

## 15 kV Electrical Service Replacement



### **Project Purpose:**

This project proposes the replacement of the outdoor service switchgear, transformers and busway system. Outdoor switchgear has an expected service life of approximately 40 years; all of this equipment was installed in 1984-85.

**Project Proposer/Champion:** Dave Lundey / Todd Gebert

**Department:** Engineering / Operations & Maintenance

### **Project Involvement:**

The project will likely be led by the Engineering Department.

### **Project History and Status:**

The investment costs for replacements are substantial, especially if several switchgears of the same age have to be replaced at the same time. Replacement needs to be well planned. Late replacement can lead to an increased risk of failures but at the same time, early replacement can cause unnecessarily high investment cost. It is in our best interest to have a comprehensive condition assessment done by a qualified firm. This will give us a better idea as to what and when replacement will be needed. There are uncertainties that will need to be evaluated. Not only do we have the question of remaining reliable service, but also of future needs.

### **Options:**

#### **a. Description:**

Replace equipment as recommended by a condition assessment and the electrical industry's best practices.

**b. Alternatives**

Use the existing equipment until failure.

**c. Key Risks and Issues**

- Reliable distribution of electrical power is crucial to maintaining the district’s goals of protecting public health and the environment.
- Wastewater facilities place great demands on electrical equipment for treatment processes. When pumps go offline due to power failures, these processes are halted and treatment ceases.
- The switchgear could fail before it is replaced.

**Recommended Option**

Use industry standards along with a comprehensive condition assessment to replace equipment as recommended. Staff recommends that a comprehensive condition assessment be performed in the year 2020 to better evaluate system needs. At this time replacement of the equipment is being shown in 2024 and 2025, based primarily on the expected service life of the equipment per industry standards.

**Project Schedule:**

	Start Date	Completion Date
Planning:	2019	2021
Design:	2022	2023
Bid Date:	2023	2023
Construction:	2024	2025

**Financial Summary (2019 \$):**

Total Project Cost	
District Staff	207,000
Consultant	308,000
Construction	2,060,000
<b>Total</b>	<b>\$2,575,000</b>

**Fiscal Year Allocation (2019 \$):**

	2020	2021	2022	2023	2024	2025
District staff	\$10,000	\$10,000	\$31,000	\$31,000	\$62,000	\$63,000
Consultant	\$82,000	\$0	\$72,000	\$72,000	\$41,000	\$41,000
Construction	\$0	\$0	\$0	\$0	\$1,030,000	\$1,030,000
<b>Total</b>	<b>\$92,000</b>	<b>\$10,000</b>	<b>\$103,000</b>	<b>\$103,000</b>	<b>\$1,133,000</b>	<b>\$1,134,000</b>

**Fiscal Year Allocation (actual \$):**

	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
District staff	\$11,000	\$11,000	\$34,000	\$35,000	\$72,000	\$74,000
Consultant	\$85,000	\$0	\$79,000	\$81,000	\$48,000	\$49,000
Construction	\$0	\$0	\$0	\$0	\$1,194,000	\$1,230,000
Total	\$96,000	\$11,000	\$113,000	\$116,000	\$1,314,000	\$1,353,000