Watershed Advisory Committee
Cuyahoga River - South
March 2018
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

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
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
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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Questions
Stormwater Master Plan

- Total Study Area: 184,000 acres
  - 9 Subwatersheds
  - 24 Member Communities
- Notice to Proceed: 8/8/2016
- 27 months
- $5.20 million

Cuyahoga River South
To be Completed 4th Qtr 2018

Cuyahoga River North
To be Completed 4th Qtr 2019

Rocky River
To be Completed 3rd Qtr 2019

Chagrin River & Lake Erie
RFP April 2018

Direct Tributaries
Stormwater Master Plans
Goals and Objectives

Operational Performance Evaluation

Structural Integrity of Crossing Components

Reach is geomorphologically active. Floodplain-riparian zone incised by side channel.

Recommends and Report

Results: Prioritized list of construction and maintenance projects

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SW Master Plan
Field Work

Inspected:
• 150 Stream locations
• 259 Crossings
• 21 Basins
• 7,000 feet of Culverted Stream

Hydraulic Performance
Sediment & Debris
Structural Integrity

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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

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SW Master Plan Schedule

Phases II through IV:
• Draft Alternatives Development
  – Throughout 2018

• SWMP Recommendations
  – End of 2018
**SW Master Plan**

Problem Identification (using GIS)

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**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

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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

Stormwater Inspection and Maintenance (SWIM)
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

<table>
<thead>
<tr>
<th>Asset Class Type</th>
<th>RSS (Assets)</th>
<th>RSS (Miles)</th>
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<tbody>
<tr>
<td>Streams</td>
<td>517</td>
<td>100</td>
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<tr>
<td>Crossings</td>
<td>306</td>
<td>4</td>
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<tr>
<td>Culverted Streams</td>
<td>25</td>
<td>3</td>
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<tr>
<td>Basins</td>
<td>20</td>
<td>-</td>
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<tr>
<td>Major Structures</td>
<td>3</td>
<td>-</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>866</strong></td>
<td><strong>107</strong></td>
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<tr>
<td>SWSA</td>
<td><strong>3,699</strong></td>
<td><strong>443</strong></td>
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</tbody>
</table>

*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

Recommendation: Further Analysis, Monitor (Annual)

SWIM Maintenance  
2017 Summary

52 Maintenance projects  
(236 in Service Area)

1,723 CY sediment and debris removed  
(9,179 CY in Service Area)
Stormwater Maintenance
Cuyahoga River South: Chippewa Creek
Brecksville
Asset ID: CC00078A
Maintenance Project: Large Woody Debris Removal (150 CY)

Pre-Maintenance
Post-Maintenance

2018 SWIM Pilot Maintenance Projects

Non-Routine Maintenance Project Status
- Procuring Design Services (7 Projects)
- Project Under Design (6 Projects)

Map Created: 02/09/2018
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

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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 Completed

**Sioux Lane Culvert**

**Substantial Completion:** Dec. 1, 2017

**Construction Cost:** $300,000

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### 2018 Stormwater Construction

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Project Name</th>
<th>RSS Asset ID(s)</th>
<th>WAC Watershed</th>
<th>Subwatershed</th>
<th>Project Community</th>
<th>Construction NTP</th>
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<tr>
<td>1320</td>
<td>Shaker Lakes Dam Rehabilitation</td>
<td>DB00056 &amp; DB00101</td>
<td>LED</td>
<td>Doan</td>
<td>Shaker Hts. and Cleveland Hts.</td>
<td>5-Apr-18 (Ant. June 2018)</td>
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<td>1369</td>
<td>Bechers Brook Bank Stabilization (Design-Build)</td>
<td>BE00021</td>
<td>Chagrin River</td>
<td>Bechers</td>
<td>Mayfield Village</td>
<td>15-Mar-18</td>
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<td>1369</td>
<td>Baldwin Creek Bank Stabilization (Design-Build)</td>
<td>BD000259</td>
<td>Rocky</td>
<td>Baldwin</td>
<td>Parma</td>
<td>19-Apr-18</td>
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<td>1515</td>
<td>Spring Creek Culvert Rehabilitation</td>
<td>SP00002</td>
<td>Cuyahoga River North</td>
<td>Spring</td>
<td>Cleveland</td>
<td>10-May-18</td>
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<tr>
<td>1410</td>
<td>Doan Brook Stream and Bank Stabilization</td>
<td>BD 00029</td>
<td>LED</td>
<td>Doan</td>
<td>Cleveland</td>
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<td>1409</td>
<td>Colombo Park Stream Restoration- BC00299</td>
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<td>Cuyahoga River North</td>
<td>Big Creek</td>
<td>Parma Hts</td>
<td>8-Jun-18</td>
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<td>1520</td>
<td>Lower Twin Lakes Dam Repair</td>
<td>BC0002618</td>
<td>Cuyahoga River North</td>
<td>Big Creek</td>
<td>Parma</td>
<td>29-Jun-18</td>
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<td>1411</td>
<td>Big Creek Stabilization</td>
<td>BC00032</td>
<td>Cuyahoga River North</td>
<td>Big Creek</td>
<td>Cleveland</td>
<td>13-Jul-18</td>
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<td>1502</td>
<td>Stickney Creek at Ridge Road- Stream Relocation and Utility Repair (Design-Build)</td>
<td>ST00209</td>
<td>Cuyahoga River North</td>
<td>Stickney</td>
<td>Brooklyn</td>
<td>26-Oct-18</td>
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</table>
Stormwater Construction

Upcoming Construction

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

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

<table>
<thead>
<tr>
<th>Project Priority</th>
<th>Proposed Project Name</th>
<th>WAC Watershed</th>
<th>Subwatershed</th>
<th>Project Community</th>
<th>Highest BRF</th>
<th>Design NTP</th>
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<tr>
<td>1</td>
<td>Chippewa Creek Bank Stabilization DS Rd 21 - CC00030</td>
<td>Cuyahoga</td>
<td>Chippewa Creek</td>
<td>Brecksville</td>
<td>72</td>
<td>30-Jan-18 (2 Sites Combined)</td>
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<td>Chippewa Creek Bank Stabilization at Condominium - CC0032</td>
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<td>2</td>
<td>NEW SWM Debris Racks, Access and Easements</td>
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<td>Various</td>
<td>Various</td>
<td>NA</td>
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<td>Hemlock Creek and Mill Creek Bank Stabilization - HC00038, HC00040, HC00042, MC00125 - Preliminary Design</td>
<td>Cuyahoga</td>
<td>Various</td>
<td>Various</td>
<td>69</td>
<td>1-Apr-19</td>
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<td>Unnamed Trib. to E. Br. Rocky River Ridge Road Bank Erosion - RY00434</td>
<td>Cuyahoga</td>
<td>Various</td>
<td>Various</td>
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<td>19-Apr-18 (2 Sites Combined)</td>
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<td>Baldwin Creek North Royalton Bank Erosion and Failing Private Crossing BD00091</td>
<td>Rocky River</td>
<td>Various</td>
<td>North Royalton</td>
<td>80</td>
<td>19-Apr-18 (2 Sites Combined)</td>
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<td>5</td>
<td>Unnamed Trib to Cuyahoga Failed Gabions CH00156</td>
<td>Cuyahoga</td>
<td>Cuyahoga</td>
<td>Independence</td>
<td>61</td>
<td>29-May-18</td>
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<td>6</td>
<td>Hemlock Creek Stream Erosion at HC00005</td>
<td>Cuyahoga</td>
<td>Hemlock Creek</td>
<td>Independence</td>
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<td>29-May-18 (3 Sites Combined)</td>
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<td>Cuyahoga River Erosion at BTU CY00103C_T001</td>
<td>Cuyahoga</td>
<td>Cuyahoga</td>
<td>Independence</td>
<td>51</td>
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<td>Cuyahoga River Left Bank Erosion near CVNP RR - CY00219</td>
<td>Cuyahoga</td>
<td>Cuyahoga</td>
<td>Independence</td>
<td>50</td>
<td>29-May-18 (3 Sites Combined)</td>
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<td>7</td>
<td>Pepper Luce Erosion and Deterioration - PC00145</td>
<td>Cuyahoga</td>
<td>Pepper Luce Creek</td>
<td>Pepper Pike</td>
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<td>11-Jul-18 (3 Sites Combined)</td>
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<td>Pepper Luce Gates Mills Blvd Culvert Deterioration PC00218</td>
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<td>Pepper Luce Creek</td>
<td>Pepper Pike</td>
<td>69</td>
<td>11-Jul-18 (3 Sites Combined)</td>
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<td>8</td>
<td>Big Creek West Branch Stabilization - WB00108, WB00072, WB00104</td>
<td>Cuyahoga</td>
<td>Big Creek</td>
<td>Parma</td>
<td>59</td>
<td>31-Aug-18</td>
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<td>9</td>
<td>Chippewa Creek Erosion Near Local Sewer CC00070</td>
<td>Cuyahoga</td>
<td>Chippewa Creek</td>
<td>Broadview Heights</td>
<td>42</td>
<td>4th Qtr 2018 (3 Sites Combined)</td>
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<td>Chippewa Creek Gabion Failure BTU CC00391_001</td>
<td>Cuyahoga</td>
<td>Chippewa Creek</td>
<td>Broadview Heights</td>
<td>42</td>
<td>4th Qtr 2018 (3 Sites Combined)</td>
</tr>
</tbody>
</table>

### Stormwater Construction Upcoming Design

**1500 & 1502 Chippewa Creek Bank Stabilizations in Brecksville**

Design NTP: Early 2nd Qtr 2018

[Image of stormwater construction site]
Stormwater Construction
Upcoming Design

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

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

Pepper Creek Restoration
Pepper Pike
Pepper Creek Restoration

- 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
Questions

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Donna Friedman
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friedmand@neorsd.org

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

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