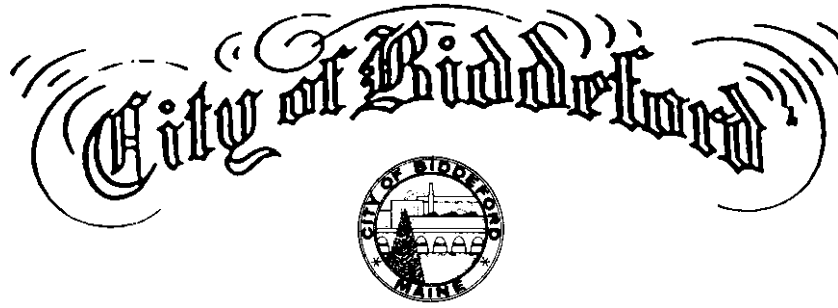


City of Biddeford
City Council - Special Meeting
November 10, 2020 6:30 PM Via ZOOM
Please click the link below to join the webinar:
<https://biddeford.zoom.us/j/91728922435>
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253 215 8782 or +1 346 248 7799
Webinar ID: 917 2892 2435
International numbers available: <https://biddeford.zoom.us/j/91728922435>

- 1. Roll Call**
- 2. Adjustment(s) to Agenda**
- 3. Orders of the Day**
 - 3.1. 2020.102) Authorization/Lease and Financing Agreement w/Motorola Solutions, Inc. for City Wide Radio System Upgrade
[Council Order for CM Authority Financing of Radio System Rev1.doc](#)
[11-10-2020 Radio System Upgrade -backup docs.pdf](#)
[Biddeford Radio System Upgrade p155 Lease Option.pdf](#)
 - 3.2. 2020.103) Acceptance of 5-Year Housing Goals
[11-10-2020 Housing Goals - ORDER.doc](#)
[11-10-2020 Housing Goals - MEMO.docx](#)
 - 3.3. 2020.104) Authorization/Joint Development Agreement/Saco-Lowell Building
[11-10-2020 Saco-Lowell JDA - ORDER.doc](#)
[11-10-2020 Saco-Lowell JDA - MEMO.docx](#)
[11-10-2020 Saco-Lowell JDA-Agreement Doc.doc](#)
 - 3.4. 2020.105) Authorization/Disposal of Acorn Street Property
[11-10-2020 Acorn Street Property Disposal-MEMO.docx](#)
[11-10-2020 Acorn Street Property - MAP.pdf](#)
- 4. Public Addressing the Council..(5 minute limit per speaker; 30 minute total time limit)**
- 5. City Manager Report**
- 6. Other Business**
- 7. Council President Addressing the Council**
- 8. Mayor Addressing the Council**
- 9. Adjourn**



2020. IN BOARD OF CITY COUNCIL...NOVEMBER 10, 2020

BE IT ORDERED, that the City Council of the City of Biddeford does hereby authorize the City Manager to sign and execute a ten (10) year Lease and Financing Agreement with Motorola Solutions Inc. in the amount not to exceed \$4,476,905 as outlined in the attached Agreement, for the purchase of a two-way radio simulcast trunked system, as the City Wide Radio System Upgrade. As per p155 of Biddeford Radio System Upgrade agreement the annual cost of lease is \$550,809.31 which is an impact of .22 cents to the mill rate as calculated below. Please also see attached p155.

Cost of Lease - Impact on Mill Rate:

Annual Cost of Lease	\$550,809.31
Total Valuation Base FY21	\$2,496,680,640.00
Impact on mill rate	\$0.22
Should TIF plan move forward - potential savings	\$0.07
<i>Potential mill rate if offset by TIF</i>	<i>\$0.15</i>

CITY OF BIDDEFORD, ME

RADIO SYSTEM UPGRADE

September 17, 2020

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

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September 17, 2020

Chief Roger P. Beaupre
Biddeford Police Department
39 Alfred Street
Biddeford, ME 04005

Subject: Citywide Communications Upgrade

Dear Chief Beaupre:

Motorola Solutions, Inc., is pleased to have the opportunity to provide the City of Biddeford with quality communications equipment and services. Motorola Solutions has developed the enclosed solution to address the product reliability and end of life issues of the existing communications and dispatch system.

To address the end of life and reliability issues, Motorola Solutions' solution includes a combination of hardware, software, and services. Specifically, our solutions include:

- Seven (7) MCC7500E Dispatch Consoles.
- 800 MHz, 3-Site, 4-Channel TDMA Trunking System.
- MCD5000 Deskset System.
- 306 APX Mobile and Portable Radios for Police, Fire and Lifeguards.
- 11 DVRS (Digital Vehicular Repeater Systems) for Police and Fire.

This proposal consists of this cover letter and the following written proposal document. The City of Biddeford can sign the Communications System and Service Agreement, or a purchase order can be made out to Motorola Solutions. Alternatively, Motorola Solutions would be pleased to address any concerns the City of Biddeford may have regarding the proposal. Any questions can be directed to your Motorola Solutions Account Executive Scott Cruikshank at (978) 270-5505.

We thank you for the opportunity to furnish you with this proposal.

Sincerely,



Roy Kirchner
MSSSI Vice President

TABLE OF CONTENTS

Section 1

System Description	1-1
1.1 ASTRO 25 RF Subsystem	1-1
1.1.1 Master Site Components	1-1
1.1.1.1 Zone Controller	1-2
1.1.1.2 System Access Features	1-2
1.1.1.3 Individual Call Features	1-4
1.1.1.4 User Accessibility Features	1-5
1.1.1.5 ASTRO 25 System Failure Mode Analysis	1-5
1.1.2 Simulcast Sites	1-7
1.1.3 Simulcast Prime Site	1-10
1.1.3.1 GCP 8000 Site Controller	1-10
1.1.3.2 GCM 8000 Comparator	1-10
1.1.3.3 Site LAN Switch	1-10
1.1.3.4 RF Site Gateway	1-11
1.1.3.5 TRAK 9100 Simulcast Site Reference	1-11
1.1.3.6 Sub-Site Access Routers	1-11
1.1.3.7 Prime Site Ethernet Switches	1-11
1.1.3.8 Sub-Site Ethernet Switches – Dual LAN Remote Sub-Site	1-11
1.1.4 Simulcast Remote Site	1-12
1.1.4.1 GTR 8000 Site Repeater/Base Radio	1-12
1.1.4.2 Site LAN Switch	1-12
1.1.4.3 RF Site Gateway	1-12
1.1.4.4 TRAK 9100 Simulcast Site Reference	1-12
1.1.4.5 Radio Frequency Distribution System	1-13
1.1.4.6 Antenna Systems	1-13
1.2 Dispatch Console Configuration	1-13
1.2.1.1 Embracing Interoperability and Integration	1-14
1.2.1.2 Connection to ASTRO 25 System	1-14
1.2.1.3 Conventional Base Station Interfaces	1-15
1.2.1.4 Customizable Dispatch Interface	1-15
1.2.1.5 Auxiliary Inputs/Outputs	1-16
1.2.1.6 Standard Radio Transmission and Reception	1-16
1.2.1.7 Emergency Radio Transmission and Reception	1-17
1.2.1.8 Radio Patch Control	1-17
1.2.1.9 Call Management and Control	1-18
1.2.2 Logging Recorder Interface (AIS)	1-19
1.2.3 Protecting Consoles and Communications	1-19
1.2.3.1 Secure Access to the Console	1-19

1.2.3.2	Secure Communications at the Console	1-19
1.2.4	Incorporating Console Configuration and Management.....	1-19
1.2.5	Dispatch Console Solution Components.....	1-20
1.2.5.1	MCC 7500E Console Operator Position.....	1-20
1.2.6	Backup Power Systems	1-21
1.3	IP Network.....	1-22
1.3.1	MPLS.....	1-22
1.3.2	System Components	1-22
1.3.2.1	ASTRO 25 Master Core	1-22
1.3.2.2	ASTRO 25 RF Subsystem Site Components	1-23
1.4	Coverage.....	1-25
1.4.1	RF Coverage Maps and Methodology.....	1-25
1.5	System Diagrams.....	1-27
1.6	Project 25 APX Subscribers.....	1-29
1.6.1	Enhanced Audio Features.....	1-29
1.6.2	Advanced Software Features	1-30
1.6.3	Advanced Data Capabilities	1-30

Section 2

Statement of Work	2-1
2.1 Assumptions.....	2-1
2.2 Civil Work	2-10
2.2.1 Site Development at DPW Site	2-10
2.2.2 Site Development at PDHQ Site	2-11
2.2.3 Site Development at Water Tank Site	2-13
2.2.4 Site Development at Backup Dispatch Site.....	2-14
2.2.4.1 Example - Change Order Form	2-18
2.3 Project Schedule	2-21

Section 3

Sample Acceptance Test Plan.....	3-1
3.1 Wide Area Trunking - TDMA Only Sites.....	3-2
3.1.1 Talkgroup Call	3-2
3.1.2 Continuous Assignment Updating	3-3
3.1.3 Multigroup Call in Wait Mode	3-4
3.1.4 Call Alert.....	3-5
3.1.5 Private Call.....	3-6
3.1.6 Audio Interrupt / Interrupt Never Mode.....	3-7
3.1.7 Emergency Alarm and Call with Top of Queue	3-8
3.2 Site Trunking - TDMA Only Sites	3-9
3.2.1 Site Trunking Indication.....	3-9
3.2.2 Talkgroup Call	3-10
3.2.3 Call Alert.....	3-11

3.2.4	Private Call	3-12
3.2.5	Continuous Assignment Updating	3-13
3.2.6	Busy Queuing and Callback	3-14
3.2.7	Emergency Call and Alarm.....	3-15
3.3	MCC 7500E Trunked Resources	3-16
3.3.1	Instant Transmit.....	3-16
3.3.2	Talkgroup Selection and Call	3-17
3.3.3	Emergency Alarm and Call Display Description	3-18
3.3.4	Multigroup Call	3-19
3.3.5	Multi-Select Operation	3-20
3.3.6	Talkgroup Patch	3-21
3.3.7	Alert Tones - Talkgroup.....	3-22
3.3.8	Call Alert.....	3-23
3.3.9	Activity Log	3-24
3.3.10	Instant Recall Recorder (IRR) Operation	3-25
3.4	Audio IP Logging	3-26
3.4.1	Logging Trunking Talkgroup Call	3-26
3.4.2	Logging Subsystem - Emergency Events and Calls-Emergency Alarm.....	3-27
3.5	Radio Control Manager (RCM) Features	3-28
3.5.1	Radio Check.....	3-28
3.5.2	Radio Snapshot.....	3-29
3.5.3	Selective Radio Inhibit.....	3-30
3.6	Fault Management	3-31
3.6.1	Unified Event Manager - Base Views.....	3-31
3.6.2	Station Power Amp Failure Reports to the Unified Event Manager (UEM)	3-32
3.6.3	Core Router Failure Reports to the Unified Event Manager.....	3-33
3.6.4	Site Path Failure (Ethernet) Reports to the Unified Event Manager.....	3-34
3.7	System Reliability Features.....	3-35
3.7.1	Base Station Identification.....	3-35
3.7.2	Transmitter Power Failure Shutdown	3-36
3.8	MOSCAD UEM Integration.....	3-37
3.8.1	Physical Inputs/Outputs - Digital Inputs.....	3-37
3.8.2	UEM Enhanced Navigation Functionality - Unacknowledged / Acknowledged Alarm	3-38
3.8.3	Screen Navigation	3-39
3.8.4	Physical Inputs/Outputs - Analog Inputs	3-40
3.8.5	TRAK GPS - GPS Fault	3-41
3.9	MOSCAD Fault Management System.....	3-42
3.9.1	TRAK Communication Status Fault (UEM)	3-42
3.9.2	TRAK GPS - Power Supply Fault.....	3-43
3.10	MCC 7500E Conventional Resources.....	3-44
3.10.1	Enhanced CCGW 2-wire Analog Interface Muting	3-44
3.10.2	Enhanced CCGW 4-wire Analog Interface Muting	3-45

3.11 Signoff Certificate	3-46
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Section 4

Coverage Acceptance Test Plan	4-1
4.1 Overview	4-1
4.2 CATP Definitions	4-1
4.2.1 Defined Test Area	4-1
4.2.2 Channel Performance Criterion (CPC)	4-2
4.2.3 Reliability	4-3
4.2.4 Direction(s) of Test	4-3
4.2.5 Equipment Configurations	4-3
4.2.6 CPC Pass/Fail Criterion for a Test Tile	4-11
4.2.7 Required Number of Test Tiles in the Defined Test Area	4-11
4.2.8 Accessibility to Test Tiles	4-12
4.2.9 Random Selection of a Test Location in Each Tile	4-12
4.2.10 CPC Measurements in Each Tile	4-12
4.3 Responsibilities and Preparation	4-12
4.4 CATP Procedures	4-13
4.5 CATP Documentation and Coverage Acceptance	4-14

Section 5

Training Plan	5-1
5.1 Training Overview	5-1
5.2 Motorola Solutions Training	5-1
5.2.1 Training Delivery	5-2
5.2.2 Training Courses	5-3
5.2.3 Training Tools	5-4
5.3 Proposed Training Overview for Biddeford	5-5
5.3.1 System Administrator Training Plan	5-5
5.3.2 Console Operator and Supervisor Training Plan	5-6
5.3.3 Radio End User Training Plan	5-6
5.3.4 Course Descriptions for the City of Biddeford	5-7
5.3.4.1 ASTRO® 25 IV&D System Overview	5-7
5.3.4.2 ASTRO® 25 IV&D Radio System Administrator Workshop	5-8
5.3.4.3 MCC7500 Console Supervisor	5-9
5.3.4.4 MCC7500 Console Operator	5-9
5.3.4.5 APX Portable and APX Mobile Train-the-Trainer	5-10

Section 6

Warranty Services	6-1
6.1 Warranty Services	6-1
6.1.1 Dispatch Service	6-1
6.1.2 OnSite Infrastructure Response	6-2
6.1.3 Technical Support Service	6-2

6.1.4	Infrastructure Repair.....	6-2
6.2	System Upgrade Agreement II (Optional)	6-2
6.2.1.1	Included Features.....	6-3
6.3	Post Warranty Services.....	6-3

Section 7

Pricing	7-1
7.1 Contract Pricing.....	7-1
7.2 Optional Out Years Maintenance and Lifecycle Services Pricing	7-2
7.3 Equipment List	7-3
7.4 Communications System and Service Agreement.....	7-25



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SECTION 1

SYSTEM DESCRIPTION

In response to the City of Biddeford request for a system recommendation, Motorola Solutions selected a solution to best address your communication needs, an ASTRO 25 Phase 2 trunked simulcast system. This proposal includes the necessary hardware, software, and services to implement the new simulcast system along with the Core and Console.

This proposal includes:

- P25 Master Site with Licenses and Network Equipment.
- Prime and RF Sites Equipment.
- MPLS.
- MCC7500E Consoles.
- Subscribers.

1.1 ASTRO 25 RF SUBSYSTEM

The new RF trunking system will consist of one Simulcast cell with the Prime site equipment located at PDHQ where the voting comparators, site controllers and co-located RF will reside. The proposed Master Core will connect to the Prime site via Biddeford provided fiber backhaul not provided with this quote.

The proposed City-wide trunked TDMA Simulcast network consists of the following sites:

- PDHQ Core, Main Dispatch, Prime and Collocated RF with four (4) Channels.
- DPW – Remote RF Site with four (4) Channels.
- Water Tank – Remote RF Site with four (4) Channels.

All equipment for this new 800 MHz Trunked Simulcast system requires IP Site connectivity, which is being provided by the City of Biddeford.

The master site is the central point for all system traffic in each ASTRO 25 zone. Call processing and system management occur at the master site. The Voice and Data call processing for each zone is performed by the Zone Controller. The Zone Controller(s) maintain constant communication between the RF Sites, Simulcast Sites and Network Management (NM) sub-systems via the Network Transport Subsystem. The master site will support voice trunking operation for the single zone TDMA simulcast system that is being proposed.

1.1.1 Master Site Components

A zone has a master site that contains the computing backbone for that zone. The master site contains all the components necessary for controlling calls within a zone. In addition, the master site provides the hardware and software components that are used for Network Management and system configuration.

All the components that communicate over Ethernet are connected through a central switch called the master site Ethernet LAN switch. This switch provides two separate internal LANs which are integrated to provide redundant links for critical network traffic.

The zone controller is used to process system-wide commands and handle call processing and mobility management functions for the system. In systems with two zone controllers, there is a connection from each zone controller to the LAN switch and a direct connection between the two zone controllers. The LAN switch connection allows each zone controller to communicate with the gateway routers/Core Gateways.

1.1.1.1 Zone Controller

The Zone Controller provides trunking call processing for ASTRO 25 system operation. The Zone Controller forms the heart of a wide-area radio system by providing the central processor for the zone, with the necessary hardware and software capabilities to provide call processing and mobility management.

**RELIABILITY THROUGH
REDUNDANCY**

The Zone Controller builds upon the strength and experience of Motorola Solutions wide-area trunking systems to deliver multiple layers of reliability for business-critical, Mission-Critical and life-critical applications.

The Zone Controller is supplied in a redundant controller configuration, and provides the following:

- **System Availability** – The Zone Controller allows software upgrades once loaded, providing enhanced system availability.
- **Intelligent Switchover** – The Redundant Configuration provides automatic switchover to the standby controller if a loss of wide-area communications is detected. Notification can be sent to the user if other components fail, allowing the user to manually switch to the standby controller if desired.
- **Cross Controller Compatibility** – Capable of running two different versions of software simultaneously, ensuring upgrades are fully functional with one controller before upgrading the second controller.
- **Redundant Configuration** – The Redundant Zone Controller is a computer platform with redundant processors that provide trunking call processing for ASTRO 25 wide-area radio communication systems. It is designed to detect failures by automatically switching operation to the standby controller, minimizing the interruption of call processing functionality.

1.1.1.2 System Access Features

To ensure system access, simplify radio operation, and limit operator involvement, the ASTRO 25 platform has many access features, as described below.

Busy Queuing/Call Back

This system has been designed to maximize availability to the end-user. In the unlikely event that all the channels are busy, a user depressing the Push-To-Talk (PTT) will be given a busy signal, and placed into a busy queue. When a channel becomes available, the system assigns the users to a channel via pre-assigned priority levels. Once a channel is assigned, the system notifies the user with a call back tone. This feature makes it unnecessary for the radio operator to waste valuable time rekeying the radio in order to gain channel access.

Automatic Retry

If a channel request is not received at the Zone Controller, the individual radio unit continues sending channel requests until the Controller acknowledges the request, or until a total of 16 automatic retries occur. This feature eliminates the need for the operator to continually key and de-key the radio, or to keep the radio keyed in order to gain system access.

Recent User Priority

To ensure uninterrupted communications, a recent radio user priority provides those users who have been recently assigned a voice channel priority over the other system users. Recent user priority ensures that a talkgroup engaged in a conversation receives priority system access for up to 10 seconds between transmissions.

Misdirected Radio Protection

To ensure a radio from one talkgroup cannot accidentally be assigned to a voice channel being used by a different talkgroup, the system utilizes embedded signaling. If a unit from a different talkgroup is accidentally assigned the same channel, the radio will recognize that it has been assigned incorrectly, and will automatically revert to the control channel.

Continuous Assignment Updating

Once a talkgroup is assigned a voice channel, the control channel continues to transmit the channel assignment for as long as that talkgroup is using the channel. This ensures a radio just coming into service will be sent to the appropriate voice channel to join the rest of its talkgroup.

Talk Prohibit Tones

In the event a user attempts to perform an unauthorized function as defined by system permissions, a talk prohibit tone is given.

User Talkgroup Features

To enhance user functionality, the ASTRO 25 platform has many talkgroup features, also known as group call, as described below. These features are configurable by the System Administrator.

Emergency Alarm/Call

Emergency alarm/call provides users the capability to inform dispatch personnel of a life-threatening situation. By pressing the radio's emergency alarm button, an audible and visible alarm and the user's ID is sent to the dispatcher and, potentially, other talkgroup members.

In emergencies, the dispatch center is notified immediately, regardless of whether the system is busy. If one or more voice channels are available, one of those channels will be assigned immediately to the emergency call when the user presses the PTT switch. The duration of the emergency call can be defined by the system administrator. In the event that the system is busy, two alternatives are provided for handling emergency traffic:

- ***Top of the Queue***— When an emergency is initiated and no channel is available, the emergency user is put at the top of the busy queue. As soon as the first user on any channel de-keys, the emergency caller is assigned that channel. The major advantage to this approach is that there is no contention for the channel.
- ***Ruthless Preemption***— When an emergency is initiated and no channel is available, the Zone Controller selects the channel assigned to the lowest priority user and assigns it to the emergency caller—a feature unique to Motorola Solutions trunking systems.

Multiple Priority Levels

The system provides 10 priority levels, allowing administrators to segment their users according to their communications needs. Priority 1 is always reserved for emergencies. Priorities 2 through 10 can be assigned by the System Manager on a per radio or talkgroup basis. These priorities are only applicable when the system is busy.

Multi-Group Call

Multi-group call is used to make a simultaneous call to multiple talkgroups, and allows all units to be configured for talk back capability. The System Manager can program this call to operate in one of two ways:

- The requesting user waits for all requested talkgroups to finish all calls in progress.
- The requested call immediately interrupts other conversations in progress without waiting for active users to de-key. Radio users who are transmitting on a voice channel will not hear the call until they de-key.

Priority Monitor

Priority monitor allows the radio user to scan talkgroups in their system, and mark up to two talkgroups in their scan list as Priority. A non-priority conversation will be interrupted by Priority 1 or Priority 2 talkgroup activity.

Dispatch Console/Talkgroup Merge

Talkgroup merge is a dispatch function that allows multiple talkgroups to operate together on one voice channel, improving channel efficiency. This is a standard feature of Motorola Solutions wireline consoles.

1.1.1.3 Individual Call Features

To further enhance user functionality, the ASTRO 25 platform has individual call features in addition to user talkgroup features, as described below. These features are configurable by the system administrator.

Call Alert

Call Alert allows a dispatcher or radio user to selectively page an individual's radio. Call Alert signaling is conducted over the control channel and does not affect voice channel capacity. The Call Alert produces an audible and visual alert on the receiving radio. Indicators on the initiating radio acknowledge delivery of the Call Alert. If the receiving unit has a display, it will show and store the sending unit's ID.

In-Call User Alert

In-Call User Alert is a feature that builds upon Call Alert. When In-Call User Alert is enabled on the system, radios will be able to receive Call Alerts even when involved in voice and data services.

Radio Talkgroup Muting

Radio Talkgroup Muting is a feature that utilizes the Call Alert feature. Radio Talkgroup Muting allows the radio user to mute all voice traffic for the currently selected talkgroup.

The radio can be automatically un-muted by the console dispatcher or another radio user by sending the muted radio a Call Alert. With In-Call User Alert enabled, the Call Alert will reach the muted radio when it is on the voice channel or a data channel, as well as if it is idle on the control channel.



Private Call

Private Call allows a radio user or console dispatcher to selectively call and carry on a private conversation with another individual radio, as long as that unit is not already engaged in another Private Call. The calling unit will receive an acknowledgment of a successful Private Call. If the receiving radio has a display, it will show the calling party's unit ID.

1.1.1.4 User Accessibility Features

Affiliation Display

The Affiliation Display provides a dynamic view of the sites to which all operating units are currently affiliated, making it easy to track and troubleshoot radios in the system. Specifically, it provides a dynamic view of:

- Sites.
- Talkgroups.
- Individual radios.

This allows a manager to understand the loading characteristics of their system in real-time. Graphing capabilities are also included. Figure 1-1 provides a selected site graph example.

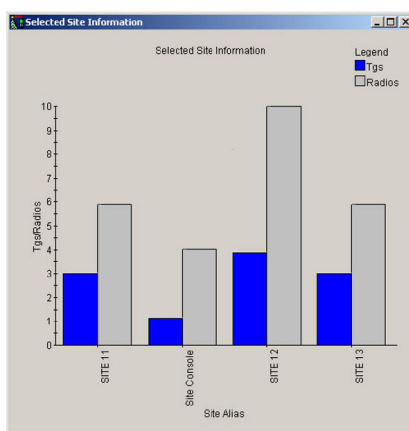


Figure 1-1: Selected Site Graph Example

1.1.1.5 ASTRO 25 System Failure Mode Analysis

Motorola Solutions' ASTRO 25 trunking networks have three modes of operation for increased reliability. The normal mode of operation is wide-area trunking. In the event of multiple component failures that lead to system disruption, the system is equipped to continue operation in two reduced feature operational modes: site trunking and failsoft.

The following pages include a detailed description of each of these operational modes, as well as a comprehensive analysis of the possible infrastructure failure scenarios and the system redundancy for mitigating each scenario.

Wide-Area Trunking

Wide-area trunking is the ASTRO 25 system's normal mode of operation. Wide-area trunking implies that the Fixed Network Equipment is operating properly. All simulcast cells and ASTRO 25 repeater

sites are communicating with the Master Site. Subscriber units automatically roam between the various network RF cells. Talkgroup calls occur in the appropriate RF cells if users are distributed throughout multiple cells. Data applications are properly assigned channels for communication between the subscriber units and the host application.

Site Trunking

Site trunking is the first failover mode of operation. Site trunking impacts individual RF cells within a network. In multiple RF cell systems, one RF cell can be in site trunking, while the rest of the system remains in wide-area trunking. Site trunking implies that the simulcast prime site controller or the ASTRO 25 repeater site has lost connectivity with the Master Site. Talkgroup calls initiated in the RF cell that is in site trunking will only be broadcast in that RF Cell. Dispatch consoles use control stations, or the operators use portable radios to communicate on a site trunking RF cell. Console priority is not available in site trunking. Data applications are not available on a site in site trunking and will have to be reinitiated once the system reverts to wide-area trunking.

Radios detect if a site is in wide-area trunking or site trunking. Radio models with a display will indicate to the user when the site is operating in site trunking. The radio alternately displays the selected talkgroup and “Site Trunking.” Depending on how the system and user equipment are programmed, subscriber units will try to roam to an RF cell that is in wide-area trunking.

Failsoft by Talkgroup

Subsystem/site failsoft is the final fallback means of communication if a site no longer maintains wide-area or site trunking operation. Multiple failures have to occur for the system to enter failsoft. Failsoft impacts individual RF cells within a network. In multiple RF cell systems, one RF cell can be in failsoft, while the rest of the system remains in wide-area trunking. The subsystem goes into failsoft mode in any of these scenarios:

- The site controllers are not functioning properly.
- When all control channels are disabled or malfunctioned.
- When only one channel is enabled.

Failsoft operation provides communications in conventional mode via repeaters/base radios in order to maintain vital communications. In an IP multi-site simulcast subsystem, in subsystem-wide failsoft, received audio is routed to the comparator for voting and redistributed to all of the sites for simulcast transmission. The subscriber’s operation in failsoft mode is determined by the subscriber’s programming. A subscriber can be programmed to behave in the following manner:

- ***Failsoft by control channel operation*** – The subscriber first scans for alternate control channels outside the multi-site subsystem, then scans the control channel frequencies for failsoft data.
- ***Failsoft by working group*** – The subscriber looks for Failsoft data on a pre-programmed frequency after a scan for alternate control channels outside the multi-site subsystem is unsuccessful. If the subscriber cannot decode failsoft data on the pre-programmed frequency, the subscriber then scans the control channels in the simulcast subsystem for failsoft data.

Subscriber units in an RF cell that is in failsoft will try to roam to an RF cell that is in either wide-area trunking or site trunking. Dispatch consoles use control stations or the operators use portable radios to communicate on a site trunking RF cell. Console priority is not available in site trunking. Data applications are not available on a site in failsoft and will have to be reinitiated once the system reverts back to wide-area trunking.



Simulcast Local Failsoft

This feature addresses two simulcast subsystem failure scenarios, prime site to sub-site link failure and prime site failure:

- Upon loss of communication (11 seconds or more) with comparators due to a sub-site link failure, the GTR 8000 Base Radio, when programmed with local failsoft “on,” will automatically enter in-cabinet repeat mode and continuously transmit Failsoft signaling. Link failures of less than 11 seconds or more will not trigger a link failure condition.
- Provides continuity of operations within the coverage area of a simulcast sub-site, in case of loss of connectivity with Prime site, through local in-cabinet repeater mode operation. Prior to this feature, a prime site connectivity failure would cause the sub-site to be non-operational.
- This feature does not provide logic inputs to override and control this functionality, as was implemented on QUANTAR in SmartZone and SMARTNET systems. There is a change request in progress to enable this capability.
- TDMA-based systems will revert to conventional operation during local Failsoft.

1.1.2 Simulcast Sites

A simulcast land mobile radio system provides continuous coverage over a large geographic region using a single set of frequencies. Simulcast solutions extend a system’s RF coverage, especially in areas where available frequencies are limited, and in areas where physical barriers (e.g., mountains and buildings) can cause reduced signal coverage.

Trunked simulcast was developed by Motorola Solutions to meet the needs of users who were outgrowing their single-site radio systems. Simulcast offers the following advantages:

- **Improved Coverage** – One radio site may not provide the coverage necessary for the application in question. Simulcast expands the coverage area by expanding the number of radio sites without adding additional frequencies.
- **Efficient Use of Frequencies** – Adding sites typically requires more frequencies. In a simulcast system, the same frequencies are used at every site in the system. This makes very efficient use of the available spectrum.
- **Simplified Radio Operations** – Because the simulcast architecture operates like a single-site system, operations are simplified and radios are easy to use.

The ASTRO 25 simulcast infrastructure consists of a central simulcast prime site (a typical prime site is shown in Figure 1-2 and up to 32 distributed simulcast remote sites, each with up to 30 channels (a typical remote site is shown in Figure 1-3). The prime site acts as a control and digitized audio center for the simulcast subsystem. Audio is routed to the prime site from each simulcast remote site. To ensure that the best audio from the simulcast receivers is processed, a voting comparator selects the best signal.

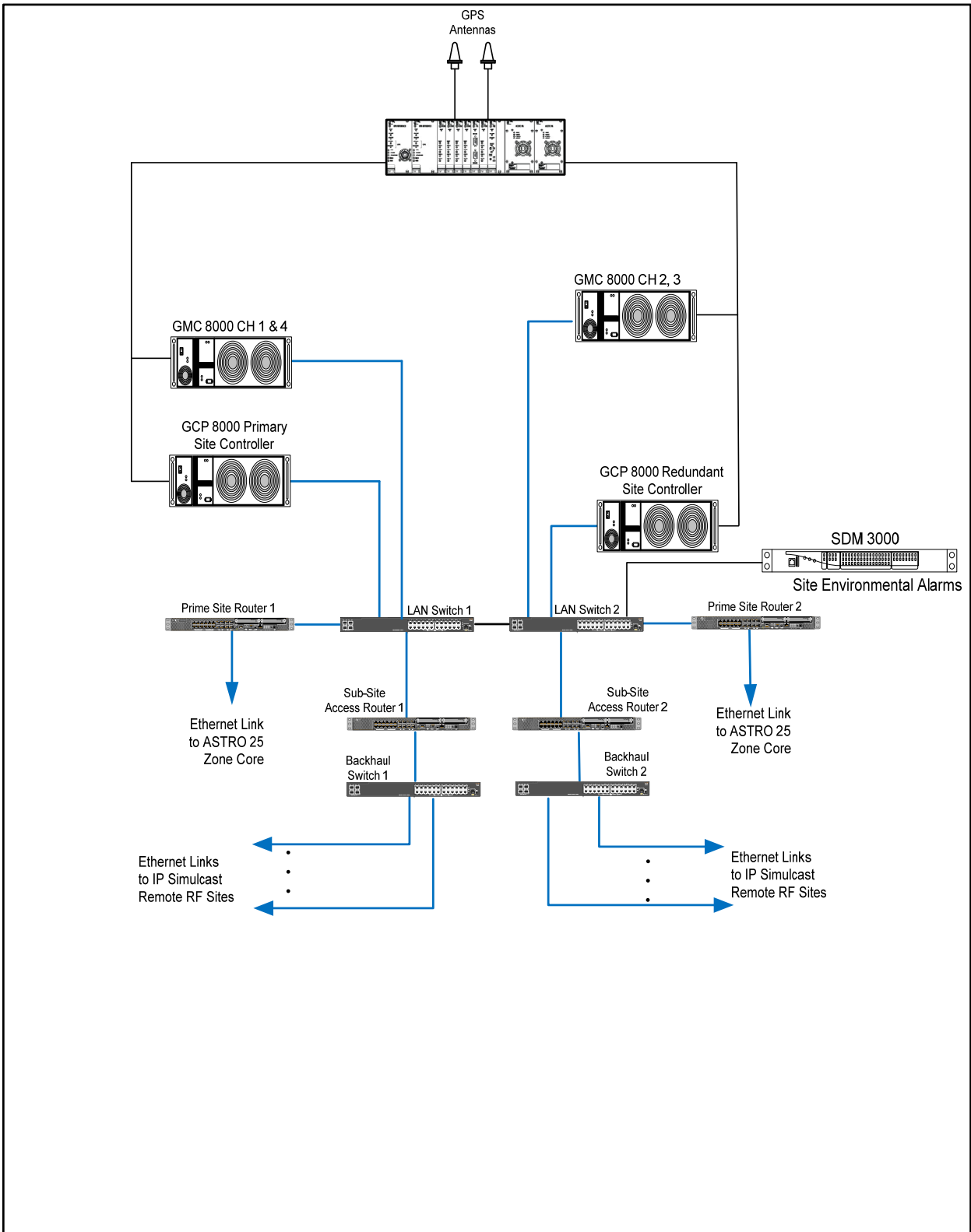


Figure 1-2: Basic Diagram of a Typical ASTRO 25 Simulcast Prime Site

The prime site contains the prime site simulcast controller, simulcast comparators, and networking equipment to interface to the remote simulcast sites. The simulcast RF transmitters and receivers are located at the simulcast remote sites. These sites simultaneously transmit identical information from each site to the radios. The receivers at these sites receive the audio from the user radios, and pass the audio back to the prime site for voting. Audio and site control comes from the prime and Master Sites. Equipment at a simulcast remote site includes a simulcast base radios, fault management equipment, and networking equipment to interface to the prime site.

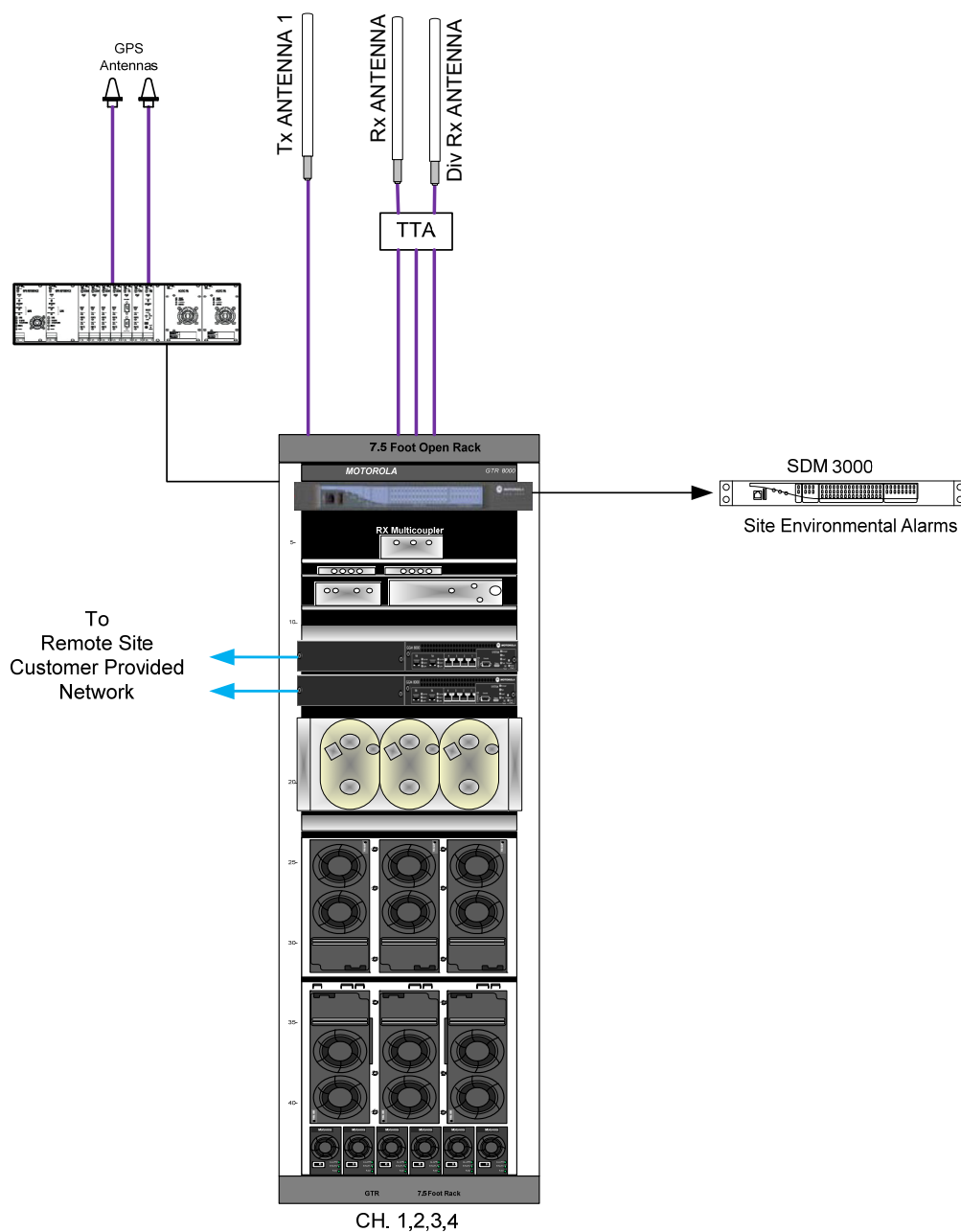


Figure 1-3: Basic Diagram of a Typical ASTRO 25 Simulcast Remote Site

1.1.3 Simulcast Prime Site

The ASTRO 25 Simulcast Prime Site consists of the following components, described in the Component Descriptions section of this System Description:

- GCP 8000 Site Controller.
- GCM 8000 Comparator.
- Site Gateway.
- TRAK 9100 Simulcast Site Reference.
- Sub-Site Access Router.
- Prime Site Ethernet Switch.
- Sub-Site Ethernet Switch.

1.1.3.1 GCP 8000 Site Controller

The GCP 8000 Site Controller (GCP 8000) is the control interface between the transmitter/receiver subsystem and the Zone Controller. The GCP 8000 Site Controller comprises redundant site controller modules; one site controller module acts as the active module, and the second module acts as a standby. The redundancy minimizes the possibility of a single point of failure at the site.

The GCP 8000 provides the following functions:

- Manages the channels to maximize throughput and channel availability.
- Administers registration and context activation requests.
- Monitors base stations and RF distribution equipment and interacts with the UEM's site device manager to facilitate centralized alarm and control monitoring.
- Provides redundant site control.
- Enables redundant site link routing for patch redundancy.

Additionally, the GCP 8000 provides the following functions at the simulcast site:

- Provides a time and frequency reference signal to the base stations, maximizing frequency stability and allowing for further site separation in a simulcast configuration.
- Provides IP simulcast capability, enabling true end-to-end IP connectivity in a simulcast configuration.

1.1.3.2 GCM 8000 Comparator

The GCM 8000 Comparator ensures the broadcast of the best possible voice signal by combining the best parts of a single signal that has been received by multiple sites in a Multisite (simulcast) system.

The comparator features a digital voting methodology: Frame Diversity Reception. The comparator selects the data frame or signals with the lowest Bit Error Rate (BER) and forwards it. By using the best pieces of each input signal, the result is the best possible composite signal.

1.1.3.3 Site LAN Switch

The site LAN Switch provides a LAN interface for site equipment and a LAN port for the site gateway. Through the switch, the service technicians gain access to service the site, and also access the system's Graphical User Interface (GUI).

1.1.3.4 RF Site Gateway

The Site Gateway provides an interface that handles all of the IP Network Management traffic between the Master Site and the RF Site. The Site Gateway provides the following:

- Media conversion – the gateway converts Ethernet to the selected transport medium.
- Traffic prioritization – the gateway applies a prioritization marking to the packets leaving the site.
- Fragmentation – the gateway fragments large IP packets per industry standards.

1.1.3.5 TRAK 9100 Simulcast Site Reference

The TRAK 9100 Simulcast Site Reference is a GPS-based frequency and time reference. The TRAK frequency reference provides the simulcast system 1 PPS (Pulse per Second), 5 MPPS, and 1 PPS + 5 MPPS composite signals. These signals are used to synchronize the transmission of a simulcast system to improve overall performance and coverage.

This unit provides a high-level redundancy, including redundant GPS receivers, backup rubidium standard, and redundant power supplies.

1.1.3.6 Sub-Site Access Routers

The sub-site access routers, located at the prime site, provide the IP network routing interfaces between the prime site and all of the sub-sites. In the single sub-site link configuration, two (2) sub-site access routers are deployed in a cooperative WAN routing arrangement for T1/E1 subsystems. In the dual sub-site link configuration, two sub-site access routers each serve as the endpoint for one of the sub-site's WAN links. The sub-site access routers support T1, FT1, E1, FE1 and Ethernet sub-site links.

Note that the total number of access routers utilized at a trunking IP multi-site subsystem depends on the number of sub-sites. IP multi-site subsystems with fifteen (15) or less sub-sites require two (2) access routers. Subsystems with more than fifteen (15) sub-sites, however, require two access router pairs (i.e., four access routers) where each access router pair can support up to sixteen (16) sub-sites.

1.1.3.7 Prime Site Ethernet Switches

Two (2) paired Ethernet switches form the prime site LAN in an IP multi-site subsystem. They are paired for redundancy so if one of them fails, half of the hosts (site controllers, comparators) on the LAN are still connected to a working Ethernet switch. In addition to these switches, a third Ethernet switch is required for IP multi-site subsystems equipped with more than fifteen (15) sub-sites. For this configuration, all four (4) access routers will have their LAN 2 ports connected to the third Ethernet LAN switch (crossover Ethernet cable is no longer utilized). It should be noted that although the third switch provides additional available ports, these ports should not be utilized for devices affecting critical services (e.g., comparators).

In a dual prime site link configuration, there are two prime site routers, each of which is attached to a different prime site LAN switch. This ensures that if either switch fails, there is still a path to a prime site router for connectivity to the Master Site.

1.1.3.8 Sub-Site Ethernet Switches – Dual LAN Remote Sub-Site

There may be either one or two Ethernet switches at the sub-site to form the sub-site LAN. In a single sub-site link configuration, only one switch is used unless a second switch is needed to provide

enough port capacity for all of the hosts at the sub-site. In a dual sub-site link configuration, two switches are used so that there is no single point of failure for the sub-site's entire IP network.

1.1.4 Simulcast Remote Site

The ASTRO 25 Simulcast Remote Site consists of the following components, described in the Component Descriptions section of this System Description:

- GTR 8000 Site Repeater/Base Radio.
- Site LAN Switch.
- RF Site Gateway
- TRAK 9100 Frequency Standard.
- Radio Frequency Distribution System (RFDS).
- Antenna Systems.

1.1.4.1 GTR 8000 Site Repeater/Base Radio

The GTR 8000 Base Radio consists of a transceiver module, power amplifier module, fan module, and power supply. The transceiver module includes the functionality for the exciter, receiver, and station control. The base radio software, configuration, and network management, as well as inbound/outbound traffic handling, are performed through this transceiver module. On-board serial and Ethernet ports are located on this module for local servicing via CSS. The power amplifier module amplifies the low-level modulated RF signal from the transceiver module and delivers the amplified signal on the path to the transmit antenna. The power supply module supports the transceiver and power amplifier modules, and can also provide auxiliary power to a connected site controller or Receive Multicoupler/Low Noise Amplifier (RMC/LNA).

1.1.4.2 Site LAN Switch

The site LAN Switch provides a LAN interface for site equipment and a LAN port for the site gateway. Through the switch, the service technicians gain access to service the site, and access the system's Graphical User Interface (GUI).

1.1.4.3 RF Site Gateway

The Site Gateway provides an interface that handles all of the IP Network Management traffic between the Master Site and the RF Site. The Site Gateway provides the following:

- Media conversion – the gateway converts Ethernet to the selected transport medium. Traffic prioritization – the gateway applies a prioritization marking to the packets leaving the site.
- Fragmentation – the gateway fragments large IP packets per industry standards.

1.1.4.4 TRAK 9100 Simulcast Site Reference

In a simulcast system, each remote site utilizes a Global Positioning Satellite (GPS) based reference standard, which includes both frequency and timing outputs. The GPS and Frequency Standards device in the simulcast system is the TRAK 9100.

The TRAK 9100 provides a composite 5Mhz/1pps (pulse-per-second) frequency stability signal to the GCM 8000 comparator and GTR8000 Repeaters.



The TRAK 9100 is GPS disciplined, which provides time stamp information that is critical to setting precise transmission launch times in Simulcast.

1.1.4.5 Radio Frequency Distribution System

The Radio Frequency Distribution System (RFDS) provides interconnect between the base radios and antennas, allowing for a completely contained and more compact installation footprint. For the transmitters, this can include isolators, combiners, TX filters, diplexers, and power monitors.

For the receivers, this can include duplexers, site preselectors, and multicouplers. Various RFDS options exist for each of the GTR 8000 Base Radio, GTR 8000 Site Subsystem, and GTR 8000 Expandable Site Subsystem.

The proposal includes placeholder pricing for the Tx Combiner and Rx Multicoupler systems and assumes that the frequencies are at least 150 kHz apart. Additional filtering and custom designs may be required and can be quoted once the City acquires the frequency licensing and finalizes the frequency plan.

NOTE: Final RFD design can only be completed once the frequency plan and license acquisition are complete. The final design may require additional hardware, rack space and/or custom designs that are not included as part of the proposal.

1.1.4.6 Antenna Systems

This Proposal includes three Tx/Rx antennas with lines and connectors at each of the RF sites. Final antenna system design can only be completed once frequency plan and licensing is completed and RFD design is completed. The final design may require additional antennas and installation services for those antennas, which are not included as part of this proposal.

1.2 DISPATCH CONSOLE CONFIGURATION

The proposed solution offers Biddeford five (5) at Main Dispatch and two (2) remote backup dispatch positions at a location to be determined. Figure 1-4 shows an MCC 7500E operator position.



Figure 1-4: MCC 7500E Dispatch Position provides a small form factor, familiar GUI, and advanced features.

1.2.1.1 Embracing Interoperability and Integration

Motorola Solutions is an active participant in establishing P25 standards for interoperability. The proposed console is a key component for the interoperability of the ASTRO 25 system. When a situation requires coordination between multiple agencies, the proposed dispatcher can patch together Mutual Aid radios and required subscribers on the ASTRO 25 system (See Figure 1-5).

Incident conversations are seamless from the moment of the patch initiation and can be recorded like any talkgroup conversation within the Land Mobile Radio (LMR) network. The dispatcher can also take part in and monitor conversations for the duration of the incident, as necessary.

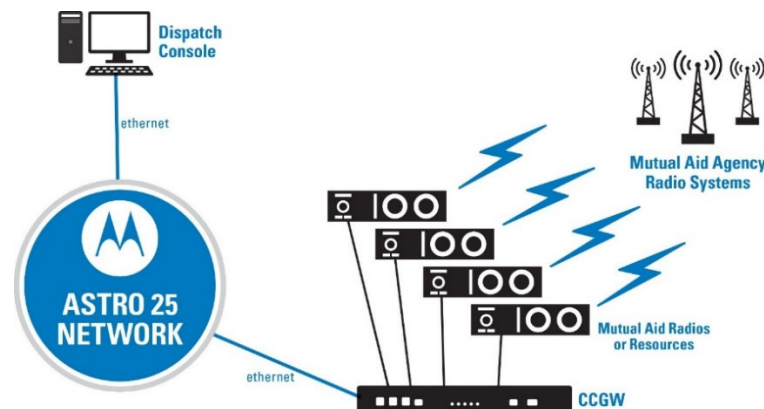


Figure 1-5: Mutual Aid Components - Mutual Aid agency radio systems connect to the ASTRO 25 network through a CCGW.

1.2.1.2 Connection to ASTRO 25 System

The dispatch console proposed will be collocated with the new ASTRO 25 core being proposed with this response.

Dual Site Link

The proposed console site for Biddeford is collocated with the core site and features redundant site links to provide hardware redundancy as well as path diversity (if available). The console site has two logical connections to the core site with each connection using a different core router.

Each console site gateway provides an interface that handles the following IP traffic between the proposed console center and the ASTRO 25 core site:

- Network management traffic.
- Call control and audio traffic for all the calls being handled by the dispatch positions.
- Aux I/O traffic for the Aux I/Os being handled by the dispatch positions.

The site gateways fragment large IP packets according to industry standards, prioritize packets, and convert Ethernet data to the desired transport medium.

LAN Switches

The site LAN switches provide LAN interfaces for console site equipment and a LAN port for the link to the core site. Through the switch, service technicians can access the system's configuration manager and service the equipment.

Advanced Conventional

This option provides the dispatcher with the ability to control ASTRO 25 conventional channels and/or MDC 1200 channels.

1.2.1.3 Conventional Base Station Interfaces

The proposed consoles access and control Biddeford analog and digital conventional base stations through the use of Enhanced Conventional Channel Gateways (ECCGW). The console processes audio received from the station and controls various features on the stations, such as frequency selection, private line selection, and repeater on/off.

Additionally, the ECCGWs allow for recovery of MDC 1200 and digital signaling, such as unit ID and emergency alarm.

The proposal includes three (3) ECCGWs, providing up to twenty-four (24) analog interfaces for the legacy stations/radios.

Making Consoles Easy to Operate

Motorola Solutions designs its proposed console to provide mission-critical audio between the dispatcher and users in the field. It is optimized for real-time audio, prioritizing emergency calls over other traffic, and minimizing voice queuing. Using robust error mitigation to maintain call quality even when the system is heavily loaded, the proposed console reduces communication errors that may force dispatchers or radio users to repeat their transmissions.

1.2.1.4 Customizable Dispatch Interface

The proposed console provides dispatchers with a graphical user interface (GUI) that can be customized by agency or by individual users to optimize user efficiency. Based on dispatcher preference, the proposed GUI can be customized to show details of trunked and conventional RF channels on a per-channel basis.

Busy dispatchers can respond to a missed call by simply clicking on an entry in the Activity Log. The number of calls and call information displayed in the Activity Log is customizable to suit the needs of the user. The status of Auxiliary I/Os can be easily interpreted from the GUI with the use of familiar graphical icons, such as a door shown open or closed.

Elite Dispatch Graphical User Interface

The proposed Elite Dispatch GUI is an enhanced version of Motorola Solutions' Gold Elite Dispatch GUI. For existing Gold Elite users, the GUI allows a smooth transition and minimal training for dispatchers. For new users, the graphical icons and customization options make the proposed console GUI easy to learn and operate.

Inbound Event Display

For those users who prefer a call-based GUI, the proposed console supports the Inbound Event Display (IED) GUI. The IED GUI displays incoming radio events in a queue format. The dispatcher can manage and respond to these events directly from the queue.

Filtering and sorting features are available to allow the information in the queue to be tailored to the needs of the dispatcher. The console can be configured to operate in "quiet mode" when using the IED GUI. This is well suited to customers who operate in a Request-To-Talk (RTT) environment.

1.2.1.5 Auxiliary Inputs/Outputs

The proposed console supports Global Auxiliary Inputs/Outputs (Aux I/Os) for remote status indications or remote control through dispatch positions. Global Aux I/Os are typically implemented by hardware that is independent of the dispatch positions in a system and may be accessible to multiple dispatch positions. Aux I/O Servers provide the Aux I/O feature for the consoles.

1.2.1.6 Standard Radio Transmission and Reception

A typical proposed dispatch position has a headset and two speakers. One speaker is for selected audio and the second speaker is for all remaining unselected audio. Additional speakers can be added to a console allowing dispatchers to configure a specific speaker for a set of designated audio sources. This simplifies multitasking between multiple audio sources and allows flexibility in the way the audio is presented to the dispatcher.

Receiving Calls from the Field and Other Dispatchers

The proposed console provides dispatchers with greater flexibility for how to hear calls from field radio users and other dispatchers. Each dispatcher can define his or her own audio reception profile by selecting a single audio source, whether conventional or talkgroup, to be heard on a selected speaker or headset (Single Select). The dispatcher can also define groups of radio resources that can all be heard on a selected speaker or headset (Multi- Select).

Initiating Calls to the Field and Other Dispatchers

The dispatcher has several different ways of initiating a call. In most circumstances, a General Transmit is appropriate. With the General Transmit, the dispatcher selects a resource on the console and activates the transmission through a footswitch, headset transmit button, or a microphone transmit button. If the dispatcher needs to quickly transmit on a resource that is not selected, the dispatcher uses the Instant Transmit function.

An Instant Transmit safety switch prevents accidental activation of functions that may cause negative consequences. The safety switch can be used with Aux I/Os and preprogrammed pages, as well as Instant Transmit switches.

Audio Communication to the Field and Other Dispatchers

The dispatcher can transmit audio in different ways. They can make calls to all users listening to a specific conventional radio resource or a specific trunking talkgroup. When multiple resources are required, the dispatcher can select additional talkgroups and/or conventional channels, as needed using the Multi-Select feature.

The proposed console also enables dispatchers to make private calls to individual field radio users or dispatchers. Once a private call is established, it can be patched in with another resource at the dispatcher's discretion.

Controlling Console Audio

The proposed console offers dispatchers several different ways of controlling or muting the audio on their consoles, such as the following:

- Audio volume can be changed for any specific resource.
- All non-selected resources on the console can be muted for 30 seconds (All Mute) or unmuted, if already muted.



- A dispatcher can transmit on a resource while receiving audio from the same resource or other resources.
- A dispatch position can be configured to automatically mute the other dispatch audio on a shared resource to prevent acoustic feedback when a co-located dispatch position transmits.
- RF Cross Mute automatically mutes the receive audio from a specified channel when the dispatcher transmits on another specified channel to prevent acoustic feedback.

Controlling Network Audio

Dispatchers can control audio on the ASTRO 25 network. The dispatcher can enable or disable radio users to compartmentalize traffic, reduce interruptions, and maintain communications between dispatch and the field. When this function is enabled or disabled, all dispatch consoles with this resource assigned are updated with the current status of the feature. This feature can be controlled from any dispatch position.

1.2.1.7 Emergency Radio Transmission and Reception

As part of a mission-critical communications network, the proposed dispatch console facilitates immediate prioritization and resolution of emergency communications between Biddeford dispatch and first responders in the field. This enables dispatchers and first responders to focus on their mission and not their equipment, especially during critical situations.

Receiving an Emergency Call

When a user in the field or another dispatcher initiates an emergency call, the console emits both visual and audible indications (Emergency Alarm). The audible indication alerts the dispatcher that an emergency is underway; the visual indication directs the dispatcher's attention to the specific resource making the emergency call. The dispatcher can immediately reserve a voice channel for the duration of the emergency.

Responding to an Emergency Call

A dispatcher can bypass the standard console interface to auto-open a quick list, which contains specific controls for recognizing an emergency call, initiating an emergency call, and ending an emergency call (Auto-Open of Quick List). The dispatcher can then recognize the emergency call, which ends the audible emergency indication and notifies all dispatchers that the emergency is being addressed (Emergency Recognize).

The audible emergency indication may also be muted by a dispatcher without recognizing the emergency alarm (Mute Tones at a Single Op). This can be used in a situation where one agency is monitoring a channel that belongs to another agency. That channel can be configured to not generate audible and/or visual emergency indications.

Ending an Emergency Call

When an emergency is over, the dispatcher can end the Emergency Alarm. The visual indication on the dispatch position GUI is removed, and the console informs the other dispatch positions that the emergency is over (Emergency End/ Knockdown). The emergency mode remains active on the initiating radio unit until it is ended (reset) by the radio user.

1.2.1.8 Radio Patch Control

The dispatcher can patch communication between trunked and/or conventional radios that are normally unable to communicate with each other due to different features, programming, or even

different frequency bands. A patch group is a group of linked resources that can both receive messages from a console and transmit to all other members of the patch group.

Setting up a Standard Patch

Patches are supported between trunked resources and/or conventional resources. After the patch is created, the dispatch position transmits all audio on one resource to all other resources in the patch group. In a patch between trunked resources, patched radio users with displays see the ID or alias of the other patched radio(s), as opposed to that of the console. This minimizes confusion and the need for the dispatcher to intervene in the call. Patches are automatically reestablished, if interrupted, so the dispatcher can concentrate on continuing operations.

Predefined Patches

Patches can be predefined and automatically reinitiated each time a dispatch position computer is restarted (Patch Auto-Start).

1.2.1.9 Call Management and Control

The dispatcher can use the following functionality to manage and control audio for different types of calls between the dispatch position and radio users or other dispatchers.

Automatic Prioritization of Calls

Calls on the dispatch position are prioritized through a transmission hierarchy. Calls from primary supervisors take priority over those from secondary supervisors, which in turn take priority over non-supervisors. Instant Transmit or All-Points Bulletin (APB) transmissions, regardless of whether they are from a supervisor, take priority over general or patch transmissions.

Multiple dispatchers can be designated as primary supervisors on the same system, which is useful when multiple agencies share one system. With the Network Manager Client installed, supervisors can disable and enable dispatch console functionality as needed.

Manual Prioritization of Calls

System Access Priority Select allows a dispatcher to prioritize trunked resources on the system as either normal or tactical. A dispatcher can change the priority of a trunked resource to tactical to give the resource a better chance of gaining communication access on a busy system. Only emergency calls have a higher priority than tactical.

When the System Access Priority Select status of a resource is changed, it is updated at all dispatch consoles in the systems that are monitoring that trunked resource.

Using the Multi-Select Feature

The Multi-Select feature allows a dispatch position to define groups of selected radio resources. When a Multi-Select group is opened, all of the resources in the group are simultaneously selected. Resources can be added or removed from a Multi-Select group while the group is open. The dispatcher can transmit on several resources simultaneously or can listen to multiple resources simultaneously in their headset or select speakers.

Standard Call Indications

The dispatch position indicates the availability of any given resource, regardless of whether the resource is involved in a transmission. An inbound call indication provides the dispatcher with a



visual cue of audio activity on a radio resource and allows a dispatcher to see at a glance what the status of a resource is at any moment.

Call Alerting

A dispatcher can use Call Alert to page an unattended radio or dispatch position through a series of beeps and an indication of the sender's ID. When available, the radio user or dispatcher sees the unit ID of the calling dispatch console or radio ID and is able to return the call.

Additionally, a Call Alert can trigger an activity. For instance, a Call Alert may cause a vehicle's horn to sound and its lights to flash. The dispatcher can even send a Call Alert to a user who is involved in voice and data communications over the network.

1.2.2 Logging Recorder Interface (AIS)

The City of Biddeford will be re-using their existing Logging Recorder system, therefore, Motorola has included an Archive Interface Server (AIS) with this quote. The AIS is the demarcation between the Radio system and the Console network.

The Archiving Interface Server (AIS) provides an interface between the radio system and a 3rd party logging recorder. This allows calls on the radio system to be recorded together with information associated with the calls. Certain non-voice radio system events (e.g., emergency alarms, changing tactical/normal selection on a talkgroup, changing frequencies on multi-frequency conventional stations, etc.) can also be recorded.

1.2.3 Protecting Consoles and Communications

The console enables end-to-end encryption from the dispatcher to the ASTRO 25 network, so that Biddeford communications will not be undermined by unencrypted transmissions. Each dispatcher is able to fully participate in secure communications while being confident that sensitive, vital information is not heard by unauthorized individuals.

1.2.3.1 Secure Access to the Console

To use the dispatch position, a dispatcher must enter a valid radio system user account name and password. The dispatch position validates that information with the radio system's network manager and allows the dispatcher to access only the resources for which the user has access rights. This also applies to third-party applications that use the dispatch console's API.

1.2.3.2 Secure Communications at the Console

The console encrypts and decrypts radio voice messages. Thus, radio voice messages are encrypted from end-to-end between the radio user to the dispatch position. The dispatcher can choose whether to encrypt their transmissions on a particular trunked resource. Dispatchers can interface with agencies that have different encryption configurations without any manual intervention or delay.

1.2.4 Incorporating Console Configuration and Management

The proposed console system is configured and managed by the same configuration manager, fault manager, and performance reporting applications as the radio system. The user can define exactly which resources are available and how they are presented to the dispatcher. This provides Biddeford

with a single point for configuring and managing the entire ASTRO 25 system. Changes are automatically distributed throughout the system.

This centralized approach saves valuable time and effort for system administrators and technicians and reduces the errors that can occur when radio IDs and other data are entered at multiple locations. In addition, call traffic and performance reports for each dispatch position can be generated from the system's network manager, enabling administrators to quickly and easily ensure optimal effectiveness and efficiency.

1.2.5 Dispatch Console Solution Components

The proposed components are connected together and to the rest of the ASTRO 25 system on an IP network through console site routers and switches. The console functions as an integrated component of the total radio system and fully participates in system-level features, such as end-to-end encryption and Agency Partitioning.

The console connects directly to the radio system's IP transport network without gateways or interface boxes. Audio processing, encryption, and switching intelligence for dispatch are performed within each software-based dispatch position without additional centralized electronics.

Since the network is IP-based, the system interfaces and components can be distributed physically throughout the network. Some of the available console components are identified below.

1.2.5.1 MCC 7500E Console Operator Position

The dispatch position supports commercially available accessories, including a USB microphone, USB headset, and USB footswitch, as shown in Figure 1-6. The following list describes the components included in the proposed configuration.

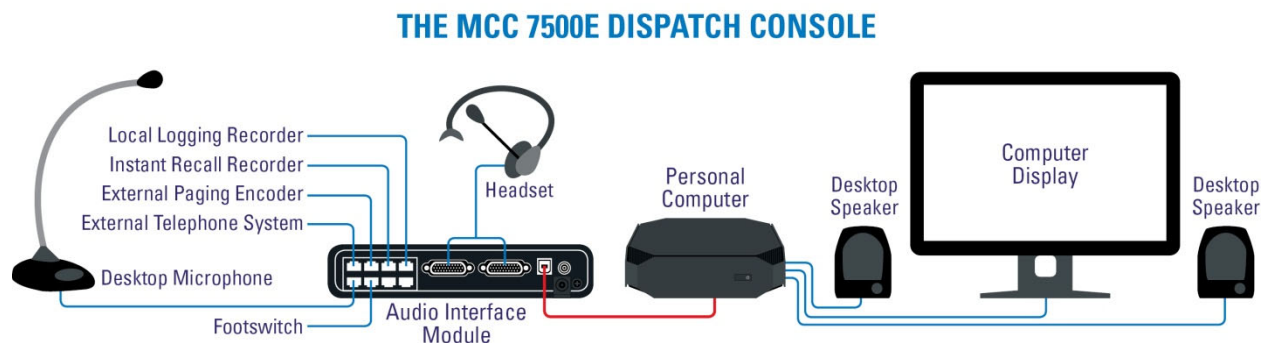


Figure 1-6: MCC 7500E Dispatch Position supports multiple accessories

Audio Interface Module (AIM)

The USB Audio Interface Module (AIM) acts as an interface between analog devices and the dispatch position and as a general purpose input/output module. The USB AIM supports audio routing between the dispatcher and Motorola Solutions standard peripherals. The USB AIM connects to the MCC 7500E dispatch position with a USB cable.

Personal Computer (PC)

The personal computer included with the dispatch position is Windows-based and certified by Motorola Solutions.

Computer Display

The dispatch position will use a 19-inch non-touch Computer Display.

Desktop Speakers

Two (2) audio speakers have been included with each dispatch position and they can be configured to transmit audio from a specific talkgroup or set of talkgroups. Each speaker is a self-contained unit, with individual volume controls, and can be placed on a desktop or mounted on a rack or computer display.

Headset Jack

The dispatch position supports up to two headset jacks, both push-to-talk (PTT) and non-PTT-enabled, for simultaneous use by the dispatcher and a supervisor. The headset jack contains two volume controls for the separate adjustment of received radio and telephone audio.

Gooseneck Microphone

The microphone controls the dispatch position's general transmit and monitor features through two buttons on its base. The microphone can be fastened down or left loose. It can be used alone or in conjunction with a headset.

Footswitch

Each dispatch position includes a dual pedal footswitch that controls general transmit and monitor functions.

Telephone Headset Interface Port

The telephone/headset port provides a connection for an external telephone to the dispatch position. This allows the operator to use a single headset to communicate on both the radio system and a telephone system.

Redundant Ethernet Connection

The optional redundant Ethernet connections increase MCC 7500E console availability by protecting against the loss of multiple dispatch positions. In the event of a LAN switch failure, the system will automatically detect and switchover with no manual intervention required. Dispatching operations will not be interrupted.

1.2.6 Backup Power Systems

The proposal includes rack mounted Uninterruptible Power Supply UPS at each of the RF Sites for providing backup power for up to 30 minutes of run time for the proposed equipment.

1.3 IP NETWORK

The ASTRO 25 transport core is engineered to meet the performance requirements of a real-time system transporting voice, call control, network management, and ancillary network services. The Transport Network is a closed network. Only Motorola Solutions-supplied equipment, applications, and services can be used on the network. In addition, the proposal includes MPLS routers at each of the proposed sites in the network.

1.3.1 MPLS

The IP/MPLS layer is constructed using the Nokia 7705 SAR at all sites. It provides 10/100 Mbps Ethernet connections for the Motorola Solutions P25 Radio and conventional equipment at each site. The Digital Microwave radios connect to the 7705 SAR with Gigabit Ethernet ports providing full access to the Ethernet channel. The 7705 SAR IP/MPLS capability automatically discovers the backbone topology and routes connections in the most efficient manner.

Through the use of IP/MPLS, a technology widely used in networks worldwide, Biddeford will continue to have a much more capable and flexible network. Additionally, the benefits IP/MPLS delivers via a converged network architecture will result in significant CAPEX and OPEX savings over a legacy network approach. Some of the key benefits the 7705 using MPLS will provide to Biddeford network includes:

- Traffic from multiple services and departments can share a common network infrastructure while maintaining secure separation of *users*. This will result in enhanced network functionality and a more efficient use of resources.
- The capability to simultaneously handle legacy technologies and newer IP-based technologies over one network.
- The introduction of Traffic Engineering (TE) will also allow more efficient use of network resources and improved network performance.
- An ability to provide advanced Quality of Services (QoS) so that critical classes of traffic will always receive priority. Increased network protection through features such as fast reroute of circuits, diverse routing, and load balancing.
- Advanced Operations, Administration and Maintenance (OAM) functionality.
- Improved network security and resiliency to attacks.
- Enhanced and easier network manageability.

1.3.2 System Components

1.3.2.1 ASTRO 25 Master Core

Our proposed solution for Biddeford includes the following summary of equipment/licenses at Core:

- ASTRO 25 Primary Zone Core Licenses.
 - Capacity licenses for three (3) ASTRO 25 TDMA RF sites.
 - Licensing for seven (7) Dispatch Operator Positions.
 - Network Management System licenses:
 - ◆ One (1) Unified Event Manager.
 - ◆ One (1) Unified Network Configurator License.
 - ◆ One (1) Radio License.
 - ◆ One (1) Provisioning Manager.



- ◆ One (1) Radio Control Manager License.
- ◆ One (1) Zone Watch License.
- Two (2) local NM Clients.

1.3.2.2 ASTRO 25 RF Subsystem Site Components

Our proposed ASTRO 25 RF Subsystem solution for Biddeford includes the following summary of equipment:

- Prime Site:
 - Two (2) GCP 8000 Site Controllers.
 - Two (2) GCM 8000 Comparator Chassis, each with two (2) comparator modules.
 - Two (2) Sub-Site Access Routers.
 - Two (2) Prime Site Router.
 - One (1) TRAK 9100 Simulcast Site Reference, shared with the co-located RF site.
 - Two (2) Prime Site Ethernet Switches.
 - Two (2) Backhaul Switches.
 - One (1) SDM 3000 RTU for Fault Management.
- Three (3) Remote Sub sites each with:
 - One Expandable Site Sub-System with four (4) Trunked GTR 8000.
 - One (1) TRAK 9100 Simulcast Site Reference.
 - Two (2) Site Gateways.
 - Two (2) Sub-site Ethernet Switches.
 - One (1) SDM 3000 RTU for Fault Management.
 - Radio Frequency Distribution System (RFDS).
 - Antenna Systems.
 - Rack Mounted UPS for backup power.
- Dispatch Center:
 - Five (5) MCC 7500E Local Operator Positions and two (2) Back Up positions each equipped with:
 - ◆ Desktop Mini Computer.
 - ◆ 22-inch Non-Touch Monitor.
 - ◆ Audio Interface Module (AIM).
 - ◆ Two (2) Speakers.
 - ◆ Two (2) Headset Jacks.
 - ◆ One (1) Gooseneck Microphone.
 - ◆ One (1) Dual Pedal Footswitch.
 - ◆ One (1) Secure Module Encryption License.
- One (1) GCP 8000 Conventional Site Controller.
- One (1) SDM 3000 RTU to provide AUX I/O functionality.
- Two (2) Dispatch Site LAN Switches.
- Two (2) Dispatch Site Routers.
- Three (3) High Density Conventional Channel Gateway (HD CCGW) units providing interfaces for up to sixteen (16) conventional resources.
- Police Department Subscribers:
 - Twenty-two (22) APX 8500 Remote Mounted Mobiles equipped with encryption.
 - Seventy (70) APX 8000 Portables equipped with encryption.
 - Four (4) APX 8500 Consolettes with antenna systems and equipped with encryption.
 - Six (6) MCD 5000 Desksets with Network gear.

- One (1) Portable DVRS.
- Fire Department Subscribers:
 - Thirty-Six(36) APX 8500 Remote Mounted Mobiles.
 - Seventy-Five (75) APX 8000 Portables.
 - Six (6) APX 8500 Consolettes with antenna systems.
 - Twelve (12) MCD 5000 Desk-sets with Network gear.
 - Ten (10) Vehicle DVRS Units
 - Eleven (11) APX 1000 Portables
- DPW & Lifeguard Subscribers:
 - Sixty (60) APX 1500 Dash Mounted Mobiles.
 - Twenty-Four (24) APX 1000 Portables.
- Other Subscribers:
 - Ten (10) APX 1500 Control Stations.
 - ◆ These control stations do not include antennas, lines and/or combiner network. It is the City's responsibility to provide these and install them at a location of City's preference. Cost for installation or programming services are not included either.

1.4 COVERAGE

Preliminary coverage analysis has been performed with the three Remote RF sites identified in this document. After the P25 system has been licensed, installed and optimized for best performance, Motorola will utilize the system as-built data in order to generate the coverage test document and the final guaranteed coverage maps that will be used for coverage testing. These maps will utilize actual licensed ERP, sites, antennas and antenna heights.

1.4.1 RF Coverage Maps and Methodology

Motorola Solutions has proposed ASTRO 25 TDMA Trunked Simulcast network designed to provide 95% Painted area reliability for on-street portable talk-in and talk-out coverage within Biddeford. Motorola Solutions' proposed radio system infrastructure has been designed efficiently and cost-effectively to provide the required coverage.

The proposed three (3) site fixed infrastructure will provide coverage with a Delivered Audio Quality of 3.4 for 95% painted area to an APX portable in-street. Reference only tests will be performed at the specified Biddeford building locations, see Table 4-4 for detailed building locations.

No co-channel or adjacent channel users have been considered in the attached coverage predictions. It has been assumed that co and adjacent channel interference is not currently, nor will be an issue. Therefore, we have not assumed any interference in our current analyses. However, should any interference become apparent after system installation or if tower information changes, the submitted coverage predictions will require modification and reliability guarantees may change.

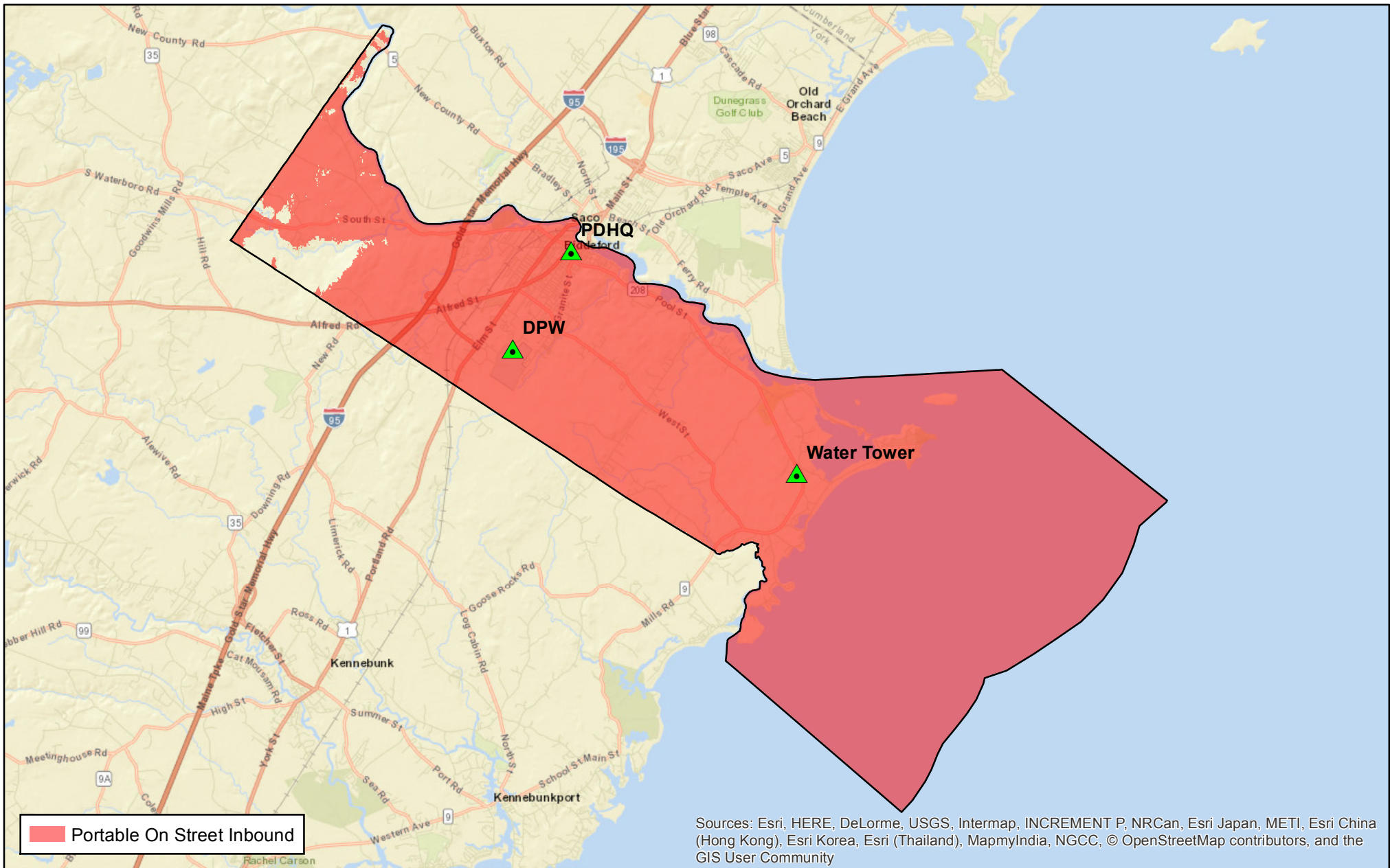
Attached are the following coverage maps:

- Portable On-Street Inbound
- On-Street Outbound

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Biddeford, ME

3-Site Astro P25 800 MHz TDMA Single Cell Simulcast System
 Shaded Area Represents 95% Covered Area Reliability at DAQ 3.4



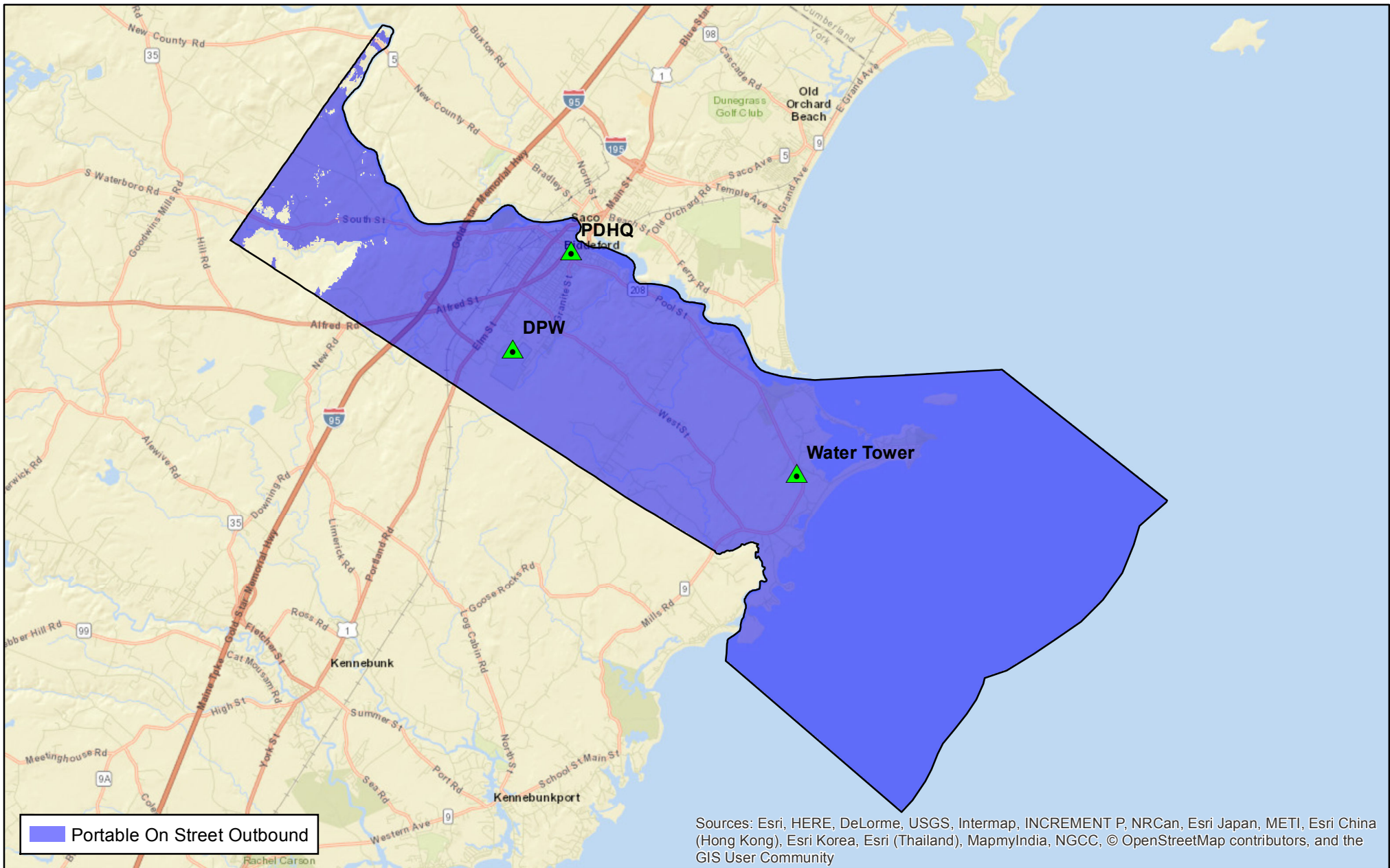
Portable Configuration
 APX 8000, 3 W, Triband Antenna
 Tx/Rx at hip using Belt Clip with RSM

ME_York_Biddeford
 ME_York_Biddeford_800
 Design 26
 BJH376, CCDTLAB-303



Biddeford, ME

3-Site Astro P25 800 MHz TDMA Single Cell Simulcast System
Shaded Area Represents 95% Covered Area Reliability at DAQ 3.4



Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

0 1.25 2.5 Miles

1 in = 2.17 miles

Portable Configuration
APX 8000, 3 W, Triband Antenna
Tx/Rx at hip using Belt Clip with RSM

ME_York_Biddeford
ME_York_Biddeford_800
Design 26
BJH376, CCDTLAB-303

Nov 06, 2019
Hydra Stratus 2.6.7

REF 140

1.5 SYSTEM DIAGRAMS

Motorola Solutions has provided System Block Diagrams in the order listed below:

1. System Overview Diagram
2. PDHQ Master Site Diagram
3. PDHQ Dispatch Center
4. Prime Site W Collocated Remote
5. DPW & Water Tank Remote Site
6. PDHQ P25 Master/Console Site Rack Diagram
7. PDHQ Prime with Collocated Remote Site
8. DPW Site Rack Diagram
9. Water Tank Remote Site Rack Diagram



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H

G



E

D

C

B

A

G

F

E

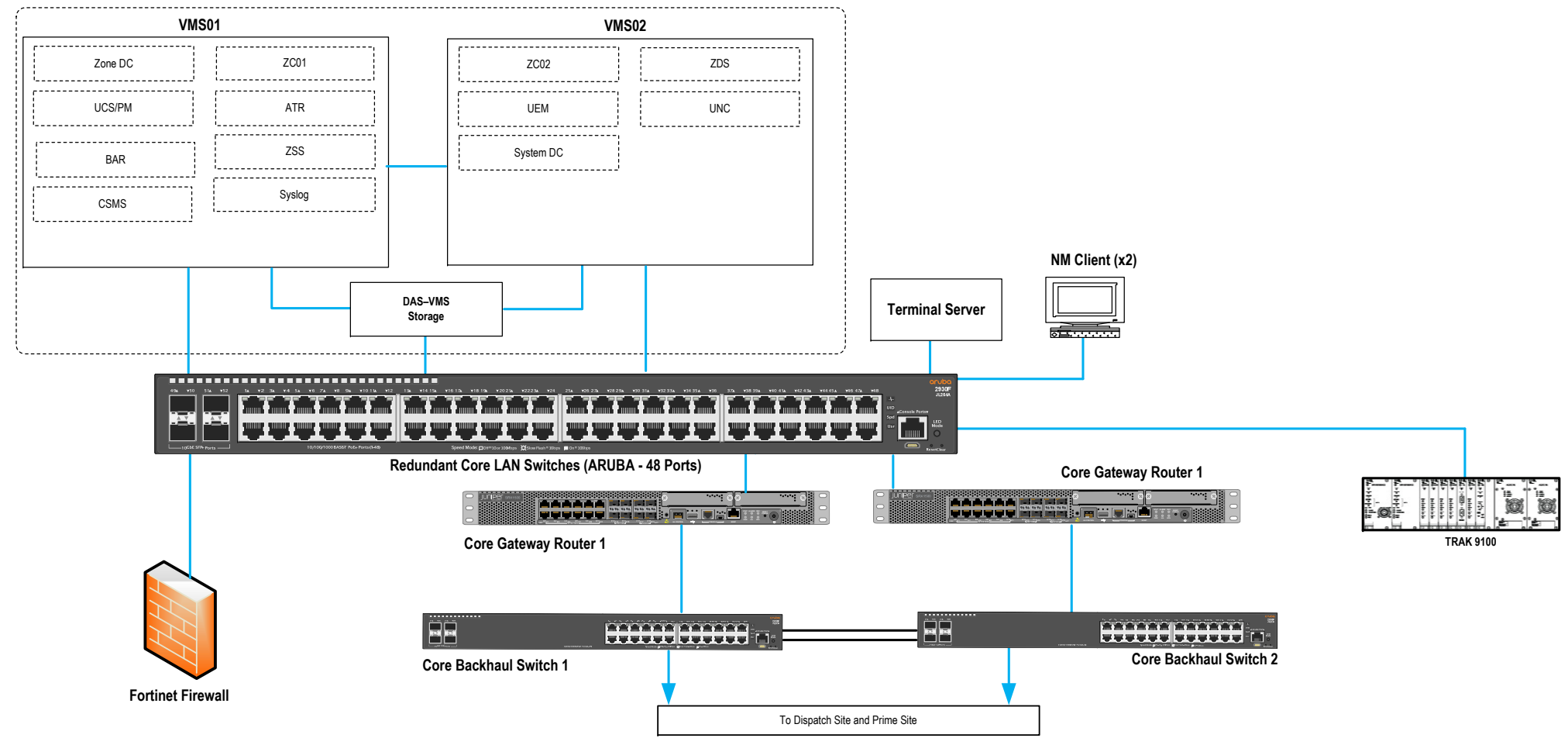
D

C

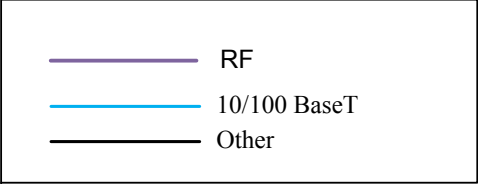
B

A

System Block Diagram -
Master Site @ PDHQ Dispatch

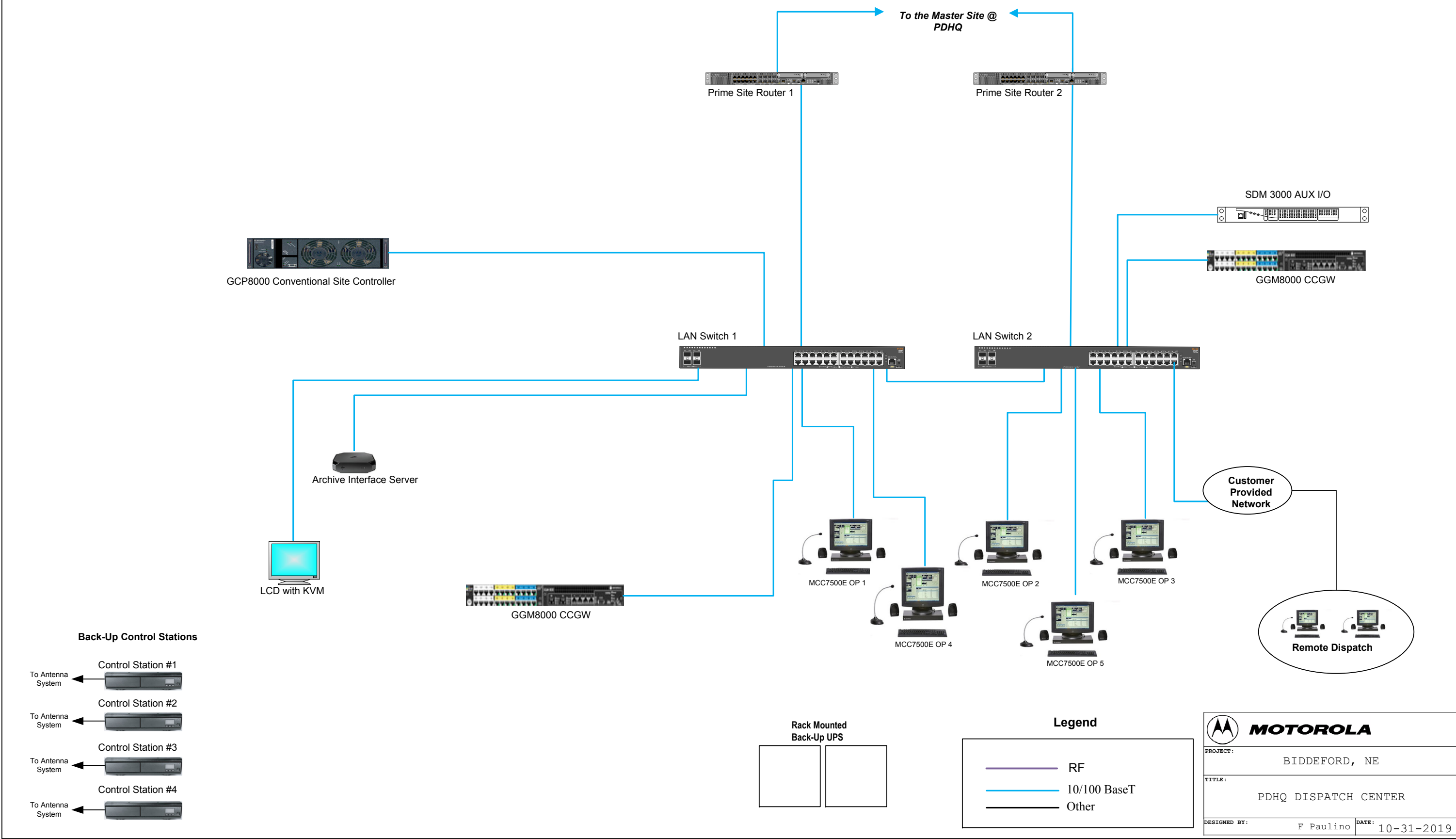


Legend

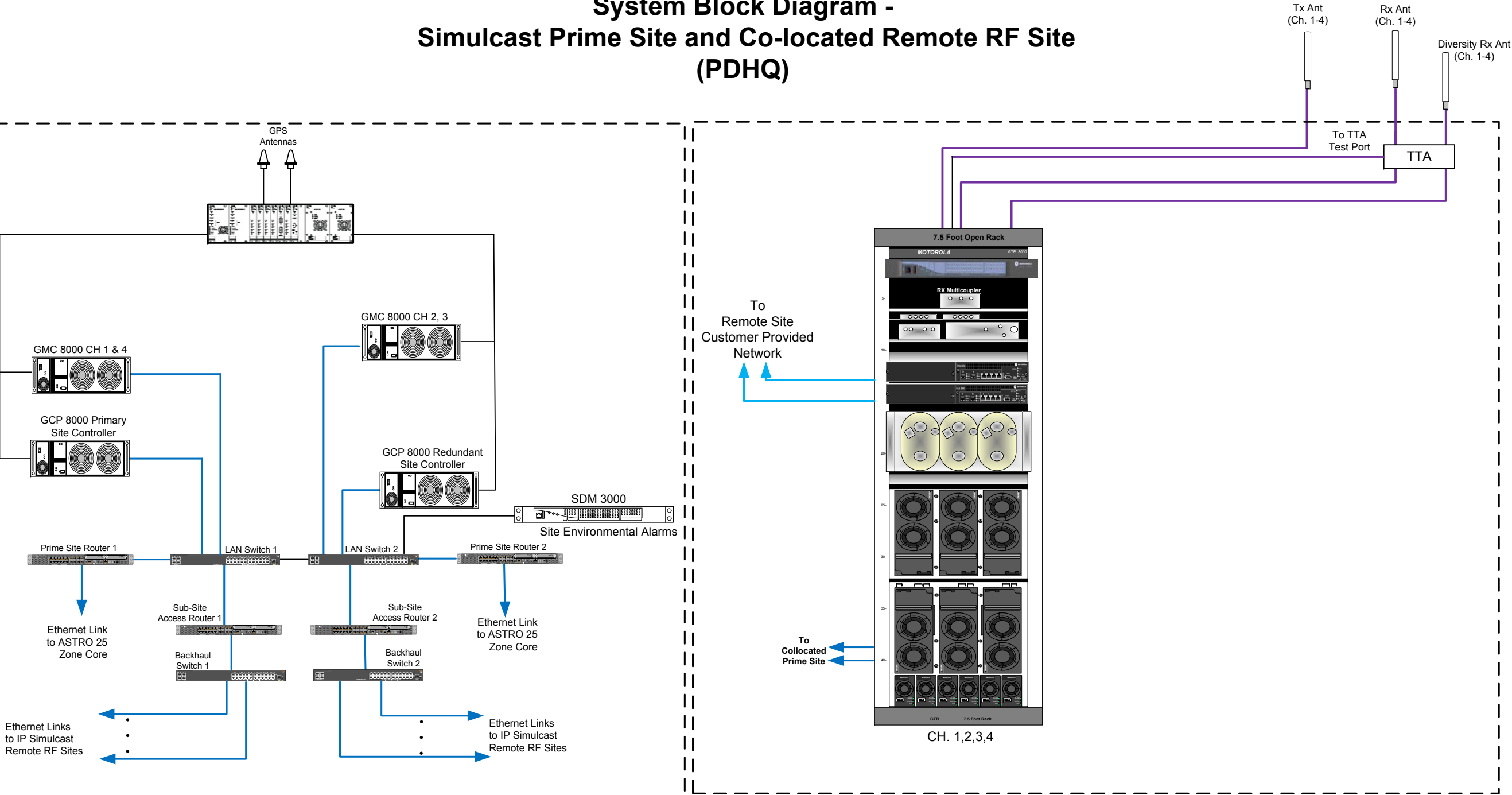


 MOTOROLA	
PROJECT: BIDDEFORD, NE	
TITLE: PDHQ MASTER SITE DIAGRAM	
DESIGNED BY: F Paulino	DATE: 10-31-2019

System Block Diagram – PDHQ Dispatch Center



System Block Diagram -
Simulcast Prime Site and Co-located Remote RF Site
(PDHQ)



Legend

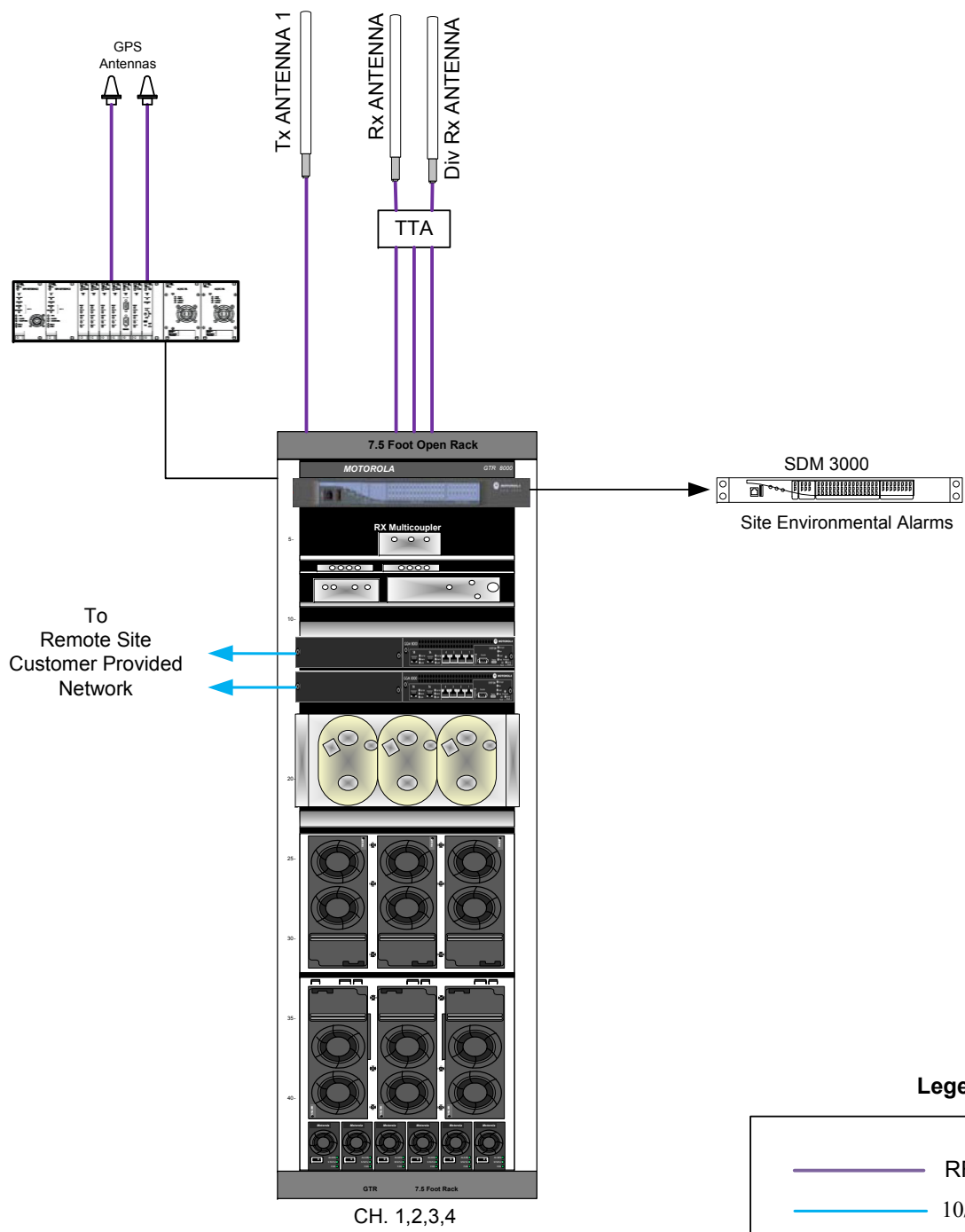
- RF
- 10/100 BaseT
- Other



MOTOROLA

PROJECT:	BIDDEFORD, NE	
TITLE:	PRIME SITE W COLLOCATED REMOTE	
DESIGNED BY:	F Paulino	DATE: 10-31-2019

System Block Diagram -
Simulcast Remote RF Site
DPW & Water Tank

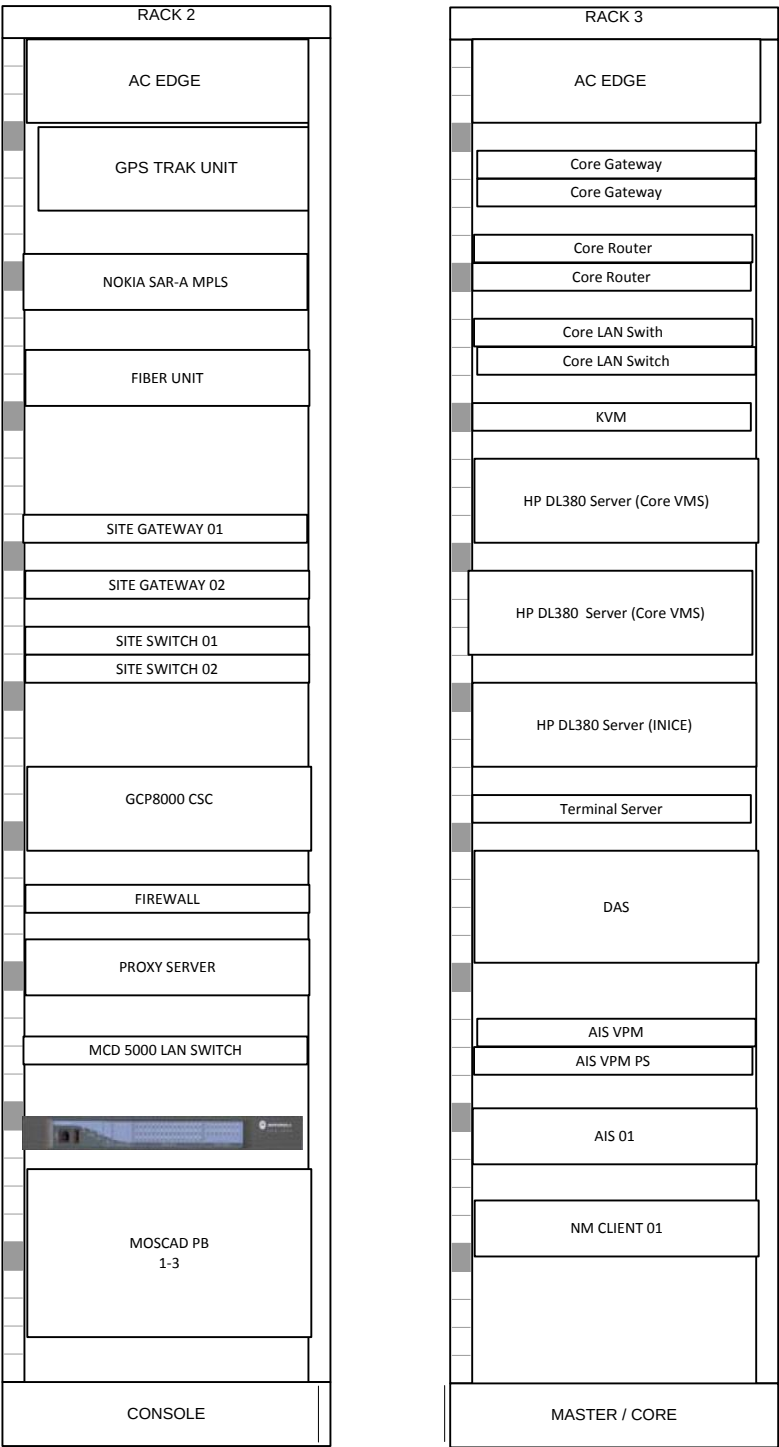


Legend

—	RF
—	10/100 BaseT
—	Other

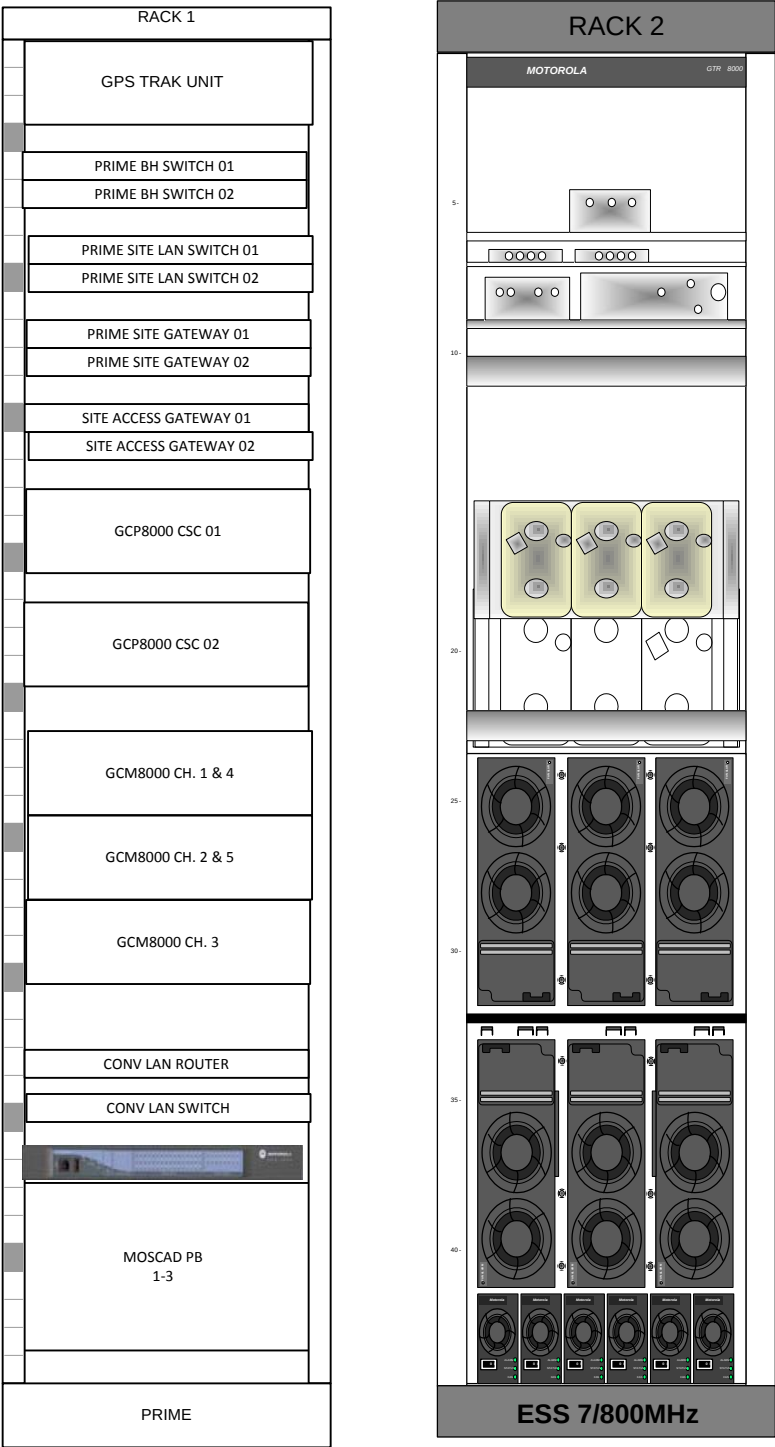
 MOTOROLA	
PROJECT:	BIDDEFORD, NE
TITLE:	DPW & WT REMOTE SITE
DESIGNED BY:	F Paulino
DATE:	10-31-2019

PDHQ Dispatch Equipment Room
Master & Console Site: Preliminary



PDHQ Prime with Collocated Remote Site:

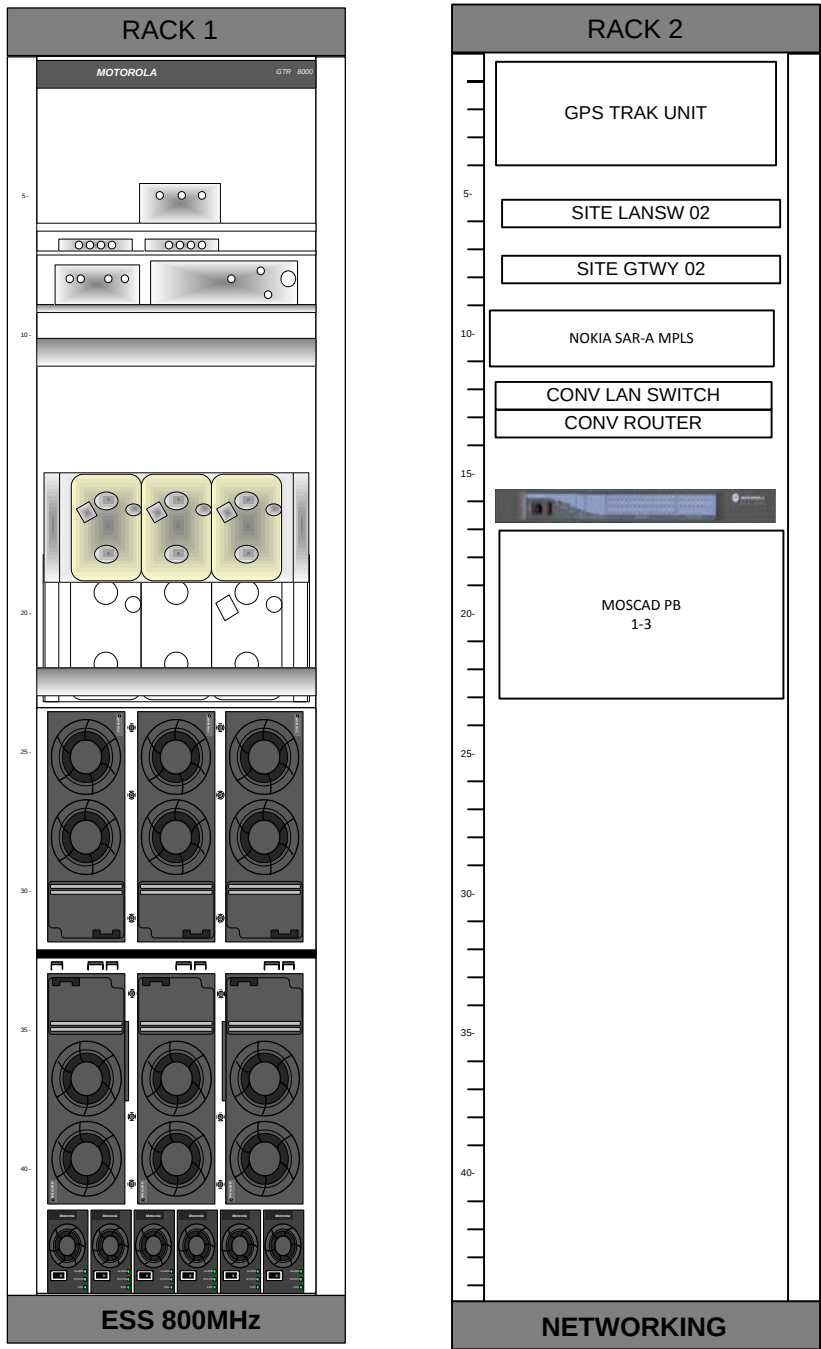
Preliminary



CH. 1,2,3,4,5

Water Tank Remote Site:

Preliminary



1.6 PROJECT 25 APX SUBSCRIBERS

The Motorola Solutions APX subscriber offering proposed to the City of Biddeford consists of three tiers:

- *The APX 8000/8500 Series* – This all-band series offers the highest level of interoperability by integrating 700 MHz, 800 MHz, UHF, and VHF in one radio. In addition to all of the high-tier features, the portables offer the loudest speaker audio and largest color displays, the mobiles offer the most vehicle integration options, and both offer the most flexible hardware architecture that may be used for future upgrades.
- *The APX 1000/1500 Series* – This entry tier delivers all the benefits of TDMA technology in the smallest P25-capable portable and rugged dash mobile in the industry. Ideal for non-mission critical user.



Figure 1-7: Because our portfolio includes a wide range of options within the same model families, we can deliver the functionality options you require with the low operational costs provided by shared programming, accessories and support.

Specially designed for public safety users, Motorola Solutions' APX Series of subscribers delivers exceptional performance by combining advanced voice and data technology with legendary Motorola Solutions quality. Described below are just a few value added features common to all tiers of the APX subscriber platform.

1.6.1 Enhanced Audio Features

Audio quality is a critical factor in a design of a Mission Critical Public Safety radio. The enhanced audio features developed for the APX Portables allow for enhanced clarity and improved audio intelligibility in challenging high-noise environments.

Adaptive Beam Forming

Adaptive Beam forming technology unique to the APX radio takes noise reduction to the next level.

Enhanced Clarity and Speech Naturalness

The APX Portables are designed with an efficient design that delivers natural sounding speech with loud and clear audio quality.

1.6.2 Advanced Software Features

The advanced software features listed below allow for easy and efficient usability and configuration of the subscribers.

Intelligent Lighting

Intelligent lighting uses color to notify the user of the radio mode, potential emergencies, or specific events. Color alerts provide users with information at a glance.

Radio Profiles

Radios can be configured with multiple user-selected or automated operating behaviors such as audio level, lighting and tones. Whether on surveillance or working in bright sunlight, the user can customize settings as needed.

Unified Call List

Consolidates all call lists underneath one unified list. Users can easily access all information associated to a particular contact.

1.6.3 Advanced Data Capabilities

With Integrated Voice & Data (IV&D) APX can be utilized for various applications without compromising voice priority on the system.

SECTION 2

STATEMENT OF WORK

This Statement of Work (SOW) describes the deliverables to be furnished to City of Biddeford. The tasks described herein will be performed by Motorola Solutions, its subcontractors, and City of Biddeford 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 City of Biddeford 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 City of Biddeford.
- 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.

2.1 ASSUMPTIONS

Motorola Solutions has based the system design on information provided by the City of Biddeford and an analysis of their system requirements. All assumptions have been listed in the system description and in statement of work. Should Motorola Solutions' assumptions be deemed incorrect or not agreeable to the City of Biddeford, 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 7:30 a.m. to 5:00 p.m.
- Motorola Solutions is not responsible for interference caused or received by the Motorola Solutions-provided equipment except for interference that is directly caused by the Motorola Solutions-provided transmitter(s) to the Motorola Solutions-provided receiver(s). Should the City of Biddeford system experience interference, Motorola Solutions can be contracted to investigate the source and recommend solutions to mitigate the issue.
- Motorola Solutions is not responsible for pre-existing or external RF interference issues that may degrade the performance of this communications system.
- If, for any reason, any of the proposed sites cannot be utilized due to reasons beyond Motorola Solutions' control, the costs associated with site changes or delays including, but not limited to, re-engineering, frequency re-licensing, site zoning, site permitting, schedule delays, site abnormalities, re-mobilization, etc., will be paid for by City of Biddeford and documented through the change order process.

- The licenses for the proposed design have not been finalized to date. Once the licenses have been secured, Motorola Solutions will verify if any changes are required to the design and/or pricing of the system.
- The City of Biddeford is responsible for providing Ethernet/Fiber Network Connectivity from each of the sites.
- Interface to any existing systems such as but not limited to radio, paging, CAD, records management, etc. are not part of this proposal.
- NOTE: Ten (10) APX 1500 control stations do not include antennas, lines and/or combiner network. It is the City's responsibility to provide these and install them at a location of City's preference. Cost for installation or programming services are not included either.

Motorola Solutions will install and configure the proposed equipment. The following table describes the tasks involved with installation and configuration.

Tasks	Motorola Solutions	City of Biddeford
PROJECT INITIATION		
Contract Finalization and Team Creation		
Execute contract and distribute contract documents.	X	X
Assign a Project Manager as a single point of contact.	X	X
Assign resources.	X	X
Schedule project kickoff meeting.	X	X
Deliverable: Signed contract, defined project team, and scheduled project kickoff meeting.		
Project Administration		
Ensure that project team members attend all meetings relevant to their role on the project.	X	X
Set up the project in the Motorola Solutions information system.	X	
Record and distribute project status meeting minutes.	X	
Maintain responsibility for third-party services contracted by Motorola Solutions.	X	
Complete assigned project tasks according to the project schedule.	X	X
Submit project milestone completion documents.	X	
Upon completion of tasks, approve project milestone completion documents.		X
Conduct all project work Monday thru Friday, 7:30 a.m. to 5:00 p.m.).	X	
Deliverable: Completed and approved project milestones throughout the project.		
Project Kickoff		
Introduce team, review roles, and decision authority.	X	X
Present project scope and objectives.	X	
Review SOW responsibilities and project schedule.	X	X
Schedule Design Review.	X	X
Deliverable: Completed project kickoff and scheduled Design Review.		
Design Review		
Review the Customer's operational requirements.	X	X
Present the system design and operational requirements for the solution.	X	
Present installation plan.	X	



Tasks	Motorola Solutions	City of Biddeford
Present configuration and details of sites required by system design.	X	
Validate that Customer sites can accommodate proposed equipment.	X	X
Provide approvals required to add equipment to proposed existing sites.		X
Review safety, security, and site access procedures.	X	
Finalize site acquisition and development plan.		X
Present equipment layout plans and system design drawings.	X	
Provide backhaul performance specifications and demarcation points.	X	
Provide heat load and power requirements for new equipment.	X	
Provide frequency and radio information for each site. As mandated by FCC City of Biddeford, as the licensee, has the ultimate responsibility for providing all required radio licensing or licensing modifications for the system prior to system staging. Motorola has included cost for frequency coordination and associated fees with this proposal.	X	X
Assume liability and responsibility for providing all information necessary for complete installation.		X
Assume responsibility for issues outside of Motorola Solutions' control.		X
Complete the required forms required for frequency coordination and licensing. City will sign the documentation for submission.	X	X
Ensure that frequency availability and licensing meet project requirements, and pay licensing and frequency coordination fees. Motorola has included the effort and fees for this coordination. As mandated by FCC, City of Biddeford as the licensee has the ultimate responsibility for providing all required radio licensing or licensing modifications for the system prior to system staging.	X	X
Review and update design documents, including System Description, Statement of Work, Project Schedule, and Acceptance Test Plan, based on Design Review agreements.	X	
Execute Change Order in accordance with all material changes to the Contract resulting from the Design Review.	X	
Deliverable: Finalized design documentation based upon "frozen" design, along with any relevant Change Order documentation.		
SYSTEM INSTALLATION		
Equipment Order and Manufacturing		
Create equipment order and reconcile to contract.	X	
Manufacture Motorola Solutions-provided equipment necessary for system based on equipment order.	X	
Procure non-Motorola Solutions equipment necessary for the system.	X	
Deliverable: Equipment procured and ready for shipment.		
System Staging		
Ship all equipment needed for staging to Motorola Solutions' Customer Center for Solutions Integration (CCSi).	X	
Provide information on existing room layouts, or other information necessary for the assembly to meet field conditions.		X

Tasks	Motorola Solutions	City of Biddeford
Set up and rack the solution equipment on a site-by-site basis, as it will be configured in the field at each of the sites.	X	
Cut and label the cables with to/from information to specify interconnection for field installation and future servicing needs.	X	
Complete the cabling/connecting of the subsystems to each other ("connectorization" of the subsystems).	X	
Assemble required subsystems to assure system functionality.	X	
Power up, load application parameters, program, and test all staged equipment.	X	
Confirm system configuration and software compatibility with the existing system.	X	
Inventory the equipment with serial numbers and installation references.	X	
Review and approve proposed Factory Acceptance Test Plan.		X
Pay for travel, lodging, meals, and all incidental expenses for Customer personnel and representatives to witness the Factory Acceptance Testing.		X
Perform factory functional acceptance tests of system features	X	
Conduct site and system level testing.	X	
Perform system burn-in 24 hours a day during staging to isolate and capture any defects.	X	
Deliverable: System staged and ready for shipment.		
Equipment Shipment and Storage		
Provide secure location for solution equipment (for up to three months).	X	
Pack and ship solution equipment to the identified, or site locations.	X	
Receive solution equipment.		X
Inventory solution equipment.	X	
Deliverable: Solution equipment received and ready for installation.		
General Installation		
Deliver solution equipment to installation location.	X	
Coordinate receipt of and inventory solution equipment with designated contact.	X	
Install all proposed fixed equipment as outlined in the System Description based upon the agreed-upon floor plans, connecting audio, control, and radio transmission cables to connect equipment to the power panels or receptacles, and audio/control line connection points. Installation performed in accordance with R56 standards and state/local codes.	X	
Provide system interconnections that are not specifically outlined in the system design, including dedicated phone circuits, microwave links, or other types of connectivity. Fiber and on Ethernet connectivity to the main dispatch, backup dispatch, Prime Site to the Master site. From All RF Sites to Prime Site.		X
Install and terminate all network cables between site routers and network demarcation points, including microwave, leased lines, and Ethernet as per the system description.	X	
Connect installed equipment to the existing ground system.	X	
Label equipment, racks, and cables.	X	



Tasks	Motorola Solutions	City of Biddeford
Note any required changes to the installation for inclusion in the “as-built” system documentation.	X	
Remove, transport, and dispose of old equipment.		X
Deliverable: Equipment installed.		
ASTRO 25 Remote Sites Installation and Configuration		
Install fixed equipment contained in the equipment list and system description.	X	
Provide backhaul connectivity requirements for the proposed system.	X	
Provide backhaul connectivity and associated equipment for all sites to meet latency, jitter and capacity requirements.		X
Configure existing ASTRO 25 system core to support the new RF sites.	X	
Verify site link performance, prior to the interconnection of the solution equipment to the link equipment.	X	
Integrate the RF sites into the system to ensure proper operation.	X	
Deliverable: ASTRO 25 remote sites equipment installation completed.		
Console Installation and Configuration		
Identify AC outlets for connection to console and a demarcation point located within 10 feet of the console interface.		X
Connect console to circuit demarcation points.	X	
Install PC workstation w/ keyboard and mouse, and monitor and purchased peripheral console equipment in accordance with R56 standards.	X	
Develop templates for console programming.	X	
Perform console programming and configuration.	X	
Deliverable: Console equipment installation completed.		
Consolette Installation and Configuration		
Provide the locations of consolette at each site.		X
Survey mounting locations and develop consolette installation plan.	X	
Provide adequate space, grounding, and power for the consolette installation.		X
Properly connectorize and ground the cabling, which will be run to the outdoor antenna location using the least obtrusive method.	X	
Provide an elevated antenna mounting location, and adequate feed-line routing and support.		X
Install line (not greater than 100 feet in length) and antenna system (connectors, coax grounding kit, antenna, and surge protection).		X
Install RF local consolettes identified in the equipment list.	X	
Perform consolette programming.	X	
Deliverable: Consolette equipment installation completed.		
Logging Equipment Installation and Configuration		
Supply logging equipment that is P25 system compatible and ready.		X
Provide interface to logging equipment.	X	
Deliverable: Logging equipment installation completed.		

Tasks	Motorola Solutions	City of Biddeford
Develop Console and User Radio Fleetmap		
Review fleetmap.		X
Review fleetmapping requirements with Customer, including user ID and talkgroup structures.	X	
Designate user group representatives for the user groups, to make timely decisions on their behalf.		X
Provide advisory input during fleetmap development.	X	
Develop templates (up to 20 included).	X	X
Participate in a meeting to finalize any changes among user groups.	X	X
Review and approve fleetmap templates.		X
Program the approved templates into a radio-programming template tool.	X	
Program sample radios with approved templates and deliver for evaluation by Customer.	X	
Program approved templates into console.		X
Evaluate sample radios and provide feedback.		X
Approve templates.		X
Deliverable: Fleetmap plan completed and approved by Customer.		
Mobile Radio Installation and Programming		
Develop and approve prototypes for each type of mobile installation.	X	
Test features and functionalities of the mobile templates.	X	
Program the mobile radios identified in the equipment list in accordance with the programming templates, client software, and fleetmap. A "one-time only" programming is included in the project pricing.	X	
Provide adequate number of vehicles for installations according to the project/installation schedule.		X
Install all the mobiles in the vehicles, as identified in the equipment list, and according to the installation schedule.	X	
Permanently mount the antennas on each vehicle according to the approved prototype, appropriate for the vehicle type. Install the antennas close to the same location as the existing antennas, where practical, in vehicles that already have antennas installed. If applicable, plug the old antenna hole with an appropriate rubber plug.	X	
Install the antennas on the roof, where practical, on the new antenna installations. If mobile antenna cannot be installed on the roof, determine an alternative location.	X	X
Remove the existing mobiles from the vehicle at the time of installation of the new radios.	X	
Deliverable: Mobile radios installed and accepted.		
Portable Radio Programming and Distribution		
Pass all features and functionalities of the portable radio template.	X	
Program test portable radios with each template version and activate them on the system.	X	



Tasks	Motorola Solutions	City of Biddeford
Program the portable radios identified in the equipment list in accordance with the programming templates, client software, and fleetmap. A “one-time only” programming is included in the project pricing.	X	
Deliver portable radios to authorized Customer personnel and inventory upon receipt.	X	
Acknowledge receipt of portable radios and accessories and verify proper operation of a sampling of delivered portable radios.		X
Distribute portable radios to end users.	X	
Deliverable: Portable radios accepted and distributed.		
SYSTEM OPTIMIZATION AND TESTING		
R56 Site Audit		
Perform R56 site-installation quality-audits, verifying proper physical installation and operational configurations.	X	
Create site evaluation report to verify site meets or exceeds requirements, as defined in Motorola Solutions’ R56 Standards and Guidelines for Communication Sites.	X	
Deliverable: R56 Standards and Guidelines for Communication Sites audits completed successfully.		
Electromagnetic Interference (EMI) Analysis		
Perform EMI analysis for the Motorola Solutions-supplied equipment. Note: Motorola Solutions is only responsible for interference caused by Motorola Solutions-provided transmitters to the Motorola Solutions-provided receivers. Should the proposed equipment experience interference, Motorola Solutions can be contracted to investigate the source and recommend solutions to mitigate the issue.		X
Resolve any interference caused by equipment not supplied by Motorola Solutions.		X
Deliverable: EMI analysis completed.		
Solution Optimization		
Verify that all equipment is operating properly and that all electrical and signal levels are set accurately.	X	
Verify that all audio and data levels are at factory settings.	X	
Verify communication interfaces between devices for proper operation.	X	
Ensure that functionality meets manufacturers’ specifications and complies with the final configuration established during design review or system staging.	X	
Deliverable: Completion of System Optimization.		
Functional Acceptance Testing		
Verify the operational functionality and features of the solution supplied by Motorola Solutions, as contracted.	X	
Witness the functional testing.		X
Document all issues that arise during the acceptance tests.	X	
If any major task for the system as contractually described fails during the Customer acceptance testing or beneficial use, repeat that particular task after Motorola Solutions determines that corrective action has been taken.	X	

Tasks	Motorola Solutions	City of Biddeford
Resolve any minor task failures before Final System Acceptance.	X	
Document the results of the acceptance tests and present for review.	X	
Review and approve final acceptance test results.		X
Deliverable: Completion of functional testing and approval by Customer.		
Coverage Testing		
Determine the required number of test vehicles for simultaneous testing of multiple service areas.	X	X
Perform coverage testing according to the Coverage Acceptance Test Plan (CATP), Submit test reports within the agreed period.	X	
For any area that fails, take corrective action.	X	
Retest any areas for which corrective action has been taken.	X	
Document all issues that arise during the coverage testing.	X	
Submit final test reports, according to the agreed period.	X	
Provide the required number of test vehicles, drivers, and resources to witness the coverage testing.		X
Review and approve test results.		X
Deliverable: Completion of coverage testing and approval by Customer.		
PROJECT TRANSITION		
Training		
Finalize schedule for training coursework.	X	
Provide training facility.		X
Ensure that the training participants fulfill course prerequisites.		X
Conduct the training classes outlined in the Training Plan.	X	
Attend proposed training classes.		X
Deliverable: Training coursework completed.		
Cutover		
Finalize Cutover Plan.	X	X
Conduct cutover meeting with relevant personnel to address both how to mitigate technical and communication problem impacts to the users during cutover and during the general operation of the system.	X	
Notify the personnel affected by the cutover of the date and time planned for cutover.		X
Provide ongoing communication with users regarding the project and schedule.	X	X
Resolve punchlist items, documented during the Acceptance Testing phase, in order to meet all the criteria for final system acceptance.	X	
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 items.		X
Deliverable: Migration to new system completed, and punchlist items resolved.		



Tasks	Motorola Solutions	City of Biddeford
Transition to Warranty		
Review the items necessary for transitioning the project to warranty support and service.	X	
Motorola Solutions to provide services during year 1 warranty which align with the proposed services.	X	
Provide a Customer Support Plan detailing the warranty support associated with the contract equipment.	X	
Participate in the Transition Service/Project Transition Certificate (PTC) process.		X
Deliverable: Service information delivered and approved by Customer.		
Finalize Documentation and System Acceptance		
Provide manufacturer's installation material, part list and other related material to Customer upon project completion.	X	
Provide an electronic as-built system manual on CD or other Customer preferred electronic media. The documentation will include the following: ▪ Site Block Diagrams. ▪ Site Equipment Rack Configurations. ▪ ATP Test Checklists. ▪ Functional Acceptance Test Plan Test Sheets and Results. ▪ Equipment Inventory List. ▪ Console Programming Template (where applicable). Drawings will be delivered in Adobe PDF format.	X	
Receive and approve documentation.		X
Execute Final Project Acceptance.	X	X
Deliverable: All required documents are provided and approved. Final Project Acceptance.		

2.2 CIVIL WORK

2.2.1 Site Development at DPW Site

Existing town owned site behind DPW that currently has 180-foot SST and equipment shelter. Proposing to install proposed panel antennas, electric, and grounding for new equipment racks.

Site Scope Summary

- Engineering services for site drawings and regulatory approvals – Included.
- Site acquisition services – Not included.
- Zoning Services – Not included.
- Existing tower to be used for antennas – 180-foot Self-supported Tower.

Motorola Solutions Responsibilities:

Site Engineering

- Prepare site construction drawings, limited to 2 revisions, showing the layout of various new and existing site components.
- Conduct site walks to collect pertinent information from the sites (e.g., location of Telco, power, existing facilities, etc.).
- Prepare a lease exhibit and sketch of the site to communicate to the property owner the proposed lease space and planned development at the particular site location.
- Prepare record drawings of the site showing the as-built information.
- Perform National Environmental Policy Act (NEPA) Threshold Screening, including limited literature and records search and brief reporting, as necessary to identify sensitive natural and cultural features referenced in 47 Code of Federal Regulations (CFR) Chapter 1, subsection 1.1307 that may be potentially impacted by the proposed construction activity. This does not include the additional field investigations to document site conditions if it is determined that the proposed communication facility “may have a significant environmental impact” and thus require additional documentation, submittals, or work.
- Provide a structural engineering analysis for antenna support structure, if necessary, to support the proposed antenna system. If the tower structure fails the analysis, the cost of any site relocation or modifications to the tower required to support the antenna system will be the responsibility of Biddeford, ME. NOTE: This task does not include mapping, structural measurement survey, materials testing, geotechnical investigation, and/or other field investigation to acquire the data. If applicable, these tasks will be noted separately in the SOW.
- Provide tower climbing and tower mapping services for towers up to 350-feet to collect information about structural members and existing equipment.
- Preparation, submission and tracking of application for local permit fees (zoning, electrical, building etc.) and procurement of information necessary for filing.

Site Preparation

- Obtain the permits such as electrical, building, and construction permits, and coordinate any inspections with local authorities that may be needed to complete site development work.
- Provide one-time mobilization costs for the construction crews. Any remobilization due to interruptions/delays that are out of Motorola Solutions' control will result in additional costs.



Antenna and Transmission Line Installation

- Supply and install (3) panel antenna(s).
- Supply and install (3) 6-foot side arm(s) for antenna mounts.
- Supply and install (2) GPS antenna(s).
- Supply and install (1) tower top amplifier(s).
- Supply and install up to 220 linear feet of 1/2-inch transmission line.
- Supply and install up to 640 linear feet of 7/8-inch transmission line.
- Perform sweep tests on transmission lines.
- Provide and install attachment hardware for supporting transmission lines on the antenna support structure every three feet.
- Supply and install (3) antenna ground buss bars at the antenna, half way down tower, and bottom of the antenna support structure for grounding RF cables before they make horizontal transition.

Existing Facility Improvement Work

- Ground all proposed metallic objects in the interior of the existing room, to meet current Motorola Solutions' Standards and Guidelines for Communications Sites (R56) requirements and terminate near equipment locations.
- Supply and install (2) copper ground buss bar(s) to replace existing MGB and EGB.

Miscellaneous Work

- Furnish materials and labor to install (8) 60amp single pole breakers, conduit, wire and terminations for proposed 4 AC Edge Panels.

2.2.2 Site Development at PDHQ Site

Existing town owned PDHQ that currently has guyed tower attached to rooftop. Proposing to install new antennas, electrical circuits, and grounding for new equipment racks. Also including installation of 3 control station antennas and coax.

Site Scope Summary

- Engineering services for site drawings and regulatory approvals – Included.
- Site acquisition services – Not included.
- Zoning Services – Not included.
- Existing tower to be used for antennas – 90-foot Rooftop Guyed Tower.

Motorola Solutions Responsibilities:

Site Engineering

- Prepare site construction drawings, limited to 2 revisions, showing the layout of various new and existing site components.
- Conduct site walks to collect pertinent information from the sites (e.g., location of Telco, power, existing facilities, etc.).
- Prepare a lease exhibit and sketch of the site to communicate to the property owner the proposed lease space and planned development at the particular site location.
- Prepare record drawings of the site showing the as-built information.
- Perform National Environmental Policy Act (NEPA) Threshold Screening, including limited literature and records search and brief reporting, as necessary to identify sensitive natural and cultural features referenced in 47 Code of Federal Regulations (CFR) Chapter 1, subsection 1.1307 that may be potentially impacted by the proposed construction activity. This does not

include the additional field investigations to document site conditions if it is determined that the proposed communication facility “may have a significant environmental impact” and thus require additional documentation, submittals, or work.

- Provide a structural engineering analysis for antenna support structure, if necessary, to support the proposed antenna system. If the tower structure fails the analysis, the cost of any site relocation or modifications to the tower required to support the antenna system will be the responsibility of Biddeford, ME. NOTE: This task does not include mapping, structural measurement survey, materials testing, geotechnical investigation, and/or other field investigation to acquire the data. If applicable, these tasks will be noted separately in the SOW.
- Provide tower climbing and tower mapping services for towers up to 350-feet to collect information about structural members and existing equipment.
- Preparation, submission and tracking of application for local permit fees (zoning, electrical, building etc.) and procurement of information necessary for filing.

Site Preparation

- Obtain the permits such as electrical, building, and construction permits, and coordinate any inspections with local authorities that may be needed to complete site development work.
- Provide one-time mobilization costs for the construction crews. Any remobilization due to interruptions/delays that are out of Motorola Solutions' control will result in additional costs.

Antenna and Transmission Line Installation

- Supply and install (3) antenna(s) for the RF system.
- Supply and install (3) heavy duty mount(s) for Bogner antennas.
- Supply and install (2) GPS antenna(s).
- Supply and install (1) tower top amplifier(s).
- Supply and install (3) control station antenna(s).
- Supply and install up to 600 linear feet of 1/2-inch transmission line.
- Supply and install up to 450 linear feet of 7/8-inch transmission line.
- Perform sweep tests on transmission lines.
- Provide and install attachment hardware for supporting transmission lines on the antenna support structure every three feet.
- Provide and install 60 linear feet of PVC sleepers and attachment hardware for supporting transmission lines on rooftop every three feet.
- Supply and install (3) ground buss bars at antennas, bottom of the antenna support structure, and at proposed doghouse for grounding RF cables before they make transition inside building.
- Supply and install #2 stranded copper ground (not to exceed 60 linear feet) for grounding the antennas to the building ground.

Existing Facility Improvement Work

- Supply and install (1) primary Type 1 SAD/MOV surge protector on the room electrical panel to protect the equipment from surges. Customer to appropriate breakers as needed.
- Supply and install (4) cable entry ports in drop ceiling for transition to attic.
- Ground all proposed metallic objects in the interior of the existing room, to meet current Motorola Solutions' Standards and Guidelines for Communications Sites (R56) requirements and terminate near equipment locations.
- Supply and install (2) copper ground buss bar(s) for MGB and SSGB in existing equipment room.

Miscellaneous Work

- Furnish materials and labor to install (4) 60amp single pole breakers, conduit, wire and terminations from existing utility panel for proposed 2 AC Edge Panels.



- Provide additional labor for routing of coax from equipment room thru attic of building.
- Provide labor and materials to provide (3) 2ft standoff mounts for control station antennas.
- Rigging of antennas, coax, mounts, and materials utilizing a boom truck in parking lot.
- Provide labor and materials to install new doghouse for proposed coax.
- Provide labor and materials for new rooftop opening and required pitch pocket for new doghouse.

2.2.3 Site Development at Water Tank Site

Existing town owned 200-foot Water Tank with existing 12x30 equipment shelter for proposed new equipment racks. Proposing to install new panel antennas on existing WT Catwalk, coax, electrical circuits, and grounding for new equipment racks. Note, coax will need to be painted to match tank.

Site Scope Summary

- Engineering services for site drawings and regulatory approvals – Included.
- Site acquisition services – Not included.
- Zoning Services – Not included.
- Existing tower to be used for antennas – 200-foot Water Tank.

Motorola Solutions Responsibilities:

Site Engineering

- Prepare site construction drawings, limited to 2 revisions, showing the layout of various new and existing site components.
- Conduct site walks to collect pertinent information from the sites (e.g., location of Telco, power, existing facilities, etc.).
- Prepare a lease exhibit and sketch of the site to communicate to the property owner the proposed lease space and planned development at the particular site location.
- Prepare record drawings of the site showing the as-built information.
- Perform National Environmental Policy Act (NEPA) Threshold Screening, including limited literature and records search and brief reporting, as necessary to identify sensitive natural and cultural features referenced in 47 Code of Federal Regulations (CFR) Chapter 1, subsection 1.1307 that may be potentially impacted by the proposed construction activity. This does not include the additional field investigations to document site conditions if it is determined that the proposed communication facility “may have a significant environmental impact” and thus require additional documentation, submittals, or work. Perform a cultural resource study, as needed to identify sensitive historical and archaeological monuments that might be impacted by proposed construction.
- Provide a structural engineering analysis for existing Water Tank, if necessary, to support the proposed the proposed equipment loads.
- Design proposed antenna support mounts on existing Water Tank catwalk.
- Preparation, submission and tracking of application for local permit fees (zoning, electrical, building etc.) and procurement of information necessary for filing.
- Third-Party Utility mark out.

Site Preparation

- Obtain the permits such as electrical, building, and construction permits, and coordinate any inspections with local authorities that may be needed to complete site development work.
- Provide one-time mobilization costs for the construction crews. Any remobilization due to interruptions/delays that are out of Motorola Solutions' control will result in additional costs.

- Perform site touch up (fertilize, seed and straw) disturbed areas not covered with gravel after completion of construction work. Landscaping, decorative fencing or any other aesthetic improvement that may be required by local jurisdictions has not been included and will be handled through a negotiated contract change notice.

Antenna and Transmission Line Installation

- Supply and install (3) panel antenna(s).
- Supply and install (2) GPS antenna(s) on existing shelter.
- Supply and install (1) tower top amplifier(s).
- Supply and install up to 270 linear feet of 1/2-inch transmission line.
- Supply and install up to 810 linear feet of 7/8-inch transmission line.
- Perform sweep tests on transmission lines.
- Provide and install attachment hardware for supporting transmission lines on the existing cable tank leg cable management every three feet.
- Supply and install (3) ground buss bars at antennas, and at the bottom of the antenna support structure for grounding RF cables before they make horizontal transition.

Existing Facility Improvement Work

- Ground all proposed metallic objects in the interior of the existing room, to meet current Motorola Solutions' Standards and Guidelines for Communications Sites (R56) requirements and terminate near equipment locations.
- Supply and install (1) copper ground buss bar(s) to replace existing MGB.

Miscellaneous Work

- Furnish materials and labor to install (4) 60amp single pole breakers, conduit, wire and terminations for proposed 2 AC Edge Panels.
- Additional labor and man lift required for installation of coax and painting on existing WT leg cable management.
- Provide labor for painting of proposed coax cables on Water Tank leg. Includes man lift rental.
- Furnish material and labor for installation of (3) new Water Tank antenna mounts on existing catwalk.
- Furnish labor to install (1) new 5" PVC conduit approximately 40-feet from existing shelter to tank leg.
- Provide shop painting of new antenna mount hardware to match tank.

2.2.4 Site Development at Backup Dispatch Site

Proposing to provide installation of 3 control station antennas and coax, and required electrical work to power up proposed AC Edge Panel in new equipment rack.

Site Scope Summary

- Engineering services for site drawings and regulatory approvals – Included.
- Site acquisition services – Not included.
- Zoning Services – Not included.
- Existing tower to be used for antennas – 50-foot Rooftop.



Motorola Solutions Responsibilities:

Site Engineering

- Prepare site construction drawings, limited to 2 revisions, showing the layout of various new and existing site components.
- Conduct site walks to collect pertinent information from the sites (e.g., location of Telco, power, existing facilities, etc.).
- Prepare a lease exhibit and sketch of the site to communicate to the property owner the proposed lease space and planned development at the particular site location.
- Prepare record drawings of the site showing the as-built information.
- Provide a structural engineering analysis for antenna support structure, if necessary, to support the proposed the proposed equipment loads.
- Preparation, submission and tracking of application for local permit fees (zoning, electrical, building etc.) and procurement of information necessary for filing.

Site Preparation

- Obtain the permits such as electrical, building, and construction permits, and coordinate any inspections with local authorities that may be needed to complete site development work.
- Provide one-time mobilization costs for the construction crews. Any remobilization due to interruptions/delays that are out of Motorola Solutions' control will result in additional costs.

Antenna and Transmission Line Installation

- Supply and install (3) control station antenna(s) either on existing rooftop penthouse or parapet wall.
- Supply and install up to 300 linear feet of 1/2-inch transmission line.
- Perform sweep tests on transmission lines.
- Provide and install attachment hardware for supporting transmission lines on the antenna support structure every three feet.
- Supply and install (3) ground buss bars at antennas and at the bottom of the antenna support structure for grounding RF cables before they make horizontal transition.
- Supply and install #2 stranded copper ground (not to exceed 50 linear feet) for grounding the antennas to the building ground.

Miscellaneous Work

- Furnish materials and labor to install (2) 60amp single pole breakers, conduit, wire and terminations for proposed 1 AC Edge Panels. Assumes there is a utility panel in existing equipment room with spare breaker positions available.
- Provide labor and materials to provide (3) 2-foot vertical wall mounts for control station antennas. Assumes Hilti anchored into penthouse or parapet wall.

City of Biddeford Responsibilities:

- If required, prepare and submit Electromagnetic Energy (EME) plans for the site (as a licensee) to demonstrate compliance with FCC RF Exposure guidelines.
- Review and approve site design drawings within 7 calendar days of submission by Motorola Solutions or its subcontractor(s). Should a re-submission be required, the Customer shall review and approve the re-submitted plans within 7 calendar days from the date of submittal.
- Pay for the usage costs of power, leased lines and generator fueling both during the construction/installation effort and on an on-going basis.
- Pay for application fees, taxes and recurring payments for lease/ownership of the property.

- As applicable (based on local jurisdictional authority), the Customer will be responsible for any installation or up-grades of the electrical system in order to comply with NFPA 70, Article 708.
- Provide property deed or lease agreement, and boundary survey, along with existing as-built drawings of the site and site components to Motorola Solutions for conducting site engineering.
- Provide a right of entry letter from the site owner for Motorola Solutions to conduct field investigations.
- Maintain existing access road in order to provide clear and stable entry to the site.
- Arrange for space on the structure for installation of new antennas at the proposed heights on designated existing antenna-mounting structures.
- Provide as-built structural and foundation drawings of the structure and site location(s) along with geotechnical report(s) for Motorola Solutions to conduct a structural analysis.
- Provide support facilities for the antenna cables (cable ladder, entry ports, Waveguide Bridge) from the antenna to the equipment room.
- Provide space, HVAC, backup power (UPS, generator), grounding, surge suppression, lighting, and cabling facilities for the equipment room per Motorola Solutions' R56 specifications. Ceiling and cable tray heights in the equipment rooms should be such as to accommodate 7-1/2-foot equipment racks, and the ceiling should be 9 feet or greater.
- Confirm that there is adequate utility service to support the new equipment and ancillary equipment.
- Confirm that the existing generator is sufficient to support the new equipment and ancillary equipment loads.
- If required, remove or relocate any existing facilities, equipment, and utilities to create space for new site facilities and equipment.
- If required, provide any physical improvements (walls, roofing, flooring, painting, etc.) necessary to house the equipment in the existing room.
- Supply a grounding tie point within ten (10) feet of the-Motorola Solutions-supplied equipment.
- At the Backup Dispatch site provide cable management or opening for proposed Control Station coax from equipment room to proposed antenna location.

Assumptions:

- All work is assumed to be done during normal business hours as dictated by time zone (Monday thru Friday, 7:30 a.m. to 5:00 p.m.).
- Prevailing Wages are included.
- Pricing is valid for 180 days.
- All recurring and non-recurring utility costs [including, but not limited to, generator fuel (except first fill), electrical, Telco] will be borne by the Customer or site owner.
- All utility installations shall be coordinated and paid for by the site owner and located at jointly agreed to location within or around the new communications shelter or equipment room.
- Hazardous materials are not present at the work location. Testing and removal of hazardous materials, found during site investigations, construction or equipment installation will be the responsibility of the customer.
- A maximum of 30 days will be required for obtaining approved building permits from time of submission.
- If extremely harsh or difficult weather conditions delay the site work for more than a week, Motorola Solutions will seek excusable delays rather than risk job site safety.
- Existing facility has a grounding system with a ground resistance of 10 ohms or less.
- Existing antenna support structures are structurally capable of supporting the new antenna, cables and ancillary equipment proposed and will not need to be removed or rebuilt at the existing site. The tower or supporting structure meets all applicable EIA/TIA-222 structural, foundation, ice,



wind and twist and sway requirements. Motorola Solutions has not included any cost for structural or foundation upgrades to the antenna support structure.

- Customer is responsible to provided required power panel where specifically noted on responsibility matrix provided.
- Structural and foundation drawings of the antenna support structure will be made available to preclude the need for ultrasonic testing, geotechnical borings or mapping of existing tower structural members.
- Lead paint testing of existing painted towers has not been included.
- Underground utilities are not present in the construction area and as such no relocation will be required.
- Structural analyses for towers or other structures that have not been performed by Motorola Solutions will relinquish Motorola Solutions from any responsibility for the analysis report contents and/or recommendation therein.
- Existing cable support facilities from the antenna to the cable entry port can be used for supporting the new antenna cables
- Alarming at existing sites will be limited to new component installations and will have to be discussed and agreed to on a site-by-site basis.
- The site will have adequate room for installation of proposed equipment, based on applicable codes and Motorola Solutions' R56 standards.
- The existing utility service and backup power facilities (UPS, generators) have sufficient extra capacity to support the proposed new equipment load.
- A clear obstruction-free access exists from the antenna location to the equipment room.
- The Customer does not desire upgrade of the existing site to meet Motorola Solutions' R56 standards.
- The floor can support the proposed new loading. Physical or structural improvements to the existing room will not be required.
- Assumes cable management will be provided by customer or already present.

Completion Criteria

- Site development completed per issued for construction (IFC) construction drawings, project requirements, contractual obligations (including any customer/Motorola Solutions approved changes) and approved by Biddeford, ME.

2.2.4.1 Example - Change Order Form



CHANGE ORDER

[type co# here]

Change Order No.

Date:

Project Name:

Customer Name:

Customer Project Manager:

The purpose of this Change Order is to: *(highlight the key reasons for this Change Order)*

--

Contract # **REQUIRED**

Contract Date:

In accordance with the terms and conditions of the contract identified above between [enter customer name] and Motorola Solutions, Inc., the following changes are approved:

Contract Price Adjustments

Original Contract Value:	\$
Previous Change Order amounts for Change Order to \$	\$
This Change Order:	\$
New Contract Value:	\$

Completion Date Adjustments

Original Completion Date:	
Current Completion Date prior to this Change Order:	
New Completion Date:	



Changes in Equipment: <i>(additions, deletions or modifications)</i> Include attachments if needed

Changes in Services: <i>(additions, deletions or modifications)</i> Include attachments if needed

Schedule Changes: <i>(describe change or N/A)</i>

Pricing Changes: <i>(describe change or N/A)</i>

Customer Responsibilities: <i>(describe change or N/A)</i>

Payment Schedule for this Change Order: <i>(describe new payment terms applicable to this change order)</i>

Unless amended above, all other terms and conditions of the Contract shall remain in full force. If there are any inconsistencies between the provisions of this Change Order and the provisions of the Contract, the provisions of this Change Order will prevail.

IN WITNESS WHEREOF the parties have executed this Change Order as of the last date signed below.

Motorola Solutions, Inc. By: _____ Printed Name: _____ Title: _____ Date: _____ Reviewed by: _____ Motorola Solutions Project Manager	Customer By: _____ Printed Name: _____ Title: _____ Date: _____ Date: _____
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2.3 PROJECT SCHEDULE

Attached is a preliminary project schedule.



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City of Biddeford, ME ASTRO 25 Trunking System Preliminary Project Schedule																	
ID		Task Name	Duration	Start	Finish	Predecessors	Qtr 4	1st Half Qtr 1	Qtr 2	2nd Half Qtr 3	Qtr 4	1st Half Qtr 1	Qtr 2	2nd Half Qtr 3	Qtr 4	1st Half Qtr 1	
1		City of Biddeford, ME Preliminary Project Schedule	261d	Mon 12/14/20	Mon 12/13/21												
2		Contract	51d	Mon 12/14/20	Mon 2/22/21												
3		Contract Award	0d	Mon 12/14/20	Mon 12/14/20												
4		Contract Administration	20d	Mon 12/14/20	Fri 1/8/21	3											
5		Project Kick-Off	11d	Mon 2/8/21	Mon 2/22/21	3											
6		Kickoff Meeting Preparation	10d	Mon 2/8/21	Fri 2/19/21	4FS+20d											
7		Project Kickoff Meeting	1d	Mon 2/22/21	Mon 2/22/21	6											
8		Contract Design Review	10d	Tue 2/23/21	Mon 3/8/21												
9		Coverage/Sites	5d	Tue 2/23/21	Mon 3/1/21	7											
10		Project Schedule	5d	Tue 2/23/21	Mon 3/1/21	7											
11		Drawings/Diagrams	5d	Tue 2/23/21	Mon 3/1/21	7											
12		Equipment List	5d	Tue 2/23/21	Mon 3/1/21	7											
13		Acceptance Test Plans	5d	Tue 2/23/21	Mon 3/1/21	7											
14		Updates to Design	5d	Tue 3/2/21	Mon 3/8/21	10,11,13,12											
15		Final Design Complete	0d	Mon 3/8/21	Mon 3/8/21	14											
16		Final CDR Approval by City of Biddeford (Design and Implementation Plan Frozen)	0d	Mon 3/8/21	Mon 3/8/21	15											
17		FCC Licensing	80d	Tue 2/23/21	Mon 6/14/21												
18		File Necessary Forms	10d	Tue 2/23/21	Mon 3/8/21	7											
19		APCO Coordination	30d	Tue 3/9/21	Mon 4/19/21	18											
20		FCC Processing	40d	Tue 4/20/21	Mon 6/14/21	19											
21		Licenses Granted	0d	Mon 6/14/21	Mon 6/14/21	20											
22		Order Processing	5d	Tue 6/15/21	Mon 6/21/21												
23		Process Equipment lists	5d	Tue 6/15/21	Mon 6/21/21	15,16,21											
24		Orders placed to the factories	0d	Mon 6/21/21	Mon 6/21/21	23											
25		Equipment Manufacturing	25d	Tue 6/22/21	Mon 7/26/21												
26		Manufacture Staged Equipment	25d	Tue 6/22/21	Mon 7/26/21	24											
27		Manufacture Non-Staged (Field) Equipment	25d	Tue 6/22/21	Mon 7/26/21	24											
28		Staging	33d	Tue 7/27/21	Thu 9/9/21												
29		Receive and Inventory	3d	Tue 7/27/21	Thu 7/29/21	26											
30		Assemble Equipment	5d	Fri 7/30/21	Thu 8/5/21	29											
31		Program Equipment	7d	Fri 8/6/21	Mon 8/16/21	30											
32		Perform Pre-Staging ATP	5d	Tue 8/17/21	Mon 8/23/21	31											
33		Perform Staging ATP	3d	Tue 8/24/21	Thu 8/26/21	32											
34		CCSI Acceptance by City of Biddeford	0d	Thu 8/26/21	Thu 8/26/21	33											
35		Repackage Equipment	2d	Fri 8/27/21	Mon 8/30/21	34											
36		Complete Standard System Documentation	5d	Fri 8/27/21	Thu 9/2/21	34											
37		Ship Equipment to Field	5d	Fri 9/3/21	Thu 9/9/21	36,35											
38		Civil and Site Development Work	114.5d	Mon 6/14/21	Mon 11/22/21	21											
39		COVERAGE DESIGN AND SITE LOCATION FINALIZED	0d	Mon 6/14/21	Mon 6/14/21	21											
40		DPW SITE DEVELOPMENT	92d	Mon 6/14/21	Wed 10/20/21	39											
70		PDHQ SITE DEVELOPMENT	95d	Wed 6/16/21	Wed 10/27/21												
101		WATER TANK SITE DEVELOPMENT	114.5d	Tue 6/15/21	Mon 11/22/21												
135		BACKUP DISPATCH SITE DEVELOPMENT	91d	Mon 6/21/21	Tue 10/26/21												
164		Subscribers	218d	Tue 12/29/20	Thu 10/28/21												
165		Fleetmapping	15d	Fri 9/10/21	Thu 9/30/21	16,27,37											
166		Distribute Portables	5d	Fri 10/1/21	Thu 10/7/21	165											
167		Subscriber Mobile Installation	20d	Fri 10/1/21	Thu 10/28/21	165											
168		Subscriber Distribution and Installation	0d	Tue 12/29/20	Tue 12/29/20												
169		INSTALLATION	56.5d	Thu 9/9/21	Mon 11/29/21												
170		Site Equipment Installation (FNE)	56.5d	Thu 9/9/21	Mon 11/29/21												
Critical Path Tasks																	
																	1

City of Biddeford, ME ASTRO 25 Trunking System Preliminary Project Schedule																
ID		Task Name	Duration	Start	Finish	Predecessors	Qtr 4	1st Half Qtr 1	Qtr 2	2nd Half Qtr 3	Qtr 4	1st Half Qtr 1	Qtr 2	2nd Half Qtr 3	Qtr 4	1st Half Qtr 1
171		Receive and Inventory	5d	Fri 9/10/21	Thu 9/16/21	37										
172		Install Equipment at Master, Prime, Remote Site 1	10d	Thu 10/28/21	Wed 11/10/21	37,100										
173		Install Equipment at Remote Site 2	5d	Thu 10/21/21	Wed 10/27/21	37,69										
174		Install Equipment at Remote Site 3	5d	Mon 11/22/21	Mon 11/29/21	37,134										
175		Site Equipment Installation Complete	0d	Thu 9/9/21	Thu 9/9/21	37										
176		Console Installation	10d	Fri 9/17/21	Thu 9/30/21											
177		Install Consoles at Main Dispatch	5d	Fri 9/17/21	Thu 9/23/21	171,175										
178		Backup Dispatch	5d	Fri 9/24/21	Thu 9/30/21	177										
179		Console Installation Complete	0d	Thu 9/30/21	Thu 9/30/21	178										
180		Installation Acceptance	0d	Thu 9/30/21	Thu 9/30/21	175,179										
181		System Optimization	28d	Fri 10/1/21	Tue 11/9/21											
182		Link Verification	4d	Fri 10/1/21	Wed 10/6/21	175,180										
183		Program and Optimize RF System	5d	Thu 10/7/21	Wed 10/13/21	182,180										
184		Optimization Complete	0d	Wed 10/13/21	Wed 10/13/21	182,183										
185		Audit and Acceptance Testing	19d	Thu 10/14/21	Tue 11/9/21											
186		R-56 Audit	9d	Thu 10/14/21	Tue 10/26/21											
187		Perform R-56 Audit	3d	Thu 10/14/21	Mon 10/18/21	180,184										
188		Document Results	3d	Tue 10/19/21	Thu 10/21/21	187										
189		Perform R-56 Punch list Resolution	3d	Fri 10/22/21	Tue 10/26/21	188										
190		R-56 Audit Complete	0d	Tue 10/26/21	Tue 10/26/21	189										
191		Functional Testing	6d	Thu 10/14/21	Thu 10/21/21											
192		Perform System ATP	3d	Thu 10/14/21	Mon 10/18/21	183										
193		Document Test Results	3d	Tue 10/19/21	Thu 10/21/21	192										
194		Functional Testing Acceptance	0d	Thu 10/21/21	Thu 10/21/21	193										
195		Coverage Testing	18d	Fri 10/15/21	Tue 11/9/21											
196		Generate Grid Maps	3d	Fri 10/15/21	Tue 10/19/21	180FS+10d										
197		Secure and Configure Test Sets	7d	Wed 10/20/21	Thu 10/28/21	196										
198		Perform Coverage Testing	5d	Fri 10/29/21	Thu 11/4/21	184,197,192,168										
199		Document CATP Results	3d	Fri 11/5/21	Tue 11/9/21	198										
200		CATP Acceptance	0d	Tue 11/9/21	Tue 11/9/21	199										
201		SATP Acceptance	0d	Tue 11/9/21	Tue 11/9/21	200,194										
202		Training	48d	Fri 9/10/21	Tue 11/16/21											
203		Finalize Training Plan	5d	Fri 9/10/21	Thu 9/16/21	37										
204		Training Plan Approval by City of Biddeford	0d	Thu 9/16/21	Thu 9/16/21	203										
205		Develop Training Materials	15d	Fri 9/17/21	Thu 10/7/21	204										
206		Conduct Training	5d	Wed 11/10/21	Tue 11/16/21	205,201,184										
207		Training Complete	0d	Tue 11/16/21	Tue 11/16/21	206										
208		Cutover	37d	Fri 10/1/21	Mon 11/22/21											
209		Cutover Planning	10d	Fri 10/1/21	Thu 10/14/21	180										
210		Cutover Plan approved by City of Biddeford	0d	Thu 10/14/21	Thu 10/14/21	209										
211		Cutover System	2d	Fri 11/19/21	Mon 11/22/21	201,207FS+2d,210										
212		Cutover Complete	0d	Mon 11/22/21	Mon 11/22/21	209,211										
213		Finalize	15d	Tue 11/23/21	Mon 12/13/21	212										
214		Final Inspection w/Customer	5d	Tue 11/30/21	Mon 12/6/21	212FS+5d										
215		Final Punchlist Resolution	5d	Tue 12/7/21	Mon 12/13/21	214										
216		Finalize Documentation	5d	Tue 11/23/21	Mon 11/29/21	201,212										
217		Transition to Service/PTC	5d	Tue 11/23/21	Mon 11/29/21											
218		Final Acceptance	0d	Mon 12/13/21	Mon 12/13/21	201,214,217,207,21										
Critical Path Tasks																
																2

SECTION 3

SAMPLE ACCEPTANCE TEST PLAN

City of Biddeford

System Type

In-Plant Draft

www.motorolasolutions.com/services/government



3.1 WIDE AREA TRUNKING - TDMA ONLY SITES

3.1.1 Talkgroup Call

1. DESCRIPTION

The Talkgroup is the primary level of organization for communications on a trunked radio system. Radios with Talkgroup call capability will be able to communicate with other members of the same Talkgroup. This provides the effect of a private channel down to the Talkgroup level.

This test will demonstrate that a Talkgroup transmission initiated by a radio user will only be heard by system users, which have, the same Talkgroup selected. As with other types of calls, Talkgroup calls can take place from anywhere in the system.

SETUP

RADIO-1 - SITE 1 - TALKGROUP 1
RADIO-2 - SITE 2 - TALKGROUP 1
RADIO-3 - SITE 1 - TALKGROUP 2
RADIO-4 - SITE 2 - TALKGROUP 2

VERSION #1.040

2. TEST

- Step 1. Initiate a Wide Area Call with RADIO-1 in TALKGROUP 1.
- Step 2. Observe that only RADIO-2 will be able to monitor and respond to the call.
- Step 3. Initiate a Wide Area Call with RADIO-3 in TALKGROUP 2.
- Step 4. Observe that only RADIO-4 will be able to monitor and respond the call.

Pass____ Fail____

Wide Area Trunking - TDMA Only Sites

3.1.2 Continuous Assignment Updating

1. DESCRIPTION

When a talkgroup is assigned a voice channel, the site controller continues to transmit the channel assignment on the control channel for the duration of the talkgroup call. Radios coming into use on the system are automatically sent to voice channels with conversations in progress involving their selected talkgroups.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 1
RADIO-3 - TALKGROUP 1

VERSION #1.010

2. TEST

- Step 1. Turn OFF RADIO-1.
- Step 2. Initiate a Talkgroup Call using RADIO-2 and verify RADIO-3 hears the audio.
- Step 3. While the Talkgroup Call is in progress, turn ON RADIO-1.
- Step 4. Observe RADIO-1, which was just brought back into service, joins the Talkgroup Call already in progress.
- Step 5. End the talkgroup call.
- Step 6. Switch RADIO-1 to another talkgroup.
- Step 7. Initiate a Talkgroup Call from RADIO-2 to RADIO-3.
- Step 8. While the Talkgroup Call is in progress, set RADIO-1 back to TALKGROUP 1.
- Step 9. Observe that RADIO-1 joins the Talkgroup Call already in progress.

Pass____ Fail____

Wide Area Trunking - TDMA Only Sites

3.1.3 Multigroup Call in Wait Mode

1. DESCRIPTION

This trunking feature allows an equipped radio user to transmit an announcement to several different talkgroups simultaneously. The multigroup (ATG) call can be flagged for Wait Mode in the Provisioning Manager (PM) database forcing all attached talkgroups to finish calls in progress before the trunked system will process the multigroup call. The system does not permit inactive, attached talkgroups to initiate Talkgroup Calls during the "wait" timeframe. As with other types of calls, multigroup calls can take place from anywhere in the system.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 2
RADIO-3 - RANDOM (Not part of MG)
RADIO-4 - ATG 1

* TALKGROUP 1 and TALKGROUP 2 are members of ATG 1.

* RANDOM is any talkgroup not a member of ATG 1.

* Multigroups are set up through both the Provisioning Manager (PM) and the Subscriber Programming software.

VERSION #1.020

2. TEST

- Step 1. Verify ATG 1 is set for the Wait mode.
- Step 2. Using RADIO-1, initiate a call on TALKGROUP 1.
- Step 3. While RADIO-1 is keyed, attempt to initiate a multigroup call using RADIO-4 on ATG 1. Verify RADIO-4 receives a busy tone because one of the talkgroups attached to ATG 1 is involved in a Talkgroup Call.
- Step 4. Key RADIO-2 and verify that a busy tone is received because the ATG 1 call is in queue.
- Step 5. Dekey RADIO-1 and verify RADIO-4 receives a callback.
- Step 6. Key RADIO-4 and verify both RADIO-1 and RADIO-2 hear the multigroup call while RADIO-3 does not unmute.

Pass____ Fail____

Wide Area Trunking - TDMA Only Sites

3.1.4 Call Alert

1. DESCRIPTION

Call Alert is a tone page that allows a user to selectively alert another radio unit. The initiating radio will receive notification from the trunked system as to whether or not the page was received by the target radio. Units receiving a Call Alert will sound an alert tone. As with other types of calls, Call Alerts can take place from anywhere in the system.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 2
RADIO-3 - TALKGROUP 3

VERSION #1.010

2. TEST

- Step 1. Using RADIO-1, press the page button.
- Step 2. Enter the unit ID of RADIO-2 with the keypad, or scroll to the location where this ID is stored.
- Step 3. Press the PTT to initiate the call alert. Verify that the RADIO-1 user receives audible indication that the Call Alert was sent.
- Step 4. Verify that RADIO-2 user receives an audible indication of an incoming Call Alert was sent but RADIO-3 does not.
- Step 5. Verify RADIO-1 gets an audible indication that the Call Alert was successfully received at the target radio.
- Step 6. Turn off RADIO-2. Send a Call Alert from RADIO-1 to RADIO-2.
- Step 7. Verify that the RADIO-1 user receives audible indication that the Call Alert was sent.
- Step 8. Verify RADIO-1 receives a "No Acknowledgement" indication that the Call Alert was not received at the target radio.

Pass____ Fail____

Wide Area Trunking - TDMA Only Sites

3.1.5 Private Call

1. DESCRIPTION

Private Call is a selective calling feature that allows a radio user to carry on one-to-one conversation that is only heard by the 2 parties involved. Subscriber units receiving a private call will sound an alert tone. As with other types of calls, Private Calls can take place from anywhere in the system.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 1
RADIO-3 - TALKGROUP 1

VERSION #1.020

2. TEST

- Step 1. Using RADIO-1, press the Private Call (Call) button.
- Step 2. Enter the unit ID of RADIO-2 with the keypad, or scroll to the location where this ID is stored.
- Step 3. Press the PTT to initiate the Private Call.
- Step 4. Verify that RADIO-2 hears tones and the display indicates that a Private Call has been received, but RADIO-3 receives no indications.
- Step 5. Answer the call at RADIO-2 by pressing the Private Call (Call)/Respond button. If RADIO-2 has a display, verify it shows the ID number or Alias of the calling unit.
- Step 6. Press the PTT switch on RADIO-2 and respond to the Private Call. Note that if you do not press the Private Call button before pressing PTT, your audio will be heard by all members of the talkgroup, and not just by the radio initiating the Private Call.
- Step 7. Verify that RADIO-2 can communicate with RADIO-1.
- Step 8. Verify that RADIO-3 does not monitor the Private Call.
- Step 9. End the Private Call by pressing the "home" key and return to normal talkgroup operation.

Pass____ Fail____

Wide Area Trunking - TDMA Only Sites

3.1.6 Audio Interrupt / Interrupt Never Mode

1. DESCRIPTION

A radio PTT request may be received for a group already active and currently being sourced by another radio unit. The talkgroup can be flagged to either allow or disallow the new PTT. If allowed, the latest PTT request will be granted and become the source of the call.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 1
RADIO-3 - TALKGROUP 1

VERSION #1.020

2. TEST

- Step 1. Verify TALKGROUP 1's template is set up as Audio Interrupt Never.
- Step 2. Using RADIO-1, initiate a call on TALKGROUP 1.
- Step 3. Verify both RADIO-2 and RADIO-3 monitor the audio.
- Step 4. Using RADIO-3, initiate a call on TALKGROUP 1.
- Step 5. Verify that RADIO-3 receives a reject and that RADIO-2 continues to listen to RADIO-1.
- Step 6. Dekey both Radios.

Pass_____ Fail_____

Wide Area Trunking - TDMA Only Sites

3.1.7 Emergency Alarm and Call with Top of Queue

1. DESCRIPTION

Users in life threatening situations can use the Emergency button on the radio to immediately send a signal to the dispatcher and be assigned the next available voice channel. An Emergency Call can be set to either Top of Queue or Ruthless Preemption operation. During an emergency call the Emergency ID will appear on the display of the subscribers. To demonstrate this, an Emergency Alarm and Call will be initiated from a subscriber which will be received by a subscriber on the same talkgroup, affiliated at any site of any zone in the system.

NOTE: If the subscriber does not have the Display option, the Emergency ID will not be displayed.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1
RADIO-2 - TALKGROUP 1
RADIO-2 - SITE - Any Site
RADIO-3 - TALKGROUP 2
RADIO-3 - SITE - SITE 1
RADIO-4 - TALKGROUP 3
RADIO-4 - SITE - SITE 1

All radios and talkgroups should start with default priorities. Default is 10.

VERSION #1.010

2. TEST

- Step 1. Verify the emergency type for TALKGROUP 1's template is set up as Top of Queue.
- Step 2. Simulate a busy system by disabling all channels at SITE 1 with the exception of the control channel and one voice channel.
- Step 3. Press the PTT to initiate a call with RADIO-3 and hold the PTT switch until instructed to release.
- Step 4. Key RADIO-4 and verify the radio receives a busy tone. Release the PTT switch on RADIO-4.
- Step 5. Using RADIO-1 send an Emergency Call by depressing the emergency switch and then the PTT switch.
- Step 6. Observe that RADIO-1 cannot transmit due to the voice channel being busy.
- Step 7. Release the PTT switch on RADIO-3.
- Step 8. Observe that RADIO-1 receives the call back before RADIO-4 and is able to proceed with the call. Also observe that the display on RADIO-2 denotes an emergency and the unit ID or alias of RADIO-1.
- Step 9. Dekey RADIO-1 and end the Emergency Call by holding down the Emergency button on RADIO-1 until an alert tone sounds. Verify RADIO-1 returns to normal operation and that RADIO-4 receives a callback.
- Step 10. Return the system to normal operation by enabling all the channels at SITE 1.

Pass____ Fail____

3.2 SITE TRUNKING - TDMA ONLY SITES

3.2.1 Site Trunking Indication

1. DESCRIPTION

When a remote site loses its link or does not have a link to the Zone Controller, the affected site will enter "Site Trunking" mode of operation. Radios locked onto this site will be serviced locally within this site's coverage area.

NOTE: If the subscriber does not have the Display option, the "Site Trunking" indication will not be displayed.

SETUP

RADIO-1 - TALKGROUP 1

RADIO-1 - SITE - SITE 1

RADIO-2 - TALKGROUP 2

RADIO-2 - SITE - SITE 1

Lock the subscribers to SITE 1 if more than one site exists on the system.

VERSION #1.010

2. TEST

- Step 1. Place SITE 1 into the Site Trunking mode.
- Step 2. Verify that RADIO-1 and RADIO-2 are displaying the "Site Trunking" indication.
- Step 3. Return the site to Wide Area Trunking unless the next test requires Site Trunking.

Pass____ Fail____

Site Trunking - TDMA Only Sites

3.2.2 Talkgroup Call

1. DESCRIPTION

When a site goes into Site Trunking, radios with Talkgroup Call capability will be able to communicate with other members of the same talkgroup at that same site. Members of the same talkgroup at other sites will not be able to monitor those conversations.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1
RADIO-2 - TALKGROUP 1
RADIO-2 - SITE - SITE 1
RADIO-3 - TALKGROUP 1
RADIO-3 - SITE - SITE 2
RADIO-4 - TALKGROUP 1
RADIO-4 - SITE - SITE 2

Note: All Radios should be "Site Locked"

VERSION #1.010

2. TEST

- Step 1. Place SITE 1 into the Site Trunking mode.
- Step 2. Initiate a Talkgroup Call with RADIO-1 on TALKGROUP 1 at SITE 1.
- Step 3. Observe that only RADIO-2 will be able to monitor and respond to the call. Note that RADIO-3 and RADIO-4 are not able to monitor the call since the site is not in wide area operation.
- Step 4. Initiate a Talkgroup Call with RADIO-3 on TALKGROUP 1 at SITE 2.
- Step 5. Observe that only RADIO-4 will be able to monitor and respond to the call.

Pass____ Fail____

Site Trunking - TDMA Only Sites

3.2.3 Call Alert

1. DESCRIPTION

Call Alert is a tone page that allows a user to selectively alert another radio unit. When a site is in Site Trunking, Radios at the site will only be able to Call Alert other radios at the same site. The initiating radio will receive notification from the trunked system as to whether or not the page was received by the target radio.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1
RADIO-2 - TALKGROUP 2
RADIO-2 - SITE - SITE 1

Note: All Radios should be "Site Locked"

VERSION #1.010

2. TEST

- Step 1. Place SITE 1 into the Site Trunking mode.
- Step 2. Using RADIO-1, press the page button.
- Step 3. Enter the Unit ID of RADIO-2 with the keypad, or scroll to the location where this ID is stored.
- Step 4. Press the PTT to initiate the Call Alert.
- Step 5. Verify that RADIO-2 received the Call Alert.
- Step 6. Exit the Call Alert mode and return to normal talkgroup mode.
- Step 7. Return the site to Wide Area Trunking unless the next test requires Site Trunking.

Pass____ Fail____

Site Trunking - TDMA Only Sites

3.2.4 Private Call

1. DESCRIPTION

Private Call is a selective calling feature that allows a dispatcher or radio user to carry on one-to-one conversation that is only heard by the 2 parties involved. When a site is in Site Trunking, Radios at the site will only be able to Private Call other radios at the same site.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1
RADIO-2 - TALKGROUP 1
RADIO-2 - SITE - SITE 1
RADIO-3 - TALKGROUP 1
RADIO-3 - SITE - SITE 1

Note: All Radios should be "Site Locked"

VERSION #1.020

2. TEST

- Step 1. Place SITE 1 into the Site Trunking mode.
- Step 2. Using RADIO-1, press the Private Call button.
- Step 3. Enter the Unit ID of RADIO-2 with the keypad, or scroll to the location where this ID is stored.
- Step 4. Press the PTT to initiate the call.
- Step 5. Verify that at RADIO-2 only tones are heard and the display indicates that a call has been received.
- Step 6. Answer the call at RADIO-2 by pressing the Private Call/Respond button. Verify its display shows the ID number or alias of the calling unit.
- Step 7. Press the PTT switch on RADIO-2 and respond to the call. Note that if you do not press the Private Call button before pressing PTT, your audio will be heard by all members of the talkgroup, and not by the radio initiating the Private Call.
- Step 8. Verify only RADIO-1 hears the audio from RADIO-2.
- Step 9. End the Private Call. Return the site to Wide Area Trunking unless the next test requires Site Trunking.

Pass____ Fail____

Site Trunking - TDMA Only Sites

3.2.5 Continuous Assignment Updating

1. DESCRIPTION

When a talkgroup is assigned a voice channel, the site controller continues to transmit the channel assignment on the control channel for the duration of the Talkgroup Call. Radios coming into use on the system are automatically sent to voice channels with conversations in progress involving their selected talkgroups.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1
RADIO-2 - TALKGROUP 1
RADIO-2 - SITE - SITE 1
RADIO-3 - TALKGROUP 1
RADIO-3 - SITE - SITE 1

Note: All Radios should be "Site Locked"

VERSION #1.010

2. TEST

- Step 1. Place SITE 1 into the Site Trunking mode.
- Step 2. Turn OFF RADIO-1.
- Step 3. Initiate a Talkgroup Call using RADIO-2.
- Step 4. While the Talkgroup Call is in progress, turn on RADIO-1.
- Step 5. Observe that RADIO-1, which was just brought back into service, joins the Talkgroup Call already in progress.
- Step 6. Release the PTT of RADIO-2. Switch RADIO-1 to TALKGROUP 2.
- Step 7. Initiate a Talkgroup Call using RADIO-2.
- Step 8. While the Talkgroup Call is in progress, turn RADIO-1 back to TALKGROUP 1.
- Step 9. Observe that RADIO-1, which was just set back to TALKGROUP 1, joins the Talkgroup Call already in progress.
- Step 10. Return the site to Wide Area Trunking unless the next test requires Site Trunking.

Pass_____ Fail_____

Site Trunking - TDMA Only Sites

3.2.6 Busy Queuing and Callback

1. DESCRIPTION

If no voice channel resources are available, radios requesting channels for new conversations are placed in the busy queue. Users of the same priority will move through the queue in a FIFO (first in, first out) sequence. When a voice channel becomes available, the radio at the top of the busy queue gets a channel assignment and generates a callback tone. The callback alerts the user that a channel assignment was made and transmitting is now possible on the selected talkgroup.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1
RADIO-2 - TALKGROUP 2
RADIO-2 - SITE - SITE 1
RADIO-3 - TALKGROUP 3
RADIO-3 - SITE - SITE 1
RADIO-4 - TALKGROUP 1
RADIO-4 - SITE - SITE 1

Note: All radios are "Site Locked."

VERSION #1.030

2. TEST

- Step 1. Simulate a busy system by disabling all channels at SITE 1 with the exception of the control channel and one voice channel.
- Step 2. Initiate a Talkgroup Call with RADIO-1 and observe that RADIO-4 receives the call. Keep this call in progress until instructed to end the call.
- Step 3. Key RADIO-2 and observe that the radio receives a busy.
- Step 4. Key RADIO-3 and observe that the radio receives a busy.
- Step 5. End the Talkgroup Call established in Step 2.
- Step 6. Observe that RADIO-2 receives a callback prior to RADIO-3 receiving a callback.
- Step 7. Return the site to Wide Area Trunking unless the next test requires Site Trunking.

Pass____ Fail____

Site Trunking - TDMA Only Sites

3.2.7 Emergency Call and Alarm

1. DESCRIPTION

Emergency Alarms and Calls can be initiated by subscribers when the registered site is in Site Trunking. With all subscribers registered on a Site Trunking site, a subscriber will initiate an Emergency Alarm by pressing the Emergency button. By pressing the PTT, an Emergency Call will be issued and the ID of the initiator will be displayed with an Emergency indication by the other subscribers on the same talkgroup.

Note that for site trunking, Emergency Call operation is always Top of Queue.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1
RADIO-2 - TALKGROUP 1
RADIO-2 - SITE - SITE 1
RADIO-3 - TALKGROUP 2
RADIO-3 - SITE - SITE 1
RADIO-4 - TALKGROUP 3
RADIO-4 - SITE - SITE 1

Note: All Radios should be "Site Locked"

VERSION #1.010

2. TEST

- Step 1. Place SITE 1 into the Site Trunking mode.
- Step 2. Simulate a busy system by disabling all channels at SITE 1 with the exception of the control channel and one voice channel.
- Step 3. Press the PTT on RADIO-3 and hold the PTT switch until instructed to release.
- Step 4. Key RADIO-4 and observe that the radio receives a busy.
- Step 5. Using RADIO-1, initiate an emergency alarm followed by an emergency call.
- Step 6. Observe that RADIO-1 cannot transmit due to the voice channel being busy.
- Step 7. Release the PTT switch on RADIO-3.
- Step 8. Observe that RADIO-1 can now proceed with the call and RADIO-2 receives the call. Also observe that the display on RADIO-2 denotes an emergency and the ID or Alias of the unit sending the emergency.
- Step 9. End the emergency call and verify that RADIO-4 gets a callback.
- Step 10. Restore all channels to service and return the site to Wide Area Trunking unless the next test requires Site Trunking.

Pass_____ Fail_____

3.3 MCC 7500E TRUNKED RESOURCES

3.3.1 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_____

MCC 7500E Trunked Resources

3.3.2 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____

MCC 7500E Trunked Resources

3.3.3 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 #1.020

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 and the text in the talkgroup resource indicates the trigger condition for the emergency when applicable (mandown condition, vehicle crash or vest pierce).
- 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____

MCC 7500E Trunked Resources

3.3.4 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____

MCC 7500E Trunked Resources

3.3.5 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____

MCC 7500E Trunked Resources

3.3.6 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 ____

MCC 7500E Trunked Resources

3.3.7 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 user's 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_____

MCC 7500E Trunked Resources

3.3.8 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 "Cannot send call alert - target not found" in the summary/status list.

Pass____ Fail____

MCC 7500E Trunked Resources

3.3.9 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____

MCC 7500E Trunked Resources

3.3.10 Instant Recall Recorder (IRR) Operation

1. DESCRIPTION

The Instant Recall Recorder (IRR) allows for audio from a phone call or a radio call to be played back at the MCC 7500 or MCC 7100 Console position. Thirty minutes of audio is saved for radio and an additional thirty minutes for telephone. The audio is saved on the positions hard disk in the form of a .wav file.

SETUP

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

CONSOLE-1 - TALKGROUP 1 running IRR application.

VERSION #1.020

2. TEST

- Step 1. Select a radio channel on the CONSOLE-1 application window.
- Step 2. Select IRR from the CONSOLE-1 toolbar.
- Step 3. Initiate radio communication between RADIO-1 and RADIO-2.
- Step 4. Verify a new entry appears in the IRR log window.
- Step 5. Select the new entry from the list.
- Step 6. Press play and verify conversation replay.

Pass____ Fail____

3.4 AUDIO IP LOGGING

3.4.1 Logging Trunking Talkgroup Call

1. DESCRIPTION

This test will demonstrate how the Archiving Interface Server (AIS) can be used to log trunking talkgroup call audio/events on a given talkgroup. The audio is archived in a vocoded format (IMBE for Trunking Talkgroup Calls).

SETUP

The AIS at MCC 7500 Console site affiliated to TALKGROUP 1.

RADIO-1 - TALKGROUP 1

RADIO-1 - SITE 1

CONSOLE-1 - TALKGROUP 1

CONSOLE-1 - CONSOLE SITE 1

VERSION #1.020

2. TEST

- Step 1. Initiate a talkgroup call from RADIO-1 on TALKGROUP 1.
- Step 2. Observe that the call events/audio are being sent to the logging system by the AIS.
- Step 3. Using the playback application, verify the logged audio/events correspond to steps 1 and 2.
- Step 4. Initiate a talkgroup call from CONSOLE-1 on TALKGROUP 1.
- Step 5. Observe that the call events/audio are being sent to the logging system by the AIS.
- Step 6. Using the playback application, verify the audio/events logged correspond to steps 4 and 5.

Pass_____ Fail_____



Audio IP Logging

3.4.2 Logging Subsystem - Emergency Events and Calls-Emergency Alarm

1. DESCRIPTION

This test will demonstrate that upon receiving notification from the Zone Controller of an Emergency Acknowledge/Recognize issued for a resource that the AIS is monitoring, the AIS will report the event to the Logging System.

SETUP

RADIO-1 TALKGROUP 1
CONSOLE-1 TALKGROUP 1
AIS, NICE play back station and record station connected to AIS via the site LAN switch. Configure an alias for RADIO-1 and RADIO-2 and allow adequate time for data propagation.

VERSION #1.010

2. TEST

- Step 1. Start an emergency alarm from RADIO-1.
- Step 2. Verify that a RADIO-1 displays an emergency indication and CONSOLE-1 gets the Emergency indication.
- Step 3. Key up RADIO-1 on TALKGROUP 1. Verify that CONSOLE-1 receives audio on TALKGROUP 1.
- Step 4. Playback recent TALKGROUP 1 call activities.
- Step 5. Verify that the logging system has recorded the emergency alarm call/events with correct Resource Alias, Individual Alias, Site ID and the zone ID.

Pass____ Fail____

3.5 RADIO CONTROL MANAGER (RCM) FEATURES

3.5.1 Radio Check

1. DESCRIPTION

Radio Check is a RCM command used to verify that a radio is active in the trunking system. The Radio Check command causes the Zone Controller to poll for the radio requesting that the radio re-affiliate. When the radio re-affiliates, the RCM then has the knowledge that the radio is powered on and within system range. If the radio is involved in a conversation, whether group or interconnect, the RCM application displays a message to that effect.

The information displayed by the RCM in response to the Radio Check command is: current talkgroup affiliation, the multigroup that the talkgroup is attached to (assuming the talkgroup belongs to a multigroup), and the site where the radio is affiliated. If the radio does not respond to the Radio Check command, a message to that effect displays.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1
RADIO-2 - TALKGROUP 1
RADIO-2 - SITE - SITE 2

VERSION #1.030

2. TEST

- Step 1. Select the Status menu and then select the Radio Check item to open the Radio Check window.
- Step 2. Enter the ID or alias of RADIO-2 into the entry box and click the Apply button.
- Step 3. Observe the radio is polled and the current radio information is displayed on the RCM.
- Step 4. Turn off RADIO-1.
- Step 5. Enter the ID or alias of the RADIO-1 into the entry box and click the Apply button.
- Step 6. Observe that the RCM displays "Radio Not Found."
- Step 7. Depress and hold the PTT button of RADIO-2 until instructed to release.
- Step 8. Enter the ID or alias of RADIO-2 into the entry box and click the Apply button. Observe that a busy for the radio is displayed on the RCM.
- Step 9. Release the PTT button on RADIO-2.
- Step 10. Observe the radio is polled and the current radio information is displayed on the RCM.

Pass_____ Fail_____



Radio Control Manager (RCM) Features

3.5.2 Radio Snapshot

1. DESCRIPTION

Snapshot is a Radio Control Manager (RCM) command used to retrieve information about an individual radio. Information provided by the RCM application in response to the Snapshot command includes: the serial number of the radio, current talkgroup/multigroup and site affiliations; the Regroup, Inhibit, and Selector Lock state of the radio. Snapshot information is taken from the system databases. The Snapshot command does not initiate any communication with the target radio.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1
RADIO-2 - TALKGROUP 1
RADIO-2 - SITE - SITE 2
RADIO-3 - TALKGROUP 2
RADIO-3 - SITE - SITE 3

* RADIO-1 and RADIO-3 must be programmed with Dynamic Regrouping capability.

*Make sure Radio Users are configured with a "Radio Primary Talkgroup Assignment" in the UCM.

VERSION #1.020

2. TEST

- Step 1. Submit a Dynamic Regroup command for RADIO-1 and RADIO-3 to be regrouped to TALKGROUP 3.
- Step 2. At the RCM, initiate the Snapshot command for RADIO-1.
- Step 3. Verify that the RCM shows RADIO-1 affiliated to SITE 1 and that its current Regroup state is "Regroup."
- Step 4. At the RCM, revert the dynamic regrouping on RADIO-1 and RADIO-3.
- Step 5. Initiate the Snapshot command for RADIO-1.
- Step 6. Verify RADIO-1 shows an affiliation to SITE 1 and that its current Regroup state is "Cancel Regroup."
- Step 7. At the RCM, inhibit RADIO-2 and then initiate the Snapshot command for RADIO-2.
- Step 8. Verify RADIO-2 shows an affiliation to SITE 2 and that its current Inhibit state is "Selective Inhibit."
- Step 9. At the RCM, revert RADIO-2 and then initiate the Snapshot command for RADIO-2.
- Step 10. Verify RADIO-2 shows an affiliation to SITE 2 and that its current Inhibit state is "Cancel Inhibit."

Pass____ Fail____

Radio Control Manager (RCM) Features

3.5.3 Selective Radio Inhibit

1. DESCRIPTION

The INHIBIT command issued by the Radio Control Manager (RCM) disables a radio, preventing it from transmitting or receiving any audio. All of the radio's functionality ceases while a radio is inhibited by the RCM. Once inhibited, the radio cannot be used to monitor voice channels or for any other radio user initiated activity. Note that an inhibited radio still monitors the control channel so that it can be re-enabled with the Cancel Inhibit command. Upon receiving the Cancel Inhibit command from the RCM, the radio returns to its normal operation.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1

VERSION #1.030

2. TEST

- Step 1. With the RCM open from the main Command tab click on the "+" button.
- Step 2. Enter the IDs or aliases of RADIO-1.
- Step 3. Select "Selective Inhibit" button.
- Step 4. Once all desired radio information is entered and appears in the command window click the submit to initiate the command.
- Step 5. Observe RADIO-1 is inhibited and appears to be dead.
- Step 6. Observe that the Inhibit task appears in the Command tab.
- Step 7. Cancel the Inhibit by selecting the task in the Command tab and clicking the Revert button to submit the task.
- Step 8. Observe that the Cancel Inhibit task appears in the Command tab and that RADIO-1 is returned to normal operation.

Pass_____ Fail_____



3.6 FAULT MANAGEMENT

3.6.1 Unified Event Manager - Base Views

1. DESCRIPTION

The Unified Event Manager (UEM) in its base configuration provides a number of views. The purpose of this test is to demonstrate the key views available from the UEM.

The Physical Summary and Detail View (Physical Map) and Service Summary and Detail View (Service Map) in previous releases are deprecated and are replaced by the Zone Map. Custom views can be saved and retrieved by other NM Client users.

SETUP

NMclient01 - UEM session up and running.

VERSION #1.010

2. TEST

Step 1. Alarms View: In the navigation pane expand Fault Management and select Alarms. The view displays active alarms for managed resources, displaying impacted managed resources and specific objects on the managed resource along with selected alarm properties.

Step 2. Alarm View Search: Customize the Active Alarms display by selecting the View option from the menu bar, then select Search. Perform a Managed Resource search for channels, site controllers and routers by entering "Contains" and ch, sc, and z00 respectively in the search fields to perform the three separate searches. For each of the three searches a filtered alarm view is displayed that contains alarms for the appropriate device in the search.

Step 3. Network Events View: In the navigation pane expand Fault Management and select Network Events. The view displays recent events reported for managed resources, displaying impacted managed resources and specific object on the managed resource along with selected event properties. Alarming events are base for creating alarm objects.

Step 4. Physical Summary View: In the navigation pane expand Zone Views and Physical, then select Physical Summary View. The Physical Summary View provides an aggregated alarm severity status of the devices located at all subnets in the Zone.

Step 5. Service Summary View: In the navigation pane expand Zone Views and Service, then select Service Summary View. The Service Summary View provides a quick summary of the service status of sites in a Zone, including access to Channel status.

Step 6. Zone Map: In the navigation pane, expand Zone Views and select Zone Map. The Zone Map view provides an aggregated alarm severity status of the devices located at discovered sites in the Zone.

Step 7. Network Database: In the navigation pane select Network Database. The Network Database displays a list of all discovered Managed Resources and Sites. The display includes properties of each resource as well as overall severity of all objects and/or sub resources.

Pass____ Fail____

Fault Management

3.6.2 Station Power Amp Failure Reports to the Unified Event Manager (UEM)

1. DESCRIPTION

This test will demonstrate that the Unified Event Manager (UEM) alarms view is able to capture information about various failures at the system and zone level.

A station will be keyed while the output is unloaded to simulate a power amp failure. The failures will be monitored on the UEM.

Note: For safety, either power down the station or TX Inhibit it before disconnecting or re-connecting the dummy load to prevent accidental keying of the station.

Note: This test should be done on a site with more than 2 channels. Failsoft will occur if the test is done on a 2 channel site.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1
RADIO-2 - TALKGROUP 2
RADIO-2 - SITE - SITE 1
NMclient01 - UEM session up and running.

* All Radios should be "Site Locked"

VERSION #1.020

2. TEST

- Step 1. Verify that the power amp of the station to be tested has no active alarms against it.
- Step 2. Disconnect the dummy load/antenna from the station.
- Step 3. Make several talkgroup calls using RADIO-1 until the test station has been keyed.
- Step 4. Observe that an alarm indicating a Power Amp failure appears on the UEM alarms view. For SmartX sites you will need to look at event view to see cause of alarm.
- Step 5. Reconnect the dummy load/antenna disconnected in Step 3.
- Step 6. In approximately 5 minutes, observe the changes to the alarm on the UEM, indicating the module is restored to service.

Pass____ Fail____

Fault Management

3.6.3 Core Router Failure Reports to the Unified Event Manager

1. DESCRIPTION

This test will demonstrate that the Unified Event Manager (UEM) alarms view is able to capture information about various failures at the system and zone level.

A Core Router/Gateway will be powered off to simulate a failure. The system health will be monitored on UEM.

NOTE: Powering a combine Core/Exit Router/Gateway down will affect both the Core and Exit routing functions.

SETUP

NMclient01 - UEM session up and running.

VERSION #1.040

2. TEST

- Step 1. Verify that the Router/Gateway to be tested displays without failures (normal) on UEM. The core router is contained in the specific subnet that it is physically collocated with in the network.
- Step 2. Power down the Router/Gateway.
- Step 3. Observe that an alarm indicating a Router/Gateway failure appears on the UEM alarms view.
- Step 4. Restore power to the Router/Gateway.
- Step 5. Observe the changes to the alarm in UEM, indicating the Router/Gateway is enabling.
- Step 6. Observe that alarm view updates in the UEM, indicating the Router/Gateway has recovered and is enabled.

Pass____ Fail____

Fault Management

3.6.4 Site Path Failure (Ethernet) Reports to the Unified Event Manager

1. DESCRIPTION

This test will demonstrate that the Unified Event Manager (UEM) alarms view is able to capture information about various failures at the system and zone level.

This test simulates a microwave/transport failure by removing a customer selected site data link and monitoring the alerts.

Note: If using a Simulcast site, this test refers to the Prime Site links. While failures would be seen at the subsite level if a Subsite link were failed, the site would not drop into Site Trunking.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1
NMclient01 - UEM session up and running.

* RADIO-1 should be "Site Locked"

VERSION #1.030

2. TEST

- Step 1. Remove the Ethernet cable(s) to the SITE 1 router(s) (If Simulcast, this refers to the Prime Site router(s)) at the site where RADIO-1 is affiliated. Be certain to remove the Ethernet cable from both routers if redundant site links are being utilized.
- Step 2. Observe the UEM reports CommFailure alarms for the devices at the affected site.
- Step 3. In addition, observe that the site is now in the Site Trunking mode.
- Step 4. Reconnect the Ethernet cable(s) disconnected in Step 1.
- Step 5. Observe the site returns to the Wide Area Trunking mode.
- Step 6. Observe the topology and alarms/events that appear in the UEM, indicating the site is in recovery and after a period of time has recovered.

Pass____ Fail____



3.7 SYSTEM RELIABILITY FEATURES

3.7.1 Base Station Identification

1. DESCRIPTION

This test will demonstrate that the repeater(s) programmed for Base Station Identification (BSI) operation at every site broadcasts the FCC BSI at predefined intervals (usually 30 minutes). To accomplish this, a service monitor will be set up to monitor the BSI channel of a random site and note that the Base Station Identification is heard.

SETUP

A service monitor will be required to perform this test.

Note: A properly configured subscriber can be used to monitor the frequency for the BSI tones in place of a service monitor.

VERSION #1.030

2. TEST

- Step 1. Choose one site to test for Base Station Identification (BSI).
- Step 2. Setup the service monitor or subscriber to receive the frequency of the BSI channel for the particular site.
- Step 3. Monitor the service monitor until the Base Station Identification is broadcast. Verify that the BSI tones are heard on the monitored frequency.

Pass____ Fail____

System Reliability Features

3.7.2 Transmitter Power Failure Shutdown

1. DESCRIPTION

The repeaters can detect a loss or decrease in transmitter output power of all trunked repeaters connected to it. Each trunked repeater contains an internal wattmeter element. Once the forward power has decreased past the threshold set, the repeater instructs the Zone Controller to take the channel out of service. If reflected power increases past the threshold set, the repeater will also instruct the Zone Controller to take the channel out of service.

Once the station threshold has been exceeded and the station taken out of service a 5-minute timer will start. At the timer expiration a transmitter test will start to perform a self-check on the station. This self-check lasts for 20 seconds. If the station passes the self-check it will be placed back into service.

Note: This test should be done on a site with more than 2 channels. Failsoft will occur if the test is done on a 2 channel site.

SETUP

RADIO-1 - TALKGROUP 1

VERSION #1.010

2. TEST

- Step 1. Select a channel to disconnect the transmit antenna connection to the trunked repeater. (This will cause a high VSWR condition.)
- Step 2. Key RADIO-1 so that the selected channel is assigned, and verify that the channel disables due to an alarm condition. Verify that this alarm is reported at the Unified Event Manager (UEM).
- Step 3. Wait 30 seconds after the failure then restore the transmit antenna connection to the trunked repeater.
- Step 4. Using the station LEDs, verify that the time it takes from the corrected connection to the station being placed back in service is within 5 minutes.
- Step 5. Verify the Unified Event Manager (UEM) also reports the station being back in service.

Pass____ Fail____

3.8 MOSCAD UEM INTEGRATION

3.8.1 Physical Inputs/Outputs - Digital Inputs

1. DESCRIPTION

The purpose of this section is to verify that the physical inputs and outputs that interface to the MOSCAD I/O module(s) are properly processed UEM Fault Manager. All alarms demonstrated are to be made on the punch block. Proper processing can be verified by observing I/O module LED indications for DI's.

DI - Digital Inputs
UEM - Unified Event Manager

SETUP

NMclient01 - UEM session up and running

VERSION #1.030

2. TEST

- Step 1. Select a site at to perform the test.
- Step 2. At the UEM Client open Site View for selected site and locate the selected Digital Input or open Network Element View for selected Digital Inputs.
- Step 3. Short/Open the input point and verify that an alarm indication is received at the UEM Client view.
- Step 4. Return the input to its normal condition. Verify that the alarm indication changes in the UEM Client view.

Pass_____ Fail_____

MOSCAD UEM Integration

3.8.2 UEM Enhanced Navigation Functionality - Unacknowledged / Acknowledged Alarm

1. DESCRIPTION

The Enhanced Navigation feature extends Unified Event Manager (UEM) Client presentation capabilities with additional views and operations to improve visualization of fault management information. The UEM Client uses three navigation concepts: Direct – Navigation tree, Context – Right-Click navigation from selected fault information context, Drill-down – Double-click on given objects. The UEM Client visualizes raising new alarm and unacknowledged alarm status on selected view and propagates that from detail to high level fault information hierarchy (e.g. from alarms and objects to sites and zones).

SETUP

UEM Enhanced Navigation licenses installed.

VERSION #1.040

2. TEST

- Step 1. Login to UEM Client application with appropriate user and password.
- Step 2. Close all views in the UEM Client.
- Step 3. From navigation tree select System Map. Right click on the home zone and perform Acknowledge All Alarms.
- Step 4. Generate single alarms for selected device in the home zone. Verify that Zone icon on the map is blinking with a violet outline. The blinking indicates new alarm and stops after 100s (default) leaving solid violet outline indicating unacknowledged alarm on the object or one of the lower level objects in the fault management hierarchy.
- Step 5. Double-click on the zone icon and verify that zone map was opened. Verify the site containing device with alarm is marked with solid or blinking violet outline if blinking time passed.
- Step 6. Double-click site icon and verify that Site View for selected site was opened showing tree-list of all devices managed in the site including device for which alarm has been generated. Verify that Device block is displayed with blinking violet box or solid violet outline if blinking time passed.
- Step 7. Double-click on the device box and verify that Network Element view for selected device was opened showing details of the device managed resources and underlying objects. Verify that the object for which the alarm has been generated is displayed with blinking violet box or solid violet outline if blinking time passed.
- Step 8. Double-click on the object (represented by box) and verify that an alarm detail for the alarm that has been generated has been displayed.
- Step 9. Acknowledge alarm. Verify the new alarm indication / unacknowledged alarm status has been removed from all the previous views (given that this was the only alarm under given hierarchy level).

Pass____ Fail____



MOSCAD UEM Integration

3.8.3 Screen Navigation

1. DESCRIPTION

MOSCAD alarming tests shall be conducted from Unified Event Manager (UEM) clients if applicable. The alarms demonstrated are to be made on the actual equipment or punch block interface, with an exception made for cases where it is not practical to create an actual alarm. The following will provide a brief introduction and description of the main display screens encountered when navigating the UEM Client presenting information from MOSCAD RTU.

SETUP

UEM Enhanced Navigation and Microwave UI license has to be installed.
MOSCAD infrastructure has to be configured.

VERSION #1.030

2. TEST

- Step 1. Login to the UEM Client using the appropriate user name and password.
- Step 2. From the navigation tree select Network Database. In the view that is opened locate Network Elements of type "Motorola MOSCAD - SDM3000 - Remote Terminal Unit". Right-click on a few RTU devices and use option "View associated Managed Resources" to display list of resources connected to each RTU.
- Step 3. From the Navigation tree select site under Site View branch which has MOSCAD RTU(s). Verify that Objects section contains Environmental section listing all managed Digital Inputs/ Digital Outputs and Analog Inputs. The view, in the Equipment section contains list of all the network elements grouped into categories including category for MOSCAD RTU. Overall state of each managed element is visible in the Objects section.
- Step 4. From Site View or from Network Database double-click on selected managed resource reported by MOSCAD RTU. As a result, Network Element view for the managed resource and associated key resources are displayed.
- Step 5. The Objects section displays status of all objects reported for each managed resource with their current state. Object Section has additional visualization for Digital Inputs/Outputs and Analog Inputs. Commands and Metering Information section contains additional metering information (if available – depending on device type), controls and commands (if available – depending on device type).
- Step 6. From navigation tree select Microwave Map which displays status and user-configured location of all managed microwave radios.

Pass____ Fail____

MOSCAD UEM Integration

3.8.4 Physical Inputs/Outputs - Analog Inputs

1. DESCRIPTION

The purpose of this section is to verify that the physical inputs and outputs that interface to the MOSCAD I/O modules are properly processed by the UEM Fault Manager. Analog inputs can be tested by comparing GUI value and bar meter length on-screen (full scale, half scale, 2/3 scale, etc.)

Analog values are displayed on the Unified Event Manager (UEM) Client in a Site View of a site where MOSCAD RTU resides or Network Element view for specific Analog Inputs managed resource.

SETUP

NMclient01 - UEM session up and running.

VERSION #1.030

2. TEST

- Step 1. Choose the site to perform the test.
- Step 2. At the UEM Client open Site View for selected site and locate the selected Analog Input or open Network Element View for selected Analog Inputs.
- Step 3. Using a MOSCAD test board, manipulate the analog input voltage by moving the potentiometer to $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{3}{4}$ of the full range.
- Step 4. Verify that the value and bar meter length on the UEM Client view depicts, with reasonable accuracy, to that of the potentiometer.

Pass____ Fail____



MOSCAD UEM Integration

3.8.5 TRAK GPS - GPS Fault

1. DESCRIPTION

The MOSCAD system connects to a TRAK 9100 GPS Standard via the RS-232 port 9 pin D connector. This interface requires a dedicated MOSCAD RS-232 port. The MOSCAD will periodically solicit the TRAK for its status and response messages are sent back to the MOSCAD SDM3000. New alarm messages, with respect to the last received status held in the SDM3000, are then converted to native MOSCAD data format for transmission to Unified Event Manager (UEM) Fault Manager.

SETUP

NMclient01 - UEM session up and running.

VERSION #1.030

2. TEST

- Step 1. Choose the site to perform the test.
- Step 2. At the UEM Client, Open Network Element View for selected TRAK GPS unit.
- Step 3. Verify that there are no current alarms for the chosen TRAK GPS unit.
- Step 4. Disconnect the antenna cable from the TRAK GPS.
- Step 5. Verify that the alarm is received and displayed on the UEM Client view.
- Step 6. Acknowledge the alarm.
- Step 7. Reconnect the antenna cable to the TRAK GPS standard.
- Step 8. Verify that the TRAK GPS status returns to normal.

Pass____ Fail____

3.9 MOSCAD FAULT MANAGEMENT SYSTEM

3.9.1 TRAK Communication Status Fault (UEM)

1. DESCRIPTION

The MOSCAD system connects to a TRAK 9100 GPS Standard via the RS-232 port 9 pin D connector. This interface requires a dedicated MOSCAD SDM3000 RS-232 port. The MOSCAD will periodically solicit the TRAK for its status and response messages are sent back to the MOSCAD SDM3000. New alarm messages, with respect to the last received status held in the SDM3000, are then converted to native MOSCAD data format for transmission to the MOSCAD alarm Server. Alarm messages are also sent as SNMP traps from the SDM3000's IP Interface to the Unified Event Manager (UEM).

SETUP

No Setup Required.

VERSION #1.010

2. TEST

- Step 1. Choose the site to perform the test.
- Step 2. Verify there are no current alarms for the chosen TRAK GPS on the InTouch and in the Unified Event Manager (UEM).
- Step 3. Disconnect the RJ45 communication cable (which ultimately connects to the TRAK 9100 RS232 port) from the rear of the GPS.
- Step 4. Verify that the TRAK 9100 communication alarm is received at the MOSCAD server and at the UEM alarm manager. (This may take up to 5 minutes.)
- Step 5. Acknowledge the alarm on either the MOSCAD server or client.
- Step 6. Reconnect the communication cable to the TRAK 9100 GPS.
- Step 7. Verify that the GPS communication status returns to normal on the alarm managers.

Pass_____ Fail_____



MOSCAD Fault Management System

3.9.2 TRAK GPS - Power Supply Fault

1. DESCRIPTION

The MOSCAD system connects to a TRAK 9100 GPS Standard via the RS-232 port 9 pin D connector. This interface requires a dedicated MOSCAD SDM3000 RS-232 port. The MOSCAD will periodically solicit the TRAK for its status and response messages are sent back to the MOSCAD SDM3000. New alarm messages, with respect to the last received status held in the SDM3000, are then converted to native MOSCAD data format for transmission to the MOSCAD alarm Server. Alarm messages are also sent as SNMP traps from the SDM3000's IP Interface to the Unified Event Manager (UEM) application.

SETUP

NMclient01 - UEM session up and running.

VERSION #1.010

2. TEST

- Step 1. Choose the site to perform the test.
- Step 2. Verify there are no current alarms for the chosen TRAK GPS on the InTouch and UEM active alarms view.
- Step 3. Disconnect one of the power supply cables from the rear of the TRAK GPS.
- Step 4. Verify that the alarm is received on the alarm managers.
- Step 5. Acknowledge the alarm on the MOSCAD server or client.
- Step 6. Reconnect the power supply cable to the rear of the TRAK GPS.
- Step 7. Verify that the TRAK GPS power status returns to normal.

Pass____ Fail____

3.10 MCC 7500E CONVENTIONAL RESOURCES

3.10.1 Enhanced CCGW 2-wire Analog Interface Muting

1. DESCRIPTION

This test will demonstrate muting the analog interface of a 2-wire analog or MDC 1200 channel using the external mute input on the conventional channel gateway (CCGW).

Mute is indicated when pin 4 is shorted to pin 5 on the second analog connector (9A to 9D or 13A to 13D) of the analog or MDC 1200 conventional channel.

SETUP

The CCGW is either a Low Density Enhanced Conventional Gateway or a High Density Enhanced Conventional Gateway.

A 2-wire analog or MDC 1200 conventional channel, CONVCH -1, has been configured to mute the 2-wire interface. An external mute input has been set up on pins 4 and 5 of the second connector on the analog or MDC 1200 channel.

Conventional RADIO-1 - CONVCH-1

CONSOLE-1 - CONVCH-1

VERSION #1.020

2. TEST

- Step 1. Key RADIO-1 on CONVCH-1. Communicate with CONSOLE-1.
- Step 2. While RADIO-1 is transmitting, trigger the mute input on CONVCH-1.
- Step 3. Verify that RADIO-1's audio is no longer heard on CONSOLE-1.
- Step 4. Untrigger the mute input on CONVCH-1.
- Step 5. Verify RADIO-1's audio on CONSOLE-1.

Pass____ Fail____



MCC 7500E Conventional Resources

3.10.2 Enhanced CCGW 4-wire Analog Interface Muting

1. DESCRIPTION

This test will demonstrate muting the analog interface of a 4-wire analog or MDC 1200 channel using the external mute input on the conventional channel gateway (CCGW).

Mute is indicated when pin 4 is shorted to pin 5 on the second analog connector (9A to 9D or 13A to 13D) of the analog or MDC 1200 conventional channel.

SETUP

The CCGW is either a Low Density Enhanced Conventional Gateway or a High Density Enhanced Conventional Gateway.

A 4-wire analog or MDC 1200 conventional channel, CONVCH -1, has been configured to mute the 4-wire interface. An external mute input has been set up on pins 4 and 5 of the second connector on the analog or MDC 1200 channel.

Conventional RADIO-1 - CONVCH-1

CONSOLE-1 - CONVCH-1

VERSION #1.020

2. TEST

- Step 1. Key RADIO-1 on CONVCH-1. Communicate with CONSOLE-1.
- Step 2. While RADIO-1 is transmitting, trigger the mute input on CONVCH-1.
- Step 3. Verify that RADIO-1's audio is no longer heard on CONSOLE-1.
- Step 4. Untrigger the mute input on CONVCH-1.
- Step 5. Verify RADIO-1's audio on CONSOLE-1.

Pass ____ Fail ____

3.11 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 4

COVERAGE ACCEPTANCE TEST PLAN

4.1 OVERVIEW

This Coverage Acceptance Test Plan (CATP) is designed to verify that the voice radio system implemented by Motorola Solutions for the City of Biddeford meets or exceeds the required reliability as shown on Motorola Solutions' "As-Built" maps (to be generated once the frequencies have been identified). The CATP defines the coverage testing method and procedure, the coverage acceptance criterion, the test documentation, and the responsibilities of both Motorola Solutions and Biddeford.

Coverage Acceptance Testing is based upon a coverage prediction that accurately represents the implemented infrastructure and parameters that are consistent with the contract agreements. To characterize system performance accurately, the actual user APX radio series deployed for Biddeford will be used to conduct the coverage test.

Subsequent sections define the coverage acceptance test configuration(s) and test criteria.

4.2 CATP DEFINITIONS

Several definitions are needed to accurately describe the coverage acceptance test method and criteria. Where cited, these terms or methods are defined in TIA TSB-88.1-D¹ or TSB-88.3-D².

4.2.1 Defined Test Area

The defined test area is the geographical area in which communications will be provided that meet or exceed the specified Channel Performance Criterion (CPC) at the specified reliability for the specified equipment configuration(s).

For coverage testing, each defined test area will be divided into a grid pattern by Motorola Solutions to produce at least the number of uniformly sized test locations (or tiles) required by the Estimate of Proportions formula. {TSB-88.3-D, §5.2.1, equation 2} The minimum number of test tiles required varies, from a hundred to many thousands, depending on the size of the defined test area, desired confidence in results, type of coverage test, and the predicted versus required reliability.

¹ *Wireless Communications Systems --- Performance in Noise- and Interference-Limited Situations --- Part 1: Recommended Methods for Technology Independent Performance Modeling* Technical Service Bulletin TSB-88.1-D, Telecommunications Industry Association (TIA), Arlington VA, 2012.

² *Wireless Communications Systems --- Performance in Noise- and Interference-Limited Situations --- Part 3: Recommended Methods for Technology Independent Performance Verification*, Technical Service Bulletin TSB-88.3-D, Telecommunications Industry Association (TIA), Arlington VA, 2013.

4.2.2 Channel Performance Criterion (CPC)

The CPC is the specified minimum design performance level in a faded channel. {TSB-88.1-D, §5.2}
For this system, the CPC is the Delivered Audio Quality (DAQ) as stated in

Table 4-3 Coverage Acceptance Test Summary. The DAQ definitions are provided in Table 4-1 {TSB-88.1-D, §5.4.2, Table 3}.

Table 4-1: DAQ Definitions

DAQ	Subjective Performance Description
1	Unusable, speech present but unreadable.
2	Understandable with considerable effort. Frequent repetition due to noise/distortion.
3	Speech understandable with slight effort. Occasional repetition required due to noise/distortion.
3.4	Speech understandable with repetition only rarely required. Some noise/distortion.
4	Speech easily understood. Occasional noise/distortion.
4.5	Speech easily understood. Infrequent noise/distortion.
5	Speech easily understood.

The CPC pass/fail criterion is the faded performance threshold, plus any adjustments for antenna performance, external noise, and in-building or in-vehicle losses. {TSB-88.1-D, §5.4.2, Figure 5} The faded performance threshold for the specified CPC is determined using the receiver's static reference sensitivity adjusted by the projected CPC parameters for the applicable Modulation Type and DAQ as listed in the current version of TSB-88.1, Annex A, Table A-1. For coverage testing of digital voice radio systems, the faded performance threshold is the applicable Bit Error Rate (BER) from the projected CPC parameters.

4.2.3 Reliability

The Covered Area reliability is the percentage of locations within the defined test area that are predicted to meet or exceed the specified CPC. The Motorola Solutions as-built map(s) will indicate the Covered Area(s) within which this system is predicted to provide at least the reliability of meeting or exceeding the CPC.

For the defined test area(s) guaranteed for Covered Area reliability, only the painted covered area on Motorola Solutions' as-built maps will be tested for coverage acceptance. No acceptance testing will be performed in locations predicted on Motorola Solutions' maps to be below the required Covered Area reliability.

After all accessible tiles in the defined test area have been tested, the Covered Area reliability will be determined by dividing the number of tiles tested that meet or exceed the CPC pass/fail criterion by the total number of tiles tested. {TSB-88.3-D, §5.1, equation 1}

4.2.4 Direction(s) of Test

The test will be talk-in (Field Unit to Base) and talk-out (Base to Field Units).

4.2.5 Equipment Configurations

This section defines the equipment configurations and infrastructure design parameters upon which the coverage guarantee and the coverage acceptance test are based. The infrastructure design parameters are defined in

Table 4-3 Infrastructure Design Parameters, and include site names, site locations, and antenna system parameters. If the implemented system equipment configuration and/or infrastructure design parameters vary from these configurations and/or parameters, a revised coverage map will be used to define the test configuration and potential areas from which test tiles will be included in the revised coverage acceptance test.



Table 4-3 Coverage Acceptance Test Summary, and with the mobile antennas in unobstructed locations that are not adjacent to other large objects or metallic items which would distort the antenna patterns.



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Table 4-2: Coverage Acceptance Test Summary

User Equipment	Outdoor / In-Building	Defined Test Area & Map Name	Number of Test Tiles	Reliability	CPC	CPC Pass/Fail	Direction(s) of Test
800 MHZ P25 Simulcast System							
3W APX8000 Portable w/ Tri-band Antenna, on hip in Belt Clip, w/ Remote Speaker Mic, for both Transmit and Receive	Outdoor – Drive tests to be conducted with appropriate attenuation to reflect portable antenna on hip in Belt Clip with Remote Speaker Mic	REV 52 Painted Covered Area within Biddeford City Boundary that will be enabled for testing	Approximately 400 .25 x .25 mile tiles enabled w/ 356 expected to be accessible by roads	95.0%	DAQ-3.4	Subjective DAQ	Outbound Portable
3W APX8000 Portable w/ Tri-band Antenna, on hip in Belt Clip, w/ Remote Speaker Mic, for both Transmit and Receive	Outdoor – Drive tests to be conducted with appropriate attenuation to reflect portable antenna on hip in Belt Clip with Remote Speaker Mic	REV 51 Painted Covered Area within Biddeford City Boundary that will be enabled for testing	Approximately 400 .25 x .25 mile tiles enabled w/ 356 expected to be accessible by roads	95.0%	DAQ-3.4	Subjective DAQ	Inbound Portable
Informational In Building Testing							
3W APX8000 Portable w/ Tri-band Antenna, on hip in Belt Clip, w/ Remote Speaker Mic, for both Transmit and Receive	In-Building	In-Building Specified in Table 1-6	10 tests points at up to 30 buildings total	TBD	DAB 3.4	Subjective DAQ	Inbound / Outbound

Table 4-3: Biddeford Infrastructure Design Parameters

Site Name	Latitude	Longitude	ERP (W)	Transmit Antenna System		Receive Antenna System		EFS (dBm)
				Mount Height (ft)	Antenna Model	Mount Height (ft)	Antenna Model	
PDHQ	43°29'30.6" N	70°27'14.45" W	90	100	RFI BPA749618011, 9dBd Panel w/170 Horizontal Beam Width @ 272 Azimuth	100	RFI BPA749618011, 9dBd Panel w/170 Horizontal Beam Width @ 272 Azimuth	-123.57
DPW	43°28'6.56" N	70°28'23.05" W	7	150	DbSpectra DS7C06P36U6D 5.9 dBd Omni	170	DbSpectra DS7C06P36U6D 5.9 dBd Omni	-120.47
Water Tank	43°26'19.86" N	70°22'49.09" W	70	180	RFI BPA749618011, 9dBd Panel w/170 Horizontal Beamwidth @ 302 Azimuth	180	RFI BPA749618011, 9dBd Panel w/170 Horizontal Beamwidth @ 302 Azimuth	-123.57



Table 4-4: Reference Only In-Building Test Locations

Building Locations	# of Tests Points (TP)
1. University of New England- All Buildings - 11 Hills Beach Rd	10 up to 6 Buildings
2. 2 Main Street Mill Buildings 15, 17, 18, 35	10 up to 4 Buildings
3. 100 and 75 Saco Falls Way	10
4. SMHC – 1 Medical Center Drive	10
5. 45 Barra Rd	10
6. 9 Health Care Drive	10
7. Biddeford High School – 20 Maplewood Ave	10
8. Biddeford Middle School – 25 Tiger Way	10
9. Biddeford INT School 335 Hill Street	10
10. Biddeford Primary School – 320 Hill Street	10
11. 430 Mariner Way	10
12. 106 Shops Way	10 up to 4 Buildings
13. 220 Mariner Way	10
14. 550 Alfred Street	10
15. 75 Gate Way	10
16. 11 Morin Street	10
17. 5 Morin Street	10
18. 335 Hill Street	10
19. 320 Hill Street	10

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4.2.6 CPC Pass/Fail Criterion for a Test Tile

For each equipment configuration, the CPC pass/fail criterion for a test tile will be determined once the as-built maps has been generated. Each equipment configuration will have only one CPC pass/fail criterion for a test tile.

Coverage for the portable equipment configuration will be verified for acceptance by attenuation of the test radio for the Subjective DAQ tests. The attenuation will be the difference between the test radio's antenna system and the additional loss used in Motorola's coverage prediction to account for portable antenna performance and in-building penetration.

This provides a method of verifying that the radio system provides the required Subjective DAQ for the specified CPC for each of the defined equipment configurations.

The methodology to determine the attenuator value is demonstrated in TSB-88.1-D §5.4.2, Figure 5. The attenuator value includes the proper values for the equipment configuration requirement plus adjustments for the test equipment setup. Should the test equipment setup losses (e.g. cable length) vary, an adjustment to the attenuator value may be required to represent the required equipment configuration accurately. The attenuator values will be provided during the CDR.

4.2.7 Required Number of Test Tiles in the Defined Test Area

The method used to test coverage is a statistical sampling of the defined test area to verify that the CPC is met or exceeded at the required reliability for each of the defined equipment configurations. It is impossible to verify every point within a defined test area, because there are infinite points; therefore, coverage reliability will be verified by sampling a statistically significant number of randomly selected locations, quasi-uniformly distributed throughout the defined test area. There is one test sample per test tile, where a sample consists of multiple sub-samples.

Coverage acceptance testing will be performed in the defined test area as indicated on Motorola Solutions as-built maps. To verify that the reliability requirement is met, the defined test area indicated on Motorola Solutions' maps will be divided into uniformly sized test tiles, with at least the number of test tiles. The number of test tiles will be computed after the as-built maps have been generated using the minimum required by the Estimate of Proportions formula.

Per TSB-88.3-D, the stated minimum outdoor tile size is 100 by 100 wavelengths; however, the minimum *practical* test tile size is typically about 400 by 400 meters (about 0.25 by 0.25 miles). The minimum practical tile size for any system is determined by the distance traveled at the speed of the test vehicle while sampling, GPS error margin, and availability of road access within very small test tiles. A related consideration is the time, resources, and cost involved in testing very large numbers of very small tiles. For a given defined test area, all test tiles must be of equal size. The maximum test tile size is 2 by 2 km (1.24 by 1.24 miles) {TSB-88.3-D, §5.5.1}. In some wide-area systems, this constraint on maximum tile size may dictate a greater number of test tiles than the minimum number required by the Estimate of Proportions formula.

No acceptance testing will be performed in locations outside the defined test area as indicated on the Motorola Solutions-provided maps. Motorola Solutions and Biddeford may agree to perform "information only" tests in locations outside the defined test area; however, these "information only" test results will not be used for coverage acceptance. Any "information only" test locations must be defined before starting the test. If the added locations require significant additional time and resources

to test, a change order will be required and Motorola Solutions may charge Biddeford on a time-and-materials basis.

4.2.8 Accessibility to Test Tiles

Prior to testing, Motorola Solutions and Biddeford will plan the route for the test vehicle(s) through the defined test area, to ensure that at least the minimum required number of tiles is tested. While planning the route (if possible) or during the test, Motorola Solutions and Biddeford will identify any test tiles that are inaccessible for the coverage test (due to lack of roads, restricted land, etc.). Inaccessible tiles will be eliminated from the acceptance test calculation. {TSB-88.3-D, §5.5.4}

If elimination of inaccessible test tiles results in less than a statistically significant number of test tiles or substantially alters the defined test area, Motorola Solutions reserves the right to adjust the committed reliability based on the reduced number of accessible test tiles within the altered test area and the Estimate of Proportions formula. {TSB-88.3-D, §5.2.1, equation 2}

4.2.9 Random Selection of a Test Location in Each Tile

This CATP provides an objective method of randomly selecting and tracking test locations using Motorola Solutions' VoyagerSM coverage testing tool. The method has direct correlation with Motorola's coverage prediction methodology.

Using Voyager, the actual test location within each test tile will be randomly selected by the test vehicle crossing into the tile at an arbitrary point, with an arbitrary speed and direction. If the selected test location is in a shielded area such as a tunnel or underground parking garage, the data from that test location must be eliminated and a replacement test location must be used.

4.2.10 CPC Measurements in Each Tile

In each test tile, a voice test exchange will be initiated using predetermined text typical of a common voice exchange between the fixed location and the portable location. The person conducting the test at the portable will be moving at a typical speed for the surrounding conditions.

4.3 RESPONSIBILITIES AND PREPARATION

This section identifies the responsibilities of Biddeford and Motorola Solutions regarding requirements for equipment, personnel, and time during the coverage test.

Biddeford will provide the following for the duration of the coverage test:

- At least two test vehicle that is representative of the vehicles to be installed with radios, and will provide the driver.
- Exclusive use of the test channels required by Motorola Solutions during the test.
- At least two teams each with three or more representatives designated by Biddeford per team to evaluate and record the pass/fail result of each subjective audio transmission. The required quantity of test participants shall be available a minimum of eight hours a day.
- Facility with at least one console for the fixed end subjective audio test.

Motorola Solutions will provide the following for the duration of the coverage test:

- At least two teams each with one fewer Motorola Solutions representatives than those designated by Biddeford to navigate and to operate Voyager, operate the portable radio, and to evaluate and record the pass/fail result of each subjective audio transmission.
- One or more Motorola Solutions representatives to operate the fixed equipment, and to evaluate and record the pass/fail result of each subjective audio transmission.
- At least two Motorola Solutions Voyager coverage testing tools.
- Provide at least four user radios for the test.

As required, Motorola Solutions will provide a receiver signal strength calibration file for the test radio(s) used with the Voyager coverage testing tool.

Before starting the test, Biddeford and Motorola Solutions will agree upon the time frame for Motorola Solutions' submission of a report containing the coverage test results.

4.4 CATP PROCEDURES

A coverage acceptance test will be performed using Motorola Solutions' Voyager tool to randomly select test locations.

Voyager consists of the following:

- A Global Positioning System (GPS) receiver, which will provide the computer with the location and speed of the test vehicle.
- A laptop computer with Voyager software and a mapping database, which includes highways and local streets.
- The procedure for the subjective DAQ coverage test outdoors will be as follows:
- A subjective listening test will be performed for coverage acceptance testing, to verify talk-in and talk-out DAQ performance of the system.
- Talk-out and talk-in will both be required to pass for a test tile to pass.
- To perform a statistically valid subjective DAQ test, a large group of people is required to ensure high confidence in the results. However, obtaining a large group of people for a subjective listening test is usually impractical; therefore, several (three to seven) people in a car or van must be used for the test. Since a group this small cannot provide statistically significant results, it is very important that the personnel participating in the subjective test be familiar with the sound of radio conversations. Before subjectively testing, all personnel who will evaluate audio quality must be "calibrated" by listening to examples of audio that pass and fail the subjective DAQ test.
- A fixed dispatch location will be established. Prior to testing, Biddeford and Motorola Solutions will agree upon a procedure to allow each audio transmission to be evaluated for approximately five seconds.
- The test participants will be divided into teams, each consisting of personnel from both Biddeford and Motorola Solutions. Each team will have members that operate a portable radio in the field, and members that are stationed at the fixed dispatch location.
- As the field test team(s) drive through the coverage area, test locations within each test tile will be selected randomly by Voyager's GPS location indication. Voyager will be used to log the talk-in and talk-out pass/fail result as well as any pertinent notes for the location.
- At each test tile location, each field test team member will listen to a talk-out audio transmission, and will record his or her subjective pass/fail evaluation of the DAQ for the tile. Team members stationed at the dispatch location will evaluate talk-in audio quality of transmissions from the test radio(s) in that tile. Each team member will maintain a test log to record date, time, and

subjective pass/fail evaluation for each test tile location. Subjective pass/fail evaluation will be based on section 1.3.3.2. The determination of whether each test tile passes or fails the required DAQ value will be the majority vote of all team members' pass/fail subjective evaluations for that tile. An odd number of team members is required to avoid ties for the pass/fail majority vote.

- Should any subjective DAQ test tile fail, a retry of the transmission will occur. Should the retry pass, the test tile will be considered a pass. If a retry should occur, it will be noted in the test log notes for that test tile. All failed grids will be eligible for one retry from a different location within that grid. If the retry passes, then that grid will be considered a pass.

4.5 CATP DOCUMENTATION AND COVERAGE ACCEPTANCE

During the coverage acceptance test, Voyager generates computer files that include the raw test data. A copy of this data will be provided to Biddeford at the conclusion of the coverage test. Motorola Solutions will process this data to produce a map detailing the coverage test results, and to determine whether the coverage test was passed for each user equipment configuration.

The coverage acceptance criterion for a user equipment configuration will be that the voice radio system implemented by Motorola Solutions for Biddeford meets or exceeds the reliability stated in section 1.3.3.2 for that user equipment configuration. The system coverage acceptance criterion will be the successful passing of each of the user equipment configurations defined in section 1.3.3.2.

Motorola Solutions reserves the right to review any test tiles that fail. If a coverage test, or a portion thereof, is suspected by Motorola Solutions to have failed due to external interference, those tiles suspected of being affected by an interferer may be re-tested. If the test tiles re-tested are confirmed to have failed due to interference or external noise, those test tiles will be excluded from all acceptance calculations and Motorola Solutions will work with Biddeford to identify potential solutions to the interference issues.

Motorola Solutions will conduct this Coverage Acceptance Test only once. If any portion of the test is determined to be affected by proven equipment malfunctions or failures, Motorola Solutions will repeat the portion of the test affected by the equipment malfunction or failure. Biddeford will have the option to accept the coverage at any time prior to completion of the coverage test or documentation process.

Motorola Solutions will submit to Biddeford a report detailing the coverage test results. This report will include a document, which is to be signed by both Biddeford and Motorola Solutions, indicating the test was performed in accordance with this CATP and the results of the test indicate the acceptance or non-acceptance of the coverage portion of the system.

SECTION 5

TRAINING PLAN

5.1 TRAINING OVERVIEW

Partnering with Motorola Solutions will enable Biddeford to build personnel competency and maximize return on investment.

Effective training ensures successful implementation and use of your communications system by all personnel for the life of the system. The training plan furnished to Biddeford is comprised of targeted coursework developed and delivered by our expert instructors. This plan, included below, will effectively provide Biddeford's personnel with a comprehensive understanding of the proposed system and user equipment.

We will collaborate with Biddeford to tailor a final training plan to enable Biddeford's organization to operate, configure, and manage the proposed solution effectively and efficiently.



5.2 MOTOROLA SOLUTIONS TRAINING

Motorola Solutions provides an expanding portfolio of training delivery methods, tools, and courses to support the training needs of our customers. The figure below shows the elements of our training methodology that qualify us as the leader in the communications training industry.

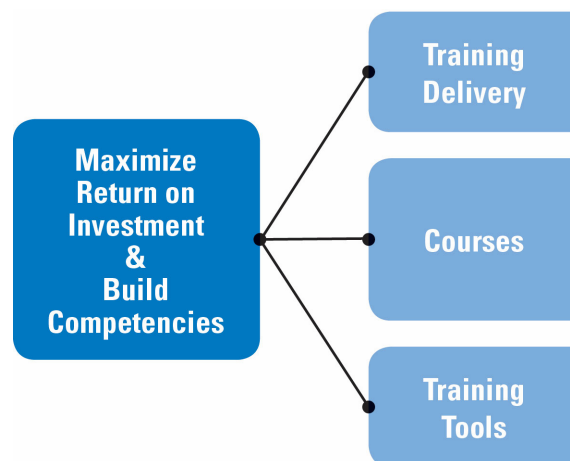


Figure 5-1: Build the competencies of Biddeford personnel and maximize your return on investment with Motorola Solutions' expanding portfolio of training delivery methods, tools, and courses.

5.2.1 Training Delivery

Training Methods

Motorola Solutions’ training experience and expertise enables our customers to gain the training they need to use during critical times in a variety of methods. As shown in the figure below, we offer four interactive methods of training: Online Self-Paced, Virtual Instructor-Led, Instructor-Led, and our *new* Integrated Training Environment.



Figure 5-2: Motorola Solutions offers a variety of interactive training methods that cater to different learning techniques, allowing more effective ways to give personnel the skills they need.

These training approaches ensure our customers receive the understanding they need for the practical aspects of their jobs.

Motorola Solutions Instructors

We have approximately 40 instructor resources distributed across North America. These instructors are available to train customers in our Technical Training Center located in Schaumburg, Illinois, while specific training courses are available at our facility in Plantation, Florida. Training can also be delivered directly on-site at customer locations. All instructors undergo an Instructional Skills and Technical Knowledge Program, which is a globally-recognized training and instructor assessment program.

Consultative Services

Motorola Solutions provides consultative services for our customers, which includes personalized training plans and other training-related services. Our dedicated training consultant team works with our customers and Motorola Solutions account teams to identify and meet the training needs of technical, administrative end users, and other audiences.

5.2.2 Training Courses

Motorola Solutions offers a wide range of training courses to help our customers improve their proficiency with our expanding portfolio and get the most from their training system.

Our specialized courses/curriculums are designed for our customers' role. Whether they are an administrator, technician or user, Motorola Solutions makes sure our customers are equipped with foundational and advanced skills.

General overviews of product and/or solution training offered are listed below:

Foundational Radio and Networking Training

Foundational Radio and Networking training provides new hires or staff from different skilled backgrounds fundamental knowledge. Some of these courses are online/self-paced while others are instructor led. Some topics include: Radio System Basics, Basic Networking, Communication System Concepts, Networking Essentials and Applied Networking. This allows Motorola Solutions to offer training before installation, during installation and after your solution is operational.

ASTRO 25 Infrastructure Training Courses

ASTRO 25 Infrastructure Training provides participants with a full curriculum that will enable them to maintain/service the new solution, and will give them the skills required to manage and operate the solution to obtain its fullest potential and capabilities.

ASTRO 25 Patch Management Training Course

ASTRO 25 Patch Management Training provides ASTRO 25 Land Mobile Radio (LMR) system administrators the information needed to access and patch their radio network infrastructure, update antivirus definitions, and review log files.

MCC Console Training Courses

MCC Console Training provides participants with a curriculum that will enable them to obtain a high-level understanding of the system configuration, general console operation, how to perform basic tasks, operating procedures for specific features, and the knowledge and skills necessary to manage and maintain the system.

APX Mobile and Portable Radio Training Courses

APX Mobile and Portable Radio Training provides participants with an introduction to the radio, the knowledge and skills necessary to perform basic radio operation, common operational tasks, operating procedures for specific features of the radio, and technical programming and maintenance of radios.

Digital Evidence Management Solution (DEMS) Training Courses

Digital Evidence Management Solution Training provides participants with a high-level overview of the DEMS solution. The CommandCentral Vault Field Workshop Solution training and Video Camera training are conducted with a combination of hands-on lab activities, demonstration, and

discussion that provide an in-depth learning experience for participants, enabling them to make the most effective use of their solution/device.

MOTOTRBO Training Courses

MOTOTRBO Training provides participants with a full curriculum that will enable them to maintain/service the new solution, and will give them the skills required to manage and operate the solution to obtain its fullest potential and capabilities.

CallWorks Training Courses

CallWorks Training provides participants with an overview of the components and functionality of the main application, operation, troubleshooting, a high-level understanding of the software, and configuration and maintenance of components of the CallWorks solution.

PremierOne Training Courses

PremierOne Training provides participants with sufficient knowledge of the PremierOne solution and its tools, giving them the skills necessary to operate and maintain the PremierOne solution.

LTE Training Courses

LTE Training provides participants a high-level understanding of the Public Safety LTE system and the network elements that comprise the system. Participants will gain knowledge of LTE architecture, signaling, system administration, and applied networking.

WAVE Training Courses

WAVE Training provides participants with an overview of the WAVE solution. It offers a basic understanding of how WAVE delivers a Radio-over-IP solution; describes features, hardware, and software requirements; how to use applications; and provides instruction in designing, integrating, and troubleshooting the WAVE solution.

5.2.3 Training Tools

Training Kits

Training kits are essential suitcase equipment, labs and exercises that apply to some of the ASTRO, MOTOTRBO, WAVE and LTE solutions. These kits are used in addition to equipment, in order to prevent solution downtime while training is conducted. As part of specific on-site classes, shown in Table 5-1, kits are included and shipped to our customers to allow students an in-depth, hands-on experience.

Table 5-1: Field Classes Training Kit Availability

- Field Classes Training Kit Availability	
- Networking Essentials	- Server Virtualization
- Applied Systems Networking	- WAVE Certified Integration Engineer
- Domain Controller	- MOTOTRBO™ Systems Applied Networking

Tracking and Evaluation

All customer training is tracked and evaluated. The Project Manager and training team tracks and records all courses completed through the implementation of the project. Surveys are given to trainees to evaluate the trainers. Feedback is given and placed on our customer shared website.

Interactive End User Tool Kit (iEUTK)

The Interactive End User Tool Kit is a knowledge-transfer tool designed to accelerate learning through customizability. Using the iEUTK allows trainers to customize user/operator training to match unique button, feature programming, and displays provided in the system and radio codeplug. These tailored materials are developed by Motorola Solutions trainers using tool kits that allow customer trainers to modify training materials when radio or console features change. Personnel are taught how to maneuver through and tailor the iEUTK screens. The tailored selections are saved to an electronic file that the Motorola Solutions training team provides to the customer.

For a more detailed view of the training Motorola Solutions provides, please see our Product and System Technical Training Course Catalog:

<https://www.motorolasolutions.com/content/dam/msi/docs/services/learning/2019-na-product-systems-training.pdf>

5.3 PROPOSED TRAINING OVERVIEW FOR BIDDEFORD

It is necessary that participants bring their laptop computers for all system administrator and technician classes. Materials will be delivered electronically via USB drives.

In order to achieve the training goals identified by Biddeford, we propose the following courses.

5.3.1 System Administrator Training Plan

Course Title	Target Audience	Sessions	Duration	Location	Date	Participants
ASTRO 25 IV&D System Overview Course#: AST1038 (Self-paced; Online) Prerequisite	System Administrators & Managers	1	2.5 hours	Online; Self-paced	Prior to Workshops	Up to 6
ASTRO 25 IV&D Radio System Administrator Workshop Course#: AST4102 (Instructor-led)	System Administrators & Managers	1	4.5 days	Biddeford, ME	Prior to managing	Up to 6

5.3.2 Console Operator and Supervisor Training Plan

Course Title	Target Audience	Sessions	Duration	Location	Date	Participants
MCC7500 Console Operator and Admin Training 2 training consoles Ratio: 2 per console (Instructor-led)	Dispatch Supervisors	1 (8-hour Session)	1 day	Biddeford, ME	Prior to training Operators	2
MCC7500 Console Operator Training 2 training consoles Ratio: 2 per Console (Instructor-led)	Dispatch Operators	4 (4hr) Sessions	2 days	Biddeford, ME	Prior to cutover	16 (4 per Session)

5.3.3 Radio End User Training Plan

Course Title	Target Audience	Sessions	Duration	Location	Date	Participants
APX Portable and APX Mobile Train-the-Trainer (Instructor-led)	Police Radio Trainers	1 (4 hr) Session	1/2 day	Biddeford, ME	Prior to training Users	4
APX Portable and APX Mobile Train-the-Trainer (Instructor-led)	Fire Radio Trainers	1 (4 hr) Session	1/2 day	Biddeford, ME	Prior to training Users	2
APX Portable and APX Mobile Train-the-Trainer (Instructor-led)	DPW Radio Trainers	1 (4 hr) Session	1/2 day	Biddeford, ME	Prior to training Users	2



5.3.4 Course Descriptions for the City of Biddeford

Course descriptions for Biddeford are included on the following pages.

5.3.4.1 ASTRO® 25 IV&D System Overview

AST1038

Course Synopsis and Objectives:	The ASTRO® 25 IV&D System Overview course will provide participants with knowledge and understanding of the ASTRO® 25 IV&D system. This course will address M, L and K Core systems. System architecture, components and features will be explained. In addition, RF and console sites and their architecture, features and components will be discussed. Finally, call processing for voice and mobile data applications will be covered, and an introduction to applications available in the ASTRO® 25 IV&D system will be provided. At the end of this course, the participant should: ▪ Understand the general architecture of an ASTRO® 25 IV&D Radio System. ▪ Understand key features of available in the ASTRO® 25 IV&D Radio System. ▪ Understand the components of the ASTRO® 25 Zone Core. ▪ Understand site components in the ASTRO® 25 system. ▪ Understand the features, capabilities and components of the MCC 7000 series dispatch consoles. ▪ Understand concepts of Mobility and Call Processing in the ASTRO® 25. ▪ Understand the applications for managing the ASTRO® 25 system.
Delivery Method:	▪ OLT = Online Training
Duration:	2.5 hours
Participants:	▪ Core Technicians ▪ Site Technicians ▪ Console Technicians ▪ Core Managers
Class Size:	Class Size varies by region
Prerequisite:	None
Curriculum:	▪ M Core/L Core: ○ System Architecture ○ System Features and Options ○ Zone Core Components ○ Repeater Sites ○ Simulcast Sites ○ Console Sites ○ Conventional Sites ○ Site Status ○ Information Types and Paths ○ Voice and Data Processing ○ Mobility Management ○ Applications Overview ▪ K Core: ○ System Architecture ○ System Features and Options ○ Zone Core Components ○ Console Sites ○ Conventional Sites ○ Information Types and Paths ○ Voice and Data Processing ○ Mobility Management ○ Applications Overview

5.3.4.2 ASTRO® 25 IV&D Radio System Administrator Workshop

AST4102

Course Synopsis and Objectives:	This workshop covers administrator functions for an ASTRO 25 Integrated Voice and Data (IV&D) System. Learning activities in this course focus on how to use the different ASTRO 25 IV&D System Management applications. Participants will be provided with an opportunity to discuss how to structure their organization and personnel for optimal ASTRO 25 IV&D system use. After completing the course, the participant will be able to: ▪ Describe the relationship between radio programming, console administration and system management, and the impact of this relationship on system planning. ▪ List the network management tools applicable at each phase of the system life cycle. ▪ Identify the advantages and disadvantages of options available for the configuration of system infrastructure and user parameters. ▪ Use the report and real-time data to monitor performance and make adjustments necessary to maintain acceptable system performance levels.
Delivery Method:	ILT - Instructor-led Training
Duration:	4.5 days
Participants:	▪ System Administrators ▪ Technical System Administrators ▪ System Technicians ▪ Other Application Users
Class Size:	Up to 12
Prerequisite:	Completion of the following courses or equivalent knowledge: ▪ Bridging the Knowledge Gap – System Administrators (ACT101). ▪ Networking Essentials in Communication Equipment (NST762). ▪ ASTRO 25 Systems Applied Networking (NWT003). ▪ ASTRO 25 IV&D System Overview (AST1038).
Curriculum:	▪ Module 1: Subscriber Provisioning ▪ Module 2: Talkgroup Provisioning ▪ Module 3: Radio System Application User Access ▪ Module 4: Zone Watch ▪ Module 5: Affiliation Display ▪ Module 6: Radio Control Manager ▪ Module 7: Reports ▪ Module 8: License Manager ▪ Module 9: UNC Network Manager

5.3.4.3 MCC7500 Console Supervisor

Course Synopsis and Objectives:	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. After completing this training course, you will be able to: ▪ Understand the menu items and tool bar icons. ▪ Edit folders, multi-select/patch groups, auxiliary input output groups, windows and toolbars. ▪ Add/delete folders.
Delivery Method:	ILT - Instructor-led training
Duration:	4 hours Operator, plus 4 hours Admin
Participants:	Dispatch Supervisors and System Administrators
Class Size:	Based on number of Training Consoles available (2 students per Console)
Prerequisite:	None
Curriculum:	▪ Introduction ▪ Configurations ▪ Folders and Resource Setup ▪ Customizing Folders ▪ Auto Starting the MCC7500 Dispatch Console ▪ Editing Preferences ▪ Configuring the Toolbar ▪ Setting Up Aux IOs ▪ Resource Groups

5.3.4.4 MCC7500 Console Operator

Course Synopsis and Objectives:	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. After completing this training course, you will be able to: ▪ 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. ▪ Understand a high-level overview of the customer system configuration. ▪ Understand general console operation. ▪ Understand proper operating procedures for specific customer features.
Delivery Method:	ILT - Instructor-led training
Duration:	4 hours
Participants:	Dispatch Console Operators, Supervisors, System Administrators, and Support Personnel
Class Size:	Based on number of Training Consoles available (2 students per Console)
Prerequisite:	None
Curriculum:	▪ Overview ▪ Communicating with Radios ▪ Advanced Signaling Features ▪ Resource Groups ▪ Working with Configurations ▪ Working with Aux IOs ▪ Troubleshooting

5.3.4.5 APX Portable and APX Mobile Train-the-Trainer

Course Synopsis and Objectives:	This course provides APX radio trainers with an introduction to their radio, its basic operation and tailored job aids available for assistance in operation. The learning experience is a mix of facilitation and hands-on activities to help users perform common tasks associated with their radio operation. Segmentation between user groups (i.e. Police, Fire/EMS, and Public Service) is encouraged to help focus instruction on the specific operational issues of the individual user group. This course is geared for customers who have an experienced dedicated training staff in their organization. It provides the customer's identified training personnel with the knowledge and practice applying training techniques that will enable them to successfully train their students. Trainers will use audio visual (Interactive End User Toolkits–iEUTK), facilitation and “hands-on” activities to facilitate learning events supported by tailored or customized training materials and job aids. They will become proficient in discussing common tasks associated with the operation of the customer's radios. After completing the course, the participant will be able to: ▪ Understand a high-level overview of the customer system configuration. ▪ Understand the general radio operation. ▪ Understand proper operating procedures for specific customer features. ▪ Perform basic operational tasks of the radio. ▪ Utilize the provided job aids to perform specific tasks associated with the radio.
Delivery Method:	ILT - Instructor-led training
Duration:	8 hours
Participants:	APX Trainers, Supervisors and Support Personnel
Class Size:	Up to 15
Prerequisite:	Previous two-way radio and training experience
Curriculum:	▪ Basics: ○ Controls ○ Top and Side Buttons ○ Switches ○ 3 Position toggle ○ 2 Position Concentric ○ Home key ○ Data Key ○ Display ○ Front Display ○ Top Display ○ Display light ○ Intelligent Lighting ○ Push to Talk or Accessory PTT found on the microphone ○ Hub, hang up box (Mobile) ▪ Menu: ○ Menu Screen Anatomy ○ Navigating Menu Screen ○ Recent Call List (Model 3.5) ○ Unified Call List - Contacts (Model 3.5) ○ Dual Sided Radio (Model 3.5) ○ Dual Mics ○ Dual Speakers ○ Accessory Connector ▪ Specific Features: ○ Changing Talkgroups/Channels ○ Changing Zones ○ Mute tones of keypad ○ Talkgroup Call ○ Private Call ○ Accessing Private Call Feature ○ Initiating Private Call ○ Call List Programming



	○ Announcement/All Call (Calls involving Multiple Talkgroups) ○ Initiating Announcement/All Call ○ Direct/Talkaround ○ Failsoft ○ Radio Profiles ○ Accessing and changing Radio Profile ▪ Optional Features: ○ Scan ○ Scan program ○ Priority Scan ○ Dynamic Priority ○ Telephone Interconnect ○ Accessing Telephone Interconnect Feature ○ Initiating a Phone Call ○ Phone List Programming ▪ Data Services: ○ Text Messaging ○ Accessing the Text Messaging Feature ○ Creating a Free Form Text Message ○ Sending a "Canned" Text Message ○ GPS ○ OTAP User Interface ○ Encryption ○ Emergency
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SECTION 6

WARRANTY SERVICES

Motorola Solutions has over 90 years of experience supporting mission critical communications for public safety and public service agencies. Motorola Solutions' technical and service professionals use a structured approach to life cycle service delivery and provide comprehensive maintenance and support throughout the life of the system. System availability is a function of having in place a support plan delivered by highly skilled support professionals, backed by proven processes, tools, and continuous training.

6.1 WARRANTY SERVICES

The service products that comprise the custom warranty package are listed below along with a brief description.

The warranty on the new infrastructure equipment will commence on the date of beneficial use or system acceptance, whichever occurs first, and will continue for twelve (12) months from that date on a seven (7) day-a-week, twenty-four (24) hour-a-day basis.

These services are included in the total cost of the system. After the warranty period expires, these services may be purchased under a separate agreement. Motorola Solutions' service package is comprised of the following services:

- Dispatch Service.
- Infrastructure Repair.
- Technical Support.
- OnSite Infrastructure Response.
- Preventative Maintenance.

Please note that the warranty services are for the equipment proposed and do not include any existing equipment. Response and repair excludes third party equipment not shipped by Motorola Solutions.

Please note that civil and site system components such as, but not limited to, UPS equipment, DC Plant, Generators, Shelters, and Antenna Systems are only covered by their manufacturer's warranty. Any services provided by Motorola Solutions for these items will be considered above contract and will be billed on a Time and Materials basis.

6.1.1 Dispatch Service

Motorola Solutions' Dispatch Service ensures that trained and qualified technicians are dispatched to diagnose and restore your communications network. Following proven response and restoration processes, the local authorized service center in your area is contacted and a qualified technician is sent to your site. An automated escalation and case management process is followed to ensure that technician site arrival and system restoration comply with contracted response and restore times. Once the issue has been resolved, the System Support Center verifies resolution and with your approval, closes the case. Activity records are also available to provide a comprehensive history of site performance, issues, and resolution.

6.1.2 OnSite Infrastructure Response

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

6.1.3 Technical Support Service

Motorola Solutions Technical Support service provides an additional layer of support through centralized, telephone consultation for issues that require a high level of communications network expertise and troubleshooting capabilities. Technical Support is delivered by the System Support Center (SSC). The SSC is staffed with trained, skilled technologists specializing in the diagnosis and swift resolution of network performance issues. These technologists have access to a solutions database as well as in house test labs and development engineers. Technical Support cases are continuously monitored against stringent inbound call management and case management standards to ensure rapid and consistent issue resolution. Technical Support service translates into measurable, customer-specific metrics for assured network performance and system availability.

6.1.4 Infrastructure Repair

Infrastructure Repair service provides for the repair of all Motorola Solutions-manufactured equipment, as well as equipment from third-party infrastructure vendors. All repair management is handled through a central location eliminating your need to send equipment to multiple locations.

Comprehensive test labs replicate your network in order to reproduce and analyze the issue. State-of-the-art, industry-standard repair tools enable our technicians to troubleshoot, analyze, test, and repair your equipment. Our ISO9001 and TL9000-certified processes and methodologies ensure that your equipment is quickly returned maintaining the highest quality standards.

Service agreements allow you to budget your maintenance costs on an annual basis. Equipment covered under service agreements also receives higher service priority, which results in quicker repair times.

6.2 SYSTEM UPGRADE AGREEMENT II (OPTIONAL)

The Motorola Solutions System Upgrade Agreement II (SUA II) is a complete package of hardware, software and implementation services required to update the ASTRO 25 system up to one upgrade in a two-year period or as available.

Updates to OEM components ensure availability of repair services support and may also provide increased capacity and processing speed. Regular updates enable system expansion (i.e., expansion of RF sites, dispatch positions, data sub-systems, and network management positions). Professional implementation services guarantee live system upgrades are performed with minimal interruption to system operation and with minimal reliance on owner resources. Motorola Solutions SUA II ensures your system continues to perform at the highest level of operation, allows for expansion and feature enhancement, and maximizes the lifespan of the investment. For owners committed to upgrading their



system on a regular basis, SUA II provides a consistent, budgeted solution that delivers complete coverage.

6.2.1.1 Included Features

Feature	SUA II
Minor Release (patch release)	✓
Major Release (system release)	✓
Implementation Services	✓
Major upgrade in a 2-year period ¹	1
Hardware Refresh ²	✓

¹ As major system releases become available, Motorola Solutions agrees to provide the system owner with the software, hardware and implementation services required to execute up to one system infrastructure upgrade in a two-year period for their ASTRO 25 system as available.

²Hardware refresh includes version updates and/or replacements for Motorola Solutions field replaceable units (FRU) and third-party networking and computing hardware. Note that replacement of Gold Elite consoles and QUANTAR base radios are not included in this refresh.

- Minor releases may include commercial operating system (OS) and application security updates, patches and service pack updates for Microsoft Windows and Server OS, Red Hat Linux, Sun Solaris and any Motorola Solutions software service packs that may be available.
- Major releases include commercial OS and application software updates as well as Motorola Solutions system release software to improve the system functionality and operation from previous releases as well as significant new feature enhancements that are available for purchase.
- Implementation services include all in-house and on-site resources to implement and test the major release update.

Upgrade for Microwave equipment or MPLS routers are not part of the SUA pricing.

6.3 POST WARRANTY SERVICES

As Motorola Solutions' continuing commitment to supporting your system, warranty services can be extended after the warranty period to provide maintenance and service support in future years. Any of the services that we identify can be customized in future years, and are available for purchase either in "System Support Services" packages or as individual service offerings. These system support services significantly benefit City of Biddeford because the system can be effectively supported after the warranty period, thereby maximizing the operational capabilities and useful life of the system and protecting your investment in the system.

Post warranty maintenance and Lifecycle services have been quoted for the new proposed system equipment only as an **Option** for years 2 through 5.

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SECTION 7

PRICING

7.1 CONTRACT PRICING

Equipment and Services	Price
Fixed Network Infrastructure Cost Per NASPO Value-Point Contract	\$2,070,083.00
Subscriber Radio Cost Per NASPO Value-Point Contract	\$1,956,981.00
Installation and Integration Costs per NASPO Value-Point Contract:	\$1,912,855.00
▪ Engineering	
▪ Installation Services (Fixed and Subscriber Installation Cost)	
▪ Systems Integration Services	
▪ Project Management Services	
▪ Site Improvement Services	
▪ Training	
▪ 24 x 7 First Year Warranty	
▪ System Staging	
System Sale Price Per NASPO Value-Point Contract	\$5,939,919.00
24 Month Interest Free Lease	Included/see below
Contract Execution by 12/08/2020	-\$600,000.00
One-Time System Replacement Discount	-\$626,194.00
Subscriber Discount	-\$513,320.00
Equipment and Services Total Per NASPO Value-Point Contract with Incentives	\$4,200,405.00

Price valid through December 8, 2020.

Incentive offer valid until December 8, 2020.

7.2 OPTIONAL OUT YEARS MAINTENANCE AND LIFECYCLE SERVICES PRICING

Essential Plus Maintenance	Year 1	Year 2	Year 3	Year 4
▪ Dispatch Service ▪ Network Security Monitoring ▪ Software Update Services ▪ Network Monitoring ▪ On-Site Response Service – Emergency Response Includes Motorola field services team, system management and preventative maintenance ▪ Technical Support ▪ Infrastructure Repair	\$98,350.00	\$98,350.00	\$98,350.00	\$98,350.00

Lifecycle Services	Year 2	Year 3	Year 4	Year 5
System Upgrade Agreement II (SUA II)	\$126,646.00	\$126,646.00	\$126,646.00	\$126,646.00

Optional Pricing	Price
Maintenance and SUA Total Years 2-5	\$899,984.00
Bundle Discount for System and Maint./SUA	-\$100,00.00
M&S Discounted Total	\$799,984.00
TOTAL SYSTEM WITH MAINTENANCE AND SUA	\$5,305,808.00

**Motorola Solutions, Inc.**

Date:

October 22, 2020

Financing proposal for: City of Biddeford, ME

Communications System Financing Proposal

Motorola Solutions Credit Company LLC is pleased to submit the following proposal for the financing of your Motorola Communications equipment in accordance with the terms and conditions outlined below:

Transaction Type: Municipal Lease-Purchase Agreement**Lessor:** Motorola Solutions, Inc. (or its Assignee)**Lessee:** **City of Biddeford, ME****Dirigo Wireless Total:** \$276,300.00**Motorola Total:** \$4200,405.00**Down Payment:** \$0.00**Balance to Finance:** \$4,476,705.00**Equipment:** As per the Motorola equipment proposal.**Title:** Title to the equipment will vest with the Lessee.**Insurance:** Lessee will be responsible to insure the equipment as outlined in the lease contract.**Taxes:** Personal property, sales, leasing, use, stamp, or other taxes are for the account of the Lessee.**Two year 1st payment deferral****Two years interest free****Option One****Option Two****Lease Term:** Seven years Ten Years**Payment Frequency:** Annual Annual**Payment Structure:** Arrears Arrears**Lease Rate Two years:** **0%** **0%****Lease Rate remaining term:** 2.54% 2.64%**Lease Factor:** 0.177290 0.123039**Lease Payment:** \$793,675.03 \$550,809.31**Payment Commencement:** 6 payments 9 payments

First payment due two years from contract execution, annually thereafter.

Expiration: This interest rate methodology is valid for all leases commenced by 11/23/2020**Indexing arrangement –Non bank qualified structure 7 and 10 year terms**

The Lease Payments shall be calculated using a rate of interest ("Lease Rate") that is initially indexed to the seven (7) or ten (10) year average life ICE Swap (the "Index Rate") as reported on the [ICE swap rate historical rates](#). The average life ICE Swap corresponds to the respective lease term. The ICE Report can be accessed at the ICE web site: <https://www.theice.com/marketdata/reports/180>. On the Commitment Date, the final Lease Rate will be calculated by taking the Index Rate for that date from the ICE Report, plus a spread of 2.90% and multiplying the sum of those two numbers by .79 to calculate the Lease Rate for the 7 year term. The rate for the 10 year term will be calculated by taking the Index Rate for that date from the ICE Report, plus a spread of 2.90% and multiplying the sum of those two numbers by .79. The rates are then fixed for the full term of the Lease.

The following ICE average life Index Rates were in place at the approximate time this quote was issued:

7 year: .32%

10 year: .44%

Qualifications: Receipt of a properly executed documentation package.

Lessee qualifies as a political subdivision or agency of the State as defined in the Internal Revenue Code of 1986. The interest portion of the Lease Payments shall be excludable from the Lessor's gross income pursuant to Section 103 of the Internal Revenue Code.

Receipt of a copy of the last years audited financial statements and current year's budget from the Lessee.

This proposal should not be construed as a commitment to finance. It is subject to final Motorola credit committee approval. This quote is based on the general level of interest rates, primarily U.S. Treasury Bills of like term maturity. Any movement in those rates in excess of 10 basis points will result in the revision of this quote.

Documentation: Municipal Equipment Lease Purchase Agreement

Opinion of Counsel

Schedule A / Equipment List

Schedule B / Amortization Schedule

8038G

UCC-1

Certificate of Incumbency

Statement of Essential Use/Source of Funds

Evidence of Insurance or Statement of Self Insurance

Resolution from governing body authorizing the execution of the Lease

Please feel free to contact me if there are any questions or if an alternate structuring is required.

Regards,
Bill Stancik
Motorola Customer Financing
847-538-4531

7.3 EQUIPMENT LIST

The following is a detailed equipment list of Equipment provided under this proposal.

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
CORE	CORE	1	SQM01SUM0323	ASTRO MASTER SITE
CORE	CORE	1	CA03515AA	ADD: NEW ZONE CORE
CORE	CORE	1	CA03512AA	ADD: REDUNDANCY
CORE	CORE	1	CA03507AA	ADD: RACK
CORE	CORE	3	UA00159AB	ADD: P25 PHASE 2 TDMA TRKNG OP SITE
CORE	CORE	9	UA00161AA	ADD: P25 PHASE 2 TDMA SW BASE RADIO
CORE	CORE	1	UA00225AA	ADD: UEM ENHANCED NAVIGATION
CORE	CORE	1	UA00156AA	ADD: MCC7500 CONSOLE LICENSES (QTY
CORE	CORE	2	UA00674AA	ADD: MCC7500/MCC7100 CONSOLE LIC (Q
CORE	CORE	1	UA00135AA	ADD: PROVISIONING MANAGER INTERFACE
CORE	CORE	1	UA00136AA	ADD: UNIFIED NETWORK CONFIGURATOR (
CORE	CORE	1	UA00141AA	ADD: ZONEWATCH GRID & CTRL
CORE	CORE	1	UA00146AA	ADD: UNIFIED EVENT MANAGER (UEM)
CORE	CORE	1	UA00147AA	ADD: PROVISIONING MANAGER
CORE	CORE	1	UA00149AA	ADD: RADIO CONTROL MANAGER
CORE	CORE	1	UA00152AA	ADD:500 RADIO USER LICENSES
CORE	CORE	1	DSCL5808NCKIT	8 PORT LCD KVM 8 USB-PS 2 COMBO CAB
PDHQ	NM	2	TT3492	Z2 G4 MINI WORKSTATION NON RETURNAB
PDHQ	NM	2	DQHP19LEDMONITOR	HP PRODISPLAY P19A 19-IN LED MONITO
PDHQ	NM	2	T8751	ASTRO 2020.1 NM SW CLIENT
PDHQ	NM	2	T7885	MCAFEE WINDOWS AV CLIENT
PDHQ	GPS	1	DSTRAK91008E	PRIME/MASTER SITE REDUNDANT MODULAR
PDHQ	GPS	50	L1700	FSJ1-50A CABLE: 1/4" SUPERFLEX POLY
PDHQ	GPS	4	DDN9769	F1TNM-HC 1/4" TYPE N MALE CONNECTO

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
PDHQ	SOFTWARE	1	DVN4046B	MASTER SYSTEM KEY STARTER KIT
PRIME	GCM8000	1	T7321	GCM 8000 COMPARATOR
PRIME	GCM8000	2	CA01183AA	GCM 8000 COMPARATOR
PRIME	GCM8000	2	CA01185AA	ADD: IP BASED MULTISITE OPERATION
PRIME	GCM8000	2	CA01901AA	ADD: P25 TDMA COMPARATOR SOFTWARE
PRIME	GCM8000	1	X153AW	ADD: RACK MOUNT HARDWARE
PRIME	GCM8000	1	CA03677AA	ADD: ASTRO SYSTEM RELEASE 2020.1
PRIME	GCM8000	1	T7321	GCM 8000 COMPARATOR
PRIME	GCM8000	2	CA01183AA	GCM 8000 COMPARATOR
PRIME	GCM8000	2	CA01185AA	ADD: IP BASED MULTISITE OPERATION
PRIME	GCM8000	2	CA01901AA	ADD: P25 TDMA COMPARATOR SOFTWARE
PRIME	GCM8000	1	X153AW	ADD: RACK MOUNT HARDWARE
PRIME	GCM8000	1	CA03677AA	ADD: ASTRO SYSTEM RELEASE 2020.1
PRIME	GCP8000	1	T7038	GCP 8000 SITE CONTROLLER
PRIME	GCP8000	1	CA00303AA	ADD: QTY (1) SITE CONTROLLER
PRIME	GCP8000	1	CA01194AA	ADD: IP BASED MULTISITE SITE CONTRO
PRIME	GCP8000	1	X153AW	ADD: RACK MOUNT HARDWARE
PRIME	GCP8000	1	CA03677AA	ADD: ASTRO SYSTEM RELEASE 2020.1
PRIME	GCP8000	1	T7038	GCP 8000 SITE CONTROLLER
PRIME	GCP8000	1	CA00303AA	ADD: QTY (1) SITE CONTROLLER
PRIME	GCP8000	1	CA01194AA	ADD: IP BASED MULTISITE SITE CONTRO
PRIME	GCP8000	1	X153AW	ADD: RACK MOUNT HARDWARE
PRIME	GCP8000	1	CA03677AA	ADD: ASTRO SYSTEM RELEASE 2020.1
PRIME	SDM	1	F4544	SITE MANAGER ADVANCED
PRIME	SDM	1	V266	ADD: 90VAC TO 260VAC PS TO SM
PRIME	SDM	1	VA00872	ADD: SDM ASTRO RTU FW CURR ASTRO RE
PRIME	SDM	3	V592	AAD TERM BLCK & CONN WI

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Radio System Upgrade

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
PRIME	NETWORK	1	T8555	EDGE & HUB ROUTER & FIREWALL - DC
PRIME	NETWORK	1	CA03445AA	ADD: MISSION CRITICAL HARDENING
PRIME	NETWORK	1	CA03448AA	ADD: STATEFUL FIREWALL
PRIME	NETWORK	2	CLN1868	2930F 24-PORT SWITCH
PRIME	RACK	2	TRN7343	SEVEN AND A HALF FOOT RACK
PDHQREMOTE	NETWORK	2	T8492	SITE ROUTER & FIREWALL- AC
PDHQREMOTE	NETWORK	2	CA03445AA	ADD: MISSION CRITICAL HARDENING
PDHQREMOTE	NETWORK	2	CA03448AA	ADD: STATEFUL FIREWALL
PDHQREMOTE	NETWORK	2	CLN1868	2930F 24-PORT SWITCH
PDHQREMOTE	GTR8000	1	SQM01SUM7054	GTR 8000 EXPANDABLE SITE SUBSYSTEM
PDHQREMOTE	GTR8000	1	CA00855AA	ADD: 700/800 MHZ
PDHQREMOTE	GTR8000	3	CA01842AA	ADD: P25 TDMA SOFTWARE
PDHQREMOTE	GTR8000	1	X304AE	ADD: QTY (4) GTR 8000 BASE RADIOS
PDHQREMOTE	GTR8000	4	CA01193AA	ADD: IP BASED MULTISITE BASE RADIO
PDHQREMOTE	GTR8000	1	CA01943AA	ADD:2ND BRANCH DIVERSITY
PDHQREMOTE	GTR8000	1	CA00879AA	ADD: PRIMARY 6 PORT CAVITY COMBINER
PDHQREMOTE	GTR8000	1	CA00882AA	ADD: 700 MHZ TX FILTER W/PMU
PDHQREMOTE	GTR8000	1	X882AH	ADD: 7.5 FT OPEN RACK, 48RU
PDHQREMOTE	GTR8000	1	CA02686AA	ADD: AC DC POWER DISTRIBUTION
PDHQREMOTE	GTR8000	2	CA00884AA	ADD: QTY (1) XHUB
PDHQREMOTE	GTR8000	1	CA00861AA	ADD: CABINET RMC W/ CAPABILITY OF 6
PDHQREMOTE	GTR8000	1	CA03677AA	ADD: ASTRO SYSTEM RELEASE 2020.1
PDHQREMOTE	SDM	1	F4544	SITE MANAGER ADVANCED
PDHQREMOTE	SDM	1	V266	ADD: 90VAC TO 260VAC PS TO SM
PDHQREMOTE	SDM	1	VA00872	ADD: SDM ASTRO RTU FW CURR ASTRO RE
PDHQREMOTE	SDM	3	V592	AAD TERM BLCK & CONN WI
PDHQREMOTE	RACK	1	TRN7343	SEVEN AND A HALF FOOT RACK
PDHQ	EDGE PNL	3	DS11011188	PDU, 120/240 SPLIT PH OR N+1 REDUND



SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
PDHQ	EDGE PNL	36	DS3750297	BREAKER, 15 AMP, CB UL 489 LISTED F
PDHQ	UPS	4	DSGXTR27001021	UPS, GXT RACKMOUNT 3KVA/2.7KW, 21 M
DPW	NETWORK	2	T8492	SITE ROUTER & FIREWALL- AC
DPW	NETWORK	2	CA03445AA	ADD: MISSION CRITICAL HARDENING
DPW	NETWORK	2	CA03448AA	ADD: STATEFUL FIREWALL
DPW	NETWORK	2	CLN1868	2930F 24-PORT SWITCH
DPW	CCGW	1	SQM01SUM0205	GGM 8000 GATEWAY
DPW	CCGW	1	CA01616AA	ADD: AC POWER
DPW	CCGW	1	CA02086AA	ADD: HIGH DENSITY ENH CONV GATEWAY
DPW	GTR8000	1	SQM01SUM7054	GTR 8000 EXPANDABLE SITE SUBSYSTEM
DPW	GTR8000	1	CA00855AA	ADD: 700/800 MHZ
DPW	GTR8000	3	CA01842AA	ADD: P25 TDMA SOFTWARE
DPW	GTR8000	1	X304AE	ADD: QTY (4) GTR 8000 BASE RADIOS
DPW	GTR8000	4	CA01193AA	ADD: IP BASED MULTISITE BASE RADIO
DPW	GTR8000	1	CA01943AA	ADD:2ND BRANCH DIVERSITY
DPW	GTR8000	1	CA00879AA	ADD: PRIMARY 6 PORT CAVITY COMBINER
DPW	GTR8000	1	CA00882AA	ADD: 700 MHZ TX FILTER W/PMU
DPW	GTR8000	1	X882AH	ADD: 7.5 FT OPEN RACK, 48RU
DPW	GTR8000	1	CA02686AA	ADD: AC DC POWER DISTRIBUTION
DPW	GTR8000	2	CA00884AA	ADD: QTY (1) XHUB
DPW	GTR8000	1	CA00861AA	ADD: CABINET RMC W/ CAPABILITY OF 6
DPW	GTR8000	1	CA03677AA	ADD: ASTRO SYSTEM RELEASE 2020.1
DPW	GPS	1	DSTRAK91009E	REMOTE SITE REDUNDANT MODULAR FREQU
DPW	GPS	2	DSTRAK91061	FOUR PORT DDM
DPW	GPS	50	L1700	FSJ1-50A CABLE: 1/4" SUPERFLEX POLY
DPW	GPS	4	DDN9769	F1TNM-HC 1/4" TYPE N MALE CONNECTO
DPW	SDM	1	F4544	SITE MANAGER ADVANCED

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to the restrictions on the cover page.

Radio System Upgrade



SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
DPW	SDM	1	V266	ADD: 90VAC TO 260VAC PS TO SM
DPW	SDM	1	VA00872	ADD: SDM ASTRO RTU FW CURR ASTRO RE
DPW	SDM	3	V592	AAD TERM BLCK & CONN WI
DPW	RACK	1	TRN7343	SEVEN AND A HALF FOOT RACK
DPW	EDGE PNL	2	DS11011188	PDU, 120/240 SPLIT PH OR N+1 REDUND
DPW	EDGE PNL	24	DS3750297	BREAKER, 15 AMP, CB UL 489 LISTED F
DPW	UPS	2	DSGXTR27001021	UPS, GXT RACKMOUNT 3KVA/2.7KW, 21 M
WATER TANK	NETWORK	2	T8492	SITE ROUTER & FIREWALL- AC
WATER TANK	NETWORK	2	CA03445AA	ADD: MISSION CRITICAL HARDENING
WATER TANK	NETWORK	2	CA03448AA	ADD: STATEFUL FIREWALL
WATER TANK	NETWORK	2	CLN1868	2930F 24-PORT SWITCH
WATER TANK	GTR8000	1	SQM01SUM7054	GTR 8000 EXPANDABLE SITE SUBSYSTEM
WATER TANK	GTR8000	1	CA00855AA	ADD: 700/800 MHZ
WATER TANK	GTR8000	3	CA01842AA	ADD: P25 TDMA SOFTWARE
WATER TANK	GTR8000	1	X304AE	ADD: QTY (4) GTR 8000 BASE RADIOS
WATER TANK	GTR8000	4	CA01193AA	ADD: IP BASED MULTISITE BASE RADIO
WATER TANK	GTR8000	1	CA01943AA	ADD:2ND BRANCH DIVERSITY
WATER TANK	GTR8000	1	CA00879AA	ADD: PRIMARY 6 PORT CAVITY COMBINER
WATER TANK	GTR8000	1	CA00882AA	ADD: 700 MHZ TX FILTER W/PMU
WATER TANK	GTR8000	1	X882AH	ADD: 7.5 FT OPEN RACK, 48RU
WATER TANK	GTR8000	1	CA02686AA	ADD: AC DC POWER DISTRIBUTION
WATER TANK	GTR8000	2	CA00884AA	ADD: QTY (1) XHUB
WATER TANK	GTR8000	1	CA00861AA	ADD: CABINET RMC W/ CAPABILITY OF 6
WATER TANK	GTR8000	1	CA03677AA	ADD: ASTRO SYSTEM RELEASE 2020.1
WATER TANK	GPS	1	DSTRAK91009E	REMOTE SITE REDUNDANT MODULAR FREQU
WATER TANK	GPS	2	DSTRAK91061	FOUR PORT DDM
WATER TANK	GPS	50	L1700	FSJ1-50A CABLE: 1/4" SUPERFLEX POLY
WATER TANK	GPS	4	DDN9769	F1TNM-HC 1/4" TYPE N MALE CONNECTO



SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
WATER TANK	SDM	1	F4544	SITE MANAGER ADVANCED
WATER TANK	SDM	1	V266	ADD: 90VAC TO 260VAC PS TO SM
WATER TANK	SDM	1	VA00872	ADD: SDM ASTRO RTU FW CURR ASTRO RE
WATER TANK	SDM	3	V592	AAD TERM BLCK & CONN WI
WATER TANK	RACK	1	TRN7343	SEVEN AND A HALF FOOT RACK
WATER TANK	EDGE PNL	2	DS11011188	PDU, 120/240 SPLIT PH OR N+1 REDUND
WATER TANK	EDGE PNL	24	DS3750297	BREAKER, 15 AMP, CB UL 489 LISTED F
WATER TANK	UPS	2	DSGXTR27001021	UPS, GXT RACKMOUNT 3KVA/2.7KW, 21 M
DISPATCH	SOFTWARE	1	B1949	MCC 7500E SOFTWARE DVD
DISPATCH	OP_POS	1	B1948	MCC 7500E DISPATCH POSITION LICENSE
DISPATCH	OP_POS	5	UA00250AA	ADD: 30 RADIO RESOURCES LICENSE
DISPATCH	OP_POS	5	UA00653AA	ADD: BASIC CONSOLE OPERATION
DISPATCH	OP_POS	5	UA00654AA	ADD: ASTRO 25 TRUNKING OPERATION
DISPATCH	OP_POS	5	UA00655AA	ADD: ADVANCED CONVENTIONAL OPERATIO
DISPATCH	OP_POS	5	UA00658AA	ADD: SECURE OPERATION
DISPATCH	OP_POS	5	UA00659AA	ADD: ADP/AES/DES-OFB ENCRYPTION
DISPATCH	OP_POS	5	TT3492	Z2 G4 MINI WORKSTATION NON RETURNAB
DISPATCH	OP_POS	5	DSTG221B	TECH GLOBAL EVOLUTION SERIES 22INCH
DISPATCH	OP_POS	5	DSY7B61AA	HP Z2 MINI ARM WALL VESA MOUNT
DISPATCH	OP_POS	1	DSF2B56AA	USB EXTERNAL DVD DRIVE
DISPATCH	OP_POS	5	DSST7300U3M	STARTECH 7 PORT USB 3.0 HUB
DISPATCH	OP_POS	5	DSTWIN6328A	PROVIDES ONE DUAL PEDAL FOOTSWITCH
DISPATCH	OP_POS	5	T7449	WINDOWS SUPPLEMENTAL TRANS CONFIG
DISPATCH	OP_POS	5	RLN6098	HDST MODULE BASE W/PTT, 15 FT CBL
DISPATCH	OP_POS	5	T7885	MCAFEЕ WINDOWS AV CLIENT
DISPATCH	OP_POS	5	B1941	USB AUDIO INTERFACE MODULE
DISPATCH	OP_POS	5	B1913	MCC SERIES HEADSET JACK

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Radio System Upgrade



SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
DISPATCH	OP_POS	5	B1951	MICROPHONE, DESKTOP, USB
DISPATCH	OP_POS	5	CA03412AA	ADD: USB CABLE, TYPE C TO TYPE C, 4
DISPATCH	OP_POS	10	B1952	SPEAKER, DESKTOP, USB
DISPATCH	OP_POS	10	CA03405AA	ADD: POWER SUPPLY WITH DC CORD
DISPATCH	OP_POS	10	CA03406AA	ADD: AC LINE CORD, NORTH AMERICA
DISPATCH	OP_POS	10	CA03413AA	ADD: USB CABLE, TYPE A TO TYPE C, 4
DISPATCH	NETWORK	2	T8492	SITE ROUTER & FIREWALL- AC
DISPATCH	NETWORK	2	CA03445AA	ADD: MISSION CRITICAL HARDENING
DISPATCH	NETWORK	2	CA03448AA	ADD: STATEFUL FIREWALL
DISPATCH	NETWORK	2	CLN1868	2930F 24-PORT SWITCH
DISPATCH	GCP8000	1	T7038	GCP 8000 SITE CONTROLLER
DISPATCH	GCP8000	1	CA00303AA	ADD: QTY (1) SITE CONTROLLER
DISPATCH	GCP8000	1	X153AW	ADD: RACK MOUNT HARDWARE
DISPATCH	GCP8000	1	CA01136AA	MCC 7500 CONVEN SITE OPER
DISPATCH	GCP8000	1	CA03677AA	ADD: ASTRO SYSTEM RELEASE 2020.1
DISPATCH	AUX IO	1	F4543	SITE MANAGER BASIC
DISPATCH	AUX IO	1	VA00874	ADD: AUX I-O SERV FW CURR ASTRO REL
DISPATCH	AUX IO	3	V592	AAD TERM BLCK & CONN WI
DISPATCH	AUX IO	1	V266	ADD: 90VAC TO 260VAC PS TO SM
DISPATCH	AUX IO	1	F4548	SM IO EXPANSION ADVANCED
DISPATCH	AUX IO	1	V266	ADD: 90VAC TO 260VAC PS TO SM
DISPATCH	AUX IO	3	V592	AAD TERM BLCK & CONN WI
DISPATCH	CCGW	2	SQM01SUM0205	GGM 8000 GATEWAY
DISPATCH	CCGW	2	CA01616AA	ADD: AC POWER
DISPATCH	CCGW	2	CA02086AA	ADD: HIGH DENSITY ENH CONV GATEWAY
DISPATCH	AIS	1	TT3492	Z2 G4 MINI WORKSTATION NON RETURNAB
DISPATCH	AIS	1	BVN1013	MKM 7000 Console Alias Manager Soft
DISPATCH	AIS	1	T7885	MCAFEЕ WINDOWS AV CLIENT



SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
DISPATCH	AIS	1	DQHP19LEDMONITOR	HP PRODISPLAY P19A 19-IN LED MONITO
DISPATCH	AIS	1	B1905	MCC 7500 ASTRO 25 SOFTWARE
DISPATCH	AIS	1	B1933	MOTOROLA VOICE PROCESSOR MODULE
DISPATCH	AIS	1	CA00288AB	ADD: MCC 7500 ARCHIVING INTERFACE S
DISPATCH	AIS	1	CA00147AF	ADD: MCC 7500 SECURE OPERATION
DISPATCH	AIS	1	CA00140AA	ADD: AC LINE CORD, NORTH AMERICAN
DISPATCH	AIS	1	CA00143AC	ADD: DES-OFB ALGORITHM
DISPATCH	RACK	3	TRN7343	SEVEN AND A HALF FOOT RACK
DISPATCH	RACK	2	DSTSJADP	RACK MOUNT GROUND BAR, 19 IN FOR TS
DISPATCH	RACK	2	DS11011188	PDU, 120/240 SPLIT PH OR N+1 REDUND
DISPATCH	RACK	24	DS3750297	BREAKER, 15 AMP, CB UL 489 LISTED F
DISPATCH	RACK	2	DSRMP615A	SPD, TYPE 3, 120V RACK MOUNT, 15A P
PDHQ	MPLS	1	T8126	FORTINET FIREWALL APPLIANCE
PDHQ	MPLS	1	DSMW3HE11473AA	MOTOROLA 7705 SAR-A BUNDLE - REDUND
PDHQ	MPLS	4	DSMW3HE00062CB	SFP - GIGE BASE-T RJ45 R6/6 DDM -40
PDHQ	MPLS	2	DSMW3HE00028CA	SFP - GIGE LX - LC ROHS 6/6 DDM -40
DPW	MPLS	1	DSMW3HE11473AA	MOTOROLA 7705 SAR-A BUNDLE - REDUND
DPW	MPLS	4	DSMW3HE00062CB	SFP - GIGE BASE-T RJ45 R6/6 DDM -40
DPW	MPLS	2	DSMW3HE00028CA	SFP - GIGE LX - LC ROHS 6/6 DDM -40
WATER TANK	MPLS	1	DSMW3HE11473AA	MOTOROLA 7705 SAR-A BUNDLE - REDUND
WATER TANK	MPLS	4	DSMW3HE00062CB	SFP - GIGE BASE-T RJ45 R6/6 DDM -40
WATER TANK	MPLS	2	DSMW3HE00028CA	SFP - GIGE LX - LC ROHS 6/6 DDM -40
RemoteCNSL	MPLS	1	DSMW3HE11473AA	MOTOROLA 7705 SAR-A BUNDLE - REDUND
RemoteCNSL	MPLS	4	DSMW3HE00062CB	SFP - GIGE BASE-T RJ45 R6/6 DDM -40
RemoteCNSL	MPLS	2	DSMW3HE00028CA	SFP - GIGE LX - LC ROHS 6/6 DDM -40
REMOTE	SOFTWARE	1	B1949	MCC 7500E SOFTWARE DVD
REMOTE	OP_POS	1	B1948	MCC 7500E DISPATCH POSITION LICENSE

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Radio System Upgrade

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
REMOTE	OP_POS	2	UA00250AA	ADD: 30 RADIO RESOURCES LICENSE
REMOTE	OP_POS	2	UA00653AA	ADD: BASIC CONSOLE OPERATION
REMOTE	OP_POS	2	UA00654AA	ADD: ASTRO 25 TRUNKING OPERATION
REMOTE	OP_POS	2	UA00655AA	ADD: ADVANCED CONVENTIONAL OPERATIO
REMOTE	OP_POS	2	UA00658AA	ADD: SECURE OPERATION
REMOTE	OP_POS	1	UA00659AA	ADD: ADP/AES/DES-OFB ENCRYPTION
REMOTE	OP_POS	2	TT3492	Z2 G4 MINI WORKSTATION NON RETURNAB
REMOTE	OP_POS	2	DSTG221B	TECH GLOBAL EVOLUTION SERIES 22INCH
REMOTE	OP_POS	1	DSF2B56AA	USB EXTERNAL DVD DRIVE
REMOTE	OP_POS	2	DSST7300U3M	STARTECH 7 PORT USB 3.0 HUB
REMOTE	OP_POS	2	DSTWIN6328A	PROVIDES ONE DUAL PEDAL FOOTSWITCH
REMOTE	OP_POS	2	T7449	WINDOWS SUPPLEMENTAL TRANS CONFIG
REMOTE	OP_POS	2	RLN6098	HDST MODULE BASE W/PTT, 15 FT CBL
REMOTE	OP_POS	2	T7885	MCAFEE WINDOWS AV CLIENT
REMOTE	OP_POS	2	B1941	USB AUDIO INTERFACE MODULE
REMOTE	OP_POS	2	B1913	MCC SERIES HEADSET JACK
REMOTE	OP_POS	2	B1951	MICROPHONE, DESKTOP, USB
REMOTE	OP_POS	2	CA03412AA	ADD: USB CABLE, TYPE C TO TYPE C, 4
REMOTE	OP_POS	4	B1952	SPEAKER, DESKTOP, USB
REMOTE	OP_POS	4	CA03405AA	ADD: POWER SUPPLY WITH DC CORD
REMOTE	OP_POS	4	CA03406AA	ADD: AC LINE CORD, NORTH AMERICA
REMOTE	OP_POS	4	CA03413AA	ADD: USB CABLE, TYPE A TO TYPE C, 4
REMOTE	NETWORK	2	T8492	SITE ROUTER & FIREWALL- AC
REMOTE	NETWORK	2	CA03445AA	ADD: MISSION CRITICAL HARDENING
REMOTE	NETWORK	2	CA03448AA	ADD: STATEFUL FIREWALL
REMOTE	NETWORK	2	CLN1868	2930F 24-PORT SWITCH
REMOTE	CCGW	1	SQM01SUM0205	GGM 8000 GATEWAY
REMOTE	CCGW	1	CA01616AA	ADD: AC POWER



SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
REMOTE	CCGW	1	CA02086AA	ADD: HIGH DENSITY ENH CONV GATEWAY
REMOTE	GCP8000	1	T7038	GCP 8000 SITE CONTROLLER
REMOTE	GCP8000	1	CA00303AA	ADD: QTY (1) SITE CONTROLLER
REMOTE	GCP8000	1	X153AW	ADD: RACK MOUNT HARDWARE
REMOTE	GCP8000	1	CA01136AA	MCC 7500 CONVEN SITE OPER
REMOTE	GCP8000	1	CA03677AA	ADD: ASTRO SYSTEM RELEASE 2020.1
REMOTE	AUX IO	1	F4543	SITE MANAGER BASIC
REMOTE	AUX IO	1	VA00874	ADD: AUX I-O SERV FW CURR ASTRO REL
REMOTE	AUX IO	3	V592	AAD TERM BLCK & CONN WI
REMOTE	AUX IO	1	V266	ADD: 90VAC TO 260VAC PS TO SM
REMOTE	AUX IO	1	F4548	SM IO EXPANSION ADVANCED
REMOTE	AUX IO	1	V266	ADD: 90VAC TO 260VAC PS TO SM
REMOTE	AUX IO	3	V592	AAD TERM BLCK & CONN WI
REMOTE	RACK	1	TRN7343	SEVEN AND A HALF FOOT RACK
REMOTE	EDGE PNL	1	DS11011188	PDU, 120/240 SPLIT PH OR N+1 REDUND
REMOTE	EDGE PNL	12	DS3750297	BREAKER, 15 AMP, CB UL 489 LISTED F
REMOTE	UPS	1	DSGXTR27001021	UPS, GXT RACKMOUNT 3KVA/2.7KW, 21 M
Spares	Spares	2	DLN6781	FRU: POWER SUPPLY
Spares	Spares	2	DLN6898	FRU: FAN MODULE
Spares	Spares	2	DLN6966	FRU: GCP 8000/GCM 8000/GPB 8000
Spares	Spares	1	TT3492	Z2 G4 MINI WORKSTATION NON RETURNAB
Spares	Spares	1	B1913	MCC SERIES HEADSET JACK
Spares	Spares	1	B1914	MCC SERIES DESKTOP GOOSENECK MICROP
Spares	Spares	1	B1933	MOTOROLA VOICE PROCESSOR MODULE
Spares	Spares	1	CA00140AA	ADD: AC LINE CORD, NORTH AMERICAN
Spares	Spares	1	CA01642AA	ADD: MCC 7500 BASIC CONSOLE FUNCTIO
Spares	Spares	1	CA01643AA	ADD: MCC 7500 / MCC 7100 TRUNKING

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Radio System Upgrade

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
Spares	Spares	1	CA01644AA	ADD: MCC 7500 /MCC 7100 ADV CONVL O
Spares	Spares	1	CA00147AF	ADD: MCC 7500 SECURE OPERATION
Spares	Spares	1	CA00182AB	ADD: AES ALGORITHM
Spares	Spares	1	CA01645AA	ADD: MCC 7500/MCC 7100 IED OPERATI
Spares	Spares	1	SQM01SUM0205	GGM 8000 GATEWAY
Spares	Spares	1	CA01616AA	ADD: AC POWER
Spares	Spares	1	CA02086AA	ADD: HIGH DENSITY ENH CONV GATEWAY
Spares	Spares	1	T8492	SITE ROUTER & FIREWALL- AC
Spares	Spares	1	CA03445AA	ADD: MISSION CRITICAL HARDENING
Spares	Spares	1	CA03448AA	ADD: STATEFUL FIREWALL
Spares	Spares	1	CLN1868	2930F 24-PORT SWITCH
Spares	Spares	1	DSF2B56AA	USB EXTERNAL DVD DRIVE
Spares	Spares	1	DSTWIN6328A	PROVIDES ONE DUAL PEDAL FOOTSWITCH
Spares	Spares	1	DSTWIN6328A	PROVIDES ONE DUAL PEDAL FOOTSWITCH
Spares	Spares	1	B1941	USB AUDIO INTERFACE MODULE
Spares	Spares	1	B1951	MICROPHONE, DESKTOP, USB
Spares	Spares	1	CA03412AA	ADD: USB CABLE, TYPE C TO TYPE C, 4
Spares	Spares	1	B1952	SPEAKER, DESKTOP, USB
Spares	Spares	1	CA03405AA	ADD: POWER SUPPLY WITH DC CORD
Spares	Spares	1	CA03406AA	ADD: AC LINE CORD, NORTH AMERICA
Spares	Spares	1	CA03413AA	ADD: USB CABLE, TYPE A TO TYPE C, 4
Spares	Spares	2	DLN6895	FRU: PA 7/800 MHz
Spares	Spares	2	DLN6885	FRU: XCVR 7/800 MHZ V2
Spares	Spares	1	DSTRAK91061	FOUR PORT DDM
PDHQ	ANTENNA	1	DSDS7C09F36UD	764-869MHZ SINGLE OMNI ANTENNA, 9D
TX ANTENNA	UPPERJUMPR	10	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
TX ANTENNA	UPPERJUMPR	2	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
TX ANTENNA	MAINLINE	135	L3599	AVA6-50 CABLE: 1-1/4" AVA6-50, COAX

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
TX ANTENNA	MAINLINE	2	DS114EZDF	114EZ DIN FEMALE CONNECTOR
TX ANTENNA	SURGE	1	DSTSXD FMBF	RF SPD, 698-2700MHZ DC BLOCK HIGH P
TX ANTENNA	LOWERJUMPR	25	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
TX ANTENNA	LOWERJUMPR	2	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
PDHQ	ANTENNA	2	DSDS7C09F36UD	764-869MHZ SINGLE OMNI ANTENNA, 9D
RX ANTENNA	UPPERJUMPR	20	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	UPPERJUMPR	2	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	UPPERJUMPR	2	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
RX ANTENNA	UPPERJUMPR	20	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	UPPERJUMPR	2	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	UPPERJUMPR	2	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
RX ANTENNA	TTAJUMPR	10	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	TTAJUMPR	4	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	TTAJUMPR	10	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	TTAJUMPR	4	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	MAINLINE	380	L3599	AVA6-50 CABLE: 1-1/4" AVA6-50, COAX
RX ANTENNA	MAINLINE	4	DS114EZNF	TYPE N FEMALE FOR 1-1/4 IN FXL1480
RX ANTENNA	MAINLINE	190	L3599	AVA6-50 CABLE: 1-1/4" AVA6-50, COAX
RX ANTENNA	MAINLINE	2	DS114EZNF	TYPE N FEMALE FOR 1-1/4 IN FXL1480
ANT SYS	ANTACC	7	DSSG1206B2A	SG12-06B2A 1/2IN SURE GROUND GROUND
ANT SYS	ANTACC	13	TDN6670	40417 CABLE TIES NYLON (1 EA= 1 BAG
ANT SYS	ANTACC	13	TDN7752	31769-1 3/8" HARDWARE KIT, QTY 10
ANT SYS	ANTACC	2	DSL4SGRIP	L4SGRIP SUPPORT HOIST GRIP 1/2" LDF
ANT SYS	ANTACC	3	TDN9289	221213 CABLE WRAP WEATHERPROOFING
ANT SYS	ANTACC	1	DSSEC412	SEC-412 SNAP-SEAL ENTRY CUSHION 4 X
ANT SYS	ANTACC	13	DSSG11406B2A	SG114-06B2A 1-1/4" SURE GROUND GROU
ANT SYS	ANTACC	16	TDN7519	42396A-1 1-1/4" CABLE HANGER KIT ST

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Radio System Upgrade

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
RX ANTENNA	SURGE	1	DS1090501WA	RF SPD, 700-1000MHZ BROADBAND 15 VD
ANT SYS	ANTACC	16	TDN7752	31769-1 3/8" HARDWARE KIT, QTY 10
RX ANTENNA	SURGE	1	DS1090501WA	RF SPD, 700-1000MHZ BROADBAND 15 VD
ANT SYS	ANTACC	3	DSL6SGRIP	L6SGRIP 1-1/4" SUPPORT HOIST GRIP
RX ANTENNA	SURGE	1	DS1090501WA	RF SPD, 700-1000MHZ BROADBAND 15 VD
ANT SYS	ANTACC	9	TDN9289	221213 CABLE WRAP WEATHERPROOFING
ANT SYS	ANTACC	3	DSSEC1114	SEC-1114 SNAP - SEAL ENTRY CUSHION
RX ANTENNA	TESTLINE	200	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	TESTLINE	1	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	TESTLINE	1	DDN1089	L4TNF-PSA TYPE N FEMALE PS FOR 1/2
RX ANTENNA	TESTLINE	25	L1700	FSJ1-50A CABLE: 1/4" SUPERFLEX POLY
RX ANTENNA	LOWERJUMPR	25	L1702	FSJ4-50B CABLE: 1/2" SUPERFLEX POLY
RX ANTENNA	LOWERJUMPR	2	DDN9682	F4PNMV2-HC 1/2" TYPE N MALE PLATED
RX ANTENNA	LOWERJUMPR	25	L1702	FSJ4-50B CABLE: 1/2" SUPERFLEX POLY
RX ANTENNA	LOWERJUMPR	2	DDN9682	F4PNMV2-HC 1/2" TYPE N MALE PLATED
DPW	ANTENNA	1	DSDS7C09F36UD	764-869MHZ SINGLE OMNI ANTENNA, 9D
TX ANTENNA	UPPERJUMPR	10	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
TX ANTENNA	UPPERJUMPR	2	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
TX ANTENNA	MAINLINE	210	L3599	AVA6-50 CABLE: 1-1/4" AVA6-50, COAX
TX ANTENNA	MAINLINE	2	DS114EZDF	114EZ DIN FEMALE CONNECTOR
TX ANTENNA	SURGE	1	DSTSXD FMBF	RF SPD, 698-2700MHZ DC BLOCK HIGH P
TX ANTENNA	LOWERJUMPR	25	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
TX ANTENNA	LOWERJUMPR	2	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
DPW	ANTENNA	2	DSDS7C09F36UD	764-869MHZ SINGLE OMNI ANTENNA, 9D
RX ANTENNA	UPPERJUMPR	20	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	UPPERJUMPR	2	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	UPPERJUMPR	2	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
RX ANTENNA	UPPERJUMPR	20	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
RX ANTENNA	UPPERJUMPR	2	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	UPPERJUMPR	2	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
RX ANTENNA	TTAJUMPR	10	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	TTAJUMPR	4	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	TTAJUMPR	10	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	TTAJUMPR	4	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	MAINLINE	420	L3599	AVA6-50 CABLE: 1-1/4" AVA6-50, COAX
RX ANTENNA	MAINLINE	4	DS114EZNF	TYPE N FEMALE FOR 1-1/4 IN FXL1480
RX ANTENNA	MAINLINE	210	L3599	AVA6-50 CABLE: 1-1/4" AVA6-50, COAX
RX ANTENNA	MAINLINE	2	DS114EZNF	TYPE N FEMALE FOR 1-1/4 IN FXL1480
ANT SYS	ANTACC	5	DSSG1206B2A	SG12-06B2A 1/2IN SURE GROUND GROUND
ANT SYS	ANTACC	7	TDN6670	40417 CABLE TIES NYLON (1 EA= 1 BAG
ANT SYS	ANTACC	7	TDN7752	31769-1 3/8" HARDWARE KIT, QTY 10
ANT SYS	ANTACC	2	DSL4SGRIP	L4SGRIP SUPPORT HOIST GRIP 1/2" LDF
ANT SYS	ANTACC	3	TDN9289	221213 CABLE WRAP WEATHERPROOFING
ANT SYS	ANTACC	1	DSSEC412	SEC-412 SNAP-SEAL ENTRY CUSHION 4 X
ANT SYS	ANTACC	22	DSSG11406B2A	SG114-06B2A 1-1/4" SURE GROUND GROU
ANT SYS	ANTACC	35	TDN7519	42396A-1 1-1/4" CABLE HANGER KIT ST
ANT SYS	ANTACC	35	TDN7752	31769-1 3/8" HARDWARE KIT, QTY 10
ANT SYS	ANTACC	6	DSL6SGRIP	L6SGRIP 1-1/4" SUPPORT HOIST GRIP
ANT SYS	ANTACC	12	TDN9289	221213 CABLE WRAP WEATHERPROOFING
ANT SYS	ANTACC	4	DSSEC1114	SEC-1114 SNAP - SEAL ENTRY CUSHION
RX ANTENNA	SURGE	1	DS1090501WA	RF SPD, 700-1000MHZ BROADBAND 15 VD
RX ANTENNA	SURGE	1	DS1090501WA	RF SPD, 700-1000MHZ BROADBAND 15 VD
RX ANTENNA	SURGE	1	DS1090501WA	RF SPD, 700-1000MHZ BROADBAND 15 VD
RX ANTENNA	TESTLINE	200	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	TESTLINE	1	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN

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Radio System Upgrade

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
RX ANTENNA	TESTLINE	1	DDN1089	L4TNF-PSA TYPE N FEMALE PS FOR 1/2
RX ANTENNA	TESTLINE	25	L1700	FSJ1-50A CABLE: 1/4" SUPERFLEX POLY
RX ANTENNA	LOWERJUMPR	25	L1702	FSJ4-50B CABLE: 1/2" SUPERFLEX POLY
RX ANTENNA	LOWERJUMPR	2	DDN9682	F4PNMV2-HC 1/2" TYPE N MALE PLATED
RX ANTENNA	LOWERJUMPR	25	L1702	FSJ4-50B CABLE: 1/2" SUPERFLEX POLY
RX ANTENNA	LOWERJUMPR	2	DDN9682	F4PNMV2-HC 1/2" TYPE N MALE PLATED
ANT SYS	RFDS	1	DS432E83I14294T	TTA, DUAL DIVERSITY, 796-824MHZ, RE
ANT SYS	RFDS	1	DS432E83I17272C48	CONTROL MONITORING UNIT, 796-824MHZ
WATER TANK	ANTENNA	1	DSDS7C09F36UD	764-869MHZ SINGLE OMNI ANTENNA, 9D
TX ANTENNA	UPPERJUMPR	10	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
TX ANTENNA	UPPERJUMPR	2	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
TX ANTENNA	MAINLINE	230	L3599	AVA6-50 CABLE: 1-1/4" AVA6-50, COAX
TX ANTENNA	MAINLINE	2	DS114EZDF	114EZ DIN FEMALE CONNECTOR
TX ANTENNA	SURGE	1	DSTSXD FMBF	RF SPD, 698-2700MHZ DC BLOCK HIGH P
TX ANTENNA	LOWERJUMPR	25	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
TX ANTENNA	LOWERJUMPR	2	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
RX ANTENNA	UPPERJUMPR	10	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	UPPERJUMPR	1	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	UPPERJUMPR	1	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
WATER TANK	ANTENNA	2	DSDS7C09F36UD	764-869MHZ SINGLE OMNI ANTENNA, 9D
RX ANTENNA	UPPERJUMPR	20	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	UPPERJUMPR	2	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	UPPERJUMPR	2	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
RX ANTENNA	TTAJUMPR	10	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	TTAJUMPR	4	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	TTAJUMPR	10	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	TTAJUMPR	4	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	MAINLINE	460	L3599	AVA6-50 CABLE: 1-1/4" AVA6-50, COAX

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
RX ANTENNA	MAINLINE	4	DS114EZN	TYPE N FEMALE FOR 1-1/4 IN FXL1480
RX ANTENNA	MAINLINE	230	L3599	AVA6-50 CABLE: 1-1/4" AVA6-50, COAX
RX ANTENNA	MAINLINE	2	DS114EZN	TYPE N FEMALE FOR 1-1/4 IN FXL1480
RX ANTENNA	SURGE	1	DS1090501WA	RF SPD, 700-1000MHZ BROADBAND 15 VD
RX ANTENNA	SURGE	1	DS1090501WA	RF SPD, 700-1000MHZ BROADBAND 15 VD
RX ANTENNA	SURGE	1	DS1090501WA	RF SPD, 700-1000MHZ BROADBAND 15 VD
RX ANTENNA	TESTLINE	200	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
RX ANTENNA	TESTLINE	1	DDN1088	L4TNM-PSA TYPE N MALE PS FOR 1/2 IN
RX ANTENNA	TESTLINE	1	DDN1089	L4TNF-PSA TYPE N FEMALE PS FOR 1/2
RX ANTENNA	TESTLINE	25	L1700	FSJ1-50A CABLE: 1/4" SUPERFLEX POLY
RX ANTENNA	LOWERJUMPR	25	L1702	FSJ4-50B CABLE: 1/2" SUPERFLEX POLY
RX ANTENNA	LOWERJUMPR	2	DDN9682	F4PNMV2-HC 1/2" TYPE N MALE PLATED
RX ANTENNA	LOWERJUMPR	25	L1702	FSJ4-50B CABLE: 1/2" SUPERFLEX POLY
RX ANTENNA	LOWERJUMPR	2	DDN9682	F4PNMV2-HC 1/2" TYPE N MALE PLATED
ANT SYS	ANTACC	5	DSSG1206B2A	SG12-06B2A 1/2IN SURE GROUND GROUND
ANT SYS	ANTACC	7	TDN6670	40417 CABLE TIES NYLON (1 EA= 1 BAG
ANT SYS	ANTACC	7	TDN7752	31769-1 3/8" HARDWARE KIT, QTY 10
ANT SYS	ANTACC	1	DSL4SGRIP	L4SGRIP SUPPORT HOIST GRIP 1/2" LDF
ANT SYS	ANTACC	3	TDN9289	221213 CABLE WRAP WEATHERPROOFING
ANT SYS	ANTACC	1	DSSEC412	SEC-412 SNAP-SEAL ENTRY CUSHION 4 X
ANT SYS	ANTACC	24	DSSG11406B2A	SG114-06B2A 1-1/4" SURE GROUND GROU
ANT SYS	ANTACC	34	TDN7519	42396A-1 1-1/4" CABLE HANGER KIT ST
ANT SYS	ANTACC	34	TDN7752	31769-1 3/8" HARDWARE KIT, QTY 10
ANT SYS	ANTACC	6	DSL6SGRIP	L6SGRIP 1-1/4" SUPPORT HOIST GRIP
ANT SYS	ANTACC	15	TDN9289	221213 CABLE WRAP WEATHERPROOFING
ANT SYS	ANTACC	5	DSSEC1114	SEC-1114 SNAP - SEAL ENTRY CUSHION
ANT SYS	RFDS	1	DS432E83114294T	TTA, DUAL DIVERSITY, 796-824MHZ, RE

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Radio System Upgrade

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
ANT SYS	RFDS	1	DS432E83I17272C48	CONTROL MONITORING UNIT, 796-824MHZ
MOBILES	APX 8500	22	M37TSS9PW1 N	APX8500 ALL BAND MP MOBILE
MOBILES	APX 8500	22	G806	ENH: ASTRO DIGITAL CAI OP APX
MOBILES	APX 8500	22	G51	ENH: SMARTZONE OPERATION APX
MOBILES	APX 8500	22	G361	ENH: P25 TRUNKING SOFTWARE APX
MOBILES	APX 8500	22	GA00580	ADD: TDMA OPERATION APX
MOBILES	APX 8500	22	G996	ENH: OVER THE AIR PROVISIONING
MOBILES	APX 8500	22	GA00804	ADD: APX O2 CONTROL HEAD
MOBILES	APX 8500	22	G444	ADD: APX CONTROL HEAD SOFTWARE
MOBILES	APX 8500	22	G67	ADD: REMOTE MOUNT O3 MP FOR CBP
MOBILES	APX 8500	22	GA01517AA	DEL: NO J600 ADAPTER CABLE NEEDED
MOBILES	APX 8500	22	G892	ENH: HAND MIC,GCAI WATER RESISTANT
MOBILES	APX 8500	22	G831	ADD: SPKR 15W WATER RESISTANT
MOBILES	APX 8500	22	G78	ADD: 3Y ESSENTIAL SERVICE
MOBILES	APX 8500	22	G851	ADD: AES/DES-XL/DES-OFB ENCRYPTION
MOBILES	APX 8500	22	W969	ADD: MULTIPLE KEY ENCRYPTION OPERAT
MOBILES	APX 8500	22	G89	ADD: NO RF ANTENNA NEEDED
MOBILES	APX 8500	22	GA00235	ADD: NO GPS ANTENNA NEEDED
MOBILES	APX 8500	22	H1919	MULTIPLEXER QMA
MOBILES	APX 8500	22	HAF4013	ANTENNA (762-870 MHZ) 3DB LOW-PROFI
MOBILES	APX 8500	22	HAE6016	ANT LOW PROFILE 450-512 MHZ
MOBILES	APX 8500	22	HAD4017A	ANT ROOF MT WB VHF 146/174
PORTALBES	APX 8000	70	H91TGD9PW5 N	APX 8000 ALL BAND PORTABLE MODEL 1.
PORTALBES	APX 8000	70	Q806	ADD: ASTRO DIGITAL CAI OPERATION
PORTALBES	APX 8000	70	H38	ADD: SMARTZONE OPERATION
PORTALBES	APX 8000	70	Q361	ADD: P25 9600 BAUD TRUNKING
PORTALBES	APX 8000	70	QA00580	ADD: TDMA OPERATION
PORTALBES	APX 8000	70	G996	ADD: PROGRAMMING OVER P25 (OTAP)



SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
PORTALBES	APX 8000	70	Q58	ADD: 3Y ESSENTIAL SERVICE
PORTALBES	APX 8000	70	Q15	ENH: AES/DES,DES-XL,DES-OFB AND ADP
PORTALBES	APX 8000	70	H869	ENH: MULTIKEY
PORTALBES		70	PMMN4069AL	MICROPHONE,IMPRES RSM, 3.5MM JACK,
PORTALBES		3	NNTN8897A	CHGR DESKTOP MULTI UNIT IMPRES 2 1
PORTALBES		70	NNTN8855A	CHARGER, SINGLE-UNIT, IMPRES 2, 3A,
CNTRL STAT	APX 8500	4	L37TSS9PW1 N	ALL BAND CONSOLETTTE
CNTRL STAT	APX 8500	4	G806	ENH: ASTRO DIGITAL CAI OP APX
CNTRL STAT	APX 8500	4	G51	ENH: SMARTZONE OPERATION APX
CNTRL STAT	APX 8500	4	G361	ENH: P25 TRUNKING SOFTWARE APX
CNTRL STAT	APX 8500	4	GA00580	ADD: TDMA OPERATION APX
CNTRL STAT	APX 8500	4	G90	ADD: NO MICROPHONE NEEDED
CNTRL STAT	APX 8500	4	G851	ADD: AES/DES-XL/DES-OFB ENCRYPTION
CNTRL STAT	APX 8500	4	L999	ADD: FULL FP W/05/KEYPAD/CLOCK/VU
CNTRL STAT	APX 8500	4	CA01598	ADD: AC LINE CORD US
CNTRL STAT	APX 8500	4	GA00469	ENH: EXTENDED DISPATCH APX CONSOLETT
CNTRL STAT	APX 8500	4	G78	ADD: 3Y ESSENTIAL SERVICE
CNTRL STAT	APX 8500	4	G996	ENH: OVER THE AIR PROVISIONING
CNTRL STAT	APX 8500	4	W969	ADD: MULTIPLE KEY ENCRYPTION OPERAT
CNTRL STAT	APX 8500	4	HKN6233C	APX CONSOLETTTE RACK MOUNT KIT
Ant	APX Cnsl	3	DSCS0496080531	SHORT HAUL CONTROL STATION COMBINER
Ant	APX Cnsl	1	DSDS1F00F36UD	ANTENNA, 150-164MHZ UNITY GAIN SING
Ant	APX Cnsl	1	DSDS4C00F36UD	DS4C00F36U-D, UNITY GAIN 450-482MHZ
Ant	APX Cnsl	1	DSCOL81806	OMNI, MEANDER COLLINER, 0DBD, 746-
Ant	APX Cnsl	3	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
Ant	APX Cnsl	90	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
Ant	APX Cnsl	3	DDN1089	L4TNF-PSA TYPE N FEMALE PS FOR 1/2

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Radio System Upgrade

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
Ant	APX Cnsl	3	DSISB50LNC2MA	RF SPD, 125-1000MHZ DC BLOCK BROADB
Ant	APX Cnsl	3	DSSG1206B2A	SG12-06B2A 1/2IN SURE GROUND GROUND
Ant	APX Cnsl	12	DSEZ400NMC2D	TIMES MICROWAVE EZ N MALE CLAMP FOR
Ant	APX Cnsl	300	DSLMR400DB	TIMES MIC. 3/8IN LMR400DB FLOOD, OU
Deskset	MCD 5000	4	F2380	MCD 5000 DESKSET
Deskset	MCD 5000	1	F7879	SM, RADIO GATEWAY UNIT (RGU)
Deskset	MCD 5000	5	FHN7469	MCD 5000 DESKSET / RGU POWER SUPPLY
Deskset	MCD 5000	1	FVN5847	MCD 5000 DESKSET SYSTEM CONFIG TOOL
Deskset	MCD 5000	1	FTN7490	MCD 5000 DESKSET RGU RACK MOUNT PAN
Deskset		1	CLN1856	2620-24 ETHERNET SWITCH
DVRS		1	TT2046	700MHZ DVR TRANSPORTABLE IN-BAND AP
DVRS		1	TT06075AA	DVR STANDARD 120VAC POWER SUPPLY
DVRS		1	TT06070AA	DVR STANDARD BLACK SUITCASE
DVRS		1	TT05715AA	DVR/VRX FOR USE WITH SINGLE BAND AP
DVRS		1	HAF4016	ANTENNA (762-870 MHZ) 1/4 WAVE
DVRS		2	DDN2088	DVR IN-BAND 1 YEAR EXTENDED WARRANTY
MOBILES	APX 8500	36	M37TSS9PW1 N	APX8500 ALL BAND MP MOBILE
MOBILES	APX 8500	36	G806	ENH: ASTRO DIGITAL CAI OP APX
MOBILES	APX 8500	36	G51	ENH: SMARTZONE OPERATION APX
MOBILES	APX 8500	36	G361	ENH: P25 TRUNKING SOFTWARE APX
MOBILES	APX 8500	36	GA00580	ADD: TDMA OPERATION APX
MOBILES	APX 8500	36	GA00804	ADD: APX O2 CONTROL HEAD
MOBILES	APX 8500	36	G444	ADD: APX CONTROL HEAD SOFTWARE
MOBILES	APX 8500	36	G67	ADD: REMOTE MOUNT O3 MP FOR CBP
MOBILES	APX 8500	36	GA01517AA	DEL: NO J600 ADAPTER CABLE NEEDED
MOBILES	APX 8500	36	G892	ENH: HAND MIC,GCAI WATER RESISTANT
MOBILES	APX 8500	36	G831	ADD: SPKR 15W WATER RESISTANT
MOBILES	APX 8500	36	G78	ADD: 3Y ESSENTIAL SERVICE



SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
MOBILES	APX 8500	36	G89	ADD: NO RF ANTENNA NEEDED
MOBILES	APX 8500	36	GA00235	ADD: NO GPS ANTENNA NEEDED
MOBILES	APX 8500	36	H1919	MULTIPLEXER QMA
MOBILES	APX 8500	36	HAF4013	ANTENNA (762-870 MHZ) 3DB LOW-PROFI
MOBILES	APX 8500	36	HAE6016	ANT LOW PROFILE 450-512 MHZ
MOBILES	APX 8500	36	HAD4017A	ANT ROOF MT WB VHF 146/174
PORTALBES	APX 8000	75	H91TGD9PW5 N	APX 8000 ALL BAND PORTABLE MODEL 1.
PORTALBES	APX 8000	75	QA02006	ENH: APX8000XE RUGGED RADIO
PORTALBES	APX 8000	75	Q806	ADD: ASTRO DIGITAL CAI OPERATION
PORTALBES	APX 8000	75	H38	ADD: SMARTZONE OPERATION
PORTALBES	APX 8000	75	Q361	ADD: P25 9600 BAUD TRUNKING
PORTALBES	APX 8000	75	QA00580	ADD: TDMA OPERATION
PORTALBES	APX 8000	75	G996	ADD: PROGRAMMING OVER P25 (OTAP)
PORTALBES	APX 8000	75	Q58	ADD: 3Y ESSENTIAL SERVICE
PORTALBES	APX 8000	75	QA01427	ALT:APX 8000 HOUSING GREEN
PORTALBES	APX 8000	75	PMMN4106CBK	XE500 BLACK HOSUING, CHANNEL KNOB,
PORTALBES		10	NNTN8897A	CHGR DESKTOP MULTI UNIT IMPRES 2 1
PORTALBES		40	NNTN8855A	CHARGER, SINGLE-UNIT, IMPRES 2, 3A,
CNTRL STAT	APX 8500	4	L37TSS9PW1 N	ALL BAND CONSOLETTTE
CNTRL STAT	APX 8500	4	G806	ENH: ASTRO DIGITAL CAI OP APX
CNTRL STAT	APX 8500	4	G51	ENH: SMARTZONE OPERATION APX
CNTRL STAT	APX 8500	4	G361	ENH: P25 TRUNKING SOFTWARE APX
CNTRL STAT	APX 8500	4	GA00580	ADD: TDMA OPERATION APX
CNTRL STAT	APX 8500	4	G90	ADD: NO MICROPHONE NEEDED
CNTRL STAT	APX 8500	4	L999	ADD: FULL FP W/05/KEYPAD/CLOCK/VU
CNTRL STAT	APX 8500	4	CA01598	ADD: AC LINE CORD US
CNTRL STAT	APX 8500	4	GA00469	ENH: EXTENDED DISPATCH APX CONSOLE

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Radio System Upgrade

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
CNTRL STAT	APX 8500	4	G78	ADD: 3Y ESSENTIAL SERVICE
Ant	APX Cnsl	3	DSCS0496080531	SHORT HAUL CONTROL STATION COMBINER
Ant	APX Cnsl	1	DSDS1F00F36UD	ANTENNA, 150-164MHZ UNITY GAIN SING
Ant	APX Cnsl	1	DSDS4C00F36UD	DS4C00F36U-D, UNITY GAIN 450-482MHZ
Ant	APX Cnsl	1	DSCOL81806	OMNI, MEANDER COLLINEAR, 0DBD, 746-
Ant	APX Cnsl	3	DDN1090	L4TDM-PSA 7-16 DIN MALE PS FOR 1/2
Ant	APX Cnsl	90	L1705	LDF4-50A CABLE: 1/2" LDF HELIAX POL
Ant	APX Cnsl	3	DDN1089	L4TNF-PSA TYPE N FEMALE PS FOR 1/2
Ant	APX Cnsl	3	DSISB50LNC2MA	RF SPD, 125-1000MHZ DC BLOCK BROADB
Ant	APX Cnsl	3	DSSG1206B2A	SG12-06B2A 1/2IN SURE GROUND GROUND
Ant	APX Cnsl	12	DSEZ400NMC2D	TIMES MICROWAVE EZ N MALE CLAMP FOR
Ant	APX Cnsl	300	DSLMR400DB	TIMES MIC. 3/8IN LMR400DB FLOOD, OU
Deskset	MCD 5000	18	F2380	MCD 5000 DESKSET
Deskset	MCD 5000	6	F7879	SM, RADIO GATEWAY UNIT (RGU)
Deskset	MCD 5000	24	FHN7469	MCD 5000 DESKSET / RGU POWER SUPPLY
Deskset	MCD 5000	1	FVN5847	MCD 5000 DESKSET SYSTEM CONFIG TOOL
Deskset	MCD 5000	1	FTN7490	MCD 5000 DESKSET RGU RACK MOUNT PAN
Deskset	MCD 5000	6	CLN1856	2620-24 ETHERNET SWITCH
DVRS		10	TT1259	800 MHZ DVR VEHICLE MOUNT IN-BAND
DVRS		10	TT05715AA	DVR/VRX FOR USE WITH SINGLE BAND AP
DVRS		10	TT06279AA	DVR/VRX FOR USE WITH ALL BAND APX85
DVRS		10	HAF4016	ANTENNA (762-870 MHZ) 1/4 WAVE
DVRS		20	DDN2088	DVR IN-BAND 1 YEAR EXTENDED WARRANT
MOBILES	APX1500	60	M36URS9PW1 N	APX1500 7/800
MOBILES	APX1500	60	GA01339	ENH: SW P25 TRUNKING
MOBILES	APX1500	60	GA00580	ADD: TDMA OPERATION
MOBILES	APX1500	60	GA00804	ADD: APX O2 CONTROL HEAD
MOBILES	APX1500	60	G444	ADD: APX CONTROL HEAD SOFTWARE

SUB SYS ID	SUB SYS	QTY	NOMENCLATURE	DESCRIPTION
MOBILES	APX1500	60	G66	ADD: DASH MOUNT O2 WWM
MOBILES	APX1500	60	G24	ADD: 3Y ESSENTIAL SERVICE
MOBILES	APX1500	60	G335	ADD: ANT 1/4 WAVE 762-870MHZ
MOBILES	APX1500	60	G832	ADD: SPKR 7.5W WATER RESISANT
MOBILES	APX1500	60	W22	ADD: STD PALM MICROPHONE APX
PORTALBES	APX1000	23	H84UCF9PW6 N	APX 1000 7/800 MHZ MODEL 2 PORTABLE
PORTALBES	APX1000	23	QA04096	ENH: P25 TRUNKING
PORTALBES	APX1000	23	H885BK	ADD: 3Y ESSENTIAL SERVICE
PORTALBES	APX1000	23	QA00580	ADD: TDMA OPERATION
PORTALBES	APX1000	4	WPLN4212D	IMPRES MUC CHARGER WITH 1 DISPLAY
PORTALBES	APX1000	15	PMMN4099B	IP68 REMOTE SPEAKER MICROPHONE,3.5M
PORTALBES	APX1000	12	PMPN4174A	CHGR DESKTOP SINGLE UNIT IMPRES, US
PORTALBES	APX1000	12	H84UCD9PW5 N	APX 1000 7/800 MHZ MODEL 1.5 PORTAB
PORTALBES	APX1000	12	QA04096	ENH: P25 TRUNKING
PORTALBES	APX1000	12	QA00580	ADD: TDMA OPERATION
PORTALBES	APX1000	12	H885BK	ADD: 3Y ESSENTIAL SERVICE
PORTALBES	APX1000	12	PMPN4174A	CHGR DESKTOP SINGLE UNIT IMPRES, US

7.4 COMMUNICATIONS SYSTEM AND SERVICE AGREEMENT

Motorola Solutions has provided a Communications System and Service Agreement and Exhibits on the following pages.



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Communications System and Services Agreement

Motorola Solutions, Inc. ("Motorola") and the City of Biddeford, ME enter into this "Agreement," pursuant to which Customer will purchase and Motorola will sell the System and Services, 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 ATTACHMENTS

1.1. EXHIBITS. The Exhibits listed below are exhibits related to the System sale and implementation. These Exhibits are incorporated into and made a part of this Agreement.

Exhibit A "Motorola Software License Agreement"

Exhibit B "Payment"

Exhibit C Technical and Implementation Documents

C-1 "System Description" dated 9/27/2020

C-2 "Pricing Summary & Equipment List" dated 9/27/2020

C-3 "Implementation Statement of Work" dated 9/27/2020

C-4 "Acceptance Test Plan" or "ATP" dated 9/27/2020

C-5 "Performance Schedule" dated "intentionally omitted"

Exhibit D "System Acceptance Certificate"

1.2. ADDENDUM (ADDENDA). Customer may elect to purchase professional or subscription services in addition to the System and related services. Any such services will be governed by the terms in the main body of the Agreement and an applicable Addendum containing terms specific to such service. Such Addenda will be labeled with the name of the service being purchased.

1.3 ORDER OF PRECEDENCE. In interpreting this Agreement and resolving any ambiguities: 1) the main body of this Agreement takes precedence over the exhibits (unless otherwise specified in an exhibit), and any inconsistency between Exhibits A through D will be resolved in their listed order, and 2) The applicable service Addendum will take precedence over the main body of the Agreement and the Exhibits.

Section 2 DEFINITIONS

Capitalized terms used in this Agreement have the following meanings:

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

"Addendum (Addenda)" is the title of the document(s) containing a specific set of terms and conditions applicable to a particular service or other offering beyond the Communication System and System implementation services. The terms in the Addendum are applicable only to the specific service or offering described therein.

"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.

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

"Confidential Information" means all information consistent with the fulfillment of this Agreement that is (i) disclosed under this Agreement in oral, written, graphic, machine recognizable, and/or sample form, being clearly designated, labeled or marked as confidential or its equivalent or (ii) obtained by examination, testing or analysis of any hardware, software or any component part thereof provided by discloser to recipient. The nature and existence of this Agreement are considered Confidential Information. Confidential Information that is disclosed orally must be identified as confidential at the time of disclosure and confirmed

by the discloser by submitting a written document to the recipient within thirty (30) days after such disclosure. The written document must contain a summary of the Confidential Information disclosed with enough specificity for identification purpose and must be labeled or marked as confidential or its equivalent.

“Contract Price” means the price for the System and implementation Services, excluding applicable sales or similar taxes and freight charges. Further, unless otherwise stated in Exhibit B, “Payment” or the pricing pages of the proposal, recurring fees for maintenance, SUA, or subscription services are not included in the Contract Price.

“Deliverables” means all written information (such as reports, specifications, designs, plans, drawings, analytics, Solution Data, or other technical or business information) that Motorola prepares for Customer in the performance of the Services and is obligated to provide to Customer under this Agreement. The Deliverables, if any, are more fully described in the Statement of Work.

“Derivative Proprietary Materials” means derivatives of the Proprietary Materials that Motorola may from time to time, including during the course of providing the Services, develop and/or use and/or to which Motorola provides Customer access.

“Effective Date” means that date upon which the last Party executes this Agreement.

“Equipment” means the hardware components of the Solution that Customer purchases from Motorola under this Agreement. Equipment that is part of the System is described in the Equipment List.

“Feedback” means comments or information, in oral or written form, given to Motorola by Customer in connection with or relating to Equipment or Services, during the term of this Agreement.

“Force Majeure” means an event, circumstance, or act that is beyond a Party’s reasonable control, such as an act of God, an act of the public enemy, an act of a government entity, strikes, other labor disturbances, supplier performance, hurricanes, earthquakes, fires, floods, epidemics, embargoes, war, riots, or any other similar cause.

“Motorola Software” means software that Motorola or its affiliated companies owns.

“Non-Motorola Software” means software that a party other than Motorola or its affiliated companies owns.

“Open Source Software” (also called “freeware” or “shareware”) means software with either freely obtainable source code, license for modification, or permission for free distribution.

“Proprietary Materials” means certain software tools and/or other technical materials, including, but not limited to, data, modules, components, designs, utilities, subsets, objects, program listings, models, methodologies, programs, systems, analysis frameworks, leading practices and specifications which Motorola has developed prior to, or independently from, the provision of the Services and/or which Motorola licenses from third parties.

“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.

“Services” means system implementation, maintenance, support, subscription, or other professional services provided under this Agreement, which may be further described in the applicable Addendum and/or SOW.

“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.

“Software License Agreement” means the Motorola Software License Agreement (Exhibit A).

“Software Support Policy” (“SwSP”) means the policy set forth at <http://www.motorolasolutions.com/softwarepolicy> describing the specific technical support that will be provided to Customers under the Warranty Period and during any paid maintenance support period for Motorola Software. This policy may be modified from time to time at Motorola’s discretion.

“Solution” means the combination of the System(s) and Services provided by Motorola under this Agreement.

“Solution Data” means Customer data that is transformed, altered, processed, aggregated, correlated or operated on by Motorola, its vendors or other data sources and data that has been manipulated or retrieved using Motorola know-how to produce value-added content to data consumers, including customers or citizens which is made available to Customer with the Solution and Services.

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

“SUA” or “SUA II” means Motorola’s Software Upgrade Agreement program.

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

“System” means the Equipment, including incidental hardware and materials, Software, and design, installation and implementation services that are combined together into an integrated system; the System(s) is (are) described in the Technical and Implementation Documents.

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

“System Data” means data created by, in connection with or in relation to Equipment or the performance of Services under this Agreement.

“Warranty Period” for System Hardware, Software, or services related to system implementation means one (1) year from the date of System Acceptance or Beneficial Use, whichever occurs first. Unless otherwise stated in the applicable Addendum, Warranty Period for other Services means ninety (90) days from performance of the Service.

Section 3 SCOPE OF AGREEMENT AND TERM

3.1. **SCOPE OF WORK.** Motorola will provide, install and test the System(s), and perform its other contractual responsibilities to provide the Solution, 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. If a requested change causes an increase or decrease in the cost or time required to perform this Agreement, the Parties will agree to an equitable adjustment of the Contract Price or applicable subscription fees, Performance Schedule, or both, and will reflect the adjustment in a change order or Addendum. 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 Final Project Acceptance or expiration of the Warranty Period, or completion of the Services, whichever occurs last. The term and the effective date of recurring Services will be set forth in the applicable Addendum.

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3.4. ADDITIONAL EQUIPMENT OR SOFTWARE. For three (3) years after the expiration date of the Agreement, Customer may order additional Equipment or Software, if it is then available. Each purchase order must refer to this Agreement, the expiration date of the Agreement, and must specify the pricing and delivery terms. The Parties agree that, notwithstanding expiration of the Agreement, 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. Additional or contrary terms in the purchase order will be inapplicable, unless signed by both parties. Title and risk of loss to additional Equipment will pass at shipment, warranty will commence upon delivery, 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 registration and other information may be found at <https://businessonline.motorolasolutions.com> and the MOL telephone number is (800) 814-0601.

3.5. 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.

3.6. 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. Motorola makes no representations or warranties of any kind regarding Non-Motorola Software. Non-Motorola Software may include Open Source Software.

3.7. 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.

3.8. OPTIONAL EQUIPMENT OR SOFTWARE. This paragraph applies only if a "Priced Options" exhibit is shown in Section 1, or if the parties amend this Agreement to add a Priced Options exhibit. During the term of the option as stated in the Priced Options exhibit (or if no term is stated, then for one (1) year after the Effective Date), Customer has the right and option to purchase the equipment, software, and related services that are described in the Priced Options exhibit. Customer may exercise this option by giving written notice to Seller which must designate what equipment, software, and related services Customer is selecting (including quantities, if applicable). To the extent they apply, the terms and conditions of this Agreement will govern the transaction; however, the parties acknowledge that certain provisions must be agreed upon, and they agree to negotiate those in good faith promptly after Customer delivers the option exercise notice. Examples of provisions that may need to be negotiated are: specific lists of deliverables, statements of work, acceptance test plans, delivery and implementation schedules, payment terms, maintenance and support provisions, additions to or modifications of the Software License Agreement, hosting terms, and modifications to the acceptance and warranty provisions.

Section 4 SERVICES

4.1. If Customer desires and Motorola agrees to continue Services beyond the Term, Customer's

issuance and Motorola's acceptance of a purchase order for Services will serve as an automatic extension of the Agreement for purposes of the continuing Services. Only the terms and conditions applicable to the performance of Services will apply to the extended Agreement.

4.2. During the Warranty Period, in addition to warranty services, Motorola will provide maintenance Services for the Equipment and support for the Motorola Software pursuant to the applicable maintenance and support Statements of Work. Support for the Motorola Software will be in accordance with Motorola's established Software Support Policy. Copies of the SwSP can be found at <http://www.motorolasolutions.com/softwarepolicy> and will be sent by mail, email or fax to Customer upon written request. Maintenance Services and support during the Warranty Period are included in the Contract Price. Unless already included in the Contract Price, if Customer wishes to purchase 1) additional maintenance or software support services during the Warranty Period; or 2) continue or expand maintenance, software support, installation, and/or SUA services after the Warranty Period, Motorola will provide the description of and pricing for such services in a separate proposal document. Unless otherwise agreed by the parties in writing, the terms and conditions in this Agreement applicable to maintenance, support, installation, and/or SUA Services, will be included in the Maintenance and Support Addendum, SUA Addendum, the applicable Statements of Work, and the proposal, (if applicable). These collective terms will govern the provision of such Services.

To obtain any such additional Services, Customer will issue a purchase order referring to this Agreement and the separate proposal document. Omission of reference to this Agreement in Customer's purchase order will not affect the applicability of this Agreement. Motorola's proposal may include a cover page entitled "Service Agreement" or "Installation Agreement", as applicable, and other attachments. These cover pages and other attachments are incorporated into this Agreement by this reference

4.3. PROFESSIONAL AND SUBSCRIPTION SERVICES. If Customer purchases professional or subscription Services as part of the Solution, additional or different terms specific to such Service will be included in the applicable Addendum and will apply to those Services. Customer may purchase additional professional or subscription services by issuing a purchase order referencing this Agreement and Motorola's proposal for such additional services.

4.4. Any information in the form of specifications, drawings, reprints, technical information or otherwise furnished to Customer in providing Services under this Agreement or Motorola data viewed, accessed, will remain Motorola's property, will be deemed proprietary, Confidential Information. This Confidential Information will be promptly returned at Motorola's request.

4.5. TOOLS. All tools, equipment, dies, gauges, models, drawings or other materials paid for or furnished by Motorola for the purpose of providing Services under this Agreement will be and remain the sole property of Motorola. Customer will safeguard all such property while it is in Customer's custody or control, be liable for any loss or damage to this property, and return it to Motorola upon request. This property will be held by Customer for Motorola's use without charge and may be removed from Customer's premises by Motorola at any time without restriction. Upon termination of the contract for any reason, Customer shall return to Motorola all equipment delivered to Customer.

4.6. COVENANT NOT TO EMPLOY. During the term of this Agreement and continuing for a period of two (2) years thereafter, Customer will not hire, engage on contract, solicit the employment of, or recommend employment to any third party of any employee of Motorola or its subcontractors without the prior written authorization of Motorola. This provision applies only to those employees of Motorola or its subcontractors who are responsible for rendering Services under this Agreement. If this provision is found to be overly broad under applicable law, it will be modified as necessary to conform to applicable law.

4.7. CUSTOMER OBLIGATIONS. If the applicable Statement of Work or Addendum contains assumptions that affect the Services or Deliverables, Customer will verify that they are accurate and complete. Any information that Customer provides to Motorola concerning the Services or Deliverables will be accurate and complete in all material respects. Customer will make timely decisions and obtain any required management approvals that are reasonably necessary for Motorola to perform the Services and

its other duties under this Agreement. Unless the Statement of Work states the contrary, Motorola may rely upon and is not required to evaluate, confirm, reject, modify, or provide advice concerning any assumptions and Customer-provided information, decisions and approvals described in this paragraph.

4.8. **ASSUMPTIONS.** If any assumptions or conditions contained in this Agreement, applicable Addenda or Statements of Work prove to be incorrect or if Customer's obligations are not performed, Motorola's ability to perform under this Agreement may be impacted and changes to the Contract Price, subscription fees, project schedule, Deliverables, or other changes may be necessary.

4.9. **NON-PRECLUSION.** If, as a result of the Services performed under this Agreement, Motorola recommends that Customer purchase products or other services, nothing in this Agreement precludes Motorola from participating in a future competitive bidding process or otherwise offering or selling the recommended products or other services to Customer. Customer represents that this paragraph does not violate its procurement or other laws, regulations, or policies.

4.10. **PROPRIETARY MATERIALS.** Customer acknowledges that Motorola may use and/or provide Customer with access to Proprietary Materials and Derivative Proprietary Materials. The Proprietary Materials and the Derivative Proprietary Materials are the sole and exclusive property of Motorola and Motorola retains all right, title and interest in and to the Proprietary Materials and Derivative Proprietary Materials.

4.11. **ADDITIONAL SERVICES.** Any services performed by Motorola outside the scope of this Agreement at the direction of Customer will be considered to be additional Services which are subject to additional charges. Any agreement to perform additional Services will be reflected in a written and executed change order, Addendum or amendment to this Agreement.

Section 5 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 6 CONTRACT PRICE, PAYMENT AND INVOICING

6.1. Customer affirms that a purchase order or notice to proceed is not required for contract performance or for subsequent years of service, if any, and that sufficient funds have been appropriated in accordance with applicable law. The Customer will pay all invoices as received from Motorola and any changes in scope will be subject to the change order process as described in this Agreement. At the time of execution of this Agreement, the Customer will provide all necessary reference information to include on invoices for payment in accordance with this Agreement.

6.2. **CONTRACT PRICE.** The Contract Price in U.S. dollars is \$4,200,405. If applicable, a pricing summary is included with the Payment schedule in Exhibit B. Motorola has priced the Services, Software, and Equipment as an integrated System. A change in Software or Equipment quantities, or Services, may affect the overall Contract Price, including discounts if applicable. Fees for professional, SUA, and/or subscription services which are not included in the Contract Price may be listed in Exhibit B, the pricing pages of the proposal, or the applicable Addendum.

6.3. **INVOICING AND PAYMENT.** Motorola will submit invoices to Customer according to the Payment schedule in Exhibit B. Except for a payment that is due on the Effective Date, Customer will make payments to Motorola within thirty (30) days after the date of each invoice. Customer will make payments when due 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 is 36-1115800.

6.4. 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 shipment. Title to Software will not pass to Customer at any time. Motorola will pack and ship all Equipment in accordance with good commercial practices.

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

Name: Roger Beapre

Address: 39 Alfred Street, Biddeford, ME 04005

Phone: 207-282-5127

Email: roger.beaupre@biddefordmaine.org

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

Name: Roger Beapre

Address: 39 Alfred Street, Biddeford, ME 04005

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

Name: Mark Davis

Address: 41 Lewiston Rd. Gray ME, 04039

Phone: 207-513-1110

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

Section 7 SITES AND SITE CONDITIONS

7.1. ACCESS TO SITES. In addition to its responsibilities described elsewhere in this Agreement, Customer will provide a designated project manager; all necessary 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 worksites 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. If the Statement of Work so indicates, Motorola may assist Customer in the local building permit process.

7.2. 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.

7.3. 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 8 TRAINING

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

Customer will notify Motorola immediately if a date change for a scheduled training program is required. If Motorola incurs additional costs because Customer reschedules a training program less than thirty (30) days before its scheduled start date, Motorola may recover these additional costs.

Section 9 SYSTEM ACCEPTANCE

9.1. 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.

9.2. 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 as a whole will not postpone System Acceptance or Subsystem acceptance, but will be corrected according to a mutually agreed schedule.

9.3. BENEFICIAL USE. Customer acknowledges that 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.

9.4. 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 so indicating on the System Acceptance Certificate.

Section 10 REPRESENTATIONS AND WARRANTIES

10.1. 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, such as natural causes; the construction of a building that adversely affects the microwave path reliability or radio frequency (RF) coverage; the addition of frequencies at System sites that cause RF interference or intermodulation; or Customer changes to load usage or configuration outside the Specifications.

10.2. 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 beyond Motorola's control, this warranty expires eighteen (18) months after the shipment of the Equipment.

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

months after the shipment of the Motorola Software. **Nothing in this Warranty provision is intended to conflict or modify the Software Support Policy. In the event of an ambiguity or conflict between the Software Warranty and Software Support Policy, the Software Support Policy governs.**

10.4. EXCLUSIONS TO EQUIPMENT AND 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.

10.5. SERVICE WARRANTY. During the Warranty Period, Motorola warrants that the Services will be provided in a good and workmanlike manner and will conform in all material respects to the applicable Statement of Work. Services will be free of defects in materials and workmanship for a period of ninety (90) days from the date the performance of the Services are completed. Customer acknowledges that the Deliverables may contain recommendations, suggestions or advice from Motorola to Customer (collectively, "recommendations"). Motorola makes no warranties concerning those recommendations, and Customer alone accepts responsibility for choosing whether and how to implement the recommendations and the results to be realized from implementing them.

10.6. 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 Equipment or Software warranty claim, Motorola will (at its option and at no additional charge to Customer) repair the defective Equipment or Motorola Software, replace it with the same or equivalent product, or refund the price of the defective Equipment or Motorola Software. These actions will be the full extent of Motorola's liability for the warranty claim. In the event of a valid Services warranty claim, Customer's sole remedy is to require Motorola to re-perform the non-conforming Service or to refund, on a pro-rata basis, the fees paid for the non-conforming Service. If this investigation indicates the warranty claim is not valid, then Motorola may invoice Customer for responding to the claim on a time and materials basis using Motorola's then current labor rates. 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.

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

10.8. DISCLAIMER OF OTHER WARRANTIES. THESE WARRANTIES ARE THE COMPLETE WARRANTIES FOR THE EQUIPMENT AND MOTOROLA 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, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE.

Section 11 DELAYS

11.1. 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 (but in no event later than fifteen days) after it discovers the Force Majeure. If a Force Majeure occurs, the Parties will execute a change order to extend the Performance Schedule or applicable Addenda for a time period that is reasonable under the circumstances.

11.2. **PERFORMANCE SCHEDULE DELAYS CAUSED BY CUSTOMER.** If Customer (including its other contractors) delays the Performance Schedule, it will make the promised payments according to the Payment schedule as if no delay occurred; and 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 12 DISPUTES

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

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

12.2. **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 1) 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 2) 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.

12.3. **MEDIATION.** The Parties will choose an independent mediator within thirty (30) days of a notice to mediate from either Party ("Notice of Mediation"). Neither Party may unreasonably withhold consent to the selection of a mediator. 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 a business executive with authority to settle the Dispute.

12.4. **LITIGATION, VENUE and JURISDICTION.** If a Dispute remains unresolved for sixty (60) days after receipt of the Notice of Mediation, either Party may then submit the Dispute to a court of competent jurisdiction in the state in which the System is installed. Each Party irrevocably 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.

12.5. **CONFIDENTIALITY.** All communications pursuant to subsections 12.2 and 12.3 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 13 DEFAULT AND TERMINATION

13.1. **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. The defaulting Party will begin implementing the cure plan immediately after receipt of notice by the other Party that it approves the plan. If Customer is the defaulting Party, Motorola may stop work on the project until it approves the Customer's cure plan.

13.2. **FAILURE TO CURE.** If a defaulting Party fails to cure the default as provided above in Section 13.1, 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. In the event Customer elects to terminate this Agreement for any reason other than default, Customer shall pay Motorola for the conforming Equipment and/or Software delivered and all services performed.

Section 14 INDEMNIFICATION

14.1. **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 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.

14.2. **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.

14.3. PATENT AND COPYRIGHT INFRINGEMENT.

14.3.1. Motorola will defend at its expense any suit brought against Customer to the extent it is based on a third-party claim alleging that the Equipment manufactured by Motorola or the Motorola Software ("Motorola Product") directly infringes a United States patent or copyright ("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.

14.3.2 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 Motorola Product; (b) replace or modify the Motorola Product so that it becomes non-infringing while providing functionally equivalent performance; or (c) accept the return of the Motorola Product and grant Customer a credit for the Motorola Product, less a reasonable charge for depreciation. The depreciation amount will be calculated based upon generally accepted accounting standards.

14.3.3 Motorola will have no duty to defend or indemnify for any Infringement Claim that is based upon: (a) the combination of the Motorola 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 Motorola Product; (c) Motorola Product 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 Motorola Product by a party other than Motorola; (e) use of the Motorola Product in a manner for which the Motorola Product 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 Motorola 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 Motorola Product.

14.3.4. This Section 14 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. In addition, the rights and remedies provided in this Section 14 are subject to and limited by the restrictions set forth in Section 15.

Section 15 LIMITATION OF LIABILITY

Except for personal injury or death, Motorola's total liability, whether for breach of contract, warranty, negligence, strict liability in tort, indemnification, or otherwise, will be limited to the direct damages recoverable under law, but not to exceed the price of the Equipment, Software, or implementation and other one-time Services with respect to which losses or damages are claimed. With respect to all subscription or other ongoing Services and unless as otherwise provided under the applicable Addenda, Motorola's total liability will be limited to the direct damages recoverable under law, but not to exceed the price of twelve (12) months of Services preceding the incident giving rise to the claim. **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, LOSS TIME, DATA, GOODWILL, 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. No action for contract breach or otherwise relating to the transactions contemplated by this Agreement may be brought more than one (1) year after the accrual of the cause of action, except for money due upon an open account.

Section 16 CONFIDENTIALITY AND PROPRIETARY RIGHTS

16.1. CONFIDENTIAL INFORMATION.

16.1.1. Each party is a disclosing party ("Discloser") and a receiving party ("Recipient") under this Agreement. All Deliverables will be deemed to be Motorola's Confidential Information. During the term of this Agreement and for a period of three (3) years from the expiration or termination of this Agreement, Recipient will (i) not disclose Confidential Information to any third party; (ii) restrict disclosure of Confidential Information to only those employees (including, but not limited to, employees of any wholly owned subsidiary, a parent company, any other wholly owned subsidiaries of the same parent company), agents or consultants who must be directly involved with the Confidential Information for the purpose and who are bound by confidentiality terms substantially similar to those in this Agreement; (iii) not copy, reproduce, reverse engineer, decompile, or disassemble any Confidential Information; (iv) use the same degree of care as for its own information of like importance, but at least use reasonable care, in safeguarding against disclosure of Confidential Information; (v) promptly notify Discloser upon discovery of any unauthorized use or disclosure of the Confidential Information and take reasonable steps to regain possession of the Confidential Information and prevent further unauthorized actions or other breach of this Agreement; and (vi) only use the Confidential Information as needed to fulfill this Agreement.

16.1.2. Recipient is not obligated to maintain as confidential, Confidential Information that Recipient can demonstrate by documentation (i) is now available or becomes available to the public without breach of this agreement; (ii) is explicitly approved for release by written authorization of Discloser; (iii) is lawfully obtained from a third party or parties without a duty of confidentiality; (iv) is known to the Recipient prior to such disclosure; or (v) is independently developed by Recipient without the use of any of Discloser's Confidential Information or any breach of this Agreement.

16.1.3. All Confidential Information remains the property of the Discloser and will not be copied or reproduced without the express written permission of the Discloser, except for copies that are absolutely necessary in order to fulfill this Agreement. Within ten (10) days of receipt of Discloser's written request, Recipient will return all Confidential Information to Discloser along with all copies and portions thereof, or certify in writing that all such Confidential Information has been destroyed. However, Recipient may retain one (1) archival copy of the Confidential Information that it may use only in case of a dispute concerning this Agreement. No license, express or implied, in the Confidential Information is granted other than to use the Confidential Information in the manner and to the extent authorized by this Agreement. The Discloser warrants that it is authorized to disclose any Confidential Information it discloses pursuant to this Agreement.

16.2. 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.

16.3 VOLUNTARY DISCLOSURE. Except as required to fulfill its obligations under this Agreement, Motorola will have no obligation to provide Customer with access to its Confidential Information and/or proprietary information. Under no circumstances will Motorola be required to provide any data related to cost and pricing.

16.4 DATA AND FEEDBACK.

16.4.1 To the extent permitted by law, Customer owns all right, title and interest in System Data created solely by it or its agents (hereafter, "Customer Data"), and grants to Motorola the right to use, host, cache, store, reproduce, copy, modify, combine, analyze, create derivatives from, communicate, transmit, publish, display, and distribute such Customer Data.

16.4.2 Motorola owns all right, title and interest in data resulting from System Data that is or has been transformed, altered, processed, aggregated, correlated or operated on (hereafter, "Derivative Data").

16.4.3 Any Feedback given by Customer is and will be entirely voluntary and, even if designated as confidential, will not create any confidentiality obligation for Motorola. Motorola will be free to use, reproduce, license or otherwise distribute and exploit the Feedback without any obligation to Customer. Customer acknowledges that Motorola's receipt of the Feedback does not imply or create recognition by Motorola of either the novelty or originality of any idea. The parties further agree that all fixes, modifications and improvements made to Motorola products or services conceived of or made by Motorola that are based, either in whole or in part, on the Feedback are the exclusive property of Motorola and all right, title and interest in and to such fixes, modifications or improvements to the Motorola product or service will vest solely in Motorola.

Section 17 GENERAL

17.1. **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 date of the invoice. 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.

17.2. **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 this Agreement to any of its affiliates or its right to receive payment without the prior consent of Customer. In addition, in the event Motorola separates one or more of its businesses (each a "Separated Business"), whether by way of a sale, establishment of a joint venture, spin-off or otherwise (each a "Separation Event"), Motorola may, without the prior written consent of the other Party and at no additional cost to Motorola, assign this Agreement such that it will continue to benefit the Separated Business and its affiliates (and Motorola and its affiliates, to the extent applicable) following the Separation Event. Motorola may subcontract any of the work, but subcontracting will not relieve Motorola of its duties under this Agreement.

17.3. **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.

17.4. **SEVERABILITY.** If a court of competent jurisdiction renders any part of this Agreement invalid or unenforceable, that part will be severed and the remainder of this Agreement will continue in full force and effect.

17.5. **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.

17.6. **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.

17.7. **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 provided by the other Party by certified mail, return receipt requested and postage prepaid (or by a recognized courier service, such as Federal Express, UPS, or DHL), or by facsimile with correct answerback received, and will be effective upon receipt.

17.8. **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 or other matters.

17.9 FUTURE REGULATORY REQUIREMENTS. The Parties acknowledge and agree that this is an evolving technological area and therefore, laws and regulations regarding Services and use of Solution may change. Changes to existing Services or the Solution required to achieve regulatory compliance may be available for an additional fee. Any required changes may also impact the price for Services.

17.10. 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.

17.11. ADMINISTRATOR LEVEL ACCOUNT ACCESS. If applicable to the type of System purchased by Customer, Motorola will provide Customer with Administrative User Credentials. Customer agrees to only grant access to the Administrative User Credentials to those personnel with the training and experience to correctly use them. 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 personnel. 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 using the Administrative User Credentials may impact Motorola's ability to perform Services or other obligations under the 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.

17.12. SURVIVAL OF TERMS. The following provisions will survive the expiration or termination of this Agreement for any reason: Section 3.5 (Motorola Software); Section 3.6 (Non-Motorola Software); if any payment obligations exist, Sections 6.2 and 6.3 (Contract Price and Invoicing and Payment); Subsection 10.8 (Disclaimer of Implied Warranties); Section 12 (Disputes); Section 15 (Limitation of Liability); and Section 16 (Confidentiality and Proprietary Rights); and all of the General provisions in Section 17.

17.13. 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, and shall have the same legal force and effect as if the Parties had executed it as a single document. The Parties may sign in writing, or by electronic signature, including by email. An electronic signature, or a facsimile copy or computer image, such as a PDF or tiff image, of a signature, shall be treated as and shall have the same effect as an original signature. In addition, an electronic signature, 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 or 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.

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

Motorola Solutions, Inc.

By: _____

Name: _____

Title: _____

Date: _____

City of Biddeford, ME

By: _____

Name: _____

Title: _____

Date: _____

Exhibit A

MOTOROLA SOFTWARE LICENSE AGREEMENT

This Exhibit A Motorola Software License Agreement ("Agreement") is between Motorola Solutions, Inc., ("Motorola"), and City of Biddeford, ME("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 proprietary software and affiliated 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. If requested by Licensee, Motorola will use commercially reasonable efforts to: (i) determine whether any Open Source Software is provided under this Agreement; and (ii) identify the Open Source Software (or specify where that license may be found).

3.3 TO THE EXTENT, IF ANY, THAT THERE IS A SEPARATE LICENSE AGREEMENT PACKAGED WITH, OR PROVIDED ELECTRONICALLY WITH, A PARTICULAR PRODUCT THAT BECOMES EFFECTIVE ON AN ACT OF ACCEPTANCE BY THE END USER, THEN THAT AGREEMENT SUPERSEDES THE SOFTWARE LICENSE AGREEMENT AS TO THE END USER OF EACH SUCH PRODUCT.

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 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 otherwise stated in the Primary Agreement, the commencement date and the term of the Software warranty will be a period of ninety (90) days from Motorola's shipment of the Software (the "Warranty Period"). 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. Notwithstanding, any warranty provided by a copyright owner in its standard license terms will flow through to Licensee for third party software provided by Motorola.

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 or not Motorola knows, has reason to know, has been advised, or is otherwise aware of any such purpose or use), 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 CPS 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 Commercial Computer Software

9.1 *This Section 9 only applies to U.S. Government end users.* The Software, Documentation and updates are commercial items as that term is defined at 48 C.F.R. Part 2.101, consisting of "commercial computer software" and "computer software documentation" as such terms are defined in 48 C.F.R. Part 252.227-7014(a)(1) and 48 C.F.R. Part 252.227-7014(a)(5), and used in 48 C.F.R. Part 12.212 and 48 C.F.R. Part 227.7202, as applicable. Consistent with 48 C.F.R. Part 12.212, 48 C.F.R. Part 252.227-7015, 48 C.F.R. Part 227.7202-1 through 227.7202-4, 48 C.F.R. Part 52.227-19, and other relevant sections of the Code of Federal Regulations, as applicable, the Software, Documentation and Updates are distributed and licensed to U.S. Government end users: (i) only as commercial items, and (ii) with only those rights as are granted to all other end users pursuant to the terms and conditions contained herein.

9.2 If Licensee is licensing Software for end use by the United States Government or a United States Government agency, Licensee may transfer such Software license, but only if: (i) Licensee transfers all copies of such Software and Documentation to such United States Government entity or interim transferee, and (ii) Licensee has first obtained from the transferee (if applicable) and ultimate end user an enforceable end user license agreement containing restrictions substantially identical to the ones contained in this Agreement. Except as stated in the foregoing, Licensee and any transferee(s) authorized by this subsection 9.2 may not otherwise use or transfer or make available any Motorola software to any third party nor permit any party to do so.

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 **FUTURE REGULATORY REQUIREMENTS.** The Parties acknowledge and agree that this is an evolving technological area and therefore, laws and regulations regarding Services and use of Solution may change. Changes to existing Services or the Solution required to achieve regulatory compliance may be available for an additional fee. Any required changes may also impact the price for Services.

13.4. **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.

13.5. **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.

13.6. **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.

13.7. **SURVIVAL.** Sections 4, 5, 6.4, 7, 8, 9, 10, 11 and 13 survive the termination of this Agreement.

13.8. **ORDER OF PRECEDENCE.** In the event of inconsistencies between this Exhibit and the Primary Agreement, the parties agree that this Exhibit prevails, only with respect to the specific subject matter of this Exhibit, and not the Primary Agreement or any other exhibit as it applies to any other subject matter.

13.9. **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.

Exhibit B PAYMENT

Except for a payment that is due on the Effective Date, Customer will make payments to Motorola 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. If Customer has purchased additional Professional or Subscription services, payment will be in accordance with the applicable addenda. Payment for the System purchase will be in accordance with the following milestones.

System Purchase (excluding Subscribers, if applicable)

1. 25% of the Contract Price due upon contract execution (due upon effective date);
2. 60% of the Contract Price due upon shipment of equipment from Staging;
3. 10% of the Contract Price due upon installation of equipment; and
4. 5% of the Contract Price due upon Final Acceptance.

If Subscribers are purchased, 100% of the Subscriber Contract Price will be invoiced upon shipment (as shipped).

Motorola shall make partial shipments of equipment and will request payment upon shipment of such equipment. In addition, Motorola shall invoice for installations completed on a site-by-site basis or when professional services are completed, when applicable. The value of the equipment shipped/services performed will be determined by the value shipped/services performed as a percentage of the total milestone value. Unless otherwise specified, contract discounts are based upon all items proposed and overall system package. For invoicing purposes only, discounts will be applied proportionately to the FNE and Subscriber equipment values to total contract price. Overdue invoices will bear simple interest at the maximum allowable rate by state law.

For Lifecycle Support Plan and Subscription Based Services:

Motorola will invoice Customer annually in advance of each year of the plan.

The chart below outlines the hourly labor rates for Motorola System Integration resources to be used. The staffing requirements shall be multiplied by the appropriate rate per resource in the table below. The hourly labor rates are fully burdened. The hourly rates per resource type and level are listed in Table 1.

Levels	Resource Types			
	Project Management	System Engineering	System Technologist	Project Administration
4	\$ 290.00	\$ 300.00	\$ 280.00	\$ 200.00
3	\$ 240.00	\$ 250.00	\$ 240.00	\$ 180.00
2	\$ 220.00	\$ 220.00	\$ 220.00	\$ 170.00
1	\$ 190.00	\$ 210.00	\$ 210.00	\$ 160.00

Table 1 - Hourly Rates

These rates apply to ordinary days and times (Monday to Friday during the hours 8am to 5pm). Additional surcharges may apply to work done outside these timeframes. The minimum charge for any resource will be 4 hours. Travel expenses are not included in these rates and may be charged separately. The qualifications of each type and level of resource are defined in the tables found at <https://www.motorolasolutions.com/content/dam/msi/secure/services/labor-rates-exhibit-160408.pdf>. All Motorola System Integration personnel assigned to this project will be classified according these levels. Project Administrative roles are varied and their specific duties and qualifications will be determined by the complexity and requirements of each project.

Exhibit D
SYSTEM ACCEPTANCE CERTIFICATE

Customer Name: _____

Project Name: _____

This System Acceptance Certificate memorializes the occurrence of System Acceptance. Motorola and Customer acknowledge that:

1. The Acceptance Tests set forth in the Acceptance Test Plan have been successfully completed.
2. The System is accepted.

City of Biddeford Representative:

Motorola Solutions Representative:

Signature: _____

Signature: _____

Print Name: _____

Print Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

FINAL PROJECT ACCEPTANCE:

Motorola has provided and Customer has received all deliverables, and Motorola has performed all other work required for Final Project Acceptance.

City of Biddeford Representative:

Motorola Solutions Representative:

Signature: _____

Signature: _____

Print Name: _____

Print Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

**Motorola Solutions, Inc.**

Date:

October 22, 2020

Financing proposal for: City of Biddeford, ME

Communications System Financing Proposal

Motorola Solutions Credit Company LLC is pleased to submit the following proposal for the financing of your Motorola Communications equipment in accordance with the terms and conditions outlined below:

Transaction Type: Municipal Lease-Purchase Agreement**Lessor:** Motorola Solutions, Inc. (or its Assignee)**Lessee:** **City of Biddeford, ME****Dirigo Wireless Total:** \$276,300.00**Motorola Total:** \$4200,405.00**Down Payment:** \$0.00**Balance to Finance:** \$4,476,705.00**Equipment:** As per the Motorola equipment proposal.**Title:** Title to the equipment will vest with the Lessee.**Insurance:** Lessee will be responsible to insure the equipment as outlined in the lease contract.**Taxes:** Personal property, sales, leasing, use, stamp, or other taxes are for the account of the Lessee.**Two year 1st payment deferral****Two years interest free****Option One****Option Two****Lease Term:** Seven years Ten Years**Payment Frequency:** Annual Annual**Payment Structure:** Arrears Arrears**Lease Rate Two years:** **0%** **0%****Lease Rate remaining term:** 2.54% 2.64%**Lease Factor:** 0.177290 0.123039**Lease Payment:** \$793,675.03 \$550,809.31
6 payments 9 payments**Payment Commencement:** First payment due two years from contract execution, annually thereafter.**Expiration:** This interest rate methodology is valid for all leases commenced by 11/23/2020**Indexing arrangement –Non bank qualified structure 7 and 10 year terms**

The Lease Payments shall be calculated using a rate of interest ("Lease Rate") that is initially indexed to the seven (7) or ten (10) year average life ICE Swap (the "Index Rate") as reported on the [ICE swap rate historical rates](#). The average life ICE Swap corresponds to the respective lease term. The ICE Report can be accessed at the ICE web site: <https://www.theice.com/marketdata/reports/180>. On the Commitment Date, the final Lease Rate will be calculated by taking the Index Rate for that date from the ICE Report, plus a spread of 2.90% and multiplying the sum of those two numbers by .79 to calculate the Lease Rate for the 7 year term. The rate for the 10 year term will be calculated by taking the Index Rate for that date from the ICE Report, plus a spread of 2.90% and multiplying the sum of those two numbers by .79. The rates are then fixed for the full term of the Lease.

The following ICE average life Index Rates were in place at the approximate time this quote was issued:

7 year: .32%

10 year: .44%

Qualifications: Receipt of a properly executed documentation package.

Lessee qualifies as a political subdivision or agency of the State as defined in the Internal Revenue Code of 1986. The interest portion of the Lease Payments shall be excludable from the Lessor's gross income pursuant to Section 103 of the Internal Revenue Code.

Receipt of a copy of the last years audited financial statements and current year's budget from the Lessee.

This proposal should not be construed as a commitment to finance. It is subject to final Motorola credit committee approval. This quote is based on the general level of interest rates, primarily U.S. Treasury Bills of like term maturity. Any movement in those rates in excess of 10 basis points will result in the revision of this quote.

Documentation: Municipal Equipment Lease Purchase Agreement

Opinion of Counsel

Schedule A / Equipment List

Schedule B / Amortization Schedule

8038G

UCC-1

Certificate of Incumbency

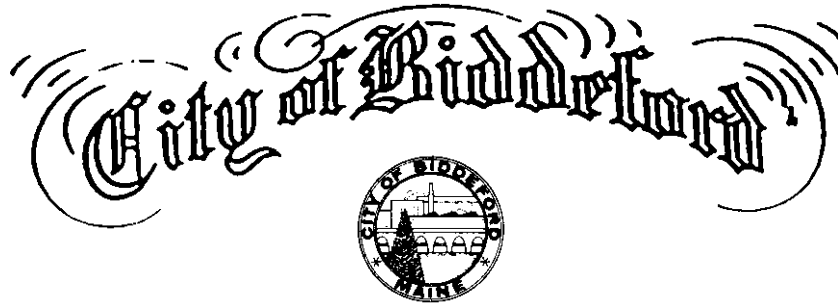
Statement of Essential Use/Source of Funds

Evidence of Insurance or Statement of Self Insurance

Resolution from governing body authorizing the execution of the Lease

Please feel free to contact me if there are any questions or if an alternate structuring is required.

Regards,
Bill Stancik
Motorola Customer Financing
847-538-4531



2020.103 IN BOARD OF CITY COUNCIL..NOVEMBER 10, 2020

BE IT ORDERED, that the City Council of the City of Biddeford, in recognizing the need for a broad choice of housing options, adopts the following housing goals to serve as the housing policy for the City:

- Increase homeownership within the community from 48% to 51% by January 1, 2026;
- Create at least two hundred (200) 'next home' opportunities by January 1, 2026 (a 'next home' refers to a home that provides for more space to serve a growing family);
- Create at least 200 first time homeownership opportunities, meaning that they are affordable to households between 80% to 120% of median income;
- Create or preserve ninety (90) units of affordable rental units per year for five years, with half of the units targeted to serve the 40% to 80% median income community and a desired goal of having at least half the units being created by new construction;
- Rehabilitate at least sixty-five (65) rental units per year for the next three years so that the units are healthy homes and lead free; and

These goals shall remain in effect until the Biddeford City Council replaces them through the adoption of a revised Comprehensive Plan, or repeals or otherwise amends the goals.



Biddeford City Council

Meeting Date: November 10, 2020

Meeting Time: 6:30 PM

Agenda Item No: 2020-103

Item Description: Adoption of 5 Year Housing Goals

Submitted by: James A. Bennett, City Manager

Supporting Information/Documentation: Draft Housing Goals

Key Terms:

N/A

Executive Summary: Over the last month, the City Council has held workshops to seek more insight into the rapidly changing housing costs within the community. During that process, the Council wanted to develop some housing goals to put in place as soon as possible to guide future Council decisions. Further, those goals would provide direction to City staff as well as potential investors in the community. The goals, as drafted, are established as 5 year goals.

Detailed Review: From 2013 to 2017, the selling price for apartment buildings (based on a per unit price) remained relatively flat around \$51,000 per unit. Beginning in 2018, the selling prices (and the corresponding rents charged) has rapidly increased. To date, in 2020, the average selling price is now \$94,518. In addition, single family homes are increasing at a rapid rate as well.

The Council identified during their workshops several areas of concerns. These included affordable rental units, increasing the percentage of home ownership, creating more 'next homes', and encouraging first time home owners. As a result of previous Council directive, staff secured federal grant in order to reduce the amount of lead paint within the rental units in the community. There was some initial agreement within the workshop to create the corresponding goals for these areas. The draft goals were prepared based on the input from the Council during the workshop.

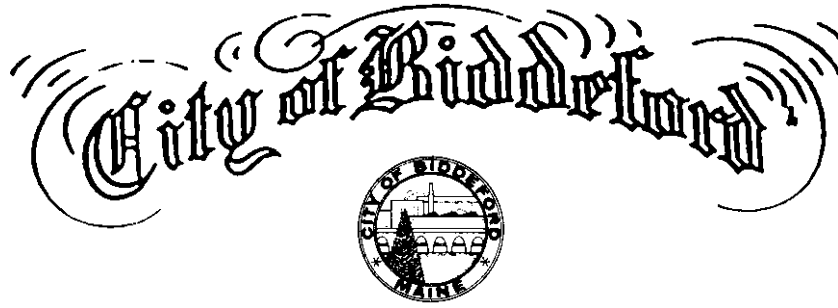
The Council also asked staff to do a similar review of the need for affordable senior housing and/or additional senior housing opportunities. That work is ongoing. It will be part of a future workshop in the very near future.

If adopted, the explicit goal statement will provide guidance to staff. It also provides clarity to developers that are considering investments within Biddeford the direction for housing investment.

Additional detailed information has been provided to the Council in the workshop package for the November 13th and 27th workshops.

Funding Source: N/A

Staff Recommendation: Staff is recommending that the Council adopt the housing goals (either as drafted or as amended).



2020.104

IN BOARD OF CITY COUNCIL..NOVEMBER 10, 2020

BE IT ORDERED, that the City Council of the City of Biddeford does hereby authorize the City Manager, or his designee, to enter into a Joint Development Agreement with TOM WATSON & CO., LLC (aka Port Properties) to further the redevelopment of the so-called Saco-Lowell Building, located at 59 Elm Street for the purposes of establishing a credit enhancement agreement.



Biddeford City Council

Meeting Date: November 10, 2020

Meeting Time: 6:30

Agenda Item No:

Item Description: Credit Enhancement for Port Property/Saco Lowell Building

Submitted by: Mathew Eddy, Director, Planning and Development

Supporting Information/Documentation:

- Route 111/Mill Redevelopment TIF, Amendment 9:
<https://d3n9y02raazwpg.cloudfront.net/biddeford/0c69ef1c-bd8c-11e6-8893-00219ba2f017-7da928e4-31b6-4ad8-adb8-4e0359e8f9ab-1508243037.pdf>
- https://legistarweb-production.s3.amazonaws.com/uploads/attachment/pdf/721558/10-20-2020_Saco-Lowell_Building_Terms_Agreement-MEMO.pdf
- JDA (to be sent under separate cover)

Key Terms:

- Route 111/Mill Redevelopment Tax Increment Financing (TIF) District: TIF district serving the downtown and Mill area.
- Credit Enhancement: TIF agreement to return new tax dollars created through the redevelopment of a property. The credit enhancement is used to support the financing and redevelopment costs of a chosen property.
- Captured Assessed Value: the amount of new value created through development and sheltered from state and county assessments.

Executive Summary:

Port Property (the developers for Riverdam) requests that the City Council authorize the City Manager to enter into a Joint Development Agreement to support the redevelopment of the Saco-Lowell building at 59 Elm Street. The redevelopment will utilize the bottom two floors (limited ceiling clearance) for self-storage, while the upper four floors will be converted to 100 market rate units. As part of this agreement, the City will provide a credit enhancement. Additionally, the adjacent undeveloped land controlled by Port Property would permit further development of transportation connections, if needed. The facility could be connected to Pearl Street via the new parking Garage. The draft of the JDA is forthcoming.

Detailed Review:

Port Property, the developers of Riverdam, have entered into a purchase and sale agreement with the owner (Art Gerard) of the Saco Lowell Building at 53 Elm Street. The structure, in essence is a massive shell, home to textile machine development during the early part of last century. The property has been owned by a number of parties since that time and has been vacant for some years. In essence, while the structure is incredibly sound, there are no viable utilities within the building; for redevelopment, the building will be stripped to its shell, with the entire internal structure consisting of new construction.

Equity will be raised through private investors and through historic tax credits, insuring that the bone structure of the building will be retained. However, because of the projected cost of reconstruction, a credit enhancement is necessary for the project to move forward.

The reconstruction of the building is proposed to increase the present assessed value of the structure of \$534,700 to \$14 million, creating \$13.4 million of new captured assessed value. The following table presents tax revenue impact for build and no-build scenarios, with and without TIFs:

Contrast: Present Taxes Paid (no-build) vs. 20-year and 10-year Delayed Build Scenario with Credit Enhancement					
	<i>Property Value</i>	<i>Annual Taxes Paid</i>	<i>Credit Enhancement</i>	<i>To TIF</i>	<i>To General Fund</i>
Annual Base Value	\$ 534,700	\$ 10,721	-	\$ 6,968	\$ 3,752
New Value	\$ 13,400,000	\$ 268,670		-	-
Twenty-year Term-NoBuild Scenario				\$ 139,370	\$ 75,045
Port Property					
Twenty-year Term-Build Scenario (note 2 % annual increase in value in proforma)	\$ 13,400,000	\$ 268,670	\$ 4,185,000	\$ 1,573,401	\$ 847,216
No Build for 8 years, No TIF	\$ 13,400,000	\$ 268,670		\$ 2,095,626	\$ 1,128,414
No Build for 8 years, 50/50 TIF	\$ 13,400,000	\$ 268,670	\$ 1,612,020	\$ 1,047,813	\$ 564,207
No Build for 12 years, No TIF	\$ 13,400,000	\$ 268,670		\$ 1,397,084	\$ 752,276
No Build for 12 years, 50/50 TIF	\$ 13,400,000	\$ 268,670	\$ 1,074,680	\$ 698,542	\$ 376,138

The proposed Credit Enhancement Agreement will have the following schedule:

- (a) Years 1-5: 85% reimbursement to TWC; 15% to the City;
- (b) Years 6-10: 75% reimbursement to TWC; 25% to the City; and
- (c) Years 11-20: 50% reimbursement to TWC; 50% to the City.

Additional conditions of the JDA include:

- To construct the Riverwalk pathway from the railroad underpass, up Gooch Street, to its intersection with Elm Street, and to grant easements for any further “Riverwalk” improvements and extensions beyond that pathway (at the expense of the City).
- Reservation on adjacent land (the next phase of the project) for future transportation connections.

Funding Source:

Tif financing through the Route 111/Mill Redevelopment TIF and the addition of new value associated with the project.

Staff Recommendation:

Recommend approval.

Proposed Order: The Biddeford City Council orders the City Manager to enter into a Joint Development Agreement with TOM WATSON & CO., LLC (AKA Port Properties) to further the redevelopment of the so called Saco Lowell building at 59 Elm Street for the purposes of establishing a credit enhancement agreement.

JOINT DEVELOPMENT AGREEMENT

This Joint Development Agreement (“Agreement”), dated December ____, 2020 is executed by **TOM WATSON & CO., LLC**, a Maine limited liability company (“**TWC**”) and the **CITY OF BIDDEFORD, MAINE** (the “City”) (each a “Party” and, collectively, the “Parties”).

RECITALS

WHEREAS, contemporaneously herewith TWC entered into a Credit Enhancement Agreement with the City dated as of _____, 2020 (the “Credit Enhancement Agreement”); and

WHEREAS, TWC seeks to re-develop the so-called Saco-Lowell building which is owned by TWC and located at 59 Elm Street in Biddeford (which building to be re-developed is hereinafter referred to, for purposes of this Agreement, as the “Saco-Lowell Building”); and

WHEREAS, the City seeks to expand its so-called Riverwalk pedestrian trail network (the “Riverwalk”) and provide access to the Riverwalk through a portion of TWC’s property located adjacent to the Saco-Lowell Building (the “Property”); and

WHEREAS, TWC and the City desire to enter into various easements and other agreements for the re-development of the Saco-Lowell Building, the Property and the Riverwalk.

NOW, THEREFORE, in consideration of the promises and mutual agreements contained herein and other consideration, the receipt and sufficiency of which is hereby acknowledged, and intending to be legally bound hereby, the Parties agree as follows:

ARTICLE I COMMITMENTS

1. TWC’s Permanent Easement Commitments

TWC agrees to grant the following permanent pedestrian easement to the City in connection with the City’s completion of certain improvements to the Riverwalk (the “Riverwalk Easement”):

- (a) An easement, for use by the public, of that certain area depicted in red and identified as the “City Easement Area” on the concept plan attached hereto as Exhibit A; and
- (b) Any commercially reasonably necessary temporary construction easements to allow the City to complete the Riverwalk Easement.

The exact location and dimensions of the Riverwalk Easement shall be mutually agreed upon by TWC and the City and the Riverwalk Easement shall contain the following terms and conditions:

- (i) That the City, at its sole cost and expense, shall construct all improvements in a good and workmanlike manner and shall be responsible for the construction and maintenance of all pedestrian connections associated with the Riverwalk Easement, including, but not limited to, all costs and expenses related to the design, permitting, survey work and signage costs; and
- (ii) That the City at all times keep such improvements and the easement areas of the Riverwalk Easement in good repair, consistent with municipal practice to the extent such areas are open to the public during the winter months and that the City further agree to develop a plan for timely winter maintenance of all such easement areas open to the public during the winter months.

By execution of this Agreement, the City Manager hereby represents that the City Council has authorized the City Manager to accept, on behalf of the City, the Riverwalk Easement on the terms and conditions set forth above.

2. Additional TWC Commitments

In addition to the foregoing, TWC agrees to construct a pedestrian pathway on the Property that will connect with the Riverwalk, which pathway will extend from Elm Street to the existing railroad underpass located adjacent to the Property, with the exact location of such pathway to be determined by TWC in its sole and absolute discretion. TWC further agrees to continue to work with the City to meet other mutual development goals for the construction of improvements around the Saco-Lowell Building, including the completion of housing and commercial development within the City’s so-called “Mill District” area. In connection with the foregoing, TWC agrees to work with the City to convey, or have its affiliate convey, that certain ten foot (10’) right of way known as “Yard Drive” located on Pearl Street, which conveyance, however, would be subject to: (i) TWC and/or its affiliates retaining rights to access and use said “Yard Drive”, as determined by TWC in its sole discretion; (ii) TWC obtaining all requisite consents and

approvals from its lender and investor partners for the completion of such conveyance; and (iii) TWC and/or its affiliates reaching an agreement with the City in which the City will make parking available on City property located at the end of Gooch Street near the existing railroad underpass for future development projects on Gooch Street.

TWC also agrees to reserve to the City: (a) the right, at the City's sole cost and expense, to connect its newly constructed Pearl Street parking garage to the parking area adjacent to the Saco-Lowell Building by means of a pedestrian passageway over the existing railroad tracks; and (b) the right, at the City's sole cost and expense, to construct facilities that will serve the City's future transportation hub needs (the "City's Reserved Improvement Rights"), provided, however, that it is hereby agreed and acknowledge that the location and height of such improvements shall be determined by TWC in its sole discretion and, in all cases, the City shall be responsible for all costs and expenses of the completion of such proposed improvements and such improvements shall not obstruct any parking areas located on the Property, nor shall such improvements otherwise interfere with TWC's ongoing operations at the Property. Upon the City's notice to TWC of its intention to exercise the City's Reserved Improvement Rights, TWC and the City shall execute a separate easement agreement to memorialize the agreed upon location of the improvements to be constructed by the City (the "City's Reserved Easement"). The City's Reserved Easement shall, at a minimum, contain the following terms and conditions:

- (1) That the City, at its sole cost and expense, shall construct all improvements in a good and workmanlike manner and shall be responsible for the construction and maintenance of all pedestrian connections associated with the City's Reserved Easement, including, but not limited to, all costs and expenses related to the design, permitting, survey work and signage costs;
- (2) That the City, at all times, shall keep such improvements and the easement areas of the City's Reserved Easement in good repair, consistent with municipal practice to the extent such areas are open to the public during the winter months and that the City further agree to develop a plan for timely winter maintenance of all such easement areas open to the public during the winter months;
- (3) That the City, its sole cost and expense, shall be responsible for providing and implementing any and all other commercially reasonable safety and general maintenance plans and protocols required or requested by TWC or its investment partners, lenders or insurance advisors in connection with the City's Reserved Easement; and
- (5) That the City shall be obligated to complete construction of the improvements described in the City's Reserved Improvement Rights on or before the earlier of (i) the date of expiration of the Credit Enhancement Agreement; or (ii) the date on which the

construction is completed on the installation of a footbridge from Biddeford Pearl Park to the Saco Amtrak station.

3. City Commitments

The City hereby agrees to contemporaneously execute the Credit Enhancement Agreement which provides for a twenty (20) year term based on the following reimbursement schedule, and such other terms as are more particularly described in the Credit Enhancement Agreement:

- (a) Years 1-5: 85% reimbursement to TWC; 15% to the City;
- (b) Years 6-10: 75% reimbursement to TWC; 25% to the City; and
- (c) Years 11-20: 50% reimbursement to TWC; 50% to the City.

ARTICLE II INDEMNIFICATIONS

The City agrees to indemnify, defend and hold TWC harmless from any claims, damages, costs, liabilities and expenses (including attorney's fees) arising from the City and/or the public's use of the Riverwalk Easement or the City's Reserved Easement. Each Party shall indemnify, defend, and hold the other Party harmless from any claims, damages, costs, liabilities and expenses (including reasonable attorney's fees) arising from the gross negligence, misrepresentation, fraud, fault or misconduct of the indemnifying Party or any of its agents, servants, officers, directors, employees and affiliates.

ARTICLE III LIMIT OF LIABILITY

Notwithstanding any other provision of this Agreement, in no event shall the Parties or any of their affiliates, by reason of any of their respective acts or omissions relating to this Agreement be liable whether in contract, tort, misrepresentation, warranty, negligence, strict liability, or otherwise for any special, indirect, or consequential damages arising out of or in connection with this Agreement, or the performance, non-performance or breach thereof.

ARTICLE IV MISCELLANEOUS

1. Representations and Warranties

Each Party represents and warrants to the other that:

- (a) It is duly qualified to do business and is in good standing in the State of Maine; and
- (b) It has full power and authority to execute, deliver and perform its obligations under this Agreement; and
- (c) The execution, delivery and performance of this Agreement has been duly and validly authorized by all necessary action by such Party; and
- (d) The execution and delivery of this Agreement by such Party and the performance of the terms, covenants and conditions contained herein will not violate the articles of incorporation or by-laws of such Party, or any order of a court or arbitrator, and will not conflict with and will not constitute a material breach of, or default under, the provisions of any material contract by which either Party is bound.

2. Right to Require Performance

The failure of any Party at any time to require performance by the other Party of any provisions hereof shall in no way affect the right of such Party thereafter to enforce the same. Nor shall waiver by either Party of any breach of any provisions hereof be taken or held to be a waiver of any succeeding breach of such provisions or as a waiver of any provision itself.

3. Governing Law

This Agreement is and shall constitute a contract under and is to be construed in accordance with the laws of the State of Maine. Any dispute resulting in legal action and not resolved by arbitration, mediation, or such other method as may be mutually agreed to by the Parties shall be adjudicated within the jurisdiction of the State of Maine.

4. Relationship of Parties

- (a) This Agreement is not intended to supersede the authority granted by law to any regulatory board or agency of the City. Therefore, nothing in this Agreement shall be construed or implied to require the City's planning, zoning or other regulatory boards or agencies (however designated) to approve the plans for any aspect of the actions required under this Agreement;

(b) The Parties acknowledge that the obligations set further herein may be further described in other agreements and or deeds as agreed to by the Parties. The City, and TWC agree to cooperate in good faith with regard to each and every aspect required for the completion of all obligations contemplated by this Agreement; and

(c) This Agreement shall not be interpreted or construed to independently create an association, joint venture, or partnership between the Parties or to impose any partnership obligation or liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

5. Breach by TWC

(a) The City shall provide notice to TWC of a breach in writing, identifying the nature of the alleged breach and requested remedy. A breach shall be cured if remedied within thirty (30) days of receipt of the notice, or such other time as mutually agreed.

(b) If a breach is not cured as set forth above, the City may bring an action, in law or in equity, to enforce this Agreement or for damages, or both.

6. Breach by City

(a) TWC shall provide notice to the City of a breach in writing, identifying the nature of the alleged breach and requested remedy. A breach shall be cured if remedied within thirty (30) days of receipt of the notice, or such other time as mutually agreed.

(b) If a breach is not cured as set forth above, TWC may bring an action, in law or in equity, to enforce this Agreement or for damages, or both.

7. Integration

This Agreement, along with any exhibits, appendices, addenda, schedules, and amendments hereto, encompasses the entire agreement of the Parties, and supersedes all previous understandings and agreements between the Parties, whether oral or written regarding the matters addressed in this Agreement. The Parties hereby acknowledge and represent, by affixing their hands and seals hereto, that the Parties have not relied on any representation, assertion, guarantee, warranty, collateral contract or other assurance, except those set out in this Agreement, made by or on behalf of any other Party or any other person or entity

whatsoever, prior to the execution of this Agreement. The Parties hereby waive all rights and remedies, at law or in equity, arising or which may arise as the result of a Party's reliance on such representation, assertion, guarantee, warranty, collateral contract or other assurance, provided that nothing herein contained shall be construed as a restriction or limitation of the Party's right to remedies associated with the gross negligence, willful misconduct or fraud of any person or party taking place prior to, or contemporaneously with, the execution of this Agreement.

8. No Oral Modifications; Assignment

This Agreement may not be changed or terminated orally. This Agreement and all the covenants, terms and provisions contained herein shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns. This Agreement and any of the rights, interests or obligations under this Agreement may not be assigned or delegated by any Party, without the prior written consent of the other Party, provided, however, that it is hereby agreed and acknowledged that TWC shall have the right to assign this Agreement to an affiliate or related entity of TWC, without having to obtain the prior written consent of the City for such assignment. This Agreement is not intended to confer any rights or benefits to any entity other than to the City and TWC, and their affiliates and/or assignees.

9. Notice

All notices required to be given to City or TWC under this Agreement shall be in writing and deemed given upon the earlier of actual receipt by personal delivery or two (2) days after being mailed by U.S. Express, registered or certified mail, return receipt requested, or a reputable overnight courier as follows:

City: City of Biddeford
 c/o James A. Bennett, (or the then current) City Manager
 P.O. Box 586
 205 Main Street
 Biddeford, Maine 04005

With a copy to: Keith R. Jacques, Esq.
 Woodman Edmands Danylik Austin Smith & Jacques, P.A.
 234 Main Street
 P.O. Box 468
 Biddeford, ME 04005

TWC: c/o Port Property Management, Inc.
82 Hanover Street, Suite 5
Portland, ME 04101

With a copy to: Hawley R. Strait, Esq.
Bernstein Shur
100 Middle Street
P.O. Box 9729
Portland, ME 04104

10. Severability

Any provision or part of the Agreement held to be void or unenforceable under any law or regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon the Parties, who agree that the Agreement shall be reformed to replace such stricken provisions or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provisions.

11. Survival

All express representations, warranties, indemnifications or limitations of liability made in or given in this Agreement shall survive the expiration or the termination of this Agreement for any reason.

12. Mediation/Arbitration

The Parties hereto agree that prior to filing litigation they will consider alternative dispute resolution techniques such as mediation and arbitration to resolve all claims, counterclaims, disputes and other matters in question between the Parties arising out of this Agreement.

13. Consents

TWC shall use commercially reasonable efforts to obtain all necessary consents of its mortgage holders and other lien holders to this Agreement and the easements contemplated herein.

IN WITNESS WHEREOF, TWC and the City have set their hands and seals as of the day, month and year first above written.

TOM WATSON & CO., LLC

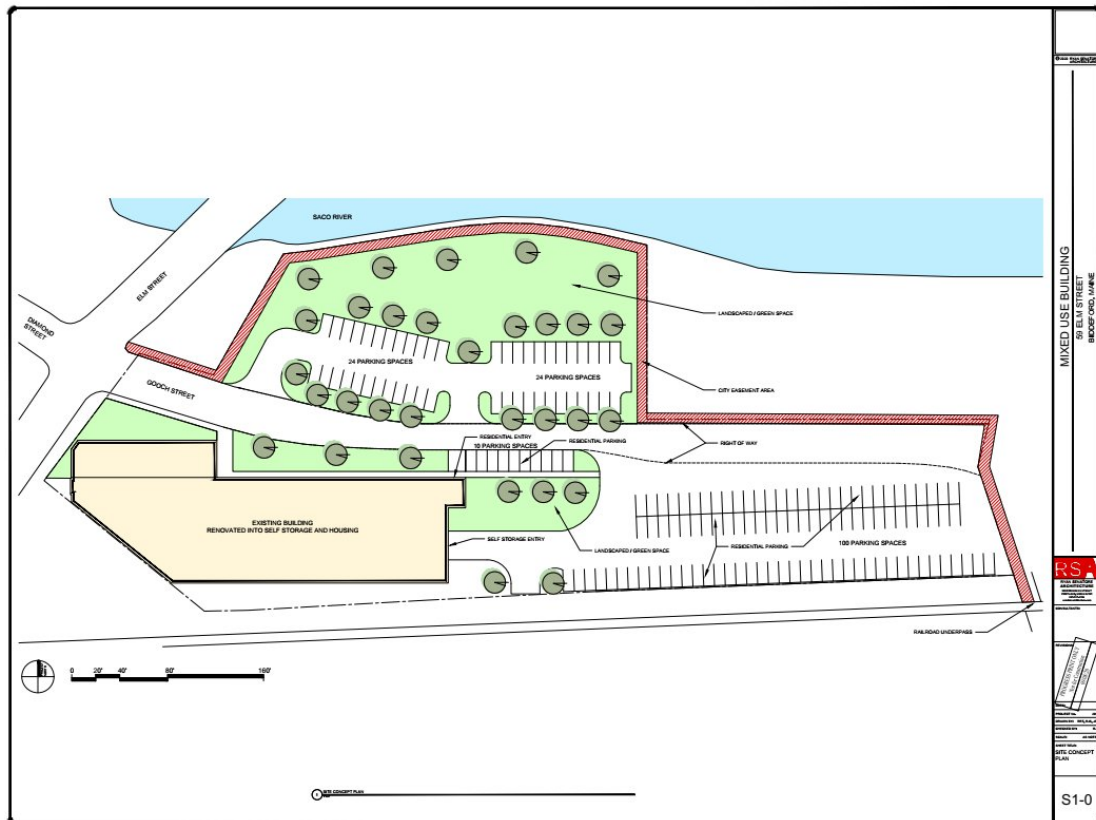
Witness

By: _____
Name: Thomas E. Watson
Title: Manager

CITY OF BIDDEFORD

Witness

By: _____
Name: James A. Bennett
Title: City Manager

Exhibit A



Biddeford City Council

Meeting Date: November 10, 2020

Meeting Time: 6:30 PM

Agenda Item No: 2020-105

Item Description: Authorization/Disposal of Acorn Street Property

Submitted by: James A. Bennett, City Manager

Supporting Information/Documentation: Map of location

Key Terms:

N/A

Executive Summary: One of the two neighbors approached Council President McCurry to inquire if the City would be willing to dispose of the city owned land between the neighbors. Upon review by the City management team, the land was deemed excess. Following the Council discussion and direction, additional information is provided as requested.

Detailed Review: The land in question is owned by the City as part of a subdivision plan.

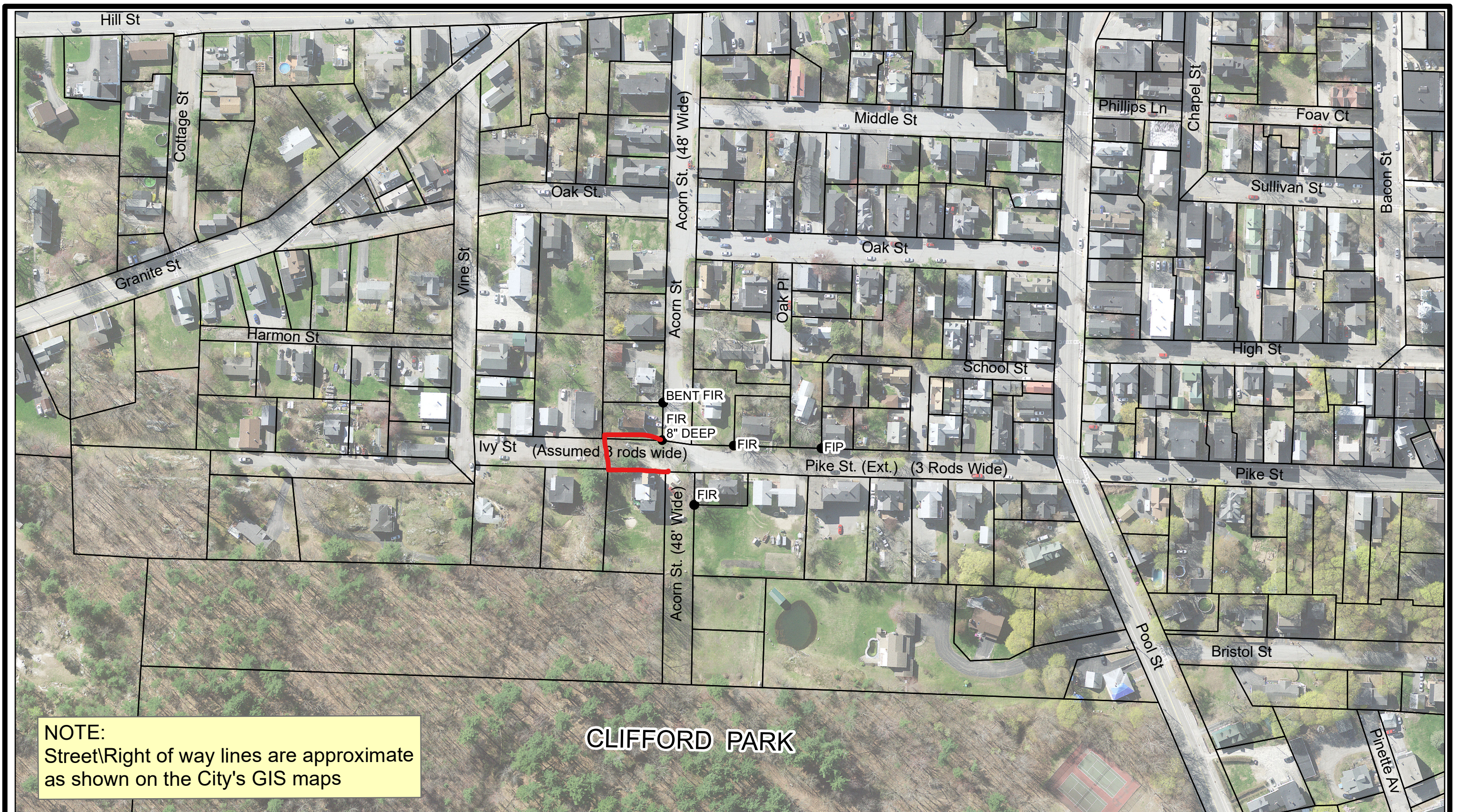
Specifically, it was part of a planned roadway. There currently is no road built in that location. There are no plans to build one. The land has significant slope and underground conditions that would make construction extremely expensive. Further, given the layout, there are no practical reasons for the City or any other party to desire the road.

The underlying layout of the road is assumed to be a 3 rod road or 48.5 feet in width. The City does not have definitive records to be able to assert that to be accurate with the research that has been done to date. If the assumption is correct, there appears to be some limited building encroachment on the city's land. It should be noted that the building is at least 100 years old.

If the layout is indeed a 3 rod road, creation of a standalone lot would be recognized by zoning as a buildable lot. However, given the topographical conditions that exist, it is staffs perspective that the lot would not be developed because of the cost to do so.

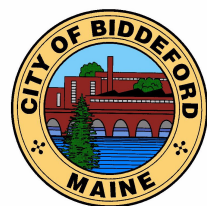
Funding Source: N/A

Staff Recommendation: The recommendation is to allow the abutters ownership of the land by splitting the land equally between the two. Staff is recommending that the property owners would be required to pay all costs associated with the transaction. Further, given that the lot is functionally unbuildable, the land would either be given to the abutters at no cost or at for a token fee (not more than \$5,000 combined).

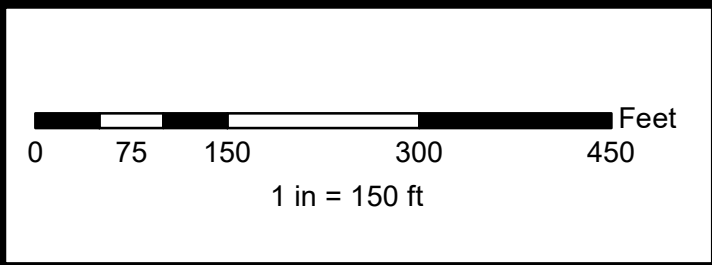


NOTE:
 Street\Right of way lines are approximate
 as shown on the City's GIS maps

CLIFFORD PARK



The City of Biddeford, Maine
 Engineering Department - GIS Mapping
 205 Main Street · P.O. Box 586 · Biddeford, Maine 04005-0586
 Tel. 207 284-9118 · Fax 207 286-9388



ACORN, IVY, PIKE AND VINE STREET AREA

