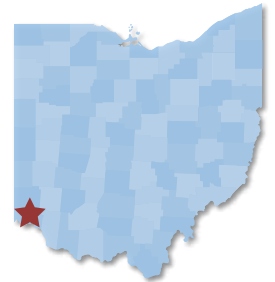


LICK RUN PROJECT Cincinnati, Hamilton County

Date Complete: Substantially complete by the end of 2018

Description: The Lick Run Project - part of the Lower Mill Creek Partial Remedy - will eliminate about 624 million gallons of overflows (CSOs) into the Mill Creek each year and improve water quality. The Lick Run watershed includes the Cincinnati neighborhoods of South Fairmount and portions of East Price Hill, West Price Hill, and Westwood. This watershed is located just northwest of downtown Cincinnati on the west side of Interstate 75.



Project Size: The Lick Run watershed covers about 2,900 acres on Cincinnati's west side. Natural drainage and stormwater from about 1,900 acres will be captured by this project. Site specific best management practices (BMPs) are being encouraged for the remaining 1,000 acres through City land development code changes including form-based code proposals.

Below: Overview of the Lick Run Project
(Conceptual Rendering by Human Nature, Inc., of Cincinnati, Ohio)



Project Details

Overview of the Lick Run Project

The Lick Run Project is comprised of 12 individual projects that will be constructed between 2012 and 2018. The central element is an urban waterway or Valley Conveyance System (VCS) in the heart of South Fairmount that will carry or convey stormwater and natural drainage to the Mill Creek. The other 11 projects will convey stormwater and natural drainage to the urban waterway.

The projects — described in detail in the map on the inside spread — include (in order of anticipated construction starts):

- Harrison Avenue, Phase A (completed)
- Rapid Run Park (under construction)
- Queen City Avenue, Phase A (under construction)
- Harrison Avenue, Phase B (construction start in spring 2014)
- Sunset Avenue, Sunset Lane and Rapid Run Pike (in design)
- Quebec Heights (in design)
- White Street (in design)
- Wyoming & Minion Avenues (in design)
- Queen City and Cora Avenues (in design)
- Queen City Avenue, Phase 2 (in design)
- Quebec Road (in design)
- Valley Conveyance System/Urban Waterway (in design)

The map also includes initiatives in the Lick Run watershed that are associated with (but separate from) the Lick Run Project, including MSD demonstration-type projects (Enabled Impact Program) to showcase green/sustainable ways to manage stormwater and a City of Cincinnati Stormwater Management Utility (SMU) project to reduce street flooding along Guerley Road.

Urban Waterway in South Fairmount

The VCS or urban waterway (see preliminary base plan below) will be located in South Fairmount between Queen City and Westwood avenues from Old Queen City Avenue to the Mill Creek. This area is a gateway to the west side of Cincinnati from I-75 and downtown Cincinnati.

The urban waterway will include an aboveground meandering stream channel with natural stone, pools and riffles and a riparian edge planted with native plants and trees. An underground box conduit system will be constructed to help prevent flooding. The urban waterway will also include wetlands and bioswale/rain gardens and a multi-purpose trail for walking/biking opportunities along the channel.

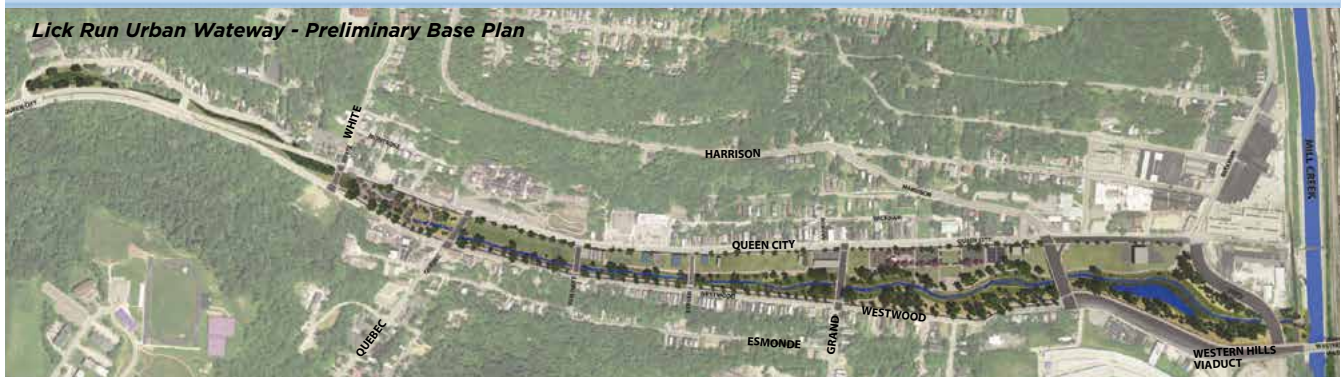
MSD solicited extensive public input on the urban waterway in 2011 and 2012. The project is currently in design with construction to begin in spring 2016.

This project is anticipated to provide opportunities for neighborhood revitalization in South Fairmount focused around the natural water feature.



Conceptual rendering

Conceptual rendering by Human Nature, Inc., of Cincinnati, Ohio



Lick Run Urban Waterway - Preliminary Base Plan

For more information:

Visit www.projectgroundwork.org/lickrun or

Contact MSD Engineering Customer Service at (513) 557-3594 or MSD.Communications@cincinnati-oh.gov



Lick Run Project

The Lick Run Project – part of the Metropolitan Sewer District of Greater Cincinnati’s (MSD) solution for Lower Mill Creek – will eliminate about 624 million gallons of combined sewer overflows (CSOs) into the Mill Creek each year. The project will also improve water quality, create new jobs, and provide opportunities for neighborhood revitalization.

Challenge in Lower Mill Creek

During rains, our combined sewer system can overflow into streams and rivers, making Cincinnati among the top five communities in the U.S. for combined sewer overflows (CSOs).

MSD is under a federal Consent Decree to reduce the overflows and has implemented a major public works initiative called “Project Groundwork” to achieve compliance and bring value to the community through this significant investment.

More than half of our 11 billion gallons in annual overflows occur in the Lower Mill Creek watershed, which covers 40,000 acres in the heart of Cincinnati.

As a result, MSD is implementing a near-term solution called the “Lower Mill Creek Partial Remedy (LMCPR)” that seeks to significantly reduce the overflows by 2018. Additional solutions will be implemented after 2018.

Lower Mill Creek Solution

MSD’s Lower Mill Creek solution – which was officially approved by the U.S. EPA in May 2013 – will eliminate 1.78 billion gallons of CSOs annually into the Mill Creek.

The remedy seeks to reduce CSOs by primarily focusing on reducing the amount of stormwater entering combined sewers during heavy rains.

This approach integrates green infrastructure (e.g., stream restoration, wetlands, bioswales, raingardens and stormwater detention basins) with gray (e.g., new storm sewers) to provide cost-effective solutions with community benefits.

The remedy includes projects in the Lick Run, Kings Run, Bloody Run, and West Fork watersheds. Overall project costs are estimated at \$244 million (in 2006 dollars).

Lick Run Watershed

The Lick Run watershed covers about 2,900 acres on Cincinnati’s west side. It includes Cincinnati’s South Fairmount neighborhood and portions of East and West Price Hill and Westwood.

Every year, about one billion gallons of sewage and stormwater overflow from the Lick Run watershed through the CSO 5 outfall into the Mill Creek. CSO 5 is the largest volume CSO in MSD’s service area.

The Lick Run Project will eliminate about 624 million gallons of CSOs annually. This project will keep stormwater out of the combined sewer system through a series of gray and green infrastructure projects across the watershed.



Design Consultant:

There are multiple design consultants involved with this project, as there are numerous separate projects. The team of Strand Associates (engineering firm) and Human Nature (landscape architectural design firm) are the design consultants for the urban waterway (see Key Features).

Project Background:

In a typical year, about a billion gallons of sewage - mixed with stormwater - overflow from the Lick Run watershed through Combined Sewer Overflow (CSO) # 5 (overflow structure) into the Mill Creek, a tributary of the Ohio River. CSO 5 is the largest CSO discharger in MSD's service area. The Lick Run project will use sustainable infrastructure solutions to eliminate about 624 million gallons of overflows during a typical year.

Status of Project:

The Lick Run project is comprised of 12 separate sewer infrastructure projects that include new underground storm sewers, stormwater detention basins and other water quality features, and creation of an urban waterway or hybrid stormwater valley conveyance system comprised of open channel and underground box conduit (to convey stormwater and natural drainage that was enclosed in the combined sewer system).

All projects are in various stages of design with some scheduled to start construction later in 2013. Construction of the urban waterway is anticipated to start in 2016. All construction must be completed by 2018.

Who is paying for the project?

Planning, design and construction of the Lick Run project is being primarily funded by MSD's ratepayers. MSD is seeking federal and state grants wherever possible to assist with the project.

Key features:

The Lick Run project includes a series of green and gray infrastructure projects across the watershed that will reduce the volume of stormwater entering the combined sewer system.

The central element of the Lick Run project is an urban waterway (also known as the valley conveyance system) that will run through the middle of the Lick Run valley located between Queen City and Westwood avenues east of White Street in South Fairmount. This area is a gateway to the west side of Cincinnati from I-75 and downtown Cincinnati. It covers about 50 acres along a 1.5-mile stretch.



Above: Looking south toward Westwood Avenue. This image depicts the character of the proposed urban waterway at the water quality feature. (Conceptual Rendering by Human Nature, Inc., of Cincinnati, Ohio)

Stormwater and natural drainage will be conveyed to the urban waterway which will discharge directly into the Mill Creek.

The urban waterway will include an aboveground, meandering channel with natural stone, pools and riffles, and a riparian edge planted with native plants and trees with an underground box conduit system to convey the larger storm events. The waterway will also include wetlands and bioswale/rain garden areas.



Above: Looking northwest from Westwood Avenue toward Queen City Avenue. This image depicts the daylighting of stormwater into the proposed urban waterway (valley conveyance system). The proposed urban waterway will contain water quality features (limestone rock) and a well-vegetated riparian edge. Rain gardens will help to intercept storm water from Queen City Avenue and direct it to the waterway. (Conceptual Rendering by Human Nature, Inc., of Cincinnati, Ohio)

Cost to build/execute project:

The entire Lick Run project is estimated to cost about \$193 million (in 2006 dollars) to design and construct.

Cost to maintain:

Operation and maintenance costs are estimated at \$459,238 annually (in 2006 dollars).

Funding sources/incentives:

The Lick Run project is primarily being funded by MSD ratepayers. MSD has also received grant funding from the U.S. EPA, Ohio EPA, and HUD for planning and brownfield assessment/mitigation.

Built/Developed under any zoning regulations:

Form-based code may be incorporated into the urban waterway project, as part of the City's land development code changes.

Community Engagement:

Community engagement is critical to the success of the Lick Run project. MSD engaged the community in a two-year planning process that culminated in a Lick Run Master Plan which included a preliminary design for the urban waterway. MSD continues to interact with the community through public meetings, a dedicated website and customer service.



Above: Community design workshop on the Lick Run project. MSD hosted three design workshops in 2011 and 2012.

Additional comments:

The Lick Run project was approved by the U.S. EPA in May 2013 as part of MSD's Lower Mill Creek Partial Remedy. For more details, please visit www.projectgroundwork.org/lickrun and www.projectgroundwork.org/lowermillcreek.

