

# Fund 30020

## Infrastructure Replacement and Upgrades

### Focus

Fund 30020 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 2017 facility inventory of over 9.2 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Many County facilities have outdated HVAC and electrical systems that are susceptible to failure or are highly inefficient energy users.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

#### 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 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.

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. In an effort to move closer to the funding goal of \$15 million, for FY 2017, an amount of \$12,417,153 in priority projects is proposed to be funded using multiple funding sources. First, an amount of \$5,000,000 is supported by the General Fund, including an amount of \$3,591,551 that was funded as part of the *FY 2016 Third Quarter Review* and an amount of \$1,408,449 that is included in the FY 2017 Adopted Budget Plan. Second, an amount of \$2,810,000 will be supported by existing Public Safety bonds available in completed projects as a result of the favorable bid environment. These projects, all located at Public Safety/Courts facilities, are large upgrade projects with life spans in excess of 20 years and appropriately funded by bonds. Finally, staff is proposing that an amount of \$4,607,153 be utilized from the Capital Sinking Reserve Fund. The Capital Sinking Reserve Fund was established as a direct result of the IFC and has accumulated over the last two years based on the approval of funding at both the *FY 2014 Carryover Review* and the *FY 2015 Carryover Review*. Staff developed a recommendation for the allocation of the Capital Sinking Reserve Fund based on the percentage of each maintenance program as it relates to the total County annual requirements. Total County requirements as presented to the IFC included infrastructure replacement and upgrades

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associated with County and Parks facilities, trails, sidewalks, County-owned roads, and revitalization maintenance efforts. The staff recommended allocation of the Sinking Fund was approved as part of the *FY 2016 Third Quarter Review*. FMD projects requiring funding in FY 2017 will take advantage of the two prior years of funding in the Capital Sinking Reserve Fund, with an effort to reach close to the \$15 million goal in General Fund support in future years.

All of the FY 2017 funding sources will address 10 of the top priority Category F projects. FMD has identified to date an additional 146 Category F and 45 Category D projects. The funding required to address the remaining Category F and D projects is in excess of \$78 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.

Specific projects to be funded in FY 2017, include:

#### HVAC Systems

Funding in the amount of \$3,000,000, supported by the General Fund as part of the *FY 2016 Third Quarter Review*, is included for HVAC system component replacements at the Government Center. Approximately 5 Air Handling Units (AHUs) are required to be replaced based on increased failure of the equipment, the difficulty in procuring obsolete parts, outdated technology and multiple water leaks. They require increased maintenance efforts due to age and stress on the systems and replacement components. Failure to replace these units can lead to mold accumulation, increased energy usage and a disruption to the building. The Government Center currently uses a total of 22 AHUs which are systematically being replaced as they reach failure or imminent failure. In general, the useful life of HVAC/Electrical systems is 20 years; however, some systems fail earlier due to wear and tear, and often emergency repairs are costly based on difficulty obtaining parts and additional code requirements. In addition to the General Fund support, an amount of \$1,310,000 will be supported by existing public safety bonds to replace obsolete control panels and AHUs as well as integrate new control features at the Adult Detention Center (West wing). This HVAC system is experiencing increased failures based on old technology, obsolete parts and increased energy costs.

#### Fire Alarm Replacement

Funding in the amount of \$320,000, supported by the General Fund as part of the *FY 2016 Third Quarter Review*, is included for replacement of the fire alarm system at the South County Government Center. Fire alarm systems are replaced based on age and difficulty in obtaining replacement parts and service. This equipment is original to the building and is over 15 years old. The system is unreliable, parts are no longer available based on old technology and maintenance is no longer feasible. In addition, to the General Fund support, an amount of \$210,000 will be supported by existing public safety bonds to replace the fire alarm system at the West Springfield Fire Station. This station is currently operating with two separate systems that do not communicate well. The systems were installed in 1990 and 2004. The Fire alarms are unreliable and there is potential for the equipment failure during an emergency.

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#### Emergency Generator Replacement

Funding in the amount of \$1,680,000, supported by the General Fund, is included for the Government Center Emergency back-up system. Of this total amount, an amount of \$271,551 was funded as part of the *FY 2016 Third Quarter Review* and amount of \$1,408,449 is included in the FY 2017 Adopted Budget Plan. This project will also be supported by an allocation from the Capital Sinking Fund in the amount of \$4,607,153. The total project cost is approximately \$6,300,000 and will replace the entire emergency generator system. This generator system provides Building Code required back-up power to the Government Center's life safety systems such as emergency lights, sprinklers, fire alarms, automatic transfer switches, emergency distribution boards, and the generator fuel pump system. This project represents the first year of a multi-year project. The system is currently unreliable and has the potential to fail during an emergency. Replacement parts are no longer available, maintenance and repairs are not feasible and the old technology is leading to increased system failures. This planned replacement will help avoid costs related to emergency service work including temporary wiring, rental fees, and delivery fees associated with a temporary system.

#### Electrical System Upgrades

Funding in the amount of \$525,000 is supported by existing public safety bonds for the replacement of the electrical systems at the Judicial Center Garage and the McConnell Public Safety and Transportation Operations Center (MPSTOC). This funding includes \$125,000 for the replacement of the Uninterrupted Power Source (UPS) batteries at MPSTOC to ensure that there is not equipment failure during an emergency and \$400,000 for the Judicial Center Garage lighting. The existing lighting in the garage is experiencing frequent lamp, ballast and conduit failures and can create dark areas and safety concerns for users.

#### Elevator Replacement

Funding in the amount of \$650,000 will be supported by existing public safety bonds to modernize the elevators at the Judicial Center Garage. These elevators are experiencing frequent breakdowns, and water infiltration. The equipment is unreliable and presents safety concerns.

#### Roof Replacement/Waterproofing

Funding in the amount of \$115,000 will be supported by existing public safety bonds to replace the reflective coating, caulking and gutters at the West Centreville Fire Station. Although the roof will not be entirely replaced, this work will prevent further leaking, water infiltration, and mold build up. Roofs at County facilities range in warranty periods from 10 to 20 years. The roof at the Fire Station was installed in 1995.

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### **Changes to FY 2016 Adopted Budget Plan**

*The following funding adjustments reflect all approved changes in the FY 2016 Revised Budget Plan since passage of the FY 2016 Adopted Budget Plan. Included are all adjustments made as part of the FY 2015 Carryover Review, FY 2016 Third Quarter Review, and all other approved changes through April 30, 2016.*

- ◆ **Carryover Adjustments** **\$27,433,155**  
As part of the *FY 2015 Carryover Review*, the Board of Supervisors approved an increase of \$27,433,155 due to the carryover of unexpended project balances in the amount of \$17,056,670 and an adjustment of \$10,376,485. This adjustment included the appropriation of revenues in the amount of \$464,680 received in FY 2015 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 infrastructure replacements and upgrade requirements at this facility. The adjustment also included \$1,535,166 for Project 2G08-005-000, Emergency Systems Failures, which provides for emergency repairs at County facilities in the event of a systems failure or other unforeseen event requiring immediate attention. Finally, an increase of \$8,376,639 was included to appropriate funding set aside for the Infrastructure Sinking Reserve Fund in accordance with recommendations of the Infrastructure Financing Committee (IFC). The Infrastructure Sinking Reserve Fund is funded as part of the Carryover Review by committing 20 percent of the unencumbered Carryover balances not needed for critical requirements.
  
- ◆ **Third Quarter Adjustments** **(\$177,935)**  
As part of the *FY 2016 Third Quarter Review*, the Board of Supervisors approved a net decrease of \$177,935. A decrease of \$3,769,486 was associated with the allocation of funds from the Capital Sinking Reserve Fund to other capital funds. This decrease was partially offset by an increase of \$271,551 to support the Government Center Emergency back-up generator system, an increase of \$320,000 to support the replacement of the fire alarm system at the South County Government Center, and an increase of \$3,000,000 to support the 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 2015 Actual	FY 2016 Adopted Budget Plan	FY 2016 Revised Budget Plan	FY 2017 Advertised Budget Plan	FY 2017 Adopted Budget Plan
<b>Beginning Balance</b>	\$12,287,845	\$2,850,000	\$20,371,350	\$0	\$0
Revenue:					
Short-Term Borrowing <sup>1</sup>	\$10,000,000	\$0	\$0	\$0	\$0
MPSTOC Reimbursement <sup>2</sup>	464,680	0	0	0	0
<b>Total Revenue</b>	\$10,464,680	\$0	\$0	\$0	\$0
Transfers In:					
General Fund (10001)	\$5,550,000	\$2,700,000	\$13,353,356	\$5,000,000	\$1,408,449
<b>Total Transfers In</b>	\$5,550,000	\$2,700,000	\$13,353,356	\$5,000,000	\$1,408,449
<b>Total Available</b>	\$28,302,525	\$5,550,000	\$33,724,706	\$5,000,000	\$1,408,449
<b>Total Expenditures</b>	\$7,931,175	\$2,700,000	\$29,955,220	\$5,000,000	\$1,408,449
Transfers Out:					
General Construction and Contributions (30010) <sup>3</sup>	\$0	\$0	\$2,931,823	\$0	\$0
Pedestrian Walkway Improvements (30060) <sup>4</sup>	0	0	837,663	0	0
<b>Total Transfers Out</b>	\$0	\$0	\$3,769,486	\$0	\$0
<b>Total Disbursements</b>	\$7,931,175	\$2,700,000	\$33,724,706	\$5,000,000	\$1,408,449
<b>Ending Balance<sup>5</sup></b>	\$20,371,350	\$2,850,000	\$0	\$0	\$0
Capital Sinking Fund <sup>6</sup>	\$2,850,000	\$2,850,000	\$0	\$0	\$0
<b>Unreserved Ending Balance</b>	\$17,521,350	\$0	\$0	\$0	\$0

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<sup>1</sup> An amount of \$35,000,000 was approved to reduce the existing backlog of infrastructure replacements and upgrades using short-term borrowing. Borrowing was based on actual project completion schedules and cash flow requirements. An amount of \$25 million was sold in December 2013 and \$10 million was sold in March 2015.

<sup>2</sup> A total of \$464,680 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. Beginning in FY 2015, state reimbursement is based on actual operational expenditures, eliminating the need to reconcile estimates and actuals each year.

<sup>3</sup> 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. The Capital Sinking Reserve Fund was established as a direct result of the Infrastructure Financing Committee (IFC) recommendation.

<sup>4</sup> 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 2G25-165-000, 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.

<sup>5</sup> 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.

<sup>6</sup> The Capital Sinking Fund was established in accordance with the recommendations of the Infrastructure Financing Committee (IFC) and approved by the Board of Supervisors on March 25, 2014 and the School Board on April 10, 2014. As part of the *FY 2014 Carryover Review*, the Board of Supervisors approved an amount of \$2,850,000 for the sinking fund to support prioritized critical infrastructure replacement and upgrades. As part of the *FY 2015 Carryover Review*, the Board of Supervisors approved an additional \$5,526,639 resulting in a total balance of \$8,376,639, which was appropriated to Project 2G08-018-000, Infrastructure Sinking Reserve Fund.

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### FY 2017 Summary of Capital Projects

#### Fund 30020, Infrastructure Replacement and Upgrades

<b>Project</b>	<b>Total Project Estimate</b>	<b>FY 2015 Actual Expenditures</b>	<b>FY 2016 Revised Budget</b>	<b>FY 2017 Advertised Budget Plan</b>	<b>FY 2017 Adopted Budget Plan</b>
Building Energy Management Systems (GF-000021)		\$0.00	\$70,000.00	\$0	\$0
Electrical System Upgrades and Replacements (GF-000017)		688,406.56	813,111.41	0	0
Elevator/Escalator Replacement (GF-000013)		1,767,135.82	2,735,628.26	0	0
Emergency Building Repairs (GF-000008)		1,527,819.72	456,686.11	0	0
Emergency Generator Replacement (GF-000012)		589,845.85	785,347.78	1,680,000	1,408,449
Emergency Systems Failures (2G08-005-000)		429,298.27	7,964,020.67	0	0
Fire Alarm System Replacement (GF-000009)		640,926.53	949,327.49	320,000	0
HVAC System Upgrades and Replacement (GF-000011)		1,303,433.58	6,966,310.92	3,000,000	0
Infrastructure Sinking Reserve Fund (2G08-018-000)		0.00	4,607,153.00	0	0
MPSTOC County Support For Renewal (2G08-008-000)		0.00	1,799,477.20	0	0
MPSTOC State Support For Renewal (2G08-007-000)		0.00	568,597.00	0	0
Public Safety Renewal - DPWES (GF-000015)		(84,787.61)	1,224,962.12	0	0
Roof Repairs and Waterproofing (GF-000010)		985,510.86	908,183.59	0	0
Window Replacement (2G08-006-000)		83,585.16	106,414.84	0	0
<b>Total</b>	<b>\$0</b>	<b>\$7,931,174.74</b>	<b>\$29,955,220.39</b>	<b>\$5,000,000</b>	<b>\$1,408,449</b>