



**Board Report**

**File #:** 2017-0642, **File Type:** Contract

**Agenda Number:** 24.

**SYSTEM SAFETY, SECURITY AND OPERATIONS COMMITTEE  
NOVEMBER 16, 2017**

**SUBJECT: P2550 LIGHT RAIL VEHICLE (LRV) MIDLIFE  
MODERNIZATION PROGRAM - CONSULTANT  
SUPPORT SERVICES FOR SPECIFICATION  
DEVELOPMENT & SOLICITATION OF CONTRACTOR**

**ACTION: APPROVE CONTRACT AWARD**

**RECOMMENDATION**

AWARD a firm fixed price Contract No. 45383000 for Consulting Support Services to STV Incorporated for the P2550 Light Rail Vehicle (LRV) Midlife Modernization Program, in the amount of \$1,421,086.73, for 24 months from Notice to Proceed, subject to resolution of protest(s), if any.

**ISSUE**

The P2550 LRVs have an average age of ten (10) years from date of Acceptance. The fleet is in need of modernization to address obsolescence of components; decreased reliability and availability; increased maintainability costs; and to ensure a State of Good Repair (SGR). Approval of this action authorizes STV Incorporated to assist Metro with:

- a) The development of a Request for Proposal (RFP) package for the solicitation of a Contractor; documents include the commercial and technical specifications, scope of work, and associated technical documents; and with
- b) The Contractor solicitation and award process.

**DISCUSSION**

Metro is seeking Rail Vehicle Consultant support services for the development of an RFP package and solicitation of a Contractor for the midlife modernization of its AnsaldoBreda (AB) P2550 LRV fleet consisting of fifty (50) rail cars. The primary goal of this LRV midlife program is to maintain this fleet in a State of Good Repair. The current P2550 LRVs require repair, upgrades, and/or replacement of components, appointments, and subsystems to maintain fleet safety, reliability, availability, performance, and passenger comfort.

Metro currently operates fifty (50) AB P2550 LRV's on the Gold/Foothill Extension lines. These cars

have an average age of 10 years (from date of acceptance) and approximately 500,000 (500k) revenue service miles. They have a design life of 30 years and are accumulating approximately 70k miles per year. The fleet is also approaching its mid-life at which point reliability and availability begin to decrease and maintenance costs begin to increase unless a modernization effort is affected to maintain the cars in a State of Good Repair. It is the intent of this action to develop a scope of work and technical specifications for the modernization program based on a condition-based assessment of the fleet and the OEM's recommendations.

Performing the modernization program is in accordance with the Rail Fleet Management Plan FY2015-FY2040 (Draft, May 24, 2016, v.8). The plan outlines the anticipated program to expand rail fleets to accommodate anticipated growth in ridership; line extensions; and to overhaul or replace vehicles reaching mid-life or end of life, as appropriate.

Metro is seeking expert rail vehicle consulting services to develop the RFP package and support the solicitation of a Contractor for the midlife modernization of the 50 AB P2550 LRV fleet. The primary objective of the project is to obtain safe, reliable, high quality modernized LRVs on-time and within budget, and to create new jobs for Los Angeles County that can be tied directly to the Modernization Program.

The Diversity and Economic Opportunity Department (DEOD) recommended a Disadvantaged Business Enterprise (DBE) goal of 20% for this procurement (please refer to Attachment E). STV Incorporated's reported 20.11% DBE goal complies with the DEOD's recommendation.

### **DETERMINATION OF SAFETY IMPACT**

The approval of this Contract award will have a direct and positive impact to system safety, service quality, system reliability, maintainability and overall customer satisfaction. The P2550 Light Rail Vehicle Overhaul Program will permit Metro to maintain the State of Good Repair (SGR) on the P2550 LRV fleet.

### **FINANCIAL IMPACT**

The FY18 planned expenditure of \$615,000 is included in the FY18 budget for the Overhaul Program in Cost Center 3043, Rail Vehicle Acquisition, Account 50308, Service Contract (Non-Bus) Maintenance, under CP 214003, P2550 Light Rail Vehicle Midlife Modernization Program.

Since this is a multi-year contract, the cost center manager will be responsible for dispersing the cost for subsequent years.

### **Impact to Budget**

The source of funds for this action include Federal Section 5337 State of Good Repair funds. Other eligible funds include Proposition A 35% and Measure R 2% which are eligible for rail capital activities. Concurrently, staff is actively pursuing additional Federal, State and Local funding sources such as FAST Act and Cap and Trade as they become available to meet project funding needs.

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**ALTERNATIVES CONSIDERED**

Staff considered the alternative of using in-house Metro resources to perform this work. This approach is not recommended as Metro does not have sufficient resources and Subject Matter Experts (SME) available to perform this work.

The Board of Directors may choose not to authorize the contract award for this project; however, this alternative is not recommended by Metro staff because the Modernization Program is critical to maintaining a SGR on the 50 AB P2550 LRVs and to enable the Maintenance Department to effectively plan and schedule its work.

**NEXT STEPS**

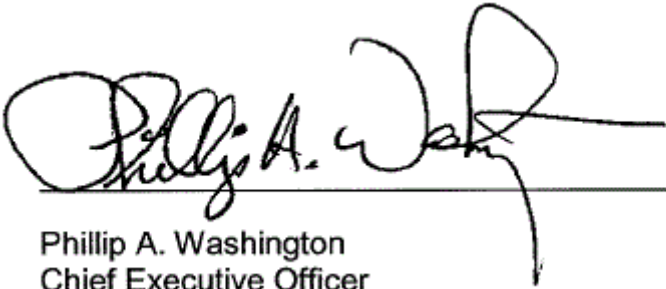
Upon Board approval, a contract will be awarded and a Notice-to-Proceed date will be given to STV Incorporated. Metro and STV Incorporated will mobilize required resources and SMEs to ensure timely completion of deliverables including specifications development, scope of work (SOW), and an RFP package to initiate the solicitation of a contractor and award a Midlife Modernization contract.

**ATTACHMENTS**

- Attachment A - Funding/Expenditure Plan
- Attachment B - Procurement Summary
- Attachment C - DEOD Summary

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Phillip A. Washington  
Chief Executive Officer



## PROCUREMENT SUMMARY

**P2550 LRV MIDLIFE MODERNIZATION PROGRAM –  
CONSULTANT SUPPORT SERVICES / PS45383000**

1.	<b>Contract Number:</b> PS45383000	
2.	<b>Recommended Vendor:</b>	
3.	<b>Type of Procurement (check one):</b> <input type="checkbox"/> IFB <input checked="" type="checkbox"/> RFP <input type="checkbox"/> RFP–A&E <input type="checkbox"/> Non-Competitive <input type="checkbox"/> Modification <input type="checkbox"/> Task Order	
4.	<b>Procurement Dates:</b>	
	<b>A. Issued:</b> 8.18.17	
	<b>B. Advertised/Publicized:</b> 8.18.17	
	<b>C. Pre-Proposal Conference:</b> 8.24.17	
	<b>D. Proposals Due:</b> 9.29.17	
	<b>E. Pre-Qualification Completed:</b> 10/19/17	
	<b>F. Conflict of Interest Form Submitted to Ethics:</b> 10.09.17	
	<b>G. Protest Period End Date:</b> 11.17.17	
5.	<b>Solicitations Picked up/Downloaded:</b> 35	<b>Bids/Proposals Received:</b> 3
6.	<b>Contract Administrator:</b> Nicole Dang	<b>Telephone Number:</b> 213-922-7438
7.	<b>Project Manager:</b> Annie Yang	<b>Telephone Number:</b> 213-922-7438

**A. Procurement Background**

This Board Action is to approve Contract No. PS45383000 issued to obtain expert consulting services to develop an overhaul Statement of Work (SOW), Technical Specification, and Request for Proposal (RFP) package for solicitation of a Contractor for the midlife overhaul of the Ansaldo Breda (AB) P2550 Light Rail Vehicle (LRV) fleet consisting of 50 rail cars. Board approval of contract awards are subject to resolution of any properly submitted protest.

The RFP was issued in accordance with Metro's Acquisition Policy and the contract type is a firm fixed price.

Three amendments were issued during the solicitation phase of this RFP:

- Amendment No. 1, issued on August 31, 2017, revised the proposal due date;
- Amendment No. 2, issued on September 07, 2017, revised the submittal requirements;
- Amendment No. 3, issued on September 19, 2017, clarified the proposal due time, revised the submittal requirements, and deleted DBE Instructions to Proposers Pro Form 068B.

A total of three proposals were received on September 29, 2017. A total of 33 questions were submitted and Metro responded to all 33 questions by September 19, 2017.

## **B. Evaluation of Proposals**

A Proposal Evaluation Team (PET) consisting of staff from Rail Vehicle Acquisition and Rail Vehicle Warranty were convened and conducted a comprehensive technical evaluation of the proposals received.

The proposals were evaluated based on the following evaluation criteria and weights:

- Project Manager/Lead Engineer & Key Personal Qualification 35 percent
  - A) Project Manager/Lead Engineer (20 percent)
  - B) Two (2) Rail Vehicle Engineers (15 percent)
- Previous Experience on Similar Projects in the United States 15 percent
- Availability 10 percent
- Project Understanding/Approach and Management 10 percent
- Price 30 percent

The evaluation criteria are appropriate and consistent with criteria developed for other, similar best value procurements. Several factors were considered when developing these weights, giving the greatest importance to the project manager and lead engineer's qualification.

Of the three proposals received, all three were determined to be within the competitive range. The three firms within the competitive range are listed below in alphabetical order:

1. LTK Engineering Services, Inc.
2. Mott MacDonald, Inc.
3. STV, Inc.

The evaluation committee convened from October 1, 2017 through October 9, 2017 to review the proposals. Request for Clarifications were issued to all three firms on October 4, 2017 and responses were received on October 6, 2017. The evaluation committee determined that the responses were satisfactory.

### **Qualifications Summary of Firms within the Competitive Range (firms listed in order of evaluation rank):**

#### **STV, Inc.**

STV, Inc.'s proposal demonstrated their understanding of the project through the collective experience of their proposed team. Proposed Project Manager Elson Hao has nearly 40 years of engineering experiences including 25 years with the San Francisco Municipal Transportation Agency as a senior Light Rail Vehicle Engineer. Mr. Hao was the Deputy Project Manager assisting LACMTA with the HR4000 Acquisition Program. While working for MBTA, Mr. Hao was a subject matter expert

providing design, review support and product evaluation of submittals for various systems such as HVAC, trucks, interior, and doors for the procurement of 404 HRVs for the Orange and Red Line. STK's proposed Deputy Project Manager, Andrew Frohn has over 30 years of rail experience. Mr. Frohn has worked on the rail fleet maintenance side, managing day to day inspections, repairs, and life cycle maintenance programs. Mr. Frohn recently supported LACMTA through the specification development and procurement process for Metro HR4000 HRV fleet.

### **LTK Engineering Services, Inc.**

LTK Engineering Services, Inc.'s proposal demonstrated their understanding of the project through the collective experience of their proposed team. Proposed Project Manager Jeff Stastny has nearly 22 years of engineering experiences with mechanical engineering disciplines, with particular expertise in carbody structures. In addition, proposed lead engineer, Rahul Dixit has 17 years of experience working in the transit and railroad industry. Mr. Dixit has worked on the design and production of Boston Green Line No. 9 cars while at CAF USA, Inc. In addition, while Mr. Dixit was at Transitair Systems, he was responsible for designing, refurbishing, testing and commissioning complete electrical and mechanical systems including trucks.

### **Mott MacDonald, Inc.**

Mott MacDonald, Inc.'s proposal demonstrated their understanding of the project through the collective experience of their proposed team. Proposed Project Manager Mark Terry has over 35 years of experience in overhaul, procurement, and maintenance of LRVs. Mr. Terry managed the overhaul of Ansaldo T68 and T68A LRV Fleets. In addition, Mr. Terry also has 16 years of experience in rail vehicle engineering working directly for British Railways in practical, hands-on technical and supervisory positions. Proposed System Integration Engineer, Avril Heins worked on London Tramlink, Croydon Mid-Life Overhaul of CR4000 LRV fleet as the Project Manager.

*Proposal Evaluation Team's recommendation*

1	Firm	Average Score	Factor Weight	Weighted Average Score	Rank
2	<b>STV, Inc.</b>				
3	Project Manager/Lead Engineer & Key Personal Qualification. A) Project Manager/Lead Engineer and Key Personnel	7.66	20.00%	15.33%	
4	Project Manager/Lead Engineer & Key Personal Qualification. B) Minimum of two (2) Rail Vehicle Engineers	8.67	15.00%	13.00%	
5	Previous Experience on Similar Projects in the United States	9.00	15.00%	13.50%	
6	Availability	7.00	10.00%	7.00%	
7	Project Understanding/Approach and Management	8.33	10.00%	8.33%	
8	Price		30.00%	30.00%	
9	<b>Total</b>		<b>100.00%</b>	<b>87.16</b>	<b>1</b>
10	<b>LTK Engineering, Inc.</b>				
11	Project Manager/Lead Engineer & Key Personal Qualification. A) Project Manager/Lead Engineer and Key Personnel	7.83	20.00%	15.66%	
	Project Manager/Lead Engineer & Key Personal Qualification. B) Minimum of two (2) Rail Vehicle Engineers	8.67	15.00%	13.00%	
12	Previous Experience on Similar Projects in the United States	9.00	15.00%	13.50%	
13	Availability	5.67	10.00%	5.67%	
14	Project Understanding/Approach and Management	7.66	10.00%	7.66%	
15	Price		30.00%	19.67%	
16	<b>Total</b>		<b>100.00%</b>	<b>75.16%</b>	<b>2</b>
17	<b>Mott MacDonald, Inc.</b>				
18	Project Manager/Lead Engineer & Key Personal Qualification. A) Project Manager/Lead Engineer and Key Personnel	6.66	20.00%	13.32%	
19	Project Manager/Lead Engineer & Key Personal Qualification. B) Minimum of two (2) Rail Vehicle Engineers	7.33	15.00%	11.01%	
20	Previous Experience on Similar Projects in the United States	7.00	15.00%	10.50%	
21	Availability	6.33	10.00%	6.33%	



<b>22</b>	Project Understanding/Approach and Management	8.33	10.00%	8.33%	
<b>23</b>	Price		30.00%	16.96%	
<b>24</b>	<b>Total</b>		<b>100.00%</b>	<b>66.45%</b>	<b>3</b>

**C. Cost/Price Analysis**

The recommended price has been determined to be fair and reasonable based upon adequate price competition, an independent cost estimate (ICE), and price analysis. The firm fixed milestone pricing from the highest technically rated proposer, STV, Inc., is significantly lower than the other proposers and 11% lower than Metro’s ICE. Price analysis revealed some variances in the fixed price milestones from each of the proposers. These values were reconciled with the proposers through discussions to ensure that there was a clear understanding of the deliverable, the requirements, and the fixed price for the milestone.

	<b>Proposer Name</b>	<b>Proposal Amount</b>	<b>Metro ICE</b>	<b>Negotiated or NTE amount</b>
1.	LTK Engineering Services, Inc.	\$2,167,919	\$1,575,462	\$2,167,919
2.	Mott MacDonald, Inc.	\$2,514,093	\$1,575,462	\$2,514,093
3.	STV, Inc.	\$1,421,086	\$1,575,462	\$1,421,086

**D. Background on Recommended Contractor**

STV, Inc. (STV) has been in business for 100 years and has a local office in Los Angeles, CA. STV has incorporated a Vehicle Technology and Operations group into their organization which offers consulting support in rail vehicle specification development and procurement, rail vehicle condition assessment, rail vehicle overhaul specification development and support, inspection and quality control support, and failure analysis. STV, through a joint venture, developed the performance based technical specification for Metro HR4000 Heavy Rail Vehicle procurement which they performed satisfactory. STV has provided rail engineering support to municipals such as Massachusetts Bay Transportation Authority (MBTA), Maryland MTA, City of Ottawa Confederation and Metro.

## DEOD SUMMARY

**P2550 LIGHT RAIL VEHICLE (LRV) MIDLIFE  
MODERNIZATION PROGRAM / PS45383**

**A. Small Business Participation**

The Diversity and Economic Opportunity Department (DEOD) established a 20% Disadvantaged Business Enterprise (DBE) goal for this solicitation. STV Incorporated made a 20.11% DBE commitment.

<b>Small Business Goal</b>	<b>20% DBE</b>	<b>Small Business Commitment</b>	<b>20.11% DBE</b>
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	<b>DBE Subcontractors</b>	<b>Ethnicity</b>	<b>% Commitment</b>
1.	Capitol Government Contract Specialist, Inc.	Hispanic American	10.85%
2.	Virinkar & Associates, Inc.	Subcontinent Asian American	6.70%
3.	Global Innovations, USA	African American Female	2.56%
	<b>Total Commitment</b>		<b>20.11%</b>

**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.

**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 is not applicable to this Contract.



# Overview of Items 23, 24, 25 and 30

## System Safety, Security & Operations Committee



**Metro**

November 2017

# Rail Vehicle Maintenance, Overhaul & Modernization

## Maintenance

- Preserve level of performance

## Overhaul

- Heavy maintenance repair/replacement at specific OEM intervals (age/mileage)
- No change to the design

## Modernization

- Improve systems and performance
- Approximate mid-life
- Upgrade the system designs



**Metro**

# Fleet Plan 10 Year Horizon

Series	Maintenance	Overhaul	Modernize	Retire	Replace
P865	Yes	No	No	In process	P3010
P2020	Yes	Yes	No	Future	P3010
P2000	Yes	Yes	Yes	Future	Future
P2550	Yes	Yes	Yes	Future	Future
P3010	Yes	To be Scheduled	2030 ±	Future	Future
A650 Base	Yes	No	No	Future	HR4000 Base
A650	Yes	Yes	Yes	Future	HR4000 Option

# Fleet Plan

## □ P2020 LRT Car Series

- Delivered: 15
- Lines : Blue and Expo Lines
- Overhaul Program
  - Ten components
  - Program LOP \$ 30,000,000
  - Contract for air hose replacement - Completed
  - Contract for axle assembly, gearbox/roller, cab slider, body repair, seat removal for bikes, wheelchair, cameras and propulsion – On-Going
  - Contract for Friction Brake– Nov 2017 (Item 23)

## □ P2000 LRT Car Series

- Delivered: 52
- Lines: Green, Blue and Expo Lines
- Overhaul Program
  - Nine components
  - Program LOP \$ 26,360,100
  - Contracts for air hose replacement and non-power axle bearing replacement – Completed 2012
  - Contracts for power axle, car battery, couple, exterior and interior paint – On-going
  - Contracts for Friction Brake and Air Compressor – Nov 2017 (Item 25)
- Modernization
  - Renew systems:
    - Carbody; Door; HVAC; Electrical; Propulsion; Trucks; Braking Equipment; Communication; Automatic Train Control; Trainline; Destination Signs
  - Exercise optional features (Item 30)
  - Contract to Alstom
  - LOP \$160,800,000
  - Projected Completion August 2021

# Fleet Plan

## ❑ P2550 LRT Car Series

- Delivered: 50
- Lines : Gold Line
- Overhaul Program
  - Nine components
  - Program LOP \$ 35,007,540
  - Contracts for axle assemblies, and coupler awarded – June & Sept 2017
  - **Contract for Friction Brake – Nov 2017 (Item 25)**
  - Contracts for propulsion, pantograph, battery, doors, truck and suspension systems – Anticipated 2018/2019
- Modernization
  - Renew systems:
    - Carbody; Door; HVAC; Electrical; Propulsion; Trucks; Braking Equipment; Couplers; Communication; Battery
  - Specification Prep Phase
  - **Contract to STV Incorporated (Item 24)**
    - **Consultant \$1,421,086 –Nov 2017**
  - Estimated LOP TBD
  - Projected Start 2020

## ❑ A650 Subway Car Series

- Delivered: 74
- Lines : Red Line
- Overhaul Program
  - Ten components
  - Program LOP \$ 30,000,000
  - Contracts for air compressor, HVAC compressor, passenger door, and car battery replacement – Completed
  - Contracts for friction brake, traction motor, gearbox, coupler, AC, and DC – On-Going
- Modernization
  - Renew systems:
    - Propulsion; Trucks; Friction Brakes; Doors; Communication; Interiors; Signal System, HVAC
  - Design and engineering phase
  - Contract to Talgo
  - LOP \$72,970,494
  - Projected Completion December 2021





Thank you



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