EXHIBIT F - SPECIFICATIONS

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1 Introduction

The City of San Diego ("City") seeks proposals from potential providers for the provision of Radio Communication, Emergency Response and Mobile Interoperability Equipment and Supporting Services (hereinafter, the "Goods and Services").

The hardware and supporting services arising from this Request for Proposals (RFP) will enable the City to continue to provide best-in-class wireless communications services to its First Responders, with high levels of availability.

The key components of any resulting Agreement will be as follows:

1. Radios and wireless communications equipment, and
2. Warranty and training services for the aforementioned equipment

Proposers should note that the requirements set forth in this document describe the City's intent to ensure that all wireless communications systems maintain an exceptionally high level of availability, that no disruption to these critical services will be tolerated, and that the resulting system will retain seamless integration with the regional interoperability standards required (Proposers should review Exhibit B – Statement of Work for further details).

This RFP is intended to result in an Agreement for Goods and Services for an initial ten (10) year term, with two (2), two-year renewal options, to be awarded at the sole discretion of the City.

2 Hardware Specifications

The City has determined that Proposers' goods and services should meet the minimum specifications and requirements expressed in this RFP.

The City has provided its minimum required specifications for hardware and radios herein, inclusive of the City's required P25 and agency interoperability requirements. Proposers should ensure that they confirm that their Proposed Equipment adequately meets the City's specifications and disclose any exceptions therein within their response to this RFP.

3 Subscribers

3.1 Overview

3.1.1 In support of public safety radio system operations, the City requires the Proposer to offer a range of subscriber radio equipment and accessories, providing a performance range from highest quality, highest duty rating, and highest performance electronic components down to less fully featured, less mission-critical end user devices.

3.1.2 Rather than limit the Proposer to a set of detailed equipment specifications for each item to be provided, the City expects the Proposer to offer the equipment, and then support that offering with extensive and detailed supporting information.

3.1.3 The radios shall be able to transmit and receive on any of the 700/800 MHz channels licensed to the City, as well as all analog and digital emissions authorized for use. Proposer shall also offer a tier of radios that are multi-band capable, as detailed in this RFP specification.

3.2 Price Structure

3.2.1 Pricing is to be submitted in the form of the catalog of available models, options, optional features, and accessories at list price less a stipulated discount.

3.2.2 Subscriber radio equipment and accessories may only be ordered and delivered when directed by the City. Proposer shall provide ordering lead times for all subscriber radios and accessories, ensuring equipment is available according to the project schedule.

3.2.3 The City shall not be required to commit to the purchase of any initial quantity of units as a requirement for preserving discounted pricing of the subscriber equipment or any other ancillary equipment and services.

3.2.4 Options

3.2.4.1 The Proposer shall include a price list of accessories, optional features, and optional equipment available. This listing shall become part of the price list and shall be used by the City for ordering the desired combinations. Descriptive literature fully describing each option must be included.

3.2.5 Quantities

3.2.5.1 The City anticipates that it will need the following estimated quantities of 700/800 MHz subscriber radio equipment. These numbers only reflect preliminary numbers and may change by the time orders are placed. The City reserves the right to change the total quantity and the individual quantities of radios at any time during the contract without any changes to the prices offered by the Proposer.

Category	Portables	Mobiles	Control Stations
Tier 1	105	20	5
Tier 2	200	100	5
Tier 3	4300	1800	25
TOTALS:	**4605**	**1920**	**35**

Table 3-1: Estimated Radio Quantities, by Category

3.2.6 The City anticipates that depending upon the application, radio type and configurations will vary. The Proposer shall provide the City with a list of potential radios that can be provided from more feature rich to more simplistic in operation. The City envisions that radios in the various agencies and services shall be configured as closely as possible. Exceptions will exist due to the unique nature of the agencies and services that exist.

3.3 General Requirements

3.3.1 Radio Tier

3.3.1.1 The Proposer is required to offer three (3) tiers of radios for mobiles and portables and at least two (2) tiers for control stations. Sections 3.3.1.2 through section 3.3.1.4 describe the general characteristics required of all radios being purchased to operate on the City's Radio System — portables, mobiles, and control stations. Section 3.4 provides general required functionality of all radios being purchased to operate on the City's Radio System — portables, mobiles, and control stations.

3.3.1.2 Tier 1

3.3.1.2.1 The low-tier radio shall be focused on basic operations, primarily used for non-public safety such as public works and transportation. The radio shall have the Basic Features listed in Section 3.4.2 below.

3.3.1.3 Tier 2

3.3.1.3.1 The mid-tier radio shall be focused on basic public-safety operations. The high-quality radio shall operate with Basic Features listed in Section 3.4.2 and Advanced Features listed in Section 3.4.3 below.

3.3.1.4 Tier 3

3.3.1.4.1 The high-tier radio shall represent the Proposer's most capable radio and at a minimum provide Basic Features listed in Section 3.4.2 and Advanced Features listed in Section 3.4.3 Enhanced Features listed in Section 3.4.4 listed below.

3.4 Radio Description

3.4.1 The Proposer shall provide state-of-the-art, robust, public-safety-grade radios. Radios shall provide the following features, by tier, at a minimum. The following features are minimum requirements for each offered tier.

3.4.2 **Basic Features**

3.4.2.1 Frequency Bands

3.4.2.1.1 700/800 MHz

3.4.2.2 Protocols

3.4.2.2.1 Analog Conventional

3.4.2.2.2 TIA/EIA Project 25 Phase 1, Conventional

3.4.2.2.3 TIA/EIA Project 25 Phase 1, Trunked

3.4.2.2.4 TIA/EIA Project 25 Phase 2, Trunked

3.4.2.3 Subscriber User Interfaces and Indications

3.4.2.3.1 All subscribers shall provide the following control capabilities:

3.4.2.3.2 On/Off for Primary Power to the Radio Set

3.4.2.3.3 On/Off Power Switch (Rotary Knob 355-Degree Turn Limit)

3.4.2.3.4 Talk Group Selector (Rotary Knob 355-Degree Turn Limit)

3.4.2.3.5 Programmable Three-Position Selector Switch

3.4.2.3.6 Power On Indicator

3.4.2.3.7 Transmit Indicator

3.4.2.3.8 Receive Indicator

3.4.2.3.9 Volume Control (Rotary Knob 355-Degree Turn Limit)

3.4.2.3.10 Volume Control for External Speakers

3.4.2.3.11 Alphanumeric Display – 12 Character minimum (all characters used for zone/talkgroup identification as needed)

3.4.2.3.12 Conventional, trunked, analog, and digital in the same bank/zone

3.4.2.3.13 Emergency Switch

3.4.2.3.14 Menu Backlight Function

3.4.2.4 Status Tones

3.4.2.4.1 System Busy

3.4.2.4.2 Callback when Channel is Available

3.4.2.4.3 Trunking Controller Failure

3.4.2.4.4 Time-Out Time Operation

3.4.2.4.5 Access to System Denied

3.4.2.4.6 Out-of-Range of Trunked System

3.4.2.5 Subscriber User Interfaces

3.4.2.5.1 Method to Move between Protocols

3.4.2.5.2 TX Timeout Timer

3.4.2.5.3 Multiple Trunked System Capacity

3.4.2.5.4 Conventional Channel Capacity

3.4.2.5.5 Simplex Channel Capacity

3.4.2.5.6 Channel Capacity – 500 minimum

3.4.2.5.7 Talk Group Radio Organization

3.4.2.6 Scan Capabilities

3.4.2.6.1 Number of Groups

3.4.2.6.2 Priority Scan Operation

3.4.2.6.3 Priority Scan Selection

3.4.2.6.4 Scan Range/Groups

3.4.2.6.5 Scan Group Disable

3.4.2.6.6 Scan Hang Time

3.4.2.7 Emergency Alert

3.4.2.8 Emergency Call

3.4.2.9 Priority Call

3.4.2.10 Priority Call Pre-Emption

3.4.2.11 Embedded Legacy Signaling

3.4.2.12 System Busy and Queue

3.4.2.13 System Queue Callback

3.4.2.14 Recent User

3.4.2.15 Out-of-Range Indication

3.4.2.16 Selective Alerting

3.4.2.17 Radio TX Disabling

3.4.2.18 Radio Suspend and Kill

3.4.2.19 Radio Enabling

3.4.2.20 Radio Selective Listening

3.4.2.21 Radio-to-Radio Selective Call

3.4.2.22 UID Identification

3.4.2.23 Telephone Interconnect

3.4.2.24 Local Radio Programming

3.4.2.25 Batch Cloning Capability

3.4.2.26 Conventional Fallback

3.4.3 **Advanced Features**

3.4.3.1 Frequency Bands, Additional Multi-Band functionality

3.4.3.1.1 VHF High Band, 150 MHz – 174 MHz

3.4.3.1.2 UHF, 450 MHz – 512 MHz

3.4.3.2 Internal Bluetooth Capability

3.4.3.2.1 Encrypted Bluetooth connectivity (optional)

3.4.3.3 Encryption – AES

3.4.3.4 Encryption – DES/DES-OFB

3.4.3.5 Over the Air Rekeying (OTAR) (optional)

3.4.3.5.1 The Proposer should list all software, hardware and licensing required for both the subscriber and the rekeying device and/or infrastructure.

3.4.3.6 DTMF Keypad

3.4.3.7 Channel Capacity – 1000 minimum

3.4.3.8 Programmable Alphanumeric Display - 2 lines, 12 characters per line minimum (all characters used for zone/talkgroup identification as needed)

3.4.3.9 Status Messaging

3.4.3.10 Text Messaging

3.4.3.11 AVL/GPS Capable, with or without a lapel microphone. Coordinates displayable on the radio screen.

3.4.3.12 Over-the-Air Programming (OTAP) via P25 Radio System (optional)

3.4.3.12.1 The Proposer should list all software, hardware and licensing required for both the subscriber and the OTAP device and/or infrastructure.

3.4.3.13 Over-the-Air Programming (OTAP) via Wi-Fi (optional)

3.4.3.13.1 The Proposer should list all software, hardware and licensing required for both the subscriber and the OTAP device and/or infrastructure.

3.4.4 **Enhanced Features**

3.4.4.1 LTE Band 14 Compatibility

3.4.4.2 Optional Enhanced Data (mobile only)

3.4.4.2.1 Radio Interface Port

3.4.4.2.2 Protocol Supported

3.4.4.2.3 Data Speeds

3.4.4.2.4 Typical Applications

3.4.5 Radio Functionality

3.4.5.1 The Proposer shall describe the following with regards to each of the tier radio being offered.

3.4.5.2 Programming

3.4.5.2.1 Radio programming must require a hardware-based system key(s) to program any trunked mode. No software-based system keys may be created for City of San Diego radio networks.

3.4.5.2.2 Radio must have the ability to be upgraded with optional features not initially chosen at the time of purchase. These upgrades must be added through computer programming software.

3.4.5.2.3 Interface Methods (local, Wi-Fi, OTAP, etc.)

3.4.5.2.4 Tuning and Alignment Capabilities

3.4.5.2.5 Adding Additional Channels or Sites

3.4.5.3 User Operation

3.4.5.3.1 Compatibility across Tiers of Radios

3.4.5.3.2 Compatibility across Mobiles/Portables/Control Stations

3.4.5.4 Audio Performance

3.4.5.4.1 General Microphone and Speaker Characteristics

3.4.5.4.2 Vocoder Performance in High-Noise Environments

3.4.5.5 RF Specifications

3.4.5.5.1 The Proposer shall provide radios and accessories that are type accepted and that operate effectively in a congested spectrum

environment and that are tolerant of normal to high levels of RF noise. Describe the following specifications of each radio that will be offered:

3.4.5.5.2	TX Frequency Range
3.4.5.5.3	RX Frequency Range
3.4.5.5.4	Power Requirements
3.4.5.5.5	Operating Temperature (Full Performance)
3.4.5.5.6	Humidity
3.4.5.5.7	Duty Cycle
3.4.5.5.8	Shock and Vibration
3.4.5.5.9	TX Modulation
3.4.5.5.10	TX RF Output Power
3.4.5.5.11	Low Power
3.4.5.5.12	High Power
3.4.5.5.13	TX Frequency Stability
3.4.5.5.14	TX FCC Emission Designators
3.4.5.5.15	TX Audio Distortion
3.4.5.5.16	TX Spurious and Harmonic Signals
3.4.5.5.17	TX FM Hum and Noise
3.4.5.5.18	RX Frequency Range
3.4.5.5.19	RX Sensitivity
3.4.5.5.20	RX 12 dB SINAD
3.4.5.5.21	RX 20 dB Quieting
3.4.5.5.22	RX Digital Bit Error Rate
3.4.5.5.23	RX Selectivity
3.4.5.5.24	RX Spurious and Image Rejection
3.4.5.5.25	RX Intermodulation

3.4.5.5.26 RX Adjacent Channel Rejection

3.4.5.5.27 RX Audio Response

3.4.5.5.28 RX Audio Output, Internal Speaker

3.4.5.5.29 RX Frequency Stability

3.4.5.5.30 RX Intermodulation Rejection

3.4.5.6 Physical Characteristics

3.4.5.6.1 The Proposer shall provide state-of-the-art, robust, public-safety-grade radios. Describe the following specifications of each radio that will be offered:

3.4.5.6.2 Mechanical Specifications

3.4.5.6.3 Physical Specifications

3.4.5.6.4 Form Variations

3.4.5.6.5 MIL Standards

3.4.5.6.6 Intrinsically Safe

3.4.5.6.7 Electrical Specifications

3.4.5.6.8 Battery Life (Portable Only)

3.4.5.6.9 Operating Temperature-30 C to +60 C

3.5 Mobiles

3.5.1 This section further defines the characteristics required of the mobiles that the City is requiring.

3.5.2 Configuration

3.5.2.1 For the specification pricing, each mobile radio shall consist of the dash mounted radio unit, 3 dB roof-mounted antenna, external speaker, and all necessary hardware, materials, labor and programming necessary for a complete, working installation (i.e. closed coil on antennas, elevated feed, coax cut to length, etc.).

3.5.2.2 Additional installation pricing will be based upon the various type of units listed in the vehicle class and installation type. The Proposer will quote the cost of each in accordance with the table in the following pages.

3.5.2.3 Mobile radios shall be offered in several varieties including dash mount, remote, mount with control head and remote mount with dual control heads.

3.5.2.4 Mobile radios shall also offer a handheld control head.

3.5.2.5 Describe how a radio is offered as a remote mount and how a dash mount can be converted to a remote mount and/or converted back to a dash mount. Include any additional parts that may be required.

3.5.3 Physical Characteristics

3.5.3.1 Meet or exceed current MIL-STD-810 for high and low temperature, vibration, shock, dust, humidity, driven rain, and solar radiation.

3.5.3.2 Die-cast construction of radio chassis is required. Metal covers, while not required, are desirable. The chassis shall be made of plated or painted steel or aluminum of sufficient gauge to provide for adequate protection in a mobile environment.

3.5.3.3 The cabling shall be constructed so that frequent exposure to typical automotive liquids such as hydraulic fluids and petroleum-based oils or typical automotive vibration or shock does not cause the cable to degrade beyond operational use.

3.5.3.4 The radios shall provide long-term reliability and functionality in a public safety environment. The radios shall operate in environments with high RF energy, DC input voltage fluctuations, noise introduced in the DC line, typical temperature fluctuation, and exposure to dust, dirt, moisture, and shock.

3.5.4 Installation Requirements

3.5.4.1 An acceptable mobile radio shall operate without degradation with voltages ranging from 11.5 to 14.8 VDC.

3.5.4.2 All power and ground leads must run directly to battery with only specific soldered connections.

3.5.4.3 There must be a separate fuse on the ground lead of the installation.

3.5.4.4 All radios and accessories must be able to be turned on and off via a common ignition switch. The ignition switch sense cable must be fused.

3.5.4.5 A separate fuse lead is required running directly to the battery for dual remote head installations.

3.5.4.6 Radio, microphone clips, control heads and remote heads must be a grounded per manufacturers specification.

3.5.4.7 All power modes must not allow long-term battery to drain when the radio switch or ignition switch is set to the off position.

3.5.4.8 The radio set shall be equipped with suitable reverse polarity protection to avoid damage if the radio or battery is incorrectly installed. The mobile radio shall be protected against source voltages above 14 VDC and operate at source voltages as low as 11 VDC without "motor-boating" or emitting any spurious emission or loss of programming.

3.5.4.9 Be capable of use in positive ground vehicles with the installation of an inverter.

3.5.4.10 Some installations use a David Clark or other interface for communications with the rear cab control. Some vehicles require a Molex connector to communicate with the David Clark.

3.5.4.11 Some vehicles will require unique mounting configurations and electrical system interfaces, including 24 VDC to 12 VDC converters and battery switches.

3.5.4.12 Large trucks have fabricated special front bezels to hold the loose-fitted radios securely in the console pocket.

3.5.5 Antenna System

3.5.5.1 The basic mobile antenna system shall consist of a 3 dB antenna, mount, transmission line and connectors.

3.5.5.2 Multiband mobile antennas shall be included to support multi band mobile radios being offered.

3.5.5.3 Connectors on the cable must mate directly with the radio. The use of adapters will not be accepted.

3.5.5.4 Other required antenna features are:

3.5.5.4.1 The antenna radiating element shall be removable and replaceable without disturbing the mount.

3.5.5.4.2 Stainless steel radiating element

3.5.5.4.3 Aluminum and plated steel base

3.5.5.5 Above and beyond the basic mobile antenna, Proposer shall provide the following additional antenna options:

3.5.5.5.1 3 dB Collinear Roof or Trunk Mount Antennas

3.5.5.5.2 3 dB on Glass Stealth Antenna

3.5.5.5.3 Unity Gain Low Silhouette Antenna

3.5.5.5.4 Transit Style Antenna

3.5.5.6 Additional specialty antennas may be required for vehicles currently owned by the City or purchased for use in the future. Proposer shall provide a complete list of specialty antennas available for purchase, as well as a process to approve and add specialty antennas as required.

3.5.5.7 Antenna cable

3.5.5.7.1 Low-loss cable, minimum 95% shield.

3.5.5.7.2 The Proposer shall wrap all exposed cable in flexible tubing and attach with a solid wire and fasteners to a secure location. All cables should be attached to a secure location within 2 inches of the cable termination point. The length of the cable should allow for slight movement and placement of the Equipment. In no case shall the wire be coiled. The Proposer shall use low-loss Teflon antenna cable, and all connectors shall be soldered to the cable.

3.5.5.8 There are certain classes of vehicles that will require special antennas, such as elevated feed and transit antennas. Proposer shall provide a complete list of all available antennas that may be used with the mobile radio.

3.5.6 Accessories Options

3.5.6.1 The Proposer shall provide additional accessories for the various services using the mobile radio. The accessories should include:

3.5.6.2 Water-Resistant Heavy-Duty Microphone (Standard and DTMF)

3.5.6.3 Water Resistant Headset for Use Outside the Vehicle

3.5.6.4 Noise Canceling Microphone (Standard and DTMF)

3.5.6.5 Bluetooth Capability

3.5.6.6 Aux Microphone Connector for Headsets

3.5.6.7 Waterproof Speakers for Use Outside the Vehicle

3.5.6.8 GPS and antenna to support AVL services

3.5.6.9 Describe the other accessories that the Proposer shall provide for each radio for a transportation agency.

3.5.6.10 The mobile shall have the ability to use third-party accessories. Describe the accessories kits that are available to allow third-party suppliers. Provide a list of third-party suppliers that supply accessories for the mobile radio.

Install Type	Mobile Install Time	Installs Per Day	Vehicle Class Description
POLICE VEHICLE TYPES			
Remote Mt Standard	3 hrs	3-4	SUV
Remote	4 hrs	3	Electric Vehicle sedan
Remote Mt	5 hrs	2-3	Undercover vehicles
Dash Mt Special	8 hrs	1	Command RV/Truck
Remote Mt Dual Head	10 hrs	1	Command RV/Truck
Dash Mt Special	8 hrs	1	Boat/Vessel
Dash Mt Special	3 hrs	3-4	Motorcycles
FIRE/LIFEGUARD VEHICLE TYPES			
Remote Mt Special Dual Head	24 hrs		Engine/Heavy rescue
Remote Mt Special this takes 7 radios	160 hrs		Suburban/BC
Remote Mt Special	6 hrs	1	Brush rig
Remote Mt Special	3 hrs	5-6	SUV
Remote Mt Special	16 hrs	4-5	LG Vehicles (all Toyota models)
Remote Mt Special	8 hrs	1	LG Boat/Fire
OTHER VEHICLE TYPES (i.e. street sweepers, trash trucks)			
Dash Mt Special	3 hrs	4-5	Trash/sweeper
Dash Mt Special	3 hrs	4-5	Street/P&R
Remote Mt Special	5 hrs	2-3	Park Ranger

Table 3-2: Vehicle Class Descriptions

3.6 Portables

3.6.1 This section further defines the characteristics of the portables that the City is requiring.

3.6.2 Configuration

3.6.2.1 Portable unit pricing should include the antenna, base radio, **twelve-hour** battery, single unit charger, and initial programming.

3.6.3 Physical Characteristics

3.6.3.1 Portable Environment

3.6.3.1.1 The portable radio shall meet or exceed the current MIL-STD-810 and shall be sealed against dust, dirt, moisture, and water.

3.6.3.2 The chassis shall be constructed of a high-impact material. Portable radio housings must meet or exceed the EIA drop test requirements. The case shall be sealed so that the internal circuitry is protected from dust, moisture, and splashing water with or without the battery connected. Portables shall have an engraved or stamped multi-digit unique serial number applied to each unit. These shall be of such type, and located in such a position, that their removal or alteration is difficult to do.

3.6.3.3 Housing

3.6.3.3.1 The radio shall be enclosed in a high impact resistant material housing.

3.6.3.3.2 The radio shall have the option of availability in colored material housing (i.e. orange, green, etc.).

3.6.3.4 Survivability

3.6.3.4.1 Portable radios offered for service in the specification must withstand a fall from a distance of one (1) meter onto a hard, bare concrete floor and suffer no damage externally or internally, regardless of the radio surface(s) contacting the floor, including the top.

3.6.3.4.2 Each portable radio shall be weatherproof in that it will not be damaged by moisture or temperature extremes such as those experienced in fire and police use, including exposure to sunlight or driving rain, wet snow, and ice combined with freezing temperatures or extreme heat with high humidity without the protection of a carrying case or other covering.

3.6.3.5 Operating Temperature

3.6.3.5.1 The radio shall perform without degradation over the temperature range of -30 C to +60 C.

3.6.3.6 Electrical/Power Source

3.6.3.6.1 The battery shall be a rechargeable lithium ion battery, which shall be quickly and easily removed. Battery life, based on a 5% transmit, 5% receive,90% stand-by duty cycle, measured in accordance with EIA standards of audio output, shall be at least **twelve (12) hours.**

3.6.3.6.2 Each portable radio shall have one spare lithium ion battery.

3.6.3.6.3 The battery shall be encased in a high impact resistant plastic-like material and finished and colored to match the portable case.

3.6.3.6.4 Batteries shall be externally connected to the radio and shall be secured with an easily operated release that cannot be accidentally activated.

3.6.3.6.5 Proposer shall offer an Intrinsically Safe battery that is certified for use on the portable radio.

3.6.4 Antennas

3.6.4.1 The antenna must screw into a connector on top of the radio making a waterproof connection.

3.6.4.2 It must be a full-size device to maximize the transfer of RF energy from the transmitter into the atmosphere and pick up the greatest amount of signal possible that has been transmitted by other units.

3.6.4.3 "Stubby" or other types of antennas that exhibit a negative gain are not acceptable.

3.6.4.4 The antenna shall be flexible and covered with soft plastic or rubber with a blunt safety tip.

3.6.4.5 Rigid or semi-rigid designs will not be accepted.

3.6.5 Accessories Options

3.6.5.1 The Proposer shall provide additional accessories for the various services using the portable. The accessories should include:

3.6.5.1.1 Water Resistant Headset

3.6.5.1.2 Lapel Microphone with Emergency, and Volume Control

3.6.5.1.3 Lapel Microphone with Emergency, Volume Control and GPS

3.6.5.1.4 Lapel Bluetooth Microphone with Emergency, and Volume Control

3.6.5.1.5 Leather Carrying Case

3.6.5.1.6 Carrying Clip with a D Ring

3.6.5.1.7 Carrying Case with a Clip Suitable for Attaching the Radio to a Belt

3.6.5.1.8 Carrying Clip with a Case

3.6.5.1.9 Third-Party Accessories

3.6.5.2 Describe the other accessories Proposer will provide with each radio. The portable shall have the ability to use third-party accessories. Describe the accessories kits that are available to allow third-party suppliers. List third-party suppliers that supply accessories for the portable radio.

3.6.6 Battery Chargers

3.6.6.1 Single Unit Charger

3.6.6.1.1 The charger shall come equipped with a 115/120 AC 60 Hz line cord with standard grounded plug.

3.6.6.1.2 The standard rate charger shall charge either a lithium ion battery alone, or the radio/battery combination in 16 hours or less from a totally discharged state. An indicator light shall indicate “charging” as well as “charging complete”.

3.6.6.1.3 Proposer shall also offer a rapid rate charger that charges a lithium ion battery alone, or the radio/battery combination at a rate faster than the standard rate charger. Proposer shall indicate the charge time for the rapid rate charger from a totally discharged state. An indicator light shall indicate “charging” as well as “charging complete”.

3.6.6.2 Multi-Unit Charger

3.6.6.2.1 This charger shall perform the tasks and operate as the single unit rapid rate charger above except that it shall handle a minimum of 4 such units at the same time. All indicators shall be provided per lithium ion battery charging pocket so the charging state of each battery in easily discernible. This unit shall have a common AC plug and on/off switch for all charging pockets.

3.6.6.3 Vehicular Chargers

3.6.6.3.1 The charger shall charge either a lithium ion battery alone, or the radio/battery combination in two hours or less from a totally discharged state.

3.6.6.3.2 The charger shall come equipped with an adapter for 12-volt DC power with cable. Provide an explanation of any additional capabilities the charger provides.

3.7 Control Stations

3.7.1 Configuration

3.7.1.1 The Proposer shall provide both standalone tabletop and remote-control configurations. The antenna cabling and the remote-to-radio cable shall be provided separately.

3.7.1.2 Each control station system shall consist of a mobile type radio unit meeting the specifications for the mobile radios, an AC power supply specified herein, plus 3db outdoor antenna with an N-female connector and all necessary hardware, materials and labor needed for a complete and acceptable installation.

3.7.2 Physical Characteristics

3.7.2.1 The radio physical characteristics shall be the same as identified in section 3.5.3.

3.7.2.2 Operating Temperature

3.7.2.3 The radio shall perform without degradation over the temperature range of -30 C to +60 C.

3.7.3 RF Specifications

3.7.3.1 The transmitter and receiver specifications shall be the same as in the related subsections of section 3.5.

3.7.4 Antenna

3.7.4.1 The basic control station antenna shall be an omnidirectional, 3 dB gain, installed outside the location (roof or wall mount) of the control station.

3.7.4.2 Proposer shall also provide a directional antenna option that can be installed outside the location (roof or wall mount) of the control station.

3.7.5 Accessories Options

3.7.5.1 The Proposer shall offer additional control station accessories, including, but not limited to:

3.7.5.1.1 Remote-to-Radio Audio Control Cable (per Foot)

3.7.5.1.2 Remote Speakers

3.7.5.1.3 Remote Deskset (up to 10)

3.7.5.2 Describe the other accessories that the Proposer shall provide for each control station for the City.

3.7.5.3 The control station shall have the ability to use third-party accessories. Describe the accessories kits that are available to allow third-party suppliers. List third-party suppliers that supply accessories for the control station.

3.7.6 Desk Sets and Interfaces – Physical Interface

3.7.6.1 Display must be able to provide talk group information and incoming call information.

3.7.6.2 Handset and speaker capability.

3.7.6.3 Connections for extra amplified speaker.

3.7.6.4 Individual volume control.

3.7.6.5 Intercom capability between desk sets.

3.7.6.6 Foot switch

3.7.6.7 Headset

3.7.7 Desk Sets and Interfaces – Interface/Controller/Panel Capability

3.7.7.1 Desk set to interface/controller/panel

3.7.7.1.1 Remote capability up to 300 feet

3.7.7.1.2 Up to 10 desk sets connection to interface/controller/panel to a single control station and interface.

3.7.7.2 RF unit to Interface/Controller/panel

3.7.7.2.1 Remote capability up to 300 feet

3.7.8 Desk Set Capabilities

3.7.8.1 Change radio group from any desk set

3.7.8.2 Interface can either alias remote channels or import radio channel names from radio which the interface is connect to for display on desk set.

3.7.8.3 Display UID of transmitting radio

3.7.8.4 Proposer is to provide details of how their desk set interface a control stations, any limitation on the make and model of control stations. Proposer shall provide a list of other capabilities beyond those listed above that a standard desk set interface to a control station will provide.

3.8 Subscriber Licensing

3.8.1 The Proposer is to provide all licensing costs that are associated with any of the Basic, Advanced, or Enhanced features. All licensing to enable the feature or function to operate at the various tiers should be included.

3.8.2 The Proposer should include a list and cost of all licensing associated with the use of a subscriber radio.

3.9 Subscriber Software Feature Upgrades

3.9.1 The Proposer is to provide all software feature upgrade costs that are associated with any of the Basic, Advanced, or Enhanced features. All costs to enable the feature or function to operate at the various tiers should be included.

3.9.2 The Proposer should include a list and cost of all software feature upgrades available for the subscriber radios provided.

3.10 Subscriber Applications

3.10.1 The Proposer is to provide all application costs that are associated with any of the Basic, Advanced, or Enhanced features. All costs to enable the applications to operate at the various tiers should be included.

3.10.2 The Proposer should include a list and cost of all applications available for the subscriber radios provided.

3.11 Subscriber Programming

3.11.1 The Proposer should include a list and costs of all software and hardware required to program the proposed subscriber radios.

3.11.2 The Proposer should include a list and costs of all software and hardware required to modify the enable encryption of the proposed subscriber radios.

3.12 Subscriber Radio Offering Documentation

3.12.1 Provide datasheets and product descriptions for all subscriber radios offered for the City's Radio System. Provide documentation on a per-tier basis, as described in section 3.3.