NEORSD & Integrated Planning: Protecting Public Health and Environment in Northeast Ohio

Kyle Dreyfuss-Wells, Chief Executive Officer
At a glance

- Political subdivision of the State of Ohio
- Created by Court Order in 1972
- Separate and distinct from the City of Cleveland and Cuyahoga County
At a glance

- 355 sq. mile service area
- Sanitary and regional stormwater services
- Serving Cleveland and 61 communities
At a glance

- Own, operate 3 wastewater treatment plants
- 1 million residents / 330,000 accounts
- 90+ billion gallons treated annually
- 330 miles of sewers
- 476 miles of regional stormwater system
Challenges & Opportunities

- Cut Lake Erie pollution by 4 billion gallons
- Assist local governments to address Clean Water Act issues beyond combined sewer overflows
- Provide regional stormwater management
- Operate in a region with declining population and increasing local taxes/fees
Programs & Progress

- 3 plants
- 90 billion gal/yr
- Certified lab
- $3 billion, 25 years
- CSO control
- Sewer fees
- $41 million annually
- Flooding & erosion
- Impervious surface fee
**Programs & Progress**

- 3 plants
- 90 billion gal/yr
- Certified lab
- $3 billion, 25 years
- CSO control
- Sewer fees
- $41 million annually
- Flooding & erosion
- Impervious surface fee
Project Clean Lake: Focus on Reducing CSO Activations

Billion Gallons of CSO in a Typical Year

- Baseline (1970s)
  - 0 to 80 Overflows
  - 82% Capture

- CD Entry (2011)
  - 0 to 4 Overflows
  - 98% Capture

- Target (2036)
Project Clean Lake: Status

• 34 Active Projects: 4 of the 7 deep tunnels
• 22 Completed Projects: Including Euclid Creek Tunnel
• 24 Future Projects
• $1.2 B (2009$) spent/awarded

• Sewer Rate Increases
  • 2011 – 2016: 13% annually
  • 2017 – 2021: 8.3% annually
Project Clean Lake Progress

2 billion gallons of CSO reduction by 2022

NEORSD Rates Approved

Millions of Gallons of CSO (per typical year)
Rates & Affordability

• Typical customer:
  – $65/month for sewer
  – $1200/year water & sewer

• Cost saving programs to help customers in need
Budget & Rates

• Anticipate 8% annual rate increases 2022 to 2027
• $1.6 billion in debt with debt service of $96 million annually
• 2019 Budgets
  – $141 million operating
  – $300 million capital

Typical monthly bills based on consumption of 0.625 MCF per month for the typical customer plus fixed fee.
9 Years In: NEORSD Lessons Learned

• Finding Better Solutions
  • New, more accurate information
  • Advancing projects from planning into design
  • Good project management

• Consent Decree Static Vehicle: Makes “better” difficult

• Project Clean Lake will not Solve Region’s Water Quality Problems
  • Remaining water quality and public health issues
330 miles
Total length of District-owned sewers and interceptors

3,551 miles
Total length of locally-owned sanitary sewers
Evaluation of the Region: Changing Conversation

- 2002: CSO Phase 2 Facilities Plan
- 2000s: Interceptor Operational Evaluation Studies
- 2011: Entered CSO Consent Decree
- 2012: USEPA Integrated Planning Framework
- 2016: CSO Advanced Facilities Planning Project
- 2017: Combined Sewer Area & Mill Creek Interceptor SSES
- 2017: Heights Hilltop Interceptor SSES
- 2018: Southwest Interceptor SSES
- 2018: Cuyahoga Valley Interceptor SSES
**WQ Impacts: Failing Septic Systems**

- Raw Sewage
What is I & I

I & I stands for Inflow and Infiltration

**Inflow** is the flow of stormwater into the sanitary sewer system through connections like roof drains, foundation drains, and basement sump pumps.

**Infiltration** is groundwater seeping into sewer pipes, including private sewer laterals, through cracks and broken pipe joints.
Public Health Impacts: Basement Flooding

Photo Credit: Carolina Hidalgo, St. Louis Public Radio
WQ Impacts: Common Trench Sewers

Dual Manhole Sewers

Over-Under Sewers

Dividing Wall Manhole
Sewer System Types: NEORSD Service Area
District-Wide: *E. coli* Loading

- **Pre-CD**
- **Post-Modified CD**

- Common Trench
- Separate Trench
- Basement Flooding
- SSO
- Illicit Discharge
- Septic Systems
- CSO
NEORSD Investment Program

Target $100 million of Consent Decree savings on addressing local Clean Water Act problems

• Address *water quality* and *public health* issues

• Fund for *infrastructure* projects through a matching *grant* program

• *Prioritize* projects based on:
  • Benefits to water quality
  • Benefits to public health
  • Location in environmental justice community
Projects:

- Right size sewers to eliminate basement backups and SSOs
- Construct new sewers to replace failing septic systems
- Rehabilitate aging sewers to reduce I&I
- Remove improper connections to eliminate illicit discharges

Benefits: Projects can reduce...

- Human exposure to untreated sewage
- Impacts to personal property
- Risk of basement backups
- Discharge of untreated sewage
2017 Pilot Program

- Berea - $735K
  - Basement Flooding

- Cleveland - $1M
  - 54 HSTs
  - Basement Flooding

- Parma - $250K
  - 49 HSTs

- Parma - $340K
  - 54 HSTs

- Olmsted Twp - $500K
  - 53 HSTs

- Olmsted Falls - $600K
  - 225 HSTs

- Strongsville - $617K
  - 94 HSTs

- Seven Hills - $1M
  - 300 HSTs

- South Euclid - $300K
  - Basement Flooding

- Garfield Hts - $717K
  - Basement Flooding

- Newburgh Hts - $400K
  - Sewer Separation

- Lyndhurst - $250K
  - I/I

- Lyndhurst - $250K
  - I/I

- Newburgh Hts - $400K
  - Sewer Separation

- Seven Hills - $1M
  - 300 HSTs
2018 Pilot Program

- **Shaker Hts**: $400K
- **Parma**: $160K (HSTs)
- **Garfield Hts**: $1M (Basement Flooding)
- **Newburgh Hts**: $178K (Sewer Separation)
- **Maple Hts**: $154K (Basement Flooding)
- **Seven Hills**: $400K (Basement Flooding)
- **Parma Hts**: $1M (Basement Flooding)
- **Richfield**: $892K (HSTs)
- **Middleburg Hts**: $245K (Basement Flooding)
- **University Hts**: $43K (SSOs)
- **Mayfield Village**: $750K (HSTs)
- **Pepper Pike**: $838K (HSTs)
- **Pepper Pike**: $85K (Basement Flooding)
- **Beachwood**: $547K (Basement Flooding)
- **Lyndhurst**: $182K (I/I)
- **Cleveland**: $5.5M (Basement Flooding)
- **Highland Hts**: $354K (I/I)
- **Richfield**: $892K (HSTs)
- **Macedonia**: $334K (HSTs)
Example: Garfield Heights

- Problem:
  - Common Trench - Over/Under
    - Undersized Storm Sewer
    - Collapsing sanitary
    - Significant I/I
    - 56 improperly connected homes
  - Community Impact
    - 149 Homes
    - 6 Businesses

- Solution:
  - Separate and Replace sanitary and storm sewers
Sewer System Evaluation Studies: $40M Investment

- **Billion Gallons of CSO in a Typical Year**
  - 0 to 80 Overflows 82% Capture
  - 0 to 4 Overflows
  - 98% Capture
  - Protects designated uses

CD Modification & Integrated Planning: Better use of ratepayer $$ for Water Quality and Public Health
NEORSD Lessons Learned on IP

Engineering takes a minute – planning, design, construct. Learn as go. Need flexibility.

Existing decree makes Integration difficult.

Shared responsibilities of the region’s sewer infrastructure adds challenges.

Important to stay focused on ratepayer – same customers, same receiving waters, same watersheds.