

ED/MFP COMMITTEE #2
October 12, 2009

Worksession

MEMORANDUM

October 8, 2009

TO: Education Committee
Management and Fiscal Policy Committee

FROM: Dr. Costis Toregas, Council IT Adviser

SUBJECT: School Best Practices in Broadband and MCPS/MCG FiberNet collaboration

Expected to participate in the discussion:

Sherwin Collette, Chief Technology Officer, MCPS
Steven Emanuel, Chief Information Officer, DTS
Mitsuko R. Herrera, Administrator, Office of Cable and Communications Services, DTS
John Castner, Manager, Network Solutions & Services, Enterprise Telecommunications
Services Division, DTS

Summary of key issues

1. There are no actions required. Both items are informational.
2. The Committees should take note of comparative statistics provided by MCPS regarding different levels of school connectivity throughout Maryland, and ask whether MCPS should more closely match other school districts in this regard and whether the necessary investment would be justified by outcomes (beyond speed of connection).
3. The Committees will see the Executive's recommendations on CIP investments in January 2010, and the FiberNet expansion to elementary schools may be one of the items included. At that time, the material provided here will be available to support the discussion.

Background

On September 21, 2009 the Committees reviewed the FiberNet recommendations of the Interagency Technology Policy and Coordination Committee (ITPCC) and raised two specific questions:

1. Why are the MCPS broadband statistics for connectivity, presented in the analytic packet (and re-presented here on ©1), lower than those of nearby counties? What is Best Practice for this connectivity?
2. How does the MCG CIP program for FiberNet construction relate to the MCPS CIP, and what is the proper role of the ITPCC recommendations in this decision?

MCPS and ITPCC have provided responses to these two questions; these responses, and Council staff comments, are provided.

Broadband to schools - a Maryland perspective

MCPS has provided information regarding school connectivity on ©2. This information is taken from a February 2009 survey of technology leaders and provides bandwidth statistics for Elementary, Middle, and High schools in all Maryland counties. The counties selected for display on ©2 are the ones referenced in the earlier MCPS memo on ©1.

The higher bandwidth numbers mean that applications with more demanding requirements can run more easily in Carroll County than in Montgomery County public schools. These numbers make no claim as to the effective use of the bandwidth, or about actual outcome improvements because of this improved connection to the internet and to other computers.

This outcome orientation can help the Committees address the underlying question of priority setting for making broadband investments. The important question of the value of broadband to elementary schools was answered in the September 21, 2009 worksession in the affirmative.

MCPS/MCG FiberNet collaboration

The last question remaining is the degree to which funds can be allocated to this purpose using the existing process of ITPCC recommendations for the FiberNet project, and it is this question that the ITPCC memo on ©3-4 answers.

The governance structure for FiberNet, both at the policy level and the technology level, appears to work well and, indeed, could serve as a good model for other agency-wide initiatives. It guarantees accountability and, through service agreements, ensures that all agencies receive satisfactory service.

Staff suggests no action at this time. When the MCG CIP is submitted by the Executive, the FiberNet discussions will be addressed using this material for context and background.

Question: Broadband and its impact on classroom achievement and administrative efficiencies.

High-speed broadband access is an essential utility in supporting today's instructional programs across all Montgomery County Public Schools (MCPS). Elementary schools, like their secondary counterparts, are increasingly more dependent on broadband connectivity to create more authentic learning environments by accessing more interactive, multimedia, and digital learning resources and completing online assessments. Educational trends show that elementary school students are completing and increasing the number of online research activities and are accessing web-based content at a rate that is over 200 percent greater than just five years ago.

Over 100 of our elementary schools have insufficient bandwidth to open recommended reading programs that provide individualized pacing and visual and audio interaction to better address individual learning styles and support students' mastery of the curriculum content. In addition to better supporting the convergence of data, voice, and video content in the classroom, broadband connectivity also is important for meeting the administrative needs of elementary schools. Elementary schools are increasing their use of electronic grade books and require more robust infrastructures to both manage these grade books and automatically transmit grades at the end of the marking periods. In addition, an increasing number of professional development and curriculum resources are being made available online, and high-speed connectivity would provide teachers timely and efficient access to these valuable resources directly from their schools.

Overall, high-speed connectivity to the district's elementary schools lags far behind the recommended guidelines by the State Education Technology Directors Association (SETDA) for elementary schools. As a result, our students have less access than students in other Maryland school districts. For example, Baltimore County elementary schools have ten times the bandwidth afforded to elementary schools in our county; Howard County elementary schools have 100 times the bandwidth; Carroll County elementary schools have 1,000 times the bandwidth; and Frederick County elementary schools have 10,000 times more bandwidth.

In response to February 2009 survey, Maryland K-12 technology leaders provided data regarding their internal and external bandwidth. The following is a summary of the bandwidth information provided on MDK12CIO-L@LISTSRV.MSDE.STATE.MD.US.

School System	Bandwidth		
	ES	MS	HS
Montgomery County Public Schools	768 Kbps	100 Mbps	100 Mbps
Howard County Public Schools	100 Mbps	25 Mbps	25 Mbps
Baltimore County Public Schools	10 Mbps	10 Mbps	10 Mbps (20 Mbps for 9 schools)
Frederick County Public Schools	10 Gbps	10 Gbps	10 Gbps
Carroll County Public Schools	1 Gbps	1 Gbps	1 Gbps

FiberNet Governance, Interagency Coordination, and Budget Prioritization
Observations by G. L. Thomas, October 8, 2009

On September 21, 2009, the joint MFP/ED Committee received a briefing from MCPS, DTS, and Cable Office staff on Broadband in Elementary Schools. Elements of the discussion focused on the FiberNet project and some questions were raised regarding the relationships of ITPCC, MCPS, and MCG to the FiberNet project and the processes involved in developing the CIP budget recommendation for the project. The following discussion is intended to attempt to clarify some of the confusion that was evident during the discussion before the Committee, and hopefully not making it worse.

FiberNet should be viewed as an interagency project that is subject to interagency management oversight and strategic coordination within the governance framework and processes established by the Interagency Technology Policy and Coordination Committee Charter for the FiberNet Governance Group¹ that was adopted on November 25, 2002.

The establishment of this governance entity within framework of the ITPCC resulted from implementing recommendations in the Montgomery County FiberNet Strategic Plan, June 11, 2002² which suggested some new roles for ITPCC resulting in creation of a committee structure with decision making authority for the purpose of directing growth of the network in a fair and equitable manner for all participating agencies within Montgomery County. This committee would take recommendations from FiberNet users groups and establish a technical subcommittee for design and technical recommendations.³ The FiberNet project has been successfully governed within this structure since the end of 2002.

ITPCC is responsible for recommending the FiberNet CIP to the Executive and it reflects consensus of the ITPCC agencies. The project recommendations result from requirements declared by each of the agencies through the work of the FiberNet Interagency Technology Advisory Group (ITAG), the entity created under the Charter to address the recommendations in the Strategic Plan mentioned above. The most recent version of this project was transmitted to the Office of Management and Budget on September 4, 2009 as the recommended ITPCC FY11-16 FiberNet CIP implementation plan for the County Executive's consideration as he develops his formal CIP recommendations that will be sent to Council in mid-January 2010.

In response to the discussion about establishing priority of FiberNet within the CIP and who decides these matters, it is important to note that the ITPCC does not establish budget priorities for individual agencies either within the CIP or Operating Budget. The ITPCC recommendation that FiberNet connections for the remaining MCPS elementary schools be completed over the next four years does reflect the high priority of work tasks and desired outcomes for the FiberNet project itself and reflects interagency concurrence. This should not be confused with other CIP project priorities established within the various ITPCC agencies. MCPS, MCG, and other agencies may well have projects they would designate as higher priority. The ITPCC role in this

¹ This document may be viewed on the MCG 'V' drive in the folder labeled 'ITPCC'. Council members and staff have access to this folder. See *ITPCC_MOU_FiberNetGovernanceCharter_11252002.pdf*.

² This document is also available on the MCG 'V' drive in the ITPCC folder, *ITPCC_FiberNetStrategicPlanStudy_06122002.pdf*. It is also sometimes referred to as the "PrimeNet Study".

³ *Montgomery County FiberNet Strategic Plan, June 12, 2002*, section 1.5.3.

case is focused on interagency coordination and preparation of the FiberNet project itself, not ranking of project priorities either within agencies, or across government. The recommended FY11-16 project has full consensus of all ITPCC agencies, and is recognized as very essential infrastructure supporting County government.

FiberNet evolved from Montgomery County Department of Transportation requirements to move from a copper-based transportation management network and Transportation Management Center in the very early 1990's, to a fiber optic based network and the Advanced Traffic Management Center (ATMS) that continues to service the County today⁴. DOT was the lead agency for this effort in the early years. In 1995, the Montgomery County FiberNet Master Plan, March 1995 really defined the scope and direction of the FiberNet network we are familiar with. In FY06, management responsibility for operations and construction of the FiberNet was assigned by the CAO to MCG Department of Information Systems and Technology (DIST), that was subsequently renamed to DTS.

In June 2002, the ITPCC FiberNet Strategic Plan was completed and the requirements for interagency coordination and use of the network updated. ITPCC adopted the FiberNet Strategic Vision in 2003 as recommended by the ITAG workgroup and CIOs. The project has been implemented within this framework since then. An update to this plan is currently underway within the FiberNet ITAG group, is closely coordinated with the participating agencies, and consistent with the recommendations for the FY11-16 CIP project.

Montgomery County Government Department of Technology Services (DTS) is now responsible for the daily operations, maintenance, and coordination of the build out of the network to the agency sites. DTS is the implementer, and manages the network in accordance with approved MOUs and Service Level Agreements between the ITPCC agencies. Direction and guidance is derived from the interagency FiberNet governance structure and is based on a consensus approach. The project plan is formalized in the FiberNet PDF, along with the capital budget requirements⁵. This is endorsed by interagency technical staff at the ITAG level, reviewed and recommended to the ITPCC Principals by the CIO Subcommittee, and approved for implementation by consensus vote of the ITPCC Principals. The County Executive recommends the CIP to Council in mid-January, and final budget action occurs in May when all competing priorities are reconciled in an approved budget.

The decision to centralize FiberNet in MCG was made during the FY96 budget processes by the Executive, CAO, and OMB, and affirmed by Council in the final budget decisions. The MFP Committee, in a March 8, 1999 memorandum affirmed that, "all cables and electronics of the FiberNet backbone should be considered as common system infrastructure. System infrastructure would not be allocated among user agencies." In other words, the County will build the network to agency sites. For these reasons, FiberNet is centrally budgeted in County government, not in MCPS or other agency budgets. We have operated successfully under this model ever since.

⁴ The Montgomery County Department of Transportation, Enhancement to Communications Network Strategic Plan, September 1993, provides information into the county fiber network "pre-history" and early rationale for moving to fiber optic network technology. It is an interesting prelude to the eventual FiberNet Master Plan published in 1995.

⁵ It is noted that the operating budget expenditures required for FiberNet are budgeted in MCG DTS as has been the case since 1996. The revenue source is currently the Cable Fund where revenues for FiberNet construction, operations, and maintenance are received from the Cable Franchise Agreements.