M E M O R A N D U M

February 10, 2020

TO: Government Operations and Fiscal Policy Committee

FROM: Dr. Costis Toregas, Council IT Adviser

SUBJECT: Capital Improvements Program – ultraMontgomery (P341700)

The following are expected to attend:

>Gail Roper, Chief Information Officer, Department of Technology Services (DTS)
>Joe Webster, Chief Broadband Officer, DTS
>Mitsuko Herrera, ultraMontgomery Program Director, DTS
>Allison Dollar, Office of Management and Budget (OMB)

Staff Recommendation:
1. **Strengthen** the relationship between the technology projects in ultraMontgomery and the policy processes within the economic development plans of the County and related organizations focused on high tech and growth; this relationship is currently unclear.
2. **Discuss** the "IoT test bed" project with DTS leadership and appreciate its potential for economic development and possible non-tax revenue.
3. **Endorse** the Executive's recommendation of **$680,000** for the ultraMontgomery program in FY21 and recommend its full funding to the Council.

Summary

The ultraMontgomery project provides for capital funding to support economic development and technology leadership in the County. The $680,000 request on ©1-2 supports planning, engineering, design and construction of high speed connections along Route 29, White Oak, and along the planned Purple Line, as well as connections to the Ashburn, VA data centers and global Internet hubs for County businesses. Public-private partnerships are vehicles that leverage County investment, and all funding comes from the Cable plan. This project was established in 2017 as a standalone effort within the CIP program; it was previously part of the FiberNet project, but the then-Executive felt that it needed its own focus and implementation strategies.

Background

ultraMontgomery is a broadband economic development program, designed to ensure that businesses in Montgomery County have as much reliable, secure, and robust broadband service as they need to keep our economy moving at the speed of our ideas. ultraMontgomery supports infrastructure development and public-private partnerships to facilitate access to competitive broadband services in commercial buildings through strategic conduit network deployment and leasing of spare County fiber and conduit; and to facilitate access to the digital economy for underserved communities. ultraMontgomery supports business growth and innovation through network connectivity and partnerships, pilot projects for advanced wireless broadband, and cybersecurity innovation to keep wireless networks secure, with a specific focus on federal, state, research and higher education institutions, financial services, biotech/biohealth, IT services, media and similar high-bandwidth consuming companies.

The ultraMontgomery CIP provides for capital funding to support Montgomery County's economic development program. Funding will support planning, design, and construction of:

1. East County Fiber Hwy to provide regional interconnections north-south between White Oak and Howard County and east-west between Burtonsville and Rockville; East County Fiber Hwy Phase 1 (to Burtonsville) completed FY18; Phase 2 to Howard County to be completed in FY20; Phase 3 to Rockville to be completed in FY22.
2. Great Seneca Fiber Hwy to provide shortest distance, low latency connection between Great Seneca and Ashburn, Virginia data centers; primary construction of Great Seneca Fiber Hwy to be completed in FY20, with fiber ring to alternate data centers in FY21-22, and additional extensions within Great Seneca in FY23-26.
3. White Oak Science Gateway Conduit Network to provide broadband conduit infrastructure in Viva White Oak and other White Oak commercial development projects; White Science Gateway conduit construction will be performed concurrently with Viva White Oak construction and is expected to begin in FY21-22.
4. Gigabit Innovation Conduit Network to provide conduit and fiber for wireline and wireless broadband networks in commercial areas of Montgomery County; design for conduit in commercial areas is underway and outreach to potential private partners is in development.
5. IoT (Internet of Things) and Advanced Wireless Testbeds to spur development and expansion of advanced wireless service companies, protective cybersecurity IoT applications and innovation in Montgomery County; pilots IoT and advanced wireless will be developed in FY20 with scheduled deployment in FY21-22.
6. Purple Line Fiber to connect Montgomery County research and higher education facilities to MAX and Internet2 at University of Maryland, College Park. Purple Line utility relocation is underway in FY20, with fiber to be constructed in FY21, but is dependent on the Purple Line and third-party construction schedules.

CIP Request

The ultraMontgomery program request for FY21 is significantly reduced from the request in the prior CIP cycle; the table below details this reduction:

	FY20 (estimated)	FY21 (requested)
Planning, Design and Supervision	$245,000	$70,000
Construction	$2,548,000	$610,000
TOTALS	$2,793,000	$680,000

The CIP request on ©1-2 contains historical background on ultraMontgomery expenditures, as well as estimates of 2020 expenditures. A map showing the location of the ultraMontgomery projects is on page 5.

Strategic Questions

Council staff asked specific strategic questions to provide Councilmembers with a better understanding of this important investment in future digital growth, and strategies needed for its successful completion. These questions, and the responses from the Executive, are below.

1. Please provide detail on actual outcomes from the past 2 years of effort. Projects tied to actual expenditures of ultraMontgomery funds are requested.

    Answer:
    - East County Fiber Highway Phase 1 on Route 29, providing fiber connectivity from White Oak to Burtonsville has been completed. This fiber is being leveraged for the Flash transit stops and to provide public WiFi and other useful information at Flash kiosks in partnership with Smart City Media.
    - Preliminary design of conduit and fiber deployment in Viva White Oak has been completed. (The developer of this project is moving slower than previously anticipated). The East County Fiber Highway will be leveraged to support the Viva White Oak deployment.
    - Short distance, direct route fiber interconnection between Ashburn data centers and the larger FiberNet network is expected by summer 2020. (90% of all East Coast Internet traffic flows through Ashburn data centers.)
    - Operating expenditures supported the County's first Broadband Summit: Commercial Building Design, creation of www.montgomerycountymd/broadbandmap, support for Amazon H2Q application, and promoting business awareness of commercial fiber and data centers providers operating in Montgomery County.

2. Explain the large unencumbered balance of $2.5 million and detail plans for its use or distribution to other projects.

    Answer:
    - A procurement issue has delayed expenditure, but this appears to be near resolution. The entire unencumbered balance is expected to be spent before end of calendar 2020, and potentially encumbered in contracts in FY20. The two primary projects that this funding will be used for are:
        i. Completing East County Fiber Hwy Phase 2, connecting fiber in Burtonsville to Inter-County Broadband Network fiber in Howard County, enabling leasing of fiber from Maryland jurisdictions through Montgomery County to Ashburn data centers, and sales of services from Montgomery County managed IT services to other Maryland jurisdictions.

3

ii. Creating the Great Seneca Fiber Highway from NIST/LSC through Darnestown to River Road to connect with partner Dark Fiber & Infrastructure to create a low latency, short distance fiber connection between NIST/LSC and Ashburn data centers.

3. The requested budget of $680,000 is dramatically different from the estimated FY20 expenditure of $2.8 million. Please provide an explanation.
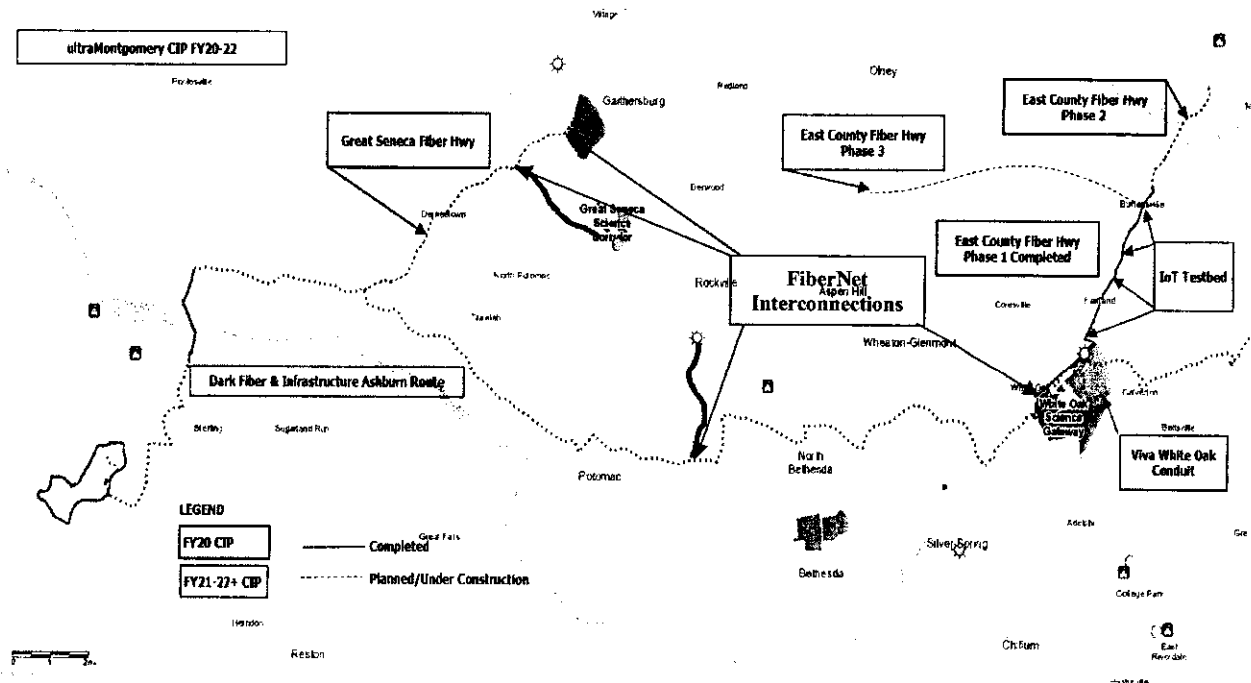
Answer:
- The FY20 funding is $680,000 plus $2,120,000 of the unencumbered balance.

Council Staff comment: The $2.1 million is not shown as an expense in the CIP table; its corresponding revenue source (dedicated General Fund) is also missing in the same table. They should be adjusted to reflect this expected activity.

4. Please provide a list of expected accomplishments in 2021.

Answer:
- Completion of East County Fiber Hwy Phase 2
- Completion of Great Seneca Fiber Hwy
- East County Fiber Hwy Phase 3 Design
- IoT Testbed concept development

ultraMontgomery
(P341700)

Category	General Government	Date Last Modified	01/04/20
SubCategory	Technology Services	Administering Agency	Technology Services
Planning Area	Countywide	Status	Preliminary Design Stage

EXPENDITURE SCHEDULE ($000s)

Cost Elements	Total	Thru FY19	Est FY20	Total 6 Years	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	Beyond 6 Years
Planning, Design and Supervision	775	170	245	360	70	70	70	50	50	50	-
Construction	6,469	201	2,548	3,720	610	610	610	630	630	630	-
TOTAL EXPENDITURES	**7,244**	**371**	**2,793**	**4,080**	**680**	**680**	**680**	**680**	**680**	**680**	**-**

FUNDING SCHEDULE ($000s)

Funding Source	Total	Thru FY19	Est FY20	Total 6 Years	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	Beyond 6 Years
Current Revenue: Cable TV	7,244	371	2,793	4,080	680	680	680	680	680	680	-
TOTAL FUNDING SOURCES	**7,244**	**371**	**2,793**	**4,080**	**680**	**680**	**680**	**680**	**680**	**680**	**-**

APPROPRIATION AND EXPENDITURE DATA ($000s)

Appropriation FY 21 Request	680	Year First Appropriation	FY16
Appropriation FY 22 Request	680	Last FY's Cost Estimate	5,884
Cumulative Appropriation	3,164		
Expenditure / Encumbrances	752		
Unencumbered Balance	2,412		

PROJECT DESCRIPTION

The ultraMontgomery CIP provides for capital funding to support Montgomery County's economic development program. Funding will support planning, design,and construction of: (1) East County Fiber Hwy to provide regional interconnections north-south between White Oak and Howard County and east-west between Burtonsville and Rockville; (2) Great Seneca Fiber Hwy to provide shortest distance, low latency connection between Great Seneca and Ashburn, Virginia data centers; (3) White Oak Science Gateway Conduit Network to provide broadband conduit infrastructure in Viva White Oak and other White Oak commercial development projects; (4) Gigabit Innovation Conduit Network to provide conduit and fiber for wireline and wireless broadband networks in commercial areas of Montgomery County; (5) IoT (Internet of Things) and Advanced Wireless Testbeds to spur development and expansion of advanced wireless service companies, protective cybersecurity IoT applications and innovation in Montgomery County; (6) Purple Line Fiber to connect Montgomery County research and higher education facilities to MAX and Internet2 at University of Maryland, College Park.

ESTIMATED SCHEDULE

(1) East County Fiber Hwy Phase 1 (to Burtonsville) completed FY18; Phase 2 to Howard County to be completed in FY20; Phase 3 to Rockville to be completed in FY22. (2) Primary construction of Great Seneca Fiber Hwy to be completed in FY20, with fiber ring to alternate data centers in FY21-22, and additional extensions within Great Seneca in FY23-26. (3) White Science Gateway conduit construction will be performed concurrently with Viva White construction and is expected to begin in FY21-22. (4) Design for conduit in commercial areas is underway and outreach to potential private partners is in development. (5) Pilots IoT and advanced wireless will be developed in FY20 with scheduled deployment in FY21-22. (6) Purple Line utility relocation is underway in FY20, with fiber to be constructed in FY21, but is dependent on the Purple Line and third-party construction schedules.

COST CHANGE

Cost increase due to the addition of FY25 and FY26 to this ongoing level-of-effort project.

PROJECT JUSTIFICATION

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COORDINATION

FiberNet (P509651); Purple Line Department of Transportation; Maryland-National Capital Park and Planning Commission; Montgomery College; WSSC; Information Technology Policy Coordination Committee; and Montgomery County Economic Development Corporation.

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