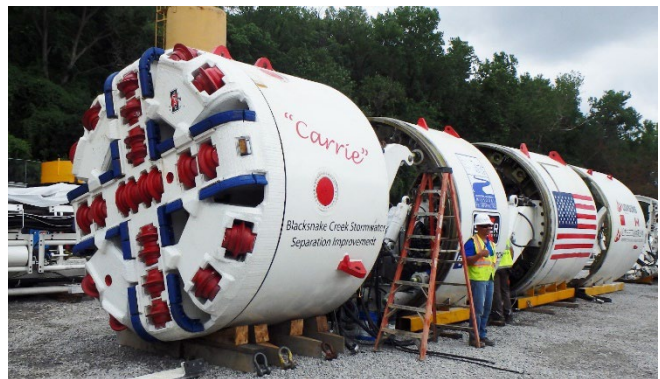


## BLACKSNAKE CREEK STORMWATER SEPARATION IMPROVEMENTS

**STATE PROGRAM:** Missouri Department of Natural Resources

**ASSISTANCE RECIPIENT:** City of St. Joseph

**ASSISTANCE AMOUNT:** Over \$67M



### PROJECT DESCRIPTION

The City of St. Joseph uses a combined sewer system to collect sewage and flows from the Blacksnake Creek. The combined sewage then is sent to the City's wastewater treatment plant (WWTP) for treatment. During large storm events, flows in this combined system may exceed capacity at the WWTP and be discharged directly into the Missouri River. To eliminate approximately 303,000 gallons per year of combined sewer overflows, the City received a CWSRF loan for over \$67 million to construct a separate storm sewer tunnel. This tunnel will redirect two million gallons per day of creek base flow away from the city's WWTP and direct it to the Missouri River. This tunnel was constructed using a custom-built boring machine that excavated through bedrock while simultaneously installing a segmented concrete lining. This project also repaired the existing creek's combined sewer and outfall, constructed five stormwater bioretention basins, and replaced approximately 1,100 trees along the conveyance corridor that were removed during construction. Elimination of combined overflows will greatly benefit the water quality in the Missouri River and will reduce flows to the WWTP. That will increase the facility's hydraulic capacity approximately 11 percent and reduce annual plant operation and maintenance costs by \$1.5 million. Additional savings from using CWSRF financing will save the community an estimated \$29 million in interest when compared with conventional financing.

To read more about this case study, please visit [https://www.epa.gov/sites/default/files/2021-02/documents/2020\\_pisces\\_compendium.pdf](https://www.epa.gov/sites/default/files/2021-02/documents/2020_pisces_compendium.pdf).