

CASE STUDY / **HARRISONVILLE, MISSOURI, WASTEWATER TREATMENT DESIGN-BUILD**

DESIGN-BUILD TURNS AN EMERGENCY REPAIR INTO A LONG-TERM BENEFIT

When one of the two wastewater tanks in Harrisonville, Missouri, suddenly failed, the city found itself in need of an emergency repair. By using our team's design-build project delivery model, the city was able to repair the failed tank to even better than it was before — while staying on time and under budget.



DESIGN-BUILD DELIVERS A FLEXIBLE AND EFFICIENT REPAIR THAT'S BETTER THAN THE ORIGINAL

A routine maintenance incident turns the City of Harrisonville, Missouri, into a trailblazer.

CHALLENGE

While draining one of its two wastewater tanks during the week of Thanksgiving in 2015, pressure from the surrounding groundwater caused the floor of the tank to heave and fail. Knowing its one remaining tank couldn't provide sufficient wastewater treatment for the city, Harrisonville turned to our team for a solution — becoming the first design-build project under new legislation in the state of Missouri.

SOLUTION

Using a two-phase design-build approach, our team began the project by inspecting the tank and collaborating with the city and a contractor to develop three potential solutions with pricing estimates: replace the tank; fix the floor by pouring concrete over the top of the existing surface; or repair the tank with updated structural components to help avoid future issues. Although the first two solutions may have been easier options, Harrisonville chose to update the structure of the tank to best meet its long-term needs.

Once the solution and guaranteed maximum price were set, our team set the timeline to complete phase two: design and construct the tank

repairs. We removed the failed floor and excavated a few more feet into the ground's surface. Before laying new concrete, clean gravel and drain tile made of black corrugated pipe was layered underneath the entire tank with a stand pipe at one end. This extra design function allows Harrisonville to test groundwater levels before draining the tank in the future, and even pump the groundwater down if the level is too high.

In addition to increasing the efficiency of the failed tank, our team installed a dozen piezometers surrounding all tanks on site so Harrisonville can take a reading of the groundwater level at any time. This added measure helps further mitigate the risk of future damage, keeping the tanks in working order.

RESULT

The project was completed July 2016, on time and \$50,000 under budget. By using design-build project delivery, our team was able to design and construct the necessary repairs and upgrades to the tank in parallel, saving Harrisonville approximately 4-6 months on their emergency project compared to the standard design-bid-build model.

PROJECT STATS

CLIENT
City of
Harrisonville, Missouri

PROJECT TIMEFRAME
Nine months

\$50K
PROJECT SAVINGS

4-6
**MONTHS SAVED
COMPARED TO
DESIGN-BID-BUILD MODEL**

1st
**DESIGN-BUILD
UNDER NEW LEGISLATION
IN MISSOURI**