

CASE STUDY / EXTENSIVE PUMP STATION RENOVATION

WASTEWATER UTILITY NEEDED TOTAL RENOVATION FOR CONTINUED SERVICE

The Faraon Street Pump Station in St. Joseph, Missouri, required a solution to extend the life of the facility for a projected 20-year planning period of growth in the community. The station's aging infrastructure needed extensive upgrades to keep the facility operational.



EXTENSIVE RENOVATION EXTENDS FACILITY OPERATION

The City of St. Joseph, Missouri, required upgrades to the aging Faraon Street Pump Station to keep wastewater services operating for residents.

PROJECT STATS

CLIENT

City of St. Joseph, Missouri

LOCATION

St. Joseph, Missouri

COMPLETION DATE

Winter 2014

20

**YEAR EXTENDED
FACILITY USE LIFE**



52

**FOOT DEEP WET
WELL STRUCTURE**

CHALLENGE

The City of St. Joseph, Missouri, had highlighted its eastside wastewater service area as a place for potential economic and future growth. The Faraon Street Pump Station keeps wastewater flowing from the eastside area and was in need of significant upgrades to continue providing reliable services.

With projected growth in the area, the city needed a solution that was both cost-effective and would allow continued wastewater services for a projected 20 years. A detailed eastside materplan called for the Faraon Street Pump Station to be decommissioned and construction of an eastside wastewater treatment plant (WWTP) to begin. The total cost of decommissioning the pump station, building a new WWTP and associated gravity sewers was estimated to cost approximately \$155 million. A more cost-effective solution was desired by the City of St. Joseph.

Further complicating matters, high hydrogen sulfide concentrations had resulted in severe structural deterioration within the facility's wet well and operational areas of the pump station, which also led to unsatisfactory corrosion of electrical components and HVAC equipment. Planned upgrades

would be needed to resolve the facility's engineering, operating and safety concerns, while maintaining continuous wastewater services for residents.

SOLUTION

To address the facility's concerns, the City of St. Joseph brought on our team to rehab the Faraon Street Pump Station, while another engineering firm was hired to build a new pump station. To meet the City's budgetary limitations, the integrated team proposed a complete renovation of the Faraon Street facility, while still using the existing shell of the building resulting in significant cost savings. The facility was gutted and renovated, aside from a generator and elevator that the City requested to remain.

To address the deficiencies at the pump station and provide design features requested by the City, our team designed a new 52-foot deep wet well structure and bar screen building adjacent to the existing structure. New pumps and piping were also installed to handle expected future flows and increase station reliability.

All existing electrical components and systems were replaced, including the service entrance, motor control center, drives and



system controls. Mechanical HVAC components were also replaced. Additionally, upgrades were made to the facility's ventilation systems to meet current area classifications and regulatory requirements.

RESULTS

Throughout the different phasing activities involved in the renovation process, the City's wastewater services

were never shut down. A large holding lagoon nearby allowed for flow diversion while critical pipe work was completed. The pump station retrofit cost \$8 million and it cost \$22 million for our partners to build the new Candy Creek pump station, while the estimated cost for building a new WWTP was projected to cost \$155 million.

After the required renovations were made to the aging facility, the Faraon Street Pump Station will be operating efficiently and safely well into the future for the eastside of the City of St. Joseph.



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