Virginia Information Technologies Agency

FY18

PSAP GRANT PROGRAM APPLICATION

VIRGINIA INFORMATION
TECHNOLOGIES AGENCY
Integrated Services Division

FY18 PSAP GRANT PROGRAM APPLICATION

HOW TO APPLY/DEADLINE

The grant application is available and accessible from VITA ISP's website (http://www.vita.virginia.gov/isp/default.aspx?id=8578). Upon completion of the application, it is to be submitted to the electronic mailbox for grant applications - psapgrants@vita.virginia.gov. Any supporting documentation must also be submitted along with the application when making your grant application submission.

After the close of the grant application cycle, a Grant ID and email receipt notification will be sent to the e-mail address listed on the application received.

All funding requests must be submitted using the grant application. Technical assistance is available from VITA's Public Safety Communications (PSC) staff throughout the grant process. The FY18 PSAP Grant Application Cycle starts July 1, 2016 and concludes on September 30, 2016 at 5:00 pm.

ALL APPLICABLE SECTIONS MUST BE COMPLETED IN ITS ENTIRETY OR THE APPLICATION WILL BE CONSIDERED INCOMPLETE AND NOT ACCEPTED FOR CONSIDERATION.

FY18 PSAP GRANT APPLICATION

PROJECT TITLE

Westmoreland County Call Handling Equipment (CHE) Replacement

GRANT APPLICANT PROFILE/PROJECT CONTACT

PSAP/HOST PSAP NAME: Westmoreland County Sheriff's Office
CONTACT TITLE: Information Technology Director
CONTACT FIRST NAME: Bill
CONTACT LAST NAME: Cease
ADDRESS 1: 111 Polk Street
ADDRESS 2: P.O. Box 1000
CITY: Montross
ZIP CODE: 22520
CONTACT EMAIL: bcease@westmoreland-county.org
CONTACT PHONE NUMBER: 804-493-1055
CONTACT MOBILE NUMBER: 804-456-6268
CONTACT FAX NUMBER: 804-493-0134
REGIONAL COORDINATOR: Sam Keys

HOST PSAP AND PARTICIPATING PSAPS/LOCALITIES

Colonial Beach PD

GRANT TYPE

☒ Individual PSAP ☐ Shared Services

TIER

- ☐ Out of Service
- ☒ Technically Outdated*
- ☐ Not Applicable
- ☒ Non-Vendor Supported*
- ☐ Strengthen

If technically outdated or non-vendor supported, application MUST include age and/or version of hardware/software.

VERSION: Airbus DS VESTA PALLAS 2.7 # YEARS of HARDWARE/SOFTWARE: 5

PRIORITY/PROJECT FOCUS CALL HANDLING EQUIPMENT

FINANCIAL DATA

Amount Requested: $ 150,000.00
Total Project Cost: $ 186,891.16

PROJECT DESCRIPTION

Provide a detailed description of the project for which funding is being sought, including the impact on operational services and consequences of not receiving funding; the relationship to local strategic and capital improvement plans; and sustainability:

The Westmoreland County Sheriff's Office is responsible for the PSAP and all emergency dispatch for Westmoreland County and the Town of Colonial Beach.

The 911 center is in need of upgrading the existing CHE system that is technically outdated and has reached its end of service life. The existing CHE system is the Airbus DS Communications VESTA PALLAS and has been in service since 2012. The existing XP operating system is no longer supported by Microsoft and the existing Airbus DS support contract expires June of 2017. If this grant is awarded through the FY18 grant process, the CHE system will have been in operation over five years, which is stretching the life of the CHE 911 workstation computers and servers in operation 24/7/365. Without immediate replacement of this mission critical CHE system, we are risking system failure, which could leave us with the inability to accept emergency wireless and wire line 911 calls from the citizens and visitors of Westmoreland County and the Town of Colonial Beach.

The Pallas PBX, a key part of the VESTA Pallas system installed is a discontinued product from Nortel. Spare parts are no longer readily available.

There are limited local funds available to fund this entire CHE project on our own. If awarded this grant, Westmoreland County will be left with the remaining funding to complete the project.

The upgrade of the System Hardware and Software will allow for integration of key Text-to-911 and NG911 Services being made readily available. Implementing a fully redundant system will assist in not only minimizing the risk in 911 system failures but also reduce system footprint helping to reduce annual system costs.

This project will help Westmoreland County leverage existing investment as part of our strategic plan while upgrading off legacy CPE to the most recent technologies available in CHE equipment.

PROJECT GOAL

Describe how this project addresses locally identified need(s) and supports the Virginia 9-1-1 Comprehensive Plan:

This project will migrate Westmoreland County off a legacy system that is technically outdated to a more robust platform that will allow for Text-to-911 and NG911 integration. The upgrade will allow for the most recent version of vendor software to be installed and allow Westmoreland County to work on a LAN based system with many more options from our current serial based communications system. The current serial connection communications system has been outdated for some time and reduces the ability to share data and also to allow for remote workstation connectivity. This will allow for higher supportability and greater flexibility with additional projects in the future.

PROJECT OBJECTIVES

Describe the objectives that will support the goals identified above:

The Westmoreland County PSAP has a large current investment in the existing Airbus DS VESTA PALLAS CHE system. It has used the system for many years and wishes to extend the investment in licensing, however the hardware has reached the end of risk free usability. Verizon, who installed and maintained this system and equipment has notified the County that it will no longer support or maintain the current system past June of 2017. The County will have to arrange some type of interim solution for maintenance until we learn whether the grant is awarded.

A full Implementation plan outlining the hardware refresh and training services will be provided at project Kick Off and will be conducted in a quick efficient manner without impacting 911 Operations for Westmoreland County.

Capabilities to integrate Text-to-911 and future i3/Next Generation technologies will be possible with the system upgrade. After cutover to the new system this will allow for all components to be monitored for any failures and the vendor or County IT Department to provide all necessary System, Anti-Virus and OS Patch Updates.

This project would extend the use of new computer hardware and software for a minimum of five years. The Westmoreland County PSAP understands it is their responsibility to sustain the project following go-live of the proposed system and to budget for all expenses not covered by grant funds.

If awarded this grant, the Westmoreland County PSAP will replace the existing Airbus DS VESTA PALLAS system with the Motorola Emergency Call Works equipment and software or a comparable system with the same features and options. The Motorola Emergency Call Works system has an extensive roadmap that includes future releases with support for i3 and other NG911 technologies as well as current capabilities to terminate Text-to-911 directly into the console. Migrating to the Emergency Call Works or comparable system platform will continue to allow Westmoreland County to fit into the long-term NG-911 strategic plan already in place.

SHARED SERVICES (if applicable)

Describe the relationship of the project to the participating PSAPs: N/A
Describe the intended collaborative efforts and resource sharing opportunities: N/A

IMPLEMENTATION PLAN SHARED SERVICES & INDIVIDUAL PSAP APPLICATIONS: For each applicable phase of the project, indicate the planned completion date.	
PROJECT PHASE	**PLANNED COMPLETION DATE**
INITIATION – Project concept is documented, local board or governing authority approval or endorsement is received, PSAP grant application is filed, local budgets are obtained, appropriated grant funds are approved, and budgetary estimates are obtained.	**09 / 30 / 2016**
DESIGN/PLANNING - Requirements are documented, components to be purchased are identified, and general design is documented.	**09 / 30 / 2016**
ACQUISITION - RFP (or other bid related processes) are drafted, proposals are evaluated, contract is signed, purchase orders are issued, and quotes are obtained.	**07 / 31 / 2017**
IMPLEMENTATION - Purchased components are delivered and installed and training is performed	**09 / 30 / 2017**
TESTING/COMPLETION - Performance of system/solution is validated and system/solution goes “live”	**10 / 15 / 2017**

BUDGET AND BUDGET NARRATIVE

List the planned expenditures to be made with grant funds. Briefly explain the reason for each requested budget item and provide the basis for its cost. In addition, if contingency cost has been added, please identify the amount.

NOTE: In lieu of a line item breakdown, an itemized cost schedule or detailed vendor prepared quote may be submitted as an attachment, but a narrative is still required. However, budgetary quotes received from a particular vendor(s) during the application process do not commit the PSAP to use that vendor(s) once the grant is awarded.

See attached Vendor Quote:

The quoted system includes turnkey installation of all hardware and software necessary to deploy the CHE system. Additionally, all services for implementation, training, testing, and cut live have been included as well as applicable support service.

EVALUATION

How will the project as identified in the project description be evaluated and measured for achievement and success:

The system success will be evaluated by the vendor meeting the statement of work, as well as, the system handling and routing emergency calls correctly. This includes transferring/accepting calls outside Westmoreland County's jurisdictional boundaries. This also includes proper handling of Text-to-911 calls for service.

CONSOLIDATION (Primary or Secondary) - (complete only if applicable)

How would a consolidation take place and provide improved service: N/A
How should it be organized and staffed: N/A
What services should it perform: N/A
How should policies be made and changed: N/A

CONSOLIDATION (Primary or Secondary) - (complete only if applicable) – con't

How should it be funded: N/A
What communication changes or improvements should be made in order to better support operations: N/A

EMERGENCY CALLWORKS

CALLSTATION SOLUTION

MOTOROLA

The design, technical, pricing, and other information ("Information") furnished with this submission is proprietary information of Motorola Solutions, Inc. ("Motorola") and is submitted with the restriction that it is to be used for evaluation purposes only. To the fullest extent allowed by applicable law, the Information is not to be disclosed publicly or in any manner to anyone other than those required to evaluate the Information without the express written permission of Motorola.

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EMERGENCY CALLWORKS

1.1 INTRODUCTION

Tackling one of the toughest 9-1-1 public safety dilemmas, Emergency CallWorks® (ECW) is pioneering the convergence of NextGen 9-1-1 Call Taking, Incident Management (CAD) and GIS systems. Our state-of-the-art solution is the only natively integrated, browser-based, dispatch-centric design in the industry. Using the latest software design and telephony technologies, our native i3-compatible application manages the receipt of emergency calls and seamlessly dispatches a response with a simpler, easier-to-use workflow approach and user interface designed to work the way you do, today.

ECW is well positioned to become the market leader in Public Safety and Next Generation solutions. We endorse the forward thinking of Westmoreland County's quest to advance their level of public safety service for the citizens of their community. Our system was designed and developed for IP Next Generation solutions. The system has a complex but simple array of features, many critical to the way that you manage your centers today. Our objective is to provide Westmoreland County with the software and hardware components that will secure your future with the necessary benefits that will allow your staff to serve and protect its citizens with the most efficient Next Generation call handling solution.

Emergency CallWorks is pleased to present Westmoreland County, a state-of-the-art, integrated IP based NG9-1-1 system including all requirements for a comprehensive turnkey solution as described in this response. The ECW platform provides for a more cost effective and easy to use solution focused on eliminating traditional costly integration and maintenance of proprietary legacy systems while revolutionizing the 9-1-1 call taking to dispatch workflow. ECW is aware that many PSAP's, dispatch agencies and distribution channels desire a balance between mainstream and state-of-the-art, next generation technology and generally seek to employ a total solution that will prolong the life of the proposed system at a lower cost. With this in mind, ECW provides a solution that is based upon advanced, yet proven technology derived from current IT, IP, VoIP and Web 2.0 industry standards, yet allows smooth migration as next generation 9-1-1 matures. The proposed solution, while supporting legacy and NG9-1-1, provides open architecture for both the hardware and software components unlike any competitive offering. The solution proposed to Westmoreland County addresses and includes the equipment specifications, associated project management, installation, user training and services requested.

1.2 KEY SYSTEM CAPABILITIES AND ADVANTAGES

1.2.1 Public Safety Differentiators

The ECW solution provides many significant advantages. Listed below are highlights of a few of the many unique standout capabilities of the ECW system.

- **Operating Systems** - Technologically advanced systems based on the Linux Operating System, Web services and an application framework developed using state-of-the-art Web 2.0 techniques and the JAVA development environment. User interfaces require only a browser for all applications and are optimized for Mozilla Firefox 10.0 and later, which is fast, efficient and less

costly to operate. Workstation operating systems running the Firefox browser can be Windows, Linux or Apple based as required.

- **Database** - Integrated systems designed and delivered as a standard with the MySQL Relational Database Management System. The database architecture allows for open, extensive information sharing, comprehensive reporting and scalability for adding additional capabilities in the future as required.
- **Telecom / 9-1-1** - ECW provides as a standard component, an industry-leading, custom ECW distribution of the VoIP Asterisk soft switch from Digium, Inc. This custom distribution of Asterisk, engineered and packaged with mature Media Gateway's from AudioCodes, provides traditional telecom interfaces to the PSTN and Legacy CAMA interfaces as well as general administrative capabilities, including voice mail and more. ECW, via its SipWorks interface, also provides emerging i3 Next Generation connectivity. The system is highly configurable to support 9-1-1, emergency, non-emergency and administrate telephony needs.
- **Call Handling Functions** – The ECW call handling functions are very robust and include, but are not limited to, single button transfers (on and off net) via an extensive directory, ALI displayed on the telephone as a backup, silent monitoring, barge-in, override, unlimited multi-party conferencing, abandoned call management, released call review, and much more.
- **Headset/Radio** - Traditional headset and radio interfaces are provided by a commercial off-the-shelf Power Over Ethernet Audio Interface Unit (AIU), Inc. This provides all necessary analog interconnections for managing call taker/dispatcher headsets and radio system integration. A connection is not required at the call taker workstation and is powered via the network, saving complex power cords and supplies at the workstation. This design eliminates the headaches of using the PC as the voice management component with complex driver and OS maintenance concerns. The Audio Interface Unit (AIU) is not required for system use. A Polycom telephone is all that is actually required. The AIU also does not arbitrate telecom and radio traffic. If that is required, it serves as the ECW interface to a Radio system managed arbitrator.
- **Notifications** - Another strategic advantage of the integrated ECW Messaging Engine is the capability to provide automated outbound notifications as part of an incident response plan or a general capability. With specified incident creation, unit/station dispatch, and service request status change, a series of automated notifications can be configured and sent via email and email to text as required. Authorized users may create and manage notifications from AdminiStation.
- **Call Recording** – Although the ECW platform is not officially marketed as Long Term Recorder, the system records and stores all 9-1-1 calls for IRR purposes at each workstation in a traditional fashion. 9-1-1 call recordings are made available for playback from the Call Screen. Additionally, call recordings are available for playback and for long term download from DecisionStation. Calls may be played back with permission from any location where DecisionStation is configured. The system can be configured to record administrative calls as well.
- **Architecture** - The browser based, redundant and High Availability (HA) architecture of our systems allow for centralization and integration of server applications, VoIP switching and the database, while also allowing extensive remote access without the burden of excessive implementation and cost. For larger or regional initiatives, the system is extensible over a network in federated, geo-diverse configurations as well as centralized hosting.
- **COTS Design** - ECW is dedicated to utilizing off-the-shelf, yet highly configurable hardware solutions that eliminate costly implementations and excessive maintenance costs. ECW standardizes with Cisco networking components, HP workstation computing hardware, Dell HA Servers, AudioCodes Gateways and Polycom VoIP telephones.
- **Implementation** – The system may be installed and serviced by ECW or through extensive channel relationships or locally provided by authorized dealers. Users may also be trained to be Customer Owned and Maintained (COAM) if desired. Hosted solutions may also be available in your area.

- **Ease of Use** - The ECW system offers the most intuitive and easy-to-use interface available in the industry today by simply requiring a browser. This user-friendly and easy-to-deploy method provides significant time and cost savings in training new personnel.
- **Support -** ECW provides quality, around-the-clock customer care and service with remote monitoring as a standard offering. At any time or day of night, a member of our highly skilled service team is available to assist customers with any questions or concerns.

1.3 ENHANCEMENTS ECW BRINGS TO THE PSAP

Our systems refine and enhance workflow, while easing many of the issues commonly found in today's PSAPs and dispatch centers. The following address the issues core to the ECW platform:

- **Workflow** - One of the primary goals of the ECW platform is to streamline the effort of the typical call taker/dispatcher. Most call takers and dispatchers use very sparingly the expensive and complex IWS solutions sold for years for the purpose of answering and managing E9-1-1 calls for service. With the deployment of CAD / Incident Management and Mapping solutions to a large portion of the base, most use those tools for the bulk of the dispatch process after call answer. Our vision was to truly integrate the processes such that a single application could be deployed and managed to work the way the centers actually do, by taking calls, mapping those calls and dispatching and managing resources in a much simpler, more flexible and inexpensive manner.
- **Lack of Complexity** – We have sought to completely eliminate the continuing complexity of the IWS PC itself. The legacy and most current IWS competitive offerings continue to provide overly complex IWS designs through heavy client applications, specific sound cards, TDD modems and headset interface devices leading to maintenance intensive deployments and on-going driver, patch and OS compatibility support issues. Also, we targeted the ability to more closely align with a network offering by allowing faster deployment as well as providing a simpler environment to maintain. This was accomplished by delivering a new architecture in which only an Internet Browser is needed at the desktop and no specific hardware, drivers or OS is required. OS can be Windows, Linux or Apple based. This creates an IWS replacement that requires no application software installation or client-side driver support. There is also no cabling between the VoIP Telephone set, the Headset Interface device and the IWS PC. This clean and simple design also enhances cohabitation with other applications critical to the user, such as Radio.

Note: The ECW Platform does NOT require Internet connectivity to operate. The platform simply shares those technological advancements and capabilities.

- **User Interface** - The ECW System provides an industry first browser-based application environment for all users interfacing to the system including call taking, mapping, dispatch, reporting and management. This creates an easy-to-use, install and maintain environment. The environment also superiorly lends itself to hosting and networked deployments, allowing for easier transition as NG9-1-1 progresses.
- **Audio Interface Unit** - ECW utilizes off-the-shelf AIUs. The AIU is responsible for providing analog headset/handset connections for the primary call taker and optionally a supervisor/trainer using dual jacks. The AIU is Powered Over Ethernet and does not require AC power. The AIU also supports traditional radio system interface if radio-based headset sharing is desired.
- **Reporting** - The ECW system design provides a remote desktop via DecisionStation in which authorized users can monitor live operations (calls and incidents), view canned reports, perform ad-hoc database queries, and more. One of the key benefits of this tool is that users may obtain reports that show call statistics and reports from call receipt all the way through incident disposition.

- **Remote Support -** A vital component in supporting systems is access. With ECW's simplified design, all devices and components down to the telephone and headset units are IP endpoints and remotely addressable. ECW has unprecedented remote VPN access, monitoring and control capability via the customer provided DSL connection. We can quickly and easily assist customer and channels in troubleshooting or scheduled maintenance as needed. Additionally, ECW has further engineered a robust power distribution unit (PDU) within the rack that is also network addressable as needed. ECW also has DSL dial-up access to a modem in our router that addresses a serial distribution unit. Through this device, which is connected to most of the network infrastructure devices in the backroom such as Gateways, Switches, and the Server, we can serially access many devices for additional root level support if required.

SYSTEM DESCRIPTION

2.1 OUR VISION IS THE NEW 9-1-1 REALITY

Motorola Solutions, Inc. ("Motorola"), through its strategic acquisition of Emergency CallWorks ("ECW"), is proud to offer a comprehensive turnkey Next Generation public safety solution that provides users with the confidence and peace of mind that comes from the knowledge that they are dealing with highly respected and experienced leaders in 9-1-1 call taking and dispatch solutions. ECW works closely with its customers to exceed expectations and to ensure the delivery and approach they require.

The challenges ahead will not end with Next Generation 9-1-1. Unfortunately, many vendors that you rely on today would have you believe that simply installing a Voice over Internet Protocol (VoIP) solution prepares you for NG9-1-1. ECW knows this is not the case. They started with NG9-1-1 and VoIP as the beginning requirement - not the end. We are not simply content to keep up with existing standards and follow current trends. With our products, we not only seek to anticipate the next steps in NG9-1-1, but also to shape the future of the industry. When you select a Motorola Emergency CallWorks solution, you are getting a partner with a far- reaching vision and innovative products that go beyond the defined standards to deliver real value, immediate benefits and a lower total cost of ownership.

Our state-of-the-art solution is the only natively integrated, browser-based, dispatch-centric design in the industry. Using the latest software design and telephony technologies, our native i3-compatible application manages the receipt of emergency calls with a simpler, easier-to-use workflow approach and user interface designed to work the way you do, today. Our objective is to provide the County with the software, hardware, network design, support and related components that will secure your future with the necessary benefits that will allow your staff to serve and protect its citizens with the most efficient Next Generation call handling solution.

We are pleased to present the County with a state-of-the-art, integrated IP based NG9-1-1 system including all requirements for a comprehensive turnkey solution as described in this response. Motorola's ECW solution provides for a more cost effective and easy to use platform focused on eliminating traditional costly integration and maintenance of proprietary legacy systems while revolutionizing the 9-1-1 call taking to dispatch workflow. We are aware that many PSAPs, dispatch agencies and distribution channels desire a balance between mainstream and state-of-the-art, next generation technology and generally seek to employ a total solution that will prolong the life of the proposed system at a lower cost. With this in mind, Motorola's ECW solution provides a platform that is based upon advanced, yet proven technology derived from current IT, IP, VoIP and Web 2.0 industry standards, yet allows smooth migration as next generation 9-1-1 NENA requirements mature.

Our proposed solution, while supporting legacy and NG9-1-1, provides open architecture for both the hardware, software and network components unlike any other competitive offering. The solution proposed to Westmoreland County addresses and includes the equipment specifications, associated project management, installation, user training and other services as requested.

Motorola's ECW proposal provides a solution that:

- Is designed to industry standard(s) including the NENA i3 standard with on-going support and known total cost of ownership for the desired contract term.

- Provides a redundant and highly available foundation for NG9-1-1 that is designed to support core i3 functionality, both now and in the future, at no additional cost for the contract term.
- Is remotely monitored, secure, resilient, and resistant to cyber-attack and penetration.
- Provides the ability to monitor, manage and support the systems on a 24/7/365 basis.
- Is able to support and integrate with Interim SMS Text-to-9-1-1 solutions as may be required.
- Provides increased fault tolerance, reliability, resiliency and disaster recovery through Redundant controllers.
- Provides clear demarcations of responsibility and accountability in the handling of all traffic related to an emergency request originating from the public and delivered to a PSAP via the NG9-1-1 ecosystem.
- Provides a seamless Managed IP, NG9-1-1 ready infrastructure proactively managed and administered through a combination of ECW and Motorola local support teams.
- Provides Enterprise wide Real-Time Monitoring, Dashboard Reporting and MIS.

Additional information may be obtained from our website at www.EmergencyCallWorks.com.

2.2 SYSTEM ARCHITECTURE

Motorola proposes a turnkey, all inclusive, NG9-1-1 Call Handling platform.

2.2.1 Summary of Our Offer

- NG9-1-1 Call Handling solution for one PSAP location
- [3] Positions with dual 22-inch LCD monitors at each position
- [1] Portable lap top position
- [3] Admin only phones
- 4- Port KVM's
- [3] Genovation Keypads
- [16] FXO ports as needed
- [24] CAMA Trunk Ports as needed
- [3] Audio Interface Units for radio integration as needed
- NG9-1-1, i3 core functions and capabilities for future EsiNet deployment.
- SIP Trunk Interface for VoIP based Admin solutions.
- Call management and reporting services.
- Support for Text to and from 911 services.
- County-wide data collection and reporting services on all 911 transactions.
- System and component level monitoring, alarming, diagnostics and reporting services,
- Basic GIS management services to support the hosted Mapping capabilities in Call Handling.
- Optional utilization of the integrated ECW Mapped ALI solution as a browser tab to see calls ringing into the PSAP before answer with integrated call control, offered at no cost.
- All inclusive software support, updates, and upgrades for the contract term.
- 24/7/365 Help desk, trouble ticketing and customer support services.
- Installation, testing, training, maintenance and on-site support services by ECW and Motorola.
- Project management services for the planning, design, testing, installation and operation of the systems for contract term.

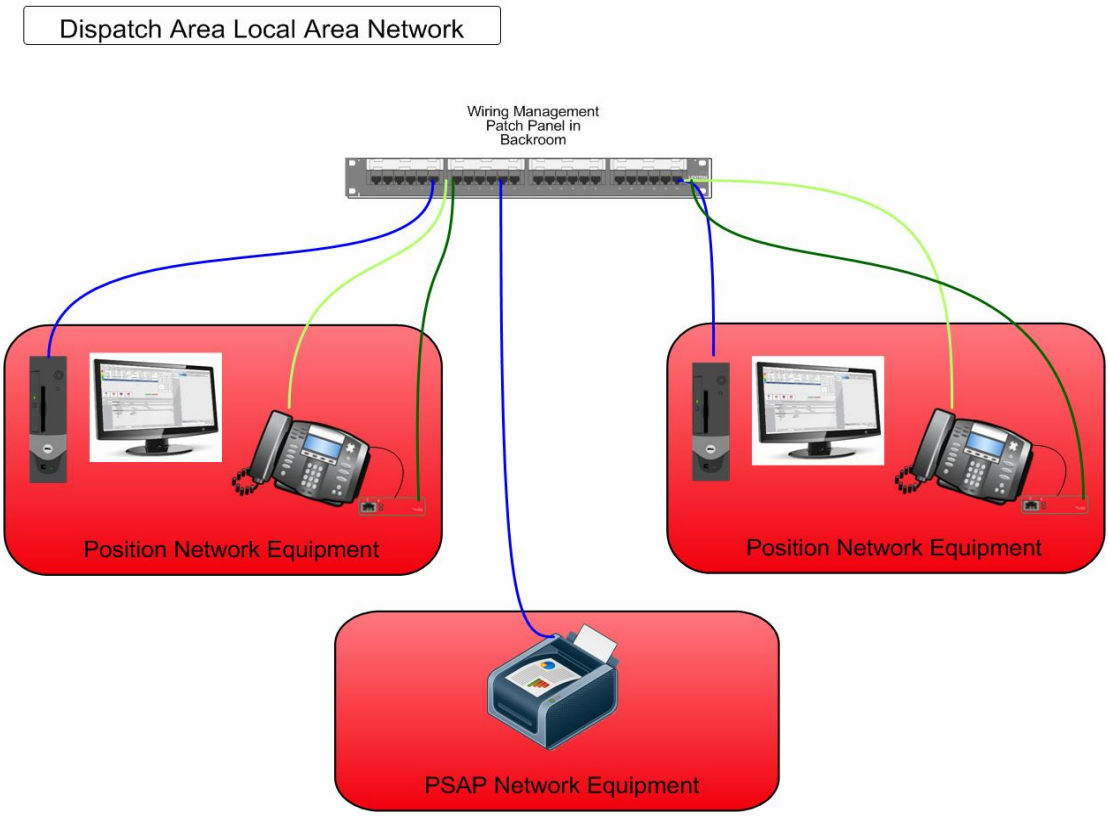

Figure 2-1: Dispatch Area Local LAN

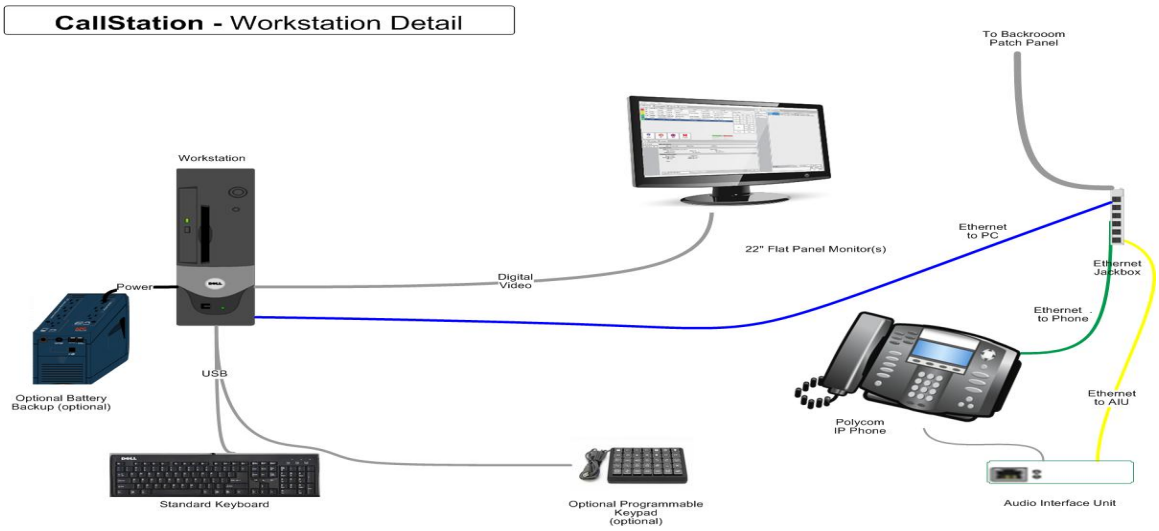

Figure 2-2 Call Station Diagram:

2.3 EMERGENCY CALLWORKS SYSTEM ARCHITECTURE CAPABILITIES AND ADVANTAGES

2.3.1 Public Safety Differentiators

Motorola's ECW solution provides many significant advantages. Listed below are highlights of a few of the many unique standout capabilities of the ECW system.

- **Operating Systems** - Technologically advanced systems based on the Linux Operating System®, Web services and an application framework developed using state-of-the-art Web 2.0 techniques and the JAVA development environment. User interfaces require only a browser for all applications and are optimized for Mozilla Firefox 17.0®, which is fast, efficient and less costly to operate. Workstation operating systems running the Firefox browser can be Windows®, Linux or Apple® based as required.
- **Database** - Integrated systems designed and delivered as a standard with the MySQL Relational Database Management System. The database architecture allows for open, extensive information sharing, comprehensive reporting and scalability for adding additional capabilities in the future as required.
- **Telecom / 9-1-1** - ECW provides as a standard component, an industry-leading, custom ECW distribution of the VoIP Asterisk soft switch from Digium, Inc. This custom distribution of Asterisk, engineered and packaged with mature Media Gateway's from AudioCodes, provides traditional telecom interfaces to the PSTN and Legacy CAMA interfaces as well as general administrative capabilities, including voice mail and more. ECW, via its SipWorks interface, also provides emerging i3 Next Generation connectivity. The system is highly configurable to support 9-1-1, emergency, non-emergency and administrate telephony needs.
- **Call Handling Functions** – The ECW call handling functions are very robust and include, but are not limited to, single button transfers (on and off net) via an extensive directory, ALI displayed on the telephone as a backup, silent monitoring, barge-in, override, unlimited multi-party conferencing, abandoned call management, released call review, and much more.
- **Headset/Radio** - Traditional headset and radio interfaces are provided by a commercial off-the-shelf (COTS) Power over Ethernet (PoE) Audio Interface Unit (AIU), Inc. This provides all necessary analog interconnections for managing call taker/dispatcher headsets and radio system integration. A connection is not required at the call taker workstation and is powered via the network, saving complex power cords and supplies at the workstation. This design eliminates the headaches of using the PC as the voice management component with complex driver and OS maintenance concerns. The AIU is not required for system use. A Polycom telephone is all that is actually required. The AIU also does not arbitrate telecom and radio traffic. If that is required, it serves as the ECW interface to a Radio system managed arbitrator.
- **Notifications** - Another strategic advantage of the integrated ECW Messaging Engine is the capability to provide automated outbound notifications as part of an incident response plan or a general capability. With specified incident creation, unit/station dispatch, and service request status change, a series of automated notifications can be configured and sent via email and email to text as required. Authorized users may create and manage notifications from AdminiStation.
- **Call Recording** – Although the ECW platform is not officially marketed as a Long Term Recorder, the system records and stores all 9-1-1 calls for IRR purposes at each workstation in a traditional fashion. 9-1-1 call recordings are made available for playback from the Call Screen. Additionally, call recordings are available for playback and for long term download from DecisionStation. Calls may be played back with permission from any location where DecisionStation is configured. The system can be configured to record administrative calls as well.

- **Architecture** - The browser based, redundant and High Availability (HA) architecture of our systems allow for centralization and integration of server applications, VoIP switching and the database, while also allowing extensive remote access without the burden of excessive implementation and cost. For larger or regional initiatives, the system is extensible over a network in federated, Geo-Diverse configurations as well as centralized hosting.
- **COTS Design** - ECW is dedicated to utilizing off-the-shelf, yet highly configurable hardware solutions that eliminate costly implementations and excessive maintenance costs. ECW standardizes with Cisco networking components, HP workstation computing hardware, Dell HA Servers, APC Power Management Systems, AudioCodes Gateways and Polycom VoIP telephones.
- **Implementation** – The system may be installed and serviced by ECW or through extensive channel relationships or locally provided by authorized dealers. Users may also be trained to be Customer Owned and Maintained (COAM) if desired. Hosted solutions may also be available in your area.
- **Ease of Use** - The ECW system offers the most intuitive and easy-to-use interface available in the industry today by simply requiring a browser. This user-friendly and easy-to-deploy method provides significant time and cost savings in training new personnel.
- **Support** - ECW provides quality, around-the-clock customer care and service with remote monitoring as a standard offering. At any time or day of night, a member of our highly skilled service team is available to assist customers with any questions or concerns.

2.4 ENHANCEMENTS ECW BRINGS TO THE PSAP

Our systems refine and enhance workflow, while easing many of the issues commonly found in today's PSAPs and dispatch centers. The following address the issues core to the ECW platform:

Workflow - One of the primary goals of the ECW platform is to streamline the effort of the typical call taker/dispatcher. Most call takers and dispatchers use very sparingly the expensive and complex IWS solutions sold for years for the purpose of answering and managing E9-1-1 calls for service. With the deployment of CAD / Incident Management and Mapping solutions to a large portion of the base, most use those tools for the bulk of the dispatch process after call answer. Our vision was to truly integrate the processes such that a single application could be deployed and managed to work the way the centers actually do, by taking calls, mapping those calls and dispatching and managing resources in a much simpler, more flexible and inexpensive manner.

Lack of Complexity – We have sought to completely eliminate the continuing complexity of the IWS PC itself. The legacy and most current IWS competitive offerings continue to provide overly complex IWS designs through heavy client applications, specific sound cards, TDD modems and headset interface devices leading to maintenance intensive deployments and on-going driver, patch and OS compatibility support issues. Also, we targeted the ability to more closely align with a network offering by allowing faster deployment as well as providing a simpler environment to maintain. This was accomplished by delivering a new architecture in which only an Internet Browser is needed at the desktop and no specific hardware, drivers or OS is required. OS can be Windows, Linux or Apple based. This creates an IWS replacement that requires no application software installation or client-side driver support. There is also no cabling between the VoIP Telephone set, the Headset Interface device and the IWS PC. This clean and simple design also enhances cohabitation with other applications critical to the user, such as Radio.

Note: The ECW Platform does NOT require Internet connectivity to operate. The platform simply shares those technological advancements and capabilities.

User Interface - The ECW System provides an industry first browser-based application environment for all users interfacing to the system including call taking, mapping, dispatch, reporting and management. This creates an easy-to-use, install and maintain environment. The environment enhances or capability to support hosting and networked deployments, allowing for easier transition as NG9-1-1 progresses.

Audio Interface Unit - ECW utilizes off-the-shelf AIUs. The AIU is responsible for providing analog headset/handset connections for the primary call taker and optionally a supervisor/trainer using dual jacks. The AIU is Powered over Ethernet and does not require AC power. The AIU also supports traditional radio system interface if radio-based headset sharing is desired.

Reporting - The ECW system design provides a remote desktop via DecisionStation in which authorized users can monitor live operations (calls and incidents), view canned reports; perform ad-hoc database queries, and more. One of the key benefits of this tool is that users may obtain reports that show call statistics and reports from call receipt all the way through incident disposition.

Remote Support - A vital component in supporting systems is access. With ECW's simplified design, all devices and components down to the telephone and headset units are IP endpoints and remotely addressable. ECW has unprecedented remote VPN access, monitoring and control capability via the customer provided DSL connection. We can quickly and easily assist customer and channels in troubleshooting or scheduled maintenance as needed. Additionally, ECW has further engineered a robust power distribution unit (PDU) within the rack that is also network addressable as needed. ECW also has DSL dial-up access to a modem in our router that addresses a serial distribution unit. Through this device, which is connected to most of the network infrastructure devices in the backroom such as Gateways, Switches, and the Server, we can serially access many devices for additional root level support if required.

CallStation® is VoIP based with a legacy CAMA interface, Next Generation 9-1-1 compliance and a messaging platform with consolidated Emergency and Administrative call taking served by NENA compliant standard telephony. External VoIP sets from Polycom, Inc. are available as needed along with a traditional CAD spill for integration into other 3rd party products like CAD, Long Term Recorders and Mapped ALI if desired. Browser based Mapped ALI can be added if needed at no additional charge outside of necessary professional services. DispatchStation (CAD) can be added to those sites that need or may be considering an upgrade for a totally integrated solution.

Each deployment includes an administrative application (AdminiStation) and reporting solution (DecisionStation).

AdminiStation® is a browser-based access capability used by system managers, maintenance staff, supervisors or other authorized personnel to facilitate the set-up, configuration and on- going management of each agency, PSAP or regional network as required.

DecisionStation® is a browser-based access capability used by system managers, maintenance staff, supervisors, remote locations or precincts, mobile users or other authorized personnel to view real time and historical call and incident detail records, active call monitor, unit activity, data mining, reports, and much more.

2.5 ARCHITECTURAL OVERVIEW WITH HARDWARE AND SOFTWARE REVIEW

In Public Safety, the 9-1-1 Public Safety Answering Point (PSAP) is charged with answering 9-1-1 calls from the Public, and rapidly dispatching appropriate resources to an emergency. There are two basic processes involved -- call taking and dispatching. In some cases, these tasks are handled at separate positions, but in many installations, a single operator handles them. ECW supports call taking and dispatch functions from any position or distributed as required. The browser based, redundant and High Availability architecture of the ECW system allows for centralization and integration of server applications, VoIP switching and the database, while allowing extensive remote access without the burden of excessive implementation and cost. For larger or regional initiatives, the system is extensible over a network in Geo-diverse configurations as well as centralized hosting.

2.5.1 Call Taker Position

The Call Taker answers the initial 9-1-1 call. The telephone network provides the PSAP with Automatic Number Identification (ANI) via CAMA based PSTN connections and Automatic Location Information (ALI) in a data stream. With the ECW system, this information is automatically displayed in the application, and incident processing is initiated as required.

Once location information is displayed (ALI data), the ECW system provides integrated map location information, hazard information, premise information, location and call histories and more to the call taker. This data greatly enhances the call taker's capability to develop a more informed and precise line of questioning and to determine the exact location of the emergency, the nature of the incident, persons involved, and to assess the danger of the situation. Once this information has been collected and entered, the dispatch process is initiated or passed to a third party CAD system if using a 9-1-1 only system configuration.

2.5.2 Software Architecture

Operating System: The operating system for ECW is LINUX.

Database Engine: ECW Java based applications operate with Microsoft Database Systems.

Map Engine: ECW is fully integrated with MapServer utilizing ESRI-based GIS formats. ECW creates an SQL geo file from the ESRI data as required. Map tiles are cached for speed.

Reporting: ECW includes standard call, CAD, ACD, and many other reports and ad- hoc capability via DecisionStation and created with Jasper Reports.

Interface Systems: ECW includes a message engine capable of interfacing to e-mail, SMS, remote printing, remote VoIP sets with ALI, radio, and RMS systems as required.

2.5.3 ECW System Architecture

The basic architecture of the ECW system consists of the ECW JAVA Message back-end (ECW Domain), MapServer and its dependencies, ECW-Asterisk VoIP Engine, application server and the relational database management system (RDBMS). The ECW client (Firefox browser) connects to the ECW Domain, which acts as a Web Browser for passing messages via TCP/IP connected to the RDBMS through JAVA.

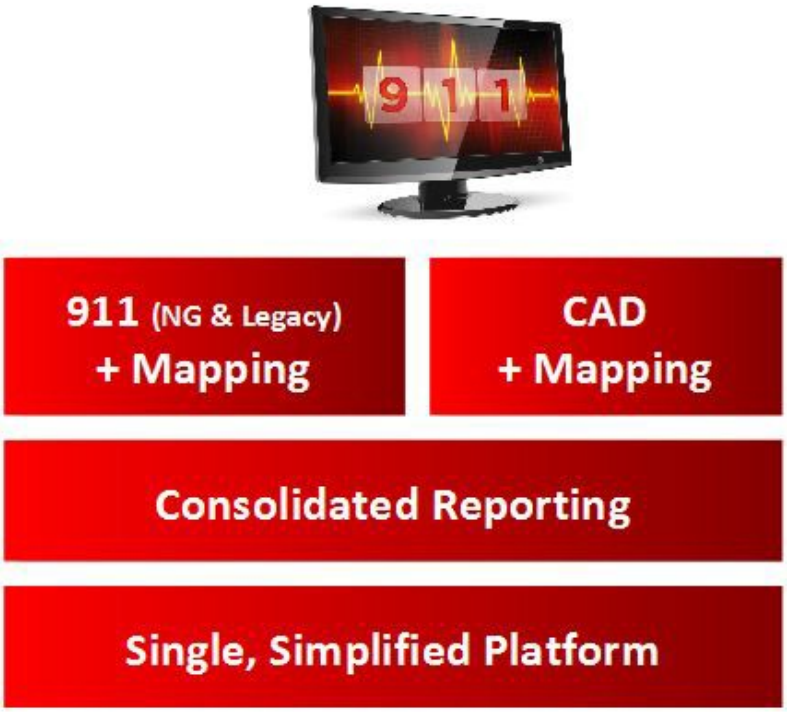

Figure 2-3: ECW Product Highlights

2.5.4 General System Requirements

2.5.4.1 Workstation

Hardware Requirements

- Modern Workstation PC (Dell or HP recommended).
- Dual or Quad Video with accelerated graphics.
- 8GB RAM.
- General purpose hard drive.
- Dual Graphic NIC.

- USB Keyboard and Mouse.
- 22-inch Wide Aspect Monitors (recommended).

Software Requirements

- Windows, Linux or Apple OS X Operating System.
- Firefox Long Term Support Release (e.g. v15, v17).
- Dual or Quad Video with accelerated graphics.

2.5.4.2 Server

Hardware Requirements

- Dual Dell R620 HA Server.
- Dual Quad Core Processors.
- 16 GB RAM.
- Dual Hot Swappable Power Supplies.
- Dual Hot Swappable Fan Assemblies.
- Raid 5 Controller.
- Quad Gigabit NIC.
- IMPI Hardware Monitoring and Management.

Software Requirements

- openSUSE Operating System.
- MySQL Server RDBMS.
- ECW Application Platform.

2.5.5 External & Environmental Requirements

Dedicated High Speed Internet Access via DSL 16 GB RAM.

2.5.6 High Level System Overview

Figure 2-4 diagrams the basic view of the system installed in a generic environment with some ECW Domain connectivity for further clarification. All that is required at the workstation is a Firefox browser and Adobe Flash. There are no OS or driver dependencies between the Call Taker workstation and the Polycom telephone or the Audio Control Unit (AIU).

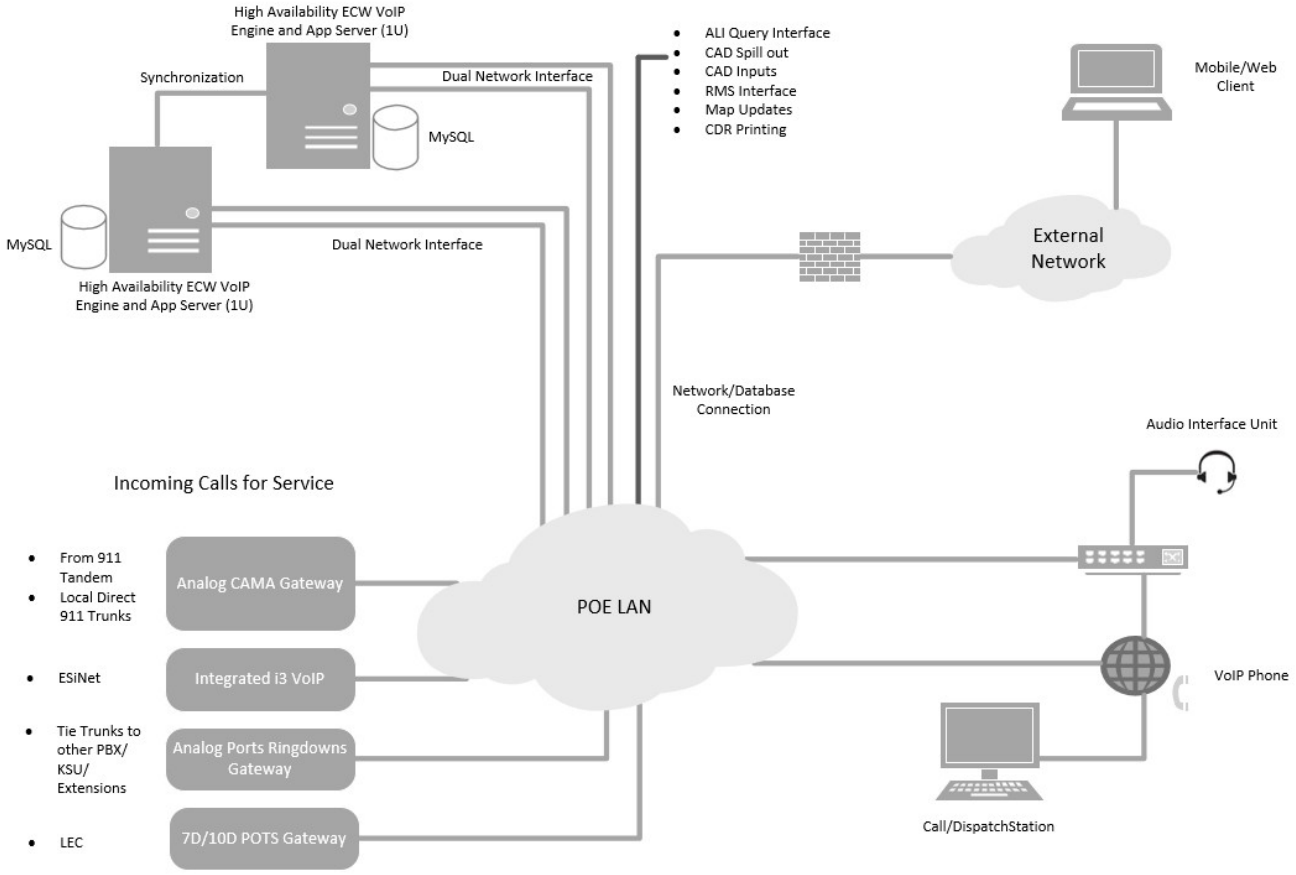

Figure 2-4: Basic View of the ECW System

2.5.7 High Level Workstation Overview and Design

Figure 2-5 diagrams the basic installation options for the call taker or dispatch workstation (user interface) in a generic PSAP environment. Please note that the Local Area network is connected to all devices including the Workstation itself via the VoIP telephone and the headset interface unit (AIU). All ECW devices are IP enabled and managed via IP. The VoIP telephone and the AIU are also Powered Over Ethernet (POE) to eliminate messy power supplies and adapters.

Figure 2-5 depicts generic scenarios for Workstation deployments.

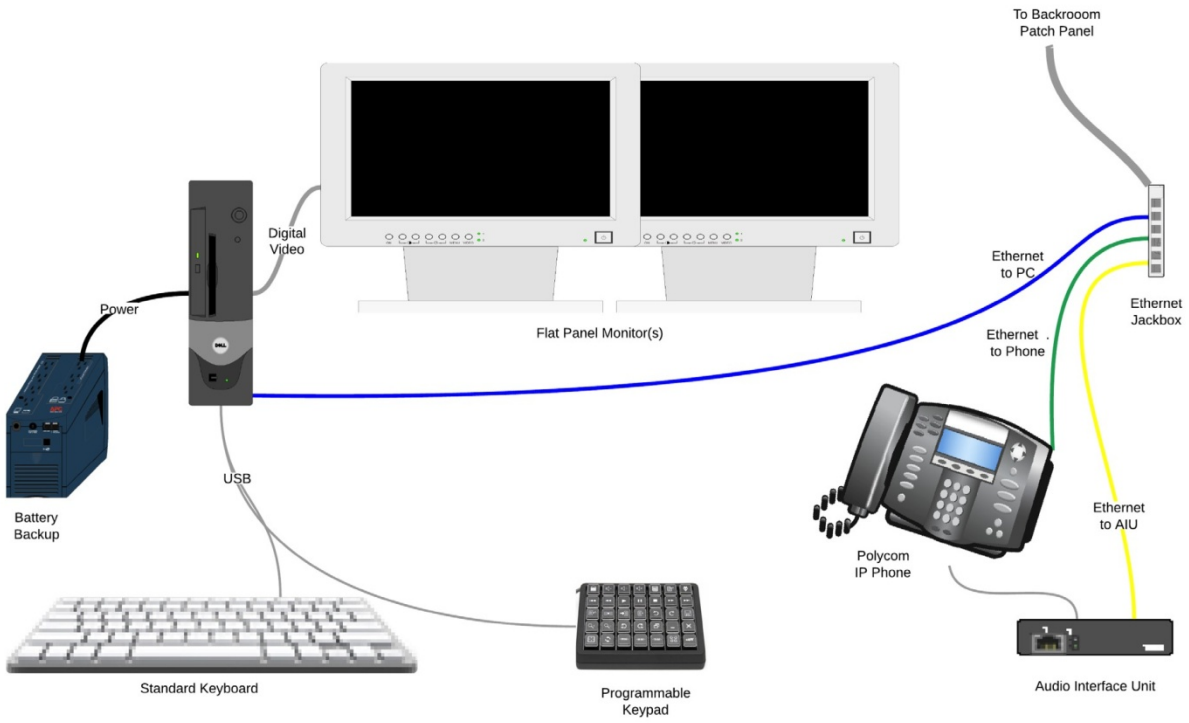

Figure 2-5: Workstation Overview and Design

2.5.8 High Level VoIP Telephone Review

ECW provides an ALI screen on the Polycom 650/670 Telephone that serves as an excellent backup or for use in secondary PSAP positions or remote transfer points as needed. Tandem transfers are also active from this capability.

2.5.8.1 PolyCom IP650 Sets (Figure 2-6)

- Basic Features:
  - ALI Subset – On Screen Support.
  - Tandem Transfer.
  - Hold.
  - Mute.
  - Do Not Disturb.
  - Transfer.
  - Conference.
  - Speakerphone.
  - Speed Dial.
  - Contact Directory.
  - Flexible Ring Tones per line group.
  - Supports Basic Admin Telecom needs.

Figure 2-6: ALI Results and Polycom IP650

2.5.9 High Level Workstation User Interface Review

The following sections highlight the basic call taker and dispatch workstations (user interface). The user interface for all ECW applications is available via a Firefox Browser and includes CallStation, DispatchStation, DispatchStation NT (CAD Only), DecisionStation and AdminiStation. With all configurations except DispatchStation NT, 9-1-1 call taking and mapping capability is included as a standard package. VoIP telephones from Polycom are specified.

Mapping can be excluded on the 9-1-1 configuration as required. Interfaces are provided to support 3rd party Mapping, LTR, and CAD systems as needed.

2.5.9.1 CallStation

CallStation® is ECW's comprehensive application for providing receipt and management of emergency calls. CallStation provides call taking and management capabilities from a single screen, allowing for integration with other applications (such as CAD or mapping systems) on secondary screens. CallStation can be configured to include mapping. CallStation with Mapping provides complete call management options from the map as well as the Call Screen. Figure 2-7 - Figure 2-12 display the CallStation Call Screen and the (optional) Map Screen.

CallStation Feature Highlights:

- Multi-User, Multi-Agency Capability.
- Intelligent Command Line and Right-click Status Management.
- Legacy 9-1-1 (CAMA) and Administrative Call Taking.
- i3 Next Generation Compliant via "SipWorks".
- ESInet (NENA Standard i3 Interface).
- Select 3rd Party Variations.
- Integrated TDD and IRR.
- Full SMS Handling Capabilities.
- NENA-Compliant Workstation.
- Easy-to-Use Browser Technology and Graphical User Interface.
- Integrated VoIP Switch.
- Standard Interfaces for Time Sync, Printing, Reports, CAD, IP Recording and RMS Outputs.
- Remote VoIP Phone Only Capability with ALI via "SipStation".

- Web Portal for Real-time Data Views and Call Detail Reporting.
- Includes AdminiStation™ Data Management Utility.
  - Browser-based Remote Administration Tool.
  - Account-based Access and Privileges.
- Database Administration.
- Includes DecisionStation™ Dashboard Utility.
  - Real Time "At-a-Glance" Status of Calls, Incident Data and More.
  - Enhances Situational Management.
  - Improves Operational Analysis.
  - Easy-to-Use Browser-based Reporting.
  - Predefined Reports Included for Immediate Use.
  - Smartphone Support.

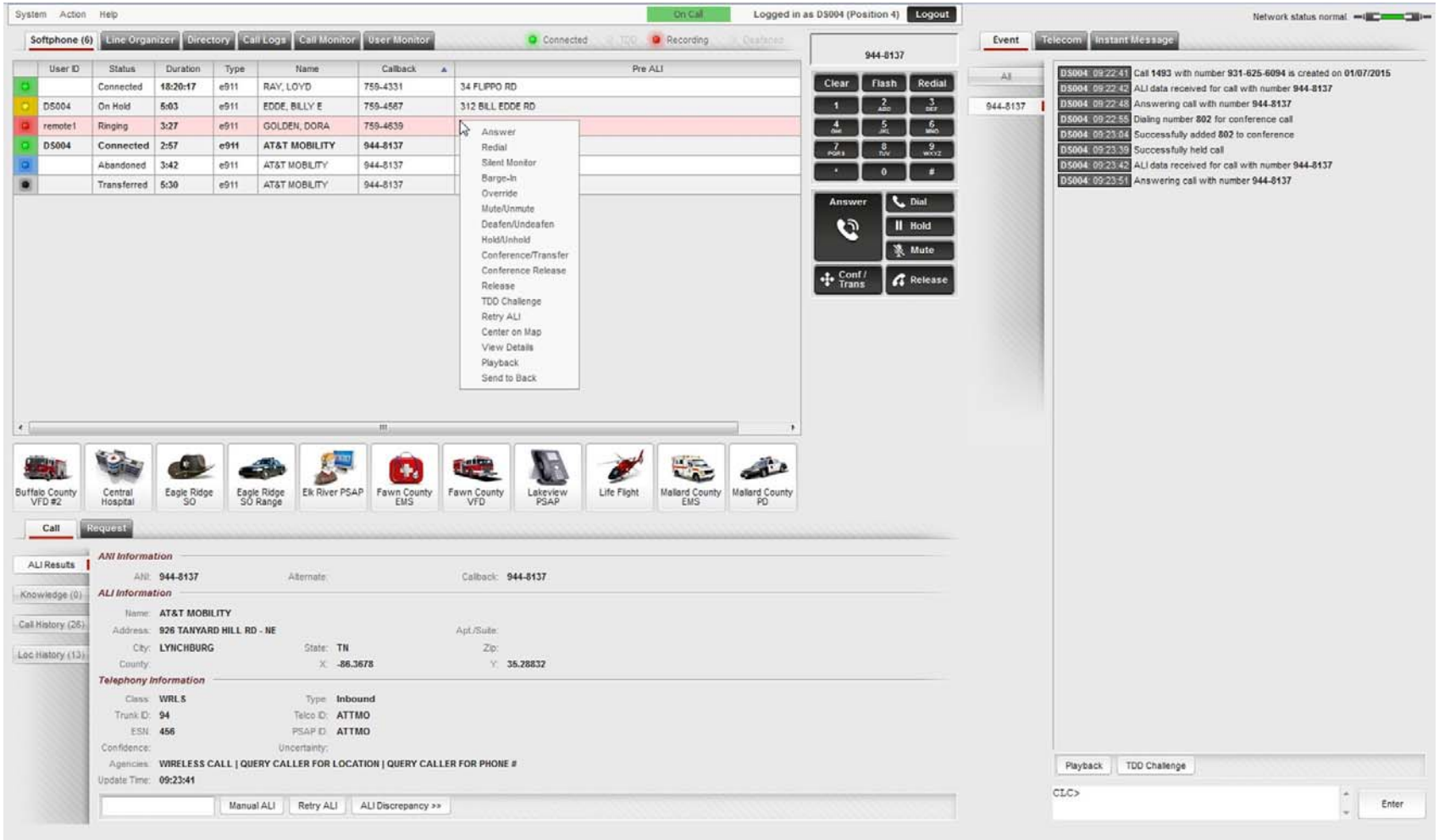

Figure 2-7: CallStation Softphone Tab

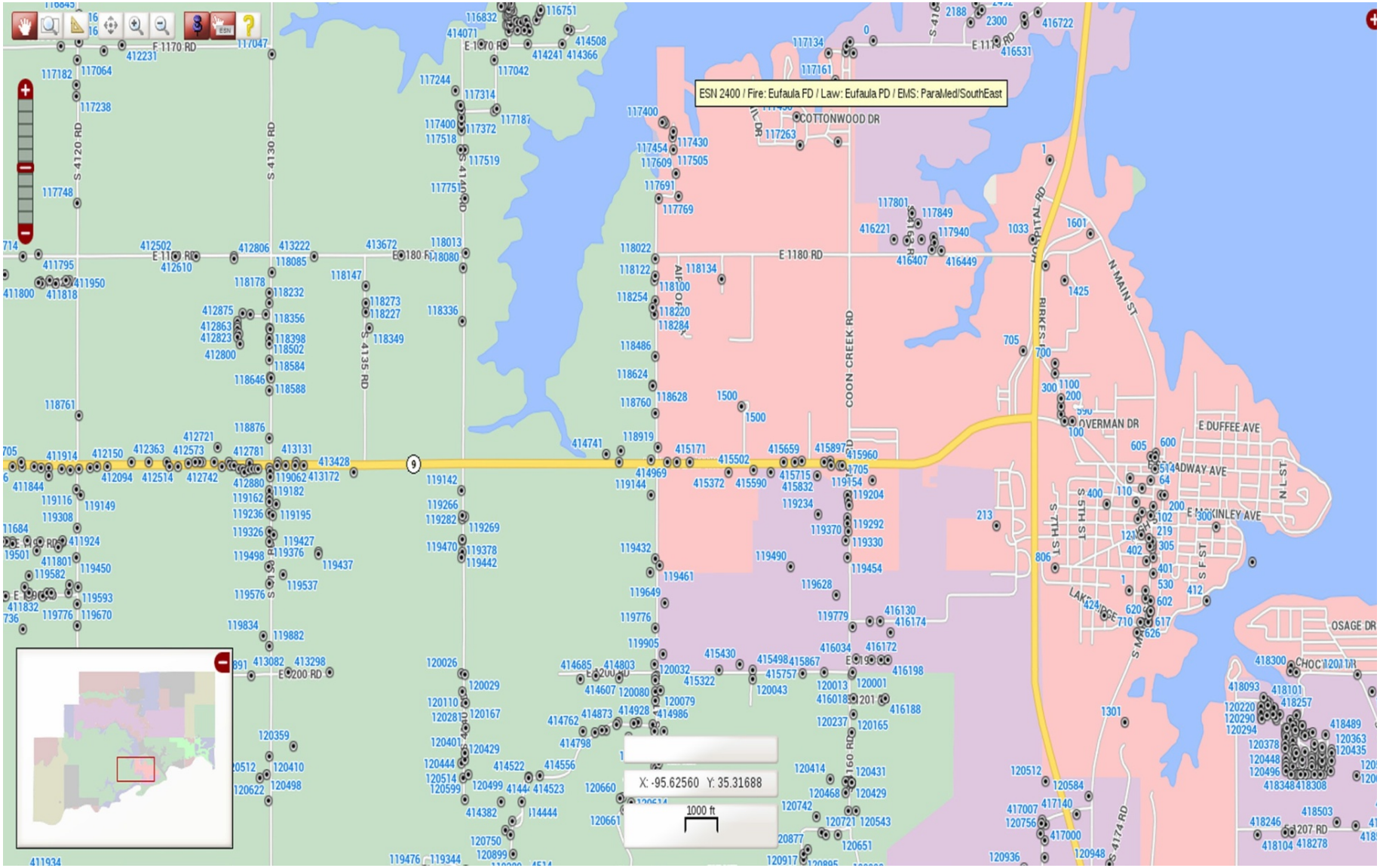

Figure 2-8: CallStation Mapping Map Screen

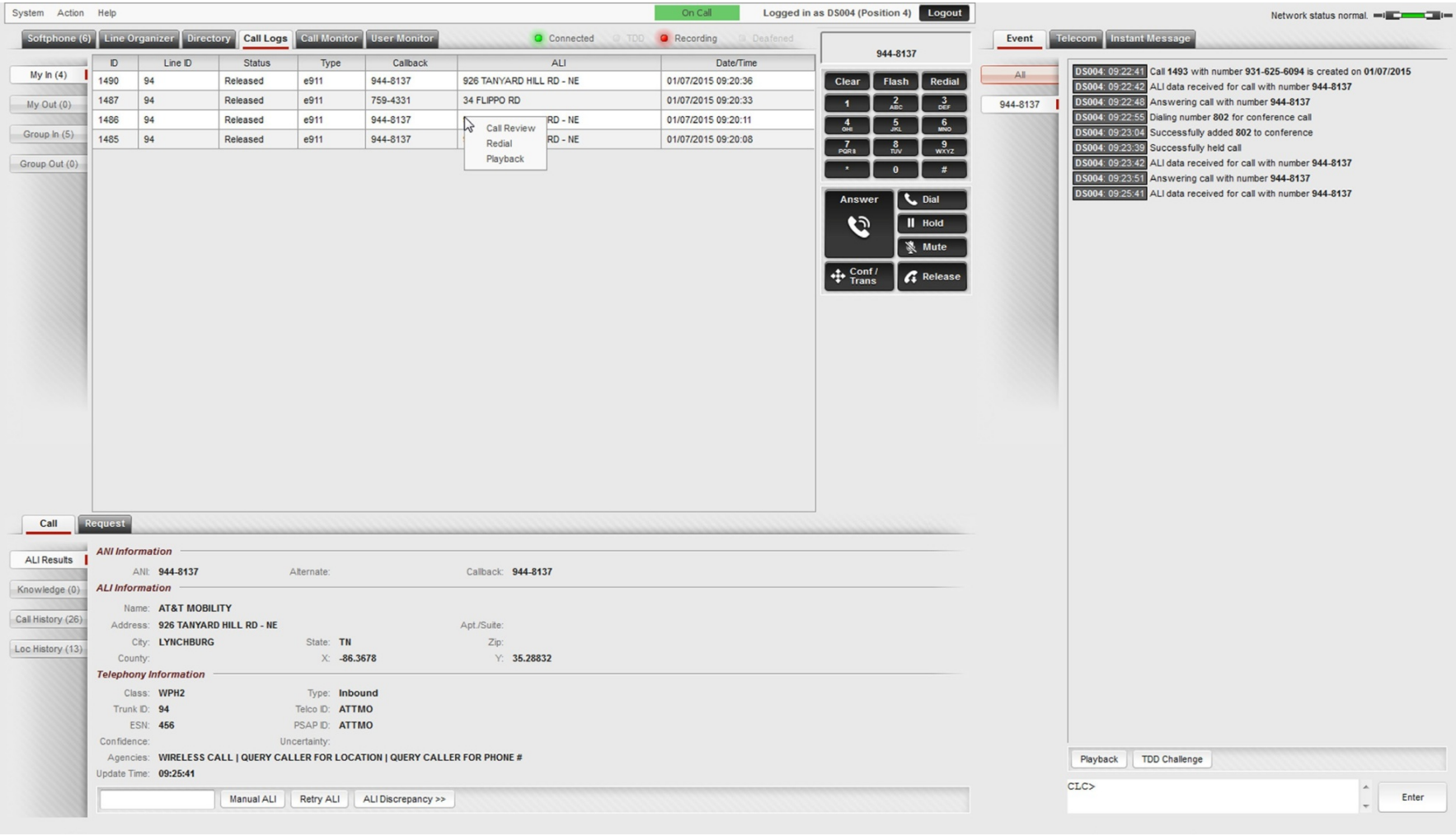

Figure 2-9: CallStation Call Logs – Call Review Options

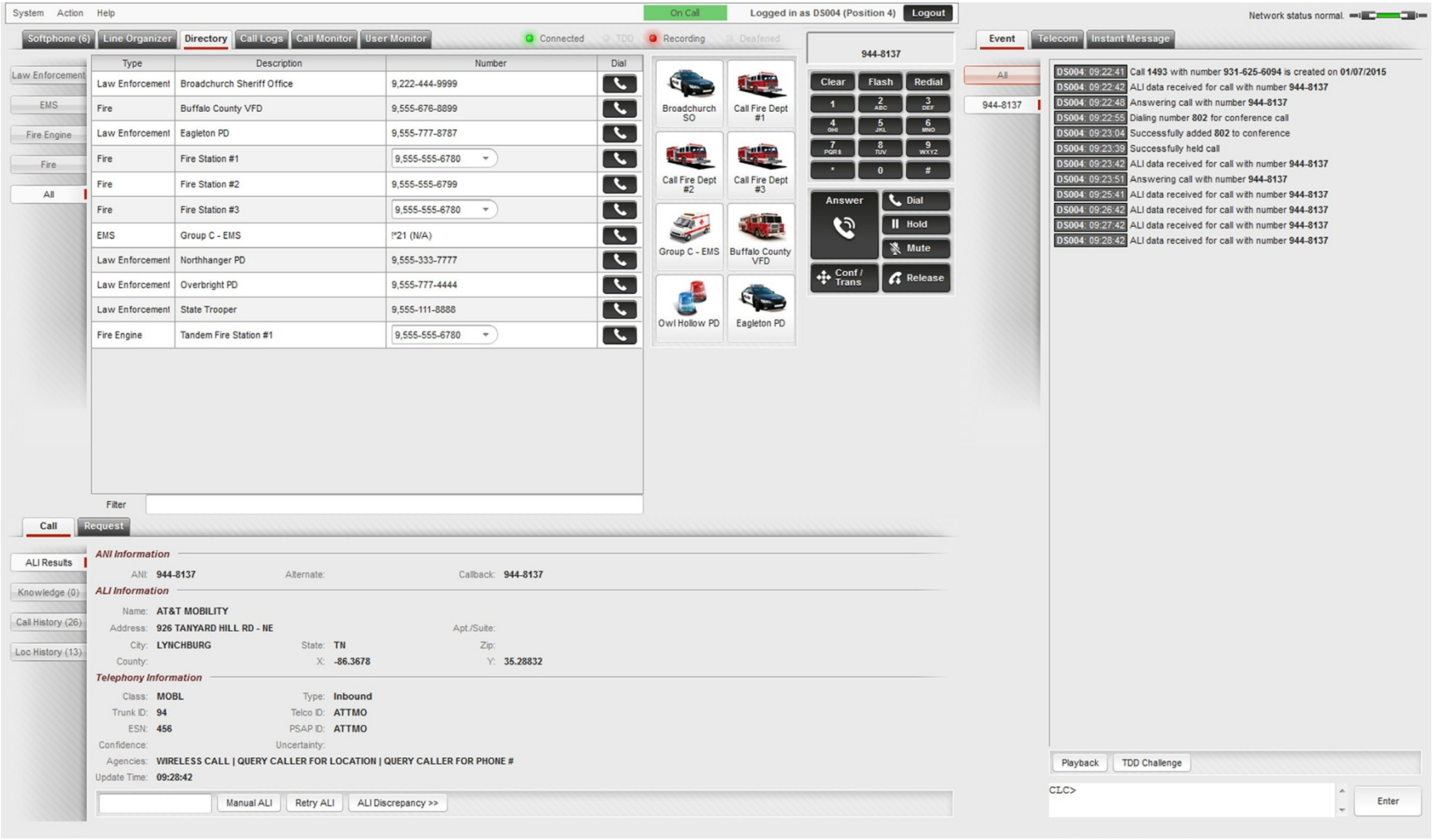

Figure 2-10: CallStation Directory

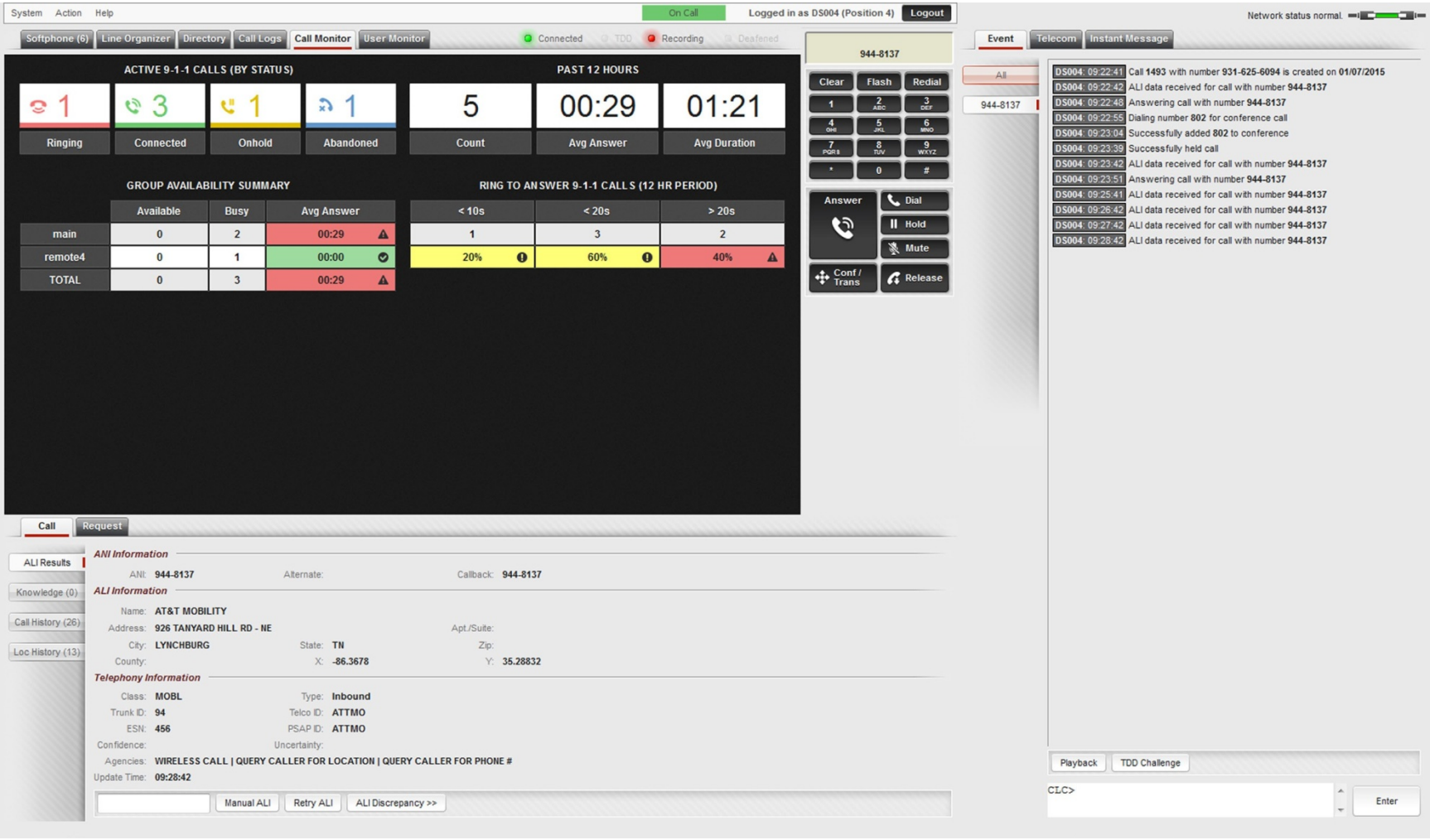

Figure 2-11: CallStation Call Monitor

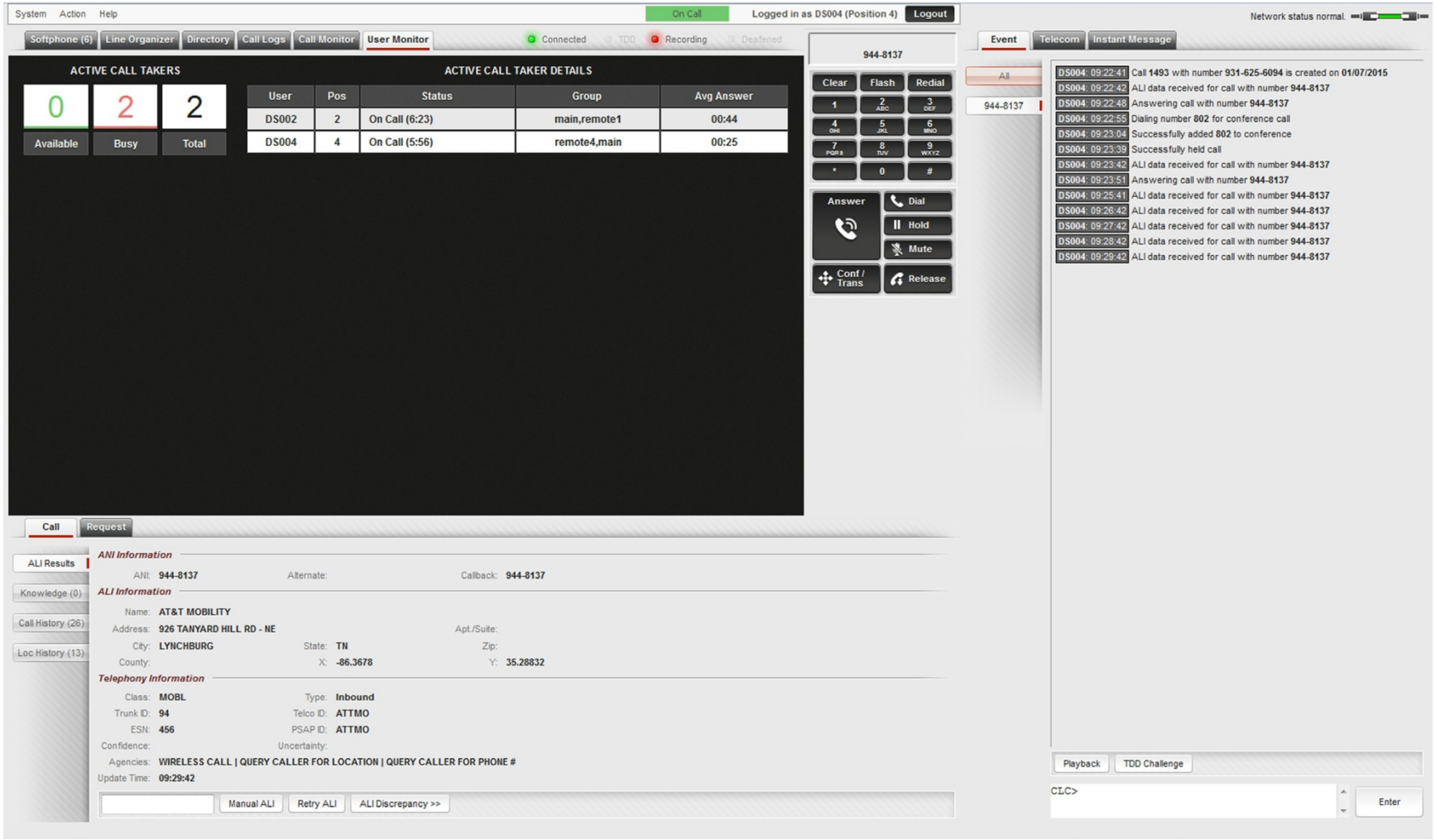

Figure 2-12: CallStation User Monitor

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2.6 SYSTEM COMPONENTS AND CAPABILITIES HIGHLIGHTS

The following sections provide an overview of various system components and call taking, CAD, mapping, administrative, and reporting features provided by ECW systems.

2.6.1 System Components

2.6.1.1 Call Screen Components

- **Softphone** - The Softphone displays detailed information on all active calls and provides full call management capability. Refer to Section 1.5.14 for more information on call management options available from the UI. The information provided on active calls includes the User ID of the managing call taker, call status (e.g. Ringing, On Hold, Transferred, Abandoned, etc.), duration, type (e.g. inbound, outbound, SMS), caller name, ANI provided callback number, and Pre ALI data. Adjacent to each call in the Softphone is a status light, which conveniently indicates call status according to color (e.g. red for Ringing, green for Connected, blue for Abandoned, black for Transferred etc.). Additionally, the Softphone features transfer/speed dial buttons (Softphone Buttons). Softphone Buttons are created and managed from AdminiStation by authorized users. Refer to Section 1.5.18 for more information on AdminiStation. The Softphone also features call indicators which specify whether a call is connected, being recorded, deafened, or a TDD call. Figure 2-7 displays the CallStation Softphone.
- **Line Organizer** - The Line Organizer displays detailed information on all phone lines and the call activity on each. Provided line information includes the line ID, User ID of the call taker managing the call on the line, line status (e.g. Idle, Active, etc.), duration of the call on the line, line type (e.g. e911, administrative, e7digit, etc.), caller name, ANI provided callback number, and Pre ALI information. The Line Organizer features a separate sub-tab for each line type (e.g. e911, e7digit, administrative, etc.), as well as the All Lines Sub-tab. Full call management options are available from the Line Organizer. As in the Softphone Tab, the Line Organizer features status lights which indicate call state (e.g. red for Ringing, green for Connected, black for Transferred, etc.) of the call on each line.
- **Directory** - The Directory contains all contacts and serves an important role in transferring and conferencing calls. The configuration of the Directory is managed from AdminiStation. Directory entries are organized by type (e.g., Law Enforcement, Fire, EMS, etc.). Each entry type is contained in a separate sub-tab. The entire Directory is included in the All Sub-tab. The Directory automatically opens whenever a user selects the Conference/Transfer option, allowing the user to quickly select the entry to which to transfer or add to the call. The Directory also features Directory Buttons. Similar to the Softphone Buttons, Directory Buttons serve as single-click speed dial/transfer buttons. Figure 2-10 displays the CallStation Directory.
- **Call Logs** - The Call Logs display detailed information on the inbound and outbound call history of the last twelve or twenty four hours, depending on system configuration. Call may be filtered by workstation user or Dispatch Group of which the user is a member. Call history information includes call ID, line ID, call status, call type (e.g. e911, e7digit, administrative, etc.), ANI provided callback number, ALI information, and the date and time at which the call came in. Right-clicking on a call in the Call Logs provides options to Review, Redial, and Playback. Figure 2-9 displays the CallStation Call Logs.
- **Call Monitor** - The Call Monitor tab displays detailed information such as call counts by status, average call answer time and duration, user status, and more. Figure 2-11 displays the Call Monitor.

- **User Monitor -** The User Monitor tab includes details on active users including username, workstation position, status (e.g. Available, On Call, etc.), Dispatch Group of which user is a member, average answer time, and more. Figure 2-12 displays the User Monitor.
- **Dial Pad -** The Dial Pad serves as a virtual phone for managing calls. The number of the call being managed is automatically displayed in the Dial Pad screen. Several call management options are available from the Dial Pad, including Clear, Redial, Dial, Hold, Answer, Mute, Release, Conference/Transfer, etc.
- **Event Tab -** The Event Tab displays a log of activity for each call and incident, providing users with an up-to-the-second management history. The Event Tab also features the Command Line Console (CLC). From the CLC, users may enter system commands to manage calls, incidents, and units, open other applications such as AdminiStation and DecisionStation, etc. Examples of CLC commands include AC (Answer Call), SD (Show Directory), D (Dispatch Unit), CAN (Cancel Incident), and more.
- **Telecom Tab -** The Telecom Tab features the TDD and Playback Sub-tabs. From the TDD Sub-tab, users can communicate with TDD callers. Included in the TDD Sub-tab is the TDD Auto drop-down list, featuring a wide variety of predefined TDD messages (e.g. "9-1-1, What is your emergency?", "What address to send help?", etc.). Predefined Messages generally save critical time when managing a TDD emergency call. Predefined Messages are created and managed from AdminiStation.
- **SMS Tab –** The SMS Tab provides for the receipt and management of SMS calls. An incoming text message appears in the call table as ringing. "SMS" is displayed under the type column, indicating the caller is texting 9-1-1. To view the SMS and respond, the call taker must simply "answer" the call. Once the call has been answered, the SMS Tab opens displaying the text and providing full management capabilities such as Barge-In, Transfer, Release, etc. Additionally, an SMS drop-down list containing predefined messages may be used to quickly respond to the caller. A log of the conversation with details such as the phone number, answer time, release time, and more are stored in DecisionStation. Figure 2-12 displays the SMS Tab.
- **Instant Message Tab -** From the Instant Message Tab, connected users may communicate with other users and entire Dispatch Groups, allowing for quick and simple coordination and information sharing.
- **System Menu -** The System Menu provides access to AdminiStation and DecisionStation for authorized users, as well as Log Out.
- **Action Menu -** From the Actions Menu, users may open the Event Tab, ALI Dialog, Map, Save Default Map View, specify Location Format (format options include Decimal Degrees or Deg/Min/Sec), and temporarily hide abandoned or transferred calls in the call table.
- **Help Menu -** From the Help Menu, users may view product version number and open the online user manual.
- **Network Connection Status Notification -** Located in the upper right corner of the Call Screen is the Connection Status Notification Icon. This component reflects the current state of the network connection. The application automatically attempts to reestablish the network connection when delays are experienced.

Connection Status Notifications include:

- Network Status Normal.
- Network Connectivity Slow.
- Retrying Network Connection.
- Network Connection Failed. Contact Network Administrator.

The messages that accompany connection statuses are configurable, allowing for the display of site-specific instructions or procedures.

- **Call Window** - The Call Window displays detailed information on calls including ANI, ALI, and Telephony data. Telephony data includes Class, Trunk ID, ESN, Confidence and Uncertainty for wireless calls (if available from ALI), Type, Telco ID, and more. From the Call Window, ALI information may be manually entered if ALI is unavailable or incorrect. The Call Window also displays Call History (past calls from the same phone number) and Location History (past incidents associated with the phone number). With CAD solutions, incidents may be initiated from the Call Window. In DispatchStation, the Call Window is displayed on the Map Screen.

2.6.2 Map Screen Components

- **Task Bar** - The Task Bar features a variety of helpful, easy-to-use mapping features. Features include Grab, Rubber Zoom, Measure, Default Map View, Zoom In, Zoom Out, Pin, ESN Toggle, and Map Search.
- **Zoom Slider** - The Zoom Slider is an additional tool for adjusting zoom level.
- **Map Legend (Layer Controller)** - The Map Legend (Layer Controller) allows users to select the layers that will be displayed on the map. Map Layer options are configurable. Examples of available options include Fire Stations, Fire Hydrants, Landmarks, Addresses, Major Roads, Streets, Buildings, Hydrology, ESN, etc.
- **Distance, Location, Scale** - The Distance Box is used in conjunction with the Task Bar Measure feature and displays the distance between selected points on the map. The Location Box displays, depending on the specified location format, either the latitude and longitude or Deg/Min/Sec of a selected location. The Scale Box displays the current map scale in miles or feet.
- **MapView Zoom** - The MapView Zoom feature allows users to quickly change the area of the map being viewed. A mini-map is displayed in the MapView Zoom Box, with a small red box indicating the portion of the Map currently displayed. Dragging the red box to the desired area on the mini-map will cause the full map image to correspondingly shift to the selected area.
- **Map Icons** - All deployments using mapping will display Call Icons at the location of from which the call is coming. The color of a Call Icon indicates call status (red for ringing, green for connected, blue for abandoned, etc.). Right-clicking on a Call Icon displays full call management options. In CAD deployments, Incident and Unit Icons are also displayed on the map. An Incident Icon will be automatically displayed at the incident location once an incident is created. The color of an Incident Icon indicates incident status (e.g. green for Pending, black for Transferred, blue for Abandoned, yellow for Held, etc.). Right-clicking on an Incident Icon displays full incident management options. Once a unit's status is set to On Scene, a Unit Icon will appear at the location of the incident. Right-clicking on a Unit Icon displays full unit management options.
- **Uncertainty Circles** - An uncertainty circle will surround an incoming wireless call whose ALI results report confidence and uncertainty, marking the area from which the call is being made. Above the uncertainty circle will be a percentage, reflecting the degree of confidence that the call is coming from within the area covered by the uncertainty circle.

2.6.3 Call Management Highlights

2.6.3.1 Call Management Options Available from the UI

The ECW system features a robust set of options for managing calls and SMS. Calls may be managed from various components in the user interface including the Softphone, Dial Pad, Line Organizer, Map, and the Event Tab. SMS are managed from the SMS Tab.

Call Management Options:

- Answer.

- Redial.
- Silent Monitor.
- Barge-In.
- Override.
- Mute/Unmute.
- Deafen/Undeafen.
- Hold/Unhold.
- Conference/Transfer.
- Conference Release.
- TDD Challenge.
- Retry ALI.
- Create Incident (CAD).
- Center on Map.
- View Details.
- Playback.
- Review.

Users with appropriate access privileges may monitor all active calls from the Active Call monitor of DecisionStation. Information provided in the Active Call Monitor includes call ID, trunk ID, managing Dispatch Group, user ID, workstation position, ring start time, answer time, delay (time elapsed between ring start and answer time), ANI, location, class, and call duration.

Detailed information on all calls is also available from the Active and Closed Calls Tabs of the DecisionStation Dashboard. The following DecisionStation reports provide further information on calls: ECW 9-1-1 & Phone System Summary, 9-1-1 basics, Calls by Line Type, Calls by Selected Answer Time, Calls by Call Type, Calls per Trunk and Line Type, Calls by Position, 9- 1-1 Call Answer Time, Calls by Class of Service, Calls by Employee, Call Summary, Calls by Hour and Day, Call Statistics per Hour, and NFPA Call Take and Dispatch. For more information on DecisionStation Reports, refer to Section 1.5.20.

2.6.3.2 Call Management Options Available from the Polycom

Many of the call management options available from the UI are also available from the Polycom. From the Polycom, calls may be answered, released, returned, placed on hold, transferred, and more. The Polycom features an extensive directory that includes administrative contacts as well as all contacts with an associated tandem transfer code. Directory entries with associated tandem transfer codes are, by default, loaded as speed dial buttons.

2.6.4 Administrative Call Management Features

The robust set of options provided by the ECW system for managing 9-1-1 calls is also available for administrative call management. Administrative lines are designated and configured during the pre-installation system build. Administrative lines may be tied to Direct Inward Dialing (DID) and/or be added to an Automated Attendant, allowing calls to be automatically and directly routed to the correct destination. Administrative calls may be fully managed from the Polycom or the UI. Administrative calls are easily distinguished in the ECW system with the label of “admin” under the type column of the Call Screen Softphone and Line Organizer. Additionally, the Line Organizer features an Admin Tab, which displays detailed information on all designated administrative lines and the call activity on each. All administrative phones provide access to voicemail and caller ID. A Polycom phone may be configured to serve both dispatching and administrative call management from a workstation or to serve administrative use exclusively at a front desk position.

Detailed data on administrative calls are provided in the following DecisionStation Call Reports: Calls by Line Type, Calls by Selected Answer Time, Calls by Call Type, Calls per Trunk and Line Type, Calls by Positions, Calls by Class of Service, Calls by Employee, Call Summary, and Calls by Hour and Day. For more information on DecisionStation Reports, refer to Section 1.5.20.

2.6.5 SipStation

SipStation is ECW's remote VoIP phone only capability. SipStation is an ideal option for PSAP's that require additional in-house call taking positions or smaller, detached positions/sites.

SipStation supplies ALI and management options (i.e. Transfer, Hold/Unhold, Conference, etc.) for E911 and admin calls.

2.6.6 Automatic Call Distributor (ACD)

The Emergency CallWorks system provides the option of Automatic Call Distribution (ACD) including queue statistics reporting as an integral part of the solution. ECW has built a modular ACD system with pluggable support for various queue disciplines. Examples of currently supported queue disciplines include Round Robin, Longest Idle, and Ring All. Additional custom queue disciplines can be added by ECW at any time. Queues allow the customer to define whatever combination of skills and capabilities for any particular group of users is necessary. The ECW solution supports an unlimited number of queues per user group.

The ECW system displays a sorted (by priority, state and duration) list of Calls per 'Dispatch Group'. Even if all call takers are busy on calls, they will receive visual indication of additional, potentially higher-priority, and waiting calls. Users can optionally be provided with audible and visual notification of additional calls waiting through the SIP end-point. Each ACD call taker's status is visually displayed in the application and recorded in the DecisionStation reporting solution. ACD Call taker statuses include Ready, Not Ready, On ACD Call, Call, Wrap Up, Holding Call, Unavailable, and Off Hook. Additionally, the system supports advanced features such as Forced Answer, Zip Tones, automatic and Wrap-Up.

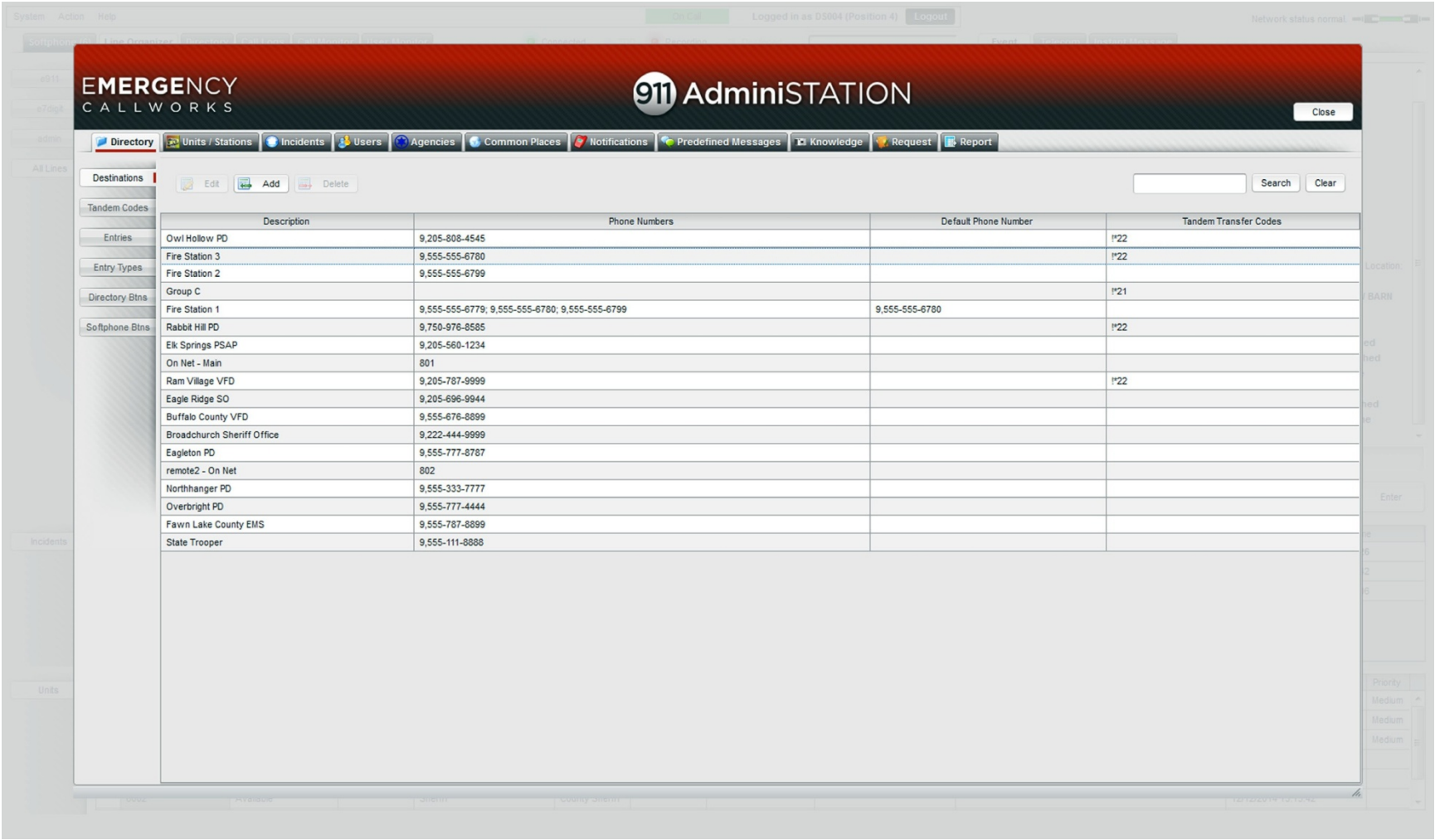
2.7 ADMINISTATION

AdminiStation is ECW's browser-based administrative system configuration management application. From AdminiStation, system administrators, maintenance staff, supervisors, and other authorized personnel may quickly and easily manage much of the data used in the system such as directory entries, agencies, units, stations, predefined TDD and SMS messages, and much more. Figure 2-13 - Figure 2-16 displays various parts of the AdminiStation user interface.

2.7.1 AdminiStation Highlights:

- Directory configuration management. Create new and modify existing Call Destinations, Tandem Transfer Codes, Phone Numbers, Directory Entries, and more.
- Create and manage transfer/speed dial buttons.
- Set up a distinct ordering of transfer/speed dial buttons and directory entries for each Dispatch Group or collection of Dispatch Groups.
- Create and manage Units, Stations, Unit Type Groups, and Unit Statuses.
- Create and manage Incident Types, Subtypes, Statuses, Priorities, and more.
- Add and manage PSAP and agency users. Assign users to specific dispatch groups, specify account access privileges, and more.

- Create and manage agencies.
- Create a database of Common Places (e.g. schools, hospitals, shopping centers etc.).
- Create automatic email and/or email to text notifications to alert selected recipients of incident creation, unit dispatch, station dispatch, and service request status updates*.
- Create predefined messages for use in TDD and SMS calls that can save valuable time.
- Compile a Prior Knowledge database, uploading useful files such as building floor plans or premise information for key locations.
- Create and manage Service Request Categories (e.g. towing and wrecker services, locksmith, medical transporting, etc.) and Providers.
- Mine and export detailed Call and Incident data.
- Schedule auto-generation and delivery of DecisionStation reports on a daily, weekly, or monthly basis.



Description	Phone Numbers	Default Phone Number	Tandem Transfer Codes
Owl Hollow PD	9,205-808-4545		!*22
Fire Station 3	9,555-555-6780		!*22
Fire Station 2	9,555-555-6799		
Group C			!*21
Fire Station 1	9,555-555-6779; 9,555-555-6780; 9,555-555-6799	9,555-555-6780	
Rabbit Hill PD	9,750-976-8585		!*22
Elk Springs PSAP	9,205-560-1234		
On Net - Main	801		
Ram Village VFD	9,205-787-9999		!*22
Eagle Ridge SO	9,205-696-9944		
Buffalo County VFD	9,555-676-8899		
Broadchurch Sheriff Office	9,222-444-9999		
Eagleton PD	9,555-777-8787		
remote2 - On Net	802		
Northhanger PD	9,555-333-7777		
Overbright PD	9,555-777-4444		
Fawn Lake County EMS	9,555-787-8899		
State Trooper	9,555-111-8888		

Figure 2-13: AdminiStation Directory Tab

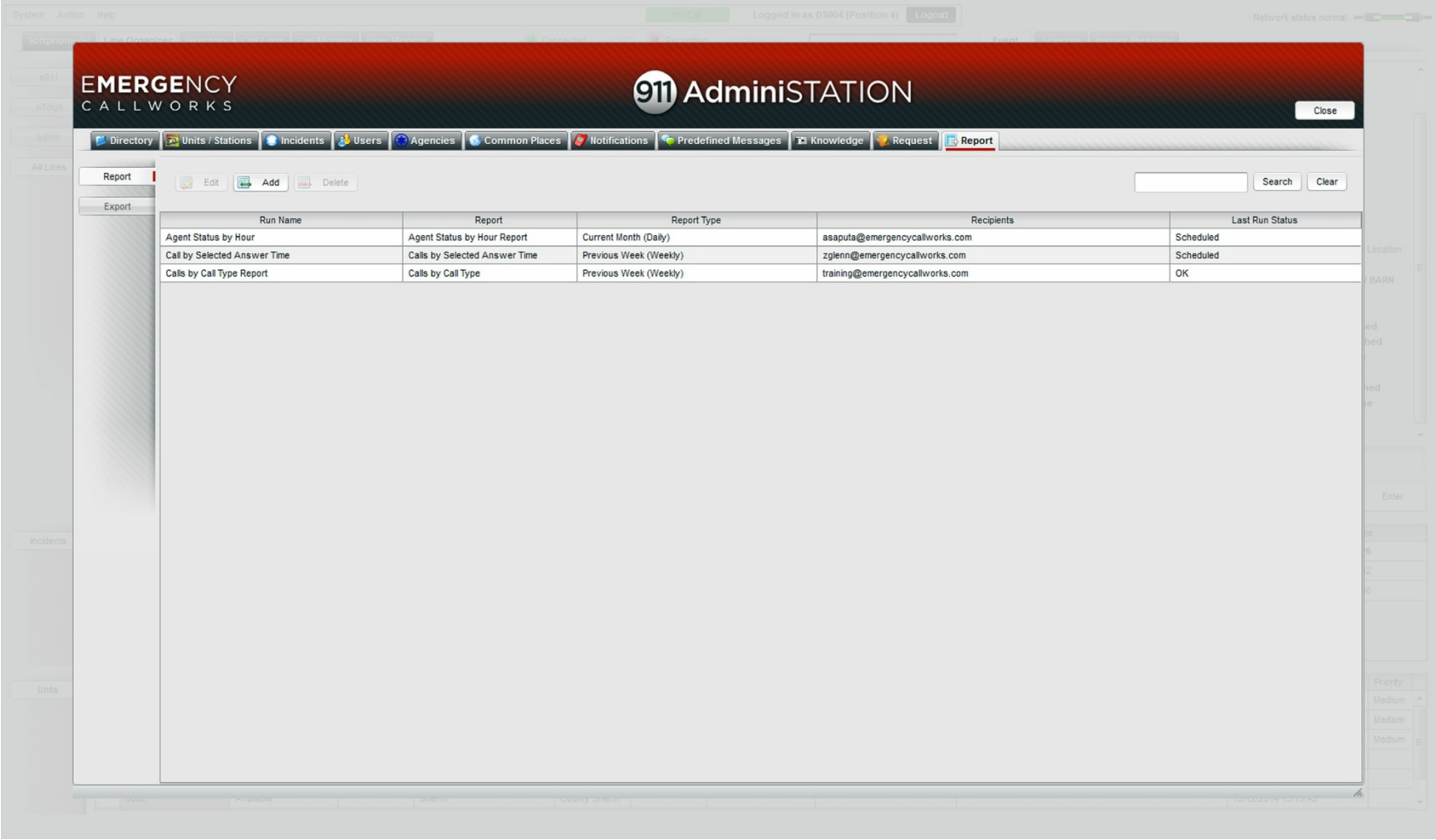


Figure 2-14: Report Tab

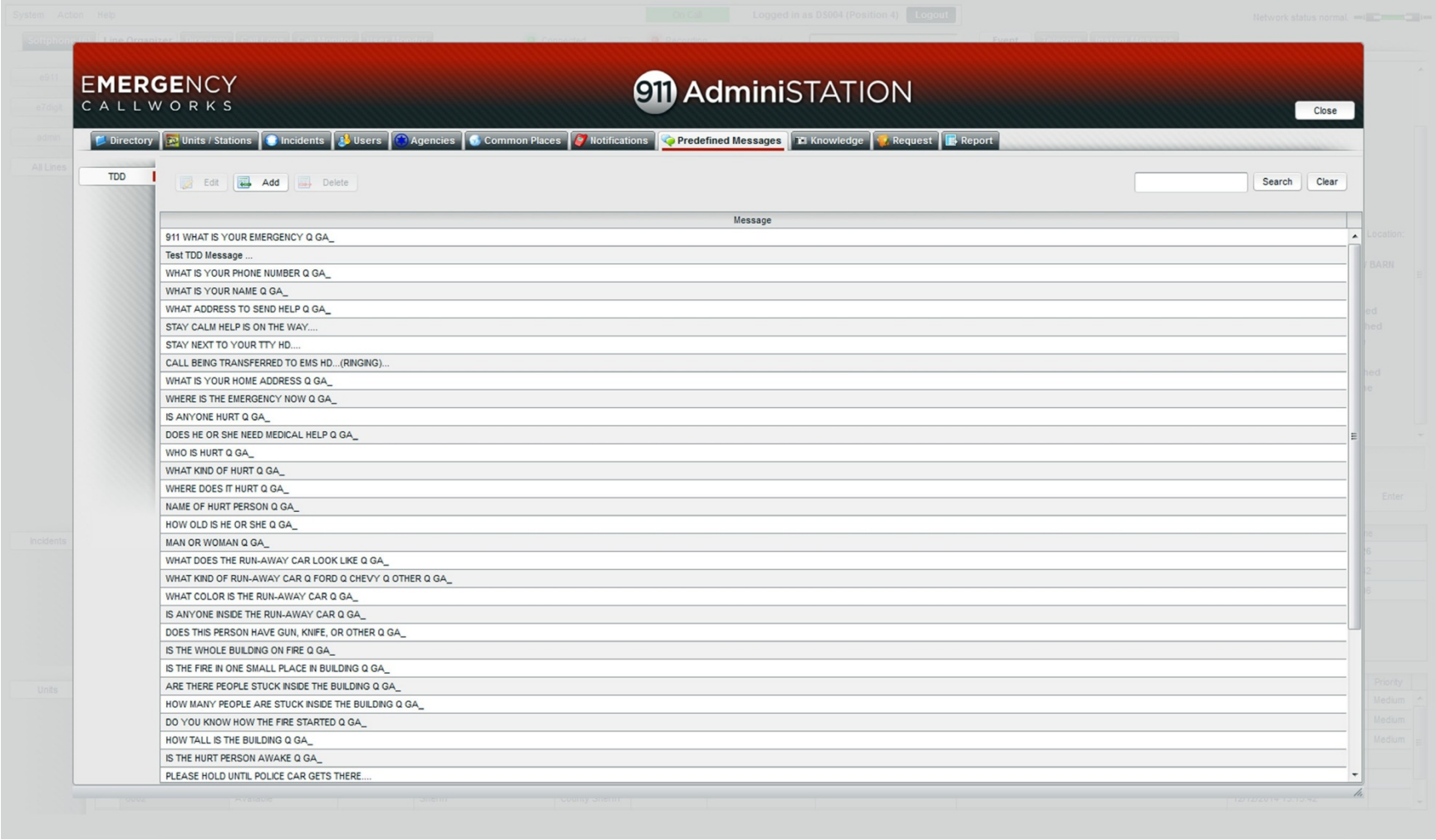
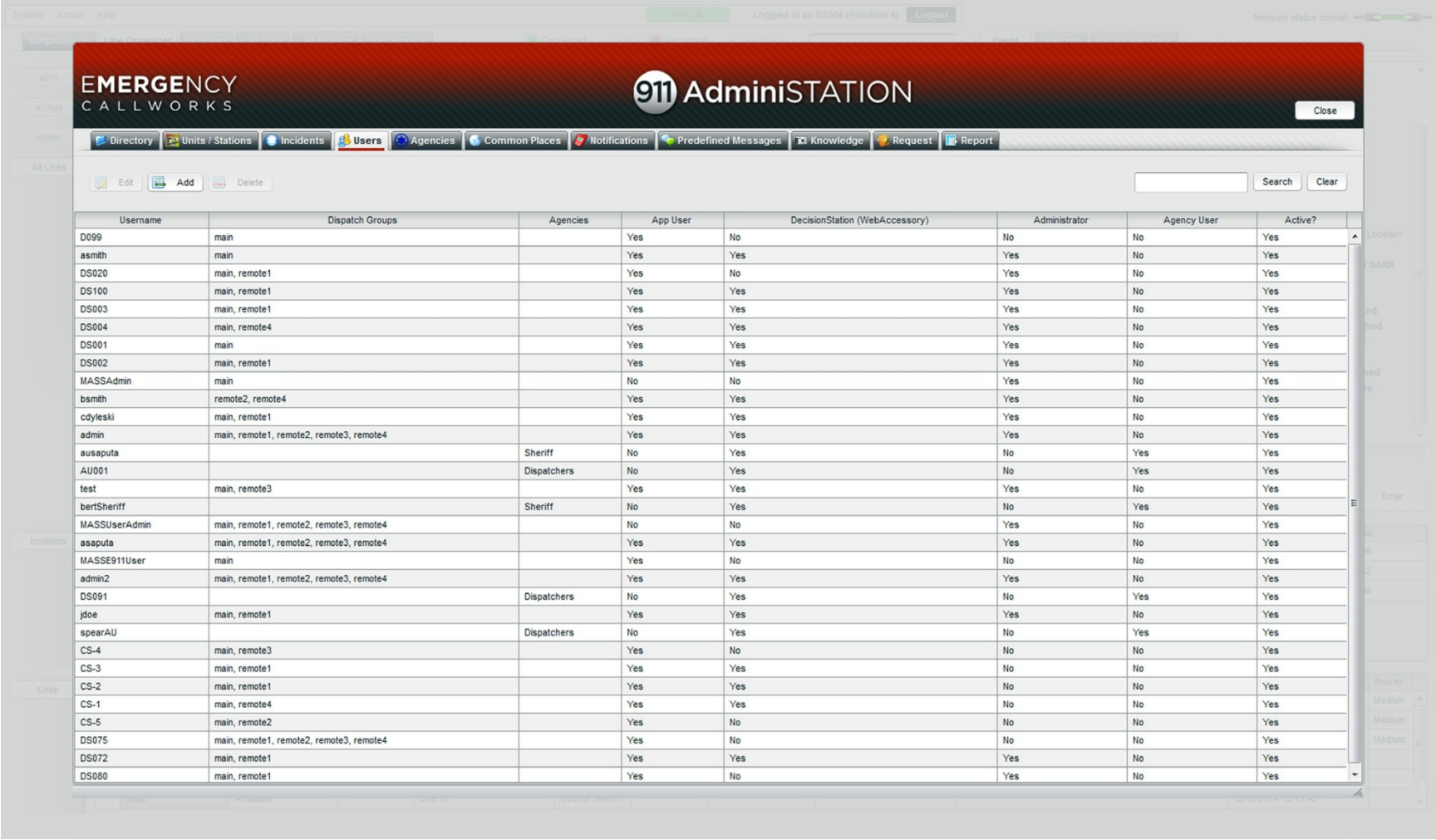


Figure 2-15: AdminiStation Predefined Messages



Username	Dispatch Groups	Agencies	App User	DecisionStation (WebAccessory)	Administrator	Agency User	Active?
D099	main		Yes	No	No	No	Yes
asmith	main		Yes	Yes	Yes	No	Yes
DS020	main, remote1		Yes	No	Yes	No	Yes
DS100	main, remote1		Yes	Yes	Yes	No	Yes
DS003	main, remote1		Yes	Yes	Yes	No	Yes
DS004	main, remote4		Yes	Yes	Yes	No	Yes
DS001	main		Yes	Yes	Yes	No	Yes
DS002	main, remote1		Yes	Yes	Yes	No	Yes
MASSAdmin	main		No	No	Yes	No	Yes
bsmith	remote2, remote4		Yes	Yes	Yes	No	Yes
cdyleski	main, remote1		Yes	Yes	Yes	No	Yes
admin	main, remote1, remote2, remote3, remote4		Yes	Yes	Yes	No	Yes
ausaputa		Sheriff	No	Yes	No	Yes	Yes
AU001		Dispatchers	No	Yes	No	Yes	Yes
test	main, remote3		Yes	Yes	Yes	No	Yes
bertSheriff		Sheriff	No	Yes	No	Yes	Yes
MASSUserAdmin	main, remote1, remote2, remote3, remote4		No	No	Yes	No	Yes
asaputa	main, remote1, remote2, remote3, remote4		Yes	Yes	Yes	No	Yes
MASSE911User	main		Yes	No	No	No	Yes
admin2	main, remote1, remote2, remote3, remote4		Yes	Yes	Yes	No	Yes
DS091		Dispatchers	No	Yes	No	Yes	Yes
jdoe	main, remote1		Yes	Yes	Yes	No	Yes
spearAU		Dispatchers	No	Yes	No	Yes	Yes
CS-4	main, remote3		Yes	No	No	No	Yes
CS-3	main, remote1		Yes	Yes	No	No	Yes
CS-2	main, remote1		Yes	Yes	No	No	Yes
CS-1	main, remote4		Yes	Yes	No	No	Yes
CS-5	main, remote2		Yes	No	No	No	Yes
DS075	main, remote1, remote2, remote3, remote4		Yes	No	No	No	Yes
DS072	main, remote1		Yes	Yes	Yes	No	Yes
DS080	main, remote1		Yes	No	Yes	No	Yes

Figure 2-16: AdminiStation Users Tab

2.7.2 AdminiStation Notifications

AdminiStation provides the capability for users with administrative access privileges to set up automatic email and email to text notifications for various system events. Notifications are an excellent tool for helping PSAP and agency administrators monitor key PSAP and agency activity. Refer to Table 2-1 below for a description of the notification types available from AdminiStation.

Table 2-1: AdminiStation Notification Types

Notification	Description
Incident Creation	Recipients will be notified whenever an incident is created in the system. AdminiStation provides the option to specify incident type and ESN. For example, a user may specify that recipients only be notified of Traffic Stops or only of incidents created at a particular location.
Unit Dispatch	Recipients will be notified whenever a unit is dispatched in the system. AdminiStation provides the option to specify incident type, ESN, unit ID, and agency. For example, a user may specify that recipients only be notified when units belonging to a particular fire department are dispatched, when units are dispatched to an Auto Accident, etc.
Station Dispatch	Recipients will be notified whenever a station is dispatched in the system. AdminiStation provides the option to specify incident type, ESN, and station ID.
Request	Recipients will be notified whenever a request status is updated. AdminiStation provides the option to specify Request Provider and Request Status. For example, a user may specify that recipients only be notified with a service provider accepts a service request.

2.7.3 DecisionStation

DecisionStation is ECW's management information system (MIS), providing access to detailed, exportable call, incident, unit, and user records and reports. In addition to reports, DecisionStation features active call monitoring and call playback. Figure 2-17 - Figure 2-25 displays various components of the DecisionStation User Interface. Refer to Section 1.5.20 for detailed information on the reports available from DecisionStation.

DecisionStation Feature Highlights:

- **Active Call Monitor** displaying detailed information on current calls including Call Status, Call ID, Trunk ID, managing Dispatch Group and User, Workstation Position, Ring Start Time, Answer Time, ANI data, Location data, Call Class, and more.
- Thorough, exportable reports:
  - **9-1-1/Phone System Reports** including 9-1-1 Basics, Calls by Line Type, Calls by Selected Answer Time, Calls by Call Type, Calls per Trunk & Line Type, Calls by Position, 9-1-1 Call Answer Time, Calls by Class of Service, Calls by Employee, Call Summary, Calls by Hour & Day, Call Statistics per Hour, Transferred Calls Statistics, and Agent Status by Hour (ACD)
  - **CAD System Reports** including Incidents by Type, Incidents by Agency, Agency Incident Type - Monthly, Agency Incident Type - Weekly, Units by Dispatcher, Incident Handling Time, Incidents by Hour & Day, Response Time by Hour & Day,
  - Unit Activity - Summary, and Unit Activity - Detailed
  - **Combined Call and CAD Reports** including Agency Incident Details, Incident by Source, and NFPA Call Take and Dispatch
  - Other Reports including ALI Errors and User Log In and Out Times

- **Dashboard** providing access to detail records on Active and Closed Calls, Active and Closed Incidents, Lines, Units, Requests and more.

EMERGENCY CALLWORKS — 911 DecisionSTATION

Dashboard

DecisionStation (WebAccessory) > **Dashboard**

Logged in as **DS072**

Toolbox

Dashboard | **Reports** | **Active Call Monitor**

Active Calls | **Closed Calls** | **Active Incidents** | **Closed Incidents** | **Lines** | **Units** | **Requests** | **Links**

CALL ID	TYPE	STATUS	CREATED ON	USER	DISPATCH GROUPS	PSAP ID	POSITION
2150	Inbound	Connected	11/15/12 11:19	DS007	main , remote1 , remote2 , remote3 , remote4 , madison		5
2151	Inbound	Connected	11/15/12 11:20	DS007	main , remote1 , remote2 , remote3 , remote4 , madison		5
2152	Inbound	Connected	11/15/12 11:20	DS007	main , remote1 , remote2 , remote3 , remote4 , madison		5
2149	Inbound	Ringing	11/15/12 11:19				N/A

Figure 2-17: DecisionStation Dashboard - Active Calls

EMERGENCY CALLWORKS — 911 DecisionSTATION

Dashboard

DecisionStation (WebAccessory) > **Dashboard**

Logged in as **DS072**

Toolbox

Dashboard | **Reports** | **Active Call Monitor**

Active Calls | **Closed Calls** | **Active Incidents** | **Closed Incidents** | **Lines** | **Units** | **Requests** | **Links**

INCIDENT ID	TYPE	SUBTYPE	DISPATCH GROUPS	ADDRESS	CREATED ON	POSITION ID
TEST1-687	Auto Accident		main	603 CASHION RD, LYNCHBURG, 37352	11/15/12 13:42	
TEST1-686	Auto Accident		main	30 SPRIGGS AVE, LYNCHBURG, 37352	11/15/12 11:22	
TEST1-685	Auto Accident		main	238 LYNCHBURG HWY, LYNCHBURG, 37352	11/15/12 10:23	
TEST1-683	Hostage		main , remote1 , remote2 , remote3 , remote4 , madison	127 JACEY LN, LYNCHBURG, 37352	11/15/12 9:54	
TEST1-679	Traffic Stop	Vehicle	main	242 CHAPMAN ACRES CIR, LYNCHBURG, 37352	11/14/12 17:37	

Figure 2-18: DecisionStation Dashboard - Active Incidents

EMERGENCY CALLWORKS

911 DecisionSTATION

Dashboard

DecisionStation (WebAccessory) > Dashboard

Logged in as DS072

Toolbox

Dashboard | Reports | Active Call Monitor

Active Calls | Closed Calls | Active Incidents | Closed Incidents | Lines | Units | Requests | Links

1 Hour 12 Hours 24 Hours 7 Days 30 Days

Start Date: 11/15/2012 | Start Time: 00:00 | Dispatch Groups: madison, main, remote1, remote2 | Number

End Date | End Time

Page: [1]

<< First < Previous Next > Last >>

30 records found

Page 1 of 1 [records 1 - 30]

Submit

ID #	NUMBER	TYPE	STATUS	RING START	ANSWER TIME	DURATION	USER	DISPATCH GROUPS
2165	7597076	Inbound	Released	11/15/12 15:57	00:00:37	00:00:17	DS003	main
2164	7594567	Inbound	Abandoned Cleared	11/15/12 15:56			---	remote2
2163	7597076	Inbound	Abandoned Cleared	11/15/12 15:55			---	main , remote1
2162	7594567	Inbound	Released	11/15/12 15:54	00:00:57	00:00:03	DS003	remote2
2161	7597076	Inbound	Released	11/15/12 15:51	00:01:34	00:01:01	DS003	main , remote1
2160	7594567	Inbound	Abandoned Cleared	11/15/12 15:51			---	remote2
2159	7597076	Inbound	Released	11/15/12 15:50	00:00:06	00:00:27	DS003	main
2158	7594567	Inbound	Abandoned Cleared	11/15/12 15:50			---	remote2
2157	7597076	Inbound	Released	11/15/12 15:48	00:00:09	00:00:16	DS003	main

Figure 2-19: DecisionStation Dashboard - Closed Calls

EMERGENCY CALLWORKS

911 DecisionSTATION

Dashboard

DecisionStation (WebAccessory) > **Dashboard**

Logged in as **DS072**

Toolbox

Dashboard | **Reports** | **Active Call Monitor**

Active Calls | Closed Calls | Active Incidents | **Closed Incidents** | Lines | Units | Requests | Links

1 Hour 12 Hours 24 Hours 7 Days 30 Days

Start Date: 10/15/2012 Start Time: 00:00

End Date: 11/16/2012 End Time:

Dispatch Groups: madison, main, remote1, remote2

Agencies: Alabama Forestry, Alabama Highway Depar, Alabama Power, Alabama State Trooper

Incident Types: Abdominal Pain, Airplane Crash, Allergic Reaction, Animal Bite

Page: **[1] 2**

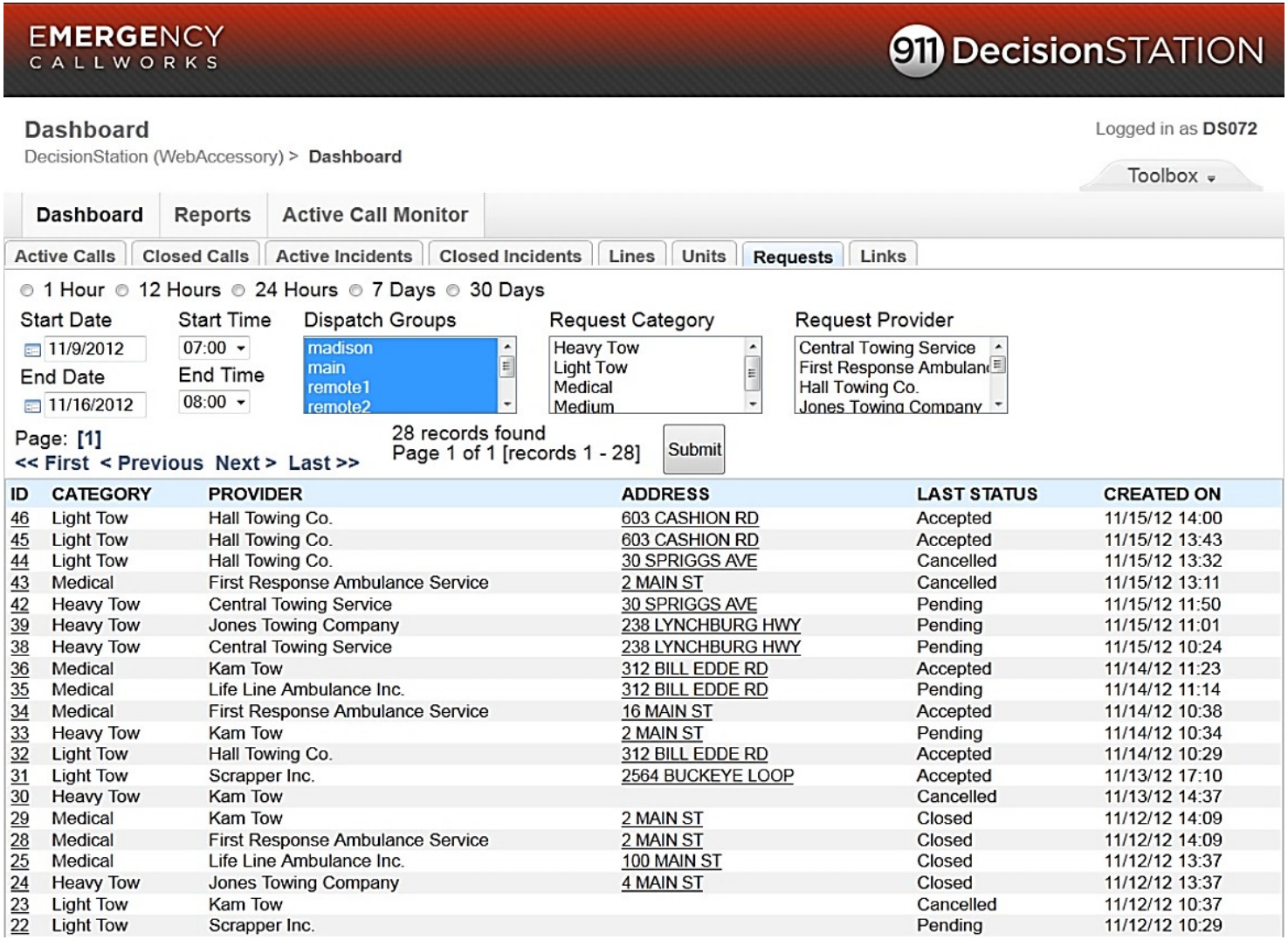
<< First < Previous Next > Last >>

114 records found
Page 1 of 2 [records 1 - 100]

Submit

ID	TYPE	SUBTYPE	DISPOSITION	ADDRESS	CLOSED
TEST1-689	Back Injury		Incident Complete	477 WINCHESTER HWY, LYNCHBURG, 37352	11/15/12 15:26
TEST1-688	Auto Accident		Cancelled Incident		11/15/12 13:59
TEST1-684	Brush Fire		Incident Complete	1388 BOONEVILLE HWY, LYNCHBURG, 37352	11/15/12 10:20
TEST1-682	Animal Bite		Cancelled Incident	193 T MOTLOW RD, LYNCHBURG, 37352	11/15/12 9:45
TEST1-681	Brush Fire		Cancelled Incident	680 BOONEVILLE HWY, LYNCHBURG, 37352	11/15/12 9:43
TEST1-680	Traffic Stop	Vehicle	Incident Complete	1347 FAYETTEVILLE HWY, LYNCHBURG, 37352	11/15/12 9:25
TEST1-678	Traffic Stop	Vehicle	Incident Complete		11/15/12 9:24
TEST1-677	Traffic Stop	Vehicle	Incident Complete	1253 MAIN ST, LYNCHBURG, 37352	11/15/12 9:24
TEST1-676	Suspicious Person	Baldwin County EMC	Incident Complete	58 ELM ST S, LYNCHBURG, 37352	11/15/12 9:24
TEST1-673	Animal Rescue	Alabama State Trooper	Incident Complete	50 HILES ST, LYNCHBURG, 37352	11/15/12 9:24
TEST1-670	Traffic Stop		Incident Complete	44 MAIN ST, LYNCHBURG, 37352	11/15/12 9:24
TEST1-669	Animal Bite	Alabama State Trooper	Incident Complete	312 BILL EDDE RD, BELVIDERE, 37306	11/15/12 9:24
TEST1-667	Animal Complaint		Cancelled Incident	238 BRANDON HOLLOW RD, LYNCHBURG, 37352	11/15/12 9:23
TEST1-675	Animal Bite		Incident Complete	423 PIERCE HOLLOW RD, BELVIDERE, 37306	11/14/12 15:30
TEST1-674	Disorderly Conduct		Incident Complete	561 INCLINE RD, BELVIDERE, 37306	11/14/12 15:29
TEST1-1	Spider Man Sighting		Incident Complete	2 MAIN ST, LYNCHBURG, 37352	11/14/12 15:01
TEST1-672	Animal Bite	Alabama State Trooper	Cancelled Incident	44 MAIN ST, LYNCHBURG, 37352	11/14/12 14:39
TEST1-666	Assistance		Cancelled Incident	186 LONG ACRES LN, LYNCHBURG, 37352	11/14/12 14:17
TEST1-671	Traffic Stop	Vehicle	Incident Complete	44 MAIN ST, LYNCHBURG, 37352	11/14/12 11:37

Figure 2-20: DecisionStation Dashboard - Closed Incidents



ID	CATEGORY	PROVIDER	ADDRESS	LAST STATUS	CREATED ON
46	Light Tow	Hall Towing Co.	603 CASHION RD	Accepted	11/15/12 14:00
45	Light Tow	Hall Towing Co.	603 CASHION RD	Accepted	11/15/12 13:43
44	Light Tow	Hall Towing Co.	30 SPRIGGS AVE	Cancelled	11/15/12 13:32
43	Medical	First Response Ambulance Service	2 MAIN ST	Cancelled	11/15/12 13:11
42	Heavy Tow	Central Towing Service	30 SPRIGGS AVE	Pending	11/15/12 11:50
39	Heavy Tow	Jones Towing Company	238 LYNCHBURG HWY	Pending	11/15/12 11:01
38	Heavy Tow	Central Towing Service	238 LYNCHBURG HWY	Pending	11/15/12 10:24
36	Medical	Kam Tow	312 BILL EDDE RD	Accepted	11/14/12 11:23
35	Medical	Life Line Ambulance Inc.	312 BILL EDDE RD	Pending	11/14/12 11:14
34	Medical	First Response Ambulance Service	16 MAIN ST	Accepted	11/14/12 10:38
33	Heavy Tow	Kam Tow	2 MAIN ST	Pending	11/14/12 10:34
32	Light Tow	Hall Towing Co.	312 BILL EDDE RD	Accepted	11/14/12 10:29
31	Light Tow	Scrapper Inc.	2564 BUCKEYE LOOP	Accepted	11/13/12 17:10
30	Heavy Tow	Kam Tow		Cancelled	11/13/12 14:37
29	Medical	Kam Tow	2 MAIN ST	Closed	11/12/12 14:09
28	Medical	First Response Ambulance Service	2 MAIN ST	Closed	11/12/12 14:09
25	Medical	Life Line Ambulance Inc.	100 MAIN ST	Closed	11/12/12 13:37
24	Heavy Tow	Jones Towing Company	4 MAIN ST	Closed	11/12/12 13:37
23	Light Tow	Kam Tow		Cancelled	11/12/12 10:37
22	Light Tow	Scrapper Inc.		Pending	11/12/12 10:29

Figure 2-21: DecisionStation Dashboard - Requests

Call Summary

ECX Test Network #1

Start Date: 2013-11-01 Shift Start: --

End Date: -- Shift End: --

Dispatch Groups: --

Call Type	# Calls
9-1-1 Calls	10
Answered 9-1-1 Calls	9
Abandoned 9-1-1 Calls	1
7-Digit Emergency Calls	0
Admin Calls	0
Answered Admin Calls	0
Abandoned Admin Calls	0
Outbound Calls	1

Mon, 4 Nov 2013 14:05:58 DS072 Page 1 of 1

Figure 2-22: Call Summary Report

Calls by Position

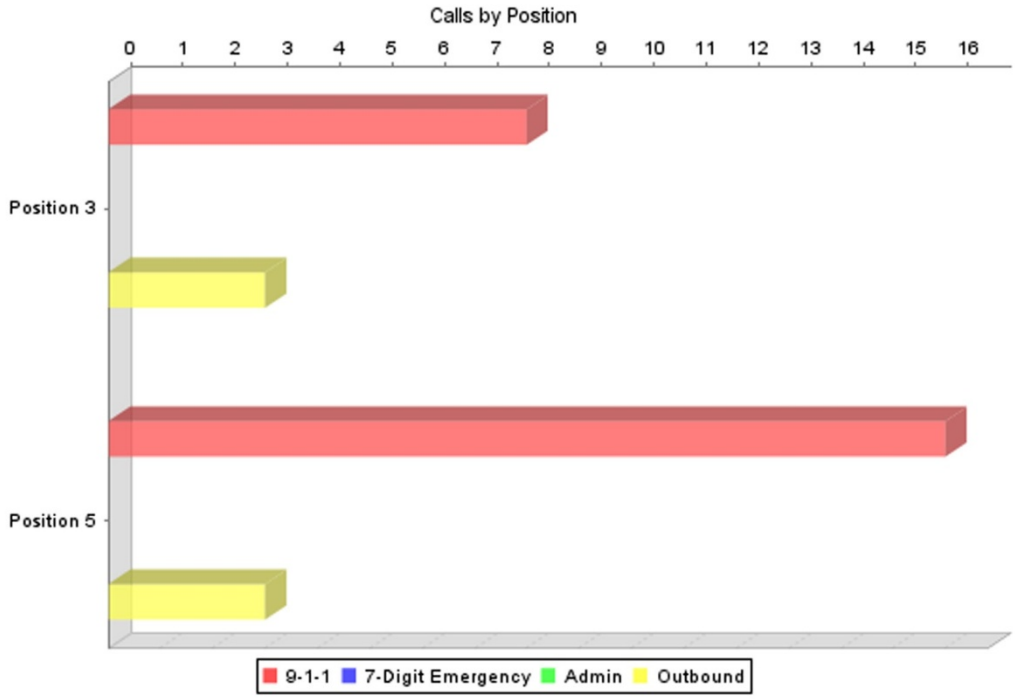
ECX Test Network #1

Start Date: 2013-08-01 Shift Start: --

End Date: 2013-08-31 Shift End: --

Dispatch Groups: --

Position	9-1-1	7-Digit Emergency	Admin	Outbound
3	8	0	0	3
5	16	0	0	3
Total	24	0	0	6



Tue, 3 Sep 2013 12:06:34 DS072 Page 6 of 8

Figure 2-23: Call by Position Report

9-1-1 Calls by Class of Service

ECX Test Network #1

Start Date: 2013-10-01 Shift Start: 08:00

End Date: 2013-11-01 Shift End: 16:00

Dispatch Groups: main, remote1, remote2, remote3

Class of Service	Answered Calls	Abandoned Calls	Total Calls	% of Total	% Wireless
BUSN	534	1	**535**	13.61%	
CNTX	1684	22	**1706**	43.39%	
MOBL	1	0	**1**	0.03%	0.03%
PBXB	142	0	**142**	3.61%	
RESD	1050	8	**1058**	26.91%	
Unknown	478	1	**479**	12.18%	
VOIP	1	0	**1**	0.03%	
WPH1	1	0	**1**	0.03%	0.03%
WPH2	5	1	**6**	0.15%	0.15%
WRLS	3	0	**3**	0.08%	0.08%
Total	**3899**	**33**	**3932**	**100.00%**	**0.28%**

Thu, 7 Nov 2013 09:46:41 DS072 Page 1 of 1

Figure 2-24: 9-1-1 Calls by Class of Service Report

9-1-1 Basics

ECX Test Network #1

Start Date: 2013-09-01 Shift Start: 08:00 User: --

End Date: 2013-09-30 Shift End: 16:00

Dispatch Groups: main, remote1, remote2, remote3

Number of Answered Calls:	250	
Average Answer Time:	00:26.0	MM:SS.s
Average Call Duration:	04:48.2	MM:SS.s

Mon, 28 Oct 2013 10:01:05 DS072 Page 1 of 1

Figure 2-25: 9-1-1 Basics

Table 2-2 below lists all available DecisionStation Reports and provides a brief description of each. CAD reports are only included with DispatchStation and DispatchStation NT. Combined Call and CAD Reports are only included with DispatchStation.

Table 2-2: Phone System Reports

Report	Description
ECW 9-1-1 & Phone System Summary	This is a Master Call Report containing the following call reports: 9-1-1 Basics, Calls by Line Type, Calls by Selected Answer Time, Calls by Call Type, Calls per Trunk & Line Type, Calls by Position, 9-1-1 Call Answer Time, and Calls by Class of Service, Agent Status by Hour (ACD).
9-1-1 Basics (included in ECW 9-1- 1 and Phone System Summary)	This report includes basic call data such as the total number of E911 calls answered and the average length of the call for a user- specified time period. The report includes completed 9-1-1 inbound calls.
Calls by Line Type (included in ECW 9-1-1 and Phone System Summary)	This report reveals the type of phone line on which calls came in (9-1-1, 7-Digit Emergency, Admin, etc.) and includes both call counts and call statistics (such as the average answer time and total talk time).The report covers both completed and abandoned inbound calls.
Calls by Selected Answer Time (included in ECW 9-1-1 and Phone System Summary)	This report allows the user to select an answer time (in seconds) and view the total percentage of calls, organized by call type, that were answered within that amount of time. The report includes 9-1-1, 7-Digit Emergency, and Admin inbound calls.
Calls by Call Type (included in ECW 9-1-1 and Phone System Summary)	This report displays detailed information on calls, including the total number of each call type (9-1-1, Admin, 7-Digit Emergency) and the number of those that were inbound, outbound, and internal.
Calls per Trunk & Line Type (included in ECW 9-1-1 and Phone System Summary)	This report displays the count of calls that came in on each trunk. The report covers completed 9-1-1, 7- Digit Emergency, and Admin inbound calls and is helpful in tracking the line distribution of calls.
Calls by Position (included in ECW 9- 1-1 and Phone System Summary)	This report displays the number calls that were answered at each workstation (position). The report covers completed 9-1-1, 7-Digit Emergency, and Admin inbound calls. This report is helpful in viewing call distribution across staffed workstations and may be used as a shift report.
9-1-1 Call Answer Time (included in ECW 9-1-1 and Phone System Summary)	This report displays calls by Answer Time. Answer Time is the amount of time (in seconds) between the call beginning to ring and the call being answered. The report covers completed 9-1-1 inbound calls.
Calls by Class of Service (included in ECW 9-1-1 and Phone System Summary)	This report displays inbound call counts organized by Class of Service (e.g. BUSN, CNTX, RESD, WRLS, WPH2, VoIP, MOBL, PBXB, etc.) with the total percentage for each class. Only inbound calls are included in the report.

Report	Description
Call Summary	This report displays the total number of calls, organized by Line Type, for the requested time period. The report covers 9-1-1, 7-Digit Emergency, and Admin calls, with separate counts for inbound, outbound, and abandoned calls.
Calls by Hour and Day	This report displays total call counts, organized by hour of day and day of week. The report covers all Line Types (9-1-1, 7-Digit Emergency, Admin), and all Call Types (inbound, outbound, and internal) and includes both answered and unanswered inbound calls. This report is helpful in identifying the busiest hours/days in the week and making staffing and scheduling adjustments accordingly.
Call Statistics per Hour	This report reveals the number of inbound calls for each hour of the day over the user-specified time period. The report covers both abandoned and completed inbound 9-1-1 calls. This report is helpful in determining how many of the total calls presented were actually answered.
Transferred Calls Statistics	This report reveals the total number of transferred calls, the average duration of transferred calls, and the transferring and receiving Dispatch Groups.
Agent Status by Hour (ACD)	This report reveals the number of users logged in to the system at each hour of the day. The report displays the amount of time users spent in particular ACD states. ACD states include Ready, Not Ready, On ACD Call, Wrap Up, Holding Call, Unavailable, and Off Hook.

Table 2-3: Other Reports

Report	Description
ALI Errors	If the ALI provided address is incorrect, users may open a Discrepancy Report and correct the error using the Update Location feature. The correction is recorded in DecisionStation. This report displays the date the correction was made, the user who made the correction, ANI information, the original incorrect ALI location along with the manually updated address, and any user comments.
User Log In and Out Time	This report helps administrators keep track of user activity in the system. The report reveals the date and time a user signed in and out of the system and the amount of time the user spent logged-in.

2.7.4 Fault Tolerance

Any failure of redundant network links will be transparently handled by the system. In the case of redundant Local Area Network (LAN) link failures, this will occur within milliseconds. For redundant Wide Area Network (WAN) link failures, this will occur with seconds. All components are duplicated within the system. Any component failure will not affect calls traversing non-failed redundant components.

In any legacy E-911 system, failure of a trunk interface card, chassis or gateway will cause all calls active on those particular components to be lost. This is a function of the way that the CAMA trunking system is designed. Therefore no vendor can accurately and honestly state that in a legacy environment no single equipment failure will ever cause a call to be lost.

The Emergency CallWorks system includes several layers of data duplication and backup including real-time data replication and nightly point-in-time backups. All received and generated data including CDR, ALI, Recording, and MIS data is subject to both methods of data redundancy.

In the event of a catastrophic failure requiring complete re-construction of one or more of the servers, the system would be initially restored using the previous night's point in time backup. Subsequently, the rebuilt system would be 'caught-up' to events occurring since the last point-in-time backup through replay of database logs and re-synchronization of replicated block devices.

The Emergency CallWorks system is designed to be as reliable as possible. Fault Tolerance is achieved through system design and operation and the network, hardware, operating system, and application level. All call path critical network elements, servers, line/trunk interfaces and software elements are redundant at the Host/Controller and Data Center level. All critical resources are monitored in real-time and numerous classes of faults are handled automatically without human intervention. The system has no single point of failure and has the capability to 'self heal' from numerous types of potential issues.

Specifically, all Servers, Gateways, Switches and Modems are redundant. If one of these types of devices fails, it does not adversely affect the other ‘paired’ device. Therefore, the system continues in an operational mode and the device can be replaced with a spare without causing an outage of the entire system. Redundancy alone is not sufficient to increase availability substantially.

2.8 SYSTEM EXPANSION CAPABILITIES

Motorola’s Emergency CallWorks CallStation® product is designed to be scalable in a practically unlimited way and provides a completely non-blocking environment. The ECW solution is built around an IP soft-switch using a Host Media Processing (HMP) architecture, with external COTS gateways for legacy interfaces. In this system design, there is no 'chassis' to outgrow and no 'switch matrix' or 'DSP resources' to be exhausted and cause a 'blocking' situation.

The Emergency CallWorks solution is designed to allow easy future expansion and is not limited in the number of trunks, answering positions or telephone lines that can be managed. This is possible because the system is designed using completely independent Commercial Off the Shelf (COTS) components connected via Ethernet. If additional trunks or lines are required, additional gateways (and potentially network switches) are added to accommodate them.

If additional positions are required, additional workstations (and potentially network switches) are added as required. The servers are provisioned to support all trunks and all stations, accommodating up to 250 simultaneous calls for 50 users. The system can be easily upgraded to support an unlimited number of simultaneous users in 50 user increments.

The proposal as priced includes configuration, hardware and cabling to support a 25% growth factor. The system as provisioned is capable of supporting at least a 100% growth factor.

2.9 MIGRATION PLAN

2.9.1 Legacy Speed Dial Directory

Motorola will work with Customer on a plan to migrate the legacy speed dial directory upon award of this contract should we be the successful respondent.

2.9.2 MIS Administrative Data and Call Records

Motorola will work with Customer to develop a plan to migrate the legacy MIS Administrative Data and Call Records upon award of this contract should we be the successful respondent.

2.10 LIFECYCLE

Motorola's Emergency CallWorks solution provides all software releases, including major feature releases, free of charge to customers under a standard maintenance contract. Upgrades are completed by Emergency CallWorks support technicians at the Customer's discretion. Typically customers are updated to the latest version once every two to three months. Emergency CallWorks has never had an "end-of-life" to its solution.

Motorola and ECW, in conjunction with the customer, will oversee all approved hardware and software upgrades. ECW will provide the customer notification of scheduled product updates and/or modifications via a Product Change Notice (PCN), Technical Service Advisory (TSA), or a New Product Bulletin (NPB). The customer determines if the updates or modifications are required. If a product update is deemed required, ECW will communicate this to the customer and include supporting documentation including any applicable test reports. If the customer is in approval, ECW agrees to apply the upgrade/fix as needed.

2.11 INTEGRATION OF NEXT GEN 911

Motorola's Emergency CallWorks solution business model is based on providing a fully compliant NENA i3 NG9-1-1 solution based on today's standards, while also providing for migration to future standards as they are developed. Motorola has proposed an I3 ECW solution based upon the current I3 standards, and will ensure future I3 capabilities during the duration of the contract at no additional cost to the County. This is part of our standard contract offering. I3 related upgrades will NOT require complete replacement of major system components and are free of charge as standards migrate.

Motorola's Emergency CallWorks solution is turnkey and includes all of the network equipment necessary to deploy and turn-up the solution. No additional network equipment beyond what is provided by this proposal will be necessary for a deployment supporting 9-1-1 via legacy CAMA or via future i2 or i3 connections.

The ECW CallStation platform is compliant with the i3 specification and will support text from any carrier using that standard. These messages appear in a separate tab and are associated with the Command Line Console for managing conversations and typing return messages as may be required. Planned capabilities include Text Challenge similar to that of TDD and storage of pre-canned messages as a minimum. ECW also supports co-habitation of third party web-based Text message applications for pre i3 support. The current version of CallStation has a built-in vendor neutral aggregator and testing.

2.12 ELECTRICAL REQUIREMENTS

The Emergency CallWorks system requires a NEMA L5-30R twist locking receptacle(s) which provides 120 Volt peak AC power on a 30 Amp circuit. The system can support one or two receptacles per host site, depending on whether redundant electrical circuits are available.

2.13 EQUIPMENT LIST

Below is the equipment list that details the physical network and end user hardware proposed.

2.13.1 Primary PSAP Equipment List

Qty	Part Number	Description
3	ECX100101	WKS PC, Dual Video, 4G RAM
1	ECX100101	WKS PC, Dual Video, 4G RAM, (ACD WallBoards)
1	ECX100101-P	Portable ANS. Pos., Laptop/VoIP Tel./ Kit Assm.
6	ECX100103	MONITOR, 22WM" FP, BLK
1	ECX100105-60	MONITOR, 60", LCD TV/Monitor
1	ECX100110-HA	ECX Dual Server, HA SA Appliance Assembly, 2U
3	ECX100001-NS	AUDIO INTERFACE UNIT (AIU)
7	ECX100201	POLYCOM 650 SIP PHONE
7	ECX100202	POLYCOM SIDECAR for 650
3	ECX100204	Keypad, Genovation 24 Key, Model 683
3	ECX100305	Media Gateway, 8 Port FXS or (CAMA) to SIP
2	ECX100311	Media Gateway, 8 port FXO to SIP
1	ECX100312-1	Media Gateway, 4 Port FXS (Station Rec.)
2	ECX100315	Rack Shelf, Media Gateway, 2 GW per Shelf
3	ECX200001	CALLSTATION License
1	ECX200001-LU	CALLSTATION License, Limited Use / Dark
1	ECX200004	DECISIONSTATION, SITE License
1	ECX200006	ADMINISTATION, SITE License
1	ECX200007	MESSAGEWORKS, SITE License
1	ECX200008	SIPWORKS, i3/IP INTERFACE, PSAP License
1	ECX500001-24CH	CABINET ASSM, 24 RU, COMPLETE
1	ECX500002-PR	POS. BASED REC KIT - 4 Port
2	ECX500003	SWITCH, CISCO, 24-PORT POE, 10/100/1000
1	ECX500005-2	ROUTER, CISCO , 3 WAN ENTERPRISE/2911
1	ECX500007	MISC. MAT., CABLES, LOT
2	ECX500008	ALI MODEM, E911 CSU/DSU
1	ECX500009-1	PRINTER, HP LaserJet Pro 200
3	ECX500010-4	KVM, 4-Port
1	ECX500017	IP to Serial Dist., 16 port
1	ECX500103	UPS - Smart-UPS X 3000VA

2.13.2 Optional Spares

Qty	Part Number	Description
1	ECX100001-NS	AUDIO INTERFACE UNIT (AIU)
1	ECX100201	POLYCOM 650 SIP PHONE
1	ECX100305	Media Gateway, 8 Port FXS or (CAMA) to SIP

STATEMENT OF WORK

The purpose of this General Statement of Work (SOW) is to clarify the responsibilities of Motorola and Westmoreland County regarding the scope of work, responsibilities, and the product and service deliverables for the delivery of the Emergency CallWorks (ECW) system.

Summary

In an effort to improve call taker and dispatcher work-flow, processing speed, overall efficiency and generally improve public safety, Westmoreland County desires to deploy a Next Generation, state-of-the-art NG9-1-1 public safety solution. To meet these requirements, Westmoreland County has elected to purchase an ECW product and service solution.

Project Goals

ECW is a technological leader in public safety communications and dispatch systems focused on Next Generation 9-1-1 and dispatch technology. It is the goal of ECW to provide the finest, most technologically-advanced Next Generation 9-1-1 telephony, mapping and dispatch products and services to Westmoreland County. Our primary goal is to ensure the successful and timely deployment of products and technical services as described in this SOW.

3.1 TECHNICAL SERVICES

Motorola and ECW technical services are available to meet the needs of our customers; including PSAPs and dispatch agencies. Such services may include installation, project management, training and remote monitoring services among others. The specific professional services to be provided for the project identified in this SOW are to be negotiated and documented in this document by identifying each party's tasks and responsibilities. Regardless of responsibility, ECW seeks a quality and timely deployment of the selected solution. This General Statement of Work (SOW) is designed to help the Westmoreland County better understand ECW's services and the distribution of responsibility of all parties involved.

3.1.1 Contract Award

The customer and Motorola execute the contract and both parties receive all the necessary documentation.

3.1.2 Contract Administration

After the contract is awarded ECW and the Westmoreland County assign project resources. The project is then setup in the Motorola information system and the kick-off meeting is scheduled.

3.1.3 Project Kickoff

Once the contract has been successfully executed and the project resources assigned Motorola and ECW will schedule a kickoff meeting with Westmoreland County. The key components of the project kickoff meeting are stated below:

- Review the roles of the project participants to identify communication flows and decision making authority between project participants.
- Review the overall project scope and objectives with Westmoreland County.
- Review the resource and scheduling requirements with Westmoreland County.
- Develop and review a mutually agreeable project schedule including milestones and/or events.
- Review the teams' interactions and (Motorola, ECW, and Westmoreland County), meetings, reports, milestone acceptance, and the Customer's participation in particular phases.

3.1.4 Project Management Services

This service defines ECW as the primary point of contact for all facets of project management and coordination. The assigned ECW Project Manager assumes the lead role and facilitates all aspects of project management, contingent upon having a primary contact with Westmoreland County. Services include, but are not limited to: complete project scheduling; pooling and allocation of resources; issue tracking; escalation and resolution; overall project reporting; and acting as the primary single point of contact for ECW. Additional Project Management Services include necessary site visits. Site visits are normally planned for the kick off meeting, cut over to live operations, and post-cut over reviews, if needed. Visit times may be adjusted, if desired and mutually agreed upon by the ECW and Westmoreland County project managers.

3.1.5 Installation Services

This service provides primary system engineering and installation services for all ECW systems. Our professionally trained and certified staff will assume the lead technical role for all matters under contract. For larger, more complex projects in which there is a dedicated project manager, the two will work in conjunction with one another to meet all such expectations and requirements.

3.1.6 Training Services

All course prerequisites, if any, must be satisfied prior to attending each class. Classes must be scheduled in the following order: Administrator, Call Taker/Agent, and Supervisor. Students that have attended Administrator Training do not need to attend the Agent or Supervisor classes for the same product. The maximum number of students per class is eight (8). ECW sets class durations. Changes to the training schedule must be communicated to ECW at least 20 days prior to the start of the first class. Any schedule changes communicated less than 20 days prior to the start of the first class may impact the overall project schedule. Unless otherwise stated, one trainer will provide up to eight (8) hours of instruction per business day during normal business hours. Training facilities must meet minimum ECW requirements and should be in place no later than one (1) day prior to the start of the first scheduled class.

3.2 MOTOROLA & EMERGENCY CALLWORKS RESPONSIBILITIES

Westmoreland County has elected to purchase services from ECW. To facilitate these services ECW will perform the following tasks. Tasks include, but are not limited to, those listed below, as applicable to the specific system ordered.

- Assign a Project Manager for the Project
- Complete system design in cooperation with Westmoreland County
- Procure and stage the hardware as defined herein
- Coordinate installation and project time-lines and tasks

- Install all ECW provided hardware including servers, racks, AIU's and networking equipment
- Provide configuration information for Westmoreland County workstations (Firefox browser configuration)
- Provide and update the project schedule/plan with input from Westmoreland County provided information related to the schedule as to on-site visits, installs, training and testing
- Inventory, immediately upon receipt, all material and components ordered
- Unpack, place, and install all hardware as required
- Install, correctly terminate, and successfully test all infrastructure cable, and other related communications cable necessary to properly install and operate the contracted system
- Install and secure all equipment racks or contract with ECW as required
- Provide for the installing and testing of all site-required cabling, including any additional cabling that may be required for training
- Provide installation of ladder rack, computer relay rack/cabinet installation, category 5 and telephony cable installation and testing, and other such work or activity
- Provide requirements for power, space, network (routers/switches, IP addresses, cabling, LAN, WAN, bandwidth, broadband connectivity), telephony (CAMA, Admin lines), data (phone line info, ring-downs, phone soft-buttons, directories/direct links, TDD messages)
- Notify Westmoreland County when there are issues (installation, training, coordination) which could potentially affect the schedule
- Provide purchased training and identify training facility requirements
- Provide and perform mutually agreeable Acceptance Test Plan
- Provide cut-over and 24 hour post cut support
- Provide Remote Monitoring
- Provide 1, 3, 5, or 10 years of telephone and product support, updates (in support of local technicians) per customer selection

3.3 CUSTOMER RESPONSIBILITIES

- Responsibilities shall include, but are not limited to:
- Provide, on request, information, data, records and documents, and make such decisions in a prompt and timely manner as may be reasonably required by ECW to perform under this agreement
- Use reasonable efforts to provide supporting information to aid in the solution of any problems discovered during installation, implementation or post installation phases of this project
- Provide appropriate schedule notification and facility availability for ECW on-site services and training
- Notify and coordinate schedule changes with ECW, which may require a Change Order (and potentially additional charges) dependent upon the change
- Assume sole responsibility for the accuracy and completeness of Customer-supplied data
- Provide a dedicated 30 amp 110V power outlet for the facilities and appropriate grounding, or as determined by the site survey, for the proper operation of the emergency telephone and computer systems described herein
- Assume full responsibility for mutually approved base map file, including, but not limited to: X / Y coordinates, structure address, street centerlines, ESN boundaries, City boundaries; maintain this file and use it to update the ECW system
- Updates to the base map file, performed by personnel designated, will be transferred to the system per ECW instructions
- Provide the physical facilities reasonably required for the installation, testing, implementation, training and support of the system provided by ECW

- Provide a floor plan outlining where ECW provided equipment is to be installed and position numbers for call taker, dispatch, and supervisor positions
- Ensure the operating environment is fully functional and meets ECW minimum operating requirements
- Provide the applicable broadband service for the ECW Virtual Private Network (VPN) for remote monitoring, support and troubleshooting connectivity
- Provide for, move, test and make operational or otherwise deliver CAMA trunks, administrative lines and other PSTN connections to the backboard demarcation at least 14 days prior to installation start date
- Provide for, move, test and make operational or otherwise deliver two (2) ALI circuit connections to the backboard demarcation at least 14 days prior to installation start date
- Provide facility specific work and activity, including, but not limited to, construction, core drilling, grounding,and any electrical or conduit needed to support the implementation
- Assist ECW in securing any required security clearances, identification tags and other requirements for access to areas within the facility necessary for ECW personnel to complete their project responsibilities under this agreement
- Provide the tap to the network clock, if applicable. This includes all interfaces necessary, preferably to provide the name/address of a timeserver on the network
- Document and supply configuration information on the existing CPE
- Make available at the equipment rack, all remote access lines terminated on RJ 11 or RJ 45 jacks or contract with ECW as required
- Procure and participate in ECW provided training for on-site support technicians; identify a System Administrator(s) who will be responsible for the day-to-day technical operations of the system
- Ensure that or Contract with ECW to guarantee Intermediate Distribution Frame (IDF), wall boards and/or interconnect points appear in the immediate area where ECW servers are installed
- Provide direct contact and support at the site location
- If not hand delivered by ECW or otherwise provided, provide easy access to and preposition to the greatest degree possible all new equipment received from ECW prior to ECW's arrival on site
- If applicable, submit custom IP and computer naming conventions to ECW at least 30 days prior to the scheduled equipment ship date
- Assume responsibility for or contract with ECW for the removal of all equipment and cable being replaced by the ECW system
- Assume responsibility for all material and services not specifically contracted through ECW
- Anticipate and plan for configuration changes and/or fine-tuning to the various ECW products installed once the system is placed and in use
- System management and detailed configuration after cutover. Please note that in most cases, within the first two weeks after cutover, it is highly probable that Westmoreland County will want to modify the system's configuration based on experience and use of the system
- Configure all foreign network workstations accessing the WebAccessory network or other service activities or contract with ECW as required
- Provide information needed for all custom work requested that requires a custom SOW. Custom SOWs are required for such items including but not limited to: database conversion, foreign network connections, on-site installation and configuration, or any other service not performed by ECW through its factory staging process

3.4 ASSUMPTIONS

All tasks included in this Statement of Work are estimated based on a typical level of effort for tasks of similar projects and are believed appropriate based upon the information provided by Westmoreland County. During the initial project planning phase, each project task will be verified based on the estimated number of man-hours and associated task dependencies. Each of these tasks will be dependent on the appropriate resources being made available by the Westmoreland County. If additional hours are identified or required by Westmoreland County in order to complete the project, the Westmoreland County Project Manager will send a request to the Motorola project manager in order to execute a Project Change Request.

WARRANTY SERVICES

Motorola has over 85 years of experience supporting mission critical communications for public safety and public service agencies. Motorola's technical and service professionals use a structured approach to life cycle service delivery and provide comprehensive maintenance and support throughout the life of the system. The value of support is measured by system availability, which is optimized through the use of proactive processes, such as preventive maintenance, fault monitoring and active response management. System availability is a function of having in place a support plan delivered by highly skilled support professionals, backed by proven processes, tools, and continuous training.

4.1 THE MOTOROLA SERVICE DELIVERY TEAM

4.1.1 Account Services Manager

Your Motorola Account Services Manager provides coordination of support resources to enhance the quality of service delivery and to ensure your satisfaction. The Account Services Manager (ASM) is responsible to oversee the execution of the Warranty and Service Agreement and ensure that Motorola meets its response and restoration cycle time commitments. The ASM will supervise and manage the Motorola Authorized Servicer's functions.

4.1.2 Motorola Local Service Provider

Motorola's authorized service centers are staffed with trained and qualified technicians. They provide rapid response, repair, restoration, installations, removals, programming, and scheduled preventive maintenance tasks for site standards compliance and network operability. Motorola's authorized service centers are assessed annually for technical and administrative competency.

Motorola has proven experience to deliver mission critical network support

- Extensive Experience–Motorola has over 85 years of experience supporting mission critical communications and the Public Safety community.
- Capacity to Respond–Motorola's network of local service centers, repair depots, system support center and parts support enable Motorola to provide quick and effective service delivery.
- Flexibility and Scalability–Motorola's Support Plans are customized to meet individual Customer needs.
- Skills and Process–Motorola uses a well-established, structured, and disciplined approach to provide service delivery. Motorola's team of well-trained and committed people understands the communications technology business.

4.2 WARRANTY AND MAINTENANCE SERVICES

4.2.1 OnSite Infrastructure Response

Motorola OnSite Infrastructure Response provides local, trained and qualified technicians who arrive at your location to diagnose and restore your communications network. Following proven response and restore processes, Motorola Dispatch contacts the local authorized service center in your area and dispatches a qualified technician to your site. An automated escalation and case management process ensures that technician site arrival and system restoration comply with contracted response times. The field technician restores the system by performing first level troubleshooting on-site. If the technician is unable to resolve the issue, the case is escalated to the System Support Center or product engineering teams as needed.

4.2.2 Maintenance and Support Program

The ECW Help Desk and assistance from the on-site technician will take the lead role in providing the customer with a Single Point of Contact (SPOC) for all monitoring and maintenance issues. ECW will also provide oversight and all coordination for the various organizations and its subcontractors required to maintain and monitor the customer.

Monitored Elements

- IP Network – ECW will use the combined capabilities of its Network Provider and its own Monitoring and Analysis to sufficiently oversee the network. Both ECW and the network provider play critical roles in providing network maintenance and monitoring.
- CPE – ECW will monitor and maintain CPE through a joint effort between the Help Desk at ECW and the dedicated on-site technician. ECW Remote Monitoring will be used to receive and display alerts from the various ECW products, workstations, gateways, network elements and the VoIP Softswitch. ECW will be the first responder to these alerts based on pre-determined levels of severity. If the alert requires Telco assistance, the ECW Help Desk will contact the Telco and a ticket will be initiated. ECW will also receive and monitor UPS alarms directly at the ECW headquarters.

Remote Monitoring

ECW Remote Monitoring uses remote utilities by Hyperic HQ for monitoring, diagnosing, troubleshooting and repairing many of the errors known or unknown to a PSAP. Remote Monitoring is responsible for analyzing, repairing, and running reports in a real-time and remote configuration. Remote Monitoring provides the following services:

- 24 x 7 monitoring of all servers, workstations, LAN components, operating systems, application systems, and any other SNMP/IP compliant device on the network.
- Alarm notification to first level ECW support should an alarm threshold be exceeded.
- Remote troubleshooting tools to diagnose hardware and software problems.
- Performance monitoring of network and computer components.
- Ability to remotely control monitored workstations and servers to allow for real-time viewing and the ability to make system changes.

Maintenance

ECW Service Team is staffed with highly trained personnel on a 7 x 24 x 365 basis and will respond to troubles relating to components or systems necessary to complete 9-1-1 calls through to the PSAP or for call handling purposes. When reported 9-1-1 system troubles or failures are received, ECW immediately begins the repair process of clarifying the report and prioritizing the trouble.

Hardware and Software Upgrades

ECW, in conjunction with the customer, will oversee all approved hardware and software upgrades. ECW will provide the customer notification of scheduled product updates and/or modifications via a Product Change Notice (PCN), Technical Service Advisory (TSA), or a New Product Bulletin (NPB). The customer determines if the updates or modifications are required. If a product update is deemed required, ECW will communicate this to the customer and include supporting documentation including any applicable test reports. If the customer is in approval, ECW agrees to apply the upgrade/fix as needed.

4.3 SPARE EQUIPMENT REPAIR & REPLACEMENT OVERVIEW

4.3.1 Replacement of Defective CPE

The local field technician, site engineer and/or project manager will call ECW Customer Service and report the failure. If a spare component is not on-site, ECW will overnight the replacement equipment to the location designated by the field technician, site engineer or project manager.

ECW will maintain an inventory of all critical spares locally. In the event a replacement part is needed immediately and not available on-site, the part can be taken from ECW Customer Service and then replenished when the new equipment arrives.

As part of the installation process, ECW will provide a list of installed components and the associated serial numbers to the customer based on an agreed-upon list of components. Post upgrade, ECW will maintain, by PSAP, a serial number database and will update accordingly the database whenever a hardware component is changed. A copy of this database will be made available to the customer upon completion of the contract or upon request by the customer.

4.3.2 Field Repair (Non Hard Drive)

When equipment within a PSAP is found to be defective and in need of replacement, it will be replaced from a spare parts stock inventory base that ECW will maintain locally. Please note that there may be certain critical spares that may not be located locally. ECW will track and analyze CPE failures at PSAPs that require a replacement. This will allow ECW and the customer to accurately judge the levels of inventory that are required to be on hand at all times to support the customer PSAPs. These levels along with frequency of repair will continually be analyzed so that ECW will be able to quickly and efficiently correct troubles and provide customer service.

If there is a failure of any component, it could take a minimum of 48 hours to have the replacement equipment packaged and sent to the site. ECW will assure the best operation of redundant components and survivability methods until the replacement is received.

4.3.3 Field Repair (Hard Drive)

In the event of a hard drive failure in any Workstation PC, only the hard drive of the affected PC will be replaced. Replacing just the hard drive and re-imaging the drive with the Operating System, Browser and a back-up copy of the workstation involves a minimal number of manual operations by ECW and is the least disruptive to the PSAP. The majority of the work can be done away from the dispatch area. It is the intent of ECW to make a backup of all workstation and servers whenever a configuration change is made.

4.3.4 Repair of Defective CPE

If a defective component is deemed repairable, the defective equipment will be returned to ECW via the standard RMA process. The defective equipment will be repaired or replaced by either ECW or the part manufacturer and returned to the customer so that the stock inventory can be replenished.

4.3.5 Local Spare Inventory

ECW will maintain a level of spares that is consistent with the needs of repair. Over time, the equipment failure rates vs. amount of spare inventory at the customer will be measured, tracked and adjusted to meet maintenance needs. Through these results ECW will be better able to judge the amount and type of spares needed and the inventory levels will be adjusted accordingly. Established inventories at these parts depot that may include, but would not be limited to: monitors, keyboards, mice, AIU's, telephones sets, power supplies, Gateways, modems, routers, cables and Ethernet switches.

TRAINING PLAN

5.1 CALLSTATION WM TRAINING SYLLABUS

Role	General Description of Training	Maximum Class Size
System Administrator	1. AdminiStation (Configuration Management Application 2. DecisionStation (MIS) 3. Call Screen Components 4. Map Screen Components 5. Call Management 6. Polycom Phone	8
Application Administrator	1. AdminiStation (Configuration Management Application 2. DecisionStation (MIS) 3. Call Screen Components 4. Map Screen Components 5. Call Management 6. Polycom Phone	8
End User	1. Call Screen Components 2. Map Screen Components 3. Call Management 4. Polycom Phone	8
Manager Supervisor (if different than end user)	N/A	8
Train-the-Trainer	1. Call Screen Components 2. Map Screen Components 3. Call Management 4. Polycom Phone	8
Other - Explain	N/A	8

5.1.1 End User and Train-the-Trainer

All users receive training on the components and functionality of the main application. Topics covered include:

- Call Screen Components
  - Softphone
  - Speed Dial/Transfer Buttons
  - Call Indicators
  - Line Organizer
  - Directory
  - Call Logs
  - Dial Pad
  - TDD
  - Call Playback
  - ALI Results
  - Premise Knowledge
  - Call History
  - Location History
- Map Screen Components
  - Task Bar Features (Grab, Rubber Zoom, Distance Measure, Default Map View, Zoom In,
  - Zoom Out, Pin, ESN Toggle, Map Search)
  - Zoom Slider
  - MapView Zoom
  - Map Layer Controller
  - Distance
  - Location
  - Scale
  - Call Icons
- Call Management
  - Answer
  - Hold/Unhold
  - Redial
  - Release
  - Silent Monitor
  - Barge-In
  - Override
  - Mute/Unmute
  - Deafen Caller
  - Transfer
  - Conference
  - Plot on Map
  - View Details
  - Review
  - Play Call Recording
- Polycom Phone

5.1.2 System and Application Administrators

In addition to general system use, system administrators receive training in AdminiStation, ECW's system management application and DecisionStation, ECW's MIS solution.

Topics covered:

- AdminiStation (System Configuration Management)

System Administrators receive instructions on the configuration and maintenance of the following system components:

  - Directory
  - Users
  - Common Places
  - Notifications
  - Predefined TDD and SMS Messages
  - Knowledge
  - Service Request Categories and Providers
  - Call Exports
  - Schedule Reports
- DecisionStation (MIS)
  - Report generation
  - Report export
  - Access Detail Records for the following: Calls, Lines, Groups, Phone Numbers, Locations, Users, Trunks
  - Access and download call recordings
  - Monitor active calls

ACCEPTANCE TEST PLAN

6.1 SYSTEM TESTING, CUTOVER, AND ATP ACTIVITIES

6.1.1 Perform Equipment Testing

- Test individual components of the system to verify compliance to the equipment specifications.
- Repeat any failed test(s) once ECW (or the Customer) has completed the corrective action(s).
- Prepare documentation of component tests to be delivered as part of the final documentation package.

6.1.2 Perform Functional Testing

- Verify the operational functionality and features of the individual subsystems and the system supplied by ECW, as contracted.
- If any major task as contractually described fails, repeat that particular task after ECW determines that corrective action has been taken.
- Document all issues that arise during the acceptance tests.
- Document the results of the acceptance tests and present to the Customer for review.
- Resolve any minor task failures before Final System Acceptance.

6.1.3 Pre-Cutover Acceptance Test Plan

- A mutually agreed upon pre-cutover acceptance test plan will be developed with the County during the contract design review phase.
- The Pre-Cutover ATP will be executed prior to fully cutting over the new NG911 system from the legacy system.

6.1.4 Post-Cutover Acceptance Test Plan

- A mutually agreed upon post-cutover acceptance test plan will be developed with the Customer prior to cutover
- Upon successful execution of the system cutover the Post-Cutover ATP will provide details on resolving any cutover ATP checklist items and transition to service.
- Once Post-Cutover ATP is complete, it will be documented and become a part of the overall service manual for the Customer and the service providers.

6.1.5 Cutover

- Motorola and the Customer develop a mutually agreed upon cutover plan based upon discussions held during the CDR.
- During cutover, follow the written plan and implement the defined contingencies, as required.
- Conduct cutover meeting(s) with user group representatives to address both how to mitigate technical and communication problem impact to the users during cutover and during the general operation of the system.

SECTION 7

PRICING

7.1 PRICING SUMMARY

Emergency CallWorks Pricing Summary	
Hardware and Software	$113,577.00
Professional Services (Project Management, System Engineering, Staging, System Installation, Training, Testing and Turn up, Post-Cut on-site Support)	$50,670.84
Year 1 - System and Software Support, Help Desk, Remote Monitor	$12,399.00
Year 1 - On-Site Maintenance and Repair Services	$10,244.33
Turn-Key System Total - Year 1	**$186,891.16**

Annual Software Support Pricing (Years 2 - 5), If Paid Annually	
Year 2 System and Software Support *	$12,399.00
Year 3 System and Software Support *	$12,399.00
Year 4 System and Software Support *	$12,399.00
Year 5 System and Software Support *	$12,399.00
Annual On-Site Maintenance Pricing (Years 2 - 5), If Paid Annually	
Year 2 On-Site Maintenance and Repair Services	$10,244.33
Year 3 On-Site Maintenance and Repair Services	$10,244.33
Year 4 On-Site Maintenance and Repair Services	$10,244.33
Year 5 On-Site Maintenance and Repair Services	$10,244.33
***Discounts available for 3-Year and 5-Year Prepaid Software Support Plans**	
Plan 1: Total System with 3-Year Prepaid System and Software Support * (Does NOT include On-Site Maintenance)	**$198,345.09**
Plan 2: Total System with 5-Year Prepaid System and Software Support * (Does NOT include On-site Maintenance)	**$204,544.59**
****Discounts available for 10 Year Turnkey - Prepaid Support Plan**	
Plan 5: Total System with 10-Year System and Software Support, Hardware Refresh, Extended Warranty and On-Site Support	**$390,646.93**
***Extended Hardware Warranty is also available for Year 2-5 Maintenance Plans if desired**	

Primary System Options	
Extended Hardware Warranty - Year 2	$2,538.75

Extended Hardware Warranty - Year 3	$2,538.75
Extended Hardware Warranty - Year 4	$2,538.75
Extended Hardware Warranty - Year 5	$2,538.75
Optional System Spares	
Recommended Spares	$2,467.55
Extended Hardware Warranty - Per Year	$87.09
On-Site Maintenance and Repair Services - Per Year	$188.70

SECTION 8

COMMUNICATIONS SYSTEM AGREEMENT