

MALINE CREEK CSO BP 051 & 052 LOCAL STORAGE FACILITY



MSD Project Clear is the Metropolitan St. Louis Sewer District's (MSD) initiative to im-

prove water quality and alleviate many wastewater concerns throughout St. Louis City and County. MSD Project Clear is a long-term effort by MSD, undertaken as part of [an agreement](#) with the U.S. Environmental Protection Agency and the Missouri Coalition for the Environment. MSD Project Clear will invest billions of dollars over a generation in planning, designing, and building community rainscaping, system improvements, and an ambitious program of maintenance and repair. At times of heavy wet weather, the sewer system of St. Louis City and much of St. Louis County can be overwhelmed, causing overflows into area rivers and streams. Like many cities throughout the United States, this program is designed to reduce the occurrence of sewer overflows that result from older wastewater collection and treatment systems during heavy storms. MSD Project Clear has divided this multi-year, multi-billion dollar investment into numerous projects that will be designed and constructed over the next several decades. The Maline Creek Local Storage Facility project, for example, will address an aging system in the North St. Louis City area of the Region.

COMBINED SEWER OVERFLOWS (CSO) – WHAT ARE THEY?

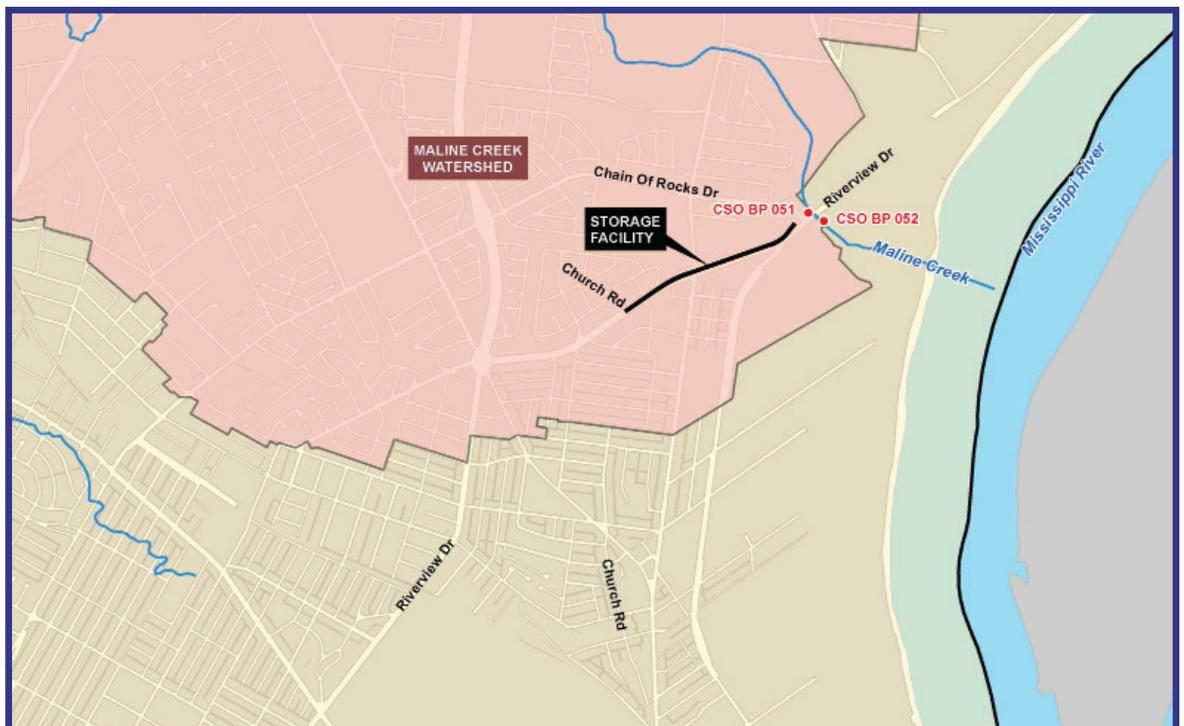
Combined sewers were constructed through the mid-1900s to carry a set amount of rainwater and wastewater in the same pipe. During dry weather, these systems can handle the wastewater collected and carry it through pipes to treatment plants where contaminants are removed. However, during heavy rain or significant snowmelt the wastewater may exceed the capacity of the sewer system or the treatment plant, creating a need to discharge the excess sewage into an adjacent stream or other water-

way. These are referred to as combined sewer overflows (CSO) and the pipes that carry the discharges are called “outfalls”. Systems are now designed to dramatically reduce the amount of overflow into our waterways by holding wastewater and stormwater in storage facilities until capacity is available at the treatment plant.

The Maline Creek Storage Facility Project

Maline Creek is a small tributary to the Mississippi River that lies on the northern edge of the City of St. Louis. The Maline Creek facility will be the second MSD Project Clear storage project to be constructed. The underground storage facility will reduce the volume of discharge into Maline Creek and, ultimately, the Mississippi River.

The Maline Creek storage facility will run from Chain of Rocks Drive to Church Road. In this project, there are two locations, just upstream of the confluence of the Mississippi River, where combined sewers may discharge into Maline Creek during significant wet weather. They are located near the intersection of Riverview Drive and Maline Creek. The Maline Creek project will divert the excess water and sewage to the storage facility during times of significant wet weather, and then a pump station will transfer the stored flow back to the system when the wet weather subsides. The flow will be treated at the Bissell Point Wastewater Treatment Plant.



MALINE CREEK STORAGE FACILITY PROJECT DESIGN

Construction Shaft - After extensive investigation, it has been determined that a single shaft will be needed to accommodate the facility's construction. The construction shaft (which will later serve as the location for the pump station to drain the storage facility) is located in the middle of the facility's alignment near N. Broadway and Riverview, and property acquisition will be required. Excavation of the soil and weak rock will likely be completed using common excavation equipment, such as backhoes. Upon reaching the rock surface, the remaining portion of the shaft will be excavated by drilling and blasting.

Storage Facility - The facility is expected to be excavated in two stages due to the height of the excavation. The upper



Typical Heading and Bench Excavation

portion of the storage facility, also known as the top heading, will be excavated and supported followed by the lower portion of the facility, known as the bench.

Pump Station - Since the pump station shaft will be used for access during construction of the storage facility, construction of the pump station itself will not be able to start until construction of the storage facility is completed. The pump station will be designed to drain the storage facility *within 24 hours!*

Diverting Overflows From the Existing CSO Outfalls - Three structures will divert excess wet weather flow into the facility without changing how the existing flood protection system works or increasing the risk of flooding. In addition, special attention has also been paid during design to limit how construction traffic impacts the adjacent neighborhoods.

- The Church Road structure is proposed to be in the median of Riverview Blvd. This structure will be underground with manhole access similar to an existing manhole that is currently in the median.
- The existing Riverview sewer near Chain of Rocks Drive runs under the pavement of Riverview Drive. The new structure is proposed to be placed on the parcel on the northwest corner of Riverview Drive and Chain of Rocks Drive. This will limit the interruptions to the flow of traffic.
- At the existing Maline Creek Drop Shaft on the east bank of Maline Creek, a new structure is proposed to be located adjacent to the existing drop shaft.

THE MALINE CREEK STORAGE FACILITY PROJECT BENEFITS

- Improves water quality and public health
- Captures combined sewer flow during rain events, preventing most overflows
- Stores combined sewer flow during rain events until there is capacity to treat it
- Minimal disturbance to neighboring properties
- No change to operation of floodwall

FACTS ABOUT THE STORAGE FACILITY

The proposed storage facility will run from Chain of Rocks Drive to Church Drive.

- **How deep is the facility?** 150 feet to 175 feet deep
- **How big is it?** 28 feet in diameter
- **How long?** 3,000 feet
- **What construction techniques will be used?** The facility will be drilled and blasted
- **What's the estimated construction cost?** \$81M

TIMELINE

The majority of the final design will take place in 2015. Construction is scheduled to begin in 2016.

Preliminary Design	Final Design	Construction
Mid 2013 to Late 2014 Approximately 16 months	Late 2014 to Late 2015 Approximately 13 months	Mid 2016 to Late 2020 Approximately 46 months



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