Nonpoint Source Implementation Strategy (NPS-IS) Development in Northeast Ohio

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- **Comprehensive watershed planning for balanced growth**
- Direct landowner assistance
- Research and monitoring

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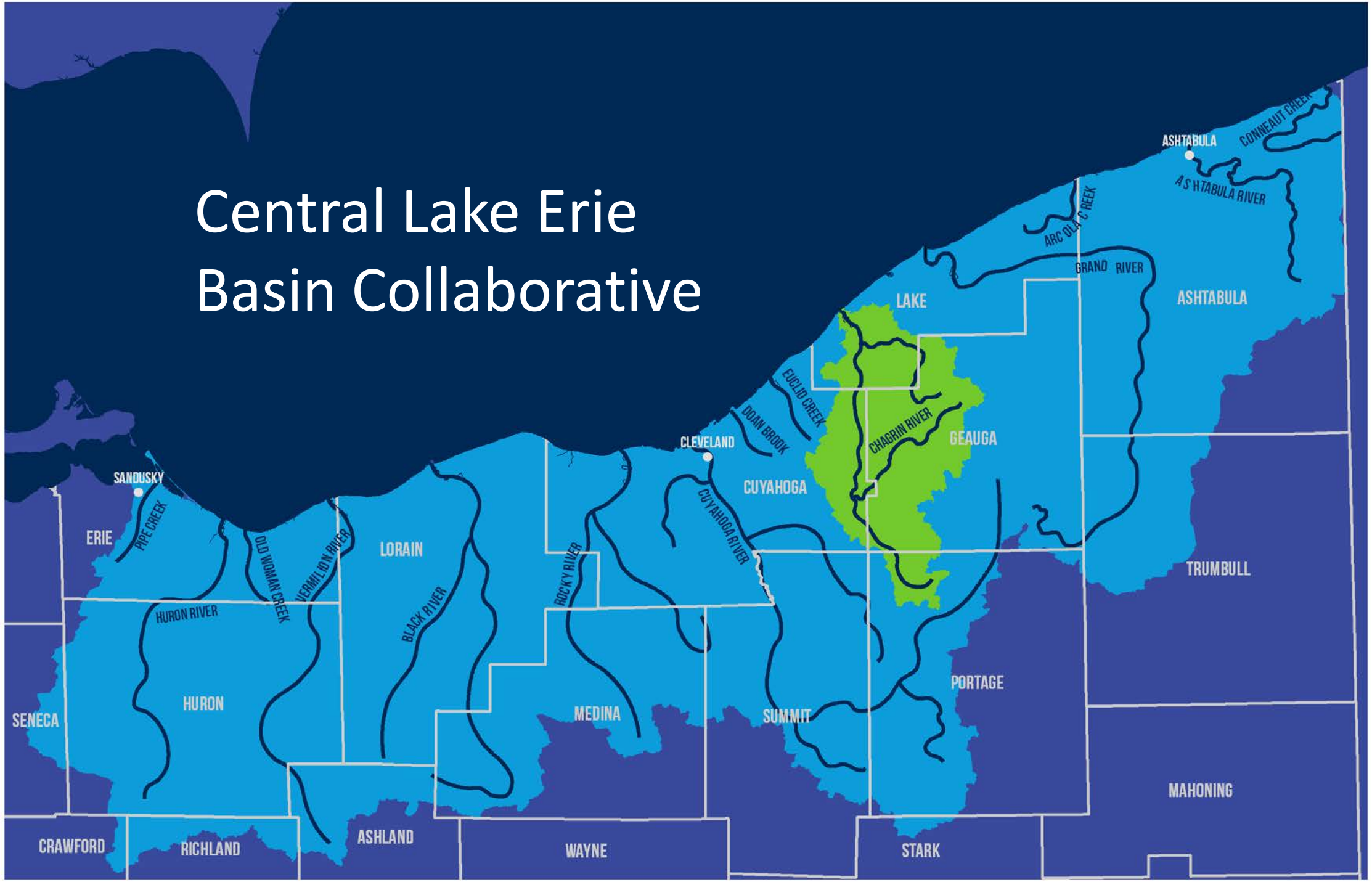
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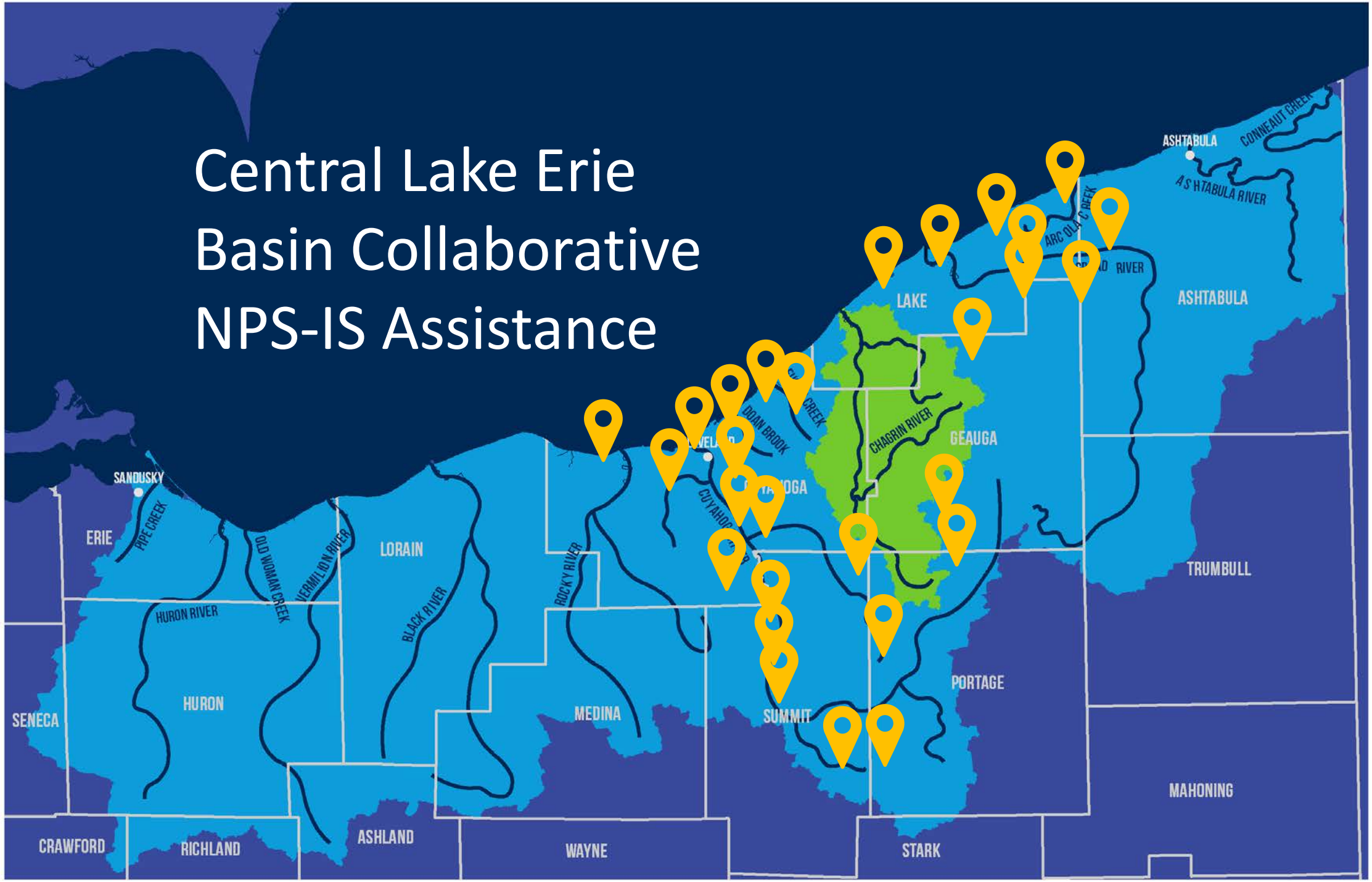
Central Lake Erie Basin Collaborative NPS-IS Assistance



Nonpoint Source Implementation Strategy Plans – what and why

- Required by Ohio EPA to maintain compliance with USEPA's 9-Element framework for watershed planning
- Eligibility for federal funding for restoration and protection projects (Ohio EPA Section 319, Great Lakes Restoration Initiative)

1 Chagrin River Watershed Action Plan →
7 HUC-12 level plans; 6 currently approved

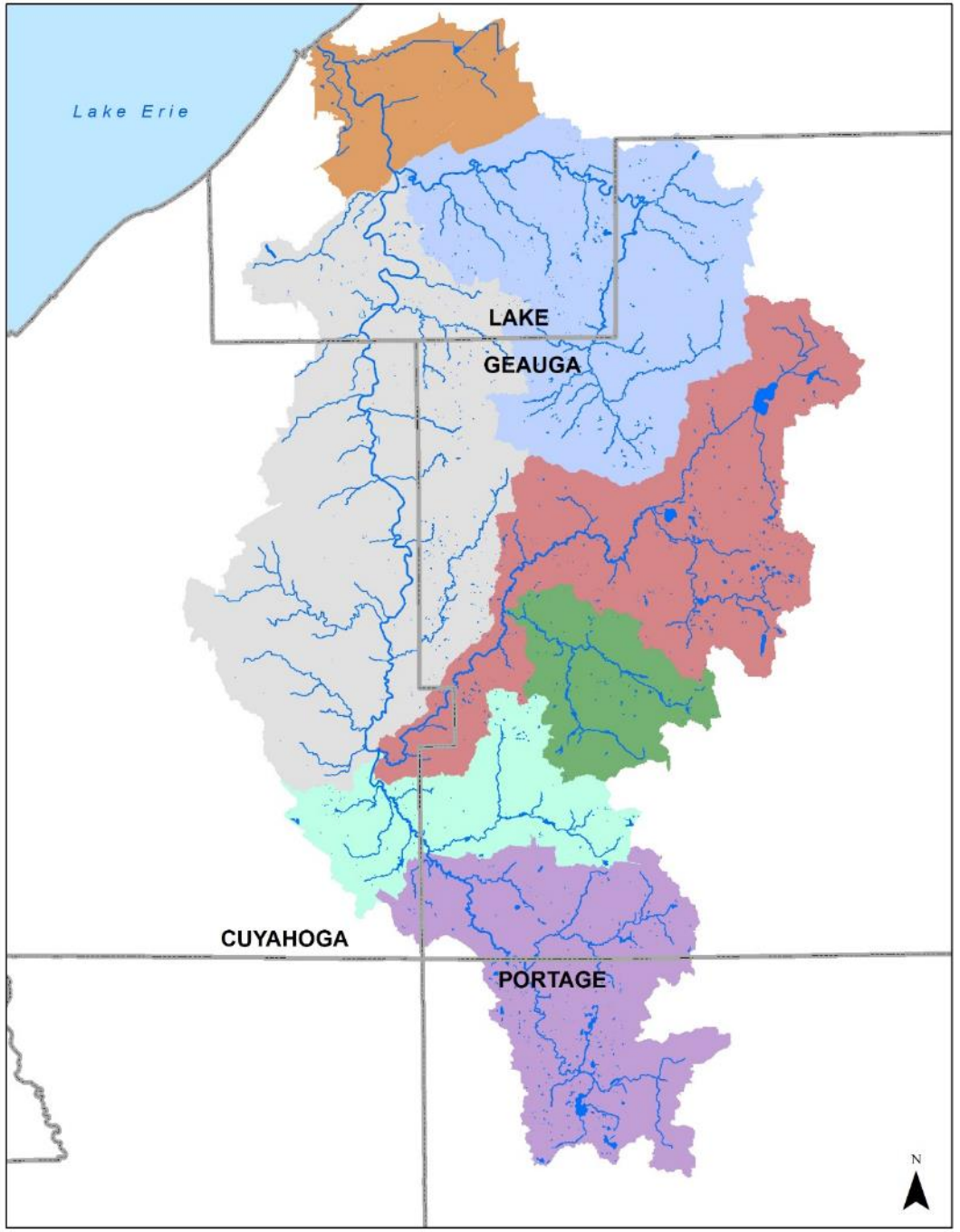


Table 1: Comparison of WAPs and NPS-IS Plan

	WATERSHED ACTION PLANS	NPS-IS PLAN
Geographic Scale	HUC-10 subdivided by HUC-12	HUC-12 with highlighted critical areas
Content Scope	Comprehensive and holistic	NPS specific – defined by documented impairments
Program Applicability	Primarily 319 - secondarily any other water restoration or protection program	Section 319 and GLRI
Purpose	Watershed integrity and ecosystem restoration and protection	Attain Ohio Water Quality Standards and implement TMDLs
Detail	Management Measures delineated with numeric targets and outcomes	Management Measures fully detailed with 9 elements – "grant proposal ready"
Decision Support	Emphasis on comprehensive watershed inventory	Focus on significant NPS issues with reference to documentation/data

NPS-IS plans are meant to append or complement Watershed Action Plans – NOT REPLACE

NPS-IS in Ohio Framework and Guidance

Ohio EPA NPS-IS Assistance Documents:

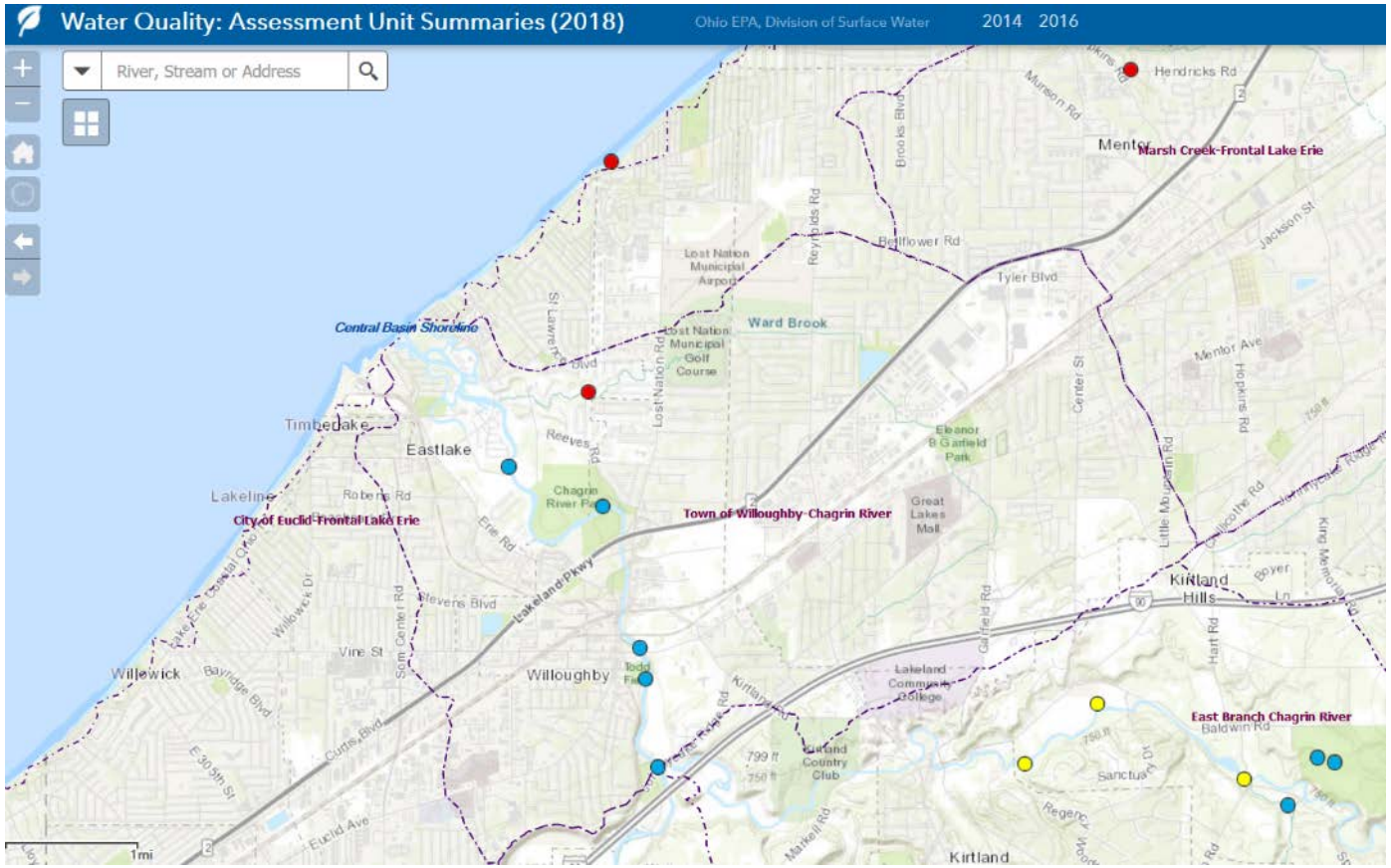
http://epa.ohio.gov/dsw/nps/index.aspx#120845160-9-element-nps-is

- Guide to Developing 9-Element Plans in Ohio, 2016
- Template NPS-IS (PDF and DOCX), 2016
- Ohio EPA Presentation on 9-Element Plans (2017, WMAO)
- Orgs with approved NPS-IS or equivalent plans

I. Overall Watershed Profile
II. HUC-12 Profile
    a. Characterization
    b. Biological Trends
    c. Nonpoint Source Pollution Causes & Sources
    d. Additional Supporting Information
III. HUC-12 Conditions & Restoration Strategies
    a. Critical Areas Overview
    b. Critical Area 1
    c. Critical Area 2...
IV. Projects & Implementation Strategy
    a. Overview Table(s)
    b. Project Sheets

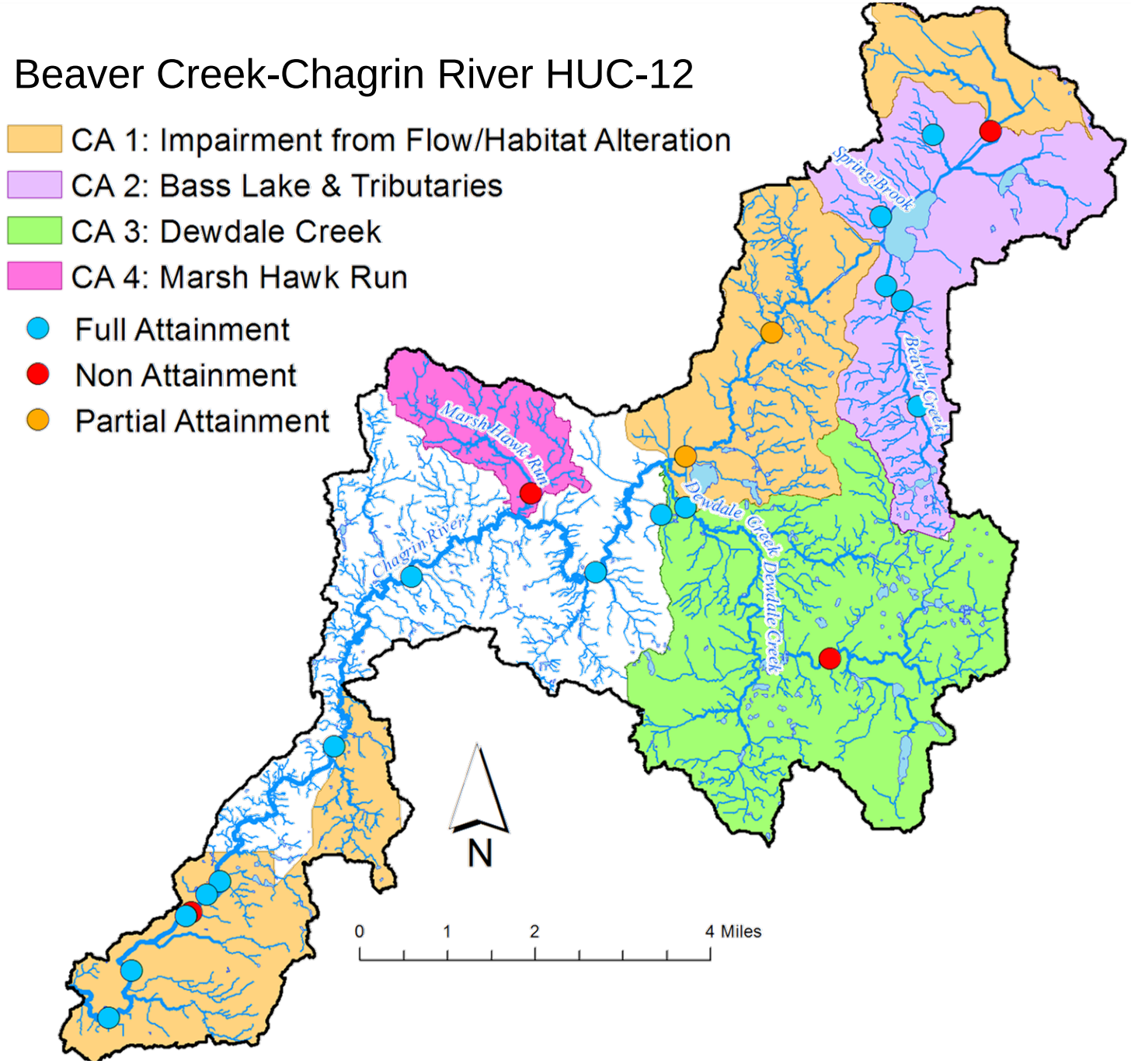
Sources of Data and Information

- Watershed Action Plans, Total Maximum Daily Load Reports, Technical Support Documents, etc.
- Ohio EPA Integrated Report (http://www.epa.ohio.gov/dsw/tmdl/ohiointegratedreport.aspx) – causes and sources of impairment
- Regional sewer districts, county Boards of Health
- Communities, SWCDs, park districts
- Field assessments
- Photo documentation of issues, public input, historical records

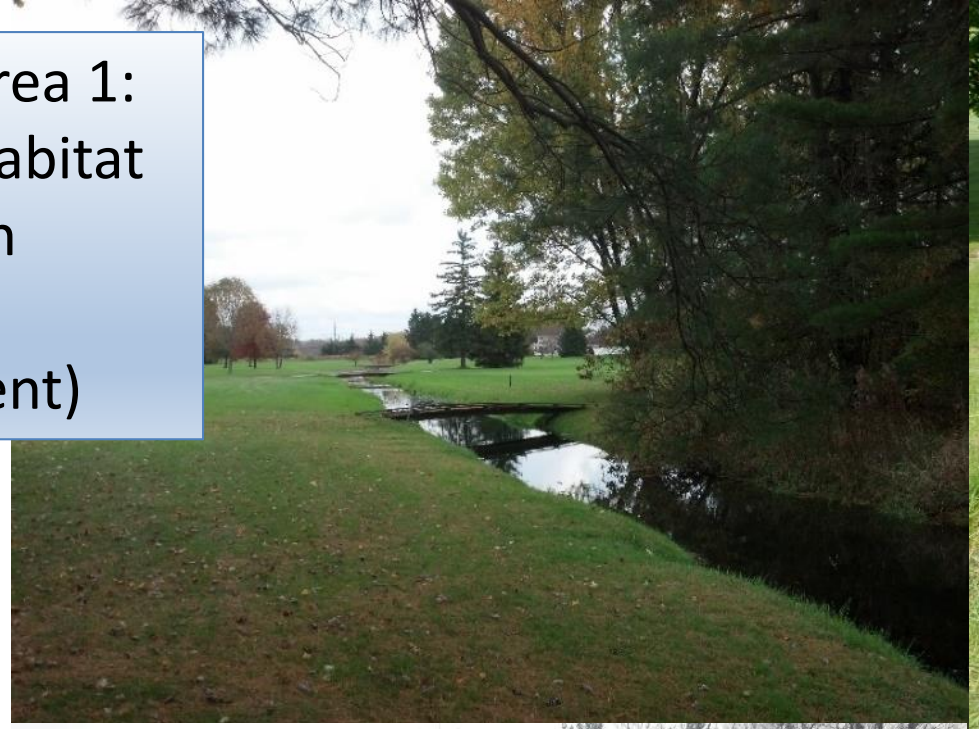


Critical Area Development

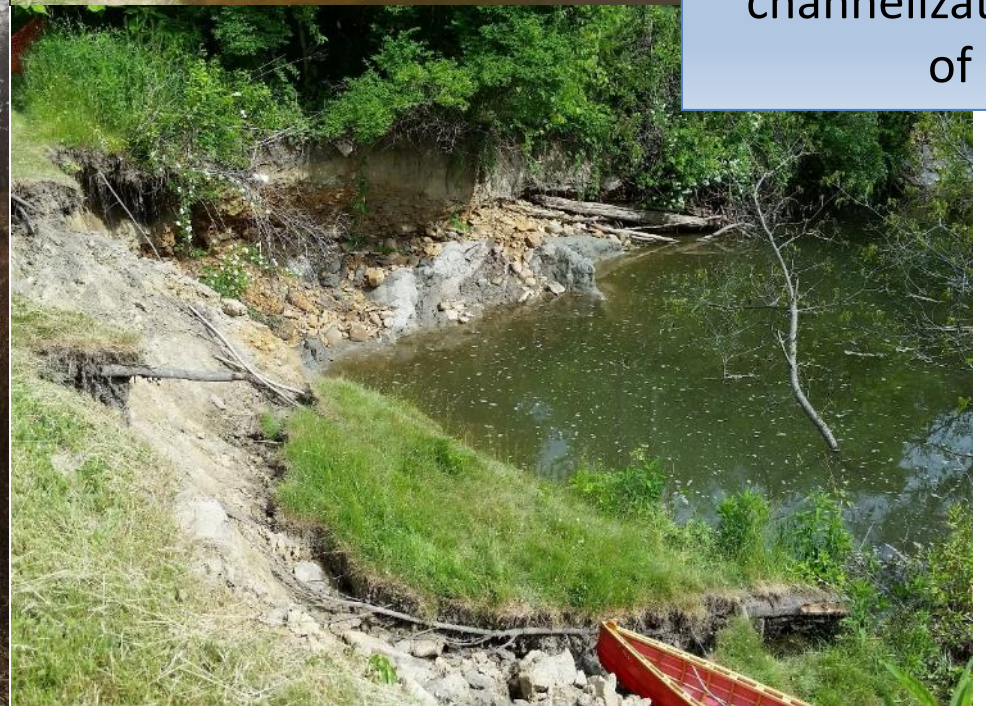
- Entire HUC-12 cannot be designated “critical”
- Example critical areas
  - Specific subwatershed in need of protection or restoration
  - Fish migration barriers
  - Flow and habitat alteration (cause)
  - Protection of riparian corridors
  - Severely eroding banks
- Proactive planning and investigations to determine where work is needed
- Future-proof as much as feasible



Critical Area 1: Flow & Habitat Alteration (cause of impairment)



Hydromodification, stormwater/urban runoff, loss of riparian habitat/wetlands, channelization (sources of impairment)



Setting up Goals and Objectives

Beaver Creek-Chagrin River HUC-12
Critical Area 1: Impairment from Flow/Habitat Alteration

GOAL: Achieve/maintain Aquatic Life Use attainment

- Primary: IBI, MIwb, ICI, QHEI metrics
- Other metrics: Bank Erosion Hazard Index (BEHI), Headwater Habitat Evaluation Index (HHEI), coldwater habitat species assemblages, Ohio Rapid Assessment Method (ORAM)
- Goals should relate to HUC-12 only, rather than basin-wide goals

OBJECTIVES: Activities to achieve goals

- Restoring impaired areas
- Protecting high-quality areas
- Only address nonpoint source pollution

IBI: Index of Biotic Integrity (fish)

MIwb: Modified Index of well-being (fish)

ICI: Invertebrate Community Index (bugs)

QHEI: Qualitative Habitat Evaluation Index (physical habitat)

Goal 1: Achieve IBI score of 40 at Woodiebrook Road sampling site (RM 49.15)

- NOT ACHIEVED: Site currently has a score of 26 (Poor)

Goal 2: Achieve ICI score of 34 (Good) at Woodiebrook Road sampling site (RM 49.15)

- NOT ACHIEVED: Site currently has a narrative of Poor (<14)

Goal 3: Achieve QHEI score of 55 at Woodiebrook Road sampling site (RM 49.15)

- NOT ACHIEVED: Site currently has a score of 23

Goal 4: Achieve IBI score of 40 at Fowler's Mill Road sampling point (RM 45.3)

- NOT ACHIEVED: Site currently has a score of 32 (Fair)

Goal 5: Achieve ICI score of 34 (Good) at Fowler's Mill Road sampling point (RM 45.3)

- ACHIEVED: Site currently has a narrative of Good (34-47)

Goal 6: Achieve QHEI score of 55 at Fowler's Mill Road sampling point (RM 45.3)

- ACHIEVED: Site currently has a QHEI of 82.5

Goal 7: Achieve IBI score of 40 at Rockhaven Road sampling site (RM 42.74)

- NOT ACHIEVED: Site currently has score of 30 (Fair)

Goal 8: Achieve ICI score of 34 at Rockhaven Road sampling site (RM 42.74)

- ACHIEVED: Site currently has a narrative of Good (34-47)

Goal 9: Achieve QHEI of 55 at Rockhaven Road sampling site (RM 42.74)

- ACHIEVED: Site currently has score of 58

Goal 10: Achieve BEHI score of Low (10-19.5) downstream of Miles Road sampling site (RM 28.96) at RM 28.5

- NOT ACHIEVED: Site currently has score of 63.1 (Extreme)

Tie goals to water quality metrics, ideally directly to non-attaining or partially-attaining sampling points as noted in Ohio EPA Integrated Report.

Table 8: BEHI Narrative Ratings

Narrative rating	BEHI range
Very Low	5-9.5
Low	10-19.5
Moderate	20-29.5
High	30-39.5
Very High	40-45
Extreme	46-50

Objectives

Objective 1: Restore severely eroding sections of streambank in Critical Area 1.

- Restore 500 or more linear feet of eroding streambank within Critical Area 1.

Objective 2: Restore channelized sections of the Chagrin and its tributaries, using natural channel design features and principles.

- Restore 4,500 linear feet of channelized stream within the critical area.

Objective 3: Establish forested riparian buffer along impacted or barren stretches of the Chagrin River and its tributaries in Critical Area 1.

- Revegetation of at least 100 acres of riparian area along the Chagrin and its tributaries in Critical Area 1.

Objective 4: Reduce urban runoff from impervious surface in Chagrin Falls Village, the City of Chardon, and/or South Russell Village through impervious surface reduction and infiltrative green infrastructure practices.

- Mitigate 113.6 acres of impervious surface within the critical area.

Objectives should be quantifiable and address identified strategies in the Ohio EPA Nonpoint Source Management Plan Update (Ohio EPA, 2013). http://www.epa.ohio.gov/portals/35/nps/nps_mgmt_plan.pdf

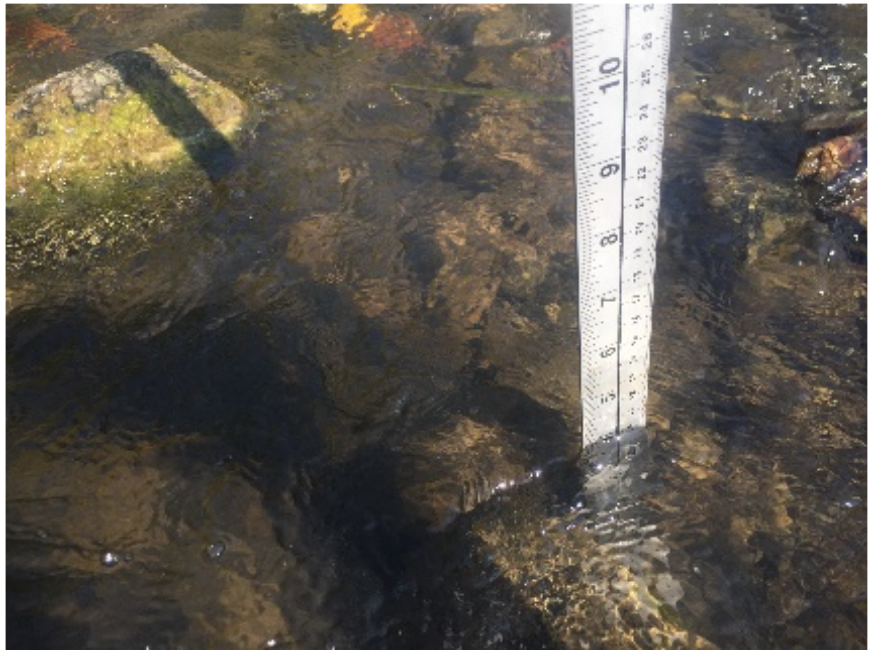
Identifying/Developing Eligible Projects

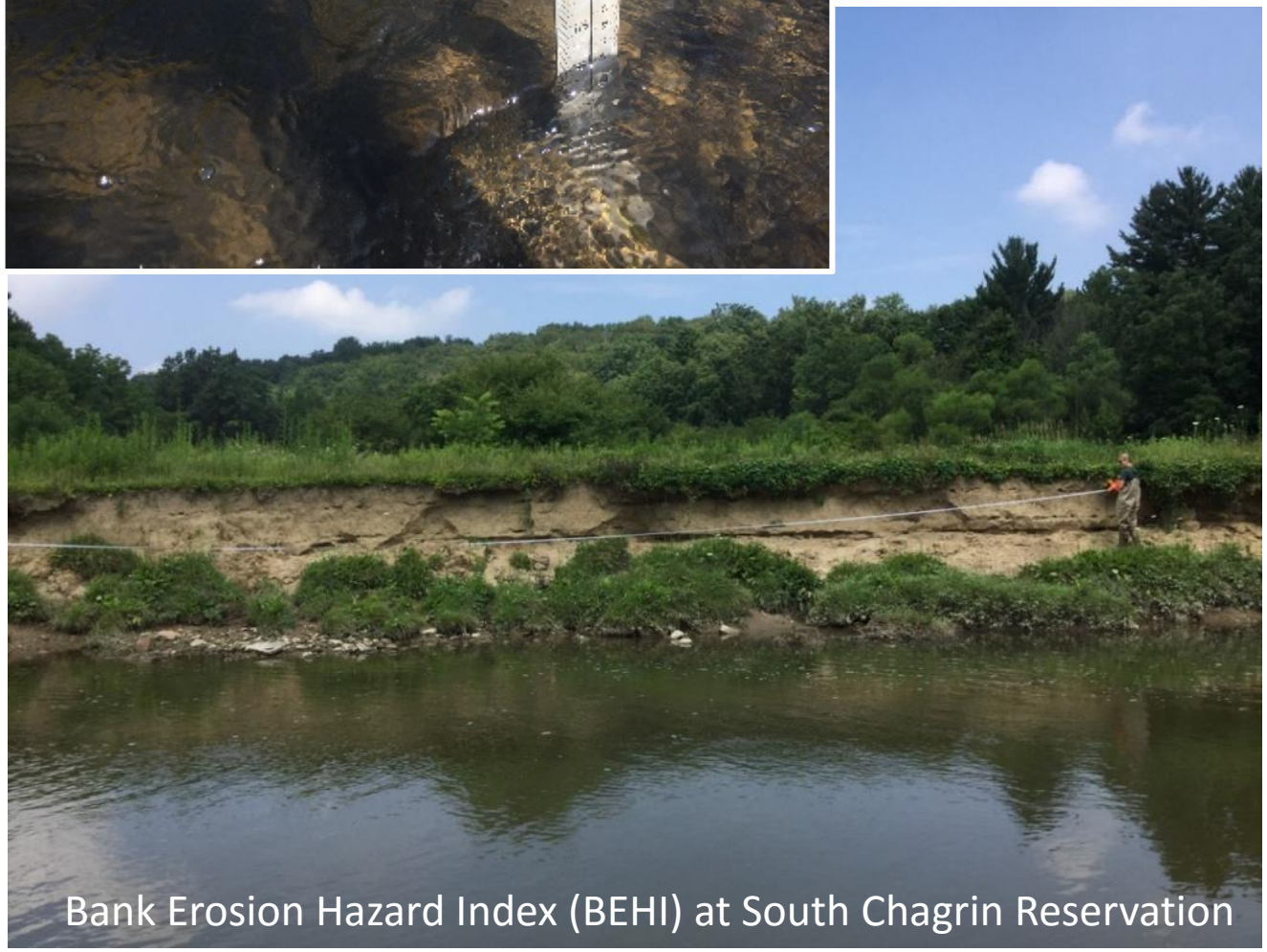
- Projects must address specific NPS-IS objectives (#LF stream, acres wetland, etc.) and reduce NPS pollution (load reductions)
- All Ohio EPA 319 projects require baseline QHEI or ORAM
  - BEHI and other metrics/data may help more fully tell story
- Project approach tied to sources and causes of impairment
- Proactively add projects far ahead of grant deadlines- communicate early and often!

Griswold Creek at Bessie Benner Metzenbaum Park

On-Going Plan Stewardship

- Identifying new critical areas
- Re-assessing established critical areas
- Site visits and field assessments
- Adding new projects
- Re-evaluation of objective quantities as implementation occurs





Bank Erosion Hazard Index (BEHI) at South Chagrin Reservation

Summary of Lessons Learned

- Collaborate with key stakeholders to obtain input
- Proactively plan critical areas where work is most needed
- Add projects within critical areas far before grant deadlines
- Have conversations with Ohio EPA at key stages
- Obtain quality habitat data, photos, and other supporting evidence where biological data is not directly available

Bank erosion near Chagrin Falls WWTP prior to Ohio EPA 319 project

Thank you!
Any Questions?

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