

Cleveland Heights IOCMP Webinar

April 21, 2021

IOCMP - Integrated Overflow Control Master Plan



McMahon
DeGulis^{llp}



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VEATCH

Agenda

- Overview – Lou McMahon
- IOCMP Technical Overview – Kevin Vander Tuig
- Financial Capability Assessment – Pamela Lemoine
- Next steps
 - Public input - April
 - City Council Approval of IOCMP - May
 - Deadline for submission of IOCMP - June 1, 2021
 - Discussion with EPA and Implementation



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Acronyms Used

- USEPA – United States Environmental Protection Agency
- CD – Consent Decree
- IOCMP – Integrated Overflow Control Master Plan
- CMOM - Capacity, Monitoring, Operations and Maintenance
- SSES – Sewer System Evaluation Survey or Study
- SSO – Sanitary Sewer Overflow
- BBU – Basement Backup
- NEORSD – Northeast Ohio Regional Sewer District
- CWA – Clean Water Act
- O&M – Operations and Maintenance
- ARP funding – American Rescue Plan (COVID relief)



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Key Messages

CH sewer systems, public and private, require updating for the city's second century, to meet standards of the Clean Water Act and improve local environment and public health.

Environmental sustainability in infrastructure through transforming century-old systems will require community focus for many decades.

The IOCMP is prioritizing work in tiers and phases to balance affordable cost with financial capability.

Submitting and implementing the IOCMP are **not optional** but required by federal consent decree and federal and state law.

CH community as ratepayers to Northeast Ohio Regional Sewer District (NEORSD) contribute significantly to regional and Lake Erie water quality improvement.

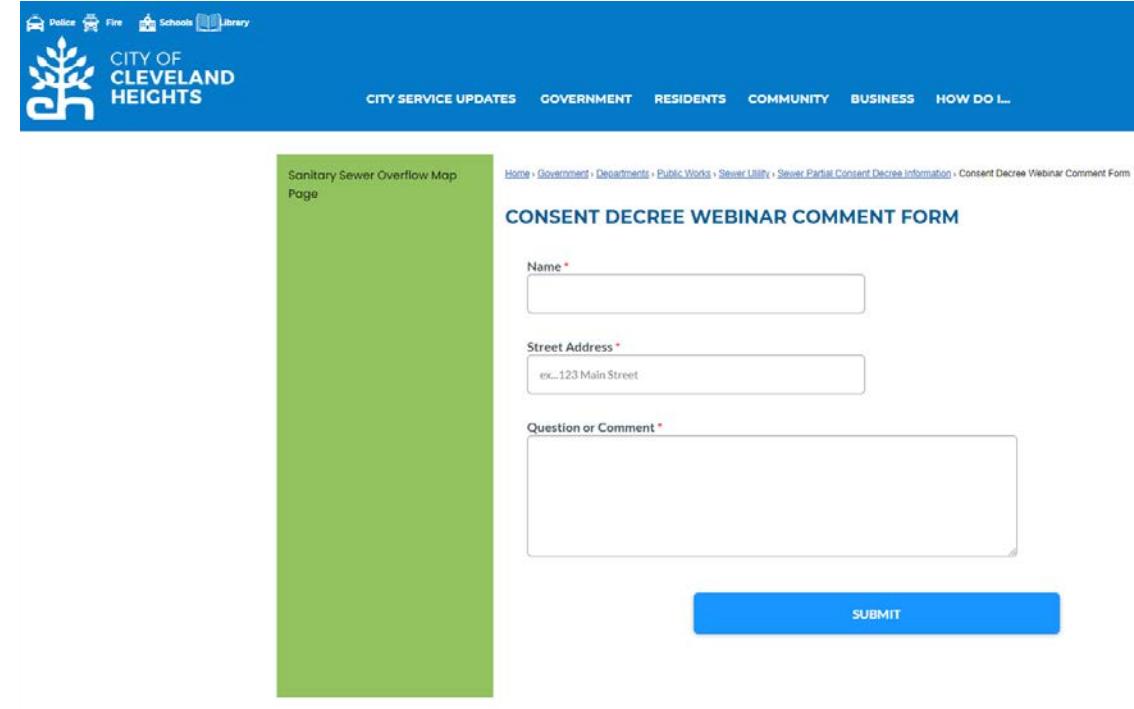
Other communities developed in the same timeframe face similar CWA challenges.



Public Input

Public input is essential now and going forward

- Provide input via City website following the first webinar
- Responses to public questions at second webinar – April 29, 2021
- City Council action - May 2021
- Any new consent decree requires public comment
- Ongoing public dialogue essential to sustaining progress



The screenshot shows a website header for the City of Cleveland Heights, featuring a tree logo and links for Police, Fire, Schools, and Library. Below the header is a navigation bar with links for CITY SERVICE UPDATES, GOVERNMENT, RESIDENTS, COMMUNITY, BUSINESS, and HOW DO I... The main content area is titled "CONSENT DECREE WEBINAR COMMENT FORM". It contains three input fields: "Name *", "Street Address *", and "Question or Comment *". A blue "SUBMIT" button is located at the bottom right of the form area. A large green rectangular box is overlaid on the left side of the form.

www.clevelandheights.com/Consent-Decree-Comments

Please provide input comments and/or questions by 5:00 PM, Sunday, April 25

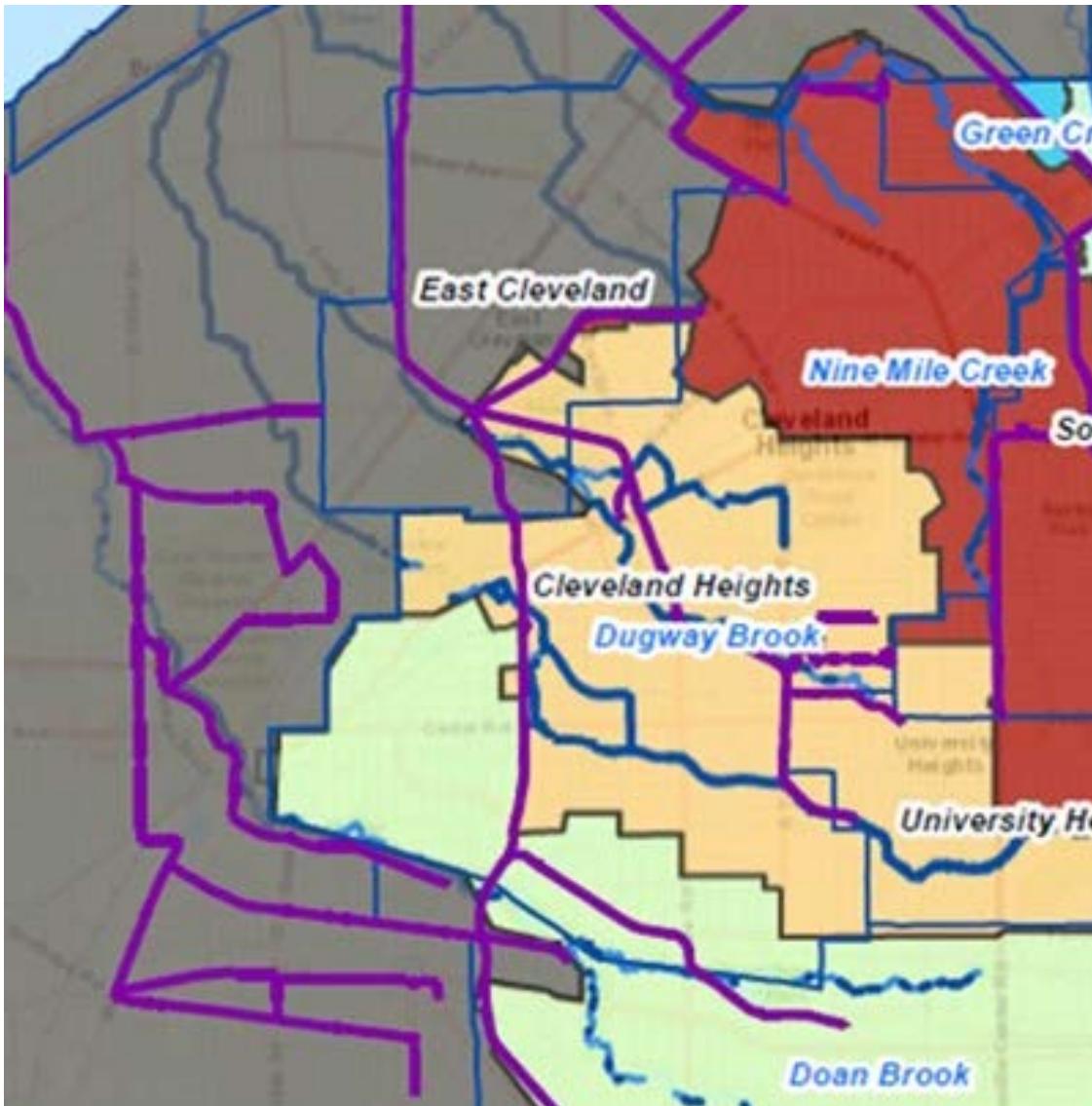


Background Information is Readily Available

- Presentations, reports and consent decree documents always available at <https://www.clevelandheights.com/556/Sewer-Partial-Consent-Decree-Information>
- May 16, 2017 public presentation – comprehensive starting point <https://www.clevelandheights.com/DocumentCenter/View/596/Sewer-Public-Meeting-May-16-2017-PDF?bidId=>
- See also NEORSD website for programs and delineation of ownership and responsibility <https://www.neorsd.org/about/what-we-do/>



Lake Erie Tributaries in Cleveland Heights



Lake Erie from Garfield Memorial

The Case for Updating the System

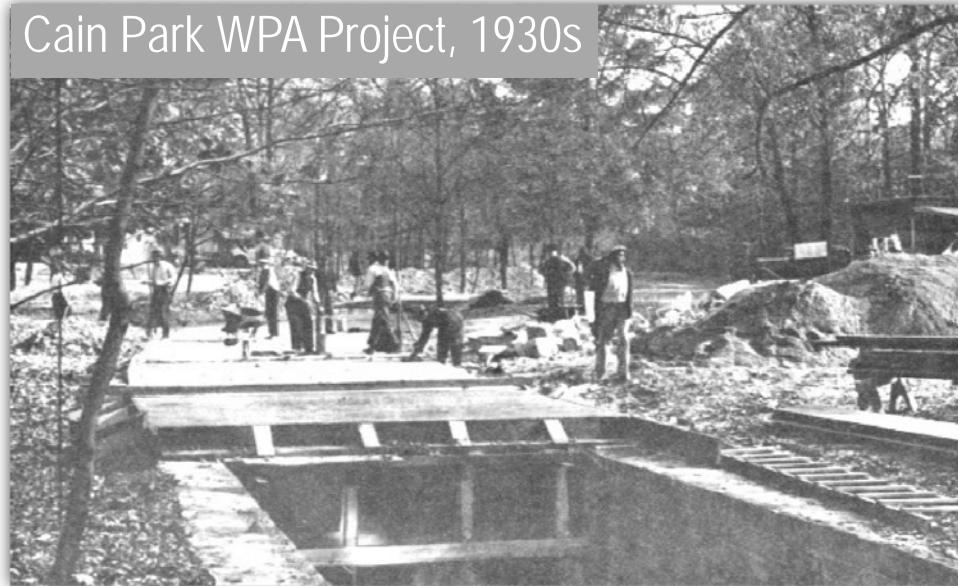
Early 20th Century Sewer System is still being investigated

- Unique design approaches
- Previously acceptable but non-standard construction practices
- Aging affects performance

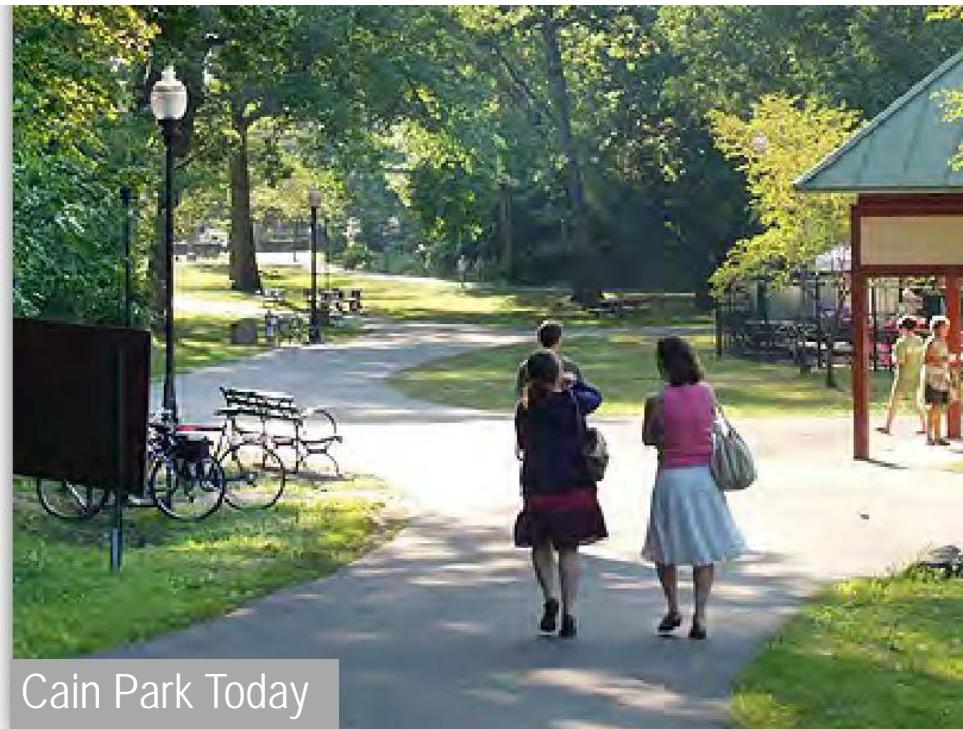
The Cleveland Heights System is a unique combination of sewer types, not amenable to standard solutions to meet modern requirements



Cain Park WPA Project, 1930s



North Park Blvd. c. 1900



Cain Park Today

How We Got Here - Legal

- 1972: inherited infrastructure faces new CWA legal requirements
- 2007 and 2012: EPA Administrative Orders under CWA to City
- 2015: Active EPA Enforcement
- 2017 Partial Consent Decree requires:
 - New Information Management Systems **Completed**
 - Implementation of CMOM plan (Capacity, Monitoring, Operations and Maintenance) **90% complete, and then ongoing**
 - Cleaning, televising and optimizing performance of sewer system **95% complete**
 - Detailed Sewer System Evaluation Survey **Phase 1 completed; Phase 2 due September 2021**
 - Development of **Integrated Overflow Control Master Plan** by **June 1, 2021**
 - **Federal Consent Decree stipulates significant financial penalties for non-performance**



Federal Consent Decree

Case: 1:17-cv-01517 Doc #: 2-1 Filed: 07/19/17 1 of 91. PageID #: 18

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO

----- x
UNITED STATES OF AMERICA,

Plaintiff,

v.

Civil No. -----

THE CITY OF CLEVELAND HEIGHTS, OHIO and
THE STATE OF OHIO,

Defendants.

----- x

PARTIAL CONSENT DECREE

<https://www.clevelandheights.com/DocumentCenter/View/598/Partial-Consent-Decree-July-2017-PDF?bidId=>



Integrated Overflow Control Master Plan (IOCMP)

Parallel tracks to develop an Integrated Plan

- **Technical analysis** - determined the planning-level infrastructure improvements and associated costs to address SSOs and system upgrades
- **Financial analysis** - created a schedule that maintains affordability consistent with CWA, including:
 - 1997 EPA Financial Capability Guidance
 - 2012 and 2014 Integrated Planning Framework and Affordability
 - Ongoing reform and policy changes

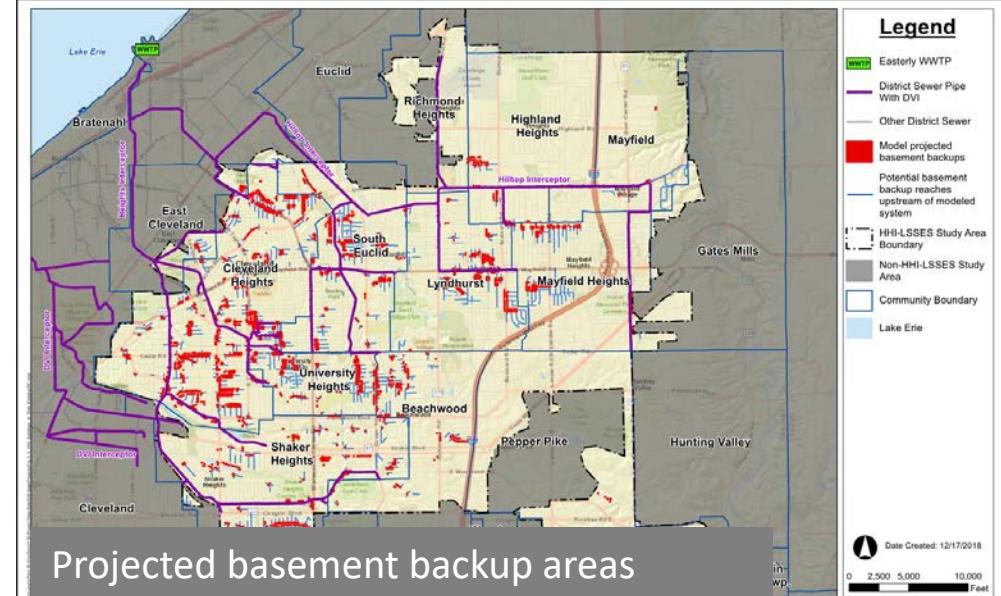
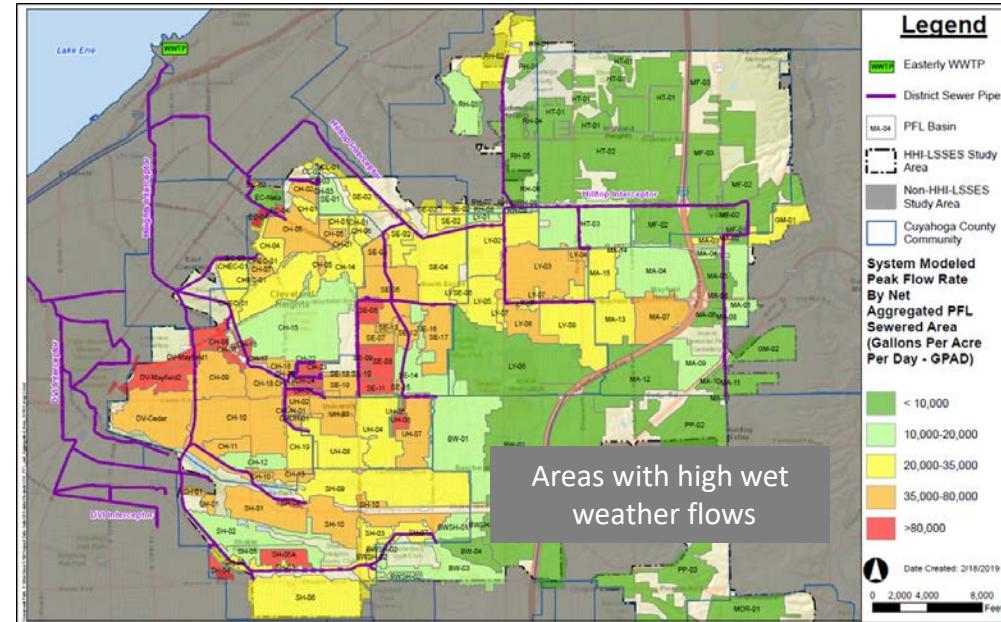


Consent Decree Progress and Technical Analysis for IOCMP



Cleveland Heights Consent Decree Progress

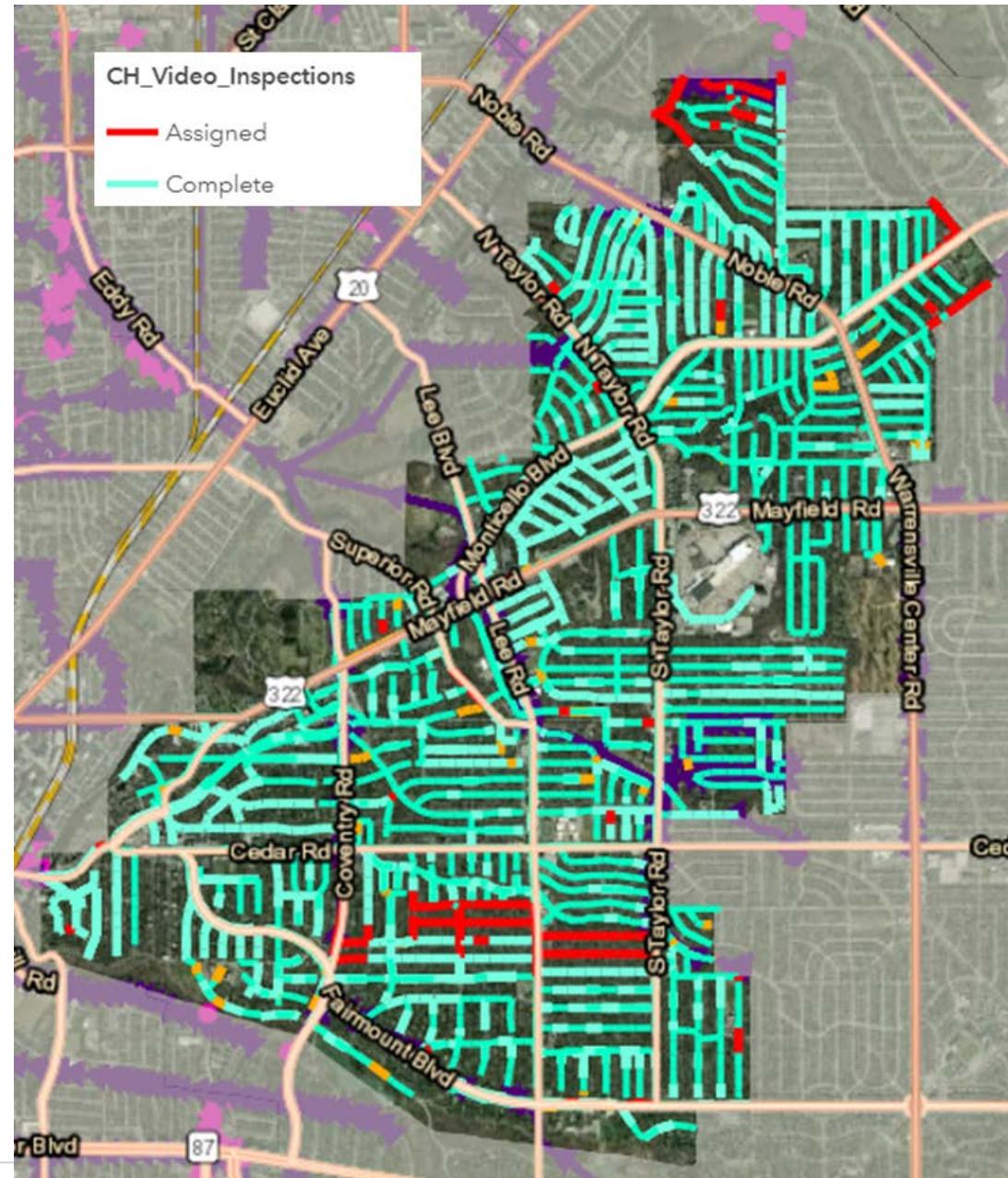
- Partial CD executed in 2017
- Northeast Ohio Regional Sewer District Heights-Hilltop Sewer System Evaluation Study (HHI-LSSES project, 2016-2019)
 - Sewer system investigations, flow/rainfall monitoring
 - Modeling analysis of SSOs and basement backups (BBUs)
 - Alternatives and cost analysis
 - Planning-level recommendations
- Cleveland Heights SSES and IOCMP Development
 - Clean, inspect and televise entire sewer system (95% complete)
 - Flow/rainfall monitoring, model extension (complete)
 - Annual SSO monitoring (completed three seasons)
 - Phase 1 SSES Report & Capacity Assessment Report (complete)
 - IOCMP analysis and report development (ongoing, due 6/1/2021)



Sewer Cleaning and Televising Progress

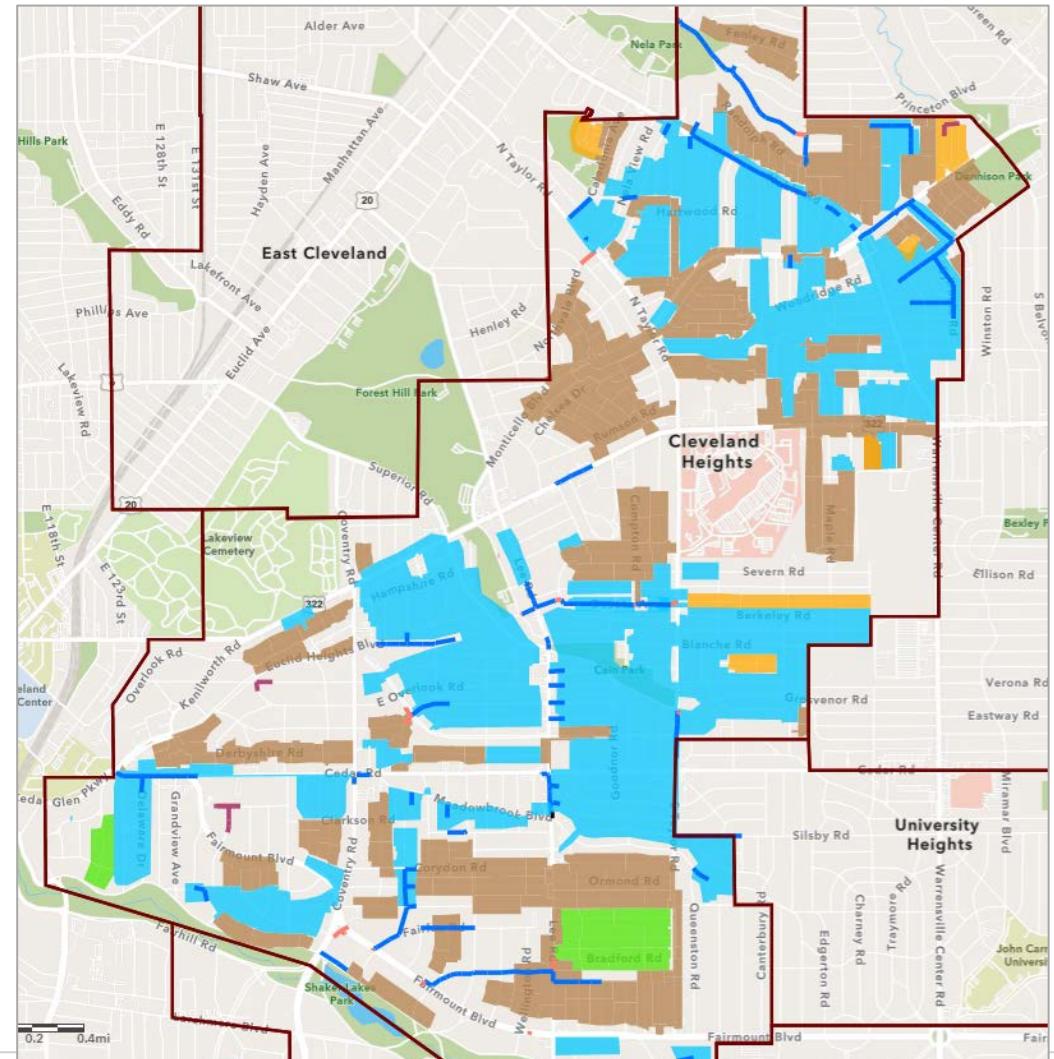
- Total sewer length: 620,000 LF (117 m)
- Phase 1 (completed 2019): 395,000 LF (75 m)
- Phase 2 (ongoing – due June 30, 2021)
 - Completed to 4/2/21: 195,000 LF (37 m)
 - Remaining: 30,000 LF (6 m)
- ~95% complete overall
- 3,100 sanitary manholes - inspections complete

System performance is significantly improved



IOCMP Objectives – Affordable, Integrated Plan

- Develop a realistic and affordable plan/schedule to address CWA issues (SSOs and BBUs)
- Improve public health and the environment
- Work toward meeting EPA and Sewer District requirements
- Integrate with other City, county and private developer infrastructure improvements
- Adapt to optimize program with each successive project



IOCMP Sewer System Tiered Improvements

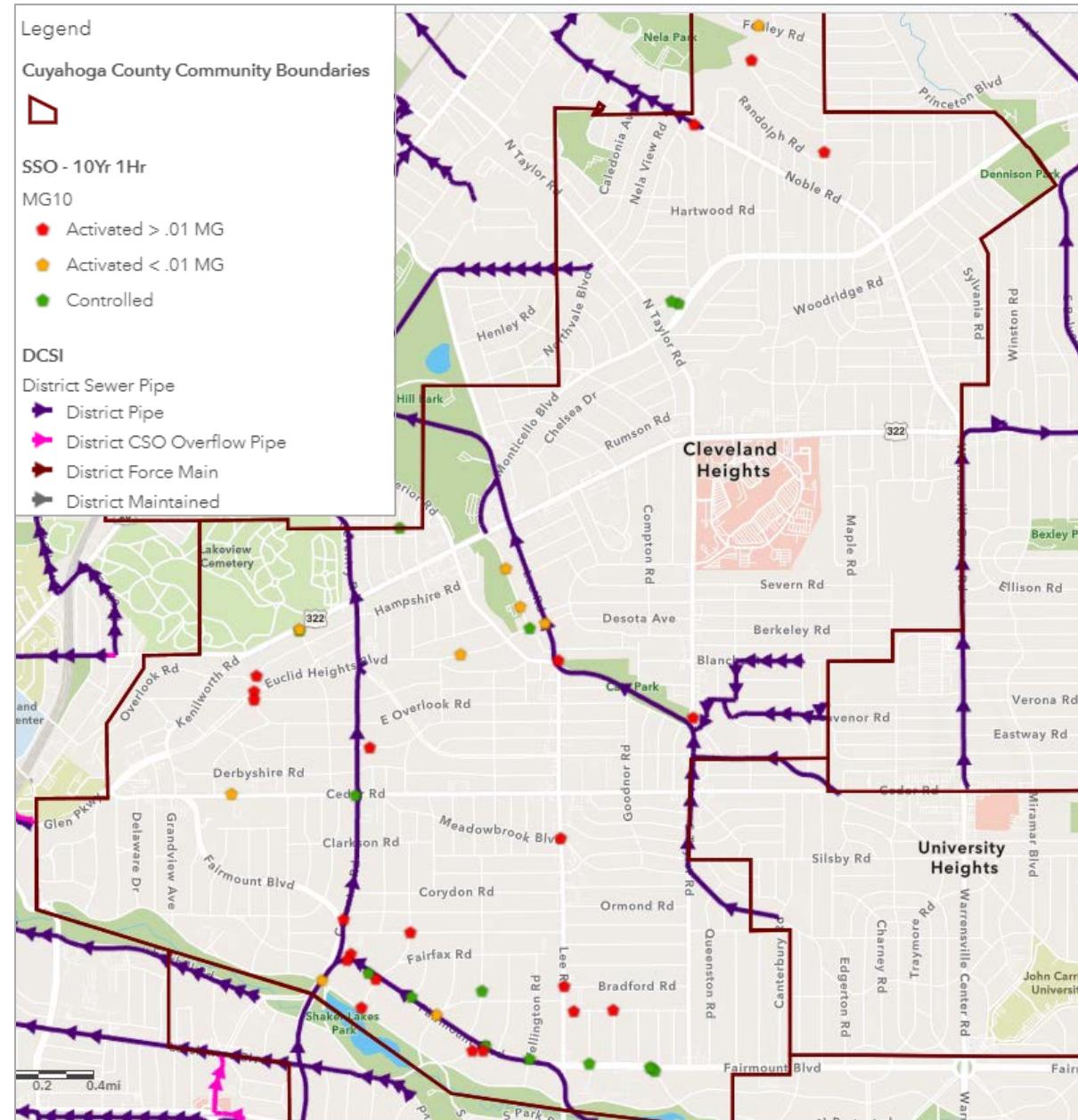
- **Tier 1** – Control active SSOs and reduce risk of basement backups (BBUs) in SSO work areas
- Repair sewers in poor structural condition in parallel with Tier 1
- **Tier 2** – Over-under (invert plate) and dividing wall manhole areas
 - Long term work
 - High wet weather flows = higher risk of BBUs
 - Sewage and stormwater can mix causing contamination of surface waters
- **Tier 3** – Other projected areas at risk of BBUs – long term work



Sanitary Sewer Overflows

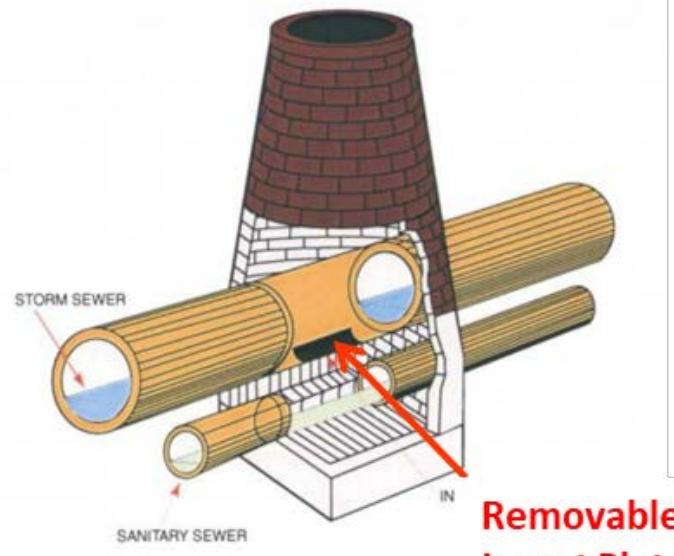
- 45 known SSO structures
- 29 are projected to overflow during a 10-yr, 1-hr rainfall
- SSOs with highest frequencies and volumes to be addressed first

<https://www.clevelandheights.com/557/Sanitary-Sewer-Overflow-Map-Page>

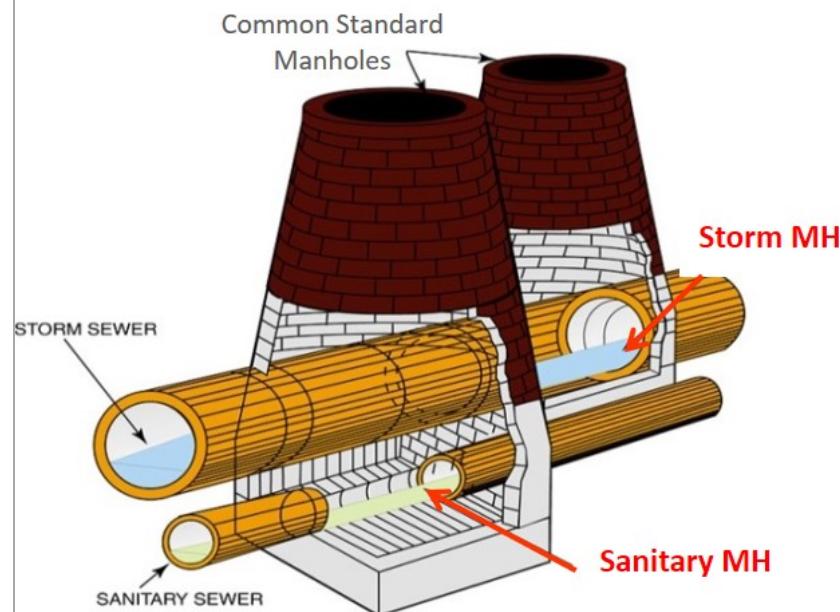


Common Trench Sewers

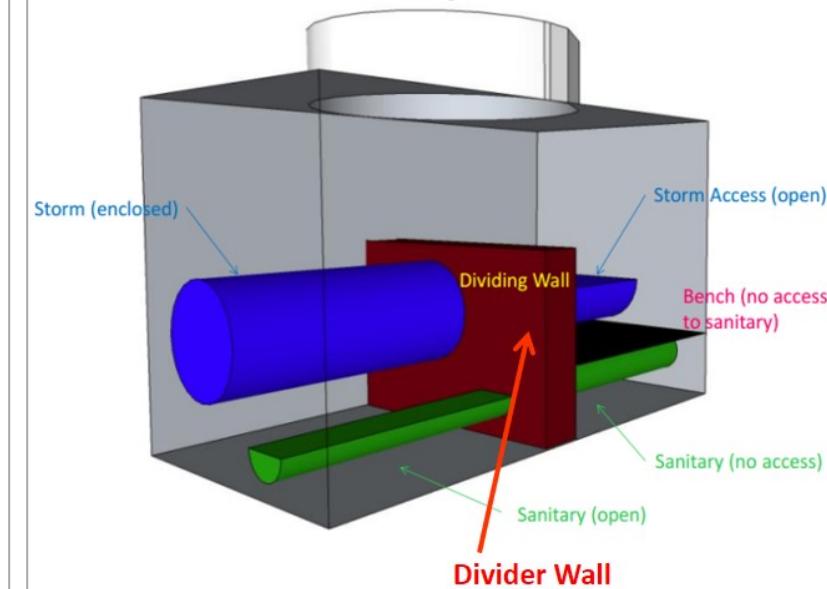
Over-Under (Invert Plate) Sewer



Common Standard Sewers



Dividing Wall Sewers

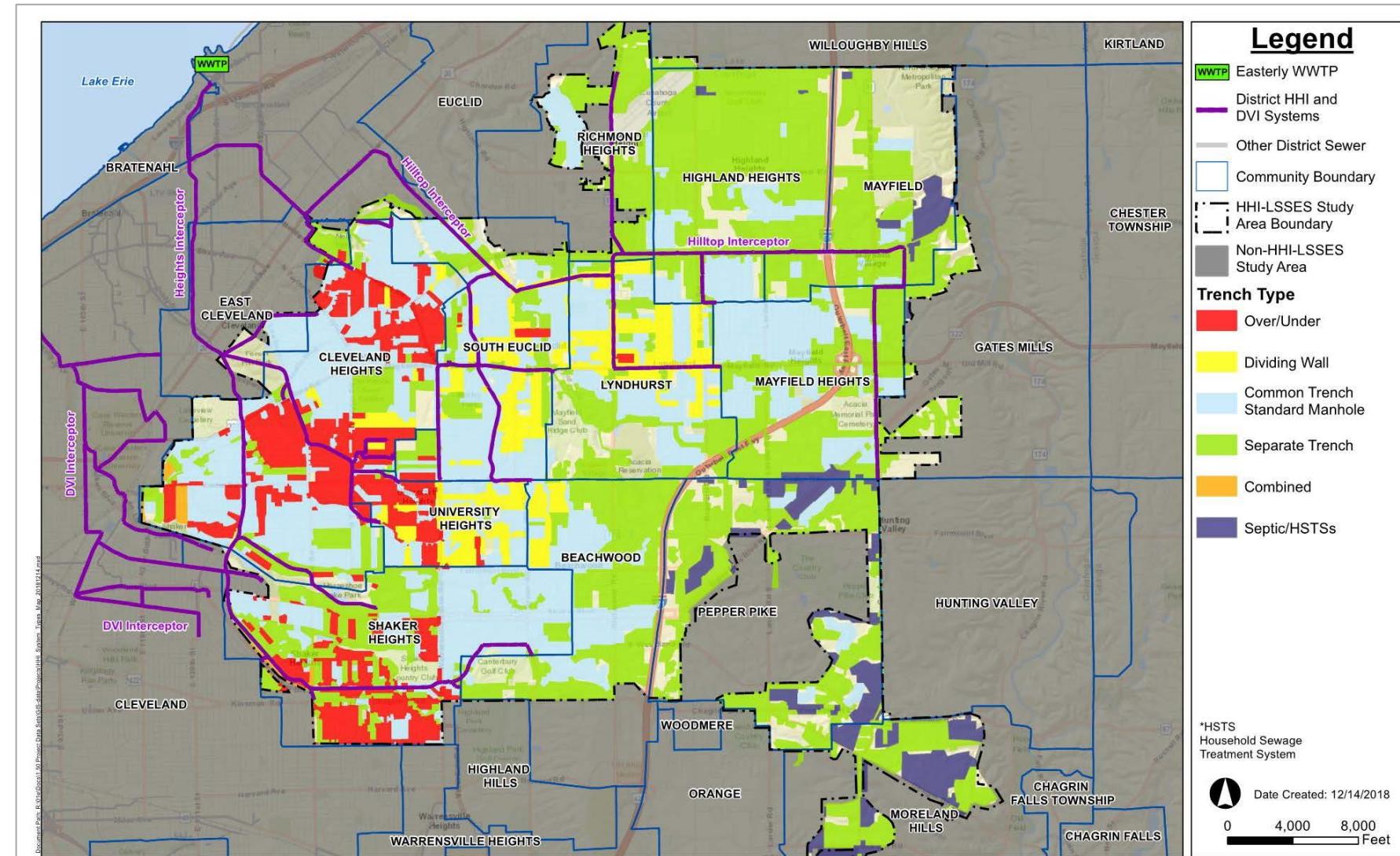


- Sewage and stormwater crossflows, difficult maintenance, 50 – 100 years old
- Rainwater inflow, sanitary sewer surcharging, basement backups and SSOs
- Common trench 87% of total sewers in Cleveland Heights, 13% separate trench
- Common trench: 33% over/under, 51% common standard, 3% dividing wall



Heights' Communities Sanitary Sewer Trench Types/Locations

- Common trench sewers are primarily located in older inner ring communities
- Over/under systems are primarily in Cleveland Heights, University Heights and Shaker Heights
- Newer eastern communities are served by separate trench sewers and older septic systems



IOCMP Tier 1 Improvements – Control SSOs

Focus on Sanitary Sewer Overflows and associated basement backups (BBUs)

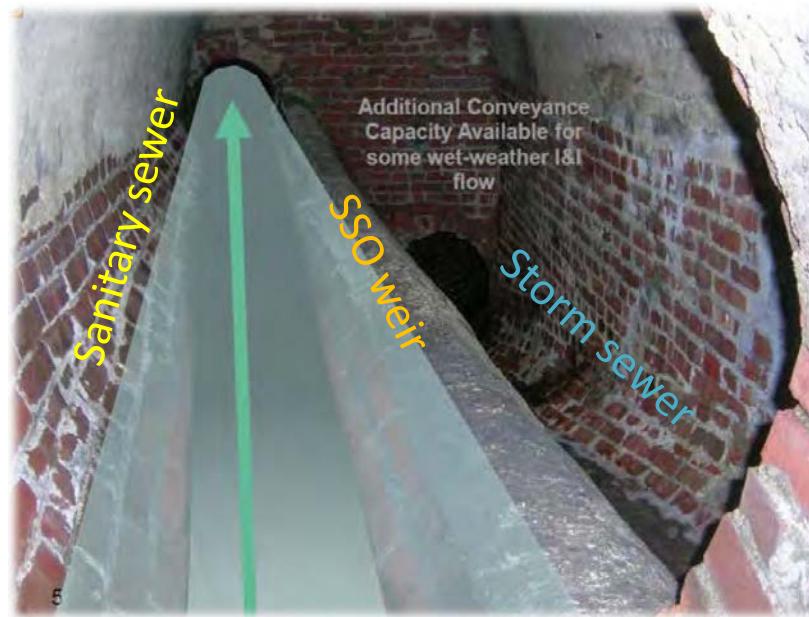
- Eliminate 10 million gallons of annual sewage overflow to local waterways
- Reduce the risk of basement backups in SSO work areas



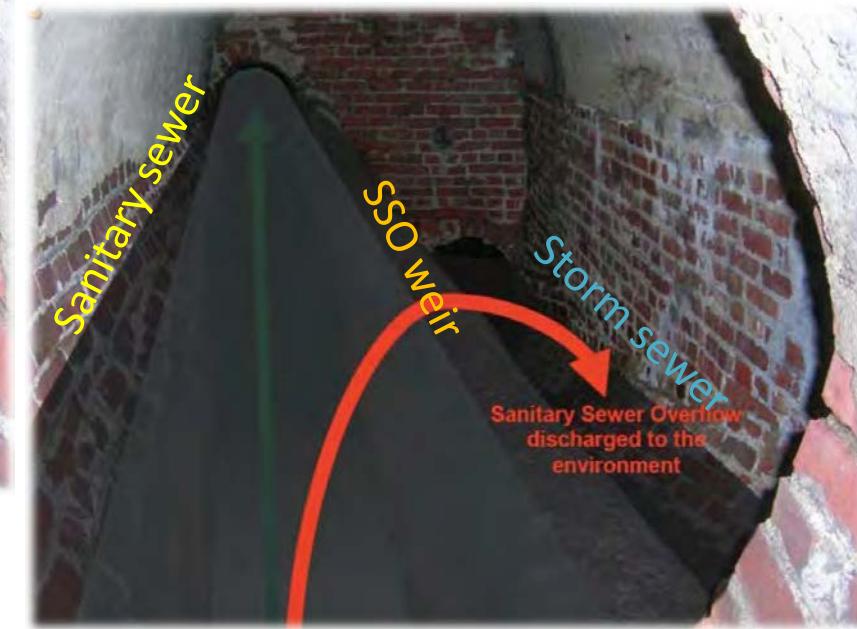
CWA Issues - Sanitary Sewer Overflow (SSO) Structures



Normal dry weather flow to WWTP



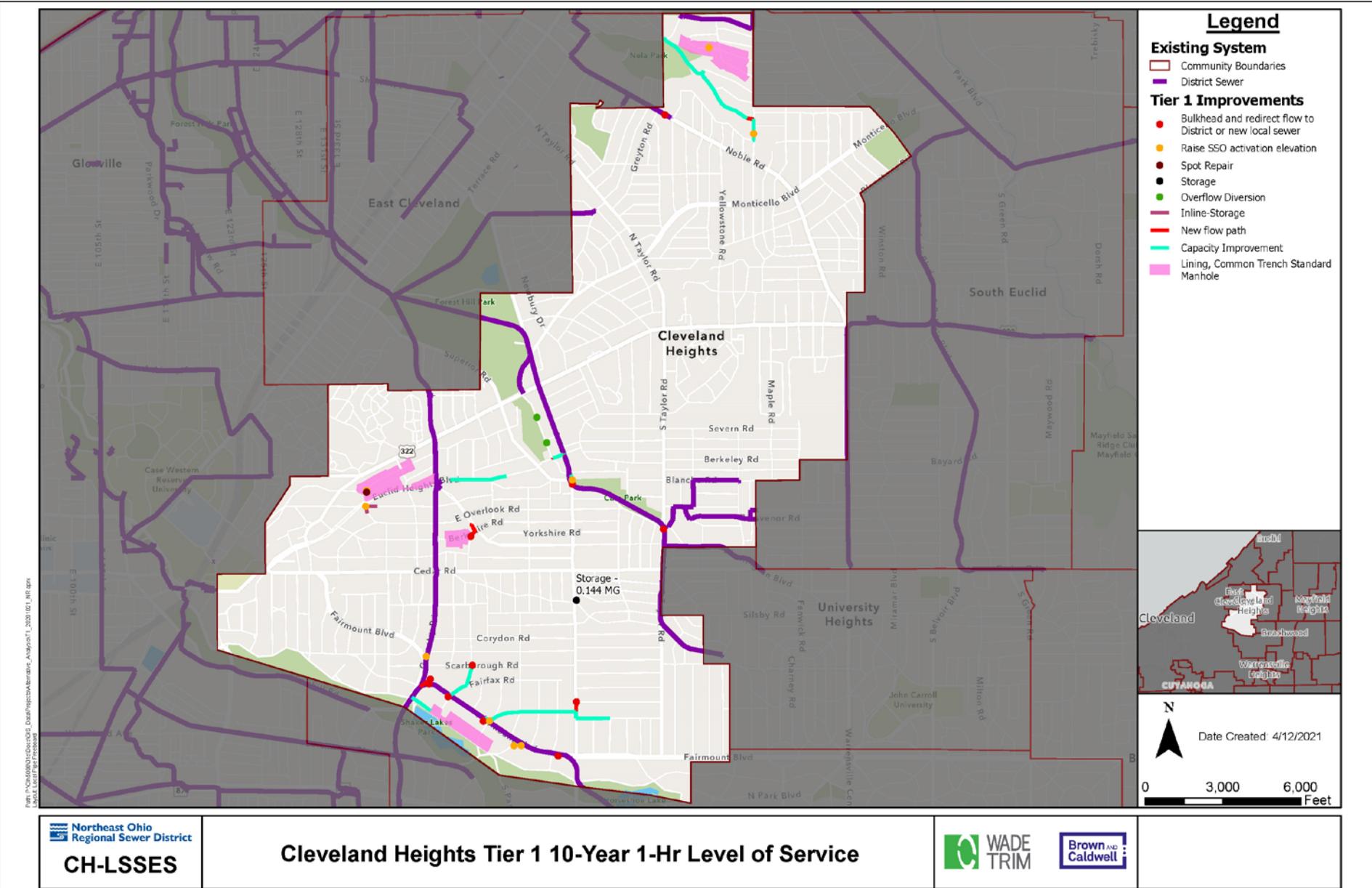
Wet weather flow increasing



Wet weather SSO to storm sewer

During wet weather conditions, flows in aging sanitary sewers increase due to rainwater inflow at defects and improper connections. Excessive flows overflow at SSO locations and discharge untreated sewage and rainwater to local waterways and Lake Erie. Additional surcharging and basement backups may also occur.

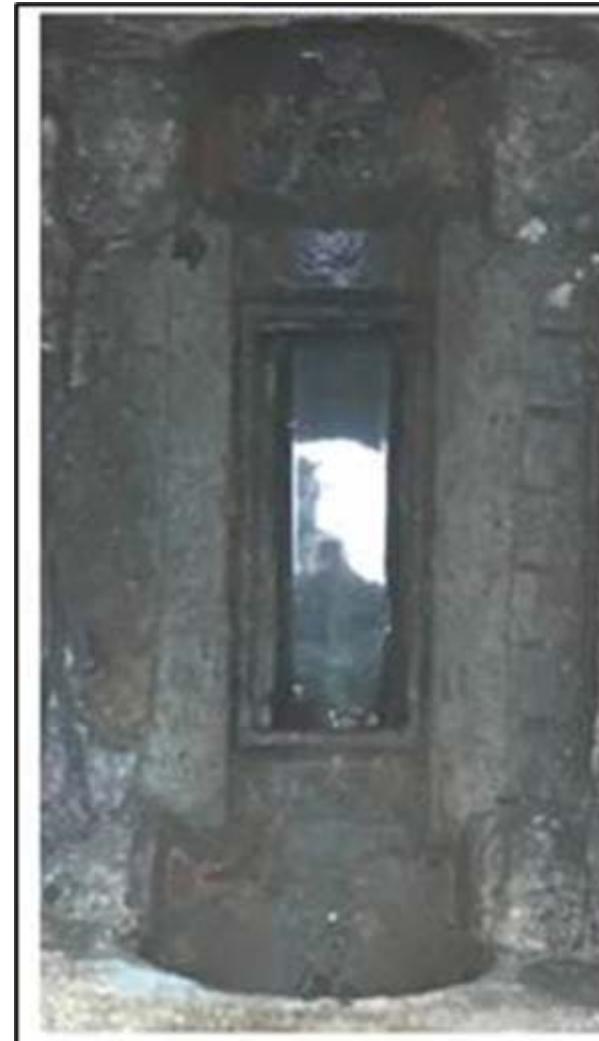
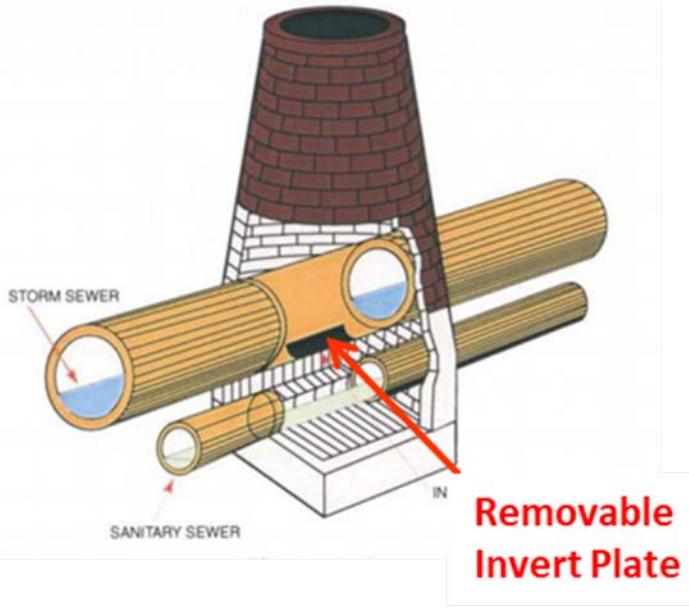
Tier 1 - SSO Improvement Areas



IOCMP Tier 2 - Address Over/Under and Dividing Wall Sewers

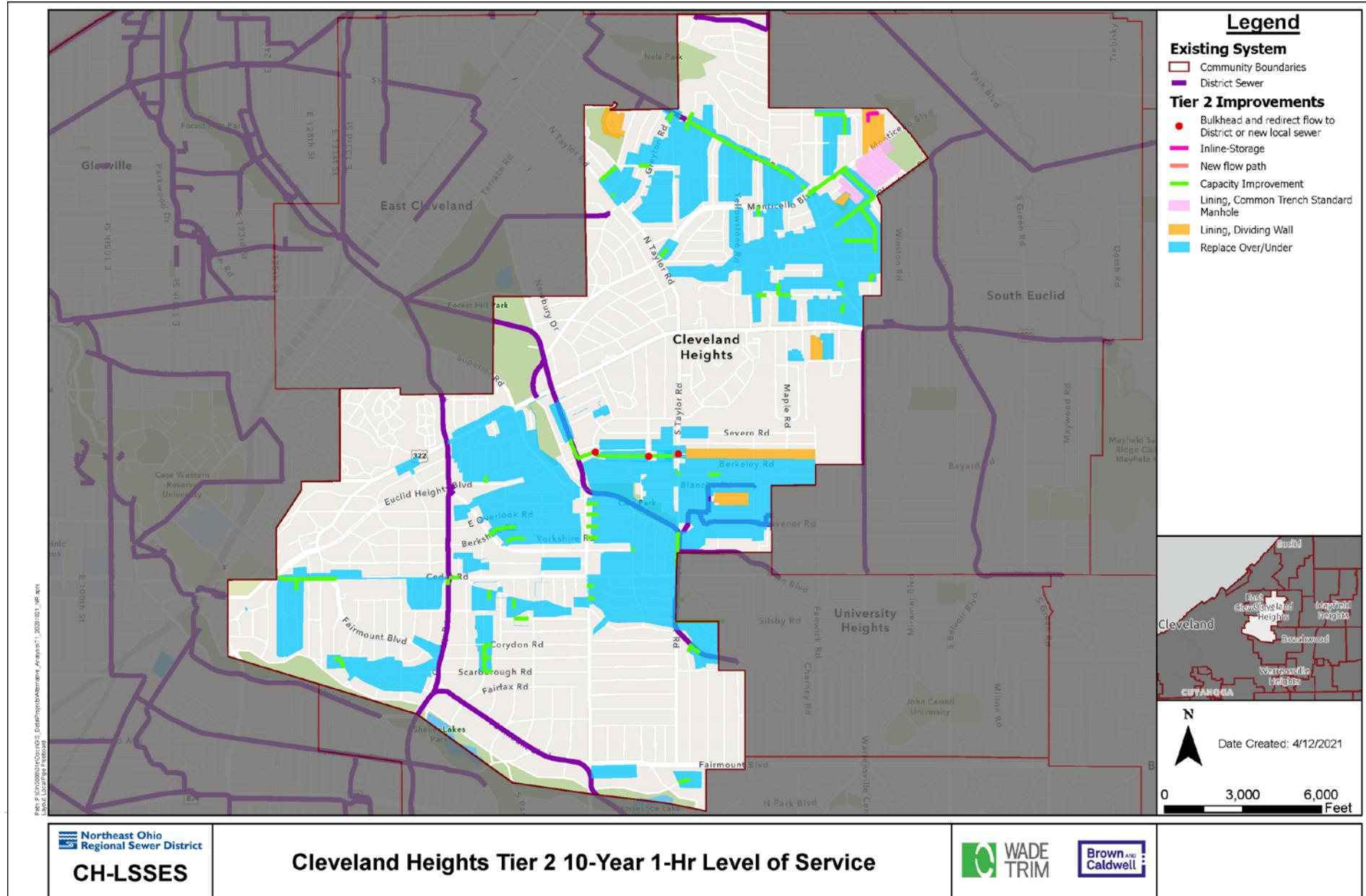
- Sewer separation
- Sewer lining
- Manhole reconstruction
- Other remediation methods

Over-Under (Invert Plate) Sewer



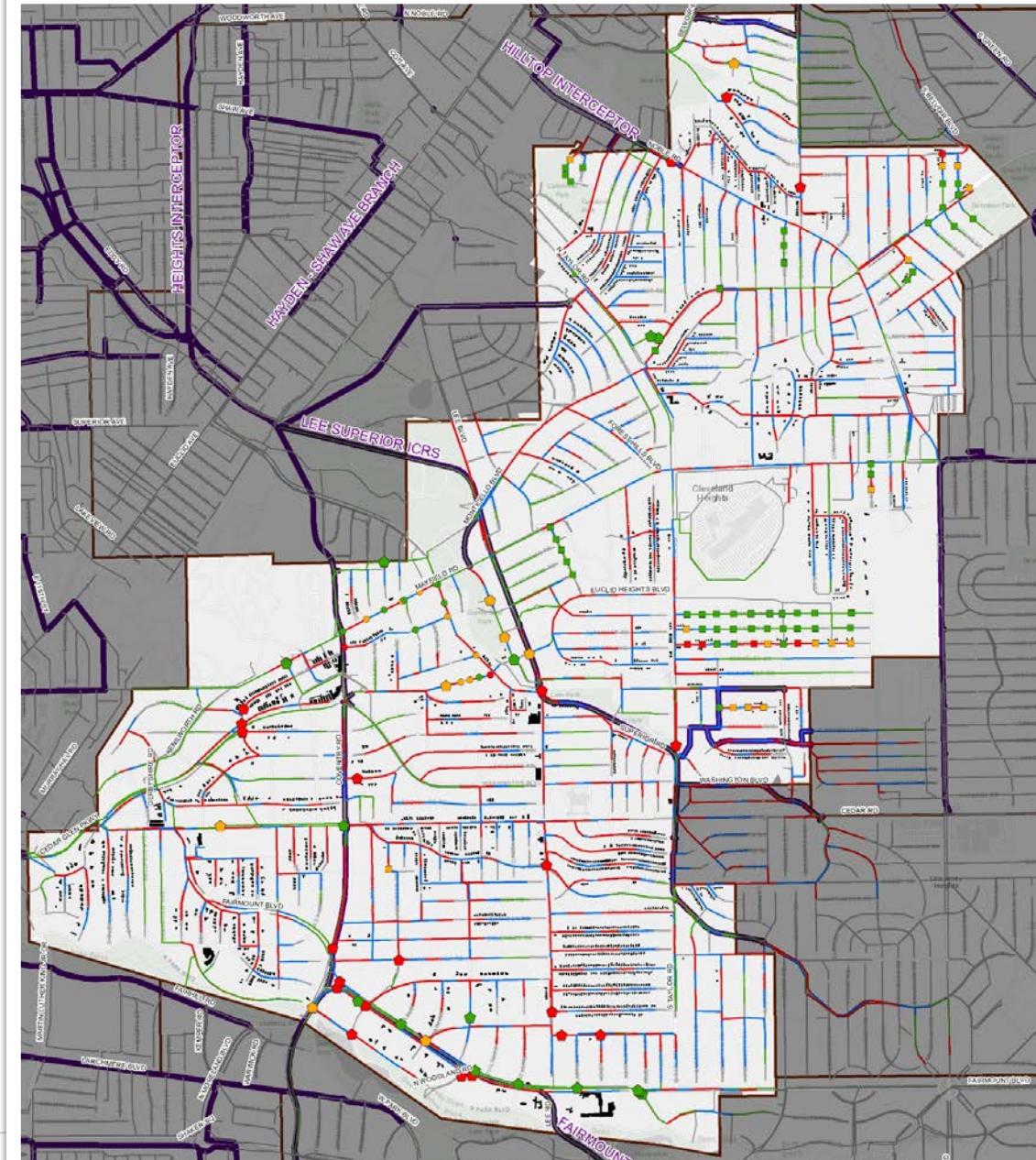
Over/under manholes without and with invert plates

Tier 2 - Over/Under & Dividing Wall Improvement Areas

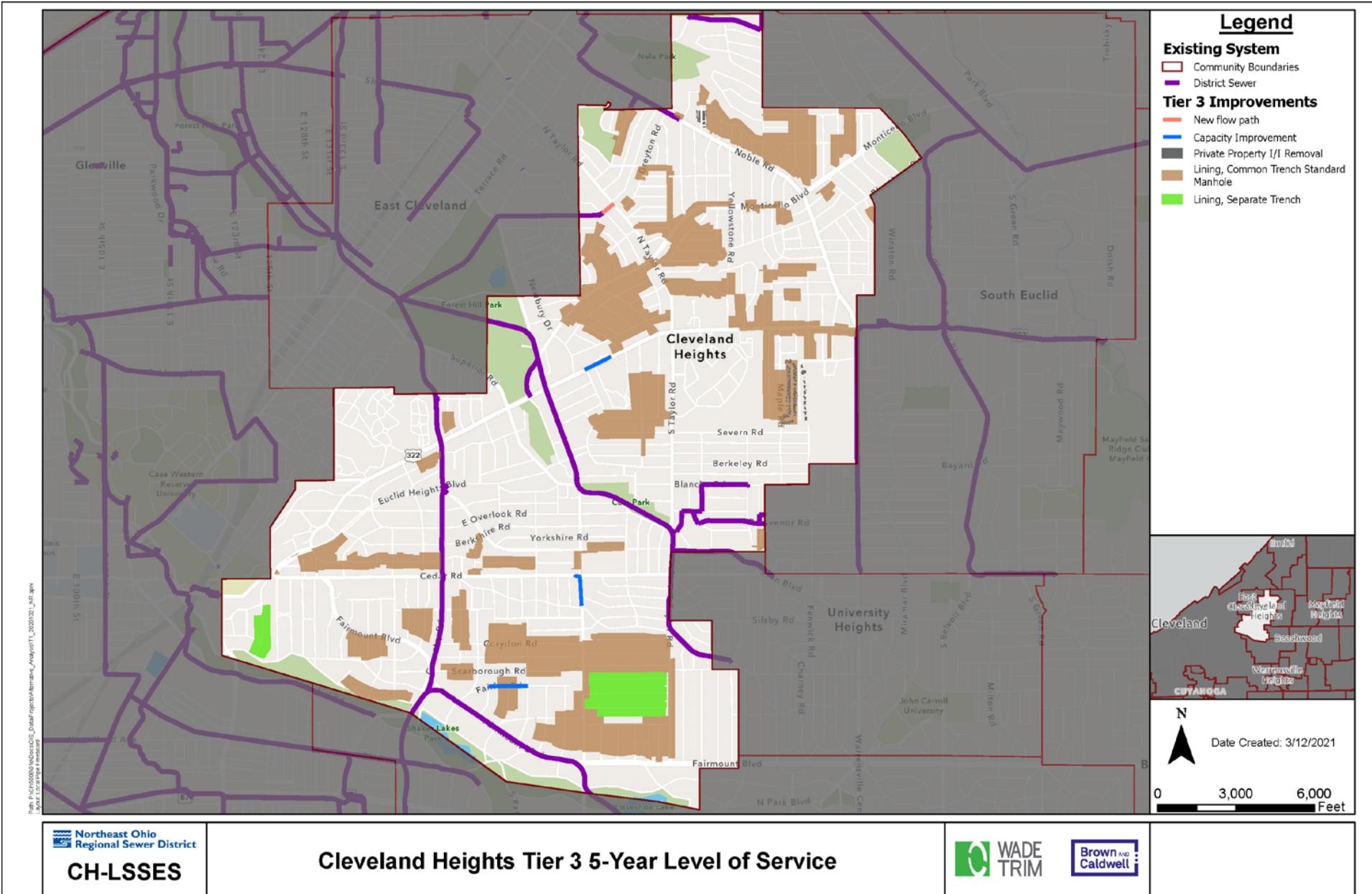


Tier 3 – Improvements in Other Areas at Increased Risk of BBUs

- Sewer system rehabilitation to reduce rainwater inflow
- Capacity improvements where needed to improve performance



Tier 3 – Improvements in Remaining Areas at Increased Risk of BBUs

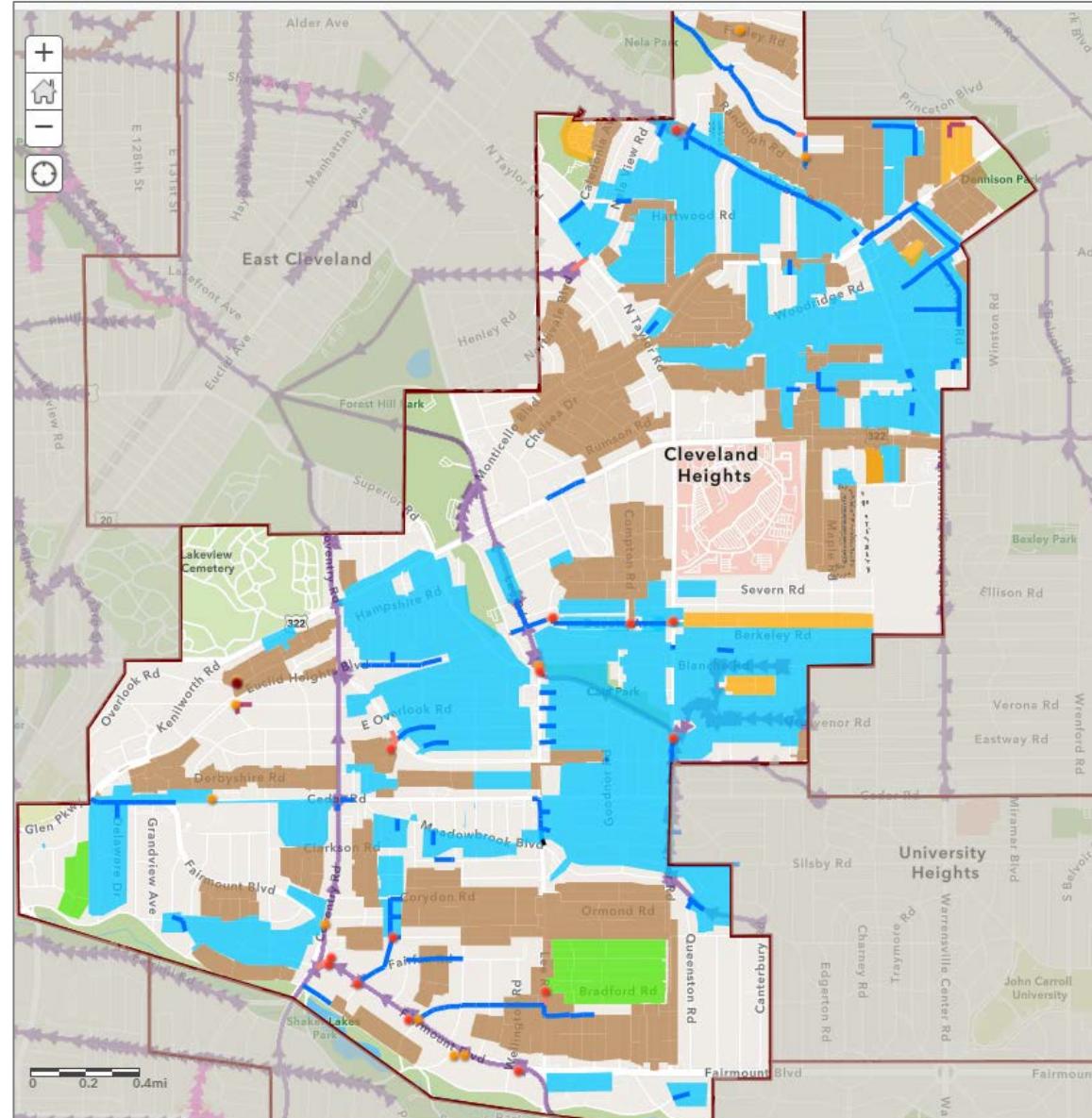


IOCMP Proposed Improvements

Tier 1 – Control SSOs and associated basement backup problems ~ \$40 - 50 million

Tier 2 – Long-term remediation of over/under & dividing wall sewers ~ \$430 million

Tier 3 – Long-term remediation in other projected capacity problem areas ~ \$100 million



Financial Capability and Affordability of Program

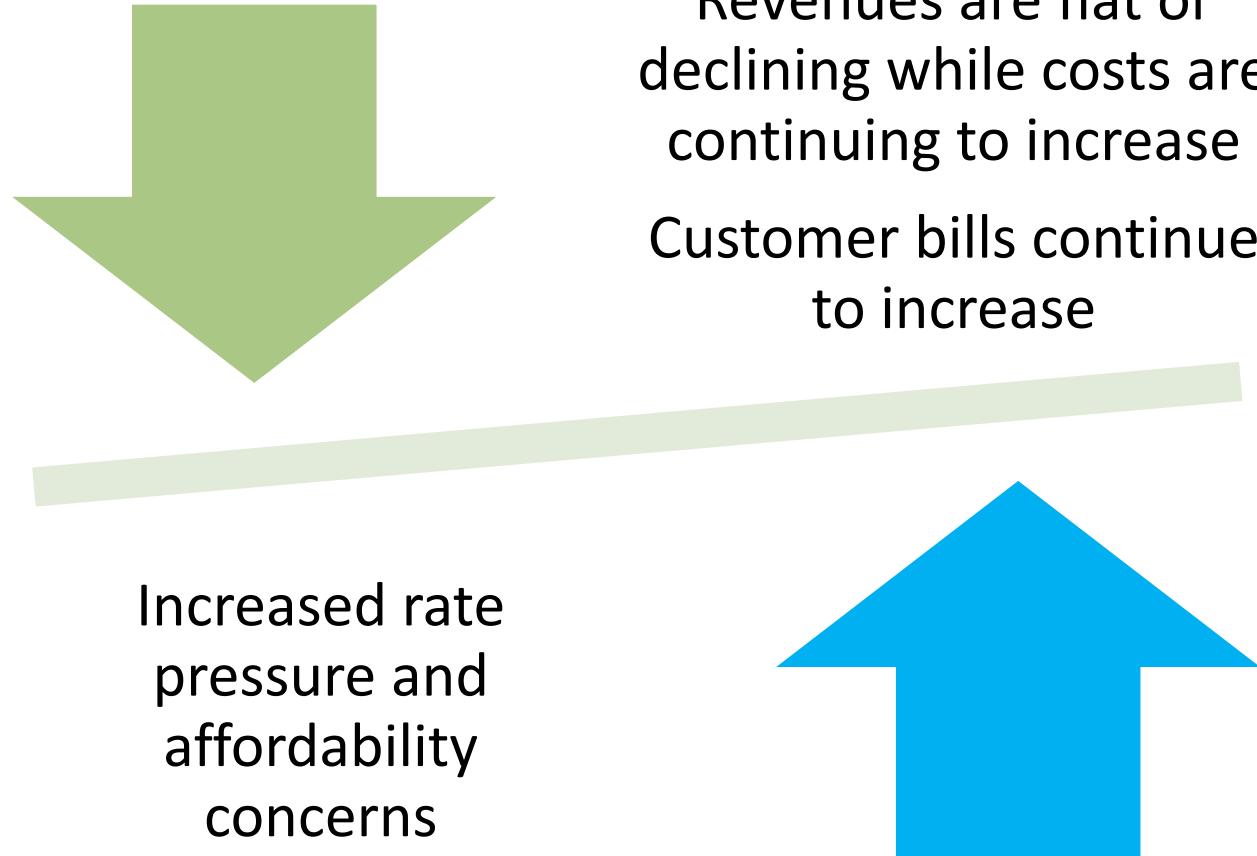


Affordability is a Key to a Successful IOCMP

- City engaged an expert familiar with the EPA guidance documents and scheduling requirements
- Financial Capability Analysis defines IOCMP schedule
 - Includes costs for all CWA obligations, including costs of NEORSD consent decree and stormwater programs
 - Captures all of Cleveland Heights' unique challenges and trends
 - Produces a realistic financial plan that can sustain infrastructure improvement based on city priorities
 - Protects city taxpayers from rate shock and undue burden



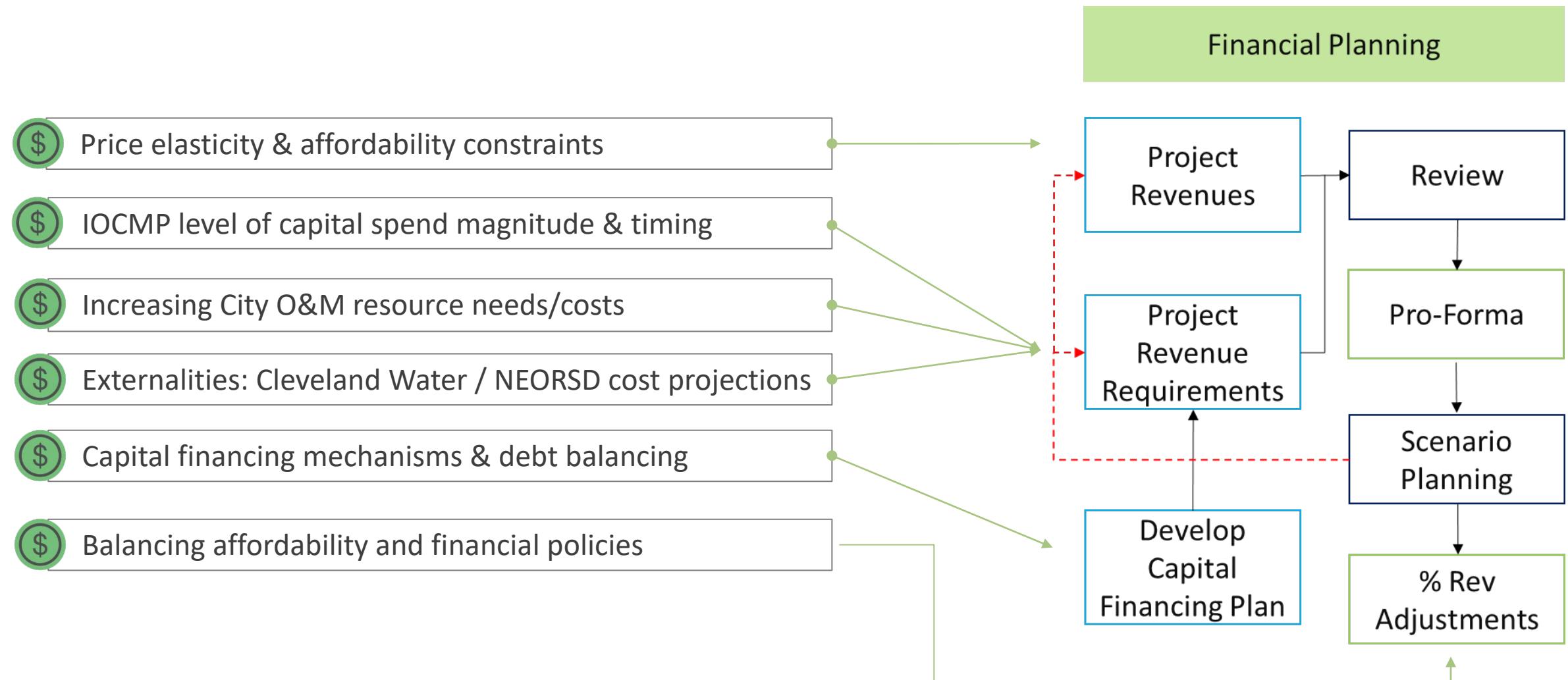
Utility Financial Challenges



How can the City maximize IOCMP funding while managing these challenges?



Long-Range Financial Plan



Recommended IOCMP Approach

15-year Phase for Tier 1 projects

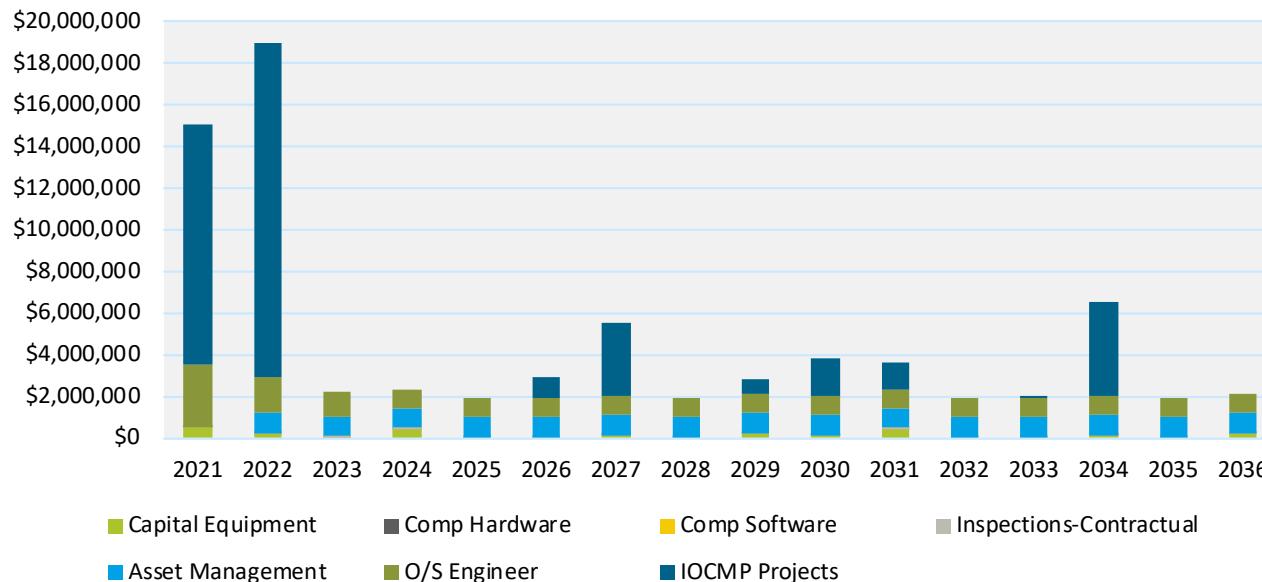
- Focus on SSO projects and at- risk basement backup for human health and environmental improvement
- Using ARP funds could help advance this work
- Any shorter schedule risks City financial capability
- Phasing is consistent with CWA
- Allows capital work to integrate with other infrastructure work
- 15 years coincides with NEORSD CD length
- Affordability and technology paths forward will be clearer



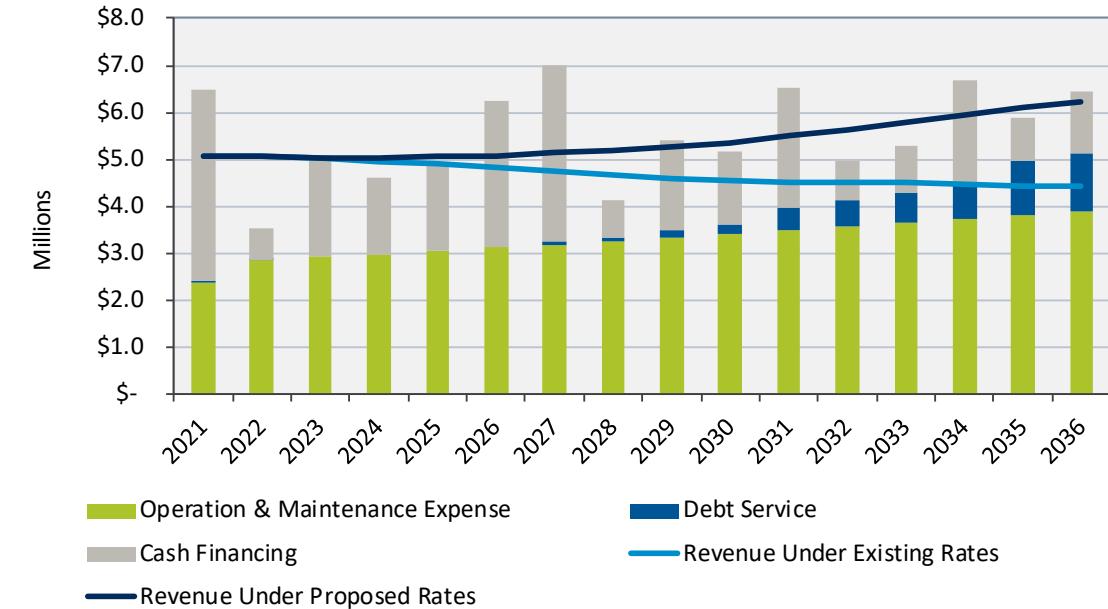
Financial Results – 15-year Tier 1

For purposes of discussion, this illustration assumes \$27,551,000 in ARP Spending

Capital Improvement Program (15 Year, with ARP)



Financial Plan

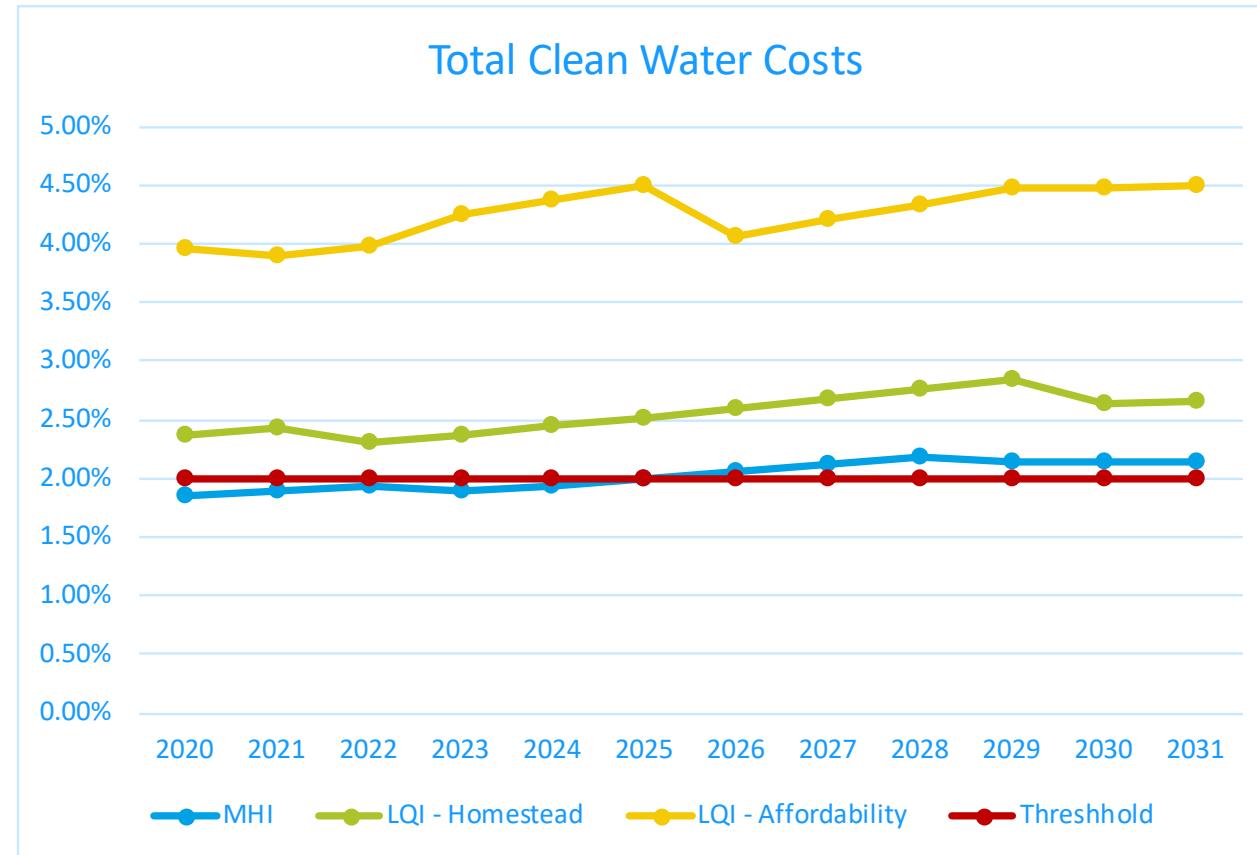


Cumulative IOCMP (Current \$) = \$ 40,266,000



Residential Customer Bill Impact

- Annual cost includes City bill plus NEORSD wastewater and stormwater bill.
- Annual rate increases of 1.5% - 2.6%, beginning 2024 to fund all Tier 1 projects by the end of 2036
- The typical City quarterly residential bill estimated to increase from \$78.21 in 2021 to \$93.97 in 2036



Key Messages

CH sewer systems, public and private, require updating for the city's second century, to meet standards of the Clean Water Act and improve local environment and public health.

Environmental sustainability in infrastructure through transforming century-old systems will require community focus for many decades.

The IOCP is prioritizing work in tiers and phases to balance affordable cost with financial capability.

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CH community as ratepayers to Northeast Ohio Regional Sewer District (NEORSD) contribute significantly to regional and Lake Erie water quality improvement.

Other communities developed in the same timeframe face similar CWA challenges.



Next Steps

- Public Information and Input – Second webinar: April 29, 2021
- City Council approval of IOCMP – May 2021
- Submission of IOCMP and Report – June 1, 2021
- IOCMP implementation – TBD
- Discussions with EPA – TBD
- Potential new consent decree – TBD

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