



ITEM ID: 2024-276-0

TRANSMITTAL DATE: September 6, 2024

MEETING DATE: September 13, 2024

TO: Board of Directors

FROM: Justin Fornelli, Chief, Program Delivery

SUBJECT: Amendment No. 1 to Cooperative Agreement No. 22-1002687 with the San Bernardino County Transportation Authority for Design, Development, and Testing of the Zero Emission Multiple Unit Passenger Rail Vehicle and Support Services for Hydrogen Related Infrastructure

Issue

The existing Cooperative Agreement between the Authority and SBCTA provides for Authority support on the Zero Emissions Multiple Unit (ZEMU) and Arrow Maintenance Facility Hydrogen Upgrade Project. As the test train crew costs based on SBCTA's intended testing schedule and the need for a new Positive Train Control (PTC) braking algorithm specific to the ZEMU vehicle have been identified, additional SBCTA-provided funding is needed to allow the Authority to complete these efforts.

Recommendation

It is recommended that the Board authorize the Chief Executive Officer to negotiate and execute Amendment No. 1 to Cooperative Agreement No. 22-1002687 between San Bernardino County Transportation Authority (SBCTA) and the Authority to increase SBCTA-provided funding in the amount of \$2,242,100, from an amount of \$1,349,640, for a new not-to-exceed total of \$3,773,740 for Authority support on the project.

Strategic Commitment

This report aligns with the Strategic Business Plan commitment of:

- **Advancing Key Regional Goals:** We will grow the role of regional rail in addressing climate change, air quality, and other pressing issues by advancing toward zero

emissions, making rail a compelling alternative to single-occupant automobiles and advancing equity-focused opportunities for all communities throughout Southern California. Introduction of the Zero Emissions Multiple Unit (ZEMU) will mark a milestone toward the future of zero emissions rail service in the Metrolink system.

Background

The Zero Emissions Multiple Unit (ZEMU) and Arrow Maintenance Facility (AMF) Hydrogen Upgrade are SBCTA-led projects to introduce the first hydrogen-powered train to North America. Following vehicle qualification testing and acceptance by SBCTA, the ZEMU will be operated in revenue service by the Authority. As SBCTA advances the project, the Authority's continued support is needed. At SBCTA's Board of Directors meeting on March 6, 2024, and subsequently at the Authority's Board of Directors meeting on March 29, 2024, Cooperative Agreement No. 22-1002687 was approved by both parties. The Agreement defined the roles and responsibilities of each party and provided initial funding for Authority support on the project.

Discussion

As the project has progressed, a schedule for testing the ZEMU was developed by SBCTA which allowed the Authority to work with its Arrow operating contractor (Transit America Services, Inc.) to provide a cost for crews to support the testing, included in this Amendment.

Additionally, as part of data validation of the existing PTC braking algorithm through ZEMU field testing conducted in May 2024, the Authority's PTC software provider (Wabtec) indicated that the existing PTC DMU brake model is not compatible with the ZEMU braking performance based on different deceleration rates and braking forces measured between the ZEMU and the existing DMU model currently providing the Arrow passenger rail service. Subsequent meetings have been conducted between the Authority, Wabtec and Stadler (the ZEMU and DMU manufacturer), and it is the opinion of Wabtec that the ZEMU will require modifications to the PTC braking algorithm software. Based on this information, the ZEMU does not meet the established PTC DMU brake model and as a result will not be able to complete all the required PTC commissioning testing required for revenue service unless the algorithm is modified.

Currently, the Authority has compiled a cost estimate of Wabtec's efforts to address the PTC ZEMU braking algorithm, which is included in the cooperative agreement amendment amount. However, actual costs could exceed this amount depending on the level of effort required by Wabtec to either modify the existing algorithm or create an entirely new algorithm. Ongoing efforts to obtain additional data and continued coordination with Stadler will help determine the appropriate path forward. In an effort to expedite this process and bring the ZEMU into revenue service as soon as possible, SBCTA has agreed to advance with the execution of the cooperative agreement amendment prior to an amount being negotiated with Wabtec.

This Amendment to Agreement No. 22-1002687 was approved by the SBCTA Board of Directors on September 4, 2024.

Budget Impact

There is no budget impact as this is a Third Party funded Agreement.

Next Steps

Upon Board authorization, Amendment No. 1 to Cooperative Agreement No. 22-1002687 will be executed by both parties.

Prepared by: Kevin Bleich, Project Engineer I
Neil Brown, Director, Special Projects

Approved by: Justin Fornelli, Chief, Program Delivery