



Committee: GO
Committee Review: N/A
Staff: Dr. Costis Torgas, Council IT Adviser
Purpose: To introduce agenda item – no vote expected
Keywords: #Business Continuity, #FiberNet, #broadband

AGENDA ITEM #4K
November 30, 2021
Introduction

SUBJECT

Special Appropriation to the FY22 Capital Budget and Amendment to the FY21-26 Capital Improvements Program (CIP), Department of Technology and Enterprise Business Solutions (TEBS) for FiberNet (No. 509651), \$7,200,000

EXPECTED ATTENDEES

No one is expected to attend from the Executive branch as this item is only being introduced.

COUNCIL DECISION POINTS & COMMITTEE RECOMMENDATION

The GO Committee was briefed on the need for this initiative at the GO Committee's October 21 oversight worksession of the Department of Technology and Enterprise Business Solutions.

Public hearing and action are scheduled for December 7, 2021.

DESCRIPTION/ISSUE

This special increase is needed because the County's data center and some of the County's network are outdated and have led to situations where much time and expense was needed to restore essential information and functions after system failures. Funded improvements will:

- 1) refresh old network, routing, and firewall equipment in the data center;
- 2) support cybersecurity data recovery; and
- 3) improve the County's ability to access backup data to strengthen the County's business continuity capabilities.

The recommended amendment is consistent with the criteria for amending the CIP because this request addresses an urgent safety concern and facilitates cost avoidance.

SUMMARY OF KEY DISCUSSION POINTS

The GO Committee was briefed on the dire need to buttress Continuity of Operations hardware and software during the October 21, 2021 TEBS oversight briefing (see ©7-9). This request for a special \$7.2 million appropriation implements the solution.

Three elements comprise this request:

- 1) Data Center Refresh, which will replace very old copper-based data center equipment with modern fiber equipment to connect servers to network, at a cost of \$1.3 million;

- 2) Encrypted Private Data Cloud & Improved Failover Recovery Time, by providing modern servers that provide faster recovery data times, at a cost of \$3.7 million; and
- 3) Ransomware Recoverability Capability, which stores data separate from County servers in a more secure method that can't be encrypted by ransomware, at a cost of \$2.2 million.

An expedited process to approve this request is in the public interest and will permit the County to initiate much-needed improvements in a timely and prudent manner.

This report contains:

Memorandum from County Executive Elrich to Council President Hucker

dated November 12, 2021

©1-6

Excerpt from October 21, 2021 TEBS presentation to GO Committee

©7-9

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OFFICE OF THE COUNTY EXECUTIVE

Marc Elrich
County Executive

MEMORANDUM

November 12, 2021

TO: Tom Hucker, President
Montgomery County Council

FROM: Marc Elrich, County Executive 

SUBJECT: Amendment to the FY21-26 Capital Improvements Program and
Special Appropriation #SA22 MCG-04 to the FY22 Capital Budget
Montgomery County Government
Department of Technology and Enterprise Business Solutions (TEBS)
FiberNet (No. 509651), \$7,200,000

I am recommending a special appropriation to the FY22 Capital Budget and amendment to the FY21-26 Capital Improvements Program in the amount of \$7,200,000 for FiberNet (No. 509651). Appropriation for this project will fund equipment replacement and updates that are critical for the County's business continuity operations.

This special increase is needed because some of the County's network is outdated. Funded improvements will 1) refresh old network, routing and firewall equipment; 2) support cybersecurity data recovery; and 3) improve the County's ability to access backup data in order to strengthen the County's business continuity capabilities. The recommended amendment is consistent with the criteria for amending the CIP because this request addresses an urgent safety concern and facilitates cost avoidance.

I recommend that the County Council approve this special appropriation and amendment to the FY21-26 Capital Improvements Program in the amount of \$7,200,000 and specify the source of funds as Current Revenue General.

I appreciate your prompt consideration of this action.

ME:jk

Attachment: Amendment to the FY21-26 Capital Improvements Program and
Special Appropriation #SA 22 MCG-04

cc: Gail Roper, CIO/Director, Technology and Enterprise Business Solutions
Jennifer Bryant, Director, Office of Management and Budget

Resolution No: _____
Introduced: _____
Adopted: _____

COUNTY COUNCIL
FOR MONTGOMERY COUNTY, MARYLAND

By: Council President at the Request of the County Executive

SUBJECT: Amendment to the FY21-26 Capital Improvements Program and
Special Appropriation #SA-22-MCG-04 to the FY22 Capital Budget
Montgomery County Government
Department of Technology and Enterprise Business Solutions
FiberNet (No. 509651), \$7,200,000

Background

1. Section 308 of the Montgomery County Charter provides that a special appropriation: (a) may be made at any time after public notice by news release; (b) must state that the special appropriation is necessary to meet an unforeseen disaster or other emergency or to act without delay in the public interest; (c) must specify the revenues necessary to finance it; and (d) must be approved by no fewer than six members of the Council.
2. Section 302 of the Montgomery County Charter provides that the Council may amend an approved capital improvements program at any time by an affirmative vote of no fewer than six members of the Council.
3. The County Executive recommends the following capital project appropriation increases:

Project Name	Project Number	Cost Element	Amount	Source of Funds
FiberNet	509651	Construction	\$7,200,000	Current Revenue: General
TOTAL			\$7,200,000	

Special Appropriation #SA-22-MCG-04 and Amendment to the FY21-26 Capital Improvements Program
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4. This special increase is needed because some of the County's network is outdated. Funded improvements will 1) refresh old network, routing and firewall equipment; 2) support cybersecurity data recovery; and 3) improve the County's ability to access backup data in order to strengthen the County's business continuity capabilities. The recommended amendment is consistent with the criteria for amending the CIP because this request addresses an urgent safety concern and facilitates cost avoidance.
5. The County Executive recommends an amendment to the FY21-26 Capital Improvements Program and a supplemental appropriation in the amount of \$7,200,000 for Fibernet (509651) and specifies that the source of funds will be Current Revenue: General.

Action

The County Council for Montgomery County, Maryland, approves the following actions:

1. The FY21-26 Capital Improvements Program of the Montgomery County Government is amended as reflected on the attached project description form and a special appropriation is approved as follows:

Project Name	Project Number	Cost Element	Amount	Source of Funds
FiberNet	509651	Construction	\$7,200,000	Current Revenue: General
TOTAL			\$7,200,000	

2. The County Council declares that this action is necessary to act without delay in the public interest, and that this appropriation is needed to meet the emergency.

This is a correct copy of Council action.

Selena Mendy Singleton, Esq.
Clerk of the Council



FiberNet (P509651)

Category	General Government	Date Last Modified	01/14/21
SubCategory	Technology Services	Administering Agency	Technology Services
Planning Area	Countywide	Status	Ongoing

	Total	Thru FY20	Rem FY20	Total 6 Years	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	Beyond 6 Years
EXPENDITURE SCHEDULE (\$000s)											
Planning, Design and Supervision	12,600	2,386	-	10,214	3,714	2,500	1,000	1,000	1,000	1,000	-
Land	1,306	4	-	1,302	-	302	250	250	250	250	-
Site Improvements and Utilities	17,481	16,879	-	602	302	100	50	50	50	50	-
Construction	19,494	1,503	-	17,991	1,245	9,570	2,088	1,696	1,696	1,696	-
Other	46,306	43,130	-	3,176	676	500	500	500	500	500	-
TOTAL EXPENDITURES	97,187	63,902	-	33,285	5,937	12,972	3,888	3,496	3,496	3,496	-

FUNDING SCHEDULE (\$000s)											
Contributions	1,611	1,611	-	-	-	-	-	-	-	-	-
Current Revenue: Cable TV	77,107	51,278	-	25,829	5,681	5,772	3,888	3,496	3,496	3,496	-
Current Revenue: General	7,456	-	-	7,456	256	7,200	-	-	-	-	-
G.O. Bonds	8,866	8,866	-	-	-	-	-	-	-	-	-
PAYGO	2,147	2,147	-	-	-	-	-	-	-	-	-
TOTAL FUNDING SOURCES	97,187	63,902	-	33,285	5,937	12,972	3,888	3,496	3,496	3,496	-

APPROPRIATION AND EXPENDITURE DATA (\$000s)			
Appropriation FY 22 Request	3,592	Year First Appropriation	FY96
Supplemental Appropriation Request	7,200	Last FY's Cost Estimate	89,987
Cumulative Appropriation	72,019		
Expenditure / Encumbrances	67,816		
Unencumbered Balance	4,203		

PROJECT DESCRIPTION

FiberNet CIP provides for the planning, design, and installation of a countywide electro-optical fiber communication network with the capacity to support voice, public-safety, traffic management, data, Internet access, wireless networking (including public WiFi) and video transmissions among Montgomery County Government (MCG), Montgomery County Public Schools (MCPS), Montgomery College (MC), Maryland National Capital Park and Planning Commission (M-NCPPC), Housing Opportunities Commission (HOC) and Washington Suburban Sanitary Commission (WSSC) facilities. Video transmission will include distribution of public, education, government access channel and selected cable programming. FiberNet is the communications backbone for the Public Safety Radio and Public Safety Mobile Data Systems (collectively, Public Safety Communications System (PSCS)), DOT's Advanced Traffic Management System (ATMS), and future technology implementations (including 800 MHz IP public safety radio). FiberNet's outside physical plant has a practically unlimited useful life. Upgrades and replacements to electronic components in the core and at user sites will be required periodically throughout the service life. Each generation of FiberNet electronic components have an estimated useful life of at least 10 years. FiberNet I is a legacy network still used to support specific public safety and traffic communications, with a plan to phase out at or prior to completion of the Public Safety System Modernization. FiberNet II is being used to support all County communications services including 311, e-mail, Internet and local cable channel video. FiberNet III is in the pilot and planning phase. When implemented, FiberNet III equipment will allow faster, higher capacity, more reliable means of optical networking. Using optical technology, all three generations of FiberNet can be run on the same outside physical plant.

ESTIMATED SCHEDULE

At the end of FY19, FiberNet reached 476 locations. Based on the current funding schedule, FiberNet is scheduled to reach 526 locations by the end of FY20. The Traffic Management network reaches over 220 traffic cameras and 880 traffic signals, and backup power to keep traffic signals operations during large scale power outages have been added at 428 traffic signals. By the end of FY22 - and including sites connected by private carriers and institutional partners - FiberNet is expected to have a total of more than 1,845 sites on the network serving a tremendous variety of facilities from pedestrian beacons to public schools to fire stations to wine and liquor stores, to major campus networks and large multi-story office buildings. The primary focus of the FY21-22 CIP will be to upgrade edge and core equipment to exponentially expand capacity within FiberNet and to edge locations, upgrade hub-site HVAC and back-up power supplies, and to leverage inter-jurisdictional connections and Ashburn data center connections, to enable cost-effective future technology public-private partnerships with major research and educational institutions, regional broadband service providers, and large employers.

COST CHANGE

An FY22 supplemental for \$7.2 million was submitted to replace outdated equipment for business continuity.

PROJECT JUSTIFICATION

FiberNet is a critical infrastructure asset providing communication services and applications to every agency in Montgomery County. As more services are offered electronically (e-applications, e-payment, e-document, e-storage, e-learning), and more services require cloud-access, it is critical that every County location has robust access to FiberNet, and that FiberNet be secure, reliable, and always-on. The FiberNet CIP also supports and expands the ATMS system and networks that monitor, control and collect information along the transportation system, which includes traffic signals, traffic surveillance cameras, lane control systems, traffic adaptive system, back-up power monitoring, and Bus Transit Signal Priority. By leveraging FiberNet, the ATMS has diverse network paths to eliminate single points of failure.

FISCAL NOTE

The FiberNet CIP originally was funded by the General Fund. As restricted-use Cable Fund PEG/I NET capital grant funding grew, the Cable Fund became the primary funding source for FiberNet. Cable revenues are declining as cord cutting increases, and may be negatively impacted by federal government efforts to restrict the authority of local governments to collect revenue for use of public assets by communications providers. Funding for future FiberNet CIPs may need to be supplemented by the General Fund. FiberNet operations and maintenance (O&M) activities are a critical component of FiberNet's utility but are not funded by the FiberNet CIP. Federal regulatory actions, or the outcome of renegotiations when the Comcast and Verizon franchises expire in 2021, may negatively impact the Cable Fund. In FY16 funds were also used to support government and educational ultraMontgomery broadband initiatives. FY22 supplemental in Current Revenue: General for the amount of \$7,200,000.

DISCLOSURES

Expenditures will continue indefinitely.

COORDINATION

DTS, Department of Transportation, Advanced Transportation Management System Project, Montgomery County Public Schools, MNCPPC, MC, HOC, WSSC, PSCS , Information Technology Policy Coordination Committee (ITPCC), ITPCC CIO Subcommittee, and Interagency Technology Advisory Group (ITAG); and supports ATMS, Traffic Signal System Modernization (TSSM) and Traffic Signal CIPs.

Racial Equity and Social Justice

Please use this template to explain how a supplemental appropriation promotes racial equity and social justice in Montgomery County.

Question # 1: Who is benefiting? Explain and provide backups to support your answer.

Funding of this request would benefit all County residents including some of the most vulnerable populations in the County who would be most impacted by an outage or failure to operate the County's technology services. Funding of this request will reduce the risk that County services become unavailable to constituents that need to communicate with County staff via email, that receive services from County programs virtually, or that use County websites.

The County's primary data center at the Council Office Building hosts a wide variety of the County's servers which support all forms of county services from checking out a book on the MCPL website to the system that is used to pay employees.

Question # 2: Who is burdened? Explain and provide backups to support your answer.

There is not a unique burden to residents predicted from this project.

Question # 3: Does the initiative/program receiving the supplemental appropriation reduce racial inequities in the County? If yes, please tell us how.

The County's current primary data center at the Council Office Building needs upgrades.

Question # 4: Are there any potential disproportionate effects on communities of color or low-income?

There are not any potential disproportionate effects on communities of color or low-income residents predicted from this project.

Current Status + Future Plans

DCM Updates. More on Infrastructure. TEBS Beyond COVID.

Immediate Critical Infrastructure Challenges

- End of life equipment is causing business continuity and cyber security risks that need to be remediated.
- Downtime can be catastrophic to the County's operations, reputation, and image, and the collection of revenue. It can also impact public safety and erode the public trust.
- As high as 29% of organizations surveyed nationally by the Gartner Group target a recovery time objective (RTO) of one hour or less for all tiers of IT services. Our overarching goal is to work towards best practice RTO for Montgomery County's enterprise applications and infrastructure.
- This initiative with added investment will mitigate the risk of system and service unavailability or loss by documenting effective contingency solutions for the continuation of mission-critical systems and services.

LACK OF INVESTMENT

A lack of investment in our infrastructure for over 15 years must be addressed to alleviate these stated challenges. Business Continuity becomes high priority.



Move the existing Avaya phone technology to the cloud to enable improved telecommunication services, reduce cost and increase organizational and technological efficiency.



Fibernet3 connectivity to an Equinix Tier 4 data center in Ashburn, VA can provide a platform to greatly improve our access to cloud service providers, internet services, business continuity and cyber security capabilities if timely funding is provided. This will provide economic development opportunities for the County.

Equinix is a world-class, carrier-neutral data center operator and offers connectivity to thousands of cloud, SaaS, IaaS, and PaaS providers.



Business continuity is an essential priority for Montgomery County based on recent observations. Recent audits and the state of business continuity investment, historical planning, and the enhanced need for highly visible system requirements.

TEBS is leading a Business Continuity/Disaster recovery innovation team with partnership across the organization, including Dr. Torgas as strategic cybersecurity advisor. This Innovation team is leading activities to develop a strategic, tactical plan to include clearly defined responsibilities, funding strategies, policy, and procedures to recover mission-critical business and technology systems and services in the event of an unexpected event.

Infrastructure Modernization Opportunities