

Capitol Improvement Project Descriptions

1. **CIP 8275 Sewer Lift Station Rehabilitation** (\$9,031,427)

Three sewer lift stations are being constructed to replace the original dry-pit style station structures (that have reached the end of their useful service life) with standard submersible type stations. Dry-pit structures are problematic as frequent access into the structures requires confined space entry and the pumps are much more difficult to remove for maintenance. Additionally, leaks within the drywell can cause significant damage to the equipment and structure.

- a. Lift station 1 (Estimated \$3,800,000)
 - i. 44501 South El Macero Drive
 - ii. Constructed in 1975
- b. Lift Station 3 (Estimated \$2,200,000)
 - i. 1818 Manzanita Lane
 - ii. Constructed in 1964
- c. Lift Station 4 (\$3,118,676)
 - i. 1717 5th St.
 - ii. Constructed in 1971

2. **CIP 8312 Phase 1 Recycle Water Facility** (\$1,520,000)

Construction of the recycle water pump station located at the Wastewater Treatment Plant is part of the first phase of the City's recycle water master plan. This station will enable the City to deliver recycled water to contracted users adjacent to the Plant. Currently the users are the Yolo County Landfill and its on-site composting facility using the water for ag irrigation, dust control, construction, compost material moisture control, and fire protection.

3. **CIP 8291 WWTP Biofilter** (\$1,500,000)

The biofilter is being constructed at the Wastewater Treatment Plant to remove hazardous gases from the City's sewer trunk line and the Plants' influent wet well. Without removal, the sewer gases can damage the City's infrastructure, leading to necessary maintenance hole replacements, as well as contributing to dangerously high concentrations of hydrogen sulfide, with levels that are a risk to human health.

4. **CIP 8324 WWTP Storage Building** (\$1,000,000)

Due to the large increase in process equipment from the recent Plant upgrade project, the facility needs to have a storage building large enough to store the spare parts and equipment required to have on hand for reliable operation of the facility.

5. **CIP 8334 WWTP Access Road Repair** (\$1,922,000)

The road used to access Wastewater Treatment Plant needs to be repaired due to the damage caused by the heavy chemical and equipment trucks used for normal Plant operations and construction activities.

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6. **WWTP MCC-20/60 DeviceNet Replacement (\$1,600,000)**

DeviceNet is a network protocol to interconnect equipment control devices for data exchange. The facility's influent and anaerobic digester motor control centers (MCC) utilize the outdated DeviceNet which is no longer supported and no longer offers replacement equipment leaving the two MCC's vulnerable to control failure without the ability to repair.
7. **Grit Basin Rehab/Coating/Equipment (\$1,500,000)**

The aerated grit basin removes heavy material such as sand, egg shells, and coffee from the sewage entering the Wastewater Treatment Plant in order to protect the downstream equipment. Long term exposure to raw sewage has compromised the coating and possibly the concrete that the coating is there to protect. The equipment is the original pumps and blowers that were installed in 1971, which are at the end of their useful service life.
8. **Sed Tank 1,2 and 3 Coating and Equipment (\$2,050,000)**

The primary sedimentation (sed) tanks remove floating and settleable solids from the sewage entering the Wastewater Treatment Plant prior to the biological treatment process. Due to long term exposure to raw wastewater the tanks coatings need restored and the joint seals replaced. The current sludge collectors in sed tanks 1 and 3 are nearing the end of their useful life and need to be replaced prior to failure. The sludge collection equipment in sed tank 2 has recently failed, and staff are currently waiting on the delivery of replacement equipment in order to place the unit back in service.
9. **Primary/Scum Equipment Replacement (\$900,000)**

This equipment is used to pump the material removed from the primary sedimentation tanks to the anaerobic digesters. The equipment was installed 30 years ago and is reaching the end of its service life, as indicated by some recent equipment component failures. Replacement parts for this equipment is becoming increasingly difficult to acquire since the equipment is no longer manufactured and availability of spare parts are limited.
10. **Digester Improvement (Coating and Mixing System) (\$1,125,000)**

Anaerobic digesters are an important part of the Plant's solid handling process. They reduce the solids transferred from the primary and secondary treatment processes by 50% and create methane fuel in the process to heat the digesters to the required temperatures. The digesters are emptied, cleaned and inspected every 5-7 years. The last inspections showed some damage to the coating inside both digesters. We are placing them on the schedule for both to be recoated by FY 31/32 in order to protect the structures. The mixers used to keep the solids suspended in the tanks during digestion were installed in 1999 and have been rebuilt twice. Utilizing a 30 -year service life the mixers will be replaced in FY 31/32.

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11. Influent Bar Screen Structure Replacement and Position Adjustment (\$5,000,000)

The project replaces the existing mechanical bar screens on a 30-year life cycle and moves the bar screen location to upstream of the influent pumps to improve influent equipment protection and employee health and safety. Moving the location eliminates the need to manually clean the Plant's bar rack which requires weekly confined space entry. This activity has been the cause of multiple employee work related injuries.

12. Additional Aeration Basin/WWTP Future Capacity Needs (\$5,100,000)

The City hired an engineering firm to perform a capacity study of the Plant processes and process units in 2020. It was determined that, due to Davis's water conservation efforts, the Plant's design capacity of 6.0 million gallons a day (MGD) during average dry weather flow has been reduced to 4.8 MGD, thus shortening the amount of anticipated time (by 10 years) a new aeration basin will required to be constructed to accommodate the City's anticipated growth.

13. Lift Station 1 Force Main (\$7,000,000)

The City hired an engineering firm in 2020 to assess the condition and remaining service life of the El Macero sewer lift station's force main. Predictive data risk modeling indicates several segments of particular concern for failure on the force main, principally the segments under Interstate 80 and the Union Pacific Railroad, but also those segments between houses and crossing roadways in the El Macero unincorporated development. This project will provide a new alignment around the El Macero development as well as an additional redundant pipeline under the highway and railroad tracks.