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: January 30, 2012

INFORMATION

The purpose of this Information Memo is to provide an update on the new P25 public safety radio system as reported by the Department of Information Technology (DIT). This report provides an updated status since the Information Memo issued on December 12, 2011 and includes current information regarding system performance, system improvements and planned implementation activities and strategic objectives for moving forward.

System Performance

The Police and Fire Departments continue to track daily incidents related to portable and mobile radio issues. The P25 Radio Problem Incident Report (**Attachment A**) includes the most recent portable and mobile radio incidents reported from January 1, 2012 through January 15, 2012 and are based on the first responder's user of the radios during daily field operations.

The number of incidents of "CC Scan" is still unacceptable and will be addressed in the coming weeks. "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. Initially powering on the radio or having a weak or faulty battery can also cause a "CC Scan." The "CC Scan" issues and all other issue incident types listed in **Attachment A** will be addressed by the project activities of the P25 Radio System Roadmap (**Attachment B**). The roadmap activities are meant to complete the P25 Radio System implementation and identify other activities designed to achieve continuous performance improvements in the system going forward.

Planned Implementation and System Improvements ("P25 Radio System Roadmap")

Completion of the third radio site in addition to the two sites already in operation, and other performance improvement activities planned by DIT will serve to improve overall radio performance. All implementation and improvement activities are listed in **Attachment B**, the P25 Radio System Roadmap. The following activities are anticipated to have the most significant impact on reducing the incidents of radio issues currently reported by the first responders in **Attachment A.**

- **P25 Portable and Mobile Radio Battery Replacement** *[Attachment B, Activity 4]*
  Some of the issues were determined to be caused as a result of poor performance of the radio batteries. New battery replacements for all Fire and Police radios will be completed by February 15, 2012.

- **Install Distributed Radio Amplifier/Antenna Systems (DAS)** *[Attachment B, Activity 5]*
  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 which cause the radio to go into "CC Scan" mode. In addition to the new batteries, the DAS system installations will be completed by February 15, 2012.

- **Move Forward with the Addition of a Third P25 Radio Site** *[Attachment B, Activity 7]*
  DIT staff is currently working with Daily and Wells Communications (who installs, tests and maintains the equipment that is manufactured by Harris Corporation) 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 the week of February 27, 2012. The addition of the third site will greatly improve radio coverage, eliminating up to 70% of the dead spots.

For information about other planned activities please refer to **Attachment B**, P25 Radio System Roadmap.

Independent Performance Evaluation

RCC Consultants, Inc., a New Jersey based public safety focused Land Mobile Radio (LMR) engineering and consulting firm, has been retained by the City to conduct an independent evaluation of the City's P25 Radio System. RCC Consultants will issue a report on their findings by March 15, 2012. Below is a listing of their tasks for conducting the independent evaluation:

1. Perform a review and evaluation of the current P25 radio system, which is continuing to evolve, and produce an evaluation report;
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; and,
3. Develop an Operations and Maintenance Plan for ongoing support of the P25 radio system.
   The work on these efforts began in mid-December 2011 and is presently ongoing. Work accomplished to date includes:

   - Analyzed Police and Fire Computer Aided Dispatch (CAD) reports and other relevant reports that provide a chronology of the system's performance since it was launched on June 5, 2011
   - Reviewed the inventory of the radio dead spots identified by Police and Fire
   - Analyzed and presented the results of the dead spot testing to Police and Fire

- Reviewed the Grand Jury Regional Emergency Communications Report and the responses by the City of Oakland
- Reviewed the P25 radio system contract documentation
- Reviewed Radio Coverage Maps
- Made field trip to all radio sites, Police and Fire Dispatch Centers, and interviewed dispatch supervisors and personnel
- Interviewed Police command staff
- Interviewed Dailey-Wells Communications senior engineers and senior management personnel.

Work underway this past week (week of January 23) included the following activities:

- Continued meetings with Fire Chief and Fire Department supervisors and operational personnel
- Met with Police field operations personnel at "roll-call" meetings at the beginning of each shift
- Met with Executive Director of East Bay Regional Communications System Authority (EBRCSA)
- Interviewed DIT Radio Shop management and technicians

The work being performed by RCC consultants, first and foremost, is to establish an operational baseline of the system as it currently exists so that a plan of action can be prescribed to resolve the issues being experienced by our first responders. It is vital that our Police and Fire personnel are able to use the new system with a high degree of confidence.

We believe the actions and plans outlined above will provide significant improvements in the new Public Safety Radio system. Much progress has been made. We look forward to the findings of our independent consultant and will continue to work with our first responders and technicians to improve the performance of the system. I want to continue to thank our public safety employees for their patience and dedication 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: Daily P25 Radio Problem Incident Report Analysis
Attachment B: City of Oakland—P25 Radio System Roadmap

Attachment A

Daily P25 Radio Problem Incident Report Analysis

ISSUES	2 Sep – 16 Sep	16 Sep – 30 Sep	1 Oct – 15 Oct	16 Oct – 31 Oct	1 Nov – 15 Nov	16 Nov – 30 Nov	1Dec – 15 Dec	16Dec – 31 Dec	1Jan – 15Jan
Bleed over	2	4	3	4	1	1	0	0	0
CC Scan	99	182	100	155	121	107	92	100	96
Cutting in & out	7	7	8	11	6	5	7	2	11
Dead Spot	8	40	35	10	1	0	2	2	4
Failed Radio	3	12	1	1	1	1	5	3	8
Poor Reception	22	13	14	5	10	7	9	9	8
Poor Transmission	8	8	1	5	7	13	5	12	21
Radio Problems	18	10	4	6	2	5	4	26	3
Unable to Copy Radio	24	22	14	10	20	13	9	14	21
Unable to Receive Transmission	4	4	1	2	6	2	1	5	2
Unable to Transmit	31	34	13	25	5	11	7	15	15
Other	1	0	0	0	0	3	6	4	6
Total Documented	**227**	**336**	**194**	**234**	**180**	**168**	**147**	**192**	**195**

ATTACHMENT B
City of Oakland – P25 Radio System Roadmap

No.	Project Activity	Project Description and Scope	Project Cost ($) & Funding Source	Completion Date
1.	**Public Safety Microwave Backbone Upgrade**	Design and Build a Microwave Backbone for the implementation of the P25 Digital Radio Public Safety Radio System and related public safety applications. This Backbone will provide redundant communications for the system.	$1.6M US Department of Justice Grant	Completed
2.	**Cutover from old Analog Radio System to new P25 Digital Public Safety Radio System**	Deploy new P25 Digital Public Safety Radio System at two radio sites	$3.1M Department of Homeland Security Grant	Completed
3.	**Coverage Analysis & Dead Spots Testing and Verification**	Perform the coverage testing to validate the dead spots identified by OPD, collect and assess the projected improvements made by the installation of a third radio site.	$0	01/31/2012
4.	**Replace P25 Radio Batteries**	Replace 2600 batteries in Police and Fire radios to improve radio performance and longevity of operation during shifts.	$443K City Funded	02/15/2012
5.	**Install new Antenna for improved in-building radio coverage**	Install Amplifier / Antenna system at the Police Administration Building and at the Eastmont Mall Police Substation. This new equipment will significantly improve the Radio Coverage inside the two facilities.	$105K Department of Homeland Security	02/15/2012
6.	**Cooling and Backup Power System Upgrades at P25 Digital Public Safety Radio System Sites**	Upgrade cooling and backup power systems for P25 Digital Public Safety Radio System sites for continuity of operations in case of a power failure or disaster.	$140K Department of Homeland Security	02/17/2012

No.	Project Activity	Project Description and Scope	Project Cost ($) & Funding Source	Completion Date
7.	**P25 Digital Radio System Installation of third radio site**	Expand the P25 Digital Radio Communication System expansion by installing a third radio site	$1.1M Department of Homeland Security	03/02/2012
8.	**Performance Evaluation by Independent Consultants (RCC Consultants)**	Measure current system performance against stakeholder expectations and recommend near-term fixes and solutions that build confidence in the new radio system. 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. 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	$200K Department of Homeland Security	03/15/2012
9.	**Upgrade OPD / OFD Voice Logging for P25 Digital Radio System Radios**	Upgrade the existing Oakland Fire and Police Voice Recording System to o be fully compatible with the new P25 Digital Public Safety Radio System	$253K Department of Homeland Security	03/31/2012
10.	**Public Safety Radio Re-Banding Project**	The Public Safety Radio Re-Banding is mandated by the FCC to provide clear and interference-free communication channels to the first responders. At the completion of this project, the City will have a reliable, interoperable communication system to ensure the safety of more than 4000 public safety and first responder users.	N/A Sprint/Nextel	06/30/2012
11.	**Install Gateway equipment for Regional Interoperability**	Install interoperability equipment to connect the Oakland P25 Digital Radio System with BART, the East Bay Regional Communications System Authority (EBRCSA), and other regional partners.	$320K Department of Homeland Security	06/30/2012
12.	**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.	TBD	TBD