Attachment 4

ExhibitA-1_Vol_IIIofV_Dispatch

E.F. JOHNSON COMPANY

Agreement for Services of Independent Contractor: System Equipment and Installation Exhibit A: Scope of Services

Exhibit A-1: Revised Proposal Documents/Volume III of V

Volume III Components: Dispatch Equipment

May 1, 2021

V 3.1

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This symbol indicates EFJohnson's response

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A-1.4 Dispatch Equipment

The County of Santa Barbara's public safety radio network project includes three dispatch centers with the following equipment:

Sheriff Dispatch Center

- Zetron Acom Dispatch Consoles (See A-1.4.1 for a detailed description)
- Ten (10) KENWOOD Viking® VM5000 UHF backup control stations with 12-channel control station combiner, antennas, and feedline. Control station radios to be racked and housed in equipment room and interfaced to ACOM Radio Gateways (ARG) to provide P25 system access.
- Ten (10) KENWOOD Viking® VM5000 VHF backup control stations with 12-channel control station combiner, antennas, and feedline. Control station radios to be racked and housed in equipment room and interfaced to ACOM Radio Gateways (ARG) to provide P25 system access.
- Ten (10) KENWOOD Viking® VM5000 800 MHz backup control stations with 12-channel control station combiner, antennas, and feedline. Control station radios to be racked and housed in equipment room and interfaced to eight (8) ACOM Radio Gateways (ARG) to provide P25 system access.
- Ten (10) Analog Gateways, which support four (4) connections per unit to connect to the County interoperability equipment. The Analog Gateways provide sufficient connections to up 40 analog devices per dispatch center as required by the Santa Barbara County.
- Four Alcatel Lucent OmniStack Switches (6860), one set with SFP Fiber Interface Modules to provide connectivity into the existing network
- New P25 Eventide NexLog Communications 740 Logging Recorder
- One (1) Cisco ASA 5508 internet firewall appliance
- One (1) rack of Microwave equipment
- One (1) rack of DC Power plant as backup for the Microwave Equipment

EOC Fire Dispatch Center

- Zetron Acom Dispatch Consoles (See A-1.4.1 for a detailed description)
- Eight (8) KENWOOD Viking® VM5000 UHF backup control stations with 12-channel control station combiner, antennas, and feedline. Control station radios to be racked and housed in equipment room and interfaced to ACOM Radio Gateways (ARG) to provide P25 system access.
- Eight (8) KENWOOD Viking® VM5000 VHF backup control stations with 12-channel control station combiner, antennas, and feedline. Control station radios to be racked and housed in equipment room and interfaced to ACOM Radio Gateways (ARG) to provide P25 system access.
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- New P25 Eventide NexLog Communications 740 Logging Recorder
- Four Alcatel Lucent OmniStack Switches (6860)—one set with SFP Fiber Interface Modules to provide connectivity into the existing network—with a redundant configured 7705 router
- One (1) rack of Microwave equipment
- One (1) rack of DC Power plant as backup for the Microwave Equipment

Santa Maria Backup Dispatch Center

- Zetron Acom Dispatch Consoles (See A-1.4.1 for a detailed description)
- Ten (10) KENWOOD Viking® VM5000 UHF backup control stations with 12-channel control station combiner, antennas, and feedline. Control station radios to be racked and housed in equipment room and interfaced to ACOM Radio Gateways (ARG) to provide P25 system access.
- Ten (10) KENWOOD Viking® VM5000 VHF backup control stations with 12-channel control station combiner, antennas, and feedline. Control station radios to be racked and housed in equipment room and interfaced to ACOM Radio Gateways (ARG) to provide P25 system access.
- Ten (10) KENWOOD Viking® VM5000 800 MHz backup control stations with 12-channel control station combiner, antennas, and feedline. Control station radios to be racked and housed in equipment room and interfaced to ACOM Radio Gateways (ARG) to provide P25 system access.

- Ten (10) Analog Gateways, which support four (4) connections per unit to connect to the County interoperability equipment. The Analog Gateways provide sufficient connections to up 40 analog devices per dispatch center as required by Santa Barbara County.
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- One (1) rack of Microwave equipment
- One (1) rack of DC Power plant as battery backup for the Microwave Equipment

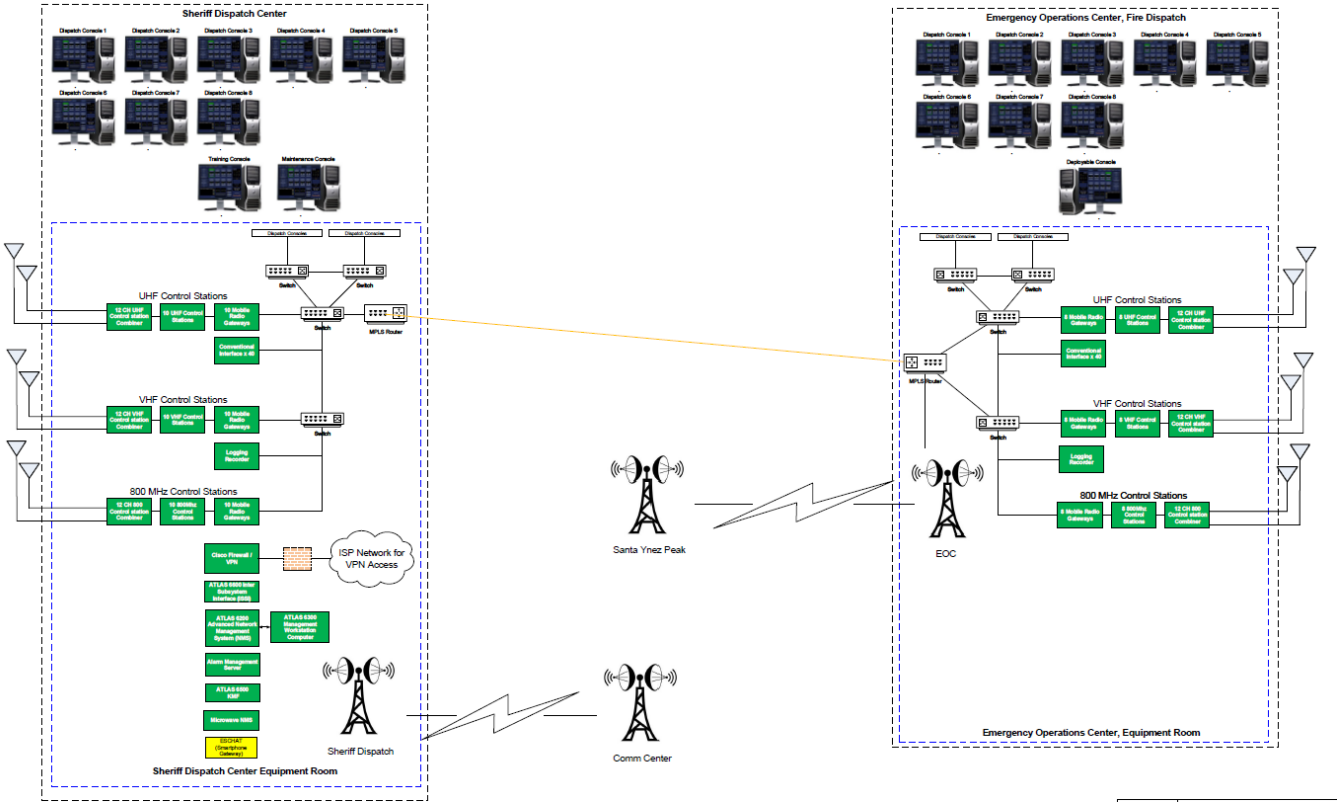

Figure 4.1-1. Santa Barbara County Sheriff & EOC Fire Dispatch Centers

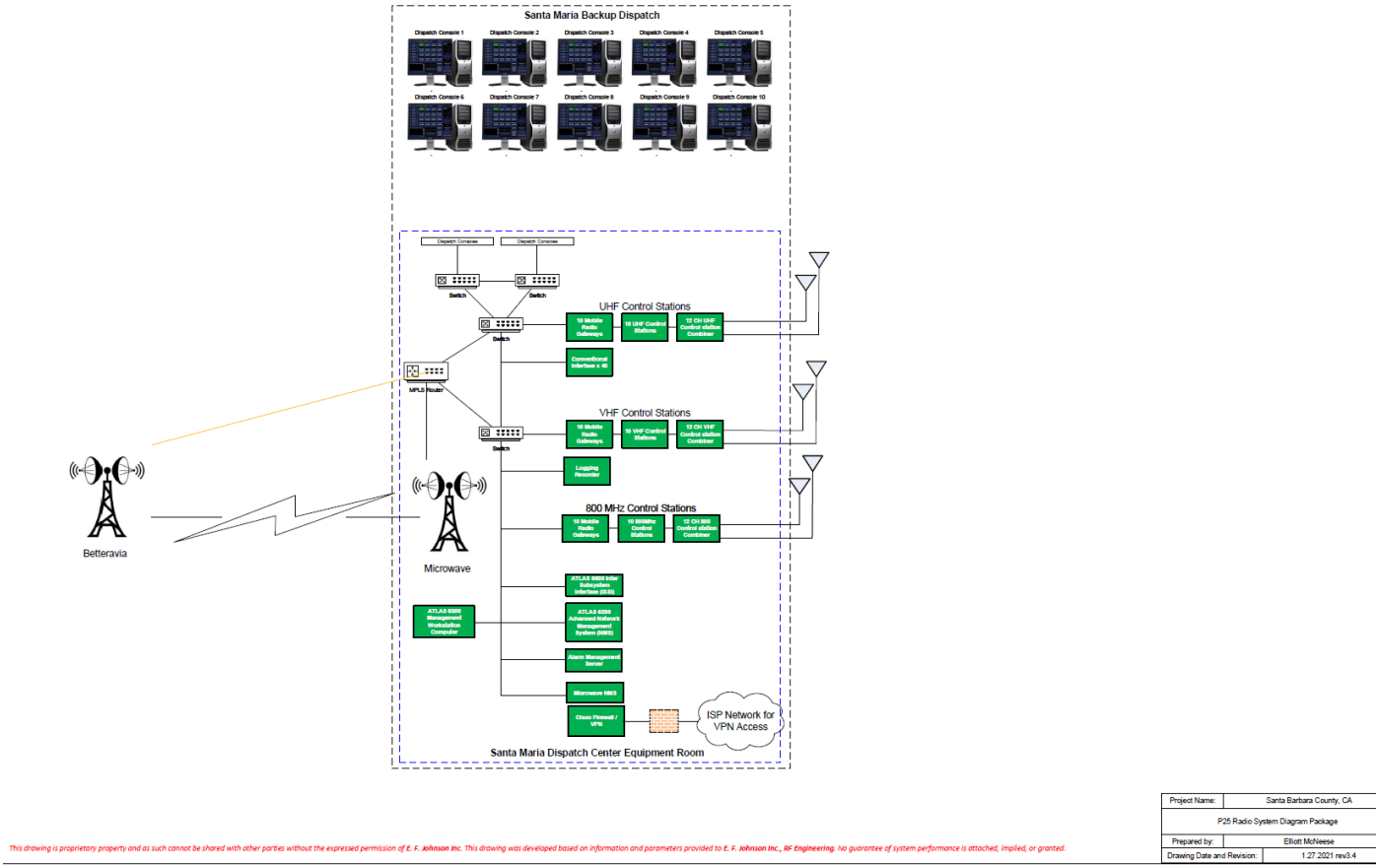

Figure 4.1-2. Santa Maria Dispatch Center Equipment Room

A-1.4.1 Zetron ACOM Console System

ACOM is based on Zetron's proven platform that serves as the center of complex dispatch operations throughout the world. ACOM generates some of the highest rates of customer satisfaction and loyalty in the industry. The ACOM Console System is based on the ACOM system core design, consisting of geographically separated redundant ACOM system cores at the Sheriff and Santa Maria Backup Dispatch locations. This configuration offers a cost-effective backroom platform while preventing a single point of failure from compromising communication operations. The ACOM system is a digital end-to-end IP solution that represents the best value, next-generation console dispatch technology for mission-critical applications. ACOM's sophisticated digital architecture integrates voice (radio and telephone), I/O and data, to provide unmatched flexibility and ease of use when it comes to resource management, all combined on a scalable server platform core.

Running on top of industry standard IP networks, the ACOM system can provide interfaces and control to both locally connected, as well as geographically remote resources. Using ultra reliable COTS server technologies running on a Linux operating environment, the ACOM system provides a scalable solution for small to large dispatching needs. In the County's mission-critical setting, the ACOM system will be configured for local and geographic redundancy, guaranteeing the highest levels of system availability and reliability.

The County's ACOM dispatch system will consist of the following key elements:

- **System Architecture**—The building blocks that are used to create an ACOM dispatch console system, including the Media Controller Server (MCS), the Zetron Infrastructure Gateway (IG) with CSSI interface, and ACOM Console positions.
- **Switching Infrastructure**—Components that manage the transport, routing, and interfacing of all communications resources.
- **User Interface**—The ACOM Console Software (ACS) provides operators access to system resources. The ACOM System Manager (ASM) is used for system configuration, diagnostics, and maintenance.
- **Network Architecture**— ACOM uses IP transport for interconnections. The IP transport structure allows multiple locations and their resources to be networked using microwave or other link technologies over IP.

A-1.4.1.1 Console Positions

The ACOM console system is configured with a total of twenty-eight (28) full-featured console positions and a P25 CSSI interface connected through the IP Network to the ATLAS P25 Trunked radio system. This allows the ACOM console operators to communicate with P25 radios in the field.

Sheriff Dispatch Center

- Eight (8) ACOM Novus Dispatch Consoles
- One (1) Dispatch Console for training
- One (1) Dispatch Console for Maintenance
- Three (3) ACOM Radio Gateways (ARG) to support six (6) channels of the existing VHF Simulcast Analog System during migration
- Fifteen (15) ACOM Radio Gateways (ARG) to support thirty (30)KENWOOD Viking VM5000 control stations, allowing ACOM operators to access the P25 trunked radio system as a wireless fallback solution

- Maintenance and Training consoles can also be configured to integrate with the eight (8) UHF and eight (8) VHF control station radios that are dedicated to the eight (8) dispatch consoles.

EOC Fire Dispatch Center

- Eight (8) ACOM Novus Dispatch Consoles
  - Twelve (12) ACOM Radio Gateways (ARG) to support twenty-four (24)KENWOOD Viking VM5000 control stations, allowing ACOM operators to access the P25 trunked radio system as a wireless fallback solution

Santa Maria Backup Dispatch Center

- Ten (10) ACOM Novus Dispatch Consoles
- Three (3) ACOM Radio Gateways (ARG) to support six (6) channels of the existing VHF Simulcast Analog System during migration
- Fifteen (15) ACOM Radio Gateways to support thirty (30) KENWOOD Viking VM5000 control stations, allowing ACOM operators to access the P25 trunked radio system as a wireless fallback solution

The ACOM system maintenance and management will use the ACOM Information Management System (IMS) and MIS Network Management System. One (1) IMS terminal and one (1) NMS server will be available at each ACOM system core location (Sheriff Dispatch Center and Santa Maria Backup Dispatch Center).

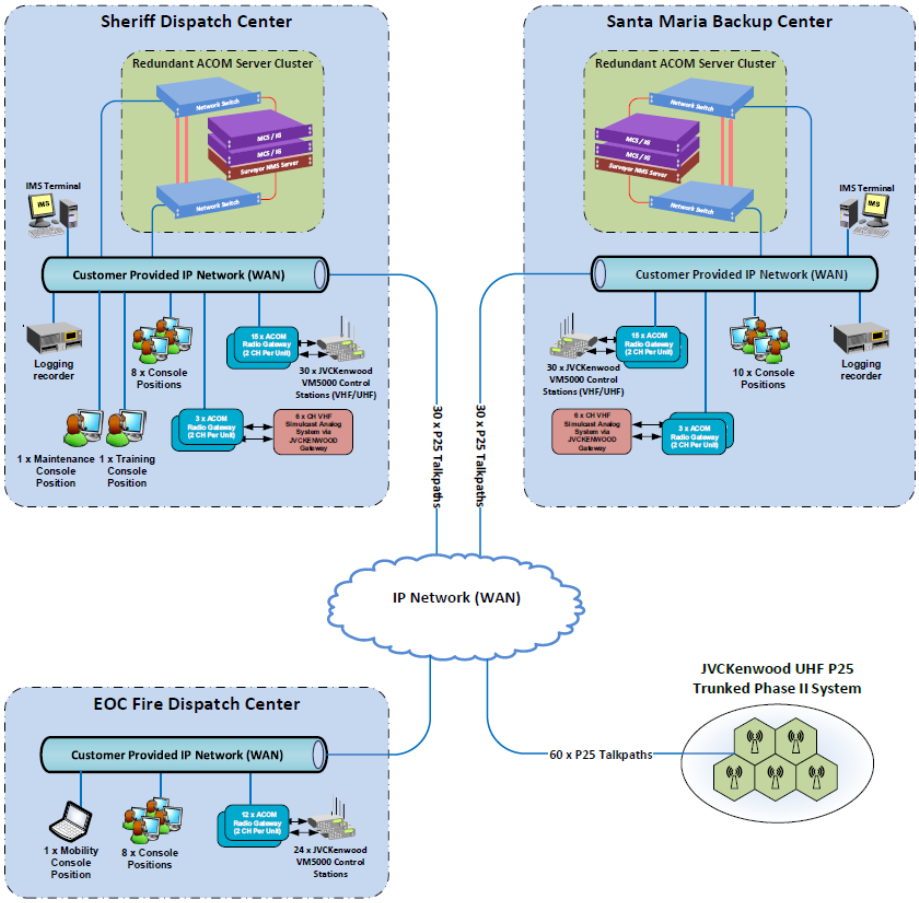

Figure 4.1-1. ACOM Console System Block Diagram

A-1.4.1.1.1 Acom Console Configurations Overview

Acom provides user flexibility in how console positions are used and configured with three different dispatch position configurations intended to address user needs. These configurations provide full feature operation, mobility, and advanced dispatcher capabilities.

Console Position Type	Position Capabilities
Feature Mode Console Positions	This is a console position built on a COTS PC platform with Zetron-provided interface and audio processing equipment. A feature mode console provides the full range of features and functionality to dispatch operators

Console Position Type	Position Capabilities
Remote Console Position	A remote console position is an Acom console running on a laptop or tablet computer. It can reside almost anywhere providing an IP network connection can be established between the mobile console and the Acom core network. A mobile console position does not require the Zetron specific audio and interface hardware. It can be operated with a simple USB Microphone/Headset. Because no external hardware is required the console is limited to only two speakers
Supervisor Position	A supervisor position provides additional capabilities not found in a Feature Mode or Remote console position. These extra features are provided through software programming. Accessing supervisor features is provided to user having proper permission levels at login. Because these capabilities are provided by software any position can be used as a supervisor position based on proper user permissions.

Figure 4.1-2. Acom Console Position Configuration Types

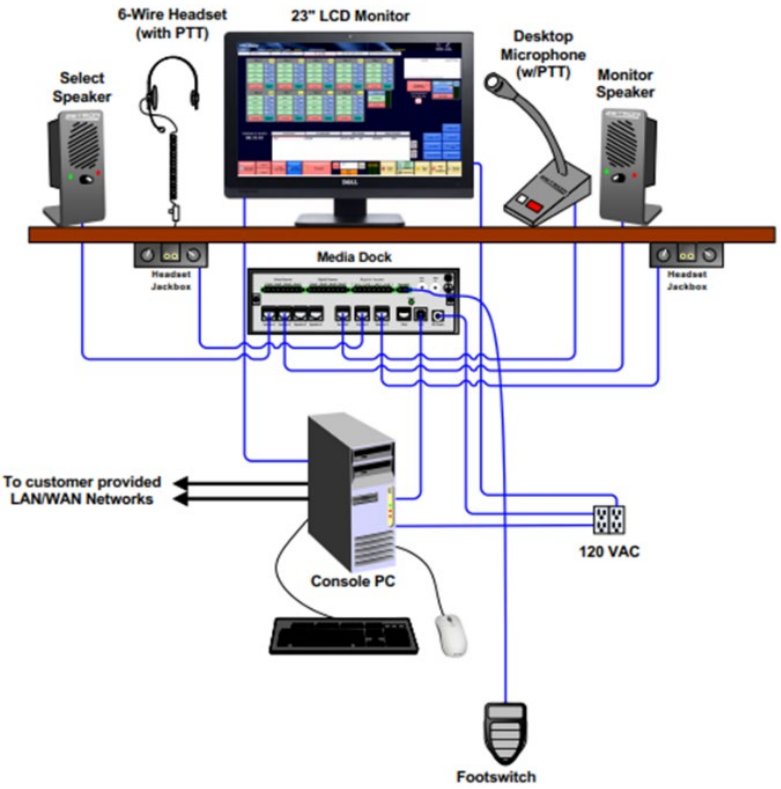

Figure 4.1-3. Zetron ACOM Dispatch Console

A-1.4.1.2 System Architecture

Acom systems are configured using core building blocks to provide virtually any system capacity, functionality, and configuration required. In addition to the Media Controller core, these building blocks include the Acom Console Position, Resource Gateways, and the interfaces and protocols that allow Acom to communicate with a wide range of communications devices and systems.

A-1.4.1.2.1 Media Controller Server (MCS)

The Media Controller Server is the foundation of the Acom platform. Its primary function is to manage and control the connections between console positions and resources available to the system in an efficient and information rich manner. The MCS operates on commercially available servers. IP connections are established to consoles and resource gateways. Software applications within the server perform management of connections, building and management of call paths, and management and configuration of the server itself.

The software applications operating in a typical controller include:

Console Communications

The console communication software manages the communication and features of connected Acom consoles. When operating in fault tolerant redundant configurations, the application in separate servers, communicates with the primary and secondary Ethernet connections to the console.

Resource Communications

The console resource communication software manages and controls communication with resources connected to the console. It is responsible for maintaining link synchronization with resource gateways and controlling when a requested resource is routed to a console position.

Media Controller Function

The Media Controllers are also responsible for building and binding communication paths between consoles and resources. This binding may also

occur when inter-console communication occurs between dispatchers. The MCS builds links when requested and handles any arbitration that may occur.

System Management

System management handles the configuration and management of the MCS. This is accomplished via an external web browser operating on an external client PC. The MCS contains its own internal web server that facilities this communication.

A-1.4.1.2.2 Infrastructure Gateways (IG)

Infrastructure Gateways manage external resources and allow the protocols and interfaces used by these devices to be converted to the common AcomNOVUS communication and control protocol. Depending on the resource type, the gateway may operate on a server platform or it may utilize more customized hardware designed to connect to a specific resource type.

P25 Console Sub-System Interface (CSSI)

Communication with Project 25 (P25) trunked system is accomplished through the industry standard P25 CSSI interface. The CSSI gateway operates on server hardware. The AcomNOVUS solution implements the CSSI per applicable P25 standards that allow radio systems from various venders to interface with the AcomNOVUS console system. The specification provides for different voice communication call types, the ability for the dispatcher to control radios, and both clear (unencrypted) and secure (encrypted) communication between radio users and the Acom system.

A-1.4.1.2.3 AcomNOVUS Radio Gateways (ARG)

ACOM Radio Gateways (ARG) at remote sites will enable ACOM operators to access the conventional radio system and send pages. The ARG is used to connect radio resources to the MCS through an IP network. They convert audio and control data into IP packets and vice versa, enabling the data to pass back and forth between the radios and dispatcher positions. Each Acom Radio Gateway manages up to two channels.

A-1.4.1.3 Interfaces and Protocols

The Acom system supports a wide array of trunking and wireless interfaces and telephony and data protocols, including:

Signaling Protocols

- Tone remote control
- VoIP
- SELCAL
- Paging
- DTMF
- VOX detect
- MDC600
- MDC1200
- GStar

Paging Protocols

- Quick Call II
- Dual-tone Multi-frequency (DTMF) using (FSK-NRZ)
- MDC1200 Selective Call
- Trunking Call Alert

Telephony Protocols

- SIP
- E1/T1 CAS
- 2-and 4-wire E&M
- E1/T1 ISDN PRI
- POTS
- E1 QSIG

Data Protocols

- Ethernet
- RS232/422/485
- NTP

A-1.4.1.4 Acom Information Management System—Surveyor

Surveyor is a Windows service that collects event data from the Acom over IP communications, and stores the collected alarm and MIS data into a SQL Server database. Surveyor logs alarms, operator events, and call detail records into a database and provides real-time views in addition to an extensible reporting engine to review the data. Surveyor hosts a web configuration page for managing the connections as well as accessing web reports.

Surveyor connects to the Acom system over the IP network, collecting fault data and call detail data as they occur. Multiple collection points can be provided, with events collected simultaneously and duplicates are discarded. This provides redundancy to continue collecting data in the case of a system fault.

Beyond the real-time alarm and console status, Surveyor offers some reports for querying long term system activity. Reports are written in the Report Definition Language, an open format for defining the presentation of report data. A suite of reports are included in the Surveyor installation, and further user-created reports could be added using the MSRS Business Intelligence tools and MS Reporting Services web tool provided with MS SQL Server.

Start Date and Time 10/27/2014 End Date and Time 10/30/2014 3:27:38 PM

Line Number All

1 of 1 100% Find | Next

Radio Rx Activity ZETRON

Site Name	Start Time	End Time	Duration	CLI	Line#	Line Alias
T88	29-Oct-14 10:17:56	29-Oct-14 10:18:32	00:00:36		1201	
T88	29-Oct-14 10:19:28	29-Oct-14 10:19:42	00:00:14		1201	
T88	29-Oct-14 10:19:52	29-Oct-14 10:20:00	00:00:08		1201	
	Summary - Average Duration:		**00:00:19**	**Total Number of CD's:**		**3**
Shortest CD	29-Oct-14 10:19:52	29-Oct-14 10:20:00	00:00:08		1201	
Longest CD	29-Oct-14 10:17:56	29-Oct-14 10:18:32	00:00:36		1201	

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Figure 4.1-4. Surveyor Call Activity Report

A-1.4.2 Backup Control Stations

Eighty-four (84) KENWOOD Viking VM5000 radios shall serve as backup control stations for dispatch console positions at the Santa Barbara Sheriff Dispatch and EOC Fire Dispatch Centers. In addition to the control stations, JVCKENWOOD is providing antennas, feedline, and a surge protector at each of the three dispatch centers. The Viking VM5000 fixed control station is equipped with industry-leading audio, display and advanced feature capabilities for police, fire, EMS, and other mission-critical users.

A-1.4.3 Optional ATLAS 7000 StarGate® Console

The County can lower dispatch center risk with COTS PCs that are not dependent on other consoles or backroom centralized server equipment.

The ATLAS 7000® StarGate Dispatch Consoles offer full-featured dispatch capability via direct IP connection to the County's P25 trunked and conventional systems.

The StarGate Console has been engineered as a software-on-commodity-hardware solution to take advantage of the ongoing innovations in the PC marketplace. The PCs used for the consoles are selected to run the StarGate application based on current PC technology and features.

Like the rest of the ATLAS P25 System, the StarGate Consoles are fully distributed. The consoles individually connect directly to the IP infrastructure and have access to any necessary system traffic. Subsequently, a failure at one console position, or in any part of the console, will not affect system operation on any other console position.

Cost-Effective
No license fees for number of consoles, features on consoles, or number of profiles.

The StarGate Console user interface is remotely configurable from the ATLAS NMS, so there are no hardware control panels to label or maintain. StarGate also offers customizable or shared profiles for each dispatcher and a next-generation graphical user interface (GUI) that is simple and intuitive to use.

Every StarGate position is standalone, and user profiles are accessible by the NMS. Configurations can be created and pushed down from the NMS allowing any user to sign into any of the available physical StarGate Dispatch Console positions. Thus, the dispatch center does not need any standby console positions programmed to mirror an active position configuration within the same dispatch center.

Figure 4.3-1. ATLAS 7000 StarGate Dispatch Console

A-1.4.3.1 Dispatch Configuration

Each StarGate Console position runs on a COTS personal computer with Microsoft® Windows. Each of the full-featured operator positions consist of the following:

- ATLAS 7000 StarGate Console
- 24" Touchscreen Monitor
- HM supervisor connection interface module
- HM operator connection interface module
- Headset microphone PTT and amplifier controller
- Headset Microphone Assembly, Voice Tube
- ABOB-HIB interface cable
- Foot Switch
- Operator Headset
- Supervisor Headset
- Desktop Microphone
- Bose® Speakers

A-1.4.3.2 Deployable Console Position

Equipped with a custom foam cut case, a deployable dispatch console can be easily transported for a more mobile configuration. The deployable console is provided with a VPN connection to the ATLAS system using a pre-configured Cisco router

included with the position, so an internet connection is all that is needed to make the console functional. All of the console peripherals are included with the deployable console, providing the operator with the full console feature set.

A-1.4.3.3 General Console Functions

StarGate Dispatch Consoles provide a wide range of capabilities, including:

- Fully supported console-to-console intercom capabilities between multiple dispatch positions that do not use any radio resources.
- Completely distributed design to prevent a malfunction at one console from impeding the functioning of any other console.
- Selection of a different operator profile that changes the functions available on screen—operators can move freely between available consoles, and there is no need to maintain specific consoles for particular functions.
- Custom audio card, AMBE+2 vocoder, and built-in software-defined equalizer that provides best-in-class audio. Industry-leading Bose® speakers are used for the Select and Unselect audio functions.
- A built-in local encryption module that provides truly end-to-end AES encryption; the voice never travels over the network unencrypted.
- Instant recall and replay of recently received voice calls heard on either the Select or Unselect speakers. The Instant Recall Recorder (IRR) automatically records the previous 25 minutes of both console select and unselect audio. The summed audio received on select or unselect speaker is played back instead of individual call received. For example, if three calls are received in the last 5 seconds on the unselect speaker, playing IRR unselect will play the summed audio of these three calls.
- Generation of alert and paging tones. Paging tones can be sent individually or in combination. Commonly used tone sequences can be chained together with custom lengths and pauses, and then saved for single key activation at a later time. Alert, custom two-tone, Dual Tone Multi-Function (DTMF), and Quick Call 2 tones are supported.
- Subscriber-to-console messaging support. The specific message with time and date received from the subscriber will be displayed.
- Trigger operation or report on the state of equipment connected via a General-Purpose Input/Output (GPIO) interface. This could include door locks, sirens, door sensors, and a variety of other devices.

A-1.4.3.4 Console Features

Configuration

The system administrator creates console profiles, each with a unique login. One dispatcher could have multiple logins. Configuration settings for profile setups reside in the NMS and are pushed to the designated console positions.

Talkgroup Patching

The Patch function allows the dispatcher to connect two or more talkgroups, telephone interconnects, or line sources. Up to 30 patches can be active per dispatch position. A patch of talkgroups enables a call received on one talkgroup to be automatically transmitted to all other talkgroups in the patch group. This can be helpful when the dispatcher wishes to patch different agency talkgroups together to facilitate critical-event communications.

Talkgroup Simultaneous Transmission

The Groups function allows the dispatcher to select two or more talkgroups or line sources to include in a single simulselect group. This group can be saved for use at a later time. This function saves the dispatcher's time when a common simulselect is used frequently.

Emergency Call Notification

When an emergency call is received at a console, an alarm will sound on the speakers. Additionally, the receiving talkgroup will flash red, the associated PTT button will display "EMERGENCY," and the Unit ID of the radio will be displayed on the top Selected/Unselected button when the subscriber PTTs on the talkgroup. A new emergency will also be indicated on the Emergency module, and the emergency call will be listed on the History module.

Radio ID or Alias display

The StarGate Console can display radio IDs and/or aliases, depending on the configuration. The names of the talkgroups are configurable and representative of alias labels for radios.

Radio Paging or Call Alerting

The Tones function enables a dispatcher to transmit various tones to radio system subscribers. Commonly used tone sequences can be chained together with custom lengths and pauses and saved for single key activation at a later time. Tones can be divided into three categories:

Alert Tones—Alert tones are configured through the ATLAS NMS and can be customized according to tone and severity level. Alert tones can be sent to select Radio Control Modules (RCMs) immediately once an alert is chosen.

Paging Tones—Paging tones are used to activate/control equipment over the air, such as turning on emergency sirens or paging a volunteer fire department. Paging tones can be configured to go to a pre-defined destination or to a selected RCM. The maximum number of configurable paging tones is 500. Paging tones can be assigned to a Group via the NMS. Selecting a Group button displays the tone assigned to that group.

Function Tones—Function tones are tones sent through the Analog Gateway. The option to send a function tone becomes available when selecting an analog RCM.

Private Calling

The Private Call function lets a dispatcher originate and receive private calls to and from a specific subscriber unit. A private call can be between two console positions or between the console and a subscriber radio. The two private call lines can be patched after the calls are active. A private call line can be patched with a telephone interconnect line but cannot be patched with a talkgroup line.

Access to Conventional and Trunking Resources

Talkgroups are configured for each console and will be displayed as one of up to 96 available talkpaths for the dispatcher to select. All talkpaths, including trunking talkgroups, conventional channels, telephone interconnects, or interoperability talkgroups, can be made available to the dispatcher.

A-1.4.4 Logging Recorder

JVCKENWOOD is offering the County three redundant P25 Eventide NexLog Communications 740 Logging Recorder to be located at the Sheriff Dispatch, the EOC Fire Dispatch Centers, and the Santa Maria Backup Center. The new logging recorder system is cost-effective, user-friendly, secure, and fully compatible with the radio system. The feature-rich, NexLog recorder is treated as another terminal in the system architecture, much like a console. It therefore has access to all clear and encrypted talkgroup traffic on the system.

The NexLog recorder has been configured with the following:

- 2 TB storage
- A built-in server that provides a user-friendly search and replay applications
- 7" Color LCD Touch Screen
- 8 MediaWorks Plus licenses

Users with the proper password credentials can log into the Eventide HTML5 MediaWorks Plus browser-based user interface to remotely search and replay recordings. This eliminates the need for remote playback stations, as a user's browser must only be able to reach the NexLog's IP address in order to replay recordings.

NexLog can be easily field upgraded to up to 560 recording channels. Audio and metadata for additional telephony devices can be recorded by the addition of an analog or digital board to the NexLog. VoIP functionality can be added with the addition of software licenses. Eventide also offers CAD integration as an option.