

- 1) Power Supply System Solutions Instructions:** Bidders may choose to provide a solution for each sub-category below. A narrative is required for each sample scenario in each sub-category. Power Supply System Solutions must include, at a minimum the brand of equipment used in the solution and all services included. For example; consultation, implementation, removal, setup, monitoring, spill containment, etc. Each solution narrative must be 12-point font, not to exceed ten (10) double-sided pages in length and labeled “**ExhibitB2-DCPowerSystemsSmSolutionNarrative**”, “**ExhibitB2-DCPowerSystemsMedSolutionNarrative**”, “**ExhibitB2-DCPowerSystemsLgSolutionNarrative**”, etc. Drawings may be submitted to demonstrate solution and labeled “**ExhibitB2-DCPowerSystemSmSolutionDrawing**”, “**ExhibitB2-DCPowerSystemMedSolutionDrawing**”, “**ExhibitB2-DCPowerSystemLgSolutionDrawing**”, etc. Additional marketing material will not be accepted and may result in disqualification at Enterprise Services sole discretion. The sample solutions below will be used for evaluation purposes only. Awarded Contractors may be required to offer a variety of solutions based on Customer need. Bidders must submit a complete list of products available for any potential Solution labeled “**Exhibit B2-SolutionProductsList**”. At a minimum, the complete list must include the following information, manufacturer, product name, product number.

For purposes of this solicitation, a “Solution” is defined as a radio, power or microwave system that includes all components required to make the system function as intended. Products in a Solution may be offered from a 3rd party, but awarded Manufacturer (resulting Contractor) is responsible for all warranties.

7.1 SUB-CATEGORY: DC POWER SYSTEM SOLUTIONS
DC POWER SYSTEM: SAMPLE SCENARIO, SMALL SOLUTION Sample: Typically 1 to 4 rack units high containing plug in rectifiers, control module, Low Voltage Disconnect circuitry, may or may not be equipped with built in power distribution (GMT fuses or breakers) designed for 19”or 23” racks. Capable of charging and maintaining a 200 Amp Hour battery bank. A typical example would be 12 volt batteries mounted on a single heavy duty rack shelf wired for 48 volts. May have alarming (SNMP or contact closure).
DC POWER SYSTEM: SAMPLE SCENARIO, MEDIUM SOLUTION Sample: As above but capable of charging and maintaining a 400 Amp Hour battery bank. A typical example would be 12 volt batteries wired for 48 volts. May be a bulk charging system with no built-in distribution.
DC POWER SYSTEM: SAMPLE SCENARIO, LARGE SOLUTION Sample: As above but capable of charging and maintaining a 800 Amp Hour battery bank. A typical example would be 12 volt batteries or a large 2 volt battery array wired for 48 volts. Will typically use a larger 19” or 23” seismic rack due to battery weight.

7.2 SUB-CATEGORY: VRLA (VALVE REGULATED LEAD ACID) BATTERY SYSTEMS SOLUTIONS**VRLA SYSTEM: SAMPLE SCENARIO, SMALL SOLUTION**

Sample: Same as above. Typically 200 Amp Hour capacity. For example 12 volt batteries with top or front mount terminals mounted on a single rack shelf.

VRLA SYSTEM: SAMPLE SCENARIO, MEDIUM SOLUTION

Sample: Same as above. Typically 400 Amp Hour capacity. For example 12 volt batteries with top or front mount terminals mounted on a multiple rack shelves.

VRLA SYSTEM: SAMPLE SCENARIO, LARGE SOLUTION

Sample: Same as above. Typically 800 Amp Hour capacity. For example a large quantity of 12 volt batteries or a large 2 volt battery array with top or front mount terminals mounted on a separate heavy duty rack.

- 2) Radio System Solution Narratives Instructions:** Radio Manufacturers have the opportunity to offer a complete (turnkey) radio system solution. Radio Manufacturers offering a solution must submit a narrative for both scenarios below. At a minimum, the following information must be included in solution narrative; repeater model(s), subscriber unit model(s), control station model(s) and console model(s). Describe any services offered in the solution. At a minimum, describe what is included in installation, system solution warranty, full-routine system maintenance. Solution must be a complete turnkey operational system. Each solution narrative must be 12-point font, not to exceed ten (10) double-sided pages in length and labeled [**“ExhibitB2SolutionNon-P25Narrative”**], [**“ExhibitB2SolutionP25TrunkedNarrative”**]. Drawings may be submitted to demonstrate solution and labeled **“ExhibitB2SolutionNon-P25Drawing”**, **“ExhibitB2SolutionP25TrunkedDrawing”**. Additional marketing material will not be accepted and may result in disqualification at Enterprise Services sole discretion. The sample solutions below will be used for evaluation purposes only. Awarded Contractors may be required to offer a variety of solutions based on Customer need. Bidders must submit a complete list of products available for any potential Solution labeled **“Exhibit B2-SolutionProductsList”**. At a minimum, the complete list must include the following information, manufacturer, product name, product number.

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RADIO SYSTEM SOLUTION SAMPLE
P25 CONVENTIONAL. Solution must, at a minimum, include a fully operational integrated combination of: repeaters (4), subscriber units (50), console positions (3), and desktop radios (control stations) (4)

- 3) Microwave Radio System Solution Narrative Instructions:** Microwave Radio Manufacturers have the opportunity to offer a complete (turnkey) microwave radio system solution as described in 00318 Competitive Solution Section. Each System Solution Narrative will be evaluated and awarded separately by sub-category.

Microwave Radio Manufacturers offering a solution must submit a narrative for either of the scenarios below. At a minimum, the following information must be included in solution narrative; Product model, Antenna model, Transmission line and connectors, and any specialized interface required to transport data. Describe any services offered in the solution. At a minimum, describe what is included in the proposed solution such as system engineering services and staging, etc. Solution must be a complete turnkey operational system. Each solution narrative must be 12-point font, not to exceed ten (10) double-sided pages in length and labeled ["**ExhibitB2SolutionIndoorUnit**"], ["**ExhibitB2SolutionOutdoorUnit**"]. Drawings may be submitted to demonstrate solution and labeled "**ExhibitB2SolutionIndoorUnitDrawing**", "**ExhibitB2SolutionOutdoorUnitDrawing**". Additional marketing material will not be accepted and may result in disqualification at Enterprise Services sole discretion. The sample solutions below will be used for evaluation purposes only. Awarded Contractors may be required to offer a variety of solutions based on Customer need. Bidders must submit a complete list of products available for any potential Solution labeled "**Exhibit B2-SolutionProductsList**". At a minimum, the complete list must include the following information, manufacturer, products name, product number.

For purposes of this solicitation, a "Solution" is defined as a radio, power or microwave system that includes all components required to make the system function as intended. Products in a Solution may be offered from a 3rd party, but awarded Manufacturer (resulting Contractor) is responsible for all warranties.

SCENARIO ONE: MICROWAVE RADIO SYSTEM SOLUTION SAMPLE

INDOOR UNIT.

A complete single-hop system in relevant sub-category that includes all necessary components for the system to function.

SCENARIO TWO: MICROWAVE RADIO SYSTEM SOLUTION SAMPLE

OUTDOOR UNIT. A complete single-hop system in relevant sub-category that includes all necessary components for the system to function.

E.F. JOHNSON COMPANY

Response to Washington State Department of Enterprise Services Competitive Solicitation – No. 00318

For Public Safety Communications Products, Services and Solutions

Exhibit B-2 – System Solution Narrative

February 8, 2021



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B. Exhibit B-2 – System Solution Narrative

B.1. Proposal Summary

E.F. Johnson Company, a JVCKENWOOD Company, (“EFJohnson”) appreciates the opportunity to present this ATLAS® radio system solution to the Washington State Department of Enterprise Services (Enterprise Services), which consists of equipment for a 4-channel P25 conventional system. Based on the information provided in Exhibit B2 of Competitive Solicitation – No. 00318, EFJohnson proposes the following:

- Four (4) ATLAS 4500 Conventional Phase 1 Repeaters with power cords
- Two (2) ATLAS 8100 Conventional Site Network Interface (CSNI) Controllers for redundancy
- One (1) Site Alarm Panel
- One (1) ATLAS 6200 Advanced Network Management System
- One (1) ATLAS 6300 Management Workstation
- Three (3) StarGate® Dispatch Console positions
- Networking Equipment (Layer 3 switches, firewall appliance, and network capture server)
- 25 KENWOOD Viking® VP5000 Portables
- 25 KENWOOD Viking VM5000 Mobiles
- 4 KENWOOD Viking VM5000 Control Stations

B.2. Exhibit B2-SolutionProductsList

This proposal includes a complete but preliminary parts list (provided as an attachment to this section). The parts list will be finalized as part of the Critical Design Review.

B.3. System Configuration

The attached drawing reflects preliminary representation of the EFJohnson proposed design and may not represent the final configuration, design, and/or bill of materials. Final system diagrams will be provided after award and Critical Design Review.

B.4. ATLAS P25 Overview

ATLAS P25 is different from anything else on the market today, thanks to our modern, IP-based Latitude™ technology. ***ATLAS P25 distributed technology utilizes virtual control points, hosted on commercial off-the-shelf (COTS) hardware, located throughout the***

geography of the system. Additionally, the proposed ATLAS P25 system has been designed with reliability and redundancy as a principal consideration. EFJohnson’s approach to system reliability and availability consists of the following:

- **Distributed Call and Simulcast Control**—By taking the LMR model and putting it into an IT context, EFJohnson’s patented Latitude technology distributes the call control functionality to every site, which means *the ATLAS System architecture does not require a dedicated centralized core.*
- **Reliable and Redundant Design Philosophy**—The proposed ATLAS P25 System uses highly reliable equipment and redundant controllers. *The proposed system for Enterprise Systems includes two (2) CSNIs at the proposed conventional site to provide redundancy.*
- **Self-Healing Sites**— If a network connection fails and isolates a site or group of sites from the network, the newly isolated system *recognizes the assets available and continues to route calls accordingly.* When a network connection is reestablished after a failure, EFJohnson’s patented auto-discovery mechanisms are used to recover a site *without any manual intervention.*

B.5. Equipment Descriptions

B.5.1. ATLAS Component Overview

ATLAS equipment's minimal space requirements, with the smallest footprint in the industry, mitigate difficult configuration problems and make it easy to co-locate new equipment with existing equipment.

The proposed ATLAS site equipment for Enterprise Services is built from three basic system components. These high-performing COTS computing platforms are IP-based and managed remotely, which allows EFJohnson to focus on a unique, software-driven solution, resulting in low operational and implementation risk.

ATLAS® 4500 Series Repeaters/Multimode Base Stations	
	The ATLAS 4500 series of repeaters/multimode base stations provide over-the-air communications for simulcast and non-simulcast systems.
3.5" tall—2U of vertical rack space	
ATLAS® 6000 Series NMS, Optional Gateways, and Key Management Facility (KMF)	
	This COTS rack-mount server is used to host the ATLAS 6200 NMS, ATLAS 6400 Data Gateway, ATLAS 6500 Key Management Facility, and ATLAS 6600 ISSI Gateway.
1.75" tall—1U of vertical rack space	

ATLAS® 8000 Series Controllers	
 1.75" tall—1U of vertical rack space	The ATLAS 8000 controller is an industrial-grade, rack-mount device that acts as a configurable controller, capable of driving a number of other devices, including the 8200 Trunked Site Network Interface (TSNI) and 8100 Conventional Site Network Interface (CSNI).

Figure 1. The ATLAS System’s Basic Components

B.5.2. RF Site Equipment

B.5.2.1. Base Station Equipment

The proposed ATLAS 4500 Multimode Station is the latest model in our base station/repeater series. The ATLAS 4500 offers market-leading P25 trunked, P25 conventional, analog, and mixed-mode capabilities in a robust, reliable, and compact form factor and can function in either trunked or conventional mode, determined by the site controller.

B.5.2.2. Site Control Equipment

The ATLAS 8000 provides a common platform and common support services for running a variety of applications, including the ATLAS 8100 Conventional Site Network Interface (CSNI) included in the proposed system. The ATLAS 8000 controller is an industrial-grade, rack-mount device that serves a key role in *distributing the intelligence of the EFJohnson ATLAS solution throughout the radio network.*

The ATLAS 8000 is built using components specifically selected for long life—rugged duty, low power usage, and flexible deployment. It is packaged in a space-saving 1 RU chassis and provides a network-centric design (including four Ethernet ports) and a large variety of peripheral connections.

The ATLAS 8000 series equipment has core-level integration with the ATLAS 6200 Advanced Network Management System (NMS), allowing the NMS to remotely configure the device, install and update software, and manage fault reporting for the controller, regardless of the application currently deployed on the controller.

B.5.3. Network Management System

The ATLAS 6200 Advanced Network Management System is a state-of-the-art, Web-based NMS that provides centralized network management functionality for all EFJohnson infrastructure products. *With Web-based client access, the ATLAS NMS offers unified management, configuration, and monitoring to all infrastructure solutions, including conventional systems, trunked systems, consoles, and gateways.*

A key design focus of EFJohnson equipment is ensuring that it can be managed from any workstation on the network, or remotely through a VPN. Once connected to the network, accessing the ATLAS NMS interface is as simple as opening a web browser, entering the ATLAS NMS IP address or hostname in the browser address field, and logging in with your credentials.

B.5.4. Dispatch Equipment

B.5.4.1. ATLAS 7000 StarGate

The proposed ATLAS 7000 StarGate consoles offer full-featured dispatch capability via direct IP connection to P25 trunked and conventional systems—so no backroom electronics or custom interconnects are necessary. Like the rest of the ATLAS P25 System, the StarGate consoles are fully distributed. They individually connect directly to the IP infrastructure and have access to any necessary system traffic: no CSSI interface or back-room central equipment is required for StarGate to operate on the ATLAS System. Subsequently, a failure at one console position, or in any part of the console, will not affect system operation on any other console position. In addition, the StarGate user interface is remotely configurable from the ATLAS NMS, so there are no hardware control panels to label or maintain. StarGate also offers customizable or shared profiles for each dispatcher and a next-generation graphical user interface (GUI) that is simple and intuitive to use.

B.5.4.2. Zetron Options

Customers also have the option of purchasing the following Zetron dispatch solutions:

B.5.4.2.1. ACOM Command and Control

The ACOM radio dispatch system is designed with a fully redundant core cluster comprised of COTS, Linux-based servers. Core software services provide essential management and control to the system (Media Controller Service). They also act as a gateway to various third-party devices such as IP voice loggers, MODBUS IP auxiliary I/O devices, and direct infrastructure connectivity (Infrastructure Gateway Service) to the EFJohnson ATLAS radio system. Users are connected to a redundant core over IP using a Windows-based user application. In addition, analog and digital radio gateways may be used to provide an analog/digital radio interface to many KENWOOD Viking base station radios. These types of radio gateways allow the ACOM console operators to communicate with P25 and analog/digital radios in the field.

B.5.4.2.2. MAX Dispatch Radio Console

The MAX Central is the hardware platform which runs on a Linux operating system that hosts several software services used in the MAX Dispatch system. These software services provide

essential management and control to the system, as well as act as a gateway to various third-party devices for additional functionality such as telephony gateways, IP voice loggers, MODBUS IP auxiliary I/O devices and Location Services (AVL). It also hosts the service that provides remote console, remote radio gateway and multiple MAX Dispatch site linkage. The MAX Infrastructure Gateway (IG) serves as the interface point between the EFJohnson ATLAS radio system via a CSSI connection to the rest of the MAX console system. The MAX Radio Gateway serves as the interface point between a radio or base station and the rest of the MAX console system. Radio Gateways are available in both analog and digital forms depending on the EFJohnson radio interface requirement.

B.6. Statement of Work

EFJohnson's four-phased project deployment methodology includes a minimum number of deliverables that determine completion of each phase and enable a gated approach in transitioning from phase to phase.

PHASE 1—Project Setup and Detailed Design

- Make a detailed assessment of the current system to feed into EFJohnson's project planning and preliminary design review, ensuring an accurately planned approach to executing project deliverables.
- Finalize project plan and schedule based on this compilation of information and kickoff the project with Customer.
- Conduct a Critical Design Review at the culmination of the detailed design phase to provide a comprehensive equipment list for manufacturing and procurement.

PHASE 2—Staging and Factory Acceptance

- Using final equipment list from Phase 1, begin manufacturing and procuring equipment.
- Once the manufacturing/procurement process is complete, stage and integrate equipment at the EFJohnson Staging Facility for a thorough staging Factory Acceptance Test Plan (FATP), demonstrating the functional requirements of the integrated system to Customer.
- Following successful factory staging, package and ship equipment to the Customer's designated location.

PHASE 3—Installation and Verification

- Install and commission full ATLAS P25 Phase 1 system solution on-site.
- Perform full system integration testing of all individual systems to verify performance and intended functionality prior to cutover.
- Verify coverage by conducting system coverage acceptance testing according to the Coverage Acceptance Test Plan (CATP).

PHASE 4—Cutover and Acceptance

- Conduct any necessary training activities pertaining to the new ATLAS P25 system.
- Migrate end-users from the legacy system to the new ATLAS System in coordination with the Customer.
- Perform System Acceptance Testing and allow Enterprise Services to evaluate performance of the integrated system.
- Finalize the project by conducting a project closeout meeting and soliciting lessons learned for a successful handover to warranty services.

B.6.1. Clarifications and Assumptions

Revisions to the price or other details in this quote may be required if the following assumptions are incorrect or incomplete.

Network

- Bandwidth on existing network is sufficient for both existing applications and quoted additional new equipment.
- Customer-supplied backhaul network links support multicast traffic, support an MTU size of up to 1526 bytes, and provide a dedicated interface in the form of Ethernet (RJ-45) connector or T-1 suitable for connection to EFJohnson's Cisco routers.
- IP addresses are available for use in blocks of sufficient quantity on any existing network to accommodate routing between the sites and equipment specified. If only analog circuits are available, routers have been considered with DSU/CSU capability.
- Networks conform to the performance and design criteria specified in the Carrier Transport Requirements document, available upon request.

Sites

- Customer will ensure/supply adequate physical space at existing sites for installation, use, and maintenance of the system. Any new site development is Customer's responsibility.
- Customer will ensure/provide adequate temperature/environmental control, grounding and lightning protection at existing sites.
- Uninterruptible power supplies (UPS) or power conditioning equipment if required/desired is the responsibility of the Customer.
- Power adequate for the installation, use, and maintenance of the system will be provided at all sites, to include adequate outlets, distribution, and source power. Necessary upgrades are the responsibility of the Customer.

- This quote does not include tower analysis and changes related to wind and/or ice loading.

RF Equipment

- Customer has obtained all necessary frequencies by the time the quote is accepted and the order is placed.
- This quote does not include antennas or cabling.
- Additional RF filtering needed to overcome or mitigate interference is the responsibility of the Customer.
- Existing frequencies are non-interfering with any new frequencies to be used in this proposal.
- This quote does not include any site surveys.
- This quote does not include any coverage analysis or testing.

Services

- Third-party services, procurement, and management are the responsibility of the Customer unless specifically included in this quote.
- Subscriber programming necessary to handle changes to any existing system is already in place or will be handled by the Customer.
- Subscriber upgrade programming that allows existing subscribers to work on new system will be the responsibility of the Customer.
- Upgrades to any existing console systems required to interface to the new system will be the responsibility of the Customer.
- Post-installation testing and test plan creation not specifically identified in this quote is not included.
- Training is not included in this quote. Upon request, EFJohnson can work with the Customer to identify and review all features incorporated into the new ATLAS radio system and finalize and quote a mutually agreed-upon Training Plan.

Products

- Software and equipment specified in the quote are generally released EFJohnson solutions. No tailoring of existing features or new feature development will be performed unless otherwise stated in this quote.
- ATLAS 4500 series repeaters will require a minimum of sixteen (16) weeks from date of purchase order for procurement and production. Additional time will be required for any

necessary pre-staging and programming. Customer should account for equipment lead time in any proposed implementation schedule to the end-user.

Warranty and Maintenance

- For EFJohnson to service software maintenance/warranty, the proposed equipment must be connected to an ATLAS Network Management System (NMS).
- For EFJohnson to service software maintenance/warranty, a customer, or end-user, a supplied Virtual Private Network (VPN) will be available to access the system for remote troubleshooting/corrective action. If no VPN access is available and travel is required for initial troubleshooting, travel costs will be quoted and billed on a by-incident basis.
- Software is licensed in accordance with the Software License Agreement. A Software Care Agreement may be purchased to ensure updated software.

B.7. Warranty and Maintenance

EFJohnson's ATLAS P25 System is designed with a modern, IP-based network architecture, which allows us to provide a one-of-a-kind system maintenance program to keep the system current throughout its lifecycle. EFJohnson's standard ATLAS System support offering includes the following:

- One-year system Hardware Care and Software Maintenance shall apply upon shipment. Extended Hardware Care and Software Maintenance may be purchased at time of sale or no later than the end of the first year of system operation (during the included first year of Hardware Care and Software Maintenance). If extended Hardware Care and Software Maintenance are not purchased within the first year and are desired at a later time, a reinstatement fee as well as other charges may apply:
 - Hardware Care consists of repair-or-replace service of the covered infrastructure equipment. Upon receipt of a failed unit, EFJohnson's Repair Center determines whether to repair the failed part or replace the product.
 - Software Maintenance provides updates to address bug-fix issues and enhance existing software features on the Customer's software platform.
 - A Software Care Agreement may be purchased in addition to this quote to ensure updated software features that can be implemented via existing system components while maintaining the current mode of operation.
- 24x7 Remote support provided by EFJohnson or certified Local Service Provider to rectify issues that cannot be fixed via telephone support.
- Annual preventative maintenance on ATLAS System equipment purchased under this contract to be performed by certified ATLAS technicians. The Customer will receive an

inspection and maintenance report that indicate any deficiencies of antenna mounts, antennas, transmission lines, ground systems, or site conditions in need of immediate attention or concern.

When more details about the Customer's configuration and site locations are known, EFJohnson can quote 24x7 Telephone Support and on-site fixed equipment diagnostic, administration, and repair support necessary for on-site system restoration to be provided by certified local technicians.

B.8. Subscriber Radio Descriptions

Public safety and all essential end-users need dependable radios. The consolidation of EFJohnson's P25 subscriber portfolio under a single KENWOOD brand signifies the combination of two strengths—EFJohnson's proven P25 software expertise and KENWOOD's recognized quality and reliability. KENWOOD Viking® radios with TrueVoice™ technology are used throughout the world by military, police, fire, paramedics, transportation, public works, and homeland security personnel. Smarter engineering makes these radios reliable and easy to operate. We are dedicated to building personalized long-term partnerships, ensuring customers receive the solution that works best for your operational and mission-critical needs. Viking subscribers offer the following advantages:

- High-quality build that allows us to confidently offer a 3-year standard warranty
- Best-in-class Armada® Fleet Management software with template-based code plugs
- AES encryption to protect sensitive communications
- TrueVoice state-of-the-art, software-based noise-cancelling technology
- Easy-to-manage perpetual software licenses with Vault®
- Over-the-Air Programming with "Smart Update" (Option)
- Over-the-Air Rekeying (OTAR) (Option)

B.8.1. Superior Audio Performance

All Viking radios use the Enhanced AMBE+2 P25 Vocoder. In October 2005, the Project 25 Steering committee adopted the P25 Enhanced Vocoder as the recommended baseline for all P25 systems. Viking was the first high-tier P25 trunking radio to implement the new Enhanced P25 Vocoder as a standard feature across its entire radio portfolio.

First responders and non-mission-critical operational users have experienced the AMBE+2 P25 Enhanced Vocoder's noticeably better audio clarity in moving vehicles at high speeds, or when radios are operated in high-noise environments. While most other manufacturers of mobile radios have now caught up and use this vocoder, there are still a few model radios still being marketed that continue to use old technology.

B.8.1.1. TrueVoice Noise Reduction Technology

Viking subscribers are enabled with TrueVoice, EFJohnson's best-in-class, frequency-based noise cancellation, which works for every call regardless of environment or accessory. TrueVoice eliminates the need to adjust settings while on scene. Its software-based technology is an advanced approach to voice clarity that consistently outperforms multi-microphone radio technologies. TrueVoice noise reduction technology is offered on all proposed radios and tiers, including both portables and mobiles, in analog and digital modes.

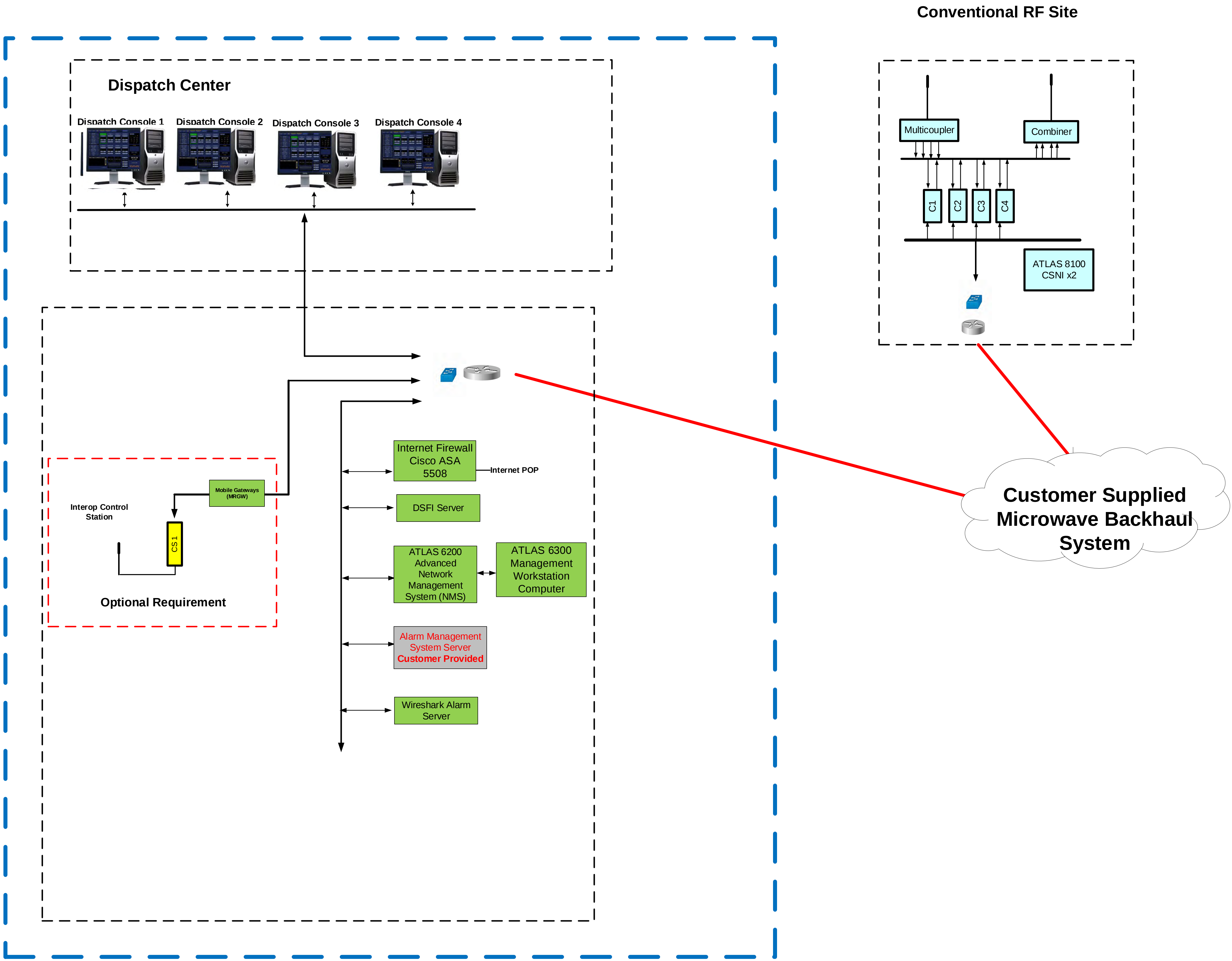
B.8.2. KENWOOD Viking VP5000 Portable

Smarter engineering makes the Viking VP5000 portable radio a reliable option for your agencies. We listened to our end-users and created a rugged radio that offers effortless communications in even the most hazardous environments. At just under 5.5 inches tall, these small Viking portable radios are packed with advanced features for your end-users.

The portable radio has been tested to, and meets and exceeds, MIL-STD 810G standards for high and low pressure, temperature shock, solar radiation, rain, humidity, salt fog, blowing dust, vibration, and shock. The 5000 portable series also meets Military Standards 810C, D, E, and F, and G. With mixed protocol operation capabilities, superior audio, and advanced visual features, built-in GPS capabilities, and IP67/68 rating, the Viking VP5000 is a value-packed, high-quality option for first responders and local government alike.

B.8.1. KENWOOD Viking VM5000 Mobile

The Viking VM5000 is a next-generation P25 radio that offers multiple configuration options. It is equipped with industry-leading audio, display, and advanced feature capabilities for public safety and operational users. The VM5000 supports up to 1,024 channels; has mixed protocol zones; and has a P25 conventional vote scan. The VM5000 also includes a KENWOOD control head (KCH-19, NX-5000 series), which is equipped with programmable option buttons, automatic backlight brightness, and a detachable front panel. It also has internal and external speakers.



*Note: All system diagrams are preliminary representation of the EFJohnson proposed design. Final system diagrams will be provided after award and Critical Design Review (CDR).

Conventional System Block Diagram

Project Name:	NASPO		
P25 Radio System Drawing Package			
Prepared by:	Renardo D. Lewis		
Drawing Date and Revision:	1/29/2021		

Alarm Management Server
(Provided by Customer)

Cisco Internet Firewall

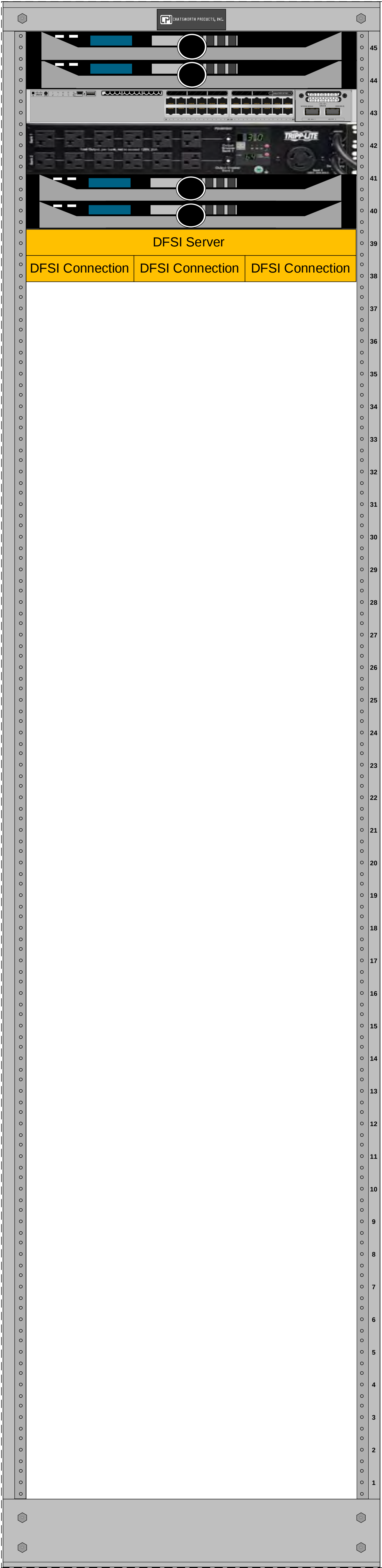
CISCO Layer 3 Switch

AC Distribution Panel

Wireshark Capture Box

ATLAS 6200 Advanced NMS

DFSI



Dispatch Site Equipment



ATLAS 6300 Alarm Management
Terminals

*Note: All system diagrams are preliminary representation of the EFJohnson proposed design. Final system diagrams will be provided after award and Critical Design Review (CDR).

Project Name:	NASPO		
P25 Radio System Drawing Package			
Prepared by:	Renardo D. Lewis		
Drawing Date and Revision:	1/29/2021		

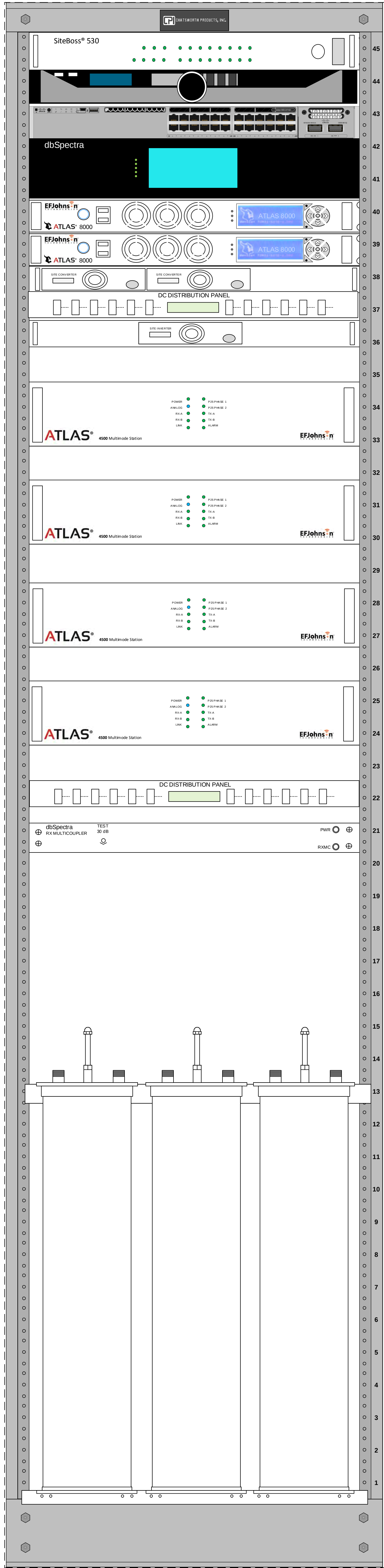
Site Alarming Equipment
Wireshark Capture Box
CISCO 9300 Layer 3 Switch
VHF Power Monitor
ATLAS 8000 Conventional Controller
DC to DC Converters
DC Distribution Panel
DC to AC Rack Inverter

ATLAS 4500 Conventional VHF Base Stations (4)

DC Distribution Panel

VHF Multicoupler

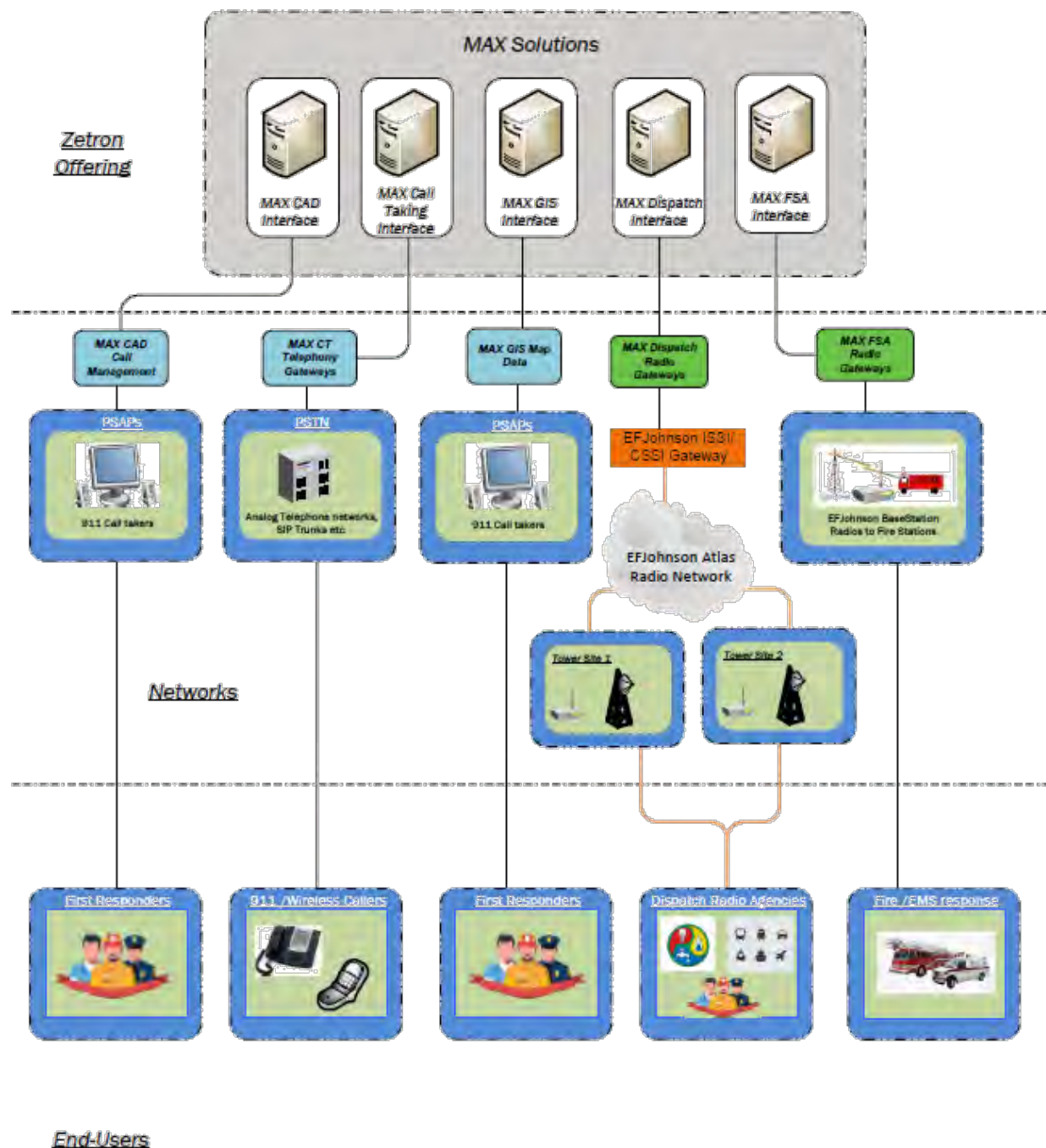
4-Channel VHF Combiner (15 RU)



Conventional P25 Phase I RF Site

*Note: All system diagrams are preliminary representation of the EFJohnson proposed design. Final system diagrams will be provided after award and Critical Design Review (CDR).

Project Name:	NASPO		
P25 Radio System Drawing Package			
Prepared by:	Renardo D. Lewis		
Drawing Date and Revision:	1/29/2021		



E.F. JOHNSON COMPANY

Response to Washington State Department of Enterprise Services Competitive Solicitation – No. 00318

For Public Safety Communications Products, Services and Solutions

Exhibit B-2 –Solution Products List

February 8, 2021



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Table of Figures

Figure 1 . Exhibit B—Solution Products List2

B Exhibit B2 — Solution Products List

This proposal includes a complete but preliminary parts list (provided as an attachment to this section). The parts list will be finalized as part of the Critical Design Review.

Qty	Manufacturer	Product Name	Product Number
2	EFJohnson	CAPTURE SERVER FOR ATLAS SYSTEM	3356000010
4	EFJohnson	POWER CORD,18-3,10A,125V,7.5 FT	5971001123
4	EFJohnson	ATLAS 4500 DC VHF PHASE 1 CONVENTIONAL MULTICAST	3354521111
2	EFJohnson	ATLAS 8100 CONV SITE NETWORK I/F (CSNI) ADVANCED	3358100101
1	Tripp Lite	TRIPPLITE SRSHELF2P1U RACK ENCL 40LB FIXED SHELF	8883201004
1	dB Spectra	WALL JUMPER TX 10-FT	ALLOWANCE112
1	dB Spectra	WALL JUMPER RX 10-FT	ALLOWANCE114
4	dB Spectra	COMBINER JUMPER	ALLOWANCE115
4	dB Spectra	MULTICOUPLER JUMPER--RG142	ALLOWANCE117
2	Chatsworth Products, Inc	SYSTEM RACK 19" X 7'-0" UNI CLR 45RU CPI 46353-503	3361100004
1	dB Spectra	137-174 MHz, VHF Universal Milled Window Filter (MWF1)	TBD336
1	dB Spectra	dB Spectra VHF Pwr Monitor (DSXPM5A-DFDC)	TBD336
2	Harger	RACK GROUND BUS 72" HARGER RGBVKIT145872EFJT	3361109001
1	Innovative Circuit Technology Ltd.	RACK INVERTER 48VDC-120VAC 300W ICT300-48SNV	3361110053
1	Innovative Circuit Technology Ltd	RACK INVERTER 19" MOUNT KIT 3 UNITS 1RU ICT-RMK3	3361110059
2	CUI Inc.	CONVERTER DC-DC 12V 16.7A 200W CUI VHK200W-Q48-S12	3361000203
2	Innovative Circuit Technology Ltd	ICT DUAL BUS SMART DC DIST UNIT ICT200DB-12IRC/EFJ	3361113052
2	Cisco	Cisco 9300 layer 3 Switch 24-port (DC kit)	3364141005
1	Asentria	SITE ALARM PANEL -48V A&B SNMP ASENTRIA S530/EFJ	3361118015
1	Asentria	SITE ALM T&H PROBE FOR S530 ASENTRIA ESJ-TH8/EFJ	3361118018
1	dB Spectra	VHF COMBINER 148-160MHZ 4CH 5" DB DS4345D-4BD	3361120004
1	dB Spectra	VHF MULTICOUPLER 118-175 MHZ 8-CH DB DBSMC1-08A	3361129001
1	EFJohnson	ATLAS 6200 ADVANCED NETWORK MANAGEMENT SYSTEM	3356200001
1	EFJohnson	ATLAS 6300 MANAGEMENT WORKSTATION	3356300001
3	EFJohnson	ATLAS 7000 STARGATE CONSOLE	3357000002
3	EFJohnson	HM SUPERVISOR CONNECTION INTERFACE MODULE	5851156400

Qty	Manufacturer	Product Name	Product Number
3	EFJohnson	HM OPERATOR CONNECTION INTERFACE MODULE	5851156402
3	EFJohnson	MONITOR, 19" LCD	5853950005
6	EFJohnson	HEADSET MICROPHONE PTT AND AMPLIFIER CONTROLLER	5890012025
6	EFJohnson	HEADSET MICROPHONE ASSY, VOICE TUBE	5890012027
6	EFJohnson	ABOB-HIB INTERFACE CABLE	597395010501
1	Cisco	INTERNET FIREWALL CISCO ASA5508-FPWR-K9	3361117002

Figure 1 . Exhibit B—Solution Products List