Linking Land Use and the Economy

January 11, 2013

355 square miles

Northeast Ohio Regional Sewer District

November 16, 2012
Who We Are…

• Created in 1972 by Court Order

• Servicing all or part of 62 member communities

• 1 million customers

• 90+ billion gallons wastewater treated each year

...And What We Do

• Wastewater Treatment Plants

• Interceptor Sewer Operation and Maintenance

• Combined Sewer Overflow Control

• Regional Stormwater Management
The Sewer District: COMBINED SEWER OVERFLOW CONTROL

Project Clean Lake

Combined Sewer Area

Lake Erie
Combined Sewer Area

- 126 CSO Locations Throughout Combined Sewer Area

- 18,000 feet long, 24' inside diameter, segmentally lined rock tunnel, 200' deep
- Herrenknecht TBM
- Includes consolidation and relief sewers along with associated structures
- Schedule: April 2011 - April 2015
- $198 Million

- Cavern style pump station, 240 feet deep, 160 MGD firm capacity
- Sized to empty tunnel system in 24 hours
- Remotely operated from Easterly WWTP
- Schedule: January 2012 - December 2015
- $70 Million

Seven CSO Tunnel Systems – 21 total miles – 17 to 24 feet wide – 100 to 200 feet underground

Schedule: January 2012 - December 2015

25 yrs $3B

Project Clean Lake projects
Components of the Long-Term Control Plan

Improve the Collections System

- Increase the Size of Current Treatment & Disinfection
- Storage Tanks
- Plate Filtration Equalization

Optimize the Existing Sewer System

- Regulator Modifications
- In-Line Storage
- Relief Sewers
- Separation

TYPICAL YEAR CSO REDUCTION
4,037 Mg

LEVEL OF CONTROL
98%

Stove/Convey for Treatment

26'
23'
21'
20'
18'
17'
**Assessment of Benefits**

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**COST-BENEFIT**
- **GRAY**: 4,018 MGD → $0.75
  - 19 MG → $2.79
- **GREEN**: 44 MG → $2.10

**LIFE CYCLE COSTS**
- **GRAY**: Capital Costs, Operations & Maintenance Costs, Stormwater Costs
- **GREEN**: Capital Costs, Operations & Maintenance Costs, Stormwater Costs

**CO-BENEFITS**
- **GRAY**: Energy Savings, Air Quality, Stormwater Management
- **GREEN**: Energy Savings, Air Quality, Stormwater Management

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**Examples of Co-Benefits from Green Infrastructure**

- **282 MG**
  - Annual Stormwater Mitigation
  - Earned $3.82 million

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NEORSD Green Infrastructure: Stormwater Management as Economic Development

Kinsman between E. 79th & E. 84th in 1952
Urban Agricultural Innovation Zone - Vacancy

Urban Agricultural Innovation Zone – NEORSD GI Plan
Urban Agricultural Innovation Zone – Clean Up Under Way in 2012

Courtyard by Marriott in University Circle - No stormwater runoff from this site through the 100-yr storm
Keeping our Great Lake great.
How hotel drainage works to protect Doan Brook and Lake Erie

The Courtyard by Marriott and its parking lot were designed to protect our local waterways by reducing the amount of water entering the sewer system. How does that work? The Northeast Ohio Regional Sewer District explains it this way.

Flooding, erosion, and water quality

The Sewer District: REGIONAL STORMWATER MANAGEMENT

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Northeast Ohio Regional Sewer District November 16, 2012
What we do

• Wastewater Treatment Plants
• Interceptor Sewer Operation and Maintenance
• Combined Sewer Overflow Control
• Regional Stormwater Management & new Stormwater Fee based on impervious surface

Impervious Surfaces
Stormwater: Quantity Problems

Middleburg Heights/Brook Park, Ohio along Abrams Creek

Streambank erosion on Mill Creek threatens Warner Road in Garfield Heights, Ohio
Regional Stormwater Management Program

- Estimated revenue of $38M/year from new impervious surface fee
  - Inspection and Maintenance
  - Construction
  - Partner support

- Stormwater Fee Credits recognize on-site Stormwater Control Measures
  - Quantity Credit
  - Quality Credit
  - Education Credit
  - Individual Residential Credit

Regional Stormwater System = Channels and pipes draining 300 acres or more. Approximately 400 miles.
Stream Restoration and Land Preservation

- Ohio EPA’s Water Resource Restoration Sponsor Program (WRRSP)
  - 22 projects from 2004 to 2012
  - $31 million available through NEORSD participation

- Benefits to Regional Stormwater System
  - Stormwater management
  - Stream bank stabilization
  - Aquatic habitat improvement & preservation
Northeast Ohio Regional Sewer District

November 16, 2012

Water Resource Restoration Sponsor Program (WRRSP) projects

• Restoration of 10 acres of valuable floodplain at the confluence of West Creek and the lower Cuyahoga River

Pre-Site conditions
– Three buildings occupy the property
– 850 ft of straightened West Creek channel

Stream Restoration: Pre-restoration flooding

West Creek Confluence
Water Resource Restoration Sponsor Program (WRRSP) projects

Tinkers Creek Wetland
Water Resource Restoration Sponsor Program (WRRSP) projects

Upper Cuyahoga Bog
WRRSP by the numbers

$31 million
facilitated since 2005

WRRSP by the numbers

2,500 acres
of preserved property, including 600 acres of high quality wetland
WRRSP by the numbers

7 dams removed

WRRSP by the numbers

12 miles of protected streams
WRRSP by the numbers

21,000 feet
of restored streams

For more information

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