

# **City and County of San Francisco**

## **Request for Information**

### **800MHz Public Safety Radio Replacement Project**



Date Issued: July 30<sup>st</sup> 2014

Submittal Date: Monday September 15<sup>th</sup> 2014 by 5pm PST

# Request for Information for 800MHz Public Safety Radio Replacement Project

## I. Purpose

The City and County of San Francisco (the City) has a diverse radio communications environment, with several different Land Mobile Radio Systems deployed to meet specific operational needs of City departments. These systems are in different stages of their lifecycle, and each have varying technologies and capabilities. The City is in a position where it needs to replace the public safety radio system as it is nearing end-of-life and out of manufacturer support with the vendor. The replacement system must meet public safety standards for performance and reliability and provide robust radio communications for the next 10-20 years. The City is also exploring options for the City's non-public safety users (i.e. Public Service Departments) as the system that they use needs to be replaced within the next 5-10 years. If possible, the City would like to consolidate systems where it can provide efficiencies and reduce operating costs.

The City is exploring the option of upgrading all of its Land Mobile Radio systems to the Project 25, digital technology standard. The goal of this Request for Information process is to solicit information from the vendor community, and provide information on their current Project 25 radio system products. Additionally, the City is interested in hearing from qualified sources to provide a proposed plan of action for replacing the City's 800MHz Public Safety Radio system, and/or consolidating systems where appropriate. Lastly, the City is interested in new technologies and capabilities in radio technology and is seeking further detail on vendor capabilities.

The City, at its sole discretion, will determine if a RFP or other competitive solicitation will be issued at a later date. Any RFP issued by the City may differ significantly in content from the Project described below.

## II. Project Overview

The City has established a project team consisting of project management and technical staff. In addition, the City has retained Federal Engineering as a consulting firm to assist in planning the various phases of the project. In addition, representatives from stakeholder departments are involved with developing needs and requirements for the next generation system. Stakeholder departments include Department of Emergency Management (DEM), Department of Technology, Police Department, Fire Department, Sheriff Department, Mayor's Budget Office, Capital Planning, Controller's Office, Recreation and Park, Municipal Transportation Agency (MTA), Department of Public Works (DPW), and the Public Utilities Commission (PUC).

## III. Overview of Current Systems

The primary public safety radio system for the City is the 800MHz Citywide Emergency Radio System (CERS). It is a mixed-mode, simulcast, 800MHz radio system, deployed at 8 radio sites throughout the City. The initial system was installed in 2000 and was a Motorola SmartZone 3.0 System, but had a major upgrade in 2009 to add a P25 Master Site Controller as well as a 700MHz Interoperability system. The system was designed to provide 95% in-building coverage throughout San Francisco. The major subsystems of the CERS network include:

- Motorola Project 25 Master Site Controller (v7.7), with SmartX controllers
- Motorola Prime Site Controllers (6809)
- 23-channel, 8 site trunked simulcast cell with QUANTAR Base Stations

- Microwave Backhaul (Harris)
- Fiber Optic MPLS Backhaul Network ( Alcatel Lucent )
- 800MHz Conventional Mutual Aid System
- 700MHz P25 Phase 1 trunked, simulcast cell, 6-channels at 4 radio sites
- MOSCAD System for system alarms, equipment diagnostics and remote monitoring of sites
- Console system in DEM (Gold Elite and MCC 7500), Water Department, Sheriff, DT, and DPT, connected through a Motorola Gold Elite Gateway (MGEG)
- Audio Logging/Recording System
- Subscriber Radios (mobiles, portables, and consolettes)
- Network Monitoring locations at Radio Shop, Twin Peaks and Communications System Control
- BDA systems (over 30) to enhance coverage in specific City buildings
- High Performance Data System (5 sites)

There are approximately 6700 Radios operating on the system, including portable handheld radios, mobile (in-vehicle) radios and fixed consolette radios. The following is a list of City departments and agencies on the CERS system:

<b>Dept.</b>	<b>Total Qty</b>
Police	3170
Sheriff	1150, 1 Console
Fire	915
Rec & Park	215
DEM	115, 50 Consoles
Dept. of Technology	90, 1 Console
Library	35
DPT/MTA	500 Radios, 4 Consoles
PUC	120 Radios, 1 Console
UCSF PD	150
SF State PD	80, 2 Consoles
City College PD	60
Private Ambulance	50
Misc. Law Enforcement	100
<b>TOTAL</b>	<b>6750</b>

In addition to the public safety radio system, there is also a radio system dedicated to the City's public service departments. The Public Service Emergency Radio System (PERS) is an analog 800MHz system deployed at 4 radio sites (which are a subset of the CERS radio sites). The system is simulcast, and was designed to provide 95% on-street coverage. The system was installed in 2007, and was integrated into the CERS Master Site Controller, as another simulcast cell. The PERS system has the following major subsystems:

- Integration into the CERS Motorola Project 25 Master Site Controller (v7.7) with SmartX controller
- Motorola Prime Site Controllers (MTC 3600)
- 12-channel capable, 4 site trunked simulcast cell with QUANTAR Base Stations
- Microwave Backhaul (Alcatel Lucent)
- Console at DPW connected through a Motorola Gold Elite Gateway (MGEG)
- Subscriber Radios (mobiles, portables, and consolettes)

The chart below shows the total number of radios operating on the PERS system, which include the following City departments and agencies.

<b>Dept.</b>	<b>Total Qty</b>
Adult Probation	43
Dept. of Public Health	300
Dept. of Building Inspection	107
District Attorney	38
Dept. of Public Works	680, 1 console
GSA (Animal Control)	21
GSA (Medical Examiner)	10
GSA (Real Estate)	45
Juvenile Probation	16
Port	128
PUC (WWE, BERM)	229
SFUSD	166
<b>TOTAL</b>	<b>1783</b>

In addition to the CERS and PERS radio systems, the San Francisco International Airport (SFO) operates and maintains a radio system to support public safety and airport operations within San Mateo County. SFO upgraded their radio system in 2010 to a 700MHz Project 25 radio system. The system was installed by Motorola and integrated into the CERS Master Site Controller located in San Francisco. There are 7 channels at 2 radio sites, operating in a trunked, simulcast mode. There are 13 Consoles (8 Gold Elite and 5 MCC7500 positions) operating in the SFO dispatch center. They have approximately 1,000 radios on the system with the primary departments being SFPD, SFFD and Airport Operations and Maintenance Staff. The airport operates in encrypted, secure mode.

Finally, the most current radio system being deployed in San Francisco is a communications network for the SFMTA. The radio network being installed is part of a larger integrated transit management system, and is used for communications throughout the Muni fleet. This system is in the implementation stages and will be operational by the end of 2015. The system is being constructed by Harris Corporation and will consist of the following subsystems:

- Open Sky System
  - 15 800MHz Channels at three Radio Sites
  - Open Sky Subscriber Radios M7300 (qty. 1230)
- Geographically redundant network switch center
- Project 25 Phase II, trunked simulcast radio system
  - 9 700MHz Channels at 4 Radio Sites
  - Subscriber radios P7300 or XG-75 (qty. TBD)
- Console Subsystem with 33 Dispatch Positions at Transit Management Center and 5 dispatch position at OCC backup control center.
- FiberSpan Underground DAS System close fed by two radio sites through fiber supporting underground communications for SFMTA, CERS, PERS and Mutual Aid in the Muni Tunnels

The most critical system that is in need of replacement is the CERS network, and all of its subsystems listed above. The primary goal of the project is to lay out a plan to upgrade or replace this network. This RFI will provide information to help the City create a plan to migrate the CERS system, which should have little impact to the end users, no downtime, and should maintain interoperability across all City departments and agencies.

### **Anticipated Project Schedule**

The preliminary project schedule for the CERS replacement project is to be under contract with a vendor to implement the system in late 2015. It is further anticipated that equipment will be delivered and installed in late 2016, with system cutover occurring in 2018.

### **IV. Responding to this Request for Information**

This Request for Information is intended to provide the City with information about current generation Land Mobile Radio Systems that have the Project 25 capability. The City is also interested in a proposed plan of action for replacing the City's 800MHz Public Safety Radio system, and understanding the pros and cons of migrating and consolidating systems.

- 1) Submittals  
Responses to this RFI may be mailed to:

Department of Emergency Management  
1011 Turk St  
San Francisco, CA 94102  
Attn: Radio Replacement Project Team

Or submitted as an attachment and emailed to [800radioreplacement@sfgov.org](mailto:800radioreplacement@sfgov.org)  
Please include "Response to RFI for 800MHz Radio Replacement Project" in the subject line.

2) Form of the Response

Responses to this RFI should not exceed 40 pages, and should address the following items:

1. The City is interested in your firm's experience implementing large city or countywide Project 25 radio systems. Please provide your experience on projects with similar size and scope to San Francisco. Include information on the number of users, radio sites, console positions and whether the projects were Project 25 Phase 1 or Phase 2 systems.
2. The City is very interested in having zero downtime during system migration from the current system to the next generation system. Space for additional racks at existing sites will also be very challenging.
  - a. Please describe typical rack requirements for a 28 talkpath (1 control, 14 voice repeaters) P25 Phase II system.
  - b. Please describe possible migration strategies using any and all advantages of your system infrastructure, knowing the current situation of the City as described.
3. The City is interested in understanding your company's technology roadmap for your infrastructure solutions. Specifically, how well does your company provide features and functions that are compliant to the P25 standard?
  - a. Please provide your roadmap for P25 Phase II system delivery. Are you shipping Phase II now? If not, when do you anticipate having the ability to ship a Phase II system?
  - b. For planning purposes are there P25 "Standard Option" features that are not available on your system today? If so, is there a timeline for when these features will be available?
  - c. For planning purposes are there P25 "Optional" features that are not available on your system today? If so, is there a timeline for when these features will be available?
  - d. Please describe any system architecture or topology advantages that your system employs or will employ in the near term (3-5 years) that aid in the resiliency or efficiency of your system over other manufacturers.
4. The City is interested in the capability for using smartphones, laptop computers, and other devices to receive and transmit on designated talkgroups operating on the P25 network. Units using this capability would typically be administrative or supervisory personnel that need the ability to communicate outside of the service area of the P25 network or do not necessarily need a P25 subscriber for everyday use.
  - a. Please describe options for providing this capability within your P25 network.

5. The City is interested in providing Digital Vehicular Repeater Systems (DVRS) for certain units operating in a tactical situation where the coverage of the main P25 network is not optimal. An example of this type of operation is a fire department crew working a building fire where below ground coverage is poor. The DVRS in this instance would provide local repeater coverage for the incident and also connect to the P25 network through the vehicle's mobile radio on a dispatch monitored/recorded talkgroup.
  - a. Please describe options for providing this capability within your P25 network.
6. The City is interested in exploring P25 Phase II for its next generation network.
  - a. Please describe where your company is in terms of having P25 Phase II compliant subscribers and infrastructure ready for sale and deployment.
  - b. Please also describe any fielded Phase II systems your company has deployed and accepted.
  - c. Lastly, please describe any issues with using Phase II in the City (positive or negative), knowing the current situation of the City as described.
7. The City is interested using GPS location capabilities in the newly fielded subscribers, both mobile and portable, operating on the P25 network.
  - a. Please describe options for using GPS location capabilities within your P25 network.
  - b. Please describe position reporting options offered by your P25 network: such as by distance traveled, per PTT, on emergency activation, etc.
  - c. Please describe options for displaying position information: such as CAD interface, standalone mapping application, smartphone application, Internet/Intranet web application, etc.
  - d. Please describe general requirements for using GPS on the network, both from the infrastructure and subscriber perspectives.
  - e. In the likely event that there are subscribers of different manufacturers on the next generation system, please describe the requirements of using your subscribers on a different vendor's infrastructure in terms of how your subscribers would operate with GPS location.
  - f. Please describe your compliance to P25 specifications regarding GPS operations, specifically TIA-102.BAJB, TIA-102.BAJC Project 25 Tier 1 and Tier 2 Location Services Specifications.
8. The City is interested in remotely programming radios over the air.
  - a. Please describe your systems capabilities for over the air programming (OTAP) of subscribers.
  - b. Please describe the general process for reprogramming a radio over the air.
  - c. Please describe general requirements for using OTAP on the network, both from the infrastructure and subscriber perspectives.
  - d. In the likely event that there are subscribers of different manufacturers on the next generation system, please describe the requirements of using your subscribers on a different

vendor's infrastructure in terms of the how your subscribers would operate with OTAP.

9. The City is interested in using ISSI and/or CSSI to connect to other Bay Area P25 systems to facilitate system cross-border communications interoperability.
    - a. Please describe the capacity of your ISSI/CSSI offering, in terms of number of active users and talkgroups.
    - b. Please describe any loss of features when connecting to a neighboring P25 system through ISSI/CSSI. For example does the home system console still receive Emergency notifications through the console; how are patched talkgroups affected; etc.
    - c. Please describe the various methods for using ISSI; how they would be implemented in your system; and what the user will experience while operating on an ISSI enabled system. For example manually switching to a talkgroup that only resides on the visited system; automatically roaming to a neighboring system when out-of-range of the home system, etc.
    - d. Describe options for using other manufacturers' consoles that support the P25 CSSI standard on your system.
  10. The City has recently upgraded its Tiburon CAD system and will maintain this system for the foreseeable future. The City is interested in your system's ability to interface to the CAD system and the types of features and functionality that are available on the CAD interface.
    - a. Do your system(s) offer a CAD interface?
    - b. Has your firm worked with Tiburon in the past or does it have any fielded systems with a Tiburon CAD interface? Please list these systems.
    - c. What features or functions are available through your CAD interface?
- 3) Due Date for the submittals is Monday, September 15<sup>th</sup> 2014 by 5pm PST.
  - 4) Contact Information - All interested firms can email questions to **[800radioreplacement@sfgov.org](mailto:800radioreplacement@sfgov.org)**
  - 5) Disclaimers
    - a. This RFI is not part of a competitive process. As indicated above, this is only intended to gather information on the project and capabilities of the vendor community. The City may or may not incorporate any or all of the ideas received from the respondents into a formal solicitation.
    - b. This RFI in no manner obligates the City to issue a competitive solicitation or to pursue any contractual relationship with an entity that responds to this RFI. The City further reserves the right to cancel this RFI at any time if deemed to be in the best interest of the City. The City accepts no financial responsibility for any costs incurred by a firm in responding to this RFI document. Interested parties absorb all their own expenses resulting from their response and any participation in any associated discussions. Participation in this process is voluntary and non-compensable, and no contract of any kind will be awarded as a result of this process.
    - c. Participation in this RFI is NOT a prerequisite to participation in any potential future RFP or other competitive solicitation.
    - d. Materials provided to the City can be requested by the public in accordance with S.F. Administrative Code Section 67.24(e).

6) Process

The following steps are contemplated:

- a. The City will review the responses to the RFI and at its sole and absolute discretion, will determine whether to schedule individual meetings with all of the Respondents, schedule an industry-wide meeting with all of the Respondents, or schedule no meetings.
- b. Meetings will involve discussions about system features, capabilities, proposed cutover and migration plans with City Personnel; with various stakeholder departments; and the Consultant Team
- c. The City will use the information gathered in the discussions to determine whether to proceed with a competitive solicitation.