

# Cleveland Heights IOCMP Webinar

## *Overview and Response to Feedback from April 21<sup>st</sup> Webinar*

April 29, 2021

IOCMP - Integrated Overflow Control Master Plan



McMahon  
DeGulis<sup>llp</sup>



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# Acronyms Used

- USEPA – United States Environmental Protection Agency
- CD – Consent Decree
- IOCMP – Integrated Overflow Control Master Plan
- CMOM - Capacity, Management, Operations and Maintenance
- SSES – Sewer System Evaluation Survey or Study
- SSO – Sanitary Sewer Overflow
- MCF – 1000 cubic feet (water use volume unit)
- NEORSD – Northeast Ohio Regional Sewer District
- CWA – Clean Water Act
- O&M – Operations and Maintenance
- ARP funding – American Rescue Plan (COVID relief)
- FCA – Financial Capability Assessment
- MHI – Median Household Income



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

Submitting and implementing the IOCPM 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.



# Overview– Response to Questions and Comments

- Financial Questions and Comments
  - Context of FCA and rate model
  - Illustrations explained
    - Typical “Annual Bill”
    - Impact to Homestead and low-income households depicted
    - Illustration of alternative scenario- no ARP funding
- Technical Questions and Comments
  - Listing of potential Tier 1 projects and potential ARP funding
  - Regionalization with neighboring communities
  - Investments to reduce O&M costs
- Private Property Improvements
- Next Steps



# 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
- 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
- Using ARP funds **could** help advance this work (TBD)



# Context of Financial Capability and Modeling

- Consent Decree requires financial capability analysis to support the proposed schedule of the projects in the IOCMP
- Financial capability analysis includes use of rate model
  - Commonly used in the industry for utility capital planning
  - Consistent with EPA guidance and negotiation practice
  - Goal: prevent over-commitment to unaffordable plan
- Rate model does not set or raise any rates
  - City rates set by Cleveland Heights City Council periodically
  - NEORSD rates set by Board of Trustees for five-year periods
  - Models provide useful illustrations of scenarios to help select an affordable program



# Responses to Financial Questions and Comments



# Existing and Projected Revenue

- Most revenue is from the volumetric charge on water usage
- Minor miscellaneous revenue
- Projected revenue reflects:
  - Declining billed volume
    - Declining population
    - Declining water consumption
  - Impact of delinquencies on collected revenue



# Existing and Projected Expenses

- Operating Expenses
  - Current costs of operating and maintaining the local sewer system
  - New additional costs for the CMOM program
- Capital Costs
  - Debt Service (Principal and Interest on existing and projected loans and revenue bonds)
  - Cash financed capital

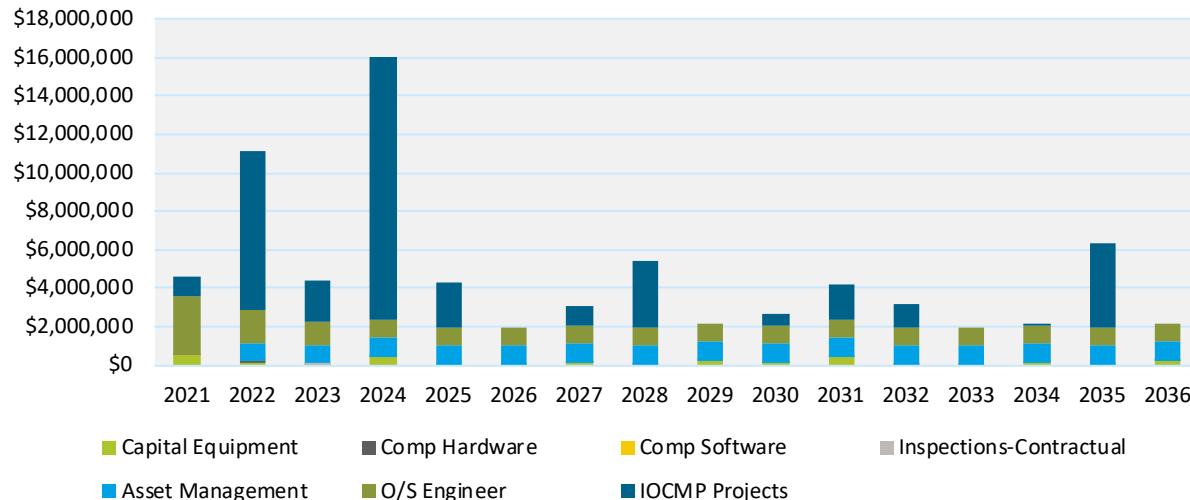


# Financial Results – 15-year Tier 1

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

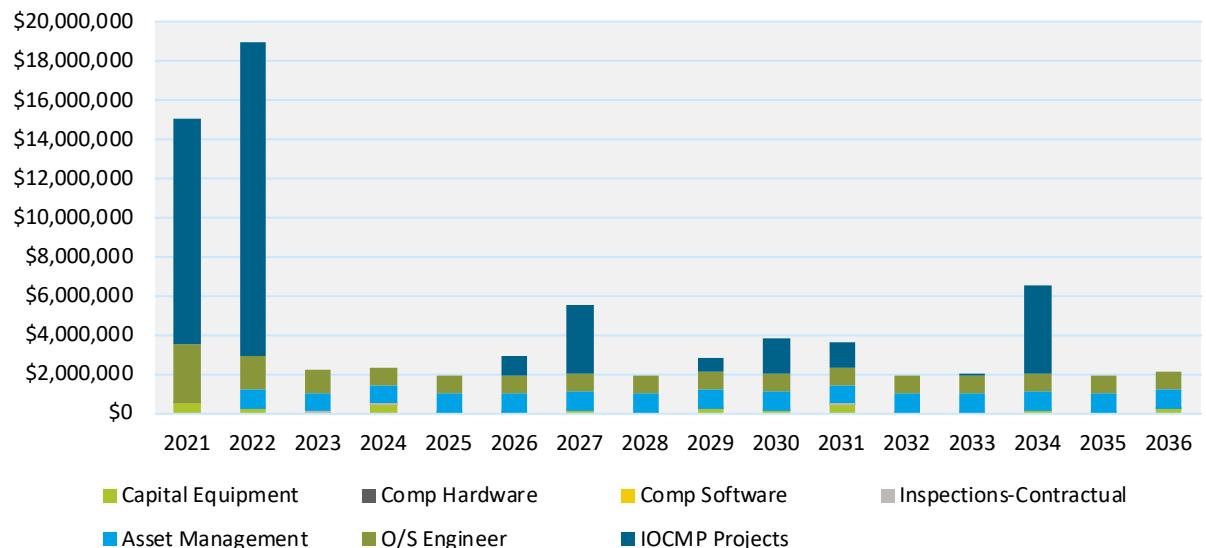
**No ARP Funding**

**Capital Improvement Program  
(15 Year, No ARP)**



**With \$28M ARP Funding  
(Illustration)**

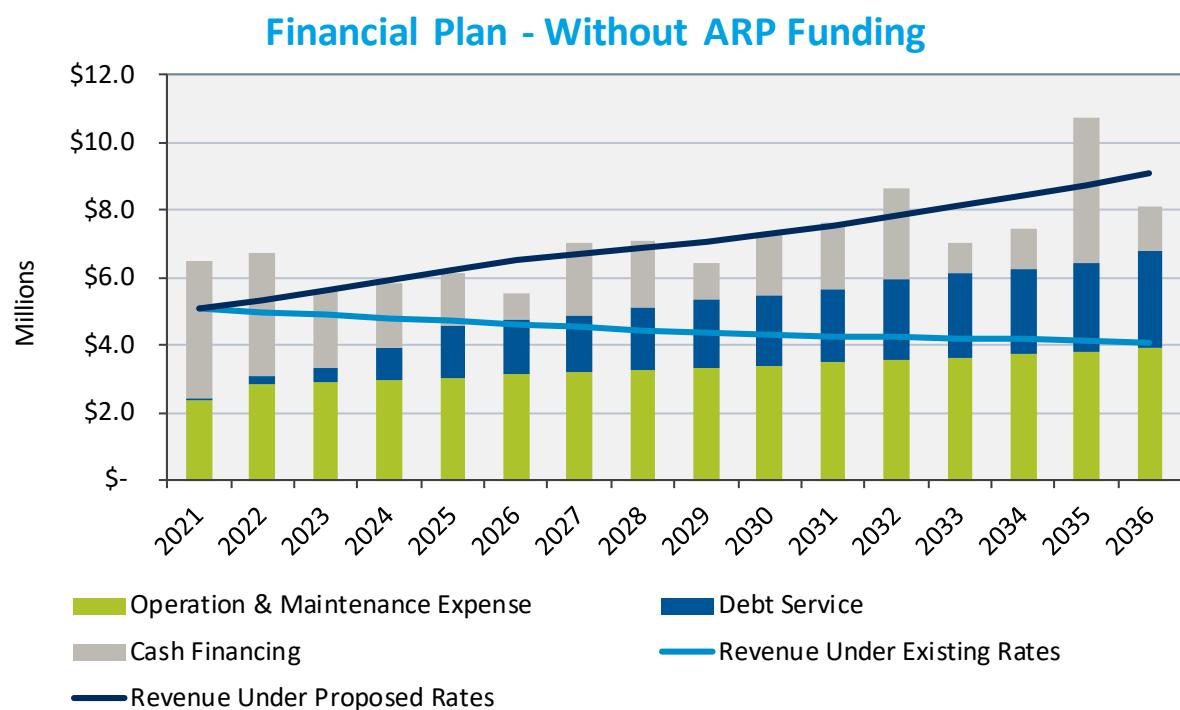
**Capital Improvement Program (15 Year, with ARP)**



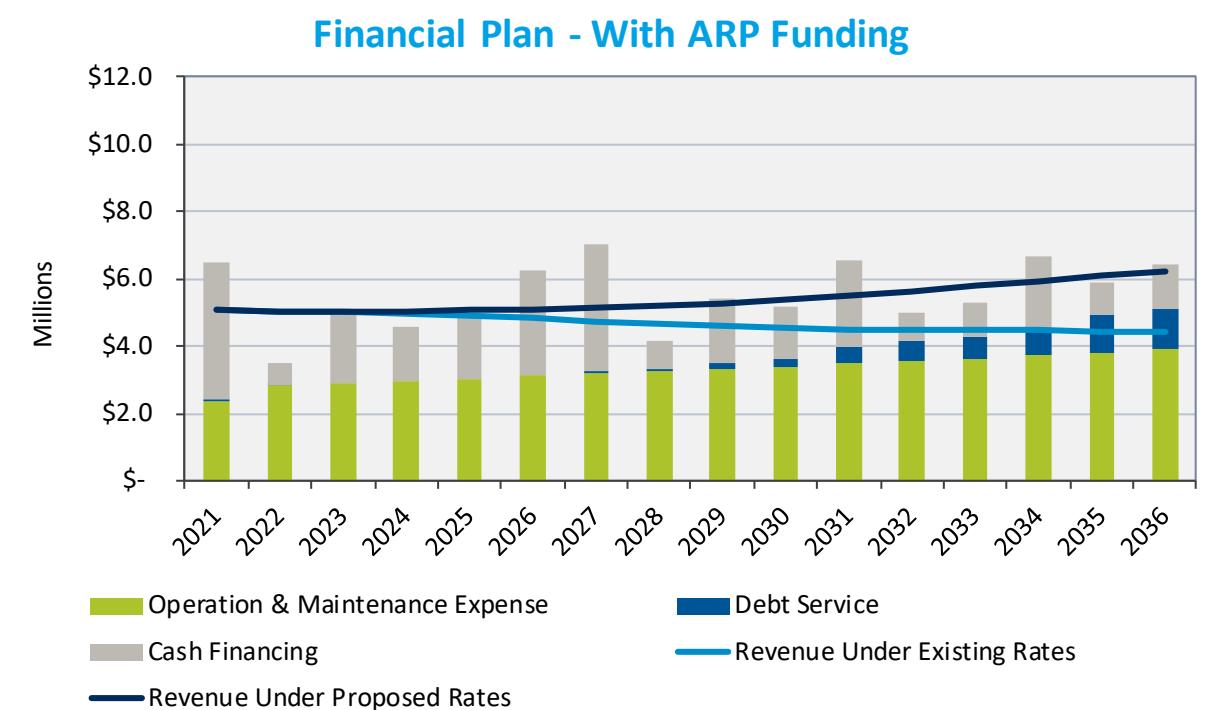
# Financial Results – 15-year Tier 1

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## No ARP Funding



## With \$28M ARP Funding (Illustration)



# Assessing Impact on Residential Customers

*Include ALL Clean Water Act (CWA) Costs*

## Current (2021) Rates:

- Cleveland Heights Sewer Utility bill – based on water usage, billed quarterly
  - 2021 = \$43.45/MCF\*\*
- NEORSD Wastewater and Stormwater bill, billed monthly
  - Wastewater: Fixed charge (2021 = \$9.70/month) plus volume charge\* (2021 = \$106.80/MCF\*\*)
  - Stormwater: Tiered fee based on impervious area of property

\* If enrolled in summer sprinkling program, NEORSD bill is based on winter quarter average volume

\*\* 1 MCF = 1,000 cubic feet, or 7,480 gallons



# Projected Annual Rate Increases (2022 – 2036)

- Cleveland Heights Sewer Utility

- Based on financial plan illustration including use of approx. \$28 million in Federal American Recovery Plan (ARP) funds in 2021 – 2024

## NO ARP FUNDING

- 2022 – 2026: 6.3%/yr
- 2027 – 2036: 3.8%/yr
- Cumulative: 97.1%

## WITH ARP FUNDING (Illustration Only)

- 2022 – 2023: 0.0%/yr
- 2024 – 2026: 1.5%/yr
- 2027 – 2036: 2.6%/yr
- Cumulative: 35.2%

- NEORSD \*

- 2022 – 2026: 4.7%/yr for both wastewater and stormwater charges, based on current NEORSD proposal
  - 2027 – 2036: Assume continuation of 4.7% annual revenue increases

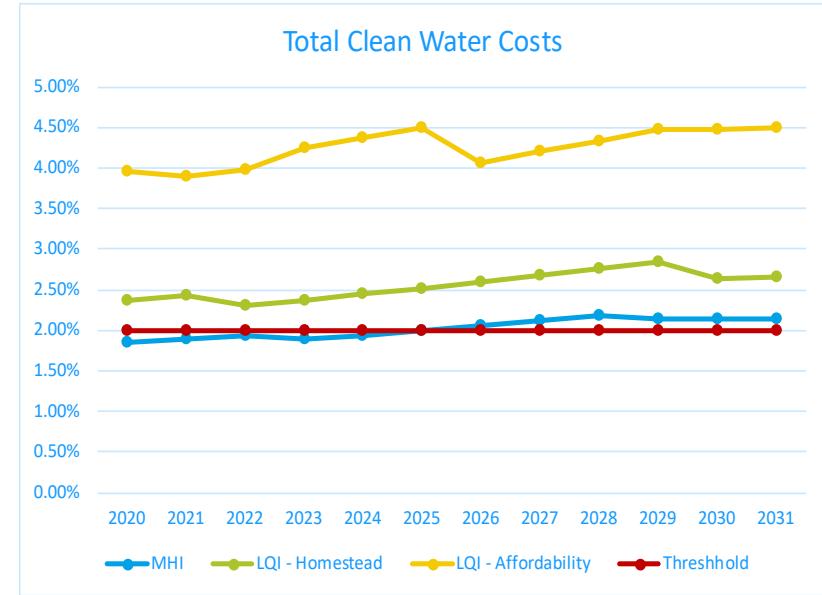
*\* NEORSD projected rates have been updated to reflect the projected increases released during recent public webinars*



# “Annual Bill” as % of Income – EPA Benchmark

Based on average billed volume per billing records

- Residential:
  - Wastewater = 1.8 MCF\*\*/quarter
  - Stormwater = Tier 2 (2,000-3,999 sq ft of impervious area – most common per NEORSD)
  - Annual bill as a % of income based on Median Household Income of \$57,768\*\*\* (MHI)
- Homestead: *(age, disability and income eligibility requirements)*
  - Wastewater = 1.4 MCF\*\*/quarter
  - Stormwater = Tier 2
  - Annual bill as a % of income based on Upper Limit of Lowest Quintile (20%) Income of \$21,260\*\*\* (LQI)
- Affordability: *(income eligibility requirements)*
  - Wastewater = 2.4MCF\*\*/quarter
  - Stormwater = Tier 2
  - Annual bill as a % of income based on Upper Limit of Lowest Quintile (20%) Income of \$21,260\*\*\* (LQI)



\* If enrolled in summer sprinkling program, bill is based on winter quarter average volume

\*\* 1 MCF = 1,000 cubic feet, or 7,480 gallons

\*\*\* American Community Survey, 2019 5-year average, escalated at 2%/year



# Calculated Quarterly Residential Bills

Includes all Clean Water Act (CWA) costs: City Sewer Utility and NEORSD

	<b>2021 Average Residential Quarterly Bill (1.8 MCF)</b>	<b>% of Total</b>
Cleveland Heights Sewer Utility	\$78.21	24.8%
NEORSD Wastewater	\$221.34	70.3%
NEORSD Stormwater	\$15.45	4.9%
Total CWA-related “Bill”	\$315.00	

City cost is less  
than 25% of total



# Calculated Quarterly Residential Bills – w/out ARP Funding

- Includes Cleveland Heights Sewer and NEORSD
- 6.3% annual rate increases required beginning in 2022
- Calculated Quarterly Residential Bill today and at end of Tier 1:

Without ARP Funding	Quarterly Bill (2021)	Quarterly Bill (2036)	Total Quarterly Increase	Average Annual Quarterly Increase	
				Annual	Quarterly
<u>Residential - Regular Rate</u>					
	0.6 MCF/Qtr	\$ 134.70	\$ 267.38	\$ 132.68	\$ 8.85
	1.8 MCF/Qtr	\$ 315.00	\$ 624.67	\$ 309.67	\$ 20.64
	4.5 MCF/Qtr	\$ 720.68	\$ 1,428.57	\$ 707.89	\$ 47.19
<u>Residential - Homestead/Affordability</u>					
	0.6 MCF/Qtr	\$ 77.71	\$ 154.16	\$ 76.45	\$ 5.10
	1.8 MCF/Qtr	\$ 185.92	\$ 368.54	\$ 182.62	\$ 12.17
	4.5 MCF/Qtr	\$ 429.38	\$ 850.89	\$ 421.51	\$ 28.10



# Calculated Quarterly Residential Bills – With ARP Funding

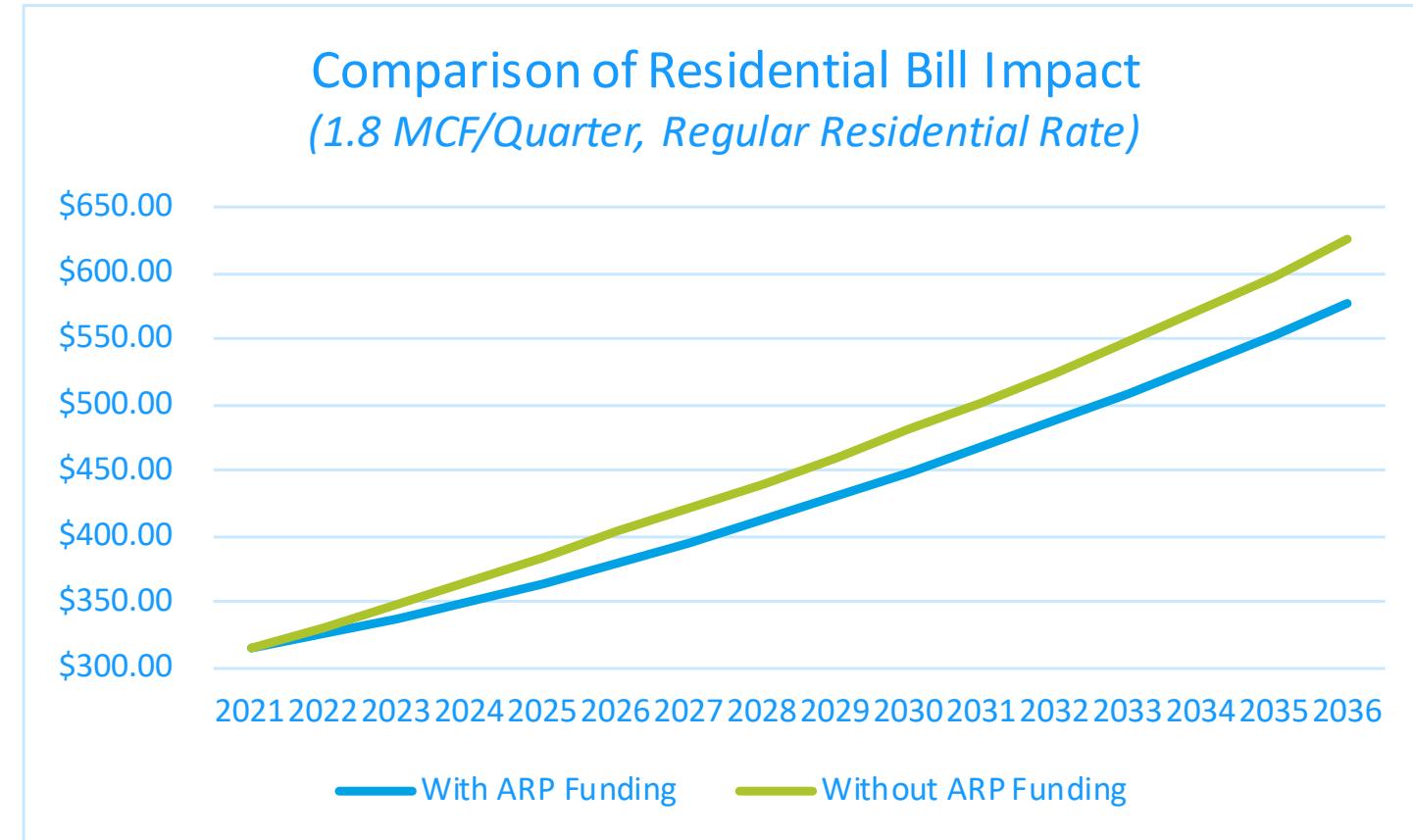
- Includes Cleveland Heights Sewer and NEORSD
- Using some ARP funds in 2021 – 2024 will help accelerate certain projects, while helping to defer and minimize City Sewer Utility rate increases
- Calculated Quarterly Residential Bill today and at end of Tier 1:

With ARP Funding	Quarterly Bill (2021)	Quarterly Bill (2036)	Quarterly Increase	Total		Average Annual Quarterly Increase	
				Quarterly	Total	Annual	Quarterly Increase
<u>Residential - Regular Rate</u>							
	0.6 MCF/Qtr	\$ 134.70	\$ 251.24	\$ 116.54	\$ 7.77		
	1.8 MCF/Qtr	\$ 315.00	\$ 576.24	\$ 261.24	\$ 17.42		
	4.5 MCF/Qtr	\$ 720.68	\$ 1,307.52	\$ 586.84	\$ 39.12		
<u>Residential - Homestead/Affordability</u>							
	0.6 MCF/Qtr	\$ 77.71	\$ 144.47	\$ 66.76	\$ 4.45		
	1.8 MCF/Qtr	\$ 185.92	\$ 339.49	\$ 153.57	\$ 10.24		
	4.5 MCF/Qtr	\$ 429.38	\$ 778.26	\$ 348.88	\$ 23.26		



# Calculated Quarterly Residential Bill - Comparison

- Total CWA Cost
- Includes Cleveland Heights Sewer Utility bill and NEORSD wastewater and stormwater bill
- 1.8 MCF/Quarter
- Regular rates



# Responses to Technical Questions and Comments



# Integrating Work with Neighboring Communities

- Communities are responsible for their respective local sewer systems.
- In some cases, local sewers may cross community boundaries - if improvements are needed, we will coordinate when it makes sense financially and practically.
- NEORSD may be involved to solve significant intercommunity problems that involve larger flows and pipes.
- Continue to look for other applicable funding options



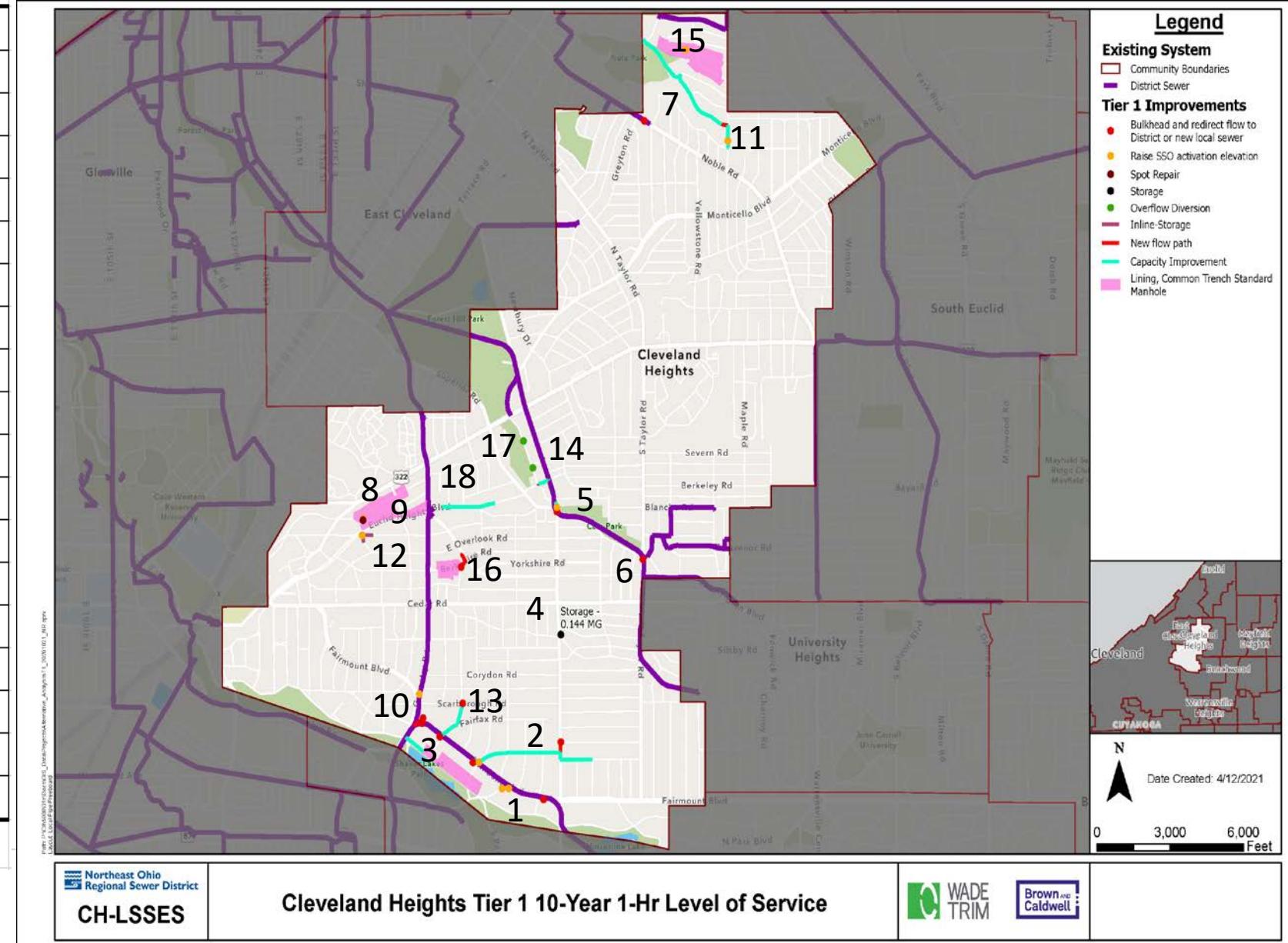
# Other Infrastructure Renewal Benefits

- Improved level of service and reduced risk of problems and structural failures
  - emergency repairs are very costly compared to planned renewal.
- Reduced future operations and maintenance costs
  - Fewer service calls
  - Reduced cleaning and root removal
  - Reduced risk of dry weather sanitary sewer overflows
- Reduced risk of property damages and related economic loss
- Improved property values based on system reliability
- Reduced flow volumes lower wastewater treatment costs for all rate payers



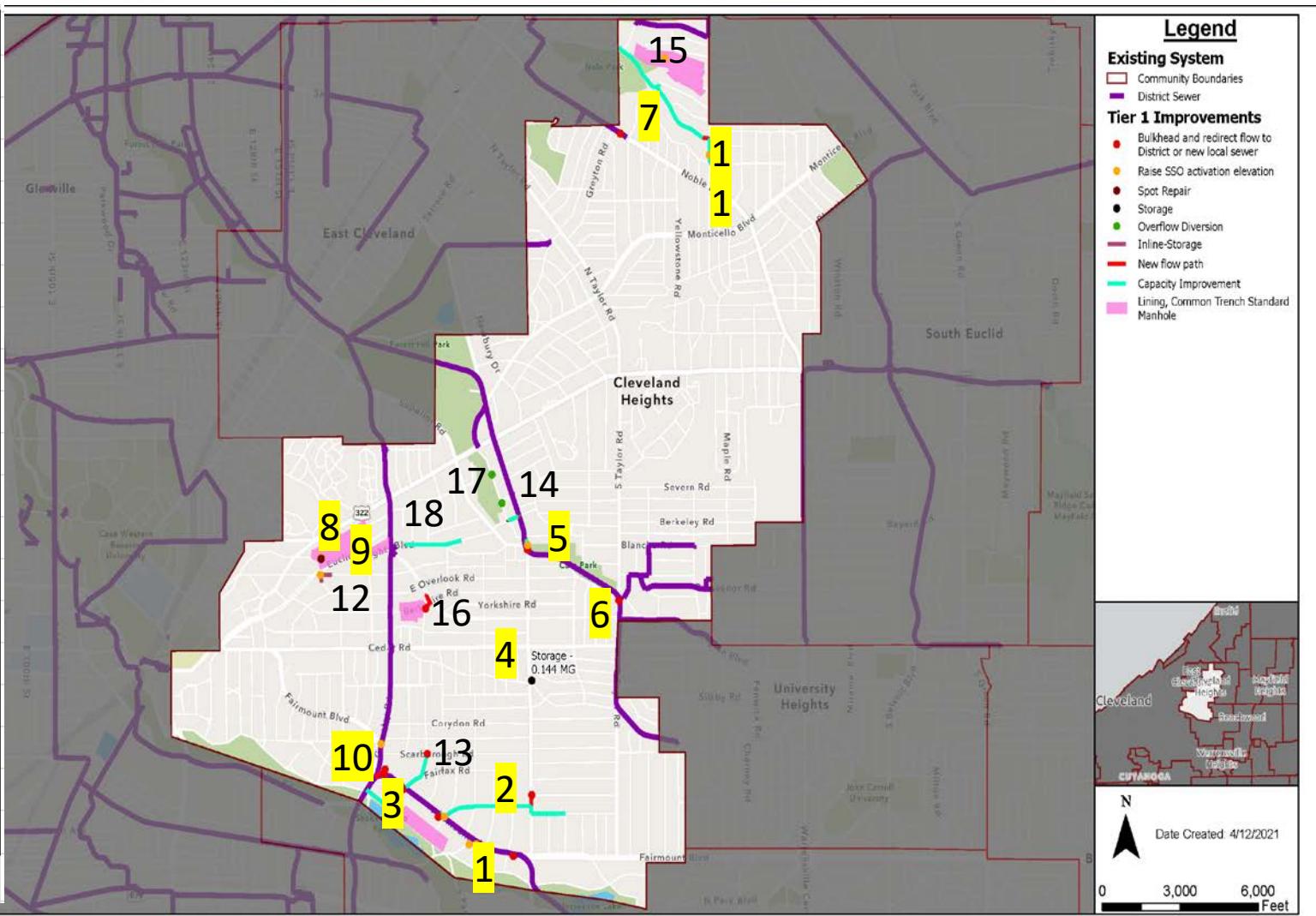
# Tier 1 - SSO Improvement Areas – Without ARP Funding

Project #	SSO ID	Project Cost
1	CH-2, CH-33, CH-39	\$370,000
2	CH-9, CH-32, CH-57, CH-58	\$8,868,000
3	CH-36, CH-37	\$2,159,000
4	CH-56	\$1,014,000
5	CH-12	\$732,000
6	CH-30	\$67,000
7	CH-51	\$3,663,000
8	CH-13	\$1,237,000
9	CH-61	\$997,000
10	CH-35, CH-45, CH-49	\$1,142,000
11	CH-27	\$7,302,000
12	CH-46	\$1,001,000
13	CH-50	\$3,454,000
14	CH-28	\$654,000
15	CH-55	\$1,851,000
16	CH-23	\$1,259,000
17	CH-17, CH-25, CH-26	\$50,000
18	CH-24	\$4,446,000
<b>Total</b>		<b>\$40,266,000</b>



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# Private Property Improvements

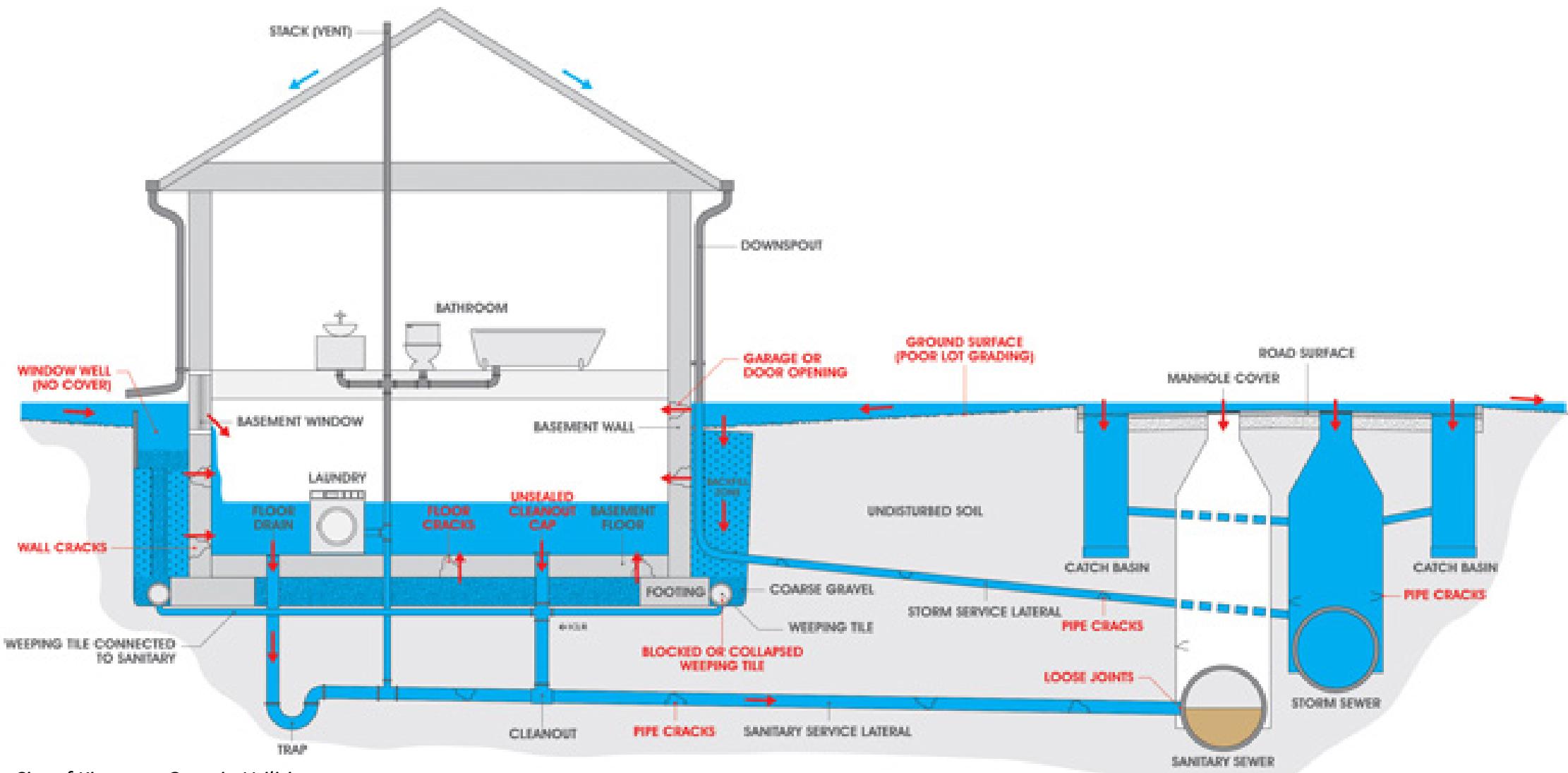


# Private Property Improvement is Part of the Solution

- Inflow and infiltration of stormwater into sanitary sewers occurs in large volumes on private property, before the flow reaches public sewers.
- Original construction laterals, footer drains and downspouts often become plugged with debris or develop cracks that can leak or allow tree roots to grow. Some are mis-connected.
- Reminder that property owners need to maintain their infrastructure
- *Note: any property improvements that involve or are over private outdoor infrastructure should ensure plumbing is updated and working properly*
  - *Front porch replacements*
  - *Basement Waterproofing*
  - *Building additions*
  - *New driveways*



# Private Property Improvements May Be Needed



# Next Steps

- Please continue to submit any comments  
[www.clevelandheights.com/Consent-Decree-Comments](http://www.clevelandheights.com/Consent-Decree-Comments)
- 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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## Public Comments Received

<b>Reference #</b>	13763397
<b>Status</b>	Complete
<b>Name</b>	Carla Rautenberg
<b>Street Address</b>	3065 Berkshire Road
<b>Question or Comment</b>	<p>Slide 35 "Residential Customer Bill Impact" in particular needs much clarification and explanation.</p> <p>Item 1. The slide states: "Annual cost includes City bill plus NEORSD wastewater and stormwater bill." Then it says "The typical City quarterly residential bill estimated to increase from \$78.21 in 2021 to \$93.97 in 2036." However, there is no break-out or estimate of any possible increases in NEORSD bills, which are issued and paid MONTHLY. Clearly, "Total Clean Water Costs" must include any planned increases by NEORSD, but the presentation is silent on this.</p> <p>Item 2. What is a "typical" quarterly residential bill? What does that even mean? We are not told. Both City and NEORSD sewer bills are based specifically on water usage per household. We need to the precise amount of increases per MCF of water used. That is the only way to provide an meaningful estimate of the increased costs residents will bear.</p> <p>Item 3. The slide also states: "Annual rate increases of 1.5% - 2.6%, beginning 2024 to fund all Tier 1 projects by the end of 2036." This raises two issues: A. will there be City or NEORSD sewer rate increases in 2022 and 2023? From the graphic, it appears that there will be; and B. The graphic illustrates no increase as low as 1.5%. For the most economically disadvantaged residents, it shows ANNUAL increases of from 4 to 4.5%, and for elderly low-income "homestead" rate residents, it shows ANNUAL increases of from 2.5% to about 2.9%.</p> <p>In conclusion, Cleveland Heights residents need and deserve much more detailed cost information, and justifications for the decisions about each rate tier, than this presentation provides. The consultants and the City must provide the amount per MCF of water use that both our quarterly City and monthly NEORSD bills will be increased each year to meet this long-delayed obligation. If \$27 million in ARP funds are applied to this Tier 1 work, we need to know exactly how much, and when that will reduce our quarterly City and monthly NEORSD bills.</p>
<b>Last Update</b>	2021-04-25 12:45:50
<b>Start Time</b>	2021-04-25 11:50:21
<b>Finish Time</b>	2021-04-25 12:45:50
<b>IP</b>	108.200.162.211

**Browser** Firefox

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**Device** Desktop

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**Referrer** <https://www.clevelandheights.com/>

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<b>Reference #</b>	13756208
<b>Status</b>	Complete
<b>Name</b>	Susan Miller
<b>Street Address</b>	Berkshire Rd
<b>Question or Comment</b>	<p>Annual rate increases of 1.5% - 2.6%, beginning 2024 to fund all Tier 1 projects by the end of 2036</p> <ul style="list-style-type: none"> <li>• The typical City quarterly residential bill estimated to increase from \$78.21 in 2021 to \$93.97 in 2036</li> </ul> <p>The graphic needs explanation for homestead and low income ratepayers. It appears the median household income group will see a drop and then hug the threshold, whereas low income and homestead ratepayers will see a significant increase and continue to bear the higher burden of rate increase both immediately and over time. Please explain since that's what appears to be the case. Perhaps I'm completely wrong that our consultants have determined that low income and old people should bear the burden of this necessary infrastructure repair and mitigation. Does the quarterly rise of \$16 per annum over the period refer to the median household income group, and if it does, what's the annual rate increase for low income folks and elders? Further, why estimate since these rates are charged by MCF or CCF rather than as an average? This is suspiciously like the fog of numbers perpetrated during the water discussion. Can we have a spreadsheet please indicating something tangible that ratepayers can use based on numbers of members in a household and MCF usage? I will appreciate that. Look forward to seeing it - surely they have this very document.</p>
<b>Last Update</b>	2021-04-21 19:58:42
<b>Start Time</b>	2021-04-21 19:43:53
<b>Finish Time</b>	2021-04-21 19:58:42
<b>IP</b>	108.200.162.136
<b>Browser</b>	Chrome
<b>Device</b>	Desktop
<b>Referrer</b>	<a href="https://www.clevelandheights.com/">https://www.clevelandheights.com/</a>

**Reference #** 13758526

<b>Status</b>	Complete
<b>Name</b>	Chris Jacobs
<b>Street Address</b>	2508 Wellington Rd.
<b>Question or Comment</b>	<p>1. Do we know whether federal, state, or county funds will be available to update the sewer system? 2. If federal funds do become available, is there a plan in place to speed up the required updates or reduce the long-term debt? 3. Given that neighboring communities have similar issues, have you considered working with neighboring communities to save costs, particularly for needed updates that abut neighboring communities? 4. Beyond simply meeting the minimum requirements of the consent decree, what further improvements should be considered to reduce ongoing maintenance costs to maintain our sewer infrastructure (make future maintenance easier and cheaper) ?</p> <p>The increase in rates seems very reasonable.</p>
<b>Last Update</b>	2021-04-22 16:46:26
<b>Start Time</b>	2021-04-22 15:50:51
<b>Finish Time</b>	2021-04-22 16:46:26
<b>IP</b>	107.207.104.200
<b>Browser</b>	Firefox
<b>Device</b>	Desktop
<b>Referrer</b>	<a href="https://www.clevelandheights.com/">https://www.clevelandheights.com/</a>

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April 21, 2021

IOCMP - Integrated Overflow Control Master Plan



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# 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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DeGulis<sup>llp</sup>



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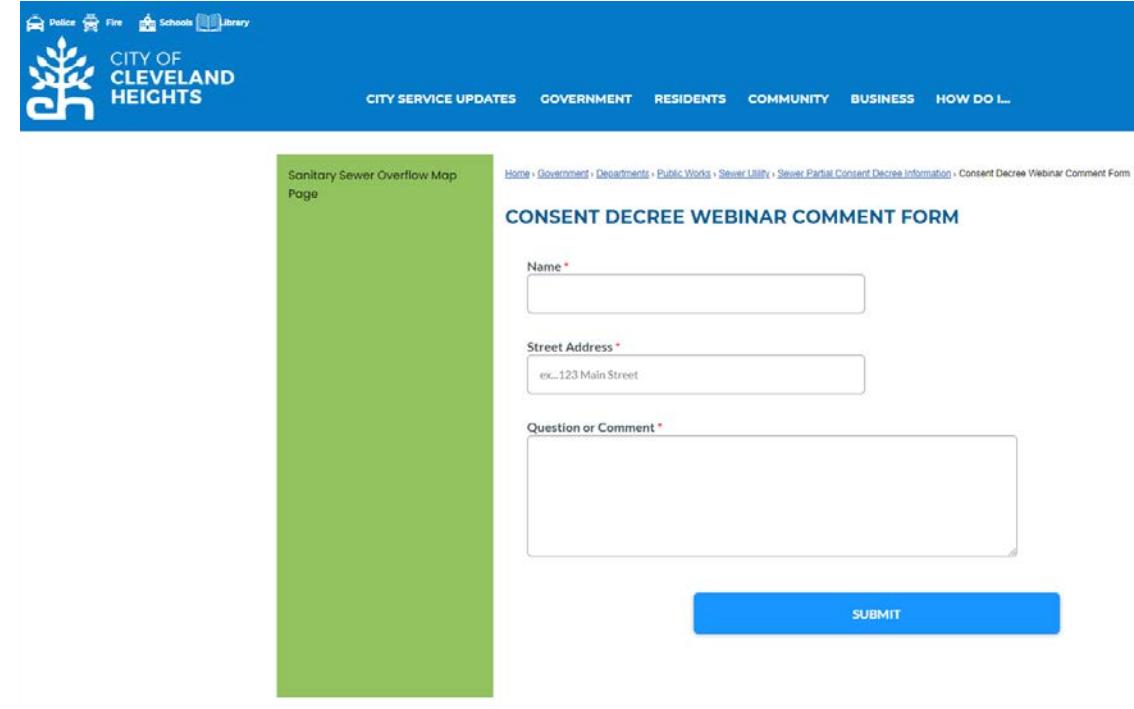
Other communities developed in the same timeframe face similar CWA challenges.



# 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, a green rectangular overlay covers the main content area. The overlay has the text "Sanitary Sewer Overflow Map Page" at the top and "CONSENT DECREE WEBINAR COMMENT FORM" in bold capital letters. 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.

[www.clevelandheights.com/Consent-Decree-Comments](http://www.clevelandheights.com/Consent-Decree-Comments)

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

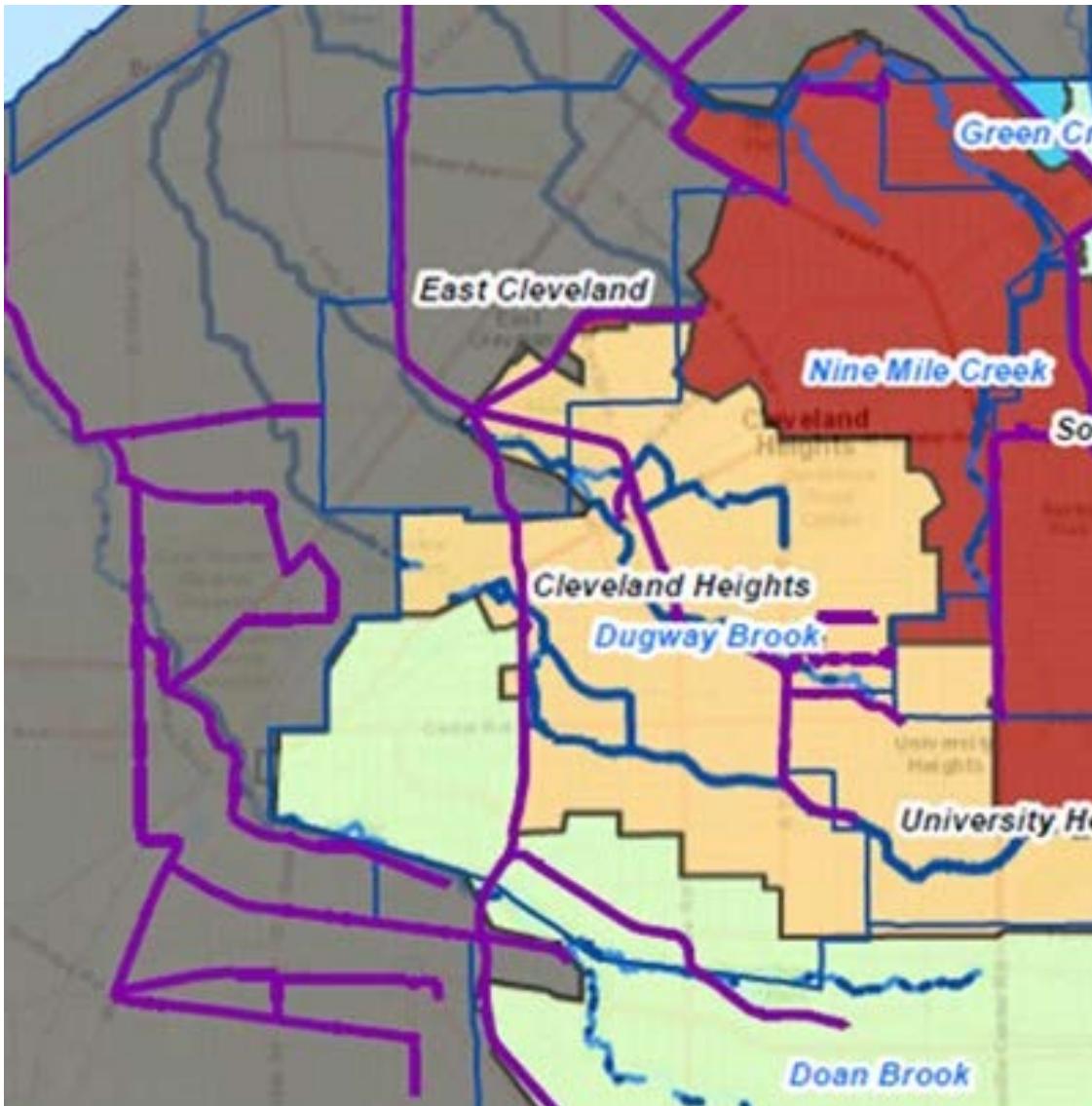


# Background Information is Readily Available

- 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

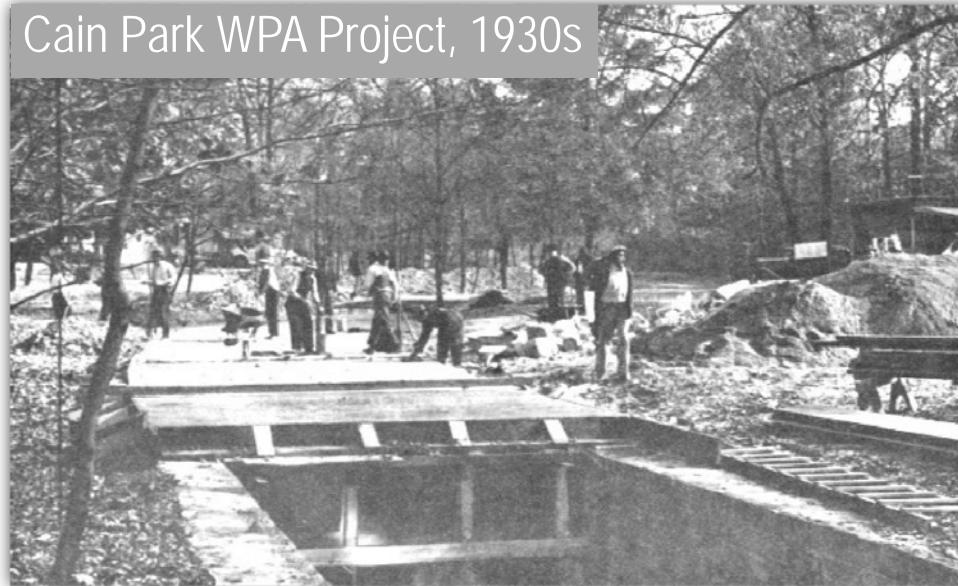
## **Early 20<sup>th</sup> Century Sewer System is still being investigated**

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

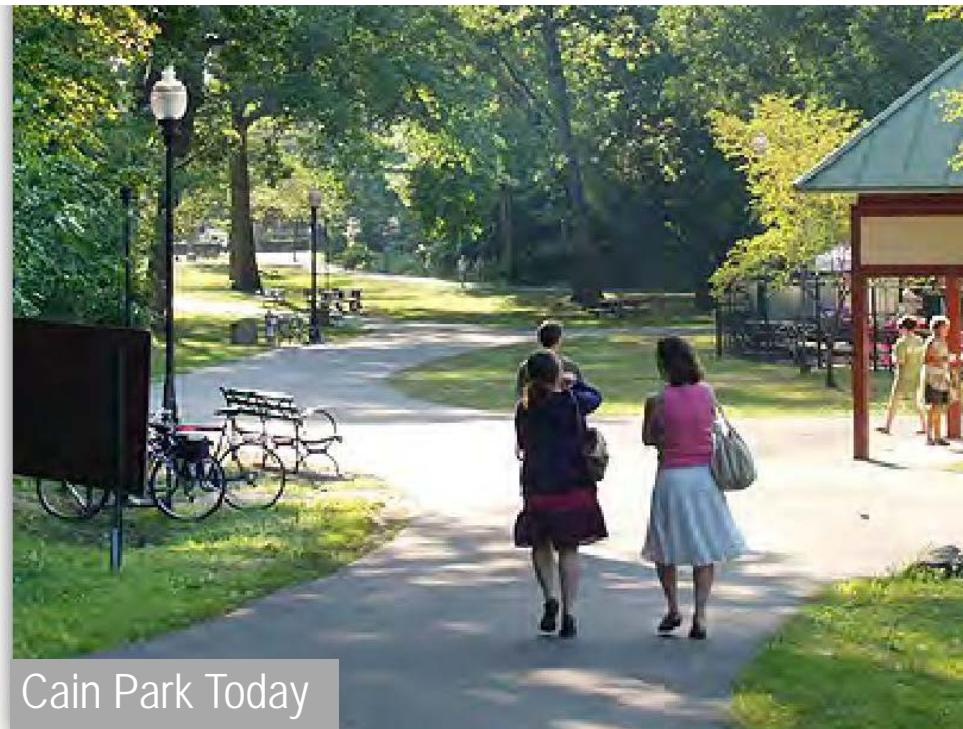
**The Cleveland Heights System is a unique combination of sewer types, not amenable to standard solutions to meet modern requirements**



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

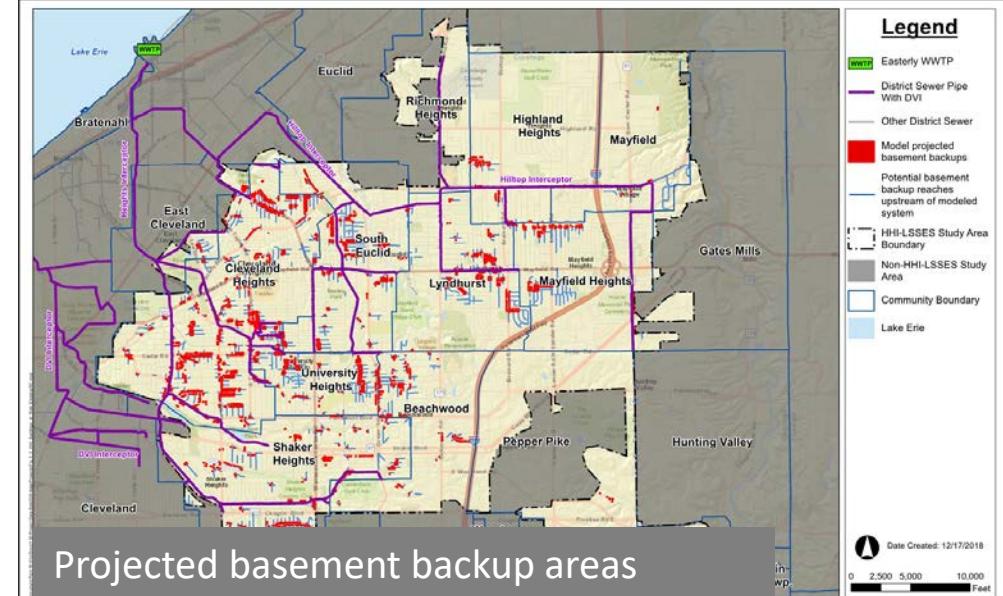
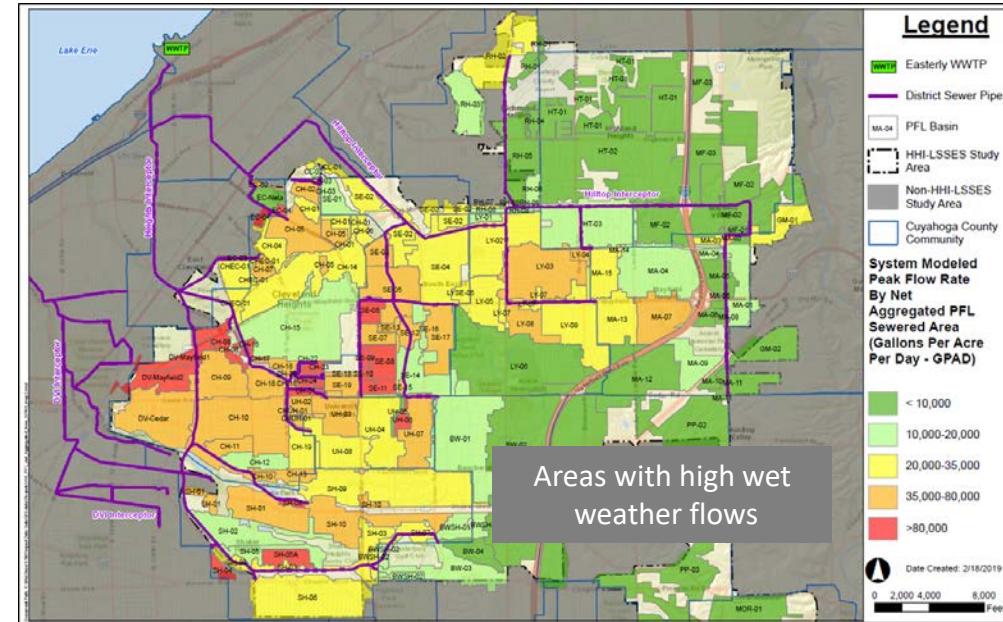


# Consent Decree Progress and Technical Analysis for IOCMP



# Cleveland Heights Consent Decree Progress

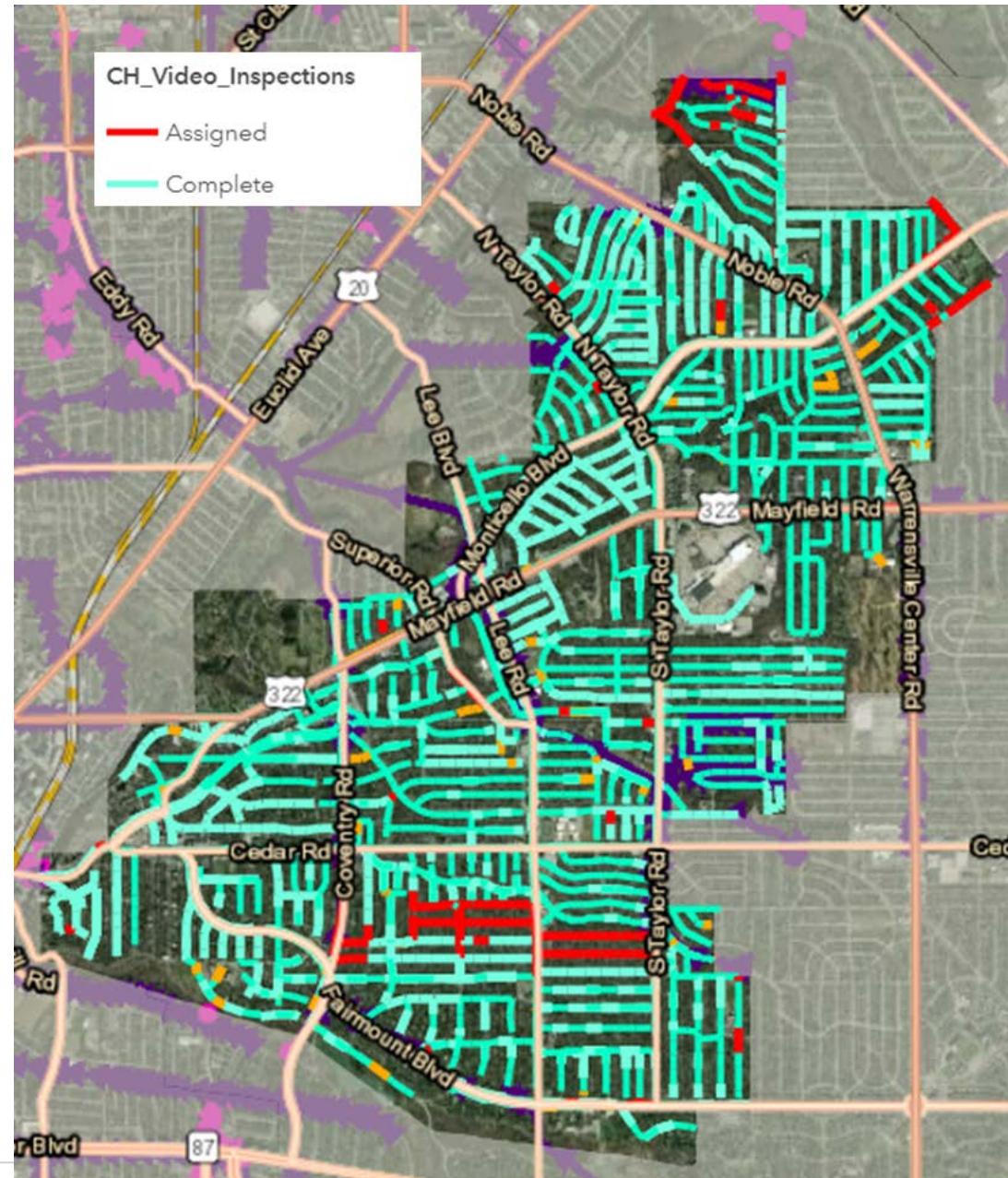
- Partial CD executed in 2017
- Northeast Ohio Regional Sewer District Heights-Hilltop Sewer System Evaluation Study (HHI-LSSES project, 2016-2019)
  - Sewer system investigations, flow/rainfall monitoring
  - Modeling analysis of SSOs and basement backups (BBUs)
  - Alternatives and cost analysis
  - 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

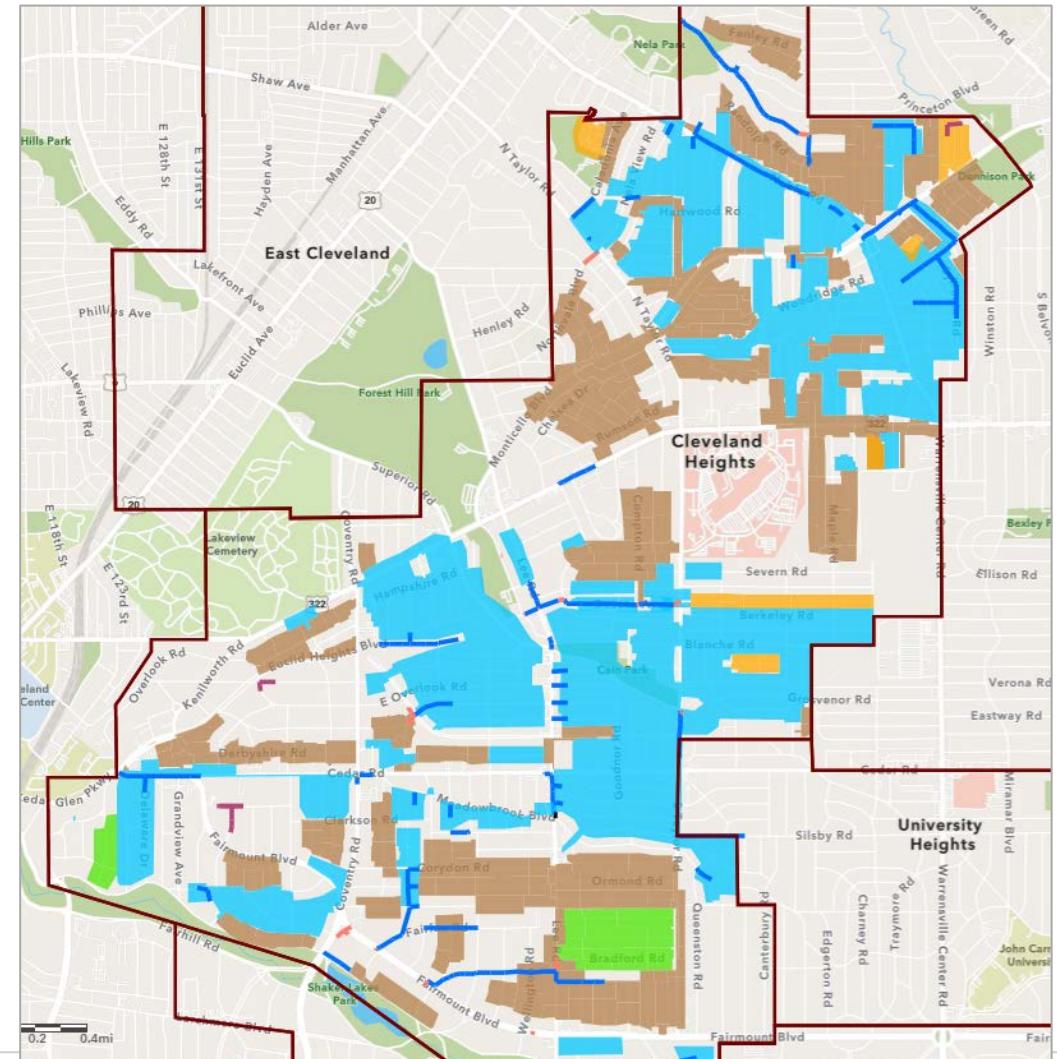
- Total sewer length: 620,000 LF (117 m)
- Phase 1 (completed 2019): 395,000 LF (75 m)
- Phase 2 (ongoing – due June 30, 2021)
  - Completed to 4/2/21: 195,000 LF (37 m)
  - Remaining: 30,000 LF (6 m)
- ~95% complete overall
- 3,100 sanitary manholes - inspections complete

**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

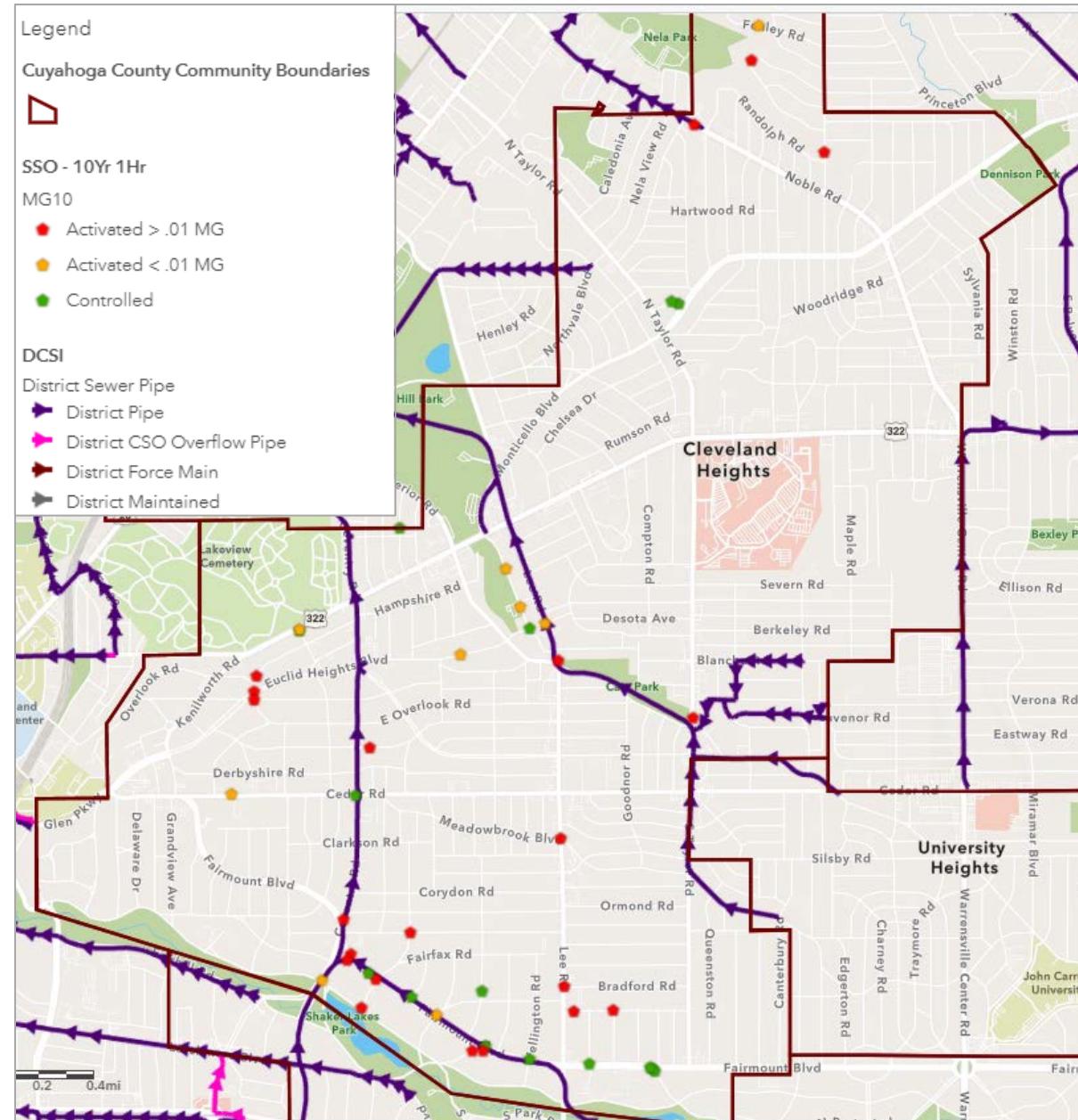
- **Tier 1** – Control active SSOs and reduce risk of basement backups (BBUs) in SSO work areas
- Repair sewers in poor structural condition in parallel with Tier 1
- **Tier 2** – Over-under (invert plate) and dividing wall manhole areas
  - Long term work
  - High wet weather flows = higher risk of 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

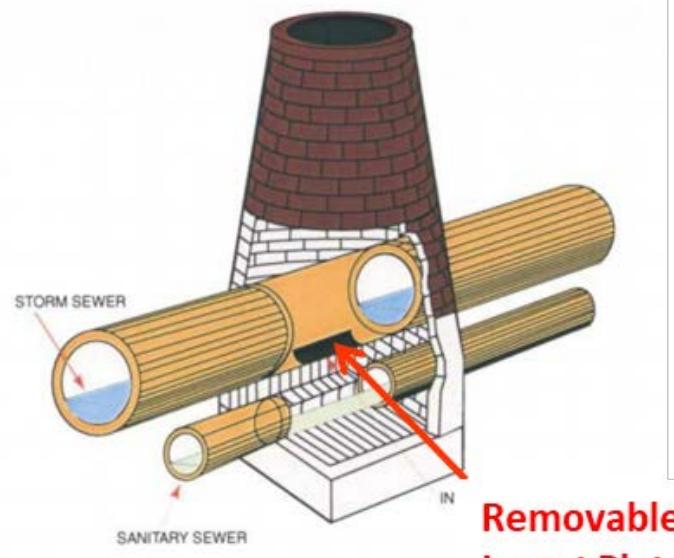
- 45 known SSO structures
- 29 are projected to overflow during a 10-yr, 1-hr rainfall
- SSOs with highest frequencies and volumes to be addressed first

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

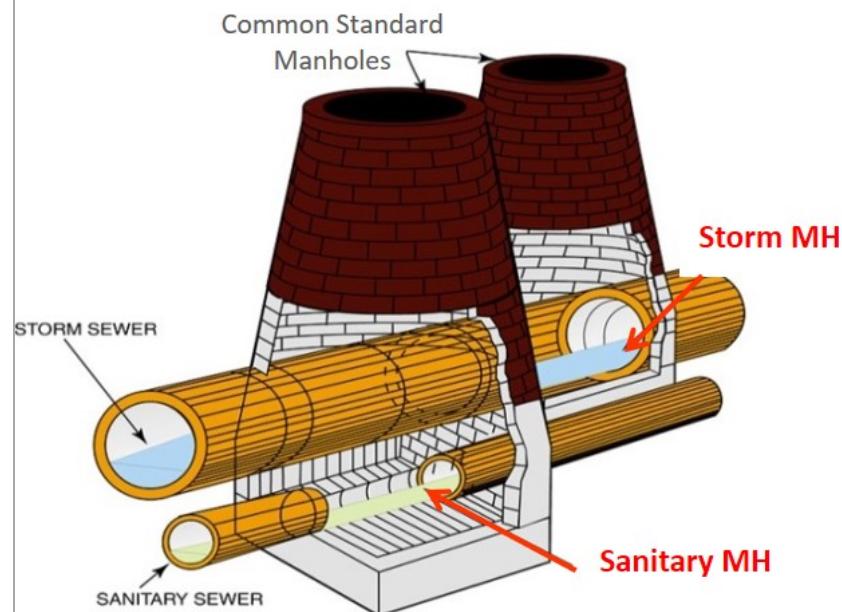


# Common Trench Sewers

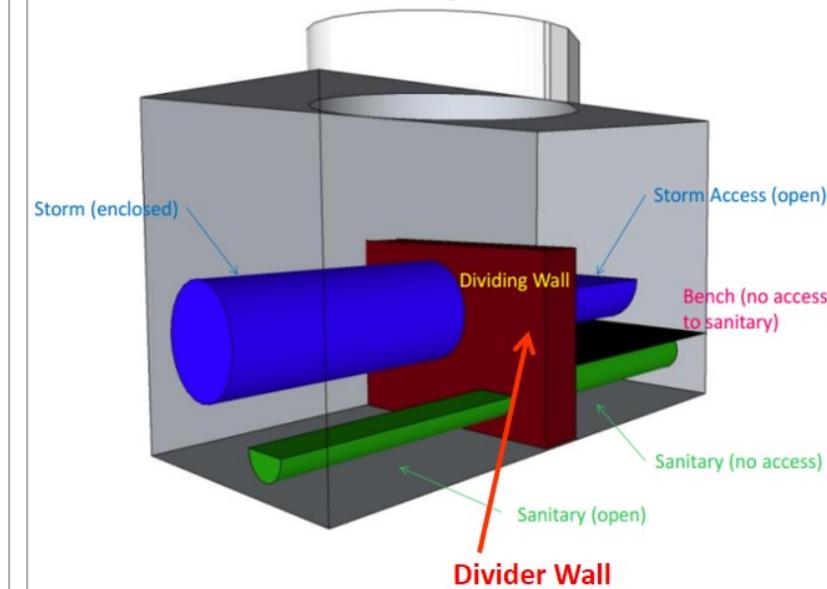
**Over-Under (Invert Plate) Sewer**



**Common Standard Sewers**



**Dividing Wall Sewers**

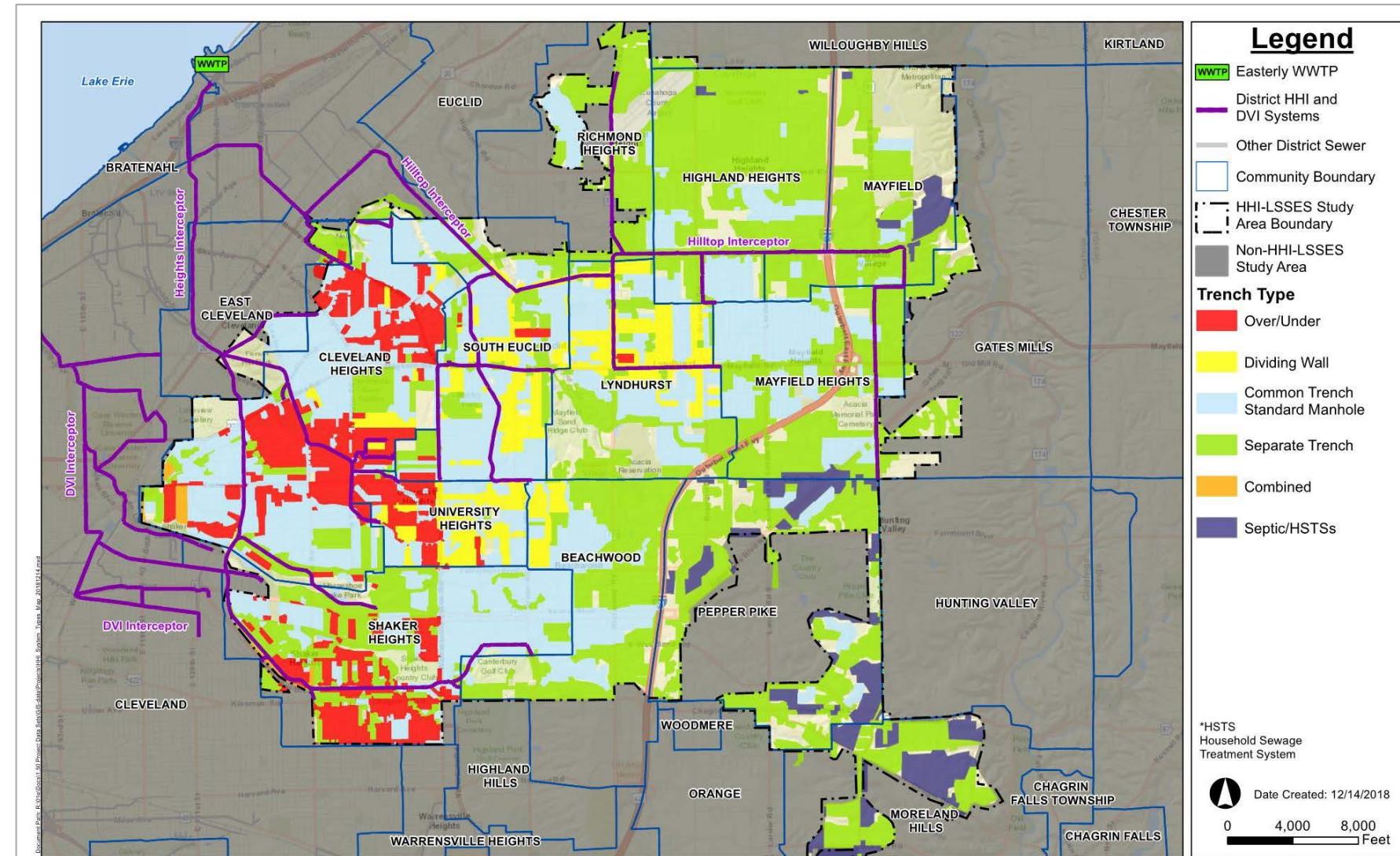


- Sewage and stormwater crossflows, difficult maintenance, 50 – 100 years old
- Rainwater inflow, sanitary sewer surcharging, basement backups and SSOs
- Common trench 87% of total sewers in Cleveland Heights, 13% separate trench
- Common trench: 33% over/under, 51% common standard, 3% dividing wall



# 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)

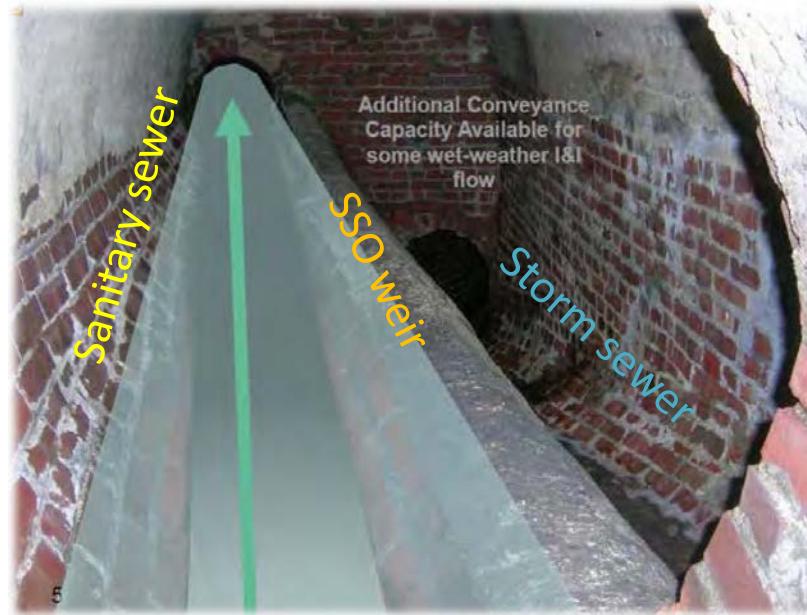
- Eliminate 10 million gallons of annual sewage overflow to local waterways
- Reduce the risk of basement backups in SSO work areas



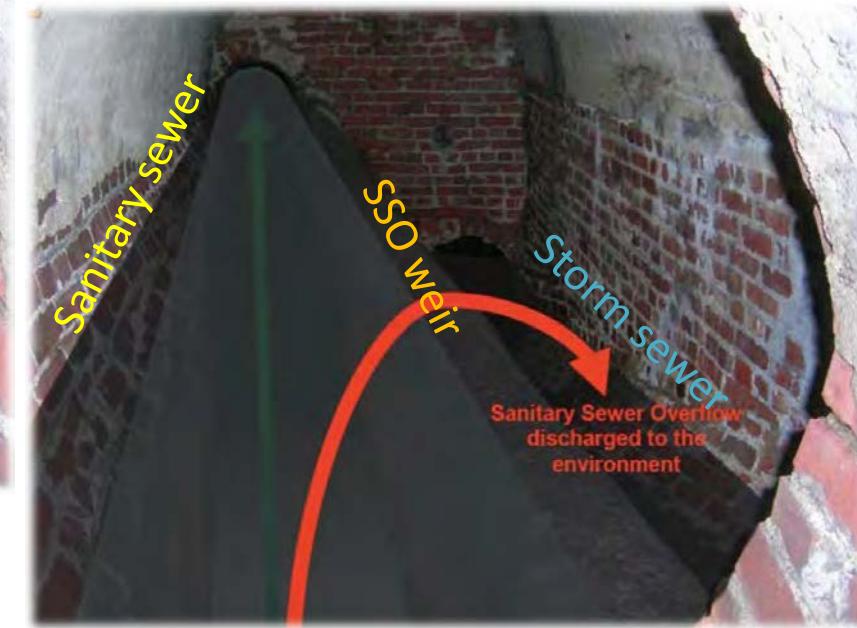
# CWA Issues - Sanitary Sewer Overflow (SSO) Structures



Normal dry weather flow to WWTP



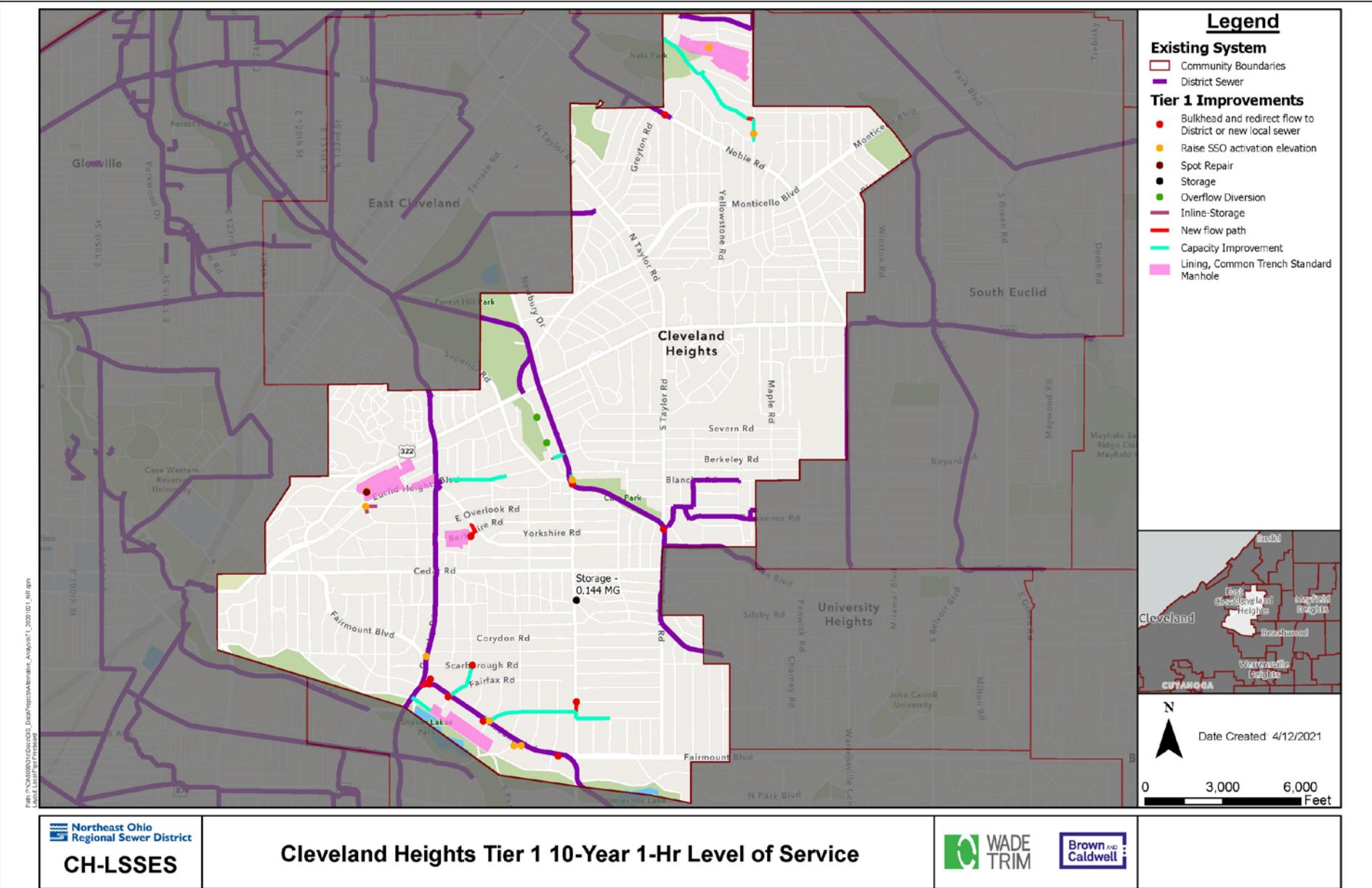
Wet weather flow increasing



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



Northeast Ohio  
Regional Sewer District

## CH-LSSES

#### **Cleveland Heights Tier 1 10-Year 1-Hr Level of Service**

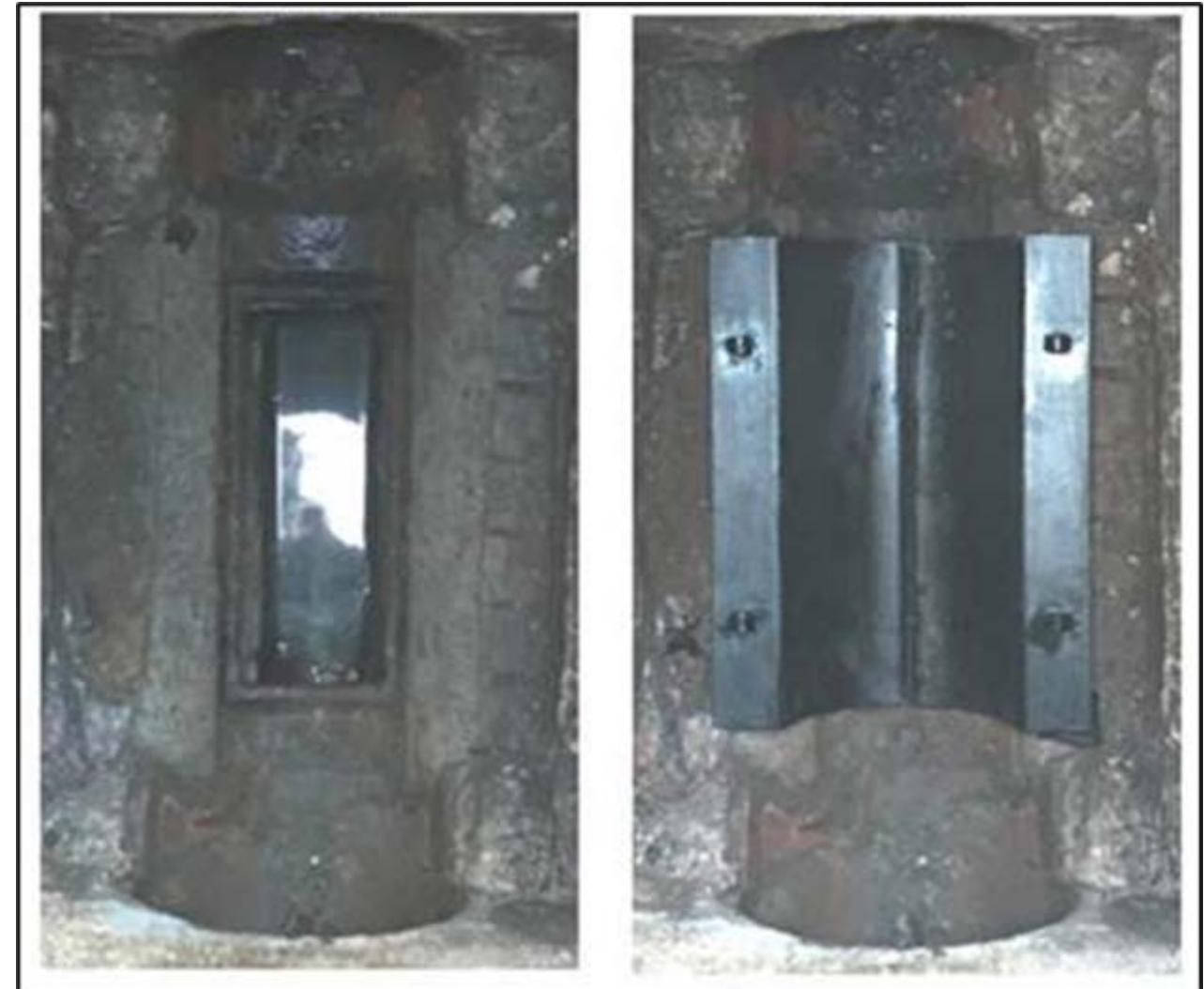
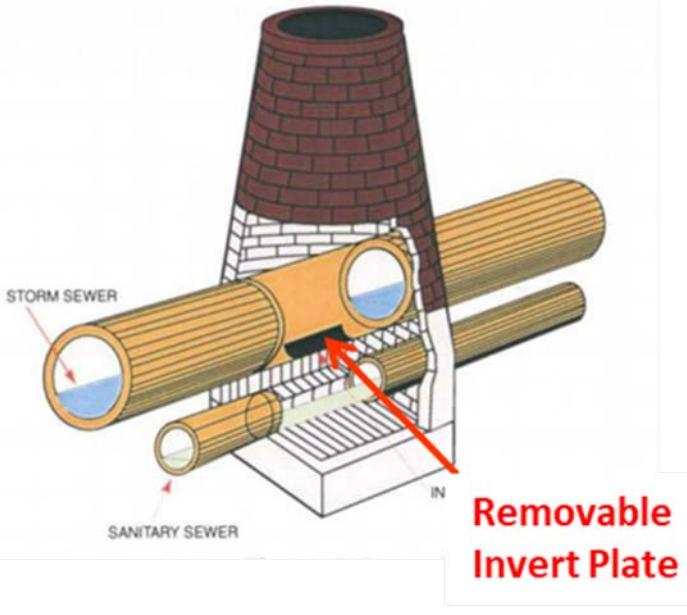


Brown AND Caldwell

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

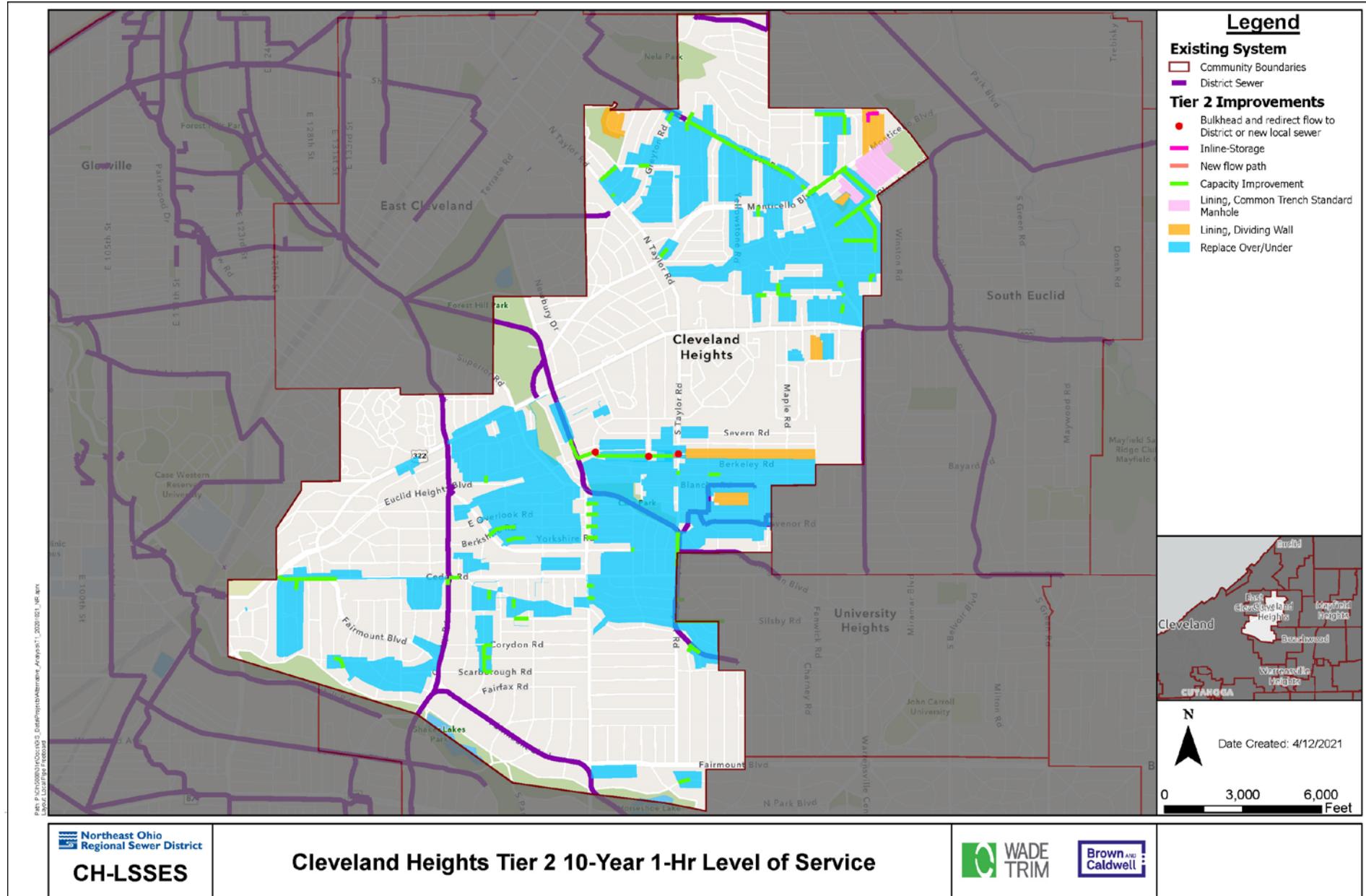
- Sewer separation
- Sewer lining
- Manhole reconstruction
- Other remediation methods

## Over-Under (Invert Plate) Sewer



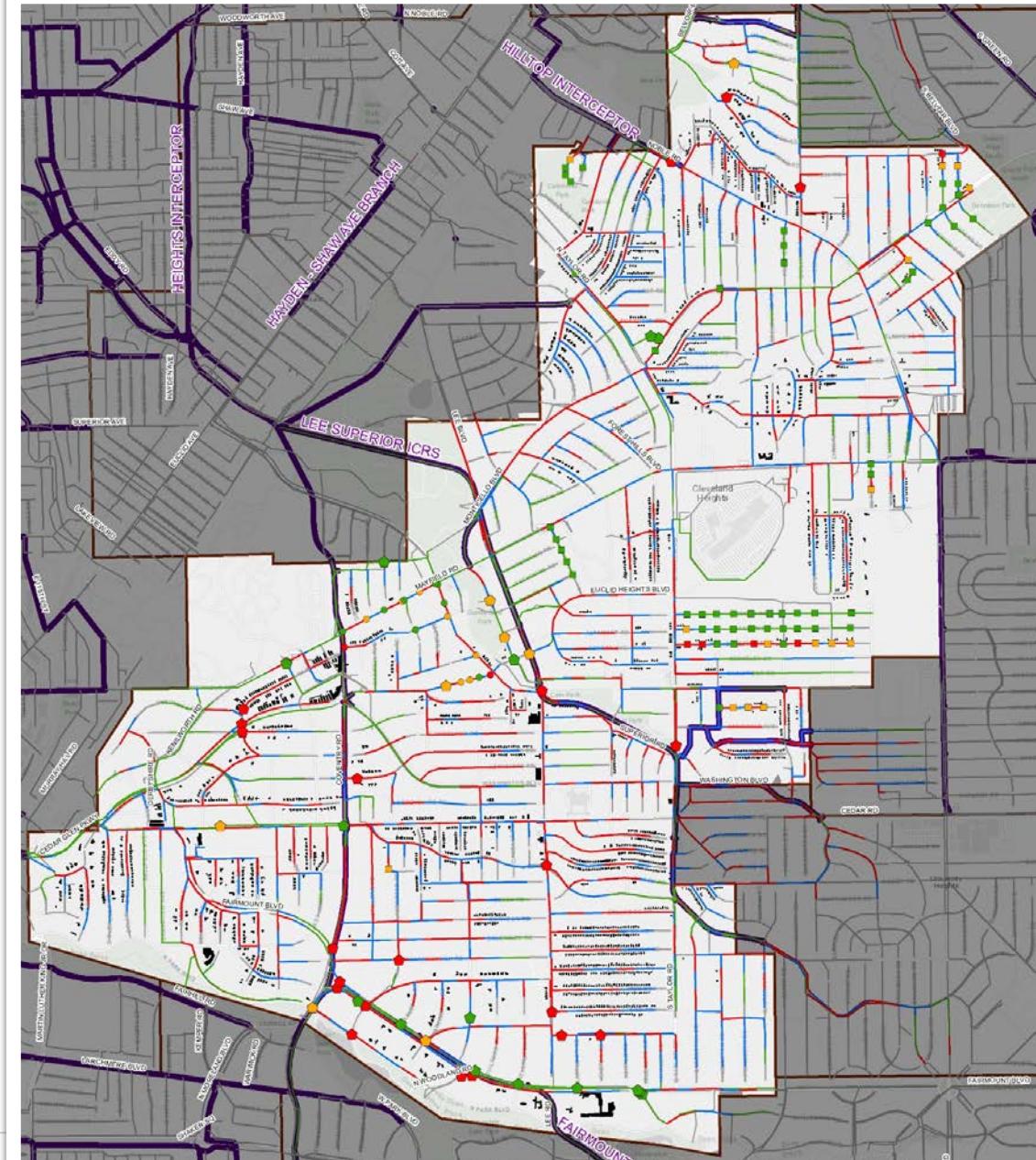
Over/under manholes without and with invert plates

# Tier 2 - Over/Under & Dividing Wall Improvement Areas

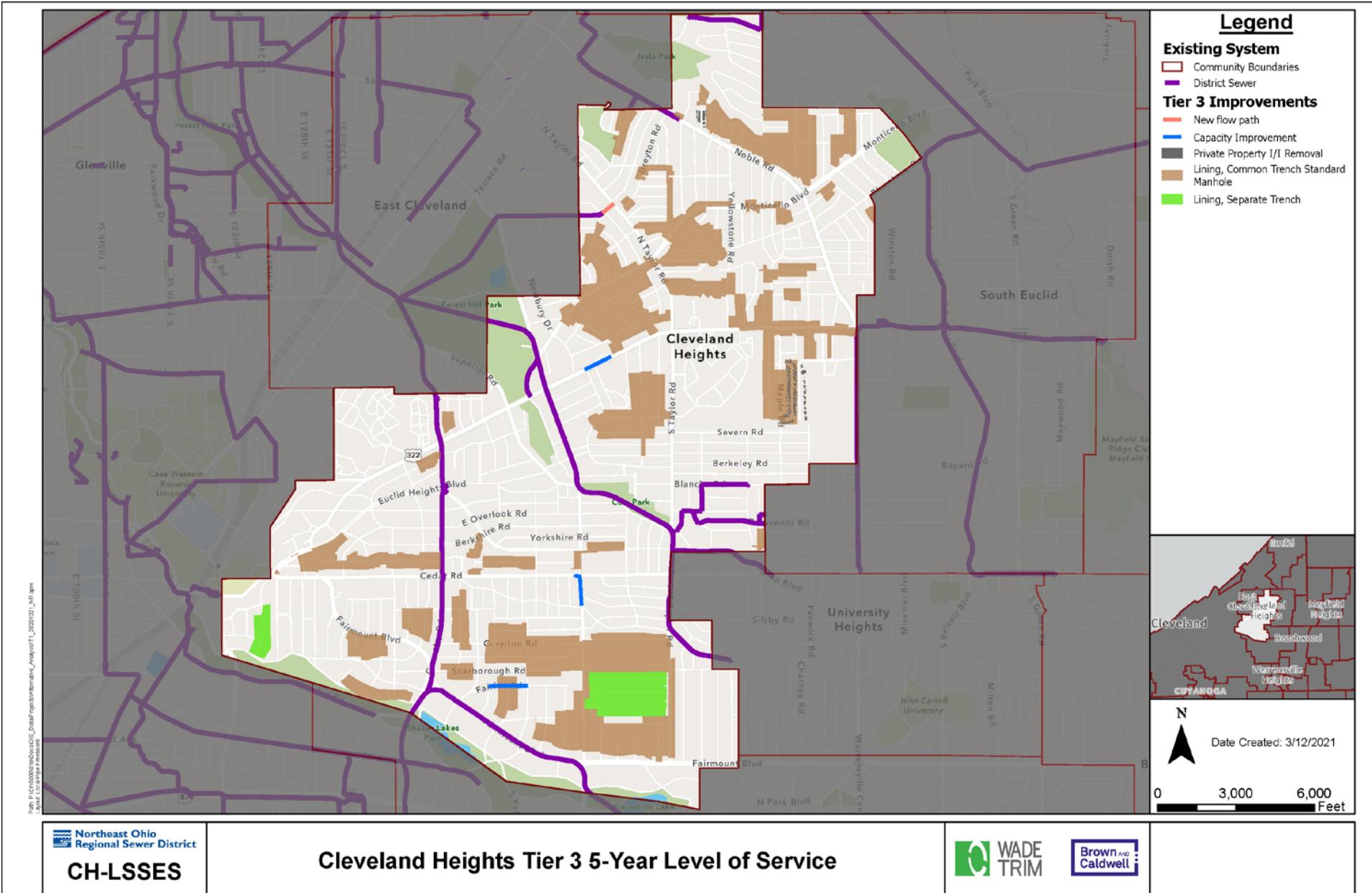


## Tier 3 – Improvements in Other Areas at Increased Risk of BBUs

- 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

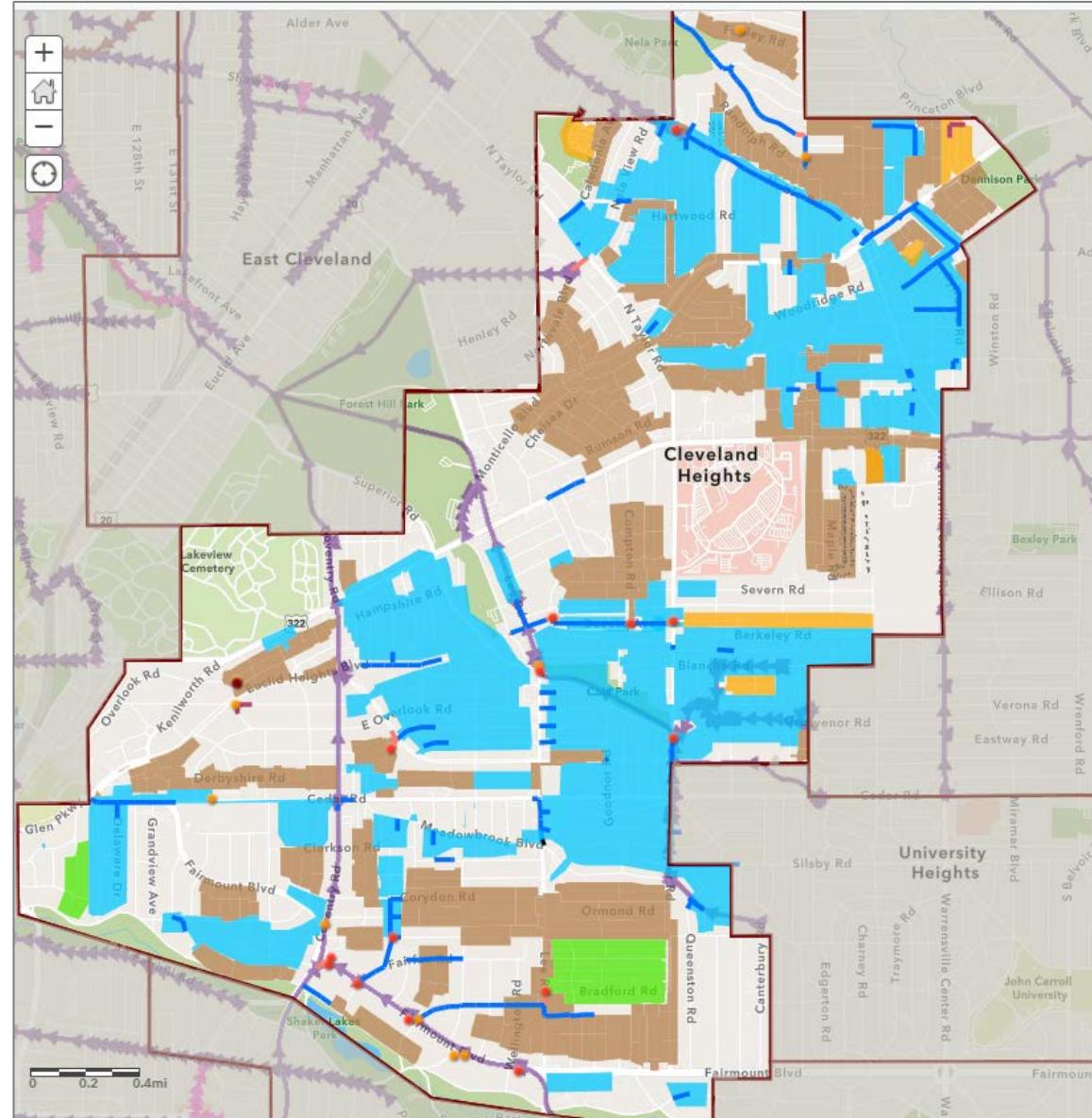


# IOCMP Proposed Improvements

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

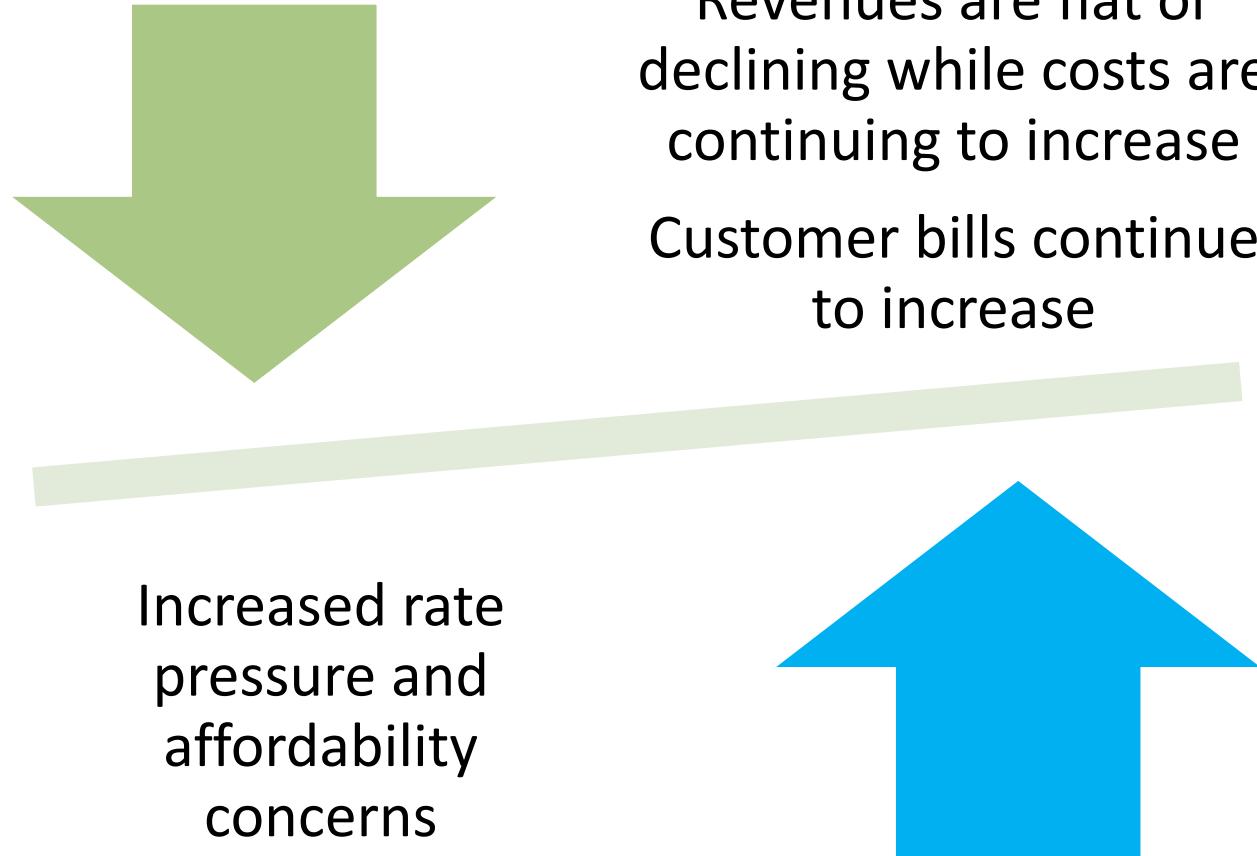


# Affordability is a Key to a Successful IOCMP

- 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



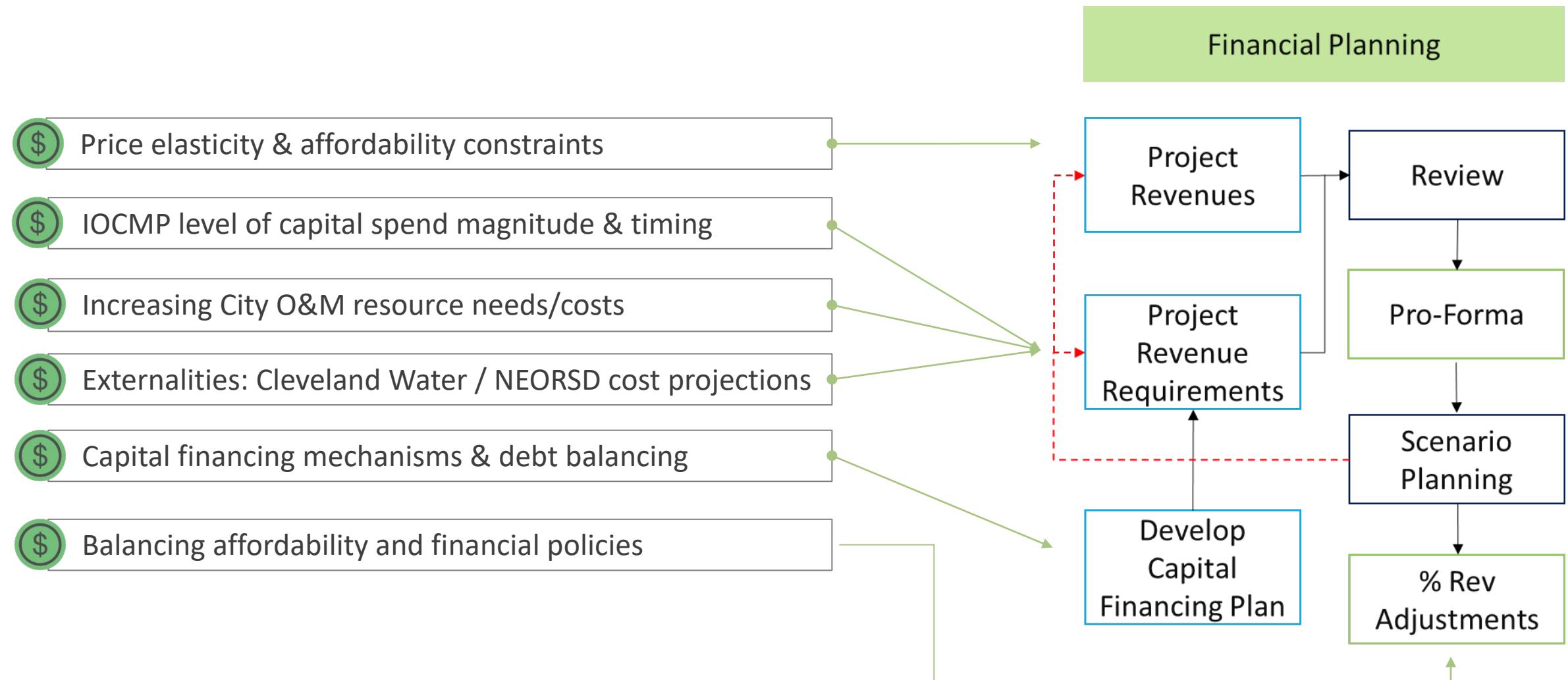
# Utility Financial Challenges



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

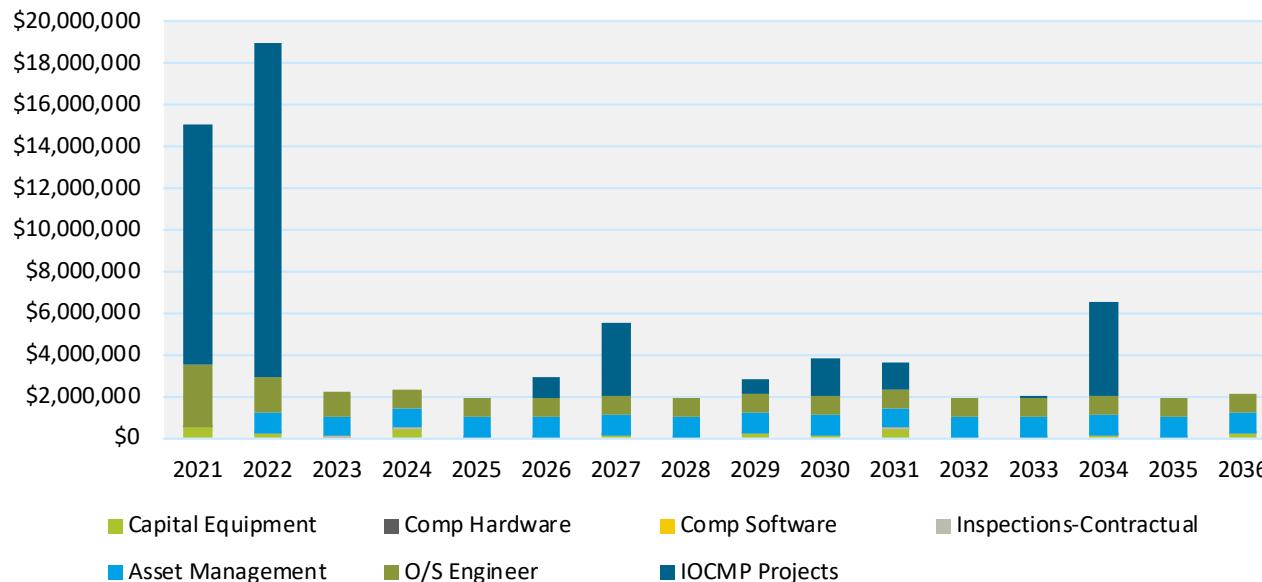
- Focus on SSO projects and at- risk basement backup for human health and environmental improvement
- Using ARP funds could help advance this work
- Any shorter schedule risks City financial capability
- Phasing is consistent with CWA
- Allows capital work to integrate with other infrastructure work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



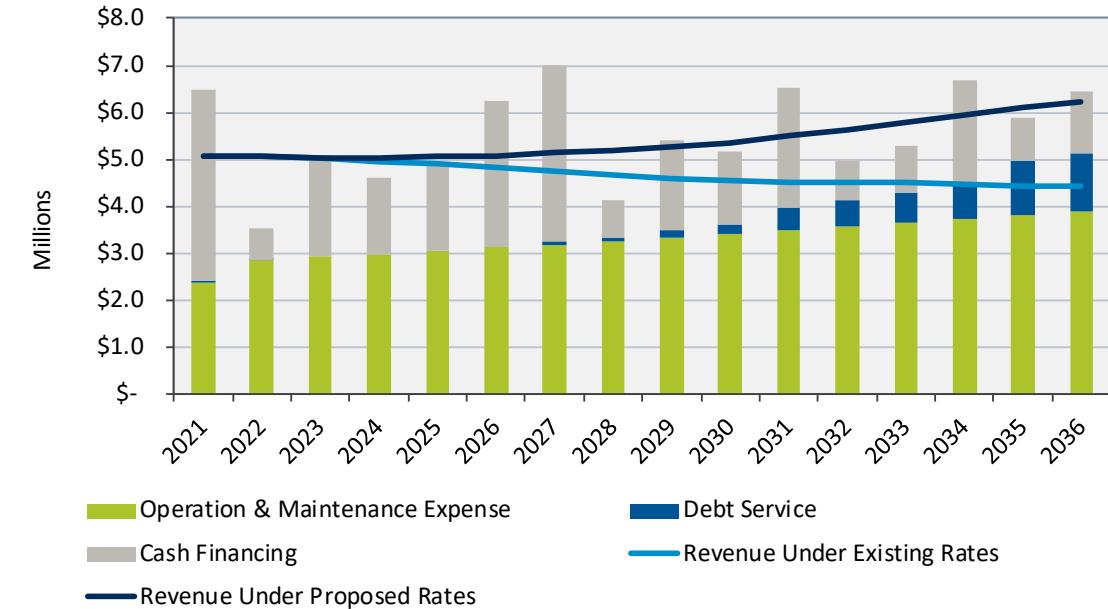
# Financial Results – 15-year Tier 1

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

**Capital Improvement Program (15 Year, with ARP)**



**Financial Plan**

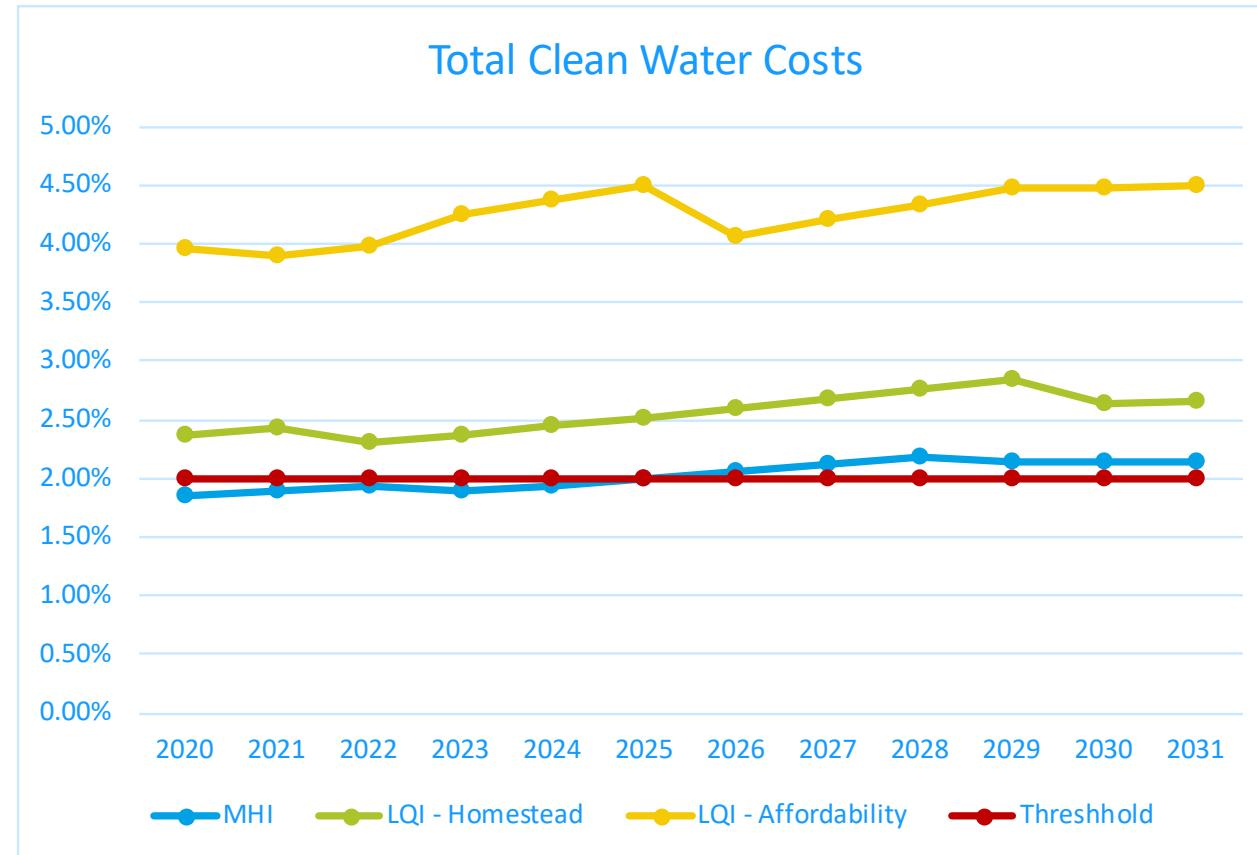


Cumulative IOCMP (Current \$) = \$ 40,266,000



# 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.

Submitting and implementing the IOCP 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.



# 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

[www.clevelandheights.com/Consent-Decree-Comments](http://www.clevelandheights.com/Consent-Decree-Comments)

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



McMahon  
DeGulis LLP





# Cleveland Heights

FOR IMMEDIATE RELEASE

**Media Contact:**

Mary Trupo  
Communications and Public Engagement  
[publicrelations@clvhts.com](mailto:publicrelations@clvhts.com)

## **CITY CONTINUES TO FOCUS ON IMPROVING OPERATION AND MANAGEMENT OF SEWER SYSTEM**

**CLEVELAND HEIGHTS, OH, 09/01/2017** - The City of Cleveland Heights continues to work with the U.S. Environmental Protection Agency on the improvement and modernization of its sewer systems. The EPA is expected to ask the United States District Court, Northern District of Ohio, Eastern Division, to approve the agreed Partial Consent Decree that the U.S. EPA, Ohio EPA, and City officials signed this past July, completing the two-year process of negotiations between the City and the EPA.

"City officials recognize the need to upgrade practices and to carefully study improvements that might be necessary in order to remediate this century old system to today's requirements and standards," Tanisha Briley, Cleveland Heights City Manager said. "As the Partial Consent Decree noted, the City has already made several improvements in the systems where frequent problems exist. Our efforts and actions continue."

Some of the early actions completed include the rehabilitation of the sewer infrastructure along Randolph Road and the installation of a new relief sewer on Fairmont Boulevard. The City has already initiated a comprehensive study of the system along with enhanced maintenance and management practices in accordance with the Decree.

The Clean Water Act requires systems like the Cleveland Heights sanitary collection system to operate without overflows that sometimes occur during wet weather. When the City's sewer system was built more than 100 years ago it was designed to overflow in order to prevent backups into homes during heavy rains, but current standards require updating the early 20th century sewer system. Many other communities are faced with similar infrastructure issues and EPA is taking similar action with other cities.

The Partial Consent Decree outlines phase one of the overall project and will require an investment of \$12 million between 2017 and 2021. The second phase will be negotiated following the completion of phase one. More information can be found on the City's website at [www.clevelandheights.com](http://www.clevelandheights.com).

###



**Statement from Tanisha R. Briley, City of Cleveland Heights, City Manager**

On behalf of the City of Cleveland Heights and its City officials and residents, I would like to clarify the recent article relating to the U.S. EPA legal action filed against the City on July 19, 2017 as it does not tell the full story of the City's efforts.

This legal action is the result of more than two years of cooperative negotiation between the City and U.S. and Ohio EPA. The proposed consent decree reflects the City's commitment to the Clean Water Act and the improved maintenance, operation and management that will be developed over the next few years.

When the City's sewer system was built one hundred years ago, it was designed to prevent backups into homes by storm water overflows during heavy rains. The sewer system was designed and constructed in accordance with accepted engineering principles at the time.

City officials have recognized the need to upgrade practices and to carefully study the improvements that might be necessary in order to remediate this century old system to today's requirements and standards. As noted in the article, the City has already made several improvements in the system where frequent problems exist.

The City is and remains committed to protecting our environment and our citizens. The City and U. S. and Ohio EPA agreed that a two-phased approach was the best approach to fully understand the system first in order to develop cost effective improvements. Phase one of the consent decree will include a comprehensive study of the system along with enhanced maintenance and management practices. The second phase will be negotiated following the completion of phase one.

No one at the City has intentionally polluted the waterways that flow through our community, nor is Cleveland Heights the only city with a dated sewer system contributing to the problem. These systems are valuable to the City and its residents, and the consent decree with U.S. and Ohio EPA reflects the City's commitment to be good stewards of our ecosystem's freshwater supply.

<http://www.clevelandheights.com/sewerplan>



# Sewer System Improvement Program

May 16, 2017

*Photo of  
Lake Erie*



# Overview

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**Background – Lou McMahon**

**Cleveland Heights Sewer Collection System Summary  
– Kevin VanderTuig**

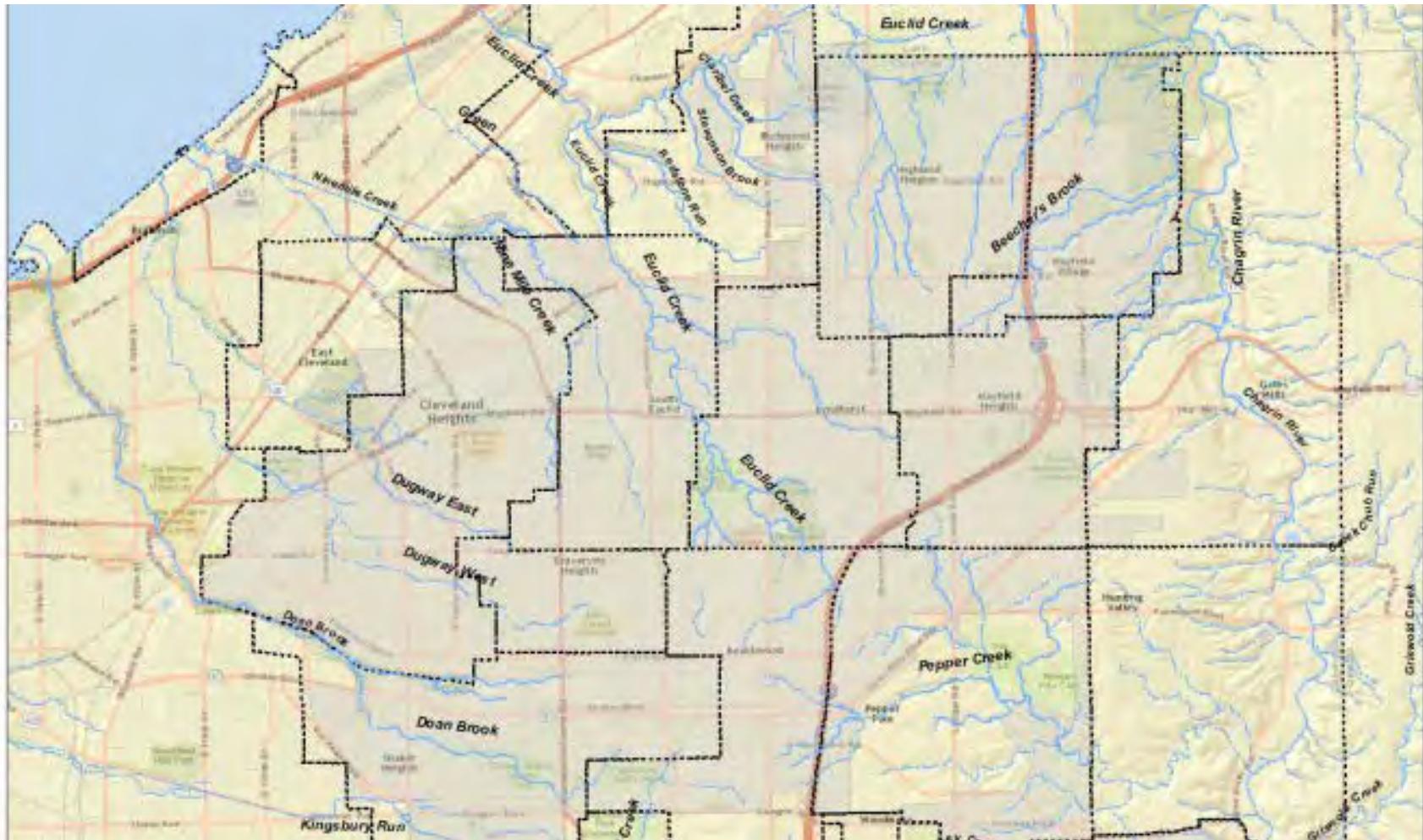
**Statement from USEPA – Jim Vinch & Tom Benson**

**Recap & Moving Forward-Tanisha Briley**

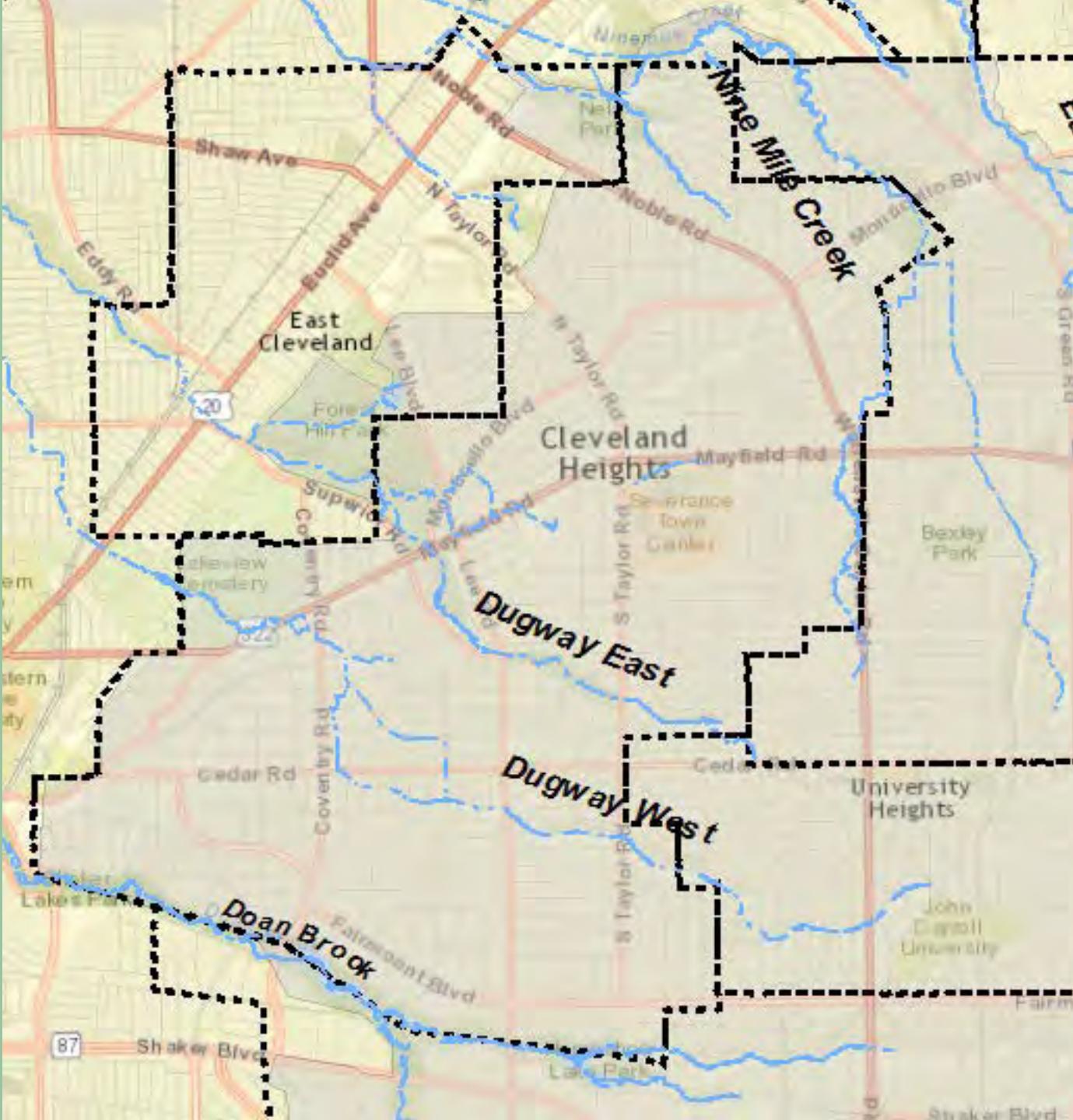
**Q & A - Panel**



# Lake Erie Tributaries in Cleveland Heights



# Lake Erie Tributaries in Cleveland Heights



# **Lake Erie from Garfield Memorial**





# The Case for Updating the System

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**Early 20<sup>th</sup> Century Sewer System still being fully investigated**

- Unique design approaches
- 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**

# North Park Blvd. c. 1900



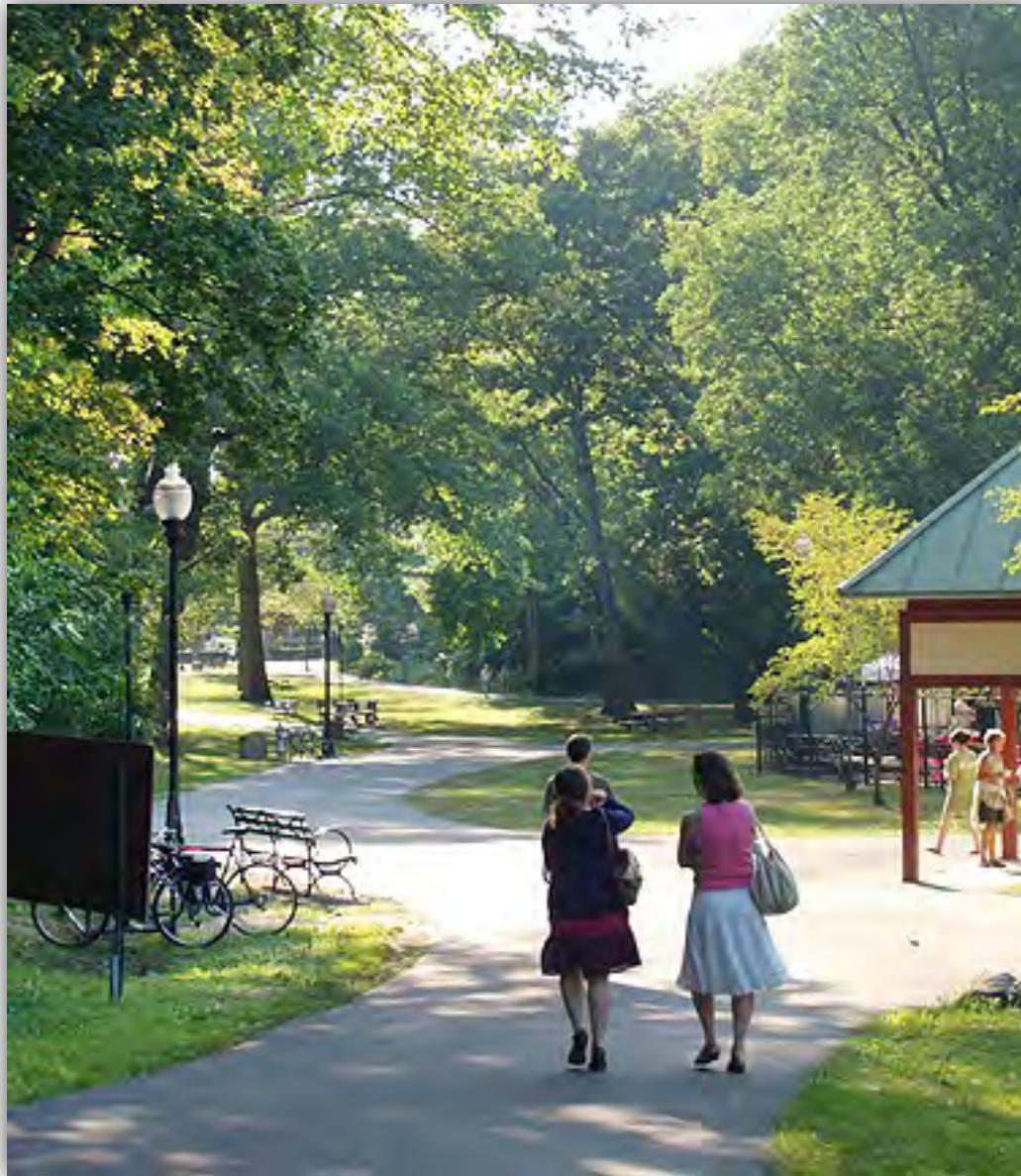
Cleveland Heights Historical Society

# Cain Park WPA Project, 1930s



Cleveland Heights Historical Society

# Cain Park Today





# Clean Water Act and Enforcement

## 1972 Federal Water Pollution Control Act (Clean Water Act/ CWA)

**CWA requires that systems like the Cleveland Heights sanitary collection system must operate without the overflows that currently occur in wet weather.**

### Additional scrutiny to protect Lake Erie

- In 2012, the United States and Canada signed a binational agreement to cut phosphorus discharges into Lake Erie by 40% - Great Lakes Water Quality Agreement.**



# Enforcement

[Share](#) [Contact Us](#)[Enforcement Home](#)[Enforcement Basics](#)[National Enforcement Initiatives](#)[Air Enforcement](#)[Water Enforcement](#)[Waste, Chemical and Cleanup Enforcement](#)[Criminal Enforcement](#)[Enforcement at Federal Facilities](#)[Data and Results](#)[Policy, Guidance and Publications](#)

## National Enforcement Initiative: Keeping Raw Sewage and Contaminated Stormwater Out of Our Nation's Waters

### Problem

Raw sewage overflows and inadequately controlled stormwater discharges from municipal sewer systems introduce a variety of harmful pollutants, including disease causing organisms, metals and nutrients that threaten our communities' water quality and can contribute to disease outbreaks, beach and shellfish bed closings, flooding, stream scouring, fishing advisories and basement backups of sewage.



Boom captures litter and other debris carried by stormwater.

EPA is taking enforcement action at municipal sewer systems with Clean Water Act violations to reduce pollution and volume of stormwater runoff and to reduce unlawful discharges of raw sewage that degrade water quality in communities.

### Fast Fact

Green infrastructure helps reduce the water quality

# Sanitary Sewer Systems

with flow greater than 10million gallons/day





# Consent Decree Negotiations

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## Key elements included:

- Updating early 20<sup>th</sup> century sewers
- Seeking custom approach to maximize effectiveness, efficiencies and rate impact
- Protect Lake Erie and watershed
- Comply with Clean Water Act of 1972



# Proposed Consent Decree

**Consent Decree: a judicially enforceable agreement without admission or finding of liability that provides agreed path to regulatory compliance**

## Proposed Consent Decree

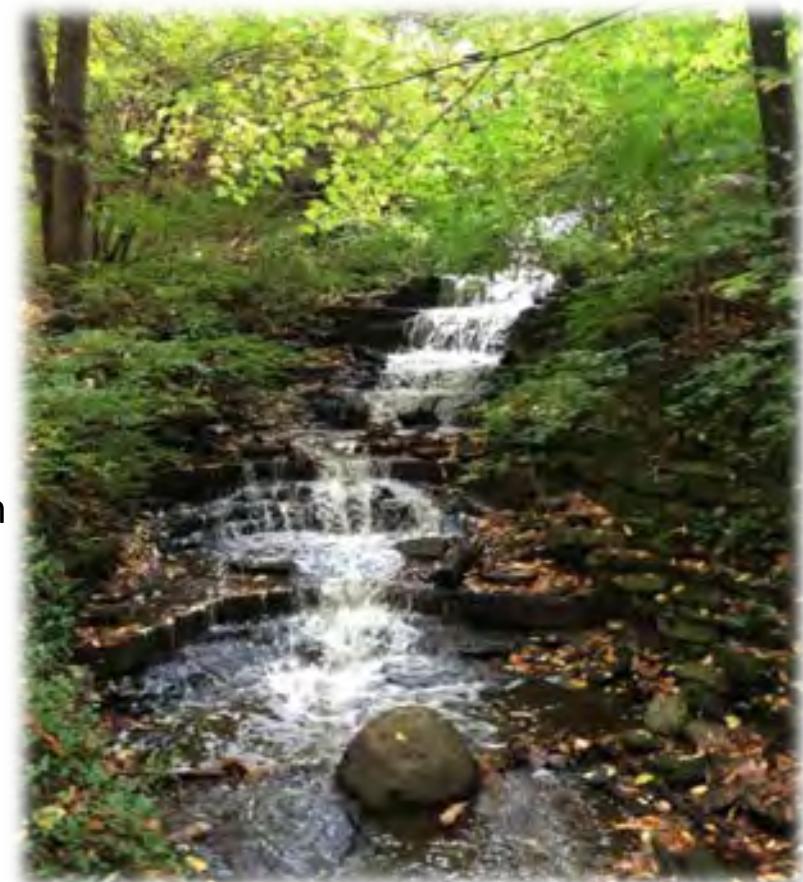
- Many standard provisions
- Uncommon “phased” approach

## Phase 1 (2017-2021)

- Optimizing current system performance
- Continue full investigation of collection system
- Analyze alternatives for improvements
- Develop schedule for overflow control

## Phase 2 (2021 and beyond)

- Continue management, operations and maintenance activities
- Implement overflow control plan





# Taking Advantage of NEORSD's Investments

## Identify CWA problems

- SSOs, basement flooding
- Common trench sewer cross flows
- Failing septic tanks and illicit discharges



## Determine cost-effective capital, maintenance and policy recommendations

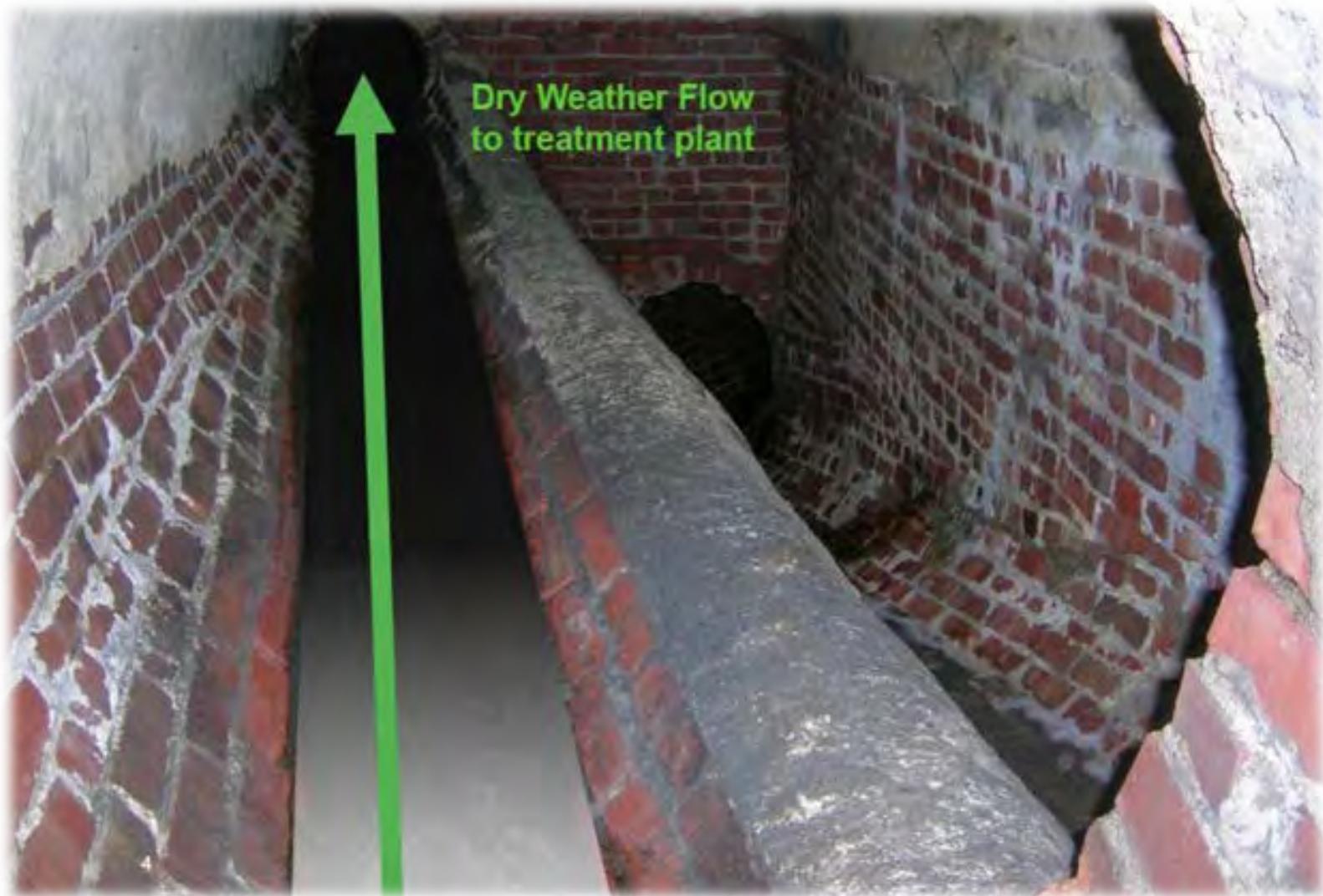
## Prioritize capital projects

## Share information



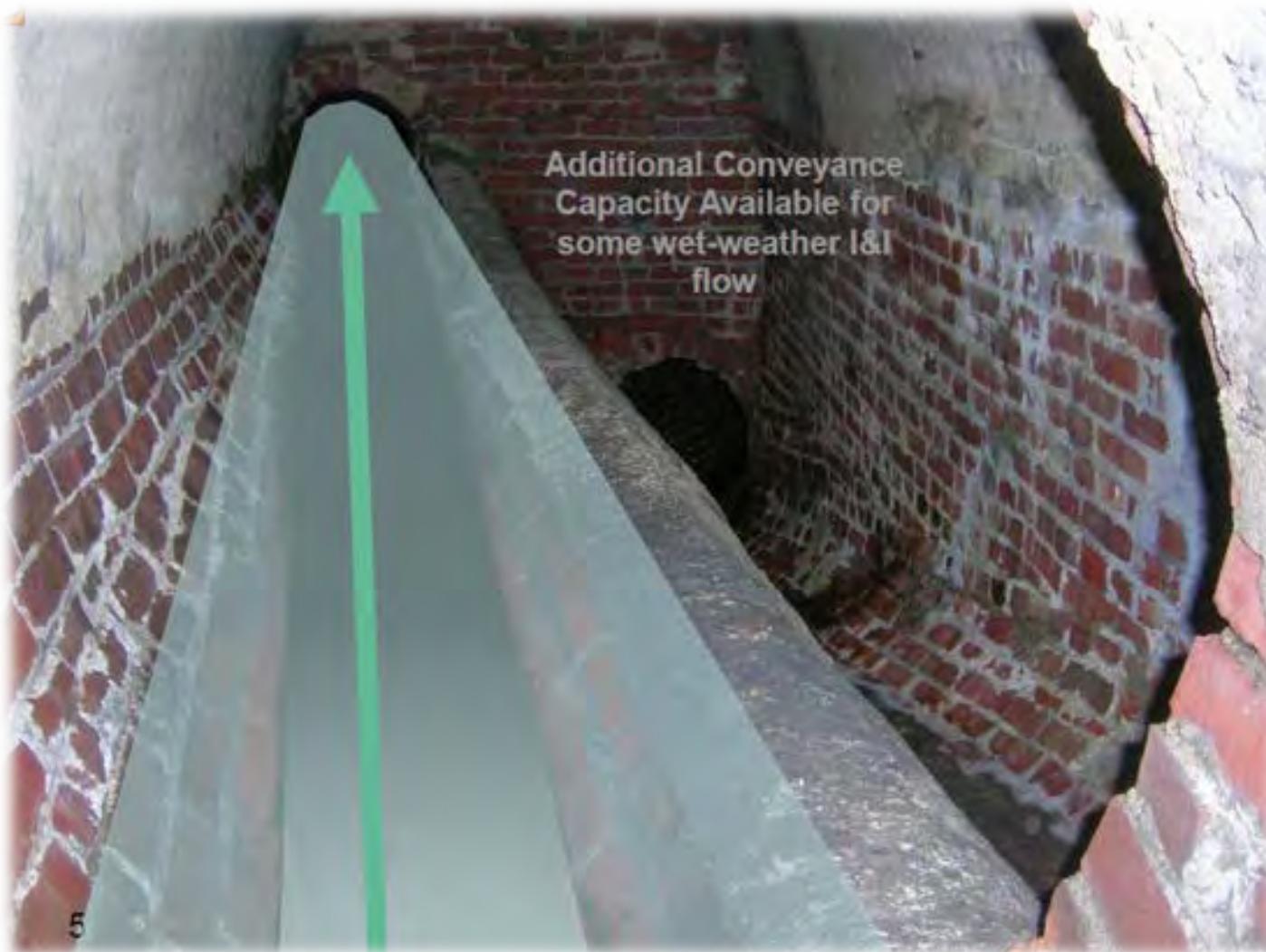
# CWA Issues

## Sanitary Sewer Overflow (SSO) Structures



# CWA Issues

## Sanitary Sewer Overflow (SSO) Structures



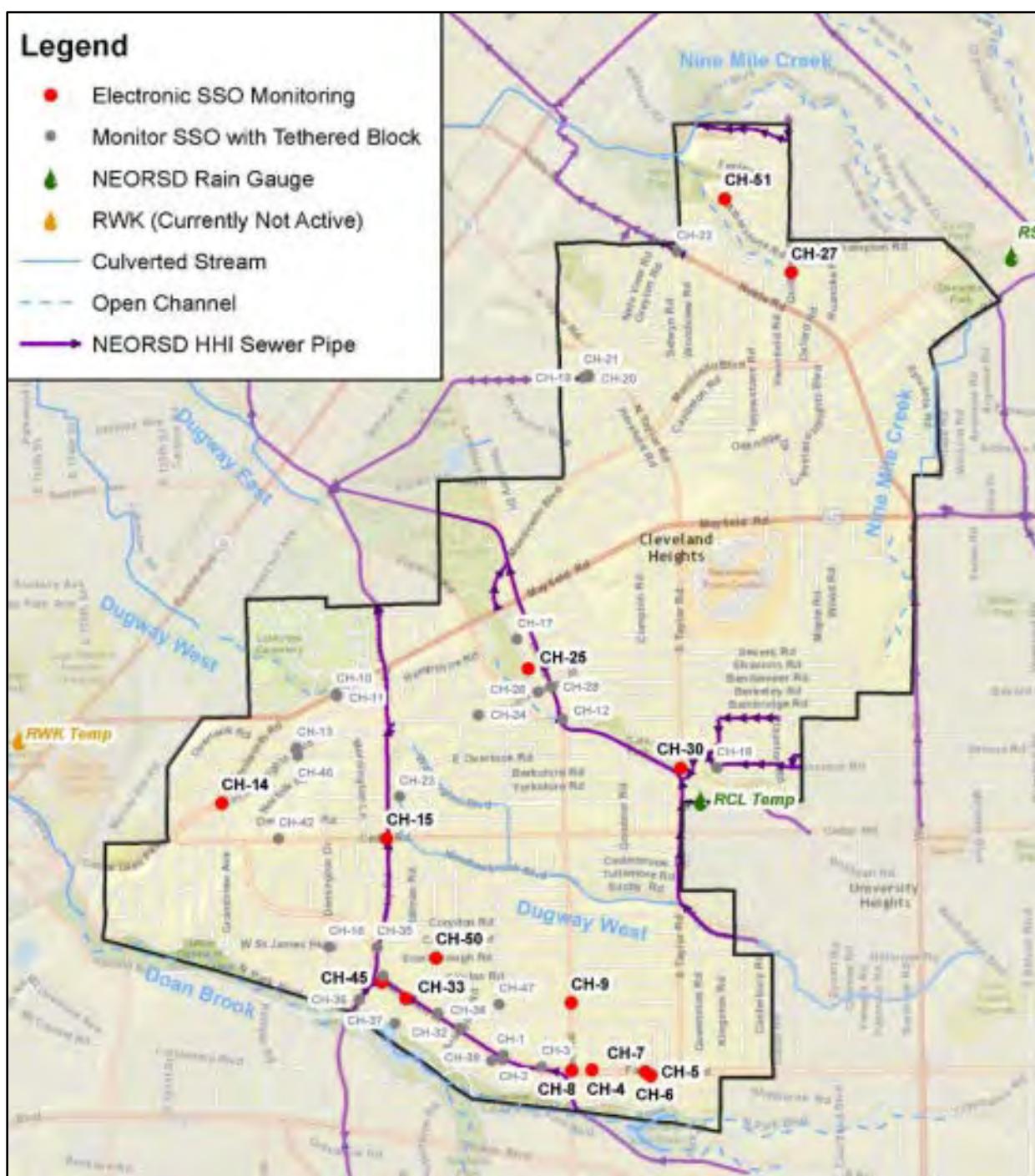
# CWA Issues

## Sanitary Sewer Overflow (SSO) Structures



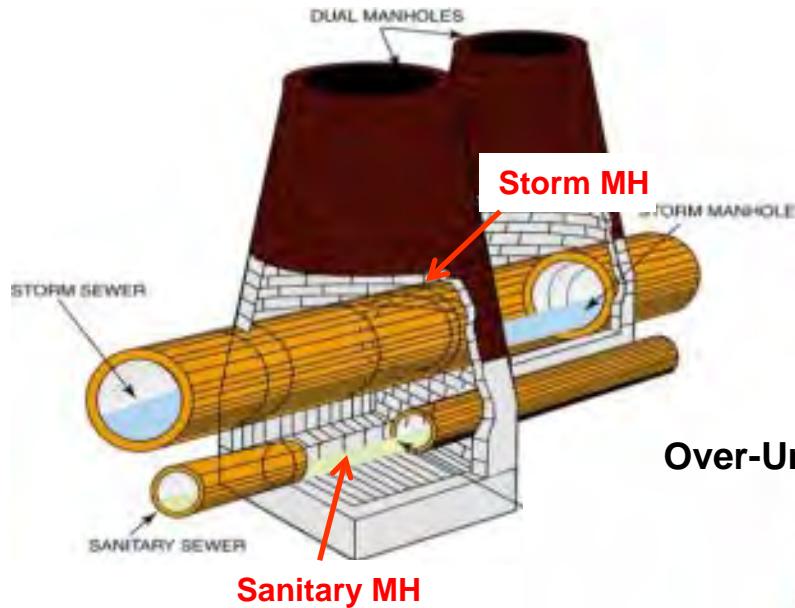
# Known SSO Locations

- NEORSD HHI System (84-05) improved local system performance
- Many SSOs are Rarely Active

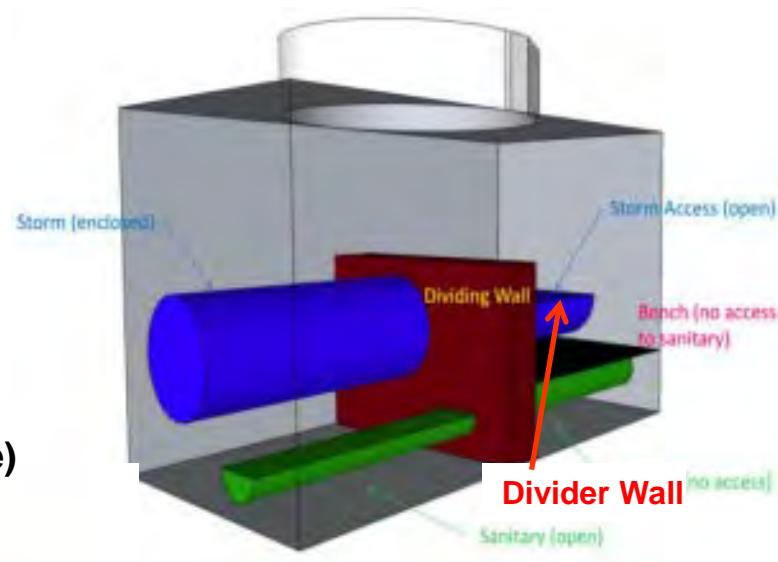


# Cleveland Heights system has a variety of Trench Sewer Designs

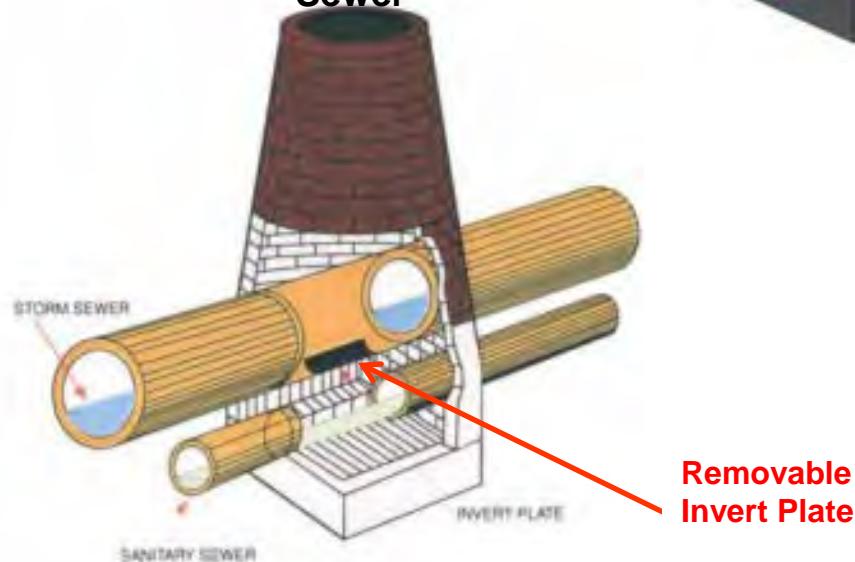
Dual Manhole Sewers



Dividing Wall Manhole



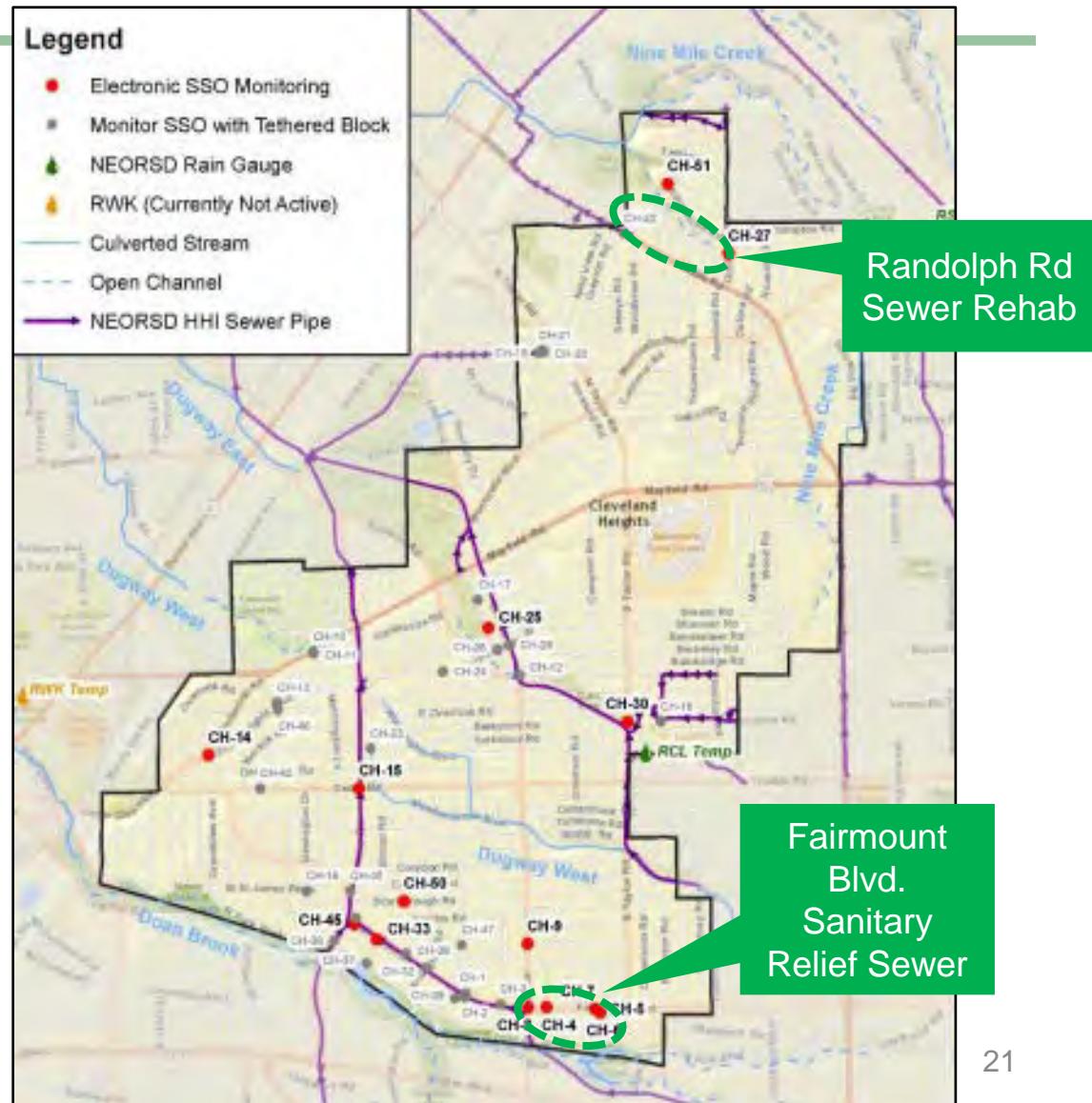
Over-Under (Invert Plate) Sewer





# Early Action Projects Completed Fall 2016

- Randolph Road – sewer system rehabilitation to improve performance
- Fairmount Blvd. Sanitary Relief Sewer – new sewer to control SSOs





# **Solving the Problem**

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**Optimize current system performance:**

- **Management**
  - **Information systems, training**
- **Operations**
  - **Overflow response, condition assessment, and inspections**
- **Maintenance**
  - **Regular cleaning, televising, and repair**



# **Solving the Problem**

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**Determine existing system connectivity, performance and problems**

**Develop feasible solution alternatives**

- Compare costs and benefits

**Develop Overflow Control Master Plan**

- Recommend cost-effective improvements
- Determine feasible implementation schedule

**Implement Master Plan over time**



# Proposed Consent Decree

## Phase 1 Timeline

Activities	Purpose	Schedule
Early Action Projects	Start solving problems	Completed fall 2016
Capacity, Management Operation and Maintenance Program (CMOM)	Enhance system performance	Starting 2017
Flow/rainfall monitoring and system model, capacity assessment	Define problems to be solved	2017 – March 2020
Sewer System Evaluation Survey (SSES)	Define existing system	2018 – June 2021
Alternatives analysis	Compare solutions, costs & benefits	March 2020 – June 2021
Integrated Overflow Control Master Plan	Document proposed work, cost & schedule	

# **Statement from USEPA Officials**



# Recap and Looking Forward

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**The City is committed to resolving the aging system's SSO problem**

**Early action steps have already been completed**

**Phase 1 – Define system problems and develop a master plan**

**Phase 2 – Negotiated with EPA based on Phase 1 recommendations**

**The CD will fit into Cleveland Heights' progress**

- Consistent with capital planning
- Will integrate with city master planning
- Through planned efforts, expect to maximize
  - Efficiencies from City projects
  - Leverage stormwater improvements in large private redevelopments
  - Prioritize capital spending for most environmental improvement
  - Improve system performance and community resiliency
  - Protect our freshwater resources



# Recap and looking forward

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## Cost

- Phase 1—\$12 million will be funded by adjusting current sewer fees
- Based on usage
  - i.e. smaller homes and seniors will pay less because they use less
  - The average Cleveland Heights resident will see an increase of \$18.73 on their sewer bill
- Rates will go into effect in October with first bills arriving in January 2018

## Payment assistance program

- The city understands that this is a significant increase and not everyone has the capacity to pay an extra sewer fee.
- Prior to the rates being implemented, we will introduce a needs-based payment assistance program to help the most vulnerable in our community



# Next Steps

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- **City Council Action**
  - First reading for Consent Decree and rate increase 6/5/17
  - Second readings expected 6/19
- **Consent Decree execution by all parties**
- **Federal Judge Review**
  - 30-day Public Comment Period



# Follow Up Information

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## To get more information:

- This presentation, fact sheet and other materials will be posted our our website:
  - [www.ClevelandHeights.com](http://www.ClevelandHeights.com)
- We will be making future announcements on progress and the payment assistance program in public meetings, through the media and online as they become available.

CITY OF  
**CLEVELAND  
HEIGHTS** 

## Situation Summary

### Sewer Overflow Remediation Plan

- Sanitary Sewer Overflows (SSOs) occur when untreated sewage is discharged into waterways such as streams, creeks, rivers and lakes.
- Discharging untreated waste into waterways was once an accepted engineering practice. When Cleveland Heights' sewer system was built 100 years ago, it was designed to prevent backups into homes by overflowing into storm drains during heavy rains. These drains discharge into local Lake Erie streams including Doan and Dugway Brooks, and Nine Mile Creek.
- SSOs have been identified as a health risk and pollution problem in communities across the country. Because of increased focus on protecting the Great Lakes freshwater resource from harmful algal blooms and other issues, the Lake Erie watershed has come under particular scrutiny relating to sewer discharges and other sources of pollution.
- The City of Cleveland Heights is committed to protecting our ecosystem's freshwater supply by controlling SSOs in our community.
- Most recently in 2015, after years of preliminary discussion and investigation, the USEPA initiated negotiations with the City about its ongoing efforts to eliminate SSOs. At that time, they insisted the City take immediate action to resolve the issue. Estimates to remediate the full sewer system were staggering.
- City officials entered confidential negotiations with the EPA seeking to reduce the obligation and its impact on the city sewer system's ratepayers. City officials were restricted from discussing the order or the negotiations by confidentiality restrictions.
- On May 1, City Staff and the USEPA reached a tentative agreement to implement a two-phased consent decree. This tentative agreement requires approval by City Council. Phase one will conduct a comprehensive study of the system and develop an overflow control plan by June 2021. The goal of the study is to determine the best course of action to control SSOs while minimizing the impact on ratepayers through smart investments. Details of phase two will be negotiated when phase one is complete and will implement the plan developed in phase one.
- Phase one will require an investment of \$12million between 2017 and 2021. This will have a significant impact on sewer rates—increasing rates approximately \$18.73 per month for the average customer—but the City believes the investment will significantly reduce the ultimate cost of controlling SSOs and improve the efficiency of system improvements required to comply with EPA mandates.
- The agreement commits the City to remediate overflows. Council remains cognizant that there are some in our community who cannot afford the extra fees. Therefore, the city will develop a payment assistance program to be introduced prior to the rate increase, which will begin in October, with first quarterly invoices to be sent in January 2018.

