



CITY COUNCIL AGENDA REPORT

MEETING DATE: September 20, 2005

ITEM NUMBER: Item Number

SUBJECT: Mobile Data Computers and Peripherals for Police and Fire Departments

DATE: August 25, 2005

FROM: Police and Fire Departments

PRESENTATION BY: Allen Huggins, Lieutenant / Police Department, Logistical Support Bureau

FOR FURTHER INFORMATION CONTACT: Allen Huggins 714-754-5282

RECOMMENDATION:

The following recommendations are made:

1. Approve the agreement and authorize the City Manager to sign the purchase request and contract for the purchase of 80 Mobile Data Computers (MDC's) for the Public Safety departments with Motorola Inc., 6450 Sequence Drive, San Diego, CA 92121. The total amount for the purchase of the MDC's is \$761,299.
2. Approve the sole-source Agreement and authorize the City Manager to sign the purchase request and End User License Agreement for Mobility from NetMotion Wireless, 701 N 34th Street, Suite 250, Seattle, WA 98103 in the amount of \$26,875.

BACKGROUND:

The City of Costa Mesa's Public Safety Computer System was initially developed and installed in 1982. For well over twenty years, the system has been providing service in a seven days a week, twenty-four hours a day operational environment.

The initial phase of the City's Computer Master Plan consisted of an assessment of the City's Management Information Services' (MIS) future needs, development of a multi-phase Master Plan, and preparation and evaluation of Requests for Proposals for the work to be performed in the upcoming phases. Phase II of the City's Master Plan consisted of three projects: 1) the planning and installation of a network infrastructure consisting of fiber optics and category 5 cable runs; 2) upgrading the Public Safety departments' computer terminals; and 3) implementing Peoplesoft Financial, Human Resource and Payroll applications, and other third-party applications. Phase II was completed in 1998.

Upgrading the Public Safety departments' computer terminals, as indicated in Phase II of the City's Master Plan, involved the purchase of new MW 520 Mobile Data Computers (MDC's). The MW 520 MDC's purchased as part of Phase II of the City's

Computer Master Plan are currently still in service. The MW 520 MDC uses a Windows 95 operating system. This system was adequate at the time of purchase, but became problematic as new computer programs and tools needed to better serve the community have a difficult, if not impossible, time being configured to work with the aged Windows 95 operating system.

In December of 2002, the City Council approved the purchase of a new Public Safety Computer System with Printrak Public Safety Computer Systems (Motorola) and an upgraded Network Infrastructure with Hewlett Packard. This decision was made based on the overall importance of the Public Safety Computer System to operational issues within the City. The Public Safety Computer System helps to provide several mission critical services, such as:

1. Essential emergency services to the public
2. Critical officer safety information to field patrol personnel
3. Information necessary to conduct criminal investigations
4. Data to assist in determining deployments strategies, and
5. Information necessary to develop tactical operations to address crime trends and patterns.

On March 23, 2004, the Police and Fire departments, along with the Telecommunications Division rolled out the new Printrak CAD and Premiere MDC system. Since the rollout there have been numerous challenges related to the current MDC's. Four significant areas of concern exist, as follows:

1. The efficiency (speed) of the MDC's.
2. The repeated need to re-boot the MDC throughout the day due to terminal malfunction.
3. Random MDC self initiated re-boots causing repeat logins and lost mobile data communications.
4. Current MDC operational functionality causes the officer to use either the "touch pad mouse" or use two-hands to maneuver through the new application screens causing inattention to driving practices.
5. The MW520 cannot run the new version of Motorola's software under its current Windows 95 version, which limits our options and will soon leave us without support from the vendor.

Due to the poor performance of the MDC's in general, the re-boot and resultant time-consuming repeated re-login processes (as those identified above) intensely frustrate field staff and exasperate the efficiency issues.

Moreover, liability issues now exist in association with the new application and the operational functionality of our current MDC's. Officers must either use the "mouse" to point and click on a "button or screen" causing the officer to take their eyes off the road, or the officer must use two-hands to make keystroke selections taking their hand from the steering wheel. In either case, liability associated with the functionality is cause for concern. New MDC's utilize "touch screen" technology, which reduces the liability of inattentive driving relative to equipment utility.

The need to replace the mobile data terminals was identified early in the product evaluation phase of the Printrak system in year 2001, long before contract negotiations. Product evaluation committee members, along with key City management personnel,

readily knew, upfront, that the MDC's were likely to pose a problem in terms of their efficiency. The principal reason for the inefficiency is largely due to that fact that the new Motorola Premiere MDC system is built to operate in Windows XP, and our current MDC's function in Windows 95 environment. To further compound the issue, due to the age of Windows 95 (nearly 10 years old), Microsoft no longer offers Windows 95 product support, which limits our technical inquiry and problem resolution options. Simply stated, the current MDC's cannot process the new Printrak application or system data fast enough, which results in a sluggish inefficient system and underutilization of the new application by the field officer. To combat the inefficiency, officers via radio, are relying on Communications personnel to run field inquiries that would normally be done by way of the MDC. This is placing an undue burden on Communications' personnel and increasing their workload more than what was anticipated or expected from this installation.

The LRMS (records management) system purchased as part of the Public Safety Computer System with Printrak Public Safety Computer Systems (Motorola) is designed for field use with MDC's. LRMS allows the officers in the field to have access to records data that is extremely beneficial to them with investigations. Prior to the cutover to the new CAD / LRMS computer system, the Records Management System (RMS) data were routinely used by officers in the field to more efficiently handle calls for service and conduct follow-up investigations. With the current MW 520's, which use the Windows 95 operating system, LRMS has not been rolled-out for field use since the MW 520's cannot effectively handle the volume of data. Deploying LRMS in the field using the MW 520's now in service would, if it would work at all, cause a very sluggish and inefficient system to even further reduce the efficiency of the MW 520's. The LRMS system has been tested on a new MDC and it functioned efficiently and effectively.

The City of Costa Mesa has utilized a mobile data system for well over two decades to serve the public safety users for information requests. The first system was for minimal data requirements using a law enforcement frequency in the 460 band and served for several years as the City's pioneering move to the mobile data environment. In the early 1980's Costa Mesa was licensed by the FCC for an 800 MHz system utilizing KDT 480s that provided connections to the public safety computer aided dispatch (CAD) system and state systems for information requests. This system lasted through the late 90's with the installation of our current mobile data system utilizing the frequencies licensed to the City by the FCC and has been in operation for five years.

It is evident that this system needs to be supplemented with a high-speed / broadband data system due to the demands of current applications that provide the capability of sending images, large amounts of data, and other high bandwidth requirements. The volume of information available to the field officer is tremendous. Obtaining wanted flyers with photographs, DMV photographs, and implementing in-field report writing are going to require high-speed / broadband capabilities. Having these functions would allow the field officer to more effectively and efficiently perform their jobs, thus, providing better service to the community.

ANALYSIS:

MDC Selection

Based on the performance of the current MDC's, it is evident that new MDC's are necessary to enable the new CAD / LRMS computer system to function properly. Once that was determined, a decision was made to find a MDC system that would not only complement the Motorola CAD / LRMS system, but would be able to reliably operate in a public safety environment as well as accommodate the wireless component necessary for volume data movement. A team of public safety personnel was organized into the MDC Selection Committee and tasked with the responsibility of researching different MDC's and making a recommendation as to the best choice for the City's Public Safety departments.

Once the MDC Selection Committee was selected, finding a methodology to proceed with researching the variety of MDC's in service was established. The MDC Selection Committee decided that the best and most reliable way to evaluate a variety of MDC's was to conduct site visits with other public safety departments. The purpose of the site visits was to see the equipment actually in service and be provided the opportunity to speak with key personnel from the respective agencies to determine how they viewed the MDC's and what, if anything, they would change. This simple, yet effective method, allowed the MDC Selection Committee to gather quality in time data from multiple agencies to use to move forward in the selection process.

The MDC Selection Committee visited the following public safety departments and briefly noted the following:

1. **City of Irvine Public Safety Department** - The City of Irvine uses the Panasonic Toughbook mounted in the trunk with a screen and keyboard in the passenger compartment. Overall, they are satisfied with the performance of the Panasonic Toughbook.
2. **City of Newport Beach Public Safety** – The City of Newport Beach uses a Dell laptop computer as a MDC. They are in the process of evaluating the Panasonic Toughbook.
3. **City of Santa Ana Public Safety Department** – The City of Santa Ana uses a Gateway Laptop, with the laptop mounted in the passenger compartment of the vehicle. The officers do not like the system and it lacks durability.
4. **Orange County Sheriff's Department** – The OCSD uses the Panasonic Toughbook mounted in the trunk with a keyboard and screen in the passenger compartment. They are satisfied with the system.
5. **City of Long Beach Public Safety Department** – The City of Long Beach uses a Data911 MDC. The MDC is mounted in the glove box with a screen and keyboard mounted in the passenger compartment. They are satisfied with the performance of the Data911 MDC.
6. **City of Oceanside Public Safety Department** – The City of Oceanside uses a Data911 MDC. The MDC is mounted in the glove box with a screen and keyboard mounted in the passenger compartment. They are satisfied with the performance of the Data911 MDC.
7. **City of Whittier Public Safety Department** - The City of Whittier uses a Data911 MDC. The MDC is mounted in the glove box with a screen and keyboard mounted in the passenger compartment. They are satisfied with the performance of the Data911 MDC.

8. **City of Huntington Beach Public Safety Department** – The City of Huntington Beach was in the process of converting to the Motorola ML900 Laptop from the Motorola MW800 MDC. The conversion was not going well and they were unsure if the conversion would take place.
9. **City of Ventura Public Safety Department** – The City of Ventura uses the Motorola MW800 MDC. They are satisfied with the performance of the MW800.
10. **City of Santa Maria Public Safety Department** – The City of Santa Maria uses the Motorola MW520 MDC, with limited functionality. This is the City's first MDC and they are satisfied with the performance of the MW520, even with the limited functionality.
11. **California Highway Patrol** – The California Highway Patrol has begun to convert to the Visteon TACNET MDC after over a year of getting the system to function properly. They are satisfied with the performance of the TACNET MDC.

At the conclusion of the site visits, the MDC Selection Committee met and reviewed the information collected. Based upon the performance of the MDC's in a field environment and other relevant information collected, the MDC Selection Committee selected four MDC's to field test:

1. Data911 MDC
2. Motorola MW800 MDC
3. Panasonic Toughbook
4. Visteon TACNET MDC

The four vendors were contacted and arrangements were made to have the MDC's installed in Costa Mesa Police units first and then in Costa Mesa Fire units. In February and March 2005, the Data911 MDC, Motorola MW800 MDC, and Panasonic Toughbook MDC installations were completed in the Police units and field-testing began.

In order to properly evaluate the field-testing phase of the MDC selection process, a MDC Survey Form was created (refer to Attachment 1). The MDC Survey Form was required to be completed each time an officer drove a test unit. The MDC Survey Form evaluated six different categories:

1. Screen Location
2. Screen Viewing
3. Screen Touch / Use
4. Keyboard – Ease of Use
5. Keyboard – Location
6. Overall Rating of the MDC

The evaluators would rate each category, "Poor", "Fine", "Good", or "Outstanding". The "Poor" rating was given the numerical score of 0; the "Fine" rating a numerical score of 1; the "Good" a numerical score of 2; and the "Outstanding" rating a numerical score of 3. Each category also provided the rater a place to make comments.

All the scores and comments were compiled into a spreadsheet (refer to Attachment 2). It should be noted that the officers evaluating the MDC's did not know the method of the scoring of each category or of the results as the data were entered onto the

spreadsheet. This was done in an effort to keep the field-testing environment free from any undue influence.

The Visteon TACNET MDC was installed in a police unit but would not function properly with the Motorola CAD / LRMS software. After multiple unsuccessful attempts over several months, the TACNET MDC was eliminated from further consideration.

At the conclusion of the approximate eight week Police field-testing, the results were reviewed. The Motorola MW800 MDC and the Panasonic Toughbook MDC were very close in overall scoring and were well received by the officers participating in the field-testing. The Data911 MDC did not score very well and overall was not very well received by the evaluating officers (refer to Attachment 3). Based on the Police Department scoring, the MDC Selection Committee eliminated the Data911 MDC from further consideration.

The Motorola MW800 MDC and the Panasonic Toughbook MDC were then installed in Fire Department units for field-testing. The same criteria used for the Police Department field-testing was used for the Fire Department field-testing. The Fire Department found the Motorola MW800 to be the preferred MDC as the MW800 had assigned "soft-keys"; the touch screen was more responsive and more clear; the keyboard was easier to see at night; and the functions were easier to use (refer to Attachment 4). At the conclusion of the field-testing, the MDC's were removed from the Fire units.

At the conclusion of both the Police and Fire departments' field-testing, the results were evaluated. Both the Police and Fire departments rated the Motorola MW800 MDC marginally higher than the Panasonic Toughbook MDC.

Both the Panasonic and Motorola vendors were then provided the opportunity to make a final presentation to the MDC Selection Committee on their respective products and to provide quotes on the cost per unit of the MDC's. Each vendor put together a presentation, including preliminary quotes. Based on the quotes provided by the vendors, the Motorola MW800 MDC was less expensive than the Panasonic Toughbook (refer to Attachment 5).

The MDC Selection Committee then met to evaluate all the information collected, including the survey results, field performance and quotations. Based on all the data collected over the entire MDC evaluation process, the MDC Selection Committee selected the Motorola MW800 MDC as the recommended MDC for purchase for the City of Costa Mesa Public Safety departments.

Modems

After the MDC selection process was completed, the peripherals necessary to have a complete and efficient mobile data computer system were reviewed. The MW800 MDC is a computer that requires (as any MDC) a method to get the data to and from the public safety unit in the field. Unlike a desktop computer that uses a direct cable or wire connection, the MDC's require a wireless data transfer method to operate. This will require the procurement of radio modems to interface with the existing wireless data solution. The radio modems are required to use the Motorola Radio Data-Link Access Procedure (RD-LAP) protocol used in the present wireless system.

The MDC's the City currently uses (MW520) have an internal modem (radio) for data reception and transfer. This internal modem cannot be removed and replaced in the new MW800 MDC. A new modem (radio) is required for data reception in the MW800 MDC. The Motorola VRM850 is the recommended modem to complement the MW800 MDC and to allow for the necessary data transfer and reception for a functional system. The VRM850 modem is an external modem that can be used with other MDC's that may be utilized in the future. The VRM850 uses the Motorola Radio Data-Link Access Procedure (RD-LAP) protocol necessary to function in the current environment.

High-Speed Broadband

To supplement the City's existing wireless infrastructure (RD-LAP) to allow for the ever increasing high-speed data transfer capabilities necessary for Public Safety users, it is proposed that the City of Costa Mesa implement a commercially- owned high-speed broadband solution to supplement the current Motorola Radio Data-Link Access Procedure (RD-LAP) system. By installing a commercially- available system, such as Verizon or Cingular for access to high-speed data, the City will be able to meet the demand for high-speed broadband capabilities, thereby meeting the critical mission demands of Police and Fire. The implementation of a high-speed broadband system would allow for additional mapping capabilities, the dissemination of wanted flyers, the introduction of in-field report writing, as well as other large-file types of data to be easily transmitted to the public safety units in the field, increasing their efficiency and thereby providing better service.

Seamless Mobility

In order to maximize the efficiency of the Motorola Radio Data-Link Access Procedure (RD-LAP) system and the high-speed broadband solution, it is recommended that the City implement a product to allow for the seamless mobility between the two networks. The recommended vendor for the seamless mobility is NetMotion.

NetMotion Mobility XE is an easily deployed, software-only Mobile Secure Remote Access solution created specifically to address the many challenges of mobile computing. Through its server software Mobility XE enables mobile workers to get connected and stay connected to mission-critical applications over any IP-based wireless networks. NetMotion Mobility XE enables any network application to be deployed to mobile users.

Based on the uniqueness of the product, the fact that the product has worked and continues to work in both large and small public safety agencies across the Nation, the need for the product to work immediately and efficiently and the below listed references, it is requested that this be a sole-source contract. The references listed below were contacted and all concurred that NetMotion worked as indicated and was a key component to the success of their respective mobile programs. Refer to Attachment 6 for quotation and NetMotion End User License Agreement.

Public safety references:

Jacksonville Sheriff

1589 Mobile Devices

Mobility XE Enterprise Edition

Mobility XE Policy Management

Contact
Emory Mills-Conrad
Network Engineer
904-630-2363
6643hec@jaxsheriff.com

Jacksonville Sheriff's Department uses NetMotion for seamless roaming through combination of wireless WAN and WLAN access points. Mobility XE provides seamless roaming over multiple networks, Roam-able VPN, Application Session Persistence, and Compression & Link Optimizations that double wireless throughput.

Jacksonville also uses Mobility XE Policy Management to control mobile worker access to applications and information based upon user profile, network type, and network speed.

City of Orlando
800 Mobile Devices
Mobility XE Enterprise Edition
Mobility XE Policy Management

Contact
Mark Crain
Network Engineer
407-246-3022
Mark.crain@cityoforlando.net

NetMotion allows seamless roaming over a wireless WAN network topology, including in and out of coverage areas. Mobility XE also provides a Roam-able VPN, Application Session Persistence, and Compression & Link Optimizations that double wireless throughput.

Orlando also uses Mobility XE Policy Management to control mobile worker access to applications and information based upon user profile, network type and network speed. In addition, Orlando uses Policy to manage application updates and devices.

Orange County, California
369 Mobile Devices
Mobility XE
Mobility XE Policy Management

Contact
Ed Lee
714) 796-8046
elee@ocsd.org

The Orange County Sheriff's Department switched to NetMotion Mobility XE from competitive product. NetMotion provides seamless roaming through combination of wireless WAN and WLAN access points. Mobility XE provides seamless roaming over multiple networks, Roam-able VPN, Application Session Persistence, and Compression & Link Optimizations that double wireless throughput.

Orange County also uses Mobility XE Policy Management to control mobile worker access to applications and information based upon user profile, network type, and network speed.

City of Aurora, CO

300 Mobile Devices

Mobility XE

Mobility XE Policy Management

Contact

Mike Bedwell

Public Safety Systems Manager

(303) 739-7880

mbedwell@ci.aurora.co.us

The City of Aurora has 300 public safety units accessing several mission critical applications such as CAD, using multiple wireless networks (WLAN, T-Mobile, Verizon, Sprint, AT&T Wireless GPRS & CDPD). They are also using Mobility & Mobility Policy Management.

City of Tampa

In process of deploying 1,000 mobile devices

Mobility XE

Contact

Carl Martin

813-274-8536

Carl.martin@ci.tampa.fl.us

Mobility XE provides Tampa Police & Building Inspectors with seamless roaming over a wireless WAN network topology, including in and out of coverage areas. Mobility XE also provides a Roam-able VPN, Application Session Persistence, and Compression & Link Optimizations that double wireless throughput.

Seattle Police Department

200 Mobile Devices

Mobility XE

Mobility XE Policy Management

Contact

Toby Baden

206-684-5368

Toby.baden@seattle.gov

The Seattle Police Department uses NetMotion to provide seamless roaming through a combination of wireless WAN and WLAN access points. Mobility XE provides seamless roaming over multiple networks, Roam-able VPN, Application Session Persistence, and Compression & Link Optimizations that double wireless throughput.

Seattle also uses Mobility XE Policy Management extensively to control mobile worker access to applications and information based upon user work group, wireless signal strength, user profile, network type, and network speed.

ALTERNATIVES CONSIDERED:

Two alternatives were considered. The first alternative is to take no action and to continue using the existing MW520 MDC's. Although this would save the expenditure for the new MDC's at this time, the MDC's would eventually have to be replaced and could cost more. This alternative would also not work toward solving the current problems with the MW520 MDC's that include poor performance, limited functionality, and the fact that the operating system (Windows 95) is no longer supported by Microsoft.

The second alternative is to continue evaluating MDC's, looking for other solutions. The MDC Selection Committee is confident that the search that resulted in the MW800 MDC being selected was thorough and did in fact eliminate several quality MDC solutions, with the MW800 MDC being preferred by the end users, performing better in field testing as well as being less costly than other MDC solutions. To continue searching would also increase the time before any MDC solution could be implemented to solve the current problems.

FISCAL REVIEW:

The FY 05-06 adopted budget under the Management Information Services Division's budget includes an appropriation for the purchase of these MDC's. As discussed during the budget presentation, funding for the purchase will be secured through short-term borrowing. Staff will present the funding mechanism options to the City Council at a future City Council meeting.

LEGAL REVIEW:

The City Attorney's office has approved the documents as to form.

CONCLUSION:

After a long and comprehensive search and evaluation period, the MDC Selection Committee who used end-user surveys, MDC performance, and costs as part of the criteria to select the MDC, selected the Motorola MW800 as the MDC of choice. The Motorola MW800 MDC solution along with the Motorola VRM850 modem, a high-speed broadband carrier and NetMotion Mobility will bring the City's Public Safety departments up to current computing standards used by many other agencies in the public safety community.

It is therefore recommended that the City enter into a contract with Motorola for the MW800 MDC and peripherals for the MDC solution.

It is further recommended that the City enter into a contract with NetMotion Mobility for the seamless mobility needs for the MDC Solution.

ALLEN HUGGINS

Lieutenant

JOHN D. HENSLEY

Chief of Police

MARC R. PUCKETT

Director of Finance

JAMES ELLIS

Fire Chief

KIMBERLY BARLOW

City Attorney

DISTRIBUTION:

ATTACHMENTS:

- 1 [MDC Survey Form](#)
- 2 [PD Field Testing Spreadsheet](#)
- 3 [PD Overall MDC Scoring](#)
- 4 [FD Field Testing Spreadsheet](#)
- 5 [Motorola / Panasonic Cost Comparison](#)
- 6 [NetMotion End User Agreement](#)
- 7 [Motorola Justification for Sole Source](#)
- 8 [NetMotion Justification for Sole Source](#)
- 9 [Motorola Mobile Workstation Proposal](#)