

Ohio's 9-Element Nonpoint Source Implementation Plans



Rick Wilson, Ohio EPA—Division of Surface Water

EPA's 2013 NPS Program Guidance

“...a strong emphasis on taking a watershed-based approach to restore impaired waters”

In early 2016, with direction from U.S. EPA Region 5, Ohio moved beyond the Watershed Action Planning (WAP) framework—that had stagnated. These new strategic plans are now focused on the water quality problems:

- What's impaired; What needs to be done; and What can be done at the HUC-12 scale
- Required for funding — §319 & Great Lakes Restoration Initiative (GLRI)

EPA's 2013 NPS Program Guidance

Watershed-based Planning

“...planning at the watershed (HUC-12) scale is needed to provide a comprehensive analysis and approach to...”

- Identify causes and sources of pollution;
 - Develop critical areas;
 - Establish water quality goals; and
- Establish strategic quantitative objectives

What are the 9-Elements

Criteria	US EPA Definition
a	Identify the causes and sources of pollution that need to be controlled
b	<u>Determine load reductions needed</u> ...and Biological Metrics
c	Describe management measures to <u>achieve improvements</u> in targeted <u>critical areas</u>
d	Identify <u>technical and financial assistance and authorities</u> needed to implement the plan
e	Develop an information/ education component
f	Develop <u>implementation schedule</u>
g	Describe the <u>interim, measureable milestones</u>
h	Identify indicators to measure progress
i	Develop monitoring component.

*

Ohio's 9-Element Process—Keeping it Simple



9-Element Plan

Chapter 1

- Introduction
 - Report Background
 - Watershed Profile and History
 - Public Participation and Involvement



Who was involved, describe public meetings, and outreach efforts. This is especially important for project development and buy-in

9-Element Plan

Chapter 2

- Watershed Characterization
- Monitoring/Modeling Assessment Summary (HUC-12-scale)
 - Biological Trends
 - *Loading Assessment* →
 - Causes and Sources of Impairment
 - Near-field and far-field
 - Aquatic life use, recreational use, drinking water use

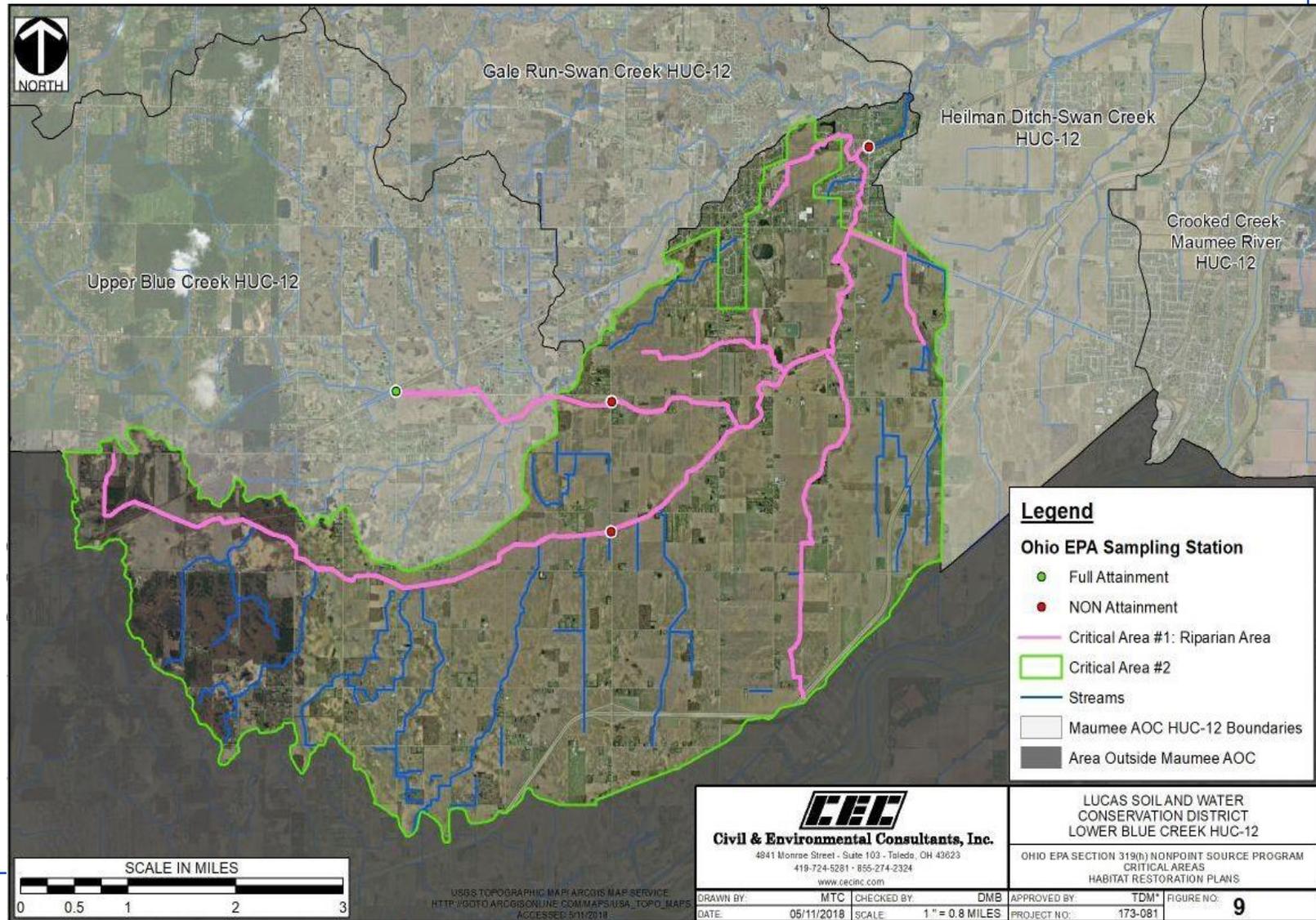
HUC-12 Baseline annual load	Source
	Agricultural Load (NPS) — #/year
	Urban (NPS) — #/year
	Natural (NPS) — #/year
	Home Sewage Treatment Systems/Unsewered (NPS) — #/year
	Treatment Plants (Point Source) — #/year
	Total Baseline P-Load (#/year)

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Chapter 3-Critical Areas

Provides maps and overviews of Critical Areas addressing both near-field and far-field WQ impairment

Example HUC-12 critical area map for Lower Blue Creek →



Near-Field Impairment

- **Near Field:** localized impairment at HUC-12 watershed scale is related to:
 - Aquatic Biometric Assessments that don't meet water quality threshold metrics:
 - altered hydrology (NPS), channelization, absence of riparian habitat (NPS), sedimentation (NPS and PS); or
 - Chemical Loading:
 - Low-flow (i.e., non-runoff) Point Source-related loading and is addressed through NPDES permitting

Far-Field impaired waters

- Far Field

- Impairment that is downstream from multiple* HUC-12 scale watershed units; and

- Usually involves important water resources including:

- Lake Erie,
 - Gulf of Mexico, and
 - other inland reservoirs and lakes

Far Field Impairment:

Almost always related to annual and/or seasonal nutrient loading from both Nonpoint and Point sources:

- Point Sources:

- Involves regulatory permitting of dischargers (NPDES)

- Nonpoint Sources:

- Involves strategic implementation of voluntary measures to address land-use related impairment:

- Examples include: Strategies for row crop agriculture, urban impervious surfaces, AFOs, and unsewered homes/communities

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Chapter 3-Goals

- Outline of Measurable Goals
 - Usually to attain or maintain aquatic life use (ALU) designation by meeting threshold water quality **index values**
 - Also should focus on attaining or maintaining Public Drinking Water and/or Recreational use designations in *far field* locations
 - Especially in downstream lakes and reservoirs that are impaired by algae and **where nutrient (e.g., phosphorus) load reductions** are needed to remove impairment.

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Chapter 3-Objectives

- Outline of Quantifiable Objectives
 - What are the **technical solutions**?
 - What are the activities, management practices, administrative measures?; and
 - How many of each can be reasonably accomplished in the near term?

****Using an adaptive management approach****

Objectives:

Quantifiable — What can be accomplished in near term so that **incremental progress toward water quality goal(s)** will occur.

Examples:

- Restore at least 500 feet of severely eroded streambank near RM 1.5
- Develop conservation plans for all (12,000 acres) cropland and farmstead *
- Install drainage water controls and implement drainage water management on at least 500 acres of subsurface drainage
- Install practices that impound or retain surface drainage water from at least 500 acres cropland including: wetlands, conservation basins, WASCOBs, infiltration areas, saturated buffers, others

ADAPTIVE

More Example Objectives-Agricultural:

- Install or rehabilitate 5000 linear feet of grassed waterways
- Plant 100 acres of wooded riparian buffer between river mile 1.0 and 5.0 of Shadeless Creek
- Enroll at least 200 new acres into the USDA-Conservation Reserve Program prioritizing outreach toward lands containing critical areas where water quality BMPs (e.g., effective hydraulic buffers) can be installed.
- Eliminate discharges of manure or runoff-containing manure from at least five (5) Animal Feeding Operations as identified in the Conservation Planning process.
- 1000 new acres adopting long term conservation crop rotation that includes cover crops

ADAPTIVE

The Nonpoint Source Implementation Strategy Template

FINAL Template with Descriptions for Ohio's Nonpoint Source Pollution Implementation Strategies (NPS-IS) *(Ohio's Nine-Element Plans)*

Overall this document should be written in concise yet detailed manner using paragraphs, not pages, to convey information. When possible, it is preferred that information be incorporated into this document by reference with a brief explanation, rather than writing all details in this document. In Ohio, the NPS-IS is meant to closely align with Ohio's Nonpoint Source Management Plan Update (FY2014 to FY2018). When creating a NPS-IS in Ohio, this NPS Update should be utilized and referenced. It is recommended that this NPS-IS be written for a single HUC-12.

<https://www.epa.state.oh.us/dsw/nps/index>

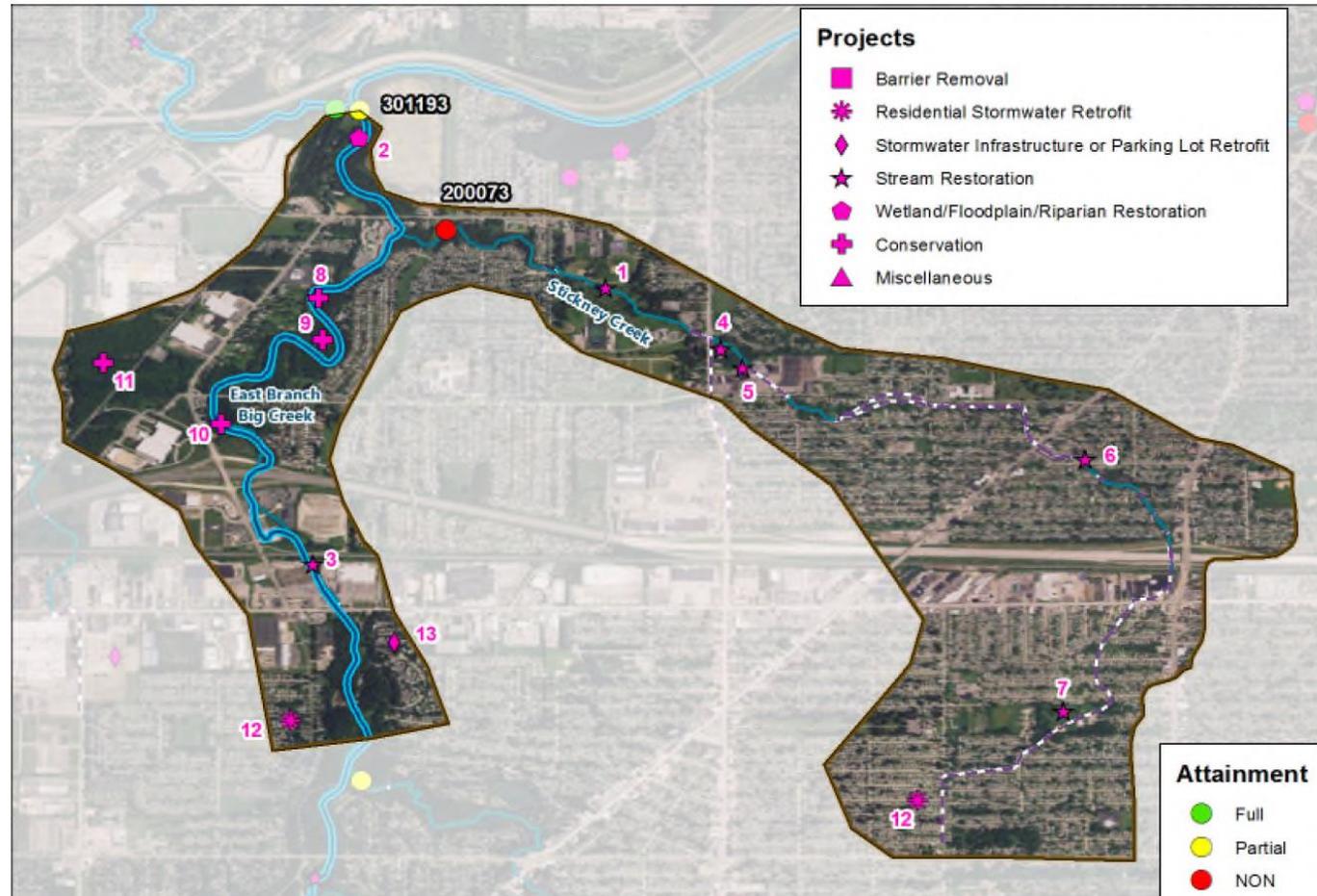
Ohio's NPS program 9-Element Planning assistance page
Template is available as a pdf or Word (docx) file

Project Overview Table Example

Table 24. Critical Area #3: Overview table for Lower East Branch and Stickney Creek

Goal	Objective	Project	Project title	Lead organization (criteria d)	Timeframe (criteria f)	Estimated cost (criteria d)	Potential/actual funding sources (criteria d)
Urban sediment and nutrient reduction strategies							
<i>none identified (yet)</i>							
Altered stream and habitat restoration strategies							
4, 5	3	1	Ridge Road (Stickney Creek) Bank Stabilization and Utility Repair (asset ST00209; project SWC2016-003)	NEORS	Medium	\$1,000,000	NEORS (funded)
1, 2	3	2	Cleveland Metroparks Memphis Picnic Area Floodplain Reconnection	BCC, CM	Medium	TBD	Ohio EPA §319, CM, GLRI
1, 2	3	3	Sam's Club Stream Channel Restoration and Bridge Replacement to Reduce Flooding	BCC, TBD	Medium-Long	TBD	TBD
4, 5	3	4	Stickney Creek Restoration at Brooklyn City Center	BCC, Brooklyn	Short	\$300,000	Ohio EPA §319, GLRI
4, 5	2, 3	5	Biddulph Plaza Stream Daylighting	BCC, NEORS	Long	TBD	TBD
4, 5	2, 3	6	Old Brooklyn Stream Daylighting and Restoration	BCC, Cleveland, WCC	Long	TBD	GLRI
4, 5	2, 3	7	Walters Grove Stream Daylighting and Restoration	BCC, Parma, WCC	Long	TBD	GLRI
Agricultural nonpoint source reduction strategies							
<i>not applicable</i>							
High quality waters protection strategies							
1, 2	3, 4	8	Floodplain Conservation and Restoration of	BCC, WCC	Medium	TBD	TBD

Example: Potential Project Location map



Progress:
Estimated
Load reduction

Critical Area 3: Project 4		
Nine Element Criteria	Information Needed	Explanation
<i>n/a</i>	Title	Stickney Creek Restoration at Brooklyn City Center (also known as Memorial Park Floodplain Connectivity and Bank Stabilization)
<i>criterion d</i>	Project Lead Organization and Partners	BCC, Brooklyn
<i>criterion c</i>	HUC-12 & Critical Area	<i>Big Creek</i> (HUC 04110002 06 04) & <i>East Branch and Stickney Creek</i>
<i>criterion c</i>	Project Location	7619 Memphis Ave, Brooklyn, OH 44144 (owned by Brooklyn)
<i>n/a</i>	Which strategy is being addressed by this project?	Altered Stream and Habitat Restoration Strategy
<i>criterion f</i>	Time Frame	Short
<i>criterion g</i>	Short Description	Floodplain reconnection and bank stabilization along Stickney Creek
<i>criterion g</i>	Project Narrative	Stormwater from intense precipitation events is contributing to rapid bank incision that now threatens park infrastructure. The riparian zone will be expanded from 5-foot wide and 3.5-foot bank height to 10- to 20-foot wide. Failing gabion walls will be reconfigures/repared or removed. The project will expand on a recently completed project upstream on Stickney Creek that is stabilizing streambanks and reconnecting the floodplain.
<i>criterion d</i>	Estimated Total Cost	\$200,000 to \$300,000
<i>criterion d</i>	Possible Funding Source	Ohio EPA §319, GLRI
<i>criterion a</i>	Identified Causes and Sources	Cause: Flow regime alteration, Habitat alteration Source: Urban runoff/storm sewers, Loss of riparian habitat
Criteria b & h	Part 1: How much improvement is needed to remove the NPS impairment associated with this Critical Area?	Significant improvement is necessary for the IBI score of 30 to be increased to 40. Minimal improvement is necessary for the ICI score of <i>marginally good</i> to be increased to 34 (or <i>good</i>) to meet water quality standards.
	Part 2: How much of the needed improvement for the whole Critical Area is estimated to be accomplished by this project?	This project will achieve about 50% of Objective 3 (about 500 feet of the 1,000 foot objective) but will not address Objective 1, Objective 2, or Objective 4.
	Part 3: Load reduced?	The stream restoration should increase the IBI and ICI by several points. Annual load reduction: 8.6 tons/year TSS.
<i>criterion i</i>	How will the effectiveness of this project in addressing the NPS impairment be measured?	IBI, ICI, and QHEI will be assessed before and after project implementation. If this project is funded through §319, Ohio EPA DSW EAU will perform the monitoring. NEORSD is another potential entity that can perform the monitoring.
<i>criterion e</i>	Information and Education	Signage will be installed at the project site. BCC will discuss the project in its newsletters and post about the project on its website. BCC will work with Brooklyn to use this site as a "working classroom" for the city schools.

A Project Summary Sheet (PSS) must be provided for each short-term project

Medium and Long-term projects are not presented in PSSs since they are not yet ready for implementation

Where are US EPA's Nine Elements found in Ohio's NPS-IS?

Criteria	US EPA Definition	Location in the Ohio NPS-IS Template
a	Identify the causes and sources of pollution that need to be controlled	3.2.3, 3.3.3 ... etc. 4.2
b	<u>Determine load reductions needed</u> ...and Biological Metrics	3.2.4, 3.2.4 ... etc. 4.2
c	Describe management measures to achieve improvements in targeted critical areas	3.2.4, 3.2.4 ... etc. 4.2
d	Identify technical and financial assistance and authorities needed to implement the plan	4.1, 4.2
e	Develop an information/ education component	4.2
f	Develop implementation schedule	4.1, 4.2
g	Describe the <u>interim, measureable milestones</u>	4.2
h	Identify indicators to measure progress	4.2
i	Develop monitoring component.	4.2

Critical Areas
Goals
Objectives

Projects &
Project
Bookshelf

9-Element Plan review

- All plans (new and updated) go to Ohio EPA for State review—OEPA, ODA-DSWC and sometimes Lake Erie Commission.
- When determined to be complete, the plans are currently sent to U.S. EPA Region 5 for final approval.*
- The 9-Element Plan's cover is marked with Approval Date, and the plan is posted on Ohio EPA's Nonpoint Source Program website.
 - A clickable map of approved 9-Element plans is in the works

**Ai Creek HUC-12
Habitat Restoration Plan (HRP) and
Nonpoint Source Implementation
Strategic Plan (NPS-IS plan)**



Prepared for:
Lucas Soil and Water Conservation District

Prepared by:
Civil & Environmental Consultants, Inc.
Toledo, Ohio

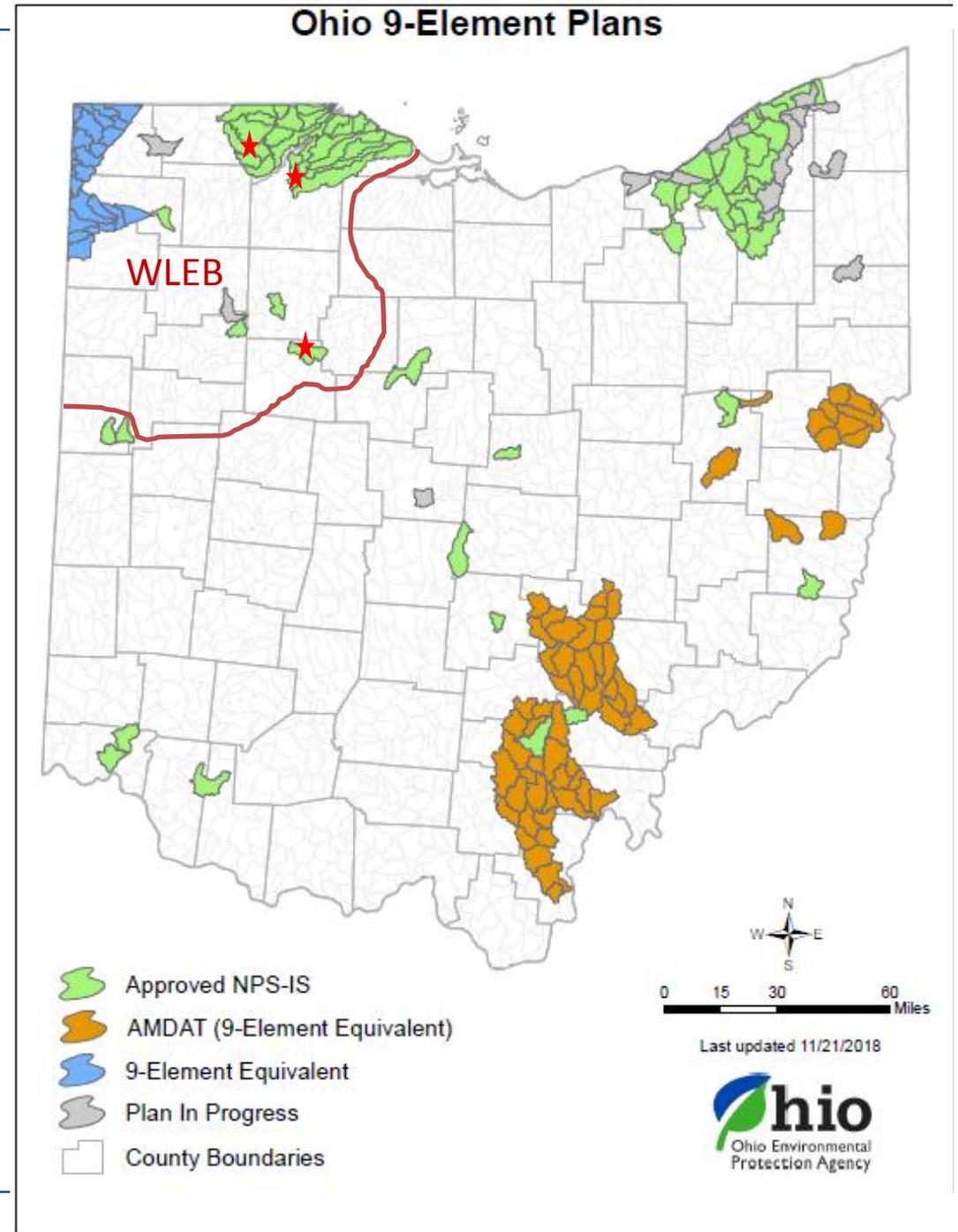
Version 1.0: March 2018
Approved: July 20, 2018

9-Element Planning Status

Approved 9-Element Plans	62
Equivalent Plans (w/ Indiana)	25
Acid Mine Drainage (AMDAT) plans	62
Plans-in-Progress	17
As of December 11, 2018	

*** Note: there are already some *Approved or Equivalent* plans in the *Western Lake Erie Basin (WLEB)****

- There are a lot more 9-element plans that need to be developed; and
- Those already-approved and equivalent plans need to be updated consistent with new far-field targets



Ohio's 9-Element NPS Implementation plan...

- is an effective, integrated approach to address the diverse realities and needs of each watershed – HUC-12 scale;
- allows for project eligibility and funding;
- establishes goals, objectives, projects, and timelines; and
- is the tool Ohio EPA is relying upon to implement nonpoint source strategies in the Western Lake Erie Basin
 - *A project that will create a process to allow for better tracking and reporting of NPS-IS project implementation is in the works*

