

**Notes:**

This document is organized into tabs representing product solutions.

911 in a 1A2 environment

The remaining tabs represent other products. These are as follows:

MAP - Geographical location display  
MIS - Management Information System  
Interface Requirements

**Request for Proposal  
Call-Handling Specifications**

Requirement	Complies	Does not Comply	Explanation/Notes
<b>E9-1-1 ANI/ALI Controller Features</b>			
<b>Performance Concerns</b>			
A distributed processor architecture shall be used so as to meet the performance demanded by an E9-1-1 environment. Every module shall function independently of the others. There should be no situation in which a processing bottleneck could occur.			
Each call processing module shall be equipped with a dedicated MF receiver to avoid delays in decoding ANI. (Systems which force incoming calls to wait for an available MF receiver before presenting the call will not be considered.)			
Communication with the ALI database shall be full duplex.			
ALI requests shall be made immediately after ANI has been decoded. (Systems which wait for the call taker to go off-hook before sending requests for ALI will not be considered).			
Systems which inject tones into the voice path for position identification and/or data delivery will not be considered.			
<b>Reliability Concerns</b>			
No single point of failure will render the system non-functional.			
Processing power shall be distributed among the E9-1-1 controller modules. There will be no central controlling module, and all modules shall function independently of each other.			
Each line interface / call processing module will serve one trunk, one call taker, and one transfer position. The state of a line interface/call processing module shall have no effect on the performance of another. This is necessary in order to prevent heavy trunk traffic, false trunk seizures, line failures, or defective line interface/call processing cards from affecting service to trunks handled by other line interface/call processing cards on the E9-1-1 controller.			
Hardware redundancy and automatic switchover shall be provided on the various E9-1-1 ANI/ALI Controller modules as follows:			
Modules that provide communication to external devices such as ALI databases and all other system administrative ports shall be configured with redundancy. One module shall operate in an active mode, and the other in standby mode. The standby module shall become functional automatically if the first one fails.			

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Modules that provide data communication to the answering positions shall be configured with redundancy. One module shall operate in an active mode, and the other in standby mode. The standby module shall become functional automatically if the first one fails. If the module provides communication to more than one display, independent ports and links shall be provided to each display. A failure of one port or link shall not cause a complete module failure. Each display shall operate independently of another.			
All power supplies shall be redundant and distributed. A power related fault on an E9-1-1 controller module shall not affect the power supplied to other modules.			
It shall not be necessary to power down the E9-1-1 controller in order to replace modules. In addition, it shall be possible to remove redundant modules that are in standby mode from the E9-1-1 controller without any interruption in service.			
All redundant modules shall be accessible directly from the front of the controller without the need to removing cables from the rear of the controller or module.			
DC power battery backup for the E9-1-1 controller shall be provided as an option.			
<b>Expansion</b>			
The E9-1-1 controller shall be modular, supporting from one (1) to over (100) E9-1-1 Trunks in increments of One (1) Trunk with appropriate additional equipment.			
Each controller shelf shall accommodate up to Eight (8) E9-1-1 Trunks. It shall be possible to populate any empty Trunk card slot simply by adding a Trunk Interface Card, without requiring and software or hardware upgrades (other than the additional Trunk Interface cards).			
Answering Position handling shall be modular as well, with the ability to scale from 1 to over 100 answering positions with appropriate additional equipment.			
<b>Specific E911 Controller System Features</b>			
All features described in this section relate to North American Standards for E9-1-1 systems, in both trunking and central office features.			
<b>Voice Transfers</b>			
The E9-1-1 controller shall be equipped to perform tandem voice transfers. Voice transfers may be either speed or manually dialed.			
<b>Incoming Trunks</b>			
The E9-1-1 controller shall be equipped for <b>three (3)</b> 9-1-1 Trunks, with each trunk card individually configurable to either standard CAMA with MF signaling, or to Enhanced MF for 10/20 digit handling.			
Failure of a trunk card shall not affect more than one 9-1-1 trunk (systems that combine two or more 9-1-1 trunks on the same trunk card will therefore not be considered).			

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Each trunk card shall be individually fused. Systems which provide shelf-wide fusing, affecting all trunks on a given shelf, will not be considered (loss of 50% of trunks is not acceptable - a single point of failure shall not affect more than ONE trunk, regardless of system size).			
<b>Logging Recorder Interfaces</b>			
The proposed system shall provide start signals for logging recorders.			
The start signal should be activated when the call taker goes off hook, and deactivated when the call is released.			
<b>Alarms</b>			
Three Controller alarm levels will be generated in response to abnormal occurrences requiring the attention of maintenance or supervising personnel:			
Minor			
Major			
Critical			
Four solid state relay contacts shall be provided, three of which correspond to an alarm level.			
<b>Maintenance Terminal</b>			
A maintenance terminal interface shall provide the following interaction with the E9-1-1 controller:			
Diagnostic mode - To display all event, diagnostic, and error messages as they occur.			
Maintenance mode - To program and configure the E9-1-1 controller (program interface parameters, assign telephone numbers, reset alarms, generate reports, select options). Maintenance mode shall be password protected to ensure system security.			
<b>Maintenance Printer</b>			
A maintenance printer interface shall drive a printer to provide hard copy of system error messages.			
<b>Statistical Reports</b>			
The E9-1-1 controller system shall maintain statistics on:			
Database communications.			
Trunk traffic			
A chronological history of alarm and error messages.			
<b>Remote Diagnostics</b>			
A remote maintenance (diagnostics) capability which duplicates the functionality of the local maintenance terminal shall be provided.			
The E9-1-1 controller shall be capable of both receiving and originating calls to the maintenance center.			

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The E9-1-1 controller shall be programmable to originate a call to up to four maintenance centers upon occurrence of an alarm. When an alarm occurs, the system shall sequentially dial up to three telephone numbers until an answer is received and the answering remote site logs on with a valid password. Failing that, the system will dial a fourth number expected to be the location of a data dump. If this station does not answer, it shall be possible for part or all of this calling sequence to be re-attempted.			
<b>ACDR Printer</b>			
An ACDR printer interface, and printer, shall be provided.			
An automatic call detail record (ACDR) shall be printed by the system every time a call is released.			
The information contained in each ACDR includes:			
The caller's ANI and ALI.			
Position of agent that answered the call.			
Transferred destination.			
Date, times of the various connect and disconnect events, and other particulars relating to a call.			
A time and date stamp is automatically printed every hour.			
Price as mandatory OPTION: ability to capture and manage ACDR information electronically.			
<b>ALI Database</b>			
The E9-1-1 controller shall support dedicated redundant data links to two (2) different ALI databases.			
A request to the database shall be made as soon as caller ANI is received.			
The E9-1-1 controller shall compare the telephone number returned with the ALI to the original ANI sent by the CO, ensuring that caller ALI is matched with ANI.			
If the received ALI is unclear or incomplete, a call taker must be able to command the system to repeat the request to the database.			
<b>Telephony Equipment Features</b>			
<b>General Requirements</b>			
The proposed system must support 1A2 telephony, and support thirty (30) administrative lines.			
The required number of IWS positions is four (4).			
<b>Distributed Architecture</b>			
There shall be no single point of failure affecting more than one answering position's ability to handle a 9-1-1 call.			
Bidder shall describe how the proposed system architecture meets this requirement.			

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Requirement	Complies	Does not Comply	Explanation/Notes
<b>Scalability</b>			
The design shall be scalable to allow for future expansion beyond present requirements.			
<b>Intelligent Workstations</b>			
<b>General Requirements</b>			
PC-based Intelligent Workstations (IWS) are required. These must be fully 32-bit applications running under the fully 32-bit Windows 2000/XP environment. Windows 9x and/or 16-bit code are not considered stable enough and will therefore not be considered.			
A true Microsoft SQL database shall provide data storage for both configuration and operational data. This is meant to ensure the use of an enterprise-class database engine that is robust and widely supported. Office application-class database engines or front-end components (such as Paradox, FoxPro, Access, etc.) are not considered robust enough for an emergency-response environment, and therefore will not be considered.			
Workstations and servers shall be manufactured by HP, and equipped with at a minimum:			
PIV - 2 GHz Intel Processor, 512MB RAM and 17-inch CRT monitors (one per application proposed (i.e., call-handling, mapping, CAD and radio)).			
<b>General Requirements</b>			
The Intelligent Workstation shall provide full Computer-Telephony Integration, allowing call-takers to have on-screen access to telephone features.			
Telephone functions must be available through the Intelligent Workstation. These shall include the following as a minimum:			
Hold.			
Dial.			
Re-dial.			
Release.			
Cancel.			
Transfer / conference.			
Speed Dial.			
<b>Number / Location Identification</b>			
Automatic ANI/ALI information access is an essential requirement of any 9-1-1 system, computer based or otherwise. An Intelligent Workstation should be able to offer a great deal of flexibility handling this data. ANI/ALI data shall be shared with all other positions.			
Manual requests of ALI shall be available for a calltaker-entered ANI. There shall be a means of disabling Manual database requests if required by law.			
<b>Call Transfer Functions</b>			

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The Intelligent Workstation shall be configurable to perform transfers using the following (mutually exclusive) methods:			
Transfer destination determined by programming in the CO. In other words, the pre-determined tandem transfer code for (as an example) "Fire" is sent to the CO, which then routes the call to the appropriate Fire Department. From the calltaker's perspective, he or she simply presses the "Fire" transfer button, and the call is transferred to the appropriate agency.			
Transfer destination determined by the Intelligent Workstation. In other words, the Intelligent Workstation dynamically sets the "recommended" transfer destination based on the ESN in the ALI data, as dials the appropriate number via the tandem transfer mechanism. From the calltaker's perspective, he or she simply presses the "Fire" button, and the call is transferred to the appropriate agency. The label on the "Fire" transfer button will change to reflect the particular agency selected by the system (i.e. "Fire - [Agency Name]").			
Whichever method is configured, the calltaker shall be able to override the default destination by selecting an alternate from a list of destinations.			
Any given transfer destination button shall be programmable with one or more numbers used to reach the corresponding agency. It shall be possible to define the time of day for which each of the numbers is valid. The time spans that different numbers are valid can overlap, therefore if a number is busy, the Intelligent Workstation shall automatically cycle through the other currently valid numbers as the transfer button is pressed.			
<b>Data Transfer Functions</b>			
The system shall have the ability to transfer ALI Data to remote destinations which are equipped with serial printers.			
Propose as an OPTION an enhanced data transfer capability whereby ALI, and other data gathered by the calltaker can be transferred via dial-up connection to remote Fax machines, or via private secure network to remote E-Mail clients.			
<b>Integrated TTY</b>			
The Intelligent Workstation shall provide integrated on-screen TTY for all lines. The device should handle both Baudot and ASCII protocols. The system shall allow the call-taker to communicate freely by using the keyboard and/or selection of pre-programmed messages. HCO and VCO modes shall both be provided.			
The system shall buffer the keystrokes that a calltaker types in the TTY module. This will give the calltaker the option to:			
Send the entire message only once the entire sentence is typed, OR			

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<b>Requirement</b>	<b>Complies</b>	<b>Does not Comply</b>	<b>Explanation/Notes</b>
Send each keystroke as it is typed.			
This will be used in situations where a TTY caller tends to start responding to a message before it is completed, sometimes before understanding the true nature of the message. It shall be possible to switch between buffered and non-buffered mode on the fly.			
Each answering position shall be equipped with its own TTY processing hardware. Systems which employ a central piece of equipment for TTY processing will not be considered due to single point of failure considerations.			
<b>Digitized Voice / Integrated Voice Recording</b>			
In addition to standard contacts for external call recorders, the Intelligent Workstation shall have a built-in and integrated call recorder as per the following definitions:			
Built-in – The call recording functionality shall be accessible on-screen via the Intelligent Workstation's GUI (Graphical User Interface).			
Integrated – Individual recordings shall be accessible via their associated on-screen call records. In other words, the relationship between a given call event, the ALI and associated audio recording is clearly displayed.			
Audio Recordings shall be stored in WAV format, and purged after a configurable delay in order to conserve hard drive space. It shall be possible to save (and un-save) individual call recordings to prevent purging of the file.			
In addition, the system should have the ability to record personalized greeting announcements, i.e., "9-1-1 What is your emergency?"			
<b>Call Lists</b>			
Multiple lists will be provided, showing different groupings of call events, for example, "All Abandoned Calls", "All Previous Calls from this ANI", "All Calls previously handled by this Calltaker", etc...			
It shall also be possible to re-dial an abandoned call or other previous calls by selecting from the appropriate Call List.			
A Query feature shall allow call records to be filtered and searched on the fly.			
When used in conjunction with an OPTIONAL Incident Management feature, Incident-related lists shall also be provided.			
<b>Message Board</b>			
The Intelligent Workstation shall provide an on-screen message board which is always on-line. This shall allow the broadcast of a textual message to each calltaker or a select group of calltakers in the PSAP without interrupting the call-taker activity. The system shall also allow the recipient call-takers to acknowledge that a message was read.			

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This feature shall be unobtrusive in that it shall never cover up another feature of the workstation, and shall always be visible.			
Pre-programmed messages shall be available for commonly used messages (such as "Weather warning in effect – Heavy Rain"), and keyboard entry for one-of-a-kind messages.			
<b>System Toolbar</b>			
The Intelligent Workstation shall provide the ability to program buttons to allow for "point & click" access to frequently used features and commands such as, print on demand, fast coding of incident (if Incident Manager OPTION is implemented), and third-party application launch.			
<b>OPTIONAL: Incident Management</b>			
As part of an Incident Management OPTION, the Intelligent Workstation shall allow the call-taker to select a designated incident type, such as fire, auto accident, B & E, after the initial response from the caller. The system shall present the call-taker key questions relative to the emergency at hand. Priority questions should be highlighted to prompt the call-taker to get the most important information first. The information should be automatically stored in the system's database and be available to all other call-takers. The incident types should be configurable by the PSAP.			
The system should also be programmable to recommend primary transfer destination based on the type of incident. The call-taker should also have the ability to send different types of information, such as ANI/ALI, additional location data, or even a script of the incident's questions and answers to remote printers or faxes via the Enhanced Data transfer OPTION.			
Enhancement of TTY functionality: When the Incident Management OPTION is used, the list of pre-programmed TTY messages shall be automatically supplemented with additional pre-programmed messages that pertain to the selected incident type. For example, if the calltaker selects "domestic Fire" as an incident type, the pre-programmed TTY messages will then also include "Is anyone still in the building? GA".			
Multiple-Language Support: The Intelligent Workstation shall allow the call-taker the ability to change the language of the questions presented to them in the Incident Detailing section of the screen. This shall affect both the questions shown here and the pre-programmed TTY messages associated with each question.			

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<p>Premise Information Database: The Intelligent Workstation shall support a local database that provides the call-taker with immediate access to stored information about a specific location. This information could include building access, hazard warnings, hazardous material information, structural plans, evacuation instructions, site photos. The system should not force a call-taker to read through extensive information in order to find the required information, it should automatically search for existing information based on the ANI of the call, and indicate to the call-taker that there is data available for review. Premise Data will be entered by the PSAP.</p>			
<p>Standard Operating Procedures Database: The Intelligent Workstation shall provide the software tools to allow for the creation and viewing of an SOP (Standard Operating Procedures) database. This will assure procedures are applied in a uniform and consistent manner, in addition to providing training functionality. Based on the type of incident entered, the system shall prompt the call-taker that procedures exist. In addition procedures shall be displayed in hypertext format, allowing call-takers to move quickly through the information to access key procedures quickly. SOP data will be entered by the PSAP.</p>			
<b>On-Demand Data Printing</b>			
<p>The Intelligent Workstation shall be able to produce an immediate hard copy of caller ALI and other gathered data at any time, while a call is in progress or after release. This shall be to a networked laser printer, which should also be included with the proposed system.</p>			
<p>It shall be possible to use RTF (Rich Text Format) templates to lay out the information that is to be printed, and to apply formatting and graphics (e.g., County Logo) as needed.</p>			

**Request for Proposal  
Mapping Specifications**

Requirement	Complies	Does not Comply	Explanation/Notes
<b>Mapping</b>			
<b>Configuration and Administration</b>			
The system shall provide a configuration tool.			
The configuration tool shall define access to other applications that can be launched from the map viewer.			
The configuration tool shall allow for the user entry of disclaimer notes that will appear on all printed maps.			
The configuration tool shall provide for the configuration of a cross reference between the ALI format and GIS data structure.			
The configuration tool shall provide for the configuration of different wireless processing methods based on classes of service.			
The configuration tool shall provide for the configuration of the display properties of derived wireless coverage areas.			
The configuration tool shall provide for the emergency object properties, including various states, color, font and position of labels.			
The configuration tool shall allow standard or customer provided icons to be assigned to emergency objects.			
The configuration tool shall allow the addition or deletion of GIS data layers to the data set.			
The configuration tool shall provide for the configuration of layer properties, including minimum and maximum zoom levels for display control, labeling and rich rendering options.			
The configuration tool shall provide for the configuration of the GIS data coordinate system.			
The configuration tool shall provide for the configuration of which GIS layers and fields will be searched for location information.			
The configuration tool shall allow a virtually unlimited amount of layers to be configured for automatic and manual searches.			
The configuration tool shall support point, polygon and line GIS layers for searching.			
The configuration tool shall provide for the use of and customization of standardization and matching rules, including minimum match score values.			
The configuration tool shall provide for the configuration of which GIS layers return results on 'evacuation' zones, and shall allow multiple GIS layers to be defined.			

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Requirement	Complies	Does not Comply	Explanation/Notes
The configuration tool shall provide for the configuration of general discrepancy management information, including PSAP name, type of discrepancies and statuses.			
<b>General</b>			
The map viewer shall support Windows XP.			
The map viewer shall support TCP/IP.			
The map viewer shall support any static IP address.			
The map viewer shall generate diagnostic messages.			
The map viewer shall allow the user to define what system messages are presented to the operators.			
The map viewer shall be able to report error conditions to remote monitoring equipment. Please provide details on how this is accomplished.			
The map viewer shall support generation of diagnostic information on other applications it interfaces with.			
The map viewer shall be able to operate in an isolated mode in the event of network failure.			
The map viewer shall be designed for public safety use. Please provide additional information on your proposed solution.			
The map viewer shall support multiple methods of accessing features, including menus, toolbars, function keys and context sensitive right click drop down menus.			
<b>Security</b>			
The map viewer shall support user name and password control.			
The map viewer shall support multiple roles per user, such as call taker, dispatcher and supervisor.			
The map viewer shall allow the user to save their display environment. This saved configuration shall be persistent on future logins.			
The map viewer console shall support limiting access only to the map viewer based on user login.			
<b>Navigation</b>			
The map viewer shall allow the user to pan the map display.			
The map viewer shall support zoom to full extent.			
The map viewer shall allow the user to Zoom in/Zoom out			
The map viewer shall support entry and centering of manually entered latitude and longitude (X,Y) coordinates.			

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<b>Requirement</b>	<b>Complies</b>	<b>Does not Comply</b>	<b>Explanation/Notes</b>
The map viewer shall continuously geo-decode and display the address of the location the mouse pointer is over as well the map viewer shall continuously display the X,Y coordinate of where the mouse is over and shall allow the user to change projections from system (i.e. state plane) to geographic (degrees/minutes/seconds).			
The map viewer shall support printing of map windows.			
The map viewer shall support the user configuration of a disclaimer message. This disclaimer message shall appear on all printed maps. This is to protect any proprietary information such as cell coverage maps.			
The map viewer shall support multiple concurrent map views, each with its discrete properties, such as layers displayed.			
The map viewer shall be able to display calls and manually entered locations.			
The map viewer shall present an organized list of all objects displayed. The map viewer shall support easy user management of the data, including columnar sorting, placement and adjustment of the width of columns. The map viewer shall center on the current map window any object that is double clicked from the object list.			
The map viewer shall permit users to display or hide any layer in the GIS data set.			
The map viewer shall support a locator or overview map. The location on the UI of the locator or overview map shall be configurable by the user.			
The map viewer shall support multiple toolbars to provide access to commonly used functions.			
The map viewer shall provide user access to system level messages such as application warning or error messages.			
The map viewer shall provide feature panels whose position and layout can be controlled by the user.			
<b>Searching</b>			
The map viewer shall provide an interface to perform searches.			
The search interface shall accept free form entry of location information.			
The search interface shall provide a single field of entry for location information including address, common place name, street name and intersection.			
The search interface shall display intersecting streets for intersection searches where only 1 street was entered.			
Ambiguous search results shall display a list of possible matches based on the user entry.			
<b>Tools</b>			

**Request for Proposal  
Mapping Specifications**

<b>Requirement</b>	<b>Complies</b>	<b>Does not Comply</b>	<b>Explanation/Notes</b>
The map viewer shall allow for free form measurement between points.			
The map viewer shall allow on the fly conversion of the units of measurement			
The map viewer shall provide a shortest path between two points tool.			
The map viewer shall provide the ability to select a region and display all addresses within that region, i.e. 'evacuation zone'.			
The map viewer shall be able to print or export the 'evacuation zone' addresses.			
<b>Emergency Display</b>			
The map viewer must be able to automatically display emergency locations from 9-1-1 calls.			
The map viewer shall be able to automatically center and apply a default zoom scale on emergency display.			
The map viewer shall be able to display manual database requests if supported.			
The map viewer shall be able to display different icons for different objects, such as landline, wireless phase I, wireless phase II, incidents, push pins, etc.			
The map viewer must be Phase I and Phase II compliant.			
The map viewer must be able to display derived cell tower coverage, actual cell tower coverage or RF coverage.			
The map viewer must support repeat ALI.			
The map viewer shall be able to visually differentiate between call states and priorities.			
The map viewer shall use a different icon for locations with multiple objects displayed at that location.			
The map viewer shall allow a user to select which object in a multiple object situation to display on top.			
The map viewer shall display all available information on a selected object. This includes object information and GIS data.			
The map viewer shall support the ability to place 'push pins' onto a map window by manually entering a location and/or clicking on a location.			
The map viewer shall support the ability highlight a street by manually entering in the street name.			
The map viewer must support the ability of the user to manually change the location of an object.			
<b>Source of Location Information</b>			

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The map viewer must accept ALI information from a variety of sources. Please describe the sources of information.			
The map viewer must accept serial ALI information from a CAD feed of any ANI/ALI controller.			
<b>GIS Data</b>			
The map viewer shall have native support of ESRI shape files			
Describe vector formats supported			
Describe raster formats supported			
<b>Discrepancy Management</b>			
The map viewer shall provide a discrepancy management module.			
The discrepancy data shall include automated information that cannot be modified such as operator ID, date, time, original information.			
The discrepancy data shall support a variety of location sources, such as ALI and GIS data.			
The discrepancy management module shall automatically audit key events, such as creation and closed events.			
The discrepancy data shall be stored locally at the workstation.			
The discrepancy data shall be able to be centrally collected.			
The discrepancy data shall be able to be remotely stored for archiving.			
<b>Premise Information Management</b>			
The map viewer shall support a premise information management module.			
A virtually unlimited amount of premise information shall be available for all locations.			
This shall include contact information, building access, text memos, hazardous materials, floor plans, images, movies and sound clips.			
The map viewer shall automatically notify the user of the availability of premise information for a location.			
Premise information shall be configurable to always be available or only notify during a user configurable time range.			
The premise information data shall be locally stored for operational purposes.			
The premise information data shall be able to be remotely stored for management purposes (single point of entry that is safeguarded).			
<b>IIWS Integration</b>			

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The map viewer should allow call control with its integrated 9-1-1 IWS system from the map viewer.			
The map viewer should allow drag and drop dispatching with its integrated CAD IWS system from the map viewer.			

**Request for Proposal  
Management Information System Specifications**

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<b>Management Information System Specifications</b>			
The proposed system shall allow for the electronic capture of call detail records (CDR).			
The electronic CDR shall display results in real time.			
The electronic CDR shall allow searching of historical results.			
The electronic CDR shall allow automatic archiving.			
The proposed system shall provide a management information system (MIS).			
The MIS shall allow the configuration of shifts and time windows.			
The MIS shall produce a wide range of predefined, comprehensive operational and historical reports.			
The MIS shall allow on-the-fly filtering for required information using an extensive range of search criteria that are automatically presented based on the report selected and the site configuration.			
The MIS shall display reports on-screen, printer or saved to file.			
The MIS shall display call activity on a map viewer. The map view shall be individual points, grouped by type of call, or concentration of type in zones, ESNs, in process time range or total count. Viewing controls shall allow you to move the map, zoom in or out, select which layers on the map are visible (roads, waterways, street names, etc.). The MIS shall allow the map to be saved and included in a summary report.			
The MIS shall allow scheduling of the automatic generation of reports			
The MIS shall provide a simple interface used to generate reports quickly and easily.			
The MIS shall provide an ad-hoc reporting tool that creates customized Ad Hoc reports using SQL.			
The MIS ad-hoc shall display queries on-screen.			

