Center for Watershed Protection

Chesapeake Conservancy
EXPLORE. CONSERVE. INNOVATE.

Sea Grant
Maryland

Harry R. Hughes Center for
AGRO-ECOLOGY, INC.

Chesapeake Bay Program
Science. Restoration. Partnership.

Activity 1 Team

Key Team Members

CWP: Bryan Seipp (PM), Bill Stack (QC), Sara Ryan, Mike Hickman, Lisa Fraley-McNeal, Chris Swann, Neely Law, PhD., Deb Caraco, PE

Chesapeake Conservancy: Carly Dean (PM), Katie Walker, Jeff Allenby, Susan Minnemeyer

University of Maryland SeaGrant: Eric Buehl, Kelsey Brooks

Harry R. Hughes Center for Agro-Ecology: Nancy Nunn

Schedule (Simplified)

- **Monthly Steering Committee Meetings**
- **September**: Determine List of Priority Practices/Watersheds
- **October-**: Outreach Phase 1
- **October-December**: Develop Targeting Methodology and Conduct BMP Analysis
- **December-April**: CAST Scenario Development
- **January- March**: Development of CWIP Draft
- **March-May:** Outreach Phase 2
- **March-June:** Development of final CWIP

Task 1: Assistance to Conowingo WIP Steering Committee

1.1 Monthly Steering Committee Meetings

Public briefing reports. These reports will include key findings, actions and decisions of the Steering Committee, and upcoming events and deadlines.

1.2 Develop CAST Scenarios

Utilizing input from the Steering Committee, other state agency staff, and local stakeholders.

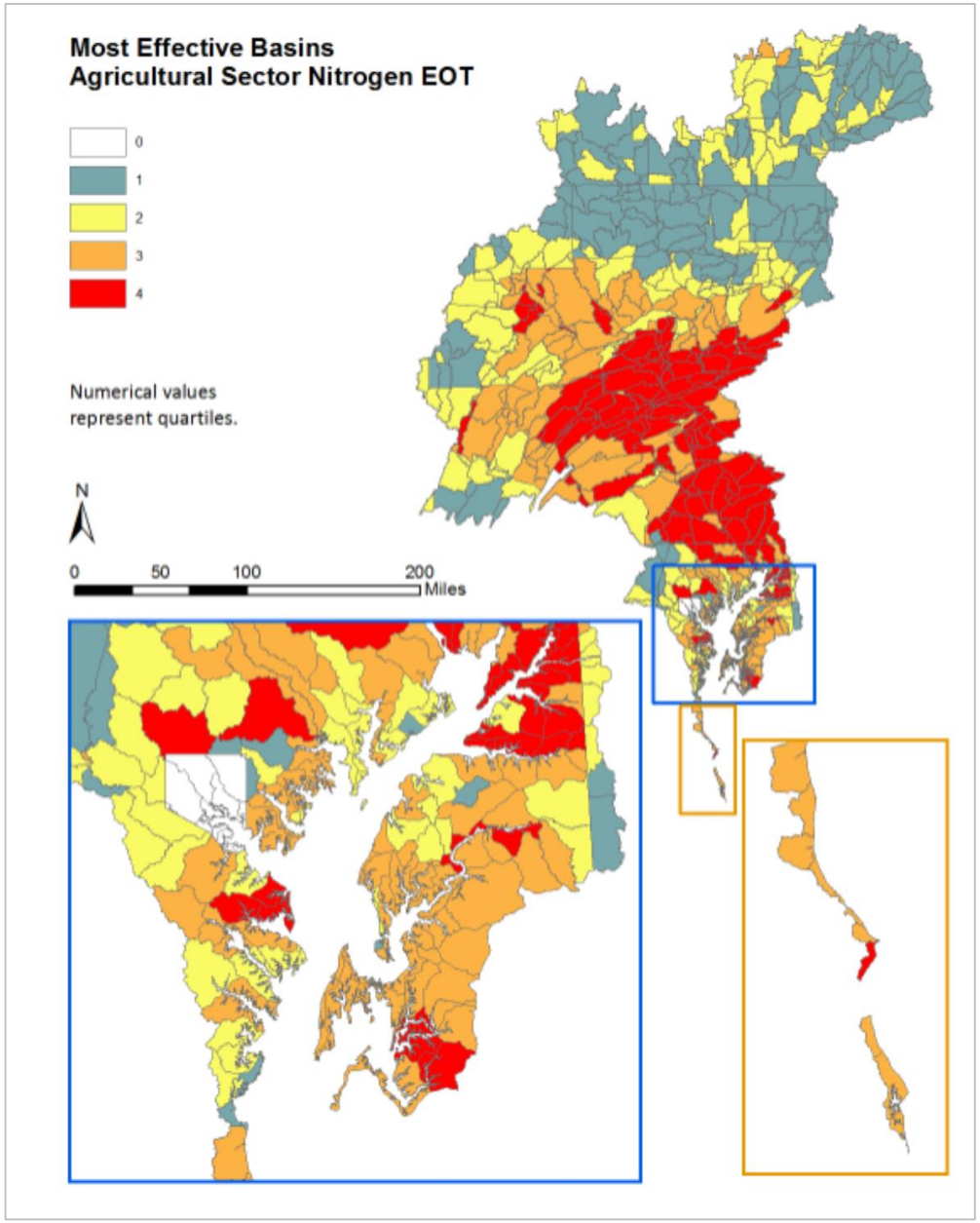
1.3 Develop Draft and Final Conowingo WIP Documents

WIP development will be guided by and consistent with the *2014 Watershed Agreement*, the *2010 TMDL*, and the *Phase III WIP Expectations Document*.

Task 2: Develop Two-Year Milestones

Task 2.1- Develop Draft Initial Two-Year Milestones

- Develop draft milestones, facilitate the review/comment process for draft milestones, estimate the cost associated with the milestones using CAST, and revise and submit the final milestones.



Tetra Tech Transition

- July 12, 2019 Memorandum
- State Interviews
- CAST Data Analysis and Results
- Ranking of LRS
- Maps

Task 3: Target Effective Practices to Reduce Pollutant Loading

Overview of Year 1 Activities:

- The Project Team will develop methods for identifying potential locations for BMP implementation, focusing on the most effective and mappable practices across the priority basins.
- Cost-effectiveness will be calculated as the cost per pound of nitrogen and phosphorus reduced and these metrics will be derived using information from CAST. Only BMPs that are CBP-partnership approved will be considered.
- The Project Team will identify opportunities for BMP implementation for up to 5 mappable practices in a subset of geographies as identified by the CWIP Steering Committee.

Develop list of priority BMPs & targeting methodology - August thru September 2019

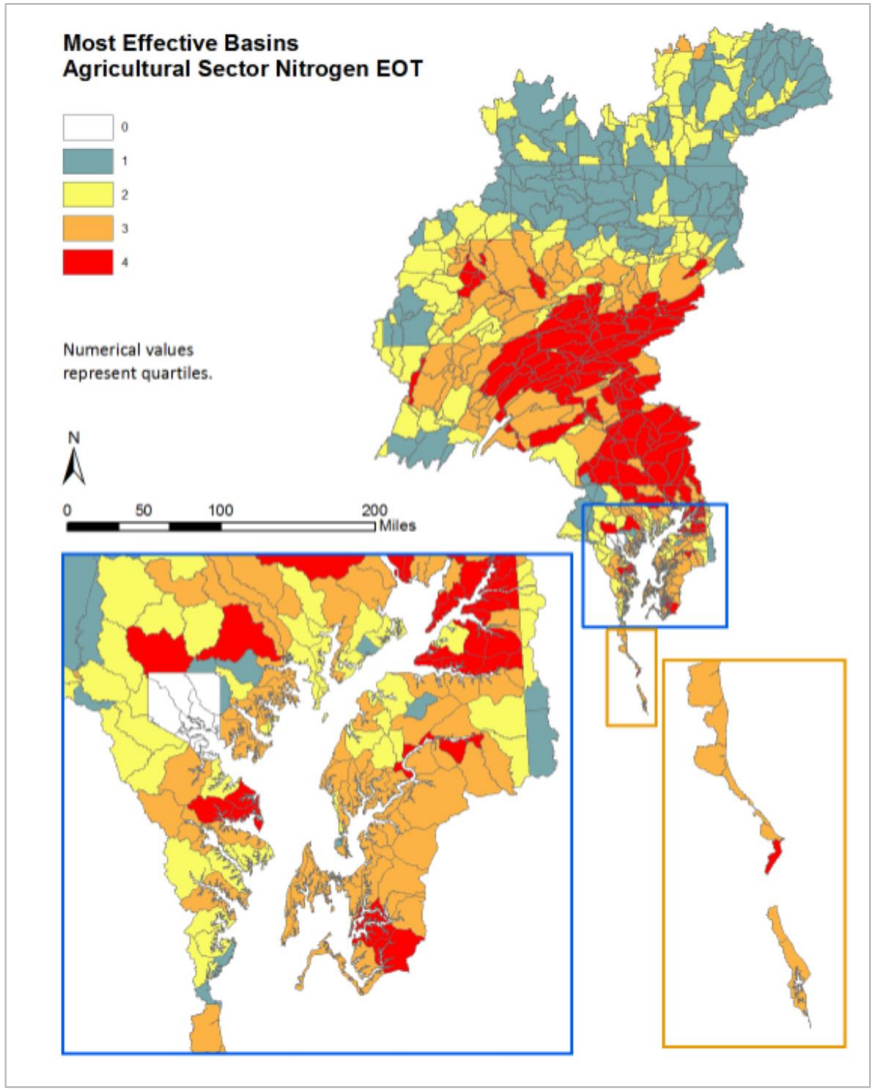
<u>Key outputs</u>:

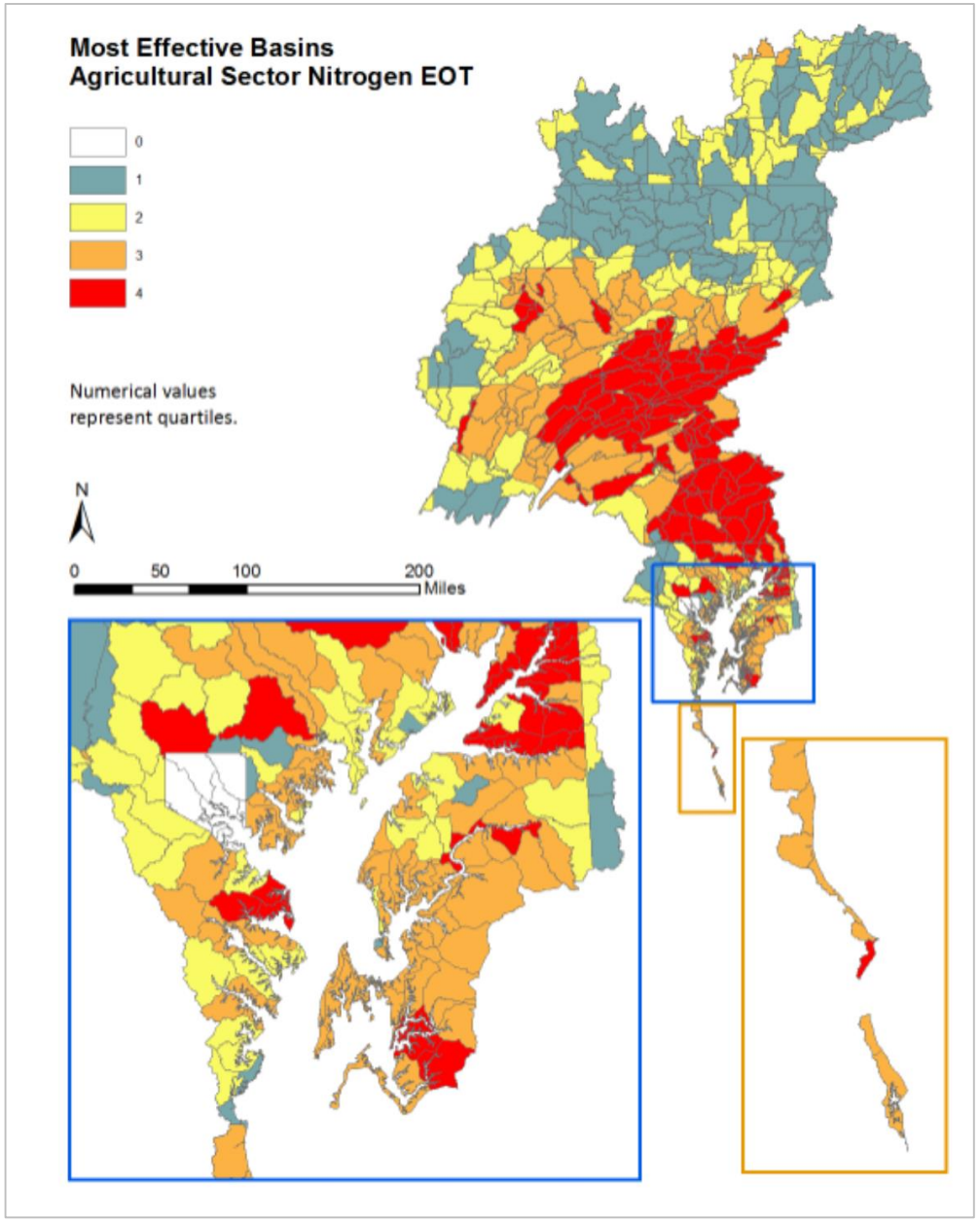
- List of BMPs that are cost effective, mappable, trackable, and CBP-partnership approved
- Methodology for GIS analysis to ID BMP implementation opportunity areas for up to 5 BMPs

Develop BMP opportunity analysis - September thru December 2019

Key outputs:

- Prioritization and map of a subset of geographies to focus outreach and implementation
- Quantification of opportunities for implementation of priority BMPs in priority geographies, summarized at the basin-scale





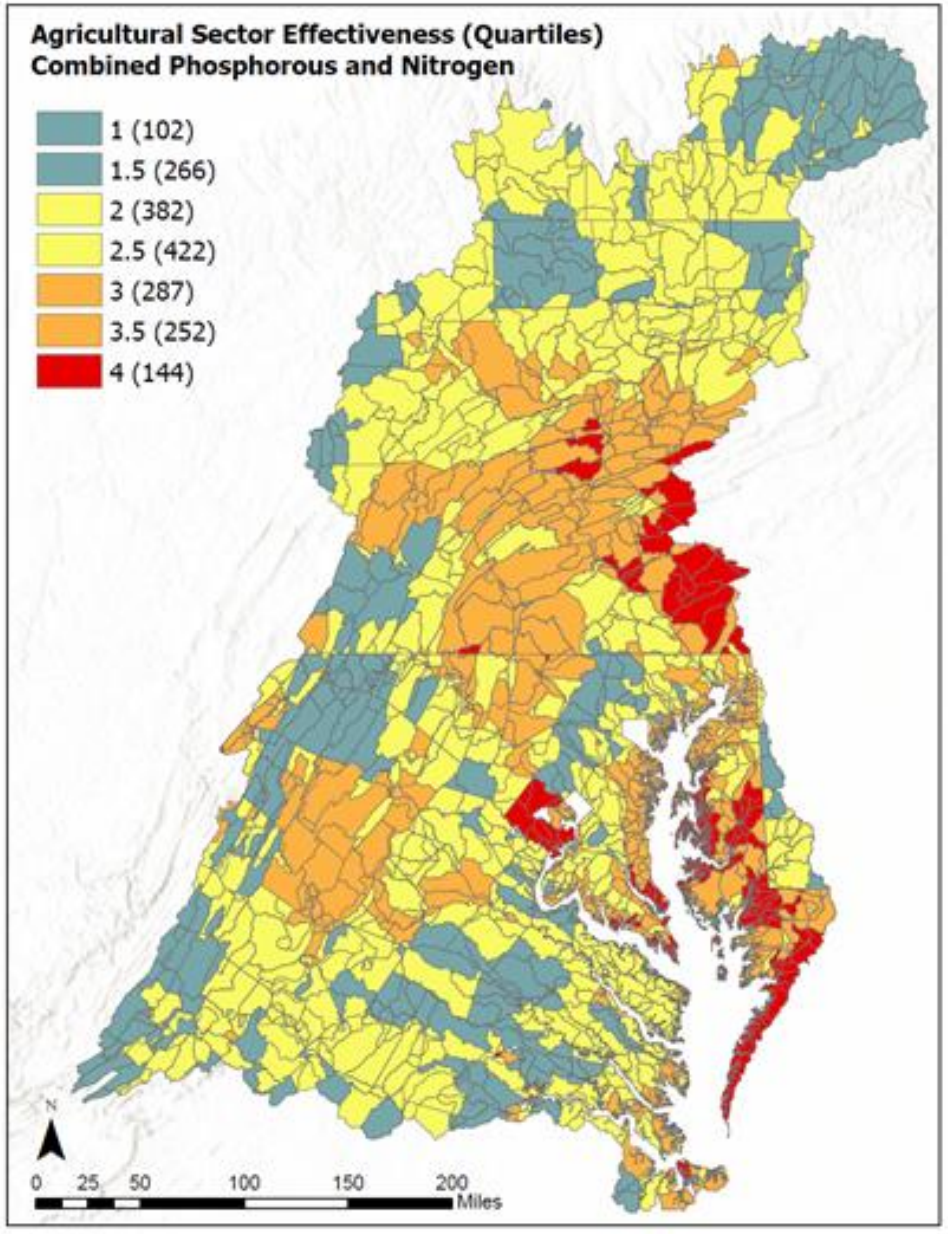
Identify priority basins: Completed Tetra Tech

- <u>Scenario 2: Susquehanna Basin + Other Effective Basins</u>

  Susquehanna River Watershed + other effective basins that drain directly into the Bay within the state of Maryland and the Commonwealth of Virginia

- <u>Analysis of nutrient effectiveness =</u>

  The capacity of a basin to deliver nutrient pollution to the Chesapeake Bay

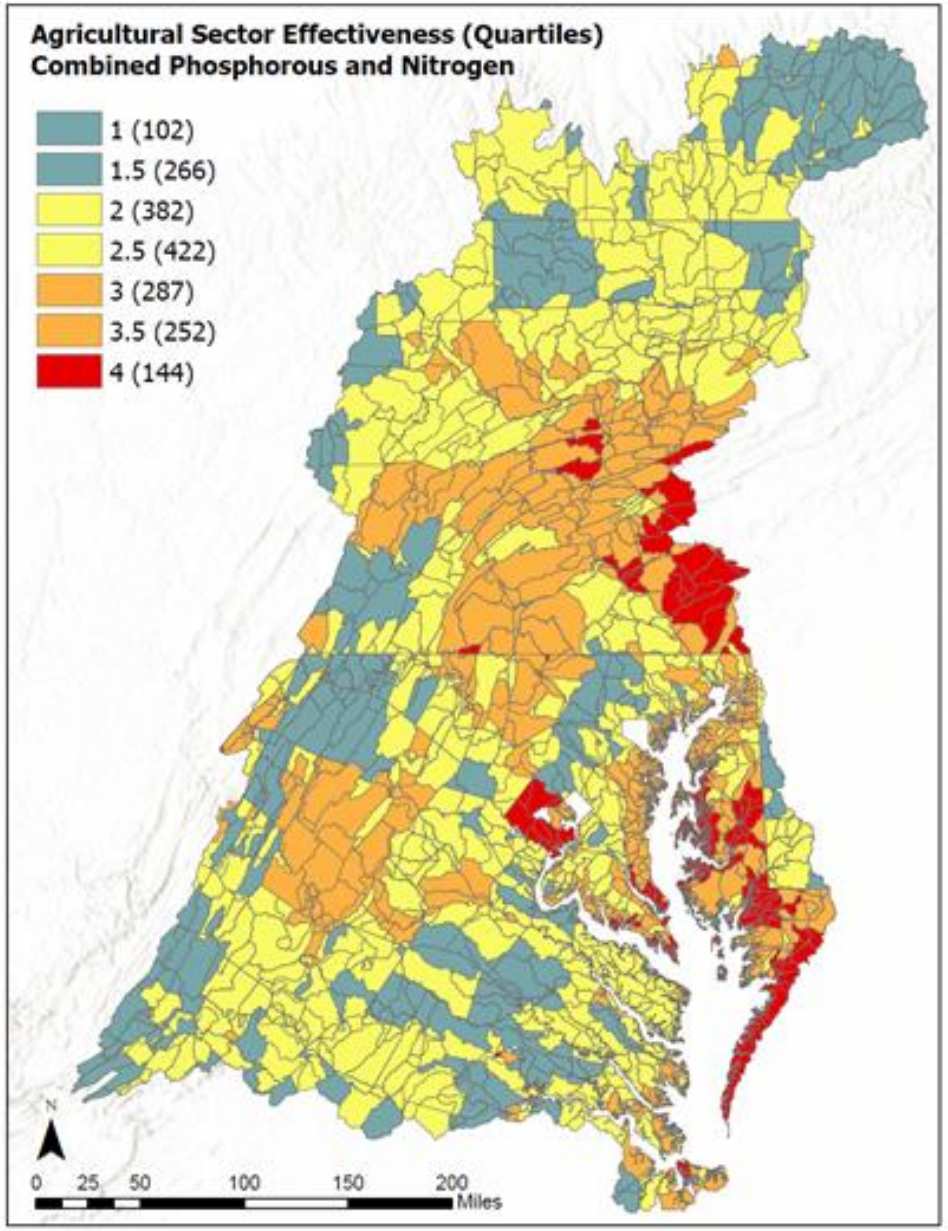


Identify priority basins: October 2019
Next step - prioritize based on existing conditions

- Develop overall nutrient effectiveness metric (combine N & P)
- Overlay with modeled nutrient loading from CAST

<u>Priority basins =</u>

Highly effective + high loading



Identify priority basins: Oct – Dec 2019
Next step - prioritize based on opportunities

- Overlay BMP opportunity analysis
- Consider social factors e.g. local capacity for implementation, existing WIP obligations, supporting policies

<u>Priority basins =</u>

(Highly effective + high loading) + (greatest opportunity for reductions)

Identify priority BMPS: Completed Tetra Tech

- Agricultural Stormwater Management
- Forest Buffer
- Grass Buffer
- Tillage Management
- Wetland Restoration
- Bioswale
- Infiltration Practices w/o sand, A/B soils, no underdrain
- Soil Conservation and Water Quality Plans
- Stream Restoration*

A12 – buffers (forested, grassed)
A3 - Conservation Tillage (conservation, high- and low-residue)
A25 - Nontidal Wetland Restoration (re-establishment)
D1 - Stormwater Performance Standards (bioswale, infiltration practices)
A9 – Ag; D5 – Urban; N1- non targeted stream restoration (Natural Channel Design)

- Match BMPs with Chesapeake Bay Program BMP definitions
- Use definitions to determine GIS methodology
- Recommended list of priority BMPs

Identify priority BMPS: September 2019 Determine map-ability of BMPs (handout)

Photo: Chesapeake Bay Program

BMP Targeting Methodology: Sept. 2019
Forest and grass buffers
A12 – Buffers

<u>Definitions</u>

Forest: Linear wooded areas.

- Filters nutrients, sediments and other pollutants from runoff; removes nutrients from groundwater.

Grass: Linear strips of grass or other non-woody vegetation.

- Helps filter nutrients, sediment and other pollutants from runoff.

Recommend width 100 ft.; 35 ft. min. Required.

<u>Methodology</u>

- Identify areas of cropland/pasture within 100 ft. of streams using CB high-resolution Land Use/Land Cover dataset (2013 imagery) and Li-DAR derived hydrography.

Photo: Chesapeake Bay Program

BMP Targeting Methodology: Sept. 2019
Tillage management
A3 – Conservation Tillage

Definitions

- Involves the planting, growing and harvesting of crops with minimal disturbance to the soil. Low-residue, conservation tillage, high-residue.

Methodology

- Existing USGS methodology to ID locations where conservation tillage has been implemented. Recommend BMP implementation at the locations where it is not in practice.
- Utilize Worldview-3 satellite imagery and shortwave infrared residue indices.


Photo: Chesapeake Bay Program

BMP Targeting Methodology: Sept. 2019
Wetland Restoration
A-25 Nontidal Wetland Restoration (re-establishment)

Definitions

- Manipulation of the physical, chemical, or biological characteristics of a site.
- Goal: returning natural/historic functions to a former wetland.

Methodology

- Utilize US Fish & Wildlife Service National Wetlands Inventory data to understand historic wetland trends and current coverage.
- Run change analysis for historic wetlands that are now cropland / pasture.


Photo: Chesapeake Bay Program

BMP Targeting Methodology: Sept. 2019 Bioswales
D1 - Stormwater Performance Standard; D2 - Stormwater Retrofits

Definitions

- Bioswale: Vegetated, mulched, or xeriscaped channels that slow, infiltrate, and filter stormwater.
- Ideal locations include along streets and parking lots.

Methodology

- Mappable through EPA tool: System for Urban Stormwater Treatment and Analysis IntegratioN (SUSTAIN).

Photo: Tata & Howard

BMP Targeting Methodology: Sept. 2019 Infiltration practices D1 - Stormwater Performance Standard; D2 - Stormwater Retrofits

Definitions

- Infiltration Practices w/o sand, A/B soils, no underdrain.
- A depression to form an infiltration basin where sediment is trapped and water infiltrates the soil.
- Sand layers and vegetation are not required.
- No underdrains associated.
- Built in A or B soil types.

Methodology

- Mappable through EPA tool: System for Urban Stormwater Treatment and Analysis IntegratioN (SUSTAIN).


Photo: Chesapeake Bay Program

BMP Targeting Methodology: Phase 2
Stream restoration
A9 – Ag, D5 – Urban, N1 – non targeted

Definitions

- Natural Channel Design (NCD)
- Applies the principles of stream geomorphology to maintain a state of dynamic equilibrium among water, sediment, and vegetation that creates a stable channel.

Methodology: TBD

- Research & build upon existsing methodlogies.
- Utilize geomorphology to identify where the stream bank is disconnected from the floodplain, thus creating incised stream beds.

List of preferred BMPs:

- Agricultural Stormwater Management
- Forest Buffer
- Grass Buffer
- Tillage Management
- Wetland Restoration
- Bioswale
- Infiltration Practices w/o sand, A/B soils, no underdrain
- Soil Conservation and Water Quality Plans
- Stream Restoration*

Task 4: Establish Timeline for Achieving WIP

Task 4.1- Develop Timeline

- Will take into consideration the projected funding and resource availability as well as the progress that can realistically be achieved by the responsible parties.
- Includes coordination with Activity 2 since the financing plan will directly influence the timing of funding availability.

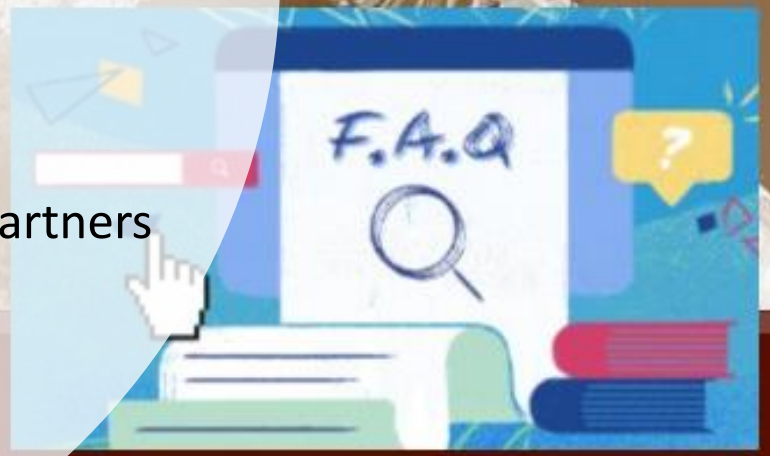
Task 5: Conduct Watershed Wide Stakeholder Outreach

- The Project Team will advocate for local stakeholders as an advisor to the WIP Steering Committee to ensure that WIP recommendations/products are locally relevant and actionable.
- Outreach will be focused at the regional scale in geographies that contain the most effective basins and offer high priority BMP sites based on a combination of effectiveness, CAST scenarios, and BMP Opportunity Analysis.
- Based on this stakeholder input, the Project Team will work with the Steering Committee as well as federal partners to inform the draft Conowingo WIP as appropriate and to develop an engagement strategy that outlines the role local and federal partners may assume in implementing the WIP.

Digital Presence - August thru October 2019

Key outputs:

- **Conowingo WIP webpage**
- Conowingo WIP Fact Sheet
- Informational Webinar
- Personalized Email Outreach to Key Partners and Stakeholders



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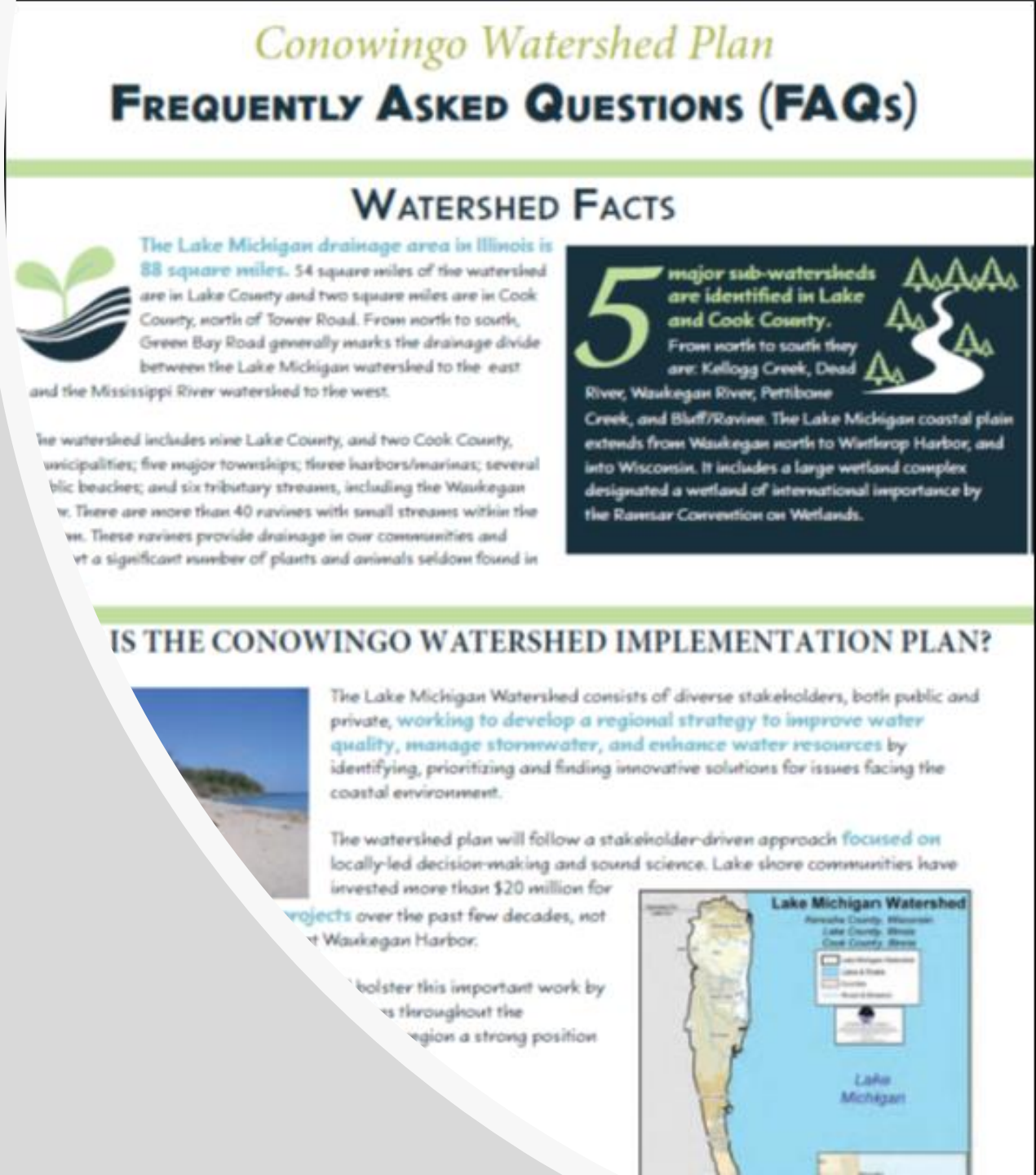

Conowingo Watershed Plan

FREQUENTLY ASKED QUESTIONS (FAQs)

WATERSHED FACTS

The Lake Michigan drainage area in Illinois is 88 square miles. 54 square miles of the watershed are in Lake County and two square miles are in Cook County, north of Tower Road. From north to south, Green Bay Road generally marks the drainage divide between the Lake Michigan watershed to the east and the Mississippi River watershed to the west.

5 major sub-watersheds are identified in Lake and Cook County. From north to south they are: Kellogg Creek, Dead River, Waukegan River, Pettibone Creek, and Bluff/Ravine. The Lake Michigan coastal plain extends from Waukegan north to Winthrop Harbor, and into Wisconsin. It includes a large wetland complex designated a wetland of international importance by the Ramsar Convention on Wetlands.

IS THE CONOWINGO WATERSHED IMPLEMENTATION PLAN?

The Lake Michigan Watershed consists of diverse stakeholders, both public and private, working to develop a regional strategy to improve water quality, manage stormwater, and enhance water resources by identifying, prioritizing and finding innovative solutions for issues facing the coastal environment.

The watershed plan will follow a stakeholder-driven approach focused on locally-led decision-making and sound science. Lake shore communities have invested more than $20 million for projects over the past few decades, not Waukegan Harbor.

bolster this important work by throughout the gion a strong position

Lake Michigan Watershed

Lake Michigan

Key outputs:

- Conowingo WIP webpage
- Conowingo WIP Fact Sheet
- **Informational Webinar**
- Personalized Email Outreach to Key Partners and Stakeholders

Digital Presence - August thru October 2019

Stakeholder Meetings March-May 2020

<u>Key outputs</u>:

- In-person half or full-day regional meetings;
  - *3 in Maryland*
  - *5 in Pennsylvania*

- A compilation of comments and report documenting concerns, constraints, ongoing efforts, relevant effective practices, and recommendations on the role local and federal partners may assume in implementing the WIP.

Input From the Steering Committee

- Logo(s)?
- Where should webpage be housed?
- Process to ‘sign off’ on info before posting.
- Other than 4/29/19 Draft Communication Strategy list, who does the Steering Committee consider to be key audiences?