

# **PART E**

# **SPECIFICATIONS**

## PART E - SPECIFICATIONS

### GENERAL

#### E1. GENERAL

E1.1 These Specifications shall apply to the Work.

#### E2. GOODS

E2.1 The Contractor shall supply Telephone and Radio Audio Recording and Logging System in accordance with the requirements hereinafter specified.

#### E3. BASIC TECHNICAL OVERVIEW

E3.1 The technical parameters herein represent the minimum acceptable performance requirements when indicated as a must or shall. Options to the system will be clearly stated as an option and are to be priced separately in the Bidder's proposal submission.

E3.2 The system shall consist of the main recording unit hardware, software, all cabling, programming and installation labour required to install the system as outlined in these specifications.

E3.3 The WFPS envision the audio logger shall consist of a system whereby audio and supporting data is captured, recorded and saved in an "Online" storage medium. Periodically, this data is transferred from the Online storage to an Archive storage medium. The archive medium shall be removed from the audio logger and stored remotely from the system. The system shall allow playback of recorded audio from both the online storage and the archive medium. Archive medium shall be capable of being played back on a separate unit.

E3.4 Installation of the system shall conform to all CSA and City of Winnipeg Electrical Codes. Where applicable, all equipment shall utilize UL/CSA approved power supplies.

E3.5 The system shall allow simultaneous record and playback. Playback of archived or local data shall not interfere with the ongoing recording.

E3.6 The system shall be based on "Purpose built" hardware and not on a PC platform. The main recording system shall be specifically designed hardware for the purpose of audio recording and playback. The use of PCs for remote access and system administration is acceptable.

E3.7 The Audio logger system should be a self-contained system. All the input channels, archiving, playback and processing shall be contained in a single physical module. This module should be capable of stand-alone operation, allowing control of the recording, archiving and playback from the front panel. The use of additional modules for increased online storage is acceptable.

E3.8 The Audio logger shall be capable of being placed on a network to allow remote access to archived audio or to allow monitoring of live calls. The network will consist solely of the audio logger hardware, and several PC's used to access recorded and live audio. The WFPS will not allow the logger to reside on any existing networks.

E3.9 A minimum of 32 radio and telephone channels will be recorded, 20 radio positions and 12 telephone positions. Expandability of the new system is mandatory.

E3.10 Updates to the audio logger system's software or firmware shall be performed by remote access via a downloadable method. Bidders shall detail the procedure(s) to perform future software/firmware upgrades.

#### **E4. MAIN RECORD PLAYBACK UNIT**

- E4.1 The following are the requirements for the hardware used to record, playback and archive the selected audio signals: Bidder shall provide in their response detailed information of their proposed system specifications covering the following areas.
- E4.2 Input Channels:
- E4.3 The following specifications refer to the number, type, and configurations of the input channels:
- (a) The system must support a minimum of 32 input channels at the time of installation with the capability to expand.
  - (b) The bidder shall describe in detail in what manner additional channels may be added. This shall include in what multiple the channels may be added; whether the channels are internal or external; and limitations on the maximum number of channels. Bidder shall include pricing for incremental expansions on the schedule of prices.
  - (c) Channels used for recording radio traffic must have an analog input.
  - (d) The input impedance of each analog input should be configurable for 600 ohm balanced, 600 ohm unbalanced or high impedance.
  - (e) Channels used to record telephone calls should accept digital signals direct from the Meridian Centrex.
- E4.4 Bidder shall describe in detail any limitations on the input channel configuration and the process required to change impedances.
- E4.5 Each input channel should have a frequency response +/- 2 dB from 300 Hz to 3300 Hz. Bidder shall state the frequency response of the input channel.
- E4.6 The signal to noise ratio of each input channel shall be a minimum of 50 dB.
- E4.7 The cross talk between any two input channels must be a minimum of 60 dB.
- E4.8 The hardware used for the input channels shall be purpose built by the system manufacturer. Generic commercially available cards or modules will not be acceptable.

#### **E5. ONLINE STORAGE**

- E5.1 The Winnipeg Fire Paramedic Service currently is experiencing an emergency telephone call volume of approximately 65 call hours per day.
- E5.2 Online storage is considered temporary storage for the call audio and supporting data. Recorded information is stored here prior to being recorded on the archive medium.
- E5.3 The system shall provide a minimum of 12000 call hours of online storage. Bidder shall state online storage capacity.
- E5.4 The bidder should provide details on available options to increase online storage capacity.
- E5.5 A redundant online data storage mechanism is required. Bidder shall describe in detail the redundant data storage method and any limitations of this method.

#### **E6. ARCHIVE SYSTEM**

- E6.1 The Winnipeg Fire Paramedic Service recognizes that technology is advancing and that traditional media used for archive storage are being replaced with newer technologies. The WFPS is willing to consider all technologies with higher consideration given to:

- (a) Greater storage capacity
- (b) Longer storage life
- (c) Faster record access time
- (d) Lower initial costs
- (e) Lower maintenance and replacement costs
- (f) Higher reliability
- (g) Greater redundancy

- E6.2 Bidder shall state the storage capacity in call hours.
- E6.3 All archive media must have a shelf storage life of a minimum of twenty (20) years when stored as per the manufacturer's recommendations. The bidder shall provide details of acceptable storage environments and expected storage life.
- E6.4 Bidder shall provide details on the seek time and access times of their recommended archive system.
- E6.5 Bidder shall provide an estimate of the Mean Time Between Failures (MTBF) and the Mean Time Before Repair (MTBR) of their recommended archive system.
- E6.6 Bidder shall detail the redundant archiving system and method used by system.
- E6.7 The archive media must be secure from accidental or deliberate erasure or alterations. Bidder shall detail how this is accomplished. Bidder shall detail what steps or procedures are required to re-use media that has been used.
- E6.8 When the archive medium has reached capacity or is removed from the audio logger system, a label must be created that clearly and uniquely identifies the archive media. The label should include the start and stop times and dates. A serial or archive record number should also be generated. The bidder shall detail how this is accomplished.

## **E7. CALL RECORDS DATA**

- E7.1 In addition to the actual call audio, the audio recording system should automatically create a database of all calls. The following sections detail the mandatory and desirable data that should be stored with the audio information.
- E7.2 The call record shall include the time the call originated.
- E7.3 The call record shall include the date the call originated.
- E7.4 The call record should include the duration of the call.
- E7.5 The call record shall include the channel name or number of the input channel that the audio was recorded on.
- E7.6 The call record should include the ANI/ALI information of the originating call. If this feature is available, the bidder shall detail the necessary interface required to accomplish this.
- E7.7 The call record database shall be searchable based on key fields. These fields include but are not limited to:
- (a) Date
  - (b) Time

(c) Input channel

- E7.8 If the call record database supports ANI/ALI information, these fields shall be searchable
- E7.9 Bidder shall detail the search abilities and limitations.
- E7.10 The call records database should be available from a remote PC or via a network connection.
- E7.11 The Bidder shall provide details on any restrictions on the call records database size or capacity.
- E7.12 The call records database should allow fields that could be used to annotate or label the call.
- E7.13 Updates to the audio logger hardware, firmware or software, should not alter the call records database. If required, a procedure should be available to migrate the database as future changes are implemented.

**E8. FRONT PANEL USER INTERFACE**

- E8.1 The following sections detail the mandatory and desirable front panel interface the audio logging system should possess:
  - (a) Front panel Interface should include a display, and control keys. Complete and accurate operation of the logging system should be capable of being performed from the front panel interface.
  - (b) The front panel Interface must be secure to prevent access from unauthorized personnel. Bidder shall detail how this is accomplished and the number of levels of access control available.
  - (c) The audio logging system should contain an internal speaker and volume control for use in live monitoring or in playback.
  - (d) A standard ¼" headphone jack on the front panel interface should be provided for monitoring live or playback audio. If available, inserting a plug into the headphone jack should disconnect the internal speaker.
  - (e) All alarms shall be annunciated on the front panel.

**E9. AUDIO INPUT USER INTERFACE**

- E9.1 The following sections detail the mandatory and desirable Audio Input interfaces the audio logging system should possess:
  - (a) All audio inputs shall be via the rear panel of the audio logging system. The bidder shall detail the connections to the main logging system.
  - (b) All audio connections should be made using a shielded connector.

**E10. REMOTE ACCESS USER INTERFACE**

- E10.1 The following sections detail the mandatory and desirable Remote Access interface the audio logging system should possess. While front panel control of the system is desirable, the Winnipeg Fire Paramedic Service would like to investigate options for remote access to the system.
- E10.2 The bidder shall detail the options available for remote access to the archive and online data. Details should include hardware and software requirements, type of connection, (Ethernet, Serial, Parallel, etc), security measures, and limitations on accessible features, if any.

- E10.3 The system should support multiple simultaneous connections from remote users. The bidder shall detail the number of simultaneous users that can be supported, and any limitations on accessible features.
- E10.4 Remote access must utilize a password system. As a minimum, the system should provide at least two levels of access, a system administration level allowing full access and a user level with access restrictions. The bidder shall describe the security levels, access privileges and maximum number of remote users available.
- E10.5 The remote access connectors shall be mounted on the rear panel of the host system. Connections to a network, a printer or a remote terminal shall use industry standard connections and pin outs.
- E10.6 The remote user interface shall be a structured graphical user interface (GUI). From the remote interface, the user should have access to the following features:
- (a) Record
  - (b) Playback
  - (c) Search
  - (d) access to online storage
  - (e) access to archived media
  - (f) processing of calls such as creating audio files
- E10.7 During playback of recorded audio, the operator shall have the ability to stop and pause playback. Calls that are paused shall be capable of being resumed from the point at which they were paused.
- E10.8 During playback, the user should have the ability to continuously loop a specified selection of audio.
- E10.9 An important functional requirement is the ability to make audio files of selected recorded calls. These files could be used for investigations, training, or court purposes. The recorded calls could originate from either the online storage or the archived medium. The desired format of the recordings is WAV formatted files. The operator is required to provide a verbal preamble before each section of the audio file. This verbal preamble and the desired recorded audio shall form the audio file. The bidder shall describe how the audio file, including the verbal preamble, would be recorded. The bidder shall also detail what output file formats are available. Please note that the bid must include all necessary hardware and software to complete this function.

## **E11. ALARM INTERFACE**

- E11.1 The following sections detail the mandatory and desirable Alarm interfaces the audio logging system should possess:
- (a) The audio logging system must provide alarms and warnings by the following methods:
    - (i) Visual warning on front panel
    - (ii) Audible alarm capable of being disabled
    - (iii) Alarm output such as relays used for alarm monitoring at a remote location.
    - (iv) Alarm or warning messages on all remote clients
  - (b) As a minimum, the system shall generate alarms for the following scenarios:
    - (i) Storage media full
    - (ii) System Faults
    - (iii) Storage Device fault

- E11.2 The system should display a warning when the storage media is nearing capacity.
- E11.3 The system should display an alarm or warning if an attempt is made to erase or re-record archived data.
- E11.4 Relay contacts should be available for remote indication of alarms. Bidder should describe if this option is available and what events can be monitored. As an option, Bidder should indicate any remote displays, indicators or alarms that are available, their costs, and installation costs.
- E11.5 All external connections for alarm relays shall be made via the rear panel.

## **E12. OUTPUT CHANNEL INTERFACE**

- E12.1 The following sections detail the mandatory and desirable output channels the audio logging system should possess.
  - (a) The system must have a minimum of one analog line level output channel. Additional or multiple output channels are desirable.
  - (b) All audio outputs should be via the rear panel of the audio logging system.
  - (c) All audio connections are to be made using a shielded connector.

## **E13. TIME SYNCHRONIZATION INTERFACE**

- E13.1 The Winnipeg Fire Paramedic Service intends to interface the audio logging system with its existing external reference clock. The existing clock is a Spectracom Netclock /2 system, model 8170. The time is derived from the 60 kHz WWVB time standard.
- E13.2 The system must have a serial (RS232-C) input that can accept a Netclock /2 protocol.
- E13.3 An IRIQ format input should be available as an option. Bidder shall detail what options are available for time synchronization.
- E13.4 All connections for the external clock source shall be made via the rear panel.

## **E14. OPTIONS**

- E14.1 The Bidder shall include in the schedule of prices, all available options for the audio logging system. A brief explanation of each option and its relevance to the proposed solution is also required.

## **E15. RECORDING**

- E15.1 Each input channel shall have a programmable input trigger that once received, will initiate the recording process.
  - (a) Input trigger options shall include both off-hook (OH) and Voice detection (VOX). Bidders shall detail trigger options available.
  - (b) Channels configured for VOX recording, shall have an adjustable time delay that will maintain the recording process during brief interruptions of voice. Bidder shall detail the VOX capabilities of their proposed solution.
  - (c) Channels configured for off-hook operation should have an adjustable voltage threshold. Bidders shall detail what options are available for off-hook detection.
  - (d) The recording must reproduce the actual call as accurately as possible. The use of filters or other digital signal processing (DSP) techniques to enhance the recorded call is not acceptable. The use of DSP techniques is acceptable on playback only, and only if the

user can disable them. Bidder should include details on available filters and digital signal processing functions that can be applied to the recorded playback.

- (e) Automatic Gain Control (AGC) shall be adjustable and set on an individual channel basis.

E15.2 Recording on each channel shall be individually enabled or disabled.

## **E16. INSTALLATION**

E16.1 The Bidder shall be responsible for the installation of the system at Winnipeg Police Service facility located at 151 Princess Street in Winnipeg, Manitoba.

E16.2 The Bidder shall detail exact physical space requirements for all elements of the system.

E16.3 The Bidder's proposal shall include a plan describing in detail the step-by-step procedure for installation of the system. The plan should outline any work that can be completed before the installation of the fixed equipment. The plan should also outline the expected manpower requirement for the installation of the system.

E16.4 All cabling used in this installation is required to be FT.4 rated.

E16.5 Installation of the system shall conform to all CSA and City of Winnipeg Electrical Codes.

## **E17. MAINTENANCE AND AFTER SALE SUPPORT**

E17.1 The Bidder shall detail the maintenance of the system and all its components. Further to D11 a minimum a one (1) year parts, labour and service warranty on all components of the system is required and is to be included in the system cost.

E17.2 The standard one-year maintenance contract the City would consider as a minimum would contain the following:

- (a) One (1) year software maintenance covering any software upgrades and defects of the software specific to the application. A defect in the software would extend the one (1) year contract until such time as the defect is corrected.
- (b) One (1) year replacement warranty on all hardware components. Should a component fail it will be the responsibility of the supplier to troubleshoot and replace component.
- (c) A minimum maintenance check of the system, during the 11<sup>th</sup> month prior to the expiration of the warranty, to ensure the system is operating according to manufacturers specification, and cleaning of disc, DAT and/or CD-ROM drives.

E17.3 The Bidder shall include a detailed breakdown of the service capability of their organization. This shall include:

- (a) Number of Field Service Engineers
- (b) Breakdown of engineering support organization supporting product maintenance
- (c) Breakdown of available maintenance plans i.e. 5 year Maintenance and Service Contract
- (d) Estimated maintenance costs for the first five years of operation

E17.4 Software upgrades are to be provided at no charge within the first year and are to be included in any service contract.

E17.5 The Bidder shall provide the details and costs, if any, of the available technical support programs. Technical support on a 24 hour, 7 day per week basis should be available via a toll free telephone number.

- E17.6 In the event of a system failure, the Bidder shall provide details as to typical service response times. These shall include:
- (a) Estimated time before a technician is on site.
  - (b) Estimated time to affect a repair or replacement of a defective module.
- E17.7 The Bidder shall provide the details and costs, if any, to extend the maintenance for years two (2) through five (5).
- E17.8 The Bidder should provide the details and costs, if any, to extend the maintenance for years six (6) through ten (10).

## **E18. TRAINING**

- E18.1 The Bidder, as part of the proposal, shall submit a training plan. The training plan will be based on three levels of training.
- (a) Standard user (operator)
  - (b) Supervisory and system administrator
  - (c) Theory, maintenance and service
- E18.2 All training levels will include all subsequent lower levels of training (i.e. training level 3 will include standard user, supervisory user and system administration training).
- E18.3 The proposal will define the content of the courses to be provided and a training schedule outlining the hours required for each course.
- E18.4 The Bidder shall describe a modular approach to the training permitting flexibility of class size and the adaptability to different training locations. Level a) and b) training sessions to be held immediately after the installation of the system. Level c) training to be held shortly thereafter.
- E18.5 The Bidder shall describe any special training equipment, documentation, devices or facilities required or to be developed for all three levels of the training. The Bidder shall describe the qualifications of the training personnel. The Bidder shall identify any proposed training that will be performed by sub-contractors.

## **E19. DOCUMENTATION**

- E19.1 The City of Winnipeg reserves the right to copy all documentation for internal purposes.
- E19.2 The successful Bidder shall supply a minimum of five copies of each of the operation, supervisory, maintenance and service documents. Each of these manuals will be of commercial print grade quality and include the following information:
- (a) Operation Manual: Basic overview of the system operationally. A detailed description of each function provided and step-by-step instructions on performing each function.
  - (b) Supervisory Manual: Basic overview of the system from a supervisory perspective. A detailed description of each function provided to the supervisor and step by step instructions on performing each function.
  - (c) Maintenance and Service Manual: Technical description of the circuit operation. Technical block diagram showing the configuration and all major elements of the system specific to the site, Internal and external cabling and interconnect diagrams. A fully technical description of all possible system reported faults and alarms. A symptom/solution guide corresponding to all system reported faults. A complete description corresponding to the procedure to be taken to undertake the proposed solution. All suggested preventative maintenance procedures associated to all system components.

E19.3 The successful Bidder shall supply to the Winnipeg Police Service all documentation and manuals received as support documentation for all integrated hardware and software packages incorporated in the system as well as all original software diskettes for all imbedded software packages.

E19.4 A complete set of "As Built" drawings shall be provided within 30 calendar days of an accepted installation date

**E20. DELIVERY**

E20.1 Goods shall be delivered within thirty (30) days of award, FOB 151 Princess Street, Winnipeg, Manitoba, freight prepaid.

E20.2 Goods shall be delivered between 8:30 a.m. and 4:30 p.m. on Business Days

E20.3 Installation shall be arranged with the Contract Administrator.