



CITY OF OAKLAND

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City Administrator's Office

MEMORANDUM

TO: HONORABLE MAYOR &
CITY COUNCIL

FROM: Deanna J. Santana

SUBJECT: P25 RADIO SYSTEM
IMPLEMENTATION UPDATE

DATE: December 12, 2011

INFORMATION

The purpose of this Information Memo is to provide an update on the new P25 public safety radio system as reported to me by the Department of Information Technology (DIT). This report provides an updated status since my Information Memo of September 30, 2011 and includes current information regarding system performance, system improvements and planned implementation activities and strategic objectives for moving forward.

System Performance

It has been approximately 190 days since DIT began the deployment of the new public safety P25 radio communications system on June 5. On August 3 and 4, a system software and hardware upgrade was performed to address frequent system failures which affected overall radio system performance. The upgrade improved the reliability of the overall system and provided the much needed stability to allow staff to focus on addressing the issues at the portable and mobile radio user level. As mentioned in the previous reports, we have never experienced any issues with the microwave system and it continues to operate without failure.

The Police and Fire Departments continue to track daily incidents related to portable and mobile radio issues. The data collected shows a trend of progressive improvement in performance. The enclosed table (Table 1—Attachment A) includes the most recent portable and mobile radio incidents reported through November 30.

The most recent two week reporting period for November 16 through November 30 indicates that the numbers of radio problem incidents continue to decrease. Familiarity with the new system by the radio users and the continuation of an aggressive program by DIT to call back and fix problem radios in the field has reduced the number of reported incidents. However, the number of CC Scan issues is still unacceptable and will be addressed by the planned implementation activities outlined later in this update. CC Scan is a condition which alerts the radio user that they have lost communications because they are in an area where there is no radio signal (i.e. a "dead spot"), or the radio signal in the area is too weak for effective communications. A weak or faulty battery can also cause the radio to go into CC Scan mode. This issue is being addressed through system improvements currently in progress and the completion of planned implementation activities no later than March 15, 2012.

System Improvements and Planned Implementation Activities

DIT has taken action to improve the effectiveness of the portable and mobile radios in the field by addressing the issue incidents reported in Table 1. Some of the issues were determined to be caused by poor performance of the radio batteries. New replacement batteries that are able to hold a longer charge are now being installed in all radios. The new batteries have reduced the number of daily radio issue incidents and allowed police to work an entire 12 hour shift without the need to recharge their radio batteries. DIT has completed distribution of new batteries to the Fire Department, and distribution to the Police Department is 70% complete.

Further improvements will be accomplished through the following implementation activities which will complete the P25 radio system project:

- **Move Forward with the Addition of a Third P25 Radio Site** – DIT staff are currently working with the radio contractor to complete the implementation of the third P25-compliant radio site in addition to the two already in operation. The additional site is scheduled to go into operation no later than February 29, 2012. The addition of the third site will greatly improve radio coverage, eliminating up to 70% of the dead spots.
- **Install Distributed Antenna Systems (DAS)** – DIT will begin the installation of in-building radio antennas in OPD office locations where coverage has been an issue. The antennas will eliminate in-building communications dead zones. The installation is scheduled to begin December 14 and will be completed by March 15, 2012. The addition of the in-building antennas will further reduce the issue incidents in Table 1.

Strategic Objectives for Moving Forward

Moving forward will require that we evaluate what we have accomplished and set a direction for continuous improvements in the new radio system. As an early adopter of P25 technology, we have had many challenges. We continue to work with our vendor and equipment manufacturer to resolve any and all issues as they arise. We have also reached out to local, regional, state and national organizations and public safety agencies that have implemented Harris and Motorola P25 networks. This outreach has provided invaluable technical advice and “lessons learned” for resolving many issues that they also experienced during their P25 technology implementations. We have developed an ongoing relationship with these early adopters of the P25 technology and have greatly benefited from their knowledge, experience and neutral opinions.

- **Independent Evaluation**

As the City Administrator for the City of Oakland, I made a commitment to have an independent evaluation conducted to ensure that every possible action is taken so that the City’s new public safety radio system meets the performance expectations of our first responders. The independent evaluation will address the immediate performance issues

and establish a sound direction for interoperability with our mutual aid partners and long term reliability for the radio system through operational and maintenance best practices. The evaluation by RCC Consultants, Inc. is scheduled to be completed by February 29, 2012. RCC Consultants is a global telecommunications and engineering firm specializing in the testing of Interoperable Radio Systems.

The objectives of the independent evaluation are to:

1. Measure current system performance against stakeholder expectations to ensure that the expectations of the new system are realized
2. Develop an interoperability plan to ensure effective communications with our mutual aid partners and connectivity with regional public safety radio networks that are compliant with the national P25 standards
3. Perform a gap analysis to examine the impact of the new radio system on the City's existing operations procedures and maintenance programs and provide an assessment of potential changes that will be necessary to support the new system

- **Security Enhancement Pilot**

DIT will conduct a pilot program to enhance secure public safety radio communications to ensure that police operations are not compromised. The pilot will allow police to determine the effectiveness of the technology and provide the necessary information to seek grant funding for implementation. DIT expects to begin the pilot no later than March 2012.

We believe the actions and plans outlined above will provide significant improvements for moving forward. It is unfortunate that our first responders continue to experience some communication issues, and I closely monitor and seek resolution to these issues; however, overall progress has been made in the area of improved performance of our radio communication system. I want to continue to thank our public safety employees for their patience and steady performance despite experiencing continued implementation issues. We will continue to provide updates to keep the public informed.

Respectfully submitted,



DEANNA J. SANTANA
City Administrator

ATTACHMENT A

Table 1: Daily P25 Radio Problem Incident Report Analysis

ISSUES	5 Aug	19 Aug	2 Sep	16 Sep	1 Oct	16 Oct	1 Nov	16 Nov
	19 Aug	2 Sep	16 Sep	30 Sep	15 Oct	31 Oct	15 Nov	30 Nov
Bleed over	3	2	2	4	3	4	1	1
CC Scan	56	69	99	182	100	155	121	107
Cutting in & out	22	19	7	7	8	11	6	5
Dead Spot	5	4	8	40	35	10	1	0
Failed Radio	26	4	3	12	1	1	1	1
Poor Reception	10	2	22	13	14	5	10	7
Poor Transmission	35	8	8	8	1	5	7	13
Radio Problems	1	8	18	10	4	6	2	5
Unable to Copy Radio	21	46	24	22	14	10	20	13
Unable to Receive Transmission	6	2	4	4	1	2	6	2
Unable to Transmit	25	46	31	34	13	25	5	11
Other	1	8	1	0	0	0	0	3
Total Documented	211	218	227	336	194	234	180	168