



## Board Report

File #: 2017-0693, File Type: Contract

Agenda Number: 25.

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

**SUBJECT: P2550 & P2020 FRICTION BRAKE SYSTEM OVERHAUL**

**ACTION: APPROVE CONTRACT AWARD**

**RECOMMENDATION**

CONSIDER:

- A. AUTHORIZING the Chief Executive Officer to award an 84 month, indefinite delivery/indefinite quantity Contract No. MA24464000 to Knorr Brake Company for component overhaul services of P2550 and P2020 Light Rail Vehicle (LRV) Friction Brake Systems, for a total not-to-exceed amount of \$4,546,031; and
- B. AWARDING a single source procurement, pursuant to Public Utilities Code section §130237 for component overhaul services of the Metro Gold Line (MGL) P2550 and Metro Blue Lines (MBL) P2020 LRV Friction Brake Systems from the Original Equipment Manufacturer (OEM), to Knorr Brake Company.

(REQUIRES TWO-THIRDS VOTE OF THE FULL BOARD)

**ISSUE**

The P2020 fleet operates on Metro's Blue Line and is currently undergoing a Friction Brake Overhaul Program similar to the above mentioned P2550 fleet. Knorr Brake Company is the friction brake system OEM and because these programs are being executed in parallel, this procurement is for both fleet types.

The existing friction brake systems on both the MGL P2550 and MBL P2020 are proprietary and this procurement is for component overhaul services of existing equipment already in use. Execution of the overhaul will ensure that both fleet types remain in a continuous State of Good Repair (SGR) while safeguarding passenger safety, vehicle reliability and equipment longevity.

**DISCUSSION**

In June 2017, the Board of Directors approved Life of Project Budget for contracts to overhaul the P2550 Fleet under a Component Overhaul Program. The P2550 Component Overhaul Program

consists of a total of nine individual procurements for the overhaul of the major vehicle systems inclusive of propulsion, pantograph, battery, doors, couplers, high voltage and auxiliary power, friction brakes and truck systems. The friction brake overhaul is third in succession of the nine component overhaul procurements requiring board approval. This procurement is for the professional services to complete the overhaul of 53 friction brake assemblies inclusive of 3 spares for the P2550 fleet as recommended by the OEM established guidelines.

The Ansaldo Breda P2550 LRV is in its eighth year of operation. In order to ensure continued safety and performance of the friction brake systems a complete overhaul is required at the 600,000 mileage interval as defined by the OEM and monitored by the California Public Utilities Commission (CPUC). The friction brake overhaul consists of several assemblies inclusive of electrical and mechanical component parts as well as the air compressor and pneumatic components that wear out due to normal service and operations. Routine maintenance and periodic overhaul of the friction brake systems is of critical importance for passenger safety and accident prevention to ensure the vehicle stops within specified stopping distance during routine and emergency braking applications.

The Nippon Sharyo P2020 fleet is in its 23<sup>rd</sup> year of operation with over 1.7 million in-service miles. The friction brake overhaul is an element of the Preventative Maintenance Program PMP to be done at the 4 year interval as defined by the OEM and monitored by the CPUC. The overhaul consists of several assemblies including electrical, mechanical, and pneumatic systems that wear out during normal service and operations.

Rail Fleet Services (RFS) Engineering developed an equipment overhaul specification for the friction brake systems overhaul based on OEM recommendations and in conjunction with RFS maintenance expertise. The contractor will perform overhaul services in accordance with predefined schedules using Metro provided technical specification requirements.

### **DETERMINATION OF SAFETY IMPACT**

Passenger and employee safety are of the utmost importance to Metro and, therefore, it is imperative to maintain the P2550 & P2020 fleet to a constant state of good repair. The friction brake systems overhaul is in support of the complete P2550 component overhaul program. This effort will ensure that these vehicles are maintained in accordance with OEM recommendations and regulatory standards, according to the defined schedule and technical specifications requirements, and within Metro's internal Corporate Safety policies and procedures.

### **FINANCIAL IMPACT**

The approved Life-of-Project (LOP) for the P2550 Fleet Component Overhaul Program under capital project number 214001 is for the amount of \$35,007,546. Funding of \$1,431,697 for this Contract (P2550) is included in the FY18 budget in cost center 3944, Rail Fleet Services Maintenance, under project number 214001, line item 50441, Parts - Revenue Service. Funding of \$1,000,000 for this Contract (P2020) is included in the FY18 budget in cost center 3941, Rail Fleet Services Maintenance, under project number 211018, line item 50441, Parts - Revenue Service.

Since this is a multi-year Contract, the cost center manager, project manager, and Sr. Executive Officer, RFS will ensure that the balance of funds is budgeted in future fiscal years.

Impact to Budget

The source of funds for this procurement will come from Federal, State and local funding sources that are eligible for Rail Capital Projects. Use of these funding sources will maximize funds use given allocation provisions.

**ALTERNATIVES CONSIDERED**

Vehicle friction brakes are a safety critical system which are required to be overhauled per the OEM and regulatory requirements to avoid catastrophic events resulting from extending stopping distance of complete failure of the braking systems during emergency brake application. Deferring the friction brake overhaul is not recommended as Metro could also be subject to penalties mandated by the California Public Utilities Commission.

**NEXT STEPS**

Overhaul of the P2550 Light Rail Vehicle Friction Brake systems will continue in accordance with RFS scheduled requirements. If approved, the project is scheduled to commence in July 2018. In addition, the RFS Department will continue with the P2020 Component Overhaul of the Friction Brake systems as noted above with the exception of the friction brake overhaul which is a program that has already commenced.

**ATTACHMENTS**

Attachment A - Procurement Summary

Attachment B - DEOD Summary

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Phillip A. Washington  
Chief Executive Officer

## PROCUREMENT SUMMARY

**P2020 & P2550 FRICTION BRAKE SYSTEM OVERHAUL KITS 166089/189204  
/MA24464000**

1.	<b>Contract Number:</b> MA24464000	
2.	<b>Recommended Vendor:</b> Knorr Brake Company	
3.	<b>Type of Procurement (check one):</b> <input type="checkbox"/> IFB <input checked="" type="checkbox"/> RFP <input type="checkbox"/> RFP-A&E <input checked="" type="checkbox"/> Non-Competitive <input type="checkbox"/> Modification <input type="checkbox"/> Task Order	
4.	<b>Procurement Dates:</b>	
	<b>A. Issued:</b> 4/21/17	
	<b>B. Advertised/Publicized:</b> N/A	
	<b>C. Pre-Proposal Conference:</b> N/A	
	<b>D. Proposals Due:</b> 6/7/17	
	<b>E. Pre-Qualification Completed:</b> 7/5/17	
	<b>F. Conflict of Interest Form Submitted to Ethics:</b> 7/19/17	
	<b>G. Protest Period End Date:</b> 11/17/17	
5.	<b>Solicitations Picked up/Downloaded:</b> 1	<b>Proposals Received:</b> 1
6.	<b>Contract Administrator:</b> Jean Davis	<b>Telephone Number:</b> 213/922-1041
7.	<b>Project Manager:</b> Russell Homan	<b>Telephone Number:</b> 626/471-7831

**A. Procurement Background**

This Board Action is to approve Contract No. MA24464000 in support of Metro's Gold Line (P2550) and Blue Line (P2020) Light Rail Vehicles (LRV) to procure services required for the complete overhaul and repair of the friction brake systems on a sole source basis. The existing friction brake systems for the P2550 and P2020 were designed and built by the original equipment manufacturer (OEM), Knorr Brake Company. It was determined by Metro's engineering and operations team to ensure full operational capability that the overhaul of Metro's P2550 and P2020 rail car friction brake systems be overhauled by the OEM, Knorr Brake Company.

The non-competitive Request for Proposal was issued to Knorr Brake Company on April 21, 2017, in accordance with Metro's Acquisition Policy, and the contract type is a not-to exceed Indefinite Delivery, Indefinite Quantity (IDIQ).

Two amendments were issued during the solicitation phase of this RFP as follows:

- Amendment No. 1, was issued on May 3, 2017, to extend the proposal due date and to revise the critical dates.
- Amendment No. 2, was issued on August 24, 2017, to revise the Statement of Work and Specifications, and to extend proposal due date.

## **B. Evaluation of Proposal**

This single source procurement is consistent with Public Utility Code section 130237, applied for the purpose of duplicating equipment already in existence at Metro. Metro's technical staff conducted technical fact-finding meetings and a technical evaluation of the technical proposal. The proposal was evaluated based on the proposed management and quality assurance plans, proposed facility and assigned technical personnel. The proposal was found to be technically acceptable. Staff and the proposer mutually negotiated selected terms and conditions, schedule, and warranty.

The firm recommended for award, Knorr Brake Company, was found to be in compliance with the proposal requirements.

## **C. Price Analysis**

Single source acquisitions require a cost analysis be performed to determine fair and reasonable prices. Due to the proposer's unwillingness to provide essential company sensitive cost support data needed to perform a cost analysis and the equipment availability from only a single source, staff performed a Price Analysis. The Price Analysis consisted of market research, engineering and price estimating assessments, and historical price comparisons for similar purchases. Based on staff's Price Analysis it was determined that the total proposed price was fair and reasonable.

<b>Proposer Name</b>	<b>Proposal Amount</b>	<b>Metro ICE</b>
Knorr Brake Company	\$4,546,031	\$4,360,228

## **D. Background on Recommended Contractor**

Knorr Brake Company (KBC) founded in 1971 is a subsidiary of Knorr Bremse AG. Knorr Bremse, an international group of industrial companies, is a manufacturer of braking systems and supplier of additional sub-systems for rail and commercial vehicles for over 110 years. KBC located in Westminster, MD is the North American Mass Transit brake division of Knorr Bremse and the principal engineering and manufacturing facility. KBC is the OEM of the braking systems for Metro's P2020 Nippon Sharyo Blue Line rail cars and Metro Breda P2550 Gold Line rail cars. KBC has completed contracts for Valley Metro of Phoenix, AZ, Sacramento RTD, and Las Vegas Monorail last year and, currently, has contracts with Metropolitan Transit System, San Diego, Sacramento RTD, and Tri Met, Portland, OR. The firm completed a Metro contract in July 2015 and performed overhaul work for Metro's Blue Line vehicles in December 2016.

DEOD SUMMARY

P2550 AND P2020 FRICTION BRAKE SYSTEM OVERHAUL / MA24464000

**A. Small Business Participation**

The Diversity and Economic Opportunity Department (DEOD) did not establish a Disadvantaged Business Enterprise (DBE) goal for this solicitation. The P2550 and P2020 Friction Brake System Overhaul Kits are Original Equipment Manufacturer (OEM) products, and are shipped directly to Metro. Knorr Brake Company proposed to utilize the services of a non-DBE firm and did not make a DBE commitment.

**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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