

progressive

By Kathy Hamilton

California city opts
for sustainable
new pump station
with variable-
frequency pumps

In the past, Highway 99 travelers taking in the view near the Applegate Road exit in Atwater, Merced County, Calif., would see the community's aging wastewater treatment plant. Incongruously located adjacent to the plant, they might notice a newly constructed commercial development. They also might notice odors from the plant's effluent ponds.

For a community that considers itself progressive, the aesthetics of the Applegate Road/Highway 99 area were embarrassing, if not intolerable. Perhaps serendipitously, the city was about to outgrow the wastewater treatment plant's 1- to 12-million gal-per-day (mgd) capacity, necessitating either an upgrade or a replacement. Combined with this problem, changes in National Pollutant Discharge Elimination System requirements meant that the city had to boost its level of wastewater tertiary treatment and dechlorination levels by June 2012. The time for a new wastewater treatment facility had come.

Weighing the Alternatives

Rather than upgrading its existing wastewater treatment plant at its current location, the city elected to build a new plant 5.7 miles to the south, on Bert Crane Road, a choice that would reduce operating costs with new and efficient technology, free up land for potential industrial and commercial developments, and eliminate the effluent odor problem. A new plant also would enable the city to increase the volume of raw sewer flows treated for this service area to 24 mgd at maximum build-out.

Performing the Build

In May 2012, Quad Knopf, in partnership with Fremming, Parsons and Peccherino, completed design and construction of the new Commerce Avenue Sewer Pump Station and Odor Control Facility to serve the new Bert Crane Wastewater Treatment Plant. This design-bid-build project required the construction of a gravity sewer system, a new wet well and pumping station, an odor control facility and associated electrical components. All instrumentation, pumps, etc., are run from a SCADA system located at the pumping plant. Two 5.7-mile-long ductile iron force mains convey discharge from the new pumping station to the new plant.

"The engineering team was able to reduce construction costs and meet a stringent construction timeline by performing detailed engineering evaluations for several elements of the project," said Miguel Barcenas, project manager for Quad Knopf. Among these evaluations was an assessment of the potential rehabilitation of the existing pumping station and wet well. Because this would be a complex and time-consuming process, the team recommended replacing the pumping station instead. After evaluating several sites for the project, the team settled on a location that would not significantly impact future property development, yet provided enough area for construction of the new facility.

"Aesthetics were a major element of the Commerce Avenue Sewer Pump Station and Odor Control Facility design," Barcenas said. A new landscape screen blocks the view of the new pumping



pumping



station and aboveground piping. Plantings coordinate with existing commercial landscaping nearby. Slats placed in the facility's chain-link fencing block the view from Highway 99 travelers and passersby.

Going Green

Incorporating sustainability into the project design wherever possible, the engineering team specified solar fixtures for the interior lighting of the electrical building, biofiltration for odor control, and variable-frequency pumps for energy

efficiency. A gravity line conveys sewer flows partway to the pumping station, reducing the length of force main required. "We are grateful for the many cost-saving innovations applied to this project and for the team's attention to green solutions," said Joe Hollstein, P.E., Atwater city engineer.

Funding for the Commerce Avenue Sewer Pump Station and Odor Control Facility was provided through city bonds. Proposition 50 (Water Security, Clean Drinking Water, Coastal

and Beach Protection Act of 2002; California Water Code Section 79500 et seq.) provided funding for construction of the new wastewater treatment plant and force main. The new facilities began operations in July 2012. **PS**

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