

RFP #27927

800 MHz P25 Public Safety Radio Network

Addendum #4

THE FOLLOWING CHANGES ARE HEREBY MADE TO RFP #27927

- Delete Section 1.10.4.1.G
- Replace Section 3.5.C.2 with the following new Section language

3.5.C.2 - The radio system shall provide portable radio coverage of 95 percent of the area within the County boundary with 95 percent reliability at an equivalent level of portable coverage as the current system is providing. Antenna information provided with this addendum should be used in conjunction with FCC license information in determining existing coverage levels. Assume a balanced system between talk-out and talk-back. Respondents shall provide coverage maps of predicted and guaranteed coverage for; portable outdoor, with 12dB building loss, and with 20dB building loss. This information can be combined and shown on one coverage map.

In addition, as options, respondents shall also provide a system design that would provide for the equivalent of portable coverage equating to both 12dB and 20dB of loss in 95 percent of the area within the County boundary with 95 percent reliability.

3.5.C.2.a – Portable configuration is with the radio on the hip in both transmit and receive modes using a Bluetooth or standard speaker microphone with a radio mounted antenna.

3.5.C.2.b – System coverage should be at a delivered audio quality (DAQ) of 3.4 or better per TIA-TSB-88C definitions of DAQ.

- Replace Section 3.5.1.B.3 with the following new Section language

3.5.1.B.3 – Portable radios: Standard portable radio with 12dB building penetration margin.

- a) Talk-out to a portable radio on-hip with belt holster
- b) Talk-back from a portable radio on-hip with belt holster
- c) Round trip to/from a portable radio on-hip with belt holster

- Add Section 3.5.1.b.4

3.5.1.B.4 – Portable radios: Standard portable radio with 20dB building penetration margin.

- a) Talk-out to a portable radio on-hip with belt holster
- b) Talk-back from a portable radio on-hip with belt holster
- c) Round trip to/from a portable radio on-hip with belt holster

- Add Section 3.7.5.D with the following new Section language

3.7.5.D – Respondents shall explain how they will interface with the current Locution Fire Alerting Systems used by the City and County. The City and County both operate separate Locution systems. The Locution systems are interfaced to a dedicated console position as a secondary alerting path via radio at both Memphis Fire Communications and Shelby County Fire Communications.

- Replace section 3.7.7 with the following new section 3.7.7 below

2.7.7. *Logging Recorders*

- A. Logging recorders are currently in place at each dispatch center. These recorders have recently been purchased and upgraded for interface with the current SmartZone system and 911 telephony. The City and County may choose to re-use these recorders to log traffic on the new Project 25 system, if technically, operationally and economically practical. As an alternative, they may also select to procure new recorders; therefore, Respondents shall describe and cost both alternatives.
- B. Respondents shall familiarize themselves with the logging recorders currently in service at each dispatch center and provide in their proposal the most economic method of upgrading these recorders for operation with that respondent's Project 25 system solution. If not upgradable, respondents shall provide their replacement recording solution.
- C. Logging recorders shall be evaluated at the following dispatch locations. Recorded line counts will need to be verified by the successful Respondent during the design phase.
 1. Shelby County Sheriff's Office Communications. Currently seven (7) 911 trunks and twelve (12) administrative lines are recorded.
 2. Shelby County Fire Communications. Currently four (4) 911 trunks, four (4) 10-digit emergency trunks, eight (8) administrative, and one (1) ring down line are recorded.
 3. Memphis Police Primary Communications. Current thirty-two (32) 911 trunks and sixty (60) administrative lines are recorded.

4. Memphis Police Backup Communications – New Facility. Respondents shall assume the number of phone lines will match the primary Police Communications.
 5. Memphis Fire Communications. Currently there are nine (9) 911 trunks and fourteen (14) administrative lines are recorded.
 6. Memphis Radio Repair Shop.
- D. For locations 1, 2, & 3 above, logging capabilities and recorder capacity shall be provided for each talkgroup available to a respective jurisdiction. Respondents shall provide a logging recorder system and archiving server compatible with the proposed system, and shall be responsible for interfacing the system resources.
- E. Respondents shall state the capabilities for their recording solution to record both P25 radio transmissions and current 911 telephone and future NG911 telephone calls on the same recorder. If separate recording systems are required for P25 radio and 911 telephony, Respondents shall describe and price their separate recorder solutions.
- F. Respondents shall describe their playback systems. If two recorders are needed for P25 radio and telephony, one common playback system is desired to access both recorders and play back both P25 radio and 911 telephone from a common playback terminal.
- G. The Memphis Radio Repair logging recorder shall be capable of logging all trunked radio system traffic, including private calls and telephone interconnect calls. Since Memphis Fire Dispatch, Police Backup Dispatch, and Radio Repair Shop are all located at 79 Flicker Street, a Logging Recorder system shared by, and serving all 3 entities, may be proposed. An audit trail showing who accessed and/or exported audio from the shared logging recorder is required.
- H. Retention of recorded data is required for 18 Months. Respondents shall state the availability of long term storage servers, server capacity and length of retention time options for a system of size and traffic load as the Memphis/Shelby system.
- I. Recorder Specifications
1. The solution must be fully redundant and Respondents must include documentation stating their support to meet next generation standards and features as they are developed.
 2. Proposed equipment must support trunked P25 radio systems, recording Base Station Traffic on an Open Systems Interconnection (OSI) Layer 3 level, and support P25 Common Air Interface (CAI) recording of channel, radio

identification, and emergency alert information. Respondents must provide details on this requirement including a block diagram.

3. Logging recording systems being proposed shall be capable of logging, at a minimum, the following radio call metadata for each recorded transmission:
 - 1) Date
 - 2) Time
 - 3) Duration
 - 4) Frequency/System channel designator
 - 5) Talkgroup ID
 - 6) Radio ID
 - 7) Radio Alias
 - 8) Inbound and Outbound traffic
 - 9) GPS Coordinates of the mobile or portable radio
 - 10) Text messages
 - 11) Status messages
 - 12) Private calls
 - 13) Encrypted transmissions with the ability to play back the unencrypted message

4. The recorder shall meet the following minimum requirements:
 - 1) 18 terabyte hard disk drive(HDD) space
 - 2) Email and Simple Network Management Protocol(SNMP)-based alarming
 - 3) Customizable data fields
 - 4) Browser-based live monitoring and last message recall
 - 5) Network Time Protocol (NTP) support
 - 6) 256-bit encryption advanced storage compression
 - 7) Network-based archiving support
 - 8) Personalized views
 - 9) Synchronized incident reconstruction
 - 10) Ability to monitor and verify communications
 - 11) Automatic number identification/automatic location identification (ANI/ALI) annotating

5. Respondents shall describe the following:
 - 1) How redundancy is achieved.
 - 2) Maximum number of 9-1-1 lines and radio channels the unit can support for expansion to support future growth.
 - 3) Maximum number of simultaneous playback instances supported.
 - 4) Maximum number of simultaneous recorders supported.
 - 5) Data recall functionality. How data is presented, specifically for correlating with NG9-1-1.

- 6) Media formats available and the impact each would have on recording capability.
6. The logging recorder solution must support on-line monitoring locally via a maintenance and administration terminal. Remote access is also required through the City or County's Internet access via a secure virtual private network (VPN) connection. Remote entry into the solution must be limited to authorized maintenance personnel as allowed by the City or County's administrator function.
7. Any logging recorder solution must meet industry standard uptime of 99.999 percent or better. Respondents must describe any scheduled maintenance or upgrades that would require the proposed solution to be taken out of service.
8. The logging recorder solution must be configured into a fully redundant design and meet National Emergency Number Association (NENA), Network Reliability and Interoperability Council (NIRC), and other industry best practices, and support NENA i3 requirements. The proposed configuration must be designed to be fully survivable, fault tolerant, and secure.
9. Playback
 - 1) The logging recorder must be capable of recording on all channels during replay. The replay function must not affect recording performance.
 - 2) The search a replay application must allow users to search on the following criteria:
 - a) Time
 - b) Date
 - c) Duration of recorded message
 - d) Frequency/System channel designator
 - e) Talkgroup ID
 - f) Radio ID
 - g) Radio Alias
 - h) Condition code (incoming or outgoing)
 - i) Dialed number
 - j) Calling number
 - k) Annotation (comments added during call)
 - l) Caller ID
 - m) ANI/ALI data
 - 3) It must possible to combine any number of search criteria elements into one search function to provide a complex system-wide searching capability.

10. Expansion

- 1) The proposed logging recorder solution must be capable of expansion in order to meet future growth and next generation applications as they are developed. The solution must be expandable without a disruption of service. Adequate space for additional hardware and wiring must be included in the solution design. Respondents must describe their solution design to meet these requirements, including vacant module slots.
- 2) Respondents must describe the increments of expansion.

- Additional Information for Appendix C

| Site Name | Tower Height | TX Ant. | RX Ant. | Spare TX |
|------------------|---------------|---|--------------------------------|-------------------------------------|
| Fire Station #7 | 76 m/250 ft | (2)BMSU 12 Θ at 250' (2) BMR12 at 250' | (2) BMR12 at 225' | (1) BMR12 at 195' (unknown pattern) |
| Fire Station #31 | 76 m/250 ft | (2)BMSU 12 Θ at 250' (2) BMR12 at 250' | (2) BMR12 at 225' | (1) BMR12 at 195' (unknown pattern) |
| Fire Station #45 | 88 m/ 289 ft | (2)BMSU 12 CK-B-B1 at 289' and 45° (2) BMR12 CK-B-B1 at 289' and 45° | (2) BMR12 at 265' | (1) BMR12 at 234' (unknown pattern) |
| Fire Station #51 | 88.3 m/290 ft | (2)BMSU 12-CK-H-B1 at 290' and 65° (2) BMR12-CK-H-B1 at 290' and 65° | (2) BMR12-H-B1 at 275' and 65° | (1) BMR12 at 245' (unknown pattern) |
| Fire Station #52 | 91.1 m/299 ft | (2)BMSU 12 CK-H-B1 at 299' and 0° (2) BMR12 CK-H-B1 at 299' and 0° | (2) BMR12-H-B1 at 275' and 0° | (1) BMR12 at 245' (unknown pattern) |
| Redwood | 91 m/300 ft | (3) BMR12 at 300' | (3) BMR12 at 260' | |
| Fischerville | 91 m/300 ft | (3) BMR12 at 300' | (3) BMR12 at 260' | |
| Locke (IR Site) | 76 m/250 ft | (1) PD10189 at 250' and 290° | (1) PD10189 at 230' and 290° | |

Θ means

Omnidirectional

B-B1 are 140° Directional, refer to manufacturer specs

H-B1 are Dual patterns, refer to manufacturer specs