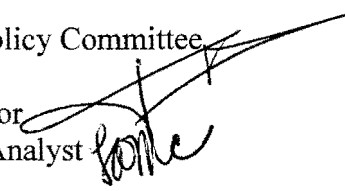


MEMORANDUM

July 16, 2013

TO: Public Safety Committee
Government Operations and Fiscal Policy Committee

FROM: Dr. Costis Toregas, Council IT Advisor
Linda McMillan, Senior Legislative Analyst 

SUBJECT: **Update: Public Safety System Modernization**

Expected for this session:

Steve Lohr, Acting Chief, MC Fire and Rescue Service
Luther Reynolds, Assistant Chief, MC Police Department
Antonio DeVaul, Chief, M-NCPPC Park Police
Darren Popkin, MC Sheriff
David Dise, Chief, Department of General Services
Michael Ferrara, Office of the Chief Administrative Officer
Mike Knuppel, Department of Technology Services

At this session, the joint Committee will receive an update on the main components of the Public Safety System Modernization project: (1) Fire Station Alerting; (2) Computer Aided Dispatch; (3) Radio Infrastructure; (4) Mobile Data Computers; (5) Records Management System. The approved PDF is attached at © 2-3.

(1) Fire Station Alerting System (FSA)

The County issued an RFP for a Fire Station Alerting System on December 19, 2013 and the deadline for submissions to the solicitation was March 14, 2013. The estimated cost of this component of PSSM is \$5.965 million as of March 2012 (before receiving quotes from vendors). The contract award is now anticipated to occur in the 4th quarter of calendar year 2013. The system build-out is projected to take 24 to 48 months. The RFP says that the County currently operates a FSA system that is nearing end-of-life for the hardware. The existing FSA is

interconnected with the Computer Aided Dispatch System (CAD) and operates lights, audio system components, visual displays, and printers at Fire and Rescue Service (FRS) worksites.

The following are selected requirements in the RFP:

- The County is seeking a state-of-the-art; turnkey FSA system that broadcasts alerts and dispatches originating from the CAD to worksites. The FSA system must have multiple means of activation and at least one backup communication path from the CAD to the FSA system.
- The new FSA will be installed at 43 FRS worksites including 38 County stations and 5 Federal stations.
- The County is looking for a system that will support 75 worksites to allow for future expansion.
- The existing FSA system must be preserved while the new system is being installed.
- The FSA system must have the capacity to handle 250,000 calls for service per year; 500 simultaneous events; and simultaneous alerting at 75 worksites.
- New worksites must be able to be added without impacting existing functionality at other worksites.
- The Offeror must include pricing broken down to reflect a level of detail that allows the County to choose an a-la-carte solution and compare proposals for fair and reasonable pricing.

An updated timeline is attached at © 1. Council staff recommends that the joint Committee request a written update once the contract has been executed. The update should provide a summary of system being purchased and the estimated cost.

In addition to procuring the right technology, the standard operating procedures (SOPs) of the department play an important role in visible performance metrics, such as time from receipt of call to dispatch. Executive staff agrees that the SOPs of the dispatcher do in-fact play a large role in response time metrics. MCFRS has modified many SOPs to reduce the impact of legacy technology, and streamline processes within the dispatch and response arena. Those modifications have resulted in reduced response times and overall improved service delivery. MCFRS expects that with the improved technology in the CAD, Radio, and Fire Station Alerting PSSM Projects that we will see further reductions in service delivery times.

(2) Computer Aided Dispatch (CAD)

The County issued a solicitation for a new CAD system on April 18, 2013. Responses to the solicitation are due on July 17, 2013.

Council staff notes the following items from the RFP:

- The County's public safety operations receive about 850,000+ calls per year with emergency calls totaling 550,000+. Cell phones account for 70% of calls and that amount continues to rise.

- County public safety operations have a combination of landline, cell and Voice-over-Internet 911 trunks; alarm lines; non-emergency lines; and administrative lines. Plain old telephone system (POTS) lines are used for back-up emergency.
- The intent of the RFP is to replace the County's existing CAD and acquire a new high availability (99.999%) that has the flexibility and scalability to meet current and future dispatching needs. The new system should meet the County's operational and technical needs strictly through software configuration, without requiring any product customization.
- The County is seeking a vendor that can demonstrate its capabilities in at least three jurisdictions exceeding 750,000 residents and asks that the vendors identify the jurisdictions.

The RFP also requires potential vendors to describe how their system will respond to certain events, handle application system administration, and handle certain application features. Potential vendors must describe how agency system administrators would create or change response plans or resource assignments and response order. Vendors must describe how the system handles balance recommendations for dispatchers that list units assign to the event and compare to the response level and the response plan. Responses must say how the County will add an agency(s) to the system after it is fully operational. Response must also describe the types of reporting tools that are available. There are specific scenarios included in the RFP that require management of multiple units.

In the past, there have been some concerns raised about the current CAD, particularly from Fire and Rescue Services, about recommended response scenarios and the time needed to fully complete a dispatch. Executive staff shares the following regarding the process for selecting the current CAD and the process for crafting the RFP for a new CAD in order to be responsive to these stated concerns:

During PS2000 the County hired a contractor to come in to define our requirements. The contractor also ultimately became the integrator who oversaw the project, so by the time we went to testing there was a major gap between the user expectations and what was actually being delivered.

We addressed those issues this time by heavily engaging the user community in the requirements and RFP development processes. The user community will continue to remain heavily involved throughout the entire project; including the evaluation and selection of the new system and the configuration and the testing of the new system.

One of the reasons Council staff noticed a lot of operational scenarios outline in the RFP is the user community was very heavily involved in the crafting of the RFP. Many of those scenarios provide operational challenges if not handled efficiently by CAD. By calling these specific scenarios out in the RFP, it requires the vendors to explicitly detail how their systems handle such scenarios, which in turn provides the County a more thorough understanding and evaluation of the vendor's product. Vendors will also be required to demonstrate such capabilities during the evaluation phase;

therefore the County will have a good thorough understanding of the vendor's capabilities before we begin our contract phase.

The close of the CAD RFP was recently extended from July 17th to July 31st to give vendors additional time in drafting their proposal responses.

(3) Radio Infrastructure

The largest component of PSSM is replacement of the Public Safety Radio System (excluding radios, but including antennas and support systems). The RFP is currently under development. The previous schedule provided to the joint Committee expected that the RFP would be ready by the end of the first quarter of calendar year 2013. An update timeline is attached at © 1.

Executive staff shares the following about the continuing work on the Radio Infrastructure RFP:

As more detailed information has been included in the Radio Infrastructure RFP, the completed document has been delayed. Enhanced information on the RF coverage map specifications, refining the subscriber specifications (for future contract vehicle purchases), the configuration and specifications for the Dispatch Center (ECC/AECC) were factors leading to the need to expend additional time to create more detailed specifications for the RFP. The review necessary to release the RFP to the Office of Procurement has been impacted by a couple weeks due to the necessity to respond to numerous questions from the other PSSM projects, which require timely responses and amendments to their respective RFPs. Currently the plan is to turn the Radio RFP over to Procurement by the end of July 2013 barring any other unforeseen interruptions. It should be noted that once procured, it will take about 24 to 30 months to build out the system. The current radio system began activation in 2001 and was completed in 2003; and so the old system will be about 15 years old upon activation of the new system.

The PSSM Steering Committee has agreed to the scope and objectives for the radio system. The following are some of the issues and requirements included in the Project Charter.

- The County's goal is to implement a standards-based P-25 compliant radio system. The Charter notes that the County's neighboring jurisdictions are in process of implementing standards-based P-25 compliant systems. The goal is to have interoperability to the greatest extent possible with the State of Maryland, National Capital Region jurisdictions, and agency partners.
- The Charter notes that since 2003, there have been significant changes to the County's landscape, including development in Bethesda and Silver Spring which have impacted the coverage of the current system. The system must be robust and have public safety grade availability. It should have coverage in WMATA tunnels and along the Potomac River.

- The new system must be modular and scalable to provide additional features, expansion and capacity for future growth.
- Current VHF channels will be integrated with the new system and the system will have the ability to expand VHF channels as needed.
- There must be training of all key support, application, and operations staff on the system prior to the rollout and production operations.
- The Acceptance Test Program will include in-building Radio Frequency (RF) coverage performance, operation features and functions, and failover operations and a continuity of operations plan.
- There will be resource sharing with the State of Maryland to provide both cost savings and operational improvements where applicable.

Council staff has asked that Executive staff discuss with the joint Committee how the new system will be tested to make sure, for example, that it is providing the coverage that is required. Will there be a requirement that the system must be testing in the summer when the tree canopy is filled (even if the system is available earlier)? How does the requirement regarding upgradeability address development that is expected to occur in White Flint and the Great Seneca Corridor that will also change the current landscape? What are the requirements for coverage inside school buildings? How will interoperability with neighboring jurisdictions be tested?

Executive staff has provided the following in response to the Council staff questions:

The RFP design and acceptance testing requires the new system to provide Delivered Audio Quality (DAQ) level of 3.4 out of a maximum of 4, at a minimum RF coverage reliability of ninety-five percent (95%). The County land area is divided into “in-building coverage zones” so that both the design and testing must meet minimum “in-building” losses that are assigned to each zone.

Beyond the general in-building coverage requirement, there is a requirement for thirty (30) buildings including schools, offices and facilities that are owned and operated by the County, will be tested as a representative sample of the system performance in each zone. The RFP also specifies that 20 additional buildings must be tested as an information-only gathering. These numbers are initial recommendations which can be increased if so desired. Each floor of a tested building will require no less than 20 tests and there will be no less than 100 tests per building. The RF coverage and DAQ testing will be performed during the summer and be defined in the project deployment schedule.

The design increases the coverage requirements in the zones to accommodate in-building service. The design and performance requirements will increase the current number of radio sites compared to the existing system and be capable of doubling the

existing site count. Thus, if an area is built up later, a new radio site can be deployed to accommodate the new construction. Additionally, the County has enacted an ordinance requiring certain new construction to provide coverage enhancement systems as part of the building design.

The RFP has emphasis on maintaining not only interoperability, but operability of County agencies themselves during the transition and final cut-over. The RFP requires current levels of interoperability be maintained and requires a P25 standard Inter-RF Sub-System Interface (ISSI), which would be interconnected with the State of Maryland.

The Project Charter also discusses the need to maximize the use of the current antenna sites and equipment shelters but also notes that a new system may expand the number of transmitter/receiver sites. This may include additional antennas and bi-directional amplifiers. **Council staff has asked Executive staff to discuss the approach to analyzing responses in terms of antenna sites.** While coverage is the most critical factor, new sites can add costs and if they cannot be co-located with an existing structure such as a water tower or public building, can create a visual impact on neighboring communities.

Executive staff has provided the following in response to the Council staff questions:

The proposal requests vendors to recommend potential antenna needs in the County. Additionally, new construction over 25,000 square feet requires the installation of BDAs as part of the building per Montgomery County permitting codes. Working with DGS, numerous candidate antenna sites (approximately 40 sites) were identified, which are owned predominately by the State of Maryland, Montgomery County or Maryland National Capital Parks. Building on State of Maryland sites affords an opportunity to cooperate with the State for communication infrastructure needs benefiting both entities. As part of a vendor's proposal, there is a review of vendor recommended site locations to utilize sites with minimal impact to the neighboring communities.

Some informational elements:

Montgomery County's current system has 11 sites/500 sq miles (45 sq-mile/site) and owns 40+ BDAs installed in County buildings and tunnels, along with the ordinance there are 60+ BDAs in private buildings.

Baltimore City, 90 square miles, 9 sites (10 sq-mile/site), own 4 BDAs to cover 3 buildings and one tunnel that is outside of the City limits.

Baltimore County, 600 square miles, 18 sites (33 sq-mile/site).

(4) Mobile Data Computers (MDCs)

The PSSM project includes funding for scheduled replacement of MDCs. The County is in the second year of a three year phased rollout. During previous discussions, the joint Committee asked that replacement of MDCs for M-NCPPC Park Police be integrated into

the PSSM schedule. Executive staff reports that they are working closely with M-NCPPC to determine how to incorporate their MDC needs into PSSM.

(5) Law Enforcement Records Management System

The timeline indicates that the schedule for the Records Management System has yet to be determined. Council staff understands that respondents to the CAD RFP are being asked about options for Records Management that may be considered as this component of the project is developed.

PSSM Program – High Level Procurement Timeline "RFP to Contract Award"

Project	RFP Ready to Review	QSC	Negotiations Planned Time (in months)	Contract Award	System Build Out (after contract award)
Fire Station Alerting	Sept 2012 <i>Completed</i>	2Q 2013 <i>Completed</i>	4	4Q 2013	24-48 months
CAD	Feb 2013 <i>Completed</i>	3Q 2013	4 - 6	2Q 2014	18-24 months
Radio Infrastructure	3Q 2013	1Q 2014	4	3Q 2014	24-30 months
LE-RMS				TBD	12-18 months

Quarters are calendar quarters, not Fiscal Quarters

Public Safety System Modernization (P340901)

Category
Sub Category
Administering Agency
Planning Area

General Government
County Offices and Other Improvements
County Executive (AAGE03)
Countywide

Date Last Modified
Required Adequate Public Facility
Relocation Impact
Status

4/6/13
No
None
Ongoing

Total	Thru FY12	Rem FY12	Total 6 Years	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	Beyond 6 Yrs
-------	-----------	----------	---------------	-------	-------	-------	-------	-------	-------	--------------

EXPENDITURE SCHEDULE (\$000s)

Planning, Design and Supervision	5,839	22	764	5,053	1,666	1,866	1,321	200	0	0	0
Land	0	0	0	0	0	0	0	0	0	0	0
Site Improvements and Utilities	0	0	0	0	0	0	0	0	0	0	0
Construction	71,431	0	0	71,431	13,736	34,284	18,021	4,890	500	0	0
Other	30,813	24,313	0	6,500	2,000	2,500	2,000	0	0	0	0
Total	108,083	24,335	764	82,984	17,402	38,650	21,342	5,090	500	0	0

FUNDING SCHEDULE (\$000s)

Current Revenue: General	5,053	0	0	5,053	1,666	1,866	1,321	200	0	0	0
Federal Aid	4,065	2,947	96	1,022	0	1,022	0	0	0	0	0
G.O. Bonds	57,409	488	512	56,409	13,736	25,262	13,021	4,390	0	0	0
Short-Term Financing	41,556	20,900	156	20,500	2,000	10,500	7,000	500	500	0	0
Total	108,083	24,335	764	82,984	17,402	38,650	21,342	5,090	500	0	0

OPERATING BUDGET IMPACT (\$000s)

Maintenance				4,541	80	110	870	870	870	1,741
Program-Staff				1,200	0	0	240	320	320	320
Program-Other				2,960	20	20	50	1,010	1,010	850
Net Impact				8,701	100	130	1,160	2,200	2,200	2,911

APPROPRIATION AND EXPENDITURE DATA (000s)

Appropriation Request	FY 14	3,866
Supplemental Appropriation Request		0
Transfer		0
Cumulative Appropriation		92,696
Expenditure / Encumbrances		24,335
Unencumbered Balance		68,361

Date First Appropriation	FY 09	
First Cost Estimate		
Current Scope	FY 13	108,083
Last FY's Cost Estimate		108,083

Description

This program will provide for phased upgrades and modernization of computer aided dispatch (CAD), law enforcement records management system (LE RMS), and voice radio systems used primarily by the County's public safety first responder agencies including Police, Fire and Rescue, Sheriff, Corrections and Rehabilitation, and Emergency Management and Homeland Security. The modernization will include replacement of the current CAD/LE RMS system, replacement of public safety mobile and portable radios, upgrade of non-public safety mobile and portable radios, and replacement of core voice radio communications infrastructure. The previously approved Fire Station Alerting System Upgrades Project #451000 was transferred to this project in order to coordinate the upgrades with the new CAD system. The alerting system upgrades will modernize the fire station alerting systems at 43 existing work sites, maintaining the ability to notify fire and rescue stations of emergencies. The alerting system, including audible and data signals, is essential for the notification of an emergency and the dispatch of appropriate response units from the County. As voice, data, and video are beginning to converge to a single platform, this project will provide a pathway to a modern public safety support infrastructure that will enable the County to leverage technology advances and provide efficient and reliable systems for first responders. This project will follow the methodologies and strategies presented in the Public Safety Systems Modernization (PSSM) plan completed in July 2009.

Cost Change

Cost increases are mainly due to the planned addition of the core radio infrastructure replacement project.

Justification

Public Safety System Modernization (P340901)

The public safety systems require modernization. The CAD system is reaching the end of useful life and does not meet the County's current operational requirements, impacting the response time of first responders to 9-1-1 calls. The CAD Roadmap Study, completed in March 2009, recommended replacement of the system to address existing shortcomings and prepare for the next generation 9-1-1 systems. The manufacturer's support for the voice radio system has begun to be phased out as of December 31, 2009. Beyond that date, the manufacturer will only continue to provide system support on an as available basis, but will not guarantee the availability of parts or technical resources. The CAD modernization has initiated a detailed planning phase that included the use of industry experts to assist with business process analysis and to develop detailed business and technical requirements for the new CAD system. This process will allow the County to incorporate lessons learned and best practices from other jurisdictions. As more of the County's regional partners migrate to newer voice technologies, it will affect interoperable voice communications. To ensure that the County maintains reliable and effective public safety (voice radio) communications for the operations of its first responders and to sustain communications interoperability for seamless mutual aid among its regional partners, the County needs to implement a project to upgrade and modernize its portable and mobile radio units and subsequently the radio voice communications infrastructure. Acceleration of the public safety radio purchases was initiated to take advantage of a Partial Payment in Lieu of Re-Banding offer from Sprint/Nextel toward the financing of new, upgraded, P-25 compliant public safety radios and to meet the Federal Communications Commission (FCC) mandated 800 MHz frequency rebanding requirements for nationwide public safety radio frequency interoperability. Now, the installation of the new core radio communication infrastructure is needed. The fire station alerting system upgrades were identified as a need under Section 5 of the MCFRS Master Plan (adopted by the County Council in October 2005) and detailed in the Station Alerting and Public Address (SA/PA) System for Fire/Rescue Stations, Rev 1, 2006. This project allows for the continuous and seamless functioning of the alerting systems within each fire station. A preliminary survey by DTS of existing conditions at all stations revealed system-wide concerns, including inadequate spare parts inventory and lack of available maintenance support for alerting systems.

Other

\$20.936 million was appropriated in FY11 to purchase P-25 compliant radios that allowed the County to complete immediate re-banding within the 800 MHz frequency as required by the FCC. The radio replacement program includes the M-NCPPC Montgomery County Park Police. New radio infrastructure will be planned to open up the environment. The future purchase of public safety radios (other than to replace broken equipment) must be able to be supported by a P25 Phase-2 compliant infrastructure. The use of State of Maryland infrastructure will be aggressively pursued in order to minimize costs to Montgomery County. The CAD procurement request must reflect the County's interest in maintaining the station altering functionality at the current level or better through the CAD system. The RFP for CAD replacement will include replacement of the following systems: CAD, mapping, and the existing Law Enforcement Records Management and Field Reporting systems. Coordination with participating department/agencies and regional partners will continue throughout the project.

Fiscal Note

Funding in FY09 included Urban Area Security Initiative (UASI) grant funding of \$2.055 million and Fire Act grant funding of \$988,000. Funds shall not be used to purchase or implement a new Computer-Aided Dispatch (CAD) system or radio infrastructure until the County Executive provides the County Council with a detailed proposal and accurate cost estimates for the total project scope.

Coordination

PSSM Executive Steering Group, Executive Program Director, PSSM Program Director, Department of Technology Services, Department of Police, Montgomery County Fire and Rescue Service, Sheriff's Office, Department of Correction and Rehabilitation, Office of Emergency Management and Homeland Security, Department of Transportation, Department of Liquor Control, Montgomery County Public Schools (MCPS), Maryland-National Park and Planning Commission (M-NCPPC) Park Police, Washington Metropolitan Area Transit Authority (WMATA)