

**SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY**

**DIVISION:** Capital Programs & Construction

**BRIEF DESCRIPTION:**

Authorizing the Director of Transportation to execute San Francisco Municipal Transportation Agency (SFMTA) Contract No. 1240, Design-Build Contract for the Radio System Replacement Project, to Harris Corporation, located at 221 Jefferson Ridge Parkway, Lynchburg, Virginia 24501, for a term not to exceed 1200 calendar days, and in an amount not to exceed \$109,220,519, which includes \$86,648,058 for base bid services and \$22,572,461 for option services, said options to be exercised as authorized by the Director of Transportation.

**SUMMARY:**

- The SFMTA currently operates a radio communications system manufactured in the 1970's that is outdated and extremely difficult to maintain. The existing radio system does not comply with Federal Communications Commission (FCC) regulations that require that the SFMTA abandon the broad band radio frequencies it is currently assigned and move its radio operations to new narrow band frequencies, as of January 2013.
- The replacement of the radio system involves the acquisition, installation, configuration and testing of equipment and software, as well as construction work for radio antenna and transmitting stations. On November 3, 2009, the SFMTA Board of Directors adopted Resolution No. 09-192 which authorized staff to issue a Request for Qualifications/Request for Proposals (RFQ/RFP) for Design-Build Construction services as authorized by Section 6.61 of the Administrative Code to design, construct and implement the Radio System Replacement Project. The RFQ/RFP was initially advertised on December 18, 2009 and reissued in an amended format as a Request for Amended Proposals or (RFAP) to the qualified proposers in December 2010.
- One proposal was received in response to the RFAP in February 2011 and a Notice of Intent to Negotiate was issued in April 2011.
- Federal and local sources are providing funds for the work under this contract.

**ENCLOSURES:**

1. SFMTAB Resolution
2. Project Budget & Financial Plan
3. Contract Agreement

**APPROVALS:**

**DATE**

DIRECTOR \_\_\_\_\_ 4/9/12

SECRETARY \_\_\_\_\_ 4/9/12

**ASSIGNED SFMTAB CALENDAR DATE:** April 17, 2012

## **PAGE 2.**

### **PURPOSE**

The purpose of this calendar item is to authorize the Director of Transportation to execute SFMTA Contract No. 1240, Design-Build Contract for the Radio System Replacement Project, to the sole qualified proposer, Harris Corporation.

### **GOAL**

Contract No. 1240 would assist in the implementation of the following goals, objectives and initiatives in the SFMTA Strategic Plan:

Goal 1: Customer Focus: To provide safe, accessible, clean, environmentally sustainable service and encourage the use of auto-alternative modes through the Transit First Policy

Objective 1.1 Improve safety and security across all modes of transportation

Objective 1.5 Increase percentage of trips using more sustainable modes (such as transit, walking, bicycling, rideshare)

Goal 2: System Performance: To get customers where they want to go, when they want to be there

Objective 2.1 Improve transit reliability to meet 85% on-time performance standard

Goal 5: SFMTA Workforce: To provide a flexible, supportive work environment and develop a workforce that takes pride and ownership of the agency's mission and vision and leads the agency into an evolving, technology-driven future

Objective 5.1 Increase resources available to employees in performing their jobs (tools, staff hours, etc.)

Objective 5.2 Improve facilities in which people are working

Objective 5.3 Improve internal communication and employee satisfaction

### **DESCRIPTION**

#### Background

The SFMTA currently operates an outdated radio communications system manufactured in the 1970's. The existing radio system is no longer manufactured, has limited parts availability and cannot support modern "smart" vehicle applications, such as Automatic Passenger Counters (APC) and Automatic Vehicle Location (AVL). More importantly, the current radio communications system will not comply with the FCC narrowbanding guideline in the year 2013.

### PAGE 3.

This project has been prioritized in the 2010 SFMTA Capital Investment Program (CIP) under Infrastructure Rehabilitation. Capital projects are prioritized using a four-step process that groups and orders projects by program, project criteria, schedule, readiness and funds availability.

Following the requirements of Section 6.61 of the S.F. Administrative Code for Design-Build contracts, the SFMTA issued an RFQ/RFP on December 18, 2009 and invited all interested proposers to submit statements of qualifications. Two statements of qualifications were received from Harris Corporation and GE Transportation Systems Global Signaling, LP on February 26, 2010. Both proposers were determined to be qualified to submit a proposal in March 2010. Two technical proposals were submitted in October 2010, but were subsequently rejected due to non-responsiveness to the RFP requirements. A Request for Amended Proposals (RFAP) was issued in December 2010 to the two pre-qualified proposers and SFMTA received a single proposal from Harris Corporation in February 2011. SFMTA staff evaluated that proposal, issued a Notice of Intent to Negotiate in April 2011, and recently concluded negotiations.

Harris' initial cost proposal was \$102,200,312 for minimum or "base bid" work, and another \$16,462,444 for optional work for a grand total of \$118,662,756 for base and optional work. In response, staff:

- Initiated a comprehensive review of the project requirements to identify potential cost saving opportunities.
- Initiated a review of the Contractor's cost proposal and backup documentation for compliance with Federal Transportation Administration (FTA) guidelines for cost and price reasonableness.
- Agreed to cooperate with Harris on the production of a Statement of Work (SOW) document to define key deliverables. The SOW is a key, industry-standard document for radio system contracts.

The results of this process, review, and negotiation have resulted in a "base bid" proposal of \$86,648,058 and line-item options totaling \$22,572,461, for a total contract price of \$109,220,519.

The contracted solution for the Radio Replacement Project is a robust, mission-critical communications and intelligent transportation system. This solution meets Federal, State and Local Public Safety interoperability standards for voice communications.

Most importantly, the new system will provide tools for improving SFMTA dispatches and fleet communications with the resulting benefits of enhanced safety, security and on-time performance for its employees, commuters and general operations. The project brings to SFMTA modern digital communications and software applications used by other major transportation agencies in the United States and Canada.

The original Engineer's estimate for this project was \$60 million which was subsequently revised by our Subject Matter Expert (SME) consultant (CH2M HILL, INC.) for the following reasons:

- The Digital Visual and Audio System build-out on the LRVs was not a part of the previous estimate, and accounted for an adjustment of \$4.5 million to the scope and cost

## PAGE 4.

- During the course of the negotiations, the SME consultant revised the Engineer's estimate to reflect additional identified costs associated with the SFMTA underground infrastructure installations
- The differential was validated through the FTA cost analysis process, which is a more stringent validation of actual project costs

The contract value for the base components of the system proportionally is consistent with values from contracts and similar systems at other properties, such as the Dallas Rapid Transit System (DART) and Orange County Transportation Authority (OCTA). However, while the SFMTA project leverages standards-based solutions and commercially available products deployed at other properties, the SFMTA's project requirements and the scope of work exceed the work performed at DART and OCTA. The SFMTA's project is uniquely configured and includes a number of major enhancements to the SFMTA's system functionality not present on those agencies' projects.

### Scope of Work

The base scope of work under this contract will be performed at a cost not to exceed \$86,648,058. Additionally, the Agency reserves the right to exercise another \$22,572,461 in optional work items at prescribed amounts during the term of this contract, subject to funding availability. The work is to be substantially completed within 1110 days from the Notice-to-Proceed beginning with the design phase. Final completion shall be reached within 90 days of substantial completion. The Contractor will complete the current conceptual design and will obtain SFMTA's approval to proceed to the procurement and installation phase.

The new radio system will serve SFMTA and be based on a five antennae site system, nine 700 MHz voice channels, and five 800 MHz data channels. Key features and deliverables of the project will include:

- New radio coverage in the City for over 1400 SFMTA vehicles
- 575 new hand held radios
- New and improved radio communications in the Muni Metro subway
- New Computer Aided Dispatch/Automatic Vehicle Location (CAD/AVL) System, featuring:
  - A new Transit Management Center (TMC) at 1455 Market
  - 13 Dispatch Consoles
  - Modern capability to assist SFMTA meet its on-time performance goals
- P25 communications interoperability with other City departments
- "Trunking" capability, which will allow enhance voice and data communication capability and ability for formulate multiple talk groups
- Visual texting and messaging capability via new vehicle data terminals
- Digital Visual and Audio System capabilities on SFMTA Light Rail Vehicles
- Data and reporting for schedules, vehicle operations, service delivery, et. al.
- \$12 – 16 million in estimated SBE/DBE participation

Key project options (which may be exercised by SFMTA at a later date) include:

- Expansion of the Public Works Emergency Response System (PERS) users for an eight channel 700 mHz voice communication system (pending identification of Department of Emergency Management/DEM funding)
- Traffic Signal Priority Pilot Option (20 vehicles/6 intersections)
- Vendor Extended Warranty, Support, and System Security Options
- Fleet Management Enhancement Options (Yard Management, Headway, Crush Load Detection, Predictive Arrive and Departure System Replacement)
- Radiating cables in surface tunnels

The key challenges for the radio system will be:

1. Installing new mobile radios on 1100+ vehicles in the MUNI fleet while maintaining revenue service
2. Transitioning from the old radio system to the new radio system
3. Building a radio communication system in the subway while maintaining revenue service
4. Developing an operations plan around the new radio system and training the SFMTA Transit Division on the new communication system/procedures

The Contract Compliance Office has reviewed the contract and confirmed that Harris Corporation will meet the Small Business Enterprise (SBE) participation goal of 15 percent established for this contract and will commit to meeting the Non-Discrimination Equal Employment Requirements of the contract. Harris Corporation is in compliance with Chapter 12B, the Equal Benefits Provision of the San Francisco Administrative Code.

The City Attorney Office has reviewed this Calendar Item.

SFMTA has a Memorandum of Understanding agreement with the Department of Emergency Management and the Department of Technology (DT) on cost sharing contribution and maintenance responsibilities for the new radio system. The SFMTA has also been working collaboratively with DT to advance DT's study of the City's radio infrastructure needs and will coordinate its effort to address the recommendations of the report when issued. Due to the upcoming FCC guideline, SFMTA needs to proceed with this project, but will consider changes to its radio program in the future as required by the results of this study.

The time allotted to substantially complete design and construction of the project is 1110 calendar days from the date of the written Notice-to-Proceed for the work. All remaining work is to be completed within 90 calendar days of substantial completion. Liquidated damages are \$35,000 per calendar day for failure to complete the work on time and \$5,000 per calendar day of delay to complete the remaining work.

A copy of the contract agreement is included as an enclosure to this Calendar Item. Due to the size and/or nature and type of some of the contract documents, the following have not been enclosed as part of this calendar item but are available for review at the Board Secretary's Office located at One S. Van Ness Ave., Seventh Floor:

## **PAGE 6.**

- Document 900, SFMTA Design Criteria Package, Section 1.1, Design drawings
- Document 900, SFMTA Design Criteria Package, Section 1.2, Appendix 15 for Optional Work “Interface Control Document for Onboard Devices and Translink”
- Document 900, SFMTA Design Criteria Package, Section 1.2, Appendix 18 “FCC Licenses”
- Document 900, SFMTA Design Criteria Package, Section 1.3, Reference Documents including balance of appendices
- Document 1000, Forms including SBE forms
- Contractor’s Statement of Work (SOW), Attachment No. 3
- Contractor’s Statement of Work (SOW), Attachment No. 6 “Microwave Feasibility Study” (attachment 5 not used)
- Contractor Software License Agreement
- Contractor Software Maintenance Agreement
- Contractor Security Update Management Service Agreement
- Contractor Hardware License Agreement

## **ALTERNATIVES CONSIDERED**

There are no alternatives to replacing the radio system. The SFMTA’s existing radio system is outdated, parts are no longer available, and the system will not comply with the FCC narrowbanding guideline in 2013. The new radio system could be procured under a traditional design-bid-build process, but such a process would take longer, would likely be more costly and it would be much more difficult to hold contractors and vendors accountable for system and construction defects.

## **FUNDING IMPACT**

This contract is funded by Federal grants and local matching funds from the San Francisco County Transportation Authority (SFCTA) and other sources. All programmed/planned project funds should arrive within two (2) years. If not, the Contract will be amended to reduce the scope of the Project, or portions of the Project will be suspended until additional funding can be secured.

The budget and financial plan for this project is presented in Enclosure 2 of this calendar item.

## **OTHER APPROVALS RECEIVED OR STILL REQUIRED**

The Civil Service Commission authorized this contract on August 2007 and July 2009 through Notice of Action No. PSC 4002-07/08. The City Attorney has reviewed this report.

No other approvals from any other agency are required for this contract.

**PAGE 7.**

**RECOMMENDATION**

Staff recommends that it is in the public's best interest that the SFMTA Board of Directors authorizes the Director of Transportation to execute SFMTA Contract No. 1240, Design-Build Contract for the Radio System Replacement Project, to Harris Corporation, located at 221 Jefferson Ridge Parkway, Lynchburg, Virginia 24501, for a term not to exceed 1200 calendar days, and in an amount not to exceed \$109,220,519, which includes \$86,648,058 for base bid services and \$22,572,461 for option services, said options to be exercised as authorized by the Director of Transportation without further action by this Board of Directors.

SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY  
BOARD OF DIRECTORS

RESOLUTION No. \_\_\_\_\_

WHEREAS, San Francisco Municipal Transportation Agency (SFMTA) Contract No. 1240, Design-Build Contract for the Radio System Replacement Project (Project), is identified in the latest SFMTA Short Range Transit Plan under Infrastructure - Rehabilitation of the Capital Investment Program; and,

WHEREAS, The work to be performed under the Project will be to design and build a new radio system for SFMTA mobile and hand held radios, implement a Computer Aided Dispatch/Automatic Vehicle Location (CAD/AVL) system, provide communications interoperability with other City departments, and provide necessary construction services; and,

WHEREAS, The SFMTA Board of Directors adopted Resolution No. 09-192 on November 3, 2009 which authorized staff to issue a Request for Qualifications/Request for Proposals (RFQ/RFP) for these services; and,

WHEREAS, The SFMTA issued an RFQ/RFP on December 18, 2009 and received two statements of qualifications on February 26, 2010 which were determined to be qualified to submit a proposal; and,

WHEREAS, In response to the RFQ/RFP, the SFMTA received technical proposals from two proposer in October 2010, but the Agency subsequently rejected both proposals as not responsive to RFP requirements; and,

WHEREAS, The SMTA issued a Request for Amended Proposals (RFAP) in December 2010 to the two pre-qualified proposers; and,

WHEREAS, In response to the RFAP, the SFMTA received only one proposal (from Harris Corporation) in February 2011.

WHEREAS, A Selection Committee determined that Harris Corporation located at 221 Jefferson Ridge Parkway, Lynchburg, Virginia 24501, is qualified to perform the work required for the Project; and,

WHEREAS, The SFMTA Contract Compliance Office reviewed the proposal and confirmed that Harris Corporation will meet the Small Business Enterprise participation goal of 15 percent established for this contract and will commit to meeting the Non-Discrimination Equal Employment Requirements of the contract; and

WHEREAS, The project is funded by a combination of federal grants and local sources; now, therefore, be it



RESOLVED, That the SFMTA Board of Directors authorizes the Director of Transportation to execute SFMTA Contract No. 1240, Design-Build Contract for the Radio System Replacement Project, to Harris Corporation, located at 221 Jefferson Ridge Parkway, Lynchburg, Virginia 24501, for a term not to exceed 1200 calendar days, and in an amount not to exceed \$109,220,519, which includes \$86,648,058 for base bid services and \$22,572,461 for option services, said options to be exercised as authorized by the Director of Transportation.

I certify that the foregoing resolution was adopted by the San Francisco Municipal Transportation Agency Board of Directors at its meeting of April 17, 2012.

---

Secretary to the Board of Directors  
San Francisco Municipal Transportation Agency

**ENCLOSURE 2**

**Contract No. 1240**

**Radio System Replacement Project  
Project Budget and Financial Plan**

**Project Budget and Financial Plan**

<b>Category</b>	<b>Budget</b>
Conceptual Engineering	\$4,375,827
Detail Design	\$6,787,498
Construction	\$103,792,423
<b>Total</b>	<b>\$114,955,748</b>

**FINANCIAL PLAN**

<b>Project Funding Source</b>	<b>Amount</b>
Federal:	
Section 5307	\$14,147,126
Other Federal	\$3,237,251
State: Prop 1B – CTSGP	\$26,000,268
Local Grants:	
Prop K	\$61,867,491
SFMTA Revenue Bond 2012	\$4,000,000
Operating Funds	\$4,997,668
Other	\$151,066
AB664 Bridge Toll	\$554,878
<b>Total</b>	<b>\$114,955,748</b>