MCC7500 DISPATCH CONSOLE UPGRADE

MOTOROLA SOLUTIONS

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Seattle, WA 98121
USA

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August 11, 2017

Chris Farmer
Information Technology Director
City of Valdez, Alaska
P.O. Box 307
212 Chenega Ave.
Valdez, AK 99686

Subject: MCC7500 Dispatch Console Upgrade

Mr. Farmer,

Motorola Solutions, Inc. ("Motorola Solutions") is pleased to have the opportunity to provide the City of Valdez with quality communications equipment and services. The Motorola Solutions project team has taken great care to propose a solution that will meet your needs and provide unsurpassed value.

To best meet the functional and operational specifications of this solicitation, our solution includes a combination of hardware, software, and services. Specifically, this solution replaces the existing Motorola Solutions Centracom Gold Elite dispatch system with the current Motorola Solutions MCC 7500 Dispatch system with two console furniture options to replace the existing furniture. This proposal includes the following specific quotes.

- Motorola Solutions MCC7500 Dispatch Console Upgrade (Equipment and Services). This includes:
  - Two MCC7500 Console Positions.
  - Conventional Gateways and Controller.
- Option for two Motorola Solutions APX7500 Consolettes to replace existing backup control stations.
- Two Options Watson Console Furniture Upgrade (Equipment and Services):
  - Two-Position Synergy 3 Full Lift Console Furniture.
  - Two-Position Mercury Dispatch Console Furniture.

This proposal shall remain valid for 90 days unless otherwise extended. This Proposal is based upon the master purchasing agreement executed by the Houston-Galveston Area Council of Governments ("H-GAC") and Motorola Solutions, Inc., for the purchase of Radio Communication/Emergency Response & Mobile Interoperability Equipment, Contract No. RA05-15, dated May 1, 2015 (the "H-GAC Contract"), which is incorporated herein in its entirety by this reference, and the enclosed Communications System Agreement which serves as the "End User Agreement" as referenced in Section 6 of the H-GAC Contract. The City of Valdez may accept the proposal by delivering to Motorola Solutions a signed copy of the Motorola Solutions Communications System Agreement or a signed PO that incorporates by reference this proposal. In addition, this proposal includes a special and conditional discount to reduce the Contract Price if the project is deployed consistently with (or ahead of) the dates listed in the Pricing Summary section of the Proposal.

Motorola Solutions is pleased to address any concerns the City may have regarding this proposal. Any questions can be directed to your Motorola Solutions Account Executive, Roy Kyser, at (425) 412-0698.

Sincerely,

Larsen Grabenkort
Area Sales Manager
PNW Region
Motorola Solutions, Inc.

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SECTION 1

SYSTEM DESCRIPTION

1.1 SYSTEM OVERVIEW

This project replaces the existing Motorola Solutions Centracom Gold Elite dispatch system with the current Motorola Solutions MCC 7500 Dispatch system. The existing Motorola Solutions Centracom system has been in service for many years, and was upgraded in 2004 to the Gold Elite platform. Parts and support for the existing equipment have reached end of life and many items are no longer supported. Moreover, when the Statewide Motorola Solutions ASTRO25 System is next upgraded, it will no longer support Gold Elite consoles.

The new MCC platform provides current production equipment and software that will provide years of quality service, similar to what the Centracom platform provided. To minimize training and maximize dispatcher familiarity with the MCC 7500 console, the user interface looks and operates very similar to the Gold Elite interface they are used to.

In addition to the console equipment, Motorola Solutions has also included an option to replace the two backup consolettes and two options for replacing the existing console furniture.

The following section provides more detail regarding the proposed hardware to be provided; however this is meant for summary purposes. For the contractual hardware provided, please refer to the included equipment list.

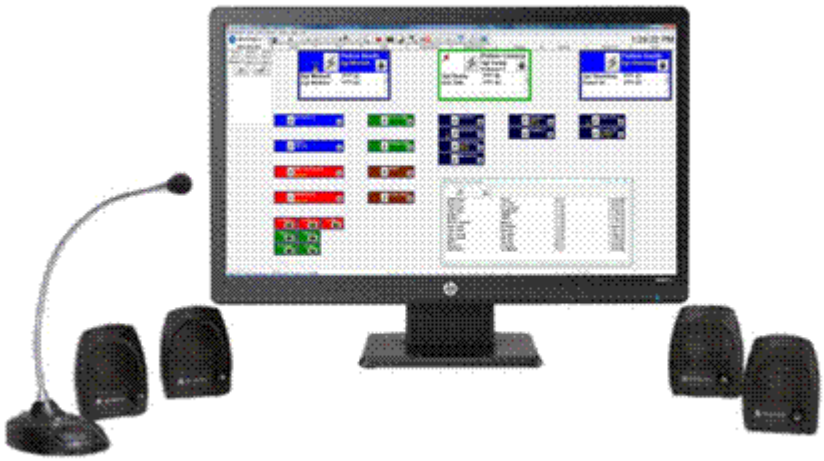


Figure 1-1: MCC7500 IP Dispatch Console

1.1.1 MCC 7500 Dispatch Overview

The Motorola Solutions MCC 7500 Dispatch Console is a high tier IP dispatch console for use with ASTRO 25 radio systems. It provides access to the ASTRO trunked radio system resources through seamless IP connectivity.

The new MCC7500 console system being proposed for the primary dispatch center will be connected to an ASTRO 7.13 core. Two MCC7500 console positions are being provided as part of this proposal.

Below are the major system components:

- Voice Processor Module (VPM).
- Personal Computer (PC) with Windows 10 Operating system.
- MOSCAD Aux I/O capability.
- Backup Conventional Site Controller.
- Conventional Channel Gateways (CCGW).

Below is a list of accessories included for each dispatch position:

- Two Desktop Speakers.
- One Desktop Microphone.
- Two MCC Series Headset Jacks.
- One Dual Pedal Footswitch.

Four of the audio ports on each MCC7500 VPM will be used to provide an interface to the existing analog logging recorder. This will allow up to 8 Trunked talkgroups to be recorded.

1.1.1.1 Auxiliary Inputs and Outputs

Currently local relays controlled by the dispatch console, operate various cell and perimeter doors in the facility. The same functionality will be provided on the new MCC Console User interface. Auxiliary inputs and outputs (Aux I/Os) allow dispatchers to control external devices via relay closures and sense the state of external devices via input buffers from the dispatch position. There are two basic types of Aux IOs: Public and Private. Public Aux I/O's are accessible by more than one dispatch position and private Aux I/O's are accessible by only one dispatch position. There are four private Aux IO's available in the VPM of the dispatch position; they are dedicated to specific functions and cannot be reprogrammed for anything else. These specific functions are Call on selected channel, PTT relay, emergency beacon and Activate Private Relay when Public Aux I/O is Active. The console system supports public Aux I/Os by accessing and controlling MOSCAD RTUs and displaying the status of the RTUs' inputs and outputs on the dispatch position graphical user interface (GUI). The supported Aux I/O configurations are:

- Momentary Input.
- Latched Input.
- Momentary Output.
- Latched Output.
- Interlocked Latched Output.

The SDM3000 RTU is capable of supporting up to 16 outputs and 48 inputs. The RTU provides single pole Form A relay outputs capable of switching 1A @ 24VDC or 1A @ 24VAC.

The RTU input buffers have the following characteristics:

- Active high.
- Configurable to work with either wet or dry closures.
- Configurable wetting voltage (5V or 12V).
- Configurable polarity of 5V wetting voltage.

1.1.1.2 Encryption

The proposed consoles will support the Advanced Encryption Standard (AES) Encryption Algorithm.

1.1.1.3 Conventional Channel Gateways & Site Controller

Two Enhanced CCGW's are included in the proposal to interface to conventional channels. A high density version of this CCGW is included to support eight analog channels per CCGW. A total of eight analog conventional resources can be connected to the CCGW's. Each analog port is terminated as a RJ45 connector on the CCGW.

A conventional site controller comprised of GCP8000 hardware is included in the proposal to allow dispatchers to continue to access and control local conventional channels if connectivity to the radio system's controller is lost. This mode of operation is often called "fallback operation" or "site conventional operation". The conventional site controller, CCGWs and dispatch positions are designed to be placed on the same console site LAN to take advantage of fallback operation.

The dispatch console will be capable of controlling ASTRO 25 conventional channels, MDC 1200 channels and/or consolettes connected via ACIM Link.

1.1.1.4 Master Site Connectivity

One site switch and one site router are provided for the console site to connect to the master site using T1's. New console licenses required by the master site are also part of this proposal. Hardware required at the master site for console site connectivity (for example, core routers that support redundant links) is assumed to be already in place and is not part of this proposal.

1.1.1.5 Spares

The following is a list of field replaceable units (FRU's) included in the proposal for the MCC7500 console system.

- One Desktop Speaker.
- One Desktop Gooseneck Microphone.
- One Headset Jack.
- One Personal Computer (PC) - Windows 10.
- One VPM FRU with AES encryption algorithm.
- One GGM8000 Gateway w/ High Density CCGW module.
- One HP Networking Switch.

1.1.2 Optional Backup Dispatch Consolettes

In order to provide backup communications at the primary dispatch center, separate pricing is provided for two APX7500 FDMA 7/800 band consolettes to replace the existing control stations. Each consolette can be controlled by each console position (one at a time). Motorola Solutions has not included any networking components or RF distribution systems (antenna, coaxial cable, lightning arrestor, and control station combiner) to support the backup communications subsystem. The existing antenna system will be reused if this option is included.

1.1.3 Optional Console Furniture

Motorola Solutions has included two console furniture solutions from Watson. The following provides a summary of the features included with each option. Please see the included drawings and brochures for further information.

1.1.3.1 Synergy 3 Full Lift Consoles

For this option, each position includes the following:

- 3036 sit/stand height adjustable work surface and independently adjustable keyboard platform.
- 42" High Panels.
- 24" x 42" Fixed Extension with CPU Storage.
- Front and rear access to CPU Storage.
- Depth Adjustment Array for 4-24" LCD's.
- Total Comfort System - Desk Top Fans, Radiant Heat Panels and Dimmable LED Task Light.
- Shared Bridge with Shared Peninsula and 30" Rotating Resource.
- Grounding Bar.
- Speaker Adapter Brackets.

1.1.3.2 Mercury Dispatch Consoles

For this option, each position includes the following:

- 90" wide 36" depth Sit/Stand height adjustable work surface.
- 42" High Screens.
- Independently Height Adjustable Monitor Array for 4-24" LCD's.
- With Environment Control Package - Ambient lighting, 2 gooseneck LED lights, Forced Air Heat and desk top fans.
- Grounding Bar.
- Technology Storage Units for PC's - 24" Deep x 30" Wide x 24" High.
- Ten Tech Ports - Type to be determined (USB, RJ45, Audio, etc.).
- Shared personal storage - Open/Box/Door.
- Speaker brackets to mount to Monitor Array.

1.2 DESIGN BASIS

Motorola Solutions has made several assumptions in preparing this proposal. Should any of these assumptions be incorrect, Motorola Solutions reserves the right to amend the proposal, which could result in a change in project scope, schedule, and/or cost:

- This quote does not include considerations for any site specific installation requirements, including but not limited to:
  - HVAC.
  - Floor Loading.
  - Power sourcing/loading.
  - Breaker panel availability.
  - Surge suppression, beyond that provided by Motorola Solutions for new equipment.
- In the equipment room, the equipment will be housed in one new rack.
- The existing electrical circuits are planned to be reused by the new console equipment. All power/HVAC will be provided by the City of Valdez:
  - The console equipment provided in this proposal requires 120VAC power.
  - The demarcation point will be the rackmount UPS physically located in the equipment rack provided by Motorola Solutions.
  - The City of Valdez will provide NEC and R56 compliant TVSS power panel protection and grounding connection points for all rack-mounted equipment.
  - The City of Valdez will provide a connection to the building grounding system at each operator position.
- All existing sites or equipment locations will have sufficient space available for the system equipment described.
- Approved local, State, or Federal permits as may be required for the installation and operation of the proposed equipment are the responsibility of the City of Valdez.
- No provisions have been made to provide relay closure/detection for shared AUXI/O resources between the MCC 7500 and Gold Elite consoles as none were identified during the design.
- No provisions have been made to share any conventional resources between the MCC7500 and Gold Elite consoles.
- This proposal/design does not make any claims with regards to equivalent functionality between the existing Gold-Elite-based dispatch equipment/design and the MCC 7500 dispatch equipment.
- Motorola Solutions MCC 7500 training is highly recommended as some of the functionality and failure-mode operation may be different from Gold Elite operator positions. Training can be ordered using a change order.
- The provided CCGWs support conventional stations that utilize four-wire analog E&M (Type II) or Tone-Remote Controlled (TRC) interfaces (see section 1.1.1.3 for more detail).
  - Motorola Solutions assumes that all existing conventional resources utilize keying methods that are compatible with the provided CCGWs.
  - The CCGW does not support DC-controlled or two-wire audio connections.
- Computer monitors are not included for the dispatch consoles. The City of Valdez will provide the computer monitors.
- The City of Valdez will be responsible for providing a dedicated T1 link to connect the MCC7500 console site to the ASTRO 7.13 master site. The demarcation point for the T1 circuits shall be the Motorola Solutions-identified connection ports on the Motorola Solutions-provided equipment. The City of Valdez will be responsible to provide surge-suppression (as necessary) on all physical links entering/leaving the site.

- No UPS or other type of backup power system is included in this proposal.
- Motorola Solutions' demarcation point for connection to existing conventional resources is the CCGW. The City of Valdez will be responsible for bringing the 4 wire analog circuits to the CCGW at the console site.
- Motorola Solutions has not made any provisions in its design to include telephony connections (with the exception of a POTS headset connection) to its dispatch hardware.
- Keyloading hardware (KVL) for loading encryption keys into the VPM is not included in this proposal.

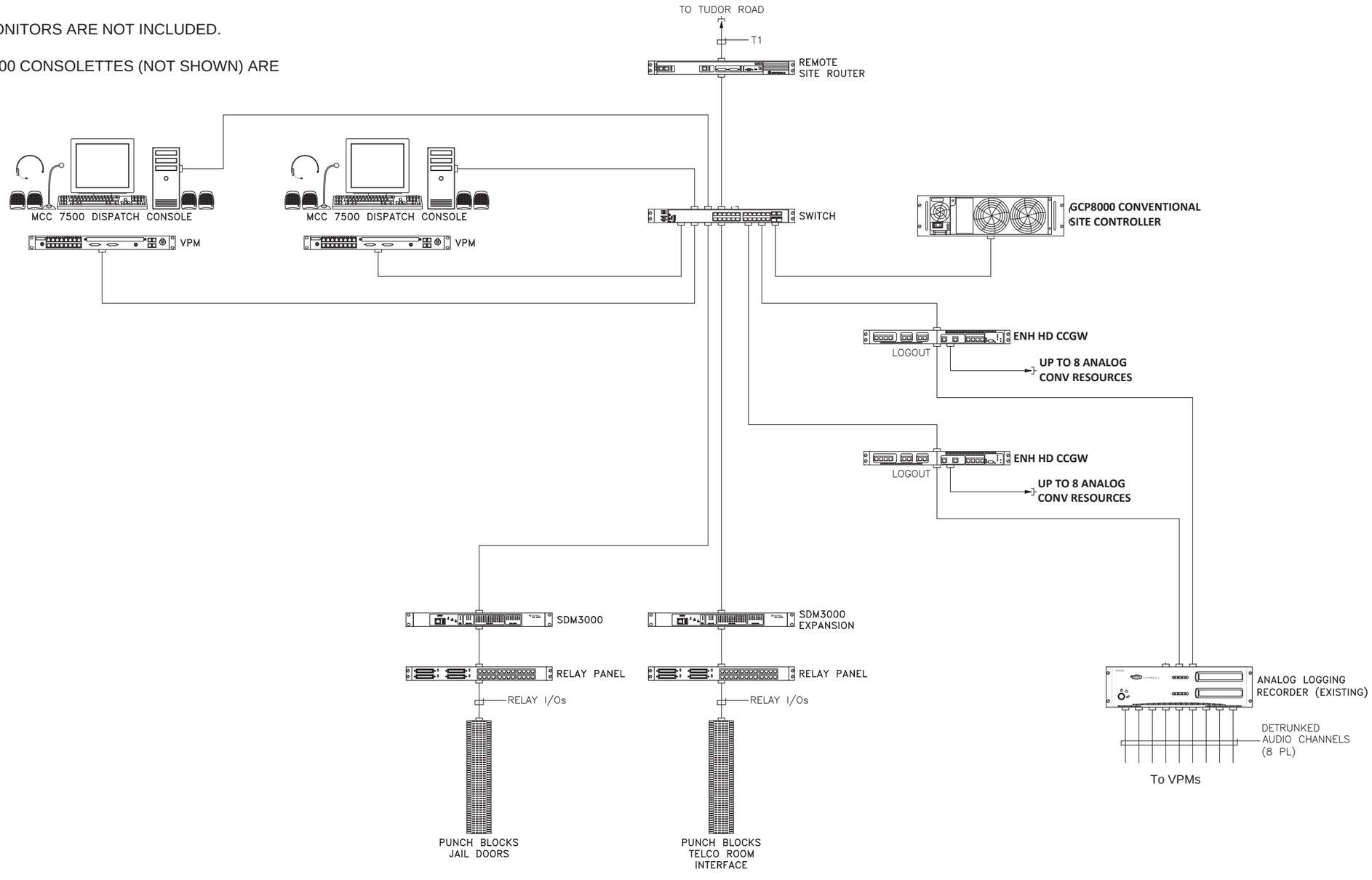
1.3 SYSTEM DRAWINGS AND DIAGRAMS

Motorola Solutions has provided drawings of the console equipment interconnections as well as console furniture drawings in the pages that follow.

NOTES:

1. COMPUTER MONITORS ARE NOT INCLUDED.

2. TWO (2) APX7500 CONSOLETTES (NOT SHOWN) ARE OPTIONAL



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0	9-29-14	S.H.	ORIGINAL RELEASE

MOTOROLA SOLUTIONS

PROJECT: CITY OF VALDEZ, AK
MCC 7500 DISPATCH UPGRADE

TITLE: DISPATCH SITE
MCC BLOCK DIAGRAM

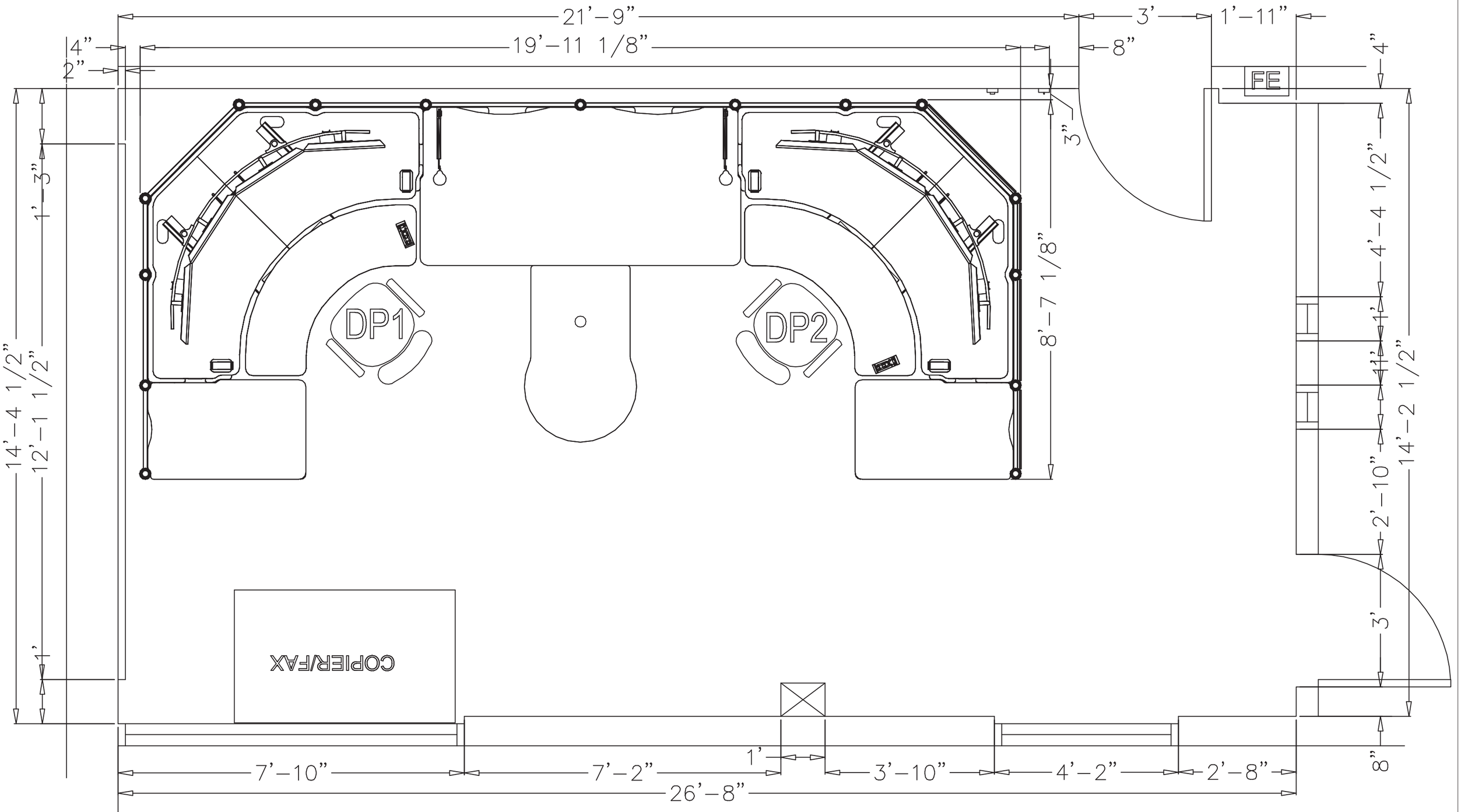
CONTRACT:	ENGINEER:	PROJECT MANAGER:	SCALE:	SIZE:
	S. HULSE		NONE	D
PROGRAM: AUTOCAD 2006	DRAWN: R. SALDARRIAGA	CHECKED: S. HULSE	SHEET: 1 OF 1	REV:
FILE NAME: 0_COVA_SYS_03_01	DATE: 9-29-14	PROJECT NUMBER: AK-14P100A	DRAWING NO:	

Project: Valdez Police Department, AK

Synergy 3 Full Lift Consoles - 3036 90° Primaries - 42" Panels (42" AFF)

F01.0

Not To Scale



Valdez.IV.00

watson DISPATCH

www.watsonfurniture.com
800.426.1202 360.394.1300

Contact: LTD

Specified For: AC / PM

Drawn / Date: JEN / 02/21/2017

Project: Valdez Police Department, AK

Synergy 3 Full Lift Consoles - 3036 90° Primaries - 42" Panels (42" AFF)

F01.1

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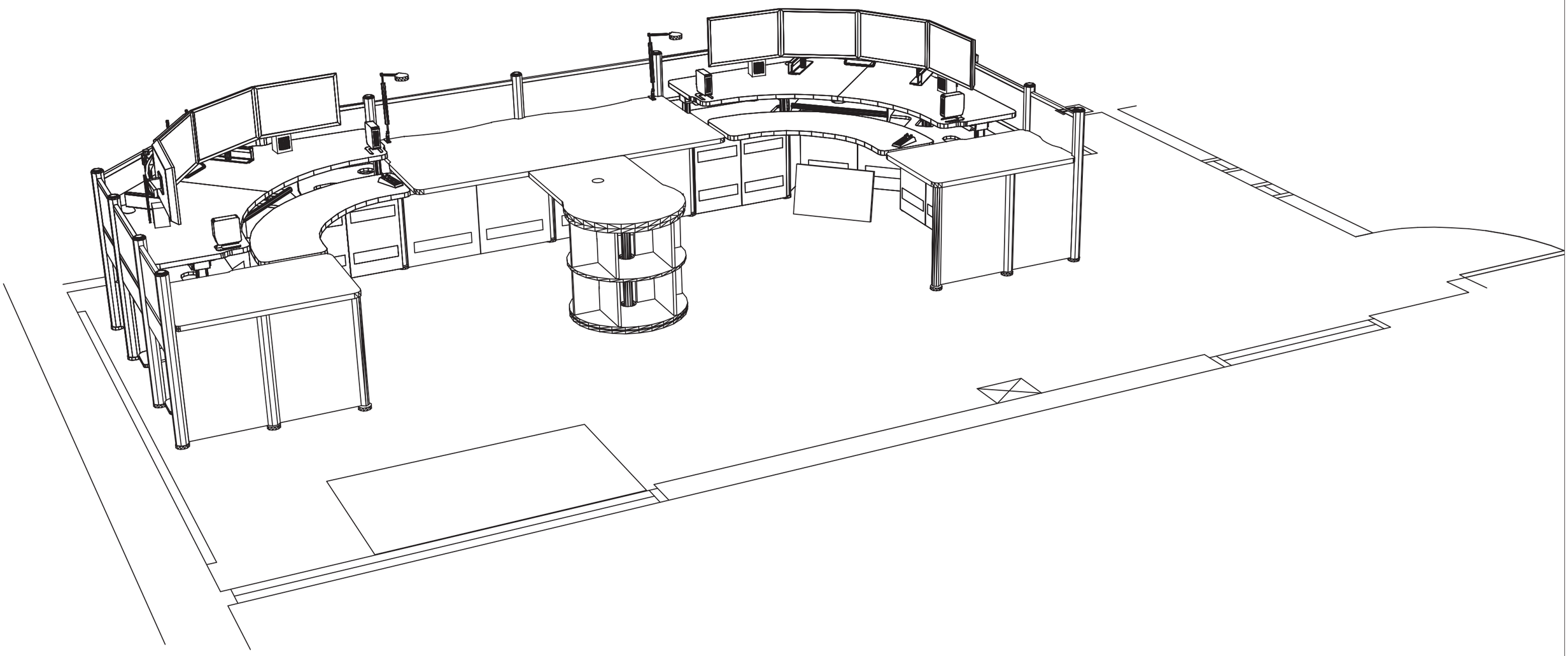

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Specified For: AC / PM

Drawn / Date: JEN / 02/21/2017

Project: Valdez Police Department, AK

Synergy 3 Full Lift Consoles - 3036 90° Primaries - 42" Panels (42" AFF)

F01.2
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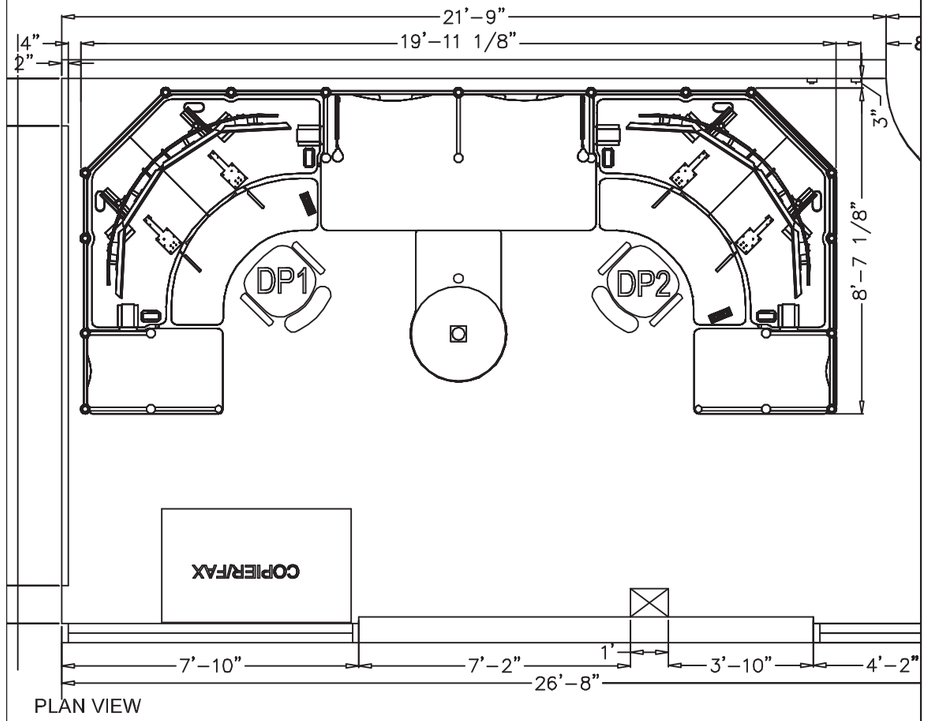
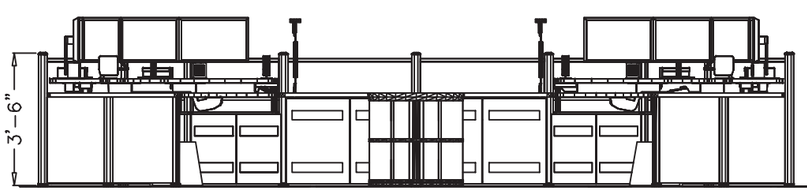
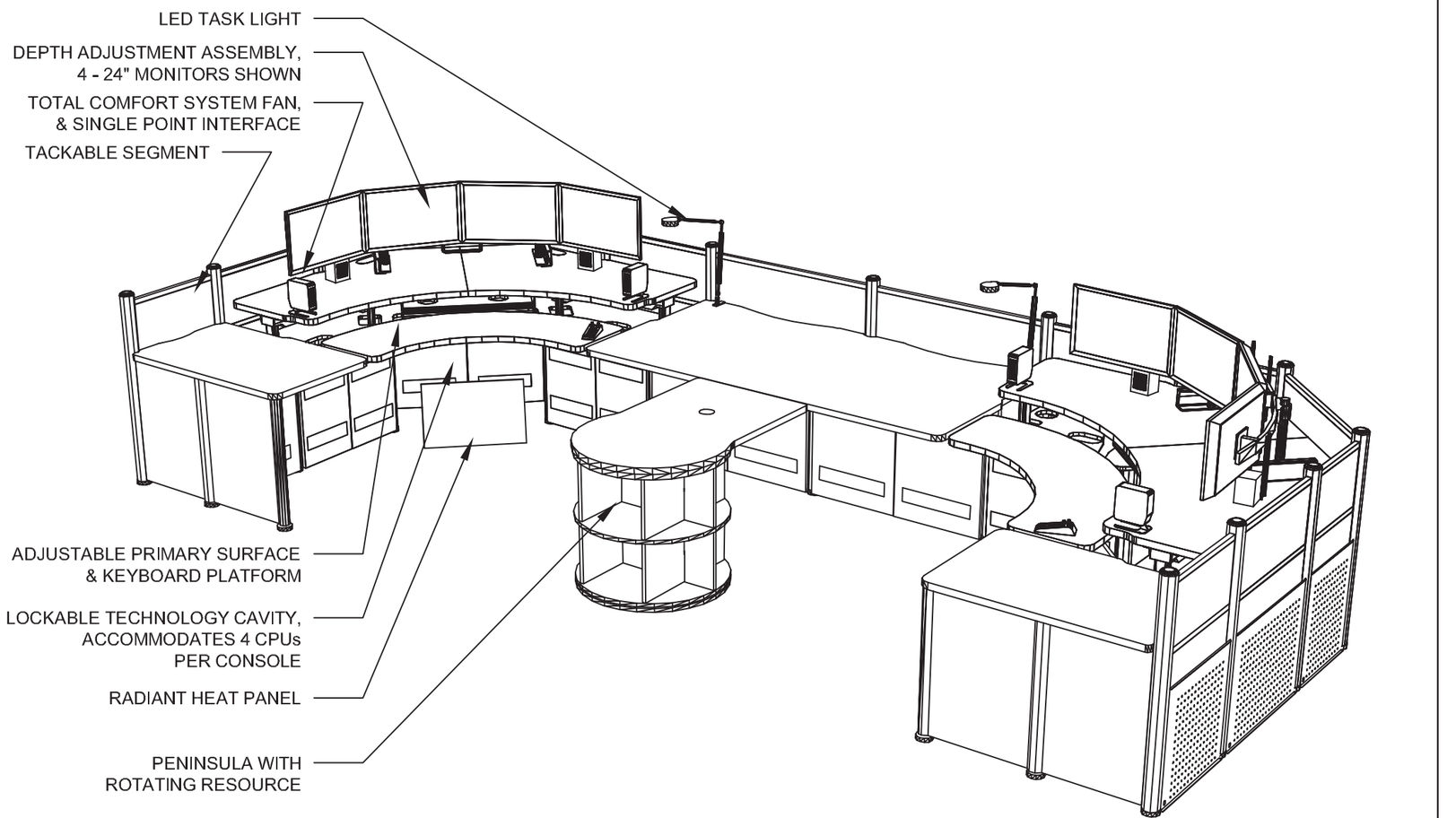


PLAN VIEW



ELEVATION VIEW



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800.426.1202 360.394.1300

Contact: LTD

Specified For: AC / PM

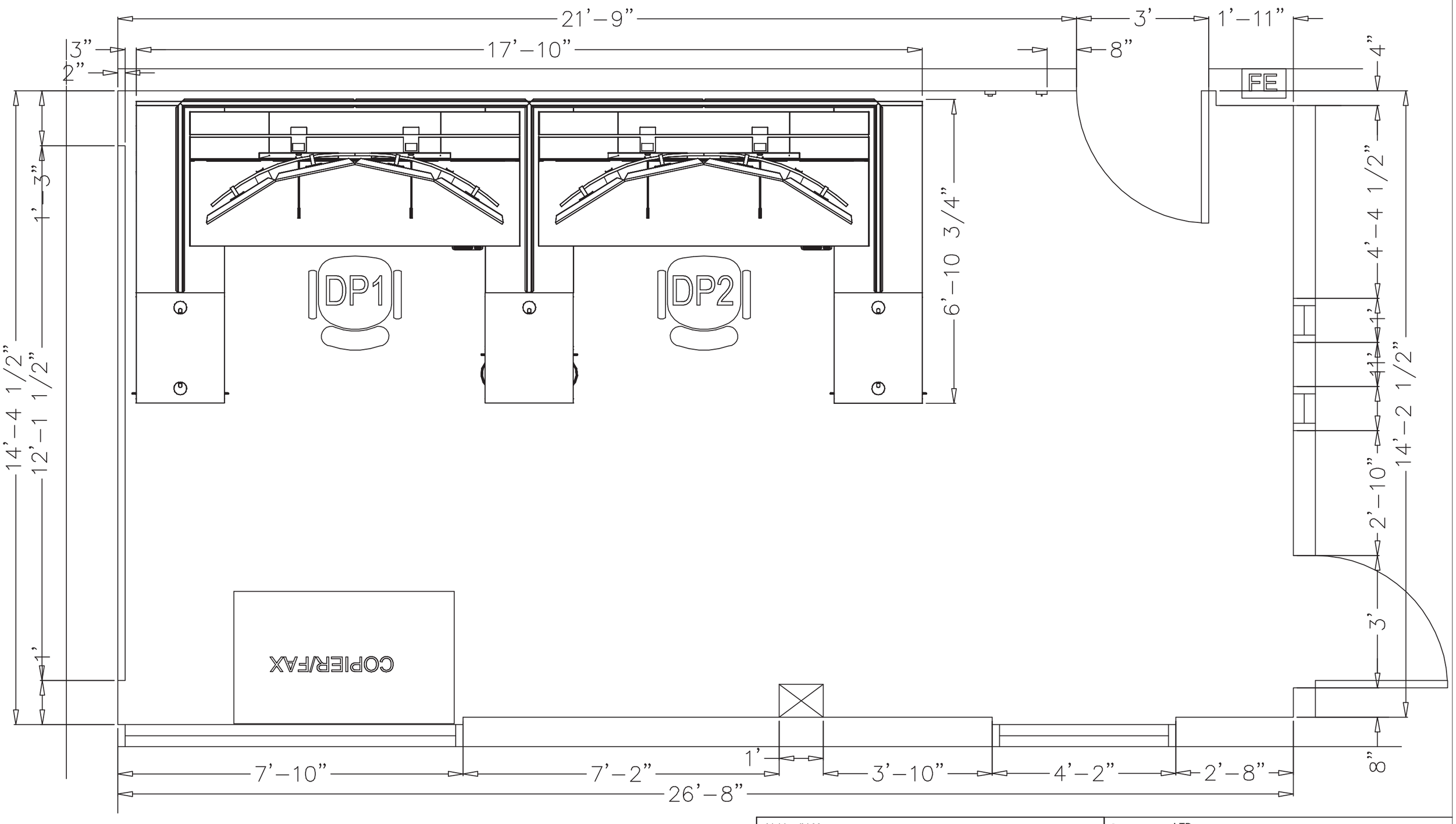
Drawn / Date: JEN / 02/21/2017

Project: Valdez Police Department, AK

Mercury Dispatch Consoles - 90" Primaries - 42" Panels (42" AFF)

F02.0

Not To Scale



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800.426.1202 360.394.1300

Contact: LTD

Specified For: AC / PM

Drawn / Date: JEN / 02/21/2017

Project: Valdez Police Department, AK

Mercury Dispatch Consoles - 90" Primaries - 42" Panels (42" AFF)

F02.1

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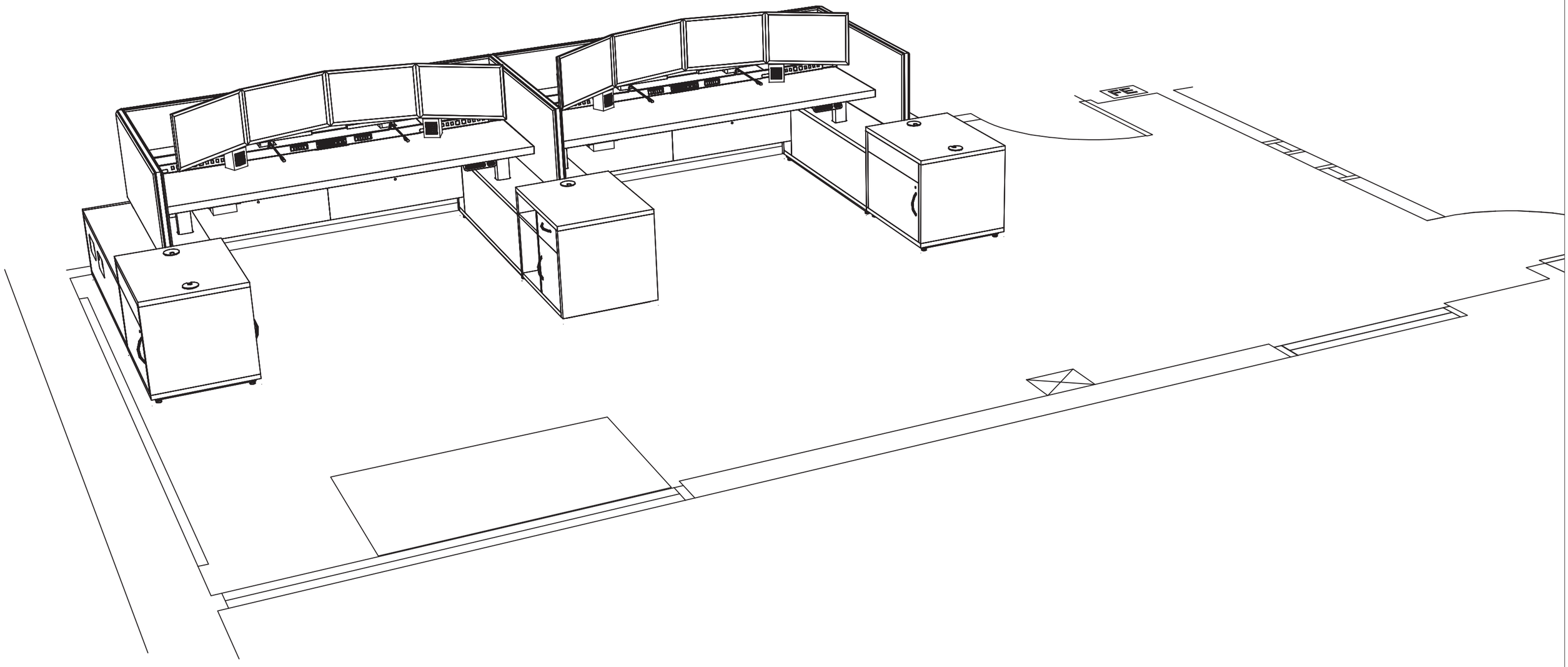

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Contact: LTD

Specified For: AC / PM

Drawn / Date: JEN / 02/21/2017

Project: Valdez Police Department, AK

Mercury Dispatch Consoles - 90" Primaries - 42" Panels (42" AFF)

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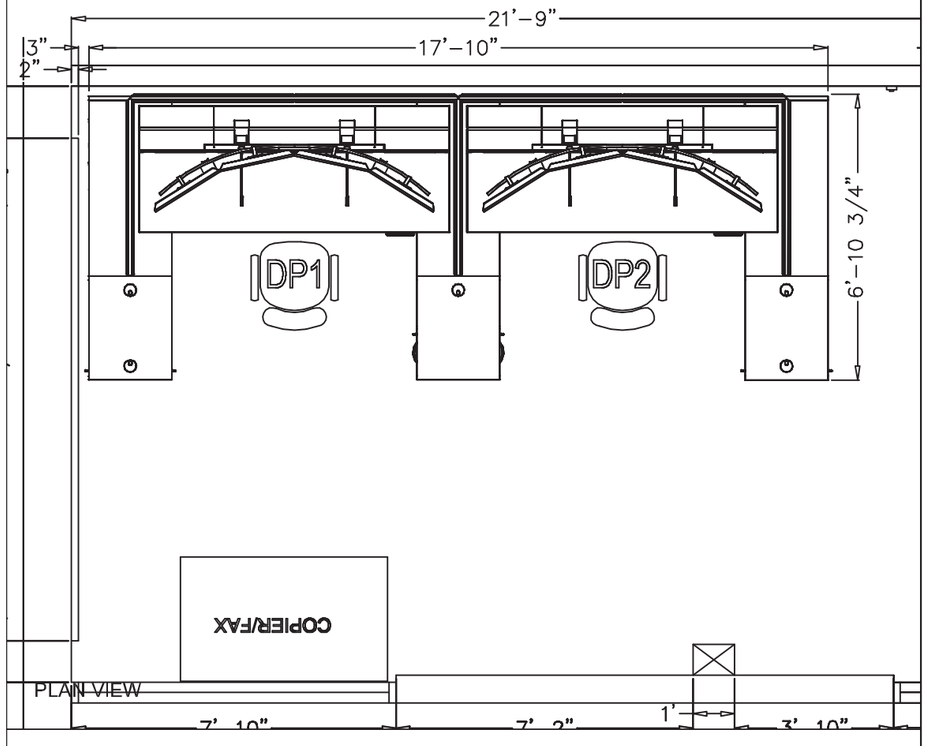
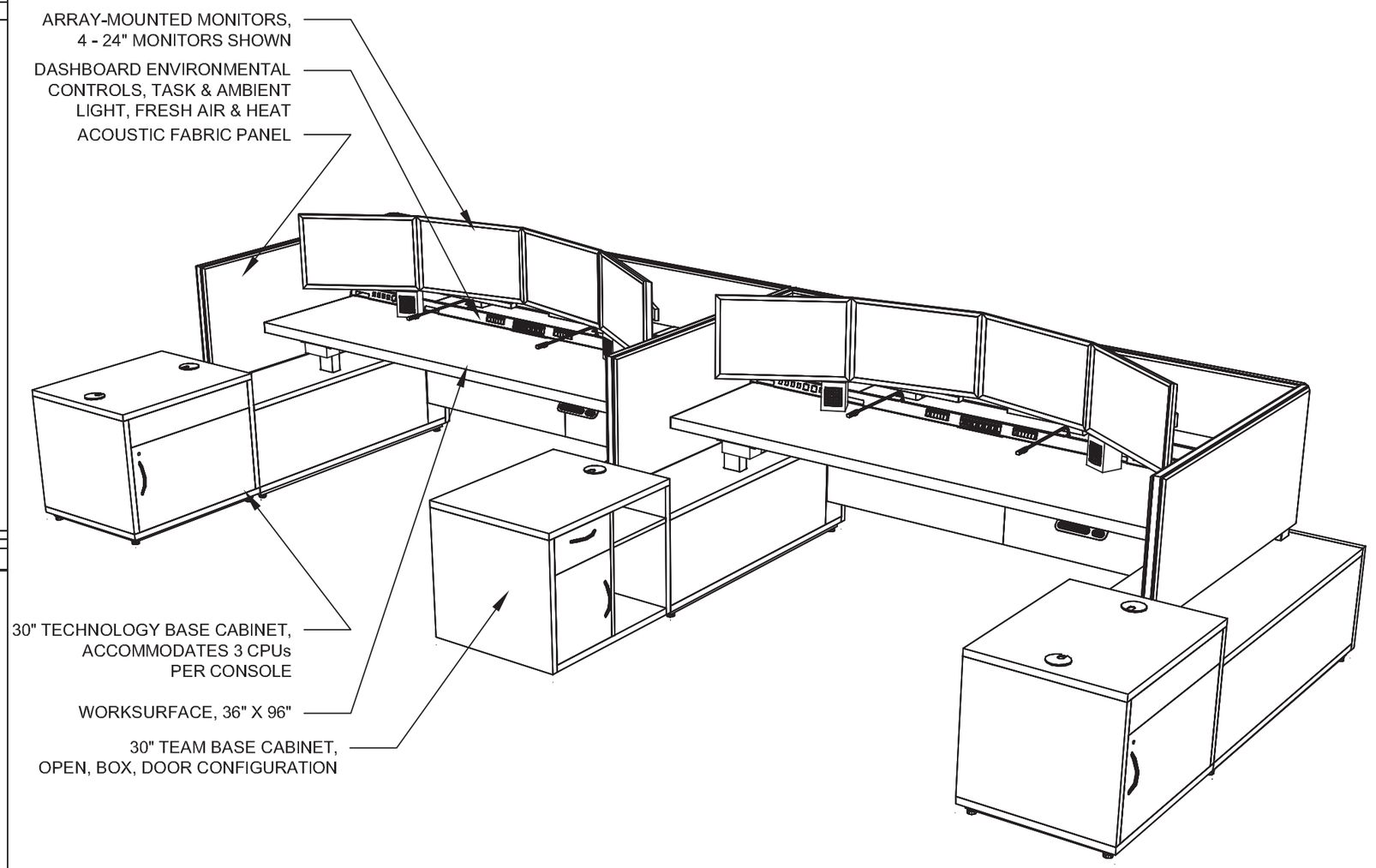


PLAN VIEW

ELEVATION VIEW



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watson DISPATCH

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800.426.1202 360.394.1300

Contact: LTD

Specified For: AC / PM

Drawn / Date: JEN / 02/21/2017

SECTION 2

STATEMENT OF WORK

2.1 OVERVIEW

This Statement of Work (SOW) describes the deliverables to be furnished to the City of Valdez. The tasks described herein will be performed by Motorola Solutions, its subcontractors, and the City of Valdez to implement the solution described in the System Description. It describes the actual work involved in installation, identifies the installation standards to be followed, and clarifies the responsibilities for both Motorola Solutions and the City of Valdez during the project implementation. Specifically, this SOW provides:

- A summary of the phases and tasks to be completed within the project lifecycle.
- A list of the deliverables associated with the project.
- A description of the responsibilities for both Motorola Solutions and the City of Valdez.
- The qualifications and assumptions taken into consideration during the development of this project.

This SOW provides the most current understanding of the work required by both parties to ensure a successful project implementation. In particular, Motorola Solutions has made assumptions of the sites to be used for the new system. Should any of the sites change, a revision to the SOW and associated pricing will be required. It is understood that this SOW is a working document, and that it will be revised as needed to incorporate any changes associated with contract negotiations, Contract Design Review (CDR), and any other change orders that may occur during the execution of the project.

Motorola Solutions is offering City of Valdez the replacement of the existing Motorola Centracom Gold Elite Dispatch Console equipment with the Motorola MCC7500 Dispatch Console Equipment. Motorola Solutions is offering two MCC7500 Console Positions that will be connected to the Statewide ASTRO 25 Master Core.

Motorola Solutions has included two optional APX7500 FDMA 7/800 MHz Backup Dispatch Consolettes. Antenna System is not included as part of this proposal. Existing Antenna System will be used if this option is purchased.

Motorola Solutions has included two optional offering for the Watson console furniture solutions.

2.2 ASSUMPTIONS

Motorola Solutions has based the system design on information provided by the City of Valdez and an analysis of their system requirements. All assumptions have been listed below for review. Should Motorola Solutions' assumptions be deemed incorrect or not agreeable to the City of Valdez, a revised proposal with the necessary changes and adjusted costs may be required. Changes to the equipment or scope of the project after contract may require a change order.

- All work is to be performed during normal work hours, Monday through Friday 8:00 a.m. to 5:00 p.m.
- This quote does not include considerations for any site specific installation requirements, including but not limited to:
  - HVAC.
  - Floor Loading.
  - Power sourcing/loading.
  - Breaker panel availability.
  - Surge suppression, beyond that provided by Motorola Solutions for new equipment.
- In the equipment room, the equipment will be housed in one new rack.
- The existing electrical circuits are planned to be reused by the new console equipment. All power/HVAC will be provided by the City of Valdez:
  - The console equipment provided in this proposal requires 120VAC power.
  - The demarcation point will be the rackmount UPS physically located in the equipment rack provided by Motorola Solutions.
  - The City of Valdez will provide NEC and R56 compliant TVSS power panel protection and grounding connection points for all rack-mounted equipment.
  - The City of Valdez will provide a connection to the building grounding system at each operator position.
- All existing sites or equipment locations will have sufficient space available for the system equipment described.
- Approved local, State, or Federal permits as may be required for the installation and operation of the proposed equipment are the responsibility of the City of Valdez.
- No provisions have been made to provide relay closure/detection for shared AUXI/O resources between the MCC 7500 and Gold Elite consoles as none were identified during the design.
- No provisions have been made to share any conventional resources between the MCC7500 and Gold Elite consoles.
- This proposal/design does not make any claims with regards to equivalent functionality between the existing Gold-Elite-based dispatch equipment/design and the MCC 7500 dispatch equipment.
- Motorola Solutions MCC 7500 training is highly recommended as some of the functionality and failure-mode operation may be different from Gold Elite operator positions. Training can be ordered using a change order.
- The provided CCGWs support conventional stations that utilize four-wire analog E&M (Type II) or Tone-Remote Controlled (TRC) interfaces (see section 1.1.1.3 for more detail).
  - Motorola Solutions assumes that all existing conventional resources utilize keying methods that are compatible with the provided CCGWs.
  - The CCGW does not support DC-controlled or two-wire audio connections.

- The City of Valdez will be responsible for providing a dedicated T1 link to connect the MCC7500 console site to the ALMR Master Site. The demarcation point for the T1 circuits shall be the Motorola Solutions-identified connection ports on the Motorola-provided equipment. The City of Valdez will be responsible to provide surge-suppression (as necessary) on all physical links entering/leaving the site.
- Motorola Solutions' demarcation point for connection to existing conventional resources is the CCGW. The City of Valdez will be responsible for bringing the four wire analog circuits to the CCGW at the console site.
- Motorola Solutions has not made any provisions in its design to include telephony connections (with the exception of a POTS headset connection) to its dispatch hardware.
- Keyloading hardware (KVL) for loading encryption keys into the VPM is not included in this proposal.

2.3 CONTRACT

2.3.1 Contract Award (Milestone)

- The Customer and Motorola Solutions execute the contract and both parties receive all the necessary documentation.

2.3.2 Contract Administration

Motorola Solutions Responsibilities:

- Assign a Project Manager, as the single point of contact with authority to make project decisions.
- Assign resources necessary for project implementation.
- Set up the project in the Motorola Solutions information system.
- Schedule the project kickoff meeting with the City of Valdez.

Customer Responsibilities:

- Assign a Project Manager, as the single point of contact responsible for City of Valdez-signed approvals.
- Assign other resources necessary to ensure completion of project tasks for which the City of Valdez is responsible.

Completion Criteria:

- Motorola Solutions internal processes are set up for project management.
- Both Motorola Solutions and the City of Valdez assign all required resources.
- Project kickoff meeting is scheduled.

2.3.3 Project Kickoff

Motorola Solutions Responsibilities:

- Conduct a project kickoff meeting during the CDR phase of the project.
- Ensure key project team participants attend the meeting.
- Introduce all project participants attending the meeting.
- 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 the City of Valdez.
- Review the resource and scheduling requirements with the City of Valdez.
- Develop a mutually agreed to Project Schedule with the City of Valdez to address upcoming milestones and/or events.
- Review the teams' interactions (Motorola Solutions and the City of Valdez), meetings, reports, milestone acceptance, and the City of Valdez's participation in particular phases.

Customer Responsibilities:

- The City of Valdez's key project team participants attend the meeting.
- Review Motorola Solutions and City of Valdez responsibilities.

Completion Criteria:

- Project kickoff meeting completed.
- Meeting notes identify the next action items.

2.4 CONTRACT DESIGN REVIEW

2.4.1 Review Contract Design

Motorola Solutions Responsibilities:

- Meet with the City of Valdez project team.
- Review the operational requirements and the impact of those requirements on various equipment configurations.
- Establish a defined baseline for the system design and identify any special product requirements and their impact on system implementation.
- Review the System Design, Statement of Work, Project Schedule, and Acceptance Test Plans, and update the contract documents accordingly.
- Discuss and develop a Cutover Plan and methods to document a detailed procedure.
- Submit design documents to the City of Valdez for approval. These documents form the basis of the system, which Motorola Solutions will manufacture, assemble, stage, and install.
- Prepare equipment layout plans for staging.
- Establish demarcation point (supplied by the Motorola Solutions system engineer) to define the connection point between the Motorola Solutions-supplied equipment and the City-supplied link(s) and external interfaces.
- City of Valdez is responsible for any site improvements (if required).

Customer Responsibilities:

- The City of Valdez's key project team participants attend the meeting.
- Make timely decisions, according to the Project Schedule.

Completion Criteria:

- Complete Design Documentation, which may include updated System Description, Equipment List, system drawings, or other documents applicable to the project.
- Incorporate any deviations from the proposed system into the contract documents accordingly.
- The system design is "frozen" in preparation for subsequent project phases such as Order Processing and Manufacturing.
- A Change Order is executed in accordance with all material changes resulting from the Design Review to the contract.

2.4.2 Design Approval (Milestone)

- The City of Valdez executes a Design Approval milestone document.

2.5 ORDER PROCESSING

2.5.1 Process Equipment List

Motorola Solutions Responsibilities:

- Validate Equipment List by checking for valid model numbers, versions, compatible options to main equipment, and delivery data.
- Create Ship Views, to confirm with the City of Valdez the secure storage location(s) to which the equipment will ship. Ship Views are the mailing labels that carry complete equipment shipping information, which direct the timing, method of shipment, and ship path for ultimate destination receipt.
- Create equipment orders.
- Reconcile the equipment list(s) to the Contract.
- Procure third-party equipment if applicable.

Customer Responsibilities:

- Approve shipping location(s).

Completion Criteria:

- Verify that the Equipment List contains the correct model numbers, version, options, and delivery data.
- Trial validation completed.
- Bridge the equipment order to the manufacturing facility.

2.6 MANUFACTURING AND STAGING

2.6.1 Manufacture Motorola Solutions Fixed Network Equipment

Motorola Solutions Responsibilities:

- Manufacture the Fixed Network Equipment (FNE) necessary for the system based on equipment order.

Customer Responsibilities:

- None.

Completion Criteria:

- FNE shipped to the staging facility.

2.6.2 Manufacture Non-Motorola Solutions Equipment

Motorola Solutions Responsibilities:

- Procure non-Motorola Solutions equipment necessary for the system based on equipment order.

Customer Responsibilities:

- None.

Completion Criteria:

- Ship non-Motorola Solutions manufactured equipment to the staging facility.

2.6.3 Ship to Staging (Milestone)

- Ship all equipment needed for staging to Motorola Solutions' factory staging facility in Illinois [Customer Center for Solutions Integration (CCSi)].

2.6.4 Stage System

Motorola Solutions Responsibilities:

- Set up and rack the system equipment as it will be configured in the field.
- Cut and label cables according to the approved CDR documentation.
- Label the cables with to/from information to specify interconnection for field installation and future servicing needs.
- Power up, program, and test all staged equipment.
- Confirm system configuration and software compatibility to the existing system.
- Load application parameters on all equipment according to input from Systems Engineering.
- Complete programming of the Fixed Network Equipment.
- Inventory the equipment with serial numbers and installation references.
- Complete system documentation.

Customer Responsibilities:

- Provide information on existing system interfaces as may be required.
- Provide information on room layouts or other information necessary for the assembly to meet field conditions.

Completion Criteria:

- System staging completed and ready for testing.

2.6.5 Perform Staging Acceptance Test Procedures

Motorola Solutions Responsibilities:

- Test and validate system software and features.
- Functional testing of standard system features.
- Conduct site and system level testing.
- Power-up site equipment and perform standardized functionality tests.
- Perform system burn-in 24 hours a day during staging to isolate and capture any defects.

Customer Responsibilities:

- None.

2.6.6 Ship Equipment to Field

Motorola Solutions Responsibilities:

- Pack system for shipment to final destination.
- Arrange for shipment to the field.

Customer Responsibilities:

- None.

Completion Criteria:

- Equipment ready for shipment to the field.

2.6.7 CCSi Ship Acceptance (Milestone)

- All equipment shipped to the field.

2.6.8 Develop Templates

Motorola Solutions Responsibilities:

- Motorola Solutions assists the City of Valdez in defining console template.
- Program consoles with approved template and deliver for the City of Valdez evaluation.

Customer Responsibilities:

- Evaluate and approve console template.

Completion Criteria:

- Console template completed and approved by the City of Valdez.

2.7 SYSTEM INSTALLATION

2.7.1 Install Fixed Network Equipment

Motorola Solutions Responsibilities:

- Motorola Solutions will be responsible for the installation of all fixed equipment contained in the equipment list and outlined in the System Description based upon the agreed to floor plans, at the dispatch center where the physical facility improvement is complete and the site is ready for installation. All equipment will be properly secured to the floor and installed in a neat and professional manner, employing a standard of workmanship consistent with its own R-56 installation standards and in compliance with applicable National Electrical Code (NEC), EIA, Federal Aviation Administration (FAA)/Transport Canada, and FCC standards and regulations/Industry Canada.
- During field installation of the equipment, any required changes to the installation will be noted and assembled with the final 'as-built' documentation of the system.
- Receive and inventory all equipment.
- Deliver the equipment stored at the City of Valdez to the Dispatch Center.
- Bond the supplied equipment to the site ground system in accordance with Motorola's R56 standards.
- Connect the City of Valdez-supplied, previously-identified circuits into the console, to a demarcation point located within 25 feet of the console interface.
- Perform the console programming, based on the console templates.
- Install the console furniture if this optional offering is purchased.
- Remove the two Gold Elite Consoles and replace with the two MCC7500 console positions.
- Will remove the existing Gold Elite Console positions and deliver to the City of Valdez.
- Program and install the two consolettes if this option is purchased. Connect the cosolettes to the existing antenna system.
- Program and connect the Valdez MCC7500 consoles to the Statewide ASTRO 25 Master Core.

Customer Responsibilities:

- Provide secure storage for the Motorola Solutions-provided equipment, at a location central to the sites. Motorola Solutions coordinates the receipt of the equipment with the City of Valdez's designated contact, and inventory all equipment.
- Provide computer monitors for the MCC7500 Consoles.
- Provide access to the sites, as necessary.
- Provide demarcation point located within 25 feet of the console interface.

Completion Criteria:

- Fixed Network Equipment installation completed and ready for optimization.

2.7.2 Fixed Network Equipment Installation Complete

- All fixed network equipment installed and accepted by the City of Valdez.

2.7.3 System Installation Acceptance (Milestone)

- All equipment installations are completed and accepted by the City of Valdez.

2.8 SYSTEM OPTIMIZATION

2.8.1 Optimize System FNE

Motorola Solutions Responsibilities:

- Motorola Solutions optimizes the MCC7500 equipment.
- Verify that all equipment is operating properly and that all electrical and signal levels are set accurately.
- Verify that all audio and data levels are at factory settings.
- Verify communication interfaces between equipment for proper operation.
- Test features and functionality are in accordance with manufacturers' specifications and that they comply with the final configuration established during the CDR/system staging.
- Set up the consoles on the ASTRO 25 Core to perform the dispatching operation.

Customer Responsibilities:

- Provide access/escort to the sites.
- Provide required radio ID and alias information to enable alias database setup for interface to console.

Completion Criteria:

- Console System FNE optimization is complete.

2.8.2 Link Verification

Motorola Solutions Responsibilities:

- Perform test to verify site link performance, prior to the interconnection of the Motorola Solutions-supplied equipment to the link equipment.

Customer Responsibilities:

- Make available the required links which meet the specifications supplied by Motorola Solutions at the CDR.

Completion Criteria:

- Link verification successfully completed.

2.9 AUDIT AND ACCEPTANCE TESTING

2.9.1 Perform R56 Installation Audit

Motorola Solutions Responsibilities:

- Perform R56 site-installation quality audits, verifying proper physical installation and operational configurations.
- Create site evaluation report to verify site meets or exceeds requirements, as defined in Motorola's Standards and Guidelines for Communication Sites (R56).

Customer Responsibilities:

- Provide access/escort to the sites.
- Witness tests.

Completion Criteria:

- All R56 audits completed successfully.

2.9.2 Perform Functional Testing

Motorola Solutions Responsibilities:

- Verify the operational functionality and features of the Console System supplied by Motorola Solutions, as contracted.
- If any major task as contractually described fails, repeat that particular task after Motorola Solutions 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 City of Valdez for review.
- Resolve any minor task failures before Final System Acceptance.

Customer Responsibilities:

- Witness the functional testing.

Completion Criteria:

- Successful completion of the functional testing.
- City of Valdez approves the functional testing.

2.9.3 System Acceptance Test Procedures (Milestone)

- City of Valdez approves the completion of all the required tests.

2.10 FINALIZE

2.10.1 Cutover

Motorola Solutions Responsibilities:

- Motorola Solutions and the City of Valdez 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.

Customer Responsibilities:

- Attend cutover meetings and approve the cutover plan.
- Notify the user group(s) affected by the cutover (date and time).

Completion Criteria:

- Successful migration from the old console system to the new system.

2.10.2 Resolve Punchlist

Motorola Solutions Responsibilities:

- Work with the City of Valdez to resolve punchlist items, documented during the Acceptance Testing phase, in order to meet all the criteria for final system acceptance.

Customer Responsibilities:

- Assist Motorola Solutions with resolution of identified punchlist items by providing support, such as access to the sites, equipment and system, and approval of the resolved punchlist item(s).

Completion Criteria:

- All punchlist items resolved and approved by the City of Valdez.

2.10.3 Transition to Service/Project Transition Certificate

Motorola Responsibilities:

- Review the items necessary for transitioning the project to warranty support and service.
- Provide a Customer Support Plan detailing the warranty services associated with the Contract equipment.

Customer Responsibilities:

- Participate in the Transition Service/Project Transition Certificate (PTC) process.

Completion Criteria:

- All service information has been delivered and approved by the City of Valdez.

2.10.4 Finalize Documentation

Motorola Solutions Responsibilities:

- Provide an electronic as-built system manual. The documentation will include the following:
  - System-Level Diagram.
  - Site Block Diagrams.
  - Site Floor Plans.
  - Site Equipment Rack Configurations.
  - ATP Test Checklists.
  - Functional Acceptance Test Plan Test Sheets and Results.
  - Equipment Inventory List.
  - Console Programming Template.

Drawings are created utilizing AutoCAD design software and will be delivered in Adobe PDF format. All other system manual documents converted from native format to Adobe PDF format to be included on the System Manual CD.

Customer Responsibilities:

- Receive and approve all documentation provided by Motorola Solutions.

Completion Criteria:

- All required documentation is provided and approved by the City of Valdez.

2.10.5 Final Acceptance (Milestone)

- All deliverables completed, as contractually required.
- Final System Acceptance received from the City of Valdez.

2.11 PROJECT ADMINISTRATION

2.11.1 Project Status Meetings

Motorola Solutions Responsibilities:

- Motorola Solutions Project Manager, or designee, will attend all project status meetings/conference calls with the City of Valdez, as frequently as determined during the CDR.
- Record the meeting minutes and supply the report.
- The agenda will include the following:
  - Overall project status compared to the Project Schedule.
  - Product or service related issues that may affect the Project Schedule.
  - Status of the action items and the responsibilities associated with them, in accordance with the Project Schedule.
  - Any miscellaneous concerns of either the City of Valdez or Motorola Solutions.

Customer Responsibilities:

- Attend meetings.
- Respond to issues in a timely manner.

Completion Criteria:

- Completion of the meetings and submission of meeting minutes.

2.11.2 Progress Milestone Submittal

Motorola Solutions Responsibilities:

- Submit progress (non-payment) milestone completion certificate/documentation.

Customer Responsibilities:

- Approve milestone, which will signify confirmation of completion of the work associated with the scheduled task.

Completion Criteria:

- The City of Valdez approval of the Milestone Completion document(s).

2.11.3 Change Order Process

Either Party may request changes within the general scope of this Agreement. If a requested change causes an increase or decrease in the cost, change in system configuration or adds time to the project's timeline required to perform this Agreement, the Parties will agree to an equitable adjustment of the Contract Price, Performance Schedule, or both, and will reflect the adjustment in a change order. Neither Party is obligated to perform requested changes unless both Parties execute a written change order.

SECTION 3

WARRANTY SERVICES

3.1 ADVANCED SERVICES OVERVIEW

In order to ensure the continuity of the City of Valdez Dispatch Console System and reduce system downtime Motorola Solutions proposes our Advanced Services offering to the City of Valdez during Warranty period. Appropriate for customers who wish to leverage Motorola Solutions' experienced personnel to maintain mission-critical communications for their first responders, Advanced Services focuses on proactively mitigating potential functionality and security issues, and providing both remote and onsite support. The proposed offering consists of the following specific services:

- Service Desk.
- Technical Support.
- Network Event Monitoring.
- Onsite Support.
- Annual Preventative Maintenance.
- Network Hardware Repair.
- Security Update Services

These services will be delivered to the City of Valdez through the combination of local service personnel either dedicated to the network or engaged as needed; a centralized team within Motorola's Solutions Support Center (SSC), which operates on a 24 x 7 x 365 basis; and our Repair Depot, which will ensure that equipment is repaired to the highest quality standards. The collaboration between these service resources, all of who are experienced in the maintenance of mission-critical networks, will enable a swift analysis of any network issues, an accurate diagnosis of root causes, and a timely resolution and return to normal network operation.

3.2 ADVANCED SERVICES DESCRIPTION

3.2.1 Centralized Service Delivery

Centralized support will be provided by Motorola Solutions' support staff, located at our Service Desk and Solutions Support Center (SSC). These experienced personnel will provide direct service and technical support through a combination of Service Desk telephone support, technical consultation and troubleshooting through the SSC.

Motorola Solutions will provide Service Desk response as a single point of contact for all support issues, including communications between City of Valdez, third-party subcontractors and manufacturers, and Motorola Solutions. When City of Valdez personnel call for support, the Service Desk will record, track, and update all Service Requests, Change Requests, Dispatch Requests, and Service Incidents using Motorola Solutions' Customer Relationship Management (CRM) system. The Service Desk is responsible for documenting City of Valdez inquiries, requests, concerns, and related tickets; tracking and resolving issues; and ensuring timely communications with all stakeholders based on the nature of the incident.

As tickets are opened by the Service Desk, issues that require specific technical expertise and support will be routed to our Solutions Support Center (SSC) system technologists for Technical Support, who will provide telephone consultation and troubleshooting capabilities to diagnose and resolve infrastructure performance and operational issues. Motorola Solutions' recording, escalating, and reporting process applies ISO 90001 and TL 9000-certified standards to the Technical Support calls from our contracted customers, reflecting our focus on maintaining mission-critical communications for the users of our systems.

The same SSC staff that provides direct telephone support to the City of Valdez will also provide Network Event Monitoring to the City of Valdez Console network in real-time, ensuring continuous management of the system's operational functionality. The SSC's technicians will utilize sophisticated tools to remotely monitor City of Valdez's Console System, often identifying and resolving anomalous events before they might affect user communications.

3.2.2 Field Service Delivery

Onsite repairs and network preventative maintenance will be provided by authorized local field services delivery personnel, who will be dispatched from and managed by the Solutions Support Center.

OnSite Support provides local, trained and qualified technicians who will arrive at City of Valdez Dispatch location upon a dispatch service call to diagnose and restore the console system. This involves running diagnostics on the hardware or FRU (Field Replacement Unit) in order to identify defective elements, and replacing those elements with functioning ones. The system technician will respond to the City of Valdez Dispatch location in order to remedy equipment issues based on the impact of the issue to overall system function.

Annual Preventive Maintenance Service provides proactive, regularly scheduled operational testing and alignment of infrastructure and network components to ensure that they continually meet original manufacturer specifications. Certified field technicians perform hands-on examination and diagnostics of network equipment on a routine and prescribed basis.

3.2.3 Network Hardware Repair

Network Hardware Repair – Motorola Solutions' authorized Repair Depot will repair the equipment provided by Motorola Solutions, as well as select third-party infrastructure equipment supplied as part of the proposed solution. The Repair Depot will manage the logistics of equipment repair (including shipment and return of repaired equipment), repair Motorola Solutions equipment, and coordinate the repair of third-party solution components.

3.2.4 Security UpdateOperations

The proposed Security Update Service will provide City of Valdez with pre-tested security updates, pre-tested and remotely installed by Motorola Solutions on the City of Valdez Console system. When appropriate, Motorola Solutions will make these updates available to outside vendors in order to enable them to test each patch, and will incorporate the results of those third-party tests into the updates before releasing to the City to be installed on the City of Valdez Console System.

3.3 MOTOROLA SOLUTIONS' SERVICE CAPABILITIES

Our focus on the needs of our public safety partners has led us to recognize that an integrated implementation and service delivery team that takes a new system from system installation, to acceptance, to warranty, and all the way through extended maintenance, is the best way to ensure that public safety communications systems meet the needs of first responders. Motorola Solutions' team of experts, have developed refined processes and sophisticated tools through our experience in delivering mission-critical communications.

On-Call Support through the Solutions Support Center (SSC)

The cornerstone of our customer care process, Motorola's Solution Support Center (SSC) is staffed 24x7x365 by experienced system technologists. This TL 9000/ISO 9001-certified center responds to over 5000 public safety, utility, and enterprise customers. With over 100,000 phone and email interactions with Motorola Solutions customers per month, the SSC provides our customers with a centralized contact point for service requests.

Onsite Service through a Field Service Team

Onsite maintenance and repair of the City of Valdez Console system will be provided by Motorola's local team of service personnel. Motorola Solutions will provide City of Valdez with a Customer Support Plan (CSP) that outlines the details of each service, provides escalation paths for special issues, and any other information specific to the City of Valdez service agreement. Some of these details will include items such as access to sites, response time requirements, severity level definitions, and parts department access information.

Local technicians will be dispatched for onsite service by the SSC, who will inform the technician of the reason for dispatch. This will enable the technician to determine if a certain component or field replacement unit (FRU) will be needed from inventory to restore the system. Once on site, the field technician will notify the SSC and begin to work on the issue. The technician will review the case notes to determine the status of the issue, and begin the troubleshooting and restoration process. Once the system is restored to normal operation, the field technician will notify the SSC that the system is restored. The SSC, in turn, will notify City of Valdez that the system is restored to normal operation and request approval to close the case.

Centralized Repair Management through Motorola Solutions' Repair Depot

Our repair management depot coordinates component repair through a central location, eliminating the need to send system equipment to multiple vendor locations for repair. Once equipment is at the depot, technicians will replicate the City of Valdez Console system configuration in our comprehensive test labs in order to reproduce and analyze the issue. Technicians will then restore the equipment to working order. After repairs are completed, equipment will be tested to its original performance specifications and, if appropriate, configured for return to use in the City of Valdez system. All components being repaired are tracked throughout the process, from shipment by the City of Valdez to return through a case management system where users can view the repair status of the radio via a web portal.

SECTION 4

ACCEPTANCE TEST PLAN

City of Valdez

MCC7500 Console Upgrade

In-Plant Draft

www.motorolasolutions.com/services/government

Representative 1 Name

Field Program Manager

(XXX) XXX-XXXX

Representative 2 Name

Field Engineer

(XXX) XXX-XXXX

4.1 MCC 7100/7500 TRUNKED RESOURCES

4.1.1 Instant Transmit

1. DESCRIPTION

The instant transmit switch provides immediate operator access to a channel, independent of its select status (selected or unselected). It provides priority over other dispatcher transmit bars or optional footswitches.

SETUP

RADIO-1 - TALKGROUP 1
CONSOLE-1 – TALKGROUP 1 (Selected), TALKGROUP 2 (Unselect mode)

VERSION #1.010

2. TEST

Step 1. Using CONSOLE-1, press the Instant Transmit button on TALKGROUP 1.

Step 2. Verify that the Transmit indicator is lit.

Step 3. Verify RADIO-1 can monitor and respond to the call on TALKGROUP 1.

Step 4. On RADIO-1 change to TALKGROUP 2.

Step 5. Using CONSOLE-1, press the Instant Transmit button on the TALKGROUP 2 radio resource.

Step 6. Verify RADIO-1 can monitor and respond to the call on TALKGROUP 2.

Pass____ Fail____

4.1.2 Talkgroup Selection and Call

1. DESCRIPTION

The Talkgroup Call is the primary level of organization for communications on a trunked radio system. Dispatchers with Talkgroup Call capability will be able to communicate with other members of the same talkgroup. This provides the effect of an assigned channel down to the talkgroup level. When a Talkgroup Call is initiated from a subscriber unit, the call is indicated on each dispatch operator position that has a channel control resource associated with the unit's channel/talkgroup.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 2
RADIO-3 - TALKGROUP 1
RADIO-4 - TALKGROUP 2
CONSOLE-1 - TALKGROUP 1
CONSOLE-2 - TALKGROUP 2

VERSION #1.010

2. TEST

Step 1. Initiate a wide area call from CONSOLE-1 on TALKGROUP 1.

Step 2. Observe that RADIO-1 and RADIO-3 will be able to monitor the call. Dekey the console and have either radio respond to the call.

Step 3. Observe that all consoles with TALKGROUP 1 can monitor both sides of the conversation.

Step 4. Initiate a wide area call from CONSOLE-2 on TALKGROUP 2.

Step 5. Observe that RADIO-2 and RADIO-4 will be able to monitor the call. Dekey the console and have either radio respond to the call.

Step 6. Observe that all consoles with TALKGROUP 2 can monitor both sides of the conversation.

Pass____ Fail____

4.1.3 Emergency Alarm and Call Display Description

1. DESCRIPTION

Users in life threatening situations can use the emergency button on the radio to send an audible alarm and a visual alarm signal to a console operator in order to request immediate system access to a voice channel for an emergency call. An emergency alarm begins after the radio user presses the radio's emergency button. Pressing the emergency button places the radio in "emergency mode". To begin an emergency call, the radio user must press the radio's PTT button while in "emergency mode." The assigned voice channel will be dedicated to the emergency caller's talkgroup for an extended period of time, equal to the Message Hang Time plus the Emergency Hang Time. As with other call types, emergency calls can operate across sites as well as within the same site.

SETUP

RADIO-1 - TALKGROUP 1
CONSOLE-1 - TALKGROUP 1
CONSOLE-2 - TALKGROUP 1

VERSION #1.010

2. TEST

Step 1. Initiate an Emergency Alarm from RADIO-1.

Step 2. Observe the Emergency from RADIO-1 is received at CONSOLE-1 for TALKGROUP 1.

Step 3. Acknowledge the Emergency at the operator position. Verify CONSOLE-2 receives notification that the call has been acknowledged.

Step 4. Initiate a call with RADIO-1 to initiate an Emergency call.

Step 5. Observe CONSOLE-1 and CONSOLE-2 can monitor RADIO-1

Step 6. Clear the Emergency from CONSOLE-1 on TALKGROUP 1.

Step 7. End the Emergency Alarm from RADIO-1.

Pass____ Fail____

4.1.4 Multigroup Call

1. DESCRIPTION

This trunking feature allows an equipped console operator position to transmit an announcement to several different talkgroups simultaneously. As with Talkgroup Calls, multigroup calls operate across sites as well as within the same site.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 2
RADIO-3 - RANDOM
CONSOLE-1 - ATG 1

Note: TALKGROUP 1 and TALKGROUP 2 are members of ATG 1. RANDOM is any talkgroup not a member of ATG 1.

VERSION #1.010

2. TEST

Step 1. Using CONSOLE-1, select the ATG 1 resource.

Step 2. Initiate the Multigroup Call from CONSOLE-1.

Step 3. Observe that RADIO-1 and RADIO-2 receive the Multigroup Call.

Step 4. Verify that RADIO-3 does not receive the Multigroup Call because it is not a member of ATG 1.

Step 5. Answer the Multigroup Call using RADIO-1 and observe CONSOLE-1 receives the response.

Step 6. Verify that if the call is answered within the repeater hang time, the console will receive the call on the ATG 1 resource tile, otherwise the console will receive the call on the TALKGROUP 1 tile.

Step 7. Verify that if the call is answered within the repeater hang time, RADIO-2 will monitor the call.

Pass____ Fail____

4.1.5 Multi-Select Operation

1. DESCRIPTION

Multi-Select (Msel) allows the console operator to group a number of channels/talkgroups together such that when the general transmit bar is depressed, all of the multi-selected channels/talkgroups will transmit at the same time with the same information. Multi-Select is one way communication call. If a radio user responds to a Multi-Select call the talkgroup the user is affiliated to will be the only one to hear the call. There is no super-group formed, so radio communication is still at the single talkgroup level. Multi-Select is utilized to send an APB to several channels/talkgroups. A Multi-Select has a limit of twenty (20) trunking/conventional resources

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 2
CONSOLE-1 - TALKGROUP 1, TALKGROUP 2

VERSION #1.010

2. TEST

Step 1. From CONSOLE-1, create an Msel group with TALKGROUP 1 and TALKGROUP 2.

Step 2. Transmit on the Msel using the Msel instant transmit button.

Step 3. Verify that RADIO-1 and RADIO-2 hear the call.

Step 4. Initiate a call with RADIO-1.

Step 5. Verify the call is heard on CONSOLE-1 but not on RADIO-2.

Step 6. Initiate a call with RADIO-2.

Step 7. Verify the call is heard on CONSOLE-1 but not on RADIO-1.

Step 8. On CONSOLE-1 dissolve the Msel.

Pass____ Fail____

4.1.6 Talkgroup Patch

1. DESCRIPTION

Talkgroup Patch allows a dispatcher to merge several talkgroups together on one voice channel to participate in a single conversation. This can be used for situations involving two or more talkgroups that need to communicate with each other.
Using the Patch feature, the console operator can talk and listen to all of the selected talkgroups grouped; in addition, the members of the individual talkgroups can also talk or listen to members of other talkgroups. Patched talkgroups can communicate with the console dispatcher and other members of different talkgroups because of the "supergroup" nature of the Patch feature.

NOTE : If "secure" and "clear" resources are patched together, one repeater for each mode may be assigned per site.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 2
RADIO-3 - TALKGROUP 1
RADIO-4 - TALKGROUP 2
CONSOLE-1 - TALKGROUP 1 and TALKGROUP 2

Note: All 4 Radios must have the same home zone.

VERSION #1.010

2. TEST

Step 1. Using CONSOLE-1 create a patch between TALKGROUP 1 and TALKGROUP 2.

Step 2. Initiate a patch call from CONSOLE-1.

Step 3. Verify RADIO-1, RADIO-2, RADIO-3, and RADIO-4 can monitor the call.

Step 4. Initiate several calls between the radios and verify successful communication.

Step 5. Dissolve the patch created in step 1.

Pass____ Fail____

4.1.7 Alert Tones - Talkgroup

1. DESCRIPTION

Pre-defined alert tones can be transmitted on the selected Radio Resource to subscribers which can alert members of a channel / talkgroup to a particular event or signify to radio users special instructions are to follow. The Console has the ability to send an Alert-Tone signal on selected conventional or talkgroup resources.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 1
CONSOLE-1 - TALKGROUP 1

VERSION #1.040

2. TEST

Step 1. Select TALKGROUP 1 on CONSOLE-1.

Step 2. Select Alert Tone 1 and depress the Alert Tone button.

Step 3. Verify that RADIO-1 and RADIO-2 hear Alert Tone 1.

Step 4. Repeat Steps 2-3 for Alert Tone 2 and 3.

Pass____ Fail____

4.1.8 Call Alert

1. DESCRIPTION

Call Alert Page allows a subscriber/dispatcher to selectively alert another radio unit. The initiating subscriber/console will receive notification as to whether or not the call alert was received. Units receiving a Call Alert will sound an alert tone and show a visual alert indication. The display will also show the individual ID of the initiating subscriber/console unit.

SETUP

RADIO-1 - TALKGROUP 1
CONSOLE-1 - TALKGROUP 1

VERSION #1.030

2. TEST

Step 1. Using CONSOLE-1, select the call alert button in the "Private Call" resource window.

Step 2. Enter the ID of RADIO-1 and send the call alert to RADIO-1.

Step 3. Verify that RADIO-1 receives the alert and that the ID or alias of the console is shown.

Step 4. Turn off RADIO-1.

Step 5. Using CONSOLE-1, send the call alert to RADIO-1 again.

Step 6. Verify that after trying to page RADIO-1, the console displays "Can not send call alert - target not found" in the summary/status list.

Pass____ Fail____

4.1.9 Console Initiated Private Call to Subscriber

1. DESCRIPTION

Private Conversation is a selective calling feature which allows a dispatcher or radio user to carry on one-to-one conversation that is heard only by the two parties involved. Subscriber units receiving a private call will sound an alert tone. As with other call types, Private Calls operate across sites as well as within the same site.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 1
CONSOLE-1 - TALKGROUP 1

VERSION #1.020

2. TEST

Step 1. Using CONSOLE-1, select the "PRIVATE-CALL" tile and click the Private Call function.

Step 2. Select the unit to be Private Called, in this case RADIO-1. (or select the numeric keypad and enter the Unit ID to be Private Called.)

Step 3. Click the Send button.

Step 4. Answer the Private Call with RADIO-1 and respond to the console.

Step 5. Verify RADIO-2 does not hear the private conversation.

Step 6. After completing the Private Call, return to the normal talkgroup mode.

Pass____ Fail____

4.1.10 Console Priority

1. DESCRIPTION

Console Operator Positions have ultimate control of transmitted audio on an assigned voice channel resource. The Console Position has the capability to take control of an assigned voice channel for a talkgroup call so that the operator's audio overrides any subscriber audio. Console priority is a feature that enables dispatchers to gain immediate access to an assigned voice channel so that a central point of audio control exists.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 1
CONSOLE-1 - TALKGROUP 1

VERSION #1.020

2. TEST

Step 1. Initiate a Talkgroup call from RADIO-1 on TALKGROUP 1. Keep this call in progress until the test has completed.

Step 2. Observe that RADIO-2 receives the call.

Step 3. While the call is in progress, key up CONSOLE-1 on TALKGROUP 1.

Step 4. Observe that RADIO-2 is now receiving audio from CONSOLE-1 on TALKGROUP 1.

Step 5. De-key CONSOLE-1.

Step 6. Verify RADIO-2 now receives RADIO-1 audio.

Step 7. End the TALKGROUP 1 call from RADIO-1.

Pass____ Fail____

4.1.11 Activity Log

1. DESCRIPTION

The Console activity log will show all traffic for the resource assigned to that console to include the time, radio alias, TG, PTT ID and Emergency Call.

The dispatcher has the capability of selecting a logged call within in the "Activity Log Window" for instant transmit on the corresponding logged resource.

This activity log can be logged to a text file for archival purposes.

Note: The log file in the ops will only be seen if you first check Log Activity in Elite Admin application then in folder options uncheck hide hidden system files. The location will be c:\Program Data\MCC7500\MessageMonitorLogs.

SETUP

RADIO-1 – TALKGROUP 1
RADIO-2 – TALKGROUP 2
RADIO-3 – TALKGROUP 3
RADIO-4 – TALKGROUP 4
CONSOLE-1 – TALKGROUP 1, TALKGROUP 2, TALKGROUP 3, TALKGROUP 4

VERSION #1.020

2. TEST

Step 1. On CONSOLE-1 select the "Show Activity Log" button on the tool bar to open the Activity Log Window.

Step 2. Initiate calls on RADIO-1, RADIO-2, RADIO-3 and RADIO-4 to log call information and verify calls are displayed in the activity log window.

Step 3. Select a logged call in the Activity Log Window and verify that the Channel Control Window (CCW) at the top of the Activity log window changes to the corresponding resource. Verify the dispatcher is capable of responding via the instant transmit button.

Step 4. Open the text file created by the Activity Log and verify call traffic has been archived to the document file.

Pass____ Fail____

4.2 MCC 7100/7500 CONVENTIONAL RESOURCES

4.2.1 Console Priority

1. DESCRIPTION

Console Operator Positions have ultimate control of transmitted audio on an assigned resource. The Console Position has the capability to take control of an assigned voice channel for a channel/talkgroup call so that the operator's audio overrides any subscriber audio. Console priority is a feature that enables dispatchers to gain immediate access to an assigned voice channel so that a central point of audio control exists.

SETUP

RADIO-1 - CONVENTIONAL CHANNEL 1
RADIO-2 - CONVENTIONAL CHANNEL 1

CONSOLE-1 - CONVENTIONAL CHANNEL 1

VERSION #1.040

2. TEST

Step 1. Initiate a call from RADIO-1 on CONVENTIONAL CHANNEL 1. Keep this call in progress until the test has completed.

Step 2. Observe that RADIO-2 receives the call.

Step 3. While the call is in progress, key up CONSOLE-1 on CONVENTIONAL CHANNEL 1.

Step 4. Observe that RADIO-2 is now receiving audio from CONSOLE-1 on CONVENTIONAL CHANNEL 1

Step 5. De-key CONSOLE-1.

Step 6. Verify RADIO-2 now receives RADIO-1 audio.

Step 7. End the CONVENTIONAL CHANNEL 1 call from RADIO-1.

Pass____ Fail____

4.2.2 Alert Tones - Conventional Channel

1. DESCRIPTION

Pre-defined alert tones can be transmitted on the selected Radio Resource to subscribers which can alert members of a channel / talkgroup to a particular event or signify to radio users special instructions are to follow. The Console has the ability to send an Alert-Tone signal on selected conventional or talkgroup resources.

SETUP

RADIO-1 - CONVENTIONAL CHANNEL 1
RADIO-2 - CONVENTIONAL CHANNEL 1
CONSOLE-1 - CONVENTIONAL CHANNEL 1

VERSION #1.030

2. TEST

Step 1. Select CONVENTIONAL CHANNEL 1 on CONSOLE-1.

Step 2. Select Alert Tone 1 and depress the Alert Tone button.

Step 3. Verify that RADIO-1 and RADIO-2 hear Alert Tone 1.

Step 4. Repeat Steps 2-3 for Alert Tone 2 and 3.

Pass____ Fail____

4.2.3 Activity Log - Conventional

1. DESCRIPTION

The MCC7100/7500 Console activity log will show all traffic for the resource assigned to that console to include the time, radio alias, Channel, PTT ID and Emergency Call.
The dispatcher has the capability of selecting a logged call within in the "Activity Log Window" for instant transmit on the corresponding logged resource.
This activity log can be logged to a text file for archival purposes.

Note: The log file in the ops will only be seen if you first check Log Activity in Elite Admin application then in folder options uncheck hide hidden system files. The location will be c:\Program Data\MCC7500\MessageMonitorLogs.

SETUP

RADIO-1 – CONVENTIONAL CHANNEL 1
RADIO-2 – CONVENTIONAL CHANNEL 2
RADIO-3 – CONVENTIONAL CHANNEL 3
RADIO-4 – CONVENTIONAL CHANNEL 4

CONSOLE-1 – CONVENTIONAL CHANNEL 1, CONVENTIONAL CHANNEL 2, CONVENTIONAL CHANNEL 3, CONVENTIONAL CHANNEL 4

VERSION #1.060

2. TEST

Step 1. On CONSOLE-1 select the "Show Activity Log" button on the tool bar to open the Activity Log Window.

Step 2. Initiate calls on RADIO-1, RADIO-2, RADIO-3 and RADIO-4 to log call information and verify calls are displayed in the activity log window.

Step 3. Select a logged call in the Activity Log Window and verify that the Channel Control Window (CCW) at the top of the Activity log window changes to the corresponding resource. Verify the dispatcher is capable of responding via the instant transmit button.

Step 4. Open the text file created by the Activity Log and verify call traffic has been archived to the document file.

Pass____ Fail____

4.2.4 ID Stacking

1. DESCRIPTION

During normal call operation radio IDs are displayed in the resource window for a particular resource. These IDs are saved in a "Stack" and can be viewed to determine which radios made the previous calls. The stack size can be up to 10 IDs. This test is applicable to the Digital Conventional feature.

SETUP

RADIO-1 - CONVENTIONAL CHANNEL 1
RADIO-2 - CONVENTIONAL CHANNEL 1
RADIO-3 - CONVENTIONAL CHANNEL 1

CONSOLE-1 - CONVENTIONAL CHANNEL 1

VERSION #1.020

2. TEST

Step 1. At CONSOLE-1 view the CONVENTIONAL CHANNEL 1 Resource Window.

Step 2. Initiate calls from RADIO-1, RADIO-2 then RADIO-3 on CONVENTIONAL CHANNEL 1.

Step 3. Scroll through the stack to see that the radio IDs are displayed in the order received.

Step 4. Repeat steps 1-3 for a sample of the remaining OPs as needed.

Pass____ Fail____

4.3 SIGNOFF CERTIFICATE

By their signatures below, the following witnesses certify they have observed the system Acceptance Test Procedures.

Signatures

WITNESS: _____Date: _____

Please Print Name: _____ _____

Initials:

Please Print Title: _____

WITNESS: _____Date: _____

Please Print Name: _____ _____

Initials:

Please Print Title: _____

WITNESS: _____Date: _____

Please Print Name: _____ _____

Initials:

Please Print Title: _____

SECTION 5

TRAINING

5.1 OVERVIEW

Motorola Solutions understands that successful implementation and use of your communications system depends on effective training. We have developed a training proposal for the City of Valdez to ensure a comprehensive understanding of your proposed system and all user equipment. We are leveraging over 85 years of training experience working with customers just like you to provide recommendations for your consideration. The training proposal detailed in the following pages incorporates customer feedback coupled with a best practices systematic approach to produce effective course delivery and content.

Our commitment to the City of Valdez is to provide unsurpassed services that ensure the equipment operates efficiently for the life of the system. To do so, we directly train your personnel to utilize the system to its maximum potential.

The City of Valdez personnel will gain in-depth understanding of the power of your new system through education and proficient daily use. Our high-quality training focuses on student needs. The training is complemented by detailed documentation and available continuing education programs.

We will collaborate with the City of Valdez to develop a final customized training plan that fits your needs. Our goal is to insure system administrators, technicians and end users are skilled in using your new system.

5.2 TRAINING APPROACH

Our training solutions deliver a combination of online training and field based instructor-led training in classrooms at the City of Valdez locations using operational equipment. Motorola Solutions will employ knowledgeable and experienced instructors to deliver well-designed courseware and integrated lab activities.

Training is based upon several key criteria:

- Course design is driven by an analysis of student needs. It focuses on specific application rather than theory.
- Learning objectives are based upon what students need to accomplish on the job.
- Hands-on lab opportunities using the City of Valdez specific job aids are incorporated to maximize learning and retention.

Our instructors bring invaluable experience and knowledge of customer communication solutions into their training approach. This gives them better insight and understanding into the practical aspects of The City of Valdez manager, technician and end user job functions. Each instructor has the proven ability to communicate with a novice as well as expert personnel.

5.3 PROPOSED COURSES

Motorola Solutions has identified the following course(s) that are necessary to achieve the training goals for the City of Valdez. Course description files for the recommended courses are provided in the matrix below. Class delivery for instructor-led courses in the field will be tailored for your system and features.

Specifically, our proposed training plan addresses the following categories as identified in your request for proposal:

- Console Supervisors.
- Console Dispatch Operators.

Course Title	Target Audience	Sessions	Duration (days)	Location	Date	Participants
MCC7500 Console Operator and Admin **Upgrade Differences** Utilizing the Interactive End User Tool Kit 1 training console (Instructor-led)	Console Supervisors	1 (4-hour session)	4 hours	Valdez, AK	Prior to cutover	2
MCC7500 Operator Course Synopsis: This course provides participants with an introduction to the dispatch console, its basic operation and tailored job aids which will be available for assistance in operation. Through facilitation and hands-on activities, the user learns how to perform common tasks associated with the console operation. **Admin Course Synopsis:** This course provides participants with the knowledge and skills to manage and utilize the MCC 7500 console administrator functions. Through facilitation and hands-on activities, the participant learns how to customize the console screens. **Note:** The operator class is in the first half of the session. The Admin class and Interactive End User Tool Kit will be covered during the second half of the session. **Participants are proficient with CENTRACOM Gold Elite. Therefore, the differences class is a reduction in time from 8 hrs to 2 hrs operator and 2 hours admin.**						

Course Title	Target Audience	Sessions	Duration (days)	Location	Date	Participants
MCC7500 Console Operator Upgrade Differences 1 Training console (Instructor-led)	Dispatch Operators	4 (2-hour sessions)	1 day	Valdez, AK	Prior to cutover	8 (2 per session)
MCC7500 Operator Course Synopsis: This course provides participants with an introduction to the dispatch console, its basic operation and tailored job aids which will be available for assistance in operation. Through facilitation and hands-on activities, the user learns how to perform common tasks associated with the console operation. Note: **Participants are proficient with CENTRACOM Gold Elite. Therefore, the differences class is a reduction in time from 4 hrs to 2 hrs.**						

Please see the following pages for Course Descriptions.

MCC7500 Console Operator

Duration:
4 hours

Delivery Method:
ILT - Instructor-led training

Target Audience:
Dispatch Console Operators, Supervisors, System Administrators, and Support Personnel

Course Synopsis:
This course provides participants with an introduction to the dispatch console, its basic operation and tailored job aids which will be available for assistance in operation. Through facilitation and hands-on activities, the user learns how to perform common tasks associated with the console operation.

Course Objectives:
- Perform basic operational tasks of the dispatch console
- Utilize the provided job aids to perform specific tasks associated with the console
- Understand a high level view of the system configuration
- High-level overview of the customer system configuration
- General console operation
- Proper operating procedures for specific customer features

Recommended Prerequisites:
None

Key Topics:
- Overview
- Communicating with Radios
- Advanced Signaling Features
- Resource Groups
- Working with Configurations
- Working with Aux IOs
- Troubleshooting

MCC7500 Console Supervisor

Duration:
4 hours Operator, plus
4 hours Admin

Delivery Method:
ILT - Instructor-led training

Target Audience:
Dispatch Supervisors and System Administrators

Admin Course Synopsis:
This course provides participants with the knowledge and skills to manage and utilize the MCC7500 console administrator functions. Through facilitation and hands-on activities, the participant learns how to customize the console screens.

Course Objectives:

- Understand the menu items and tool bar icons
- Edit folders, multi-select/patch groups, auxiliary input output groups, windows and toolbars
- Add/delete folders

Recommended Prerequisites:
None

Key Topics:

- Introduction
- Configurations
- Folders and Resource Setup
- Customizing Folders
- Auto Starting the MCC 7500 Dispatch Console
- Editing Preferences
- Configuring the Toolbar
- Setting Up Aux IOs
- Resource Groups

MCC7500 Console Operator

Duration:
4 hours

Delivery Method:
ILT - Instructor-led training

Target Audience:
Dispatch Console Operators, Supervisors, System Administrators, and Support Personnel

Course Synopsis:
This course provides participants with an introduction to the dispatch console, its basic operation and tailored job aids which will be available for assistance in operation. Through facilitation and hands-on activities, the user learns how to perform common tasks associated with the console operation.

Course Objectives:
- Perform basic operational tasks of the dispatch console
- Utilize the provided job aids to perform specific tasks associated with the console
- Understand a high level view of the system configuration
- High-level overview of the customer system configuration
- General console operation
- Proper operating procedures for specific customer features

Recommended Prerequisites:
None

Key Topics:
- Overview
- Communicating with Radios
- Advanced Signaling Features
- Resource Groups
- Working with Configurations
- Working with Aux IOs
- Troubleshooting

SECTION 6

EQUIPMENT LIST

QTY	Nomenclature	Description
1	B1905	MCC 7500 ASTRO 25 SOFTWARE
2	B1933	MOTOROLA VOICE PROCESSOR MODULE
2	CA01642AA	ADD: MCC 7500 BASIC CONSOLE FUNCTIONALITY SW LICENSE
2	CA01644AA	ADD: MCC 7500 /MCC 7100 ADV CONVL OPERATION
2	CA01643AA	ADD: MCC 7500 / MCC 7100 TRUNKING OPERATION
2	CA00147AF	ADD: MCC 7500 SECURE OPERATION
2	CA00182AB	ADD: AES ALGORITHM
2	CA00140AA	ADD: AC LINE CORD, NORTH AMERICAN
2	TT2833	COMPUTER, Z440 WORKSTATION WIN 7 (NON RETURNABLE)
2	T7448	WINDOWS SUPPLEMENTAL FULL CONFIG
4	B1912	MCC SERIES DESKTOP SPEAKER
2	B1914	MCC SERIES DESKTOP GOOSENECK MICROPHONE
4	B1913	MCC SERIES HEADSET JACK
2	DSTWIN6328A	DUAL PEDAL FOOTSWITCH FOR USE WITH MOTOROLA MCC
2	T7885	MCAFEE WINDOWS AV CLIENT
1	CLN1856	2620-24 ETHERNET SWITCH
1	SQM01SUM0205	GGM 8000 GATEWAY
1	CA01616AA	ADD: AC POWER
1	F4543	SITE MANAGER BASIC
1	VA00874	ADD: AUX I-O SERV FW CURR ASTRO REL
3	V592	AAD TERM BLCK & CONN WI
1	F4547	SM IO EXPANSION BASIC
3	V592	AAD TERM BLCK & CONN WI
1	T7038	GCP 8000 SITE CONTROLLER
1	CA00303AA	ADD: QTY (1) SITE CONTROLLER
1	X153AW	ADD: RACK MOUNT HARDWARE
1	CA01136AA	MCC 7500 CONVEN SITE OPER

2	SQM01SUM0205	GGM 8000 GATEWAY
2	CA01616AA	ADD: AC POWER
2	CA02086AA	ADD: HIGH DENSITY ENH CONV GATEWAY
1	TRN7343	SEVEN AND A HALF FOOT RACK
1	DSTSJADP	RACKMOUNT GROUND BAR, 19 IN FOR TSJ AND WPH SERIES
1	B1912	MCC SERIES DESKTOP SPEAKER
1	B1914	MCC SERIES DESKTOP GOOSENECK MICROPHONE
1	B1913	MCC SERIES HEADSET JACK
1	TT2833	COMPUTER, Z440 WORKSTATION WIN 7 (NON RETURNABLE)
1	B1934	MCC 7500 VOICE PROCESSOR MODULE FRU
1	CA00147AF	ADD: MCC 7500 SECURE OPERATION
1	CA00182AB	ADD: AES ALGORITHM
1	CLN1856	2620-24 ETHERNET SWITCH
1	DLN6966	FRU: GCP 8000/GCM 8000/GPB 8000
1	DLN6781	FRU: POWER SUPPLY
1	SQM01SUM0239	MASTER SITE CONFIG UPGRADE
1	CA00996AK	NM/ZC LICENSE KEY 7.13
1	CA00997AK	UCS LICENSE KEY 7.13
1	CA01225AB	MCC7500 / MCC7100 CONSOLE LICENSES QTY 5

SECTION 7

PRICING

7.1 MCC7500 DISPATCH CONSOLE SYSTEM UPGRADE

Motorola Solutions' pricing is based on the equipment list and services solution for the Valdez Dispatch Console System including two MCC 7500 Dispatch Consoles and conventional controller and gateways, offering connectivity between the Valdez dispatch operators and field personnel over the ALMR radio system and the local conventional system.

Description	Price
Equipment	$158,680
Equipment Discount	($27,744)
Discounted Equipment Subtotal	**$130,936**
System Integration (SI), Services & Freight	$131,278
Total Customer Sales Price	**$262,214**
10% Contract Execution Incentive*	($26,221)
Total Customer Sales Price w/ Incentive	**$235,993**

* Incentive is based on contract signature by September 20, 2017, and approval to ship before December 15, 2017.

7.2 OPTIONAL BACKUP CONTROL STATION REPLACMENT

Motorola Solutions' pricing is provided for two APX7500 FDMA 7/800 band consolettes to replace the existing control stations. The existing antenna system will be reused if this option is included. Pricing assumes this option is included as part of the MCC7500 project and installed at the same time.

Description	Price
Equipment	$27,014
Equipment Discount	($6,644)
Discounted Equipment Subtotal	**$20,370**
System Integration (SI), Services & Freight	$4,342
Total Customer Sales Price	**$24,711**
10% Contract Execution Incentive*	($2,471)
Total Customer Sales Price w/ Incentive	**$22,240**

* Incentive is based on contract signature by September 20, 2017, and approval to ship before December 15, 2017.

7.3 CONSOLE FURNITURE UPGRADE

7.3.1 Option 1: Synergy 3 Full Lift Console Furniture

Motorola Solutions' pricing is based on the equipment list and services solution for the Valdez Dispatch Console Furniture for two operator positions.

Description	Price
Equipment	$57,126
Equipment Discount	($7,712)
Discounted Equipment Subtotal	**$49,414**
System Integration (SI) & Freight	$19,576
Total Customer Sales Price	**$68,990**

7.3.2 Option 2: Mercury Dispatch Console Furniture

Motorola Solutions' pricing is based on the equipment list and services solution for the Valdez Dispatch Console Furniture for two operator positions.

Description	Price
Equipment	$56,250
Equipment Discount	($7,594)
Discounted Equipment Subtotal	**$48,656**
System Integration (SI) & Freight	$19,576
Total Customer Sales Price	**$68,232**

7.4 OPTIONAL CONSOLE OPERATOR TRAINING

Motorola Solutions' pricing is provided for training for two dispatch supervisors and eight additional dispatch operators. Pricing includes training materials and travel costs to bring training on-site

Description	Price
Console Operator and Supervisor Training	$9,772

7.5 PAYMENT TERMS

Except for a payment that is due on the Effective Date, Customer will make payments to Motorola Solutions within thirty (30) days after the date of each invoice. Customer will make payments when due in the form of a check, cashier's check, or wire transfer drawn on a U.S. financial institution and in accordance with the following milestones.

1. 20% of the System Total due upon contract execution.
2. 45% of the System Total due upon shipment of equipment.
3. 25% of the System Total due upon installation of equipment.
4. 10% of the System Total due upon Final Acceptance.

Motorola Solutions reserves the right to make partial shipments of equipment and to request payment upon shipment of such equipment. In addition, Motorola Solutions reserves the right to invoice for installations or civil work completed on a site-by-site basis, when applicable.

SECTION 8

TERMS AND CONDITIONS

8.1 TERMS AND CONDITIONS

This Proposal is based upon the master purchasing agreement executed by the Houston-Galveston Area Council of Governments ("H-GAC") and Motorola Solutions, Inc., for the purchase of Radio Communication/Emergency Response & Mobile Interoperability Equipment, Contract No. RA05-15, dated May 1, 2015 (the "H-GAC Contract"), which is incorporated herein in its entirety by this reference, and the enclosed Communications System Agreement which serves as the "End User Agreement" as referenced in Section 6 of the H-GAC Contract. The City of Valdez may accept the proposal by delivering to Motorola a signed copy of the Motorola Communications System Agreement or a signed PO that incorporates by reference this proposal.

8.2 COMMUNICATIONS SYSTEM AGREEMENT

Communication System Agreement is included in pages that follow.

Communications System Agreement

Motorola Solutions, Inc. ("Motorola") and _____ ("Customer") enter into this "Agreement," pursuant to which Customer will purchase and Motorola will sell the System, as described below. Motorola and Customer may be referred to individually as a "Party" and collectively as the "Parties." For good and valuable consideration, the Parties agree as follows:

Section 1 EXHIBITS

The exhibits listed below are incorporated into and made a part of this Agreement. In interpreting this Agreement and resolving any ambiguities, the main body of this Agreement takes precedence over the exhibits and any inconsistency between Exhibits A through D will be resolved in their listed order.

Exhibit A	Motorola "Software License Agreement"
Exhibit B	"Payment Schedule"
Exhibit C	Motorola Proposal dated August 11, 2017, including the "Technical and Implementation Documents" such as (if applicable)
C-1	"System Description"
C-2	"Equipment List"
C-3	"Statement of Work"
C-4	"Acceptance Test Plan" or "ATP"
C-5	"Performance Schedule"
Exhibit D	"Service Terms and Conditions" (for maintenance and support services, if applicable)

Section 2 DEFINITIONS

Capitalized terms used in this Agreement have the following meanings:

2.1. "Acceptance Tests" means those tests described in the Acceptance Test Plan.

2.2. "Administrative User Credentials" means an account that has total access over the operating system, files, end user accounts and passwords at either the System level or box level. Customer's personnel with access to the Administrative User Credentials may be referred to as the Administrative User.

2.3. "Beneficial Use" means when Customer first uses the System or a Subsystem for operational purposes (excluding training or testing).

2.4. "Confidential Information" means any information that is disclosed in written, graphic, verbal, or machine-recognizable form, and is marked or identified at the time of disclosure as being confidential or its equivalent; or if the information is in verbal form, it is identified as confidential at the time of disclosure and is confirmed in writing within thirty (30) days of the disclosure. Confidential Information does not include any information that: is or becomes publicly known through no wrongful act of the receiving Party; is already known to the receiving Party without restriction when it is disclosed; is or becomes, rightfully and without breach of this Agreement, in the receiving Party's possession without any obligation restricting disclosure; is independently developed by the receiving Party without breach of this Agreement; or is explicitly approved for release by written authorization of the disclosing Party.

2.5. "Contract Price" means the price for the System, excluding applicable sales or similar taxes and freight charges.

2.6. "Effective Date" means that date upon which the last Party executes this Agreement.

2.7. "Equipment" means the equipment that Customer purchases from Motorola under this Agreement.

2.8. “Force Majeure” means an event, circumstance, or act of a third party that is beyond a Party’s reasonable control (e.g., an act of God, an act of the public enemy, an act of a government entity, strikes or other labor disturbances, hurricanes, earthquakes, fires, floods, epidemics, embargoes, war, and riots).

2.9. “Infringement Claim” means a third party claim alleging that the Equipment manufactured or branded by Motorola or the Motorola Software directly infringes a United States patent or copyright.

2.10. “Motorola Software” means Software that Motorola or its affiliated company owns.

2.11. “Non-Motorola Software” means Software that another party owns.

2.12. “Open Source Software” means software with either freely obtainable source code, license for modification, or permission for free distribution.

2.13. “Proprietary Rights” means the patents, patent applications, inventions, copyrights, trade secrets, trademarks, trade names, mask works, know-how, and other intellectual property rights in and to the Equipment and Software, including those created or produced by Motorola under this Agreement and any corrections, bug fixes, enhancements, updates or modifications to or derivative works from the Software whether made by Motorola or another party.

2.14. “Software” means the Motorola Software and Non-Motorola Software, in object code format that is furnished with the System or Equipment.

2.15. “Specifications” means the functionality and performance requirements that are described in the Technical and Implementation Documents.

2.16. “Subsystem” means a major part of the System that performs specific functions or operations. Subsystems are described in the Technical and Implementation Documents.

2.17. “System” means the Equipment, Software, and incidental hardware and materials that are combined together into an integrated system; the System is described in the Technical and Implementation Documents.

2.18. “System Acceptance” means the Acceptance Tests have been successfully completed.

2.19. “Warranty Period” means one (1) year from the date of System Acceptance or Beneficial Use, whichever occurs first. For non-system purchase and sale transactions (such as the purchase and sale of products only or products plus incidental services), the “Warranty Period” means one (1) year from the date of shipment.

Section 3 SCOPE OF AGREEMENT AND TERM

3.1. SCOPE OF WORK. Motorola will provide, install and test the System, and perform its other contractual responsibilities, all in accordance with this Agreement. Customer will perform its contractual responsibilities in accordance with this Agreement.

3.2. CHANGE ORDERS. Either Party may request changes within the general scope of this Agreement. Neither Party is obligated to perform requested changes unless both Parties execute a written change order.

3.3. TERM. Unless terminated in accordance with other provisions of this Agreement or extended by mutual agreement of the Parties, the term of this Agreement begins on the Effective Date and continues until the date of expiration of (i) the Warranty Period or (ii) the rights under Section 3.4 below, whichever occurs last.

3.4. ADDITIONAL EQUIPMENT OR SOFTWARE. For three (3) years after the Effective Date, Customer may order additional Equipment or Software if it is then available and related services. Each order must refer to this Agreement and must specify the pricing and delivery terms. Notwithstanding any additional or contrary terms in the order, the applicable provisions of this Agreement (except for pricing, delivery, passage of title and risk of loss to Equipment, warranty commencement, and payment terms) will govern the purchase and sale of the additional Equipment or Software. Title and risk of loss to additional Equipment will pass at shipment, and payment is due within thirty (30) days after the invoice date. Motorola will send Customer an invoice as the additional Equipment is shipped or Software is licensed. Alternatively, Customer may register with and place orders through Motorola Online ("MOL"), and this Agreement will be the "Underlying Agreement" for those MOL transactions rather than the MOL On-Line Terms and Conditions of Sale. MOL information may be found at https://businessonline.motorolasolutions.com and the MOL telephone number is (800) 814-0601.

3.5. MAINTENANCE SERVICE. If maintenance and support services are included in the Proposal, Motorola will provide those services for the Equipment and Motorola Software during the Warranty Period, in addition to warranty services. Those maintenance and support services are included in the Contract Price. If Customer wishes to purchase additional maintenance and support services either during the Warranty Period or after the Warranty Period, the description of and pricing for the services will be set forth in a separate document. Software upgrade services have additional terms and conditions, which will be provided upon request. Unless otherwise agreed by the Parties in writing, the terms and conditions applicable to the maintenance, support or software services will be Motorola's standard Service Terms and Conditions, together with the appropriate statements of work.

3.6. MOTOROLA SOFTWARE. Any Motorola Software, including subsequent releases, is licensed to Customer solely in accordance with the Software License Agreement. Customer hereby accepts and agrees to abide by all of the terms and restrictions of the Software License Agreement.

3.7. NON-MOTOROLA SOFTWARE. Any Non-Motorola Software is licensed to Customer in accordance with the standard license, terms, and restrictions of the copyright owner on the Effective Date unless the copyright owner has granted to Motorola the right to sublicense the Non-Motorola Software pursuant to the Software License Agreement, in which case it applies and the copyright owner will have all of Licensor's rights and protections under the Software License Agreement. Non-Motorola Software may include Open Source Software. All Open Source Software is licensed to Customer in accordance with, and Customer agrees to abide by, the provisions of the standard license of the copyright owner and not the Software License Agreement.

3.8. SUBSTITUTIONS. At no additional cost to Customer, Motorola may substitute any Equipment, Software, or services to be provided by Motorola, if the substitute meets or exceeds the Specifications and is of equivalent or better quality to the Customer. Any substitution will be reflected in a change order.

Section 4 PERFORMANCE SCHEDULE

The Parties will perform their respective responsibilities in accordance with the Performance Schedule. By executing this Agreement, Customer authorizes Motorola to proceed with contract performance.

Section 5 CONTRACT PRICE, PAYMENT AND INVOICING

5.1. CONTRACT PRICE. The Contract Price in U.S. dollars is $_____. Motorola has priced the services, Software, and Equipment as an integrated system, and a reduction in product quantities or services may affect the overall Contract Price, including any discounts.

5.2. INVOICING AND PAYMENT. Motorola will submit invoices to Customer according to the Payment Schedule. Customer will make payments to Motorola within thirty (30) days after the date of each invoice in the form of a wire transfer, check, or cashier's check from a U.S. financial institution. Overdue invoices will bear simple interest at the maximum allowable rate. For reference, the Federal Tax Identification Number for Motorola Solutions, Inc. is 36-1115800.

5.3. FREIGHT, TITLE, AND RISK OF LOSS. Motorola will pre-pay and add all freight charges to the invoices. Title and risk of loss to the Equipment will pass to Customer upon delivery to Customer. Title to Software will not pass to Customer at any time. Motorola will pack and ship all Equipment in accordance with good commercial practices. Customer has no duty to accept Equipment that does not conform to the order or that is damaged in transit, provided that Customer rejects the non-conforming or damaged Equipment and so notifies Motorola promptly (i.e., within five days) after the non-conforming or damaged Equipment is delivered to Customer.

5.4. INVOICING AND SHIPPING ADDRESSES. Invoices will be sent to the Customer at the following address: _____
_____

The address which is the ultimate destination where the Equipment will be delivered to Customer is:
_____
_____

The Equipment will be shipped to the Customer at the following address (insert if this information is known): _____
_____

Customer may change this information by giving written notice to Motorola.

Section 6 SITES AND SITE CONDITIONS

6.1. ACCESS TO SITES. Customer will provide a designated project manager; all necessary land use, construction and building permits, zoning variances, licenses, and any other approvals that are necessary to develop or use the sites and mounting locations; and access to the work sites or vehicles identified in the Technical and Implementation Documents as reasonably requested by Motorola so that it may perform its duties in accordance with the Performance Schedule and Statement of Work. Motorola may assist Customer in the local building permit process.

6.2. SITE CONDITIONS. Customer will ensure that all work sites it provides will be safe, secure, and in compliance with all applicable industry and OSHA standards. To the extent applicable and unless the Statement of Work states to the contrary, Customer will ensure that these work sites have adequate: physical space; air conditioning and other environmental conditions; adequate and appropriate electrical power outlets, distribution, equipment and connections; and adequate telephone or other communication lines (including modem access and adequate interfacing networking capabilities), all for the installation, use and maintenance of the System. Before installing the Equipment or Software at a work site, Motorola may inspect the work site and advise Customer of any apparent deficiencies or non-conformities with the requirements of this Section. This Agreement is predicated upon normal soil conditions as defined by the version of E.I.A. standard RS-222 in effect on the Effective Date.

6.3. SITE ISSUES. If a Party determines that the sites identified in the Technical and Implementation Documents are no longer available or desired, or if subsurface, structural, adverse environmental or latent conditions at any site differ from those indicated in the Technical and Implementation Documents, the Parties will promptly investigate the conditions and will select replacement sites or adjust the installation plans and Specifications as necessary. If change in sites or adjustment to the installation plans and Specifications causes a change in the cost or time to perform, the Parties will equitably amend the Contract Price, Performance Schedule, or both, by a change order.

Section 7 TRAINING

Any training to be provided by Motorola to Customer will be described in the Proposal or applicable Statement of Work.

Section 8 SYSTEM ACCEPTANCE

8.1. COMMENCEMENT OF ACCEPTANCE TESTING. Motorola will provide to Customer at least ten (10) days notice before the Acceptance Tests commence. System testing will occur only in accordance with the Acceptance Test Plan.

8.2. SYSTEM ACCEPTANCE. System Acceptance will occur upon successful completion of the Acceptance Tests. Upon System Acceptance, the Parties will memorialize this event by promptly executing a System Acceptance Certificate. If the Acceptance Test Plan includes separate tests for individual Subsystems or phases of the System, acceptance of the individual Subsystem or phase will occur upon the successful completion of the Acceptance Tests for the Subsystem or phase, and the Parties will promptly execute an acceptance certificate for the Subsystem or phase. If Customer believes the System has failed the completed Acceptance Tests, Customer will provide to Motorola a written notice that includes the specific details of the failure. If Customer does not provide to Motorola a failure notice within thirty (30) days after completion of the Acceptance Tests, System Acceptance will be deemed to have occurred as of the completion of the Acceptance Tests. Minor omissions or variances in the System that do not materially impair the operation of the System will not postpone System Acceptance or Subsystem acceptance, but will be corrected according to a mutually agreed punch list schedule.

8.3. BENEFICIAL USE. Motorola's ability to perform its implementation and testing responsibilities may be impeded if Customer begins using the System before System Acceptance. Therefore, Customer will not commence Beneficial Use before System Acceptance without Motorola's prior written authorization, which will not be unreasonably withheld. Motorola is not responsible for System performance deficiencies that occur during unauthorized Beneficial Use. Upon commencement of Beneficial Use, Customer assumes responsibility for the use and operation of the System.

8.4 FINAL PROJECT ACCEPTANCE. Final Project Acceptance will occur after System Acceptance when all deliverables and other work have been completed. When Final Project Acceptance occurs, the Parties will promptly memorialize this final event by means of a Final Project Acceptance Certificate.

Section 9 REPRESENTATIONS AND WARRANTIES

9.1. SYSTEM FUNCTIONALITY. Motorola represents that the System will perform in accordance with the Specifications in all material respects. Upon System Acceptance or Beneficial Use, whichever occurs first, this System functionality representation is fulfilled. Motorola is not responsible for System performance deficiencies that are caused by ancillary equipment not furnished by Motorola which is attached to or used in connection with the System or for reasons or parties beyond Motorola's control.

9.2. EQUIPMENT WARRANTY. During the Warranty Period, Motorola warrants that the Equipment under normal use and service will be free from material defects in materials and workmanship. If System Acceptance is delayed beyond six (6) months after shipment of the Equipment by events or causes within Customer's control, this warranty expires eighteen (18) months after the shipment of the Equipment.

9.3. SOFTWARE WARRANTY. Unless otherwise stated in the Software License Agreement, during the Warranty Period, Motorola warrants the Software in accordance with the terms of the Software License Agreement and the provisions of this Section 9 that are applicable to the Software. If System Acceptance is delayed beyond six (6) months after shipment of the Software by events or causes within Customer's control, this warranty expires eighteen (18) months after the shipment of the Software.

9.4. EXCLUSIONS TO EQUIPMENT AND MOTOROLA SOFTWARE WARRANTIES. These warranties do not apply to: (i) defects or damage resulting from: use of the Equipment or Software in other than its normal, customary, and authorized manner; accident, liquids, neglect, or acts of God; testing, maintenance, disassembly, repair, installation, alteration, modification, or adjustment not provided or authorized in writing by Motorola; Customer's failure to comply with all applicable industry and OSHA standards; (ii) breakage of or damage to antennas unless caused directly by defects in material or workmanship; (iii) Equipment that has had the serial number removed or made illegible; (iv) batteries

(because they carry their own separate limited warranty) or consumables; (v) freight costs to ship Equipment to the repair depot; (vi) scratches or other cosmetic damage to Equipment surfaces that does not affect the operation of the Equipment; and (vii) normal or customary wear and tear.

9.5. WARRANTY CLAIMS. To assert a warranty claim, Customer must notify Motorola in writing of the claim before the expiration of the Warranty Period. Upon receipt of this notice, Motorola will investigate the warranty claim. If this investigation confirms a valid warranty claim, Motorola will (at its option and at no additional charge to Customer) repair the defective Equipment or Software, replace it with the same or equivalent product, or refund the price of the defective Equipment or Software. That action will be the full extent of Motorola's liability for the warranty claim. Repaired or replaced product is warranted for the balance of the original applicable warranty period. All replaced products or parts will become the property of Motorola.

9.6. ORIGINAL END USER IS COVERED. These express limited warranties are extended by Motorola to the original user purchasing the System for commercial, industrial, or governmental use only, and are not assignable or transferable.

9.7. DISCLAIMER OF OTHER WARRANTIES. THESE WARRANTIES ARE THE COMPLETE WARRANTIES FOR THE EQUIPMENT AND SOFTWARE PROVIDED UNDER THIS AGREEMENT AND ARE GIVEN IN LIEU OF ALL OTHER WARRANTIES. MOTOROLA DISCLAIMS ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Section 10 DELAYS

10.1. FORCE MAJEURE. Neither Party will be liable for its non-performance or delayed performance if caused by a Force Majeure. A Party that becomes aware of a Force Majeure that will significantly delay performance will notify the other Party promptly after it discovers the Force Majeure. If a Force Majeure occurs, the Parties will execute a change order to extend the Performance Schedule for a time period that is reasonable under the circumstances.

10.2. PERFORMANCE SCHEDULE DELAYS CAUSED BY CUSTOMER. If Customer (including its other contractors) delays the Performance Schedule, the Parties will execute a change order to extend the Performance Schedule and, if requested, compensate Motorola for all reasonable charges incurred because of the delay. Delay charges may include costs incurred by Motorola or its subcontractors for additional freight, warehousing and handling of Equipment; extension of the warranties; travel; suspending and re-mobilizing the work; additional engineering, project management, and standby time calculated at then current rates; and preparing and implementing an alternative implementation plan.

Section 11 DISPUTES

The Parties will use the following procedure to address any dispute arising under this Agreement (a "Dispute").

11.1. GOVERNING LAW. This Agreement will be governed by and construed in accordance with the laws of the State in which the System is installed.

11.2. NEGOTIATION. Either Party may initiate the Dispute resolution procedures by sending a notice of Dispute ("Notice of Dispute"). The Parties will attempt to resolve the Dispute promptly through good faith negotiations, including timely escalation of the Dispute to executives who have authority to settle the Dispute and who are at a higher level of management than the persons with direct responsibility for the matter and direct communication between the executives. If the Dispute has not been resolved within ten (10) days from the Notice of Dispute, the Parties will proceed to mediation.

11.3 MEDIATION. The Parties will choose an independent mediator within thirty (30) days of a notice to mediate from either Party ("Notice of Mediation"). A Party may not unreasonably withhold consent to

the mediator selection. If the Parties are unable to agree upon a mediator, either Party may request that American Arbitration Association nominate a mediator. Each Party will bear its own costs of mediation, but the Parties will share the cost of the mediator equally. Each Party will participate in the mediation in good faith and will be represented at the mediation by an executive with authority to settle the Dispute.

11.4. LITIGATION, VENUE AND JURISDICTION. If a Dispute remains unresolved for sixty (60) days after the Notice of Mediation, either Party may submit the Dispute to a court of competent jurisdiction in the state in which the System is installed. Each Party agrees to submit to the exclusive jurisdiction of the courts in such state over any claim or matter arising under or in connection with this Agreement.

11.5. CONFIDENTIALITY. All communications pursuant to subsections 11.2 and 11.3 will be treated as compromise and settlement negotiations for purposes of applicable rules of evidence and any additional confidentiality protections provided by applicable law. The use of these Dispute resolution procedures will not be construed under the doctrines of laches, waiver or estoppel to affect adversely the rights of either Party.

Section 12 DEFAULT AND TERMINATION

12.1 DEFAULT BY A PARTY. If either Party fails to perform a material obligation under this Agreement, the other Party may consider the non-performing Party to be in default (unless a Force Majeure causes the failure) and may assert a default claim by giving the non-performing Party a written and detailed notice of default. Except for a default by Customer for failing to pay any amount when due under this Agreement which must be cured immediately, the defaulting Party will have thirty (30) days after receipt of the notice of default to either cure the default or, if the default is not curable within thirty (30) days, provide a written cure plan that is reasonably acceptable to the other Party. The defaulting Party will begin implementing the cure plan immediately after receipt of notice by the other Party that it approves the plan.

12.2. FAILURE TO CURE. If a defaulting Party fails to cure the default as provided above in Section 12.1, unless otherwise agreed in writing, the non-defaulting Party may terminate any unfulfilled portion of this Agreement. In the event of termination for default, the defaulting Party will promptly return to the non-defaulting Party any of its Confidential Information. If Customer is the non-defaulting Party, terminates this Agreement as permitted by this Section, and completes the System through a third party, Customer may as its exclusive remedy recover from Motorola reasonable costs incurred to complete the System to a capability not exceeding that specified in this Agreement less the unpaid portion of the Contract Price. Customer will mitigate damages and provide Motorola with detailed invoices substantiating the charges.

12.3. OTHER TERMINATIONS. If Customer terminates this Agreement other than for default but pursuant to a legal or contractual right, then Customer will pay Motorola for all Equipment and Software delivered and all services performed through the effective date of the termination.

Section 13 INDEMNIFICATION

13.1. GENERAL INDEMNITY BY MOTOROLA. Motorola will indemnify and hold Customer harmless from any and all liability, expense, judgment, suit, cause of action, or demand for personal injury, death, or direct damage to tangible property which may accrue against Customer to the extent it is caused by the negligence of Motorola, its subcontractors, or their employees or agents, while performing their duties under this Agreement, if Customer gives Motorola prompt, written notice of any the claim or suit. Customer will cooperate with Motorola in its defense or settlement of the claim or suit. This section sets forth the full extent of Motorola's general indemnification of Customer from liabilities that are in any way related to Motorola's performance under this Agreement.

13.2. GENERAL INDEMNITY BY CUSTOMER. Customer will indemnify and hold Motorola harmless from any and all liability, expense, judgment, suit, cause of action, or demand for personal injury, death, or direct damage to tangible property which may accrue against Motorola to the extent it is caused by the negligence of Customer, its other contractors, or their employees or agents, while performing their duties

under this Agreement, if Motorola gives Customer prompt, written notice of any the claim or suit. Motorola will cooperate with Customer in its defense or settlement of the claim or suit. This section sets forth the full extent of Customer's general indemnification of Motorola from liabilities that are in any way related to Customer's performance under this Agreement.

13.3. PATENT AND COPYRIGHT INFRINGEMENT.

13.3.1. Motorola will defend at its expense any suit brought by a third-party claim against Customer to the extent it is based on an Infringement Claim. Motorola's duties to defend and indemnify are conditioned upon: Customer promptly notifying Motorola in writing of the Infringement Claim; Motorola having sole control of the defense of the suit and all negotiations for its settlement or compromise; and Customer providing to Motorola cooperation and, if requested by Motorola, reasonable assistance in the defense of the Infringement Claim. In addition to Motorola's obligation to defend, and subject to the same conditions, Motorola will pay all damages finally awarded against Customer by a court of competent jurisdiction for an Infringement Claim or agreed to, in writing, by Motorola in settlement of an Infringement Claim.

13.3.2. If an Infringement Claim occurs, or in Motorola's opinion is likely to occur, Motorola may at its option and expense: (a) procure for Customer the right to continue using the allegedly infringing product; (b) replace or modify the product so that it becomes non-infringing while providing functionally equivalent performance; or (c) accept the return of the product and grant Customer a credit for the product, less a reasonable charge for depreciation. The depreciation amount will be calculated based upon generally accepted accounting standards.

13.3.3. Motorola will have no duty to defend or indemnify for any Infringement Claim that is based upon: (a) the combination of the product with any software, apparatus or device not furnished by Motorola; (b) the use of ancillary equipment or software not furnished by Motorola and that is attached to or used in connection with the product; (c) the product is designed or manufactured in accordance with Customer's designs, specifications, guidelines or instructions, if the alleged infringement would not have occurred without such designs, specifications, guidelines or instructions; (d) a modification of the product by a party other than Motorola; (e) use of the product in a manner for which it was not designed or that is inconsistent with the terms of this Agreement; or (f) the failure by Customer to install an enhancement release to the Software that is intended to correct the claimed infringement. In no event will Motorola's liability resulting from its indemnity obligation to Customer extend in any way to royalties payable on a per use basis or the Customer's revenues, or any royalty basis other than a reasonable royalty based upon revenue derived by Motorola from Customer from sales or license of the infringing product.

13.3.4. This Section 13 provides Customer's sole and exclusive remedies and Motorola's entire liability in the event of an Infringement Claim. Customer has no right to recover and Motorola has no obligation to provide any other or further remedies, whether under another provision of this Agreement or any other legal theory or principle, in connection with an Infringement Claim.

Section 14 LIMITATION OF LIABILITY

Except for personal injury or death, Motorola's total liability, regardless of the cause of action or theory of liability, will be limited to the direct damages recoverable under law, but not to exceed the price of the Equipment, Software, or services with respect to which losses or damages are claimed. ALTHOUGH THE PARTIES ACKNOWLEDGE THE POSSIBILITY OF SUCH LOSSES OR DAMAGES, THEY AGREE THAT MOTOROLA WILL NOT BE LIABLE FOR ANY COMMERCIAL LOSS; INCONVENIENCE; LOSS OF USE, TIME, DATA, GOOD WILL, REVENUES, PROFITS OR SAVINGS; OR OTHER SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES IN ANY WAY RELATED TO OR ARISING FROM THIS AGREEMENT, THE SALE OR USE OF THE EQUIPMENT OR SOFTWARE, OR THE PERFORMANCE OF SERVICES BY MOTOROLA PURSUANT TO THIS AGREEMENT. This limitation of liability provision survives the expiration or termination of the Agreement and applies notwithstanding any contrary provision.

Section 15 CONFIDENTIALITY AND PROPRIETARY RIGHTS

15.1. CONFIDENTIAL INFORMATION. During the term of this Agreement, the Parties may provide each other with Confidential Information. Subject to the requirements of any applicable public records law, each Party will: maintain the confidentiality of the other Party's Confidential Information and not disclose it to any third party, except as authorized by the disclosing Party in writing or as required by a court of competent jurisdiction; restrict disclosure of the Confidential Information to its employees who have a "need to know" and not copy or reproduce the Confidential Information; take necessary and appropriate precautions to guard the confidentiality of the Confidential Information, including informing its employees who handle the Confidential Information that it is confidential and is not to be disclosed to others, but these precautions will be at least the same degree of care that the receiving Party applies to its own confidential information and will not be less than reasonable care; and use the Confidential Information only in furtherance of the performance of this Agreement. Confidential Information is and will at all times remain the property of the disclosing Party, and no grant of any proprietary rights in the Confidential Information is given or intended, including any express or implied license, other than the limited right of the recipient to use the Confidential Information in the manner and to the extent permitted by this Agreement.

15.2. PRESERVATION OF MOTOROLA'S PROPRIETARY RIGHTS. Motorola, the third party manufacturer of any Equipment, and the copyright owner of any Non-Motorola Software own and retain all of their respective Proprietary Rights in the Equipment and Software, and nothing in this Agreement is intended to restrict their Proprietary Rights. All intellectual property developed, originated, or prepared by Motorola in connection with providing to Customer the Equipment, Software, or related services remain vested exclusively in Motorola, and this Agreement does not grant to Customer any shared development rights of intellectual property. Except as explicitly provided in the Software License Agreement, Motorola does not grant to Customer, either directly or by implication, estoppel, or otherwise, any right, title or interest in Motorola's Proprietary Rights. Customer will not modify, disassemble, peel components, decompile, otherwise reverse engineer or attempt to reverse engineer, derive source code or create derivative works from, adapt, translate, merge with other software, reproduce, distribute, sublicense, sell or export the Software, or permit or encourage any third party to do so. The preceding sentence does not apply to Open Source Software which is governed by the standard license of the copyright owner.

Section 16 GENERAL

16.1. TAXES. The Contract Price does not include any excise, sales, lease, use, property, or other taxes, assessments or duties, all of which will be paid by Customer except as exempt by law. If Motorola is required to pay any of these taxes, Motorola will send an invoice to Customer and Customer will pay to Motorola the amount of the taxes (including any interest and penalties) within thirty (30) days after the invoice date. Customer will be solely responsible for reporting the Equipment for personal property tax purposes, and Motorola will be solely responsible for reporting taxes on its income or net worth.

16.2. ASSIGNABILITY AND SUBCONTRACTING. Except as provided herein, neither Party may assign this Agreement or any of its rights or obligations hereunder without the prior written consent of the other Party, which consent will not be unreasonably withheld. Any attempted assignment, delegation, or transfer without the necessary consent will be void. Notwithstanding the foregoing, Motorola may assign without the prior consent of Customer this Agreement to any of its affiliates or as part of a major corporate reorganization or restructuring, or its right to receive payment. Motorola may subcontract any of the work, but subcontracting will not relieve Motorola of its duties under this Agreement.

16.3 WAIVER. Failure or delay by either Party to exercise a right or power under this Agreement will not be a waiver of the right or power. For a waiver of a right or power to be effective, it must be in a writing signed by the waiving Party. An effective waiver of a right or power will not be construed as either a future or continuing waiver of that same right or power, or the waiver of any other right or power.

16.4. SEVERABILITY. If a court having jurisdiction finds any part of this Agreement to be invalid or unenforceable, that part will be severed and the remainder will continue in full force and effect.

16.5. INDEPENDENT CONTRACTORS. Each Party will perform its duties under this Agreement as an independent contractor. The Parties and their personnel will not be considered to be employees or agents of the other Party. Nothing in this Agreement will be interpreted as granting either Party the right or authority to make commitments of any kind for the other. This Agreement will not constitute, create, or be interpreted as a joint venture, partnership or formal business organization of any kind.

16.6. HEADINGS AND SECTION REFERENCES. The section headings in this Agreement are inserted only for convenience and are not to be construed as part of this Agreement or as a limitation of the scope of the particular section to which the heading refers. This Agreement will be fairly interpreted in accordance with its terms and conditions and not for or against either Party.

16.7. ENTIRE AGREEMENT. This Agreement, including all Exhibits, constitutes the entire agreement of the Parties regarding the subject matter of the Agreement and supersedes all previous agreements, proposals, and understandings, whether written or oral, relating to this subject matter. This Agreement may be executed in multiple counterparts, each of which shall be an original and all of which shall constitute one and the same instrument. A facsimile copy or computer image of a signature shall be treated as and shall have the same effect as an original signature. In addition, a true and correct facsimile copy or computer image of this Agreement shall be treated as and shall have the same effect as an original signed copy of this document. This Agreement may be amended or modified only by a written instrument signed by authorized representatives of both Parties. The preprinted terms and conditions found on any Customer purchase order, acknowledgment or other form will not be considered an amendment or modification of this Agreement, even if a representative of each Party signs that document.

16.8. NOTICES. Notices required under this Agreement to be given by one Party to the other must be in writing and either personally delivered or sent to the address shown below by certified mail, return receipt requested and postage prepaid (or by a recognized courier service, such as Federal Express or UPS), or by facsimile with correct answerback received, and will be effective upon receipt:

Motorola Solutions, Inc.	Customer
Attn: _____	Attn: _____
_____	_____
_____	_____

16.9. COMPLIANCE WITH APPLICABLE LAWS. Each Party will comply with all applicable federal, state, and local laws, regulations and rules concerning the performance of this Agreement or use of the System. Customer will obtain and comply with all Federal Communications Commission ("FCC") licenses and authorizations required for the installation, operation and use of the System before the scheduled installation of the Equipment. Although Motorola might assist Customer in the preparation of its FCC license applications, neither Motorola nor any of its employees is an agent or representative of Customer in FCC matters.

16.10. AUTHORITY TO EXECUTE AGREEMENT. Each Party represents that it has obtained all necessary approvals, consents and authorizations to enter into this Agreement and to perform its duties under this Agreement; the person executing this Agreement on its behalf has the authority to do so; upon execution and delivery of this Agreement by the Parties, it is a valid and binding contract, enforceable in accordance with its terms; and the execution, delivery, and performance of this Agreement does not violate any bylaw, charter, regulation, law or any other governing authority of the Party.

16.11. ADMINISTRATOR LEVEL ACCOUNT ACCESS. Motorola will provide Customer with Administrative User Credentials. Customer agrees to only grant Administrative User Credentials to those personnel with the training or experience to correctly use the access. Customer is responsible for protecting Administrative User Credentials from disclosure and maintaining Credential validity by, among other things, updating passwords when required. Customer may be asked to provide valid Administrative User Credentials when in contact with Motorola System support. Customer understands that changes

made as the Administrative User can significantly impact the performance of the System. Customer agrees that it will be solely responsible for any negative impact on the System or its users by any such changes. System issues occurring as a result of changes made by an Administrative User may impact Motorola's ability to perform its obligations under the Agreement or its Maintenance and Support Agreement. In such cases, a revision to the appropriate provisions of the Agreement, including the Statement of Work, may be necessary. To the extent Motorola provides assistance to correct any issues caused by or arising out of the use of or failure to maintain Administrative User Credentials, Motorola will be entitled to bill Customer and Customer will pay Motorola on a time and materials basis for resolving the issue.

16.12. SURVIVAL OF TERMS. The following provisions will survive the expiration or termination of this Agreement for any reason: Section 3.6 (Motorola Software); Section 3.7 (Non-Motorola Software); if any payment obligations exist, Sections 5.1 and 5.2 (Contract Price and Invoicing and Payment); Subsection 9.7 (Disclaimer of Implied Warranties); Section 11 (Disputes); Section 14 (Limitation of Liability); and Section 15 (Confidentiality and Proprietary Rights); and all of the General provisions in Section 16.

The Parties hereby enter into this Agreement as of the Effective Date.

Motorola Solutions, Inc.	**Customer**
By: _____	By: _____
Name: _____	Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

Exhibit A

SOFTWARE LICENSE AGREEMENT

This Exhibit A Software License Agreement ("Agreement") is between Motorola Solutions, Inc., (“Motorola"), and _____ (“Licensee”).

For good and valuable consideration, the parties agree as follows:

Section 1 DEFINITIONS

1.1 “Designated Products” means products provided by Motorola to Licensee with which or for which the Software and Documentation is licensed for use.

1.2 “Documentation” means product and software documentation that specifies technical and performance features and capabilities, and the user, operation and training manuals for the Software (including all physical or electronic media upon which such information is provided).

1.3 “Open Source Software” means software with either freely obtainable source code, license for modification, or permission for free distribution.

1.4 “Open Source Software License” means the terms or conditions under which the Open Source Software is licensed.

1.5 “Primary Agreement” means the agreement to which this exhibit is attached.

1.6 “Security Vulnerability” means a flaw or weakness in system security procedures, design, implementation, or internal controls that could be exercised (accidentally triggered or intentionally exploited) and result in a security breach such that data is compromised, manipulated or stolen or the system damaged.

1.7 “Software” (i) means proprietary software in object code format, and adaptations, translations, de-compilations, disassemblies, emulations, or derivative works of such software; (ii) means any modifications, enhancements, new versions and new releases of the software provided by Motorola; and (iii) may contain one or more items of software owned by a third party supplier. The term "Software" does not include any third party software provided under separate license or third party software not licensable under the terms of this Agreement.

Section 2 SCOPE

Motorola and Licensee enter into this Agreement in connection with Motorola's delivery of certain proprietary Software or products containing embedded or pre-loaded proprietary Software, or both. This Agreement contains the terms and conditions of the license Motorola is providing to Licensee, and Licensee’s use of the Software and Documentation.

Section 3 GRANT OF LICENSE

3.1. Subject to the provisions of this Agreement and the payment of applicable license fees, Motorola grants to Licensee a personal, limited, non-transferable (except as permitted in Section 7) and non-exclusive license under Motorola’s copyrights and Confidential Information (as defined in the Primary Agreement) embodied in the Software to use the Software, in object code form, and the Documentation solely in connection with Licensee's use of the Designated Products. This Agreement does not grant any rights to source code.

3.2. If the Software licensed under this Agreement contains or is derived from Open Source Software, the terms and conditions governing the use of such Open Source Software are in the Open Source

Software Licenses of the copyright owner and not this Agreement. If there is a conflict between the terms and conditions of this Agreement and the terms and conditions of the Open Source Software Licenses governing Licensee's use of the Open Source Software, the terms and conditions of the license grant of the applicable Open Source Software Licenses will take precedence over the license grants in this Agreement.

Section 4 LIMITATIONS ON USE

4.1. Licensee may use the Software only for Licensee's internal business purposes and only in accordance with the Documentation. Any other use of the Software is strictly prohibited. Without limiting the general nature of these restrictions, Licensee will not make the Software available for use by third parties on a "time sharing," "application service provider," or "service bureau" basis or for any other similar commercial rental or sharing arrangement.

4.2. Licensee will not, and will not allow or enable any third party to: (i) reverse engineer, disassemble, peel components, decompile, reprogram or otherwise reduce the Software or any portion to a human perceptible form or otherwise attempt to recreate the source code; (ii) modify, adapt, create derivative works of, or merge the Software; (iii) copy, reproduce, distribute, lend, or lease the Software or Documentation to any third party, grant any sublicense or other rights in the Software or Documentation to any third party, or take any action that would cause the Software or Documentation to be placed in the public domain; (iv) remove, or in any way alter or obscure, any copyright notice or other notice of Motorola's proprietary rights; (v) provide, copy, transmit, disclose, divulge or make the Software or Documentation available to, or permit the use of the Software by any third party or on any machine except as expressly authorized by this Agreement; or (vi) use, or permit the use of, the Software in a manner that would result in the production of a copy of the Software solely by activating a machine containing the Software. Licensee may make one copy of Software to be used solely for archival, back-up, or disaster recovery purposes; *provided* that Licensee may not operate that copy of the Software at the same time as the original Software is being operated. Licensee may make as many copies of the Documentation as it may reasonably require for the internal use of the Software.

4.3. Unless otherwise authorized by Motorola in writing, Licensee will not, and will not enable or allow any third party to: (i) install a licensed copy of the Software on more than one unit of a Designated Product; or (ii) copy onto or transfer Software installed in one unit of a Designated Product onto one other device. Licensee may temporarily transfer Software installed on a Designated Product to another device if the Designated Product is inoperable or malfunctioning, if Licensee provides written notice to Motorola of the temporary transfer and identifies the device on which the Software is transferred. Temporary transfer of the Software to another device must be discontinued when the original Designated Product is returned to operation and the Software must be removed from the other device. Licensee must provide prompt written notice to Motorola at the time temporary transfer is discontinued.

4.4. When using Motorola's Radio Service Software ("RSS"), Licensee must purchase a separate license for each location at which Licensee uses RSS. Licensee's use of RSS at a licensed location does not entitle Licensee to use or access RSS remotely. Licensee may make one copy of RSS for each licensed location. Licensee shall provide Motorola with a list of all locations at which Licensee uses or intends to use RSS upon Motorola's request.

4.5. For any Software that is licensed on the basis of the number of users, Licensee will maintain, during the term of this Agreement and for a period of two years thereafter, accurate records relating to this license grant to verify compliance with this Agreement. Motorola or an independent third party ("Auditor") may inspect Licensee's premises, books and records, upon reasonable prior notice to Licensee, during Licensee's normal business hours and subject to Licensee's facility and security regulations. Motorola is responsible for the payment of all expenses and costs of the Auditor. Any information obtained by Motorola and the Auditor will be kept in strict confidence by Motorola and the Auditor and used solely for the purpose of verifying Licensee's compliance with the terms of this Agreement.

Section 5 OWNERSHIP AND TITLE

Motorola, its licensors, and its suppliers retain all of their proprietary rights in any form in and to the Software and Documentation, including, but not limited to, all rights in patents, patent applications, inventions, copyrights, trademarks, trade secrets, trade names, and other proprietary rights in or relating to the Software and Documentation (including any corrections, bug fixes, enhancements, updates, modifications, adaptations, translations, de-compilations, disassemblies, emulations to or derivative works from the Software or Documentation, whether made by Motorola or another party, or any improvements that result from Motorola's processes or, provision of information services). No rights are granted to Licensee under this Agreement by implication, estoppel or otherwise, except for those rights which are expressly granted to Licensee in this Agreement. All intellectual property developed, originated, or prepared by Motorola in connection with providing the Software, Designated Products, Documentation or related services, remains vested exclusively in Motorola, and Licensee will not have any shared development or other intellectual property rights.

Section 6 LIMITED WARRANTY; DISCLAIMER OF WARRANTY

6.1. Unless the Warranty Period is otherwise stated in the Primary Agreement, the Software warranty will be for a period of ninety (90) days from shipment. If Licensee is not in breach of any of its obligations under this Agreement, Motorola warrants that the unmodified Software, when used properly and in accordance with the Documentation and this Agreement, will be free from a reproducible defect that eliminates the functionality or successful operation of a feature critical to the primary functionality or successful operation of the Software. Whether a defect occurs will be determined by Motorola solely with reference to the Documentation. Motorola does not warrant that Licensee's use of the Software or the Designated Products will be uninterrupted, error-free, completely free of Security Vulnerabilities, or that the Software or the Designated Products will meet Licensee's particular requirements. Motorola makes no representations or warranties with respect to any third party software included in the Software.

6.2 Motorola's sole obligation to Licensee and Licensee's exclusive remedy under this warranty is to use reasonable efforts to remedy any material Software defect covered by this warranty. These efforts will involve either replacing the media or attempting to correct significant, demonstrable program or documentation errors or Security Vulnerabilities. If Motorola cannot correct the defect within a reasonable time, then at Motorola's option, Motorola will replace the defective Software with functionally-equivalent Software, license to Licensee substitute Software which will accomplish the same objective, or terminate the license and refund the Licensee's paid license fee.

6.3. Warranty claims are described in the Primary Agreement.

6.4. The express warranties set forth in this Section 6 are in lieu of, and Motorola disclaims, any and all other warranties (express or implied, oral or written) with respect to the Software or Documentation, including, without limitation, any and all implied warranties of condition, title, non-infringement, merchantability, or fitness for a particular purpose or use by Licensee, whether arising by law, by reason of custom or usage of trade, or by course of dealing. In addition, Motorola disclaims any warranty to any person other than Licensee with respect to the Software or Documentation.

Section 7 TRANSFERS

Licensee will not transfer the Software or Documentation to any third party without Motorola's prior written consent. Motorola's consent may be withheld at its discretion and may be conditioned upon transferee paying all applicable license fees and agreeing to be bound by this Agreement. If the Designated Products are Motorola's radio products and Licensee transfers ownership of the Motorola radio products to a third party, Licensee may assign its right to use the Software (other than RSS and Motorola's FLASHport® software) which is embedded in or furnished for use with the radio products and the related Documentation; *provided* that Licensee transfers all copies of the Software and Documentation to the transferee, and Licensee and the transferee sign a transfer form to be provided by Motorola upon request, obligating the transferee to be bound by this Agreement.

Section 8 TERM AND TERMINATION

8.1 Licensee's right to use the Software and Documentation will begin when the Primary Agreement is signed by both parties and will continue for the life of the Designated Products with which or for which the Software and Documentation have been provided by Motorola, unless Licensee breaches this Agreement, in which case this Agreement and Licensee's right to use the Software and Documentation may be terminated immediately upon notice by Motorola.

8.2 Within thirty (30) days after termination of this Agreement, Licensee must certify in writing to Motorola that all copies of the Software have been removed or deleted from the Designated Products and that all copies of the Software and Documentation have been returned to Motorola or destroyed by Licensee and are no longer in use by Licensee.

8.3 Licensee acknowledges that Motorola made a considerable investment of resources in the development, marketing, and distribution of the Software and Documentation and that Licensee's breach of this Agreement will result in irreparable harm to Motorola for which monetary damages would be inadequate. If Licensee breaches this Agreement, Motorola may terminate this Agreement and be entitled to all available remedies at law or in equity (including immediate injunctive relief and repossession of all non-embedded Software and associated Documentation unless Licensee is a Federal agency of the United States Government).

Section 9 UNITED STATES GOVERNMENT LICENSING PROVISIONS

This Section applies if Licensee is the United States Government or a United States Government agency. Licensee's use, duplication or disclosure of the Software and Documentation under Motorola's copyrights or trade secret rights is subject to the restrictions set forth in subparagraphs (c)(1) and (2) of the Commercial Computer Software-Restricted Rights clause at FAR 52.227-19 (JUNE 1987), if applicable, unless they are being provided to the Department of Defense. If the Software and Documentation are being provided to the Department of Defense, Licensee's use, duplication, or disclosure of the Software and Documentation is subject to the restricted rights set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 (OCT 1988), if applicable. The Software and Documentation may or may not include a Restricted Rights notice, or other notice referring to this Agreement. The provisions of this Agreement will continue to apply, but only to the extent that they are consistent with the rights provided to the Licensee under the provisions of the FAR or DFARS mentioned above, as applicable to the particular procuring agency and procurement transaction.

Section 10 CONFIDENTIALITY

Licensee acknowledges that the Software and Documentation contain Motorola's valuable proprietary and Confidential Information and are Motorola's trade secrets, and that the provisions in the Primary Agreement concerning Confidential Information apply.

Section 11 LIMITATION OF LIABILITY

The Limitation of Liability provision is described in the Primary Agreement.

Section 12 NOTICES

Notices are described in the Primary Agreement.

Section 13 GENERAL

13.1. COPYRIGHT NOTICES. The existence of a copyright notice on the Software will not be construed as an admission or presumption of publication of the Software or public disclosure of any trade secrets associated with the Software.

13.2. COMPLIANCE WITH LAWS. Licensee acknowledges that the Software is subject to the laws and regulations of the United States and Licensee will comply with all applicable laws and regulations, including export laws and regulations of the United States. Licensee will not, without the prior authorization of Motorola and the appropriate governmental authority of the United States, in any form export or re-export, sell or resell, ship or reship, or divert, through direct or indirect means, any item or technical data or direct or indirect products sold or otherwise furnished to any person within any territory for which the United States Government or any of its agencies at the time of the action, requires an export license or other governmental approval. Violation of this provision is a material breach of this Agreement.

13.3. ASSIGNMENTS AND SUBCONTRACTING. Motorola may assign its rights or subcontract its obligations under this Agreement, or encumber or sell its rights in any Software, without prior notice to or consent of Licensee.

13.4. GOVERNING LAW. This Agreement is governed by the laws of the United States to the extent that they apply and otherwise by the internal substantive laws of the State to which the Software is shipped if Licensee is a sovereign government entity, or the internal substantive laws of the State of Illinois if Licensee is not a sovereign government entity. The terms of the U.N. Convention on Contracts for the International Sale of Goods do not apply. In the event that the Uniform Computer Information Transaction Act, any version of this Act, or a substantially similar law (collectively "UCITA") becomes applicable to a party's performance under this Agreement, UCITA does not govern any aspect of this Agreement or any license granted under this Agreement, or any of the parties' rights or obligations under this Agreement. The governing law will be that in effect prior to the applicability of UCITA.

13.5. THIRD PARTY BENEFICIARIES. This Agreement is entered into solely for the benefit of Motorola and Licensee. No third party has the right to make any claim or assert any right under this Agreement, and no third party is deemed a beneficiary of this Agreement. Notwithstanding the foregoing, any licensor or supplier of third party software included in the Software will be a direct and intended third party beneficiary of this Agreement.

13.6. SURVIVAL. Sections 4, 5, 6.3, 7, 8, 9, 10, 11 and 13 survive the termination of this Agreement.

13.7. ORDER OF PRECEDENCE. In the event of inconsistencies between this Exhibit and the Primary Agreement, the parties agree that this Exhibit prevails, but only with respect to the specific subject matter of this Exhibit.

13.8 SECURITY. Motorola uses reasonable means in the design and writing of its own Software and the acquisition of third party Software to limit Security Vulnerabilities. While no software can be guaranteed to be free from Security Vulnerabilities, if a Security Vulnerability is discovered, Motorola will take the steps set forth in Section 6 of this Agreement.

SECTION 9

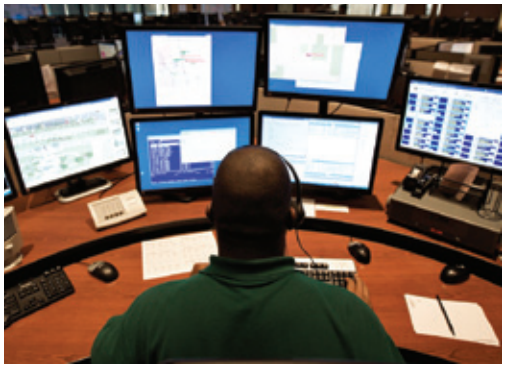
PRODUCT LITERATURE

9.1 PRODUCT LITERATURE

Product Literature has been included in pages that follow.

MCC 7500 IP DISPATCH CONSOLE FOR ASTRO® 25 RADIO SYSTEMS

STAY IN CONSTANT CONTACT WHEN IT MATTERS MOST



THE MOTOROLA MCC 7500 IP DISPATCH CONSOLE

Whether a large-scale event or a simple traffic light outage at a school crossing threatens the safety of citizens, you need to effectively communicate and coordinate a rapid response.

You need to have confidence in a dependable, always-available, complete communications system that keeps responders safe and constantly connected. You need the Motorola MCC 7500 IP Dispatch Console.

Seamlessly integrated into ASTRO® 25 radio systems, the MCC 7500 console provides interoperability, cost savings, and security advantages for today's critical communication needs. MCC 7500 consoles connect directly to the IP network without interface boxes, digital voice gateways or backroom electronics for an integrated mission critical system. Conventional channels link to the IP network and use the same audio transport as trunked audio.

ASTRO 25 SYSTEM INTEGRATION

Motorola IP systems are optimized to perform to robust customer specifications for mission critical voice and data communications. ASTRO 25 complies with Project 25 interoperability specifications while system interfaces based on standard IP bring additional value to the system.

The MCC 7500 IP Dispatch Console features:

- Prioritized emergency calls get through no matter how busy the system.
- Voice quality and intelligibility optimized to eliminate clipped or degraded audio.
- High-quality audio maintained despite increasing traffic loads.
- Call setup in a fraction of a second.
- Voice messages consistently delivered in the shortest possible time.
- Quick re-routing of call traffic in the event of an IP network path failure, minimizing lost audio and any impact on the end user.
- Enhanced dispatch performance and improved bandwidth efficiency using IP multicast technology.
- Conventional channels linked to the IP network using the same audio transport as trunked audio.
- Simplified dispatch operations and optimized operational efficiencies when integrated with PremierOne™ CAD.

MEETS YOUR DEMAND TO PROTECT, PREVENT AND RESPOND TO MISSION CRITICAL OPERATIONS.

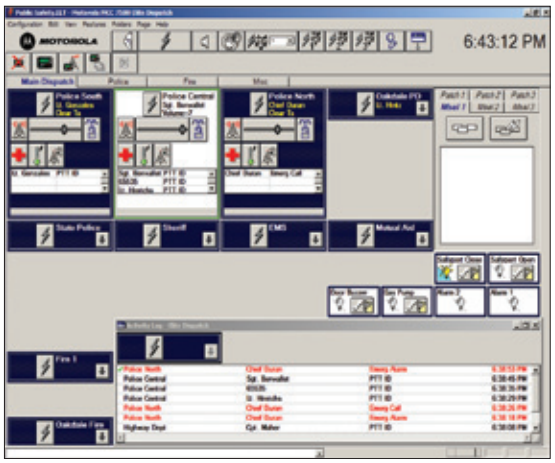
True End-to-End Encryption from the radio all the way through the console position. The MCC 7500 IP Dispatch Console goes beyond vocoded audio and uses true encryption technology, the only reliable means to keep your critical communication secure. Each MCC 7500 console supports up to six encryption algorithms simultaneously.

With Agency Partitioning, departments or agencies can share a system for cost savings and interoperability, yet manage and maintain control over their own resources, such as talkgroups, encryption keys, and configuration data.

Centralized System Configuration and Fault Management of dispatch positions allow changes to be automatically distributed throughout the system, providing vital efficiency. Access to the system manager from multiple remote locations via standard IP methods means users can still have convenient access while enjoying the benefits of centralized management.

Enhanced, Integrated Logging Recorder is available for the MCC 7500 Console providing digital recorded audio at the same high-quality level as heard through the dispatch positions. Digital recorders integrated into the radio system reap the benefits of agency partitioning, centralized management and system security, meeting a wide range of ASTRO® 25 customer requirements.

PremierOne™ CAD Integration further simplifies dispatch operations, improves data accuracy and enhances operational efficiencies by combining the common, intuitive user interface of PremierOne CAD with the reliable field personnel communications capabilities of the MCC 7500. Agencies that choose to integrate the MCC 7500 Console features with the PremierOne CAD common platform will gain the ability to automate common operations and get a real-time, comprehensive view of the personnel and equipment being supported in the field.



Customer Accepted Interface

Efficient, easy to use and intuitive, having been refined and proven through years of use in public safety dispatch centers around the world.

COMMAND AND CONTROL SOLUTIONS DESIGNED AROUND YOU

The MCC 7500 IP Dispatch Console is part of Motorola's extensive portfolio of communications and information solutions designed to address mission-critical public safety and security requirements worldwide. The MCC 7500 dispatch solution meets Motorola's rigorous quality standards to bring you peace of mind.

- Compatible with existing ASTRO® 25 radio systems with forward migration to protect and leverage your investment.
- Converges with PremierOne™ CAD to further simplify dispatch operations, improve data accuracy and enhance operational efficiencies.
- Software-based upgrades ease system and feature expansion. Re-use of the Elite Graphical User Interface (GUI) helps minimize dispatcher training.
- Works together with CENTRACOM™ Elite Console for robust feature interaction.
- Installation is simplified and site costs are reduced since the console operator position functions without backroom electronics.
- Console configuration is performed at a centralized network manager client, with changes distributed automatically, saving valuable technician and administrator time.
- More robust service logs, containing real-time information, facilitate maintenance activities.
- Integration into the system's central fault standard event monitoring protocols means fewer site visits.
- Flexible bandwidth requirements minimize operating costs for all remote console locations.
- Conventional audio is transported by the same IP network, eliminating the need for channel banks or a separate circuit switch system.

For more information about how the MCC 7500 IP Dispatch Console can meet your critical communication needs, contact your Motorola representative or visit motorola.com/ASTRO25.

Motorola, Inc. 1301 E. Algonquin Road, Schaumburg, Illinois 60196 U.S.A. **motorola.com/ASTRO25**

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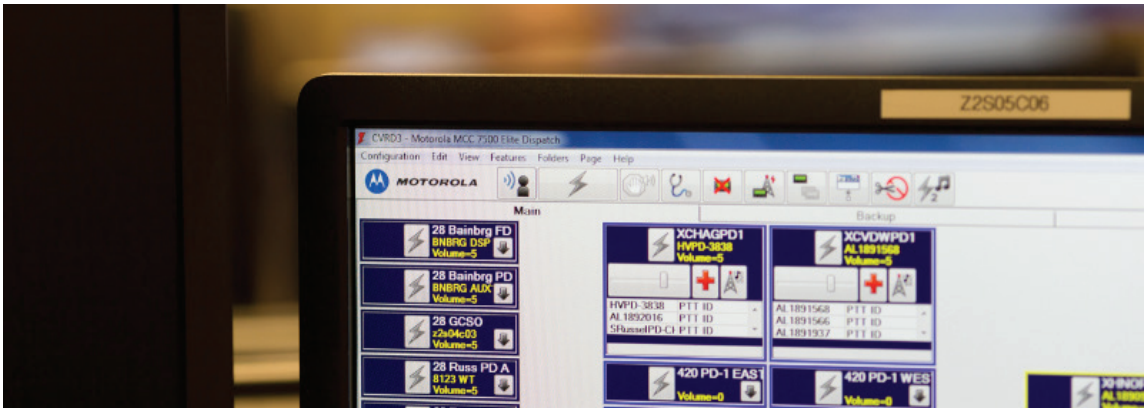
MOTOROLA

MOTOROLA SOLUTIONS



BACKUP IS NOT ONLY ON SCENE

MCC 7500 IP DISPATCH CONSOLE

Make your Dispatch Center an information pipeline, on which first responders can rely for the relevant, real-time intelligence they need. The Project 25 (P25) standard-based MCC 7500 IP Dispatch Console enables effective, secure communication to keep responders connected and informed when it matters most.

THE RIGHT INFORMATION, RIGHT AWAY

The connected world gives your agency access to more information than they've ever had before. This information can prove crucial to first responders in identifying and neutralizing threats to themselves and others before a situation escalates and results in tragedy. However, with the explosion of available data comes the increasingly difficult task of managing and communicating information.

The MCC 7500 console offers dispatchers integration capabilities to reach across multiple applications and resources, helping to coordinate a response and provide the necessary mission-critical intelligence to ensure the safety of first responders.

Multiple delivery options, including voice, Talkgroup Text Message and tone, connect dispatchers to responders across ASTRO® 25 trunked and conventional systems. Furthermore, Enhanced Telephony can connect telephone and radio users together in a single patched group.

DISPATCH APPLICATION ECOSYSTEM

The ability to integrate Motorola and other third party dispatch applications with the MCC 7500 console API, creates a dispatch environment that helps you meet the needs of your first responders.

Motorola Solutions Certified Logging Recorders
The Motorola Solutions certified NICE and Verint Logging Recorders provide seamless dedicated recording for the MCC 7500 console to improve productivity and offer post incident insights to your operations. They are the only recording solutions that meet all of the extensive Motorola Solutions performance specifications required to be implemented on the ASTRO 25 IP network.

PremierOne™ Computer Aided Dispatch
PremierOne CAD integrates with the MCC 7500 console to streamline workflows, minimize key strokes and reduce input error for more dispatch efficiency. Your personnel can operate within a single interface and from one mouse and keyboard to receive 9-1-1 calls, manage an incident response and communicate critical information to responders in the field.

Advanced Messaging Solution
The Advanced Messaging Solution builds upon the Talkgroup Text Messaging capability of the MCC 7500 console, further enhancing responder decision-making abilities by facilitating two-way texting between dispatch and the field. When voice communication is not an option, Advanced Messaging Solution provides responders with critical information, right at their fingertips, on portable radios or broadband devices.

71% of alleged offenders identified in connection with 2013 Law Enforcement Officer deaths had previous criminal records

30% of those offenders under judicial supervision at the time of the incident.

- Law Enforcement Officer Death and Assault Report 2013, FBI

APX Personnel Accountability
Streamline on-scene roll calls and gain the confidence to make critical decisions with an easy to use single screen view showing the status of all on-scene personnel. Rapidly execute evacuation orders to quickly alert your team to changing situations and see that everyone acknowledges.

EASE OF USE MAKES FOR MORE EFFECTIVE SUPPORT

Give your dispatchers the tools they need to effectively and effortlessly feed crucial intelligence to responders in the field. The MCC 7500 console provides dispatchers with an intuitive means to organize resources, coordinate a response and communicate valuable information. Its familiar interface, which emulates the legacy Gold Elite graphic user interface (GUI) look and functionality, allows dispatchers to quickly adapt to a new system with a short learning curve and minimal training.

Purpose-designed workflows with minimal click-throughs, critical resource information displays and contextual right-click menus are just some of the features that can help your dispatch operation become more streamlined and effective, and your dispatchers more efficient and productive. Customizable features, including window sizing and placement, color schemes and icons, allow you to create a workflow unique to your agency's needs. Individual logons even let your dispatchers create the user experience that works best for them.

With the MCC 7500 console, you'll give overburdened dispatch staff a little relief from the complexity of their job, instead of one more thing to manage.

THE INTELLIGENCE YOU NEED, EVERY TIME, ALL THE TIME

First responders rely heavily on dispatch for support. They need to be confident that your team can always offer the right information and coordination when an emergency arises. The inherent reliability and security of the ASTRO 25 system ensures first responders and dispatchers stay connected with best-in-class audio quality. For peace of mind that the right information always gets through, rely on our smart voice prioritization and intelligent audio routing capabilities at your dispatch positions. Furthermore, continuous link and resource polling gives your dispatchers the confidence that once connected they stay connected.

SCALE UP YOUR SYSTEM, NOT YOUR COSTS

If your public safety agency is like most others, money is tight for you right now. The MCC 7500 console helps you keep costs down with flexible servicing and Voice Processing Module (VPM) deployment options. That means less purpose-built hardware for you to buy and maintain, with additional savings on the space and electricity needed to run the system. The software-based system, managed from a centralized, single point of contact, reduces the time and skills needed for updates while the scalable platform lets your system grow only as much or as little as you need.

The MCC 7500 console can be deployed incrementally as it can interoperate within legacy ASTRO 25 console systems, giving you even more installation flexibility.

MCC 7500 CONSOLE SOLUTION COMPONENTS

MCC 7500 Console Operator Position
MCC 7500 console operator positions connect directly to the radio system's IP transport network without gateways or interface boxes. Audio processing, encryption, and switching intelligence for dispatch is performed within each software-based operator position, without additional centralized electronics. MCC 7500 consoles function as integrated components of the entire radio system, enabling full participation in system level features such as end-to-end encryption and agency partitioning.

Operator position hardware consists of a monitor, personal computer, keyboard and mouse/trackball/touchscreen, speakers, audio accessories and a VPM. The VPM allows analog devices to be connected to the digital console. The low-profile VPM can be rack mounted, furniture mounted or placed on the desktop.

The MCC 7500 console does not require separate configuration or performance management equipment. The console system is configured and managed by the radio system's configuration manager, fault manager and performance reporting applications to provide the customer with a single point for configuring and managing the entire radio system. Aliases for Radio PTT IDs may be managed both locally and centrally in the same system to provide agencies sharing an ASTRO 25 radio system with the flexibility to meet their alias management needs.

Conventional Gateway
The Conventional Channel Gateway (CCGW) enables both analog and digital channels to interface with MCC 7500 consoles with no need for a separate hardware network and channel banks. Conventional calls are transported between the dispatch operator positions and CCGWs on the same IP network as trunked calls.

A CCGW provides 2-wire/4-wire analog ports for analog channels, V.24 ports for older ASTRO 25 conventional channels and IP connectivity for current architecture ASTRO 25 conventional channels. Enhanced digital control of consolettes can be achieved by using a combination of analog and V.24 ports. CCGWs are available in two capacities. The standard density CCGW supports up to eight "port based" channels and up to sixteen "IP based" channels for a total of twenty four channels. The high density CCGW supports up to sixteen "port based" channels and up to sixteen "IP based" channels for a total of thirty two channels.

Auxiliary Input/Output Server
The auxiliary input/output server enables console operators to control and monitor external devices, such as doors and lights, from the console graphical user interface (GUI). Since the MCC 7500 console does not rely on centralized electronics, contact closures and input buffers required to

Public safety dispatcher is ranked as the 13th most stressful job in the United States out of 747 jobs outlined by the Bureau of Labor Statistics, based on stress levels compared by career information expert Laurence Shatkin, Ph.D.
- Business Insider Magazine, 2013

78% of state and local criminal justice agencies reported federal budget funding cuts from 2010 to 2013
67% of those agencies reporting cuts greater than 10%.
- VERA Institute of Justice

interface to these devices are housed in Remote Terminal Units (RTUs). These RTUs can be physically located close to where they are needed or at any console or radio frequency (RF) site. The dispatch consoles and RTUs communicate with each other across the radio system's IP transport network.

Archiving Interface Server (AIS)

The AIS is a digital logging interface, comprised of a personal computer and a VPM. Audio and call control information is sent across the IP network between the AIS and logging recorder.

Console Telephony Media Gateways

Media gateways are used to provide dispatchers with access to analog POTS and/or T1/E1 phone lines directly from their MCC 7500 console positions. The Session Initiation Protocol (SIP) is used to communicate with the media gateways across the console IP network. A rich set of telephony features is supported by the media gateways, enabling dispatchers to do their jobs more effectively and efficiently.

SPECIFICATIONS

System Compatibility	ASTRO® 25 System	
Vocoder Algorithms supported	AMBE, IMBE, ACELP, G.728, G.711	
Encryption Algorithms supported	AES (256 bit), DES-OFB, DVI-XL, ADP (Advanced Digital Privacy), DES-XL, DVP-XL	
Monitor requirements With Mouse or Trackball Touchscreen	 17" minimum, 20" recommended 20" minimum	
Voice Processor Module (VPM) connections	**Connector type** RJ45 DB15	**Device** One desktop microphone, eight desktop speakers, one local logging recorder, one radio instant recall recorder, one console telephony instant recall recorder, one external telephone set, one external paging encoder, one footswitch Two headset jacks connectors
VPM mounting options	EIA 19" rack mount, console furniture mount, Desktop – supports monitor up to 80 lbs	
VPM audio inputs and outputs	600 Ohm, balanced and transformer coupled (except for microphone which is 2000 Ohm, balanced, and does not use a transformer)	
Speaker Mounting Options	Desktop, furniture mount, or wall mount (with bracket accessory)	
Dispatch Console Cable Lengths	VPM to Speaker cable VPM to Headset Jack cable Headset Jack Extension cable VPM to Microphone cable VPM to Footswitch cable	10.1 feet (3.09 meters) standard 6 feet (1.8 meters) standard 6 feet (1.8 meters) standard 10 feet (3.05 meters) standard 10 feet (3.05 meters) standard
Supported Console Site Link types	Fractional T1/E1, Single T1/E1, Multiple T1/E1s Redundant and non-redundant versions IP site links	
MCC 7500 Dispatch Console Capacities	Up to 60 simultaneous audio sessions per operator position Up to 60 simultaneous encryption/decryption sessions per secure capable operator position Up to 16 Multi-Select groups per operator position (with up to 20 members per Multi-Select group) Up to 16 Patch groups per operator position (with up to 20 members per Patch group) Up to 160 resources per operator position	
Auxiliary Input/Output Server Hardware	A simplified, user-friendly version of the MOSCAD SDM 3000 RTU is used to support most Aux I/O needs. The output relays are capable of switching 1A @ 24VDC or 1A @ 24VAC. Input buffers are capable of sensing a dry closure through 1000 feet or less (round trip) of 24 AWG wire. The RTU provides single pole Form A relay outputs. (Double pole, Form B or Form C relays must be implemented using external relays which are controlled by the RTU relays.) Each SDM 3000 RTU and each SDM 3000 RTU Expansion Chassis is rack mountable in a standard 19 inch rack and is one rack unit high.	
Console Telephony Media Gateway	The POTS version gateway supports up to eight analog POTS lines. The E1/T1 version gateway supports up to two E1 or two T1 connections. Each gateway is rack mountable in a standard 19 inch rack and is 2 rack units high.	

SPECIFICATIONS

Conventional Channel Gateway	Rack mountable, 1 rack unit high T1R1, T2R2, T4R4, T8R8, T12R12, T14R14, T16R16 channels Simple analog, MDC 1200 analog, pure digital, mixed mode (analog/digital) and P25 conventional talkgroup channels, consolettes Standard density CCGWs provide interfaces for up to four analog conventional channels High density CCGWs provide interfaces for up to eight analog conventional channels Each analog conventional channel interface contains the following inputs and outputs • 600 Ohm, balanced analog audio input - To accept radio audio from the channel. Can be configured to support AGC, DLM, or no input conditioning. • 600 Ohm, balanced analog audio output - To send console transmit audio to the channel • 600 Ohm, balanced analog audio output - To send console transmit and radio receive audio to a logging recorder • 1 Amp, 24 VDC relay output - For relay keying of the channel • Input buffer - To detect Carrier Operated Relay (COR) closure in the channel • Input buffer - To detect Line Operated Busy Light (LOBL) closure in the channel • Input buffer - To detect Coded/Clear closure on an Advanced Securenet channel Standard density CCGWs provide interfaces for up to four V.24 based ASTRO 25 conventional channels High density CCGWs provide interfaces for up to eight V.24 based ASTRO 25 conventional channels • V.24 to station or comparator. No Digital Interface Unit (DIU) required. Standard density CCGWs can support up to 24 conventional channels simultaneously (four analog + four V.24 based ASTRO 25 conventional + sixteen IP based ASTRO 25 conventional) High density CCGWs can support up to 32 conventional channels simultaneously (eight analog + eight V.24 based ASTRO 25 conventional + sixteen IP based ASTRO 25 conventional)

SIZE AND WEIGHT

Device	Height	Width	Depth	Weight
VPM	1.75 in (44.5 mm)	16.9 in (430 mm)	12.3 in (312 mm)	3.6 lbs (1.6 kg)
Speaker	4.9 in (124 mm)	4 in (102 mm)	w/o bracket: 3.5in (89mm) w/ bracket: 5.8in (146mm)	0.7 lbs (0.3 kg)
Headset Jack	1.6 in (41 mm)	5 in (127 mm)	6 in (152 mm)	1.2 lbs (0.5 kg)
Microphone	Gooseneck at 90°: 4.5 in (114 mm) Gooseneck at 180°: 21.8 in (552 mm)	4.8 in (121 mm)	6.6 in (168 mm)	2.4 lbs (1.1 kg)

POWER AND CONSUMPTION THERMAL

Device	Power Input	Thermal Output
VPM	0.4 Amps at 120VAC 0.2 Amps at 240VAC	171 BTUs/hour
Speaker	Add 0.05 Amps per speaker to VPM power Input at 120VAC (0.025 Amps at 240VAC)	Add 15 BTUs/hour per speaker to VPM thermal output
Headset Jack & Microphone	negligible	negligible

CERTIFICATIONS

The various hardware elements of the Motorola MCC 7500 IP Dispatch Console product line are certified to meet the requirements for CSA and CE.		
Safety	CSA 60950-1-03 EN60950-1 2001	
EMC Emissions & Immunity	FCC part 15 Class A ICES-003 EN55022 1998 + A1: 2001 + A2:2003 (CISPR-22 Class A)	EN55024 + A1:2001 + A2:2003 EN61000-3-2 2000 EN61000-3-3 1995 + A1:2001
Energy Efficiency (VPM power supply only)	International Energy Efficiency Level V	

Motorola Solutions, Inc. 500 West Monroe Street, Chicago, Il 60661 U.S.A. 800-367-2346 **motorolasolutions.com**

MOTOROLA SOLUTIONS

WIRELESS DISPATCH EVERYWHERE

APX™ 7500 MULTIBAND CONSOLETTE

Racing to an emergency or repairing a power outage, every moment matters as you mount a response. The right control station can make all the difference in making sure communications are clear, continuous and coordinated – across multiple users, agencies and miles.

The APX™ 7500 Consolette is the ideal complement to your dispatch console. It's the low cost, mid-power RF control station for the ASTRO® 25 system when you want a wireless dispatch solution. Plus, you can use it as an emergency backup station when infrastructure is off-line or for wireless access to different system types for increased interoperability between agencies.

CONNECT WITH CONFIDENCE

Designed for the APX 7500 mid power series and O5 control head, the APX 7500 Consolette combines forward-thinking technology with time-tested functionality. Project 25 Phase 2 technology delivers twice the voice capacity so you can add more users without adding more frequencies or infrastructure. And its multiband operation assures seamless interoperability – so you can talk with confidence from a squad car or desk station, a job site across town or an incident in the next county.

MIGRATE AT YOUR OWN PACE

The APX 7500 Consolette is backwards and forwards compatible, developed to meet current P25 standards and future-ready to support new technology and data applications. Now you can achieve your interoperability objectives—whether upgrading an existing system or designing a new one—based on your dollars and deadlines.

BUILT FOR THE TOUGHEST TASKS

Innovative design and skillful engineering make the APX 7500 Consolette a tireless performer. It can be easily serviced or programmed without removing the lid and the robust metal housing assures extra durability. An integrated front panel numeric keypad on the APX 7500 Consolette gives you fast access to radio controls. And it meets stringent FCC and UL certifications for exceptional safety.

ROBUST AND MISSION-READY

When a power loss occurs, count on the automatic battery revert to connect your people 24/7. All you need is a DC source, such as a marine battery, to switch over automatically and keep communications going strong.

Rich in features, the APX 7500 Consolette gives you easy access to contact information with one unified call list and the largest number of interface connections to a wide variety of consoles and desk sets. What's more, an ACIM wireless interface provides back-up dispatch if your console's link to the ASTRO 25 trunked system is ever lost.

APX 7500 MULTIBAND CONSOLETTE

STANDARD FEATURES

Available in 700-800 MHz, VHF, UHF R1, and UHF R2 bands

Up to 2000 Channels

Optional multiband operation

Trunking Standards supported:

- Clear or digitally encrypted ASTRO® 25 Trunked Operation
- Capable of SmartZone®, SmartZone Omnilink, SmartNet®

Analog MDC-1200 and Digital APCO P25 Conventional System Configurations

Narrow and wide bandwidth digital receiver (6.25 kHz equivalent/12.5 kHz/30 kHz/25 kHz)*

Embedded digital signaling (ASTRO and ASTRO 25)

Integrated Encryption Hardware

Seamless wideband scan

Intelligent lighting

Radio profiles

Unified Call List

Tone remote control

ACIM/CCGW interface including:

- ID decode
- Call alert encode

Interfaces supported:

- Recorder
- Wireline
- Vehicle Interface Port
- Crosspatch
- Headsets (2)**

110/220VAC operation with battery revert capability

VU Meter and Clock

Expansion Slot Standard

2 configurations available:

- Full featured front panel
- Limited front panel

Customer Programming Software:

- Utilizes Windows 7, XP and Vista
- Supports USB Communications
- Built in FLASHport™ support

OPTIONAL FEATURES:

Enhanced Encryption Software Options

Programming over Project 25 (POP25)

Text Messaging

Over the Air Rekeying (OTAR)

Extended Dispatch Operation including:

- Emergency Alarm ACK Encode
- Radio Inhibit/Uninhibit Encode
- Radio Monitor Encode
- Radio Check Encode
- Status Query Encode
- Status Query Response Decode
- Status Update Decode
- Message Update Decode

*Per the FCC Narrowbanding rules, new products (APX7500 UHFR1 with UHFR2 Mid Power combination AND UHFR1 High Power with 700/800 MHz combination) submitted for FCC certification after January 1, 2011 are restricted from being granted certification at 25KHz for United States – State & Local Markets only.

** Available on full featured models only.

05 CONTROL HEAD FEATURES

Tri-color LCD display

- 4 lines: 2 lines text (14 characters), 1 line icons, 1 line soft menu keys
- 3 x 6 keypad microphone accessory with 3 programmable soft keys
- 5 programmable soft key buttons and 5 scroll-through menus with up to 24 programmable soft keys

AUXILIARY DISPLAY FEATURES

LCD display

3 soft menu buttons to activate or control the following Consolette features:

- Clock
- Volume Units Meter (VU)
- Crosspatch Linking
- Auxiliary Controls/VIP Activation
- Over-the-air Audible TX Alert Tones

SIGNALLING (ASTRO MODE)

Signalling Rate	9.6 kbps
Digital ID Capacity	10,000,000 Conventional / 48,000 Trunking
Digital Network Access Codes	4,096 network site addresses
ASTRO Digital User Group Addresses	4,096 network site addresses
Project 25 – CAI Digital User Group Addresses	65,000 Conventional / 4,094 Trunking
Error Correction Techniques	Golay, BCH, Reed-Solomon codes
Data Access Control	Slotted CSMA: Utilizes infrastructure-sourced data status bits embedded in both voice and data transmissions.

APX 7500 CONSOLETTE

Dimensions (W x D x H)	Limited Front Panel Configuration 16" x 18" x 4.2" (406 x 457 x 107mm) Full Featured Front Panel Configuration 16" x 18.75" x 4.2" (406 x 476 x 107mm)
Weight	Limited Front Panel Configuration 18.5 lbs (8.4 kg) Full Featured Front Panel Configuration 19.5 lbs (8.9 kg)

TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

	700 MHz	800 MHz	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplits	764-776 MHz 794-806 MHz	806-824 MHz 851-870 MHz	136-174 MHz	380-470 MHz	450-520 MHz
Channel Spacing	25/12.5 kHz	25/12.5 kHz	30/25/12.5 kHz	25/12.5 kHz	25/12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Rated RF Output Power Adj*	10-30 Watts	10-35 Watts	10-50 Watts	10-40 Watts	10-45 Watts (450-485 MHz) 10-40 Watts (485-512 MHz) 10-25 Watts (512-520 MHz)
Frequency Stability* (–30°C to +60°C; +25°C Ref.)	±0.00015 %	±0.00015 %	±0.0002 %	±0.0002 %	±0.0002 %
Modulation Limiting*	±5 kHz / ±2.5 kHz	±5 kHz/±4 kHz (NPSPAC) /±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz
Modulation Fidelity (C4FM) 12.5kHz Digital Channel	±2.8 kHz	±2.8 kHz	±2.8 kHz	±2.8 kHz	±2.8 kHz
Emissions*	Conducted+ –70/–85 dBc; Radiated+ –20/–40 dBm	Conducted + –70 dBc; Radiated+ –20 dBm	Conducted + –85 dBc; Radiated –20 dBm+	Conducted + –85 dBc; Radiated –20 dBm+	Conducted+ –85 dBc; Radiated –20 dBm+
Audio Response*	+1, –3 dB (EIA)	+1, –3 dB (EIA)	+1, –3 dB (EIA)	+1, –3 dB (EIA)	+1, –3 dB (EIA)
FM Hum & Noise 25 & 20 kHz 12.5 kHz	–40 dB –34 dB	–40 dB –34 dB	–50 dB –40 dB	–45 dB –40 dB	–45 dB –40 dB
Audio Distortion*	2 %	2 %	2 %	2 %	2 %

RECEIVER – TYPICAL PERFORMANCE SPECIFICATIONS

		700 MHz	800 MHz	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplits		764-776 MHz	851-870 MHz	136-174 MHz	380-470 MHz	450-520 MHz
Channel Spacing		25/12.5 kHz	25/12.5 kHz	30/25/12.5 kHz	25/12.5 kHz	25/12.5 kHz
Maximum Frequency Separation		Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Audio Output Power at 3% distortion*		2.5W++	2.5W++	2.5W++	2.5W++	2.5W++
Frequency Stability* (–30°C to +60°C; +25°C Ref.)		±0.00015 %	±0.00015 %	±0.0002 %	±0.0002 %	±0.0002 %
Analog Sensitivity*	12 dB SINAD	0.25 µV	0.25 µV	Pre-Amp 0.2 µV; Standard 0.3 µV	Pre-Amp 0.2 µV; Standard 0.3 µV	Pre-Amp 0.2 µV; Standard 0.3 µV
Digital Sensitivity	1% BER	0.3 µV	0.3 µV	Pre-Amp 0.25 µV; Standard 0.4 µV	Pre-Amp 0.25 µV; Standard 0.4 µV	Pre-Amp 0.25 µV; Standard 0.4 µV
	5% BER	0.25 µV	0.25 µV	Pre-Amp 0.2 µV; Standard 0.3 µV	Pre-Amp 0.2 µV; Standard 0.3 µV	Pre-Amp 0.2 µV; Standard 0.3 µV
Intermodulation		80 dB	80 dB	80 dB; 85 dB	80 dB; 85 dB	80 dB; 85 dB
Spurious Rejection		90 dB	90 dB	90 dB	90 dB	90 dB
Audio Distortion at rated*		3.00 %	3.00 %	3.00 %	3.00 %	3.00 %
Selectivity*	25 kHz	80 dB	80 dB	—	82 dB	82 dB
	12.5 kHz	65 dB	65 dB	70 dB	70 dB	70 dB
	30 kHz	—	—	90 dB	—	—

PRODUCT SPEC SHEET
APX™ 7500 MULTIBAND CONSOLETTE

POWER AND BATTERY DRAIN

Model Type	136-174 MHz, 380-470 MHz, 450-520 MHz, 764-870 MHz
Minimum RF Power Output	10-35 Watt (764-870 MHz), 10-50 Watts (136-174 MHz), 10-40 Watts (380-470 MHz), 10-45 Watts (450-485 MHz), 10-40 Watts (485-512 MHz), 10-25 Watts (512-520 MHz)
AC Operation	110 to 220VAC 50-60Hz
AC Current	110VAC: 0.85A (Idle/Rx) 1.7A (Tx) 220VAC: 0.42A (Idle/Rx) 0.85A (Tx)
AC Surge Spec	EN6100-4-5 Level 5
DC Operation	13.8V DC +/-20% Negative Ground
Standby at 13.8V	1.25A (764-870 MHz), 1.25A (136-174 MHz), 1.25A (380-470 MHz), 1.25A (450-520 MHz)
Receive Current at Rated Audio at 13.8V	1.5A (764-870 MHz), 1.5A (136-174 MHz), 1.5A (380-470 MHz), 1.5A (450-520 MHz)
Transmit Current (A) at Rated Power	136-174 MHz (10-50 Watt) 13A (50W) 8A (15W) 380-470 MHz (10-40 Watt) 11A (40W) 8A (15W) 450-520 MHz (10-45 Watt) 11A (45W) 8A (15W) 764-870 MHz (10-35 Watt) 12A (50W) 8A (15W)

ENCRYPTION

Supported Encryption Algorithms	ADP, AES, DES, DES-XL, DES-OFB, DVP-XL
Encryption Algorithm Capacity	8
Encryption Keys per Radio	Module capable of storing 1024 keys. Programmable for 128 Common Key Reference (CKR) or 16 Physical Identifier (PID)
Encryption Frame Re-sync Interval	P25 CAI 300 mSec
Encryption Keying	Key Loader
Synchronization	XL – Counter Addressing OFB – Output Feedback
Vector Generator	National Institute of Standards and Technology (NIST) approved random number generator
Encryption Type	Digital
Key Storage	Tamper protected volatile or non-volatile memory
Key Erasure	Keyboard command and tamper detection
Standards	FIPS 140-2 Level 3 FIPS 197

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-30°C / +60°C
Storage Temperature	-40°C / +85°C
Humidity	95% relative humidity
ESD	IEC 61000-4-2
Duty Cycle	EIA/TIA Intermittent Duty Cycle

FCC TYPE ACCEPTANCE ID

FCC ID	BAND AND POWER LEVEL
AZ492FT5858	10-35 Watts (764-870 MHz)
AZ492FT3824	10-50 Watts (136-174 MHz)
AZ492FT7037	10-50 Watts (136-174 MHz)and 10-35 Watts (764-870 MHz)
AZ492FT7047	10-50 Watts (136-174 MHz) and 10-45 Watts (450-520 MHz)
AZ492FT4895	10-50 Watts (136-174 MHz) and 10-40 Watts (380-470 MHz)
AZ492FT4894	10-40 Watts (380-470 MHz)
AZ492FT7043	10-40 Watts (380-470 MHz) and 10-35 Watts (764-870 MHz)
AZ492FT4904	10-40 Watts (380-470 MHz) and 10-45 Watts (450-520 MHz)
AZ492FT4896	10-45 Watts (450-520 MHz)
AZ492FT7044	10-45 Watts (450-520 MHz) and 10-35 Watts (764-870 MHz)

* Measured in the analog mode per TIA/EIA 603 under nominal conditions

\+ Specs includes performance for the non-GNSS/GNSS bands

++ Output power into 20 Ohm internal speaker

Specifications subject to change without notice. All specifications shown are typical.

Radio meets applicable regulatory requirements.

For more information about how to interoperate without boundaries, visit motorolasolutions.com/apx

Motorola Solutions, Inc.
1301 East Algonquin Road Schaumburg, Illinois 60196, U.S.A. 800-367-2346
motorolasolutions.com

R3-1-2051B

MOTOROLA

MISSION CRITICAL CONNECTIVITY AND PERFORMANCE

ASTRO®25 GGM 8000 GATEWAY

Government and industrial organizations rely on ASTRO 25 systems for mission critical communications and to meet their demanding needs, the GGM 8000 gateway is built to deliver performance, capacity and security above and beyond the capabilities of traditional networking hardware.

Designed to provide a clear demarcation point between your existing IP network architecture and ASTRO 25 systems, the GGM 8000 Gateway is a multi-purpose network communications platform, constructed to interconnect devices and networks within ASTRO 25 systems. The need for special protocols, including multicast, are eliminated with static tunnels through your backhaul network.

The easy serviceable design allows all internal modules to be replaced without removing the chassis from the rack. Motorola manages the firmware, configurations and applications to ensure the highest levels of system integrity, performance, and information assurance compliance.

CONNECTIVITY PROVIDED

- ASTRO 25 Core
- ASTRO 25 Sites
  - Dispatch Consoles
  - Trunking
  - Conventional
  - High Performance Data (HPD)
  - SmartX
  - ISSI
- Customer Enterprise Network (CEN)

FUNCTIONS PERFORMED

- Radio system traffic call routing (voice and data)
- Packet duplication
- Rapid failure recovery
- Traffic Shaping (packet fragmentation, prioritization, and queuing)
- Dynamic System Resilience site routing
- IP simulcast traffic routing
- Zone Core Protection (ZCP)
- Conventional Channel Gateway
- Advanced Conventional Signaling (MDC1200 and ACIM)

PHYSICAL INTERFACES

- Ethernet and T1/E1 interfaces for WAN connectivity
- Ethernet for Site LAN including IP Station Interfaces
- Analog (2- or 4-wire) and V.24 digital conventional station interfaces
- FlexWAN interface for select legacy networks

SECURITY FUNCTIONALITY

Supports data encryption over Ethernet and T1/E1 links using the IPSec and FRF.17 protocols. The GGM 8000 contains an embedded hardware encryption processor. To enable encryption, a properly signed encryption certificate must be loaded.

- Data encryption – Data Encryption Standard (DES), Triple DES (3DES) and 256-bit Advanced Encryption Standard (AES) algorithms
- Data authentication – Message Digest 5 (MD5) algorithm and Secure Hash Algorithm (SHA)
- Diffie-Hellman Group 1, Group 2, Group 5 and Group 14 negotiation
- SSH (secure shell) client/server architecture – secure encrypted communications between two trusted hosts over insecure networks
- Password Protection – Authorized users must supply credentials before access to device functionality will be allowed
- Zeroization of critical security parameters (CSPs) – Supports commands to zeroize all Key Encryption Key (KEK) related information and CSPs in the event of a security breach

CONFIGURATION

Base Platform Configuration	Enclosure; Power Subsystem (AC or DC); Base Module; Console Management Port (9 Pin); Four 10/100/100 Base-T Ethernet Ports; Two T1/E1 WAN Telecommunication Ports; Encryption Support (disabled)
Optional Modules	Encryption enabling certificate Analog 4 wire/v.24 Conventional Gateway Module: 4x4wire with E&M analog ports, 4xv.24 digital ports Enhanced Low Density Conventional Gateway Module: 4x2 (or X4) wire with E&M analog/IO ports, 4xv.24 digital ports Enhanced High Density Conventional Gateway Module: 8x2 (or X4) wire with E&M analog/IO ports, 8xv.24 digital ports FlexWAN Module: 1 multipurpose port, typically used for v.35 interface

PHYSICAL SPECIFICATIONS

Dimensions	44 (w) x 4.3 (h) x 37 (d) cm
Weight	7.3 kg (16 lb)

ENVIRONMENTAL SPECIFICATIONS

Temperature	–30 °C to 60 °C (–22 °F to 140 °F) operating for base unit with or without encryption module 0 °C to 50 °C (32 °F to 122 °F) operating for base unit configured with optional interface modules –40 °C to 85 °C (–40 °F to 185 °F) non-operating
Humidity	5 to 95% (Non-Condensing)
Heat Dissipation	163 BTU/Hour (Maximum)
Power Consumption	48 Watts (Maximum)
AC Power Configuration	
Operating Range	100V to 240V, 50/60Hz
Current Draw	Less than 0.50A at 120VAC Less than 0.25A at 220VAC
DC Power Configuration	
Operating Range	20 to 60 VDC
Current Draw	Less than 2.0A at 24VDC Less than 1.0A at 48VDC

SECURITY CERTIFICATIONS

FIPS 140-2	Level 2
Common Criteria	EAL 2

SAFETY CERTIFICATIONS

North America	UL60950-1, CSA C22.2 No. 60950-1

EMC/EMI CERTIFICATIONS

North America	FCC Part 15; Class A Industry Canada ICES-003; Class A
Europe (EU)	
EN 55022	Radiated Emissions; Class A
EN 55022	Conducted Emissions; Class A
EN 61000-3-2	Harmonics
EN 61000-3-3	Flicker
EN 55024	Immunity
EN 61000-4-2	ESD Immunity
EN 61000-4-3	Radiated Immunity
EN 61000-4-4	EFT/B Immunity
EN 61000-4-5	Surge
EN 61000-4-6	Conducted Immunity
EN 61000-6-11	Voltage Interruption / Dips
Australia / New Zealand	AS/NZS CISPR 22; Class B
Japan	VCCI Class B

TELECOMMUNICATIONS APPROVALS

North America	FCC Part 68, IC CS-03
Europe (EU)	ETSI/TBR1, TBR2, TBR12, TBR13, TBR17
Australia / New Zealand	AS/ACIF S003, ACA TS016, TNA117

ENVIRONMENTAL REGULATORY

EU WEEE Directive	EN 50419 Compliant
China Management Methods (CMM)	Ministry Order #39

Motorola, Inc. 1301 E. Algonquin Road, Schaumburg, Illinois 60196 U.S.A. **motorolasolutions.com/ASTRO25**

MOTOROLA

SYNERGY

PUBLIC SAFETY CONSOLES

watson DISPATCH

SYNERGY

Empower your emergency response personnel to perform at their peak with the console system designed and built with the dispatcher in mind. Synergy consoles combine advanced ergonomics, unmatched structural quality and technology integration into a package that delivers an outstanding return on investment.

DURABLE AND DEPENDABLE

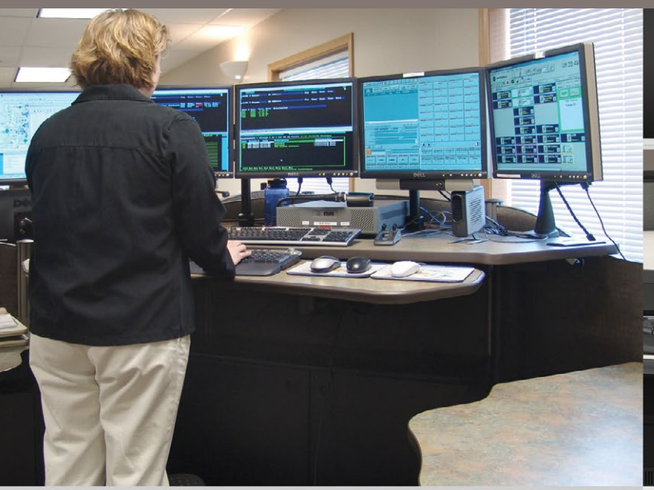
Synergy consoles were designed and manufactured specifically for 24/7 intensive use environments. The consoles are manufactured with superior materials and construction techniques to provide a lasting solution.

FLEXIBLE AND SCALABLE

A broad range of components and sizes are available to customize a console to fit in your facility and support your technology needs.

ROBUST CONSTRUCTION

Synergy consoles feature a rigid unibody construction, solid core panels, heavy-duty extruded posts, and ergonomically-designed height adjustable platforms stress-tested to 40,000 duty cycles, to withstand a decade or more of rigorous use.



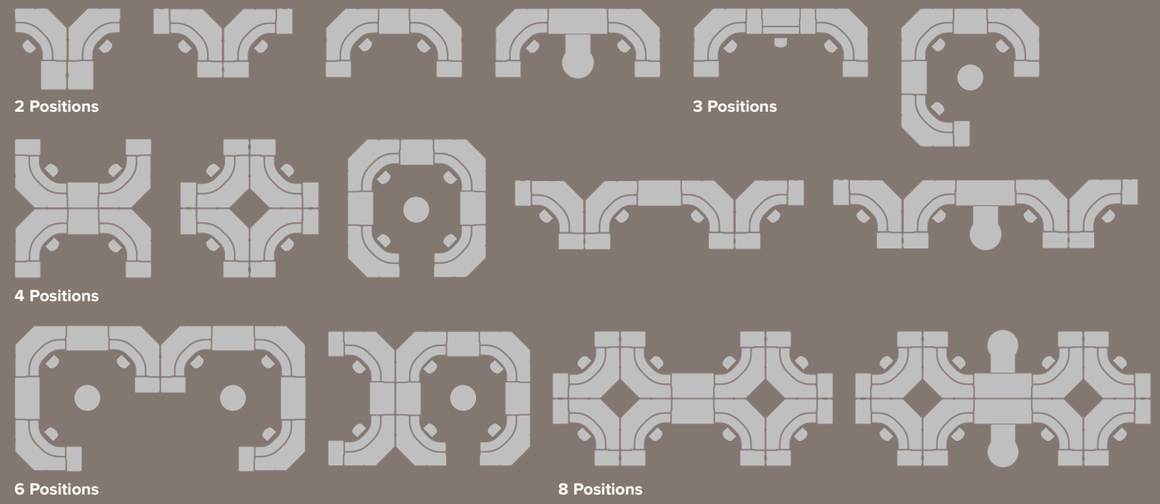
HEIGHT ADJUSTABILITY

Fully adjustable worksurfaces and input platforms adapt to users height preferences and allow for sit-to-stand flexibility from 22 to 57 inches.

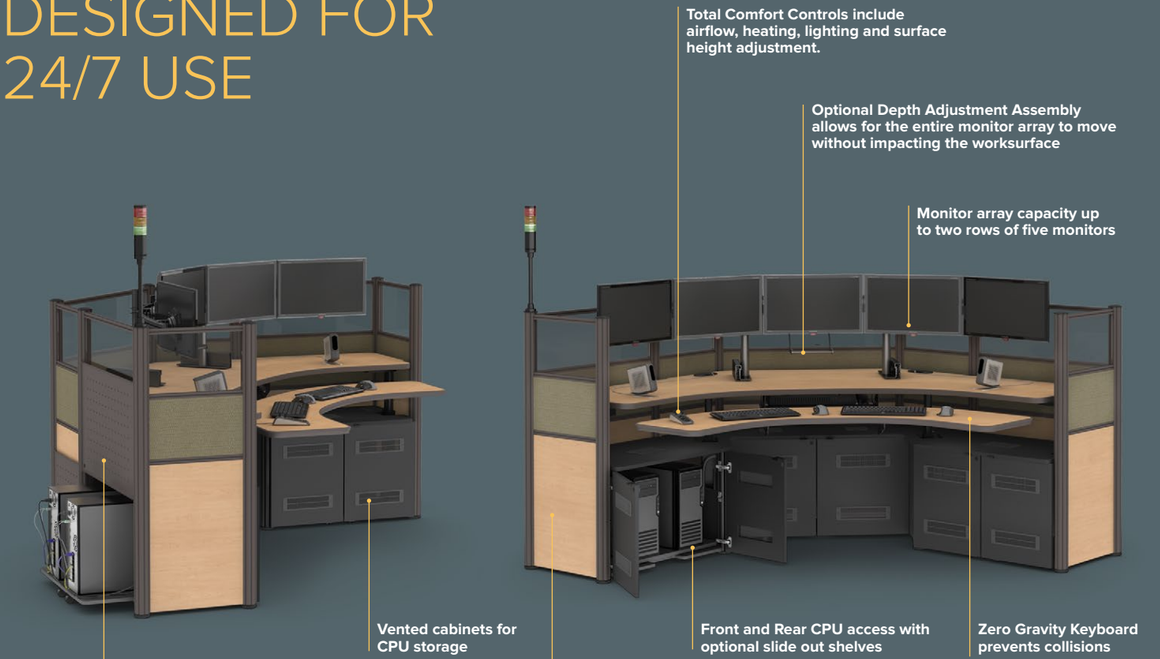
MONITOR DEPTH ADJUSTMENT

For additional ergonomic flexibility, the optional Depth Adjustment Assembly allows for the entire monitor array to move without impacting the worksurface.

FLEXIBLE PLANNING

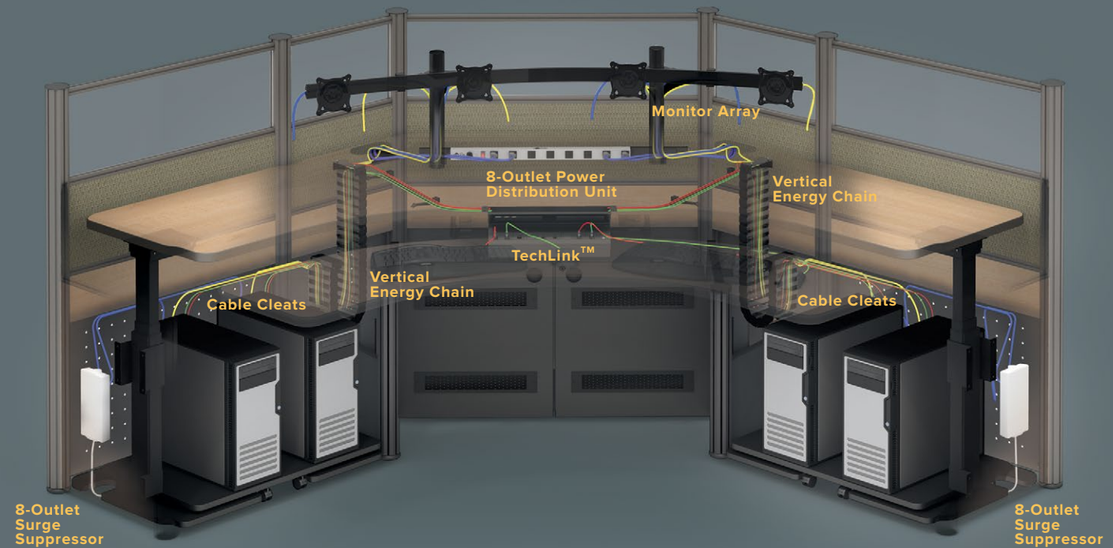


DESIGNED FOR 24/7 USE



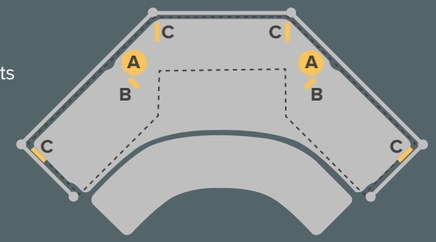
TECHNOLOGY INTEGRATION

Synergy was designed with tech support in mind. Consoles feature ample room for CPU's with front and/or rear door access to ease maintenance and minimize operator disruption during equipment service and repair. Our exclusive TechLink™ provides quick connection points for keyboard, mouse, phone and other input devices. Synergy cable management features horizontal and vertical pathways to simplify the constant task of managing wires.



TECHNOLOGY POWER PORTS

(A) 2 Floor to power & data access points
(B) 2 Electrical J-Box mounting points
(C) 4 Eight-outlet surge suppressors
4 Raised floor access points



IMPROVED TECHNOLOGY ACCESS

Techlink™ provides easy user connectivity at the work surface for up to 10 input devices, like keyboard and mouse. Wire management is conveniently organized at the rear for tech-access.

TOTAL COMFORT SYSTEM

Watson's Total Comfort System is a single point interface for height adjustment, airflow, heating, and lighting adjustment.

SYNERGY

THREE TYPES OF CONSOLES

Linear

Linear consoles are designed to provide fully height adjustable worksurfaces for back-up and call taker consoles.

Center Lift

Center Lift consoles are specified with fixed bridges to create ancillary surfaces between consoles. The adjustable worksurface supports up to four monitors.

Full Lift

For complete ergonomic control, Full Lift consoles support up to 12 monitors and feature an adjustable worksurface and input platform.

CONSOLE FEATURES

- Three configurations; Linear, Center Lift and Full Lift consoles Fixed & adjustable height surfaces
- Field reconfigurable segmented design, available in five heights with transparent/tackable fabric upper segments
- Single Point Interface used to adjust worksurface and keyboard platform with digital readout, controls airflow, heating and lighting with mobile & scalable fan positioning
- Tools such as personal whiteboards, swivel-to-stow cup holders, paper trays, phone trays, CD trays and binder trays
- Front and Rear CPU access with optional slide out shelves
- Powered keyboard platform
- Locking perforated zero clearance rear access doors provide passive airflow to equipment
- Standard rear access with 8 power outlets per cavity and optional cavity illumination and filtered cavity fans
- Hard surface laminate ends for greater durability
- Primary surface height adjustment range: 27"–52"
- Input platform height adjustment: 22"–57"

watson DISPATCH

26246 Twelve Trees Lane NW, Poulsbo, Washington 98370
800.426.1202 **watsondispatch.com**

MERCURY

PUBLIC SAFETY CONSOLES

watson DISPATCH

MERCURY

In communication centers, responsiveness means effectiveness. By combining sophisticated technology, modular adaptability and climate control, Mercury does more than keep pace; it anticipated what's around the corner.

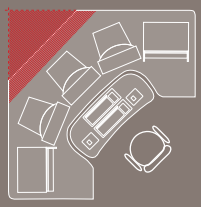
WHY MERCURY

After years of research inside communications centers, Watson has redefined technology-driven console design. We collaborated with front-line dispatchers, IT professionals, facility managers, public safety architects and consultants to experience first-hand what they saw, heard and felt during an average shift. Then we got busy designing a three-sided, three-dimensional station that works as hard as they do. The tri-linear Mercury cockpit is built to align with the present and the future of dispatch technology.

THE CORNER GETS CROWDED

Ultra-deep 90-degree corner consoles suited a bygone era when back-heavy monitors gobbled up the bulk of desktop real estate and users were crammed into the remaining space, typically facing away from their co-workers.

The Evolution of Dispatch Console Design

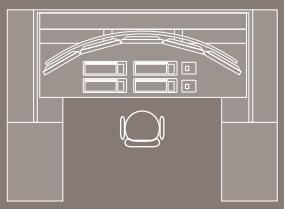


1998

Boxy computer equipment required deep triangular worksurfaces, with limited size input platform and corner space behind monitors created dead zones

2005

As digital technology became the standard and monitors shrunk, a significant portion of the worksurface became a 'dead zone' for collecting dust and redundant cabling.



MERCURY

Today, Mercury reclaims the unused surface area to create a spacious user pocket with adjacent storage and open sight lines throughout the facility.

MERCURY FITS

Dispatch centers with updated technology need updated furniture that adapts as industry trends evolve. Mercury's linear layout opens things up to enhance productivity, increase usable space and connect people with process.

Adaptable and Efficient

Mercury's flexible planning language emerged from a detailed survey of nearly 6,000 floor plans from dispatch centers around the world. From intimate to expansive configurations, Mercury consistently delivers performance and comfort to respond to the distinct demands of each installation.

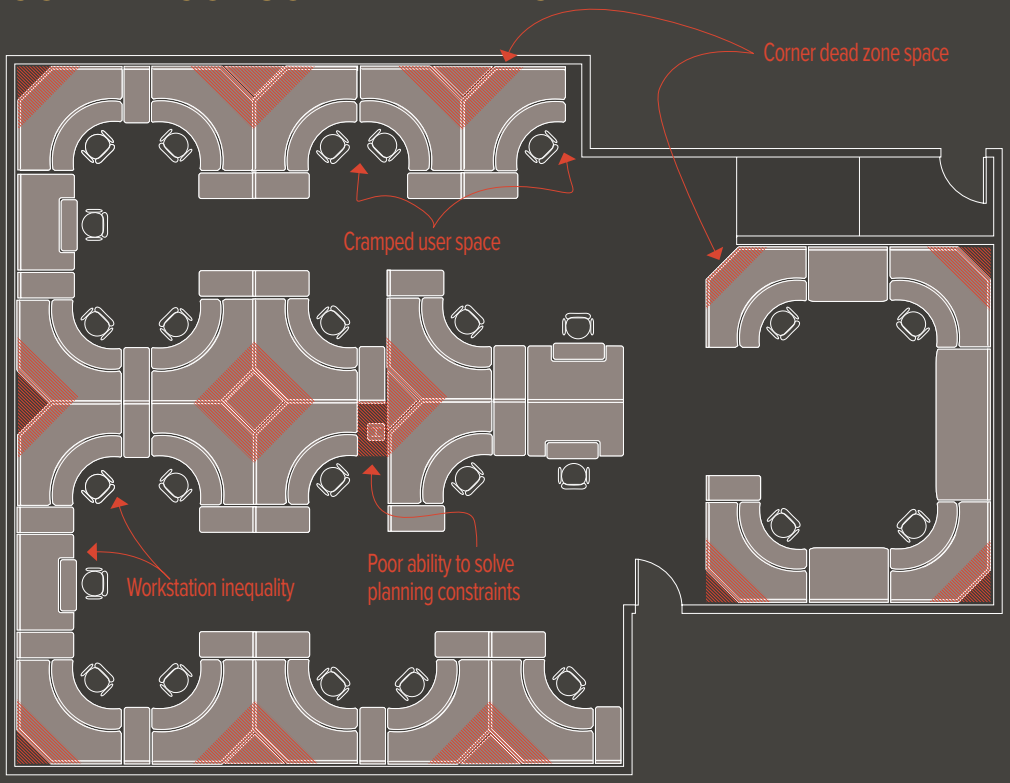
Compact Spine Configuration

In large communication centers, efficiency is key. For these installations, Mercury configures linearly with outboard technology placement and personal storage stackers.

Bullpen Configuration

Four-person arrangements give people the room they need to accomplish independent tasks and the layout they need to achieve collaborative goals.

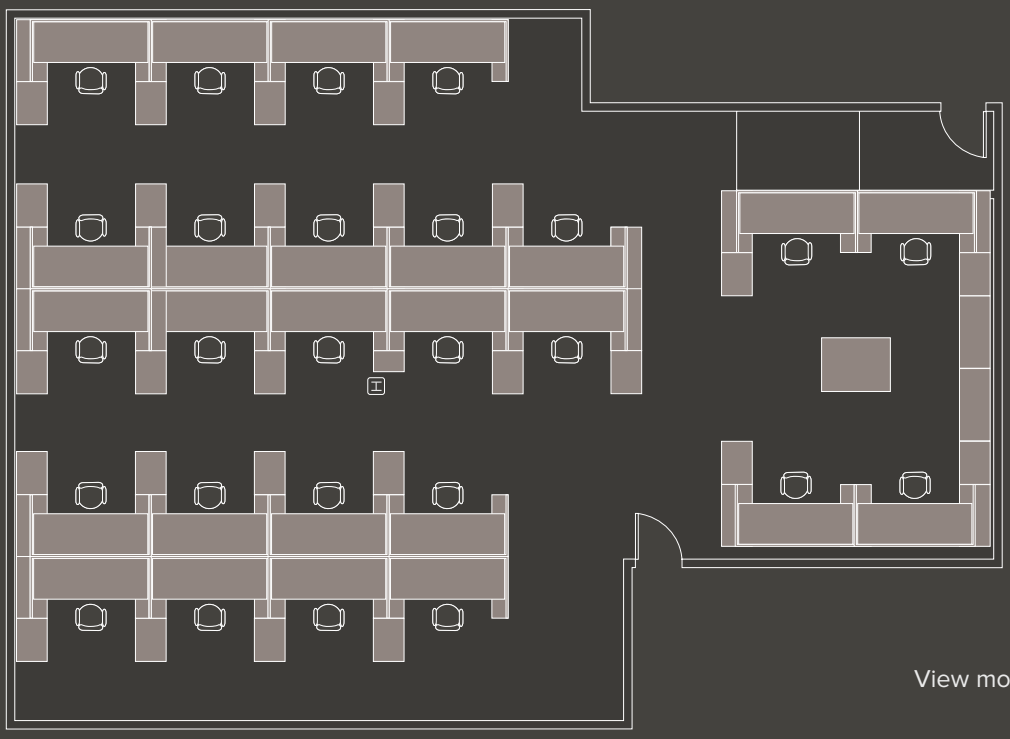
CORNER CONSOLE PLANNING



CHALLENGES OF A CORNER LAYOUT

- Inequality in workstation size and amenities
- Poor supervisor sightlines
- Inefficient space utilization

MERCURY TRI-LINEAR COCKPIT PLANNING



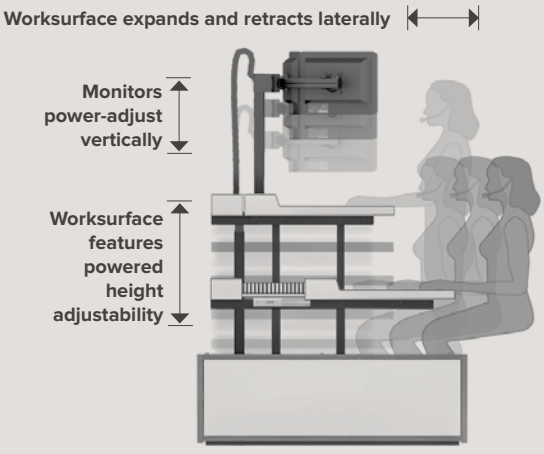
ADVANTAGES OF UNIFORM LAYOUTS

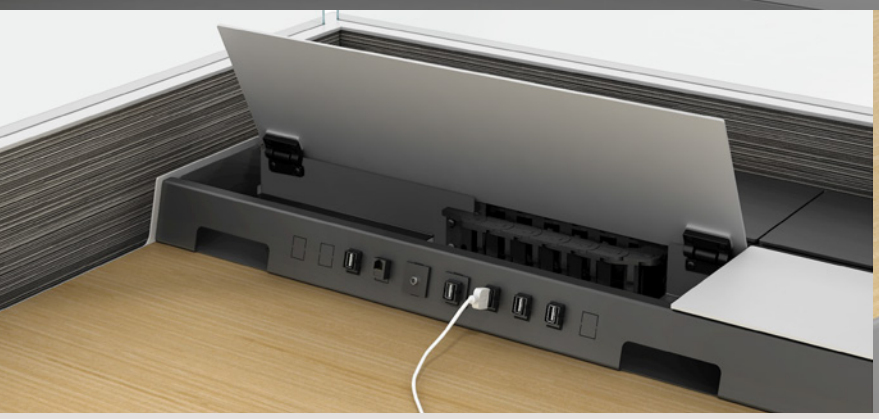
- Open sightlines
- Equality from position to position
- Increased user workspace

View more Mercury configuration possibilities at watsonfurniture.com/mercury

WELLNESS AT WORK

At Watson, we believe that ergonomics go way beyond comfort. Mercury's patented dynamic ergonomic system meets or exceeds all HFES and BIFMA G-1 Ergonomic Standards, which aids in countering the physical demands of grueling shifts by allowing employees a broad range of sit-to-stand positions throughout their shifts. Fast, easy adjustments to the vertical and horizontal positions of the workstation and monitors allow dispatchers to customize their stations to match their unique preferences. Workers can transition from sitting to standing; worksurfaces can move to change focal distance; monitors can shift to achieve maximum visual acuity. The result is a personalized work area that accommodates the precise anatomical profile of each user and enhances employee satisfaction.





IN THE DRIVER'S SEAT

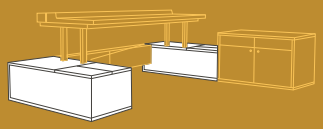
Everything a dispatcher needs to remain productive and comfortable is within arm's reach on Mercury's dashboard. Easy-to-use controls and tech bays housing up to 20 connection points are accessible to the left and right, each placed in intuitive locations to keep workers organized. Phones, keyboards, mice and other peripherals line up neatly, while excess cables and terminals are concealed under hinged access covers. Even LED reading lights were selected for having no glare, creating no interference with equipment and putting light where it's needed. With Mercury, everything has its place.

ENERGY CONSCIOUS ELECTRONICS

- LED reading lights
- LED ambient lights
- Low-voltage cooling fans
- Forced-air heating draws only 400 watts

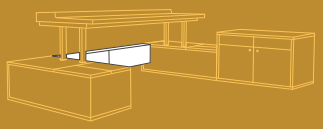
WIRED FOR SIMPLICITY

The IT team has enough to do without having to wrestle with tangled cables. Everything under Mercury's hood is readily accessible, quickly secured and completely compartmentalized. Technology is situated at the front of the workstation and can be accessed from all sides. Large cable infeeds and raceways are easy to manage, while plug-and-play junctions are built into both worktop peripherals and monitor arrays. Installations are quick, changeovers are painless for IT.



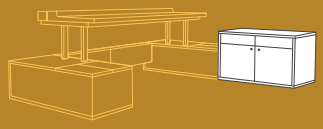
HUB

- Multiple dedicated power, voice and data entry points
- Rackmount power distrubution
- Rackmount data patch bay locations
- Lockable access from sides and top



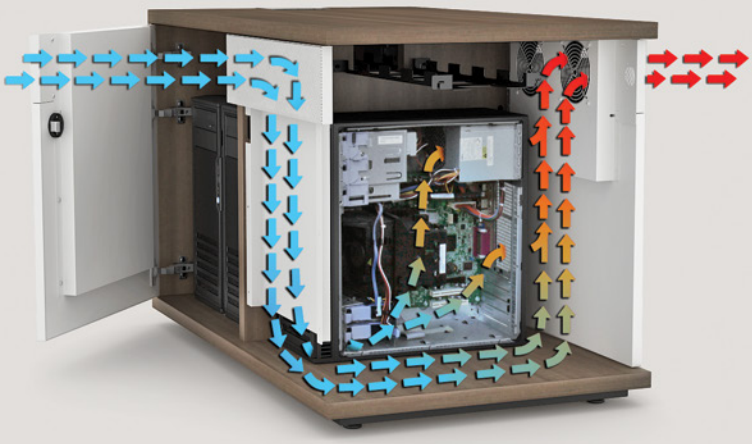
CABLE BRIDGE

- Drop-in wide berth cable system
- Capacity for nine 1" flexible conduit, or 80 Cat-5 individual cables
- Front-access hinged doors are lockable
- Underside pass-throughs for floor foot pedals



TECHNOLOGY CABINETS

- Outboard placement for easy IT access
- Accommodates rackmount, small or large format CPUs
- Growth potential through cabinet stacking
- Active Cooling System keeps components cool
- Easily updated to allow future technology changes
- CFM matched airflow rates



ACTIVE COOLING SYSTEM

Technology storage cabinets use Watson's proprietary state-of-the-art low-noise cooling system, which is thermostatically controlled and automatically activates to keep equipment running at an optimum operating temperature.

STURDY AND SCALABLE

Mercury is the latest Watson innovation to combine robust manufacturing quality with modular flexibility. With fully welded steel frame construction and made with materials specifically chosen to endure the rigors of a 24/7 environment, Mercury is relied upon by facilities managers who need dispatch furniture to stay strong for the long haul. Full-thickness 1-1/8" panels frame Mercury's storage and technology cabinets for greater stability. The fabric screens, backed by steel to avoid dimpling and corner damage, are removable for future refreshing. Best of all, the components can easily reconfigure to a variety of footprints. Mercury's durability and adaptability keep the cost of ownership low, even when building systems change.

RESPONSIBLE MANUFACTURING

- SCS-certified for indoor air quality
- High recycled steel, wood and fabric content
- Regionally sourced materials
- Sustainable manufacturing processes
- Made in the Pacific Northwest

EXPANDABLE MONITOR ARRAY

- Bolt-on dual array extension column
- Capacity of up to two rows of six monitors

ACOUSTIC SCREEN

- Recycled denim wool interior; perforated fabric-wrapped sheet metal exterior
- NRC rating of 0.75
- SAA rating of 0.78

MODULAR DESIGN

- Highly flexible components
- Easy to expand and reconfigure
- Easy to incorporate additional CPUs

SIMPLIFIED INSTALLATION

- Pre-assembled modules
- Standardized component sizing
- Metal-to-metal connections

ROBUST CONSTRUCTION

- Fusion-welded 12 gauge cold rolled steel frame
- 720 lbs dynamic lifting capacity
- 2500 lbs static loading capacity
- Up to 96" of worksurface freespan
- Precision ball bearing worksurface guides
- Lifting system tested through 40,000 cycles

WHY MERCURY?

1 Console Design Evolution

- Elimination of 90 degree corner dead zone space
- Full tri-linear cockpit usability and adjustability
- Outboard technology placement for easy access
- Ample room for increased input devices
- Optimized for flatscreen displays

2 For Dispatchers

- Worksurface power-adjusts vertically
- Monitor array power-adjusts vertically
- Worksurface adjusts horizontally for focal depth
- Integrated environment controls
- Ready access to all technology and storage

3 For IT

- Hub provides multiple dedicated power, voice and data entry points
- Efficient and accessible cable management system
- Outboard technology storage with active cooling
- Tech bays for rapid access to data ports

4 For Facilities

- High space planning efficiencies
- Modular component flexibility
- Easy to expand and reconfigure
- Robust construction for 24/7 environments

FEATURES AND SPECS	
Size Ranges	
Station widths	60"– 96"
Station depths	39"– 51"
Station heights	42"– 60"
Ergonomic Adjustments	
Worksurface height range	22"– 48"
Focal depth worksurface 11" range	Standard
Monitor array	12" electronically controlled
Maximum monitor capacity	12
HFES 100-2007 / BIFMA G-1 2013	Meets or exceeds
Environmental Controls	
Electrical Listing	UL 508
Heating, cooling, reading and ambient lighting	Optional
Screening	
Acoustic NRC 0.75, SAA 0.78 third-party certification	Standard
Frameless clear or frosted glass toppers	Optional
Energy and Environmental	
Electrical requirement	12.9 A (maximum)
Worksurface lift standby usage	0.1 A
SCS indoor air quality certification	Advantage
Total recycled content	83%
Technology	
Standard CPU maximum capacity / station	12
Rackmount maximum / station	32U
User peripheral maximum plug-ins	20
110V AC NEMA 5-15R Receptacles	10 – 12

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