

# The Combined Sewer Overflow Project

## A History

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## How did this project come to be?

**Early 1900s:** When many of Lansing's combined sewers were constructed, there was no WWTP. The original purpose of the combined sewer was to get both the sanitary and storm flows to the river, which carried the flow away from the city.

As Lansing developed, it became necessary to move the discharge of sewage further downstream, away from the city center. This was achieved by installing "sanitary" interceptor sewers along the river. Wherever a combined sewer connected to an interceptor sewer, a CSO regulator was installed. The regulator routed dry weather flow to the interceptor sewer to be discharged downstream while excess wet weather flow overflowed to the river.

**Late 1930s:** The WWTP was constructed on Sunset Avenue to treat sewage before it entered the Grand River. However, the combined sewage was still discharged to the rivers upstream at the CSO regulator locations.

**Early 1950s:** The construction of combined sewers had ended, and was replaced by construction of separate sanitary and storm sewers (but we're talking 20 years of combined sewer construction, yikes!).

**Early 1980s:** Studies identified 108 overflow structures in the collection system including 62 in the combined sewer system, and 46 in the separate sewer/pump station system.

**1984 to 1989:** Approximately 4,150 acres of combined sewer area were separated and 22 CSO structures were eliminated. In addition, the known 42 separate sewer overflow points were eliminated with sewer system capacity improvements. The four pump stations with bypass structures were improved to deliver the flow to the WWTP without bypassing during wet weather events. This left 40 CSO regulators/diversions remaining in the 6,700-acre combined sewer system in the late 1980s.

**1987:** The [Michigan Department of Natural Resources and Environment](#) (MDNRE)\* issued a National Pollutant Discharge Elimination System (NPDES) Permit to the City of Lansing that required development of a long-term plan to eliminate the discharge of "raw" (untreated) sewage into the Grand and Red Cedar Rivers from the 40 remaining CSO locations.

This action was taken to enforce Michigan PA 245 of 1929, now PA 451 of 1994. Options to achieve this requirement included separating the CSO system or providing adequate treatment for all flows discharged to the rivers to comply with Water Quality Standards.

The State of Michigan has been a leader in pursuing the removal of CSO flow to surface waters of the state. EPA, under the [Clean Water Act](#), did not release its first requirements and policy on CSO controls until 1994. By having an approved long-term CSO Control plan in place with the DNRE prior to EPA rules, Lansing's plan was automatically accepted by EPA.

**April 30, 1991:** A study and plan for removal of the CSO flow of surface waters was submitted to the DNRE. The Project Plan submitted by the city recommended sewer separation as the most cost effective alternative and requested a 30-year time frame to complete the project (1991 - 2020). The DNRE approved the plan, including the 30-year implementation schedule, on April 1, 1992.

The implementation schedule for the project was incorporated into the 1992 NPDES Permit and subsequent permits issued in 1997 and 2002. It is anticipated that it will continue to be required with the re-issuance of the NPDES Permit in 2007.

**Since 1991:** the city has met all scheduled compliance dates in the NPDES Permit to complete the sewer separation project. As of 2010, the project has separated 67% of the area and reduced the number of CSO structures by 52%.

\*The Michigan Department of Natural Resources and Environment (MDRNE, formerly Department of Natural Resources and Department of Environmental Quality) plays a significant role in the CSO Control Program in Lansing and throughout the state. For more information on the DNRE, please visit their website at <http://www.michigan.gov/dnre>.

## **Now, what are we going to do?**

The 1991 Project Plan recommended separation of the combined sewers by providing two pipes, one sanitary sewer and one storm sewer, as the most cost effective option to achieving compliance with the requirements of the NPDES Permit. The primary method of separating would be to install a new sanitary sewer and keep the existing sewer, if structurally sound, as the storm sewer.

## **Is separation still the best way to go?**

Yes! This selected option is re-evaluated every five years of the 30-year program to confirm that it remains the most cost-effective and preferred solution as part of the Project Plan amendment. The most recent review, Lansing Combined Sewer Overflow Control Program Project Plan Amendment No. 3, was completed in June 2007. Along with independent consultant reviews performed in the late 90s, the final report continued to support separation as the best solution for the City of Lansing.

## **Three decades of separation action**

The City's CSO Control Project Plan looked closely at the cost and time to complete the work. A 30-year implementation plan was requested from the DNRE due to the following considerations:

- Cost to the system users to pay for the project
- The need for continued access through downtown Lansing and the major corridors

After lengthy negotiations with the DNRE, the city was granted a 30-year time frame, 1991 to 2020, to complete the project. Most communities were limited to a maximum of 15 years to complete their programs. Being proactive, cooperative and responsive to the DNRE during the process and negotiations, as well as being one of the first to take action to develop a long-term plan had a positive influence on the approved time frame to complete the project.