



PROJECT GROUNDWORK  
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# Kings Run Watershed Fact Sheet

The Metropolitan Sewer District of Greater Cincinnati (MSD) is seeking the input of residents, property owners, businesses, schools and other organizations in College Hill, Northside, Spring Grove Village, Winton Hills and Winton Place regarding potential major sewer improvements in these areas. This fact sheet provides an overview of the problem and potential solutions for making our rivers and streams cleaner and healthier.

## What's the Issue?

When it rains, raw sewage – mixed with stormwater – overflows from our sewers into local rivers and streams and can also back up into basements.

The vast majority of overflows occur from combined sewers, which carry both sewage and stormwater in the same pipe. Combined sewers are typically located in the older areas of Cincinnati and Hamilton County.

When large amounts of stormwater enter combined sewers, these pipes – many built more than 100 years ago – are often filled beyond their capacity. To relieve pressure on the sewer line and prevent widespread flooding and sewage backups, combined sewers were designed to overflow directly into local waterways through outfalls known as combined sewer overflows or CSOs.

Hamilton County is among the top five locations in the nation for urban CSOs. Overflows occur as many as 105 times a year at some locations.



**CSO 24, Ludlow Run Regulator, averages 318 million gallons of overflow a year, the highest of all the CSOs.**

## What's the Solution?

To resolve this public health and environmental issue, MSD has embarked on the largest public works project in the history of our community to rebuild and improve our sewer system.

Called **Project Groundwork**, this multi-year and multi-billion dollar initiative includes hundreds of sewer improvements and stormwater control projects.

Federal and state regulators, including the U.S. EPA, Ohio EPA and the Ohio River Valley Water Sanitation Commission (ORSANCO), have mandated that MSD capture, treat, or remove at least 85% of the 14 billion gallons of annual overflows from combined sewers and eliminate all overflows – about 100 million gallons annually – from sanitary only sewers.

## A Three-Pronged Approach

MSD seeks to reduce or eliminate sewage overflows by using three different strategies:

**Storage and conveyance:** constructing larger sewers to transport wastewater to treatment plants or large underground storage tunnels to capture excess wastewater.

**Product Control:** upgrading existing treatment plants to handle more wastewater or constructing enhanced high-rate treatment (EHRT) facilities to treat flows at the CSO outfall prior to discharge.

**Source control:** solutions that control the source of the overflow problem – stormwater. These solutions include controlling runoff from hillsides, removing streams from combined sewer system intakes, installing stormwater retention basins and using other controls such as pervious pavement or rainwater harvesting systems that prevent or delay stormwater from reaching combined sewers.

## Focusing on Lower Mill Creek Watershed

The Lower Mill Creek watershed, which drains into the Mill Creek, contributes more than 7 billion gallons or >50% of the total overflows that occur annually from combined sewers in Hamilton County.

Under Project Groundwork, MSD must eliminate 2 billion gallons of CSOs from this watershed by 2018. The Lower Mill Creek watershed includes numerous smaller watersheds, including Kings Run.

## Two Different Solutions

To achieve this goal, MSD is evaluating two different solutions to determine the best, most locally preferred solution to eliminate 1.6 million gallons of CSOs. Note: A reduction of 400 million gallons has already been achieved through other projects.

**Default Solution (Tunnel):** The regulator's default solution is a deep storage tunnel (about 30 feet in diameter and 1.2 miles long) beneath the Mill Creek. Excess flows would be captured and stored during rain events and then discharged to an enhanced high-rate treatment facility (EHRT).

**Alternative Solutions:** As part of the regulators' mandate, MSD has the opportunity to explore alternatives to the tunnel. One alternative is the use of sustainable infrastructure to control stormwater at the "source." These source control projects, such as separating combined sewers and installing stormwater retention basins, delay or prevent stormwater and natural drainage from reaching combined sewers, thus reducing overflows.

MSD must submit its preferred solution for reducing overflows in Lower Mill Creek to the regulators by December 2012.

## Kings Run Watershed in Lower Mill Creek

The Kings Run watershed is home to 20 CSOs, the most of any watershed in Lower Mill Creek. The watershed covers 6 square miles and includes portions of four Cincinnati neighborhoods: College Hill, Northside, Spring Grove Village and Winton Hills.

Every year, about 688 million gallons of combined sewage and stormwater overflow from the 20 CSOs into the Mill Creek or Kings Run tributary. Of that total, less than 25% is sewage — the rest comes from stormwater and what used to be natural stream flow.

### CSOs 483 and 217

Two of the highest volume CSOs — CSO 483 (223 million gallons) and CSO 217 (102 million gallons) — are linked. CSO 217 discharges into Kings Run, which is ultimately piped into the combined sewer system and contributes to overflows at CSO 483.

### CSO 24

CSO 24, Ludlow Run Regulator, has the highest average overflow volume with 318 million gallons/year. CSO 24 is located on the west bank of Mill Creek at the three-way intersection of Spring Grove Ave, Dooley Bypass, and Dane Ave. Complicating the solution at CSO 24 is the unique condition of six nested CSOs within CSO 24 sub-watershed. Listed from north to south within the sub-watershed, CSOs 151, 109, 110, 111, 112, and 162 all overflow into Ludlow Run stream, which then enters the combined sewer system and contributes greatly to overflows at CSO 483. While the nested CSOs represent relatively low overflow volumes, their control is critical to the mitigation and potential elimination of CSO 24.

## Source Control in Kings Run

MSD is currently evaluating the use of source controls in the Kings Run watershed to reduce or eliminate overflow from CSOs. Stormwater source controls in the watershed are anticipated to be more cost effective than larger sewers and other storage and conveyance solutions.

### CSO 24

In spring of 2009, MSD began evaluating a stream separation project that would divert natural stream flow and stormwater from CSO 24 and its six nested CSOs. The historic Ludlow Run stream is conveyed through a 10-foot diameter combined sewer over three quarters of a mile along Crawford Ave., overflowing into Mill Creek each time the capacity of the 18-inch underdrain is exceeded. The proposed project endeavors to eliminate the six nested CSOs during a typical year loading then separate Ludlow Run from the combined sewer system, thus restoring it as a tributary to Mill Creek rather than a CSO.

### CSOs 483 and 217

The proposed stream separation project would also evaluate improvements to CSO 217. Located immediately east of Winton Road, between Kings Run Drive and Dutch Colony Drive, CSO 217 overflows into Kings Run stream, which then enters the 14-foot by 8-foot combined sewer that flows to CSO 483. Focus would be on identifying opportunities to separate or slow stormwater runoff to reduce overflows at CSO 217.

MSD is exploring options to significantly reduce overflows and improve water quality while addressing some of the historical watershed issues observed by those most familiar with the area — the residents. The approach represents a holistic approach to tackling problems on a watershed basis. A key element of the CSO 217 project component would evaluate the former Gray Landfill in the context of the surrounding community.

## Your Input

MSD will be seeking your input on potential sewer improvements in the King's Run watershed. You will have opportunities to learn more, ask questions, and share your opinion or concerns.

Planning for the CSOs 483 and 217 and CSO 24 stream separation projects has been conducted, and large scale components of the overall concept have been identified. However, MSD continues to evaluate the project and solicit input on proposed solutions that will position the watershed for the next 100 years.

### Need More Information?

For more information contact:

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