



Board Report

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Agenda Number: 34.

**OPERATIONS, SAFETY, AND CUSTOMER EXPERIENCE COMMITTEE
OCTOBER 24, 2024**

SUBJECT: METRO B AND D LINES AUDIO FREQUENCY TRACK CIRCUIT AND INTERLOCKING RELAY LOGIC REPLACEMENT

ACTION: APPROVE RECOMMENDATION

RECOMMENDATION

AUTHORIZE the Chief Executive Officer to:

- A. AWARD a firm fixed price Contract No. AE117449000 to B & C Transit, Inc. for the Metro B and D Lines Audio Frequency Track Circuit and Interlocking Relay Logic Replacement Project in the amount of \$59,858,500, effective November 1, 2024, subject to resolution of any properly submitted protest(s), if any; and
- B. INCREASE the Life of Project (LOP) Budget for the Metro B and D Lines Audio Frequency Track Circuit and Interlocking Relay Logic Replacement Project by \$20,000,000 from \$50,100,000 to \$70,100,000.

ISSUE

The Metro Railway Train Control system uses track circuit modules and relay logic (electromechanically operated vital and non-vital relay switches) to manage the safe movement of trains. The current train protection system on the B (formerly Red) and D (formerly Purple) Lines has continuously operated since revenue service began in 1993. These track circuit modules and relay logic (non-vital and vital relays) are now reaching the end of their useful life and require replacement. They are no longer supported by the Original Equipment Manufacturer (OEM), are not readily available in the industry, and potential replacement relays are not cost-effective due to the difficulty of installation. Approval of a contract award and an increase in the LOP budget are needed to proceed with the replacement and modernization work.

BACKGROUND

The track circuit modules and relay logic (non-vital and vital relays) associated with the train control system are reaching the end of their useful life. The OEM no longer supports the relays, and their scarce availability creates a challenge for the Maintenance of Way (MOW) workforces to keep them operational and in good repair. Additionally, new technology in the marketplace would make maintenance of the train control system more manageable by providing diagnostic tools that help

MOW workforces troubleshoot and diagnose potential failures, which reduce unplanned downtime and improve system reliability.

In May 2022, the Board approved the Metro B and D Lines Audio Frequency Track Circuit and Interlocking Relay Logic Replacement Project with an LOP budget of \$50,100,000 as part of the adopted FY23 annual budget. This initial LOP budget was based on the engineering estimate for replacing the Metro B and D Lines Audio Frequency Track Circuit and Interlocking Relay Logic. Subsequently, the cost increase in the design, procurement, and installation of the train control equipment industry and inflation contributed significantly to the requested increase in LOP.

DISCUSSION

All train control equipment rooms have many track circuit modules and relay logic (non-vital and vital relays). Vital relays are essential to Metro's Railway Train Control system, which manages critical safety functions. They ensure the safe operation of trains by controlling signals and track switches at interlockings (track sections). They are designed to halt train movements when a train enters a section already occupied by another train. These relays are crucial in preventing collisions and are designed to mitigate unsafe conditions even when failing. Non-vital relays manage other essential functions such as requesting routes, providing status indications, and sending alarms to the Rail Operations Control (ROC) Center.

The project work under Contract No. AE117449000 will replace the current track circuit modules, relay logic (vital and non-vital relays), and associated wiring with microprocessor-based train control equipment. The microprocessor-based train control system will be installed at sixteen (16) Train Control and Communication Room (TCCR) locations along the mainline. To minimize the impact on rail service, the project work will be performed within one TCCR at station locations at a time. A \$70,100,000 LOP budget need has been determined based on the necessary project scope and the negotiated amount for Contract No. AE117449000. See Attachment A for the expenditure plan of capital project 205674.

The replacement of the train control relays is part of the Capital Improvement Program (CIP), which aims to renew transit infrastructure assets. Metro is committed to maintaining transit infrastructure assets that are in good repair.

DETERMINATION OF SAFETY IMPACT

Non-vital and vital train control relays directly impact the safety of train movements and are critical infrastructure assets that work to prevent train collisions and other safety hazards. In accordance with Metro's Transit Asset Management Plan requirements, both non-vital and vital train control relays must be replaced in a timely manner when they begin reaching the end of their useful life to comply with safety and reliability standards, alongside meeting California Public Utilities Commission (CPUC) and Federal Transit Administration (FTA) regulations.

FINANCIAL IMPACT

This action will increase the LOP budget for capital project 205674-B and D Lines Train Control Non-Vital and Vital Relay Replacement, adjusting it from \$50,100,000 to \$70,100,000. Funding of

\$4,656,029 is included in the FY25 budget.

Since this is a multi-year project, the Project Manager will ensure that the balance of funds is budgeted in future fiscal years.

Impact to Budget

The current source of funds for this action is Measure R 2%. This funding is eligible for Capital Projects. Using this funding source maximizes the project funding allocation intent allowed by approved provisions and guidelines.

EQUITY PLATFORM

Metro is committed to maintaining transit assets in marginalized communities, ensuring reliable and equitable transportation options for Metro riders, especially EFCs. The equity benefits of this action modernize transit infrastructure assets on the B (formerly Red) and D (formerly Purple) Lines that directly provide service in many Equity Focus Communities (EFCs) as well as low-income riders, who are the primary users of the Metro transit system.

The B & D Lines serve numerous communities with a high EFC concentration, including Westlake/MacArthur Park, Koreatown, East Hollywood, and North Hollywood. They also serve as a key transfer connection to other Metro rail lines and multiple bus lines for workers, students, and residents in these EFCs.

The Diversity and Economic Opportunity Department (DEOD) set goals of 7% for Small Business Enterprise (SBE) and 3% for Disabled Veteran Business Enterprise (DVBE) participation in this solicitation. B & C Transit, Inc. fulfilled these requirements by committing to a 7% SBE and 3% DVBE participation.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

Approval of this recommendation supports the following Metro Strategic Plan Goals:

- Goal # 2: Deliver outstanding trip experiences for all users of the transportation system.
- Goal # 3: Enhance communities and lives through mobility and access to opportunity.

ALTERNATIVES CONSIDERED

The Board may choose not to award Contract No. AE117449000 and not increase the LOP budget for project 205674. Staff does not recommend this because the current Audio Frequency Track Circuit and Interlocking Relay Logic along the B and D Lines are nearing the end of their useful life. They are safety-sensitive, and choosing not to perform or postpone replacement will impact service reliability if the relays become non-operational, halting train movements and disrupting railway service. Functioning non-vital and vital relays are required for train operations. Additionally, unscheduled maintenance repair costs per component will result in higher operating costs versus

reduced costs when performing work as scheduled.

NEXT STEPS

Upon Board approval of the recommendations, staff will increase the authorized LOP budget and execute Contract No. AE117449000 with B & C Transit, Inc. for the Metro B and D Lines Audio Frequency Track Circuit and Interlocking Relay Logic Replacement Project.

ATTACHMENTS

Attachment A - Capital Project 205674 Funding and Expenditure Plan

Attachment B - Procurement Summary

Attachment C - DEOD Summary

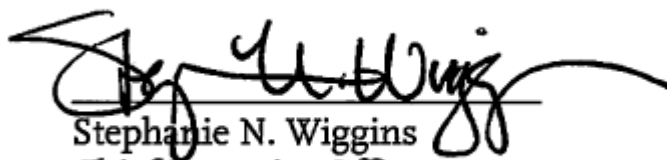
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