

**SUBMITTAL TO THE BOARD OF SUPERVISORS
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA**

550



FROM: Riverside County Information Technology Department

SUBMITTAL DATE:
January 24, 2012

SUBJECT: PSEC Project Update

RECOMMENDED MOTION: That the Board:

1. Receive and file the attached PSEC Project update report.

BACKGROUND:

At the January 10, 2012, Board of Supervisors meeting the Board directed staff to provide a status report of the Public Safety Enterprise Communications project (PSEC). Below is the status report.

EXECUTIVE SUMMARY

The project is within 11 months of implementation and will provide the necessary coverage to provide for the safety of the County's public safety personnel. The project required the construction of 44 additional sites, bringing the total to 76 sites; all but 2 sites have been completed.

(Continued)

Christopher Hans

Kevin K Crawford 1/24/12

Christopher Hans
Deputy CEO

Kevin K Crawford,
Chief Information Officer

FINANCIAL DATA

Current F.Y. Total Cost:	\$ N/A	In Current Year Budget:	N/A
Current F.Y. Net County Cost:	\$	Budget Adjustment:	N/A
Annual Net County Cost:	\$ N/A	For Fiscal Year:	11/12

SOURCE OF FUNDS

Positions To Be Deleted Per A-30	<input type="checkbox"/>
Requires 4/5 Vote	<input type="checkbox"/>

C.E.O. RECOMMENDATION:

APPROVE

BY: *Ed Corser*
Ed Corser

County Executive Office Signature

Policy Policy

Consent Consent

Dept's Recomm.:
Per Exec. Ofc.:

Prev. Agn. Ref.:

District: ALL

Agenda Number:

3.39

Departmental Concurrence

Additionally, 9 new sites were identified for enhanced coverage. Six of these sites have either been acquired or are being constructed. Three sites are in the process of being leased.

Equipment installation is well under way. Dispatch center upgrades and master sites are complete. Vehicle radio installation has started and will be completed by October 2012. This includes approximately 1,904 sheriff and fire vehicles as well as the Sheriff's aviation unit.

The project is within budget but risks to the budget exist. The most critical risk at this time is providing commercial power to a hub site. EDA/Facilities Management is working with the PSEC project team to acquire the commercial power and the project team has developed an alternative plan so the project can continue to completion. Because the project was delayed the project is incurring unanticipated operational costs. The project team is working with the Executive Office to address these costs. An initial post implementation operating budget and related service rates have been developed and are being reviewed. Because of the increase in the number of sites (23 to 76) four additional positions will be required to maintain the sites.

PROJECT BUDGET STATUS

In 2005, the County began the process of replacing its current public safety radio system by establishing the Public Safety Enterprise Communication (PSEC) Project Team (Sheriff, Fire and RCIT staff) and the PSEC Project Steering Committee (consisting of the Sheriff's Department, Fire Department, Facilities Management, RCIT and the Executive Office). In 2007, the County entered into a contract with Motorola to design and install a new radio system that would provide 95% coverage countywide. The County also established a project budget of \$148.3 million.

Once implemented, the PSEC system will be the first system in the nation that utilizes multiple frequencies, including 700MHz, 800MHz, VHF and the latest in Motorola land mobile radio technology. No other governmental agencies have implemented a system of the size and scope of Riverside County's – due to the sheer size of our county's boundaries and the technology being deployed.

After the project design work began, the Federal Communication Commission (FCC) mandated the rebanding of 800 MHz frequencies due to interference from commercial cellular transmitter sites – specifically, Sprint Nextel. The FCC, due to a shortage of 800 MHz spectrum, strongly encouraged that PSEC be reengineered and redesigned using the newly allocated 700 MHz frequency band, which is a spectrum reserved for public

safety. As a result, Sprint Nextel was obligated to pay for Motorola reengineering expenses, County staff time and reimburse the County for the value of the current radios that will no longer operate under the new 700 MHz frequency band. The total reimbursement is \$6 million (\$3.0 million immediate payment and \$3 million reimbursed after current radios are returned to Sprint Nextel). Because the reengineering effort, as well as CEQA requirements related to site acquisitions, caused a twelve month delay, the Board of Supervisors approved a revised project completion date (3/31/09, #3.33) from the original completion date of October 2010 to October 2011.

The design of the new radio system included identifying sites for placement of forty-four new radio sites (base coverage sites). Once the required sites were identified, difficulties ensued in securing the sites. Protracted negotiations with property owners, federal government agencies, and state and federal environmental requirements caused a 14 month delay in implementing the radio system to change the completion date to December 2012, and add \$8.6 million in unanticipated expenses.

The final design coverage provided by Motorola, while providing the required mobile (car) coverage, did not provide the required portable (on hip) coverage. The PSEC Executive Steering Committee requested the PSEC Project Team and Motorola develop a solution to provide portable coverage. The enhanced coverage solution requires nine additional sites (enhanced coverage sites) at an expense of \$2.66 million (\$1.72 million in land activity and a \$936,001 increase to the Motorola contract). Two of the enhanced coverage sites are at an elevation that receives several inches of snow during the winter months and will delay construction until the spring. Some of additional sites will be completed and implemented with the base system by December 2012. The remaining sites will be integrated into the base system in early 2013.

Site Acquisition / Construction

The project is moving rapidly toward system implementation. The construction of the base coverage sites is 100% complete. One site in Orange County has been a challenge to finalize due to a variety of obstacles. We are in final negotiations with Orange County to lease antenna and rack space at one of their existing sites. This will avoid construction of the final base coverage site. The BLM and Native American tribes opposed construction at one of the legacy sites called Big Maria. The site is located in eastern Riverside County and provides coverage along highway 95. A replacement site has been acquired in Arizona. The new site will add additional construction costs that are in the process of being defined.

Construction on the nine enhanced coverage sites started in November. Most of the nine sites are in very remote areas of the County, with two sites above the snow line. Therefore, construction on the two sites cannot begin until the snow melts. The leases for three sites are in the County internal review process.

Implementation Activities

The team is finalizing plans for system implementation tasks such as: Sheriff mobile vehicle radios installations, coverage testing, dispatch console implementation, and subscriber radio operational design. Another significant activity is the installation of equipment at the hilltop locations, both in the shelter and on the tower. As radio sites are being energized, preliminary voice testing can begin, including inside high priority buildings.

Equipment

The Master sites located at Alessandro and Blythe were completed and brought online. Radio equipment was installed at 65 of 67 sites. Equipment was optimized at 61 of 67 sites. The activation of the Master Sites and installation of equipment allowed the team to perform initial coverage and functionality testing. The team activated 64 of 75 microwave links and 4 point-to-point paths.

During the installation of equipment, a contracted system upgrade also took place. The Motorola team upgraded the equipment at both Master sites and 35 of the hilltop sites. The middleware software, which handles data traffic, was also upgraded, which added 4.9GHz, Cellular, Interactive Voice and Data (IV&D) and High Performance Data (HPD) seamless network transition capabilities.

Dispatch Consoles

In preparation for the dispatch console installations, the preliminary electrical work for the consoles at Alessandro, Indio, and Blythe was completed. The console upgrade and installation for Ben Clark Training Center (BCTC) was completed and nine consoles were installed and upgraded at BCTC. An example console position was installed in the Sheriff 911 area to allow dispatchers to become familiar with the look and feel of the new keyboard and the new MCC7500 console user interface. The project dispatch team conducted a site visit with Tempe and Peoria, Arizona to understand their dispatch console configurations and their fleetmap structure.

Training

Training is a critical component of the PSEC System. The success of the system is dependent on effective and ongoing training. In order for the training to move forward, the configuration for the MCC7500 and the fleet maps for the mobiles and portables have to be completed so final curriculum can be developed. The County staff is working with Motorola to complete the training materials during the first quarter of 2012. A department memorandum will be distributed to all Sheriff Staff in February seeking trainers in each of the Sheriff stations.

Vehicle Installation

In early 2011 the County and Motorola developed a vehicle installation plan for mobile subscriber equipment and antennas would be configured for the various vehicles types. The meetings culminated in the prototype installation for Fire and Sheriff by midyear. Potential installation contractors were invited to participate in a vehicle installation that allowed the team to evaluate the quality of work. The process identified the installation contractors capable of meeting the County quality standards. The trunks of the Sheriff's cars had to have a new configuration developed to accommodate the radio, data and data cellular equipment. At the end of 2011, more than 300 fire vehicles had radio equipment installed.

Data

Work on the data system was extensive throughout the 2011. Installation 100% of the 4.9 GHz data hotspots was successfully completed in 101 Fire Stations and 34 Sheriff Stations. The configuration for the NICE logging recorder for the dispatch centers was completed. In the third quarter of 2011, staff members from Motorola, RCIT and Sheriff spent one week configuring and testing the Radio IP (middleware) servers. The Radio IP servers are used to determine the best route for data communication of the three options available. At the end of 2011, the staff spent another week to complete the acceptance testing process for the data system.

Aviation

A major accomplishment this past year was the awarding of a \$490,000 grant for the aviation unit. These grant monies will be used to complete the interoperability package for aviation, which will allow Sheriff Aviation to communicate with virtually every other agency in the region. Much planning went into the development of the detailed design for each Sheriff's aircraft to maximize the efficiency of each communications package. The PSEC Sheriff's team members worked with Motorola to facilitate dual radio installations in the Sheriff Aviation units to enable greater interoperability.

High Priority Buildings

At the beginning of the project, almost 50 high priority buildings were identified where in-building coverage was the highest of priorities. Motorola was provided with initial drawings for all of the high priority buildings and site walks were conducted at each building. Coverage was confirmed at seven of the buildings and site walks continue for the remainder of the buildings.

Subscriber Configuration

The team completed the subscriber configuration, also known as the fleetmap, for the new Motorola APX radio. The subscriber configuration defines the operational characteristics of the mobile and portable radio. This includes the communication between deputy and dispatch; interaction between stations; the interoperability between other law enforcement agencies; and event communication.

During demonstrations with select groups of deputies, feedback has been very positive. The ease of use, the features and functions have received favorable reviews. The voice quality far exceeds expectations. The following is an example of comments regarding the radio:

- "Extremely user friendly."
- "I liked having the channels on the top button; it's nice not having to take the radio out of the holster to switch to the channels used most often."
- "I like how the zones and Talkgroups are organized and specific to each area/station."
- "I like being involved in the decision process for the radio layout and configuration."
- "I like the capabilities of being able to talk directly to other agencies/departments."
- "I liked the ability to roam from site to site, without having to switch anything on the radio."
- "I like having the channels encrypted."

The radio configuration is very intuitive and many of the deputies were able to maneuver through the radio with little or no instruction or training.

Post Implementation

Post implementation operating budget and service rates are in the County review process. Four additional staff will be requested in FY 12/13 Budget for operational support.

Key Implementation Milestones

<i>Activity</i>	<i>Completion</i>
2012	
Complete Subscriber Definition	May
Voice Coverage Testing	October
Final Implementation Decision (Go/No Go)	October
Vehicle Installation	October
End User Training	November
Implement – non Public Safety Departments	November
Equipment installation (acquisition and construction)	November
Implement – Public Safety Departments	December
2013	
Integrate Delayed sites	May

Project Budget

Anticipated Project Modifications	PSEC Project Budget	Actuals as of Dec 31, 2011	Balance as of Dec 31, 2011
-Site Acquisition-Casper Park & Quail Mesa	351,858	15,786	336,072
- Includes Road grading for Quail (\$90,000)			
- IID Chuckwalla	105,000	-	105,000
- Palo Verde (TLMA-Roadwork)	100,000	-	100,000
- Verizon circuit cost (PIP and 4.9)	189,170	189,170	-
Operating Budget (allocated for 4 years)	24,000,000	17,431,149	6,568,851
Capital Budget (allocated for 4 years)	8,572,000	8,572,000	-
Enhance Coverage (Phase II)	1,720,000	778,729	941,271
* Contingency (Original \$11.2 million)	3,778,326	-	3,778,326
Sum	38,816,354	26,986,834	11,829,520
Motorola Contract	109,483,646	61,859,569	47,624,077
Total Project Costs	148,300,00	88,846,403	59,453,597

* Contingency appears adequate to cover unexpected expenses.

Risks

Site Copper Theft

The project sites and existing County owned sites (as well as cellular carrier sites in the County) have experienced a rash of copper theft. For the project sites, the thefts have resulted in considerable loss to Motorola and to the County. As a result, the start of construction of the enhanced coverage sites was delayed three weeks in order to evaluate and improve shelter and site security. The delay will not impact the final implementation date.

USFS

El Cariso & Santiago Peak – the Forestry Service continues to be slow in responding. They site lack of staff and competing priorities as problems they most deal with.

Staffing Issues

Contractually a minimum of 10 three person teams are required for voice acceptance testing. Each team will have one person from Fire, Sheriff, or other user department; one technical member from PSEC or RCIT; and one Motorola staff member. One dispatcher is also required.

Commercial Power

There are seven sites without commercial power as a result of complications with easements, availability, and other issues. The seven sites affect as many as 15 related sites.

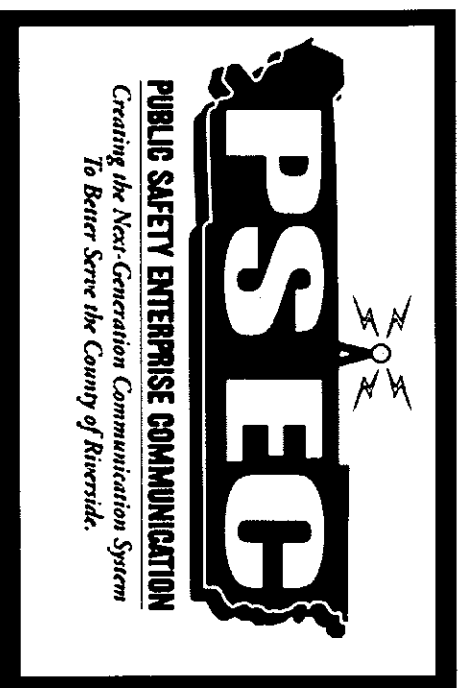
Weather

Heavy winter snow fall will delay construction at two enhanced coverage sites.

Board of Supervisors Update

January 24, 2012

**Kevin K Crawford
CIO, Riverside County IT**



Site Acquisition & Construction – 76 Sites

67 Base Coverage (44 New / 23 Existing) sites:

- 43 sites acquired and constructed
- Negotiating lease for the final site
- 1 unplanned replacement for a legacy site
 - Additional grading expense of \$90K is required
- Upgrade of 22 existing sites complete

9 Sites for Enhanced Coverage:

- 6 enhanced coverage sites acquired
 - 5 acquired sites in construction
- 3 lease agreements in final internal processing
 - Snow will extend construction of two of three sites

Equipment Installation

- **Both Master Sites - Complete**
- **5 of 5 Dispatch Centers Upgraded – Complete**
- **135 of 135 Hot Spots – Complete**
- **Radio equipment installations – June ‘12 Completion**
 - Base coverage sites 65 of 67 complete
 - Enhanced coverage sites 1 of 9
- **38 of 73 new voice cells active – July ‘12 Completion**
- **37 of 44 base coverage sites with commercial power – March ‘12 Completion**

Vehicle Subscriber Installation

Fire Installations:

- 370 of 390 Fire Vehicle installs - Complete by February '12

Sheriff Installations:

- ~9,000 Vehicle installations will begin in March '12 and be completed by October '12

NOTE: Required installation for other County departments will be integrated with Sheriff installations.

Project Budget Summary

Anticipated Project Modifications

	PSEC Project Budget	Actuals as of Dec 31, 2011	Balance as of Dec 31, 2011
- Site Acquisition-Casper Park and Quail Mesa	351,858	15,786	336,072
- Includes Road grading for Quail (\$90,000)			
- IID Chuckwalla	105,000	-	105,000
- Palo Verde (TLMA-Roadwork)	100,000	-	100,000
- Verizon circuit cost (PIP and 4.9)	189,170	189,170	-
Operating Budget (allocated for 4 years)	24,000,000	16,980,897	7,019,103
Capital Budget (allocated for 4 years)	8,572,000	8,572,000	-
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	2013
Integrate Delayed sites	May

Risks

HIGH

- Lack of Commercial power at 1 critical Base Coverage site, which is a hub
 - 15 additional sites affected downstream

MEDIUM

- Lack of Commercial power at 6 Base Coverage Sites – Completion in March '12
- Heavy winter snow fall – Install by May '13
- Operational expenses – Begin in October '12 no matter the go live date

LOW

- Possible Environmental compliance issues (None at this time)
- Staffing Issues
 - 25-30 staff required to conduct voice testing and end user training.
 - 4 Staff requested in FY 12/13 Budget for operational support (Operational Issue).
- Responsiveness of Cleveland National Forest
 - We are seeking their approvals for power path at one site.

Post Implementation Support Activities

- **System support budget under internal review**
 - Rates for system services under internal review
 - Operational Spending Plan to be presented to Board in March
- **PSEC Steering Committee established a working group to perform:**
 - Policies and Procedures review
 - Operational and Maintenance
 - System Use
 - End User Operations
 - Post implementation governance definition
 - Talking with enterprise agencies nationwide
 - Using best practices

Board of Supervisors Update

**We would be
happy to answer
any questions...**

