WATER | ENERGY | LIFE

RIVERSIDE PUBLIC UTILITIES

Board Memorandum

BOARD OF PUBLIC UTILITIES **DATE:** MAY 14, 2018

ITEM NO: 9

SUBJECT: AWARD REQUEST FOR PROPOSAL NO. 805 FOR FURNISHING AND DELIVERING TWO SUBSTATION POWER TRANSFORMERS TO DELTA STAR INC., OF SAN CARLOS, CALIFORNIA, IN THE AMOUNT OF $2,289,438.44 – APPROVE WORK ORDER NO. 1816638 FOR $4,202,827

ISSUES:

Award Request for Proposal No. 805 for furnishing and delivering two substation power transformers from Delta Star Inc., of San Carlos, California, in the amount of $2,289,438.44; and approve Work Order No. 1816638 for $4,202,827.

RECOMMENDATIONS:

That the Board of Public Utilities:

1. Award Request for Proposal No. 805 for furnishing and delivering two substation power transformers from Delta Star Inc., of San Carlos, California, in the amount of $2,289,438.44; and

2. Approve Work Order No. 1816638 for $4,202,827.

BACKGROUND:

Substation power transformers (transformers) are essential components of the power grid. Transformers are critical to the reliability and optimum operation of the electric grid. A single substation transformer can provide power to more than 5,000 customers. As such, substation power transformers are critical assets in Riverside Public Utilities' (RPU) electric system.

The average expected life of a substation power transformer is approximately 40 years. Several of the substation transformers in RPU's system have exceeded or are reaching the end of their design life. The age of a transformer is a significant factor in electric system reliability, safety, and maintenance costs. The loading capability of a transformer declines as a transformer ages. Age also reduces the transformer's ability to handle electrical and mechanical stresses encountered during normal operation.

Typical Substation Power Transformer

Substation power transformers are the single most expensive component in RPU's electric distribution system. This is due to their design and the complexity of the manufacturing process. The failure of a single unit can result in a significant impact on the electric system's reliability and the safety of employees and the general public. Replacement of a substation power transformer due to a catastrophic failure is very expensive, and replacement units are not readily available due to their long manufacturing lead-time. Planned replacement of deteriorating transformers is a prudent and responsible action to minimize the risk of prolonged power outages due to transformer failures.

DISCUSSION:

RPU is committed to providing safe and reliable energy service for all customers. As part of RPU's effort to identify and replace aging infrastructure, RPU plans to replace transformer no. 4 at Freeman substation (Freeman T4) and transformer no. 4 at Mt. View substation (Mt. View T4). RPU's substation power transformer assessment indicated that some substation transformers are beyond their useful service life. Freeman T4 and Mt. View T4 were identified to have reached the end of their design life. In addition to the transformer's age, Dissolved Gas Analysis (DGA) and electrical testing results were evaluated and considered. Oil samples are extracted from the transformer's main tank and tested at a laboratory for specific signature traces. DGA values provide a reliable indication of the internal heath of a transformer. The DGA values of both transformers indicated deterioration of the units further bolstering the recommendation to replace the units.

The replacement of the substation transformers will include the removal and disposal of the existing transformers, and the installation of the new units. This proposed work also includes the removal and installation of new foundations, segregated bus between the transformer and switchgear, and related electrical and underground work. The civil work contemplated by this action within each of the substations will be performed by a contactor. The construction inspection and equipment testing will be performed by RPU field forces.

On February 9, 2018, four vendors were invited to submit proposals through an informal Request for Proposal (RFP) Bid No. 805 procurement process for equipment and material. The purchase of the equipment and material is covered under Article Four of Purchasing Resolution No. 23256. Section 404 specifies certain equipment that is particular to the needs of RPU and provides for acquisition by Informal Procurement if it appears to the Purchasing Manager to be in the best interest of the City of Riverside. The Purchasing Manager made such a determination in this case. The RFP closed on March 9, 2018, with all four vendors submitting proposals. Staff evaluated the proposals and deemed Delta Star Inc., of San Carlos, California, to be the lowest responsive and responsible proposer. The proposal was within the engineer's estimated amount of $2,800,000. The final proposal amounts were evaluated by taking into consideration the proposal base amount, transformer operating costs, spare parts and compliance with specifications pursuant to RFP No. 805.

The proposals are summarized in the table below:

Vendors	Location	Amount	Evaluation
1. Delta Star Inc.	San Carlos, CA	$2,675,045.60	1st
2. SPX Transformer Solutions, Inc.	Goldsboro, NC	$2,698,590.00	2nd
3. ABB Inc.	Crystal Springs, MS	$2,711,592.42	3rd
4. Hyundai	Ulsan, Korea	$2,717,000.00	4th

- *Engineer's Estimate* *$2,800,000.00*

The project breakdown is proposed as follows:

Project Breakdown	
Engineering Performed By:	RPU Engineering Staff and Consultant
Civil Work Performed By:	Contactor
Electrical Work Performed By:	Contactor
Inspection and Supervision	RPU Field Forces
Electrical Testing and Commissioning	RPU Field Forces
Anticipated Start Date:	January 2019
Anticipated Duration:	12 Months

The breakdown for the total capital expenditure is as follows:

Description	**Amount ($)**
Delta Star, Inc.	$2,289,438
Project Management and Engineering Design	$273,243
Bus Ducts, and Misc. Equipment and Material	$300,000
Inspection and QEW Services	$150,000
Construction Contact (Estimate)	$620,000
Factory Acceptance Testing, Field Testing and Commissioning	$188,071
Contingency (10%)	$382,075
Work Order Total	**$4,202,827**

The Purchasing Manager concurs that the recommended action is in compliance with the City of Riverside's Purchasing Resolution No. 23256.

FISCAL IMPACT:

The total fiscal impact is $4,202,827. Sufficient funds are available in Public Utilities' Substation Bus Upgrade Capital Account No. 6130000-470632.

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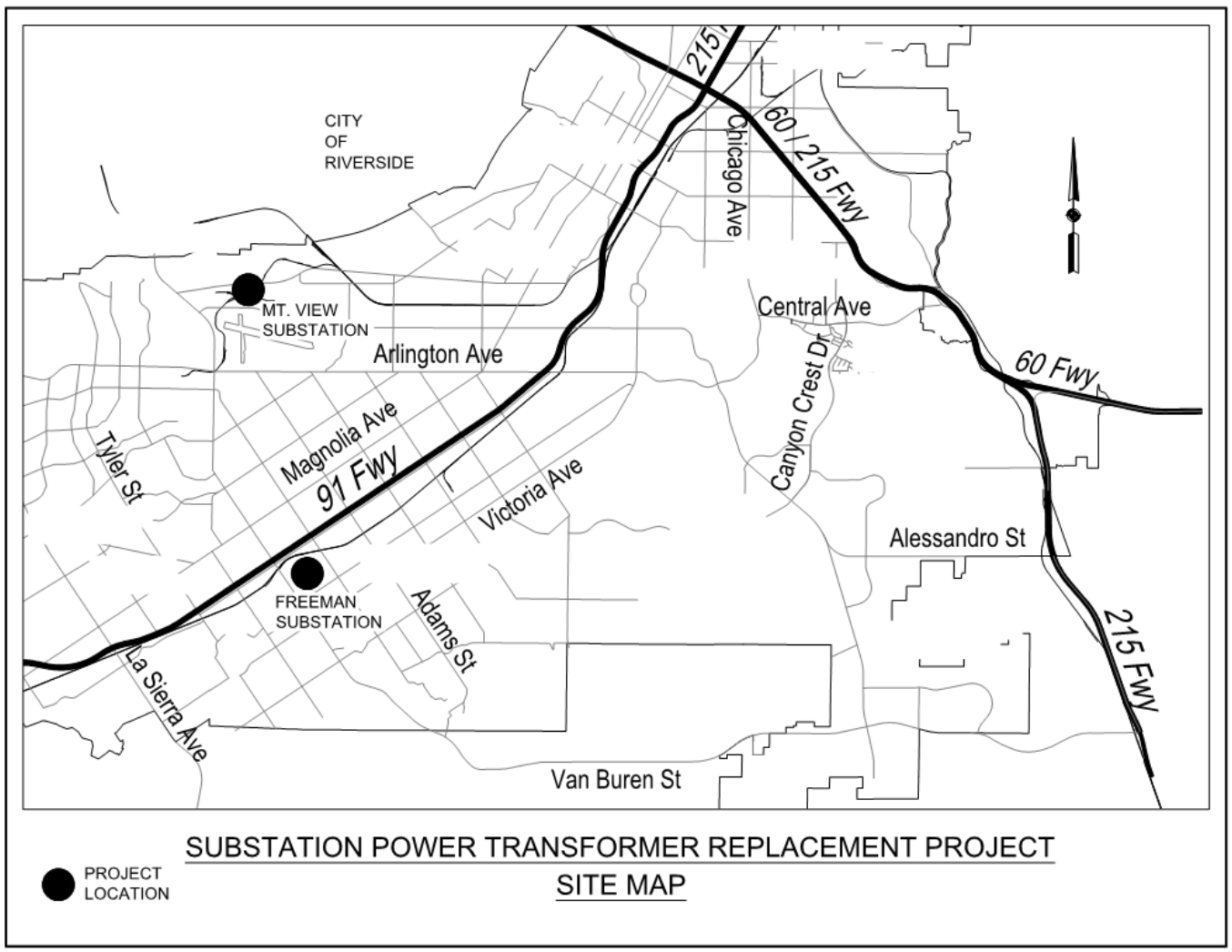
Approved by:	Marianna Marysheva, Assistant City Manager
Approved as to form:	Gary G. Geuss, City Attorney
Certifies availability of funds:	Laura M. Nomura, Utilities Assistant General Manager/Finance & Administration

Attachments:

1. RFP Award Recommendation
2. Presentation


CITY
OF
RIVERSIDE
MT. VIEW
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Tyler St
Magnolia Ave
91 Fwy
Victoria Ave
FREEMAN
SUBSTATION
Adams St
La Sierra Ave
Van Buren St
Chicago Ave
60 / 215 Fwy
Central Ave
Canyon Crest Dr
60 Fwy
Alessandro St
215 Fwy
PROJECT
LOCATION
SUBSTATION POWER TRANSFORMER REPLACEMENT PROJECT
SITE MAP