

*Watershed Advisory Committee
 Rocky River
 March 2018*

NORTHEAST OHIO REGIONAL SEWER DISTRICT



REGIONAL STORMWATER MANAGEMENT PROGRAM

Northeast Ohio Regional Sewer District  @neorsd

Agenda

- Regional SW Program Updates
 - Illicit Discharge Detection and Elimination – 2017 Update
 - Watershed Partners Service Agreement
 - Plan Review
- Stormwater Master Plan
- Stormwater Inspection and Maintenance
 - Inspections and Activities
 - Urgent Storm Response Process
 - Long-term Monitoring of Assets
- Stormwater Construction Plan
 - 2018 Projects
 - Permanent and Temporary Easement Policy
 - Conservation Planning and Land Acquisition

Illicit Discharge Detection & Elimination

- What is community's role?
 - Title III and IV: sanitary overflows from any source, including illicit connections, are prohibited
 - Phase II MS₄ permit compliance
- Services provided by the District
 - BOH outfall screening/sampling for *E. coli* and flow
 - Assistance with source tracking through BOH and Water Quality and Industrial Surveillance group



Illicit Discharge Detection & Elimination Summary of 2017 Sampling

- Outfalls Inspected = **4,148**
- Outfalls with *E. coli* >10,000 MPN/100 mL = **140**
- Outfalls with flow >10,000 GPD = **65**



 Northeast Ohio
Regional Sewer District

 @neorsd

Illicit Discharge Detection & Elimination What to expect in 2018

- Notifications from NEORSD about problem outfalls
- Coordination meetings with community, NEORSD, and Ohio EPA
- Mapping update: Addition of outfalls in culverted streams
 - Cuyahoga County BOH to start with pilot community
 - More accurate MS₄ maps
 - Better data for source tracking

 Northeast Ohio
Regional Sewer District

 @neorsd

2018 Central Lake Erie Basin Collaborative Services

Provide strategic implementation of the District's Regional Stormwater Management Program. Work includes:

- Development of a stormwater fee credit assistance program
- Development of a stormwater fee tree credit to compliment municipal & regional tree canopy recovery goals



2018 Central Lake Erie Basin Collaborative Services

Provide strategic implementation of the District's Regional Stormwater Management Program. Work includes:

- Assist the District with the implementation of Stormwater Master Plan recommendations
- Assist Member Communities in updating parking lot and downspout disconnection codes

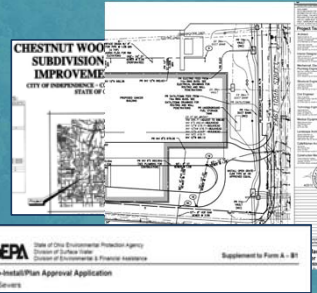
NEORSD Plan Review

Beginning March 5...

All submissions of plans for review will be made online through the District's Plan Review page. For information on how to register and submit plans go to...

www.neorsd.org/business-home/community-discharge-permit-program-cdpp-plan-review/

The new submission process will simplify and streamline the plan review timeline and make it easier for applicants to obtain information about requirements for review and status of a review in process. For more info contact:



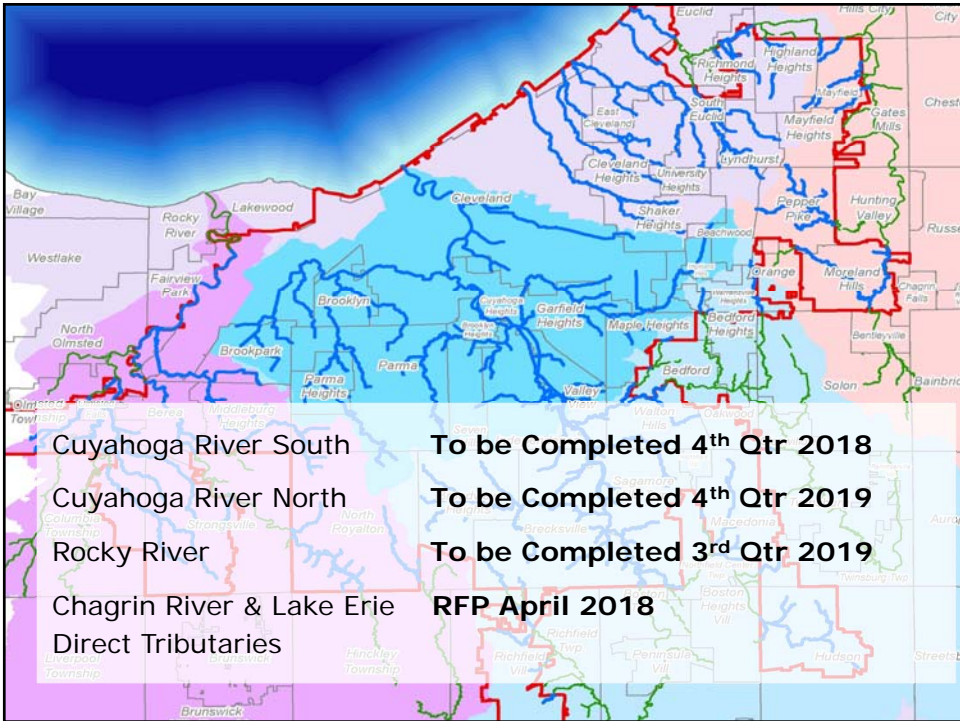
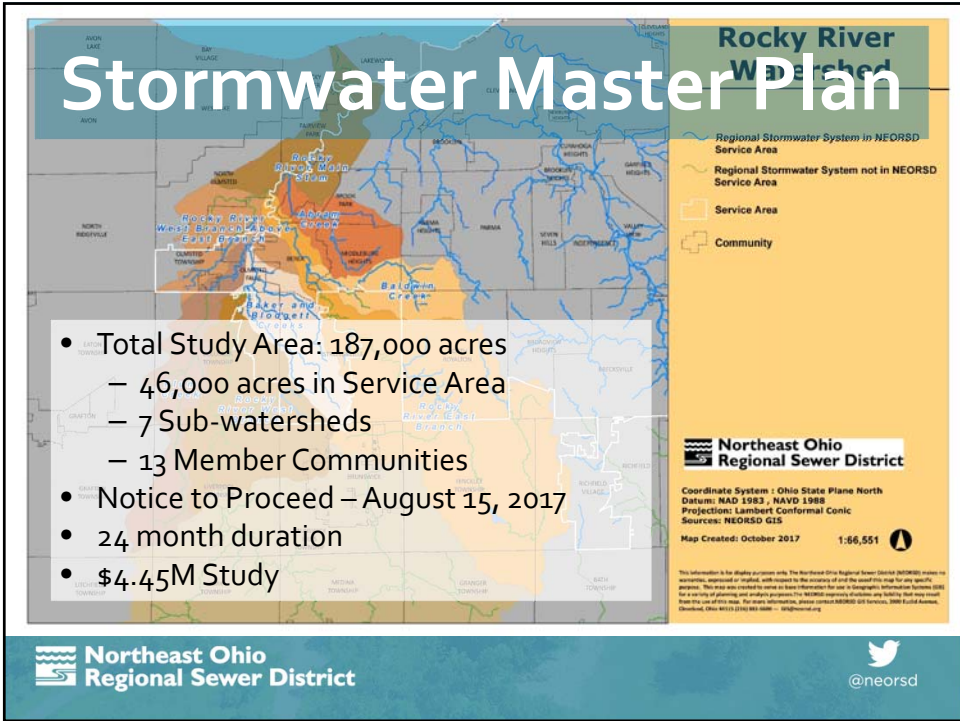
Mary Maciejowski
maciejowskim@neorsd.org
216-881-6600 x6466

Rob Stoerkel
stoerkelr@neorsd.org
216-881-6600 x6802



Questions

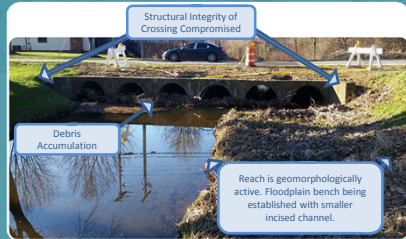




Stormwater Master Plans

Goals and Objectives

Operational Performance Evaluation



Modeling & Alternatives Evaluation

Alternatives Evaluation (Chapter 8)	
Screen SCMs <ul style="list-style-type: none"> • ID Opportunities/Constraints • Protect Existing Function • Increase Function <ul style="list-style-type: none"> ✓ Reduce Runoff/ Restore Stream-Floodplain ✓ Enhance Storage – Conveyance • Buyout/Reduce ALR • Formulate 2 Alternatives 	Evaluate Alternatives <ul style="list-style-type: none"> • Size to achieve ALR • Estimate cost • Define multiple benefits • ID Business Case (TBL) • Select Alternative • Check watershedwide performance

Recommendations and Report



Results: **Prioritized list of construction and maintenance projects**



SW Master Plan

Rocky River Schedule

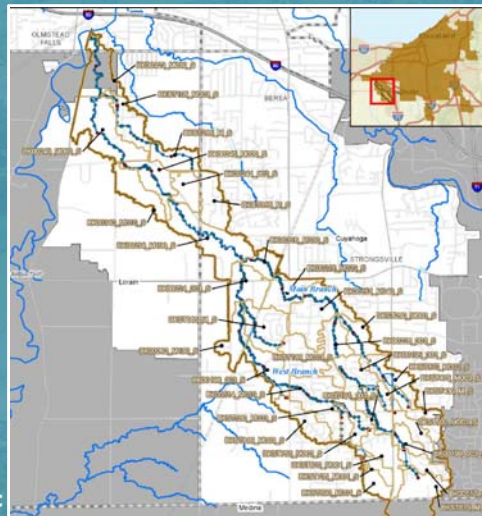
List of sub-watersheds, in order of evaluation:

- Baker Creek
- Baldwin Creek
- Abram Creek
- Rocky River West
- Rocky River East
- Blodgett Creek
- Plum Creek
- Rocky Main Stem

Field Work

- Installation of stream gauges and rain gauges
- Community Work Plans
- Field Inspections
 - Open Channel Streams, Culverted Streams
 - Storage Basins, Major Structures
 - Crossings
- Spherical Data
 - Backpack cameras, drones
 - 360-degree photos of streams

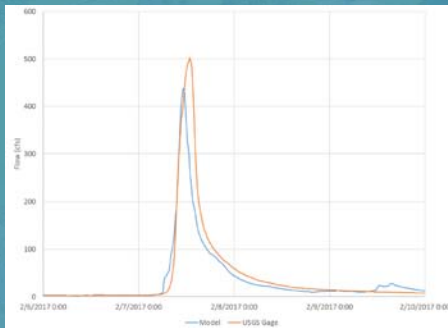
SW Master Plan Modeling Subcatchments – Baker



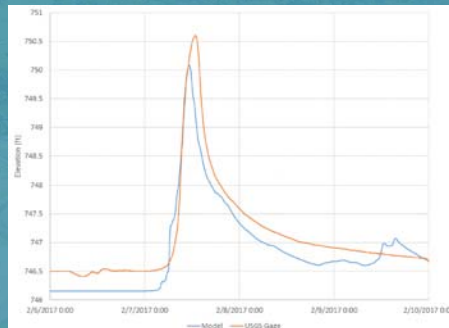
SW Master Plan

Modeling Calibration – Baker

Flow



Stage

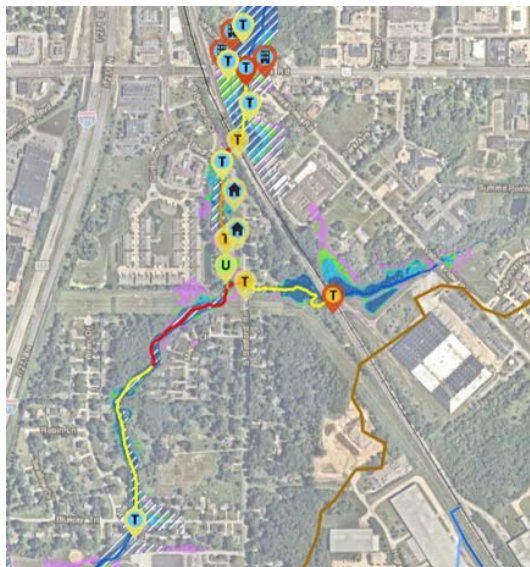


 Northeast Ohio
Regional Sewer District



 @neorsd

SW Master Plan

Problem Identification (using GIS)







Risk Level Marker

-  High Risk, BRE 20 - 33
-  Very High Risk, BRE >=34

Problem Category

-  Structural
-  Flooding
-  Erosion

Asset Type

-  Building (Non-Residential)
-  Building (Residential)
-  Transportation
-  Utility

Stream reaches w/ less than full function

-  Vertical
-  Lateral
-  Both

Flood Area

-  10-year
-  25-year
-  50-year
-  100-year

SW Master Plan

Evaluation and Recommendations - 2018

- Opportunities / Constraints
- Protect Existing Function and/or Increase Function
 - Reduce runoff / restore stream-floodplain
 - Enhance storage-conveyance
- Property Acquisition
- Size to achieve acceptable Level of Risk
- Define multiple benefits, including water quality
- Check watershed-wide performance
- Community input

SW Master Plan

Community Communication

- Meet with communities
 - Alternatives Evaluation
- Recommendations and Community Report

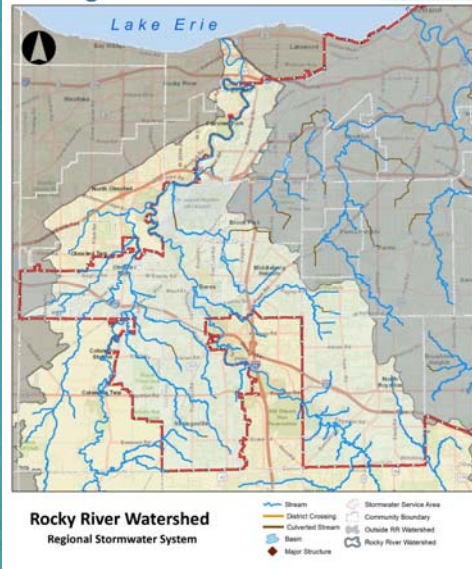
Your Watershed Team Leader serves as the point of contact between the communities and the District



Terminology Review

- Asset Class Types:
 - Streams (Open)
 - Crossings (Bridges/Culverts)
 - Culverted Streams (Long Reaches of Buried Pipe)
 - Basins (Dry/Wet, Regulated/Unregulated)
 - Major Structures (Low Head Dams/Drop Structures/Locks)
- Acronyms:
 - ALR – Acceptable Level of Risk
 - RSS – Regional Stormwater System
 - BTU – Building, Transportation, Utility Assets along the RSS
 - BEHI/NBS – Bank Erosion Hazard Index/Near Bank Stress
 - SWSA – Stormwater Service Area

Rocky River 2017 Inventory Update

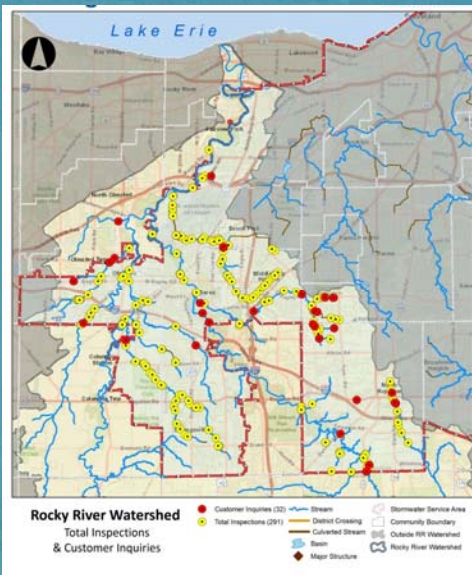


Asset Class Type	RSS (Assets)	RSS (Miles)
Streams	472	89
Crossings	336	4
Culverted Streams	22	7
Basins	15	-
Major Structures	11	-
Total	856	100
SWSA	3,699	443

*RRR RSS: 91 Miles in 2016
SWSA RSS: 405 Miles in 2016



SWIM Inspections 2017 Summary



291 Total Inspections
(1,299 in SWSA)

32 Customer Inquiries
(174 in SWSA)

40% of RSS Assets
Inspected in Rocky River



SWIM Recommendations

2017 Summary



20 assets recommended for SW Master Plan
(**161** in SWSA)

23 assets recommended for Further Analysis
(**180** in SWSA)



Stormwater Inspections

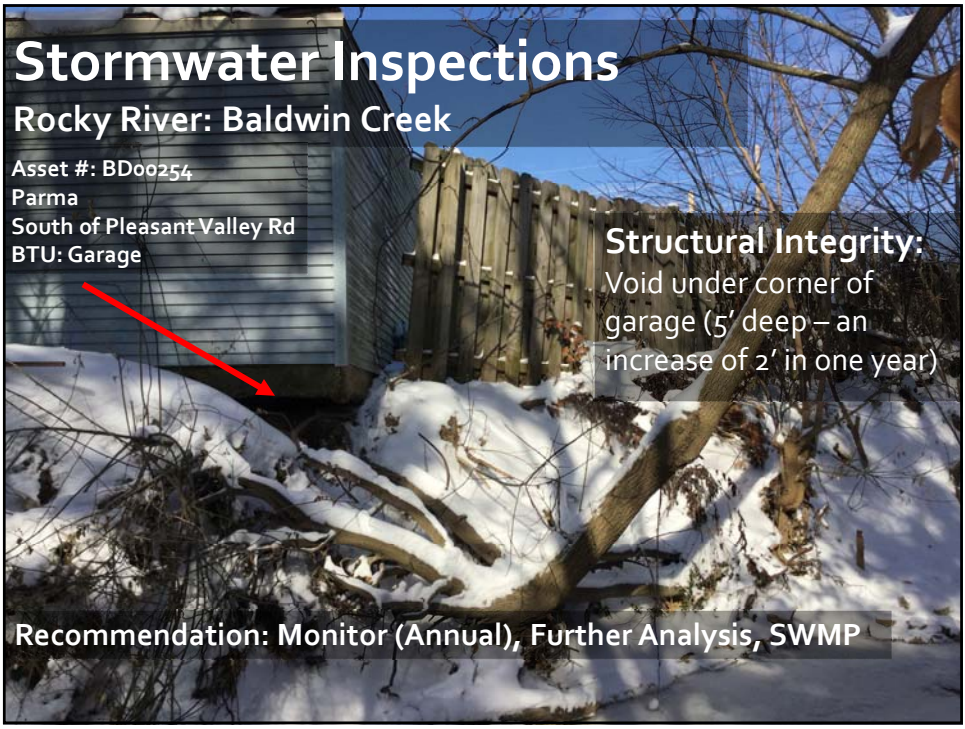
Rocky River: Baldwin Creek

Structural Integrity:

- Multiple running leaks – allowing for stream infiltration
- Manhole lid open, allowing debris and stream infiltration

Asset #: BD00240
Middleburg Heights
South of Pearl Road
BTU: 24" Local Sanitary Pipe

Recommendation: Monitor (Annual), Notify Owner



Stormwater Inspections

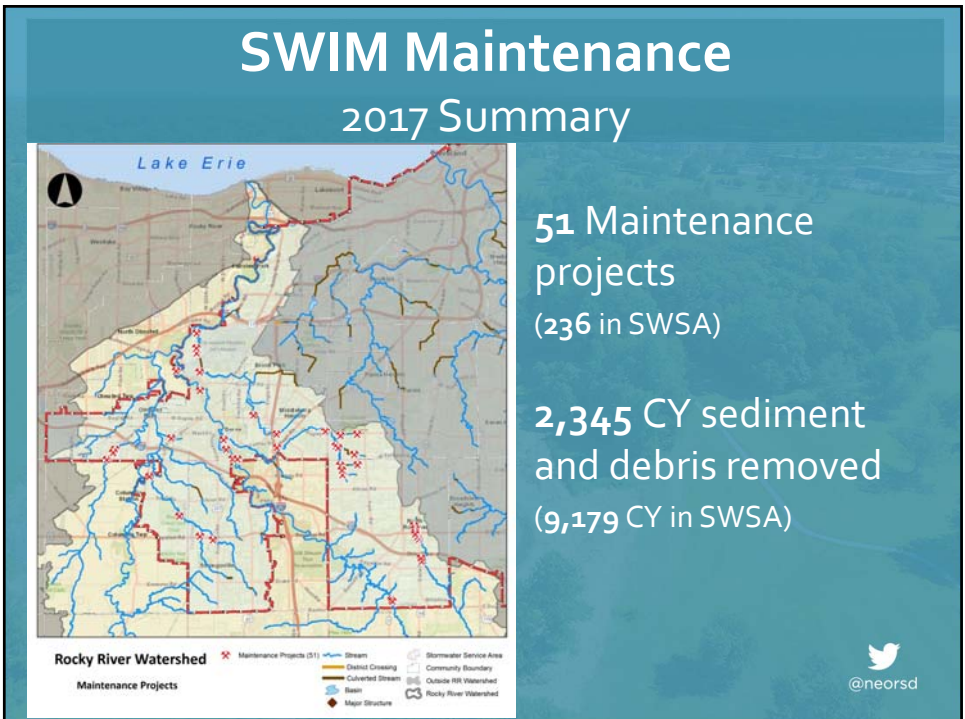
Rocky River: Baldwin Creek

Asset #: BD00254
 Parma
 South of Pleasant Valley Rd
 BTU: Garage

Structural Integrity:

Void under corner of garage (5' deep – an increase of 2' in one year)

Recommendation: Monitor (Annual), Further Analysis, SWMP



Stormwater Maintenance

Rocky River: Baker Creek

Strongsville

Asset ID: BK00188

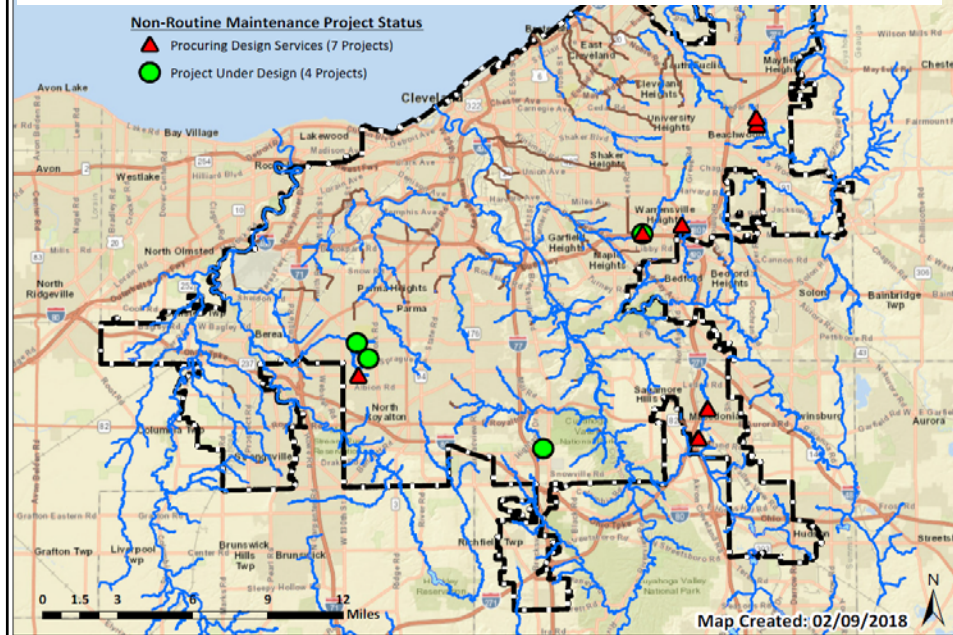
Maintenance Project: Debris Removal (12 CY)



 Northeast Ohio
Regional Sewer District

 @neorsd

2018 SWIM Pilot Maintenance Projects



Non-Routine Maintenance Site

Rocky River: Baldwin Creek

Parma: W Pleasant Valley Road

Asset ID: BD00250 – Streambank Stabilization



Non-Routine Maintenance Site

Rocky River: Baldwin Creek

Parma: Stormes Drive

Asset ID: BD00279 – Stormes Drive Basin (Bonny Banks) Dredging



SWIM Urgent Storm Response

- Review any Advanced Warning Notification (e.g., National Weather Service)
- Field Check and Clean Known Problem Assets Prior to Storm
- Track Rainfall for Size of Storm (e.g., 10-yr, 24-hr) and Monitoring data for Evidence of Flooding (monitoring data)
- Review any media, customer, or Member Community reported flooding

Please notify us of any flooding along RSS!

SWIM Urgent Storm Response

- Field Check areas of concern, which can expand depending upon extent of flooding
- Conduct any recommended field maintenance activities, once water level permits safe access for Contractors
- Any observable structural issues are assessed. If a structural failure appears imminent, then both owner and senior District staff are notified for potential emergency declaration and resolution

SWIM Urgent Response

Cuyahoga River South – Indian Creek

Macedonia: Crow Road

430 CY of debris removed over 12 properties in 9 days

Calendar of Events

11/5/17 – Micro Burst Storm event hit

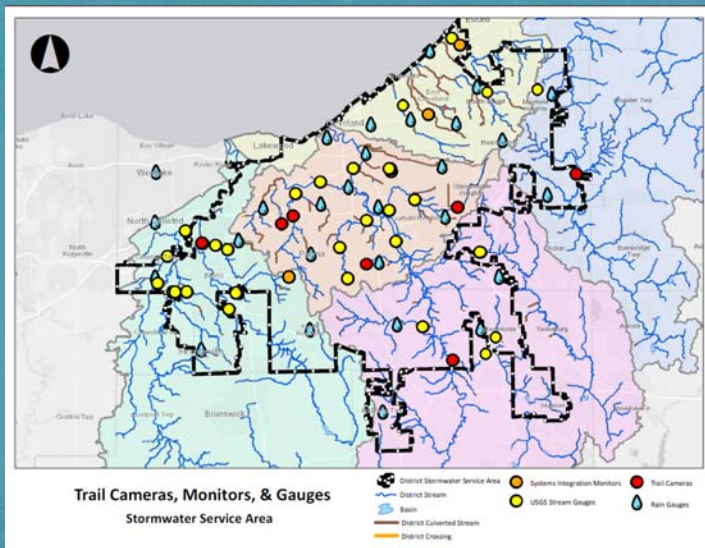
11/6/17 – SWIM inspections began

11/8 – 11/14/17 – RiverReach Construction Clean-up

SWIM Long Term Monitoring

- Goal is to better understand:
 - RSS storm event response (Flooding)
 - Changes due to new hydrology or Maintenance & Construction projects
- Currently Using Two Types of Monitors:
 - Stage Monitors
 - Trail Cams

SWIM Long Term Monitoring



@neorsd

SWIM 2018 Planned Activities

- Implement Recommended Maintenance Projects from SW Master Plans
- Continue Piloting Non-Routine Maintenance Projects
- Inspect and Inventory RSS assets and BTUs without condition scores
- Request Record Drawings from Member Communities (Basins and Crossings)

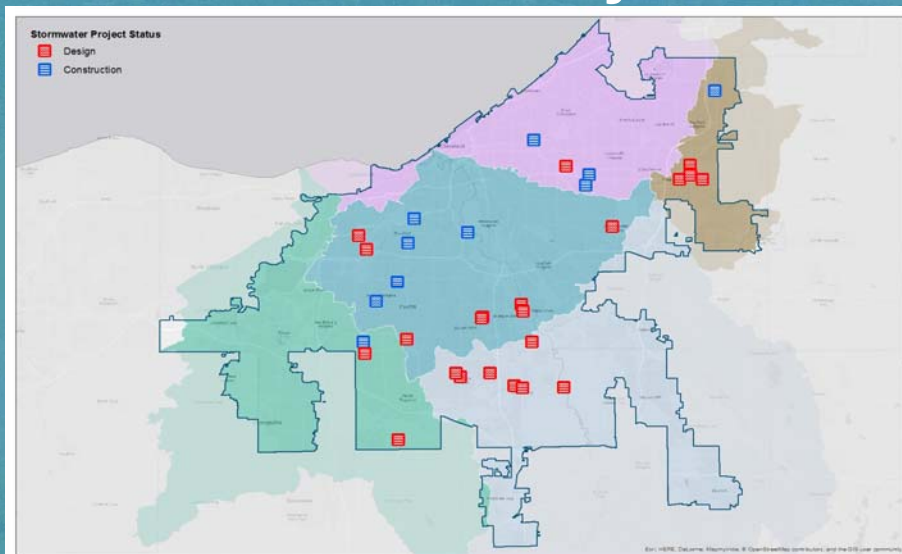
 **Northeast Ohio
Regional Sewer District**

@neorsd

Stormwater Construction Plan



2018 Stormwater Design and Construction Projects



Stormwater Construction

Under Construction



Emerald Parkway Culvert Repair
 Est. Substantial Completion: June 1, 2018
 Construction Cost: \$4,700,000



Northeast Ohio Regional Sewer District

2018 Stormwater Construction

Project Number	Project Name	RSS Asset ID(s)	WAC Watershed	Subwatershed	Project Community	Construction NTP
1320	Shaker Lakes Dam Rehabilitation	DB00056 & DB00101	LED	Doan	Shaker Hts. and Cleveland Hts.	5-Apr-18 (Ant. June 2018)
1369	Beechers Brook Bank Stabilization (Design-Build)	BE00021	Chagrin River	Beechers	Mayfield Village	15-Mar-18
1369	Baldwin Creek Bank Stabilization (Design-Build)	BD000259	Rocky	Baldwin	Parma	19-Apr-18
1515	Spring Creek Culvert Rehabilitation	SP00002	Cuyahoga River North	Spring	Cleveland	10-May-18
1410	Doan Brook Stream and Bank Stabilization	BD 00029	LED	Doan	Cleveland	24-May-18
1409	Colombo Park Stream Restoration- BC00299	BC00299	Cuyahoga River North	Big Creek	Parma Hts	8-Jun-18
1520	Lower Twin Lakes Dam Repair	BC000261B	Cuyahoga River North	Big Creek	Parma	29-Jun-18
1411	Big Creek Stabilization	BC00032	Cuyahoga River North	Big Creek	Cleveland	13-Jul-18
1502	Stickney Creek at Ridge Road- Stream Relocation and Utility Repair (Design-Build)	ST00209	Cuyahoga River North	Stickney	Brooklyn	26-Oct-18

Northeast Ohio Regional Sewer District

 @neorsd

Stormwater Construction

Upcoming Construction

Baldwin Creek Bank Stabilization

Anticipated Construction NTP: June 2018

Estimated Construction Cost: \$1,170,000



Stormwater Construction

Upcoming Construction



East Branch Rocky River Royalton Farm Restoration

319 Matching Funds

Anticipated Design NTP- 1st Qtr 2018



2018 Stormwater Design

Project Priority	Proposed Project Name	WAC Watershed	Subwatershed	Project Community	Highest BRE	Design NTP
1	Chippewa Creek_Bank Stabilization DS Rt 21 - CC00030	Cuyahoga River South	Chippewa Creek	Brecksville	72	30-Jan-18 (2 Sites Combined)
	Chippewa Creek Bank Stabilization at Condominium- CC00032					
2	NEW SWIM Debris Racks, Access and Easements	Various	Various	Various	NA	26-Feb-18
3	Hemlock Creek and Mill Creek Bank Stabilization - HC00038, HC00040, HC00042, MC00125- Preliminary Design	Cuyahoga River North	Hemlock Creek	Seven Hills	69	1-Apr-19
4	Unnamed Trib. to E. Br. Rocky River Ridge Road Bank Erosion - RY00434	Rocky River	Rocky River East Tribs	North Royalton	80	19-Apr-18 (2 Sites Combined)
	Baldwin Creek North Royalton Bank Erosion and Failing Private Crossing BD00291		Baldwin Creek			
5	Unnamed Trib to Cuyahoga Failed Gabions CH00156	Cuyahoga River North	Cuyahoga River West Unnamed	Independence	61	29-May-18
6	Hemlock Creek Stream Erosion at HC00005	Cuyahoga River North	Hemlock Creek	Independence	69	29-May-18 (3 Sites Combined)
	Cuyahoga River Erosion at BTU CY00103C_T001	Cuyahoga River North	Mainstem (west)	Independence	51	
	Cuyahoga River Left Bank Erosion near CVNP RR - CY00219	Cuyahoga River South	Mainstem (west)	Brecksville	50	
7	Pepper Luce Erosion and Deterioration - PC00145	Chagrin River	Pepper Luce Creek	Pepper Pike	69	31-Jul-18 (2 Sites Combined)
	Pepper Luce Gates Mills Blvd Culvert Deterioration PC00218					
8	Big Creek West Branch Stabilization -WB00108, WB00072, WB00104	Cuyahoga River North	Big Creek	Parma	59	25-Jul-18
	Chippewa Creek Erosion Near Local Sewer CC00170					
9	Chippewa Creek Gabion Failure BTU CC00191_001	Cuyahoga River South	Chippewa Creek	Broadview Heights	42	4th Qtr 2018 (3 Sites Combined)
	Chippewa Creek Bank Stabilization at SWM Facility - CC00082					

Stormwater Construction Upcoming Design



Rocky River Tributary Stabilization and Re-Alignment Along Ridge Road in North Royalton

Design NTP: 2nd Qtr 2018

 **Northeast Ohio
Regional Sewer District**


@neorsd

Stormwater Construction Upcoming Design



**Baldwin Creek Stabilization
Near Abbey Road in North
Royalton**

Design NTP: 2nd Qtr 2018

 **Northeast Ohio
Regional Sewer District**


@neorsd

Stormwater Construction Plan Track Progress

NEORS D Stormwater Design & Construction Program
Navigate using the tabs below and by clicking the images to view more details on our completed, current, and planned stormwater projects. Zoom in to view satellite imagery.

All Projects Complete Design Construction

16 Project Images

Map of Northeast Ohio with project locations

<http://neorsd.org/stormwaterplan>

Easement Policy

Stormwater Construction Plan Projects

- Easements or permanent property rights will be required for all projects
- Owner compensation
 - Private Property owners may be paid for the easements based on fair market value established by appraisals
 - Member communities will not be compensated as outlined in the Service Agreements

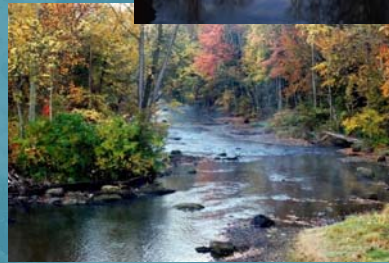
Easement Policy

Inspection, Operation, Maintenance and Monitoring

- No easement needed
 - Activities in ROW
 - Activities in an existing easement which can be assigned to the District
- Permanent easement – installation of materials or facilities (i.e. stone)
- Right-of-Entry/temporary easement - sufficient for most debris/sediment removal
- No compensation

Conservation Planning and Property Acquisition

- Planning
 - SW Master Plan Protection Recommendations
 - Acquisition Strategy w/ partners
 - Protect / Enhance sustainable land use
- Design and Construction
 - Early design concept input
 - Landowner negotiation
 - Eliminate non-sustainable land use



 **Northeast Ohio
Regional Sewer District**

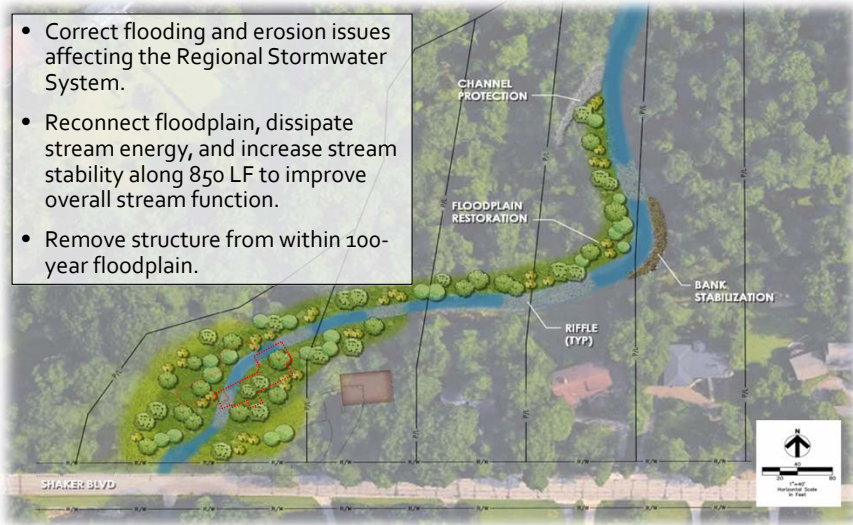


Pepper Creek Restoration Pepper Pike



Pepper Creek Restoration Project Concept

- Correct flooding and erosion issues affecting the Regional Stormwater System.
- Reconnect floodplain, dissipate stream energy, and increase stream stability along 850 LF to improve overall stream function.
- Remove structure from within 100-year floodplain.

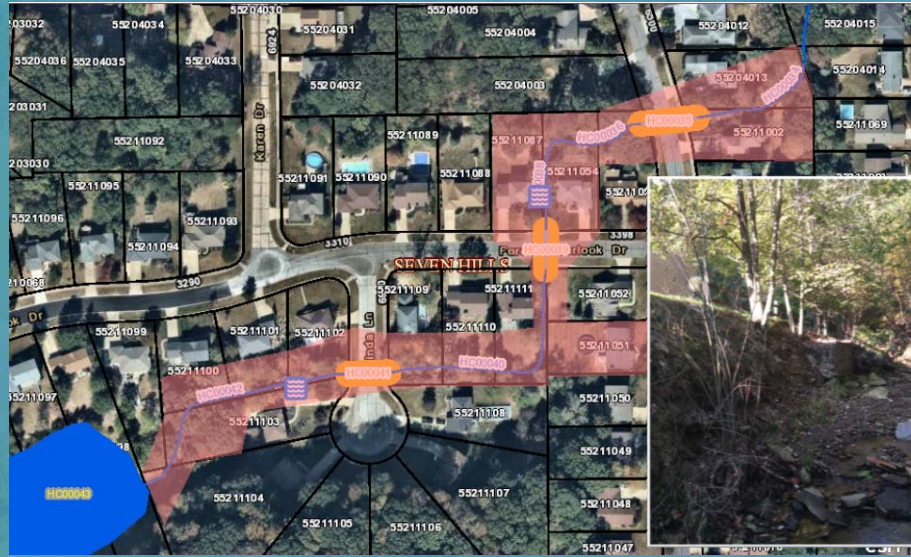


Mill Creek Stream Restoration at Cricket Lane Warrensville Heights



Hemlock Creek Restoration

Seven Hills



Questions

Meiring Borchers
216.881.6600 Ext. 6159
borcherdsm@neorsd.org



Stormwater Program: Community Resources
<http://www.neorsd.org/communitystormwaterresources.php>

 Northeast Ohio
Regional Sewer District


@neorsd