RIVERSIDE PUBLIC UTILITIES

Board Memorandum

BOARD OF PUBLIC UTILITIES **DATE:** SEPTEMBER 23, 2019

ITEM NO: 5

SUBJECT: WORK ORDER NO. 1930680 FOR A TOTAL CAPITAL EXPENDITURE OF $100,000 FOR CIRCUIT 1364 RELIABILITY IMPROVEMENT, FUSE COORDINATION PROJECT

ISSUE:

Approve Work Order No. 1930680 for a total capital expenditure of $100,000 for the Circuit 1364 Reliability Improvement, Fuse Coordination Project.

RECOMMENDATION:

That the Board of Public Utilities approve Work Order No. 1930680 for a total capital expenditure of $100,000 for the Circuit 1364 Reliability Improvement, Fuse Coordination Project.

BACKGROUND:

Riverside Public Utilities (RPU) Electric System Planning staff recently performed a reliability study in order to improve the performance of Circuit 1364, to reduce outage time, thereby improving the System Average Interruption Duration Index (SAIDI). Staff recommended the replacement of existing fuses with reduced sizes on Circuit 1364 to properly coordinate with the substation breaker. The implementation will isolate any short circuit faults that occur on a lateral line before it is sensed by the relay at the substation, therefore avoiding tripping the entire circuit.

The seasonal load transfer to Circuit 1364 from adjacent Plaza Substation Circuit 1451 during the winter months to offset the Tequesquite photovoltaic (PV) load requires fuse coordination for both summer and winter configurations. In addition, there are fuses on Circuit 1364 with ampacities higher than some of their branch conductor's ampacity due to increase in energy demand and load growth. By reducing the fuse sizes, the fuse would protect the lines by breaking the circuit if a fault causes excessive current to flow on the lines. This excess current can cause damage to conductors and equipment, and could require substantial amount of time to repair or replace.

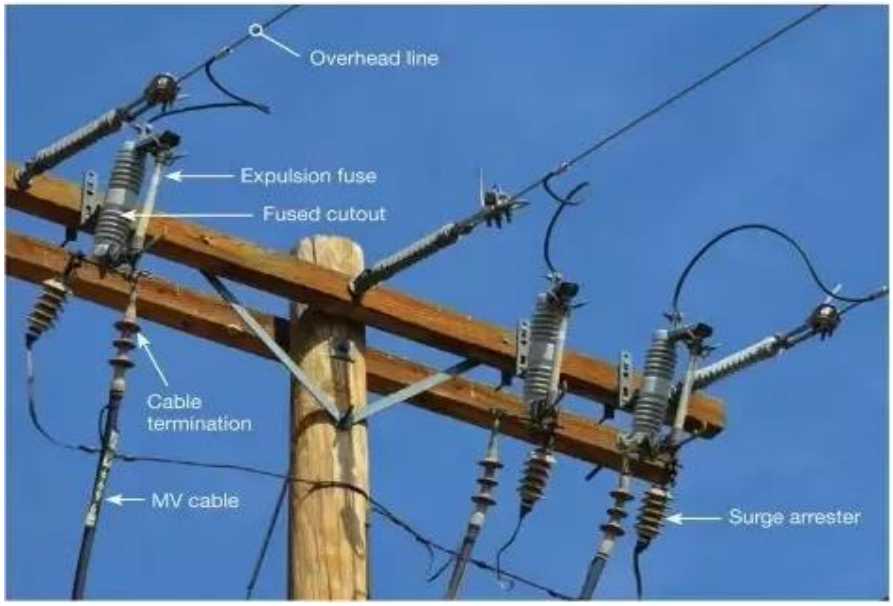
DISCUSSION:

This project will replace existing obsolete overhead electrical distribution equipment to properly coordinate with substation equipment, improving overall system reliability, and electric service to customers in the area. Replacement of aged and obsolete overhead infrastructure was identified as part of the Utility 2.0 Electric Infrastructure Road Map.

The scope of work includes the removal and installation of cutouts and fuses on existing and new locations. Due to the reduced fuse sizes, most of the cutouts currently on Circuit 1364 will be replaced. A cutout is a device that holds the fuse. Currently, all of RPU's cutouts for the branch lines are 200A (Amps). Most

of these will be replaced with 100A cutouts to hold the smaller sized fuses. There will be approximately 56 200A cutouts with fuses removed and 73 100A cutouts with fuses installed on 45 overhead poles. The pole locations are within the neighborhoods of Grand, Magnolia Center, and Wood Streets. RPU electric field crews will perform the construction of this project.

Fused Cutout



Fused Cutouts on Crossarm

RPU engineering staff performed the design to eliminate any negative visual impacts to the project and surrounding area, with sensitivity to the existing neighborhood, and within City Planning guidelines for the designated area of the project.

The project and fiscal breakdown is proposed as follows:

Project and Fiscal Breakdown		
Work Type	Performed By	Amount ($)
Project Management and Engineering	RPU Engineering	$5,000
Electrical Work	RPU Field Forces	$80,909
Design	RPU Engineering	$5,000
Contingency (10%)		$9,091
Work Order Total:		**$100,000**
Anticipated Start Date:		**October 2019**
Anticipated Duration:		**5 days**

FISCAL IMPACT:

The total fiscal impact is $100,000. Sufficient funds are available in Public Utilities Electric Capital Account No. 6130000-470655.

Prepared by:	George R. Hanson, Utilities Assistant General Manager/Energy Delivery
Approved by:	Todd M. Corbin, Utilities General Manager
Approved by:	Al Zelinka, FAICP, City Manager
Approved as to form:	Gary G. Geuss, City Attorney
Certifies availability of funds:	Brian Seinturier, Utilities Fiscal Manager

Attachment: Project Site Map