

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 2020 facility inventory of over 11 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Many County facilities have outdated HVAC and electrical systems that are susceptible to failure or are highly inefficient energy users.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

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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 included 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 \$38,398,881 has been dedicated to capital sinking funds and allocated for infrastructure replacement and upgrades to the following areas: \$21,119,386 for FMD, \$7,679,777 for Parks, \$4,421,460 for Walkways, \$3,839,887 for County-owned Roads and \$1,338,371 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 \$21,119,386 allocated to the Sinking Fund, including HVAC system component replacement at the Herndon Fortnightly Library; emergency back-up generator replacements at the Government Center and Herrity Building; replacement of the reflective coating, flashing and caulking of the roofs at the Pennino Building, Herrity Building, James Lee Community Center and Springfield Warehouse; windows replacement at the Hollin Hall building; and waterproofing of the exterior building, doors and windows at the Bailey’s Community 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.

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Due to budget constraints, there is no funding included in FY 2020 in this fund. However, an amount of \$8,538,000 was funded as part of the *FY 2019 Third Quarter Review*. In recent years, it has been the Board of Supervisors' practice to fund some or all of the infrastructure replacement and upgrade projects using one-time funding as available as part of quarterly reviews. These projects, all Category F, will address emergency building repairs, fire alarm system replacement, HVAC system upgrades, roof repairs and waterproofing, elevator repairs, and electrical system upgrades/repairs. The following table provides specific project details of the projects that were funded at the *FY 2019 Third Quarter Review*.

FY 2020 INFRASTRUCTURE REPLACEMENT AND UPGRADE PROGRAM					
PRIORITY	PROJECT TYPE	FACILITY	CATEGORY	EXISTING CONDITIONS/DEFFICIENCIES	ESTIMATE
PROJECTS FUNDED AS PART OF THE FY 2019 THIRD QUARTER REVIEW					
1	Fire Alarm	James Lee Community Center	F	<ul style="list-style-type: none"> · Increased maintenance required to keep system operational · Replacement parts difficult to obtain · Disruption to building operations/end users 	\$185,000
2	Fire Alarm	McLean Fire Station	F	<ul style="list-style-type: none"> · Increased maintenance required to keep system operational · Replacement parts difficult to obtain · Disruption to building operations/end users 	\$115,000
3	Fire Alarm	Fairfax Center Fire Station	F	<ul style="list-style-type: none"> · Increased maintenance required to keep system operational · Replacement parts difficult to obtain · Disruption to building operations/end users 	\$115,000
4	Electrical	McConnell Public Safety and Transportation Operations Center and Police Forensics Facility	F	<ul style="list-style-type: none"> · Increased equipment failure · Unreliable equipment · Disruption to building operations 	\$275,000
5	Electrical	Merrifield Center (Uninterruptable Power Supply (UPS) batteries)	F	<ul style="list-style-type: none"> · Increased equipment failure · Unreliable equipment · Expired warranty · Disruption to building operations/end users 	\$103,000
6	Elevator	Courthouse	F	<ul style="list-style-type: none"> · Increased failures · Parts no longer available · Unreliable equipment · Disruption to building operations/end users 	\$460,000
7	HVAC	Government Center	F	<ul style="list-style-type: none"> · Parts no longer available · Unreliable equipment · Potential maintenance hazard 	\$500,000
8	HVAC	Herrity Building (Cooling tower)	F	<ul style="list-style-type: none"> · Increased failures · Unreliable equipment · Disruption to building operations/end users · Increased utilities costs 	\$395,000
9	HVAC	Herrity Building (Chillers)	F	<ul style="list-style-type: none"> · Increased failures · Parts no longer available · Unreliable equipment · Disruption to building operations/end users · Increased utilities costs 	\$750,000
10	Roof	A New Beginning	F	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Water leaks · Disruption to building operations/end users · Increased utilities cost 	\$175,000

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FY 2020 INFRASTRUCTURE REPLACEMENT AND UPGRADE PROGRAM					
PRIORITY	PROJECT TYPE	FACILITY	CATEGORY	EXISTING CONDITIONS/DEFFICIENCIES	ESTIMATE
PROJECTS FUNDED AS PART OF THE FY 2019 THIRD QUARTER REVIEW					
11	Roof	Annandale Child Development Center	F	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Water leaks · Disruption to building operations/end users · Increased utilities cost 	\$390,000
12	Roof	Fire Training Academy	F	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Water leaks · Disruption to building operations/end users · Increased utilities cost 	\$965,000
13	HVAC	James Lee Community Center	F	<ul style="list-style-type: none"> · Increased equipment failure · Old technology · Unreliable equipment · Disruption to building operations/end users · Increased utilities cost 	\$650,000
14	HVAC	Courthouse	F	<ul style="list-style-type: none"> · Increased equipment failure · Old technology · Unreliable equipment · Disruption to building operations/end users · Increased utilities cost 	\$125,000
15	HVAC	Juvenile Detention Center	F	<ul style="list-style-type: none"> · Increased equipment failure · Old technology · Unreliable equipment · Water leaks · Disruption to building operations/end users 	\$550,000
16	Electrical	Government Center	F	<ul style="list-style-type: none"> · Potential maintenance hazard · Old technology · Dangerous and difficult to maintain 	\$330,000
17	HVAC	Pennino Building	F	<ul style="list-style-type: none"> · Increased failures · Parts no longer available · Unreliable equipment · Disruption to building operations/end users · Increased utilities costs 	\$750,000
18	HVAC	Herrity Building (Duct work)	F	<ul style="list-style-type: none"> · Increased failures · Parts no longer available · Unreliable equipment · Disruption to building operations/end users · Increased utilities costs 	\$200,000
19	Site Work	Fire Training Academy (Main entrance ramp)	F	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Potential tripping hazard · Not compliant with the Americans with Disabilities Act · Disruption to building operations/end users 	\$160,000
20	Building Automation System	Courthouse	F	<ul style="list-style-type: none"> · Increased failures · Parts no longer available · Unreliable equipment · Disruption to building operations/end users · Increased utilities costs 	\$225,000
21	Building Automation System	McConnell Public Safety and Transportation Operations Center and Police Forensics Facility	F	<ul style="list-style-type: none"> · Parts no longer available · Unreliable equipment · Disruption to building operations/end users 	\$385,000

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FY 2020 INFRASTRUCTURE REPLACEMENT AND UPGRADE PROGRAM					
PRIORITY	PROJECT TYPE	FACILITY	CATEGORY	EXISTING CONDITIONS/DEFFICIENCIES	ESTIMATE
PROJECTS FUNDED AS PART OF THE FY 2019 THIRD QUARTER REVIEW					
22	Building Automation System	Sully District Government Center and Police Station	F	· Parts no longer available · Unreliable equipment · Disruption to building operations/end users · Increased utilities costs	\$275,000
23	Building Automation System	Mason Government Center	F	· Parts no longer available · Unreliable equipment · Disruption to building operations/end users · Increased utilities costs	\$275,000
24	Site Work	Pennino Building (Main entrance pavers)	F	· Potential tripping hazard · Disruption to building operations/end users	\$185,000
Total					\$8,538,000

In addition to the above projects identified as part of the FY 2020 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.

Changes to FY 2019 Adopted Budget Plan

The following funding adjustments reflect all approved changes in the FY 2019 Revised Budget Plan since passage of the FY 2019 Adopted Budget Plan. Included are all adjustments made as part of the FY 2018 Carryover Review, FY 2019 Third Quarter Review, and all other approved changes through April 30, 2019.

◆ Carryover Adjustments

\$44,455,675

As part of the *FY 2018 Carryover Review*, the Board of Supervisors approved an increase of \$44,455,675 due to the carryover of unexpended project balances in the amount of \$28,447,484 and an adjustment of \$16,008,191. This adjustment includes the appropriation of revenues in the amount of \$410,290 received in FY 2018 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, an increase of \$1,700,600 to support HVAC system component replacements at a variety of locations, an increase of \$3,000,000 to support emergency systems failures that occur at aging County facilities throughout the year, and an increase of \$4,500,000 to support the first-year investment in a Fairfax County Operational Energy Strategy, which will promote cost-effective, energy-efficient, innovative technologies, and an energy conscious culture that encourages strategic decisions with regard to energy consumption. In addition, an increase of \$6,397,301 is transferred from the General Fund for the Capital Sinking Fund for Facilities in accordance with recommendations of the Infrastructure Financing Committee (IFC). The Infrastructure Sinking Fund is funded as part of the Carryover Review by committing 20 percent of the unencumbered Carryover balances not needed for critical requirements.

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- ◆ **Third Quarter Adjustments** **\$11,088,000**
As part of the *FY 2019 Third Quarter Review*, the Board of Supervisors approved an increase of \$11,088,000, which includes \$8,538,000 to support infrastructure replacement and upgrades at County facilities, \$1,800,000 to support the first year of a five-year LED streetlight conversion plan, and \$750,000 to support the first year of a two-year plan to create electric vehicle (EV) ready charging stations at County facilities.

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).

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FUND STATEMENT

Fund 30020, Infrastructure Replacement and Upgrades

	FY 2018 Actual	FY 2019 Adopted Budget Plan	FY 2019 Revised Budget Plan	FY 2020 Advertised Budget Plan	FY 2019 Adopted Budget Plan
Beginning Balance	\$20,978,970	\$0	\$28,857,774	\$0	\$0
Revenue:					
MPSTOC Reimbursement ¹	\$410,290	\$0	\$0	\$0	\$0
Total Revenue	\$410,290	\$0	\$0	\$0	\$0
Transfers In:					
General Fund (10001)	\$11,390,244	\$0	\$26,685,901	\$0	\$0
Consolidated County and Schools Debt Service (20000) ²	5,237,400	0	0	0	0
General Construction and Contributions (30010) ³	1,500,000	0	0	0	0
Total Transfers In	\$18,127,644	\$0	\$26,685,901	\$0	\$0
Total Available	\$39,516,904	\$0	\$55,543,675	\$0	\$0
Total Expenditures	\$10,659,130	\$0	\$55,543,675	\$0	\$0
Total Disbursements	\$10,659,130	\$0	\$55,543,675	\$0	\$0
Ending Balance⁴	\$28,857,774	\$0	\$0	\$0	\$0

¹ A total of \$410,290 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 infrastructure replacement and upgrade 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 20000, Consolidated County and Schools Debt Service, to Fund 30020, Infrastructure Replacement and Upgrades, was necessary in FY 2018 to address FY 2019 infrastructure replacement and upgrades project requirements.

³ 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.

⁴ 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.

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FY 2020 Summary of Capital Projects

Fund 30020, Infrastructure Replacement and Upgrades

Project	Total Project Estimate	FY 2018 Actual Expenditures	FY 2019 Revised Budget	FY 2020 Advertised Budget Plan	FY 2020 Adopted Budget Plan
Building Energy Management Systems (GF-000021)		\$3,915.00	\$34,580.00	\$0	\$0
Capital Sinking Fund for Facilities (GF-000029)	21,119,387	4,214,085.76	14,298,904.04	0	0
Electrical System Upgrades and Replacements (GF-000017)		(419.48)	1,940,779.00	0	0
Elevator/Escalator Replacement (GF-000013)		0.00	2,142,002.59	0	0
Emergency Building Repairs (GF-000008)		21,788.93	1,950,004.13	0	0
Emergency Generator Replacement (GF-000012)		188,414.54	2,147,612.03	0	0
Emergency Systems Failures (2G08-005-000)		1,451,430.67	5,617,647.63	0	0
Energy Strategy Program - EV Stations (GF-000049)	750,000	0.00	750,000.00	0	0
Energy Strategy Program - FMD (GF-000048)	2,985,200	0.00	2,985,200.00	0	0
Energy Strategy Program - LED Streetlights (GF-000050)	1,800,000	0.00	1,800,000.00	0	0
Energy Strategy Program - Parks (PR-000123)	1,514,800	0.00	1,514,800.00	0	0
Fire Alarm System Replacements (GF-000009)		256,977.18	3,013,666.28	0	0
HVAC System Upgrades and Replacement (GF-000011)		2,916,981.65	8,532,682.08	0	0
MPSTOC County Support For Renewal (2G08-008-000)		0.00	2,968,549.20	0	0
MPSTOC State Support For Renewal (2G08-007-000)		0.00	728,449.00	0	0
Parking Lot and Garage Improvements (GF-000041)		0.00	847,000.00	0	0
Public Safety Renewal - DPWES (GF-000015)		477,958.82	95,008.92	0	0
Roof Repairs and Waterproofing (GF-000010)		1,127,996.58	4,176,790.59	0	0
Total	\$28,169,387	\$10,659,129.65	\$55,543,675.49	\$0	\$0