Council Technology Application Committee Meeting

NOTICE OF MEETING CANCELATION

The meeting for December 21, 2005 is canceled.

The notice for the next meeting will be posted accordingly.

Distribution:

Mayor and City Council
City Manager
Acting Assistant City Manager
Assistant to City Manager
City Attorney
City Clerk
Acting Finance Director
Police Chief
Library Director
Technology Services Director
Daily Review
Post

CITY OF HAYWARD

OFFICE OF THE CITY MANAGER

SUBJECT:	Council Technology Application Committee Meeting
DATE:	Wednesday, September 21, 2005
TIME:	5:30 P.M. to 7:00 P.M.
LOCATION:	City Hall, Conference Room 4A

TO: **Council Technology Application Committee**
Council Member Olden Henson, Chair
Council Member Bill Quirk
Council Member Bill Ward

THRU: Jesús Armas, City Manager

FROM: Perry Carter, Acting Assistant City Manager

Council Technology Application Committee Meeting

Wednesday, September 21, 2005
5:30 P.M. to 7:00 P.M.
Hayward City Hall
777 B St. Hayward
Conference Room 4A
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 15, 2005**
2. **Public Safety Radio Communication Report**
3. **Request by NextG Network Inc.**
4. **Technology Update – Councilmember Olden Henson**
5. **Member Comments**

Distribution:

Mayor and City Council
City Manager
Acting Assistant City Manager
Assistant to City Manager
Daily Review
Fire Chief
Post
Police Chief
Acting Library Director
Technology Services Director
City Attorney
City Clerk
Acting Finance Director

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 Acting Assistant City Manager at (510) 583-4302 or TDD (510) 247-3340

Council Technology Application Committee
Meeting Minutes of June 15, 2005

Members Present: Olden Henson (Chair), Bill Quirk, Bill Ward, Jesús Armas, Perry Carter, Clancy Priest, and Millie Saad.

Others: Veronica Larsen, Diane Lewis, Lloyd Lowe, and Bob Palermini.

I. Public Comment: None.

II. Approval of Minutes
The Committee accepted the minutes of February 16, 2005.

III. Online Utility Billing and Payment

Clancy Priest, Technology Services Director, demonstrated the proposed online Utility Billing and Payment system. It will enable utility customers to pay their utility bills online, either by debiting a checking account or using a credit card. In addition, users will be able to view a two-year water consumption history, an account and payment history, the current balance, and a printable bill.

Councilmembers liked the simplicity of use, and the fact that the system directly accessed utility data on the mainframe. Suggestions included installing a registration process so that account information remains private; deleting the water consumption graph and simplifying the information; including "billing address" as part of the credit card payment screen input fields; and allowing cookies for certain input fields.

IV. Police Online Reporting

Police Chief, Lloyd Lowe, demonstrated the proposed Police Online Reporting system. This service would allow people to report nonviolent "no suspect" crimes via the City's website. Police Department data show that about 16,000 out of 30,000 calls for police reports would be candidates for online reporting.

In addition to completing the report online, the user will be able to print the report. A Police Officer will review each report before it is accepted and notify the report writer of the status via email. Using this system will provide the public with a convenient way to report non-suspect non-violent crimes, and free up considerable staff time for other duties. In addition, the data from the online reports will be automatically transferred to the crime reporting data base. Councilmember reactions were very positive. Implementation is expected in September.

VI. Next Meeting

The next Committee meeting will be Wednesday, September 21, 2005. The agenda will include a technology update by Councilmember Olden Henson.

CITY OF HAYWARD

STAFF REPORT

AGENDA DATE 09/21/2005

AGENDA ITEM _____

WORK SESSION ITEM _____

TO: Council Technology Application Committee

FROM: City Manager

SUBJECT: Public Safety Radio System Replacement Project (Project)

Recommendation:

It is recommended that the Committee review and comment on the following report.

Discussion:

One of the major projects that staff has been working on is the Public Safety Radio System Replacement Project. Recognizing that the City's radio communications system was nearing the end of its useful life the City Council set aside funds to replace the current system and approximately $2 million is currently designated for this purpose.

Based on both technical work done by the City's consultant and staff's own evaluation, staff has developed an approach that addresses both short term and long term system requirements. In the long term staff is of the opinion that the City's current analog system must be replaced with a modern, 700/800 MHz digital trunked system. This solution however is costly and funding is not yet resolved. In addition, there are significant lead times associated with the design and implementation of such a system. Given this consideration and the fact that the existing system must continue to operate until a new system can be brought on line, staff developed a short term solution to address these concerns.

Staff's recommended short term solution (Phase I) consists of a limited overhaul of the current system and is designed to stabilize the current system, provide for "reuse" of certain major subsystems where possible and keep costs within available funds (Public Safety Radio System Reserve). Staff estimates that Phase I work could be accomplished in about six months at a cost of approximately $1.6 million. Phase I work would stabilize the existing system, enhance coverage and provide the City with much needed time to implement a long term solution.

For the long term (Phase II), staff is recommending a new, expanded system. More specifically, the City would move from the existing analog system with three transmitter sites to a 700/800 MHz digital, trunked system with up to six transmitter sites. The cost for the new system could be in excess of $10 million and as a consequence a funding plan to pay for the system must be developed. Such a system would offer several advantages such as significantly improved coverage, relief of channel congestion, allow for "talk groups" and position the City to join any future regional network. The most significant advantage of a regional network would be the ability to obtain the highest level of interoperability among the system's users.

Staff estimates that the Phase I system will provide several years (three to five years) of reliable service.

Policy Issues

While there are many technical issues involved in this project, the critical policy level concerns are limited. In staff's opinion there are four policy areas to be addressed. They are:

- Functionality
  - Interoperability
  - Radio Coverage
  - Channel Congestion
- Cost
- Positioning Strategy
- Status of Current System

Under Functionality there are three important system considerations:

Interoperability. Over the past few years, interoperability of public safety radio systems has been an important topic. In brief, interoperability would allow various public agencies to communicate seamlessly in such events as area wide disasters, law enforcement pursuits across jurisdictions, major fires and similar events. The benefits are numerous and substantial resources are being channeled to achieving "interoperability" However, as staff has reviewed this project it has become evident that interoperability, like the "paperless office" is possible, costly, is on its way, but is not here yet.

Interoperability is measured by a generally accepted grading standard that identifies six levels. Level 1, the rudimentary level, is generally defined as users exchanging radios. This often occurs at the tactical level for example at a fire. Level 6 is the seamless capability provided by a ***shared radio system*.** For example, the County of Alameda (ALCO) has several subscribers or customers that pay to be on the County system. Any subscriber can contact any other subscriber on the ALCO system and it is a shared system. However, it should be noted that you have to be on the ALCO system to access this level of interoperability. Short of joining the ALCO system Level 3 and 4 interoperability can be obtained using existing technology. These two levels refer to the use of a mutual aid channel (Level 3) and a Gateway/Console Patch (Level 4). While these two levels are more cumbersome than the seamless Level 6, interoperability at Levels 3 and 4 will support tactical (a local contained event) and strategic (area wide, several agencies) interoperability.

It is staff's opinion that until a true shared area wide system is developed, Level 3and/or 4 interoperability is adequate.

Radio Coverage. This issue refers to two aspects of radio coverage which are "contact reliability" and area coverage for portable and mobile units. Contact reliability refers to the ability to make radio contact on the first try and a standard of 95% is considered the minimum. Radio area coverage refers to the ability to have radio contact over the geographic area of the City, for

example in the Hayward Hills and Downtown, and also within buildings or "in-building" coverage. A standard of 95% mobile coverage and 90% portable has been established for the City's system and in-building coverage is set at 90% or greater. Phase I improvements will address these needs to a certain extend by improving the "up-time" of the system and reducing garbles transmissions. Phase II specifically addresses these needs and it will be possible to achieve these goals with a new 700/800 MHz digital trunked system.

Channel Congestion A needs analysis prepared for this project indicates that the City's main Police radio channel (COM 1) is approaching its capacity limit. Generally speaking, when airtimes exceed 33% of available time, which is the case for COM 1, users will perceive the channel as crowded. Also, once a transmission has been completed several users will attempt to transmit resulting in convergence which requires that messages be retransmitted further loading the channel and increasing delays. Again, Phase I will provide some relief in this area and Phase II will provide the needed capacity.

Cost. Staff has preliminary cost information that indicates that a new 700/800 MHz system could exceed $10 million. However, it is important to note that the costs developed so far do not represent a system description that is "bid ready". Once a solution is selected, additional work will be required to complete system specifications and prepare a request for proposal. As discussed earlier, Phase I cost is estimated at $1.6 million.

Positioning Strategy There are two regional concepts that are being promoted by a major vendor, Motorola, the Alameda County Sheriff and a number of police and fire chiefs with in the Counties of Alameda, Contra Costa and Solano. Both approaches are based on the Motorola SmartZone, Project 25, 800 MHz system. Both approaches are seeking Homeland Security grants and are trying to develop interest and consensus among several cities and the three counties. The initial idea was presented about 14 months ago at the County level in which the three counties would share a new 800 MHz system after pooling their 800 MHz channels. The second idea was presented to the City of Oakland in which Oakland would become the seed sponsor of a Homeland Security grant, procure an 800 MHz system and share it with the three counties and associated cities. This process is of major importance to the City of Hayward, but is at least three to six years from being operational assuming cooperation among all of the agencies.

The project noted above, if it comes to fruition, represents a significant step forward in achieving "interoperability' on a regional level. It is staff's opinion that movement towards such a solution is probable and will continue to be driven by the availability of federal funding. Inherent in this project is the move from an analog based radio system, to a digital technology based radio system. Any action that the City takes should provide for this eventuality. In other words, any solution that the City takes today should provide the City with the flexibility to join a future regional radio system.

Status of Current System Regardless of any long-term solution that is implemented by the City, the condition of the current system must be addressed. It is not unusual for the system to experience interruptions of service and staff believes that the frequency of interruptions is increasing. Also, the age of the current system makes is difficult to obtain parts for repairs. The

condition of the current system translates into a high degree of risk for system failure or extended down time while repairs are attempted. There is no long-term solution that can be implemented soon enough to avoid repairing or replacing certain components of the current system. Staff recommends that the City move immediately to replace and stabilize the most vulnerable components of the current system as identified by City staff in collaboration with the City's consultant. The funding source for this work would be the reserve set aside by Council for replacement of the public safety radio system.

Staff's recommendation addresses the policy issues outlined above through a two phase approach. Phase I addresses the status of the current system and also provides some enhanced capability. Phase II addresses all of the policy concerns by providing a long-term solution to the City's needs.

Phase I (Stabilize and enhance existing system)

The City's existing system has evolved over several years and serves primarily public safety, Police and Fire, by providing central dispatch services and two-way communications between the user(s) and the City's Communication Operations Center (Comm Ops or Dispatch). Public Works also has access to the system. In addition, two-way communication between two users in the field is provided. Examples are a call for service to 911 which is received by the Hayward Communication Operations Center at the Police building on Winton. A Communications Operator evaluates the call and typically Fire/Police units are "dispatched" to the scene. In addition, there is substantial communications traffic between users in the field and Dispatch requesting information, back up, etc. All of this traffic takes place over the exiting analog system.

The existing system consists of several major "subsystems" which are discussed briefly below:

- Transmitter Tower/Microwave subsystem. There are three transmitter sites (towers) in the City. One is located at the Police Department building on Winton, one on Walpert Ridge and one at the Hesperian Pump Station. The sites are connected via microwave and are the backbone of the system for transmitting radio communications to the users. This system is old, fragile and needs to be replaced. This subsystem can be replaced with digital equipment and can be reused in a new 700/800 MHz digital trunked system. In addition, the towers and other transmission equipment must be replaced.

- Simulcast Subsystem. When a message is transmitted from Dispatch it is broadcast from the three transmitter towers ***simultaneously***. This ensures coverage and that users receive one un-garbled transmission as opposed to overlapping transmissions due to timing differences between transmitter sites. The subsystem that manages this function needs replacing. If this subsystem is down, then the overall performance of the system is degraded.

- Voter/Receivers Subsystem. In addition to the transmitter sites noted above the system is equipped with three radio receiver sites. The receiver sites pick up the transmissions of users from the field and complete the two-way radio

communication. The receiver sites are located at Fire Station 3, Fire Station 6 and Fire Station 9. All of these receiver sites are connected to the Police Department building by telephone lines. When a receiving site picks up a transmission from the field the voting system selects the strongest signal and uses that site to manage the transmission. If this subsystem is not operating properly, transmissions are garbled and must be repeated resulting in unacceptable delays. This equipment is old and needs to be replaced.

In addition to replacing the major subsystems discussed above, staff is recommending two additional improvements to the existing system. First, staff is recommending that a new receiver site be located on the Garin Water Tank. The antennas and tower will be unobtrusive, relatively inexpensive to install and will enhance the system's coverage. Finally, the new receiver site will be "forward compatible" with the long-term or Phase II recommendation.

The second enhancement concerns the City's inventory of portable or hand held radio units. The existing units are analog units and are not compatible with a digital system. Because of the cost of replacing approximately 300 units is substantial, staff is not recommending the purchase of new units. Instead, staff is recommending an expanded maintenance program for the existing units. This program will ensure that an adequate number of well maintained units are available at a relatively low cost.

A final equipment area that must be addressed as part of Phase I is the replacement of mobile data terminals (MDT's) used by the Fire Department. Fire Department engines, trucks and support vehicles are equipped with MDT's and are used by fire personnel when responding to calls for service. The current units are over ten years old and are no longer manufactured. The MDT's would be replaced with mobile data computers (MDC's) which represent current technology.

The cost of Phase I is approximately $1.6 million. Approximately $600,000 of that amount is required to replace the microwave system, about $300,000 to replace antennas and transmission lines and approximately $300,000 for the simulcast and voting systems. The remainder of the cost, approximately $400,000, is for contingency, MDC's and the new site.

Prepared by:

_____

Perry Carter, Acting Assistant City Manager

Approved by:

_____

Jesús Armas, City Manager

CITY OF HAYWARD

STAFF REPORT

AGENDA DATE 09/21/05

AGENDA ITEM _____

TO: Council Technology Application Committee

FROM: Director of Public Works

SUBJECT: Proposed Agreement for Use of City Right-of-Way and Streetlight Poles by NextG Networks, Inc.

RECOMMENDATION:

It is recommended that the Committee concur with staff's recommendation to the City Council requesting authorization to enter into an agreement for the use of City right-of-way and streetlight poles by NextG Networks, Inc.

BACKGROUND:

NextG Networks of California, Inc. is a facilities-based voice/data telecommunications provider that provides services to commercial wireless mobile telecommunications carriers through microcell and fiber optic technology. NextG's services are designed to amplify and extend an existing wireless mobile telecommunications carrier's radio frequency signal in difficult coverage areas. NextG Networks contracts with wireless telecommunications providers and does not directly provide telecommunications services to the public. This results in the use of a single antenna by multiple companies, which reduces the deployment of cellular antenna facilities.

After conducting an analysis of potential demand for their services within the City of Hayward, NextG determined that there was a need to place such telecommunications equipment within the City's limits. As a result, NextG recently approached City staff about the possibility of utilizing existing streetlight poles within the City's right-of-way for the purposes of locating these units in places throughout Hayward that experience loss of signal strength.

The proposed agreement with NextG calls for several important items of note. For one, NextG has agreed to pay the City an annual fee of $300 for each City-owned streetlight used for such purposes during the initial 10-year term. The total number of installations will be determined once NextG completes a more thorough analysis of signal strength patterns throughout the City and the demand for their services from wireless carriers. NextG will also pay the City a monthly amount which is equal to 5 percent of the gross revenue received by NextG from the provision of services or the sale of services within the Hayward market.

In addition, NextG has agreed to provide the City with a 1 gigabit wavelength of capacity in their fiber connection network for the City's exclusive use and at no cost to the City. At this time, it is difficult to ascertain if or how this capacity might be accessed due to fact that the eventual system configuration is not known. However, there is the potential that this system could

provide redundant pathways for the City's existing data networks. An example of this type of use would be the data connection between City Hall and the Police building. Currently this connection is City-owned fiber with telephone backup. In theory, NextG could provide a redundant link between the buildings.

Another key portion of the agreement explicitly calls for NextG to adhere to all City policies related to acquiring the necessary permits and complying with all rules related to construction within the City's right-of-way. Furthermore, NextG understands that the locations and types of installations must be approved by staff prior to construction and may be moved or removed at a later date if the City deems that such installations are interfering with City operations or are considered a health and safety issue; visual depictions of the types of installations to be considered for placement within the City are included in Exhibit "A." Any costs related to the removal or displacement of the equipment is to be borne by NextG and not by the City. The proposed agreement also mandates construction and faithful performance bonds to protect the City against any loss attributable to NextG's performance under the agreement.

The general timetable set by NextG to proceed with the installation of their equipment will be primarily contingent on the level of demand for their services by wireless telecommunication carriers. However, once an area has been identified, NextG will work with City staff to properly secure the required permits and approvals for the type of antenna to be used as well as the location where the equipment will be installed. This process would continue for any additional installations that were identified during future years of the agreement.

NextG has recently approached several cities in the Bay Area with the same request, including Atherton, Walnut Creek, Danville, and Milpitas. Danville and Milpitas were the most recent cities to enter into agreements with NextG; their approved contracts include much of the same key language related to compensation and liability as contained within the City's proposed agreement.

FISCAL IMPACT:

As noted previously, the number of poles to be utilized by NextG will be based on current and future demand. However, members of NextG's staff have stated in discussions with other cities that no more than three poles per square mile would need to be utilized for this purpose. Therefore, a maximum total of 183 boxes may be attached over the 61 square miles within Hayward during the term of this agreement. In this case, the revenue realized by the City from the annual pole-rental fee could be as much as $54,900 per year. It is important to emphasize that this is the maximum theoretical amount and will, in all likelihood, be considerably less than that amount, especially during the first several years of the contract when NextG is in the process of establishing the level of demand for their services. Likewise, the monthly revenue to be paid to the City, as noted in the agreement, is wholly dependent on the amount of services and sales that occur within the City and is unknown at this time.

Prepared by:

Robert A. Bauman
Director of Public Works

Approved by:

Jesús Armas
City Manager

Attachments: Exhibit A: Examples of installed equipment on municipal facilities

HOMEGOODS