WATER | ENERGY | LIFE

RIVERSIDE PUBLIC UTILITIES

Board Memorandum

BOARD OF PUBLIC UTILITIES **DATE:** NOVEMBER 6, 2015

ITEM NO: 7
File ID – 15-3579 – C

SUBJECT: **LOAD TAP CHANGER REPLACEMENT, SUBSTATION TRANSFORMER TESTING AND INSTRUMENTATION UPGRADE PROJECT INCLUDING A PROFESSIONAL SERVICES AGREEMENT FOR REQUEST FOR PROPOSAL 1534 - WORK ORDER NO. 1511213 - FOR $3,200,000**

ISSUES:

The issues for Board of Public Utilities consideration are: 1) approve Work Order No. 1511213; and 2) approve a Professional Consulting Services Agreement with Reinhausen Manufacturing for a Load Tap Changer (LTC) replacement, substation transformer testing, and instrumentation upgrade project.

RECOMMENDATIONS:

That the Board of Public Utilities:

1. Approve Work Order No. 1511213 in the amount of $3,200,000; and

2. Approve a Professional Services Agreement with Reinhausen Manufacturing Inc. located in Humboldt, Tennessee, for the LTC Replacement Project in the amount of $2,914,678.

BACKGROUND:

On September 4, 2015, the Board of Public Utilities (Board) received a report of planned routine infrastructure projects. The purpose of that report was to provide the Board an overview of the routine infrastructure projects, over $500,000, planned for FY 2015/16, and to highlight the importance of those projects. Discussion of these projects provided context and familiarity to streamline Board approval of individual project actions throughout the fiscal year.

One of the projects discussed was the planned replacement of nine substation transformer Load Tap Changers (LTC) at seven substations for $3,200,000. Such replacements and upgrades benefit a large number of customers (approximately 22,000 residents per substation) and also introduce new technology to improve reliability and reduce prolonged outages.

The LTC is an essential component of a substation transformer that regulates voltage in the electrical system. Riverside Public Utilities (RPU) is experiencing recurring issues with Allis-Chalmers model #TLH-21 LTCs. These devices are 25-30 years old, are the only moving parts in a transformer, and now require frequent repairs and expensive parts replacement. RPU operates nine of these particular LTCs as indicated in the table below.

Substation	LTC Replacement Locations (Transformers)
Freeman	T1, T3 & T5
Hunter	T5
La Colina	T3
Orangecrest	T1
Riverside	T3
Springs	T1
University	T3

Typical substation transformer with Load Tap Changer (LTC)

The manufacturer, Allis-Chalmers, is no longer in business, and replacement parts are becoming increasingly scarce. Persistent repairs lead to dramatically increased maintenance costs, frequent and undesirable transformer outages to make repairs, and potential transformer failure. Because LTC failure is one of the leading causes of substation transformer failure, most utilities are also making wholesale replacements of this model LTC.

This project will improve RPU's ability to provide cost effective and reliable utility service to RPU electric customers now and for the future. This project is very labor intensive, requires highly specialized technical knowledge, equipment, and experience to replace the LTCs on-location at the substation.

On August 27, 2015, staff issued a Request for Proposals (RFP 1534) through the Purchasing Department for a turnkey service including labor, material, and testing to replace nine LTCs and associate components. Four vendors submitted proposals on September 14, 2015. The evaluation panel deemed Reinhausen Manufacturing to be the lowest responsive and responsible proposer and

their price was within the engineer's estimate of $3,000,000. The evaluation results are shown in the table below:

Vendors:	**Proposal Amount**	**Evaluation**
1. Reinhausen Manufacturing, Inc	$2,914,678	Lowest Responsive and Responsible Bidder
2. SPX Waukesha	$3,369,496	2nd Lowest Bid
3. General Electric International, Inc.	$3,526,185	3rd Lowest Bid
4. North American Substation Services	$5,802,786	4th Lowest Bid
➢ *Engineer's Cost Estimate*	$3,000,000	

The Purchasing Services Manager concurs that the recommended actions comply with the City of Riverside's Purchasing Resolution No. 22576.

The project breakdown is proposed as follows:

Project Breakdown	
Engineering Performed By:	Reinhausen Manufacturing, Inc
Civil Construction Performed By:	None
Electrical Work Performed By:	Reinhausen Manufacturing, Inc
Anticipated Start Date:	November 23, 2015
Anticipated Duration:	6 months
Coordination Required With:	RPU Engineering and Maintenance Crew
Reimbursements:	None

FISCAL IMPACT:

The total capital expenditure for Work Order No. 1511213 is estimated to be $3,200,000 as summarized in the following table:

Description	**Amount ($)**	**Percent of Total**
Consultant Turn Key Services	$2,914,678	91%
RPU Engineering	$85,322	3%
RPU Operation and Maintenance	$200,000	6%
Total	**$3,200,000**	**100%**

Sufficient funds are available in the Public Utilities' Substation Transformer Addition Account No. 6130000 - 470632.

Prepared by: Pat Hohl, Public Utilities Assistant General Manager/Energy Delivery
Approved by: Girish Balachandran, Public Utilities General Manager
Approved by: John A. Russo, City Manager
Approved as to form: Gary G. Geuss, City Attorney

Certifies availability of funds: Laura Chavez-Nomura, Public Utilities Assistant General Manager/Finance

Attachment: Project Vicinity Map