Cincinnati
What is MSDGC?

- Publicly Owned/Operated Wastewater Utility Serving Southwest Ohio (Hamilton County)
- Serves a Population of about 855,000 in Hamilton County and under contract parts of Butler, Clermont and Warren Counties
- 230,000 Residential and 250 Industrial Users
- Operates 7 Wastewater Treatment Plants; treating 70 Billion Gallons/Year
How Great is MSD’s Environmental Challenge?

41 inches (annual rainfall) = 180 billion gallons (runoff)
25 billion gallons + 75 billion gallons (sanitary flow) = 155 billion gallons

14 billion gallons (overflow)

Must achieve 85% control

MSD is among the Top 5 CSO dischargers in the US
What Must We Do?

772 cities in the United States with a combined sewer system - Cincinnati in top 5

2004 entered into a Global Consent Decree

2010 Federal court approved the Wet Weather Improvement Plan - estimated cost = $3.2 billion

Phase 1 = Must reduce CSOs in Lower Mill Creek by 1.78 by 2018.

212 Combined Sewer Overflow (CSO) Locations
78 Sanitary Sewer Overflows (SSOs) Locations
What if...
•... it could be a strategic investment?
•... it could be a catalyst for community transformation?
•... it could be a regional model for a new watershed-based approach to community planning?
•... if it could be a national model for green infrastructure planning/design?
•... it could involve the community and many public and private partners?
•... it did more than improve stormwater management and reduce combined sewer overflows?
  »... it created a network of community assets that attracted new interest and investment?
  »... if it left behind open spaces, enhanced streetscapes and opportunities for green buildings? ... if it served as a model for a sustainable 21st century community?
Federal Mandate – Cincinnati Consent Order Elements

Flexible

Wet Weather Strategy
- Source Control
- Conveyance & Storage
- Product Control

Phased Approach
- Phase 1: 2009 – 2019
- Phase 2: Schedule to be submitted by 2017

Affordable

Controlled Spending
- Phase 1: $1.145B
- Credit for $300M
- Phase 2: Est. $2 Billion +

Strategic
PROJECT GROUNDWORK
in Your Community

Protecting the Environment
Partnering with our Communities
Revitalizing the Economy
Designing Innovative Solutions

Project Groundwork is your program. It’s an investment in your community for generations to come.
Redo the Math...

+ 1 Federally Mandated CSO Volume Reduction

+ $3B+ investment by rate Payers in new infrastructure

X Private Participation, Boost to Local Economy, Community Revitalization

= Sustainable Utility & Livable Community
Current Conditions in the Community

The Cincinnati Enquirer
Property value at a substantial decline

Leverage MSD’s Investment

Expand & improve parks and greenspaces
Opportunities for improved mixed use and affordable housing
Incentives for business retention or redevelopment

Metropolitan Sewer District
Investment to reduce sewer overflows and meet federal mandates

Community’s Vision for the Future

economics
sustainability
infill
smart growth
jobs
bike trails
recreational opportunities
better
education
community gardens

quality place
community assets
active recreation areas
parks
What a Sustainable Solution Accomplishes

Developing a solution that brings our historical water wealth normally below ground to the surface to create a benefit the community can see.

✓ Complies with USEPA requirements
✓ Provides lowest cost solution
✓ Utilizes stormwater as a community resource
✓ Creates new class of green jobs
✓ Improves water quality
✓ Offers potential to leverage private side actions
The “default” solution specified in MSD’s Consent Decree is an underground storage tunnel.

$500+ million
Estimated cost
(in 2006 dollars)
The “alternative” solution is less costly & has more benefits

Sustainable Alternative
1.78 BG Reduction by 2018
$244M
Lick Run Sustainable Watershed Community Revitalization

• Opportunity to Integrate and Link:
  • **Large Scale** Sustainable Infrastructure Solution within one of our Largest CSO basins to **remove rain water** from entering the CSS
  • Investments in areas plagued with **Systemic Disinvestment** - foreclosure, property abandonment and vacancy, high crime, low education attainment
  • **Public Private Partnership** for Economic Development and Job Creation
Lick Run Watershed
Regional Location and Connections

I-75 corridor, Metro lines, rail corridors, Mill Creek
Within 2 mile radius of 2 major job centers: Downtown and University/Hospitals
Economy: Foreclosed Properties

Parcel Data Source: Hamilton County Auditor
Lick Run Project

1. Harrison Avenue, Phase A
   New stormwater sewers along Harrison Avenue. Coordinated with Cincinnati Department of Transportation & Engineering (CDOT&E) road work. Completed in Fall 2013. Will include a curb-side bumpout planter at Tremont by spring 2014.

2. Rapid Run Park
   Bioswale parallel to Rapid Run Pike, two small bioretention basins and new stormwater sewers. MSD partnering with Cincinnati Park Board. Under Construction: Fall 2013 to Fall 2014.

3. Queen City Avenue, Phase 1
   New stormwater sewers along Queen City Avenue from the Bypass to Sunset Avenue and along Tille/Champlain. Under Construction: Fall 2013 to Fall 2014.

4. Harrison Avenue, Phase B
   New stormwater sewers along Harrison Avenue and Hoeflering Avenue near the Western Hills Viaduct. Construction: Spring 2014 to Fall 2014.

5. Wyoming & Minion Avenues

6. Sunset Avenue
   New stormwater sewers along Sunset Avenue, Sunset Lane, Guerley Road and Rapid Run Pike. Construction: Fall 2014 - Winter 2015.

7. White Street
   New stormwater sewers along White Street and multiple adjacent streets. Construction: Fall 2014 - Fall 2015.

8. Queen City and Cora Avenues
   Restoration of an historical stream in Glenway Woods that was enclosed in a combined sewer. Closure of inlets and stream channel stabilization. New storm sewers along Fenton Avenue and at bottom of ravine. Improvements to three low-lying areas to hold stormwater. Construction: Fall 2014 - Fall 2015.

9. Quebec Heights
   Restoration of an historical stream in Glenway Woods that was enclosed in a combined sewer. Closure of inlets and stream channel stabilization. Improvements to one low-lying area to hold stormwater. Partnering with Cincinnati Parks. Construction: Fall 2014 - Fall 2015.

10. Queen City Avenue, Phase 2
    New stormwater sewers along Queen City Avenue from Sunset to apartment complex off East Tower Drive. Construction: Winter (Feb.) 2015 - Summer 2016.

11. Quebec Road
    New stormwater sewers along Quebec Road and side streets. Construction: Fall 2015 - Fall 2016.

12. Guerley Road Detention Dam
    Large stormwater detention dam off Guerley Road. This project will help reduce street flooding and CSOs. Construction: Fall 2013 - Summer 2014.

13. Valley Conveyance System (VCS)
    Stormwater conveyance system with a naturalized waterway and underground conveyance box. Construction: Spring 2016 - Fall 2018. See back page for more details.

Early Success Projects

A. San Antonio Church
   Permeable pavers and four small biofiltration basins (rain gardens) were installed in 2011.

B. St. Francis Court Apartments
   Two unused parking lots were converted to biofiltration basins (rain gardens) in 2010.

C. Immune United Church
   A biofiltration basin (rain garden) was installed in 2010.

D. Roberts Academy
   Retrofit of an existing stormwater detention basin. Partially funded by an Ohio EPA grant. Construction to begin Fall 2014.
These preliminary design concepts for a proposed urban waterway in South Fairmount (Cincinnati, Ohio) were developed by the Metropolitan Sewer District of Greater Cincinnati (MSDC) with input from the community and public/private partners. The concepts were presented for public review at the Lick Run Community Design Workshop #3 on February 23, 2012 in Cincinnati as part of a preliminary Lick Run Master Plan. They will undergo additional refinement prior to integration into a final plan. The U.S. EPA has final approval over implementation of this project.

**URBAN WATERWAY CHARACTER & ECOLOGY**

**WETLAND FOREST HABITAT**
- Rich in plant and animal species
- Sample plant species, nesting, waterfowl, water birds, and cattails

**ENVIRONMENTAL EDUCATION**
- Interpretive signage and elements
- Visual access to a variety of habitats
- Water quality monitoring stations
- Places to sit and gather

**FUTURE SUSTAINABLE URBAN DESIGN**
- Available connections to waterways systems
- Natural areas, such as wetlands, natural features, and trees

**IN-STREAM WATER QUALITY FEATURES**
- Intact forest, riparian, and aquatic habitats
- Natural stream sections
- Intact riparian forest

**NATIVE MEADOW HABITAT**
- Native plant species, providing habitat
- Natural meadow and wildlife

**NATIVE RIPARIAN HABITAT**
- Plant diversity and composition
- Natural stream sections

**DESIGNED WATERWAY**
- Meandering stream sections
- Native plant species

**STRUCTURED WATERWAY**
- Natural stream sections
- Native plant species

**CHANNELIZED WATERWAY**
- Natural stream sections
- Native plant species

**STREAM IN STORM SEWER**
- Natural stream sections
- Native plant species

**COMBINED SEWER**
- Natural stream sections
- Native plant species

**EXISTING CONDITIONS**
- Natural stream sections
- Native plant species

**Spectrum of Waterway Character**

1. Natural Stream
2. Enhanced Waterway
3. Designed Waterway
4. Structured Waterway
5. Channelized Waterway
6. Stream in Storm Sewer
7. Combined Sewer

Natural → Piped
The Innovative Solution

Narrow Channel Zone

Looking south towards Westwood Avenue
Project Groundwork: Timeline

Project Groundwork will be conducted in two phases: Phase 1 (2009-2018) and Phase 2 (after 2018). Phase 1 requires sewer improvement projects that must be completed by or before 2018.

This phase also mandates the elimination of 2 billion gallons of CSOs in the Lower Mill Creek area, called the Lower Mill Creek Partial Remedy (LMCPR).

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

Phase I of Project Groundwork is estimated to cost about $1.145 billion (in 2006 dollars). This program is funded mainly by MSD customers, through monthly or quarterly sewer bills, but MSD is seeking additional funding sources. MSD is committed to finding sustainable solutions that are cost-effective.
# Funding & Partnership Framework Tool

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**Examples of Partner Agencies (Public, Local):**
- Hamilton County Regional Planning & Development
- Cincinnati Park Board
- Department of Transportation & Engineering
- Community Development

**Examples of Potential, Alternative Funding Sources:**
- EPA 319 Grant (Potential Federal, Public Funding Source)
- WRRSP (Potential State, Public Funding Source)
- Clean Ohio (Potential State, Public Funding Source)
- Cincinnati Foundation
- Other Interested Private Foundations?
Private Funding Needs

Opportunity for Private investment for Co-Benefit Solutions identified by Community Design Workshops:
- Integrated Green Infrastructure solutions
- Walkable Community Features
- Community Revitalization
- Historic Preservation

Civic Recreation Hub

Preliminary, planning-level cost estimates for relocating buildings:
$1,000,000 - $2,000,000
How could MSD’s investment support future public/private investments?

**Neighborhood District Concept:** groundwork for **Form Based Codes**

- **Base investment by MSD for CSO reduction**
- **On-site** capture of stormwater flows
- **Incentivize** Private investment as redevelopment occurs
Value Creation: Market Analysis of Sustainable Infrastructure Investment
Value Creation: Market Analysis of Sustainable Infrastructure Investment

“Private Side Action”
Nearly 900 FTE construction jobs to build sustainable infrastructure projects in the Lower Mill Creek by 2018 to comply with Consent Decree.

*predicted; generated by the Lower Mill Creek Study for identified watersheds.
Inclusion for Community Benefits

Significant Increase in SBE Participation

2011 Actual Performance
$25.9 M

2012 Actual Performance
$22.8M

Local Hire Opportunities

MSD Policy:
Places disadvantaged & local residents into employment opportunities on MSD/GCWW funded projects.

OSHA 10 Training Sessions

2009 – 2011 SBE SPEND
GREATER CINCINNATI WATER WORKS
A GLOBAL LEADER IN WATER TECHNOLOGY
• Municipally owned and operated utility since purchased by the City of Cincinnati in 1839.
• 48 billion gallons of water a year
• 3,000 miles of water mains
• 235,000 residential and commercial accounts.
• Greater Cincinnati Water Works water meets or exceeds all state and federal health standards.
GCWW Service Area

Greater Cincinnati Water Works (GCWW) provides a plentiful supply of the highest quality drinking water to more than 1.1 million people in parts of Hamilton, Butler, Warren and Clermont Counties in Ohio and Boone County, Kentucky.
• Rapid sand filtration plant first opened in 1907- second in US
• EPA put its primary water research program in Cincinnati.
• In the 1970’s the EPA and the GCWW teamed up to research granular activated carbon or GAC.
• In 1992, the Greater Cincinnati Water Works was the first utility in the nation to use GAC and then purify the carbon on-site.
• GCWW was the first and only utility to test the EPA's water security plan.
• The **new ultraviolet treatment building**, a $30 million project came online in October 2013.
Thank You

www.projectgroundwork.org