

Council Technology Application Committee Meeting

Wednesday, September 17, 2008

4:00 P.M. to 6:00 P.M.

Hayward City Hall

777 B St. Hayward

Conference Room 4B

Hayward, CA 94541

AGENDA

Public Comments: (Note: For matters not otherwise listed on the agenda. The Committee welcomes your comments under this section but is prohibited by State Law from discussing items not listed on the agenda. Your item will be taken under consideration and referred to staff.)

1. Minutes of June 18, 2008 (Attached)
2. Public Safety Radio System Update
3. Emergency Point-to-Point Wireless System Report
4. Member Comments

Distribution:

Mayor and City Council

City Manager

Assistant City Manager

Assistant to the City Manager

Community & Economic Development Director

City Attorney

City Clerk

Finance Director

Fire Chief

Human Resources Director

Library Director

Police Chief

Public Works Director

Technology Services Manager

Daily Review

Post

Assistance will be provided to those requiring accommodations for disabilities in compliance with the Americans with Disabilities Act of 1990. Interested persons must request accommodation at least 48 hours in advance of the meeting by contacting the Assistant City Manager at (510) 583-4302 or TDD (510) 247-3340



CITY OF
HAYWARD
HEART OF THE BAY

**Council Technology Application Committee (CTAC)
Meeting Minutes of June 18, 2008**

Members Present: Bill Ward (on speaker phone), Olden Henson and Bill Quirk

Staff: Clancy Priest

Public Comments:

None

1. Approval of Minutes:

Approved

2. City Website Update:

The Technology Services Director, Clancy Priest informed the committee that the City has had a Website since the mid 1990's and in 2003 it was modernized and implemented "Content Management". The City's Webmaster, Joe Ochinerero and Assistant to the City Manager, Millie Saad have recently completed updates and revisions to the City's Website and gave a presentation to the committee. Visual changes were made to give the website a "Fresher" look and to incorporate a "One Stop Shopping" on the home page.

3. LightsTogether Update:

The Technology Services Director submitted a report for the committee to review, the report stated that no other City was found using Social networking program. Most social networking sites are considered self policing sites. LightsTogether has revised their original verbal contract cost of \$150,000 which is no longer necessary to the current cost of \$12,000 per year for licensing. The City currently has the Share Point System in place and may want to take a look at this system as an alternative. We would need programming expertise from the outside to put it in place, the cost is included in the master license and the programming costs are anywhere from \$25,000 - \$150,000. This program is currently not included in the Strategic Plan, but, should be considered in future the City's future planning, delivery options will also be included.

4. Member Comments:

Councilmember Bill Quirk inquired about progress on the automatic payment deduction system for water bills. The Technology Services Director has looked into it, but, it doesn't appear that the City's Financial System will get there and the City is looking at some other alternatives (This will be included in the Strategic Plan).

Next Meeting: September 17, 2008 4:00pm – 6:00pm

Meeting adjourned at 5:00pm



CITY OF
HAYWARD
HEART OF THE BAY

DATE: September 17, 2008
TO: Council Technology Application Committee
FROM: Desiderio Calzada, Communications Manager
SUBJECT: Public Safety Radio Upgrade

RECOMMENDATION

That the Committee discusses and comments on this report.

BACKGROUND

The City of Hayward operates a Conventional Ultra High Frequency (UHF) Simulcast Public Safety Network. The system supports both Police and Fire operations for the City of Hayward and Fire Operations for the Community of Fairview.

As early as 2002, the City of Hayward's Public Safety radio network began showing signs of failure and the safety of the public and first responder city employees was being affected. In 2004, the City of Hayward retained a consulting firm to assist with the evaluation of the existing system and to determine a course of action for improvement. With the assistance of our consultant, several options were identified for the City including rebuilding our current system, replacing our system with a P25 700 MHz System, or joining another existing network. All three options were considered and staff concluded that an upgrade and expansion of our existing system was the prudent course of action. In 2005, staff began the process of upgrading the entire Public Safety Radio Network. The project included the upgrade and expansion of the following components: Microwave Radio System, Site Infrastructure, Base Stations, Antennas, Dispatch Consoles, replacement radios for the Police Department, and the implementation of level three interoperability enhancements.

DISCUSSION

Once a decision was made to upgrade and expand the existing radio system, the consulting firm assisted the City with a design to meet all of the identified needs in our study. The paramount issues that were addressed were to increase coverage in the south Hayward area and to deal with the poor condition of radio towers and structures.

The first obstacle was to identify an area to place a new transmitter site to expand coverage in South Hayward. Staff identified the Bello View Water Tank area as a key location for enhancing

our coverage. The project team worked with Public Works and built a new 60 foot tower and separate communications building.

Another area of concern was the poor condition of the tower and communications building at the Walpert Ridge Site. Although staff had not initially budgeted for any construction here, it became very clear that using the existing building would not be conducive for the support of mission critical communications equipment. Subsequently, an 80-foot tower and a new supporting communications building were constructed at this site.

The following system and sub-systems upgrades occurred as a result of this project:

- a) Installation of new tower sites at Garin and Walpert Ridge.
- b) Enhanced portable radio coverage with 92% coverage of the City and 97% reliability throughout the entire coverage area for both Public Safety and general City field employees.
- c) Implementation of a new digital microwave system with expanded capacity to support digital data network.
- d) Installation of new dispatch consoles for Public Safety dispatch center, providing each position with radio capabilities. These consoles will provide the following enhancements:
 - o Level Three radio interoperability
 - o Police and Fire Fighter Emergency Assistance Alerts
 - o Expanded radio identification features
 - o Coverage for each dispatch position in the Communications Center
- e) Provides the Police Department with upgraded portable radios which will:
 - o Allow for consistent portable radio configurations
 - o Allow for emergency officer down function for each radio

The final phase of the installation, which included the interoperability patch with the Alameda County GSA System, has been completed and provided level three interoperability with the following agencies:

- a) Alameda County
- b) City of Union City
- c) City of Fremont
- d) City of San Leandro
- e) City of Newark

f) CSU East Bay

The current system is operated using four radio towers strategically placed throughout the City, with the primary site at the Police Facility located on West Winton Avenue. This site houses the primary controllers and provides an interface to the Public Safety Communications Center which is co-located in the Police Facility. Each of our remote sites is inter-connected via a state-of-the-art digital microwave system. The entire system was designed to provide protected and reliable connectivity to the other remote sites. The system is currently operating well. Over the last year complaints have been limited to user equipment failures and not a result of any systemic failure. Soon after the new system was turned on, the Fire Department responded to a fire in the lower level food court area of Southland Mall. Chief Bueno sent a letter expressing how well the system worked in an area that prior to the new installation had very poor coverage.

Although the Public Safety Radio Upgrade was very successful, it did not add channel capacity to the network. Both the Fire and Police Departments have a need for increased capacity and staff will be working with both departments to plan out possible opportunities to add system capacity. However, increasing capacity will not have any negative impact on the network. Instead, it will improve safety and efficiency for both Fire and Police.

FISCAL IMPACT

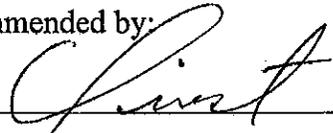
In 2004, the City of Hayward had within the General Fund a designation of \$2.25 million to upgrade the Public Safety Radio System. As of this report, 100% of these funds have been expended for this project.

Prepared by:



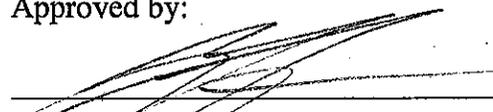
Desiderio Calzada, Communications Manager

Recommended by:



Clancy Priest, Technology Services Director

Approved by:



Gregory T. Jones, City Manager



CITY OF
HAYWARD
HEART OF THE BAY

DATE: September 17, 2008
TO: Council Technology Application Committee
FROM: Clancy Priest, Technology Services Director
SUBJECT: Emergency Point-to-Point Wireless System Report

RECOMMENDATION

That the Committee discusses and comments on this report.

BACKGROUND

The City Council started an initiative in FY 2004 to create a new Emergency Operations Center for the City. One of the issues considered was the ability for the City to maintain business continuity during an emergency. Technology Services was tasked with engineering and implementing a redundant network infrastructure system that would ensure data systems survivability in an emergency.

The emergency system had a requirement to be able to allow full data systems operations in the case of total loss of "land line" connectivity. The challenge was to engineer and implement a system that was independent of the current network infrastructure and maintained stability during an emergency. After researching the task, Technology Services proposed a point-to-point wireless system to all 18 City geographical sites where staff was present and generation back-up electricity was available.

Technology Services engineered a plan to implement 28 wireless bridges at 18 locations to build and maintain a redundant data network infrastructure. The project took several years for the research and engineering phase because of technological innovations that occurred during that period. There were numerous factors that proved challenging during this process and caused delays in specification of the equipment and placement of the access points. During this same time period the Public Safety Radio Project was started and caused some re-engineering of the system that actually increased the stability and bandwidth of the system. The project was further delayed as the City moved forward with a network infrastructure upgrade and implementation of the Voice over Internet Protocol (VoIP) telephony system.

The newly implemented point-to-point wireless system was completed in May of 2008; configuration and integration took several months with full load testing completed in August of 2008. The system is currently fully functional and in use.

DISCUSSION

The point-to-point wireless system is a robust, fully functional network backbone that is currently being used as both a redundant network connection and, in some areas, a primary connection. This system uses a mixture of broadband Cisco radio bridges and Public Safety microwave equipment to complete a redundant network backbone that ensures business continuity in an emergency. This system uses the industry standard 802.11(a) protocol and is compliant with security best practices for network infrastructure.

This system encompasses 18 geographical locations throughout the City including 7 Fire Stations, the Police Department, corporation yard, animal control, Water Pollution Control Facility, Centennial Hall, both Libraries, and the Airport. These sites are inter-connected with a series of wireless bridges and the Public Safety microwave system that ensures a seamless pathway across our entire network. At almost every site there are uninterruptable power supplies and power generators to ensure survivability during an emergency.

The system has been integrated into our upgraded network backbone by our network vendor. The key routers and switches have been configured to "fail-over" to the point-to-point system should there be a connection failure with either our fiber optic lines or the AT&T supported data lines. The integration has been tested under load, and performed with confidence. The vendor did discover some minor configuration improvements during our testing that are currently being implemented to improve data/voice throughput using Class of Service (CoS) and Quality of Service (QoS) protocols, which will be implemented within the next few weeks.

Once the system was installed and configured, it was determined that, in some cases, the point-to-point connection was more robust than the AT&T data connectivity. Technology Services reviewed these sites and determined it would be prudent to change the primary connection to the point-to-point system and relegate the AT&T system as "fail-over" to enhance our day-to-day reliability. This has been implemented at five Fire Stations, Centennial Hall, and the Weekes Branch Library. This configuration has been active for several months without complications.

Technology Services has made every effort to provide a reliable and stable system. However, depending on the scale and magnitude of an emergency, no one can absolutely guarantee that all of our systems will stay up and connected. With this system, we are confident that our best efforts to achieve the goal of stability during an emergency have been made. The system should prove to be a sound investment for the City that ensures business continuity and network survivability during an emergency.

FISCAL IMPACT

The cost of this project has been spread over several CIP funding sources during the period of implementation. The equipment was funded from the CIP allocation for an upgraded EOC. The installation phase was funded from the Public Safety Radio Project CIP. Finally, the Network consulting required for configuring, integrating, and testing of the system has been funded by both the Network upgrade CIP and funds from our operating budget for Network maintenance. The following is a breakdown of the overall project costs:

Equipment: \$120,464
Installation: \$ 84,436
Network consulting: \$ 19,000

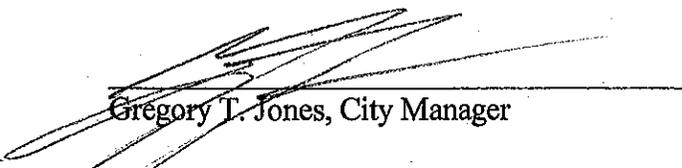
Total \$223,900

Prepared by:



Clancy Priest, Technology Services Director

Approved by:



Gregory T. Jones, City Manager

Attachment(s) or Exhibit(s)
None