



Board Report

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**FINANCE, BUDGET AND AUDIT COMMITTEE
APRIL 11, 2018**

**SUBJECT: UPGRADE AGING BUS FAREBOXES AND STATION
VALIDATORS**

**ACTION: APPROVE PROGRAMMING OF UP TO \$55 MILLION FOR FAREBOX AND RAIL
STATION VALIDATOR REFURBISHMENT PLAN**

RECOMMENDATION

APPROVE programming of up to \$55 million to upgrade aging bus farebox equipment and rail station validators that will enhance security, prepare for new payment technologies, ensure near real time communications, simplify regional fares and requirements, and ensure that customers and future 2028 Summer Olympic visitors experience a convenient and barrier-free fare payment system.

ISSUE

TAP fareboxes on buses and station validators at light rail stations were purchased in 2002. This equipment has exceeded its life expectancy by five (5) years and is not compatible with current and future fare collection technologies. Staff recommends upgrading the equipment for Metro and the municipal TAP partner agencies.

BACKGROUND

Over the course of the last year, TAP staff has been in discussions with the TAP partner agencies on farebox upgrade options. Upgrade options include hardware and software that will enhance system security, communicate in near real time, and support the future TAP mobile app and other new payment technologies.

TAP staff is assisting municipal operators in selecting the replacement options and will continue to provide support throughout the upgrade process.

One of the efforts that staff will pursue with our regional partners as we work with them in upgrading the fare collection equipment is to simplify the Region's current fare structure for example, between 26 TAP participating agencies, the TAP system contains over 675 fare products, and three different ages for senior reduced fare. A universal regional fare structure can allow customers to travel simply and seamlessly throughout the system.

DISCUSSION

Staff recommends a multi-phase upgrade approach to address equipment obsolescence, enhance security of the fare collection system and prepare for new payment technologies including open payments. This report addresses only Phase 1 upgrades.

Phase 1 consists of hardware and software upgrades to the fareboxes and station validators to address aging equipment, enhance system security, and enable new payment integration. Phase 2 will consist of software enhancements to accept credit and debit card payment (open payment). Phase 2 requires credit and debit card companies to accelerate their verification technology to ensure customers can pay fare on buses and trains in a timely manner. While Phase 1 provides the necessary equipment upgrades for open payment, an additional future software enhancement will be required.

TAP Fareboxes

TAP fareboxes are operating beyond their expected life span by five (5) years and are in need of an upgrade or replacement. The fareboxes are operating with motherboards that are repairable but are no longer available for purchase. Unlike station validators and gates, the fareboxes were not designed to communicate in real-time which results in a 24 to 48-hour latency period between the time a customer purchases a fare product online and the time the fare product can be used onboard the bus. In addition, current fareboxes have the capacity to only process up to 20,000 fare orders at a time. New equipment will enable fareboxes to process double that capacity. With the upgrade, TAP fareboxes will be able to process online orders in near real-time, accept more secured smartcards, and be ready for new payment options.

To address the issues of the aging farebox, staff recommends an upgrade of the current farebox and replacement of the Operator Control Unit. Staff recommends an integrated third-party commercial off-the-shelf (COTS) solution with a software upgrade.

This approach upgrades the existing farebox hardware and software to increase its functionality and extend its useful life without costly wholesale replacement. It also provides bus operators with a state-of-the-art touchscreen that is easier to see and operate.

Station Validators

Like the fareboxes, the rail station validators are operating beyond their expected life span by five (5) years. The validators are operating with obsolete circuitry. Replacement will improve security and new payment options and technologies can be embraced. Staff recommends systemwide replacement with the next generation of station validators. The station validators will have larger memory capacity and be able to accept security enhanced cards and new payment technologies.

Tentative Schedule

The goal for procurement and installation of the new fare collection equipment is to procure, and install all necessary equipment and software in less than two (2) years. This is a very aggressive

schedule and concentrated efforts from Metro, the municipal partner agencies, and vendors will be necessary. (See Attachment A for a draft timeline).

DETERMINATION OF SAFETY IMPACT

No adverse safety impacts are anticipated.

FINANCIAL IMPACT

The initial cost estimate of Metro's station validators and farebox refurbishment for Metro and the TAP partner agencies is estimated to be a total of \$55 million. The cost of fareboxes, validators and software for Metro is \$45 million. This is a preliminary estimate which does not include an amount for Metro's labor and related overhead costs. The upgrade cost for the other nine municipal operators with old fareboxes is estimated at \$10 million and staff will work with the municipal operators to develop a cost sharing plan.

Impact to Budget

Upon Board approval, \$25 million will be added to the FY19 Proposed Budget. Since this is a multi-year effort, the Executive Officer of TAP Operations and Project Manager will be responsible for budgeting costs in future years.

The sources of funding for this project will include a mix of Federal, State and, if necessary, local funds including, but not limited to, Federal Section 5307 funds, Regional Improvement Program (RIP), and/or Senate Bill 1 (SB1) funds. Most of these funds are eligible for bus and rail operations.

ALTERNATIVES CONSIDERED

The alternative to the proposed farebox and station validators upgrades is to not proceed. This is not recommended as customers will not benefit from the new payment technologies, and frequent equipment breakdowns may result in lost revenue.

As Metro expedites rail construction projects in preparation of the 2028 Summer Olympics, it is important that TAP equipment is also upgraded to complement the enhanced infrastructure and provide visitors state-of-the-art payment options for effortless travel across Los Angeles County.

NEXT STEPS

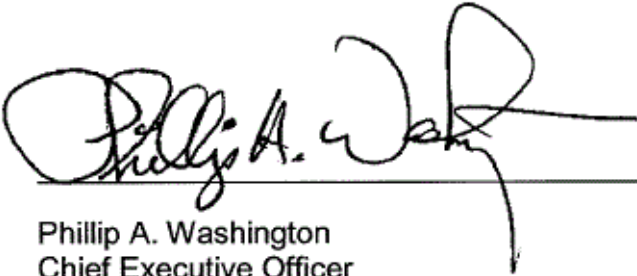
Staff will return to the Board in June 2018 with final costs, recommendations for contract awards, and an installation schedule to ensure a seamless transition between the old and new equipment. Complete installation is expected within two (2) years of Notice to Proceed (NTP). Staff will also present cost arrangements, and associated cost impacts with partnering agencies at a future date.

ATTACHMENTS

Attachment A - Draft Timeline for TAP Equipment Procurement and Installation

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