

Watershed Advisory Committee

Cuyahoga River North

October 15, 2020

NORTHEAST OHIO REGIONAL SEWER DISTRICT



REGIONAL
STORMWATER
MANAGEMENT
PROGRAM

Agenda

- Sewer District Updates
- Stormwater Master Plan
- Stormwater Inspection and Maintenance
- Cuyahoga County Office of Emergency Management
- Stormwater Design & Construction
- Looking Ahead

Program Highlights

Frank Greenland, Director of Watershed Programs

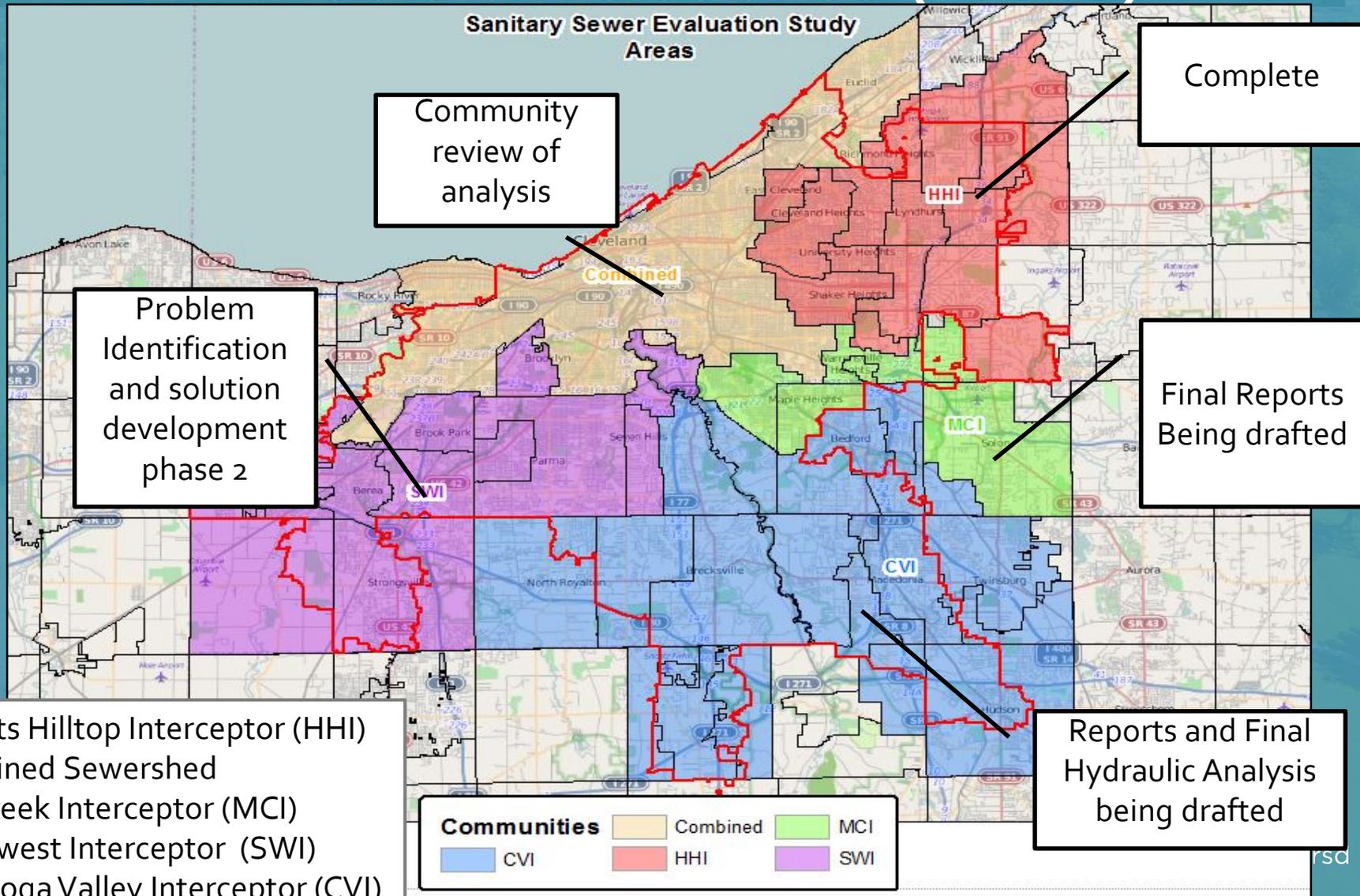
Matt Scharver, Deputy Director of Watershed Programs

Community Cost-Share: 2020

- CCS Funds Balance (9/31/2020) \$29,717,238
- 82 projects w/ executed agreements \$8,402,435
- 31 projects w/ agreements in progress \$3,472,662
- CCS Funds available to Member Communities \$17,842,140
- 21 approved allocation agreements \$9,827,806

55 of 55 Member Communities have participated

Local Sewer System Evaluation Studies (LSSES)



Heights Hilltop Interceptor (HHI)
 Combined Sewershed
 Mill Creek Interceptor (MCI)
 Southwest Interceptor (SWI)
 Cuyahoga Valley Interceptor (CVI)

2021 MCIP Funding Reduced

- Sewer District currently tracking \$40-\$50M revenue decline for 2020
- 2021 MCIP funding decreased to \$2.5M
- 7 projects awarded for funding in 2021
 - 3 Design & Construction projects
 - 4 Design-Only projects

2021 Member Community Infrastructure Program

7 Funded Projects

APPLICANT	PROJECT TITLE	DESIGN & CONSTRUCTION REQUEST
South Euclid	Oakmount Road Infrastructure Improvement Project	\$ 365,973.00
Maple Heights	Maple Heights Manhole Sewer Separation Project - Phase 2 (Northeast Quadrant)	\$ 1,021,887.00
Lorain County Commissioners	Westview I & I Remediation	\$ 359,300.00
	TOTAL	\$ 1,747,160.00

APPLICANT	PROJECT TITLE	DESIGN REQUEST
East Cleveland	Wheeler Avenue Sanitary Sewer Improvement Study and Design	\$302,340.00
Shaker Heights	Lynnfield & Lomond SSO 11 Control Project	\$112,500.00
Parma	Krueger Avenue Area Sewer Improvements	\$260,000.00
Parma	Green Acres Area Sewer Improvement Project	\$78,000.00
	TOTAL	\$752,840.00

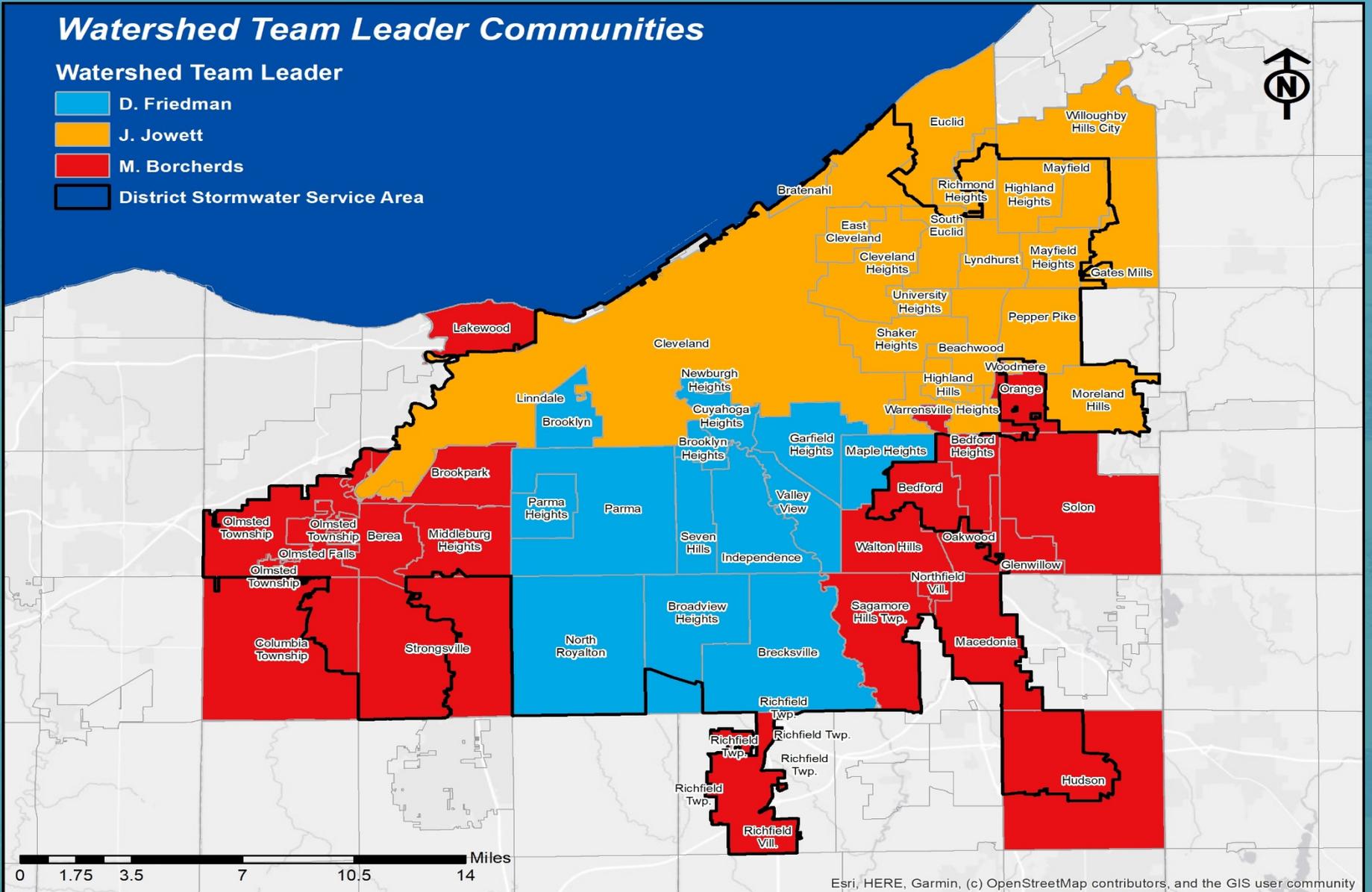
Future MCIP Funding

- 2022 MCIP funding anticipated
- Level of funding will be determined by 2021 rate study
- Design & Construction and Design-Only

Watershed Team Leader Communities

Watershed Team Leader

- D. Friedman
- J. Jowett
- M. Borchers
- District Stormwater Service Area



0 1.75 3.5 7 10.5 14 Miles

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Questions



Big Creek in Parma – Problem Area BC-PA-03

Special Features

Acquisition, Demolition & Property Owner Communications – *Lilah Zautner, Project Manager for Property Acquisition*

Partner Grant Support Request Process – *Paul Kovalcik, Stormwater Project Specialist*

Water Resource Project Property Acquisition

Program Goals

- Support Design and Construction project needs
- Mitigate the threat of erosion and flooding
- Protect functioning regional stormwater assets
- Leverage acquisition dollars through partnerships

Success to date: Threat Mitigation/ Asset Protection

- Fee Simple : 41 properties/ \$ 8,944,650
- Permanent Easements: 86/ \$691,254

Success to date: Partnerships

- Flood / Erosion Mitigation: 17 homes
- District Dollars invested: \$1,218,904
- Dollars Leveraged: \$3,549,969

Acquisition Process

Outreach

Appraisal

FMV Offer

Board Approval

Closing /Leasing

Maintenance and
Inspection

Water Resource
Project

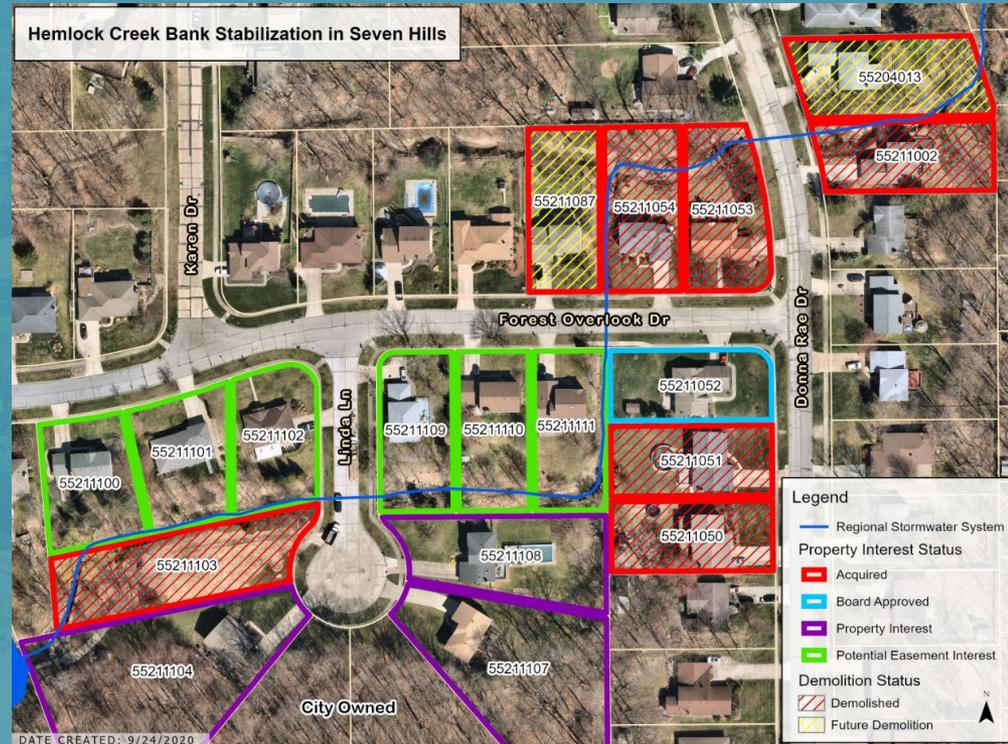
Hemlock Creek Bank Stabilization - Seven Hills

Land Assembly

- Planned acquisition of 12 residential properties
- 9 properties secured, 6 demolished
- Land assembly began in 1Q, 2019
- Close coordination with the City, including Emergency Services training
- Phase 2 of land assembly will continue in 2021

Total Investment to Date

\$2,484,691



Partner Grant Projects



Royalton Farms 319 Project

Partner Grant Projects

\$500,000

Annual match available from the District



Planting at the East Branch of Euclid Creek

Partner Grant Projects

\$300,000

Maximum request per project



Doan Brook – Improving Fish Passage

Partner Grant Projects

Application

1. A NPSIS project summary sheet
 - a. expanded project description with anticipated outcomes
 - b. line-item cost estimate
2. Concept graphic
3. Requested match
4. Email to: kovalcikp@neorsd.org

Partner Grant Projects

12/31/20

Deadline for a request to the District



Mill Creek Phase 1 – Highland Hills

Partner Grant Projects

- Applications will be nominated to the District's stormwater construction plan and ranked.
- Funding will be distributed according to rank.
- The District can be available to assist with developing concepts, sediment/nutrient estimates, costs, etc.
- The District may provide in-kind services if District funds are not awarded.
- Projects must include Design and Construction that result in improvements to the District's RSS.

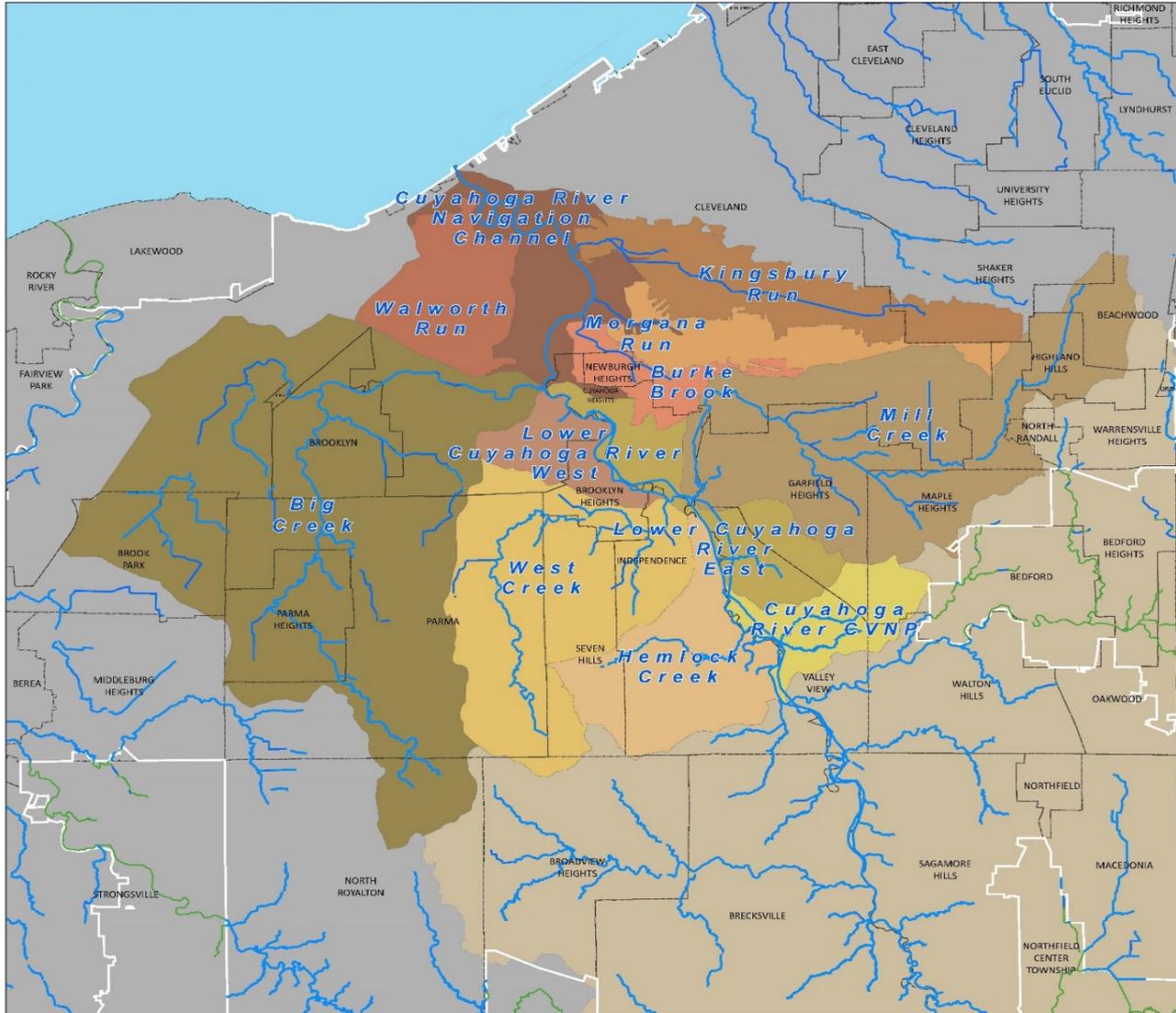
Questions



Lilah Zautner
Project Manager for Property
Acquisitions, Watersheds
ZautnerL@neorsd.org
216-881-6600 x6455

Paul Kovalcik
Stormwater Project Specialist
KovalcikP@neorsd.org
216-881-6600 x6875

Stormwater Master Plan



Cuyahoga River - North

- Regional Stormwater System in NEORS Service Area
- Regional Stormwater System not in NEORS Service Area
- Service Area
- Community

 **Northeast Ohio
Regional Sewer District**

Coordinate System : Ohio State Plane North
Datum: NAD 1983 , NAVD 1988
Projection: Lambert Conformal Conic
Sources: NEORS GIS

Map Created: October 2017

1:50,524



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Stormwater Master Planning (Status through 8/1/2020)

Cuyahoga River South

Completion Date: June 2019



■ Remaining ■ Completed
100 % Complete

Cuyahoga River North

Completion Date: July 2020



■ Remaining ■ Completed
100% Complete

Rocky River

Completion Date: November 2020



■ Remaining ■ Completed
96% Complete

Chagrin River / Lake Erie Tribs

Completion Date: May 2021



■ Remaining ■ Completed
67% Complete

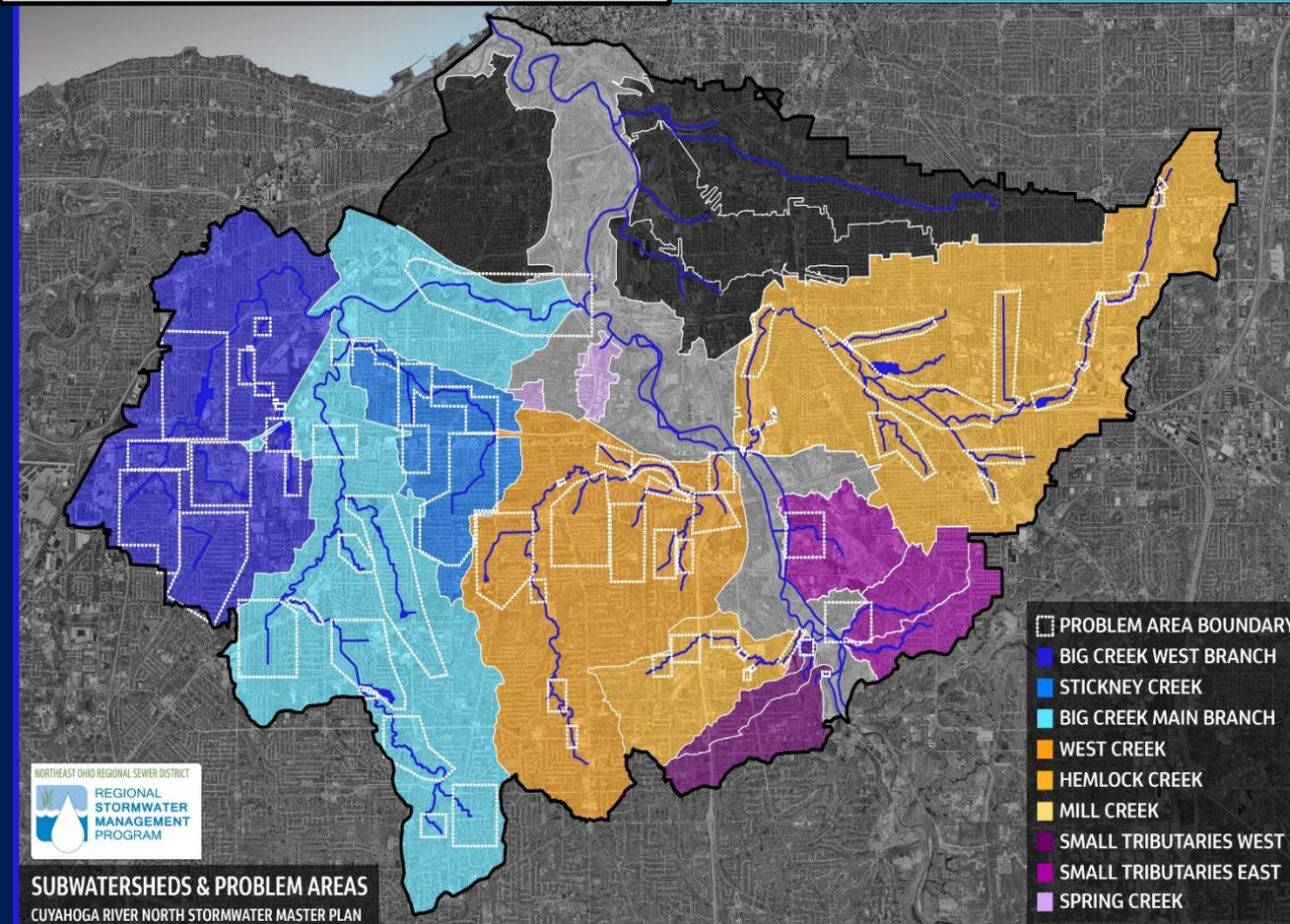
Cuyahoga River North

Cuyahoga River North Stormwater Master Plan

70+ Problem Areas with Planning Level Recommendations

Problem Areas nominated to SW Construction Plan in 2019 and 2020

~\$544 Million in construction costs



Cuyahoga River North Stormwater Master Plan

- Final SWMP Report
 - Baseline recommendations
 - System enhancement recommendations (a.k.a. Problem Areas)
- Inspection/Maintenance Action Plan
- Electronic Data Deliverables
- Community Reports

Cuyahoga River North Stormwater Master Plan

Subwatershed	Problem Areas	Construction Costs
Big Creek Main Branch	12	\$382,724,639
Stickney Creek	4	\$38,297,000
Big Creek West Branch	13	\$30,184,000
West Creek	14	\$15,935,000
Hemlock Creek	7	\$4,686,000
Mill Creek	16	\$72,846,800
Small Tributaries East	2	\$0
Small Tributaries West	2	\$0
Total	70	\$544,673,439

Cuyahoga River Stormwater Master Plan Design & Construction Phase

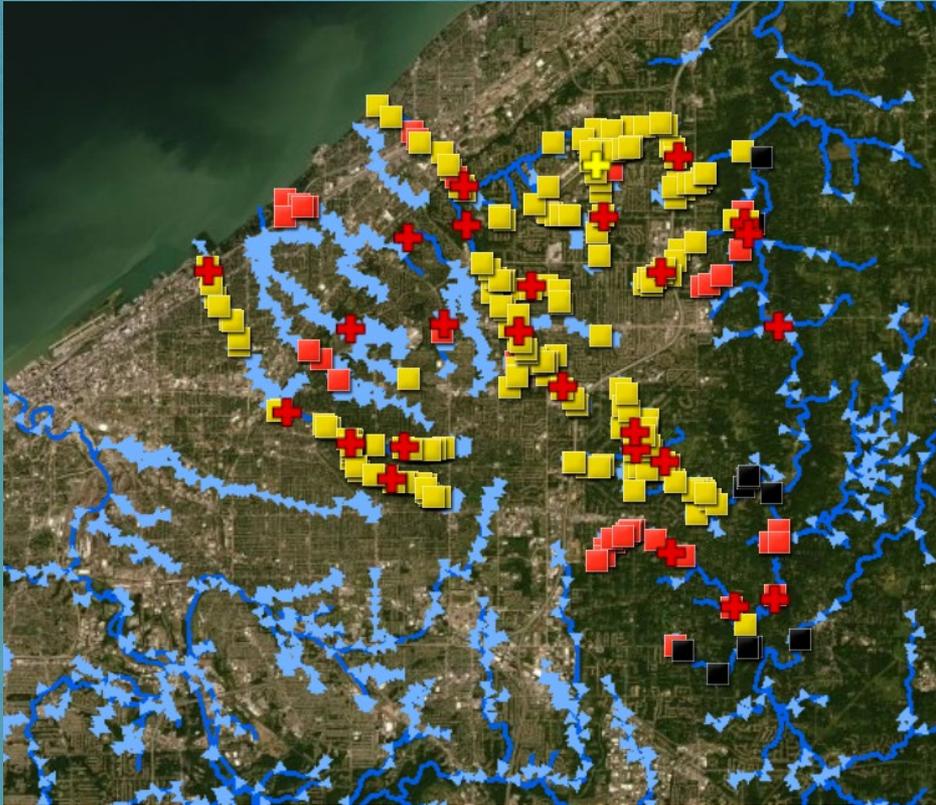
Projects initiated based on SW Master Plan recommendations:

- Big Creek Flood Reduction near Sprague Road (BC-NR-02)
- Big Creek Stream Restoration Upstream and Downstream of Ridge Rd (BC-PA-03)
- Big Creek Phase 1 SWMP Project Area 7 - Ridgewood Basins in Parma (BC-PA-07)



Stormwater Master Plan

Data Sharing with Community Members

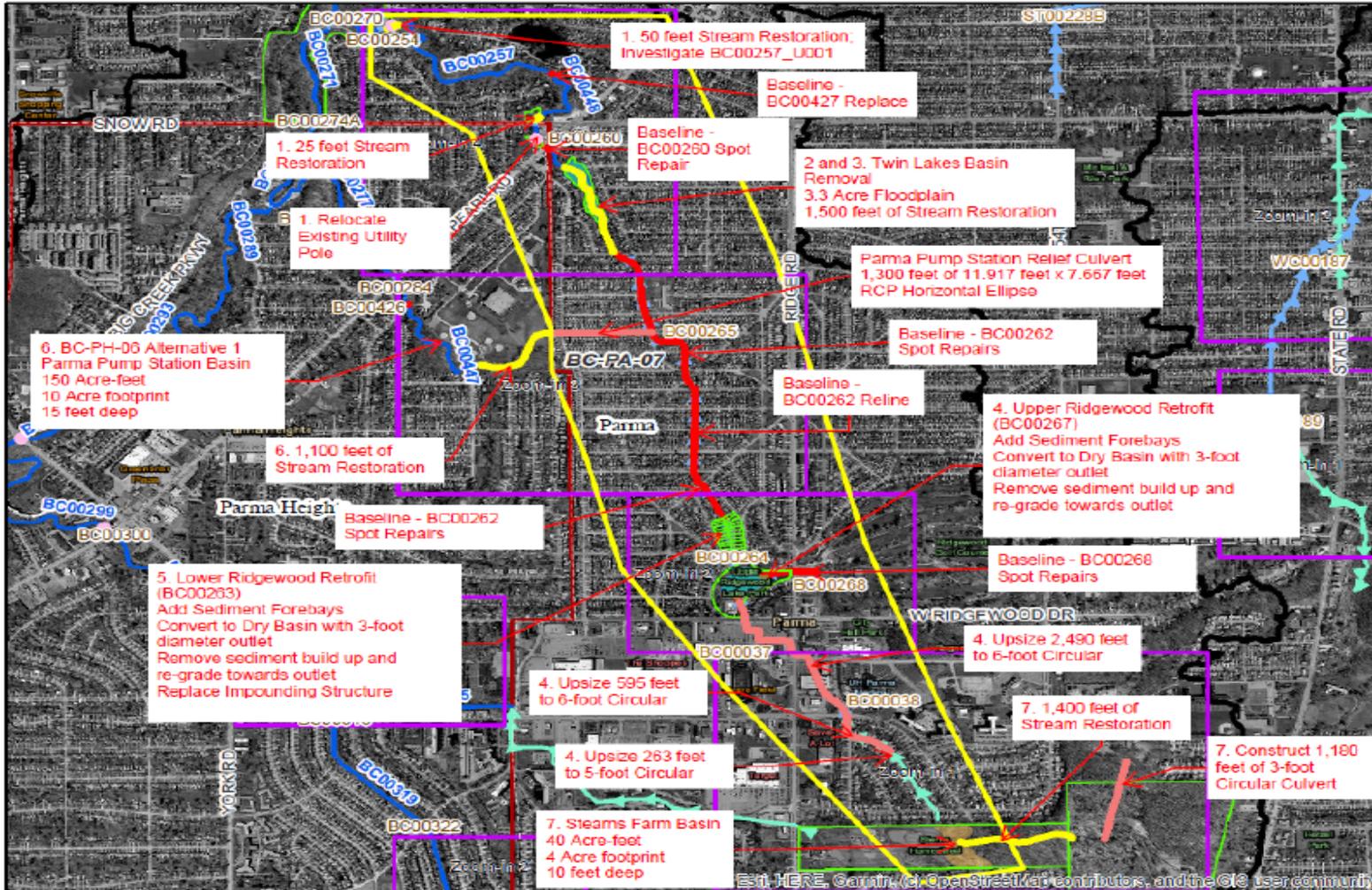


- Culverted Stream CCTV/PACP Reports
- Spherical Imagery of Open Streams
- Inventory of RSS Crossings
- SWMM Models of Sub-watersheds
- SWMP Report

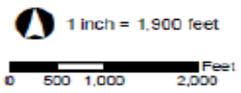


Advanced Stormwater Planning

Problem Area BC-PA-07: Alternative 1



- Legend**
- Problem Area
 - Map Extent
 - Utility
 - Culvert Modification
 - Stream Restoration
 - Easement
 - Dry Detention
 - Floodplain
 - Structural_Repair-Alt 1
 - Municipality
 - Subwatershed
 - Regional Stormwater System
 - Closed Conduit
 - Stream
 - Crossing
 - Basins
 - Culverted Stream
 - Major Structures
 - LSS Model Conduit



Disclaimer: For Planning Purposes Only
 Sources: NEORD GIS
 Ohio Department of Transportation, Cuyahoga County

Map Created: 8/29/2019

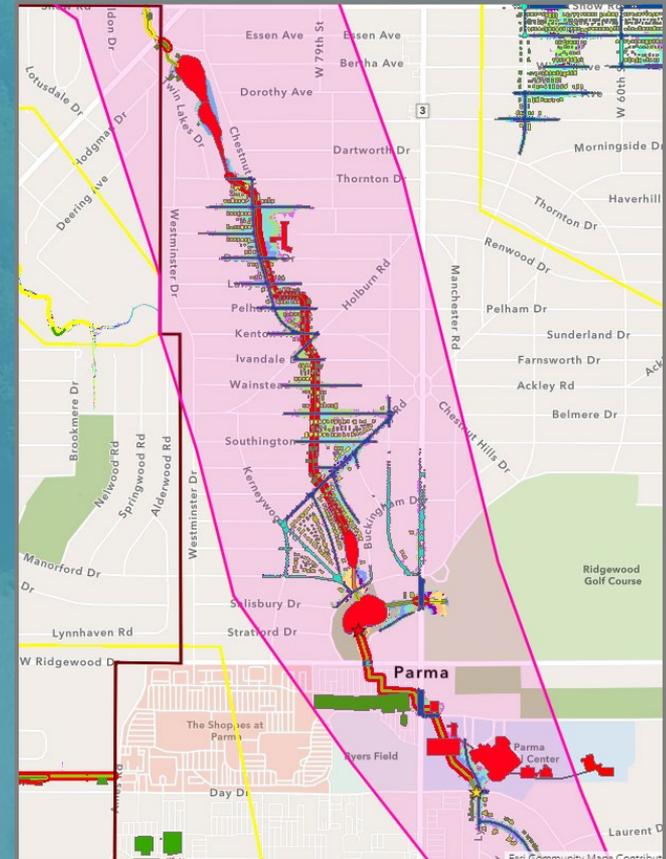
NOTES

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ASP: Problem Area BC PA 07

- Problem
 - Culverted streams structural issues
 - Erosion along open streams
 - Exposed utilities along open streams
 - Inundation of buildings and roadways during the 100-year storm
- Project Goals
 - Storage and conveyance improvements to increase the level of service and reduce hydraulic performance and structural risks (Alt 1)



ASP: Problem Area BC PA 07

12.6.1 BC-PA-07 Alternative 1 < Components based on 100-year LOS >

Alternative 1 consists of the following seven components:

- 1) Miscellaneous stream repairs along BC00259, BC00448, and BC00257; measure batter angle of walls along BC00261A and BC00259 to maintain record of existing batter angle prior to restoring Twin Lakes to a natural channel
- 2) Upper Twin Lakes Basin (BC00410) removal and channel restoration
- 3) Lower Twin Lakes Basin (BC00412) removal and channel restoration
- 4) Upper Ridgewood (BC00267) dredging and retrofit; upsizing of BC00037/38 to 6 feet
- 5) Lower Ridgewood (BC00263) dredging and retrofit
- 6) New SCM adjacent to Parma Pump Station (stream BC00447), relief storm sewer, and stream restoration
- 7) New SCM adjacent to Stearns farm and re-route of overland flow

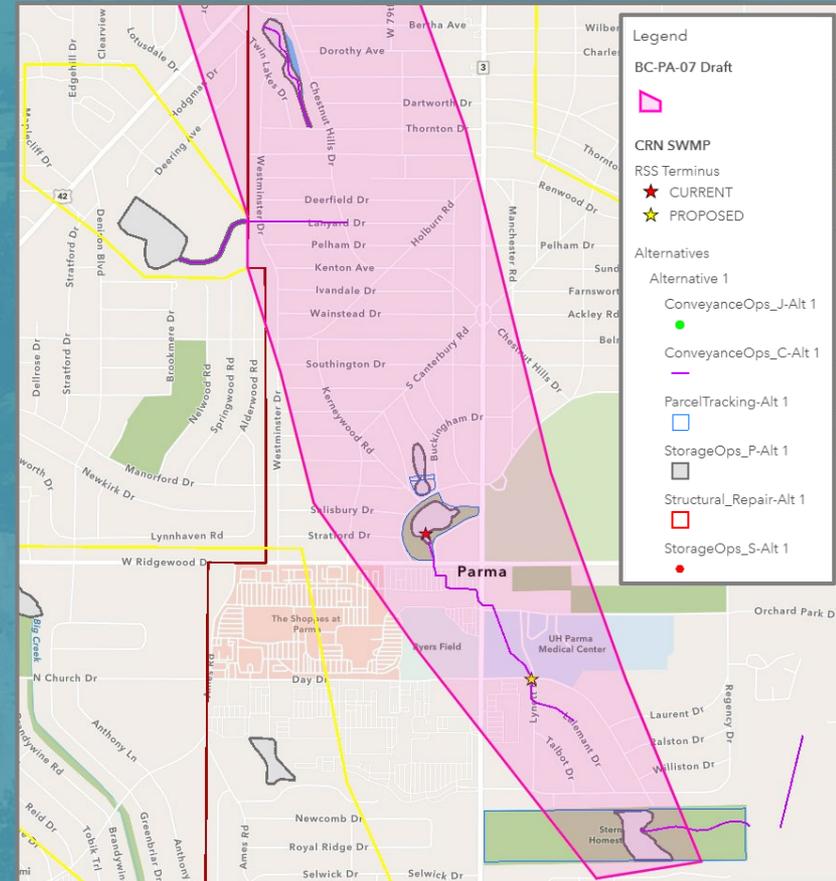
Phasing order suggested as upstream to downstream

Baseline culvert repairs included as Repair Package 8 - not included specifically in above list

ASP: Problem Area BC PA 07

ASP Objectives:

- Accept recommended alternative
- Break apart and package components/orchestrate defined sequence
- Review and consider LOS goals to maximize benefit vs. costs



Questions



Stormwater Inspection & Maintenance (SWIM)

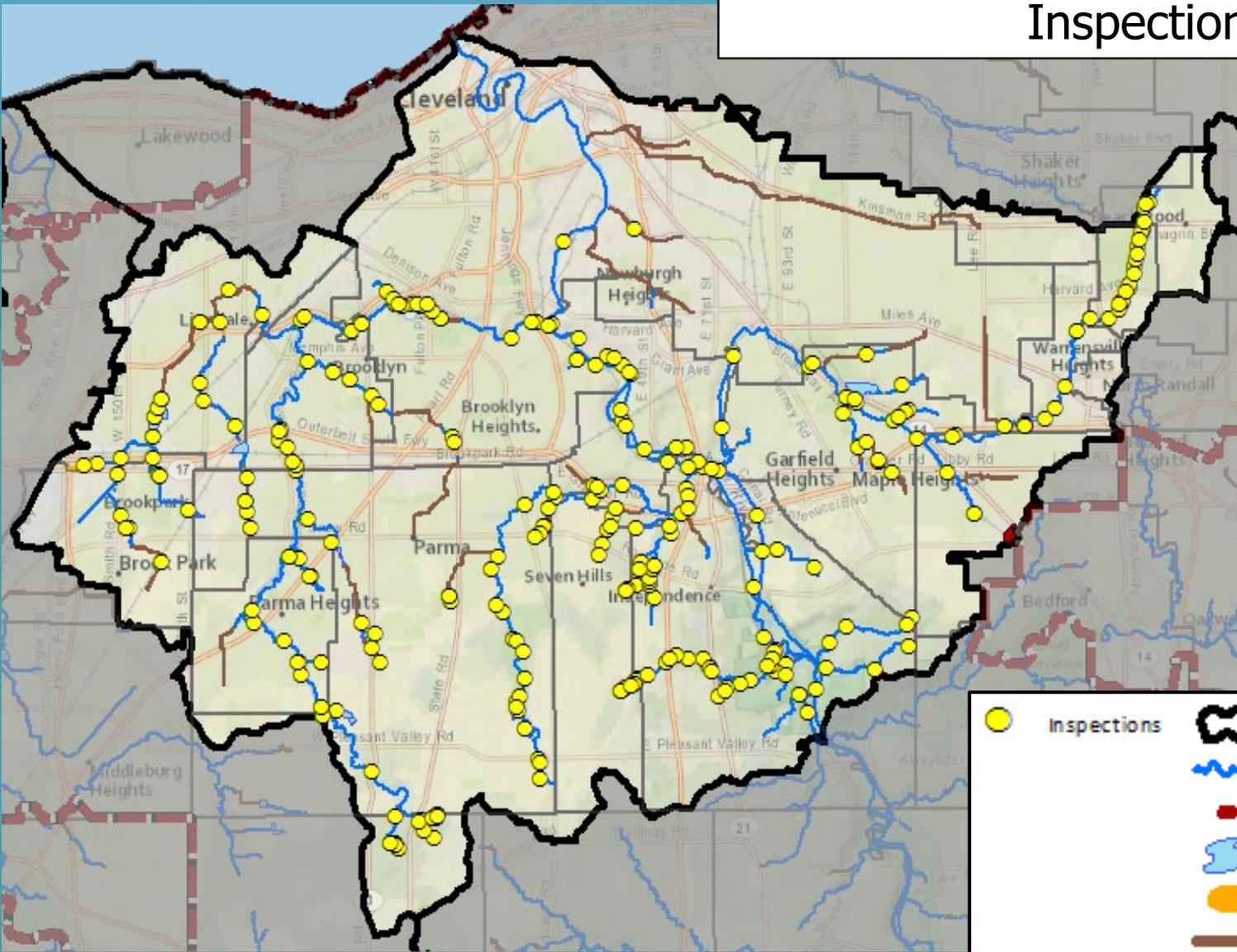
- Inspection Program
- Maintenance Program
- Culverted Stream Inspections
- Labor Day Storm Event

SWIM

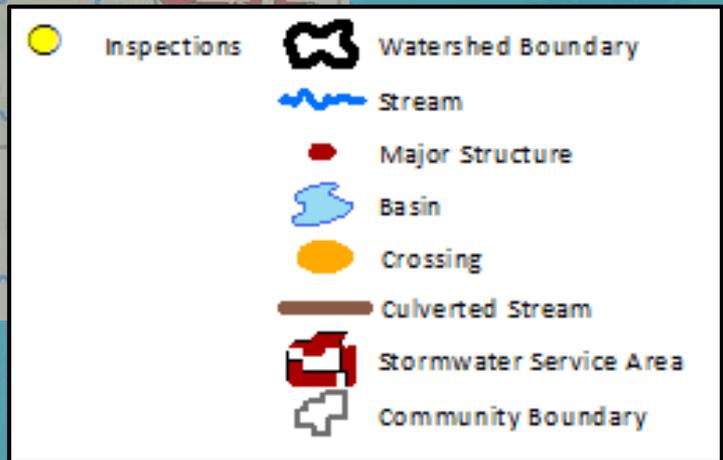
2020 Inspection Program



Cuyahoga River North Watershed Inspections

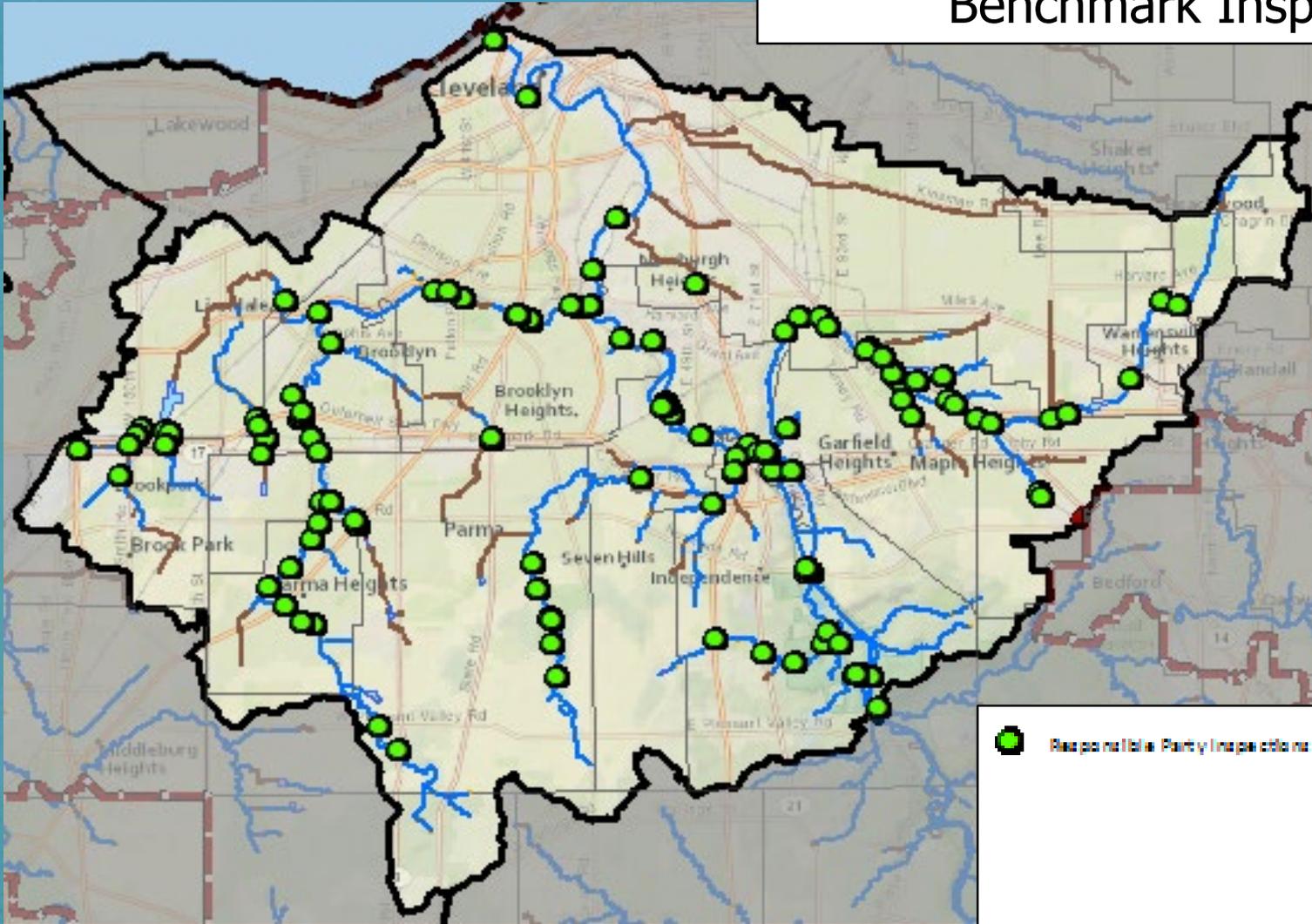


**2020 Completed
Inspections
344**



Cuyahoga River North Watershed

Responsible Party Benchmark Inspections



**Responsible Party
Benchmark
Inspections
121**



SWIM

2020 Maintenance Program

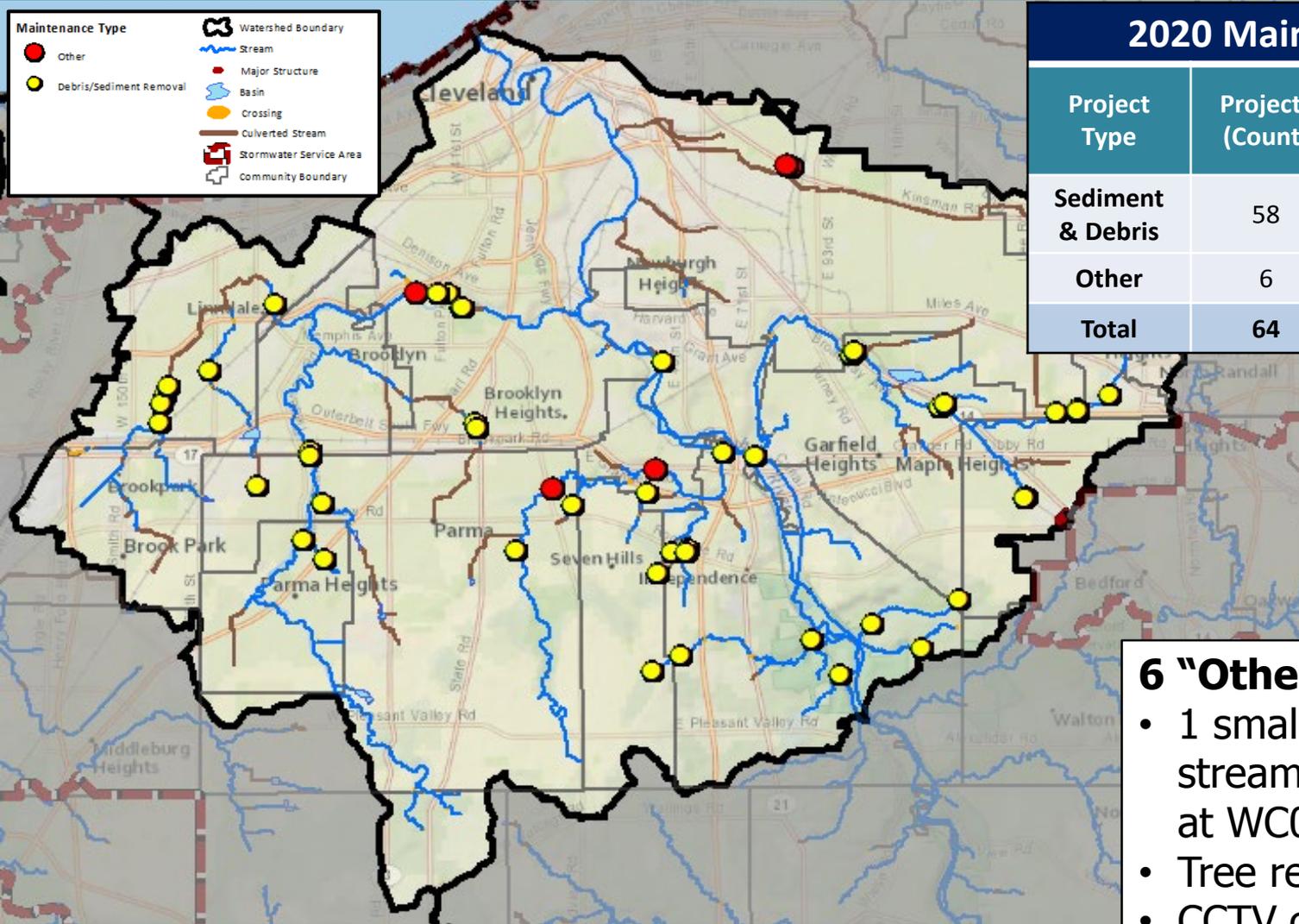


Northeast Ohio
Regional Sewer District



@neorsd

Cuyahoga River North Watershed Maintenance



2020 Maintenance Tasks

Project Type	Projects (Count)	Debris Removed (CY)	Sediment Removed (CY)
Sediment & Debris	58	894	4,155
Other	6		
Total	64	894	4,155

6 "Other" Projects are:

- 1 small-scale streambank stabilization at WC00067
- Tree removals
- CCTV of blocked pipes at MC00202

Small Scale Maintenance Project : West Creek



SWIM Maintenance Task: Mill Creek

MC00114 – Kerruish Basin,
Warrensville Heights



Mill Creek / Warrensville Heights / 4,000 Cu.Yds. sediment removed

SWIM

2020 Maintenance vs 2019 Maintenance

2019

- 202 Projects
- 3,746 Cu. Yds. Debris
- 7,255 Cu. Yds. Sediment

2020

- 214 Projects
- 3,562 Cu. Yds. Debris
- 5,856 Cu. Yds. Sediment

SWIM

Culverted Stream Inspection Update



SWIM

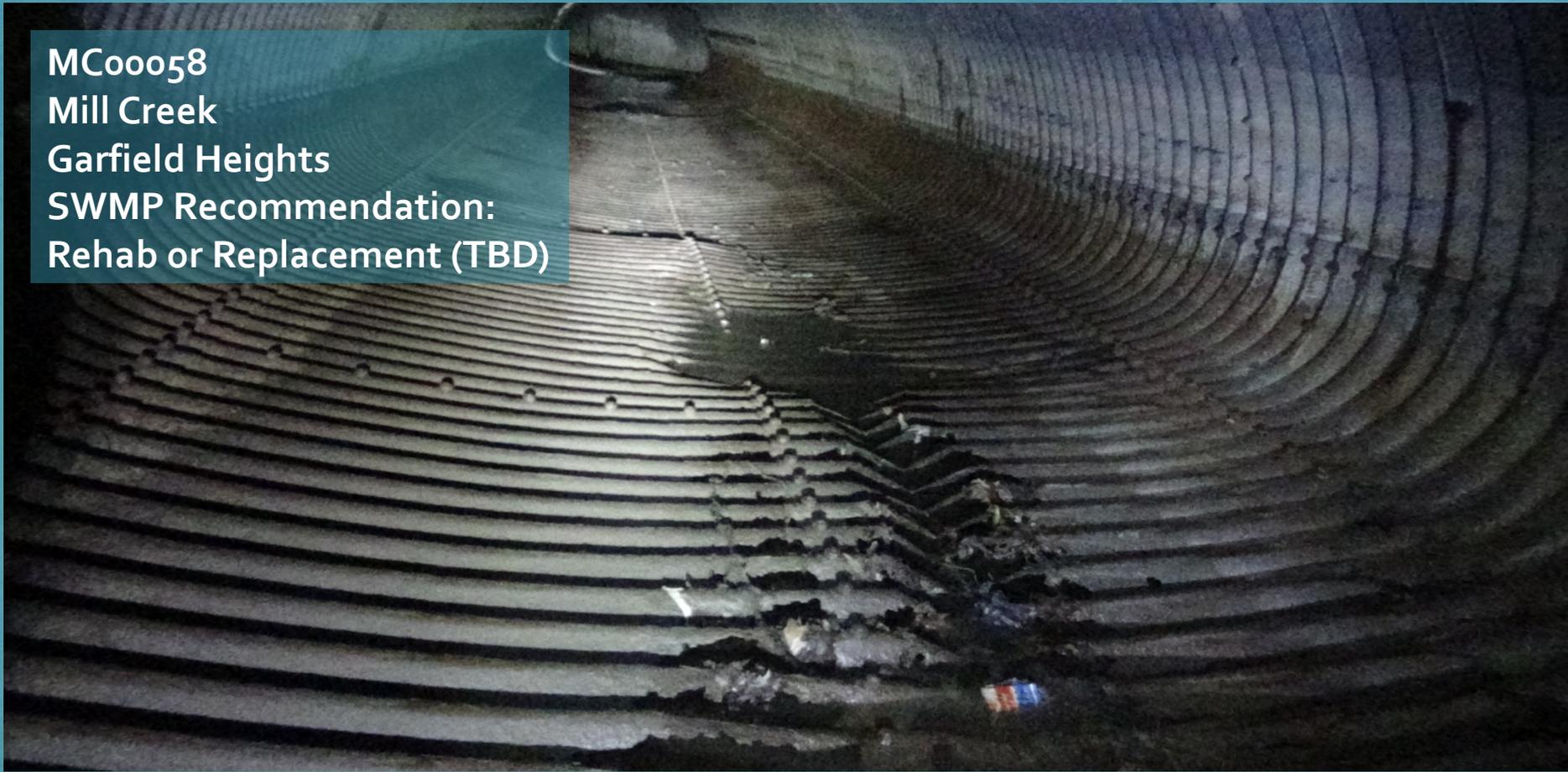
Culverted Stream Inspection Update

- Reviewed SWMP CCTV and PACP inspection reports
- Comparing SWIM findings to SWMP to verify maintenance recommendations
- To date have completed 68 follow up inspections out of 113 service area wide

SWIM

Culverted Stream Inspection Update

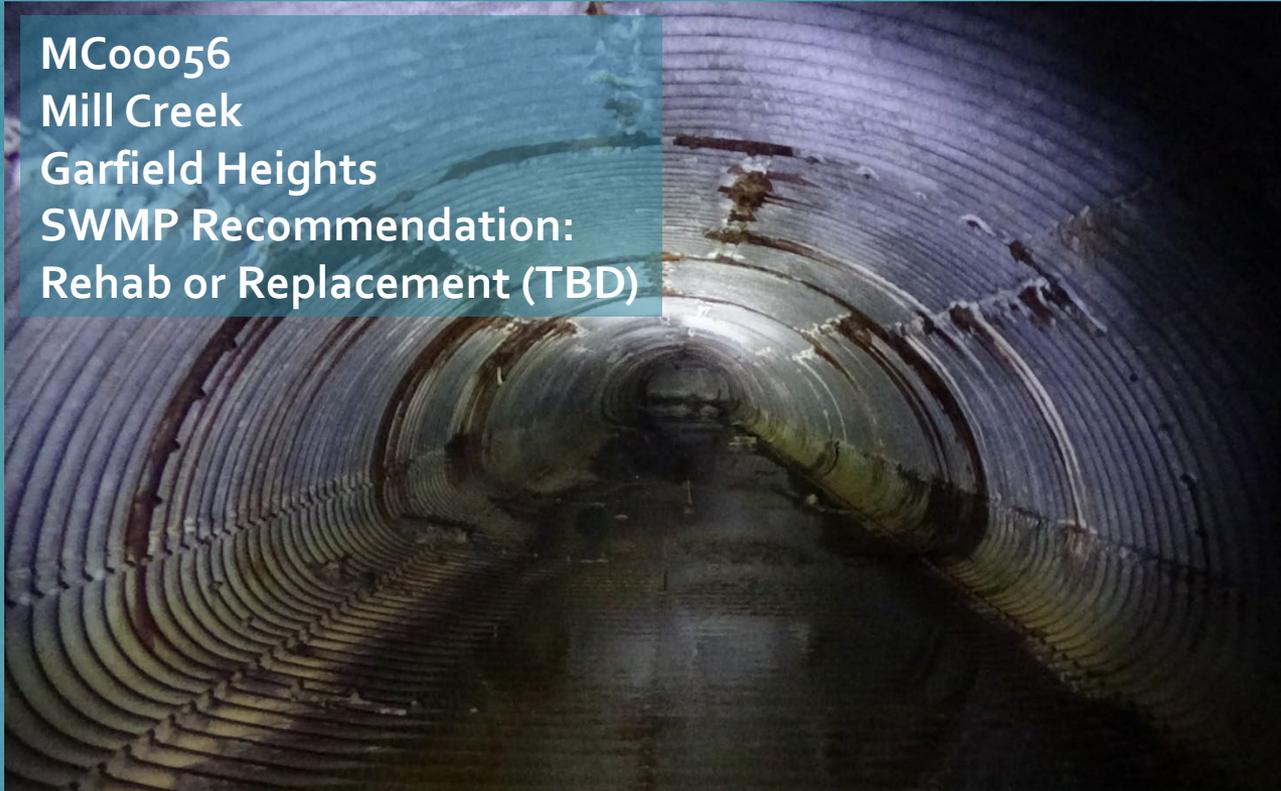
MC00058
Mill Creek
Garfield Heights
SWMP Recommendation:
Rehab or Replacement (TBD)



SWIM

Culverted Stream Inspection Update

MCo0056
Mill Creek
Garfield Heights
SWMP Recommendation:
Rehab or Replacement (TBD)



SWIM

Labor Day Storm Event



Big Creek / Maplegrove Ave. / North Royalton

Urgent Storm Response

September 7th – *Summary of Rainfall*

- **0.83 – 4.55 inches** of total rainfall over **7-hour period** (6-hour Recurrence Interval: <1-YR to <200-YR; Average: 25-YR)
- **0.76 – 1.67 inches** of total rainfall over peak 1-hour period (1-hour Recurrence Interval: <1-YR to <10-YR; Average: 2-YR)
- **0.32 – 0.81 inches** of total rainfall over peak 15-minute (15-min Recurrence Interval: <1-YR to <5-YR; Average: < 1-YR)

Urgent Storm Response

September 7th – USGS Stream Gauge Data

Major Flood Stage:

- Big Creek @ Cleveland

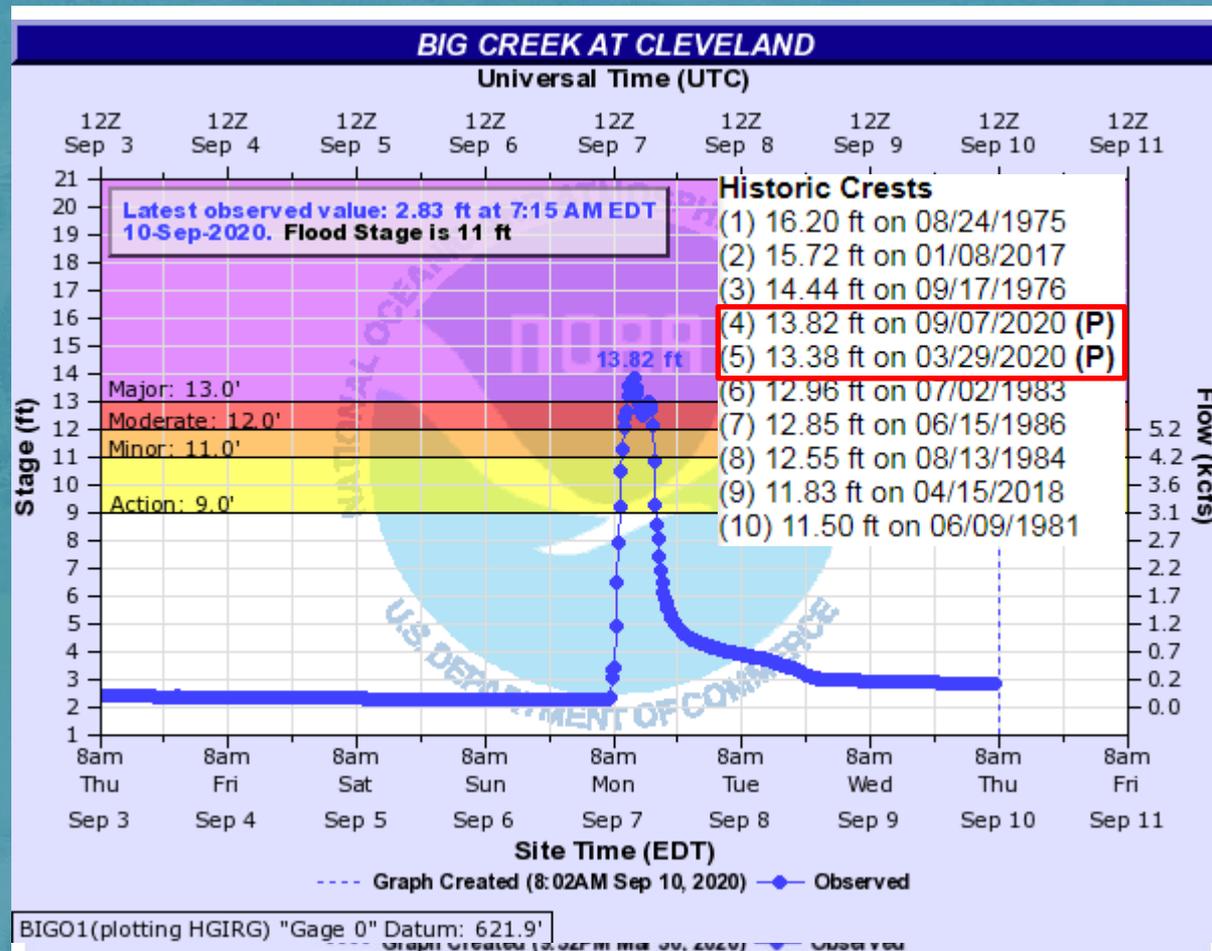
Moderate Flood Stage:

- Cuyahoga River @ Independence
- Mill Creek @ Garfield Parkway

Minor Flood Stage:

- None

9/7/20 was the fourth highest recorded event. September, May, and March 2020 events all in the top 10 highest on record.



SWIM

Labor Day Storm Event



Big Creek at Jennings Road

SWIM

Labor Day Storm Event



Broadway Ave. Garfield Heights

SWIM

Labor Day Storm Event



MC00005- Cuyahoga Heights

SWIM

Labor Day Storm Event - Summary

- Inspection staff completed 90 observation inspections
- Maintenance staff responded to 29 maintenance work orders
 - 812 Cu. Yds. of debris removed
 - ~\$86,000
- SWIM received 18 Customer Service calls

SWIM

March 30th – September 7th Comparison

March 30

September 7

71

Inspections

90

47

Maintenance Projects

26

1,097

Cu. Yds. Removed

812



Cuyahoga County
Together We Thrive

Office of Emergency Management

- Preparedness Presentation
- Cuyahoga County Public Library - Independence, Ohio
- May 9, 2019

Discussion Points

- **Overview of Cuyahoga County Office of Emergency Management**
- **Why Prepare?**
- **What You Can Do**



Tornado damage at Ursuline College, 2013



Perception v. Reality



<https://youtu.be/3jXlhPGs0T8>



What is Emergency Management?

Emergency management is the process of preparing for, mitigating, responding to and recovering from emergencies or disasters.





Cuyahoga County *Demographics*



>60 Law Enforcement Agencies



51 Fire Response Agencies



25 Public Safety Answering Points (PSAPs)



31 School Districts



Cuyahoga County *Demographics*

Cuyahoga County is home to...

- The corporate headquarters of many large companies.
- Three airports: Cleveland Hopkins International Airport (CLE), Burke Lakefront Airport (BKL), and the Cuyahoga County Airport
- Three top tier hospital systems: the Cleveland Clinic (the area's largest employer), University Hospitals, and The MetroHealth System.
- NASA also maintains a facility in the County, *the Glenn Research Center*.





Cuyahoga County *Demographics*

- Cuyahoga County has **billions of dollars in infrastructure**, including high rise buildings, professional sports venues, several universities, and public buildings.
- Both **freight and passenger rail operations** occur within Cuyahoga County.
- The **Port of Cleveland** is situated in the County along Lake Erie, on the east side of the Cuyahoga River. The Port exports locally-made products to U.S. and foreign markets and also receives a variety of raw materials for area manufactures.
- Cuyahoga County has a robust **transportation infrastructure**: 7 interstate highways, 5 U.S. routes, over 1,200 bridges, and more than 4,300 miles of municipal roads in the County.





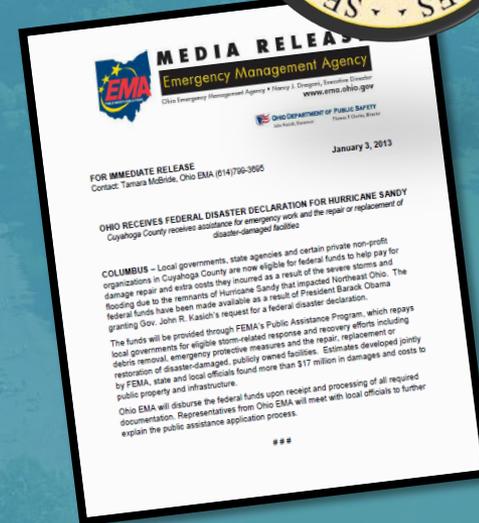
Cuyahoga County *Threats & Hazards*

Cuyahoga County and its communities are at risk of a range of natural, human-caused, and technological hazards... *including freezing lighthouses and flammable rivers.*



Cuyahoga County *Threats & Hazards*

<u>Type of Incident</u>	<u>Presidential Declaration Date</u>
• Heavy rains and flooding	March 24, 1964
• Tornado	April 14, 1965
• Heavy rains and flooding	July 15, 1969
• Storms and flooding	July, 1972
• Storms and flooding	April 27, 1973
• Floods	September 11, 1975
• Severe Blizzard	January 26, 1978
• Heavy rains and flooding	July 21, 2003
• Regional Power Outage	August 14-15, 2003
• Heavy rain and flooding	July, 2006
• Destructive winds	January 3, 2013



Cuyahoga County *Threats & Hazards*

Although the lighthouse has since thawed and the water quality of the Cuyahoga River has been significantly improved; emergencies continue to occur in Cuyahoga County.

The **Cuyahoga County Office of Emergency Management** recognizes the need to continually enhance planning and coordination with the **Whole Community**, especially it's 59 political subdivisions.



What We Do

CCOEM works closely with public safety forces, government agencies, non-governmental organizations, businesses, and the public to enhance **preparedness, planning, and effective response** to natural hazards, man-made catastrophes, and emergencies.



WHEN A DISASTER OR EMERGENCY OCCURS, MOST OF WHAT WE DO, WE'VE ALREADY DONE.

Organizational Structure

OPERATIONS

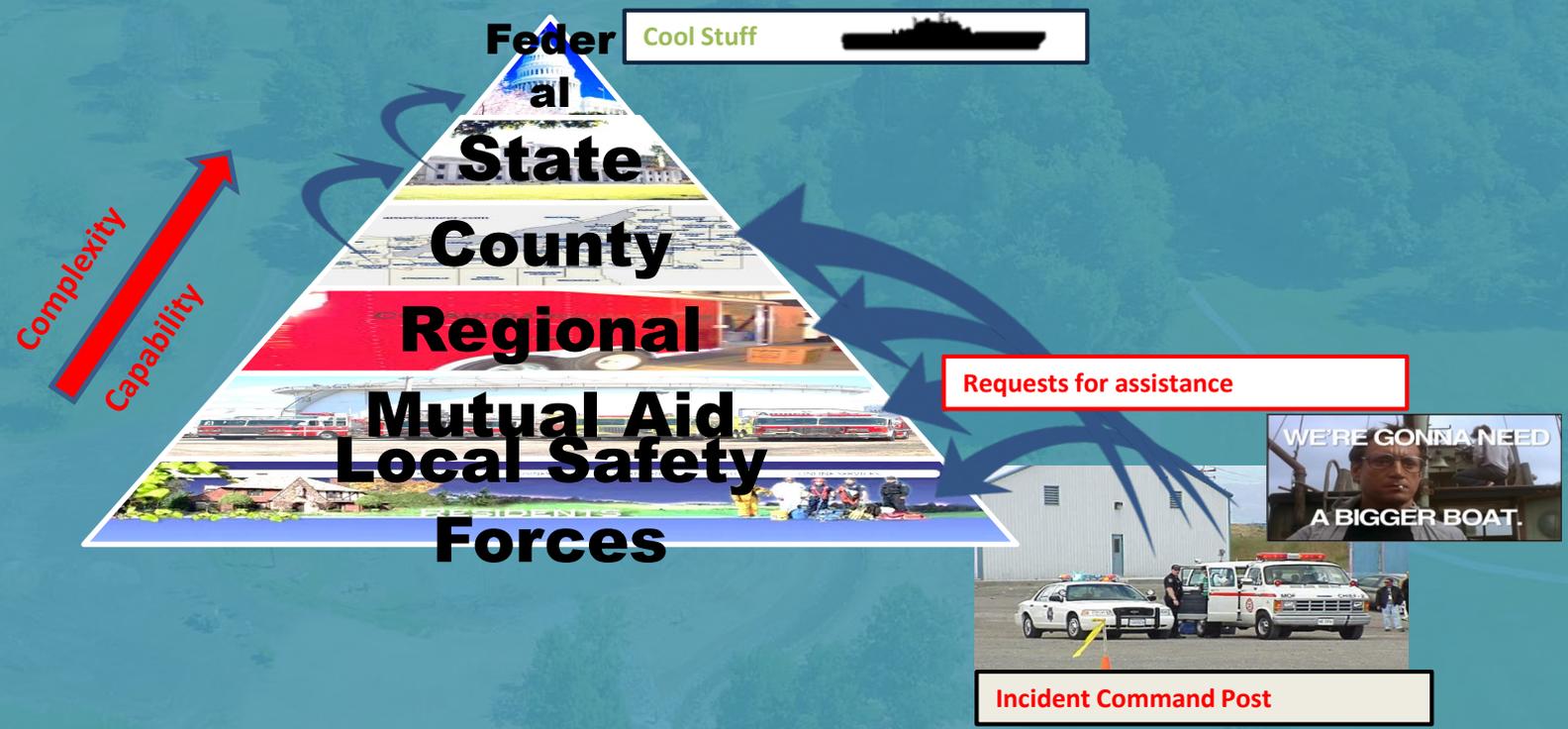
- Emergency Operations Center (EOC)
- Damage Assessments
- LEPC Support
- All-Hazards Exercises
- MYTEP
- Office Administrative support

PLANNING

- County Response and Recovery Plans
- Public Safety Trainings
- Outreach
- Office newsletters, magazine, social media
- Technical assistance and guidance for community and partner agencies



National Incident Management System (NIMS)



Thank you. Questions?

Kevin Friis, Planning Manager
Cuyahoga County Office of
Emergency Management
9300 Quincy Ave., 2nd floor
Cleveland, OH 44106

O: (216) 348-4222 C: (216) 543-4690
F: (216) 443-5253

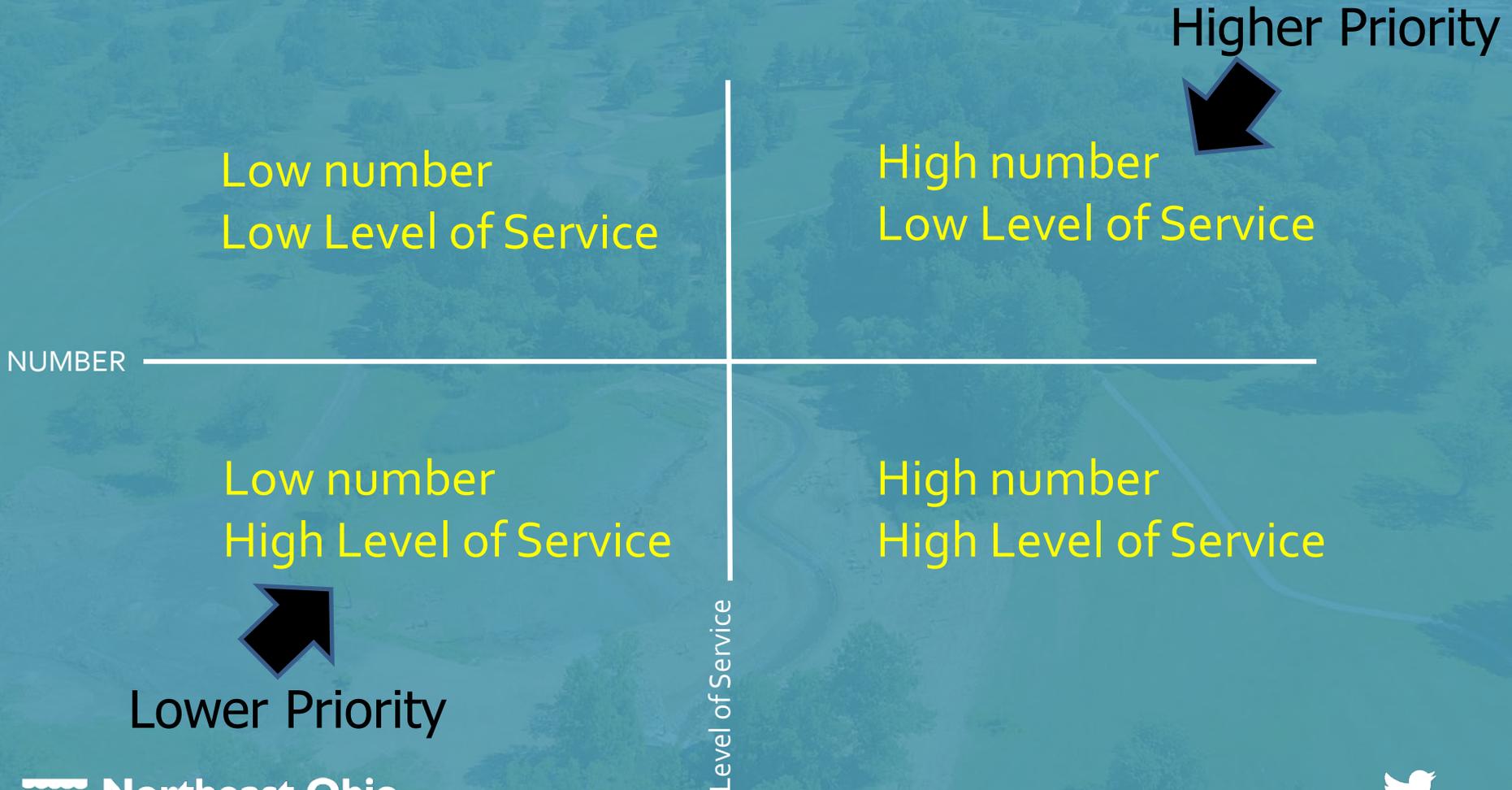
KFRIIS@CUYAHOGACOUNTY.US



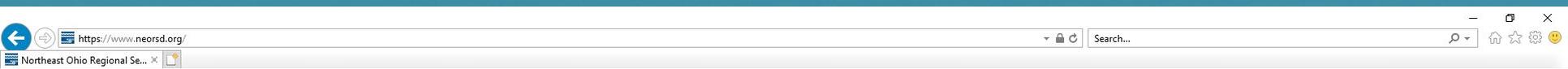
Stormwater Design and Construction Program



Project Prioritization



Stormwater Storymap



NOTICE: Southerly Electrical Infrastructure I

Doing business with us ▸

Industrial Customers ▸

Engineering & Construction

Plan Review

Procurement

Register as a New Vendor /
iSupplier Login

Bids and Proposals: Active,
Closed, and Awarded

Business Opportunity Program:
Get certified

Event Calendar

GovDeals Surplus Items

Capital Improvement Plan

Stormwater Construction
Program

Opportunity Corridor on-site
stormwater management
strategy report

*qualify for a lower
? We can help.*

ograms

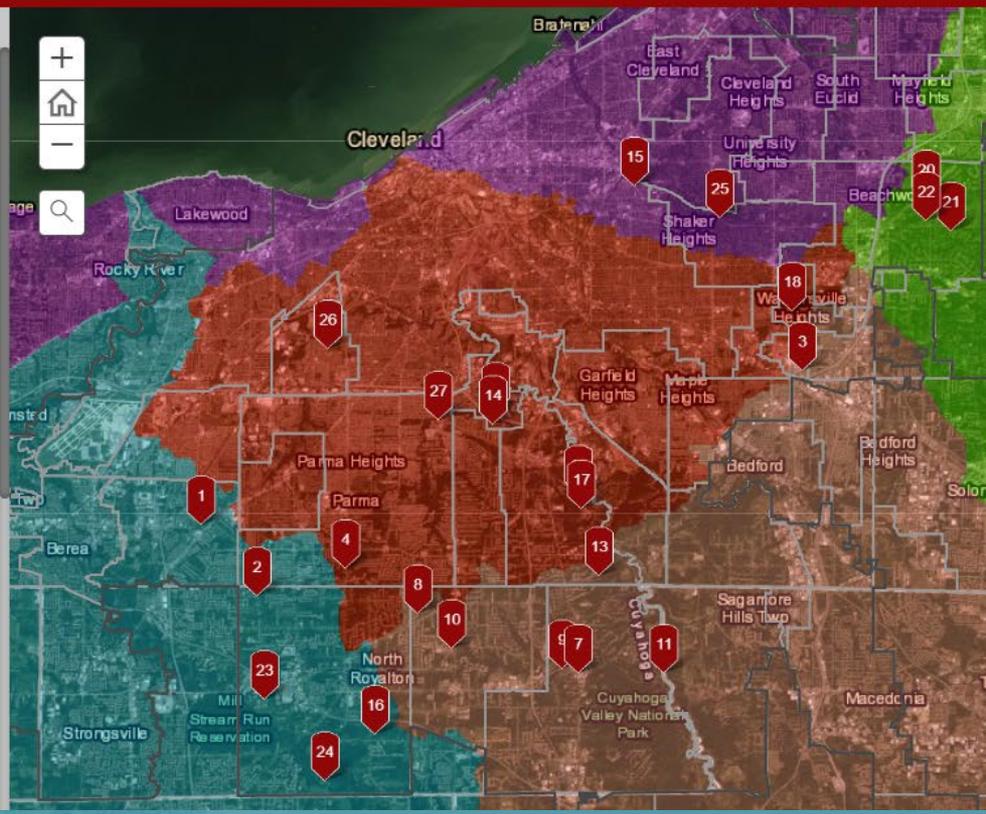
NEORSD Stormwater Design & Construction Program

Navigate using the tabs below and by clicking the images to view more details on our completed, current design, and current construction stormwater projects. Zoom in to view satellite imagery and Regional Stormwater culverts, conduits, etc). Use the "Zoom To" drop down menu to locate your watershed.

- All Projects
- Design**
- Construction
- Complete



 1 Abram Creek / Big Creek Parkway Detention...	 2 Baldwin Creek Stabilization Near Abb...	 3 Bear Creek Culvert Removal	 4 Big Creek Stream Stabilization Upstream...
 5 Brandywine Creek - Barlow Community...	 6 Brandywine Creek - Owen Brown Bridge...	 7 Chippewa Creek Bank Stabilization at Route 21	 8 Chippewa Creek Flood Reduction Near Echo...
 9 Chippewa Creek Stabilization at...	 10 Chippewa Creek Stream Stabilization Near...	 11 Cuyahoga River Bank Stabilization Brecksville	 12 Cuyahoga River Bank Stabilization at Railway...



Design





City of Brooklyn - Stickney Creek Stream Restoration- August 28



City of Brooklyn - Stickney Creek Stream Restoration- August 28

Pepper Luce Creek at Lander Road City of Pepper Pike

Pepper Luce Creek Streambank Stabilization

- Arrest streambank erosion
- Protect utility assets
- Create & expand floodplain

Professional Service Firm: Jacobs
(GES Contract Task Order)

Design Phase: Bid Opening – October 6, 2020

Request to Enter into Construction Contract:
4th Quarter 2020

Estimated Construction Cost: \$760,000



**Failed gabion baskets &
streambank erosion**

City of North Royalton - Ridge Road Repair and Rocky River Tributary Stabilization

Problem: Bank erosion adjacent to Ridge Road

Project benefit to RSS:

- Reduces sediment deposition
- Creates a new stable stream channel

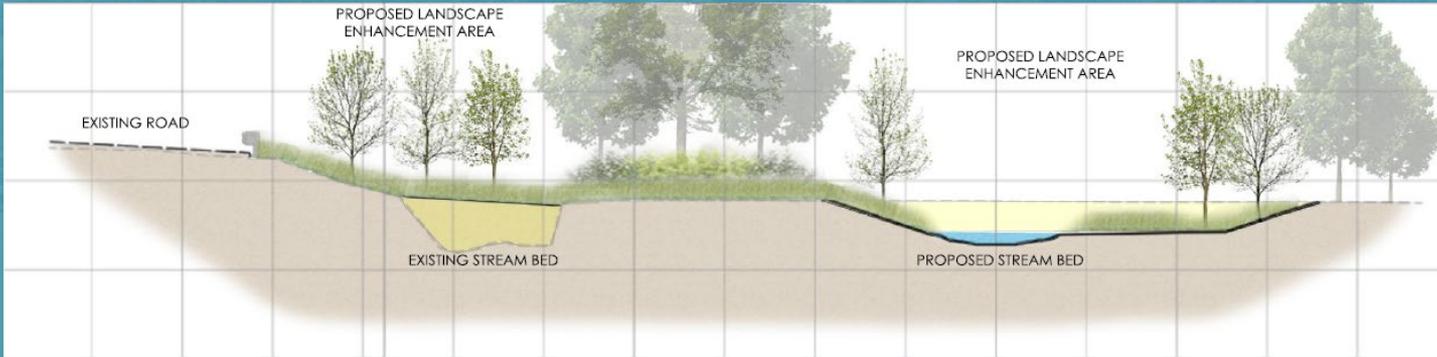
Construction Award:

October 15, 2020

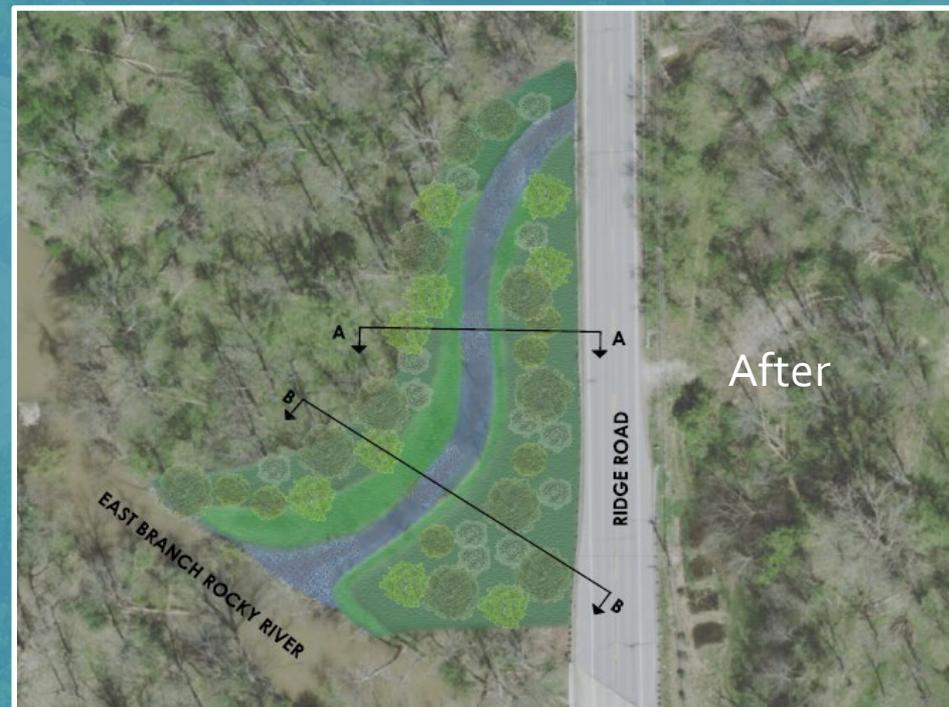
Cost: \$438,471



City of North Royalton - Ridge Road Repair and Rocky River Tributary Stabilization



Before



After

Chippewa Creek near Broadview Road City of Broadview Heights

Chippewa Creek Streambank Stabilization

- Arrest streambank erosion
- Protect local sanitary utility assets
- Relocate stream away from gabion basket retaining wall
- Create & expand floodplain

Professional Service Firm: GPD
(GES Contract Task Order)

Design Phase: 90% Design

Request to Advertise for Bid: 1st Quarter 2021

Estimated Construction Cost: \$1,522,000



Threatened gabion basket retaining wall



Big Creek Upper Ridgewood Basin Modifications

City of Parma

RSS Flooding in City of Parma along Big Creek

- Recommendation from SWMP
- Expand Basin, provide storage
- Reduce flooding downstream

Professional Service Firm: Stantec
(GES Contract Task Order)

Design Phase: **Scope Development**

Coordination: City of Parma

Design: **2021**

Construction: **2022**

Estimated Construction Cost: **\$1,372,000**

Big Creek Main Branch, Problem Area BC-PA-07, Zoom 2 RSS Inundation Overview



Upper Ridgewood Basin

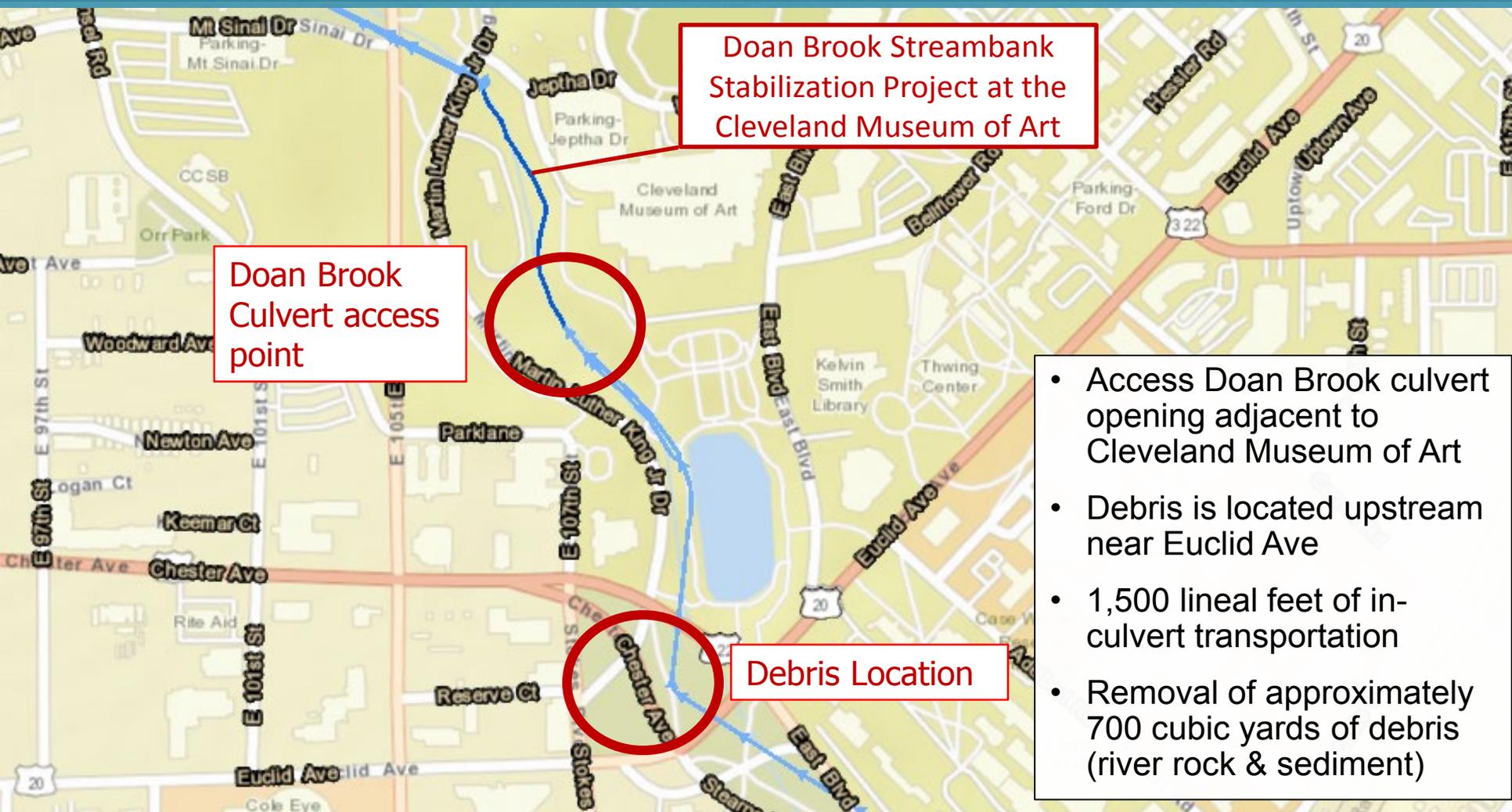
West Creek Bank Stabilization by Sandpiper Drive – City of Parma

Construction in progress



Doan Brook Culvert Debris Removal

Debris blockage beneath Euclid Avenue (1,500 lineal feet from daylight)



Doan Brook Streambank
Stabilization Project at the
Cleveland Museum of Art

Doan Brook
Culvert access
point

Debris Location

- Access Doan Brook culvert opening adjacent to Cleveland Museum of Art
- Debris is located upstream near Euclid Ave
- 1,500 lineal feet of in-culvert transportation
- Removal of approximately 700 cubic yards of debris (river rock & sediment)

Doan Brook Culvert Debris Removal

Remove approximately 700 cubic yards of river rock & sediment



Questions

Pepper Creek Bank Stabilization – City of Pepper Pike



Cost-Saving Programs

- *Crisis Assistance*
 - *Up to \$300 sewer credit*
 - *Experienced financial hardship within last 6 months (loss of job, loss of income, death in family, medical expenses, etc.)*

Cost-saving Programs

- *Homestead*
 - 65 and older *or* permanently disabled
 - Household income must not exceed \$33,500
- *Affordability*
 - Annual income is at or below 200% of the poverty level

Customer Service: (216) 881-8247

WTL Contact

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Stormwater Program: Community Resources

<http://www.neorsd.org/communitystormwaterresources.php>