

**Metro**Los Angeles County  
Metropolitan Transportation AuthorityOne Gateway Plaza  
Los Angeles, CA 90012-2952213.922.2000 Tel  
metro.net**SYSTEM SAFETY AND OPERATIONS COMMITTEE  
NOVEMBER 21, 2013****SUBJECT: METRO RED LINE SCADA REPLACEMENT****ACTION: APPROVE CONTRACT AWARD****RECOMMENDATION**

- A. Award a firm fixed price contract, Contract No. OP39603035, to ARINC Inc. (ARINC) to replace the existing Metro Red Line Supervisory Control and Data Acquisition (SCADA) system in an amount not-to-exceed \$6,178,383, inclusive of sales tax.
- B. Authorize the Chief Executive Officer to purchase \$15,000,000 supplemental project insurance for 10 years after contract award, in excess of ARINC limited liability, in an amount not-to-exceed \$862,500 inclusive of premium and fees.

**ISSUE**

The existing Metro Red Line SCADA system has been in revenue service since 1996. The technology and equipment are obsolete, and the processors are fully loaded and are not expandable, and replacement parts are scarce. The existing system must be replaced with a state-of-the-art, reliable, cost-effective, and expandable SCADA system at the Rail Operations Control (ROC) capable of providing the existing required functionality and be expandable for the Metro Purple Line Extension project.

Supplemental insurance covers exposure resulting from acceptance of modifications to the boiler plate General Terms and Conditions. These modifications will limit Contractor professional liability to the value of the Contract of \$6,178,383.

**DISCUSSION**

Metro Rail Operations and Wayside Maintenance rely heavily on the SCADA system to provide supervisory and control functions essential for the safe, reliable and efficient operation of the Red and Purple lines. These functions include centralized control and/or monitoring of train movement, traction and auxiliary power, fire detection and suppression, gas detection, emergency tunnel and ancillary ventilation, elevators and escalators, radio, emergency telephone, Transit Passenger Information System (TPIS)

and intrusion. The existing system can no longer be effectively maintained and cannot be expanded for the planned Metro Purple Line Extension.

The existing SCADA system was installed in 1996 to support the expansion of the Red Line to Wilshire/Western and was later expanded in 2000 for the Red Line extension to North Hollywood. This system replaced a system installed in 1992 which was specifically designed for Segment 1 only and was not expandable.

The existing computer system components are no longer manufactured and the system software is no longer supported. The effort to replace the SCADA system began in 2005 with the replacement of proprietary and obsolete Segment 1 Remote Terminal Units (RTU) and Metro in-house development of a new communications front-end processor. The effort to replace the remaining Segment 2 and 3 RTU is currently being performed in-house and will continue in parallel with the replacement of the SCADA system. Replacement of the SCADA system software and hardware at CCF must be contracted out due to the magnitude of the effort, required specialized skills and experience, and to support the project schedule.

ARINC is fully compliant with the Technical Provisions of the solicitation. ARINC, as well as the competitor, has taken material exception to the Metro standard indemnity provisions. The exceptions place limits on ARINC's contractual liability barring Metro's recovery of any ARINC-caused bodily injury and property damage exceeding \$6,178,383, the value of the contract, nor any consequential damages. ARINC management will not enter into contracts that have unlimited liability. This policy is a result of the June 2009 Washington Metropolitan Area Transportation Authority (WMATA) collision at Fort Totten Station. The National Transportation Safety Board (NTSB) investigation and report wholly implicates WMATA maintenance deficiencies as the cause of the accident and Breda rolling stock safety issues as the contributors to loss of life and injury. In spite of these findings, Ansaldo, Alstom, and ARINC were named as co-defendants in a cross complaint by WMATA.

As a result of this, ARINC management policy is to not accept unlimited liability clauses. The insurance industry has responded to the WMATA incident by increasing insurance premiums for these types of contractors, as well as reduced scopes of insurance protection, particularly bodily injury and property damage endorsements on technology malpractice policies. Staff recommends purchasing supplemental project insurance for the 10-year contract period.

### **DETERMINATION OF SAFETY IMPACT**

Approval of this item would replace a safety-critical system in accordance with appropriate preventative maintenance practices.

### **FINANCIAL IMPACT**

The total contract amount requested is \$6,178,383. Funding of \$1,000,000 is included in the FY14 annual budget in cost center 3960, Rail Transit Engineering, item 50316,

Professional and Technical Services, project 205038, Metro Red Line SCADA System Replacement.

In addition to the \$6,178,383 contract, the supplemental insurance amount requested is \$862,500. This cost will also be absorbed in the life-of-project budget of \$15,800,000.

Since this is a multi-year project, the project manager and Executive Officer, Wayside Systems will ensure this effort will be funded in future years.

### Impact to Budget

The source of funds for this project is Prop A 35 percent Rail. These funds are eligible to be used for rail operating and capital projects. No other sources of funds were considered as these funds are eligible for rail systems safety and enhancement projects.

### **ALTERNATIVES CONSIDERED**

An alternative is to implement a new SCADA system in-house. This alternative is not recommended. Metro neither has the staffing nor the complete skill set necessary to execute a project of this magnitude. Furthermore, time is of the essence. Only an experienced contractor offering proven and mature SCADA system software can complete the project within the project's two year schedule.

Metro could decide not to purchase supplemental insurance if the Board determines that additional exposure related to the inability to collect damages for ARINC professional negligence above the contract limit of \$6,178,383 is an acceptable risk. This alternative is not recommended.

### **NEXT STEPS**

If approved, this contract shall ensure the delivery of a quality SCADA system within two years. The SCADA system will be delivered in stages as part of a fast-track schedule. Design, implementation and testing activities would be executed in parallel to minimize or eliminate the time to cut-over after final delivery. After final acceptance the contractor will continue to provide full maintenance support for two years with options to renew yearly for five additional years.

### **ATTACHMENTS**

A. Procurement Summary

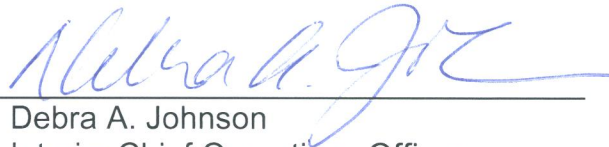
Prepared by: Charles Weissman, Supervising Engineer

Questions: Christopher Reyes, Senior Administrative Analyst  
(213) 922-4808



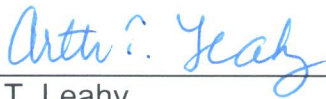
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Michelle Lopes Caldwell  
Chief Administrative Services Officer



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Debra A. Johnson  
Interim Chief Operations Officer



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Arthur T. Leahy  
Chief Executive Officer

**PROCUREMENT SUMMARY****METRO RED LINE SCADA REPLACEMENT**

1.	Contract Number: OP39603035	
2.	Recommended Vendor: ARINC	
3.	Type of Procurement (check one): <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.	Procurement Dates:	
	A. Issued: March 08, 2013	
	B. Advertised/Publicized: March 18, 2013	
	C. Pre-proposal/Pre-Bid Conference: April 02, 2013	
	D. Proposals/Bids Due: June 21, 2013	
	E. Pre-Qualification Completed: Yes	
	F. Conflict of Interest Form Submitted to Ethics: Yes	
	G. Protest Period End Date: November 19, 2013	
5.	Solicitations Picked up/Downloaded: 10	Bids/Proposals Received: 2
6.	Contract Administrator: Nathan Jones III	Telephone Number: (213) 922-6101
7.	Project Manager: Charles Weissman	Telephone Number: (323) 563-5232

**A. Procurement Background**

This Board action is to award Contract OP39603035 to acquire Software Engineering Services and Equipment to replace the Metro Red Line Supervisory Control and Data Acquisition system (SCADA).

The RFP was issued in accordance with Metro's Acquisition Policy and the contract type is a Firm Fixed Price.

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

- Amendment No. 1 was issued on March 13, 2013 to change pre-proposal meeting date.
- Amendment No. 2 was issued on March 21, 2013 to revise technical provisions.
- Amendment No. 3 was issued on April 11, 2013 to provide answers to formally submitted questions.
- Amendment No. 4 was issued on April 16, 2013 to provide answers to formally submitted questions.

- Amendment No. 5 was issued on May 06, 2013 to provide answers to formally submitted questions.
- Amendment No. 6 was issued on May 21, 2013 to provide answers to formally submitted questions.
- Amendment No. 7 was issued on June 06, 2013 to provide answers to formally submitted questions.
- Amendment No. 8 was issued on June 07, 2013 to revise due date for submittal of questions.
- Amendment No. 9 was issued on June 09, 2013 to provide answers to formally submitted questions.
- Amendment No. 10 was issued on June 19, 2013 to provide instructions for the system demonstrations.

A pre-proposal meeting was held on April 02, 2013 and questions were asked during and after the pre-proposal meeting. A total of two proposals were received on June 21, 2013.

## **B. Evaluation of Proposals/Bids**

A total of two proposers responded to this solicitation. A Source Selection Committee (SSC) consisting of staff from SCADA Systems Engineering, Rail Operations, Information Management, and an independent SCADA Consultant convened and conducted a comprehensive technical evaluation on the proposals received.

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

### Minimum Qualifications (Pass/Fail)

1. The Prime Contractor must have delivered at least seven distributed SCADA systems for Operations Control Centers that are currently in service; four of which are currently in-service in North America. Each system must have at least four HMI workstations and 1000 input/output points.
2. Of the seven delivered systems, three shall be integrated transit SCADA/train control systems.
3. At least three of the in-service systems must have active prime contractor provided maintenance contracts or services purchase orders.
4. At least three of the in-service systems must have been completed within the past seven years.
5. The prime contractor shall have technical service and support offices in North America.
6. SCADA System capabilities. The proposed SCADA System must have the following capabilities at the time of the RFP advertisement date:
  - Integrated SCADA and Train Control functions
  - Functional and geographic partitioning for control security

- Control validation and supervision
- Distributed alarm system
- Server redundancy
- Relational database alarm and events historian
- SCADA graphical displays with pan and zoom capabilities
- Tag management
- Group control sequences
- Train tracking
- Automatic train routing and dispatching
- Simulation (scripted, control reaction, train movement)
- Graphical events playback
- SCADA system configuration and graphics editors
- SCADA system Application Programmer Interface (API)

**Evaluation Criteria**

The evaluation criteria are appropriate and consistent with criteria developed for other, similar software engineering projects. Several factors were considered when developing these weights, giving the greatest importance to the understanding of the experience and past performance.

• Experience and Past Performance	30%
• Technical Submittals	20%
• System Demonstration	15%
• Cost/Price Proposal	25%
• SBE Participation	<u>10%</u>
Subtotal	100%

Both firms were determined to be within the competitive range. The firms are listed below in alphabetical order:

1. ARINC, Inc.
2. Thales

In addition to the evaluations of each proposer’s technical and price proposals, system demonstrations were conducted and evaluated during July 2013.

**Qualifications Summary of Firms Within the Competitive Range:**

**ARINC, Inc.**

ARINC provided a proposal that addressed all the requirements of the RFP. The firm offered an experienced technical team with a complete understanding of the SCADA statement of work including design, operations, and maintenance

requirements. Additionally they proposed many of the same senior technical members that are currently supporting the existing Metro SCADA system. One of the major benefits ARINC offers Metro is that no customization to their SCADA system software is required. The critical functionalities will not require modification. ARINC's system demonstration confirmed that their product meets the statement of work design and operational requirements. ARINC demonstrated an industry superior user interface with a very intuitive navigation component that includes pan and zoom functions.

**Thales**

Thales' provided a broad understanding of the RFP requirements. Thales has over 35 years of experience as a prime contractor with systems similar to what Metro is seeking to acquire. Their proposed core software has proven to be scalable and the software architecture allows for customer specific customization. Thales demonstrated a product that has a well refined look and feel and appears to be highly stable. The Source Selection Committee concluded that there was a limitation in the engineering services that were proposed. However, overall the proposed system met Metro's requirements.

The following table summarizes the evaluation committee ranking and scores.

Firm	Average Score	Factor Weight	Weighted Average Score	Rank
<b>ARINC, Inc.</b>				<b>1</b>
SBE Participation	50.00	10.00%	5.00	
Experience and Past Performance	84.33	30.00%	25.30	
Technical Submittals	72.00	20.00%	14.40	
System Demonstration	87.47	15.00%	13.12	
Price	100.00	25.00%	25.00	
<b>Total</b>		<b>100.00%</b>	<b>82.82</b>	
<b>THALES</b>				<b>2</b>
SBE Participation	50.00	10.00%	5.00	
Experience and Past Performance	65.33	30.00%	19.60	
Technical Submittals	74.50	20.00%	14.90	
System Demonstration	87.73	15.00%	13.16	
Price	77.32	25.00%	19.33	
<b>Total</b>		<b>100.00%</b>	<b>71.99</b>	



### C. Price Analysis

The recommended price has been determined to be fair and reasonable based upon adequate price competition and comparison with the Independent Cost Estimate.

	<b>ARINC</b>	<b>THALES</b>	<b>ICE</b>
Base Price	\$4,940,646	\$8,873,396	
Option A – Five years maintenance	\$1,217,408	\$685,000	
Total Price	\$6,178,383	\$9,579,543	\$12,726,714

In addition to Option A – Five Years Maintenance, proposers were asked to provide hourly labor rates for Non-Emergency and As-Needed Emergency Services (Option B). A comparison of the composite hourly labor rates is as follows:

- Non-Emergency Services: ARINC is approximately 1% higher than Thales
- As-Needed Emergency Services: ARINC is approximately 7% lower than Thales

### D. Background on Recommended Contractor

ARINC Incorporated, Metro's SCADA incumbent contractor, is a provider of transportation communications and systems engineering solutions for several major industries, including but not limited to aviation, airports, transportation, government and defense. ARINC is headquartered in Annapolis, Maryland with a local office in Marina Del Rey, CA. The Marina Del Rey facility specializes in providing off-the-shelf, fully integrated Supervisory Control and Data Acquisition (SCADA) and Train Control systems. ARINC provides advanced communication solutions to both transit and non-transit railway operators. ARINC has provided systems engineering solutions based on their proposed Advanced Information Management (AIM) platform for the following rail transportation agencies; Metropolitan Atlanta Rapid Transit Authority, Chicago Transit Authority, Greater Cleveland Regional Transit Authority, Metro-Dade Transit Authority, Massachusetts Bay Transportation Authority, Southeastern Pennsylvania Transportation Authority, Edmonton Transit, Calgary Transit, and other public agencies.

**E. Small Business Participation**

The Diversity and Economic Opportunity Department (DEOD) established a 10 percent Small Business Enterprise (SBE) goal for this solicitation. ARINC, Inc.; made a 12.64 percent SBE commitment. ARINC, Inc. received five out of a possible ten points in the evaluation scoring for meeting the SBE goal.

<b>SMALL BUSINESS GOAL</b>	<b>SBE 10%</b>	<b>SMALL BUSINESS COMMITMENT</b>	<b>SBE 12.64%</b>
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	<b>SBE Subcontractors</b>	<b>% Committed</b>
1.	Anysolv Technologies, Inc.	12.64%
	<b>Total Commitment</b>	<b>12.64%</b>

**F. All Subcontractors Included with Recommended Contractor’s Proposal**

	<b>Subcontractor</b>	<b>Services Provided</b>
1.	Anysolv Technologies	Software development, equipment procurement, set-up and test support.