


Watershed Advisory Committee

Cuyahoga River - South

March 2018

NORTHEAST OHIO REGIONAL SEWER DISTRICT



**REGIONAL
STORMWATER
MANAGEMENT
PROGRAM**

Northeast Ohio Regional Sewer District

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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**



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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

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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

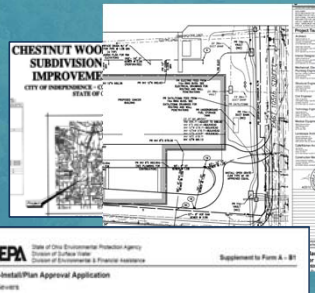
NEORSD Plan Review

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:



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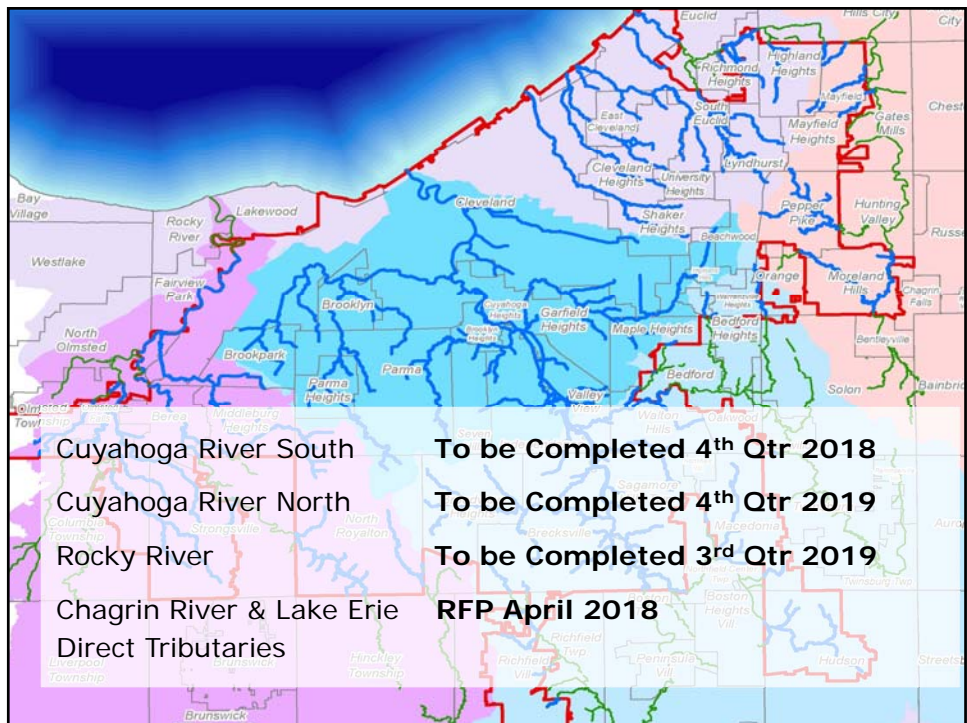
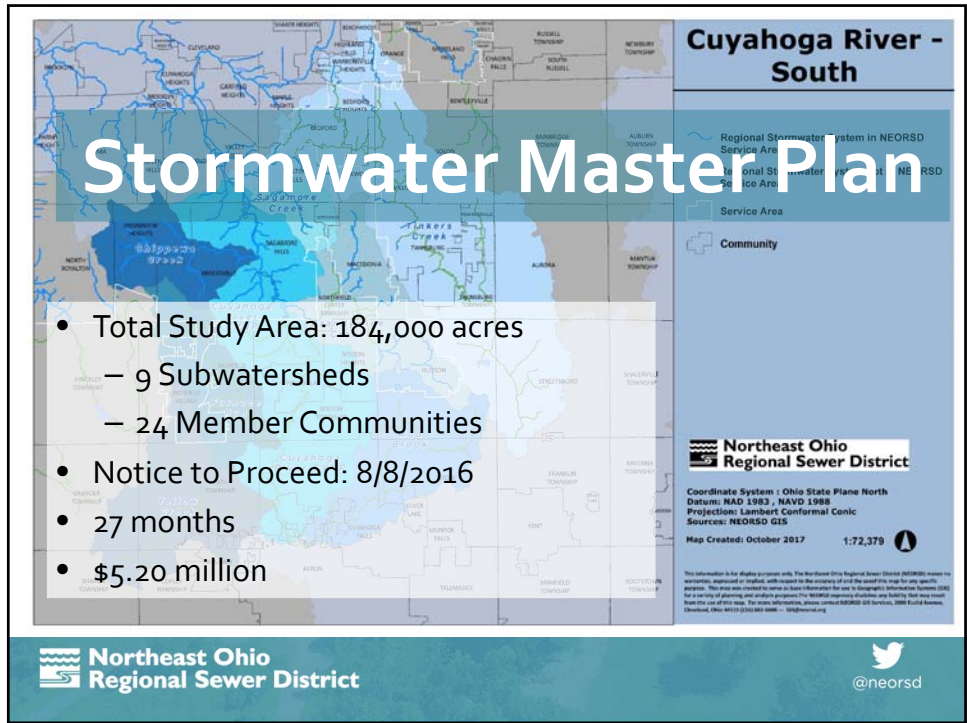
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Questions



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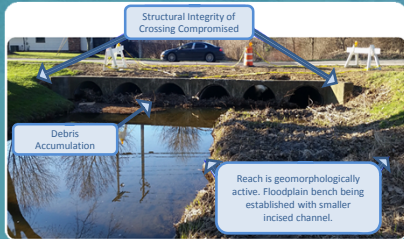




Stormwater Master Plans

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

Field Work

Inspected:

- 150 Stream locations
- 259 Crossings
- 21 Basins
- 7,000 feet of Culverted Stream



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SW Master Plan Schedule

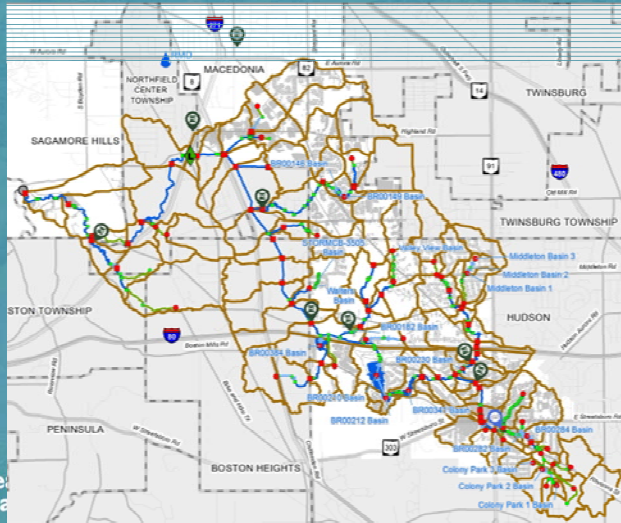
- Phase I: Indian Creek
 - Draft SWMP Recommendations
 - 1st Qtr 2018
- Phase II Watersheds
 - Brandywine, Chippewa, Tinkers
- Phase III & IV Watersheds
 - Furnace, Sagamore, Mud Brook, Yellow Creek, Cuyahoga River Tributaries (East and West)
 - Cuyahoga River Main Stem

SW Master Plan Schedule

Phases II through IV:

- Draft Alternatives Development
 - Throughout 2018
- SWMP Recommendations
 - End of 2018

SW Master Plan Modeling Schematic - Brandywine

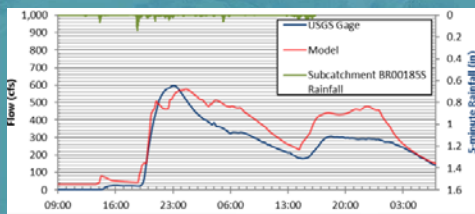


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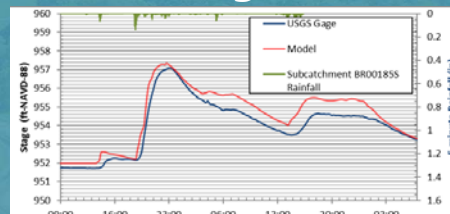
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SW Master Plan Modeling Calibration - Brandywine

Flow



Stage

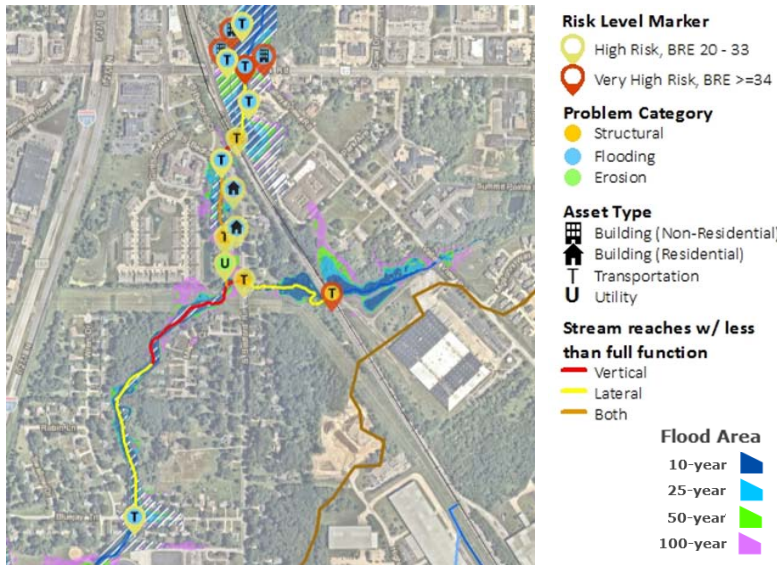


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SW Master Plan

Problem Identification (using GIS)



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

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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

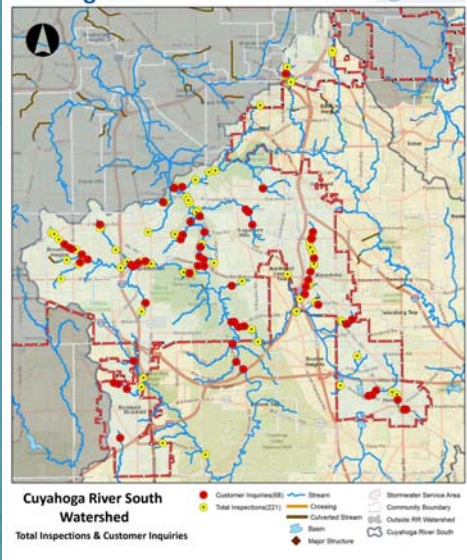
Cuyahoga River South 2017 Inventory Update



Asset Class Type	RSS (Assets)	RSS (Miles)
Streams	517	100
Crossings	306	4
Culverted Streams	25	3
Basins	20	-
Major Structures	3	-
Total	866	107
SWSA	3,699	443

*CRS RSS: 101 Miles in 2016
Service Area RSS: 405 Miles in 2016

SWIM Inspections 2017 Summary



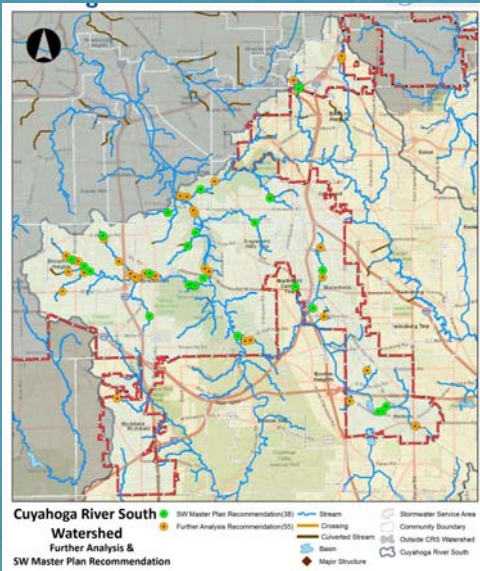
221 Total Inspections
(1,299 in Service Area)

68 Customer Inquiries
(174 in Service Area)

29% of RSS Assets
Inspected in CRS



SWIM Recommendations: 2017 Summary



38 Assets recommended for
SW Master Plan
(161 in Service Area)

55 Assets recommended for
Further Analysis
(180 in Service Area)



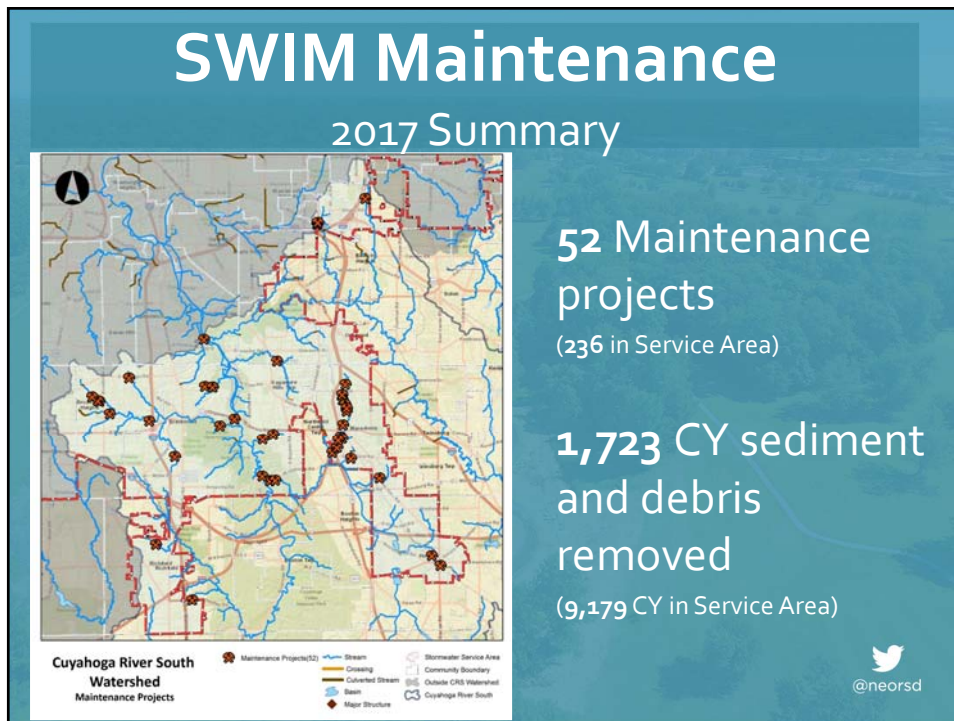
Stormwater Inspections Cuyahoga River South: Tinker's Creek

Structural Integrity:

- Failing bank protection – 32' of damaged gabions (rotating toward stream)
- 14' to edge of Tinker's Creek Road

Asset #: TC00012B
Walton Hills
Tinker's Creek Road
BTU: Roadway

Recommendation: Further Analysis, Monitor (Annual)



Stormwater Maintenance

Cuyahoga River South: Chippewa Creek
Brecksville

Asset ID: CC00078A

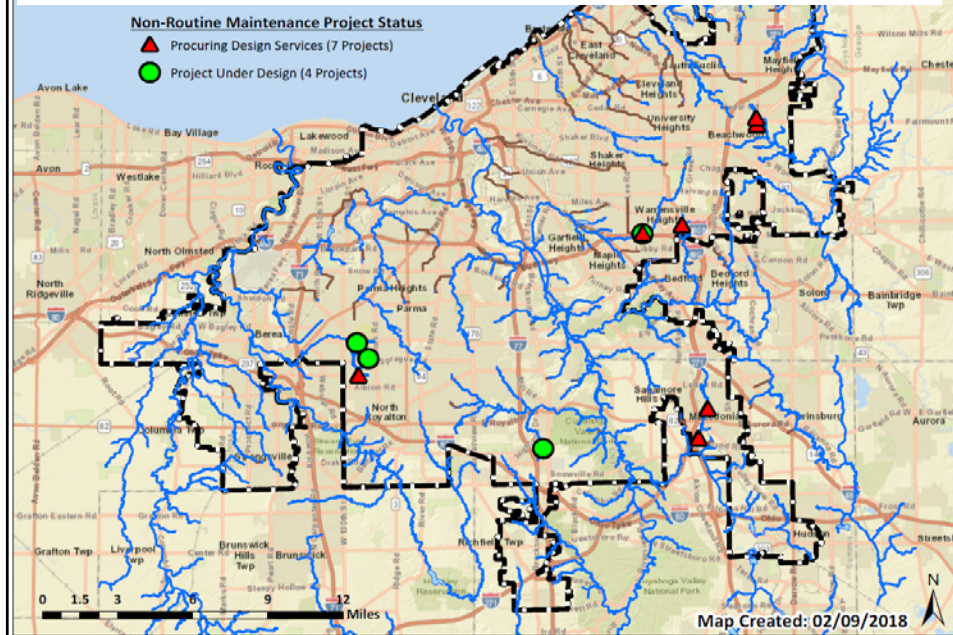
Maintenance Project: Large Woody Debris Removal (150 CY)



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2018 SWIM Pilot Maintenance Projects



Non-Routine Maintenance Site

Rocky River: Baldwin Creek

Parma: W Pleasant Valley Road

Asset ID: BD00250 – Streambank Stabilization

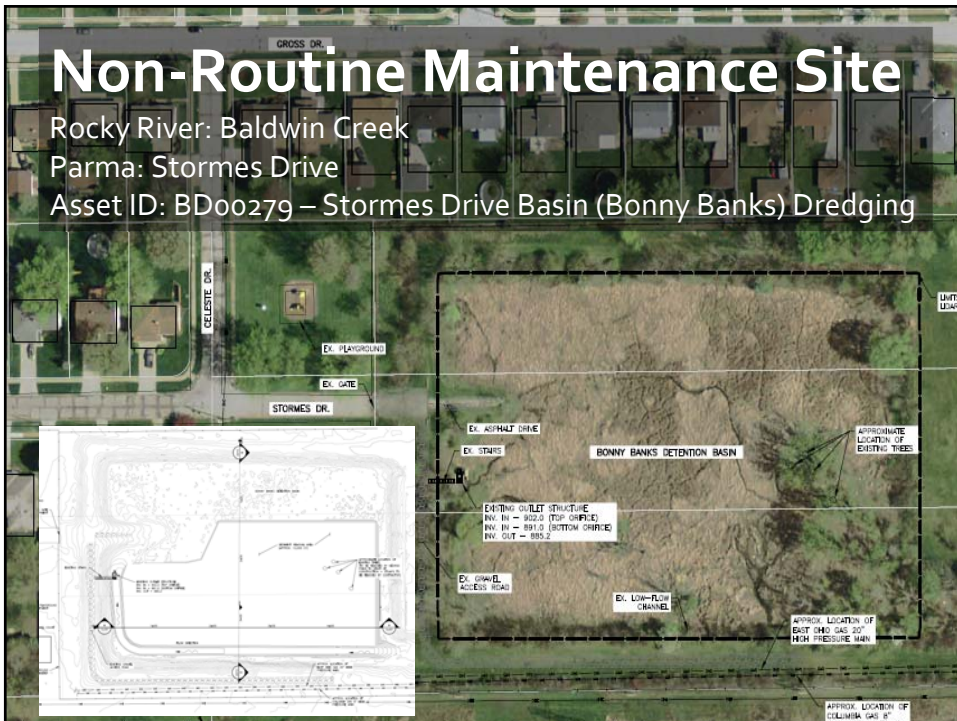


Non-Routine Maintenance Site

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

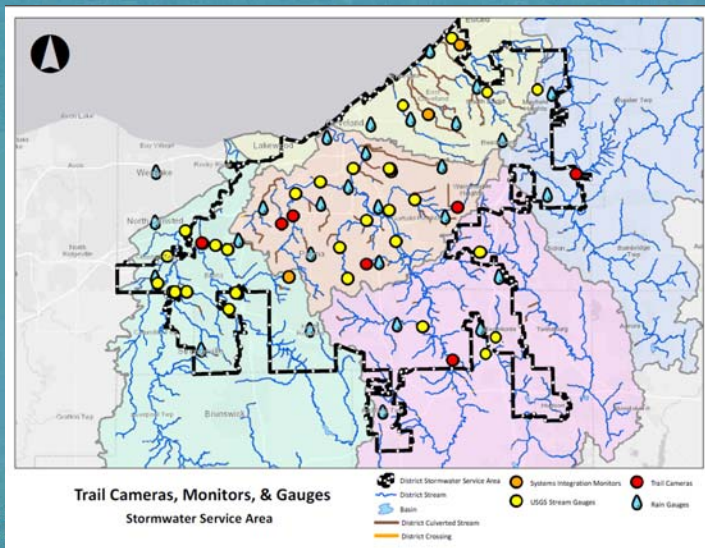
11/6/17 – SWIM inspections began

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



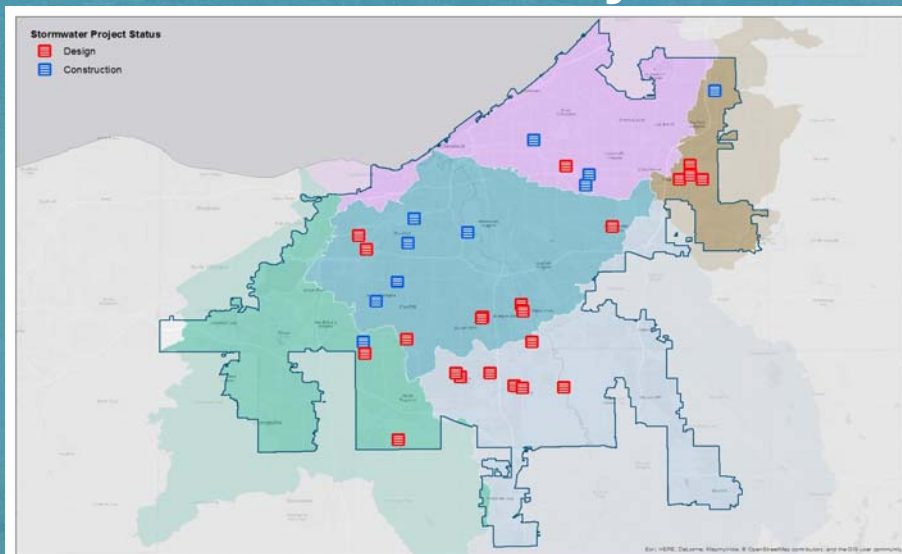
SWIM 2018 Planned Activities

- 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)

Stormwater Construction Plan



2018 Stormwater Design and Construction Projects



Stormwater Construction Completed



Sioux Lane Culvert
Substantial Completion: Dec. 1, 2017
Construction Cost: \$300,000

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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

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Stormwater Construction Upcoming Construction

1410 Doan Brook Bank Stabilization
 Anticipated Request to Advertise: Mar. 1
 Estimated Construction Cost: \$2.8M

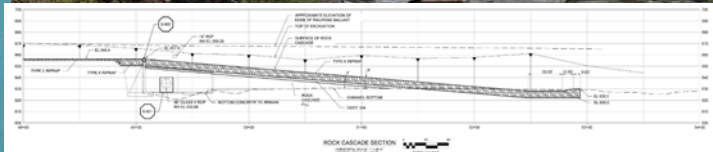


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Stormwater Construction Upcoming Construction

Big Creek Bank Stabilization
 Anticipated to Advertise: June 2018
 Estimated Construction Cost: \$7.3M



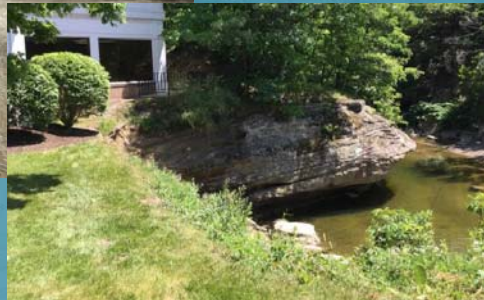
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2018 Stormwater Design

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	Cuyahoga River South	Chippewa Creek	Broadview Heights	42	4th Qtr 2018 (3 Sites Combined)
9	Chippewa Creek Gabion Failure BTU CC00191_001					
	Chippewa Creek Bank Stabilization at SWM Facility - CC00082					

Stormwater Construction Upcoming Design



1500 & 1502 Chippewa Creek Bank Stabilizations in Brecksville
Design NTP: Early 2nd Qtr 2018

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Stormwater Construction Upcoming Design



Cuyahoga River Bank Stabilization at
CVNP Valley Railway in Brecksville
Estimated Design NTP: 2nd Qtr 2018

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Stormwater Construction Plan Track Progress

<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

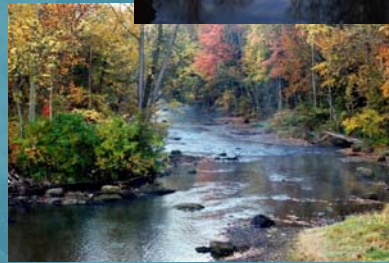
Easement Policy

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

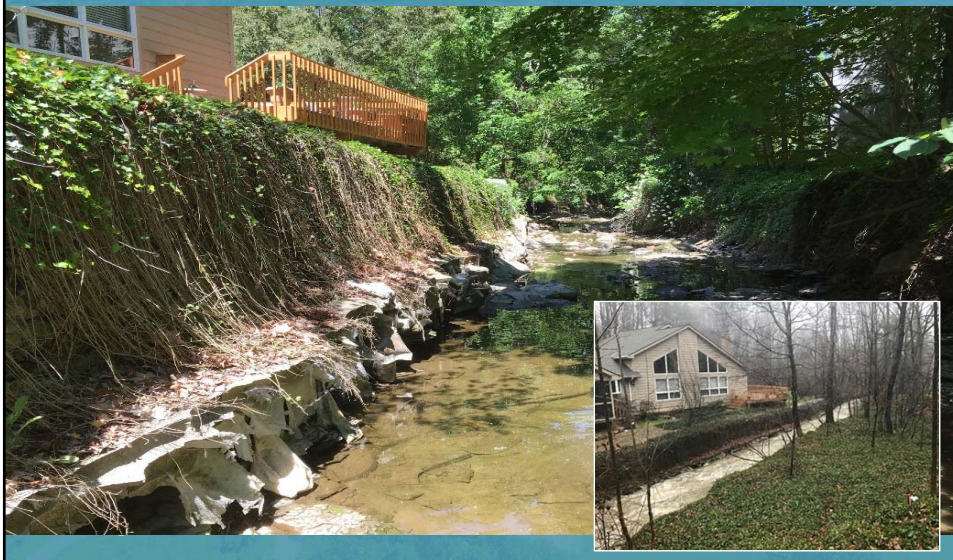
- Planning
 - SW Master Plan Protection Recommendations
 - Acquisition Strategy w/ partners
 - Protect / Enhance sustainable land use
- Design and Construction
 - Early design concept input
 - Landowner negotiation
 - Eliminate non-sustainable land use



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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.

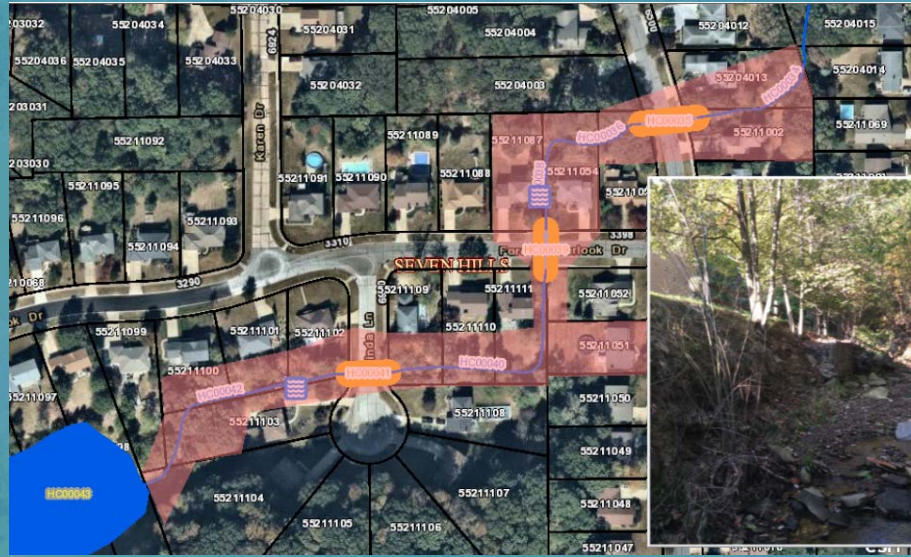


Mill Creek Stream Restoration at Cricket Lane Warrensville Heights



Hemlock Creek Restoration

Seven Hills



Questions

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

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