

**9-1-1 TELEPHONE SYSTEM
RFP MSA 54159
SECTION VI – TECHNICAL REQUIREMENTS**

A. OVERVIEW

This section contains the detailed equipment requirements pertaining to the proposed work to be performed. See Section V, Administrative Requirements; Section VII, Cost Proposal, Section VIII, Proposal and Bid Format; and Section II, Rules Governing Competition for other requirements that must be met in order to be considered responsive to this RFP.

The State has determined that it is best to define its own needs, desired operating objectives, and desired operating environment. The State will not tailor these needs to fit some solution a bidder may have available; rather, the bidder shall propose to meet the State's needs as defined in this RFP. All requirements contained herein are **MANDATORY** unless otherwise stated.

The requirements are required as part of the proposal. (See Section VIII, Exhibit VIII-A.11 for correct placement of this response item.) The bidder must complete these actual items. Do not retype requirements. After each requirement, the bidder must provide the following:

I understand and will comply with the above requirement. Indicate whether or not the proposed equipment and service meets the requirements. All requirements must indicate Yes or No. All **mandatory** requirements must indicate Yes in the proposal to be responsive.

Reference: Enter the volume number and page number(s) of any documentation that specifically substantiates the requirement. If applicable, also indicate where the bidder's experience substantiates the requirement.

B. GENERAL SYSTEM REQUIREMENTS – PASS OR FAIL

For general system requirements described in this section, bidders shall, as appropriate, detail the capabilities of the proposed system to meet or exceed the specification. If more than one system is offered through the MSRP, bidders must confirm in the description area of their responses that all system configurations meet the system requirements. Bidders must document to the State's satisfaction that the proposed system's functionality provides the mandatory features in such a manner that the abilities of the call taker to perform their job is not degraded. Bidders who fail to detail the capabilities of the proposed system to meet the functional requirement of each specification to the State's satisfaction shall be deemed non-compliant.

1. Standards

a. Federal Standards

The 9-1-1 systems provided through this contract shall meet or exceed the requirements contained in the Federal Communications Commission (FCC) Rules and Regulations (47 CFR) and any other applicable part of the FCC Rules and Regulations.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

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Reference: document _____

location _____ *page* _____ *paragraph* _____

Description:

b. NENA and Industry Standards

Bidders shall detail any exceptions, of which they have knowledge, to the following documents. The documents shall be the latest version available on the date this RFP is released. Bidder shall cite its knowledge of proposed system compliance to these specifications:

- NENA Generic Standards for E9-1-1 PSAP Equipment, Technical Reference NENA 04-001, Issue 2, dated March 2001.
- NENA IP Capable PSAP Features and Capabilities, NENA 58-501 June, 2004.
- NENA Technical Data Standard 02-010
- NENA Interface to IP Capable PSAP 08-501
- NENA Recommended PSAP Master Clock Standard, NENA 04-002, Issue 3, May 17, 2000
- NENA Data Exchange Format Version 4 (XML tagged data) NENA 02-010
- NENA VoIP I1, I2, I3.
- FCC Wireless E9-1-1, 94-102 and addendums
- ATIS J-Std-036A and addendums

Bidder understands the Requirement and shall meet or exceed it? Yes _____ *No* _____

Reference: document _____

location _____ *page* _____ *paragraph* _____

Description:

2. Commonly Available Components

The 9-1-1 Office recognizes the uniqueness of core components in the 9-1-1 equipment. However, the 9-1-1 Office expects the successful bidders to utilize industry standard and readily available components for such items as follows: telephone handsets, telephone cords, computer keyboards, computer monitors, computers, printers and non-9-1-1 software.¹ Bidders shall provide a list of any other

¹ *NOTE: Contractors are encouraged to provide BTX based PCs for better balance in thermal management, system size and shape, and acoustics. The BTX form factor specification was developed as an evolutionary step to the ATX*

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off-the-shelf components that would be accommodated by their proposed system and used in a sample configuration. After initial purchase from a contractor, all commonly available components may be replaced at the risk and discretion of the PSAP. With the written consent of the contractor, such consent not to be unreasonably withheld, the PSAP may replace commonly available components that meet or exceed the manufacturer's specification. If certification or testing is required, the contractor shall provide a price to the PSAP before proceeding with such certification process or testing. Such replacements of contractor's equipment will be at the PSAP's expense, and should be allowed by the contractor if in the contractor's opinion no safety hazard or system degradation of contractor's remaining equipment or software is caused by such replacements. Maintenance agreements for replaced items may be separate from the maintenance for all contractor provided equipment. However, during the initial purchase of a 9-1-1 system, the purchase of a computer monitor from the contractor or third party source shall be at the discretion of the State or PSAP. Contractor shall be available to confirm that any third party accessories that the PSAP desires to use are compatible with their CPE (example are headsets and non 9-1-1 software).

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

3. System Connections

Contractor shall not use wireless (i.e., WiFi or Bluetooth) connections for desktop and printer components within the dispatch center and no wireless connections shall be part of the proposed system within the backroom equipment area due to potential electro-magnetic interference, signal interference, and security interference with other equipment. However, wireless options may be provided on a case-by-case basis only if the ordering PSAP assumes all responsibility for specifying proper security and performance.

Each position and each separate rack or cabinet which is a part of the 9-1-1 system shall have a defined ground point. The ground points shall be used to interconnect the pieces of equipment to a common ground.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

form factor to address these issues eventually to replace ATX as the industry standard. BTX provides an improved motherboard layout and chassis design that delivers improved airflow to high power components while using fewer fans and lower fan speeds, allowing the systems to run cooler and quieter.

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Reference: document _____

location _____ *page* _____ *paragraph* _____

Description:

4. Cabling

The proposed system shall be cabled according to the manufacturer's specification to enable equipment to operate as intended with no interference to any other PSAP system. All building and electrical codes applicable to telephone wiring at the PSAP location shall be complied with.

All cabling shall be installed in a neat and professional manner with only new cable. Cabling should be run in conduit or cable trays through ceilings. Cabling shall be run in conduit within walls, and within conduit or Panduit on runs where interior access is not available. Cabling installed under work surfaces, in modular console systems, or similar shall be run in provided wiring channels, with secured wire looms, or Panduit. Connectors shall be secured to their termination points by appropriate screws, cable ties, Velcro, or other fastening material.

Each PSAP will be responsible for facility modifications such as installation of plywood at the demarcation point, installation of conduit and installation of electrical circuits necessary to install a new 9-1-1 system.

For the purposes of the Cost Tables in Section VII.C, bidders shall include sufficient cabling and repeaters to allow all operator positions to connect to the common electronics at a maximum distance of 500 feet.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ *No* _____

Reference: document _____

location _____ *page* _____ *paragraph* _____

Description:

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5. Audio Quality

Audio quality shall not be degraded by various compression methods within the 9-1-1 system. The mean opinion score (MOS) representing the end user perception shall be the same, or better, at the output compared to the input. The audio quality shall not degrade, for example, when a call taker needs to transfer a call or include 3-way calling for language interpretation.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

6. Acoustic Noise

The acoustic noise generated by the power supplies, hard disks, or other components mounted within the PSAP dispatching area shall not exceed 40dB SPL measured three (3) feet from the source in any direction.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

7. This section intentionally left blank.

8. This section intentionally left blank.

9. This section intentionally left blank.

10. Crosstalk

Isolation between primary or monitor speaker circuits and a transmit line shall be greater than 40 dB. Isolation between any two 9-1-1 positions shall be greater than 55 dB. Isolation between any two transmit or receive lines shall be greater than 55 dB.

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Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

11. Training

The bidder shall provide on the bidder's Price List, prices for training as specified in Exhibit VIII-A.4, Training.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

12. Logging Recorder Interface

Unless not required by the PSAP, a terminal connection shall be provided on the contractor's Main Distribution Frame in the 9-1-1 equipment room or a location mutually agreed to by the contractor and the logging recorder contractor, with termination of all voice circuits for distribution to a logging recorder at the PSAP.

9-1-1 CPE logging interface shall meet the minimum requirements in NENA 04-001 Issue 2, August 23, 2001 Recommended Generic Standards for E9-1-1 PSAP Equipment, reference 3.5.1.2. Audio output to the logging recorder shall not have a degraded quality variance as compared to entry point into the 9-1-1 CPE. (See 5, Audio Quality, above).

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

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Description:

13. Electrical Requirements

The 9-1-1 system shall be designed to operate from a 120±6 VAC, 60±3 Hz, single-phase power source. If the contractor's system operates on any other power source rating, the contractor shall be responsible for the additional cost to the PSAP. 9-1-1 system power supplies shall withstand a minimum 20ms of AC mains disruption with less than 5% variation in output voltage.

Each component requiring 120VAC power shall be equipped with captive, three-wire, grounding type primary power input cords having a minimum free length of ten feet, and terminated with three-pin AC caps.

Each operator position, rack, cabinet or sub-system shall contain a readily accessible AC power On/Off switch.

All 9-1-1 CPE circuitry shall be protected against damage from electrical overloads and primary power voltage surges by fuses, and/or other current limiting devices, selected to assure fast and positive protective action.

All power supplies associated with the common electronics shall have redundancy and shall automatically switch to the redundant power supply when the primary power supply fails. Each power supply shall be designed to operate over an ambient temperature range of 0 to 60°C. All power supplies shall have output over-voltage protective circuitry such as crowbar shut down.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

14. Interface Requirements

Contractor shall permit the use of any interfaces to 9-1-1 CPE. Any additional software the PSAP needs to incorporate for interagency communications shall not void warranties, contingent upon compatibility and security. Equipment throughout the 9-1-1 CPE system shall be compatible to evolve to IP in order to support emergency

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voice, text and video messaging directly from the Internet and from the public switched telephone network (PSTN), including the delivery of accurate caller location information.

Additionally, all equipment provided by the contractor shall be capable of interfacing to standard radio and GIS systems available on the market.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

15. Installation Requirements

Contractor shall schedule with the PSAP to deliver, install, test, and integrate the 9-1-1 equipment into the dispatch center and connect to any associated equipment (MIS, UPS, generator, computer peripherals, logging recorder, etc.) as outlined in Exhibit VIII-A.1, Installation and Delivery.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

16. Power and Redundancy

Due to the critical nature of 9-1-1, bidders must specify in detail how their product offering will perform reliably in the 9-1-1 environment. Detail the capabilities of the proposed system to continue functioning should the failure of various components occur. Detail those components that provide redundancy and those components that, upon failure, would result in a total loss of system functionality. As evidence of reliability, please include mean-time-before-failure statistics, if available, from the manufacturer for the various system components. At a minimum, the following power concerns must be provided:

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- a. All critical boards need to be hot swappable, and not interrupt operations.
- b. Crucial cards in the common electronics, whose failure will render the 9-1-1 CPE inoperative, shall be redundant. Removal of a failed card where a redundant card takes over for a failed card shall not affect, interrupt or interfere with the operation of the 9-1-1 CPE.
- c. A single point failure shall not affect more than one operator position.
- d. A single point failure shall not degrade, interrupt, or interfere with any other portion of the 9-1-1 CPE.
- e. Failure of components or circuitry at one operator position shall not degrade the operation of the other positions.
- f. Transferring to any redundant feature card shall not affect, interrupt, or interfere with the 9-1-1 CPE operation.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

C. USER FEATURES – PASS OR FAIL

For each user feature described in this section, bidders shall detail the capabilities of the proposed system to meet or exceed the specification. Bidders must document to the State's satisfaction that the proposed system's functionality provides the mandatory features in such a manner that the abilities of the call taker to perform their job is not degraded. Bidders who fail to detail the capabilities of the proposed system to meet the functional requirement of each specification to the State's satisfaction shall be deemed non-compliant.

1. Caller I.D. Requirement

The proposed system shall be capable of displaying Caller I.D. on Centrex and 1MB lines, analog loop start telephone lines, when not blocked by the caller.

Proposed systems shall be capable of permanently capturing the Caller ID of previous caller on paper or on an electronic storage medium.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

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2. Complete Call Progress Detection Requirement

The proposed system shall be capable of call progress detection and notification throughout the life of the call. The required call progress states are: Idle (no call active), Ringing (incoming call), Dial Tone, Stutter Dial Tone, Ring Back, Busy, Connected and Disconnected Call. These features can be audible and/or through visual indicators on the telephone and/or workstation generated by the 9-1-1 CPE or Central Office equipment.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

3. Flash Transfer

The proposed system shall be capable of transmitting a flash hook to the central office to obtain secondary dial tone for the purpose of transferring the caller or conferencing a third party.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

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4. Conferencing

The proposed system shall be capable of establishing a supervised conference consisting of three (3) or more internal and/or external parties (including originator).

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

5. Distinctive Ringing

The proposed system shall be capable of audible indication of the type of incoming call by using distinctive ring tones for different trunk groups. There shall be a minimum of five (5) distinctive ring tones, assignable by trunk or trunk group.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

6. Call Queuing

The proposed system shall be capable of displaying queue status for up to three (3) different trunk groups. Each queue indicator shall indicate via visual and audible indicators that calls are waiting to be answered. Alternatively, the call taker can view the status of individual trunks. Each trunk will display the status of calls waiting to be answered, calls on hold and calls answered.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

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Description:

7. Last Stored Number Redial

The proposed system shall be capable of last number redial via one-button feature activation at the discretion of the call taker.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

8. Automatic Callback

The proposed system shall include the ability for the PSAP to perform an automatic one-button call back feature to the 9-1-1 caller, no matter what source the 9-1-1 call is. For example, the call back number (CBN) would need to be used for wireless callers, since the ANI field contains a non-dialable (pANI) number. The callback number will be a minimum of ten digits. *Note: this has also been known as ANI callback, but that name is deceiving because the ANI field is used for other numbers such as emergency service routing keys (ESRKs).*

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

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9. Pre-Arrival ALI

The proposed system shall have the ability to query the ALI database as soon as it knows the ANI. This function shall be PSAP selectable.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

10. Broadcast ALI

The proposed system shall be capable of performing a broadcast of the pre-arrival ALI. Example: Display all incoming 9-1-1 calls on a map at all call taker positions while they are ringing.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

11. Speed Dial

- a. The proposed system shall be capable of one button/feature speed dialing to place calls or transfer callers.
- b. The proposed system shall include the capability for a minimum of thirty (30) speed dials with option to increase to more.
- c. The proposed system shall be capable of access to speed dialing via input of two or three digit speed dial codes or the activation of visual drop down speed dial lists that can activate 100 or more pre-programmed speed dial numbers.
- d. Speed dial numbers shall be programmable up to thirty two (32) digits.
- e. Speed dial numbers shall be user-programmable, under supervisory control.

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Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

12. Voice Transfer

The answering position instruments shall be programmable to provide one-button/feature transfer of callers to other emergency response agencies, based on the incoming Emergency Service Number (ESN). The system shall provide a minimum of sixteen (16) one-button tandem transfers. Activation of the one-button feature will dial a tandem programmed speed dial code to transfer the caller to a particular agency. For this feature, selection of the agency is manually chosen by the call taker, not by the ESN listed in the ALI record.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

13. Ring Volume

The proposed system shall be capable of ring volume adjustment by the call taker. Deactivation of the ringer by the call taker shall not be supported.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

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14. Transmit Mute

The proposed system shall be capable of fully muting the call takers voice transmission while continuing to monitor caller on an active call by activating one-button feature. Mute shall be at a level that is not discernable (not heard). The mute function shall be switched and not attenuated.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

15. Release

The proposed system shall be capable of releasing a line by activating the one-button feature regardless of the status of the handset.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

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16. Radio Broadcast

The proposed system shall be capable of using the telephone instrument handset/headset with the radio system under the control of the answering position equipment, and the ability to use the radio system headset with the telephone instrument under control of the radio system control.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

17. Integrated Voice Recording (Instant Recall Recorder)

The proposed system shall be capable of recording two-way voice communication of telephone calls at each position for the purpose of future playback by the call taker. Playback shall be accessible on screen via the IWS GUI (Graphic User Interface).

Call Detail Records (as described in System Features) such as date and time of call shall be associated with each archived telephone call. The system shall have programmable settings to determine how long voice files will be archived, so as to conserve disk space. However, it will be possible to save particular recordings indefinitely, if necessary. Recorder shall be capable of storing a minimum of 30 minutes of telephone conversation.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

18. Telecommunications Device For The Deaf (TDD/TTY)

The proposed system shall have TDD/TTY capability and be available to all lines that appear at each position, i.e., E9-1-1, seven-digit emergency, administrative, and ringdown.

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The TDD/TTY interface shall comply with the recommendations in NENA 04-001 Section 3.17 with a goal of complying with V.18 modem technology to accommodate baudot and text messaging.

Each call taker position shall be able to automatically detect TDD/TTY baudot and ASCII/Baudot calls in progress. Each call taker position shall have the ability to receive and decode ASCII/Baudot calls in compliance with current ADA regulations without the need for additional equipment at each IWS.

To avoid unnecessary delays in handling TDD/TTY calls, the call taker position must have the ability to receive Baudot/ASCII characters on the CRT display and scroll the text information. The TDD/TTY window must have the ability to display at least twenty (20) preprogrammed TDD/TTY messages that the call taker can transmit to the caller with a single click of the mouse.

The system must provide the ability to print TDD/TTY messages to the system call records printer. Each TDD/TTY call must be clearly labeled as a TDD/TTY call to allow for quick reference when reviewing records.

TDD/TTYs must be capable of Voice Carry Over and Hearing Carry Over (VCO/HCO) for dual party TDD/TTY relay systems, whereby a person may use his or her own voice to speak directly to the other party through the relay and have the operator relay text in the other direction.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

19. Telephone Sets

Telephone sets shall have the following features, at a minimum:

- a. Hold
- b. Dial
- c. Re-dial
- d. Release
- e. Transfer
- f. Conference
- g. Speed Dial
- h. ALI Request

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- i. ANI/ALI display (separate display is allowed)
- j. Four (4) line appearances or more
- k. Ten (10) multi-function programmable keys or more, programmed as telephone line appearance or a feature of the telephone set
- l. Headset/Handset Interface
- m. Volume control for headset/handset, ringer
- n. Call status indication (ringing, answered or on hold)
- o. For each telephone set available from the manufacturer, detail the line and feature button combinations that are available from the manufacturer.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

20. User Volume Controls

Any user accessible volume controls shall be in .5dB increments over the entire range.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

21. Keyboard

The keyboard shall be 101-key AT Enhanced with PS/2 Connector or better. Optionally, the Bidder may offer other keyboard options on the Price List that provide different ergonomic designs and/or features.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

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Reference: document _____

location _____ *page* _____ *paragraph* _____

Description:

22. Mouse

The mouse associated with the position shall be Two-button with PS/2 Connector or better. Optionally, the bidder may offer other mouse options on the Price List that provide different ergonomic designs and/or features.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ *No* _____

Reference: document _____

location _____ *page* _____ *paragraph* _____

Description:

23. Monitor

Monitor shall meet these minimum requirements:

1. Viewable 19" diagonal LCD*
2. Viewing angle: minimum 160 degrees (horizontal and vertical)
3. Native resolution: minimum 1280x1024
4. Response: 12ms
5. Contrast: minimum 500:1
6. Brightness: 300 nits
7. Color Depth: 16.7M (24 bit colors)
8. Height and pivot adjustments
9. 1280 x 1024 @ 60 Hz
10. Anti-glare/anti-static glass
11. MPR-II Compliant to insure low monitor emission levels
12. Energy Star qualified to reduce power consumption during inactive periods

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Bidder may offer other monitors on the Price List for inclusion in contract.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

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D. SYSTEM FEATURES – PASS OR FAIL

For each system feature described in this section, bidders shall detail the capabilities of the proposed system to meet or exceed the specification. Bidders must document to the State's satisfaction that the proposed system's functionality provides the mandatory features in such a manner that the abilities of the call taker to perform their job is not degraded. Bidders who fail to detail the capabilities of the proposed system to meet the functional requirement of each specification to the State's satisfaction shall be deemed non-compliant.

1. ANI/ALI Display

The system ANI/ALI display shall meet the minimum requirements in NENA 04-001 Section 3.7.

- a) The system shall have the ability to display ANI/ALI data associated with each E9-1-1 call on computer display or phone set.
- b) The ANI/ALI display at each position shall provide the ability for the operator to review at least the last ten ANI/ALI data records for calls that were answered by the operator.
- c) The user shall be able to use the computer screen print function to capture the ANI/ALI data to print or save to a file.
- d) CPE shall accommodate the most current Statewide ALI Format (currently Format 04) and be configurable for a no cost upgrade for any changes during the term the equipment is installed at the PSAP.
- e) The ANI/ALI re-bid function shall be capable of distinguishing different classes of service needing either automatic or manual operations. The ANI/ALI re-bid function shall be capable of both automatic and manual operations and shall be adjustable to accommodate time between re-bids and the number of re-bids.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

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Description:

2. ALI Error Reporting

The 9-1-1 CPE software application shall provide the call taker the ability to systematically capture erroneous ALI information. The error report shall capture all Call Detail Report (CDR) information on paper or electronic file for later review and editing. See Exhibit VI-A for CDR elements.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

3. ALI Controller

- a) A request to the database shall be made as soon as the number in the ANI field is detected. Bidders shall define the standard time this query is set for and the min/max parameters.
- b) The CPE shall interface with the ALI database by sending ALI retrieval requests from the 9-1-1 interface and send them in the proper format to the host ALI computer.
- c) The E9-1-1 controller shall compare the number returned with the ALI to the original ANI sent by the CO, ensuring that caller ALI is matched with ANI.
- d) The CPE shall accept a command from a call taker to repeat the request for ALI from the 9-1-1 database. This is typically used by the call taker if the received ALI is unclear, incomplete, or dynamic location information needs to be updated.
- e) The ALI controller must be capable of retrieving ALI data through a Frame Relay circuit and via Internet Protocol (IP).
- f) The ALI controller must be capable of automatically switching to an analog modem and dialing a backup modem to reestablish the link to the ALI database should the Frame Relay or IP link fail.

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- g) The ALI controller shall be capable of automatic or manual ALI retrieval on 1MB or Centrex lines when caller ID is presented with the call on designated telephone lines.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

4. LEC Network Connection Requirements

Contractors installing 9-1-1 systems will be required to connect to the ALI databases of SBC or Verizon. Shown below is a basic description of the ALI network configuration for each telephone company. When installing 9-1-1 systems, it shall be the responsibility of each contractor to contact the local telephone company to obtain specific connection requirements.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

5. SBC Network Connections

- a) ALI Database Connection – Contractors will need to connect their equipment to a telephone company supplied router that typically uses a frame relay circuit to request ALI from the ALISA database.
- b) Data Collection Service Connection – Contractors will need to connect the 9-1-1 system to a telephone company provided frame relay router to send ANI/ALI information to a remote data collection service.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

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Reference: document _____

location _____ *page* _____ *paragraph* _____

Description:

6. Verizon Network Connections

- a) ALI Database Connection – Contractors will need to connect their equipment to a telephone company supplied router that typically uses a frame relay circuit to request ALI from the ALISA database.
- b) Data Collection Service Connection – Contractors will need to connect the 9-1-1 system to a telephone company provided frame relay router to send ANI/ALI information to a remote data collection service.

Bidder understands the Requirement and shall meet or exceed it? Yes _____
No _____

Reference: document _____

location _____ *page* _____ *paragraph* _____

Description:

7. Abandoned Call Detail

- a) In the event the system detects that a 9-1-1 calling party hangs up before a call taker answers the call, the system shall identify in the System Call Status Window the abandoned call ANI and ALI information.
- b) The system shall be able to provide an immediate automatic callback of the 9-1-1 caller. No matter what source the 9-1-1 call is from, the appropriate number shall be put into the Last Number Redial of the associated call taker answering position, which will provide one-step call back to the abandoned call number.

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The last number redial shall accommodate a minimum of ten digits. *Note that the ten digit ANI of the wireless caller is not a valid call back number.*

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

8. Dynamic ANI/ALI OUTPUT

(For Integration With Computer Aided Dispatch (CAD), Geographic Information Systems (GIS), And Other PSAP Systems)

The proposed 9-1-1 CPE shall provide a flexible interface capable of sending to a CAD, GIS, as well as other systems, the information normally displayed with an E9-1-1 call. The 9-1-1 system shall allow other system devices to interface with emergency call information providing retrieved full dynamic ANI/ALI for every emergency call, as well as answering position identification. The 9-1-1 CPE shall interface with CAD, as referenced in the minimum requirement of NENA 04-001 Section 3.4. There shall be separate outputs available for the PSAP's CAD, MIS, GIS, plus a minimum of four (4) others, and each shall be individually selectable and configurable as to what the PSAP needs.

The ANI/ALI output shall be a flexible interface that promotes data exchange with other systems. The 9-1-1 CPE shall be capable of fully parsing the ALI response into separate fields based upon XML protocol in PSAP CAD, Mapping, MIS, etc. The ANI/ALI output shall be supplied by the 9-1-1 CPE in a selectable native, comma delineated, or XML format. The ANI/ALI output information shall be dynamically provided for each new ALI received, such as a rebid for updated information during the same call. ALI records being transmitted to other systems shall be capable of being fully parsed, i.e. XML markup for all fields.

Flexible output interfaces shall be selectable based upon PSAP needs, such as serial, TCP socket connections, and ASCII. The current "data dump" of the exact 512 byte ALI record (aka what is shown on the "green screen" ALI display) should not be the only way the CPE systems deliver the ALI information to the PSAP CAD and host systems. However, there shall be the option to use older (green screen) ALI record layout if dealing with older systems.

Flexible interface capabilities shall exist with other systems and include two-way communications capabilities. Socket based communications with other systems are a necessity, i.e. TCP. Contractor shall provide a full Application Programming Interface (API) that allows external systems to send/receive requests and data back and forth with the CPE. There shall be the ability for external systems to query the CPE and get

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a response. Example: the agency's CAD or mapping system wanting a "refresh" of the ALI for the call that console #XX is currently on, so that an updated location can be displayed, or so that the CAD can append the ALI data into the call for service being handled by the call taker.

Additionally, flexible interfaces shall be configurable on 9-1-1 CPE so that field-level manipulation such as adding leading zeroes or spaces, padding fields with spaces or specific record terminators, and turning fields on and off can be done as required by external systems.

The system shall provide "Health and safety" messages between the CPE controller and the agency's host systems (existing CPE does this, but it is a one-way type of message). This would include heartbeat signal (aka "keep alive" message), CPE status messages, ALI database link messages, and ALI host messages.

The ANI/ALI output shall be in accordance with AT&T Format, NENA I Format, and others if needed. Examples:

1. The caller's callback number (CBN) including NPA
2. Caller's ALI
3. Position of agent that answered the call
4. Transferred destination
5. Date, times of the various connect and disconnect events, and other particulars relating to a call
6. CBN is used instead of ANI because mobile callers are assigned a temporary psuedo-ALI used as a key to gain the ALI information from the database
7. ALI
8. ESN
9. Class of service (various four character codes, i.e. RESD, BUSN, BOIP)
10. Listed name of calling number
11. Billing telephone number
12. Serving essential service agencies
13. Mobile location information: Latitude, Longitude, Uncertainty and Confidence

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

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9. Uninterruptible Power Supply (UPS)

Contractor shall provide with each 9-1-1 system adequate power failure backup systems and power conditioning systems to insure that failures, spikes, and brownouts from any source do not damage or shutdown any components of the 9-1-1 system. The UPS is not intended to maintain power to the equipment for extended periods of time. The UPS is intended to provide power during the interval between when commercial power fails and the PSAP's own emergency power is on-line. Contractor shall provide all 9-1-1 CPE with uninterruptible power for a minimum of fifteen (15) minutes. Reference NENA 04-001, Section 6.

Since battery UPS systems degrade over time, the Contractor shall not reuse an existing UPS. The UPS (if battery based) supplied during installation shall have a manufacture date within six months of the installation date.

Two UPSs shall be provided capable of maintaining the backroom ANI/ALI server and ancillary equipment for fifteen (15) minutes under normal load conditions, one being the backup to the other. Each UPS shall condition the power to prevent harmful power spikes and brownouts from damaging the backroom and call taker position equipment.

Contractor shall provide a UPS for each Call Taker position capable of maintaining the equipment operational for fifteen (15) minutes under normal load conditions, either at each position or in the backroom sized appropriately for all positions.

The call taker UPS shall condition the power to prevent harmful power spikes and brownouts from damaging the equipment. Contractor may also provide additional UPS service and emergency power backup (see Optional Items).

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

10. Local Maintenance Terminal Interface

At a minimum, a maintenance terminal interface shall provide the following interaction with the E9-1-1 controller:

- a) Diagnostic mode: to display all event, diagnostic, and error messages as they occur.

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- b) Maintenance mode: to program and configure the E9-1-1 controller (program interface parameters, assign telephone numbers, reset alarms, generate reports, select options).
- c) Maintenance mode shall be password protected to ensure system security.

Optionally, Contractor may provide a dedicated maintenance terminal for Moves, Adds and Changes (MAC). Additionally, bidder shall provide the option (on the Price Lists) of a dedicated maintenance terminal and detail the effect on remote maintenance, if any.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

11. Maintenance

The contractor shall provide maintenance as specified in Exhibit VIII-A.3, Maintenance. If a bidder chooses to respond to notifications of major/minor failure with a REMOTE/ON-SITE RESPONSE, the bidder shall detail in writing the capability of a factory trained technician to access the system remotely and provide the following:

- a) Full diagnostic access to all major components of the 9-1-1- system
- b) Capability to perform software repairs
- c) Capability to disable or enable system ports to bypass failed ports
- d) A list of the most frequently failed components and the success rate of remote repairs for these components
- e) Capability to access accumulated statistics on system performance such as error messages, power failures, etc.
- f) Description of the ability and types of software that can be remotely updated/replaced
- g) Confirmation that access to the system will be password protected

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

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12. Station Message Detail Record (SMDR)

- a) An automatic station message detail record (SMDR) shall be printed by the 9-1-1 CPE every time a call is released and provide the complete record of all activity of the call.
- b) The 9-1-1 CPE shall also have the ability to store SMDR records to a data file that can be downloaded onto a floppy drive, CD, DVD or other media on demand.
- c) SMDR shall have an independent output.
- d) A printer shall be equipped at the PSAP to provide an SMDR printout at the end of each 9-1-1 call. This is sometimes called a “log” printer.
- e) In the event of a printer failure, an alarm shall automatically notify the operator that a call is stored in the printer spool and the printer needs attention. The 9-1-1 CPE system shall buffer all subsequent 9-1-1 call information and resume printing buffered call information once printer operation is restored.
- f) The SMDR shall include, at a minimum:
 - The caller’s ANI/ALI
 - Position of agent that answered the call
 - Transferred destination
 - Date and times of various connects and disconnects

See Appendix A for option to replace SMDR printer with PC.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

13. Remote Call Data Record Collection Service

Call Data Records (CDR) are collected from each PSAP Agency’s ALI controller via a Frame Relay circuit by one of two remote data collection services. The information is

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then collated into simple to understand statistics that can be viewed by the PSAP Agencies and the 9-1-1 Office via secured connections over the Internet. Circuits for this feature are provided by the local 9-1-1 telephone service provider. *Note: The same circuits are also used to provide access to the 9-1-1 database for ALI retrieval.*

Bidder shall offer as an option, cost to provide a direct IP connection for CDR collection.

Contractor shall have a dedicated output from their equipment so that the CDR data is always available for data collection. Additionally, contractor shall provide storage of CDR data for a minimum of fifteen (15) minutes based upon the capacity of the PSAP's busiest hour, to protect from the loss of data due to a temporary outage of the frame relay.

The controller shall provide a time stamp at least every hour so the remote data collection service will know if the controller is still operating. This is an element listed in the CDR and is blank unless populated by a time.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

14. Call Data Record (CDR) Format (For Remote Collection And Local PSAP Use)

The CDR shall include all call state transitions, and be designed to include recursive sub-records for those that occur multiple times, such as ring/talk/hold/transfer/disconnect times for multiple agents on the same call and, most important, multiple ALI records. This is an issue with wireless 9-1-1 calls that are re-bid, and PSAPs are unable to reconstruct the various versions of the ALI record as it changed over time while the call was being taken. This could become an issue for chain of evidence and/or authenticity in the future.

The CDR information shall be supplied by the 9-1-1 equipment to the remote data collection service in a selectable native, comma delineated, or XML format using the appropriate circuitry. A common CDR format is desired by the State so that data collection services do not have to develop specific parsers for different 9-1-1 equipment. Contractor shall accommodate the non-XML and XML formats as determined by the State, see Exhibit VI-A for an example. The contractor shall populate each field with data, or keep if not available, and maintain the commas or XML fields to separate data. Each CDR record shall contain a primary key specific to the PSAP. All times shall be synchronized with the master clock in the form HH:MM:SS.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

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Reference: document _____

location _____ *page* _____ *paragraph* _____

Description:

15. Multiple Lines/Workstation Requirement

- a) Bidders shall detail the expansion capabilities of the system for additional telephone lines and stations.
- b) The design shall be modular to allow for future expansion beyond present requirements.
- c) Proposed system shall be capable of connection to at least twenty (20) or more CAMA (E9-1-1) trunks.
- d) Proposed system shall be capable of connection to at least twenty (20) or more 1MB or Centrex trunks.
- e) Proposed system shall be capable of connection to at least four (4) or more ring-down trunks, such as those to answer a front door intercom or a dedicated voice connection to remote locations.
- f) Proposed system shall be capable of supporting at least ten (10) intelligent workstations.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ *No* _____

Reference: document _____

location _____ *page* _____ *paragraph* _____

Description:

16. Trunk and Line Interfaces

It is anticipated that most PSAP installations will require connection to the following line side technologies:

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- a) Enhanced 9-1-1 trunks.
- b) Ring-down circuits (Tip and Ring).
- c) Centrex and 1MB lines with Caller ID (where available). These are analog, loop start telephone lines.
- d) A static IP address dedicated to 9-1-1.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

17. Moves, Adds and Changes (MACs)

The contractor shall also provide routine moves, adds and changes as requested by the PSAP. "Moves, adds and changes" (MACs) refers to changes in system programming to facilitate PSAP operations, moving equipment from one location to another in the same facility and adding additional equipment to completed installations. When performing MACs, the contractor will not count travel time to and from the PSAP or pre-preparation time, only the time spent actually performing the MACs. There shall be a one (1) hour minimum charge for all MACs. For those MACs that must be performed routinely, such as adding or deleting new call takers, changing speed dial numbers, etc., the contractor shall provide training to the PSAP System Administrator to perform these MACs.

If the contractor is asked to move and reinstall equipment at a different facility, the MAC rate established by this contract will apply to similar activities performed such as those described above, while the cost for other services not normally associated with a same facility MAC, such as moving van equipment and personnel, will be negotiated on a case-by-case basis for each relocation.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

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18. Time Synchronization

The proposed system shall be capable of being time synchronized to an external source so time records match those of other devices, such as CAD and logging recorders, when all devices are synchronized to a single time source (Reference NENA 04-001, Section 3.8). Time synchronization shall meet the minimum requirements of NENA 04-002 PSAP Master Clock Standard.

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

19. Wireless ALI – FCC 94-102 – Phase I And Phase II

All intelligent workstations, controllers, and ancillary systems shall accommodate Wireless E9-1-1 requirements as described in Federal Communications Commission (FCC) Report and Order 94-102 and addenda. All components shall interface with existing E9-1-1 networks and display the appropriate ANI and ALI identified in Phase I and Phase II of the FCC Order, as specified in Telecommunications Industry Association Standards J STD-034 (for Phase I) and J STD-036 (for Phase II).

The display of information, as required by FCC 94-102, shall accommodate both Call-Path Associated Signaling (CAS) and Non Call-Path Associated Signaling (NCAS) methodologies as defined in those standards. In addition, all 9-1-1 provided equipment shall accommodate the most current State of California ALI Format (currently Format 04).

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

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20. Voice over Internet Protocol (VoIP) Requirements

All 9-1-1 provided equipment shall accommodate NENA I1, I2, and be upgradeable for I3 by having an IP interface.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

21. Remote Data Transfer Interface

The proposed system shall provide a connection for remote data transfer interface, per NENA 04-001, Section 3.9. Hardware is an optional cost element in Appendix A.

Bidder understands the Requirement and shall meet or exceed it? Yes_____ No_____

Reference: document_____

location_____ page_____ paragraph_____

Description:

22. Additional LCD Monitor Interface

The proposed system shall provide, at a minimum, one (1) additional LCD monitor interface with the Intelligent Workstation. This LCD interface shall allow PSAPs to double their viewing capacity by moving certain functions and windows to an additional LCD monitor to view more items at once. Reference NENA 04-201, January 22, 2004, Integrating Applications on Intelligent Workstations TID (Draft), Issue 1. Hardware is an optional cost element in Appendix A.

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Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

23. Installation

The existing 9-1-1 equipment and service at each PSAP shall continue to function without interruption during the installation of the new system. Contractor shall ensure that its installation and cutover plan for the 9-1-1 equipment will not cause an interruption, deviation or degradation of the existing service. **Contractor shall provide a general description of the cutover plan with the response to this RFP.** Upon installation at each facility, the contractor shall receive final approval from the PSAP regarding any additional specific cutover requirements they may have. **See Exhibit VIII-A SOW, Section 1 for installation requirements.**

Bidder understands the Requirement and shall meet or exceed it? Yes _____ No _____

Reference: document _____

location _____ page _____ paragraph _____

Description:

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**EXHIBIT VI-A – CDR ELEMENTS
(for MIS – fewer for ANI/ALI Output)**

1. PSAP Name - The name of the PSAP is a primary key to data collection.
2. FCC ID Code - The FCC ID code of the PSAP shall be used for identification.
3. Date – MM/DD/YYYY.
4. Trunk Seized Time - The time the trunk or line was seized.
5. Trunk Release Time - The time the trunk or line was released.
6. Trunk number – The trunk or line identifier the call came in on.
7. Call Duration - The difference the Trunk Seized Time and the Trunk Released Time is considered the Call Duration and is calculated by the remote data site. Alternately, it is acceptable for a controller to provide the already calculated call duration.
8. CDR Timestamp - A timestamp is placed on the call when the call detail data is received from the network. This is the date and time used for all reports. It is on the order of one to three (1-3) seconds after the call completes which occurs when the trunk is released. It has been observed that a number of PSAP ALI controller date and time stamps are incorrect. Therefore, the remote data collection service will continue to use the time the call was received to timestamp call detail records.
9. Ring Time Start - The time the phone started ringing.
10. Ring Time End - The time the call was answered, either by an automated or live attendant, or it is abandoned.
11. Ring Time Total - The “ring time” is the time from the time it starts ringing until it is answered or abandoned and is calculated by the remote data collection service. Alternately, it is acceptable for a controller to provide the already calculated length of ring time instead of the time it started ringing.
12. Queue Time Start - if by automated attendant this is the start.
13. Queue Time End – if by automated attendant this is the time the call leaves the ACD and goes to the position.
14. Call on Hold - Time call was placed on hold.
15. Call off Hold - Time call was taken off of hold and by what position number.
16. Answer time – time which the call was answered by the call taker.
17. Answering position number.
18. Position ring time start – time of which the call is sent to the position call taker.
19. Position ring time end – the time of which the call taker answers the caller.
20. Talk Time - Absolute value of connect-disconnect at the position.
21. Total caller time – the ring time start all the way through to the disconnect time.

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22. Trunk ID - The trunk or line identifier the call came in on.
23. Position ID - The position identifier that answered the call.
24. Abandoned Call Indicator - An indicator (Yes or No) as to whether or not the call was abandoned.
25. TDD Call - An indicator (Yes or No) as to whether or not the call was placed using a TDD device.
26. Call Transfer Time - Time call was transferred.
27. Transfer PSAP - PSAP name or number that the call was transferred to.
28. Standard ALI data -The complete standard ALI information returned by the 9-1-1 database in the specific locations as defined in the statewide format. Currently, the State is using Format 04; however, some PSAPs may be using previous versions. The contractor shall accommodate any future updates to the statewide ALI format, which may include additional rows. This data includes the name, address, city ESN, etc.
29. Hourly Controller Time Stamp - The controller shall provide a time stamp at least every hour so the remote data collection service will know if the controller is still operating and be synced with the master clock in the form HH:MM:SS.