

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 2018 facility inventory of over 9 million square feet of space (excluding schools, parks, housing and human services residential 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Many County facilities have outdated HVAC and electrical systems that are susceptible to failure or are highly inefficient energy users.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 repairs and waterproofing are conducted in priority order after all roofs at County facilities are evaluated. Based upon the results of that evaluation, critical requirements are prioritized and a five-year plan is established. 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

<u>Electrical</u>		<u>Plumbing</u>	
Lighting	20 years	Pumps	15 years
Generators	25 years	Pipes and fittings	30 years
Service/Power	25 years	Fixtures	30 years
Fire Alarms	15 years		
<u>HVAC</u>		<u>Finishes</u>	
Equipment	20 years	Broadloom Carpet	7 years
Boilers	15 to 30 years	Carpet Tiles	15 years
Building Control Systems	10 years	Systems Furniture	20 to 25 years

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General Guidelines for Expected Service Life Of Building Subsystems

Conveying Systems

Elevator	25 years
Escalator	25 years

Site

Paving	15 years
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Roofs

Replacement	20 years
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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 \$14,832,357 has been dedicated to capital sinking funds and allocated for infrastructure replacement and upgrades to the following areas: \$8,157,795 for FMD, \$2,966,470 for Parks, \$1,483,237 for Walkways, \$1,483,237 for County owned Roads and \$741,618 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 \$8,157,795 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 Herry 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 2018, an amount of \$1,825,953 is included to address two of the top priority Category F projects. In addition,

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funding in the amount of \$5,544,047 was provided as part of the *FY 2017 Third Quarter Review* for a total of \$7,370,000 in FY 2018 identified projects. These projects, all category F, will address HVAC system upgrades and replacement, fire alarm system replacement and roof repairs and waterproofing. Category F projects have been further prioritized by subcategories, including: safety, preventing catastrophic failure, and potential for building system failure. The following table provides specific project details of the projects that were funded at the *FY 2017 Third Quarter Review*, projects funded by public safety bond balances, the projects included in the FY 2018 Adopted Budget Plan and the projects that would have been supported had funding been available.

FY 2018 INFRASTRUCTURE REPLACEMENT AND UPGRADE REQUIREMENTS						
FUNDED AS PART OF THE FY 2017 THIRD QUARTER REVIEW						
PRIORITY	PROJECT TYPE	FACILITY	CATEGORY	SUBCATEGORY	EXISTING CONDITIONS/DEFICIENCIES	ESTIMATE
1	HVAC	Government Center	F	Continuation of Phased Project	<ul style="list-style-type: none"> · Parts no longer available (proprietary) · Maintenance and repairs no longer feasible · Increased failures · Old technology · Multiple water leaks 	\$3,550,000
2	Fire/Smoke Evacuation System	Adult Detention Center (West Wing)	F	Safety	<ul style="list-style-type: none"> · Parts no longer available (proprietary) · Maintenance and repairs no longer feasible · Increased failures · Life Safety · Old technology · Replacement per Building Assessment 	\$1,994,047
Subtotal						\$5,544,047
FUNDED FY 2018 PROJECTS						
3	Roof	Kings Park Library & Government Center	F	Safety	<ul style="list-style-type: none"> · Water leaks · Maintenance and repair no longer feasible · Disruption to building operations/end-users · Increased utilities cost 	\$300,000
4	Roof	Springfield Warehouse	F	Safety	<ul style="list-style-type: none"> · Water leaks · Maintenance and repair no longer feasible · Disruption to building operations/end-users · Increased utilities cost 	\$1,525,953
Subtotal						\$1,825,953
FUNDED BY PUBLIC SAFETY BONDS						
5	Roof, Plumbing, Electrical	Tyson Fire Station (#29)	F	Potential For Building System(s) Failure	<ul style="list-style-type: none"> · Water leaks · Maintenance and repair no longer feasible · Disruption to building operations/end-users · Increased utilities cost · Safety hazard (trip and fall) 	\$238,000
6	Roof	Oakton Fire Station	F	Safety	<ul style="list-style-type: none"> · Water leaks · Maintenance and repair no longer feasible · Disruption to building operations/end-users · Increased utilities cost 	\$75,000
Subtotal						\$313,000

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PRIORITY	PROJECT TYPE	FACILITY	CATEGORY	SUBCATEGORY	EXISTING CONDITIONS/DEFICIENCIES	ESTIMATE
RECOMMENDED BUT NOT YET FUNDED						
7	Elevator	Reston Human Services Center	F	Preventing Catastrophic Failure	<ul style="list-style-type: none"> · Increased equipment breakdowns · Disruption to building operations/users · Unreliable equipment; potential failure · Maintenance and repairs no longer feasible · Modifications needed for ADA compliance · Safety Hazard 	\$740,000
8	Building Automation System	Boys Probation House	F	Preventing Catastrophic Failure	<ul style="list-style-type: none"> · Parts no longer available (proprietary) · Maintenance and repairs no longer feasible · Increased failures · Old technology 	\$170,000
9	Building Automation System	Juvenile Detention Center	F	Preventing Catastrophic Failure	<ul style="list-style-type: none"> · Increased utility costs · Maintenance and repairs no longer feasible · Increased failures · Old technology 	\$200,000
10	Roof	Herndon Fortnightly Library	F	Preventing Catastrophic Failure	<ul style="list-style-type: none"> · Maintenance and repair no longer feasible · Disruption to building operations/end-users · Increased utilities cost 	\$150,000
11	Parking Garage Repairs	Pennino Building	F	Preventing Catastrophic Failure	<ul style="list-style-type: none"> · Improper floor drainage · Existing drains and associated piping are failing · Failing drains will result in structural damage 	\$390,000
12	Parking Garage Repairs	Herrity Building	F	Preventing Catastrophic Failure	<ul style="list-style-type: none"> · Improper floor drainage · Existing drains and associated piping are failing · Failing drains will result in structural damage 	\$400,000
13	Roof	Adult Detention Center (West Wing)	F	Preventing Catastrophic Failure	<ul style="list-style-type: none"> · Maintenance and repair no longer feasible · Disruption to building operations/end-users · Increased utilities cost 	\$510,000
14	HVAC and Building Automation System	Hollin Hall	F	Preventing Catastrophic Failure	<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
15	Plumbing	Hollin Hall	F	Preventing Catastrophic Failure	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Increased failures · Multiple water leaks 	\$150,000
16	Electrical	Hollin Hall	F	Preventing Catastrophic Failure	<ul style="list-style-type: none"> · Maintenance and repairs no longer feasible · Increased failures · Old technology · Replacement per Building Assessment 	\$234,000
17	Roof	Hollin Hall	F	Preventing Catastrophic Failure	<ul style="list-style-type: none"> · Maintenance and repair no longer feasible · Disruption to building operations/end-users · Increased utilities cost · Replacement per Building Assessment 	\$366,000
18	Plumbing	Adult Detention Center (West Wing)	F	Preventing Catastrophic Failure	<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 	\$150,000
19	Electrical	Judicial VISITOR Garage (Garage B)	F	Potential For Building System(s) Failure	<ul style="list-style-type: none"> · Increased equipment failure · Old technology · Disruption to building operations/users · Safety Hazard · Increased utilities cost 	\$507,000
20	Elevator	Jennings Judicial Center	F	Potential For Building System(s) Failure	<ul style="list-style-type: none"> · Increased failures · Maintenance and repair no longer feasible · Old technology · Does not meet current code requirements 	\$1,350,000

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PRIORITY	PROJECT TYPE	FACILITY	CATEGORY	SUBCATEGORY	EXISTING CONDITIONS/DEFFICIENCIES	ESTIMATE
infrastructure replacement and upgrade requirements chart						
21	Parking Garage Repairs	Judicial VISITOR Garage (Garage B)	F	Potential For Building System(s) Failure	· Potential for structural failures · Visual rust and deterioration · Potential Safety Hazard	\$250,000
22	Parking Lot Paving	Mt. Vernon Police & Government Center	F	Potential For Building System(s) Failure	· Surface has failed · Safety hazard	\$350,000
23	Parking Lot Paving	James Lee Community Center	F	Potential For Building System(s) Failure	· Surface has failed · Safety hazard	\$350,000
24	Parking Lot Paving	Huntington Community Center	F	Potential For Building System(s) Failure	· Surface has failed · Safety hazard	\$100,000
25	Various	Building Assessments		Annual Building Assessments		\$200,000
Subtotal						\$7,317,000
Grand Total						\$15,000,000

In addition to the above projects identified as part of the FY 2018 plan, FMD has identified an additional 144 Category F projects. The funding required to address the remaining Category F projects is approximately \$71 million. 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.

The specific projects funded in FY 2018 include:

Roof Replacement/Waterproofing

Funding in the amount of \$1,825,953 will support roof repairs and replacement at two facilities. Funding of \$300,000 will provide for repairs to the Kings Park Library roof and replacement of the roof at the Kings Park Board of Supervisors wing. This building is currently experiencing water leaks, increased utility costs, and maintenance/repairs are no longer feasible. The Springfield Warehouse was installed in 1995 and is also experiencing water leaks, increased utility costs and maintenance issues. Funding in the amount of \$1,525,953 will provide for a replacement roof at this 204,708 square foot facility. Typically, roofs at County facilities range in warranty periods from 10 to 20 years, and both of these roofs have exceeded the warranty period and outlived their useful life.

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Changes to FY 2017 Adopted Budget Plan

The following funding adjustments reflect all approved changes in the FY 2017 Revised Budget Plan since passage of the FY 2017 Adopted Budget Plan. Included are all adjustments made as part of the FY 2016 Carryover Review, FY 2017 Third Quarter Review, and all other approved changes through April 30, 2017.

◆ **Carryover Adjustments** **\$21,991,962**

As part of the *FY 2016 Carryover Review*, the Board of Supervisors approved an increase of \$21,991,962 due to the carryover of unexpended project balances in the amount of \$17,973,999 and an adjustment of \$4,017,963. This adjustment included the appropriation of revenues in the amount of \$467,321 received in FY 2016 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. In addition, an increase of \$3,550,642 was transferred from the General Fund for the Infrastructure Sinking Reserve Fund in accordance with recommendations of the Infrastructure Financing Committee (IFC). The Infrastructure Sinking Reserve Fund was funded as part of the Carryover Review by committing 20 percent of the unencumbered Carryover balances not needed for critical requirements. As part of the *FY 2016 Third Quarter Review*, the Board of Supervisors approved the allocation of the sinking funds based on specific percentages for each infrastructure area including: 55 percent for FMD, 20 percent for Parks, 10 percent for walkways, 10 percent for County roads and service drives, and 5 percent for revitalization.

◆ **Third Quarter Adjustments** **\$5,544,047**

As part of the *FY 2017 Third Quarter Review*, the Board of Supervisors approved an increase of \$5,544,047 to support infrastructure replacement and upgrades at County facilities, including \$1,994,047 for the replacement of the fire alarm system at the Adult Detention Center (West Wing) based on performance history, age, and difficulty in obtaining replacement parts and service, and \$3,550,000 for six HVAC system component replacements at the Government Center.

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 2016 Actual	FY 2017 Adopted Budget Plan	FY 2017 Revised Budget Plan	FY 2018 Advertised Budget Plan	FY 2018 Adopted Budget Plan
Beginning Balance	\$20,371,350	\$0	\$18,441,320	\$0	\$0
Revenue:					
MPSTOC Reimbursement ¹	\$467,321	\$0	\$0	\$0	\$0
Total Revenue	\$467,321	\$0	\$0	\$0	\$0
Transfers In:					
General Fund (10001)	\$13,353,356	\$1,408,449	\$10,503,138	\$1,825,953	\$1,825,953
Total Transfers In	\$13,353,356	\$1,408,449	\$10,503,138	\$1,825,953	\$1,825,953
Total Available	\$34,192,027	\$1,408,449	\$28,944,458	\$1,825,953	\$1,825,953
Total Expenditures	\$11,981,221	\$1,408,449	\$28,944,458	\$1,825,953	\$1,825,953
Transfers Out:					
General Construction and Contributions (30010) ²	\$2,931,823	\$0	\$0	\$0	\$0
Pedestrian Walkway Improvements (30060) ²	837,663	0	0	0	0
Total Transfers Out	\$3,769,486	\$0	\$0	\$0	\$0
Total Disbursements	\$15,750,707	\$1,408,449	\$28,944,458	\$1,825,953	\$1,825,953
Ending Balance³	\$18,441,320	\$0	\$0	\$0	\$0

¹ A total of \$467,321 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 As part of the *FY 2016 Third Quarter Review*, the Capital Sinking Reserve was allocated to specific projects. A transfer from Fund 30020, Infrastructure Replacement and Upgrades, was included to Project 2G25-105-000, Capital Sinking Fund for County Roads, Project 2G51-042-000, Capital Sinking Fund for Parks, and Project 2G25-107-000, Capital Sinking Fund for Revitalization, in Fund 30010, General Construction and Contributions, and to Project 2G25-106-000, Capital Sinking Fund for Walkways, in Fund 30060, Pedestrian Walkway Improvements. The Capital Sinking Reserve Fund was established as a direct result of the Infrastructure Financing Committee (IFC) recommendation. Beginning in FY 2017, allocations to the Sinking Fund projects are transferred directly from the General Fund.

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.

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FY 2018 Summary of Capital Projects

Fund 30020, Infrastructure Replacement and Upgrades

Project	Total Project Estimate	FY 2016 Actual Expenditures	FY 2017 Revised Budget	FY 2018 Advertised Budget Plan	FY 2018 Adopted Budget Plan
Building Energy Management Systems (GF-000021)		\$10,164.00	\$59,836.00	\$0	\$0
Capital Sinking Fund For Facilities (GF-000029)	8,157,795	0.00	8,157,795.00	0	0
Electrical System Upgrades and Replacements (GF-000017)		428,759.76	384,351.65	0	0
Elevator/Escalator Replacement (GF-000013)		1,715,056.07	1,020,572.19	0	0
Emergency Building Repairs (GF-000008)		200,303.62	256,382.49	0	0
Emergency Generator Replacement (GF-000012)		447,052.34	1,746,744.44	0	0
Emergency Systems Failures (2G08-005-000)		4,495,406.32	3,468,614.35	0	0
Fire Alarm System Replacement (GF-000009)		242,006.53	2,701,367.96	0	0
HVAC System Upgrades and Replacement (GF-000011)		3,023,762.49	7,492,548.43	0	0
MPSTOC County Support For Renewal (2G08-008-000)		0.00	2,213,514.20	0	0
MPSTOC State Support For Renewal (2G08-007-000)		0.00	621,881.00	0	0
Public Safety Renewal - DPWES (GF-000015)		506,532.74	718,429.38	0	0
Roof Repairs and Waterproofing (GF-000010)		814,794.30	93,389.29	1,825,953	1,825,953
Window Replacement (2G08-006-000)		97,383.18	9,031.66	0	0
Total	\$8,157,795	\$11,981,221.35	\$28,944,458.04	\$1,825,953	\$1,825,953