



Memorandum

Date: 05.12.16 **RE:** Plans and Programs Committee
May 17, 2016

To: Plans and Programs Committee: Commissioners Tang (Chair), Farrell (Vice Chair), Avalos, Breed, Peskin and Wiener (Ex Officio)

From: Eric Cordoba – Deputy Director for Capital Projects 

Through: Tilly Chang – Executive Director 

Subject: **INFORMATION** – Major Capital Projects Update – Muni Radio Replacement Project

Summary

The San Francisco Municipal Transportation Agency (SFMTA) has embarked on a project to replace and modernize its radio communications system, some elements of which date back to the 1970s. The Muni Radio Replacement Project will do much more than its name implies. It will integrate Muni's communications with Intelligent Transportation Systems components; incorporate up-to-date technological features such as expanded data transmission and simulcasting; and integrate multiple vehicle information systems. By replacing antiquated systems, the SFMTA will be able to improve transit operations and reliability across all modes of service. With a contribution of \$61.7 million, Prop K sales tax is the largest funding source for the \$128 million project. In June 2012, the SFMTA issued the notice-to-proceed to Harris Corp, the design-build contractor and sole bidder. We are pleased to report that construction, testing and configuration is nearing completion at the radio base stations. Construction is also taking place at 16 aboveground locations and the Metro subway system. Four above ground radio base stations have been completed and are on-the-air. All base stations are in the system setup and configuration stage. The antenna cable installation in the Metro tunnel has been 99% completed. Work is also underway at the subway stations and the above-ground yard and central control facility installations. The SFMTA estimates that the installation of the full rubber-tire fleet will be completed by September 2016. For the new LRVs, factory testing is scheduled for June 2016 and installation will take place from September 2016 to January 2017. The original contract schedule called for construction to be completed in September 2015 and had a budget of \$116.4 million. However, schedule delays and difficulties experienced by the contractor (e.g. ensuring compatibility with all five Muni modes, staffing issues) have contributed to a budget increase to \$128.0 million and a Final Switchover anticipated in March 2017.

BACKGROUND

The San Francisco Municipal Transportation Agency (SFMTA) has embarked on a project to replace and modernize its radio communications system, some elements of which date back to the 1970s. The Muni Radio Replacement Project will do much more than its name implies. The new communications system will be an Intelligent Transportation System and will incorporate up-to-date technological features such as expanded data transmission and simulcasting in addition to providing voice communication. It will integrate multiple vehicle information systems, including: the Vehicle Logic Unit, Automated Vehicle Location, Wireless Local Network, Digital Vehicle Announcement System, Automated Passenger Counting, Fare Collection, Vehicle Health Monitoring, Computer-Aided Dispatch, Mobile Dispatch,

Reporting System, and Traveler Information. By replacing antiquated systems, some of which are forty years old, SFMTA will be able to improve transit operations and reliability across all modes of service.

DISCUSSION

Project Status: Following extended negotiations with the single bidder, on June 20, 2012 the SFMTA issued notice-to-proceed (NTP) to Harris Corp, the design-build contractor for the project. As of February 2016, construction, testing and configuration is nearing completion at the radio base stations. Construction is also taking place at 16 aboveground locations and the Metro subway system. Four above-ground radio base stations have been completed and are on-the-air. All base stations are in the system setup and configuration stage. The antenna cable installation in the Metro tunnel has been 99% completed and work is underway at the subway stations and the above-ground yard and central control facility installations.

Having completed factory acceptance testing for the rubber-tire fleet, the contractor completed installation on nine revenue buses and two non-revenue vehicles as the First-of-the-Kind radio installations. The contractor is conducting system-wide setup and configuration, and dry-run testing using the First-of-the-Kind vehicles. Next project milestone is Mini-fleet testing, which is scheduled for May 2016. MTA estimates that the installation of the full rubber-tire fleet will be completed by September 2016. For the LRVs, factory testing is scheduled for June 2016 and installation will take place from September 2016 to January 2017. It will be followed by the historic fleet on-board installation, which will take place between January and March of 2017. Last fall, SFMTA started its training program with the bus operators and central dispatchers.

Budget and Cost: On April 17, 2012 the SFMTA board authorized the award of a design-build contract to Harris Corporation in the amount of \$105,152,343. At the time, the overall project budget was set at \$116,426,667. Subsequently the project has seen a series of cost increases--some due to unforeseen conditions and some due to scope changes--resulting in a current project budget of \$128,026,740 in year-of-expenditure dollars, an increase of \$11.6 million over the 2012 budget.

Table 1 – Muni Radio Replacement Project Budget By Phase	
Conceptual Engineering	\$4,380,347
Final Design	\$6,736,977
Construction	\$116,909,416
TOTAL	\$128,026,740

Table 2 – Muni Radio Replacement Project Funding By Source	
Federal	
FTA and FHWA	\$22,194,927
State	
Prop 1B I-Bond	\$26,000,268
Local	
Prop K	\$61,757,410
AB664 Bridge Tolls	\$554,878
SFMTA Revenue Bonds	\$13,710,000
SFMTA operating Fund	\$3,809,257
TOTAL	\$128,026,740

The increase covers all the changes to the project from inception to date, which include: moving the South Hill Base Station to Bayview Park Base station, addition of mobile radio terminals to the historic fleet, modification of automatic passenger counters, providing GPS data to onboard video recorders, structural retrofit of the Twin Peaks tower, equipping newly acquired buses with new system, and executing an option for a three-year support program. In addition, the budget increase replenished the project contingency to a 5% level, which is appropriate for a project at this stage of completion. As of February 29, 2016, the project has incurred \$24,586,000 in costs.

Funding: With a contribution of \$61,757,410, Prop K is the largest funding source of the project. Funds were allocated to the project in 2007 and 2009. To date, only \$4,373,566 has been invoiced to the Transportation Authority. This is due to a combination of factors including delays in delivering the project, the fact that the contract payment structure is based on reaching a series of project milestones and the contractor has had difficulties meeting those dates, and that the SFMTA has been billing other fund sources with timely-use-of-funds requirements first (a practice which we support as it helps to keep Prop K financing costs low).

The current funding plan is shown in Table 2 on the previous page. As shown therein, the SFMTA Revenue Bond contribution has been increased to \$13,710,000 from \$4,710,000 to account for the \$11.6 million increase in forecasted project cost.

Schedule: The project is 18 months late from the original contract schedule. The original schedule called for the project to be completed in September 2015, but has suffered a series of setbacks. Progress has been delayed by Muni's mixed modes of operation and a unique fleet of revenue vehicles that include historic rail cars, cable cars, light rail, trolley buses, and diesel buses. The radio vendor had to develop customized solutions for each, which was very challenging resulting in delays to the system's design and development. In addition, the contractor experienced an exodus of key staff resources to other technology companies in the Bay Area. Final switchover to the new system is now scheduled to take place in March 2017. A revised list of major milestones for the project is shown in Table 3.

Table 3 – Muni Radio Replacement Project Major Milestones (Revised)	
Notice -to- Proceed to Design-Build Contractor	Jun 2012
Complete Design	Jun 2014
Complete Pilot Testing	May 2016
Construction/Installation Complete	March 2017
Final Switchover	March 2017

DBE/SBE Program: The Radio Replacement project has a small business enterprise (SBE) goal of 15% of construction work. To date, there has been an SBE participation of 32% of the billings.

Challenges: The current in-service date of the project is March 2017, 18 months later than originally anticipated. This delay has affected the final move in and transfer of operations to the recently built Transportation Management Center. In order to meet that schedule, Harris must successfully complete all the system testing in May 2016 and be ready for starting the bus installation on June 1, 2016.

ALTERNATIVES

None. This is an information item.

FINANCIAL IMPACTS

None. This is an information item.

RECOMMENDATION

None. This is an information item.