.36	3,986,663.73	1,700,600
MPSTOC County Support For Renewal (2G08-008-000)		0.00	2,611,543.20	0
MPSTOC State Support For Renewal (2G08-007-000)		0.00	675,165.00	0
Public Safety Renewal - DPWES (GF-000015)		145,461.64	572,967.74	0
Roof Repairs and Waterproofing (GF-000010)		30,555.12	1,888,787.17	0
Total	\$14,722,086	\$8,416,800.60	\$30,869,214.44	\$1,700,600