

Agenda Item #35
March 16, 2010

Worksession

MEMORANDUM

March 12, 2010

TO: Montgomery County Council

FROM: Dr. Costis Toregas, Council IT Adviser 

SUBJECT: Fiscal Year11-16 Capital Improvements Program: FiberNet

The following may attend:

Steven Emanuel, Chief Information Officer, Department of Technology Services (DTS)
John Castner, FiberNet Project Manager and ITAG Chair, DTS
Mitsuko Herrera, Cable Administrator, DTS
Gary Thomas, ITPCC Program Manager, DTS
John Cuff, Management and Budget Specialist, Office of Management and Budget (OMB)

The analytic packet with relevant information is on ©A-D and ©1-20.

MFP Committee recommendation

On February 22, 2010 the Committee unanimously agreed to **endorse the Executive's FY11 and FY12 recommended CIP FiberNet allocation, which totals \$ \$4,718,000**, while zeroing out the balance of the CIP years (FY13-16) pending the development and discussion of additional information regarding Public-Private Partnerships and the exploration of different billing mechanisms for FiberNet services. The revised PDF is on p.4.

Committee discussion

The Committee views FiberNet as an important asset that provides vital services to departments and agencies within Montgomery County. Given the tight fiscal conditions, the Committee raised several questions in order to begin a longer discussion regarding efficient service delivery models for providing broadband services to the County:

I. Current Efficiencies (How productively do we spend our resources?)

1. Detail construction costs and show impact of reduced costs (expected to reflect 20-30% reduction experiences of other departments) on target deployment (depending on date of re-bidding by DOT).
2. Provide total budget figures for FiberNet (as in ©12 of packet).
3. Review interagency billing potential for FiberNet services, and provide estimated revenues from such a strategy (based on usage or other cost parameter).

II. Future Options for Service Delivery

4. Discuss Public-Private Partnership potential and provide telecommunication industry perspectives and offers made to date.

III. Current Opportunities

5. Provide ARRA telecommunications grant targets by expense category of FiberNet PDF or other detail that would show impact of partial or full ARRA funding, as well as 20% matching requirement.
6. A request was made regarding a Route 29 project and how the general public would see this as a strong indication of County services at work using the FiberNet PDF.

The Executive provided information regarding these requests on ©13-20.

Staff Discussion

Regarding Current Efficiencies (How productively do we spend our resources?)

The FiberNet budget request was higher than in the last CIP submission, and one of the reasons cited was increased construction costs. The Committee feels that the cost reductions observed in other sectors such as school construction should also be reflected in FiberNet costs as well. The Department of Transportation, the organization responsible for FiberNet construction, is not planning to renew bid levels from the industry before October 2010. The Committee will be requesting a report showing the impact of new pricing on the FiberNet construction budget.

The interagency billing discussion has not progressed. The current model is that all FiberNet costs are absorbed by the Department of Technology Services (DTS) and paid from the Cable Fund and other budget appropriations of the department. Given the importance of tracking payments to MCPS brought about by the Maintenance of Effort (MOE) requirements, the notion of identifying, tracking, and even transferring appropriate funds from user agencies to the organization providing services (in this instance, MCG through DTS) should be pursued. Executive staff is concerned that such a model may have unintended consequences elsewhere, and feels that a policy discussion regarding interagency transfers has already occurred, with clear directions. The Committee has expressed interest in reviving this discussion, but decisions may not be practical in the current budget review timeframe.

Staff Recommendation: Staff recommends that the FiberNet service be costed carefully by the Executive, taking into account capital as well as operating costs, and that these costs be considered in an interagency transfer model of cost recovery. Such an analysis should be undertaken within FY11 and inform the FY12 CIP allocation request of the Executive.

Regarding Future Options for Service Delivery

Broadband connectivity and its provision is constantly changing: new technologies, new business models in the field, and an increasing demand for the use of broadband at work, in the home, and by government are driving innovation forward at blinding speed. FiberNet was the right technology (fiber) and the right business model (government supported) for its time when it was first deployed. The reality of the rapidly changing telecommunications marketplace requires a careful periodic check to ensure that the conditions that led to the successful launch and deployment of FiberNet are still in effect. The intent of the Committee's discussion of Public-Private Partnerships (PPPs) is to encourage the exploration of broad policy options in the provision of connectivity services.

Currently, the partnerships under way and displayed on ©13 appear to be targeted and constrained to specific tasks such as "ISP services" or "link to recovery point services in Germantown". The trend in the governmental marketplace is far more strategic, exploring wholesale transfers of assets and creating a delivery model under which each partner performs those functions in which they enjoy a competitive advantage, while allowing the partner to help in areas where they are weak. Indeed, in January 2010, the Office of Legislative Oversight conducted a study of PPPs and their use in Road, Parking, and Transit projects - a report whose recommendations generated significant interest. Such a re-think of service delivery is difficult when the service under consideration is providing vital links on a daily basis to hundreds of locations, and this difficulty is understandable.

Staff recommendation: Staff recommends that a PPP review be undertaken with representatives from the private sector, broadband users in the County, and all Government agencies. The County's own ITPCC may provide the best platform for such a discussion; the goal should be to review alternate delivery models and conduct a thorough and transparent evaluation of costs and benefits. This evaluation should be completed before the FY12 discussion of FiberNet support begins.

Regarding Current Opportunities

The ARRA grant picture is unclear; it appears that the County has been unsuccessful in the first round of applications for Broadband service deployment to underserved areas. Had grants been received, they would have required matching funds from this CIP budget and would have permitted the acceleration of FiberNet deployment. However, there may still be further applications submitted, so there are currently **no explicit decisions** to be made.

Fibernet -- No. 509651

Category
Subcategory
Administering Agency
Planning Area

**General Government
Technology Services
Technology Services
Countywide**

Date Last Modified
Required Adequate Public Facility
Relocation Impact
Status

January 08, 2010
No
None.
On-going

EXPENDITURE SCHEDULE (\$000)

Cost Element	Total	Thru FY09	Est. FY10	Total 6 Years	FY11	FY12	FY13	FY14	FY15	FY16	Beyond 6 Years
Planning, Design, and Supervision	3,220	1,814	206	1,200	200	200	200	200	200	200	0
Land	4	4	0	0	0	0	0	0	0	0	0
Site Improvements and Utilities	12,941	11,881	0	1,060	65	65	415	415	50	50	0
Construction	13,513	41	1,811	11,661	1,747	2,441	3,763	1,760	975	975	0
Other	20,735	20,735	0	4,718	0	0	0	0	0	0	0
Total	50,413	34,475	2,017	13,921	2,012	2,706	4,378	2,375	1,225	1,225	0

FUNDING SCHEDULE (\$000)

Cable TV	39,327	23,964	1,442	13,921	2,012	2,706	4,378	2,375	1,225	1,225	0
Contributions	86	86	0	0	0	0	0	0	0	0	0
G.O. Bonds	8,900	8,325	575	0	0	0	0	0	0	0	0
PAYGO	2,100	2,100	0	0	0	0	0	0	0	0	0
Total	50,413	34,475	2,017	13,921	2,012	2,706	4,378	2,375	1,225	1,225	0

DESCRIPTION

This project provides for the planning, design, and installation of a Countywide fiber optic cable-based communication network with the capacity to support voice, data, 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. Fibernet is also the communications backbone for the Public Safety Radio and Public Safety Mobile Data Systems (collectively, PSCS), and future technology implementations. Fibernet has an estimated useful life of at least 20 years. Upgrades and replacements to electronic components in the core and at user sites will be required periodically.

COST CHANGE

The increase is due to inclusion of one-hundred and nineteen new sites scheduled to enter construction in the first four years of the CIP, increased contractor cost for laying fiber, and inclusion of FY15 and FY16 expenditures.

JUSTIFICATION

FiberNet is a critical infrastructure asset serving every agency, the fiber plant for Asynchronous Transfer Mode Systems (ATMS), and the dedicated and redundant communications links for the PSCS/800 MHz system. As of September 1, 2009, 289 user sites are on-net and receiving critical services from FiberNet. In FY07, the Department of Technology Services (DTS) completed the re-engineering of FiberNet (now referred to as FiberNet II) to directly support Ethernet connections. This provides a core network that is technologically newer, faster and less expensive on a per-site basis. The Interagency Technology Policy Coordination Committee (ITPCC) focus during the first three years of the CIP is adding the remaining MCPS elementary schools to FiberNet. DTS, in cooperation with ITPCC and its Information Technology Advisory Group (ITAG) workgroup, continues to refine the master implementation schedule. MCG, MCPS, MC, M-NCPPC, HOC and WSSC will require substantially increased communication services and bandwidth among their facilities. The County will provide fiber optic services to those facilities for which leased telecommunications services cannot meet current or projected demand as cost effectively as FiberNet. Studies include: Fibernet Master Plan; RAM Comm. Mar 1995; Fibernet Eval. Rpt., TRW, Sept 1997; Fibernet Proj. Cost Est., ARINC, Apr 1998; Fibernet Proj. Cost-Benefit Analysis, ARINC, Oct 1998; Fibernet Strategic Plan, PrimeNet, Jun 2002; Fibernet Strategic Direction, ITAG, Nov 2003; Fibernet service level agreement, Jan 2005.

OTHER

DTS is responsible for project management, network operations, and maintenance of electronics; Department of Transportation (DOT) for installation and maintenance of the fiber optic cable. Comcast, at DTS's direction, also provides fiber used in Fibernet. Sites installed to date include MCG departments/offices, PSCS sites, MC campuses, MCPS high schools/middle schools/administrative facilities, M-NCPPC sites, HOC sites and WSSC sites including the headquarters building in Prince Georges County. The municipalities of Takoma Park, Gaithersburg and Rockville are on FiberNet as well as several cultural centers including American Film Institute (AFI), Strathmore, the Convention Center and Black Rock. Sites have been, and will continue to be, installed in a priority order based on the expected cost savings/avoidance; current and future connectivity needs; and availability of fiber optic cable to an area. Approximately \$3 million is necessary to build out the cable plant to support ATMS field devices, and is not reflected in the expenditures and funding displayed in the FY11-16 CIP. This need will be captured in the future in accordance with fiscal capacity and project schedules.

FISCAL NOTE

Fibernet maintenance is supported by a grant from the franchise agreement with the County's cable service provider. The original grant amount of \$1.2 million/yr is increased by the CPI each year. For this reason the Operating Budget Impact is \$0.

APPROPRIATION AND EXPENDITURE DATA	COORDINATION	MAP																																																			
<table border="1"> <tr> <td>Date First Appropriation</td> <td>FY96</td> <td>(\$000)</td> </tr> <tr> <td>First Cost Estimate</td> <td></td> <td></td> </tr> <tr> <td>Current Scope</td> <td>FY11</td> <td>50,413</td> </tr> <tr> <td>Last FY's Cost Estimate</td> <td></td> <td>42,557</td> </tr> <tr> <td colspan="3"> </td> </tr> <tr> <td>Appropriation Request</td> <td>FY11</td> <td>2,012</td> </tr> <tr> <td>Appropriation Request Est.</td> <td>FY12</td> <td>2,706</td> </tr> <tr> <td>Supplemental Appropriation Request</td> <td></td> <td>0</td> </tr> <tr> <td>Transfer</td> <td></td> <td>0</td> </tr> <tr> <td colspan="3"> </td> </tr> <tr> <td>Cumulative Appropriation</td> <td></td> <td>36,492</td> </tr> <tr> <td>Expenditures / Encumbrances</td> <td></td> <td>35,066</td> </tr> <tr> <td>Unencumbered Balance</td> <td></td> <td>1,426</td> </tr> <tr> <td colspan="3"> </td> </tr> <tr> <td>Partial Closeout Thru</td> <td>FY08</td> <td>0</td> </tr> <tr> <td>New Partial Closeout</td> <td>FY09</td> <td>0</td> </tr> <tr> <td>Total Partial Closeout</td> <td></td> <td>0</td> </tr> </table>	Date First Appropriation	FY96	(\$000)	First Cost Estimate			Current Scope	FY11	50,413	Last FY's Cost Estimate		42,557				Appropriation Request	FY11	2,012	Appropriation Request Est.	FY12	2,706	Supplemental Appropriation Request		0	Transfer		0				Cumulative Appropriation		36,492	Expenditures / Encumbrances		35,066	Unencumbered Balance		1,426				Partial Closeout Thru	FY08	0	New Partial Closeout	FY09	0	Total Partial Closeout		0	<p>Department of Technology Services Department of Transportation Advanced Transportation Management System Project Montgomery County Public Schools M-NCPPC Montgomery College HOC WSSC Comcast Public Safety Radio System Information Technology Policy Coordination Committee (ITPCC) ITPCC CIO Subcommittee Interagency Technology Advisory Group (ITAG)</p>	<p>The map shows the geographical layout of Montgomery County with a network of fiber optic lines connecting various sites. Key locations marked include Takoma Park, Gaithersburg, Rockville, and several government and educational buildings. A scale bar indicates 0 to 3 miles.</p>
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Recommended

10-2

MFP COMMITTEE #2
February 22, 2010

MEMORANDUM

February 18, 2010

TO: Management and Fiscal Policy Committee

FROM: Dr. Costis Toregas, Council IT Adviser *CT*

SUBJECT: CIP FiberNet project

Expected to attend:

E. Steven Emanuel, Chief Information Officer, Department of Technology Services (DTS)

John Castner, FiberNet Project Manager and ITAG Chair, DTS

Michael Knuppel, Chief Technology Officer, DTS

Mitsuko R. Herrera, Cable Communications Administrator, DTS

Max Stuckey, DTS

Gary Thomas, ITPCC Program Manager

John Cuff, Office of Management and Budget

(A)

Summary of staff recommendations to the MFP Committee:

1. *The Executive recommends an increase in the FiberNet total cost estimate of \$7.856m, and requests an appropriation of \$2.012m for FY11. Staff recommends that the **Committee support the Executive's recommendation for FY11, but defer a decision on the total 6-year budget until more information is provided on the potential impact of Public-Private Partnerships and a closer examination of construction costs and the detailed budget under consideration has been made.***
2. *The Executive's request plans for extending FiberNet to an **additional 119 sites (listed on ©8-11): the Committee should review these sites and react to their priority order and selection parameters.***
3. *The request from the Executive is **predicated on rising construction costs** for Fibernet build out (see ©5). This is counter-intuitive, as construction prices are falling, and costs of construction projects are also being reduced in other fields, such as school construction. The Committee should ascertain why the Executive believes in this alternate model of rising costs, and reconcile the two views of pricing.*
4. *The role of the telecommunications industry in maintaining and expanding FiberNet at a time of tight budgets should be explored robustly. Council staff recommends an exploration of two possibilities: **the use of external technologies through partnerships to expand and fully build out the connectivity promise of FiberNet, and the interest of industry to undertake the task of providing connectivity under a long term operation and maintenance (O&M) arrangement that would safeguard privacy and security of data while reducing costs.***
5. *The impact of ARRA (the American Recovery and ReInvestment Act) grants on the County's ability to expand and maintain a broadband capability is yet unknown. However, the Executive branch is hopeful that funds may become available, with a 20% matching component in this FiberNet project budget that would enable a faster deployment of FiberNet and other telecommunications networks. The Committee should be briefed on the **status of ARRA, and also on fallback plans for the 20% matching funds in the FiberNet budget should the expected grants not materialize.***
6. *FiberNet benefits all tax-supported agencies, yet funds for its support and maintenance are provided from a single Montgomery County Government source - the Cable Fund. As the financial picture continues to be tight, the Committee should explore with the Executive branch representatives two possible strategies that might relieve that pressure: **the notion of charging all users for FiberNet services according to a usage or other formula, and the establishment of a monitoring system that ensures that FiberNet service delivery to a physical location results in a reduction or elimination of all other alternate telecommunications charges.***

Background

The County investment in FiberNet exceeds \$35m. It is intended to provide connectivity to all County agencies in a secure and inexpensive manner. The definition and description of Fibernet is described in the Enterprise Technology Strategic Plan and is reproduced on ©1-3. The FiberNet services are provided to 289 locations. This model gives access to robust connectivity, control over costs, and ability to prioritize County needs; these are hard to replicate with other provision models. FiberNet works well and is worthy of strong support.

However, at a time when new, cost-effective telecommunications options appear almost daily and the County is struggling under a major budget challenge, it is important to take a critical, comprehensive look at the long-term investment made and make sure there is consensus from all stakeholders as to a clear path forward. The Interagency Technology Policy and Coordination Committee (ITPCC) undertook a major effort last year to sharpen the focus on this vital resource and provide strategic direction and overall guidance. In accordance with the requirements of the Interagency FiberNet Governance Charter (Nov. 2002), the FiberNet Interagency Technical Advisory Group (ITAG) is

charged with the responsibility of developing the biennial CIP submission for the requested FiberNet CIP project that the Executive decided to propose as part of the FY11-16 CIP. His proposal is on ©4.

Council staff raised several questions regarding the FiberNet project and the FY11 appropriation request. These questions and the answers provided by DTS are on ©5-11.

Additional Staff Comments

1. FiberNet offers connectivity services to its users. These may include e-mail, Internet provisioning, file transfers, and voice/video services. In a similar vein, these services are offered, and the County is currently receiving them, from other governmental agencies as well as from the private sector. At a time when all departments are looking for ways to reduce spending, it is right that all telecommunications charges in all agencies and departments be looked at and decisions made regarding the use of FiberNet as the sole or preferred provider of connectivity. The total telecommunications bill across all County organizations is certainly a high number. The potential of reducing that number through a more energetic and careful provisioning of FiberNet connectivity should be discussed, and proper go-forward actions reviewed.

2. On June 22, 2009 the Executive provided a 5-year display of costs that take into account all funding sources and the various component costs of FiberNet. In this display (shown on ©12), it is clear that expansion of the network is only a small part of the overall budget. In order to understand the plan of the Executive for Fibernet growth and maintenance, it is necessary to review financial forecasts at the level of the Table on ©12, something that the CIP submission does not provide. However, it seems that 119 sites are to be added to the network over the next 4 years (from FY11 through FY14); the location of these sites is shown on ©8-11.

It is important to consider whether this expansion can be accomplished using other means and at a lesser cost. One such alternative is through the use of Public-Private Partnerships (or PPPs). The Office of Legislative Oversight produced Report 2010-6, dated January 26, 2010 and titled “An Overview of Public-Private Partnerships in Road, Parking, and Transit Projects”, which addressed this question in some program areas. This report found that under the right conditions, PPPs can provide a source of significant revenue up front, improve service levels, and reduce long-term costs of operations. Exploring the potential of PPPs in telecommunications and, more specifically, in broadband connectivity is a direction that should be undertaken, if only to verify that the County’s current business model of providing services is the best for the times. This exploration should be done in concert with telecommunications providers and be given wide latitude to compare a variety of business models. The amounts requested in the Executive’s CIP submission are significant, approaching \$14m over 6 years, so the undertaking of such an exploration is vital.

3. Residents have been contacting Councilmember offices regarding the initiative Google has recently launched regarding their desire to deploy an ultra-fast fiber network in a pilot community, and asking the County to become involved. This initiative is summarized below; details can be found at <http://www.google.com/appserve/fiberrfi>

“...Google Fiber for Communities

Google is planning to launch an experiment that we hope will make Internet access better and faster for everyone. We plan to test ultra-high speed broadband networks in one or more trial locations across the country. Our networks will deliver Internet speeds more than 100 times faster than what most Americans have access to today,

over 1 gigabit per second, fiber-to-the-home connections. We'll offer service at a competitive price to at least 50,000 and potentially up to 500,000 people.

From now until March 26th, we're asking interested municipalities to provide us with information about their communities through a Request for information (RFI), which we'll use to determine where to build our network..."

This offer from Google suggests the readiness of the private sector to find creative ways to partner with government for mutual gain. The economic development benefits of this partnership are undeniable to the successful partner. However, the notion of sharing infrastructure between the private and public sector, negotiating delicate items such as security concerns of public safety agencies and shared investment in maintenance and growth, is one that is timely for the County to consider. In a time of scarce resources, the County must be prepared to concentrate on areas where government holds a competitive advantage. Telecommunications may be an area where partnerships could be more effective.

4. The Executive's submission suggests that, beyond the \$14m request, another \$3m is needed to provide support for field ATMS (Advanced Transportation Management Systems) traffic control devices. However, this amount is not currently included in the request. The response from DTS on ©6 does not articulate a firm direction for where the funds will come from and when they will be needed. The Committee must also be made aware of risks associated with not funding this unfunded \$3m need in the traffic arena. For example, the Committee should ensure that the ATMS build out is not an essential element (albeit unfunded) of the major traffic signal light fix under way today. It is important to have a complete picture of costs when reviewing, and ultimately approving, long-term funding for major projects. This point needs to be clarified with DTS and OMB.



Goal:

Continue to pursue innovative ways to enhance the PBX platform in a healthy evolutionary mode, which will prevent the need for an expensive replacement in the future.

FiberNet Strategic Plan

Montgomery County Government (MCG) is its own telecommunications carrier. In serving a community of over 950,000 residents, the County Government consumes voice/video/data services in extremely large quantities. In 1995 the County determined that cost savings could be realized and a future-proof network could be created by building its own facilities based fiber optic network. Leveraging work that the Department of Transportation (DoT) had already begun in building a fiber optic network for the Advanced Traffic Management System, The Department of Technology Services (DTS) was given the mission of building an electro-optical network on top of the fiber plant that DoT had already placed. FiberNet was born.

Today, FiberNet is the electro-optical backbone for MCG. FiberNet provides communications services for all County agencies including the Government (MCG), Public Schools (MCPS), Montgomery College, Maryland National Park and Planning Commission (MNCPPC), Washington Suburban Sanitary Commission (WSSC) and the Housing Opportunities Commission (HOC). FiberNet has become a big success and every agency wants to participate to the fullest extent possible. Governance is vested in the Information Technology Policy Coordinating Committee (ITPCC) with technical approval delegated to its CIO Subcommittee. DTS provides technical leadership and is operationally responsible for FiberNet.

The alternative to FiberNet would have been and continued to be the purchasing of telecommunications services from the local commercial market. Many state, county and municipal governments operate in this mode. These other agencies are discovering that as applications become more information rich, initiatives to improve services may be frustrated easily by the high cost of carrier leased lines or other tariffed offerings including special pricing agreements. Montgomery County Public Schools (MCPS) is currently seeing the bandwidth requirements for applications growing and the inability of sites, not on FiberNet, to deliver services.

In several cases the carriers are not maintaining their physical plants (underground and overhead wiring, old copper capabilities, etc.) making even simple connections unreliable and data services, problematic. MCPS has this problem with many elementary schools as does the County Government with several small offices. In a recent conversation with representatives from a commercial service provider, prices were quoted several thousand of dollars per month for a 10 MegaBit/second link. MCPS has over one hundred sites still to be added to FiberNet. Although a long term contract would bring this price down, it is possible to see the order of magnitude associated with providing such services through a local exchange carrier still costing hundreds of thousand dollars per month. MCPS and the

FiberNet Team are looking for alternatives and near term solutions have already been identified.

FiberNet is an integral component of the County's Public Safety Communications Network. Given these systems critical importance to the County's residents, having the County own and operate the underlying transport infrastructure ensures a higher level of service availability and control than would be achievable in a leased carrier system. Additionally, in the time of a real emergency the County is in a position to regulate network access to make sure that calls go through and applications operate. On an open public or commercial network, there is no pre-emption or prioritization for emergencies.

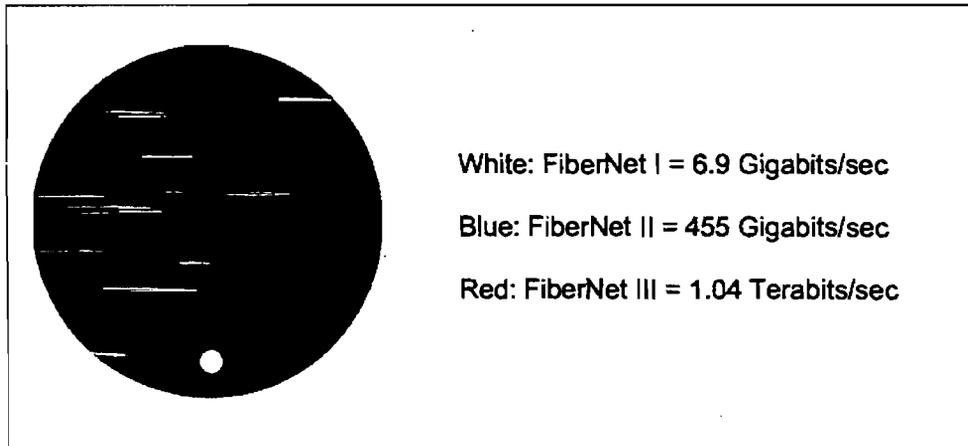
Strategically, FiberNet is working to leverage its resources, increase its footprint, improve security and provide voice/video/data services at lower cost. Tactical successes include:

- Leveraging the County's telephony platform by delivering dial tone to Housing Opportunities Commission (HOC);
- Becoming the Internet Service Provider for Maryland National Capital Park and Planning Commission (M-NCPPC) and HOC, providing Internet Service Provider (ISP) carrier services for the City of Gaithersburg and the American Film Institute;
- Replacing the County's legacy ATM network (FiberNet I) with a state-of-the-art Metro-Ethernet network (FiberNet II);
- Re-architecting the FiberNet core so that no or minimal equipment needs to be purchased to add a new site. Only the cost of fiber or other transport media needs to be considered when adding the location;
- Creating MCG WiFi Hotspots in Silver Spring, Bethesda, recreation centers and County cafeterias;
- Connecting to State of Maryland networks directly;
- Connecting to local government networks directly without going via the Internet;
- Adding a backup Internet Service Provider for the County.

Current initiatives include migrating all County departments onto FiberNet II; other participating agencies are already on the next generation solution. A major effort continues to be increasing FiberNet's footprint by adding MCPS elementary schools and County Government sites including the Smart Growth initiative. DTS is always looking for economically justifiable alternatives to the high cost of fiber. FiberNet has engaged the Washington Metropolitan Area Transit Authority (WMATA) to consider sharing assets and facility access to improve network reliability and availability for the County's Public Safety Radio System (PSRS). It is expected that this effort will produce positive results and increase the availability of this extremely important system.

FiberNet will be an integral part of the next generation Public Safety Radio System (PSRS). FiberNet has started a proof of concept trial to determine the feasibility of using cable modems to create a virtual private network to replace services leased from Verizon by MCPS and MCG. This is a recent initiative. If successful, it will permit high speed connections to elementary schools and leased County facilities at a fraction of the cost available from commercial carriers. MCPS is excited at the prospect and so is the FiberNet team.

Figure 7 - Raw Aggregate Backbone Bandwidth



FiberNet is built for the future. Raw bandwidth coupled with an intelligent network infrastructure is the hallmark of FiberNet II and the keys to future proofing the County's IT information transport requirements. A simple graphic captures the past, present and future of FiberNet. The figure above captures the raw aggregate bandwidth across all the FiberNet I backbone links. A second image encapsulates FiberNet I and is a proportionate analog for FiberNet II's aggregate backbone bandwidth today when compared to FiberNet I. Finally, the larger image is a graphical analog for FiberNet III's backbone capacity after a nominal capital improvement to FiberNet II.

FiberNet II is an *intelligent network* capable of making routing decisions in the network core. The Internet is designed based on this principle; FiberNet I model, is not. FiberNet II exists, is in use and is based on technologies that are being used by large service commercial providers. Funds are currently being accumulated in a capital reserve to move to FiberNet III when the time arrives.

FiberNet is an integrative system that makes inter and intra governmental IT services and communications easier to implement and most of all easier to secure. Ultimately, FiberNet's strategic goal is to deliver mission critical applications over a reliable and robust communications infrastructure at lower prices than those achievable in the open market. The current configuration of FiberNet II is designed to sustain the County's bandwidth requirements for the next ten years.

Goal:

Continue to migrate to the next generation of FiberNet, Communicate and integrate FiberNet advantages within all new and enhanced programs requiring inter-department, inter-agency and inter-jurisdictional voice and data transmission needs

Fibernet -- No. 509651

Category
Subcategory
Administering Agency
Planning Area

**General Government
Technology Services
Technology Services
Countywide**

Date Last Modified
Required Adequate Public Facility
Relocation Impact
Status

**January 08, 2010
No
None.
On-going**

EXPENDITURE SCHEDULE (\$000)

Cost Element	Total	Thru FY09	Est. FY10	Total 6 Years	FY11	FY12	FY13	FY14	FY15	FY16	Beyond 6 Years
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Land	4	4	0	0	0	0	0	0	0	0	0
Site Improvements and Utilities	12,941	11,881	0	1,060	65	65	415	415	50	50	0
Construction	13,513	41	1,811	11,661	1,747	2,441	3,763	1,760	975	975	0
Other	20,735	20,735	0	0	0	0	0	0	0	0	0
Total	50,413	34,475	2,017	13,921	2,012	2,706	4,378	2,375	1,225	1,225	0

FUNDING SCHEDULE (\$000)

Cable TV	39,327	23,964	1,442	13,921	2,012	2,706	4,378	2,375	1,225	1,225	0
Contributions	86	86	0	0	0	0	0	0	0	0	0
G.O. Bonds	8,900	8,325	575	0	0	0	0	0	0	0	0
PAYGO	2,100	2,100	0	0	0	0	0	0	0	0	0
Total	50,413	34,475	2,017	13,921	2,012	2,706	4,378	2,375	1,225	1,225	0

DESCRIPTION

This project provides for the planning, design, and installation of a Countywide fiber optic cable-based communication network with the capacity to support voice, data, 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. FiberNet is also the communications backbone for the Public Safety Radio and Public Safety Mobile Data Systems (collectively, PSCS), and future technology implementations. Fibernet has an estimated useful life of at least 20 years. Upgrades and replacements to electronic components in the core and at user sites will be required periodically.

COST CHANGE

The increase is due to inclusion of one-hundred and nineteen new sites scheduled to enter construction in the first four years of the CIP, increased contractor cost for laying fiber, and inclusion of FY15 and FY16 expenditures.

JUSTIFICATION

FiberNet is a critical infrastructure asset serving every agency, the fiber plant for Asynchronous Transfer Mode Systems (ATMS), and the dedicated and redundant communications links for the PSCS/800 MHz system. As of September 1, 2009, 289 user sites are on-net and receiving critical services from FiberNet. In FY07, the Department of Technology Services (DTS) completed the re-engineering of FiberNet (now referred to as FiberNet II) to directly support Ethernet connections. This provides a core network that is technologically newer, faster and less expensive on a per-site basis. The Interagency Technology Policy Coordination Committee (ITPCC) focus during the first three years of the CIP is adding the remaining MCPS elementary schools to FiberNet. DTS, in cooperation with ITPCC and its Information Technology Advisory Group (ITAG) workgroup, continues to refine the master implementation schedule. MCG, MCPS, MC, M-NCPPC, HOC and WSSC will require substantially increased communication services and bandwidth among their facilities. The County will provide fiber optic services to those facilities for which leased telecommunications services cannot meet current or projected demand as cost effectively as FiberNet. Studies include: Fibernet Master Plan; RAM Comm. Mar 1995; Fibernet Eval. Rpt., TRW, Sept 1997; Fibernet Proj. Cost Est., ARINC, Apr 1998; Fibernet Proj. Cost-Benefit Analysis, ARINC, Oct 1998; Fibernet Strategic Plan, PrimeNet, Jun 2002; Fibernet Strategic Direction, ITAG, Nov 2003; Fibernet service level agreement, Jan 2005.

OTHER

DTS is responsible for project management, network operations, and maintenance of electronics; Department of Transportation (DOT) for installation and maintenance of the fiber optic cable. Comcast, at DTS's direction, also provides fiber used in Fibernet. Sites installed to date include MCG departments/offices, PSCS sites, MC campuses, MCPS high schools/middle schools/administrative facilities, M-NCPPC sites, HOC sites and WSSC sites including the headquarters building in Prince Georges County. The municipalities of Takoma Park, Gaithersburg and Rockville are on FiberNet as well as several cultural centers including American Film Institute (AFI), Strathmore, the Convention Center and Black Rock. Sites have been, and will continue to be, installed in a priority order based on the expected cost savings/avoidance; current and future connectivity needs; and availability of fiber optic cable to an area. Approximately \$3 million is necessary to build out the cable plant to support ATMS field devices, and is not reflected in the expenditures and funding displayed in the FY11-16 CIP. This need will be captured in the future in accordance with fiscal capacity and project schedules.

FISCAL NOTE

Fibernet maintenance is supported by a grant from the franchise agreement with the County's cable service provider. The original grant amount of \$1.2 million/yr is increased by the CPI each year. For this reason the Operating Budget Impact is \$0.

APPROPRIATION AND EXPENDITURE DATA	COORDINATION	MAP
Date First Appropriation	Department of Technology Services	
First Cost Estimate	Department of Transportation	
Current Scope	Advanced Transportation Management System Project	
Last FY's Cost Estimate	Montgomery County Public Schools	
Appropriation Request	M-NCPPC	
Appropriation Request Est.	Montgomery College	
Supplemental Appropriation Request	HOC	
Transfer	WSSC	
Cumulative Appropriation	Comcast	
Expenditures / Encumbrances	Public Safety Radio System	
Unencumbered Balance	Information Technology Policy Coordination Committee (ITPCC)	
Partial Closeout Thru	ITPCC CIO Subcommittee	
New Partial Closeout	Interagency Technology Advisory Group (ITAG)	
Total Partial Closeout		

February 8, 2010

**Responses to Council Questions
Fibernet CIP**

1. Cost increase of \$1.6m: Increased contractor costs is counterintuitive at a time when all construction costs are plummeting

Response:

With the acceleration of the implementation, it will be necessary to utilize construction services beyond our agreement with Comcast for fiber construction. If you recall, in FY08, the County's contract with DOT's contractor was re-bid and resulted in a significant increase. While we do anticipate an increase in the construction costs, every effort will be to utilize methods that result in the lowest costs.

Additionally, the remaining elementary schools that comprise the most significant amount of construction effort are located off the major routes where the main fiber routes have been constructed. Distance from the nearest connectible point of presence, in addition to the increase in the contractor base costs generates the estimated increase being submitted.

2. Why is FY13 so high in requested funds?

Response:

While it is our intent to accelerate the Fibernet implementation, the sites that are not currently in the planning, will take approximately 12-18 months for the planning and implementation. As such, the expenditures for the actual construction and implementation will fall later in the project expenditure plan and are anticipated to cause a larger expenditure in FY13. The cost model that is presented makes every attempt to place the funds in the fiscal year in which we commit the actual progression of the work by the vendors performing the work.

3. List 119 sites to be added to network

Response:

See Attached Schedule.

4. \$3m added build out for ATMS devices- why not included in this year's CIP? What is the risk of not executing?

Response:

This amount was the proposed amount for the build out of the Fibernet plant to support the connectivity to the traffic control devices and the central traffic control system. The amount has always been a known amount, but the implementation requirement has been subject to the traffic management replacement process. With the most recent challenges with the traffic system, the timing and needs for this buildout came to the forefront, subsequent to the original submission of the Fibernet CIP funding planning. This was simply a timing challenge, but the amount that would be required has been set for some time.

5. Verizon FiberTower suggestion- what is status? And are costs indicative of other private provisioning? What is wrong with this math: $\$600 \times 12 \times 289 = 2\text{m}$ annual recurring cost and $\$5,000 \times 289 = 1.4\text{m}$ one time (Using Verizon numbers provided of 600/site and 5k one time)?

Response:

We did receive information from Verizon in September, 2009 proposing this service offering. After a review of the proposed costs and services, the proposed option was deemed to have a higher cost, long term and higher than a similar provider option that had also been explored. The information provided by the Verizon contact had indicate a \$5K to \$8K one time installation, per site and monthly charge of \$550-\$650, indicating an average that totaled about \$7,200 per year, per facility. The proposed bandwidth for this five year solution was at 5MB.

As a result, discussions did not proceed at that time. Also, given the growth and use of bandwidth that most of the county users have become accustomed, we feel that having such a significantly low limit as proposed would create new barriers to the use of the county's institutional network. The basis for the current direction remains valid and is in line with the PrimeNet Strategic Planning Study done by the ITPCC.

The Network services team has developed concepts with other private provision models that may still be a potential option, should the anticipated funding from the ARRA grant not materialize.

6. ARRA matches- which projects and how much is needed? Chances of success?

Response:

One Maryland Application.

Montgomery County has applied for about \$14.5M and pledged a match of an additional \$3.6M as part of the overall \$99 Million, nine-County One Maryland ARRA Broadband grant application. If granted, Montgomery County would

receive reimbursement through One Maryland to extend FiberNet to 98 elementary schools, 21 Housing Opportunities Commission sites, 5 hospitals, 4 municipal Wi-Fi extensions, 3 public safety radio towers, and 1 public library. As a condition of the grant, Montgomery County committed to appropriate in FY2010, FY2011, and FY2012, a total over the three years of \$2.5M through the FiberNet CIP, and \$1M in DTS and DOT labor and operating expenses.

As of February 12, 2010, the One Maryland application is still under consideration by NTIA, the federal agency charged with awarding the ARRA broadband grants. On January 28, 2010 Senator Mikulski held a hearing asking NTIA and the Commerce Department why only 4% of the ARRA broadband grant funding had been awarded. That same week, NTIA sent letters to applicants whose projects NTIA declined to fund, two of which included rural Maryland projects. Following the hearing, One Maryland has been responding to an average of 2-3 information requests per day from NTIA.

While no one can predict the actions of the grant reviewers and the political agencies charged with awarding the grant, the federal government has invested a significant amount of resources to perform due diligence on the One Maryland application and we are cautiously optimistic. We have heard reports that additional grants would be announced on Tuesday February 16, 2010, and that all grants for the first funding round would be awarded by February 26, 2010, but NTIA has delayed grant announcements beyond previously announced internal deadlines.

Broadband for All Montgomery.

Montgomery County has also applied for \$281,225 to fund 137 new computers with associated software and peripherals, 16 new printers, and broadband training and education at 11 Housing Opportunities Commission sites, 2 job centers and 2 libraries. As a condition of the grant, Montgomery County committed to provide matching support of \$1.5M in salaries, shared licenses, and operating support contracts, and \$2M as in-kind value of facilities. NTIA has not contacted the County to request additional due diligence, nor has NTIA sent a rejection letter. We have been told informally that NTIA is focused on reviewing larger grant applications at this time.

FiberNet CIP FY11-FY16
Schedule of Sites

FiberNet CIP FY11 to FY14 Site Schedule

Fiscal Year	Agency	Site Name
FY11	MCPS	Brown Station ES
		Burning Tree ES
		Clarksburg ES
		Clopper Mill ES
		Cloverly ES
		Fields Road ES
		Glen Haven ES
		Broad Acres ES
		Carderock Springs ES
		Forest Knolls ES
		Glenallan ES
		Goshen ES
		Jackson Road ES
		Maryvale ES
		Mill Creek Towne ES
		Ritchie Park ES
		Rock Creek Forest ES
		Rolling Terrace ES
		Ronald McNair ES
		S. Christa McAuliffe
		Sequoyah ES
		Summit Hall ES
		Clarksburg ES #8 (Fall, 2009)
		Travilah ES
		Wood Acres ES
		Ashburton ES
		Darnestown ES
		Georgian Forest ES
		Watkins Mill ES
		Pine Crest ES
		Montgomery Knolls ES
		New Hampshire Estates ES
		Somerset ES
		Cresthaven ES
		Fox Chapel ES
		Flower Valley ES
		Whetstone ES
		Great Seneca Creek ES
		Westbrook ES
		Lucy V Barnsley ES
	MCPS	
	Total	40 Sites
FY11 Total		40 Sites

FiberNet CIP FY11-FY16
Schedule of Sites

FY12	MCPS	Harmony Hills ES
		Bradley Hills ES
		Rosemary Hills ES
		Twinbrook ES
		College Gardens ES
		Dufief ES
		Woodlin ES
		Bel Pre ES
		Potomac ES
		Cannon Road ES
		Flower Hill ES
		Oakland Terrace ES
		Capt James E Daly ES
		Viers Mill ES
		Bells Mill ES
		Strathmore ES
		Dr Sally K Ride ES
		Lakewood ES
		Sligo Creek ES
		Candlewood ES
		Farmland ES
		Highland ES
		Wheaton Woods ES
		Thurgood Marshall ES
		Beverly Farms ES
		East Silver Spring ES
		Wyngate ES
		Cold Spring ES
		Bannockburn ES
		Greencastle ES
	MCPS	
	Total	30 Sites
FY12 Total		30 Sites

FiberNet CIP FY11-FY16
Schedule of Sites

FY13	MCPS	Washington Grove ES
		Oak View ES
		Roscoe R Nix ES
		Wayside ES
		Garrett Park ES
		Arcola ES
		Stedwick ES
		Rock Creek Valley ES
		Stone Mill ES
		Fairland ES
		Burnt Mills ES
		Jones Lane ES
		Highland View ES
		Brooke Grove ES
		Kensington Parkwood ES
		Diamond ES
		Greenwood ES
		Westover ES
		William T Page ES
		Kemp Mill ES
		Dr Charles R Drew ES
		Galway ES
		Stonegate ES
		Fallsmead ES
		Strawberry Knoll ES
		Spark M Matsunaga ES
		Cashell ES
		Belmont ES
	MCPS	
	Total	28 Sites
FY13 Total		28 Sites

FiberNet CIP FY11-FY16
Schedule of Sites

FY14	HOC	ELIZABETH HOUSE EMORY GROVE VILLAGE PADDINGTON SQUARE APARTMENTS TANGLEWOOD APARTMENTS TOWNE CENTRE PLACE WASHINGTON SQUARE	
	HOC Total	6 Sites	
	MCG	Child Care Resource and Referral Center East County Community Recreation Center Eastern Montgomery Regional Services Center Good Hope Neighborhood Recreation Center Gwendolyn E. Coffield Community Recreation Center Jane E. Lawton Community Recreation Center Longwood Community Recreation Center W Upper County Neighborhood Recreation Center Wheaton Neighborhood Recreation Center	
	MCG Total	9 Sites	
	MNCPPC	Pope Farm Nursery Wheaton Ice Arena Wheaton Regional Park	
	MNCPPC Total 3 Sites		
	WSSC	Gaithersburg Depot Lyttonsville Depot Seneca WWTP –	
	WSSC Total 3 Sites		
	FY14 Total		21 Sites
	Grand Total		119 Sites

FY10 CABLE COMMUNICATIONS PLAN (\$000's) FY10 Approved

	Approved FY08	Actual FY08	Approved FY09	Estimated FY09	Approved'd FY10	%Chg Fr '09Plan	+/- From '09Plan	FY11	FY12	FY13	FY14	FY15
FIBERNET INSTITUTIONAL NETWORK												
1. FiberNet Support (DTS)												
Personnel Costs - FiberNet Operation (DTS)	231	231	281	192	192	-31.7%	(89)	447	600	752	793	860
Operations - 24/7 Operation (DTS)	860	711	860	911	950	10.5%	90	950	826	706	706	700
Capital - Equipment Upgrade (DTS) (from CIP)	91	91	91	129	311	241.8%	220	311	331	351	321	315
SUBTOTAL	1,182	1,033	1,232	1,232	1,453	17.9%	221	1,708	1,757	1,809	1,820	1,875
2. FiberNet Support (DOT)												
Personnel Costs - FiberNet Maintenance (DOT)	51	51	46	46	46	0.0%	0	36	44	52	60	68
Operations - Fiber Maintenance/Repair/Splicing (DOT)	198	198	198	198	198	0.0%	0	215	215	215	215	215
SUBTOTAL	249	249	244	244	244	0.0%	0	251	259	267	275	283
3. CIP-FiberNet												
FiberNet I to FiberNet II Service Migration	200	200	300	300	100	-66.7%	(200)	0	0	0	0	0
Engineer FiberNet I T-1 800 MHz Solution	0	0	0	0	150	100.0%	150	50	0	0	0	0
Fiber Relocation - Roads and Utility Poles	50	100	50	183	263	426.0%	213	250	250	225	225	225
Network Relocation - Bldg Renovation/Relocation	0	0	0	0	66	100.0%	66	0	0	0	0	0
FiberNet - Network Site Expansion	1,485	1,435	1,410	1,277	200	-85.8%	(1,210)	1,310	1,285	1,235	1,235	1,235
SUBTOTAL	1,735	1,735	1,760	1,760	779	-55.7%	(981)	1,610	1,535	1,460	1,460	1,460
SUBTOTAL	3,166	3,017	3,236	3,236	2,475	-23.5%	(761)	3,569	3,551	3,536	3,555	3,617

Under federal law and applicable franchise agreements, the County must provide at least \$1,637,000 in capital and operating support for FiberNet. The County must also spend at least \$2,190,000 on FiberNet and PEG capital equipment purchases.

Public/Private Partnership	
Comcast	124 sites with 28 sites in the pipeline for delivery
	County pays marginal cost to add a site
	FY11-FY16 sites list based on using Comcast Fiber Plant
Atlantech Online. Inc.	WiFi Hotspots Silver Spring & Bethesda
	100 Megabit Internet Connection for Montgomery County Government
	ISP Services for municipalities, DED & AFI (Others pending)
	ISP Services for Montgomery College (pending)
Fibertech	Link to Recovery Point Services (RPS) in Germantown (Disaster Recovery Site)
RCN	Internet Service Provider for MCG -100 Megabit Connection
Google	Expansion of publically available broadband access (in discussion with Google)

Public/Public Partnerships	
networkMaryland (State of Maryland Private Network)	FiberNet becoming carrier for State Offices in Montgomery County (Under discussion)
	State of Maryland Interested in reaching RPS over FiberNet
National Capital Network	Carrier services for emergency management
	Potential for other Extranet services
	Prince Georges County interested in reaching RPS over FiberNet
Maryland Institute for Emergency Medical Services Systems (MIEMSS)	Patient Tracking System Network - connecting local hospitals to MIEMMS network over FiberNet, NCRNet and private Microwave Network into Prince Georges and Fairfax Counties

Possible Projects for use of Economic Stimulus Money
Department of Transportation
4/07/09

2. Advance Transportation Management System (Fiber Optics)

The County's fiber optic based communications system (FiberNet) provides the communications links supporting the Advanced Transportation Management System (ATMS) and Traffic Signal System Modernization (TSSM) projects. Provision of fiber optic cable plant along the US 29 corridor from the current terminus at Briggs Chaney Road to the Howard County Line will further the extension of the ATMS and facilitate the deployment of new traffic signal control features and functionality. The cost estimated for this construction of this 5.5 mile project is \$600,000.

3. Streetlight Installation on MD 124

The purpose of this project is to install approximately 150 pedestrian lights along MD 124 between Air Park Road and Rosewood Manor Lane. The MSHA is currently in the process of reconstructing this stretch of the road, which is suburban with numerous commercial zones. When MSHA's project is finished, the facility will be equipped with designated bike lanes as well as ADA-compliant sidewalks, countdown pedestrian signals, and accessible pedestrian signals. However, the MSHA is not installing lighting as part of their project. At the County's request, MSHA has agreed to install conduits and handboxes for a future pedestrian lighting system, conditioned upon the County installing and energizing the lights within 3 years. With the \$1.1 Million, the County will begin installation of the light poles and fixtures as soon as the state completes their road widening project, which is scheduled to occur in the fall of 2010.

4. Traffic Signals: UPS/BBU Installation (Battery Backups)

As part of the National Capital Region (NCR) the county borders the District of Columbia and shares two river crossings with the state of Virginia. For twenty five years the county has been part of the NCR's transportation network and part of the evacuation plans for the region. (*This was most significant on September 11th, 2001*). We take this responsibility seriously, and have taken steps to improve our ability to effectively manage daily rush hour commuting and evacuation route control. As a result, we have a significant investment in our traffic signal system and have developed extremely powerful and fluid capabilities into the central and field components of our system. However, a major vulnerability is the loss of electrical power to these traffic signals during a storm or during an evacuation. With the deployment of Uninterruptible Power Supply / Battery Backup (UPS/BBU) units at the traffic signal control cabinets, we can mitigate this vulnerability for an extended period of time. This would insure the reliability of traffic signal control; improve safety issues and the flow of traffic through

the county. This would also reduce the drain on limited police resources that would already be dedicated to other activities in such events. The project entails the installation of UPS/BBU at 40 locations at a unit cost of \$15,000 per location, for a total project cost of \$600,000.

5. Traffic Signs (upgrade warning signs from high intensity sheeting to fluorescent micro-prismatic sheeting for safety)

The primary objective of this project is to improve traffic safety by using fluorescent micro-prismatic sign sheeting to upgrade or replace various traffic warning signs throughout Montgomery County. Currently almost all of the warning signs in Montgomery County are fabricated using Type III high intensity sheeting. Micro-prismatic sheeting provides superior performance over Type III sheeting particularly during low light and inclement weather situations where warning signs are often most critical. Replacing these signs will also assure that all of the warning signs along our roadways meet the minimum retro-reflectivity values mandated by FHWA in the most current Manual on Uniform Traffic Control Devices. At an estimated cost of \$100/sign, these economic stimulus monies would provide for the upgrade of approximately 2,370 signs to fluorescent micro-prismatic sheeting signs.

6. Guardrails (end treatment and related safety improvements)

The purpose of this project is to provide the funds necessary to replace deficient and/or substandard guardrail end treatments at various locations along the Federal-Aid network throughout Montgomery County. Guardrail is a proven safety measure that can reduce the severity of run-of-the-road accidents by preventing collision with fixed objects. Substandard end treatments and damaged guardrails or end treatments present a hazard to motorists. Currently, the most common type of guardrail end treatment used throughout the County is the old twist and bury standard. This type of end treatment gravely compromises safety by potentially providing a launching ramp for errant vehicles and does not meet current Maryland State Highway Administration's guardrail standards. The County's Department of Transportation completed a study of deficient and/or substandard end treatments in 2004. The study identified multiple sites along 40 County roadways and prioritized the roadways based on speed limit and traffic volumes. All together, 852 end treatments at 225 sites were documented. Due to insufficient funds, only a limited number of these end treatments deficiencies have been addressed since the study was completed. The County intends to use these economic stimulus monies to upgrade as many of these deficient end treatments to current standards. At an estimated unit cost of \$3,000 per end treatment, it would be possible to upgrade approximately 75 end treatments to the current standard type.

Fiber Optic Build Out
Stimulus Package Wish List

2/12/2009 BCM

	Road Name	Route	Begin	End	Distance (mi.)
New	Columbia Pike	US 29	Briggs Chaney Rd.	Howard County Line	5.5
	Ridge Road	MD 27	Brink Road	MD 108	6.0
	Woodfield Road	MD 124	MD 108	Airpark Road	9.4
	Wootton Parkway		Seven Locks Road	Darnestown Road	3.8
	River Road	MD 190	Goldsboro Road	D.C. Line	2.1
				Subtotal	26.8
Augmented	Veirs Mill Road	MD 586	Reedie Drive (Hub I)	Connecticut Avenue	2.4
	Seven Locks Road		Wootton Parkway	Bradley Boulevard	4.0
	Bradley Blvd	MD 191	Arlington Road	Goldsboro Road	
	Goldsboro Road	MD 614	Bradley Blvd	River Road	2.1
				Subtotal	8.5
Total					35.3

Fiscal Year	Agency	Site Name	Mileage	Estimated Cost
FY11	MCPS	Ashburton ES	0.3	\$34,200
		Broad Acres ES	0.3	\$28,500
		Brown Station ES	0.3	\$28,500
		Burning Tree ES	0.3	\$28,500
		Carderock Springs ES	0.3	\$28,500
		Clarksburg ES	0.3	\$28,500
		Clarksburg ES #8 (Fall, 2009)	0.3	\$28,500
		Clopper Mill ES	0.3	\$28,500
		Cloverly ES	0.3	\$28,500
		Cresthaven ES	0.4	\$41,268
		Darnestown ES	0.3	\$34,200
		Fields Road ES	0.3	\$28,500
		Flower Valley ES	0.4	\$42,294
		Forest Knolls ES	0.3	\$28,500
		Fox Chapel ES	0.4	\$41,838
		Georgian Forest ES	0.3	\$34,200
		Glen Haven ES	0.3	\$28,500
		Glenallan ES	0.3	\$28,500
		Goshen ES	0.3	\$28,500
		Great Seneca Creek ES	0.4	\$46,968
		Jackson Road ES	0.3	\$28,500
		Lucy V Barnsley ES	0.4	\$48,564
		Maryvale ES	0.3	\$28,500
		Mill Creek Towne ES	0.3	\$28,500
		Montgomery Knolls ES	0.3	\$37,164
		New Hampshire Estates ES	0.4	\$40,014
		Pine Crest ES	0.3	\$35,568
		Ritchie Park ES	0.3	\$28,500
		Rock Creek Forest ES	0.3	\$28,500
		Rolling Terrace ES	0.3	\$28,500
		Ronald McNair ES	0.3	\$28,500
		S. Christa McAuliffe	0.3	\$28,500
		Sequoyah ES	0.3	\$28,500
		Somerset ES	0.4	\$41,040
		Summit Hall ES	0.3	\$28,500
		Travilah ES	0.3	\$31,008
		Watkins Mill ES	0.3	\$34,200
		Westbrook ES	0.4	\$47,082
		Whetstone ES	0.4	\$43,776
		Wood Acres ES	0.3	\$33,516
	MCPS Total		11.6	\$1,322,400
FY11 Total			11.6	\$1,322,400

Fiscal Year	Agency	Site Name	Mileage	Estimated Cost
FY12	MCPS	Bannockburn ES	0.8	\$87,894
		Bel Pre ES	0.5	\$57,000
		Bells Mill ES	0.6	\$65,208
		Beverly Farms ES	0.7	\$80,598
		Bradley Hills ES	0.5	\$52,098
		Candlewood ES	0.6	\$70,452
		Cannon Road ES	0.5	\$58,254
		Capt James E Daly ES	0.5	\$60,762
		Cold Spring ES	0.7	\$85,272
		College Gardens ES	0.5	\$56,202
		Dr Sally K Ride ES	0.6	\$69,312
		Dufief ES	0.5	\$56,202
		East Silver Spring ES	0.7	\$82,080
		Farmland ES	0.6	\$71,022
		Flower Hill ES	0.5	\$59,166
		Greencastle ES	0.8	\$90,288
		Harmony Hills ES	0.4	\$49,248
		Highland ES	0.6	\$72,162
		Lakewood ES	0.6	\$69,882
		Oakland Terrace ES	0.5	\$60,648
		Potomac ES	0.5	\$57,000
		Rosemary Hills ES	0.5	\$55,176
		Sligo Creek ES	0.6	\$69,996
		Strathmore ES	0.6	\$66,804
		Thurgood Marshall ES	0.7	\$79,914
		Twinbrook ES	0.5	\$55,404
		Viers Mill ES	0.6	\$62,928
		Wheaton Woods ES	0.6	\$73,188
		Woodlin ES	0.5	\$56,202
	Wyngate ES	0.7	\$85,158	
	MCPS Total		17.7	\$2,015,520
FY12 Total			17.7	\$2,015,520

Fiscal Year	Agency	Site Name	Mileage	Estimated Cost
FY13	MCPS	Arcola ES	0.9	\$98,952
		Belmont ES	2.5	\$289,560
		Brooke Grove ES	0.9	\$108,186
		Burnt Mills ES	0.9	\$104,766
		Cashell ES	1.6	\$182,400
		Diamond ES	1.1	\$120,726
		Dr Charles R Drew ES	1.3	\$142,842
		Fairland ES	0.9	\$102,486
		Fallsmead ES	1.3	\$148,884
		Galway ES	1.3	\$148,200
		Garrett Park ES	0.9	\$97,128
		Greenwood ES	1.1	\$123,918
		Highland View ES	0.9	\$107,730
		Jones Lane ES	0.9	\$107,160
		Kemp Mill ES	1.2	\$137,940
		Kensington Parkwood ES	1.0	\$116,394
		Oak View ES	0.8	\$94,050
		Rock Creek Valley ES	0.9	\$100,434
		Roscoe R Nix ES	0.8	\$94,050
		Spark M Matsunaga ES	1.4	\$159,144
		Stedwick ES	0.9	\$99,180
		Stone Mill ES	0.9	\$102,372
		Stonegate ES	1.3	\$148,542
		Strawberry Knoll ES	1.4	\$155,382
		Washington Grove ES	0.8	\$90,288
		Wayside ES	0.8	\$95,304
Westover ES	1.1	\$127,680		
William T Page ES	1.2	\$133,950		
	MCPS Total		31.0	\$3,537,648
FY13 Total			31.0	\$3,537,648

Fiscal Year	Agency	Site Name	Mileage	Estimated Cost
FY14	HOC	ELIZABETH HOUSE	0.5	\$47,500
		EMORY GROVE VILLAGE	1.0	\$95,000
		PADDINGTON SQUARE APARTME	2.0	\$190,000
		TANGLEWOOD APARTMENTS	2.0	\$190,000
		TOWNE CENTRE PLACE	0.9	\$80,750
		WASHINGTON SQUARE	1.0	\$95,000
	HOC Total		7.4	\$698,250
	MCG	Child Care Resource and Referral C	0.5	\$50,001
		East County Community Recreation	0.3	\$30,000
		Eastern Montgomery Regional Servi	0.9	\$90,000
		Good Hope Neighborhood Recreatio	1.0	\$104,800
		Gwendolyn E. Coffield Community R	0.6	\$56,000
		Jane E. Lawton Community Recreat	0.5	\$53,100
		Longwood Community Recreation C	1.7	\$167,300
		Upper County Neighborhood Recrea	0.5	\$50,000
		Wheaton Neighborhood Recreation	0.1	\$12,000
		MCG Total		6.1
	MNCPPC	Pope Farm Nursery	0.4	\$38,000
		Wheaton Ice Arena	0.4	\$38,000
		Wheaton Regional Park	0.4	\$38,000
	MNCPPC Total		1.2	\$114,000
	WSSC	Gaithersburg Depot	0.4	\$40,000
		Lyttonsville Depot	0.2	\$20,000
		Seneca WWTP -	0.5	\$50,000
	WSSC Total		1.1	\$110,000
	FY14 Total		15.8	\$1,535,451
	Grand Total		76.1	\$8,411,019