MOTOROLA

December 16, 2010

William McCammon, Executive Director
East Bay Regional Communications System Authority
4985 Broder Blvd.
Dublin CA 94568

RE: EBRCSA P25 System Build-out Proposal

Mr. McCammon:

Motorola, Inc., by and through its Government and Public Safety business ("Motorola"), is pleased to provide the EBRCSA with quality communications equipment in response to your RFP for the EBRCSA P25 System Build-out with compatibility for future TDMA. Motorola has taken great care to propose equipment and software that will meet your requirements and provide unsurpassed value. This proposal contains:

- Cover Letter
- System Description
- Equipment List
- Statement of Work (SOW)
- Pricing Summary
- Payment Terms

This Proposal is offered pursuant to the provisions of the negotiated Agreement between the EBRCSA and Motorola. EBRCSA may accept this proposal by issuing a purchase order that references this Proposal and its terms or by referencing the terms and conditions in the EBRCSA contract # 09-12030/BKP previously negotiated with EBRCSA for the Livermore Police Consoles purchased in July 2009.

Our proposal will remain valid for a period of 180 days from the date of this letter. Any questions can be directed to Chris Clay, PO Box 1546, Rohnert Park, CA 94927, telephone number 707-585-9191, email chris.clay@motorolasolutions.com .

Sincerely,

MOTOROLA, INC.

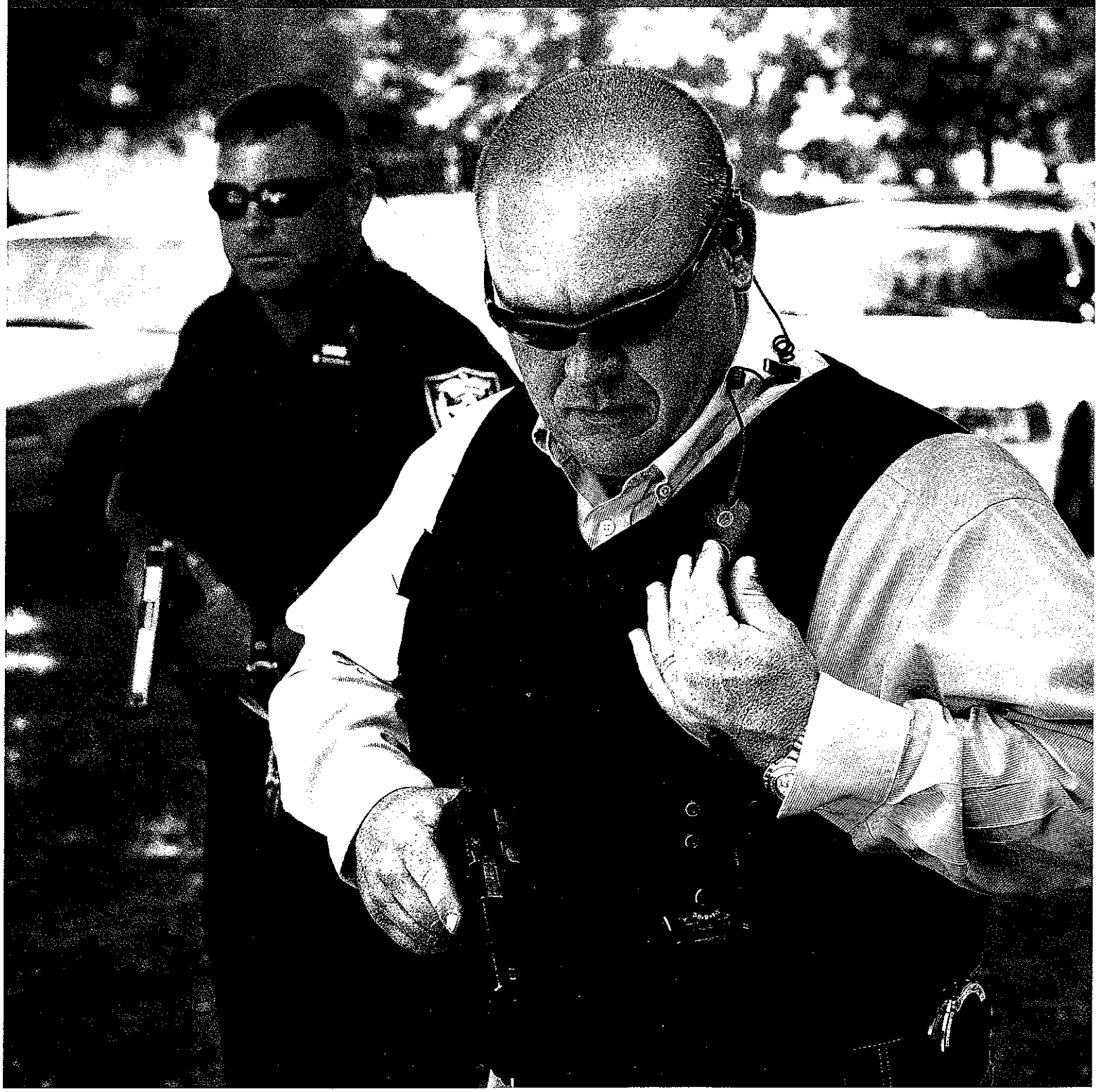
Mark Schmidl
Vice President
Motorola Sales and Services, Inc.

Cc: C Clay
G Durbin

East Bay Regional Communications System Authority

EBRCSA P25 System Completion Project

Executive Summary



Motorola is pleased to provide this Design Document to East Bay Regional Communications System Authority (EBRCSA) to finish the build-out of the existing shared Two County, Project 25 700/800 MHz Trunked radio communications network to serve all the agencies participating in the EBRCSA.

Motorola has designed a network that meets the operational and technical Requirements of Alameda and Contra Costa Counties, as well as the many City agencies located in each county, based on the requirements in the RFP.

HISTORY

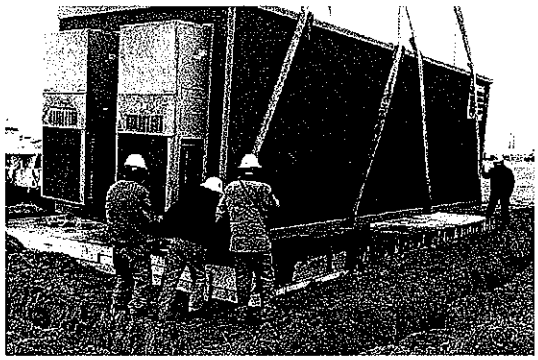
The EBRCSA P25 System started out in 2005 as a state of the art upgrade and replacement for the ageing system used by Alameda County and many Cities within the County. The current Alameda SmartNet radio system was first installed in the 1980's and was coming towards the end of its useful life cycle after 20 plus years in service. This system was vital for communications used by the mission critical Public Safety services provided by Alameda Sheriff's Office, County and City Fire, City Police Departments along with other County and municipal agencies, including Public Works and Public Services, Parks, etc.

In 2005, Alameda County released a competitive bid for a replacement system. At that time Motorola was selected as the successful vendor to begin construction of the new system. Contra Costa County faced many agencies with disparate, aging radio systems with limited growth. These systems would also be facing FCC mandated "narrowband" changes in 2013. With interoperability becoming more and more important in urban and metropolitan areas and encouraged by the Federal Government at local levels, Contra Costa County looked to partner in with Alameda to form a regional system. Contra Costa's in turn hired an independent consultant, who confirmed this two county regional concept was the best approach for them.

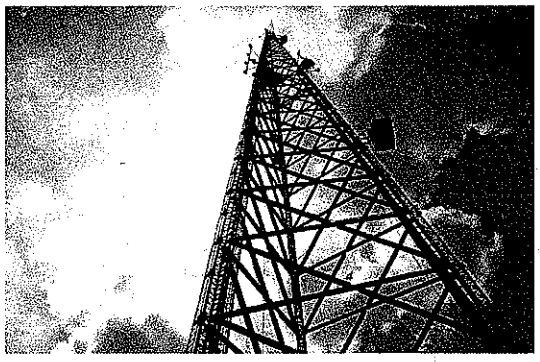
Soon after, in 2007 a Joint Powers Authority (JPA) was formed, this was East Bay Regional Communications System Authority (EBRCSA) currently consisting of 36 member agencies in the two Counties.

Since the EBRCSA has begun, the Master P25 Switch site in Dublin has been installed and eleven other sites have been procured. This work has resulted in the completion of one cell in Contra Costa County along with its stand alone site and another cell about to be completed in Alameda County. In addition six different dispatch centers are in various stages of being installed and becoming operational.

EBRCS BUILD OUT



This proposal is the final part to complete the system and its coverage for EBRCSA's P25 system and its users. The EBRCSA system when completed will cover over 1,500 square miles of both Alameda and Contra Costa Counties and a combined population of over 2.5 million people. It will consist of 36 transmit and receive sites broken down into six multi site simulcast cells and will include six stand alone sites to provide coverage in rural and fill in areas to meet the needs of its member agencies.



Completion of the EBRCSA P25 system encompasses the equipment and services in this proposal to finish the Alameda Northwest cell, Alameda Southeast cell with Contra Costa Central cell and Contra Costa East cell along with requested dispatch consoles for Contra Costa County PSAPs. In addition the stand alone sites for Contra Costa County at Marsh Creek and Fire Station 53 with Alameda County sites at Niles Canyon, Crane Ridge and Gwin are provided for.

EBRCSA AND MOTOROLA PARTNERSHIP

When completed EBRCSA will have a fully operational Project 25 700/800 Digital Trunked regional system providing the functionality, coverage and interoperability needed for this major urban area. By partnering with Motorola and our unmatched experience in the development and deployment of Project 25 Standards based systems you can be assured of a successful project.

Motorola stands ready to continue providing the East Bay RCS with a world class communications system. By continuing with Motorola, the agencies in Alameda and Contra Costa Counties can be confident that it has chosen the leading provider of communications equipment in the industry. Motorola has an unmatched combination of quality products, an experienced and highly effective System Integration Team, superior maintenance and system support services. Motorola will deliver a quality system in a timely and efficient manner to the East Bay RCS. Motorola looks forward to continuing its long-standing relationship with Alameda and Contra Costa Counties and the Cities by working together on this important regional network.

Section 3.a System Description

Systems Overview

In compliance with the RFP, we have written this section to describe the proposed system and guaranteed system specifications. To that end, we have provided the following required subsections:

- **System Description** – This section describes the additional simulcast systems/ cells and MCC7500 IP dispatch consoles required to complete the EBRCSA system. It specifically describes our IP-based ASTRO 25 solution, and our MCC7500 dispatch console. Also, it discusses the system's upgrade and expansion capabilities. (***Refer to heading "3.1 System Description" below.***)
- **System Staging** – This subsection describes the process and details associated with the staging of the new EBRCSA equipment required as part of this RFP using Motorola's unique 33,000 square foot staging facility. (***Refer to heading "3.2 System Staging," below.)***
- **Acceptance Test Plan** – We have included a full acceptance test plan that describes the methods, procedures, and typical test procedures. This extensive plan includes infrastructure and coverage testing as well as a discussion of how we designed the system's coverage to meet the requirements, as well as our standard methodology and tools for predicting coverage. (***Refer to heading "3.3 Acceptance Test Plan," below.)***
- **System Documentation** – We have provided rack-face drawings and typical block diagrams in this section. These drawings encompass the sites and connectivity of each of the simulcast and stand alone repeater sites. Additional documentation is included to support the physical facility requirements. (***See Section 7b, System Drawings***)
- **Coverage Maps** – We have included coverage maps for the completed EBRCSA system. These maps illustrate the portable on street on hip and portable in-building on hip talk in and talk out coverage for the two County EBRCSA system. (***See Section 7c, Coverage Maps***)

3.1 System Description

Motorola, EBRCSA and AECOM have long been working to finalize the site selection and coverage design for the remaining portion of the two-county EBRCSA P25 trunked radio system. Motorola understands that the intent of this RFP is to complete the remaining phases of the EBRCSA system. This document identifies the equipment needed to complete the simulcast system build-out in Alameda Northwest, Alameda Southwest, Contra Costa Central, Contra Costa East, the stand-alone repeaters sites and the MCC7500 IP dispatch consoles for the agencies in the respective Counties.

The EBRCSA system once completed will provide coverage and interoperability to all agencies operating on the EBRCSA system. This system will improve safety, eliminate duplication of overlapping independent systems, and provide effective interoperable voice communications. This will enable EBRCSA to provide improved public safety services.

In this section, Motorola addresses the continued implementation of the EBRCSA P25 system to meet the needs of users today—with the flexibility to adapt and grow to meet the future needs of the EBRCSA.

Technology that's second nature: The MOTOA4 Portfolio ™

The existing equipment that has been purchased by EBRCSA in earlier phases along with the equipment included as part of this proposal are based on Motorola's MOTOA4™ portfolio. MOTOA4 provides EBRCSA with technology that is second nature--enabling continuous interoperable communications that are vital to your first responders to save lives, assess threats, enforce laws, and serve the public. Our standards-based technology ensures improved coverage, maximizes reliability, delivers optimum system capacity, and increases interoperability with neighboring agencies, while providing a cost-effective and predictable migration to future technology.

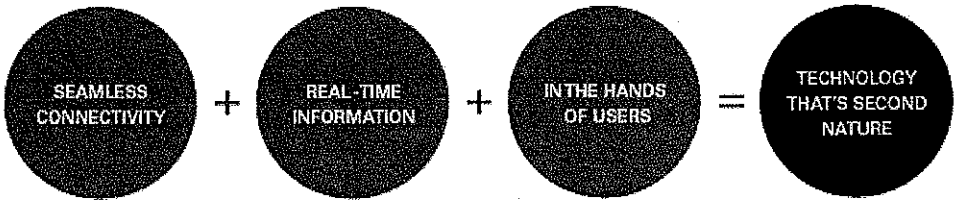
MOTOA4 solutions are built around a fundamental need for technology that is 'second nature,' enabling responders to focus on the mission and not the technology. Motorola's extensive portfolio includes wireless networks, advanced devices, and advanced applications, allowing EBRCSA personnel to receive better information so they can make better decisions for better outcomes.

MOTOA4 enables EBRCSA and its public safety agencies to confidently take the next step in mission-critical communications beyond the basics to the most reliable and innovative wireless solutions.

It is based on providing seamless connectivity, real-time information in the hands of users. "MOTOA4" stands for the 4 advanced evolutions of mission-critical

communications: Advanced Voice, Advanced Integrated Voice and Data, and Advanced Wide Area Data to Advanced Broadband Data. MOTOA4 incorporates networks, applications, devices and services, providing:

- **Seamless Connectivity** - Ultra-reliable mission-critical communications – across networks, applications and devices. Anywhere. Anytime.
- **Real-Time Information** - Mobile intelligence and instant awareness when you need it most. A suite of advanced applications that deliver actionable, accurate, real-time information to the field.
- **In the Hands of Users** - Rugged. Dependable. Easy-to-use devices. So you can focus on the mission – each time, every time.



3.1.1 ASTRO 25 IP

Motorola's proposed solution continues to build on Motorola's ASTRO 25 platform with Integrated Voice and Data. This platform offers a Project 25 standards-based Internet Protocol (IP) modular solution, providing your first responders with:

ASTRO 25

When Mission Critical Communications Demand Project 25 Interoperability and IP Flexibility

- **Cost savings** – Cost reductions by integrating your voice and data needs such as Over-the-Air Programming and Over-the-Air Rekeying into a single solution.
- **Interoperability**– Compliant with APCO Project 25 standards, offering seamless interoperability with other compliant systems and radios, putting the highest level of interoperability in the end users' hands, without the need of gateways or console patches.
- **Reliability** – Pre-release software and upgrade testing, third party hardware and software certification process, fault tolerant architecture with multiple fall back modes, multiple levels of redundancy, and real-time network and security monitoring provide EBRCSA with mission-critical reliability.
- **Enhanced productivity** – Easy and intuitive interfaces to critical real-time information is delivered to the user when and where they need it.

- **Flexibility** – Scalable, flexible design allows ASTRO 25 to dynamically adapt to the operational demands of any size organization within EBRCSA - the IP-based design supports a unique mix of voice, data, and geographical requirements, permitting easy system enhancements as the users' needs evolve.

Motorola's solution provides EBRCSA the scalability, flexible system architecture, network management, and easy migration to future capabilities.

3.1.2 Proposed Solution

3.1.2.1 Introduction

The objective of this proposal is to provide the equipment needed to complete the build-out of the remaining phases of the EBRCSA system using standards-based, mission-critical communications infrastructure. This design delivers the coverage and capacity required by EBRCSA, AECOM and its users. The proposed ASTRO 25 system is a continuation of equipment that has already been purchased and implemented in earlier phases of this project.

Voice Infrastructure

The EBRCSA trunked infrastructure will consist of an IP-based P25 Phase I simulcast subsystems and ASTRO 25 standalone repeater sites. The proposed Motorola ASTRO 25 trunked system incorporates our latest technology, delivering the flexibility of an IP transport, FDMA operation and simulcast frequency efficiency. The channel count information for each simulcast cell has been identified below by AECOM.

- **Existing IP based P25 infrastructure:**
  - 10 Channel 800 MHz Contra Costa West Cell
  - 10 Channel 700 MHz Alameda East Cell
  - 5 Channel 800 MHz Stand-Alone Crockett repeater site in Contra Costa
- **Proposed IP based P25 infrastructure:**
  - Three Sites, 16 Channel 700 MHz Alameda Northwest Cell
  - Four Sites, 12 Channel 700 MHz Alameda Southwest Cell
  - Seven Sites, 10 Channel 700 MHz Contra Costa Central Cell
  - Three Sites, 7 Channel 700 MHz Contra Costa East Cell
  - One site, 5 Channel Stand-Alone 800 MHz repeater site for Niles Canyon
  - One site, 4 Channel Stand-Alone 800 MHz repeater site for Gwin
  - One site, 4 Channel Stand-Alone 800 MHz repeater site for Crane Ridge

- One site, 4 Channel Stand-Alone 800 MHz repeater site for Marsh Creek
- One site, 3 Channel Stand-Alone 800 MHz repeater site for Fire Station 53

Dispatch Console System

The MCC7500 Dispatch Console is Motorola's mission-critical, fully IP radio dispatch console system featuring an intuitive, easy-to-use Graphical User Interface (GUI). The seamless integration of the dispatch console into the radio system gives the dispatchers full access to system functionality, allowing access and control of the Project 25 trunked resources, as well as superior audio quality. The IP architecture of the MCC7500 eliminates costly and space-consuming backroom electronics. The following console sites are based on the latest information available by EBRCSA and AECOM.

- **Existing IP-based MCC7500 Console Sites:**
  - 5 Livermore dispatch center
  - 5 Pleasanton dispatch center
  - 6 Contra Costa Sheriff
  - 2 Contra Costa Fire
  - 6 Richmond dispatch center
  - 3 Pinole dispatch center
- **Proposed IP-based MCC7500 Console Sites:**
  - 21 COCO Sheriff
  - 2 Martinez Police
  - 2 Pleasant Hill Police
  - 6 Walnut Creek Police
  - 8 Concord Police
  - 4 Antioch Police
  - 7 Contra Costa Fire
  - 4 San Ramon Valley Fire
  - 2 Albany Police
  - 7 Hayward Police
  - 8 Berkeley Police
  - 2 Emeryville Police
  - 3 East Bay Parks
  - 2 UC Berkeley (Lakeside)

Network Management

The Network Management Subsystem (NMS) supports fault management, configuration management, performance management, and security management. Our proposed NMS application allows EBRCSA to manage the system either on-site or remotely across the IP network. Our proposed Alarm and Control Subsystem is the Motorola Supervisory Control and Data Acquisition (MOSCAD) system. MOSCAD provides real time monitoring and remote control of site environmental systems

Two exiting Network Management terminals are located at the Master Site. One additional Network Management terminal has been included as part of this RFP.

Voice Infrastructure

The proposed equipment for EBRCSA will complete the system design and implementation of the two County P25 trunked system. This includes the radio infrastructure that provides the required coverage in both Alameda and Contra Costa Counties. The section below identifies the sites and equipment for each of the simulcast cells.

3.1.3 Simulcast Sites

The ASTRO 25 simulcast infrastructure consists of a central simulcast prime and up to 15 distributed simulcast remote sites, each with up to 30 channels. The prime site acts as an audio control 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 audio, frame-by-frame, to create an optimal composite signal.

3.1.4 Alameda County East Simulcast Cell (existing)

The Alameda County East simulcast cell (ALCO East) has been purchased and implemented. The ALCO East simulcast cell has four sites and ten channels configured for 700MHz operation. The four radio sites are the Doolan Prime Site, Sunol Ridge, Altamont Pass and East Dublin BART station. The ALCO East cell provides coverage in the Dublin, Livermore, and Pleasanton region.

3.1.5 Contra Costa West Simulcast Cell (existing)

The Contra Costa West simulcast cell (CCCO West) has been purchased and implemented as part of earlier project phases. The CCCO West cell has four sites and ten channels configured for 800 MHz operation. The four radio sites are Turquoise Prime Site, El Cerrito Police Department, Pearl Ridge Reservoir and Nichol Knob (Point Richmond). The CCCO West Cell provides coverage in El Cerrito, Hercules, Kensington, Pinole, Richmond, and San Pablo areas.

Section 9. Price Proposal

Motorola's pricing is based on the equipment list and services defined for the system designed for the final build out of the EBRCSA's P25 Trunked System. The Statement of Work (SOW) describes the work to be performed for installation, optimization and testing for four complete cells, five stand alone sites and the necessary MCC7500 Consoles along with the equipment list provided for this project.

Build Out of the EBRCSA P25 Trunked System	
Equipment, Hardware and Software: EBRCSA's P25 Trunked System	$15,545,024.00
Implementation Services: installation, optimization, setup, programming, training, testing, documentation per S.O.W.	$5,438,569.00
Estimated 9.75% Sales Tax	$1,515,639.84
Equipment Total with Services and Optimization	**$22,499,232.84**

Competition of the EBRCSA P25 Trunked System with Discount	
Equipment, Hardware and Software: EBRCSA's P25 Trunked System	$15,545,024.00
Equipment Discount Based on Riverside/Motorola Contract	$2,789,062.00
Revised Equipment, Hardware and Software Price	$12,755,962.00
Estimated 9.75% Sales Tax	$1,243,706.30
Implementation Services: installation, optimization, setup, programming, training, testing, documentation per S.O.W.	$5,438,569.00
System Partner Discount *	$2,001,398.00
Build Out of the EBRCSA P25 Trunked System with Discount	$17,436,839.30
System Phase 1 Competition Services	$1,411,233.22
Total to complete EBRCSA P25 Trunked System	**$18,848,072.52**

* System Partner Discount valid if Change Order executed prior to March 18th 2011

9.1 Build Out of the EBRCSA P25 Trunked System Payment Terms

- 10 % upon execution of the contract
- 10% upon completion of detailed design review
- 45 % upon shipment of the equipment
- 20 % upon installation completion
- 15 % upon system test completion by Motorola

Price validity is for 120 days