



## Board Report

File #: 2018-0486, File Type: Contract

Agenda Number: 25.

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### OPERATIONS, SAFETY, AND CUSTOMER EXPERIENCE COMMITTEE SEPTEMBER 20, 2018

**SUBJECT: A650-2015, HEAVY RAIL VEHICLE OVERHAUL AND CRITICAL COMPONENT REPLACEMENT PROGRAM**

**ACTION: APPROVE CONTRACT AMENDMENT**

#### **RECOMMENDATION**

AUTHORIZE the Chief Executive Officer to execute Contract Modification No. 2 to Contract No. A650-2015, with Talgo Inc. for the Heavy Rail Vehicle Overhaul and Critical Component Replacement Program (OCCRP), for the design and installation of an on-board Mist Fire Suppression System (MFSS) on 74 A650 Heavy Rail Vehicles (HRV) in the firm-fixed price amount of \$10,355,000 for a total contract value not-to-exceed \$83,325,494. The inclusion of the MFSS into the OCCRP will extend the period of performance by eight months.

#### **ISSUE**

Metro places a high priority on the safety of our customers, the public and our employees. To that extent, there has been a constant focus on taking proactive measures to maintain our infrastructure and seek out innovative approaches to prevent casualties on our rail system. Underground tunnel fires are extremely dangerous to human health and safety because smoke accumulates very quickly in such a confined space. The severity of an underground fire is demonstrated by the Daegu subway fire in which an arsonist set fire to a train stopped at a station of the Daegu Metropolitan Subway in Daegu, South Korea. The fire occurred on February 18, 2003, and killed 192 people, while injuring another 151 people. Hence, there is a need to improve fire suppression technology industry-wide to mitigate against such consequences.

#### **BACKGROUND**

The Metro Red Line, which opened in January 1993, was designed to the latest standards available in the 1980's and early 1990's. The design includes ventilation zones to help exhaust smoke that may accumulate in the event of fires in the tunnels. Given the planned service expansions, these existing measures may not be sufficient in the future to keep up with the expected smoke accumulation in the context of an accelerated fire. This is not an issue on the light rail tunnels as those lines opened later and were designed to more current standards.

#### **DISCUSSION**

To mitigate this issue, staff proposes adding MFSS to the vehicles that will be operating in the heavy rail lines. The use of such a system is intended to protect life and property from an on-board fire within the passenger compartment. The protection goal of the MFSS is to quickly and reliably suppress the spread of the occurrence of the fire condition through containment and prevention of a buildup of smoke and heat; affording protection to occupants, minimizing vehicle damage, and maintaining a tenable environment.

If the Contract Modification is approved, Talgo Inc. will integrate a service proven MFSS on the newest 74 A60 heavy rail vehicles currently undergoing a modernization effort.

The Diversity and Economic Opportunity Department (DEOD) did not recommend a Disadvantaged Business Enterprise (DBE) goal for this procurement as it is not applicable. This procurement falls under the Federal Transit Administration's (FTA) Transit Vehicle Manufacturer (TVM) goal in accordance with 49 Code of Federal Regulations (CFR) Part 26.49. However, Talgo Inc. has established a 2.61% DBE goal under the FTA TVM goal.

### **DETERMINATION OF SAFETY IMPACT**

The approval of the Contract Modification will have a direct and positive impact to fire safety, system safety, service quality, system reliability, maintainability and overall customer satisfaction.

### **FINANCIAL IMPACT**

The approved Capital LOP for HRV Midlife Overhauls (project 206038) is \$86,662,000. It includes budget for the base contract and requested contract modification. The base contract is \$72,970,494 and the requested contract modification is \$10,355,000. The revised contract value is \$83,325,494.

Funding of \$17,490,000 for this action is included in the FY19 budget in cost center 3043 - Rail Vehicle Acquisition, Account 50308 - Service Contract Maintenance, project 206038 - Heavy Rail Vehicle Midlife.

Since this is a multi-year contract, the cost center Manager, Project Manager, and Senior Executive Officer, Vehicle Acquisition will be responsible for ensuring that Project costs are budgeted in future fiscal years.

#### **Impact to Budget**

The current funding source for this action is Federal 5337 SGR and TDA Article 4. Staff is actively pursuing additional Federal, state, and Local funding as it becomes available.

### **IMPLEMENTATION OF STRATEGIC PLAN GOALS**

Approval of this recommendation supports the following Metro Strategic Plan Goal: Provide responsive, accountable, and trustworthy governance within the Metro organization. This project will improve safety, service, and reliability in an effort to provide a world-class transportation system that enhances quality of life for all who live, work, and play within LA County.

### **ALTERNATIVES CONSIDERED**

Metro staff has reviewed various technologies deployed by qualified and mature manufacturers delivering successful on-board MFSS. The types of retardant materials these manufacturers utilized for its fire suppression systems for vehicles included, foam additives, powder, aerosol gas mixtures, gaseous extinguishing agents, water mist, and etc. Each of these materials was reviewed and analyzed as to its application and efficacy for interior and exterior type fire suppression, for impacting the health of passengers, and for the potential to compromise the safety of passengers. It should be noted that the primary objective of the on-board MFSS is to detect and suppress a vehicle's interior fire at the source, and provide tenable conditions for the passengers to reach a station stop and evacuate the vehicle.

Metro staff also reviewed the Metro Consultant studies, including their conclusions and recommendations on the performance of an on-board MFSS, and evaluated Industry Best Practices, standards and regulatory requirements.

Staff's findings determined that there were no current US standards on this subject matter. However, in the international arena, Western Europe had successfully implemented this type of system on its rolling stock and promulgated a number of standards for determining deployment of systems for this firefighting activity. The European authorities have issued a series of automatic fire detection and fighting systems fire codes and standards for rolling stock and guidelines including SI Loco & Pas 2014, EN 50553, EN 45545, ARGE Guidelines and UNI 11565 for both in the US. The majority of the on-board MFSS systems utilized water mist as the primary retardant methodology for the vehicles' interior portion, compliant with the regulatory requirements and international best practices.

Staff has confirmed that all other technologies employing the other forms of retardants are not suitable for use in an enclosed transit vehicle environment because of the potential of adverse health impacts to passengers. A water-based suppression system will not harm passengers, and is considered the safest extinguishing medium for an interior transit vehicle fire.

Based upon the aforementioned, Metro staff has determined that the best course of action is to use a "service proven technology" approach as implemented by the European manufacturers and to have a water-based MFSS installed as part of the ongoing A650 vehicle overhaul project.

The Board may choose not to approve the Contract Modification. However, this alternative is not recommended. Currently, Metro's HRVs do not contain active fire suppression mechanisms.

### **NEXT STEPS**


Upon Board approval, the Modification No. 2 to Contract No. A650-2015 will be exercised with Talgo, Inc.

### **ATTACHMENTS**

Attachment A - Procurement Summary  
Attachment B - Contract Modification Log  
Attachment C - Funding & Expenditure Plan  
Attachment D - DEOD Summary

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Phillip A. Washington  
Chief Executive Officer

## PROCUREMENT SUMMARY

HEAVY RAIL VEHICLE OVERHAUL AND CRITICAL COMPONENT  
REPLACEMENT PROGRAM/A650-2015

1.	<b>Contract Number:</b> A650-2015		
2.	<b>Contractor:</b> Talgo, Inc.		
3.	<b>Mod. Work Description:</b> Add Mist Fire Suppression System to Overhaul Program		
4.	<b>Contract Work Description:</b> Overhaul A650 Heavy Rail Vehicles		
5.	<b>The following data is current as of:</b> 8.10.18		
6.	<b>Contract Completion Status</b>		<b>Financial Status</b>
	<b>Contract Awarded:</b>	10.5.16	<b>Contract Award Amount:</b> \$54,698,676
	<b>Notice to Proceed (NTP):</b>	01.16.17	<b>Total of Modifications Approved:</b> \$18,271,818
	<b>Original Complete Date:</b>	11.16.19	<b>Pending Modifications (including this action):</b> \$10,355,000
	<b>Current Est. Complete Date:</b>	05.16.22	<b>Current Contract Value (with this action):</b> \$83,325,494
7.	<b>Contract Administrator:</b> Wayne Okubo		<b>Telephone Number:</b> (213) 922-7466
8.	<b>Project Manager:</b> Andrew Kimani		<b>Telephone Number:</b> (213) 922-3221

**A. Procurement Background**

This Board Action is to approve Contract Modification No. 2 issued in support of the addition of an onboard Mist Fire Suppression System (MFSS) on 74 A650 Heavy Rail Vehicle (HRV) as part of the overhaul and critical component replacement program on the Option Buy A650 consisting of 37 married pairs.

This Contract Modification will be processed in accordance with Metro's Acquisition Policy and the contract type is a firm fixed unit price.

On September 22, 2016, Metro's Board of Directors approved Board Agenda Item No. 37 to Talgo, Inc. in the amount of \$54,698,676 for the overhaul of 38 A650 Heavy Rail Vehicles, with the option to overhaul the remaining 36 vehicles of the newest A650 fleet. The intent of this overhaul program is to replace vital systems and components and update relevant technology to ensure the continued safety, reliability, availability, and maintainability of the fleet for full revenue service and maintain the fleet's State of Good Repair.

The recommended Contract Modification is to include the onboard MFSS to the A650 overhaul program currently underway by Talgo. The addition of the MFSS has

merit as this new and innovative safety feature complements the intent of the overhaul program by incorporating updated technology to ensure continued safety of the A650 fleet.

## **B. Cost/Price Analysis**

The recommended price has been determined to be fair and reasonable based upon cost analysis, an independent cost estimate, technical evaluation, fact finding, and negotiations.

<b>Proposal Amount</b>	<b>Metro ICE</b>	<b>Negotiated Amount</b>
\$12,093,482	\$7,355,436	<b>\$10,355,000</b>

The difference between the Metro ICE and the Negotiated Amount is attributed to four factors not fully considered in the ICE; project risk, schedule, logistics, and equipment and materials.

**Risk:** The MFSS technology is a safety system that is limited in use, and has never been implemented onto a HRV platform in the US. Talgo will install the first system built to US standards.

**Schedule:** The integration of the MFSS into the A650 overhaul will extend the project by eight months. The schedule extension was not considered in the Metro ICE.

**Logistics:** The system and component manufacturers of the MFSS are European, primarily designed and manufactured in Italy and Germany. The logistical considerations for coordinating project reviews, inspections, and tests, were not included in the Metro ICE.

**Equipment and Materials:** The majority of the system and components are designed and built to European standards. Certification to US federal standards, including Buy America, will require additional effort and cost.

## CONTRACT MODIFICATION/CHANGE ORDER LOG

HEAVY RAIL VEHICLE OVERHAUL AND CRITICAL COMPONENT  
REPLACEMENT PROGRAM/A650-2015

<b>Mod. no.</b>	<b>Description</b>	<b>Status (approved or pending)</b>	<b>Date</b>	<b>\$ Amount</b>
1	Exercise Option to overhaul 18 additional A650 HRV married pairs	Approved	10.26.17	\$18,271,818
2	<b>Add MFSS to A650 HRV OCCRP</b>	<b>Pending</b>	<b>09.28.18</b>	<b>\$10,355,000</b>
	<b>Modification Total:</b>			<b>\$28,626,818</b>
	Original Contract:			\$54,698,676
	<b>Total:</b>			<b>\$83,325,494</b>

ATTACHMENT C - Funds Uses and Sources Tables

	From Inception to Date (ITD) thru FY16 Jun	7/1/16 - 6/30/17	7/1/17 - 6/30/18	7/1/18 - 6/30/19	7/1/19 - 6/30/20	7/1/20 - 6/30/21	7/1/21 - 6/30/22		
Use of Funds		FY17	FY18	FY19	FY20	FY21	FY22	Total	% of Project
Overhaul 38 Option-Buy Vehicles	\$0	\$7,925,747	\$1,920,702	\$20,189,568	\$19,985,362	\$3,827,858	\$849,440	\$54,698,676	83.2%
Professional Services	\$798,715	\$265,954	\$980,667	\$990,667	\$1,000,667	\$659,645	\$0	\$4,696,314	7.1%
MTA Administration	\$722,000	\$377,903	\$420,000	\$475,000	\$542,000	\$310,382	\$0	\$2,847,285	4.3%
Contingency	\$0	\$0	\$0	\$0	\$0	\$0	\$3,490,864	\$3,490,864	5.3%
<b>38 Option Vehicle Summary</b>	<b>\$1,520,715</b>	<b>\$8,569,604</b>	<b>\$3,321,368</b>	<b>\$21,655,235</b>	<b>\$21,528,029</b>	<b>\$4,797,885</b>	<b>\$4,340,304</b>	<b>\$65,733,139</b>	<b>100.0%</b>
Overhaul 36 Option Vehicles	\$0	\$0	\$4,624,856	\$1,240,633	\$0	\$10,338,548	\$2,067,781	\$18,271,818	87.3%
Professional Services (Increase Requested)	\$0	\$0	\$0	\$0	\$0	\$498,318	\$98,920	\$597,238	2.9%
MTA Administration (Increase Requested)	\$0	\$0	\$0	\$0	\$0	\$364,755	\$72,407	\$437,162	2.1%
Contingency (Increase Requested)	\$0	\$0	\$0	\$0	\$0	\$0	\$1,622,643	\$1,622,643	7.8%
<b>Option Order Summary</b>	<b>\$0</b>	<b>\$0</b>	<b>\$4,624,856</b>	<b>\$1,240,633</b>	<b>\$0</b>	<b>\$11,201,622</b>	<b>\$3,861,750</b>	<b>\$20,928,861</b>	<b>100.0%</b>
Overhaul 74 Option-Buy Vehicles	\$0	\$7,925,747	\$6,545,557	\$21,430,201	\$19,985,362	\$14,166,406	\$2,917,221	\$72,970,494	84%
Professional Services	\$798,715	\$265,954	\$980,667	\$990,667	\$1,000,667	\$1,157,963	\$98,920	\$5,293,552	6%
MTA Administration	\$722,000	\$377,903	\$420,000	\$475,000	\$542,000	\$675,137	\$72,407	\$3,284,447	4%
Contingency	\$0	\$0	\$0	\$0	\$0	\$0	\$5,113,507	\$5,113,507	6%
<b>Total Order Summary Total</b>	<b>\$1,520,715</b>	<b>\$8,569,604</b>	<b>\$7,946,224</b>	<b>\$22,895,867</b>	<b>\$21,528,029</b>	<b>\$15,999,507</b>	<b>\$8,202,054</b>	<b>\$86,662,000</b>	<b>100.0%</b>
<b>Sources of Funds</b>		<b>FY17</b>	<b>FY18</b>	<b>FY19</b>	<b>FY20</b>	<b>FY21</b>	<b>FY21</b>	<b>Total Sources</b>	<b>%</b>
Measure R 2% (206038)	\$1,520,715	\$0	\$0	\$0	\$0	\$0	\$0	\$1,520,715	1.8%
PropA 35% Bonds/Cash		\$8,569,604	\$7,946,224	\$22,895,867	\$0	\$0	\$0	\$39,411,695	45.5%
Cap and Trade; Other State & Federal sources (206038)*					\$21,528,029	\$15,999,507	\$8,202,054	\$45,729,590	52.8%
<i>* Future Local, State &amp; Federal Funds to be identified as they become available.</i>									
<b>Total Funding Sources</b>	<b>\$1,520,715</b>	<b>\$8,569,604</b>	<b>\$7,946,224</b>	<b>\$22,895,867</b>	<b>\$21,528,029</b>	<b>\$15,999,507</b>	<b>\$8,202,054</b>	<b>\$86,662,000</b>	<b>100.0%</b>

\* Staff will pursue additional funding sources to supplement Project 206038 budget which may become available through MAP-21 or other federal sources for this project and also utilize other State and Local funding sources as opportunities arise such as Cap and Trade or other new sources.



## DEOD SUMMARY

HEAVY RAIL VEHICLE OVERHAUL AND CRITICAL COMPONENT REPLACEMENT  
PROGRAM / A650-2015**A. Small Business Participation**

Talgo Inc. is a Transit Vehicle Manufacturer (TVM) and is on the Federal Transit Administration's (FTA) list of eligible TVMs. Talgo Inc. reported that it submitted its overall Disadvantaged Business Enterprise (DBE) goal of 2.61% to FTA for Federal Fiscal Year 2018, in compliance with 49 Code of Federal Regulations (CFR) Section 26.49(a)(1). TVMs submit overall DBE goals and report participation directly to FTA annually.

**B. Living Wage and Service Contract Worker Retention Policy Applicability**

The Living Wage and Service Contract Worker Retention Policy is not applicable to this Contract. Rolling stock solicitations are not one of the covered contract types in Metro's Living Wage and Service Contract Worker Retention Policy.

**C. Prevailing Wage Applicability**

Prevailing Wage is not applicable to this Contract.

**D. Project Labor Agreement/Construction Careers Policy**

Project Labor Agreement/Construction Careers Policy (PLA/CCP) is not applicable to this Contract. PLA/CCP is applicable only to construction contracts that have a construction related value in excess of \$2.5 million.

**E. Local Employment Plan Program**

Local Employment Plan (LEP) Program is applicable on this Contract. Staff will be monitoring progress on all LEP commitments, including the contractual commitments in creating employment opportunities in Los Angeles County and the 10% commitment to hire disadvantaged workers.

Local Employment Plan Commitment:

LEP Commitment for Base + All Options	\$2,212,675
LEP Actuals to Date	\$0.00
Balance of LEP to be attained	\$2,212,675
Disadvantaged Workers attainment	\$0.00

The manufacturer Local Employment Plan identifies that the LEP achievements and Disadvantaged Worker participation will commence in the assembly stage of the Contract.