The Metropolitan Sewer District of Greater Cincinnati (MSD) is evaluating ways to reduce or eliminate sewer overflows from combined sewers in the Kings Run watershed. This watershed overlaps the Cincinnati neighborhoods of College Hill, Northside, Spring Grove Village and Winton Hills and the jurisdiction of Springfield Township.

**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.

**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**

To reduce or eliminate sewer overflows, MSD is focusing on three different strategies:

- **Storage and conveyance:** Constructing larger sewers to transport wastewater to treatment plants, or large underground storage tunnels to capture excess wastewater

- **Treatment (product control):** Upgrading existing treatment plants to handle more wastewater, or constructing enhanced high-rate treatment facilities to treat flows at the CSO outfall prior to discharge

- **Source control:** Solutions that seek to control CSOs by reducing the amount of stormwater entering combined sewers during heavy rains. They also eliminate the need to convey and treat essentially “clean” water. These solutions are called “source control” because they control the source of the problem: stormwater.
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:

• The default solution — which uses a combination of “storage and conveyance” and “treatment” — is a deep storage tunnel (30 feet in diameter and 1.2 miles long). Excess flows are captured and stored during rain events and then discharged to an enhanced high rate treatment (EHRT) facility.

• Alternative solutions — which include “source control” projects — will help control stormwater in a number of sub-watersheds within Lower Mill Creek.

MSD must submit its preferred solution to the U.S. EPA by December 2012.

Ludlow Run Sub-Watershed

The Ludlow Run sub-watershed is part of the larger Kings Run Watershed. The sub-watershed overlaps the Cincinnati neighborhoods of College Hill, Northside, Spring Grove Village and Winton Hills.

The Ludlow Run sub-watershed was named after the Ludlow Run tributary, which transports natural drainage from forested hillsides and stormwater runoff from developed areas to the Mill Creek.

Seven CSO locations within the Ludlow Run sub-watershed contribute approximately 180 million gallons of combined sewer overflows annually to the Mill Creek. This sub-watershed is home to CSO 24 — the Ludlow Run Regulator — which has the second highest average overflow volume annually within the Kings Run Watershed.

CSO 24

CSO 24 is located on the west bank of the 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 the six nested CSOs within this sub-watershed. CSOs 151, 109, 110, 111, 112, and 162 (listed from north to south) all overflow into Ludlow Run stream, which then enters the combined sewer system, contributing to overflows at CSO 24. While the nested CSOs represent relatively low overflow volumes, their control is critical to the mitigation and potential elimination of CSO 24.

Alternative Solutions

in the Ludlow Run Sub-Watershed

MSD is evaluating alternative solutions in the Ludlow Run sub-watershed that would prevent overflows by keeping stormwater out of the combined sewers. This solution — known as “source control” because it controls the source of the overflow — is more cost effective than traditional solutions to reduce or eliminate overflows.

Source control solutions under consideration in the Ludlow Run sub-watershed include:

• Installing separate storm and sanitary sewers (to separate storm and sanitary flows and to minimize CSOs)
• Constructing wetlands in suitable locations to slow stormwater flows and to provide water quality benefits
• Constructing curb bump-outs in parking lanes as necessary to slow stormwater flows and to provide water quality benefits
• Installing permeable pavers in parking lanes as necessary to slow stormwater flows
• Constructing step pools in hilly areas to slow stormwater flows prior to entering Ludlow Run stream
• Evaluating restoration of Ludlow Run stream to reduce erosion and encourage habitat formation

The goals of a source control solution are to:

• Reduce the volume of CSOs in a typical year at a cost potentially less per gallon as compared to traditional CSO technologies
• Improve water quality
• Provide a potential community benefit

Under MSD’s Wet Weather Improvement Plan, the solution for the Kings Run watershed includes relief sewers, separation, regulator improvements, enhanced high-rate treatment (EHRT) and phase 2 of an underground storage tunnel.

Your Input

Any potential alternative solutions in the Kings Run watershed are in the early evaluation stages and will require approval by the Hamilton County Commissioners and U.S. EPA.

We welcome your voice in the decision-making process.

Need More Information?

For more information contact:

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February 2012