

PS/GO COMMITTEE # 1  
June 18, 2019

**Briefing**

**MEMORANDUM**

June 14, 2019

TO: Public Safety Committee  
Government Operations and Fiscal Policy Committee

FROM: Susan J. Farag, Legislative Analyst *SJF*  
Dr. Costis Torgas, IT Advisor *CT*

SUBJECT: Briefing: **Public Safety Communication Towers**

PURPOSE: To be briefed on several recent failures in the public safety radio system, the current manner that these failures are handled, as well as the status of the future system under development and current options being considered by the Executive.

Those expected to attend this worksession include:

Sonny Segal, Chief Information Officer, Department of Technology Services (DTS)  
Chief Scott Goldstein, Montgomery County Fire and Rescue Service (MCFRS)  
Dieter Klinger, Chief Operating Officer, DTS  
Assistant Chief Dinesh Patil, Montgomery County Police Department (MCPD)  
Michael Knuppel, PSSM Program Director, DTS

**Issue**

The current public safety radio tower system that provides communication among the 911 call center (Public Safety Communication Center), police, fire, ambulances, and other users, is past its end-of-life date (2009) and has recently experienced significant system disruptions. These disruptions are being handled as they occur, but system uptime cannot be guaranteed in a reliable manner.

A replacement system was approved by the Council and funds appropriated for its construction as part of the CIP project called "Public Safety System Modernization". Its full deployment has been delayed several times. It was most recently delayed from a projected fall 2020 cutover date to the fall of 2021 or 2022. This delay is due to seeking alternate sites for two previously-approved tower sites – one at the corner of Georgia Avenue and the ICC, and one in Bretton Woods.

This delay expands the time the County and other users must rely on an aging, unsupported system, thereby increasing the likelihood of significant system disruptions or even failures. Such system disruptions potentially jeopardize both the delivery of public safety services to the community, and the safety of public safety providers. It may also increase project costs.

**Please note that Council staff received the Executive's responses to written questions late, and there has not been enough time to conduct any analysis in this staff report on the information provided.**

## **Background**

There are currently more than 7,200 users of the public safety radio system. It transmits all radio communications among the Public Safety Communications Center (the 911 call center), firefighters, police, the Sheriff's Office, and the Department of Correction and Rehabilitation. It also serves the following users:

- Department of Transportation;
- Department of General Services;
- Office of Emergency Management and Homeland Security;
- Department of Health and Human Services;
- Ride-On buses;
- Department of Permitting Services;
- Department of Recreation;
- Park Police;
- City of Takoma Park Police;
- Rockville City Police;
- Gaithersburg City Police;
- Chevy Chase Village Police;
- Maryland State Police;
- Maryland Transportation Authority Police;
- NIST Police (includes Fire Department and Nuclear Reactor Safety users); and
- Maryland State Highway Administration.

Partner agencies also use the radio system, including Frederick, Howard, Prince George's, and Fairfax counties, the District of Columbia, the National Institutes of Health, and WMATA.

The system uses the Motorola SmartZone 3.0 radio communications system, which was purchased in 1999 and made operational in July 2003. It is comprised of 11 radio sites strategically placed around the County and connected by a legacy FiberNet 1 network using Asynchronous Transfer Mode (ATM) backhaul equipment and design. The towers transmit directly to user radios by radio waves in the 800 MHz range.

The current radio tower system is now 16 years old and is no longer supported by the vendor. Replacement parts are no longer manufactured, and there is limited expertise in the region to repair certain components of the system. There has been some unofficial internal concern among user groups about whether the current system, due to its age and lack of vendor support, may experience a catastrophic failure at any time.

## **Recent Current Radio System Failures**

The current system experienced a significant system failure over Mother's Day Weekend in May. At approximately 11:30pm on May 10, the system began to experience a disruption that dropped multiple channels. The current radio system is a trunked radio system where one control channel automatically assigns other channels to talk groups of users. This permits a large number of talk groups to use the radio system at once, without causing interference by different users. Typically, the County system has 16 channels available for talk groups, and the disruption caused the number of available channels to fall to three or four at a time. It was not always the same channels that dropped, as they intermittently went out of service and returned to service. When working properly, the system usually experiences one or two "busy" signals a month lasting maybe a few seconds each; during the May 10-11 system disruption, the users experienced at least 600 busy signals in one day, with some lasting over two minutes.

During the Mother's Day weekend disruption, Public Safety officials took emergency action to prioritize certain types of talk groups in an effort to reduce communication traffic. Public Safety shifted to cell phones and MDC messaging for routine communications. Executive staff identified a *timing* issue in FiberNet I transmissions as the possible problem and changed the timing regulation from an outside source to an internal source. This action stabilized the system, although it did experience another disruption around 5:30pm on May 11. Media reports indicate that the County did not experience any significant police or fire incidents during that time. If it had, it would have been extremely difficult to appropriately respond and manage a large incident.

The radio system experienced similar timing issues on May 22 and May 28. DTS issued an emergency procurement and installed a GPS-based timing source to regulate the system internally, without relying on external methods to provide network timing. The approximate cost of this timing source is \$27,000. DTS is exploring the option of adding two or three additional timing sources to be placed strategically at different hubs in FiberNet I. It expects site identification, procurement, and installation to take about 60 days. This solution will provide appropriate timing as well as redundancy in the case of another equipment failure in the current system.

Executive Staff also advises that the County is investigating the possibility of replacing the ATM network with new network technologies prior to the "go live" of the new radio system. ***The Committee should understand exactly what type of new network technologies are available, how replacement will stabilize the timing issue, additional costs, and what internal expertise or contracted labor are required.***

**Capital Project:** The upgrade of the current radio system infrastructure is one sub-project of four in the Public Safety System Modernization capital project (PDF attached at ©9-11). This sub-project provides for the replacement of the Public Safety Radio System, excluding radios, but including antennas and support systems. Planning for this sub-project began in FY09, anticipating the end of the system's useful life in 2009. The original project completion date was expected to be in FY13; however, full project implementation has been delayed several times over the years by procurement delays, site selection, and required permitting. A map of the proposed 22-site radio system is included at ©12.

The PSSM was last reviewed by this Joint Committee on February 26, 2018. At that time, the Committee was told that the sub-project had successfully completed Factory Acceptance Testing, where Motorola demonstrated the operability of the County's purchased system. Work was continuing on the 22 new and existing antenna sites in the County, as well as the two dispatch sites. Phase 1 of this project included the Core Astro 25 system, new dispatch consoles throughout the County, including the Public Safety Communications Center and the Alternate Emergency Communications Center. The Executive was also conducting community outreach sessions in areas that would be impacted by either new towers or significant changes in existing sites. Since the last joint meeting the project has successfully completed the Phase I cutover, moving the dispatch centers onto the new radio console system and beginning use of the new Astro 25 Core. *The last voice radio system cutover date for the 22-site radio infrastructure provided to Council staff was the last quarter of calendar 2020.*

The new system uses different technology than the old system. Instead of using FiberNet 1 for connectivity, it will use microwave-based connectivity between all 22 towers. The use of microwave technology requires towers to be at a height allowing line-of-sight connectivity to adjacent towers so that each can transmit and receive from nearby towers in the County. In some cases this means that towers are taller than would be required if only radio coverage were considered.

## **Recent Changes to the Projected Completion Date**

There have been several delays to the sub-project over the years, primarily involving vendor selection, antenna site selection, and permitting requirements. These have resulted in extending the use of the current system well past the end-of-support date by the vendor.

In 2019, two additional changes have again delayed the sub-project. Due to community concerns, two proposed "greenfield" towers (new construction) have been delayed. One proposed tower was to be located at the ICC and Georgia Avenue intersection in Olney. This was to be a joint State/County site, with the State building the site and the County co-locating on it. A community outreach meeting had originally been scheduled by State government; however, it was cancelled due to unforeseen inclement weather.

Many individuals in the Olney community had significant concerns about the proposed tower, that were expressed at a re-scheduled community outreach forum in March 2019. According to several attendees, much of those in attendance were opposed to having a tower built at this location, with their concerns being focused on the aesthetic impact on the approach into Olney; based on this feedback the County Executive decided to seek an alternate site. The State also agreed to investigate other tower locations.

Similarly, a community advocate for the Agricultural Reserve expressed concern about the placement of another greenfield tower on Bretton Woods in Darnestown. It is Council staff's understanding that only one person complained about this site. The County Executive has agreed to explore alternate locations for this tower as well.

The continued study of these two tower locations is expected to delay the overall project by at least one year, if not two, in providing public safety-grade communication coverage in the County. Site selection can be a complex and lengthy process, requiring not only the need to determine if the geographical location is effective for broadcast purposes (whether a tower at a new location will be able to provide the contracted coverage saturation and interoperability with surrounding towers), but whether any additional physical infrastructure such as access roads would need to be built. There is additional time required for permit applications and approvals. Once these steps have been completed, and a tower is constructed, full system testing must be conducted with full foliage (generally during the summer months) to ensure radio signals penetrate tree cover.

### **Concerns about assessing different antenna sites**

**ICC/Georgia Avenue Site:** While the State and the County are both looking for an alternate site, the Montgomery County Career Fire Fighters (IAFF Local 1664) wrote to the Governor expressing concern over the State's and County's decision to not build the new tower at the ICC and Georgia Avenue interchange (attached at ©17-19). According to the union, the ICC/Georgia Avenue site has "no regulatory barriers to construction, has easy access to utilities and the State's fiber optic network. The alternative site advocated for by the community, known as Site 7, is....unbuildable." The union identifies several problems with the new site, including the fact it is part of a forest conservation plan and adjacent to a Nationally Registered Historical Site. Further, instead of building a 250-foot tower at the ICC/Georgia Avenue location, the new Site 7 would require a 350-foot tower, and the backfill of debris in this area may require unusually deep caissons for the tower foundation, leading to additional construction costs. The Executive also agrees "that Site 7 has potential issues with abutting historical property and the State is determining land ownership in order to proceed with obtaining land usage approval."

The union letter also mentions that the delay of this particular tower will impact the State's Maryland First Responder Radio System Team (MD FiRST) project. This project is a Statewide trunked land mobile radio system to be used by public safety providers. It will provide communication across the entire State. According to the State's website, when the system is completed, a public safety official located at Deep Creek Lake can talk with their counterparts in Ocean City. It will also provide for air to ground channels for public safety flight operations.<sup>1</sup> MD FiRST is presently scheduled to be completed in Montgomery County ahead of the County's system, so it could be a useable alternative to the County if the County's system suffered a catastrophic failure. MD FiRST does not provide the coverage or capacity of the County's system, but in the absence of any other functional County-wide communications system it could be vital to providing County public safety service. Delaying MD FiRST therefore also delays its availability to the County as an alternative in a crisis.

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<sup>1</sup> Description of Maryland First Responder Radio System Team (Md FiRST)  
<https://doit.maryland.gov/support/Pages/Maryland-FiRST.aspx>

***The Joint Committee should understand what the status is of Site 7, whether there are other identified sites, and how new site selection will escalate project costs.***

**Bretton Woods:** The proposed tower at this location has also been delayed in an effort to find an alternate site. The site, located near the Bretton Woods Golf Course, was originally approved by the County Executive in December 2018. Due to a constituent concern about the appearance of a large tower at an entrance to the Agricultural Reserve, the County Executive agreed to seek an alternate site for this tower location as well. ***The Joint Committee should understand the status of alternate site selection and how this process will escalate project costs. In regard to both new tower sites, the Joint Committee should also understand how the Executive will ensure that the new sites will provide adequate coverage, since coverage can be impacted by topography and distance among towers.***

## **Councilmember Letter to County Executive Elrich**

When Councilmembers Riemer and Katz became aware of the new delays, they wrote a letter on April 3, 2019 to the County Executive (attached on ©13-14), outlining their own concerns about the delays and attendant costs, and urging the Executive to move forward with the original timeline. Councilmembers Riemer and Katz requested a written response addressing these concerns. To date, the Executive has not responded.

Other entities have expressed critical concern. Please see the Leisure World letter (©15-16) to the County Executive and the IAFF letter to the Governor (©17-19).

## **Alternate 20-Site Plan**

The County Executive has advised that there is a need to consider temporarily activating the Motorola Astro 25 radio system with just 20 of the contracted 22 transmission sites, until all site issues are resolved.

The Executive has issued a \$111,720 firm fixed price quote to develop a project plan for implementing an interim 20-site system. This project plan will:

- Identify risks associated with installing 20 sites;
- Identify what coverage level the County will have with a 20-site design;
- Deliver specific coverage information relative to the various site configurations, including maps using the required four zone in-building dB loss zones;
- Identify backhaul network design changes and requirements; and
- Identify schedule impacts for the interim 20-site design and completing the originally-contracted 95% in-building coverage design.
- The County expects to receive the results by July.

The RFP system requirements are 95% of the County with 95% confidence (or 95/95 coverage). One of the drawbacks of the current radio system is the inability to provide coverage in some large buildings. The number of buildings in the County and the building density have increased significantly in the past 20 years. The new system is required to provide 95/95 coverage based on the predominant types of construction in various areas of the County to meet the requirements in the service areas defined by the County's RFP.

**Coverage with the alternate 20 site solution:** While the original 22-site system has been designed to provide 95/95 coverage, the Executive advises that the 95/95 coverage "may or may not be achieved by adding the two sites back into a 20-site system, depending on their location." The 20-site alternative will have to be tested to ensure adequate coverage for areas of high population density, areas with challenging construction, and areas that require critical use communications, such as hospitals or schools. It is unknown at this point if the original two delayed towers, if placed in locations other than those originally proposed, will be sufficient to achieve the 95/95 coverage, or whether additional sites will be required. The Executive advises that:

"it is possible that it could require more than two sites to replace the two originally proposed sites. As alternative sites move away from the locations originally proposed, tower height grows. As tower height grows there is more community concern and potential resistance. In order to address the community concerns lower heights may be required and this could result in less coverage or more than one site being required to replace one site."

***The Joint Committee should understand what coverage reduction will occur with the interim 20-site plan, and where. What is the likelihood coverage will degrade in large buildings like schools? The Executive should also clarify that it may possibly settle for less than 95/95 coverage due to community concerns on tower height. If the Executive instead decides to go with three or even four additional sites, this will in effect push Olney's and Darnestown's aesthetic concerns to other neighborhoods.***

## **Contingency Plans in the Event of Current System Failure**

According to the Executive, police and fire have long had in place emergency/contingency plans for communications to ensure the continued delivery of public safety service, and in particular, the dispatch of public safety requests for service, should a short-term communication failure occur.

The radio system has the ability to operate in three modes, including full trunking, site trunking, and failsoft. All three of these modes are dependent on the FiberNet 1 being functional. Council staff notes that FiberNet 1 is the cause of the most recent failures. Public Safety personnel can also continue to leverage the use of other conventional radio channels that exist in the County.

The Executive branch is developing contingency plans for long-term outages, including outages due to network failure. These include cellular and push-to-talk options. Public safety agencies have been asked to have these plans prepared by September, and exercises are planned later this year.

**Potential Drawbacks of these Alternative Communications Methods:** The Executive states that all alternatives have impacts on capacity, coverage, intra-operability and inter-operability.

Conventional channel alternatives limit capacity, intra-operability, and inter-operability, and in some cases limited coverage. Not all system users have radios capable of operating on all conventional bands. The number of channels is very limited. And none of the County's inter-operability partners has the ability to operate on most of these channels.

Commercial push-to-talk (PTT) solutions can provide capacity, but they lack the coverage the current system. PTT uses the same infrastructure that cell phones use, so where cell phones don't work, neither does PTT. Not all partners will have access to PTT services.

The County's mutual aid partners all interoperate with the County using their radios that are programmed for the current system. If the current system is not available, then the County cannot interoperate with them. This is a significant problem for Fire and EMS responses, particularly along the Prince George's County border, where units cross the border several times a day.

Contingency plans for short-term outages are included in the public safety agencies' operating budgets. Possible costs for longer-term outages will be developed as part of the contingency planning process.

<b>This packet contains:</b>	<b>©</b>
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PSSM PDF	9-11
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Katz and Riemer Letter to CE Elrich	13-14
Leisure World Letter to CE	15-16
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Bethesda Beat Article (Mother's Day System Disruption)	25-30
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## Responses for 6-18-19 PS/GO Session on PS Radio Infrastructure

### 1) Updated information on overall project timelines and status:

#### a. Why were the sites at the ICC/Georgia Ave. and Bretton Woods changed?

A tower site was originally considered to be located at Georgia Ave and the ICC. The first community meeting about a tower at that location was held on March 05, 2019 at Cashell Elementary School. The presentation included images of what a tower at that location would look like and a matrix showing the challenges with alternative sites. State Senator Ben Kramer, the Greater Olney Civic Association (GOCA), various homeowner associations and approximately 200 individuals vehemently objected to the Georgia Ave/ICC site. The site was inappropriate because of the close proximity to the Brooke Manor neighborhood and because it would be the gateway feature to Olney. The community frankly did not believe that the project team seriously looked at alternative site, particularly the GOCA recommended alternatives. In response to that criticism, since the March meeting, the joint project teams have conducted numerous outreach meetings with the various parties.

Similar to the situation at Georgia Ave/ICC, the original site proposed for Bretton Woods golf course was considered inappropriately placed because it would be the gateway feature at the entrance of our renowned Agricultural Reserve and because the community did not believe their suggested alternatives, produced on short notice, were seriously considered.

#### b. What new sites are currently under consideration?

ICC – The County and State are jointly evaluating a site located three-quarters of a mile east of Georgia Avenue along the ICC near a storm water management pond (currently referred to as “Site #7”) to determine if this site is feasible for usage for the placement of a radio communications tower and its estimated specifications and cost. We are currently working with the State to research the ownership and historic preservation restrictions, if any, on this property.

Bretton Woods – The County has been working with the community and M-NCPPC to identify potential sites. A potentially viable property has been identified which must be purchased and rezoned for siting a radio communications tower. Additionally, an alternate location on the Bretton Woods golf course property itself has been identified and agreed to by the property owner. Motorola has started their initial evaluation of that site.

#### c. What are the challenges associated with those sites?

A common challenge is the time it takes to get all the State, Federal and community approvals/concurrences in addition to the time, cost and effort needed to identify and acquire/lease the sites for a timely implementation of the new public safety radio infrastructure.

Bretton Woods – Alternate properties around the area are costly and would need proper zoning once the land purchases can be funded.

The ICC/Storm Water Management Pond (Site #7) has potential issues with abutting historical property and the State is determining land ownership in order to proceed with obtaining land usage approval.

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- d. What does the selection and approval process entail (permits, other approvals, additional construction including roads, etc.)

Abbreviations:

FAA: Federal Aviation Administration

FCC: Federal Communications Commission

NEPA: National Environmental Policy Act

SHPO: State Historical Preservation Office (Maryland Historical Trust)

The following pre-construction activities must be undertaken:

- Radio Frequency (RF) Coverage Analysis
- Microwave Paper Path Study
- Site Survey
- Microwave Physical Path Survey
- Balloon Test and Photo Simulations
- Site Concept Package (Lease Exhibit)
- Community Meeting(s)
- Preliminary check for FAA compliance
- Preliminary check for NEPA and FCC compliance
- Zoning Drawings
- Forest Conservation Engineering Filing
- Storm Water Management Concept Filing
- Storm Water Management Plan Filing
- Construction drawings for shelter, shelter foundation, rack layout
- Construction Drawings for site layout, tower, tower foundation
- NEPA Phase I Analysis: Certified Phase I Environmental Assessment, Archeological Review, SHPO Review, Native American Tribes' Review, Cultural Resource Report
- FAA Filing
- Geotechnical explorations for self-supported tower, involves a boring over 40' deep
- Microwave Path Change: Prior Coordination Notice and FCC License Preparation and Filing

Finally, the following construction related activities are undertaken:

- Access road
- Grading site
- Trenching
- Electrical service
- Grounding
- Shelter foundation
- Tower foundation

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- Shelter placement (pre-fab building), uses a crane
  - Tower construction, uses a crane
- e. How long will it take to choose new sites, then get permits/approval, and then begin construction?

The length of time to select each new site varies with the issue(s) encountered with the site.

Our experience with sites, with few issues, is that the pre-construction engineering processes take approximately 9 months to complete.

Construction is expected to take an average of approximately 3 months after all approvals.

- f. What stage of approval/construction are the 20 other towers?

Non-Greenfield (including existing) sites status is as follows:

- Construction complete, radio equipment installed: 1 site
- Construction complete, radio equipment to be installed in June 2019: 1 site
- Construction in progress: 4 sites
- Site preparation in progress: 3 sites
- Permits received, ready for site preparation: 2 sites
- Pre-construction engineering work in progress: 5 sites

Greenfield (new) tower sites status is as follows:

- Construction in progress: 1 site (tower is built, shelter is installed)
- Pre-construction engineering work in progress: 3 sites
- Sites not identified: 2 sites

RF antennas installations scheduled for June-July 2019 at sites where construction is complete: tentatively 6 sites

Microwave antennas will be installed when construction for the majority of sites is complete.

- g. The last “go-live” date I had heard was for the Fall of 2020, but that required the ICC and Bretton Woods towers. What is the new target “go live” date?

We have informed Motorola that the target is to “go live” with an interim 20-site solution by December 2020 with two additional sites being added soon thereafter. Based on the progress to date, Motorola has estimated that this target will be achieved.

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### 2) An overview of the current system:

- a. Please describe the current 11 tower system, what technology it uses, and how the FiberNet links all towers

Montgomery County currently uses the Motorola SmartZone 3.0 radio communications system, purchased in December 1999 and made operational on July 20, 2003.

The current system includes 11 radio transmitter/receiver sites, the maximum number of remote radio sites allowed on a SmartZone 3.0 system. With the continued building in “concrete canyon” areas (downtown Bethesda and Silver Spring), the current number and location of the transmitter/receiver sites are not providing adequate coverage. Upgrading to new P25 architecture will allow expansion of this eleven-site maximum, with the resultant increase in sites providing increased in-building coverage as requested by our first responders.

The 11 sites in the current Public Safety Radio System (PSRS) are supported by a legacy FiberNet network (“FiberNet I”) using the Asynchronous Transfer Mode (ATM) backhaul equipment and design.

Of the eleven sites, eight are individually connected to a FiberNet hub over an Optical Carrier-3 (OC3) link. The three-remaining towers sit on the “up-county crescent” microwave with its ends at the Quince Orchard and Germantown towers.

- b. What support/materials/parts does the vendor currently provide?

Motorola no longer supports key infrastructure components. The system support ceased as of December 31, 2009. As a result, guaranteed repair support on key infrastructure components is no longer available and has become “best effort”. This has resulted in slower mean time to repair and the use of small non-local electronic repair shops to repair damaged electronic equipment.

A parts inventory is maintained by the County for the ATM network and network support is requested on an as needed basis from General Data Comm (GDC). A contracted ATM technical resource is currently utilized to assist with supporting and troubleshooting the ATM network.

- c. What support or parts are available from other sources?

Motorola SmartZone 3.0 radio communications system parts are no longer commercially available. The County has acquired spare parts from other jurisdictions or from third party sources.

ATM network parts are available from GDC and third parties.

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- 3) Please provide an overview of the system degradation over the 5/11/19 weekend, including:**
- a. Impact of the degradation;

Between Friday, May 10 at 11:23 PM and Saturday, May 11 at 5:30 PM, the Public Safety Radio System was impacted by periods of degraded capacity. This could be compared to a drop of water pressure during a water main break. At various times during this event, radio system channels were dropping leading to a reduced number of talk paths. System users experienced a very high rate of system busies. All calls for public safety service continued to be dispatched with no effect on response times.

On a normal day, there are 16 channels available in the radio system, meaning that 16 people can talk at one time within the County. During the time of degradation, the number of channels dropped at times as low as three or four channels or talk paths being available, so only three or four people could talk at once. While the Public Safety users have priority on the radio system, there are also other users on the radio system (e.g., DGS, HHS, DPS, DOT). With over 7200 radios subscribed to our system in the County, and additional users like Takoma Park PD, Park Police, MD Transportation Authority, MD State Police, NIST, and others, the number of users on the Montgomery County radio system increases.

- b. What steps were taken to compensate;

As in such situations, non-critical (non-public safety) load was shed from the system in order to decrease demand. Public Safety shifted to cell phones and MDC messaging for 'routine' communications.

- c. How long the system was not working properly;

The trouble on the network was first reported at 11:32 pm on Friday, May 10, and appeared to be resolved by approximately 12:30 pm on Saturday, May 11. Then there was a short flare-up of the problem between 5:27 pm and 6:25pm on Saturday, May 11 occurring in three cycles, which lasted approximately 5 minutes each.

A separate incident of system degradation occurred on the morning of May 28 because of water damage in the telephone/network room under the Circuit Court.

- d. Identified cause and potential solutions.

Timing irregularities in the network that connect the towers and the dispatch center caused the radio system to be degraded. This timing is provided by clocking sources in the infrastructure and is needed to harmonize the functioning of various components.

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A new timing source was acquired, installed and activated on May 28 that addresses both the May 10, 11, and May 28 issues.

The County is also investigating the possibility of replacing the ATM network with newer network technologies prior to the "go live" of the new radio system.

**4) Please provide an overview of what contingency measures different user departments are taking now, or will take shortly, to compensate for further system failures:**

- a. Please list all County user agencies (Fire, Police, Corrections, Sheriff, who else?).

The following agencies use the PSRS:

Police, Fire Rescue, Sherriff, Corrections, DOT, DGS, OEMHS, HHS, Ride-On, DPS, REC; along with Park Police, Takoma Park, Rockville City, Gaithersburg City, Chevy Chase Village, Maryland State Police, Maryland Transportation Authority Police, NIST Police, Maryland State Highway Administration.

In addition, the following partner agencies use the County's radio system – Frederick County, Howard County, Prince George's County, Fairfax County, District of Columbia, NIH, WMATA.

- b. What steps are you taking to provide an alternate communication process if the current system fails (partially or fully)?

Police and Fire have long had in place emergency/contingency plans for communications to ensure the continued delivery of public safety service and in particular the dispatch of public safety requests for service should a short term full or partial communication failure occur. Those plans start with the ability of the radio system to operate in 3 modes (Full Trunking, Site Trunking, Failsoft) and continue on to include leveraging the use of other conventional radio channels that exist in the County. All 3 modes are dependent on the FiberNet 1 being functional.

Contingency plans are being developed for longer term outages, including outages due to network failure. These include cellular and push-to-talk options. Public safety agencies have been requested to have plans prepared by September 2019, and exercises planned later this year.

- c. What are the drawbacks of these alternatives?

All alternatives have impacts on capacity, coverage, intra-operability and inter-operability. Conventional channel alternatives limit capacity, intra-operability, and inter-operability, and in some cases limited coverage. Not all users have radios capable of operating on all conventional bands, the number of channels is very limited, and none of the County's interoperability partners have the ability to operate on most of these channels.

Commercial push-to-talk (PTT) solutions can provide capacity but they lack the coverage of the PSRS. They use the same infrastructure that cell phones use, so where cell phones don't work,

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they don't work. Intra and interoperability partners often do not have access to commercial PTT services so operating with them becomes more complex and, in some cases, unworkable.

The intra-operability among County departments is impacted by any of the alternatives. Most users in the County do not have multi-band radios, so any solution outside the 700/800 MHz range is unavailable to them. The County's mutual aid partners all interoperate with us using their radios that are programmed on the PSRS. If the PSRS is not available and we have implemented a solution that does not provide some primary operating capability in the 700/800 MHz band, then we are unable to interoperate with them. This is a significant problem for Fire and EMS responses, particularly along the Prince George's County border, where units cross the border several times daily.

d. How much do these contingency plans cost and are they budgeted?

Contingency plans for short term outages are included in the public safety agencies' operating budgets. Potential costs for contingencies for longer term outages will be developed as part of the contingency planning process.

**5) It is my understanding that you are developing a plan to see whether the 20 approved towers could go live before the other two towers are ready.**

Please see response 1.g. Motorola has been tasked with a re-design project which identifies the feasibility and costs associated with modifying the contracted 22-site design to the interim 20-site design to meet the original target "go-live" date with a later deployment of the remaining two sites.

The Motorola engineering team, with guidance and feedback from the County, will deliver a proposal for the following:

- A new 20-site design with all the necessary engineering and labor adjustments in lieu of the 22-site design
- Impact statements regarding warranty and maintenance of the 20 sites as well as the two sites that remain in storage
- Impact statements pertaining to coverage (due to missing sites)
- Impact statements pertaining to adding 2 sites into a live system later

The County expects to receive the proposal in July and will review it carefully to determine if implementing the interim solution will be effective operationally and cost wise.

a. What coverage gaps will that leave, and where?

## Responses for 6-18-19 PS/GO Session on PS Radio Infrastructure

Motorola is tasked to provide coverage maps for multiple scenarios as part of the proposal for the interim solution. The County will evaluate these coverage maps as part of the decision process to move forward with the interim solution.

b. How will public safety agencies compensate for those coverage gaps?

All public safety agencies will be requested to review and evaluate the coverage maps for the interim solution to identify potential impact to operations and develop mitigation strategies due to any anticipated gaps.

c. What are the implications/risks associated with adding the 2 last towers at a later time?

The two towers being delayed are part of a 22-site system that has been designed to cover 95% of the County with 95% confidence (95/95 coverage) based on the coverage criteria required by the County for the different types of service areas within the County: urban, suburban, and rural. The requirement is to maintain the 95/95 coverage, which may or may not be achieved by adding two sites back into a 20-site system depending on their location.

This is because the geometry of the 20-site system is fixed, depending on where available sites are in proximity to the two sites being re-sited, it is possible that it could require more than two sites to replace the two originally proposed sites. As alternative sites move away from the locations originally proposed, tower height grows, as tower height grows there is more community concern and potential resistance. In order to address the community concerns lower heights may be required, and this could result in less coverage or more than one site being required to replace one site.

Regardless of how many sites are required to replace the two sites being re-sited, additional equipment may be required to integrate the sites into the 20-site system. The 20-site system would be in production, providing mission critical public safety communications to users at that point, so the network's integrity must be maintained during the integration process.



# Public Safety System Modernization (P340901)

<b>Category</b>	General Government	<b>Date Last Modified</b>	01/11/19
<b>SubCategory</b>	County Offices and Other Improvements	<b>Administering Agency</b>	County Executive
<b>Planning Area</b>	Countywide	<b>Status</b>	Ongoing

## EXPENDITURE SCHEDULE (\$000s)

Cost Elements	Total	Thru FY18	Rem FY18	Total 6 Years	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	Beyond 6 Years
Planning, Design and Supervision	9,543	3,379	5,229	935	935	-	-	-	-	-	-
Construction	33,594	2,635	15,859	15,100	15,100	-	-	-	-	-	-
Other	67,615	67,615	-	-	-	-	-	-	-	-	-
<b>TOTAL EXPENDITURES</b>	<b>110,752</b>	<b>73,629</b>	<b>21,088</b>	<b>16,035</b>	<b>16,035</b>	-	-	-	-	-	-

## FUNDING SCHEDULE (\$000s)

Funding Source	Total	Thru FY18	Rem FY18	Total 6 Years	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	Beyond 6 Years
G.O. Bonds	55,591	25,752	16,739	13,100	13,100	-	-	-	-	-	-
Short-Term Financing	42,356	38,179	2,177	2,000	2,000	-	-	-	-	-	-
Current Revenue: General	9,826	6,719	2,172	935	935	-	-	-	-	-	-
Federal Aid	2,947	2,947	-	-	-	-	-	-	-	-	-
Contributions	32	32	-	-	-	-	-	-	-	-	-
<b>TOTAL FUNDING SOURCES</b>	<b>110,752</b>	<b>73,629</b>	<b>21,088</b>	<b>16,035</b>	<b>16,035</b>	-	-	-	-	-	-

## OPERATING BUDGET IMPACT (\$000s)

Impact Type	Total 6 Years	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24
Maintenance	3,600	600	600	600	600	600	600
Program-Staff	1,200	200	200	200	200	200	200
Program-Other	1,584	264	264	264	264	264	264
<b>NET IMPACT</b>	<b>6,384</b>	<b>1,064</b>	<b>1,064</b>	<b>1,064</b>	<b>1,064</b>	<b>1,064</b>	<b>1,064</b>

## APPROPRIATION AND EXPENDITURE DATA (\$000s)

Appropriation FY 20 Approp. Request	(96)	Year First Appropriation	FY09
Cumulative Appropriation	110,848	Last FY's Cost Estimate	110,848
Expenditure / Encumbrances	98,889		
Unencumbered Balance	11,959		

## PROJECT DESCRIPTION

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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 (CIP #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**

Reduction in Federal Aid of \$96,000.

## **PROJECT JUSTIFICATION**

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. 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

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order to minimize costs to Montgomery County. The CAD procurement request will reflect the County's interest in maintaining the station alerting 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. Funding schedule reflects FY18 supplemental adding \$32,000 in Contributions for additional equipment required for Local Fire Rescue Departments (LFRDs). FY18 funding switch is due to a transfer of Current Revenue General for \$283,000 from Technology Modernization (MCG) project offset by an equal reduction in Short Term Financing.

## **COORDINATION**

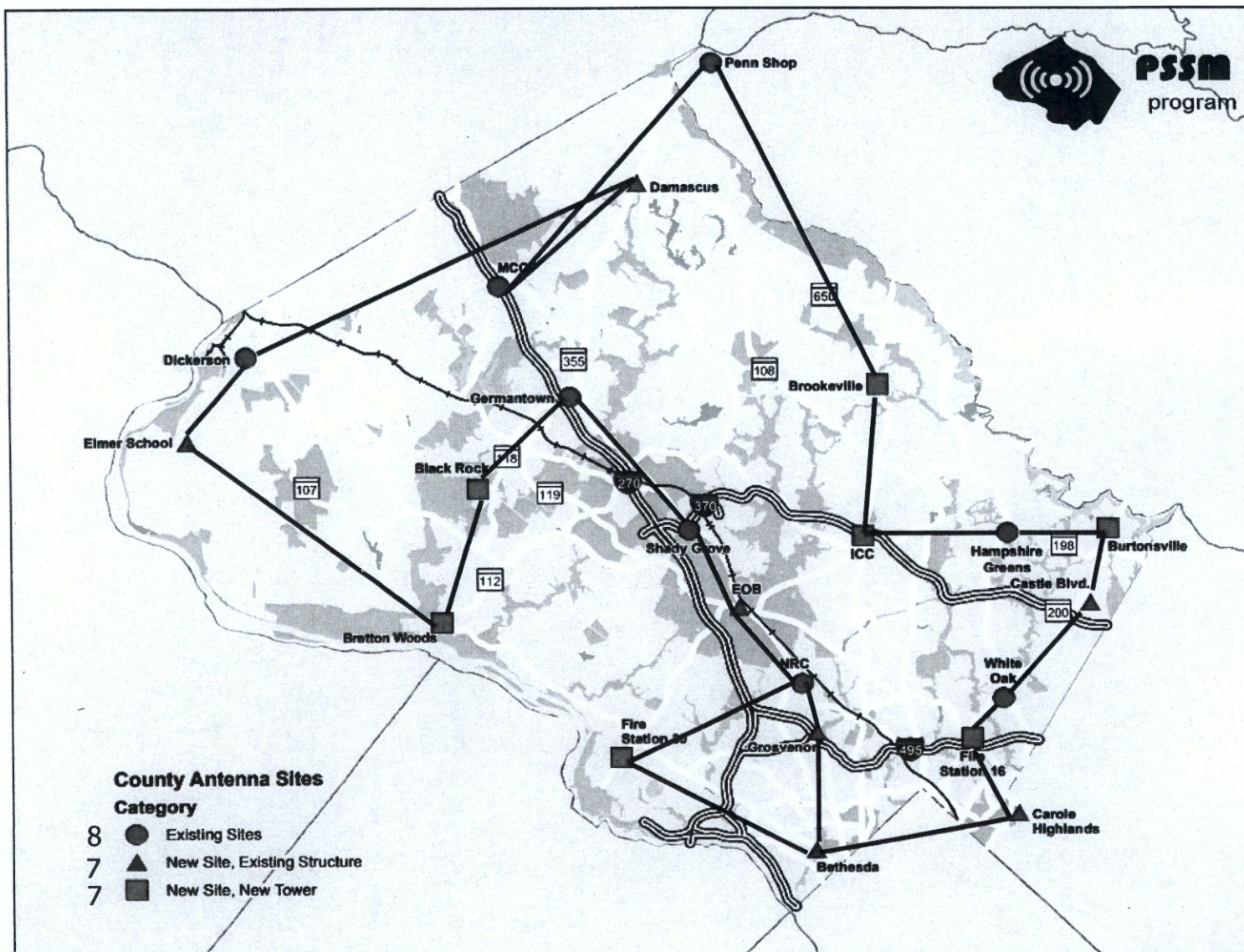
PSSM Executive Steering Committee, Executive Program Directors, Department of Technology Services, Department of Police, Montgomery County Fire and Rescue Service, Sheriff's Office, Department of Correction and Rehabilitation, Office of Emergency Management and Homeland Security, Department of Transportation, 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)



# Proposed Microwave Network



**PSSM**  
program



12



April 3, 2019

Marc Elrich  
County Executive, Montgomery County  
101 Monroe Street, 2nd Floor  
Rockville, MD 20850

Dear County Executive Elrich:

We are writing you because we are concerned that site selection for new public safety radio communications towers has been delayed. The sites for the two towers in question, one at Bretton Woods and the other at the Georgia Ave/ICC interchange, were recommended by the Departments of Police, Fire and Rescue, Technology Services, and the vendor. Nevertheless, it appears that the project team has been directed to search for alternative sites, which could delay implementation of this critical project over a year.

Montgomery County public safety professionals rely on a reliable, efficient, and fast communications systems to discharge their duties. To continue providing a modern and resilient communications system, the County began the Public Safety System Modernization (PSSM) project over a decade ago. The urgency for completing this upgrade has only increased in the intervening years as the vendor no longer manufactures replacement parts and only provides basic maintenance. We are currently buying replacement parts off Ebay. Funding for the PSSM project is slated to conclude in this fiscal year. The Bretton Woods and Georgia Ave/ICC towers and associated infrastructure are a critical component of completing the larger PSSM project.

The Bretton Woods and Georgia Ave/ICC towers were designed to upgrade capacity and coverage where we have known gaps. The Bretton Woods tower would provide coverage for portions of the Potomac River that have been difficult to cover because of the cavernous topography of the river. It also would provide coverage for parts of Potomac, Darnestown and Poolesville. Further, we understand that the Bretton Woods tower has not received opposition from the National Park Service. There is no guarantee that alternative sites close to the river would not be met by opposition from the National Park Service.

The Georgia Ave/ICC tower would provide coverage for the Olney area, which currently has substandard coverage as it sits between existing towers in Shady Grove and Hampshire Greens. The proposed tower on this site would also host State of Maryland communications equipment. In addition to diminishing our own coverage goals, moving the tower even a 1,000 meters may make State co-location impossible, or make it necessary to implement two towers to meet the goals of both projects instead of one at the ICC location. Two towers in place of one,

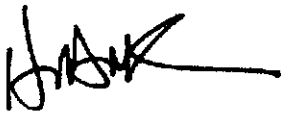
not only imposes significant project delays, but also significant costs; the towers cost approximately \$1 million each and the County would have to purchase an additional set of site electronics for approximately another \$1 million.

The Bretton Woods and Georgia Ave/ICC towers not only address known gaps, but they also work in tandem with existing towers to make the entire network work. In other words, the entire public safety communications system is strained under the delay.

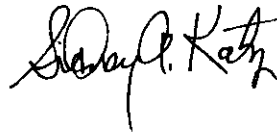
While we recognize that there have been some concerns raised from the surrounding communities and transparency into the site selection process could have been better, the two towers being reconsidered have met extensive, complex, technical and regulatory requirements and are poised to be implemented without further delaying the critical radio system infrastructure project. We respectfully request that you direct your administration to move forward on completing the PSSM project with all due haste.

We would appreciate a timely written response to our concerns as this issue may come before a joint Government Operations/Public Safety Committee meeting at the end of April.

Sincerely,



Hans Riemer  
Councilmember, At-large



Sidney Katz  
Council Vice President

cc: Scott Goldstein, Chief, Montgomery County Fire and Rescue Services  
Russell E. Hamill III, Acting Chief, Montgomery County Police Department  
Councilmembers

Board of Directors  
Leisure World Community Corporation  
3701 Rossmoor Boulevard  
Silver Spring, MD 20906

May 31, 2019

Marc Elrich  
Montgomery County Executive  
Executive Office Building  
101 Monroe Street  
Rockville, MD 20850

Dear Mr. Elrich:

We are writing because of our great concern over recent failures of the county's emergency communications system. As you know, Leisure World is a community of approximately 8,000 over-55 residents. Because many of us are elderly, we depend upon emergency services more than the average county citizen.

As we understand the problem, there are two issues—keeping the current radio system functional, and building the infrastructure for a badly-needed replacement system. We understand that some communities object to the sites for two towers in the proposed 22-tower system. One of those sites, at Georgia Avenue and MD 200 (intercounty Connector) is right in our front yard, but it is opposed by the Greater Olney Civic Association because they fear it would look unsightly at one of their gateways. Frankly, public safety is much more important to us than aesthetics. That tower is essential to providing good emergency communication to and within Leisure World.

Apparently, the debate over locating these two towers is now delaying the project. Our understanding is that the original project was scheduled for completion in 2013—six years ago. We also understand that a plan is being considered to put the system in service without all 22 planned sites, but this plan is going to cost more money and provide less service to our community. We do not understand how spending more money to implement a less capable system aligns with your commitment to the efficient, cost-effective delivery of government services.

We know that you are not responsible for the delays that have brought us to this point, but it is now your responsibility to ensure that the project moves forward as quickly as possible to

protect public safety. As a result of the delays that have occurred over the years, the 20-year-old system appears to be failing—sometimes for reasons unknown.

On behalf of our residents, we urge you to approve the system as originally planned and to get started on it at the earliest possible moment.

We don't ever want to be in the situation of trying to call 911—and getting no response.

- Sincerely,
  - /signed/
- Paul Eisenhaur, Chair



LOCAL 1664

# Montgomery County Career Fire Fighters Association

**June 5, 2019**

Governor Lawrence J. Hogan, Jr  
State of Maryland  
100 State Circle, 2<sup>nd</sup> Floor  
Annapolis, Maryland 21401

Governor Hogan,

I am writing to you to express my deep concern, and the concern of our members, about the recent decision made by the State Highway Administration to delay the MD FiRST radio system's implementation in Montgomery County, and the Montgomery County Radio System Infrastructure Project, by not constructing the planned tower that will support both systems at the interchange of the Intercounty Connector (MD 200) and Georgia Avenue (MD 97). I and my membership strongly feel this site must be constructed as designed, without further delay, to meet critical public safety needs.

The planned tower is a 250' tower in the northwest cloverleaf of the interchange. There is community opposition to the tower centered on their concern that it negatively impacts the appearance of the "Gateway to Olney". While community impacts and concerns must be taken into consideration for any public infrastructure project, we feel very strongly that there is a gross imbalance between those concerns and the importance of this tower to public safety relative to its aesthetic impact on the interchange.

The community resistance resulted in Montgomery County Executive Marc Elrich and State Senator Ben Kramer both insisting that SHA to move the site, which the SHA Administrator Mr. Slater reluctantly agreed to do. The MD FiRST project team was directed to find another location for the tower. There is not another buildable location for the tower that will support the needs of both radio systems.

The ICC/Georgia Ave site meets the coverage requirements of both radio systems with a 250' tower, does not have any regulatory barriers to construction, and has easy access to utilities and the State's fiber optic network. The alternative site advocated for by the community, known as Site 7, is approximately .75 miles east of the interchange, north of and adjacent to the ICC, and unbuildable.

(17)

Site 7's first problem is that it is in a Forest Conservation Plan in perpetuity under an agreement signed by Governor O'Malley during the construction of the ICC. Site 7 is also adjacent to the Willow Grove property which is a Nationally Registered Historical Site. The MD Historical Trust has been consulted and they indicate that they would oppose the construction of a proposed tower that would be at least 350' tall on Site 7. Additionally, even if these problems did not prevent approval of the site, the site will be much more expensive to develop than the ICC/Georgia Ave. site.

Since Site 7 is currently inaccessible by road, approximately a one-half mile access road would need to be built. Equipping the site with utilities and the State fiber optic network will be expensive. The network cost alone is expected to be more than \$250,000. Because Site 7 has a lower elevation than the ICC/Georgia Ave site it would require at least a 350' tower instead of the planned 250' tower. There is believed to be a great deal of debris fill on Site 7, which could necessitate extremely deep caissons for the tower foundation, further inflating construction costs. None of this makes any sense, when the concern being mitigated is aesthetics of a 250' tower in what is essentially an interstate highway interchange.

The only other possible site being considered by MD FIRST is at the intersection of Layhill Rd (MD 182) and the ICC. Unfortunately, that location does not meet Montgomery County's requirements and would require a 450' tower to meet the State's requirements. So that location would incur more costs on both the State and the County, as the County would have to build a site (or possibly two sites) to meet the County's requirements.

Additionally, either of the alternative sites also have people who live near them. Why are those people going to happily accept larger towers in their communities because the Olney community objected to a tower in the ICC interchange?

Delaying the construction of the ICC/Georgia Ave site is putting my membership, those that live, work, and pass through the County, and State public safety workers at risk. Right now, in Montgomery County, the Montgomery County radio system is the State public radio system. The State Police and the Transportation Authority Police both operate using the Montgomery County radio system.

The Montgomery County radio system is at grave risk of catastrophic failure and has been failing. Recently there have been several failures lasting hours severely hampering public safety communications in Montgomery County. The Montgomery County radio system is old and well outside support from the manufacturer. Parts are no longer manufactured, and the County relies on scavenging parts from decommissioned systems of similar vintage, and

sometimes eBay, to maintain the system. The public safety radio system in Montgomery County is a risk to public safety and must be replaced as quickly as humanly possible.

Delaying the ICC/Georgia Ave site delays the implementation of the MD FiRST system, which not only will serve the State Police and the Transportation Authority Police in Montgomery County when it is operational, but it could also serve as a backup for Montgomery County public safety workers if the County's system suffers a catastrophic failure before the County's new system is operational. While the MD FiRST system does not have the capacity or coverage of the County's system, in a crisis, it could be crucial to providing essential public safety services to the residents of Montgomery County.

At this point, each and every day that public safety workers in Montgomery County must rely on the Montgomery County radio system, more than 1,000,000 residents, and my membership are at risk. It is imperative that construction of both the MD FiRST radio system and the new Montgomery County radio system proceed as quickly as possible to eliminate that risk.

I urge, in the strongest possible terms, that on behalf of my membership, and the citizens that they protect, that you direct the MD FiRST project team to proceed with the construction of the ICC/Georgia Ave site as quickly as it can be done. This is the fiscally responsible course of action, and the only course of action that addresses the critical public safety needs responsibly.

Thank you for your attention to the most important public safety problem in the most populous jurisdiction in the State of Maryland.

Sincerely,



Jeffrey Buddle, President  
IAFF Local 1664

cc: Pete K. Rahn, Transportation Secretary  
Greg Slater, MDOT State Highway Administrator  
Marc Elrich, Montgomery County Executive  
Sydney Katz, Chair, Public Safety Committee – Montgomery County Council

**Public Safety**

# For hours over Mother's Day weekend, Montgomery police and fire crews struggled to communicate

 **Add to list**

By Jennifer Barrios

May 26

It was nearing the beginning of Mother's Day weekend in Montgomery County when police dispatchers began hearing a strange noise over their radios.

Instead of being able to communicate with officers, they heard a sound like a "bonk." Then another "bonk."

Calls were not going through.

"They couldn't explain what was happening," said Montgomery County Fire and Rescue Service Capt. Dallas Lipp, who is involved with the management of the county's public safety radio system and got a phone call from the supervisor on duty late on the night of Friday, May 10. As the two officials were talking, Lipp said, the radio failure happened again.

The noises were the start of a 14-hour-long outage that disrupted communications through the aging system, which is used by police, fire, the sheriff's department and others in the county of 1 million residents just outside Washington.

It was, Lipp said, "by far the longest disruption we've had since we went live on the network."

That weekend was quiet — no shootings or fights, large fires or other major emergencies — so the outage didn't significantly disrupt public safety, officials said. Police used their in-car computers and switched to alternate radio channels to speak with dispatchers and other officers.

But the incident has become a rallying cry for some officials and advocates frustrated with what they say are unacceptable delays in upgrading the communications system, which was installed nearly two decades ago.

ADVERTISING

The \$45 million project to replace the current 11-tower system with an upgraded 22-tower system has been in the works for years, and Lipp says the goal was to have the infrastructure in place by 2013. That plan was delayed by contracting and other issues, and the project also suffered from limited resources for several years during the county's recovery from the Great Recession.

Now critics say the timetable could be reset again following a recent decision by County Executive Marc Elrich (D) to look for new locations for two communications towers that were supposed to be placed near communities that don't want them.

In an era of mass shootings at schools and other public places, and in a jurisdiction where a gas explosion and fire killed seven at an apartment building in Silver Spring in 2016, some officials say the county cannot afford to wait.

"It's a matter of life and death," said County Council member Hans Riemer (D-At Large). "This thing could go down right now — it could be down as we speak."

Andrew Kleine, chief administrative officer for the county, said work on the upgrade is continuing even without the two new towers — the proposed locations of which, he said, were chosen without adequate community input. The overhaul remains on schedule, he said, and is expected to be operational in two years.

"Those two sites are going to be delayed, but we don't want to delay the operation of the system as a whole," Kleine said. "We certainly would not change the sites if we felt like it was going to cause any kind of risk to public safety."

He said the county has purchased additional equipment since the outage on May 10 and 11 to address the cause and stabilize the system.

Riemer and council Vice President Sidney Katz (D-District 3), who chairs the body's public safety committee, wrote to Elrich last month, saying his decision to delay the two towers — a state tower at the Intercounty Connector and Georgia Avenue in Olney that the county would have shared, and another in Bretton Woods — has "strained" the system.

"I think it's literally crazy we would delay replacing a failing public safety system," Riemer said in an interview. "We need the county executive to reverse course here and follow through on the plan and get those towers up."

Residents who have pushed for the new tower locations say they shouldn't be blamed for the lags in implementing the new system.

"The county has been aware this system has been failing for a long time," said Matt Quinn, president of the Greater Olney Civic Association.

Quinn said his group has been working with the county and the state to find a more acceptable location for the tower — and believes they have found one, just a short distance away.

State Sen. Benjamin F. Kramer (D-Montgomery) said community members were upset they hadn't heard about the towers during the planning stages.

"Suddenly these neighborhoods were going to have a massive steel structure contiguous to their communities and you would have seen it anywhere you were," Kramer said, adding that some residents also were concerned about possible health effects from the equipment. "It may have suited the needs of county and state government, but it doesn't mean it's an appropriate location for this kind of massive structure."

Shanteé Felix, a spokeswoman for the Maryland Department of Transportation's State Highway Administration, said that while the original Olney site is still "under consideration," the agency is working on identifying "possible alternative sites."

Dale Tibbitts, special assistant to Elrich, said alternative sites to the Bretton Woods tower are still being worked out.

"We do not discount the public safety component of this," he said. "We think we've come up with a new way of dealing with these last two towers and keeping the rest of the system on track, on schedule."

Meanwhile, the council's public safety and government operations and fiscal policy committees plan to hold a joint hearing next month on the communications system.

Susan Farag, legislative analyst for the council, said the committees will seek information on options for alternative communications, how the system could operate with two fewer towers and whether there will be gaps in coverage as a result.


“We need to work together and we will work together to solve this concern,” said Katz, who also sits on the government operations committee. “The bottom line on this is we need to get something done.”

Lipp said another, smaller disruption occurred on Wednesday afternoon, when the normal 16 channels suddenly went down to just six. As the evening commute began, “all of a sudden we started getting ‘bonks’ again,” Lipp said.

He said it’s still unclear what caused that outage. “We don’t have confidence in any of this equipment,” he said. “It’s all antique stuff.”

*Dan Morse contributed to this report.*

### **Jennifer Barrios**

Jennifer Barrios is a reporter covering Montgomery County government and politics. Previously, she was an editor and reporter at Newsday on Long Island, and a reporter at the Austin (Tex.) American-Statesman. Follow 

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REGISTRATION  
SPEAKING  
SPEAKING



# Montgomery Emergency Communication System 'Hanging by a Thread'

Aging system experienced 13-hour 'disruption' earlier this month

BY CAITLYNN PEETZ FOLLOW @CAITLYNNPEETZ14

| Published: 2019-05-23 08:00

25

A "major disruption" in the county's emergency communications system on Mother's Day weekend knocked out about 75% of the radio channels used by dispatchers and first responders for several hours over two days.



The two lengthy outages, which apparently did not occur during any major emergency incidents, are raising fresh concerns about the condition of the 20-year-old network and chronic delays in installing a new, \$110 million system.

"Public safety radio communication in Montgomery County was hanging by a thread for a good part of Friday into Saturday," one county fire and rescue services employee wrote in an email to county officials. "I have no reason to think what happened Friday into Saturday could not happen again at any time."

During the weekend, the system was functioning at about one-quarter of its typical capacity for more than 12 hours, according to a fire and rescue

official who asked not to be named because they were unauthorized to speak about the issue. During the delay, about four channels were available to carry voice traffic among emergency responders. There are usually about 16 channels available.

In an average month, there are one or two “system busies” — a channel request when a channel isn’t available — but there were more than 2,200 “busies” recorded during the outage, according to the official.

A police spokesman deferred questions about the outage, that started at about 10:30 p.m. Friday, May 10, and lasted into the next afternoon, to county government staff.

Internal communications in the days following the incident, referred to as a “disruption,” show frustration and worry about the effectiveness of the aging system and the impact of lengthy disruptions to critical emergency operations.

“We shed as much load off the system as possible and crippled through the day using the available capacity,” a county emergency responder wrote in an email to County Council staff. “We were very fortunate that this happened late in the evening and that the level of incident activity for both police and fire was low throughout the whole time. If this had happened

during a busy rush hour with a structure fire or two and one or two critical police incidents we would have been in VERY bad shape.”

Previous disruptions lasted, at most, 45 minutes, but typically were resolved within minutes, according to the email messages from county emergency responders to County Council staff.

The disruption was likely caused by a malfunction in equipment that transmits radio signals between towers. When the equipment malfunctioned, it took radio channels off the air countywide, rather than disconnecting them from affected towers, county officials said.

About three hours after the issue was resolved, it happened again, and lasted for about an hour.

It remains unclear what caused the second issue and how it eventually fixed, seemingly on its own, according to county staff.

County officials have long been rolling out a \$110 million plan to update a communication system that has been in place for nearly 20 years, but the plan has hit several “logistical snags,” according to county employees. Originally expected to be in place in 2013, the new system likely won’t be operational for at least another year.

About 20 local, county and federal agencies will use the new system, including the county police department, park police and fire and rescue services.

There are 11 towers in the current system, but there will be 22 tower sites in the updated system to increase coverage and efficiency.

In November, the county Planning Board debated recommending approval of one of the new system's towers in Potomac, but ultimately reached a consensus that the emergency coverage provided by the tower would outweigh community members' concerns about the 189-foot structure's location and impact on the neighborhood's "character."

In April, several weeks before this month's disruption, Montgomery County Council members Sidney Katz and Hans Riemer sent a letter to County Executive Marc Elrich, concerned about the executive's recommendation to explore alternative locations for two new tower sites.

Elrich advised project leaders earlier this year to look for alternative locations for the two already-approved towers — one at Bretton Woods in Germantown and the other at the Georgia Avenue and Intercounty Connector interchange north of Aspen Hill, which could delay implementation of the project for an additional year.

Elrich and his county public information office did not return messages seeking comment.

If new sites are selected, the height of towers at other locations may need to be reconsidered to ensure radio frequencies aren't interrupted by hills, trees, houses or other structures in between.

In their letter to Elrich, Riemer and Katz say some equipment for the current system isn't manufactured anymore and replacement parts sometimes have to be purchased from online retailers like E-bay.

"The Bretton Woods and Georgia Ave/ICC towers not only address known gaps, but they also work in tandem with existing towers to make the entire network work," Riemer and Katz wrote. "In other words, the entire public safety communications system is strained under the delay."

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# Firefighters Union Warns Emergency Communications System at 'Grave Risk of Catastrophic Failure'

In letter, governor is urged to expedite building of new system

BY CAITLYNN PEETZ FOLLOW @CAITLYNNPEETZ14

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The president of the Montgomery firefighters union is sounding alarms about the county's emergency communications system that has had repeated "major disruptions" in



recent months and is calling on the governor to intervene.

In a letter to Gov. Larry Hogan this week, Montgomery County Career Firefighters Association President Jeffrey Buddle pressed the governor to direct state leaders to construct a new radio tower — a critical component to a plan to replace the current, aging system — on a previously agreed upon site that was withdrawn from consideration following public backlash.

"At this point, each and every day that public safety workers in Montgomery County must rely on the Montgomery County radio system, more than 1,000,000 residents, and my membership, are at risk," Buddle wrote.

Representatives from the governor's office and the State Highway Administration – the agency responsible for securing a site for the tower – did not immediately respond to requests for comment Friday.

The 250-foot tower proposed near the Intercounty Connector and Georgia Avenue in Olney, was opposed at community meetings last year, prompting Montgomery County Executive Marc Elrich to direct county leaders to consider alternative sites, a move that is expected to delay the build-out of a new system by at least a year.

Olney residents said they feel the tower will negatively impact the appearance and character of the town, according to Buddle's letter.

A new, \$45 million system was originally anticipated to be implemented and fully functional six years ago, but has hit several "logistical" delays, according to county leaders.

County fire and rescue leaders say there is no realistic alternative to the site. Other proposed locations would demand taller towers or would not be compatible with other locations, they say.

About 20 local, county and federal agencies will use the new system, including the county police department, park police and fire and rescue services. Some tower locations, including the site south of Olney, will also serve as part of a state communication system.

The 20-year-old Montgomery system has recently had several failures lasting hours, severely limiting the radio channels by which emergency responders can communicate. The most severe incident occurred over Mother's Day weekend, when a 12-hour failure left only four radio channels available at times. There are usually about 16 channels available.

When a radio channel is unavailable, emergency responders receive a busy signal when they try to communicate. During the Mother's Day weekend outage, there were more than 1,200 "busies" recorded. An average month yields one or two, according to county officials.

"The Montgomery County radio system is at grave risk of catastrophic failure and has been failing," Buddle wrote. "The public safety radio system in Montgomery County is a risk to public safety and must be replaced as quickly as humanly possible."

There are 11 towers in the current system, but there will be 22 tower sites in the updated system to increase coverage and efficiency. All but two tower sites have been selected and approved.

In addition to the Olney site, Elrich asked county leaders to reconsider a Seneca location.

If new sites are selected, the height of towers at other locations may need to be reconsidered to ensure radio frequencies aren't interrupted by hills,

trees, houses or other structures in between.

In his letter, Buddle said he understands the importance of considering community concerns in the tower site selection process, he feels “very strongly that there is a gross imbalance between those concerns and the importance of this tower to public safety.”

“I urge, in the strongest possible terms, that on behalf of my membership, and the citizens they protect, that you direct (state leaders) to proceed with the construction of the ICC/Georgia Ave site as quickly as it can be done,” Buddle wrote. “This is the fiscally responsible course of action and the only course of action that addresses the critical public safety needs responsibly.”

The union represents more than 1,200 first responders throughout the county.

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