

## METRO RAIL COMMUNICATION SYSTEMS STUDY: FREQUENTLY ASKED QUESTIONS

### Study Overview

#### **Why did MWCOG commission the study?**

Following the January 12, 2015 incident, the regional Fire Chiefs Committee and DC HSEMA identified a need to assess Metrorail communication systems. MWCOG committees and DCHSEMA commissioned the study in April. The study goal is to provide a comprehensive assessment of Metrorail underground communications systems.

- Specific evaluation of communication systems effectiveness and regional interoperability;
- Recommendations maximizing effective communication and emergency response to incidents in the Metrorail system.

#### **What did the study find/recommend? What types of recommendations did the study make?**

- The study provided 15 key findings and made 21 corresponding recommendations.
- The recommendations categories are: infrastructure, radio systems operation and maintenance, 9-1-1 service, as well as policy and procedures.

#### **Did the study find new problems or surprises?**

- The study confirmed many known challenges such as cell phone service
- The planned Metrorail communication systems replacement was also validated.

#### **How does the study characterize the existing radio system? Does it work today?**

- The current radio systems work and are operations.
- Current radio systems require substantial testing and maintenance to continue to operate due to underground conditions and age.
- WMATA is in the process of initiating the process to replace existing radio systems.
- WMATA and the Metrorail Fire/EMS agencies test radio systems weekly to improve maintenance and operations until the systems can be replaced.

#### **What are the next steps?**

- Many recommendations are in the process of being implemented, for example:
  - The Fire/EMS ROCC liaison position began a pilot test in June. The position is being evaluated and the region is working to identify funding to continue the position and expand operational hours.
  - WMATA initiated the contracting process to replace current underground communication systems. Work will begin in 2016.
  - Tactical Bi-Directional Amplifiers are being purchased. The jurisdictions are developing the deployment plan.
- MWCOG is working with the appropriate committees to develop and implement work plans for recommendations within their area of responsibility.
  - Committees include Fire Chiefs and the regional 9-1-1 Directors

- WMATA has engaged consultants to evaluate the process to implement recommendations. The Deputy General Manager has committed to funding recommendations such as radio testing methods based on those findings.
  - WMATA anticipates the outside evaluation will be completed by December 2015.
  - Projects will be budgeted for based on the evaluation in 2016.

### **Study Recommendations**

#### **Is work currently being done on implementing the recommendations?**

- Yes. Several recommendations efforts were underway, including radio outage reporting, placing a Fire/EMS liaison in the ROCC, tactical BDA deployment and enhanced training.

#### **How long will it take to implement the other recommendations?**

- Recommendations are near-term, or on-going work, and long-term or work in the planning stages including next generation technology.
- For example, short-term recommendations include work on replacement parts or the public address system. Long-term recommendations often relate to the installation of new WMATA radio systems. WMATA issued an RFP and work will begin in 2016, but will continue for several years.

#### **How do the Study recommendations relate those made by APTA, FTA and NTSB?**

- All APTA, FTA and NTSB recommendations were reviewed and cross referenced with the Communication Study recommendations.
- The COG study recommendations are in line with the relevant APTA, FTA and NTSB recommendations.
- Implementation of the COG study recommendations are accounted for in the other agency corrective action plans or WMATA plans and will be coordinated across organizations.

#### **What about the costs to implement the study recommendations?**

- WMATA and MWCOG are working to specify implementation costs for recommendations not included in current work plans.
- Communication systems infrastructure installation costs, such as new radio systems, were already in WMATA budgets.
- The four major carriers will fund costs associated with cellular service installation.
- Many recommendations are in the work plans for MWCOG committees. As such, there are no additional costs associated with implementing the recommendations.

#### **Does WMATA have the budget to implement the recommendations? If not, where will the funds come from?**

- WMATA has planned and budgeted for a substantial investment to replace the Metrorail communications systems.
- WMATA has indicated a willing to fund recommendations such as radio system testing in their FY 2017 budget pending the results of their outside evaluation.

### **Do the recommendations include expanding the hours of the Fire/EMS liaison in the ROCC?**

- The study recommended continuing and expanding the Fire/EMS ROCC liaison position.
- The Fire Chiefs Committee, MWCOG jurisdictions and WMATA are coordinating to identify funding to support the recommendation.

### **Metrorail 9-1-1 and Cellular Service**

#### **What did the report recommend for improving underground 9-1-1 call capabilities and cellular service?**

- The report was completed prior to WMATA reaching an agreement in principal with the four major cellular carriers, the Cellular Carrier Team, on continued system installation.
- The near term recommendation was for Verizon Wireless system should repair and maintain the current system to restore 9-1-1 call tunnel service.
- WMATA should prioritize support infrastructure installation in areas where Verizon Wireless tunnel service is poor and request the four cellular carriers build in the same areas first.
- The four cellular carriers should pursue accelerated Neutral Host system installation.
- MWCOG 9-1-1 Directors and the cellular carriers should review possibilities to provide wireless services to Next Generation 9-1-1, including texting.
- WMATA is advancing cell phone carrier negotiations to install the equipment necessary for service.

#### **When Metrorail 9-1-1 service is consistently in place, where will the calls go?**

- 9-1-1 calls will go to the jurisdiction where the call is placed.
- WMATA is studying geolocation options to better identify 9-1-1 call locations in the underground portion of the Metrorail system.

#### **Were there interoperability recommendations? Will WMATA and the First Responders use the same radio frequencies?**

- WMATA and the Police and Fire/EMS agencies will continue to use different radio frequencies. Protocols are in place to ensure WMATA-agency information exchange during incidents.
- WMATA and Metrorail jurisdictions should detail interoperability requirements and determine if other forms of communication for alerts and warnings capabilities would be more efficient for alerts and warnings.
- WMATA and the jurisdictions are currently working toward better video sharing and operation center to operation center communication protocols.

### **Roles and Responsibilities**

#### **Who is responsible for implementing the recommendations?**

- WMATA, Metrorail jurisdictions and MWCOG committees are assigned to implement each recommendation.
- 9-1-1 service recommendations rely on cellular carrier negotiations and their commitment to implementation and completion.

**Who will hold WMATA and the Metrorail jurisdictions accountable to implement the recommendations?**

- The Metrorail Communications Study Committee will monitor recommendation implementation.
- The MWCOG Board, CAO and Fire Chiefs Committee will provide additional oversight.

**Will the WMATA Board need to take action? Management?**

- The WMATA Board will be briefed on the study and recommendations.
- The WMATA Board will not need to take action on recommendation implementation and funding for actions already in the FY 2017 budget.
- The WMATA Board may need to work with MWCOG and the jurisdictions to secure additional funding to continue and expand the Fire/EMS liaison position in the ROCC.

**Underground Communications Background**

**Why are underground radio communications a problem?**

- Vibrations, corrosion and dust in the tunnels create a hostile environment for communication infrastructure and equipment.
- Metrorail operates and serves riders nearly 20 hours/day. This leaves a limited maintenance window.
- Tunnel curves and elevation changes interfere with radio wave conduction.
- 47 (52%) stations, and 50+ miles of track are underground.

**What are the Metrorail communication systems? Do WMATA and First Responders use the same systems?**

- Metrorail uses four (4) communication systems:
  - Comprehensive Radio Communications System (CRCS): Metrorail/WMATA;
  - Public Safety System Radio System (PSRS): First Responders;
  - Verizon Wireless System: Cellular service only for Verizon and Sprint Customers;
  - Neutral Host: Cell phone service for the 4 major carriers, only in stations, not tunnels.

**How does WMATA compare with other transit systems?**

- The consultant used interviews and additional data from comparable transit systems.
- Metrorail public safety communications are on par, or in some instances, more advanced than other systems.

## **Study Background**

### **Who participated in the Study Working Group?**

- MWCOG members of these committees provided the study oversight: Fire Chiefs Committee and their Public Safety Communications Subcommittee members; and the 9-1-1 Directors Committee;
- MWCOG and DC HSEMA Staff;
- Obsidian and Televate conducted the study. Both firms have extensive experience in communication technology, infrastructure and emergency response arenas.

### **Did WMATA have a role in the study?**

- WMATA staff provided technical information, completed interviews and provided Metrorail system access.

### **How was the study conducted?**

- Interviews with stakeholders and Metrorail jurisdiction officials;
- Technical field tests and measurements of the underground communications systems;
- Review of communications-related policies and procedures;
- Research on comparable metropolitan transit systems.

### **How long did the study take?**

- The study was initiated in April 2015 and completed in July 2015.
- Several recommendations were being implemented prior to completion.
- The study work group is coordinating regional efforts to implement study recommendations.

### **Is the report available?**

- The executive summary is available upon request from MWCOG.

### **Who/What are the “Metrorail jurisdictions”?**

- Metrorail jurisdictions are those with stations: Alexandria, Arlington County, the District of Columbia, Fairfax County, Montgomery County and Prince Georges County.