



NORTHEAST OHIO REGIONAL SEWER DISTRICT
REGIONAL
STORMWATER
MANAGEMENT
PROGRAM

Regional Stormwater Management Program:
Flooding, Erosion, and Water Quality
Watershed Advisory Committee

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Agenda

- Introductions
- Watershed Advisory Committee
- Regional Stormwater Management Program
- Community and Customer Outreach
- Inspection and Maintenance Program
- Stormwater Master Plans
- Stormwater Construction Plan

TODAY'S MEETING GOAL: Reintroduce the components of Regional Stormwater Management Program

Watershed Advisory Committees

- Meets March and October
- Members: Member Community, Public Agency with control of infrastructure in the watershed
- Interested Entities: Watershed Groups, Land Conservancies



Watershed Advisory Committees

- Mechanism to provide input on Programs:
 - Stormwater Master Plans
 - Stormwater Construction Plan
 - Inspection, Operation and Maintenance Activities
 - NPDES Phase II Assistance



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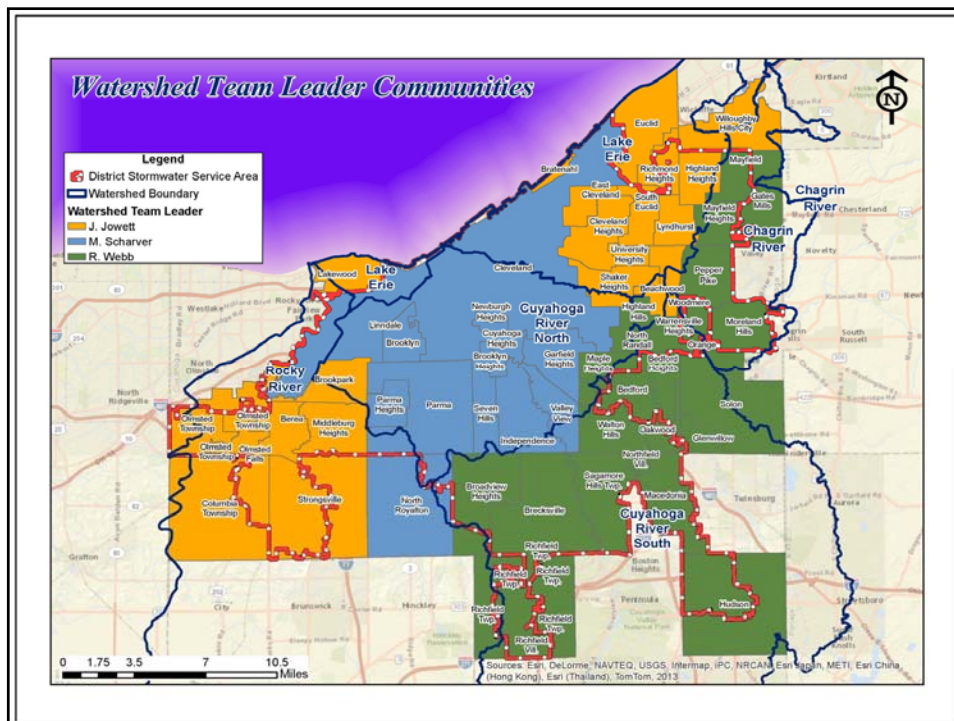


Watershed Team Leader

- Provide seamless communication between the District and Member Communities
 - Stormwater Program information
 - Construction or Maintenance project information
 - Local Stormwater System inquiries
 - Inspection requests
- Provide seamless communication between the District and Customer



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Watershed Team Leader

- Manage WAC
- Work with E&C and O&M on stormwater projects
- Administer Community Cost-Share Program
 - Status updates for CCSP – Accounts
 - Feedback on potential projects
 - Review Applications, Requests for Payment and Progress Reports



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Regional Stormwater Management Program



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Regional Stormwater Management Program

- Slip opinion issued Sept. 15
- Request for reconsideration denied: Dec. 2, Slip opinion final
- Escrow funds received from Huntington Bank: \$20.9 million

District has authority to implement and collect fee for the Regional Stormwater Management Program



Program Components



Inspect & Maintain



SW Master Plans



Construct Projects

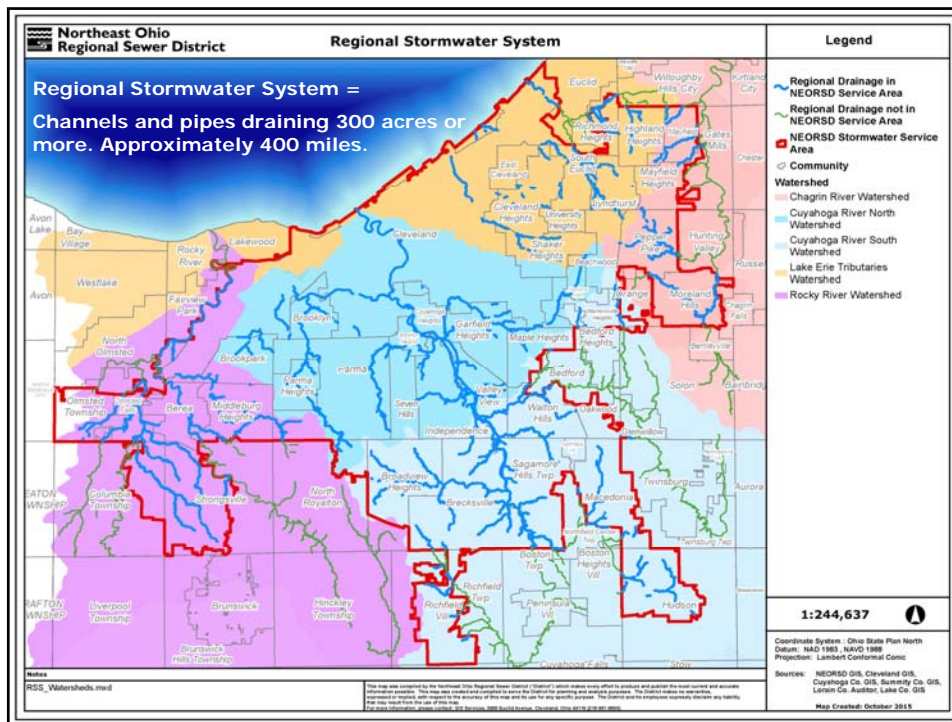


Encourage Good Practices



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Regional Stormwater Management Program

- Estimated revenue of \$41M/year from impervious surface fee
 - Inspection and Maintenance
 - Construction
 - Partner support
- Stormwater Fee Credits recognize on-site Stormwater Control Measures
 - Quantity Credit
 - Quality Credit
 - Education Credit
 - Individual Residential Credit



Stormwater Fee

**2016 Base Rate =
\$5.15 per ERU/month
Billing to begin second half 2016**

- Impervious Area (IA)
 - Billing Unit = Equivalent Residential Unit (ERU)
 - ERU = 3,000 square feet of IA

Stormwater Fee

**2016 Base Rate =
\$5.15 per ERU/month
Billing to begin second half 2016**

- Property Classification
 - SFR: Single Family Residential
 - NSFR: Non-Single Family Residential

Stormwater Fee

2016 Base Rate =
\$5.15 per ERU/month
Billing to begin second half 2016



SFR Property



NSFR Property

Stormwater Fee Credits

- All Existing Credits
 - Will be honored upon start up
 - Renewals will be required to continue credit
- Pending Applications will be reviewed
- Credit Manual Updates
 - Addition of Agricultural Credit
 - Modification of Education Credit
 - 1st Quarter 2016



Stormwater Fee Credits

- District is planning several credit workshops for 2016
- Quality / Quantity credits may involve the support of community engineer
- Residential credits may involve support from the Building Department



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Community and Customer Outreach



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Member Community Outreach

- Government Affairs Bulletin: 12/9/2015
- Watershed Advisory Committee: Feb. 2016
- Stormwater Service Agreements: Jan. 2016
- Community Cost-Share: On-going



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RSMP Service Agreement Highlights

- Services performed by District
- Member Community Obligations
 - Comply with Title V
 - Provide access through public ROWs
 - Provide available data for plan reviews
 - Representation on Watershed Advisory Committees
 - Cooperate with permits, easements, ROE, traffic control
- Non-interference with District's emergency powers and rights under RC 6119



RSMP Service Agreement Agreement Intent

- Standard terms and conditions for all Member Communities
- Terms and conditions non-negotiable
- Optional Exhibit - Letter of understanding for interpretation of specific terms
- Member Communities must sign Agreement to:
 - Access Community Cost-Share funds
 - Authorize District to construct projects



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RSMP Service Agreement Exhibits

- Stormwater Service Area
- Operation and Maintenance Policy
- Community Cost-Share Policy
- Watershed Advisory Committee Policy
- Review Stormwater Management Plans Submitted by Member Communities Policy



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Community Cost-Share

- 25% of annual Stormwater Fee revenue collected in each Member Community
- Address current, or minimize new stormwater flooding, erosion or water quality problems

Community Cost-Share

- Opportunities may include:
 - NPDES Phase II / MS4 Compliance
 - Mitigate Separate Sanitary Sewer Overflow
 - Local Storm Sewer Rehabilitation
 - Stormwater Control Measure Maintenance
 - MS4 IDDE Mapping / Source Tracking
 - Matching Funds for Stormwater Related Grants



Catch Basin Cleaning

MAR 29 2013



Street Sweeping



Storm Sewer Maintenance



Stream Restoration





Community Cost-Share

- District can review applications now
- Service Agreement required before application can be approved
- Funds available through reimbursement



Northeast Ohio Regional Sewer District

HOME
About us
Programs
Customer Service
Business with us
Project Clean Lake and CSO consent decree
Stormwater and Watersheds
Careers

Regional Stormwater Management Program
Community resources

The Northeast Ohio Regional Sewer District offers these documents to help communities understand and take advantage of the resources offered by its Regional Stormwater Management Program. These documents relate to the program's community cost-share policy, Watershed Advisory Committee responsibilities and membership, and community Stormwater Management Plans review processes

If you have any questions, please contact us at stormwater@neorsd.org.

CONTACT US
Do you have questions?
Stay connected.

We anticipate a large number of customer calls and questions in the coming months. We have increased our Customer Service staff to meet your needs, but there are other ways to reach us, ask questions, and find answers, including Twitter, Facebook, and more.

RESOURCES

- Community cost share program
 - Policy manual
 - Application, payment request, and guidance forms
- Stormwater management plan review form
- Watershed Advisory Committee description and policy
- Stormwater Service Agreement (Board resolution)
- Stormwater Service Agreement (Complete)
- Inspection and Maintenance policy

Dogs can't flush.
PUP reminds you to Pick Up Dog!

Wally Warehouse
Wally Warehouse's educational resources

SPIT ON
Bioscience Hydration
Add/Remove Yourself
SurfReach Networks, Inc.

Customer Outreach

- Customer service and Watershed Team Leaders are prepared to answer calls: 216.881.8247
- Outreach
 - Fee Finder and bill insert in 2016
 - Blog posts and social media
 - Community Outreach events
 - Creation of informational literature
 - Updates on Customer Service line
 - Community Presentations





Indian Creek - Macedonia

Stormwater Inspection and Maintenance



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SWIM Program

- **Goal:** Increase functionality of Regional Stormwater System to resolve/reduce critical consequences of flooding, erosion & catastrophic failure
- Responsible for inspection and maintenance of streams that are part of the Regional Stormwater System (>300 acres)



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Overall Stormwater Program Incorporating Asset Management

- Delineated the Regional Stormwater System (RSS) into over 3,300 assets organized within five categories:
 - Streams
 - Crossings (e.g., culverts and bridges)
 - Culverted Streams
 - Basins
 - Major Structures (e.g., low head dams)



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Overall Stormwater Program Incorporating Asset Management

- The District also identified non-stormwater building, transportation, and utility (BTU) assets along the RSS
- The District develops Business Risk Exposure (BRE) scores = Condition x Criticality



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Overall Stormwater Program Incorporating Asset Management

- Each RSS and BTU asset inspected receives a condition rating = 1-5 for three separate categories:
 - Sediment & Debris Accumulation
 - Structural Integrity
 - Hydraulic Performance
- Criticality values were defined by asset class (e.g., highway, local road, ODNR class I dam)



Overall Stormwater Program Incorporating Asset Management

- BRE scores ≥ 20 do not meet the Acceptable Level of Risk (ALR).

Therefore, they will be noted as problems and solutions will be developed and evaluated on their feasibility of reducing the BRE score below the ALR.



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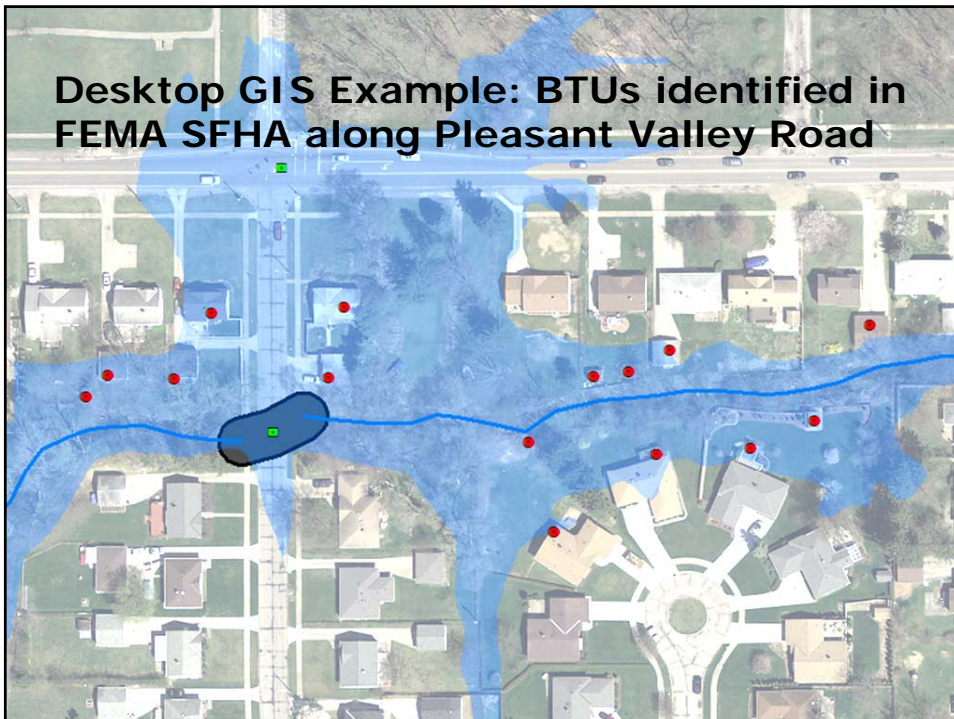
Desktop GIS Analysis Example: BTUs Identified within FEMA SFHA Zone



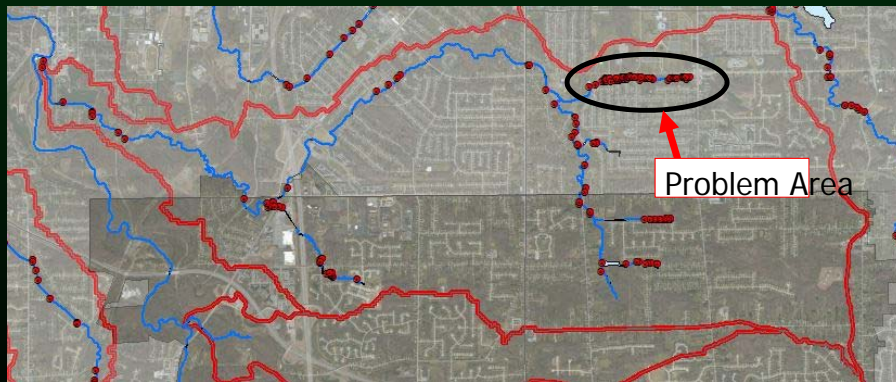
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Desktop GIS Example: BTUs identified in FEMA SFHA along Pleasant Valley Road



Desktop GIS Analysis Example: BTUs Identified under Stream Buffer Rule



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SWIM Program Inspection Activities

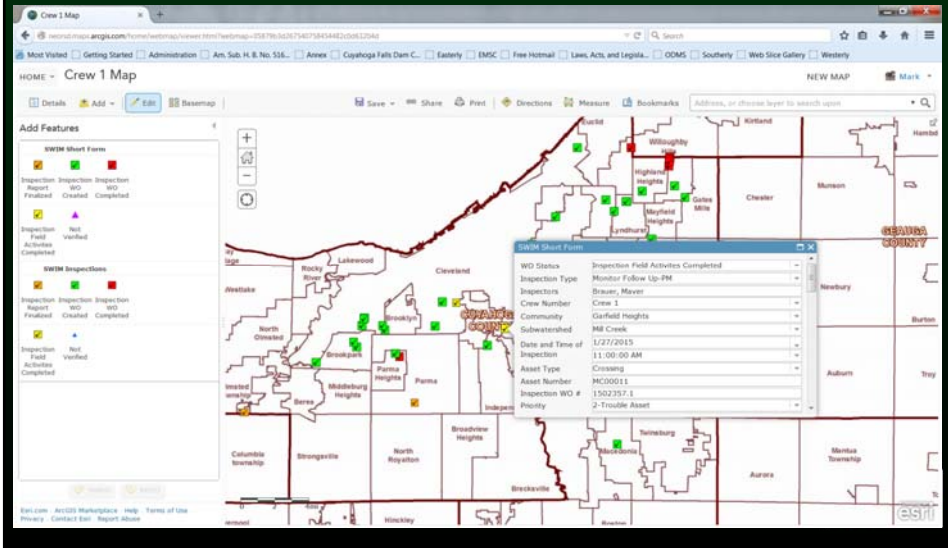
- Inspection Categories
 - Emergency Response
 - Urgent Storm Event Response
 - Community Inquires
 - Customer Inquires
 - High Risk Assets (BTU and RSS)
 - Preventative Maintenance Routes



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Inspection Process: Conduct Field Inspections using ESRI Arc GIS On-line (AGO) (Using I pads to populate data fields)



Using AGO to Create Customer Reports

29277 Shaker Blvd - Debris Problem

FIELD INSPECTION FORM
GENERAL INSPECTION

Inspection Type: Service Inspection
 Inspector: Mike Stricker, James
 Crew Number: Crew 1
 Subwatershed: Mill Creek
 Date: 11/27/2015 11:00:00 AM

Asset Type: SW
 Asset Number: MC00011
 Inspection WO #: 1502357.1
 Priority: 2-Trouble Asset

Location Details: Local Asset at 29277 Shaker Blvd. South of Middle Road and West of Highway Road

CONDITION
 ASPECT 1: Top Condition/Condition - Good
 ASPECT 2: Down-Hill Condition - Fair
 ASPECT 3: Top Condition/Condition - Good
 ASPECT 4: Down-Hill Condition - Fair
 ASPECT 5: Structure Condition - Good
 ASPECT 6: Structure Condition - Fair

PROBLEM CATEGORY	No Problems		Hydraulic Performance		Yes		Exposed Utility		No	
	Structural Integrity	No	Debris and/or Sedimentation	No	Water Quality	No	Water Quality	No		
STRUCTURAL INTEGRITY PROBLEM DETAILS	Structural Condition Rating (0-5)									
Structural Problem	Bank Erosion	Appalling	Channel Bank Failure	Spalling	Cracking	Structural Damage	Structural Damage	Structural Damage	Structural Damage	
Problem Location	Stream Bed	Bank Edge	Bank Edge	Bank Edge	Bank Edge	Bank Edge	Bank Edge	Bank Edge	Bank Edge	
Bank Substrate	Wood	Rock	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel	Gravel	
Bank Erosion	None	None	None	None	None	None	None	None	None	
Flow to Bank Structure	Distance to SW (ft)	Bank Ht (ft)	Soil Slope (Dist/Bank Ht)	Grass Ht (ft)	Structure Ht (ft)	Structure Ht (ft)	Structure Ht (ft)	Structure Ht (ft)	Structure Ht (ft)	
Bank Description	Bank Description									
Tree Characteristics	Bank Bank		Bank Bank		Bank Bank		Bank Bank		Bank Bank	
Structural Comments	Structural Comments									
HYDRAULIC PERFORMANCE PROBLEM DETAILS	Hydraulic Condition Rating (0-5)									
Flowing Location	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	
Flowing Problem	Flowing Problem	Flowing Problem	Flowing Problem	Flowing Problem	Flowing Problem	Flowing Problem	Flowing Problem	Flowing Problem	Flowing Problem	
Cause of Flowing	Flowing Problem	Flowing Problem	Flowing Problem	Flowing Problem	Flowing Problem	Flowing Problem	Flowing Problem	Flowing Problem	Flowing Problem	
Hydraulic Comments	Hydraulic Comments									

Stormwater Maintenance Program
Inspection Photo Log

Photo Based on # of Lat 1

Asset #: _____ Problem Type: _____
 Name of Property: _____ Comments: _____
 Inspection #: 151045 Team Leader: _____
 Photo Date: 11/27/2015 Water Body: _____

Photo # 1

Photo # 2

Photo # 3

Photo # 4

Photo # 5

SWIM Program

Maintenance Activities

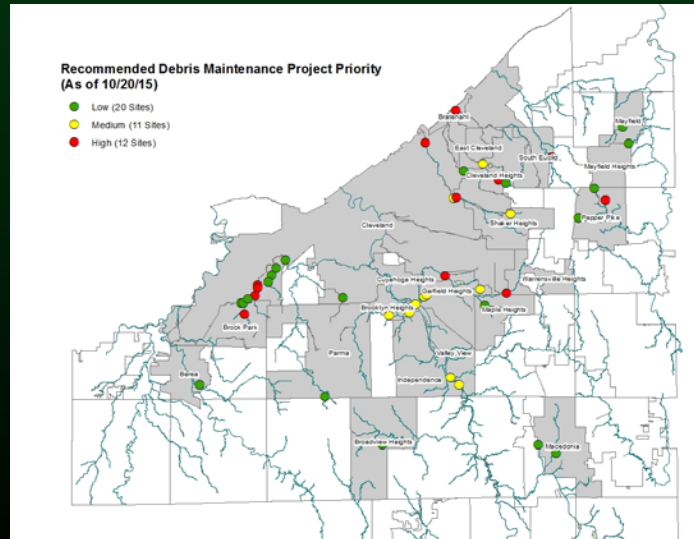
- Existing Sediment and Debris Removal Contracts
- Existing Emergency Response contracting mechanism
- Exploring providing additional types of maintenance contracts
 - Basin maintenance
 - Streambank stabilization
 - Structural repair



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Using AGO and GIS to Track and Prioritize Maintenance Work Orders



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SWIM Program Short-Term Monitoring Activities

- Objective
 - To better understand system response during storm events
 - Generally focus on areas that are either:
 - High Maintenance (frequency or cost)
 - High Risk (flooding, erosion, or debris)
 - Complex (e.g., understand slope failure)



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BTU Monitoring Example: Baldwin Creek: Temporary District Monitoring Sites

★ = Potential monitoring locations to understand system response upstream of a problem area



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Inspection & Maintenance Program: Communication on O&M Activities

- Member Community to District
 - Customer Service: (216) 881-8247
 - Watershed Team Leader
- District to Member Community
 - Schedule meeting with Service Director
 - Weekly inspection and maintenance activities: Weekly email
 - Large Maintenance Projects: 1-on-1 communication





Questions

Indian Creek - Macedonia



Chevy Branch Stream Restoration, Cleveland

Stormwater Master Plan



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Stormwater Master Plans

Goals and Objectives

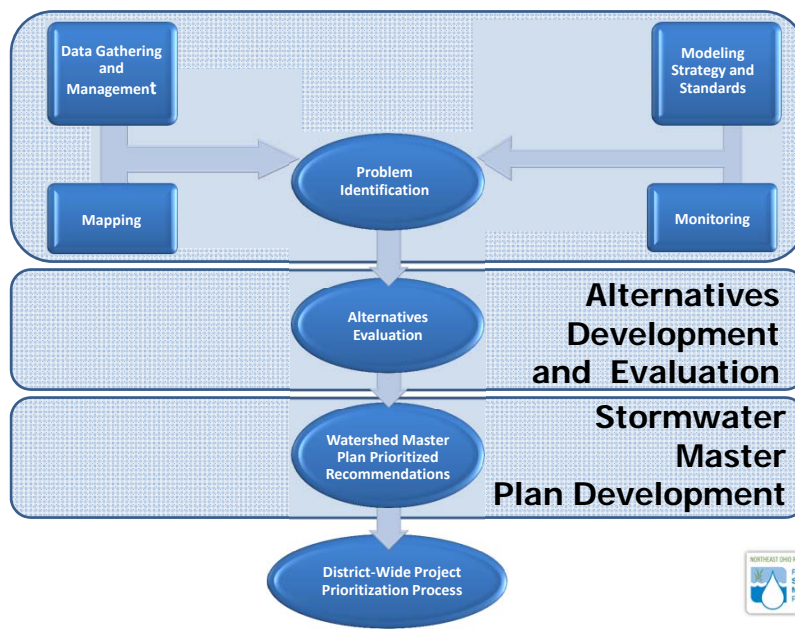
- Multi-objective, watershed approach to developing solutions for broad suite of problems
- Prioritized list of construction and maintenance projects at the Watershed-level and Program-level
- Identification of early action projects

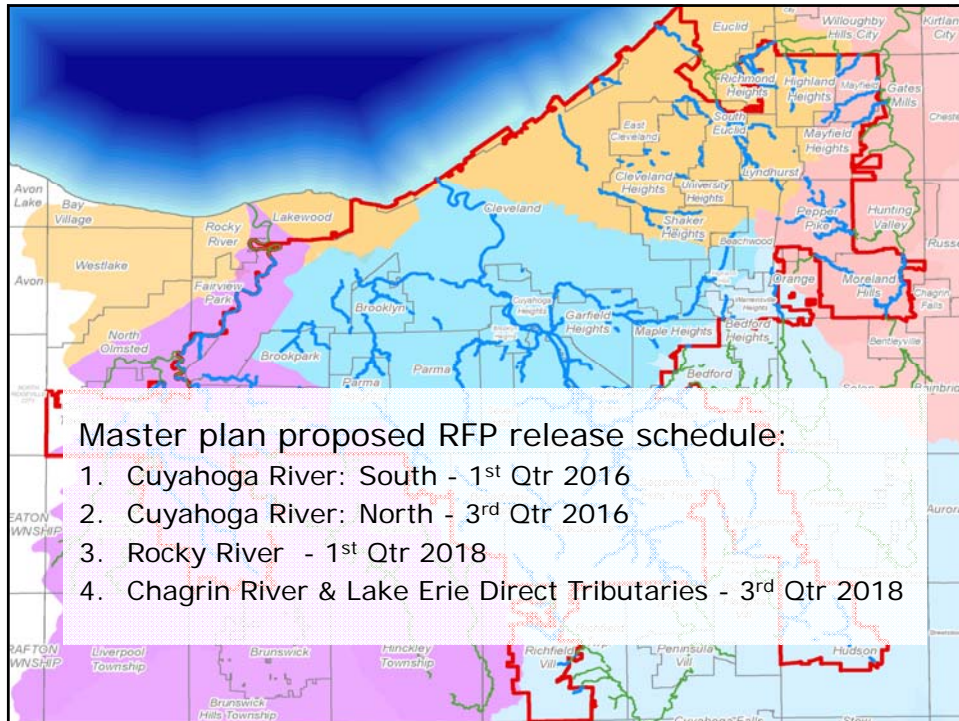


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Master Planning Process



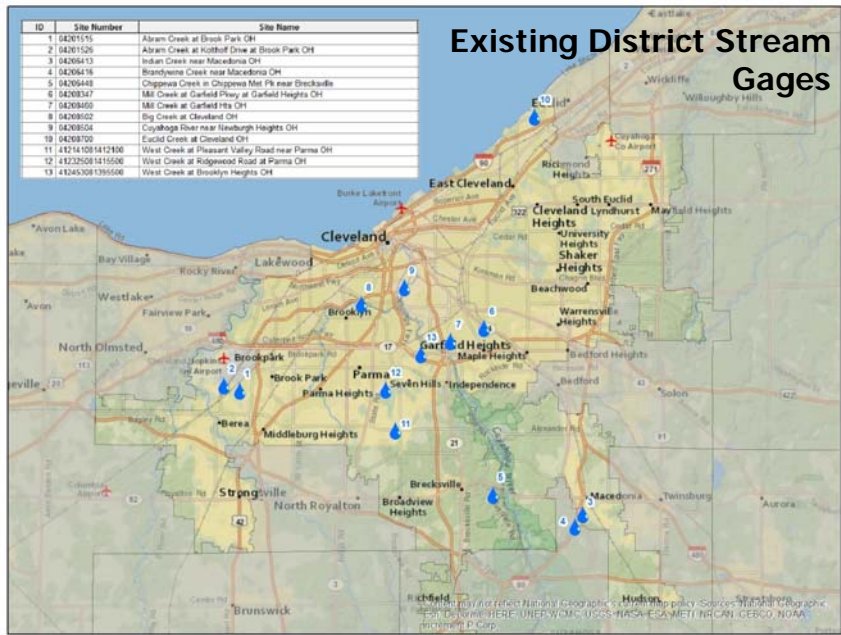


Preparation for Master Plans Stream Gages

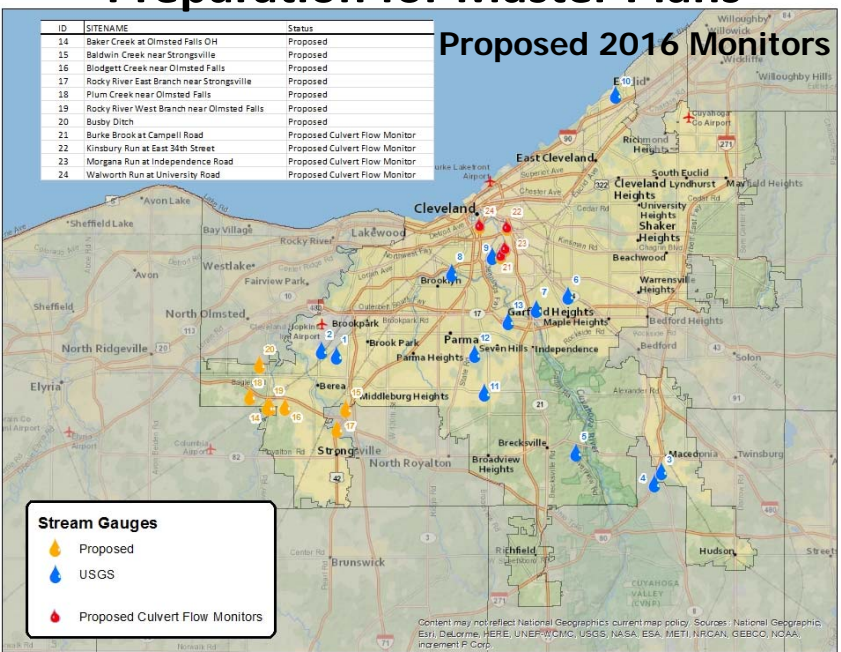
- Provide a better understanding of the regional stormwater system and for calibration of hydraulic models
- Continue to gather data from gages already installed
- New gages in Rocky River and culverted stream monitors for Cuyahoga North in 2016



Preparation for Master Plans



Preparation for Master Plans



Cuyahoga South – Master Plan Communication

The Watershed Team Leader will contact you to inform you of any work in the watershed and serves as the point of contact between the communities and the District.

Rachel Webb
Watershed Team Leader
Cuyahoga River South
WebbR@neorsd.org
216-881-6600 x6645



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Questions

Independence, OH



Doan Brook Stream Enhancement, Cleveland

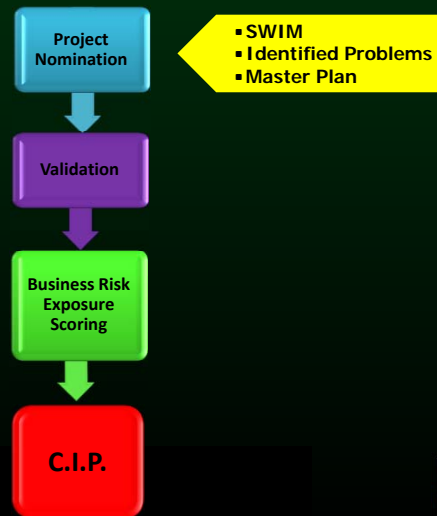
Stormwater Construction Plan



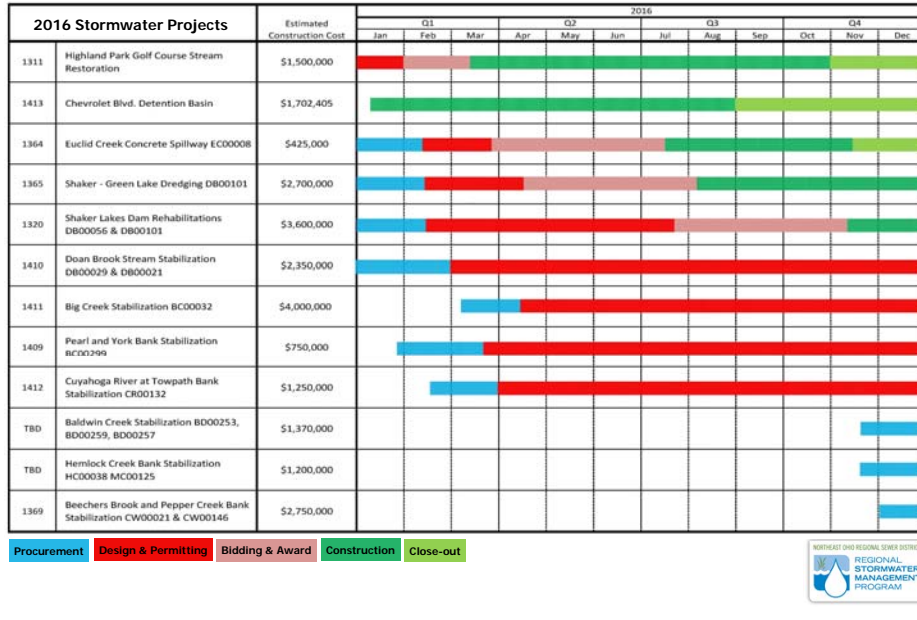
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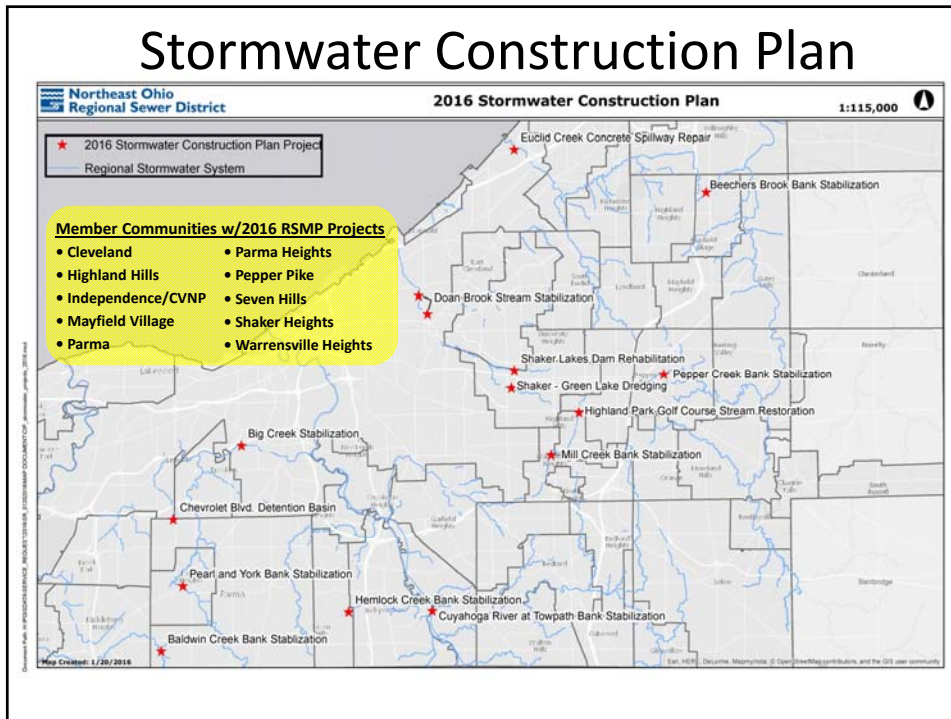
Stormwater Capital Improvement Process

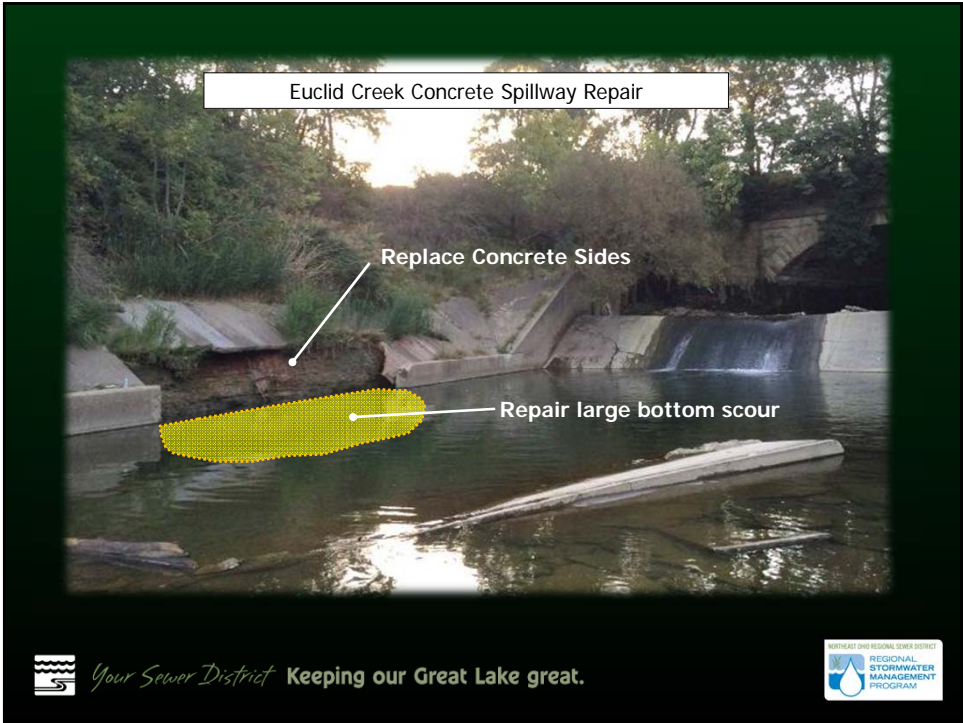


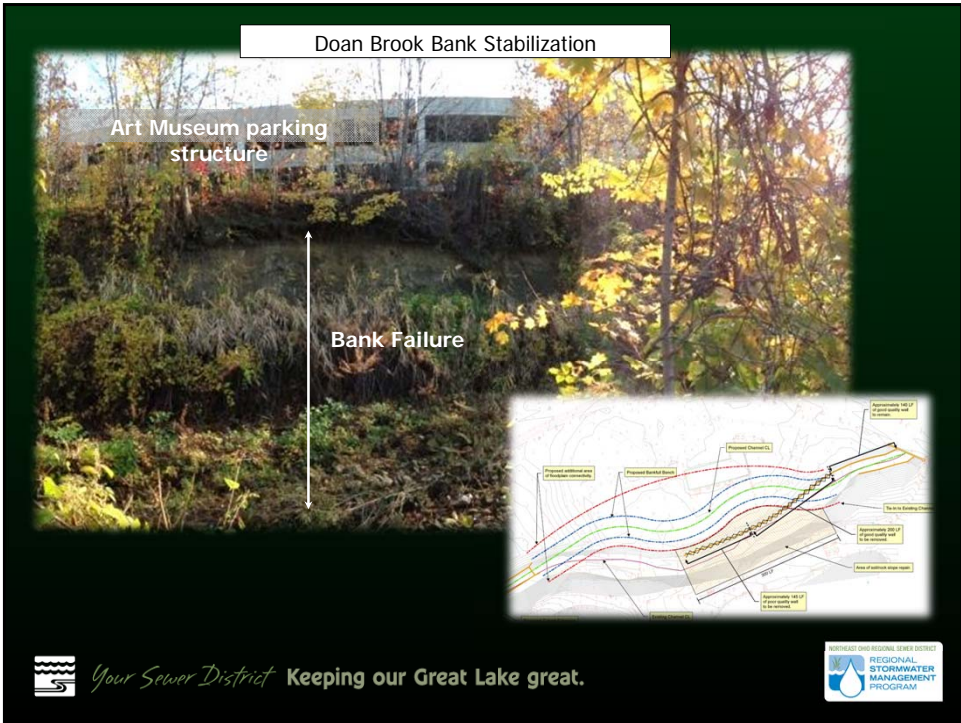
Stormwater Construction Plan Schedule



Stormwater Construction Plan







Baldwin Creek Bank Stabilization



The image is a composite. On the left is an aerial photograph of a residential neighborhood with a creek. A blue line traces the creek's path, with labels for 'Millerwood Ln' and '01300261'. On the right are two photographs: the top one shows a concrete structure under construction or repair near a creek, and the bottom one shows a completed bank stabilization with concrete steps and a yellow pipe.

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Stormwater Projects

- Project Coordination
 - Service Agreements
 - City Engineers
 - Community & Stakeholder Meetings



The background image shows a stream with water flowing over a bed of large, grey rocks. The surrounding area is a wooded area with trees showing autumn foliage in shades of orange, red, and green.

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What's Next...

- District staff in streams doing:
 - Inspections
 - Maintenance
- SWIM meetings with Service Directors
- Design and construction of projects

What's Next...

- Service Agreements
- Community Cost-Share applications
 - Available funds indicated on handout
- Plan review of submitted SW Management Plans

What's Next...

- Establishing contracts for Phase II Services
 - County Boards of Health
 - Soil and Water Conservation District
- Stormwater Master Plans:
 - Cuyahoga South – 1st Quarter 2016
 - Cuyahoga North – 3rd Quarter 2016

What's Next...

- WAC Meetings
 - Rocky River Watershed: February 1
 - Cuyahoga River – North: February 3
 - Lake Erie Direct Tributaries: February 8
 - Cuyahoga River – South: February 10
 - Chagrin River Watershed: February 17
- Next Round in October 2016
- Contact your Watershed Team Leader with Questions - information on handout



Questions

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Stormwater Program: Community Resources

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