



**Northeast Ohio
Regional Sewer District**

Thanks for joining!

WE WILL START MOMENTARILY.



**Northeast Ohio
Regional Sewer District**

Watershed Advisory Committee

CHAGRIN AND LAKE ERIE DIRECT TRIBUTARIES- OCTOBER 25, 2022



**Northeast Ohio
Regional Sewer District**

Agenda

- Welcome, Introduction & Updates
- Stormwater Inspection and Maintenance Update
- Watershed Technical Support Update
- Urgent Storm Event Update-Feature
- Design & Construction Update
- Code Updates
- Infrastructure Funding



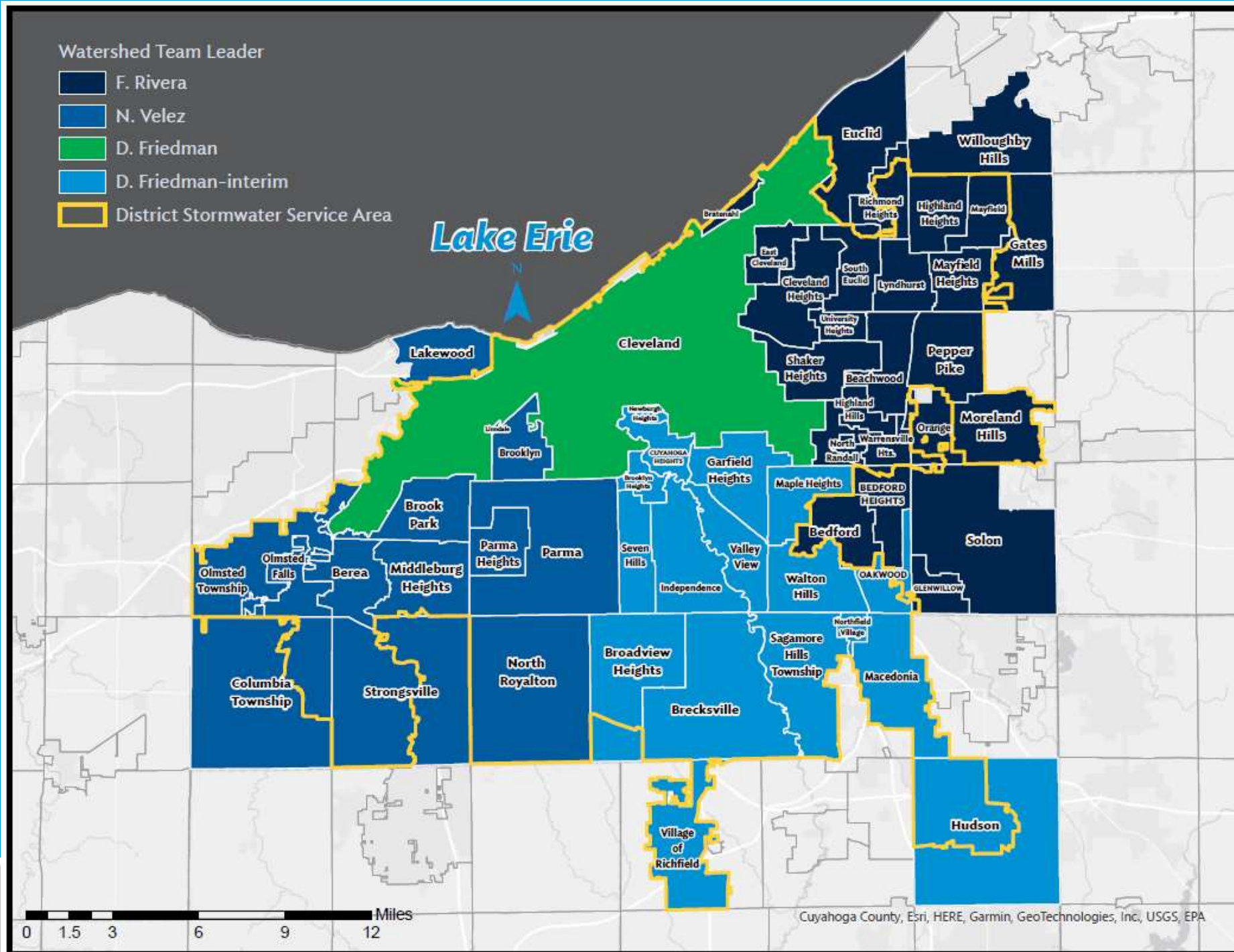
Program Highlights

Frank Greenland, Director of Watershed Programs

Matt Scharver, Deputy Director of Watershed Programs

Watershed Team Leader

- F. Rivera
- N. Velez
- D. Friedman
- D. Friedman-interim
- District Stormwater Service Area



Community Cost-Share: 2022

• CCS Funds Balance (9/30/2022)	\$34,972,143.22
• 111 projects w/ executed agreement	\$10,464,492.22
• 26 projects w/ agreements in progress	\$2,406,622.75
• CCS Funds available to Member Communities	\$22,101,028.61
• 29 approved allocation agreements	\$9,466,270.02

Community Cost-Share: 2016-2022 Reimbursement

Year	CCS Funds Reimbursed
2016	\$ 35,166
2017	\$2,626,418
2018	\$4,218,308
2019	\$9,178,445
2020	\$6,720,943
2021	\$9,581,404
2022 (9/30/2022)	\$5,434,611
Total Reimbursed	\$37,795,295



New ▾



Monica ▾

Northeast Ohio Regional Sewer District

Report a Flood Tool

Basement, Street, & Yard Flooding



Report a Flood Tool 2

This is the primary survey for RAFT now, Version 1 was corrupted and Report a Flood 2 was created to solve the issue. Use This Version.

[Report Flooding Event](#)

This platform was developed to help understand basement & street flooding issues within member communities of the Northeast Ohio Regional Sewer District's service area. This data is for reference only, and should be used for display purposes only. The Northeast Ohio Regional Sewer District (NEORS) makes no warranties, expressed or implied, with



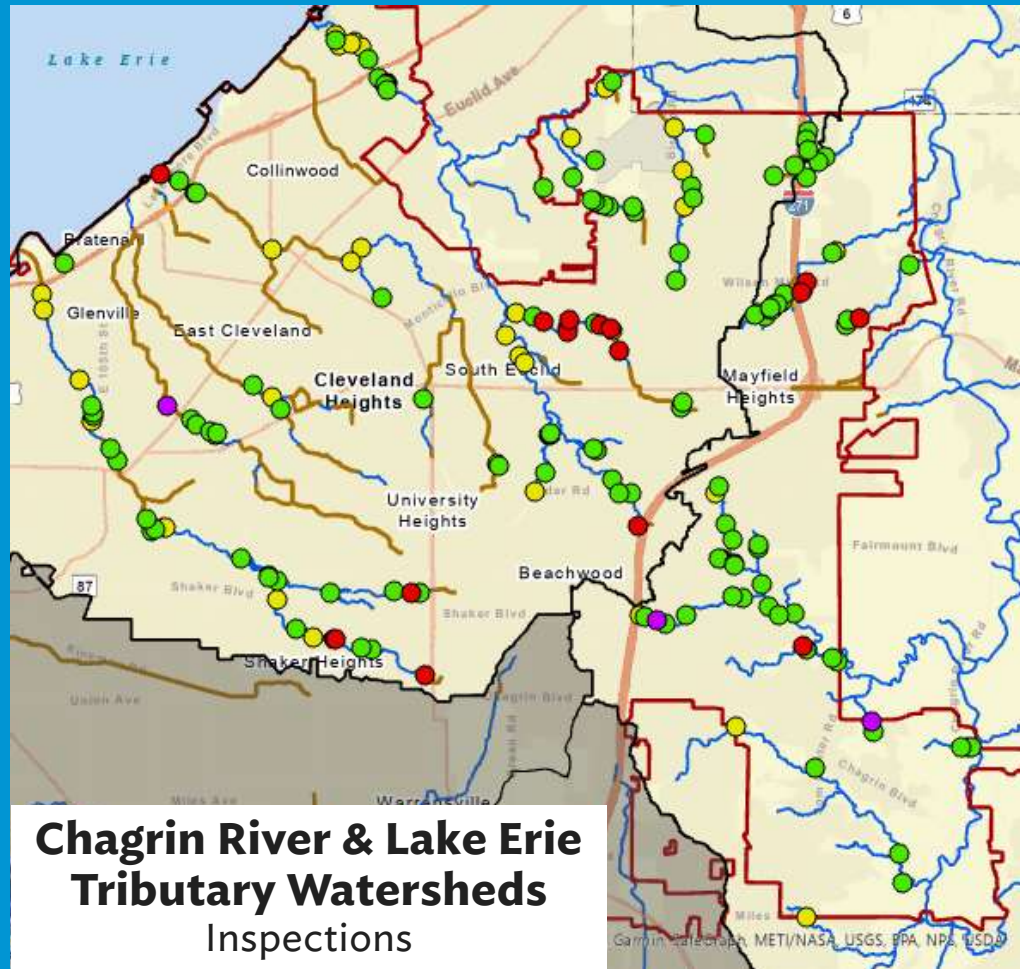
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REGIONAL
STORMWATER
MANAGEMENT

Inspection & Maintenance Update

CHAGRIN AND LAKE ERIE DIRECT TRIBUTARY

SWIM Inspections



3/22 - 9/22 Completed Inspections

Inspection Type	Inspection Count
CCTV	3
Case	17
Inspection - Preventive	126
Inspection - Debris	67
Urgent Storm	0
Total	213



SWIM Maintenance



3/22 - 9/22 Maintenance Projects

Project Type	Project Count
Debris/Sediment Removal	33
Demolition	1
Vegetation Management	5
Total	39

Debris Removed	Sediment Removed
364 CY	81 CY



Large-Scale Sediment Removal Project: Riverview Road in Brecksville

- Riverview Road frequently overtopped causing road closures
- Removed sediment 500 ft downstream of Riverview Road
- Also removed sediment from upstream vaults
- Removed a total of 472 CY of sediment



The Riverview Road Sediment Removal Project is just downstream of the Picha Lake Basin



Picha Lake – Pre-Construction



Picha Lake – Post-Construction



Echo Lake Basin Drawdown - Strongsville



Pre-August 2020
Existing Condition*



August 2020
Board Removal



February 2022
First Notch Down

Note: Existing basin did not provide downstream flood reduction benefits.

Echo Lake Basin Drawdown - Strongsville



May 2022
Native Seed & Cover
Crop Planted



July 2022
Vegetation Growth



August 2022
Second Notch Down

Supplemental Tree Plantings at Completed Project Sites

- NEORSD received GLRI grant funds to plant trees in Cuyahoga County for stormwater management
- Planted over 130 trees to supplement vegetation already installed at project sites
 - Stickney Creek at Ridge Rd, Brooklyn
 - Baldwin Creek at Abbey Rd, North Royalton
 - Pepper Luce Creek at Shaker Blvd, Pepper Pike



Watershed Technical Support

Chagrin River / Lake Erie Direct Tributaries Stormwater Master Plan



Pepper Luce Creek Subwatershed

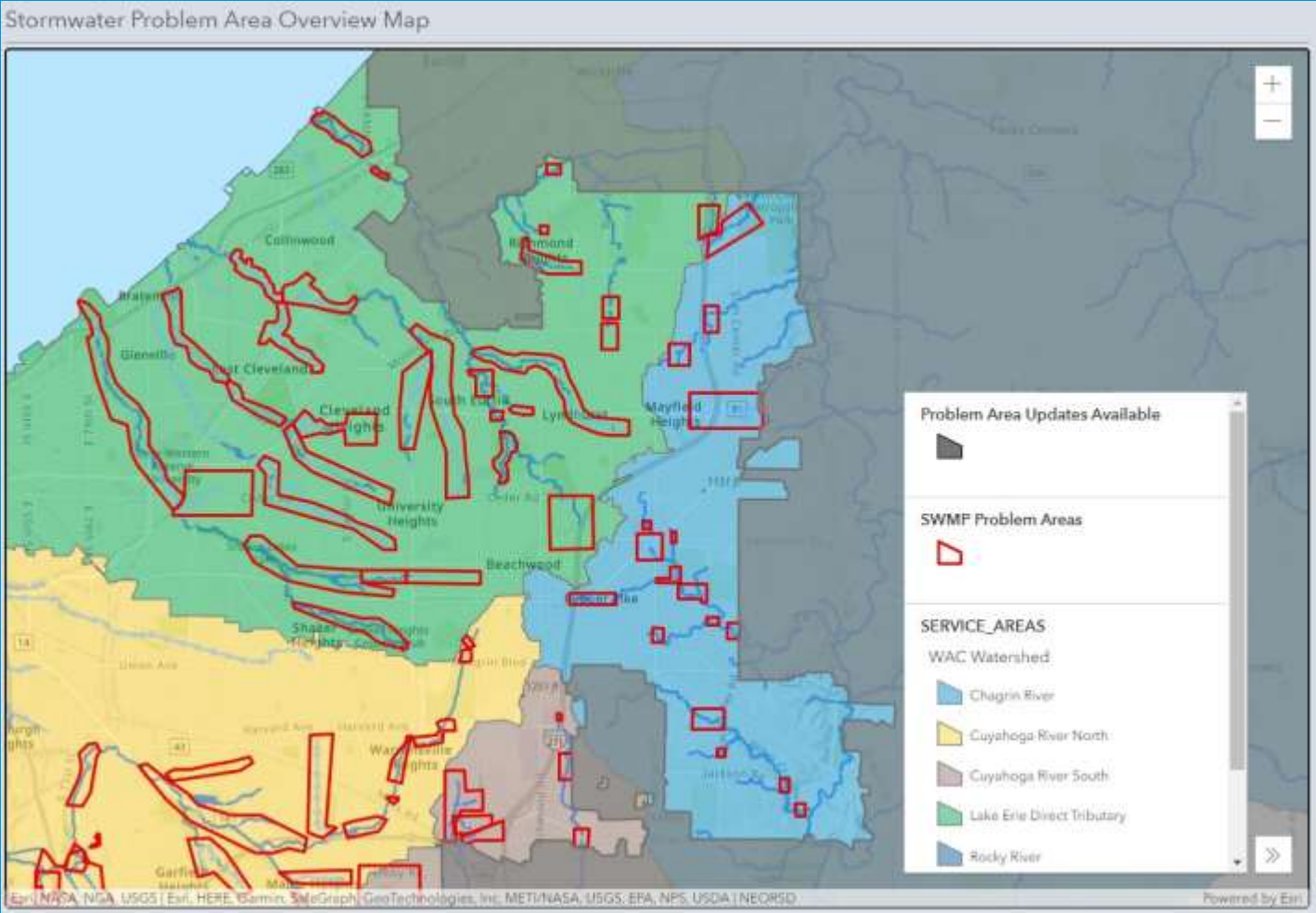


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MANAGEMENT

Chagrin River / Lake Erie Direct Tributaries Stormwater Master Plan

Problem Area Determination



Watershed	Problem Areas
Beechers Brook	2
Chagrin Small Tribs	2
Doan Brook	6
Dugway Brook	5
Euclid Creek E.B.	5
Euclid Creek Main	2
Euclid Creek W.B.	5
Nine Mile Creek	5
Pepper Luce Creek	9
Wiley Creek	4
Totals	45

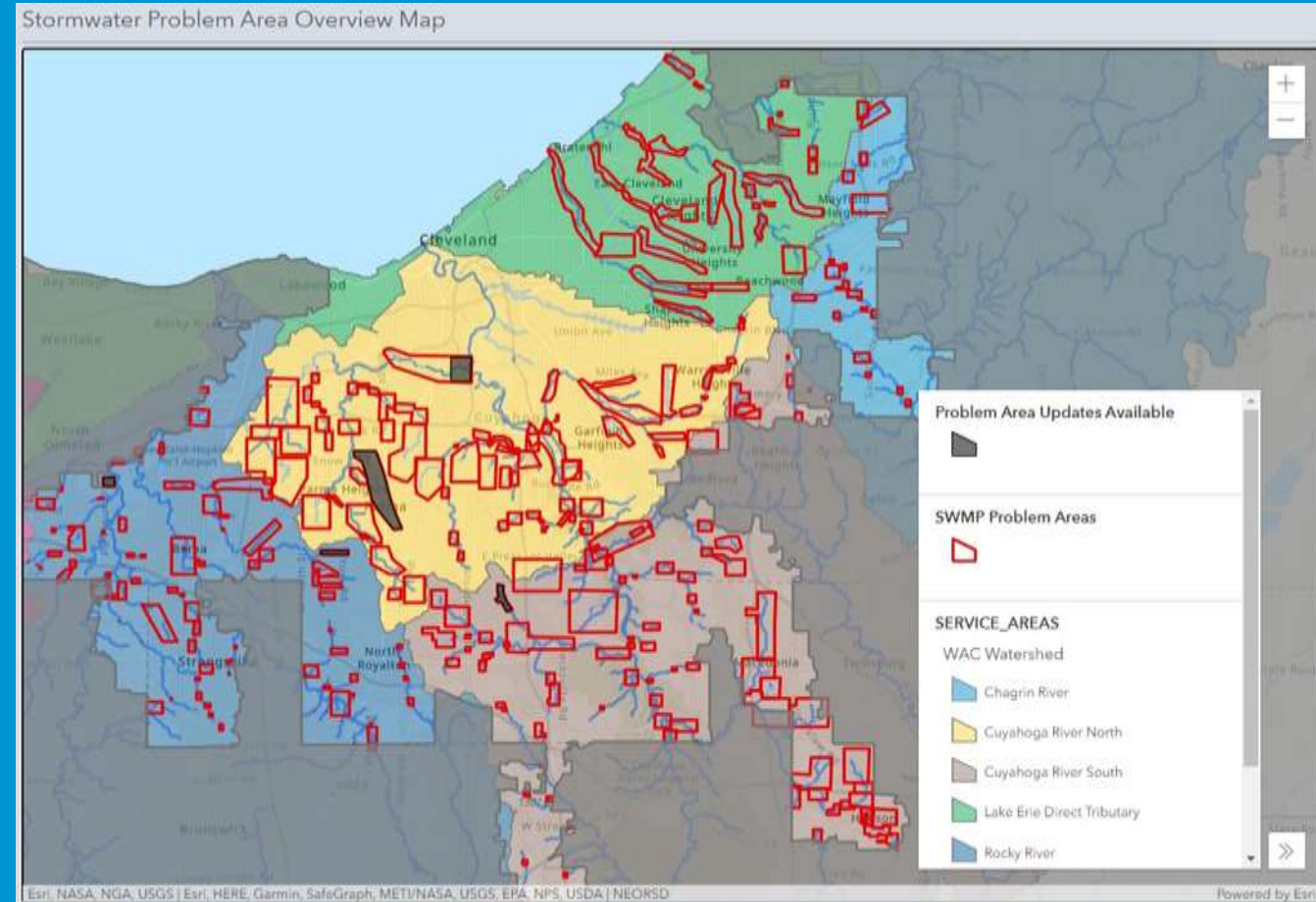
\$342 Million

Chagrin River / Lake Erie Direct Tributaries Stormwater Master Plan

Current Status

SWMP Study Status

- CHALET Community Reports sent out to WAC Community Members
 - A resource for details on problem areas
- Francisco Rivera (Watershed Team Leader) will be contacting WAC Community Members to set up SWMP review meetings
- Identified problem areas have been nominated, scored and are being prioritized as part of the annual stormwater construction plan review.



Chagrin River / Lake Erie Direct Tributaries Stormwater Master Plan

Advanced Stormwater Planning

Goal to ready projects for full design

- Projects that require additional information to understand full RSS impacts
- Are Cost Prohibitive w/o phasing
- Breakdown of complex, preferred alternatives into manageable projects
- Acquisition/Easement procurement
- Coordination considerations with outside stakeholders



Chagrin River / Lake Erie Direct Tributaries Stormwater Master Plan Community Lead Project Opportunities

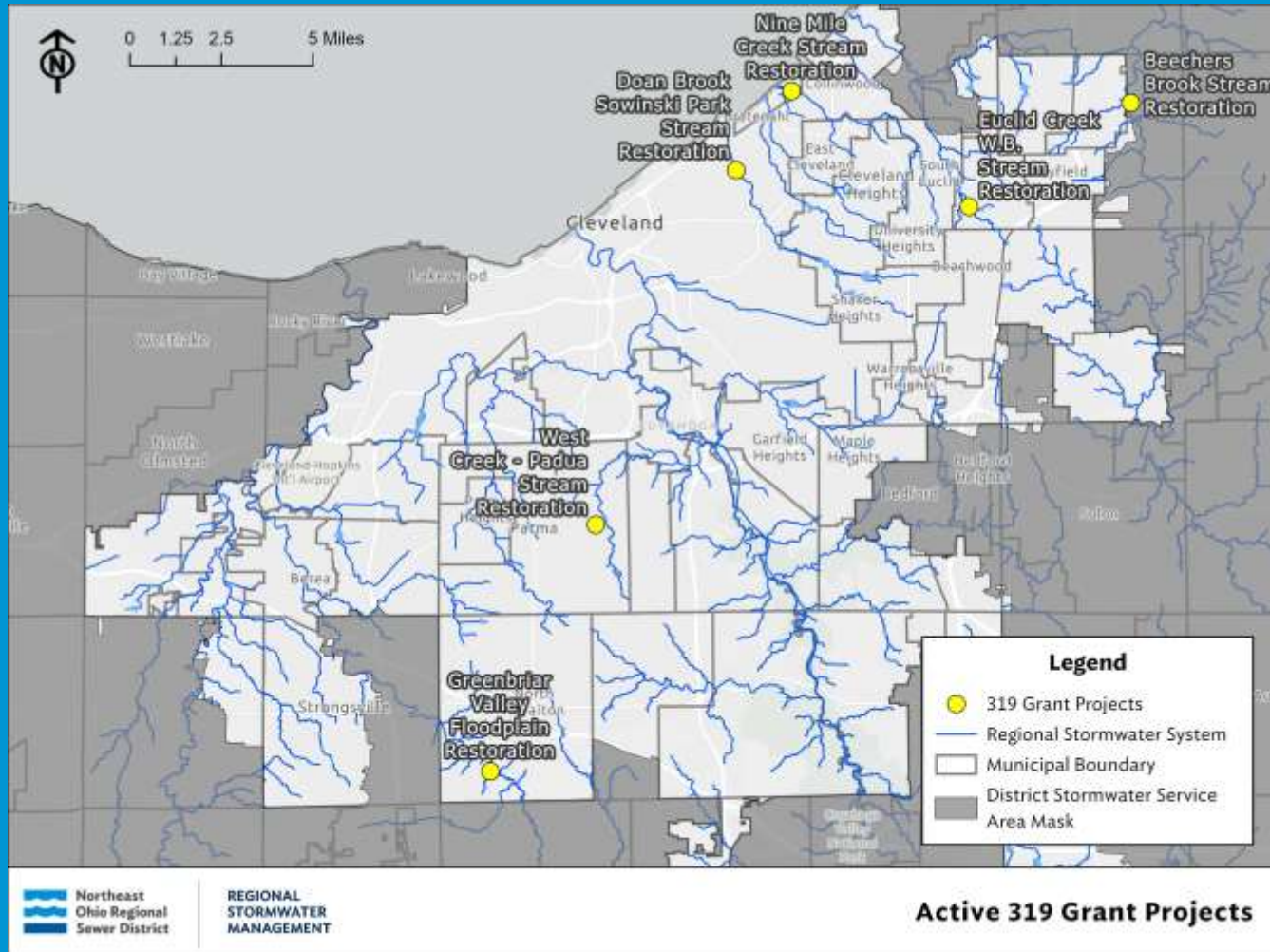


Beechers Brook – Mayfield Village

Chagrin River / Lake Erie Direct Tributaries Stormwater Master Plan Watershed Partner Lead Project – Sowinski Park



Ohio EPA Section 319 Grant Program Projects



- **In Design Phase**
 - Greenbriar Valley Floodplain Restoration
 - West Creek – Padua Stream Restoration
 - Euclid Creek West Branch Phase I Stream Restoration
- **Beginning Construction Phase**
 - Nine Mile Creek Stream Restoration
 - Doan Brook Sowinski Park Stream Restoration
- **Recently Completed**
 - Beechers Brook Stream Restoration
- **Total Project Costs: \$3,253,736**
- **Total District Match: \$1,479,463 (45.5%)**

Questions



Lakeview Cemetery - Dugway Brook Subwatershed

Urgent Storm Event Update

GEORGE REMIAS, PE

MANAGER OF STORMWATER STRATEGIC SUPPORT

Agenda

- Model Data Management Update
- Upcoming 2023 USGS Contract
 - Increased River Gages [25 to 27]
 - Increased Rain Gages [1 to 11]
 - New Cuyahoga River Flood Inundation Mapping [16.4-miles]
- Gauge Adjusted Radar Rainfall (GARR) Contract
 - Added Features [Forecast Rainfall; Monitoring; Rules & Alerts]
 - Looking for Pilot Member Communities to Develop Specific Rules & Alerts

Model Data Management Update

Reasons for Updating Models:

- New Construction
- New Alternatives
- Improved Data (Survey, LiDAR)
- Comply with modeling standards
- Additional model detail (extending into local system)

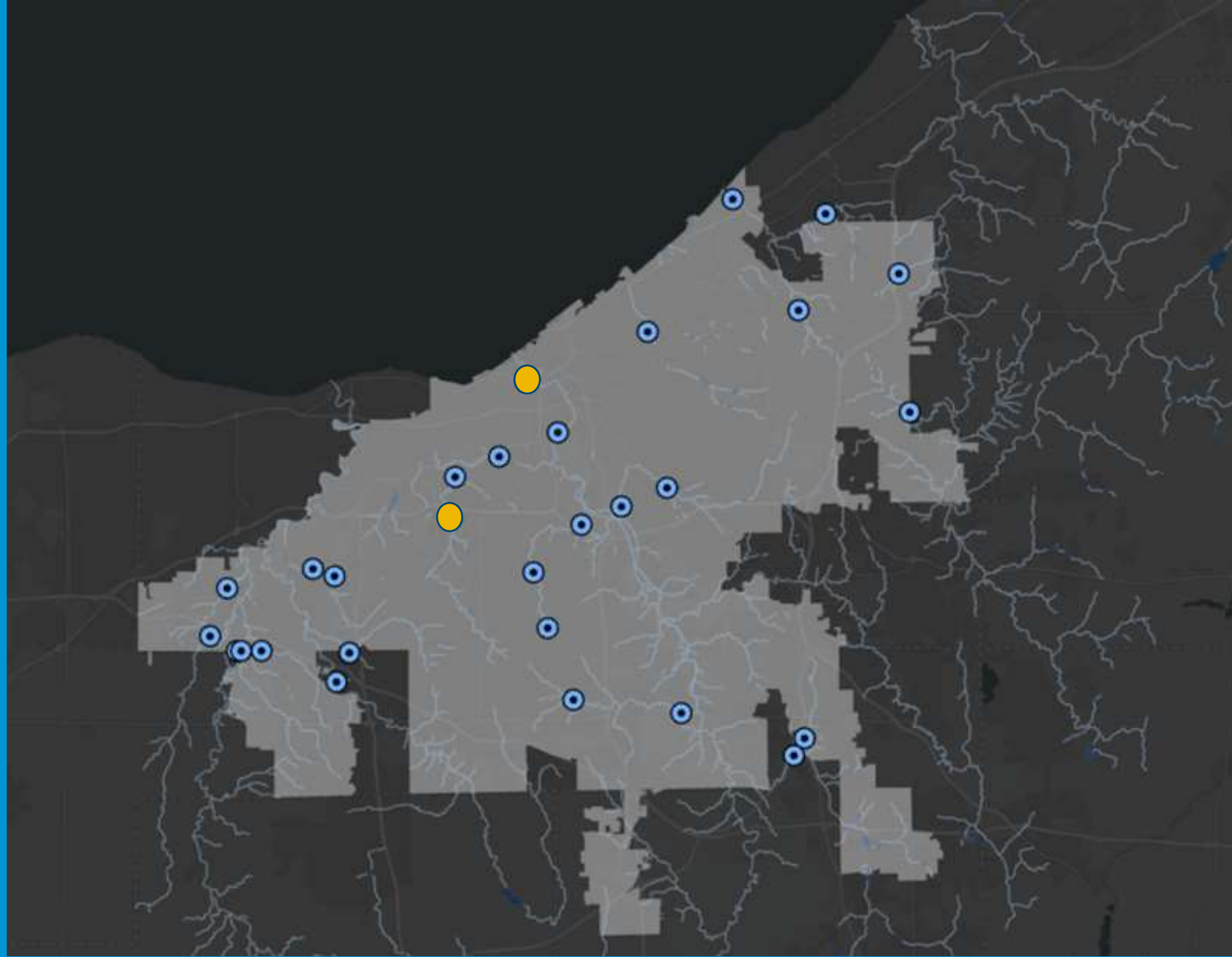
Updated Models: Big Creek, Mill Creek, and Chippewa Creek

On-going Model Updates: Abram Creek, Baldwin Creek, and West Creek

Remaining Models: All models are intended to be updated and

2023 USGS Agreement

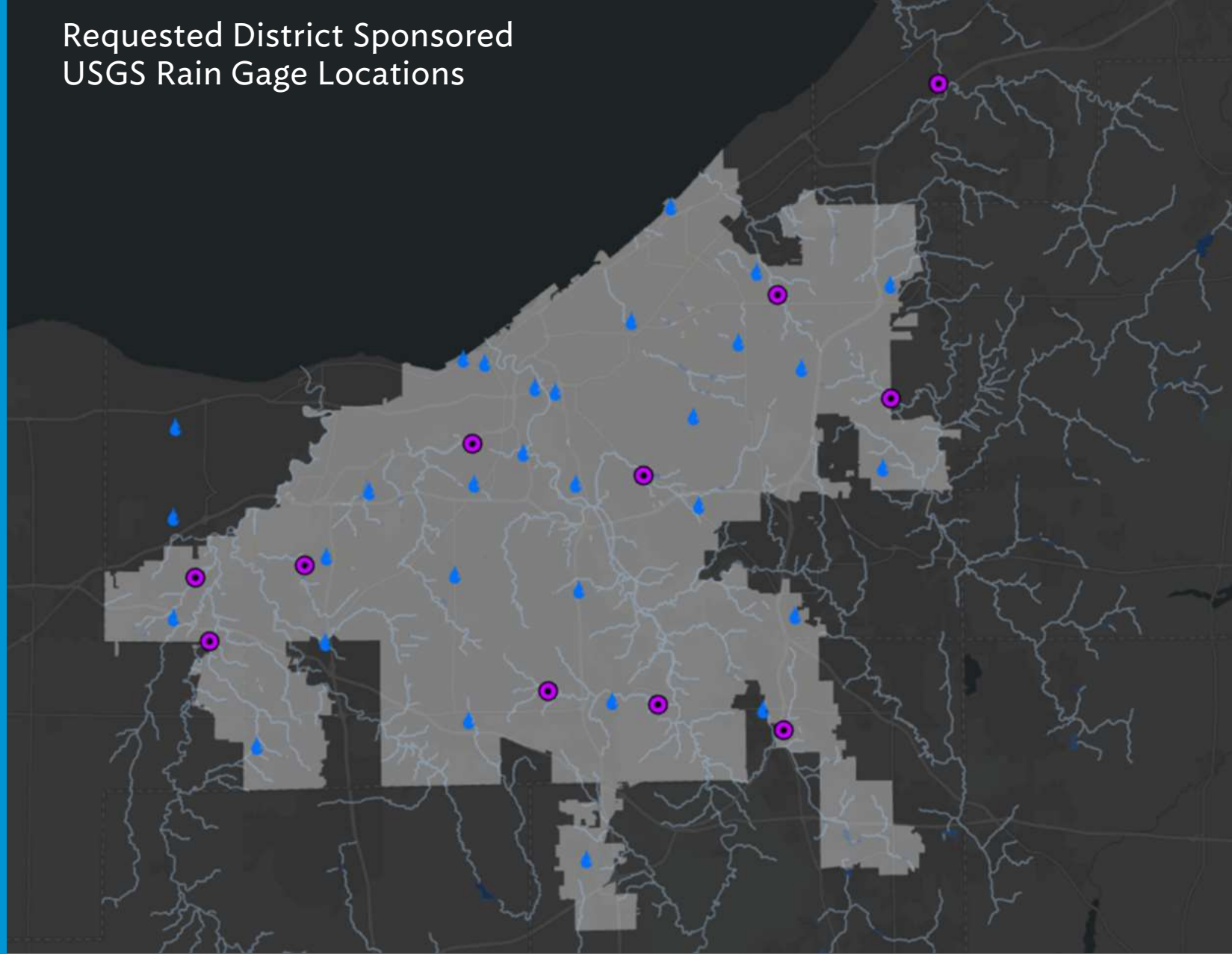
- Operation and maintenance of 27 stream gages (25 existing and 2 new)



New USGS Rain Gage Locations

- District is investing in 11 USGS rain gages (10 existing and 1 new)
- The 10 new rain gages will be Pluvio, which are supposed to be very accurate and reliable during high intensity storm events.

Requested District Sponsored
USGS Rain Gage Locations



New Flood Inundation Mapping

- USGS will create 16.4 miles of Flood Inundation Mapping along the Cuyahoga River
- Will support on-line advanced flood warning services to other agencies, member communities, residents and businesses along the Cuyahoga River

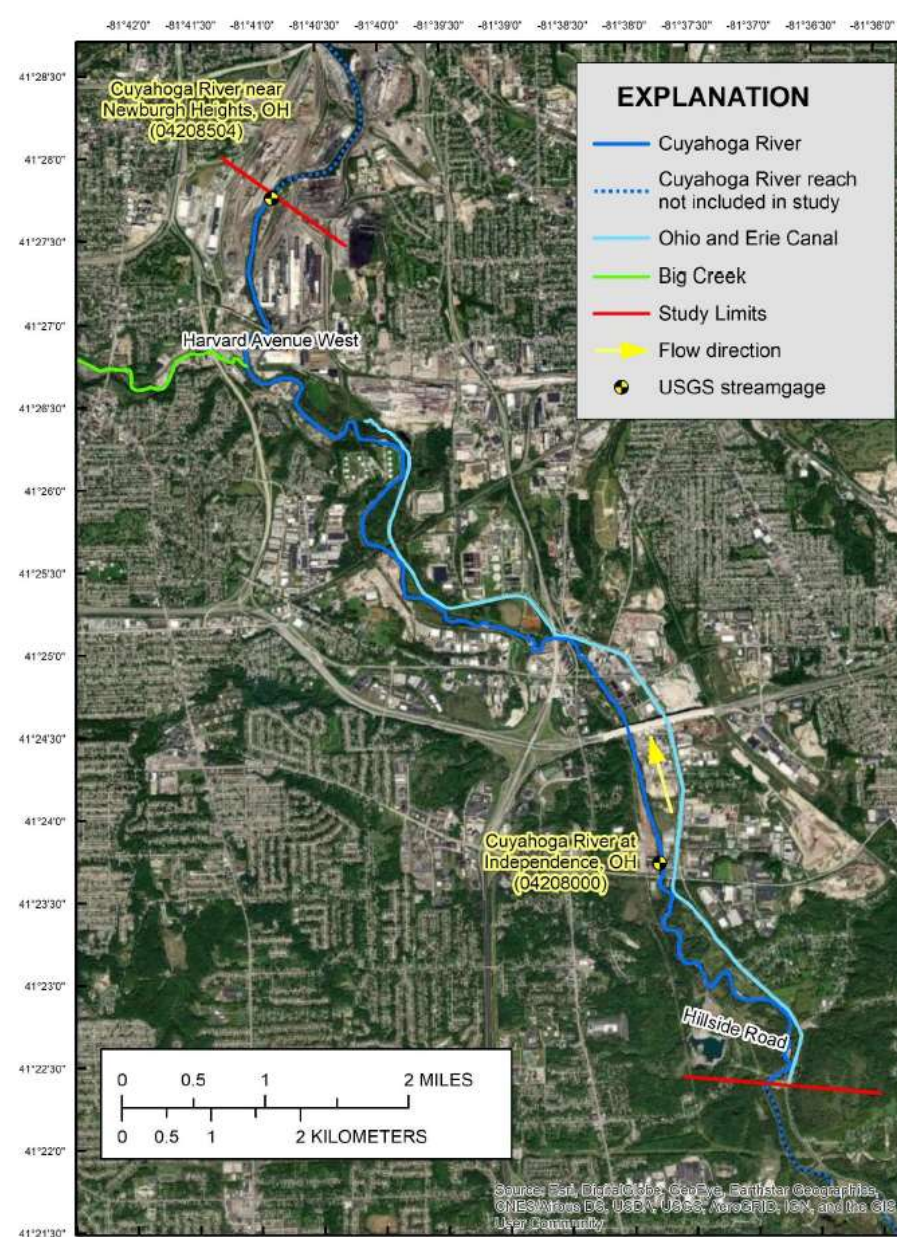


Figure 1. Map of proposed study reach near Independence, Ohio.

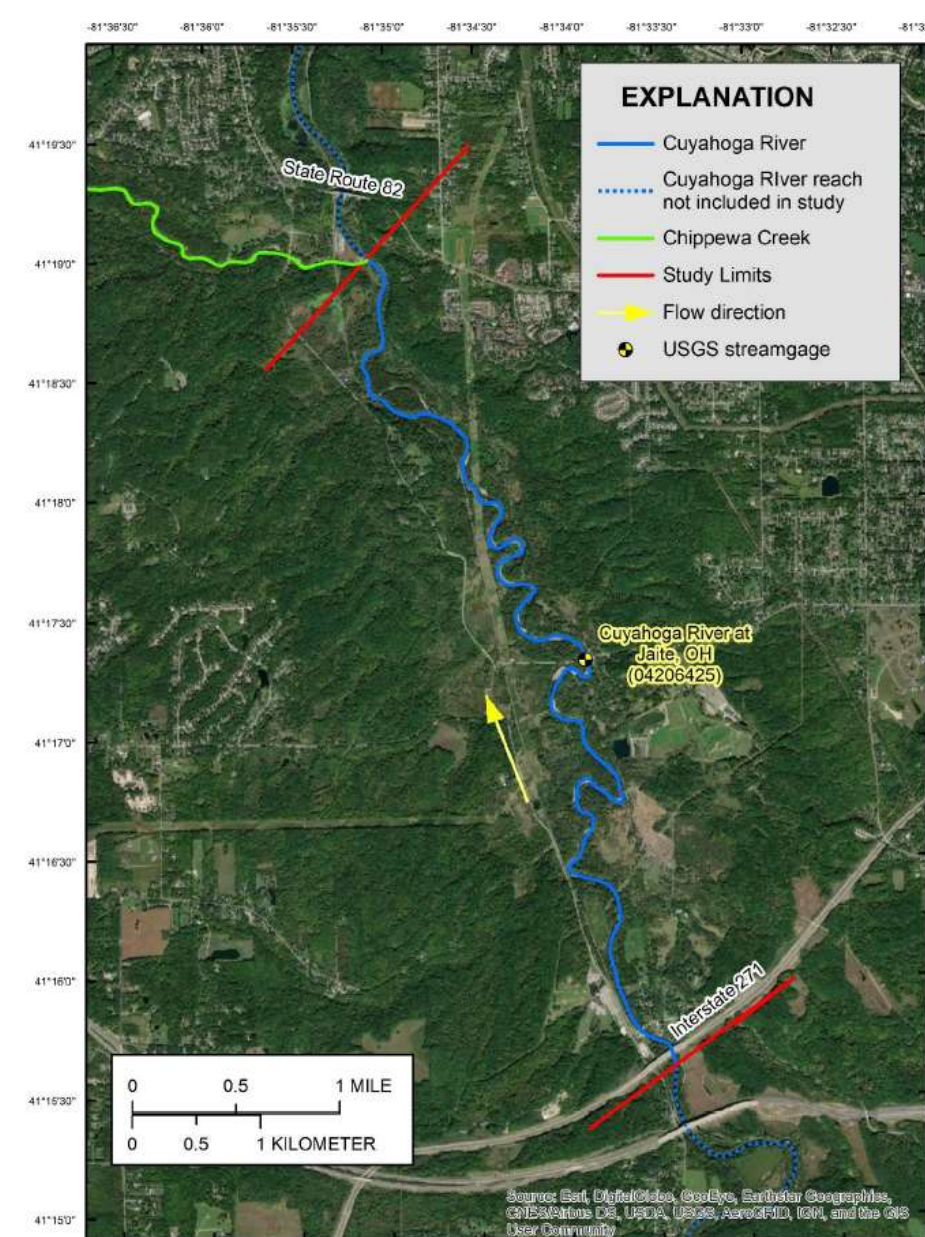


Figure 2. Map of proposed study reach near Jaite, Ohio.

Flood Inundation Mapping Example: Blanchard River near Findlay

← → ↻ 🔒 fim.wim.usgs.gov/fim/



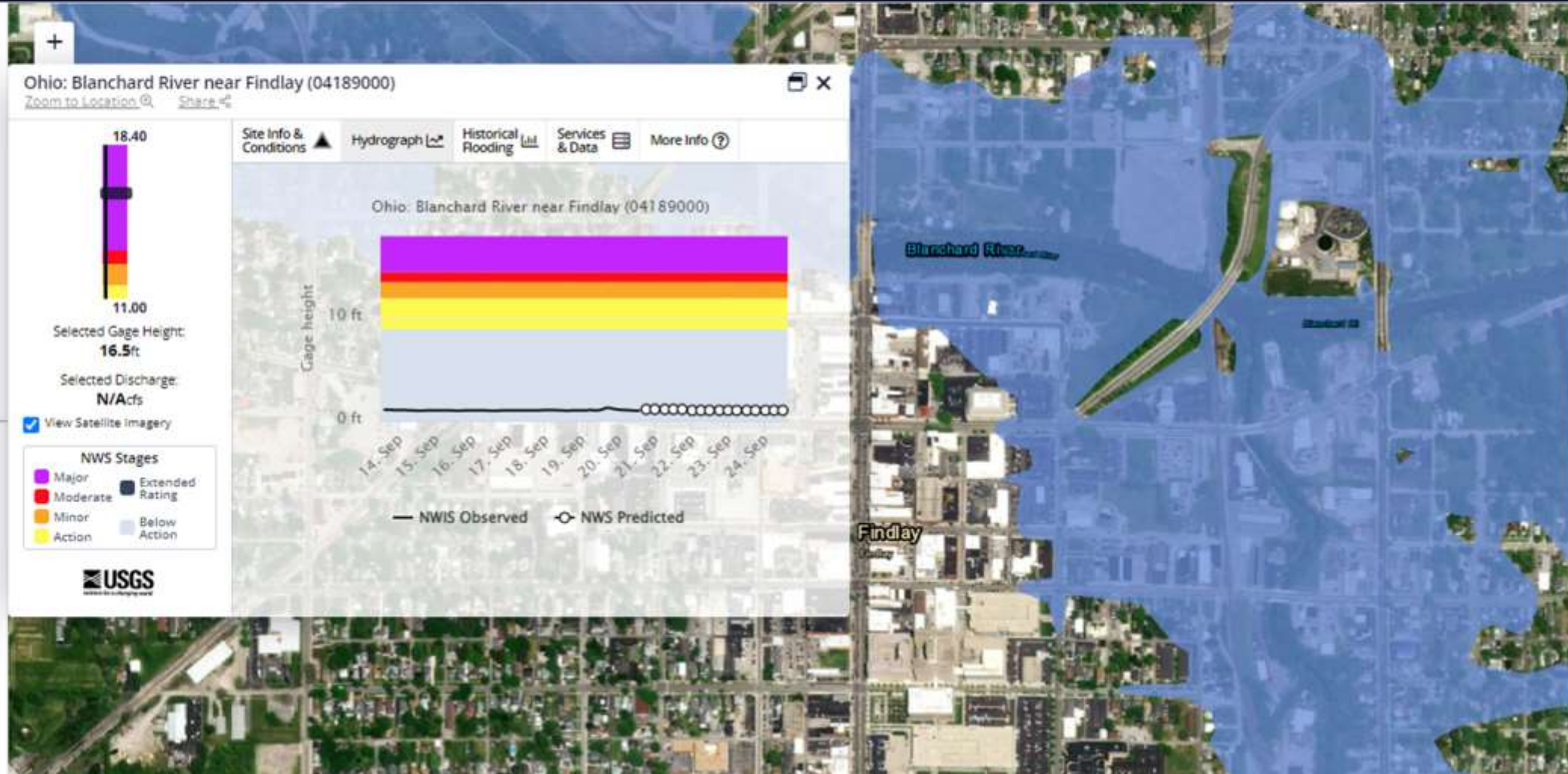
Flood Inundation Mapper

Basemaps

- Streets
- Satellite
- Hybrid
- Topo
- Terrain
- Gray
- OSM
- NatGeo
- Nat'l Map

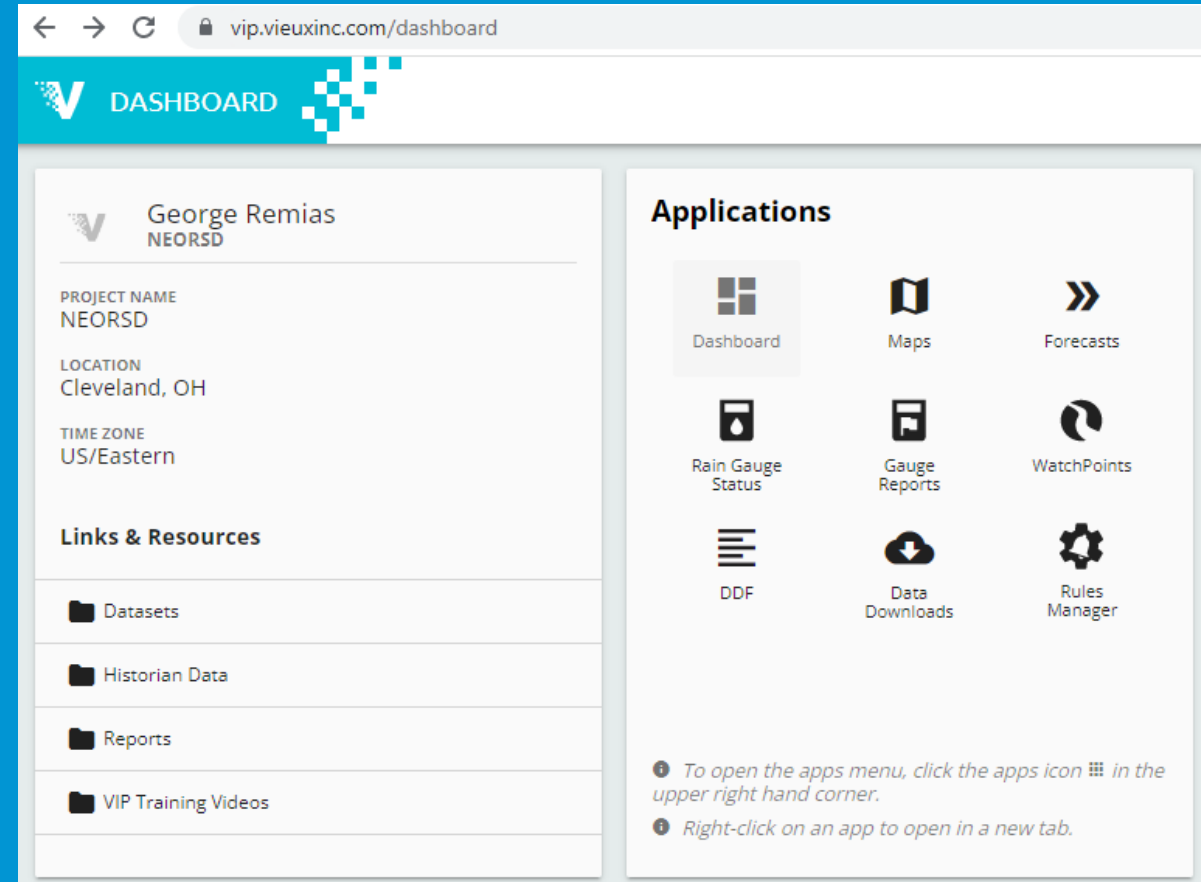
Map Layers

- ☐ National Weather Service Radar
- ☐ Flood Watches and Warnings
- ☐ AHP5 Forecast Sites
 - ☐ Major flooding
 - ☐ Moderate flooding
 - ☐ Minor flooding
 - ☐ Near flood
 - ☐ No flooding



GARR Services

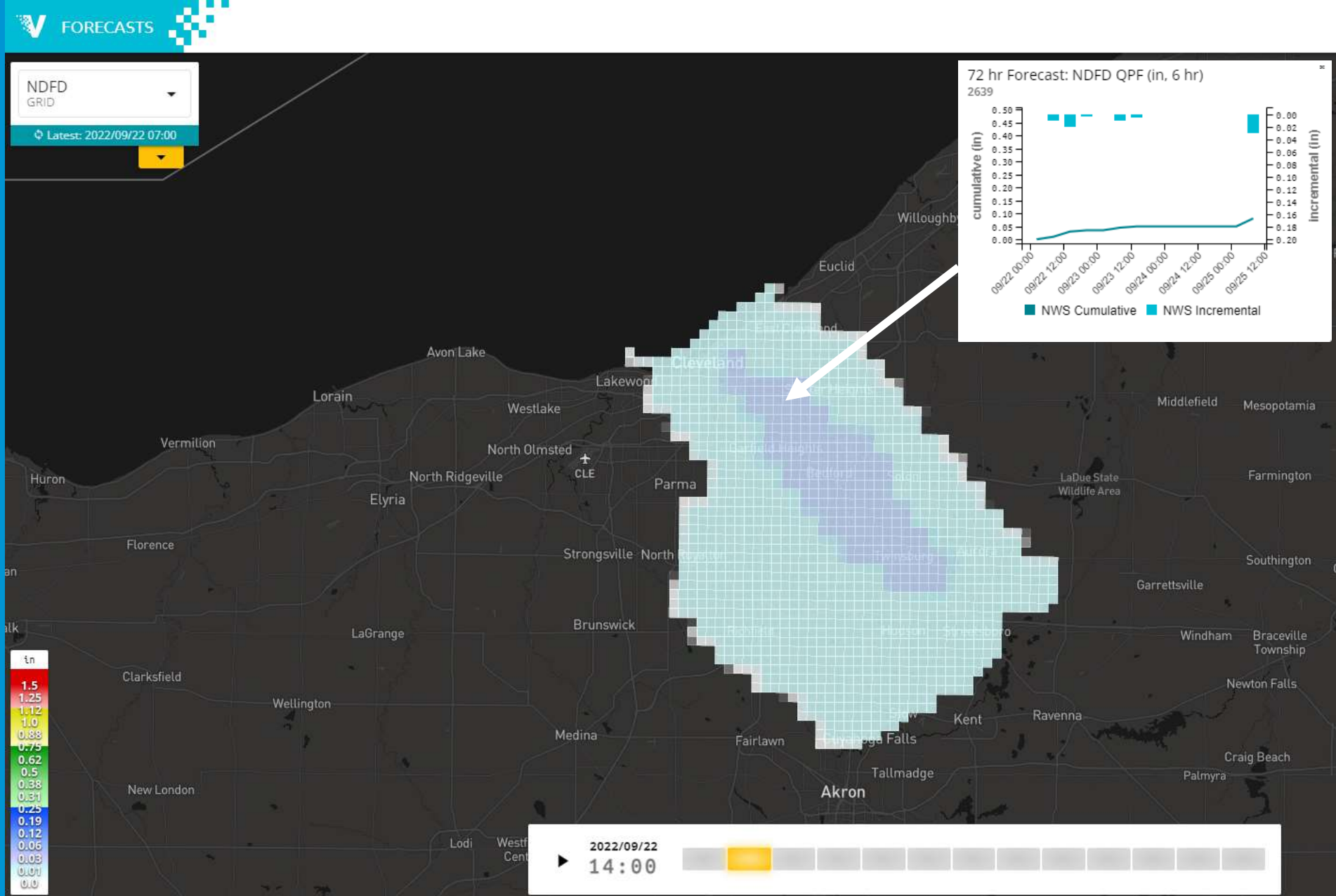
- Since 2016, the District has invested in gauge adjusted radar rainfall (GARR) data to support the RSMP and Performance Compliance Project (PCP).
- Before Aug 2022, the primary product was an End of Month (EOM) GARR dataset to support model calibration.
- The District was interested in improved tools to track future and current storms to support communicating internally and externally about issues across the SWSA.



Forecasting Services

Vieux provides three different forecasting datasets:

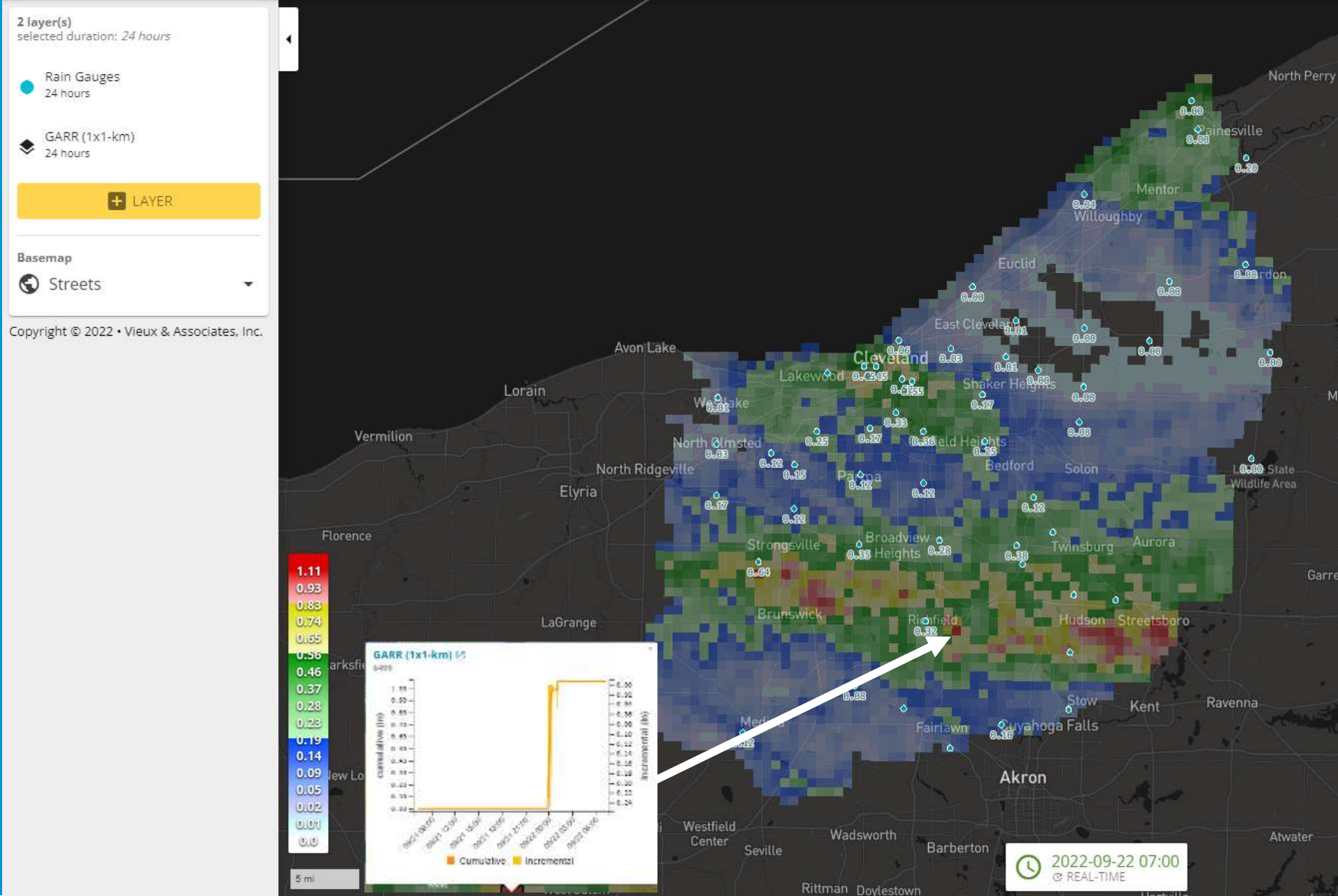
- PreView:
 - 0-1-hour forecast
 - 5-min time steps
- HRRR:
 - 1-18-hour forecast
 - 1-hour time steps
- NDFD:
 - 1 – 3-day forecast
 - 6-hour time steps



Near Real-Time (NRT) GARR

5-minute timestep NRT GARR is created using:

- NOAA Radar Rainfall (1kmx1km)
- Real-Time Rain Gauges (46):
 - District (30)
 - Other (16)



WatchPoints

The District is tracking nearly 100 monitors:

- USGS Sites (35)
- District (25)
- 3rd Party Vendor sites under District Contract (50)

Each monitor lists current readings and two watchpoints:

- NWS equivalent - Action Stage
- NWS equivalent - Minor Flood Stage



Rules Manager and Alert Notifications

The screenshot displays the 'Rules Manager' interface, which is divided into several sections:

- Left Sidebar:**
 - All Items:** A search bar and a list of items.
 - TYPES:** A list of categories including DDF, Forecast, GARR, Gauges, PreViews, and WatchPoints.
 - IMPORTANCE:** A list of importance levels: Critical (red triangle), Moderate (yellow triangle), and Low impact (green triangle).
- Search list:** A search bar with a magnifying glass icon and a yellow plus icon.
- Rule List:** A list of rules with icons and details:
 - Test: GARR Rule:** 3410 feature(s) | 1 in
 - Test: Multi-Dataset criteria:** 1 feature(s) | 2 in
 - Test: Try to add multi-criteria:** 6 feature(s) | 2.01 in
 - Test: WatchPoints:** 1 feature(s) | 9 ft
- Rule Detail Panel:**
 - Rule:** Test GARR Rule when any pixel exceeds 1"
 - Notifications:** A section for notifications.
 - Description:** Test GARR Rule when any pixel exceeds 1"
 - Suggestion:** include specific services, structures, and locations that are likely to be impacted
 - Importance:** A section with three tabs: LOW IMPACT (green triangle), MODERATE (yellow triangle), and CRITICAL (red triangle).
 - Type - subtype (locked):** GARR - Value
 - Whether rainfall crosses a threshold:**
 - Source:** GARR (1x1-km)
 - Aggregation:** Any
 - help** (blue circle icon)
 - TOTAL: 3,410 | SELECTED: 3,410**
 - Map:** A map showing a large orange area representing the GARR region. Labels on the map include Avon Lake, Cile, Koran, Vermilion, Akron, and Youngstown.
 - Active:** A checkbox labeled 'Active' with a yellow checkmark.
 - SAVE:** A button labeled 'SAVE'.

Looking for Pilot Member Communities to Develop Specific Rules & Alerts

- Both Regional and Local Rules and Alerts can be defined throughout the service area Forecast (Rainfall), Current (Rainfall or Monitor Data)
- The District is looking for interested parties to pilot developing specific rules and alerts for their area.
- If interested in being a pilot community, contact your WTL.

Stormwater Design and Construction

Design and Construction Projects

Project Story Map

Over \$124M in Construction



Project Name	City	Subwatershed	Actual or Estimated Construction NTP
Debris Racks and Access Road Improvements	(various)	(various)	1-Jun-21
Rocky River Stabilization & Sewer Protection	North Royalton	Rocky River	30-Aug-21
Lake View Cemetery Dam Maintenance	Cleveland	Dugway Brook	8-Nov-21
Baldwin Creek Stabilization near Abbey Road	North Royalton	Baldwin Creek	19-Jan-22
Chippewa Creek Stream Stabilization Broadview Rd	Broadview Hts	Chippewa Creek	1-Feb-22
Big Creek Flood Reduction near Sprague Road	(various)	Big Creek	14-Mar-22
Blodgett Creek Stabilization near Brigadoon	Strongsville	Blodgett Creek	14-Mar-22
Brandywine Creek Barlow Dam Improvements	Hudson	Brandywine Creek	14-Apr-22
Brookside Culvert	Cleveland	Big Creek	10-May-22
Baldwin Stormes Drive	Parma	Baldwin Creek	10-Jun-22
Picha Basin	Brecksville	Cuy Trib	17-Jun-22
Pepper Luce Creek Stabilization Gates Mills Blvd	Pepper Pike	Pepper Luce Creek	27-Jun-22
Big Creek Upper Ridgewood Basin	Parma	Big Creek	1-Aug-22
Bear Creek Culvert Improvements	North Randall	Bear Creek	15-Sep-22
Stafford Basin	Maple Hts	Wood Creek	26-Sep-22
Chippewa Creek Stabilization Route 21	Brecksville	Chippewa Creek	16-Nov-22
Doan Stabilization in Shaker Hts Country Club	Shaker Heights	Doan Brook	14-Dec-22
Big Creek near Old York Road in Parma Hts	Parma Hts	Big Creek	18-Jan-23
Brookside in Independence CH00147	Independence	Cuy Trib	18-Jan-23
Mill Creek Culverted Stream Rehab (ROCS1)	Garfield Hts	Mill Creek	19-Apr-23
West Creek Stabilization	Brooklyn Hts	West Creek	19-Apr-23
Chippewa Creek Flood Reduction Echo Ln	Broadview Hts	Chippewa Creek	19-Apr-23
Dugway Brook - Forest Hills Dam	Cleveland	Dugway Brook	31-May-23
Mill Creek Restoration near Cricket Ln	Warrensville Hts	Mill Creek	21-Jun-23
Hemlock Seven Hills Phase 1	Seven Hills	Hemlock Creek	21-Jun-23
Big Creek Near Ridge Road	Parma	Big Creek	5-Jul-23
Baldwin Bonny Banks Basin	Parma	Baldwin Creek	15-Nov-23
Cuyahoga River Vaughn Road Raising	Brecksville	Cuyahoga	3-Jan-24
Cuyahoga Trib Riverview Road Reconstruction	Brecksville	Cuy Trib	6-Feb-24
West Creek Veterans Basin	Parma	West Creek	6-Feb-24
Abrams Creek Flood Reduction Sheldon Rd	(various)	Abrams Creek	1-May-24
Big Creek Flood Reduction near Oakridge	North Royalton	Big Creek Creek	30-May-24
Renewal of Culverted Stream II (ROCS2)	(various)	various	30-Nov-24
Hemlock Creek near Hemlock Road	Independence	Hemlock Creek	30-Nov-24
Baldwin - York Pleasant Valley Dell Haven Basin	Parma	Baldwin Creek	30-Dec-24
Mill Creek Restoration Kerruish Basin	Garfield Hts	Mill Creek	30-Jan-25
Doan Restoration at Horseshoe Lake Park	(various)	Doan Brook	13-Jan-25
Lower Shaker Lake Reconstruction	(various)	Doan Brook	13-Jan-26

Stormwater Design

1649 Dugway Brook Forest Hill Park Dam Removal – City of East Cleveland

Project Goals:

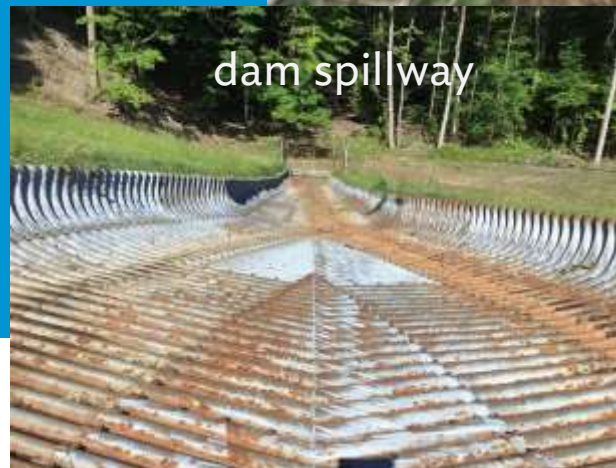
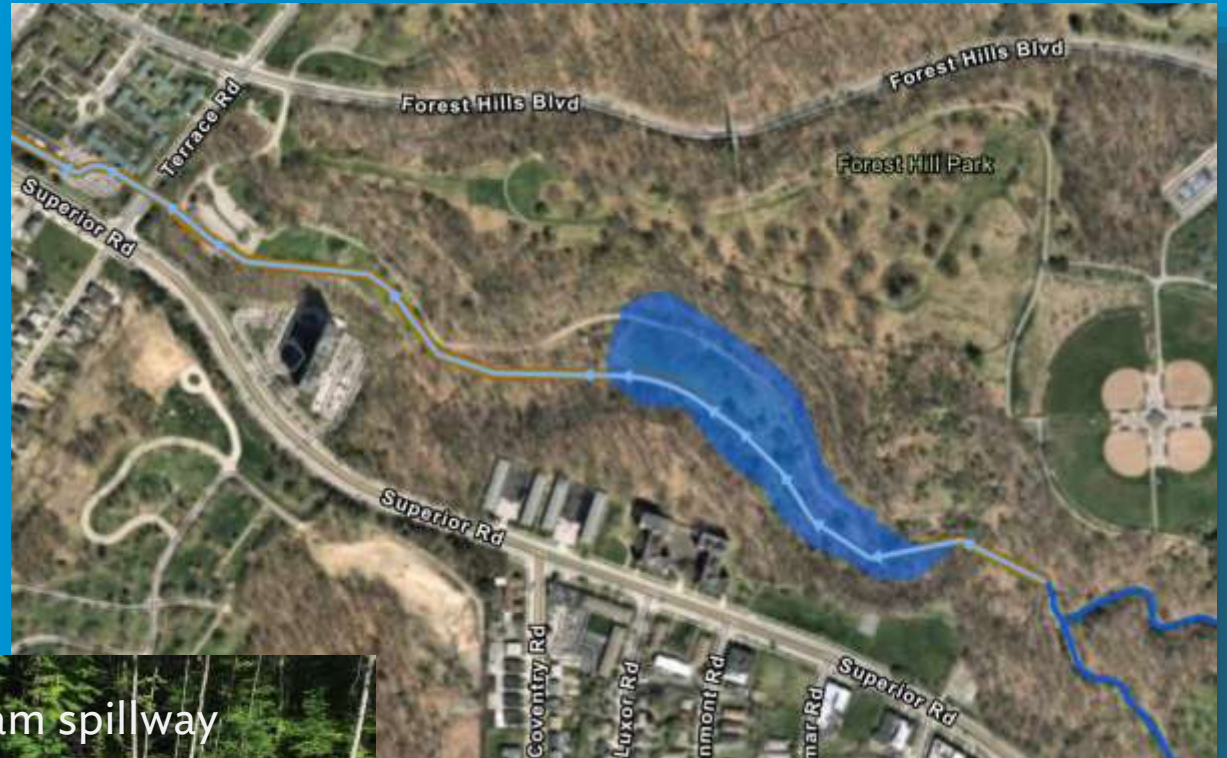
- Remove failing dam or declassify from ODNR regulations

Consultant: EMH&T (GES Contract)

Estimated Construction: \$0.8M

Facts to Note:

- Evaluated under SW Master Planning
- Dam is owned by City of East Cleveland
- Intent is to remove structure from ODNR classification and remove its risk and consequences of failure



1629 Doan Brook Restoration near Horseshoe Lake Park- Cities of Shaker Heights and Cleveland Heights

Project Goals:

- Remove failing dam
- Restore stream corridors
- Integrate stream restoration with landscape architecture

Consultant: AECOM-Stimson JV

Facts to Note:

- Pre-Design Underway
- Design to follow in 2023
- Public engagement process





Doan Brook Restoration Near Horseshoe Lake Park

The Northeast Ohio Regional Sewer District has engaged [STIMSON Landscape Architecture](#) to lead a design team that will develop a stream restoration of Dean Brook near Horseshoe Lake Park.

Your input will help the STINSON team create designs that reflect the values and vision of Cleveland Heights and Shaker Heights residents while addressing necessary infrastructure improvements.

L&C studio, a private nonprofit organization dedicated to enhancing public spaces in Northeast Ohio, has been engaged to manage the collection and distribution of survey responses.

Thank you for sharing your ideas for this project!

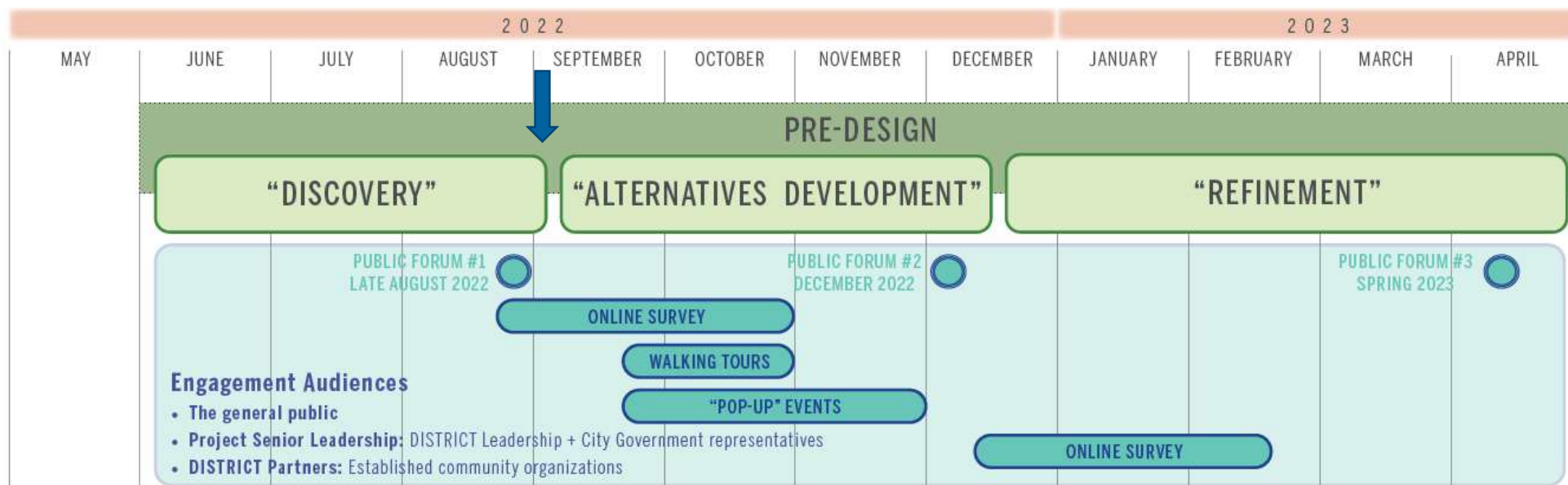


**Doan Brook
Restoration**

Walking Tour #1: Parks Restore

Saturday, Sept. 28 and Sunday, Sept. 29
10:30am to 12:30pm

1792





Stormwater Construction

1558 Pepper Luce Creek Culvert Replacement & Rehabilitation at Gates Mills Boulevard

City of Pepper Pike

Project Goals:

- Rehabilitate and replace failing culverts
- Enlarge a detention basin to reduce flood risks to Gates Mills Blvd

Contractor: Tuscon, Inc

Construction Award: \$2,058,367

Construction NTP: June 27, 2022

Facts to Note:

- City of Pepper Pike is utilizing Community Cost Share for the rehabilitation of the upstream culvert





Completed Projects

1559 Pepper Luce Creek Stabilization Near Lander Road

Substantial Completion Anticipated
September 2021

Contract Amount: \$593,034.90

Lineal Feet of Stream Work: 575'



Code Updates

Title III & IV Repeal and Replacement



Authority

Ohio Revised Code Section 6119.08

Title III Separate Sanitary Sewer Code

Title IV Combined Sewer Code



Title III – Updated

Document structure

Definitions

Creation of The Water Quality Technical Program



Title III – Updated

Original Purpose- ...to provide a procedure by which the District and each Community served by the District can cooperate...

Creation of the Water Quality Technical Support Program (WQTSP)

- District to provide support to communities in addressing water quality issues regulated by others, such as OEPA and County Board of Health
- Voluntary program

Community Discharge Permit- Community Must:

- Control Excessive I/I
- Maintain and update local sewer data
- Implement BMPs
- Create a Community Compliance Plan outlining how compliance of the permit objectives will be achieved



Title IV – Updated

Document structure

Definitions

**Connections to or Disconnections from the
Combined Sewer System**



Benefits of Title III & IV Updates

- **Consistency**
 - Permits for all communities
 - 1 unified permit
- **Improved utilization of District resources**
 - Local Sewer System Evaluation Studies
 - Member Community Infrastructure Program Grant
- **Usability**
- **Simplicity**
- **Water quality improvement and infrastructure investment**



Title V – Updated

Increased Credit Eligibility

- Applicants can receive credit for partial responsibility for maintenance of SCM
- Applicants can receive credit for an SCM that they do not directly drain to, if:
 - The SCMs is oversized to compensate for these areas
 - If the applicant has partial responsibility for the maintenance of SCM

Updated Definition of “Associated Impervious Surface”

- Definition updated to accurately reflect the above changes to credit eligibility

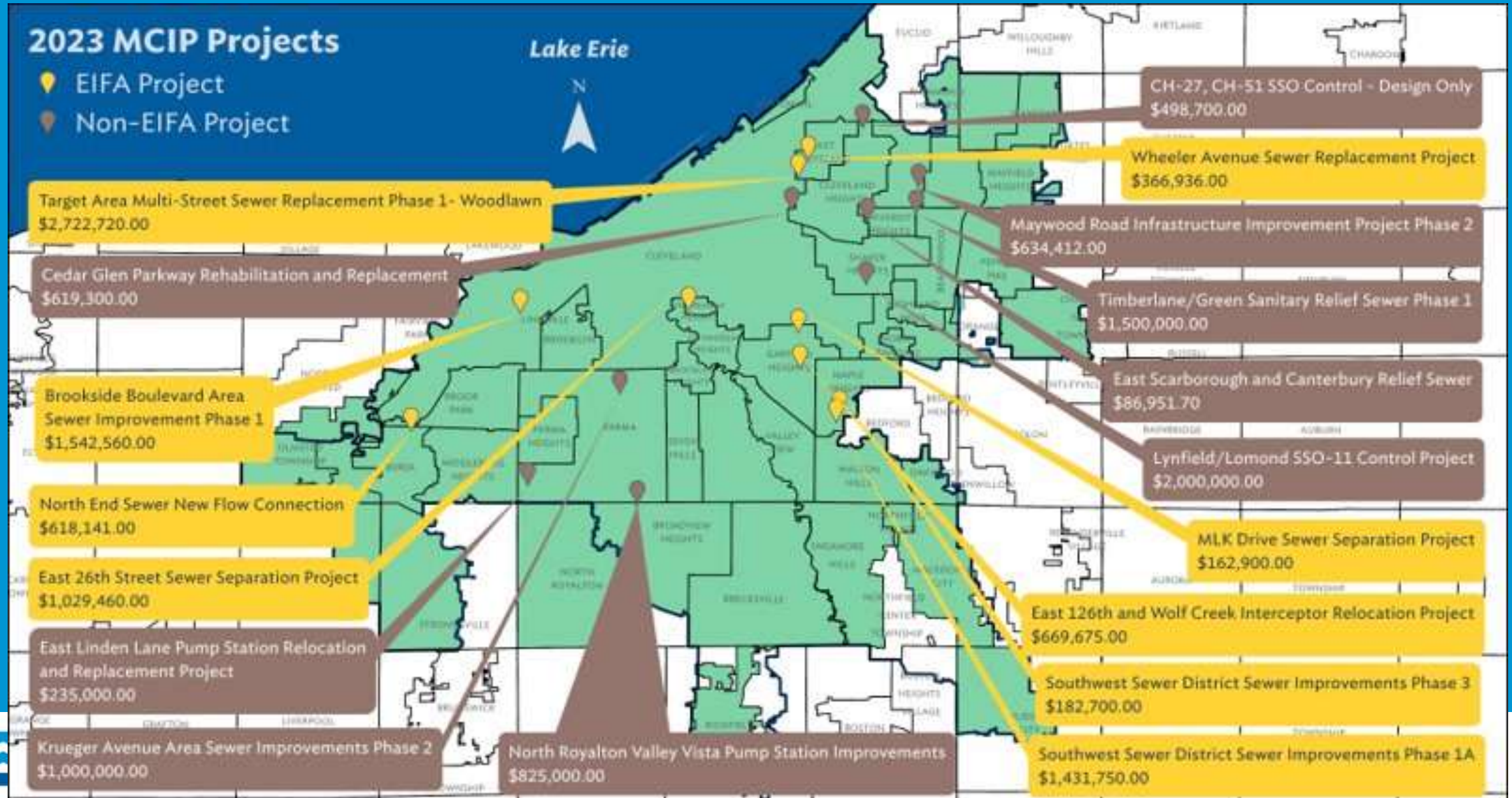


Infrastructure Funding Update



**Northeast Ohio
Regional Sewer District**

Member Community Infrastructure Program (MCIP) 2023




Infrastructure Investment and Jobs Act: Ohio Clean Water State Revolving Fund

- Approximately \$100 million/year to the Water Pollution Control Loan Fund (WPCLF)
 - 5 years of funding
 - 49% through grants referred to as “principal forgiveness”
 - Focus of grants is disadvantaged communities
 - District goal to ensure maximum IIJA grant funding to region



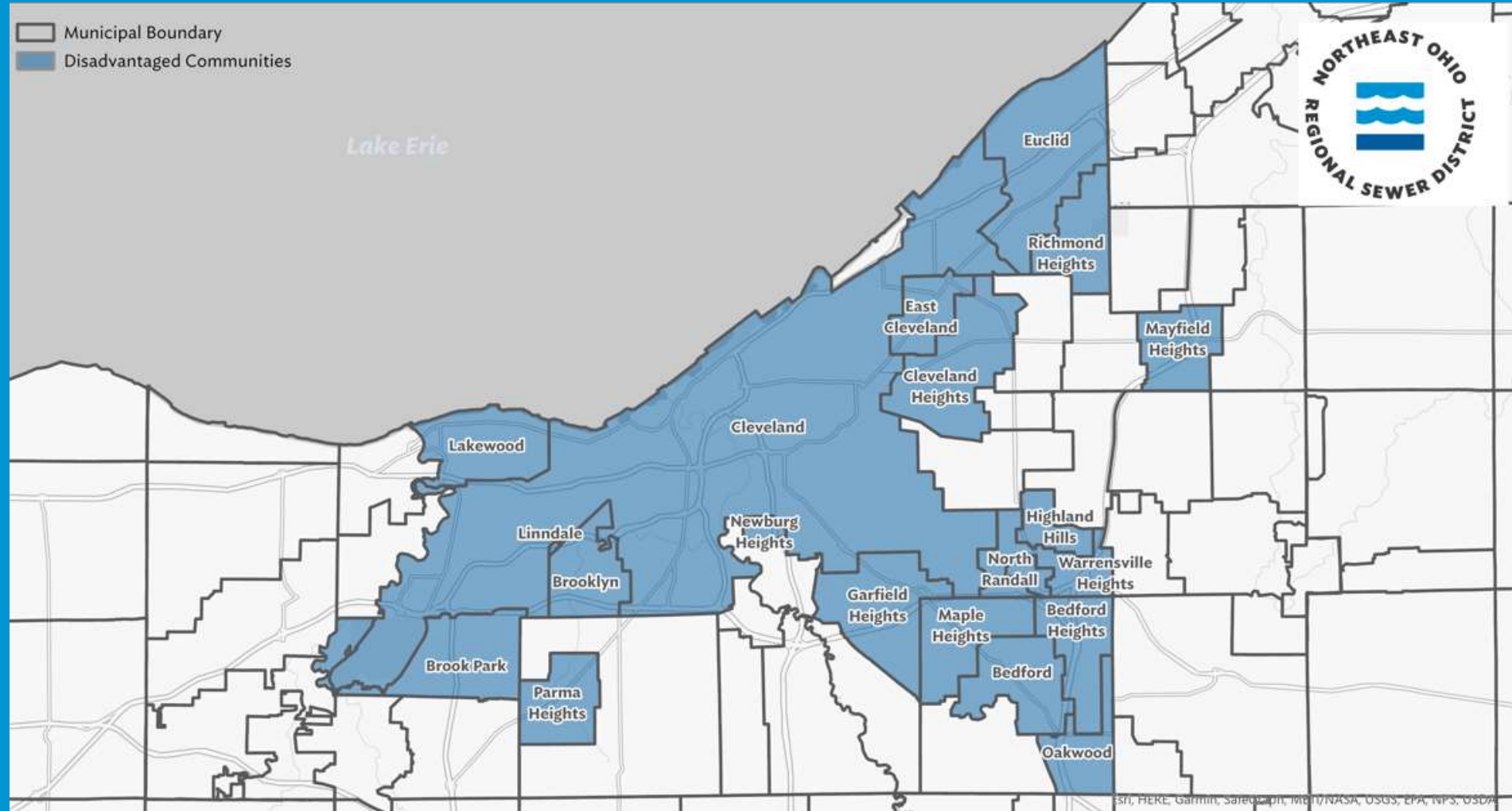
2023 WPCLF Affordability Criteria

Median Household Income (MHI)	$\leq \$58,116$
Unemployment Rate	$\geq 5.3\%$
Poverty Rate < 200% of Poverty Level	$\geq 30.4\%$
Percent Population Change	$\leq 50\%$ Increase


3/4 Criteria



20 Communities Meet OEPA Affordability Criteria



Project Submittal Process

- Communities provided their priority projects.
- District reviewed and applied for 8 projects, \$8.3M for design in 2022.
- **If awarded, we will be seeking construction funding and potentially more design dollars next year.**



2022 Clean Watersheds Needs Survey

- EPA report to Congress on Clean Water needs
 - Supports state and congressional budgeting efforts
 - Supports public information and other clean water initiatives
 - Typically conducted every 4 years
- EPA will send the survey out to large communities/service providers.
- Due date for that survey will likely be 11/18.



WTL Contact

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Watershed Team Leader

RiveraF@neorsd.org

(440) 670-3264

Donna Friedman
Manager of Community Watershed Coordination

Friedmand@neorsd.org

(216) 401-1332

Thank you!