

## INTRADEPARTMENTAL CORRESPONDENCE

March 8, 2017  
1.17

**TO:** The Honorable Board of Police Commissioners

**FROM:** Chief of Police

**SUBJECT:** UPDATE REPORT REGARDING FINANCING AGREEMENT WITH  
MOTOROLA SOLUTIONS, INC., FOR PORTABLE AND HANDHELD  
RADIOS

### RECOMMENDED ACTIONS

1. That the Board of Police Commissioners (Board) RECEIVE and FILE the attached update report regarding Financing Agreement for Portable and Handheld Radios.

### DISCUSSION

The following is provided as an update on the replacement of handheld and mobile radios for the Los Angeles Police Department (LAPD). The Fiscal Year 2016-2017 approved budget includes the authority for the LAPD and Los Angeles Fire Department (LAFD) to negotiate a financing agreement for the purchase of new radios. Both of the vendors that currently sell radios to the City, Motorola Solutions and Harris/Dailey-Wells, have existing commodities agreements in place with the Department of General Services for the purchase of radios, and both LAPD and LAFD are able to make purchases via those existing City contracts. Though both vendors have existing City contracts in place, both LAPD and LAFD determined that it would be best to field test radios from both available vendors, before proposing a financing agreement. The field-testing of radios resulted in both departments overwhelmingly preferring the radios produced by Motorola Solutions.

The authority to enter into any financing agreement, however, resides with the City Chief Administrative Officer (CAO). As such, the attached report is provided to the Board of Police Commissioners for informational purposes only. The CAO will negotiate a financing agreement with Motorola Solutions, in consultation with the City Attorney.

If you have any questions, please have a member of your staff contact Sergeant II Daniel Gomez, Tactical Technology Section, Information Technology Bureau, at (213) 486-0370.

Respectfully,

  
CHARLIE BECK  
Chief of Police

Attachment

## UPDATE REGARDING FINANCING AGREEMENT FOR PORTABLE AND HANDHELD RADIOS

### **BACKGROUND**

The Los Angeles Police Department (LAPD) currently utilizes Motorola handheld and vehicle radios for all communications for all operational communications. This radio system is nearing the end of its life cycle and will need to be replaced across the entire organization.

The Fiscal Year 2016-2017 approved budget includes the authority for the Los Angeles Police Department (LAPD) and Los Angeles Fire Department (LAFD) to negotiate a financing agreement for the purchase of new radios. Both of the vendors that currently sell radios to the City, Motorola Solutions and Harris/Dailey-Wells, have existing commodities agreements in place with the Department of General Services for the purchase of radios, and both LAPD and LAFD are able to make purchases via those existing City contracts.

Though both vendors have existing City commodities contracts in place with the Department of General Services, both LAPD and LAFD determined that it would be best to field test radios from both available vendors, before negotiating a financing agreement. Both Motorola Solutions and Harris/Dailey-Wells agreed to the side-by-side technical comparison and user field test. The field-testing of radios resulted in both departments overwhelmingly preferring the radios produced by Motorola Solutions.

### **METHODOLOGY**

Both vendors provided 30 market ready radios for a field test, staff to assist with training, technical experts, and presented a comprehensive overview of the functionality of their proposed solutions to a group of City personnel comprised of the LAPD, LAFD and Information Technology Agency. The Motorola APX-8000 was the first system deployed, and then the Harris XL-200P followed. The review was separated into three specific categories for overall evaluation.

***Technical Specification:*** The radios were evaluated to ensure they complied with the P-25 requirements, which is a suite of standards for digital radio communications for use by federal, state/province and local public safety organizations in North America that enable agencies to communicate with other agencies. In addition, existing operational protocols were examined to ensure the radios met the needs of the LAPD. Staff from Information Technology Division, Communication Engineering Section, Tactical Technical Section, and Information Technology Agency evaluated these specifications.

***User Experience:*** Officers were selected from across the LAPD to use the radios as part of their primary duty assignment and assess the overall experience with the proposed radios. The officers were from patrol divisions and specialized units.

## UPDATE REGARDING FINANCING AGREEMENT FOR PORTABLE AND HANDHELD RADIOS

The feedback requested pertained to ease of use, reliability, form factor, clarity, functionality and overall experience.

**Support:** Each vendor's manufacturing facilities were visited to inspect their quality control and manufacturing process to verify they could meet the volume needed to support a potential purchase and on-going support. Additionally, a review of each vendor's ability to leverage existing LAPD infrastructure was examined related to programming radios via provided software, custom scan lists and various other support features.

### RESULTS

The following are the results compiled from each of the groups and consolidated for consideration:

**Technical Considerations:** The evaluation groups found that both radio systems met the P-25 standards and met the military specifications for determining ruggedness. Each vendor's published specification sheets were reviewed and, where feasible, verified for accuracy. Each unit's capabilities were reviewed prior to deployment.

**Findings:** The Motorola system performed as designed in the pre-evaluation and during the field-testing. The APX-8000 has several available batteries, including an extended battery that is rated at 17 hours. This battery exceeds the average LAPD shift of 12 hours.

The Harris solution presented several issues, that not only made the radio cumbersome to use, but also posed an officer safety issue. Before the Harris solution was deployed to the field for user experience evaluation, the technical team discovered that when the emergency trigger was activated on the Harris radio it would change to emergency mode, but would not alert the dispatch console at Communications Division. The result of this design would mean that an officer who initiated the emergency trigger would go unnoticed by dispatch and additional resources would not be sent to assist the officer who needed emergency assistance/backup.

The issue identified with the emergency trigger created an officer safety issue that the LAPD found unacceptable. The LAPD notified Dailey-Wells that the radios could not be deployed as designed for a field evaluation. Harris researched the issue and developed a firmware upgrade that resolved the issue. The technical team verified the modifications did correct the particular issue and the LAPD proceeded with the field test.

A related design flaw, affecting the emergency trigger, was also discovered when the radio was in position "B" (direct /simplex mode). If an officer was in position

## UPDATE REGARDING FINANCING AGREEMENT FOR PORTABLE AND HANDHELD RADIOS

“B” on the Harris radio and engaged the emergency trigger, the radio would remain in direct/simplex mode, not allowing the emergency signal to be transmitted to Communications Division. This issue was discovered after the field-testing, during final technical review.

Once discovered, this second issue was also provided to Daily-Wells and a new firmware upgrade was developed and applied to the evaluation radios that corrected this issue. The technical team verified the modification.

The Harris radio also has a 16-channel concentric knob located at the top of the radio that an officer can turn in order to change radio channels. This is a frequently used feature by officers. It was discovered that if an officer used the knob to select a frequency outside of his/her pre-designated 16 channels, and then tried to return to his/her base channel utilizing this same switch, the channel would not return, but would remain on the previous channel. This would cause the officer to broadcast on the wrong frequency. To correct the issue, the officer would have to remove the radio from his/her holster and manually select the desired frequency through direct entry on the keypad, or return the concentric switch to the “A” position and then press the “Zone Up” feature.

This issue was also presented to Daily-Wells, and a resolution is still pending as of the completion of this report.

The battery specification provided by Harris is rated at 10 hours, and is less than typical LAPD shift of 12 hours. This would require multiple batteries per shift and create a situation where a radio could become unusable after 10 hours of use. Harris indicated that a high-capacity battery was pending, but was not available during this test/review process. As of this report, the high-capacity battery was still not commercially available.

Given that the Motorola solution performed well from beginning to end, and the Harris solution presented a number of issues – some that persist today despite Harris being given multiple chances to make system corrections – the clear preference in this category was deemed to be for the Motorola Solutions offering.

Note: Both Motorola and Harris provided mobile radio solutions at the end of the review period. The devices were not field-tested but were bench tested by the technical team and reviewed based on their published specification sheets. Both systems met the LAPD’s basic needs.

***User Experience:*** For the Motorola radio, the issue most identified was that the size of the antenna was considered uncomfortable due to its overall length and lack of pliability. However, Motorola was also able to provide a shorter antenna. Overall form factor was rated high, as well as the overall ease of use and functionality.

## UPDATE REGARDING FINANCING AGREEMENT FOR PORTABLE AND HANDHELD RADIOS

For the Harris radios, officers noted that the overall size of the radio and antenna was preferred compared to the Motorola radio. The functionality and ease of use, however, was considered more complicated and frustrated the officers testing the radio. Consistent comments noted the interface had too many steps to get to the functions that were needed. Also, officers discovered that while the Harris radios allowed them to custom create a scan list, it would delete each time the radio was powered off. This caused frustration for the officers and repeated work to create lists every time the radio was powered off and back on again.

Several officers noted that the overall quality of the Harris radio felt inferior to the both the current Motorola radio (XTS-5000) and the proposed Motorola APX-8000.

The reception/clarity of both the Motorola and Harris radios were described positively by the end-users.

**Findings:** The Motorola radio system was found to work as designed from the beginning of the technical review and throughout the field trials. Additionally, the Motorola radio received the most positive comments in the free form narrative section of the surveys that were completed, and during in-person reviews. The issue of the antennas was relayed to the vendor and a smaller antenna was provided that takes advantage of the LAPD's current infrastructure. This antenna performed as designed and is nearly that same length as the current model antenna on the Motorola XTS-5000.

The Harris radio received high marks for its overall size and form factor. However, the overall experience with the radio was that of frustration, since the officers consistently noted that the interface was too complicated and, during field operations, they could not quickly navigate through the interfaces. Harris was provided this information and some firmware adjustments were made, but the overall sentiment persisted throughout the testing. Specifically, users identified the scan feature of the radio to be problematic and cumbersome to use. The radio at time of testing required the user to manually un-select channels that the officer did not want to monitor. The process of un-highlighting each channel was a common complaint, causing an officer to cycle through up-to dozens of channels to deselect. In addition, once completed, the radio would not retain these changes once the radio was powered off causing the officer to repeat the process. This capability is a frequently used feature by field personnel to monitor activity and calls for service surrounding their primary area of assignment, and the required process is overly burdensome and not realistic to expect of an officer to perform in the field.

**Support:** The technical team noted that the Motorola Solutions offering provided an advantage when leveraging existing infrastructure and features already deployed as part of the current radio platform, as well as in-progress system

## UPDATE REGARDING FINANCING AGREEMENT FOR PORTABLE AND HANDHELD RADIOS

upgrades. Programming and configuration was also considered intuitive and performed as designed.

Dailey-Wells/Harris was responsive to the identified issues and in several cases delivered firmware changes, allowing for field-testing to continue. However, the technical team described the programming and configuration of Harris software as “glitchy” and prone to freezing. This often caused technical staff to have to restart their tasks and repeat several hours of work in order to finalize the configurations. This issue was brought to the attention of Dailey-Wells, but the issues persist through the completion of this report.

***Findings:*** The technical team found the Motorola Solutions preferable when reviewing the system from an “out of the box perspective” and the team was able to leverage several features from existing infrastructure.

Both Motorola Solutions and Harris demonstrated that they had state of the art manufacturing facilities and industry leading quality control features.

As noted above, the Harris offering required additional configuration and on-going technical support throughout the evaluation process. The issue related to the programming/configuration of the radios persists and was noted by multiple technical team members. The overwhelming preference for this category was deemed to be for the Motorola Solutions offering.

### **FINANCING**

Both vendors were asked to submit their best financing offer, which was required to include 5 installment payments, the first payment being due 24 months after the execution of the financing agreement, for 11,500 handheld police radios, 4,500 mobile police radios, and 3,500 handheld fire radios. The Motorola Solutions financing offer came to a total of \$64.5 M over the life of the financing agreement. The Harris/Dailey-Wells offer came to a total of approximately \$58.4 M to \$62 M, depending on available discounts and financing options, over the life of the agreement.

### **CONCLUSION**

The Motorola Solutions offering was found to meet the operational needs of the LAPD and was preferred from both the end-users’ review and the technical team assessment. No adjustments to the Motorola system were required during the technical review and the solution worked as designed from point of delivery through field-testing.

The offering from Dailey-Wells was found to be deficient and not to meet the operational needs of the Department when first delivered; particularly based on the emergency trigger design. This created an officer safety issue and required the provided radios to be

UPDATE REGARDING FINANCING AGREEMENT  
FOR PORTABLE AND HANDHELD RADIOS

modified prior to deployment. In addition, issues identified by the technical team continue to persist with programming of the radios through the provided software.

The published battery specifications were also a differentiator between both vendors. The extended battery option provided by Motorola exceeded the typical deployment of officers, where the battery offering by Harris fell below the average deployment period. This was considered a potential officer safety issue and would require additional logistics to ensure each deployment location had the capacity to keep additional charged batteries at the ready. No extended battery is available on the Harris solution at this time.

The authority to enter into any financing agreement resides with the City Chief Administrative Officer (CAO). As a result of all available data provided, the CAO will negotiate a financing agreement with Motorola Solutions, in consultation with the City Attorney, and will seek all requisite City approvals.