

Soil Health Workshop

USWG
October 20, 2026



CHESAPEAKE
STORMWATER
NETWORK

**Project Vision,
Desired Outcomes,
and Refining our
Focus**



Context

Proposed STAC State of the Science Workshop
(March 2025)

Looked to leverage increasing interest in soil health
across the CBP Partnership

- Proposed Soil Health Outcome
- USWG BMP Priority

Build around exploring 3 Pillars:

- Hydrology
- Biology
- Social Science

Ultimately Not-Funded, but Feedback was Positive





Take #2

NFWF-approved funding for development of workshop in December 2026

Steering Committee formed in March

3-Step Project

- Lit Review
- Workshop
- Recommendations to USWG

Name & Affiliation
David Wood Chesapeake Stormwater Network
Cecilia Lane District Department of Energy & Environment
Kathy Boomer Foundation for Food and Agricultural Research
Susan Day Virginia Tech / Susan Day Consulting
Sarah Roberts Biohabitats, Mid-Atlantic Association of Professional Soil Scientists
Shirley Clark Penn State University
Vincent Verweij Arlington County Dept of Parks and Rec.
Philip Clements Natural Resources Conservation Service, USDA



Objectives

1. Establish Common Understanding of Healthy Urban/Suburban Soils
2. Identify Stressors and Threats to Soil Health in Urban/Suburban Spaces
3. Outline Effective Protection and Restoration Strategies
4. Provide Case Studies of Policy and Programmatic Approaches
5. Discuss Feasibility, Testing and Implementation of Minimum Soil Criteria
6. Build a Collaborative Foundation for the Final Report to Support Future Efforts
7. Strengthen Practitioner Networks Across Disciplines





Proposed Deliverables

- Literature Review focused on:
 - Urban soil health frameworks and metrics for soil evaluation;
 - Implications of soil compaction on stormwater management;
 - Soil restoration practices
- December 4th Workshop
- Final report that includes summary of literature review findings, and key recommendations and takeaways from the December Workshop. Report would ideally lead to the following recommendations:
 - Framework for development healthy urban/suburban soil specs (minimum soil criteria)
 - Summary of key strategies for urban/suburban soil restoration/protection and their potential for water quality improvement, along with accompanying co-benefits
 - Case studies of policies and approaches implemented by communities across the country



Literature Review



Literature Review

What is included:

- 65 papers
- 12 Policy Docs/Case Studies collected and organized
- Practitioner and Researcher Interviews

Outline:

- Defining Healthy Urban Soils and their Functions
 - Core Functions and Benefits of Healthy Soils
 - Existing Frameworks for Defining Healthy Soils
 - Indicators
- Soil Hydrology: Compaction, Infiltration, and the Pervious-Impervious Gap
- Restoration and Management Approaches
 - Mechanical Decompaction
 - Amendments
 - Other Approaches
- Policy Examples and Case Studies

Progress and Next Steps



Progress and Timeline

Steering Committee Meetings

- Met in May, July and September
- Agreement on Objectives, Framework, and Workshop Agenda
- Providing Feedback on upcoming Lit Review

November

- Complete draft of Lit Review

December 4th

- Workshop - Reservoir Center, Washington D.C.





Workshop Agenda

8:30 – 9:30 | Arrive and Optional Walk to Field Site

9:30 – 9:45 | Welcome and Purpose

Lead: CSN | Action Wall instructions posted as people enter

- Overview of Workshop Objectives
- STAC and Chesapeake Bay Program Context
- Introduce the Steering Committee
- Outline Proposed Timeline

9:45 – 10:15 | A Proposed Framework

Lead: Steering Committee

- Introduce the [Proposed Framework](#)
- Case Study #1 - Lot Scale Land Development
 - Vincent Verweij (Arlington County, Virginia) will discuss the challenges with post-development soil health, how Arlington has approached this challenge, and provide his perspective on what outcomes are needed to support further improvement.
- Case Study #2 - Parks and High-Use Open Space
 - Cecilia Lane (Department of Energy and Environment (DOEE), Washington, DC) will discuss the challenges with soil health in high use open space areas including parks and recreational spaces, how DOEE and their partners have approached this challenge, and provide her perspective on what outcomes are needed to support further improvement.

10:15 – 11:00 | Where We Are -- Group Activity (Round 1)

This session will begin with an open discussion about the proposed framework and use cases. For discussion:

- Do these steps effectively capture the core challenges and present a reasonable roadmap to actionable guidance? What, if anything, is missing?
- Trying to focus on the proposed use cases, first, what other challenges have not been discussed so far that should be addressed?
- Are there any particular components of the framework that you would like to elevate as the greatest priority, from your perspective?

Following this discussion, participants will be asked to conduct a sticky-note exercise. The framework components, amended with feedback from the discussion, will be presented, and participants will be asked to place sticky notes for critical information in each step of the

11:00-11:15 | Break

11:15 – 12:30 | Panel Discussion - Testing and Defining Soil Health

3 Presenters | 15 min presentations each | 30 min discussion

- SITES approach to defining health soils - Dr. Susan Day, Susan Day Consulting LLC
- Measuring soil compaction for stormwater implications - Dr. Shirley Clark, Pennsylvania State University
- Classifying urban soils

12:30 – 1:15 | Lunch

1:15 – 2:30 | Panel Discussion - Restoration and Protection

4 speakers | 10 minutes per talk | 30 min questions

- Overview of Soil Restoration Approaches - David Wood, CSN
- Practitioner Considerations for Selecting Approaches - Sarah Roberts, Biohabitats; |
- Soil Profile Rebuilding - Dr. Susan Day
- Protection through inspection and verification activities - Julianne Bautista, DOEE

2:30 – 2:45 | Break

2:45 - 3:45 | Moving toward solutions - Group Activity (Round 2)

This interactive session is designed to bring together the previous conversations and focus discussions on the core outcomes for the workshop as the group drives toward recommendations. Participants will move into break-out groups to discuss the following:

Core Discussion Questions:

- Can soil health be captured by fixed standards, or must it be site-specific -- and if site-specific, how do we still make consistent decisions?
- Based on today's discussions, are there particular soil tests that can serve as proxies for healthy soil benchmarks?
- Which soil restoration approaches have sufficient evidence to advance to investigation for BMP expert panel review?
- As natural systems, what should the long-term maintenance and inspection expectations be for soil restoration approaches?



Request

- USWG Member participation would be valuable at the workshop!
- Invitations will be going out this week
- Please RSVP or identify an alternative member of your staff who may be better suited to attend



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Phase 7 Flaw Review Expectations

Urban Stormwater Workgroup

October 20, 2026



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Timeline for Lead-Up Activities and Partnership Model Review (not STAC):



1.

Review Prep **2027 Model Review Materials:**

- Initial Input and Scenario Review, Phase 7 Flaw Definition, Comment Aggregation Tool (C.A.T.), Flaw Review Process and Workgroup Roles, Emailed Instructions on Partnership Review Request
- Model Documentation, Review Tool Finalization, Accuracy Metrics



2.

Dynamic Watershed Model and Estuarine Model Approval



1.

Review Sprints **~5-6 months: Phase 7 Flaw Review of Draft 1**

- 3-4 months: Model Review Period for workgroups
- 2 months: Partnership-recognized Pause on model review for Modeling Workgroup to prioritize and respond to comments



2.

~5-6 months: (Depends on severity of flaws) Review of Draft 2

- 3-4 months: Partnership renews its review with less rigid timeline
- 2 months: Completion and rollout of reviewed model for Planning Targets



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Partnership Review Prep Steps:

Comment Aggregation Tool (C.A.T.):

To be provided as a link to workgroup leadership (voting members) advisory committees, and jurisdictional agencies to ensure a higher level of understanding with respect to the Phase 7 model.

Questions:

- What is your name
 - First Name Text Box
 - Last Name Text Box
- What is your organization/workgroup
 - Drop Down: List of
 - Jurisdictions' Reporting Agency (DOEE, DNREC, MDE, NYDEC, PADEP, VADEQ, WVDEP)
 - Relevant CWGT/ Other Workgroups
 - Advisory Committees
 - Member of the Public
- Please describe the flaw present in this section, and be specific as possible to help with review of this noted flaw:
 - Text Box for their reply
Included Context:
 - Is the flaw with an input, the model processing an approved methodology, or the documentation? (This can need some parsing on our end too, so not too prescriptive)
 - Phase 7 Flaw Scale and Definition
 - State/Basin scale because the planning target development process provides jurisdiction allocations at that scale.
 - If different than state/Basin scale, please provide noted scale flaw was observed at:
 - A Phase 7 Flaw is/is not context
- How important a priority would you rank this flaw as needing adjustment now for Phase 7. A rank of 1 is critical now for Phase 7 adjustment and a rank of 5 would indicate you are fine holding this comment for discussion later for Phase 8. This is all relative for comment submitter but gives internal review team a place to start.
 - Drop Down: List of 1-5
 - All comments will be replied to, but internal review determines what needs to action for a next draft of the model.



Phase 7 Flaw Comment Aggregation Tool

This form is used to aggregate Partnership comments on the Phase 7 suite of modeling tools to aid review for needed adjustments before the finalization and release of these products.

1. Please provide your first name *

Enter your answer

2. Please provide your last name *

Enter your answer

3. What review body (jurisdictional agency, workgroup, or advisory committee) is this comment being noted from? *

☐ WTWG

☐ DOEE

☐ Option 3

4. Please describe the flaw you noted and be specific as possible to help with review: *

Scale and Definition Inclusions

Enter your answer

5. How important a priority would you rank this flaw for immediate adjustment for Phase 7. *

1=Most Important, 5 = Hold till Phase 8

1

2

3

4



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Partnership Review Prep Steps:

CBPO Emails to Begin Review (~2027):

Email outreach to jurisdictions, ACs, and assigned workgroups to help direct review, to ensure aggregation, synthesis, and vetting of comments.

1. Email to:

1. Jurisdictional leadership from reporting agencies to help direct review, to ensure aggregation, synthesis, and vetting of comments, and that their comments are in sync with any workgroup comments from their staff.
2. Workgroup will lead review of specified sections from CWGT and comments from them can be specific to their sector, jurisdictions-submitted comments likely to be more load focused.
3. Advisory Committees are also encouraged to work with relevant CWGT sector workgroups and provide review remarks.
 - These three sets of review groups will ensure all review comments are then submitted with relevant information included and by specified deadlines (April 1, 2027).
 - Hearing a comment from two/all three may be a good cause for quicker review/higher prioritization.
4. Public emailblast and posting



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Partnership Review:

~Now-2027:

- Workgroup Review Roles Communicated
- Flaw Definition
- CAT Communicated
- Email Model Review Request to Jurisdictions and workgroups
- Necessary Model Documentation for 2027 Review Completed
- Model Review Support Tools for 2027 Review Completed
- Instructional Webinars Scheduled

1. ~5-6 Month Review Period: Phase 7 Flaw Initial Review of Draft 1

- ~3-4 months: Model Review Period for workgroups
- ~2 months: Partnership-recognized **Pause** on model review for Modeling Workgroup to prioritize and respond to comments
- Release Draft 2 of Model



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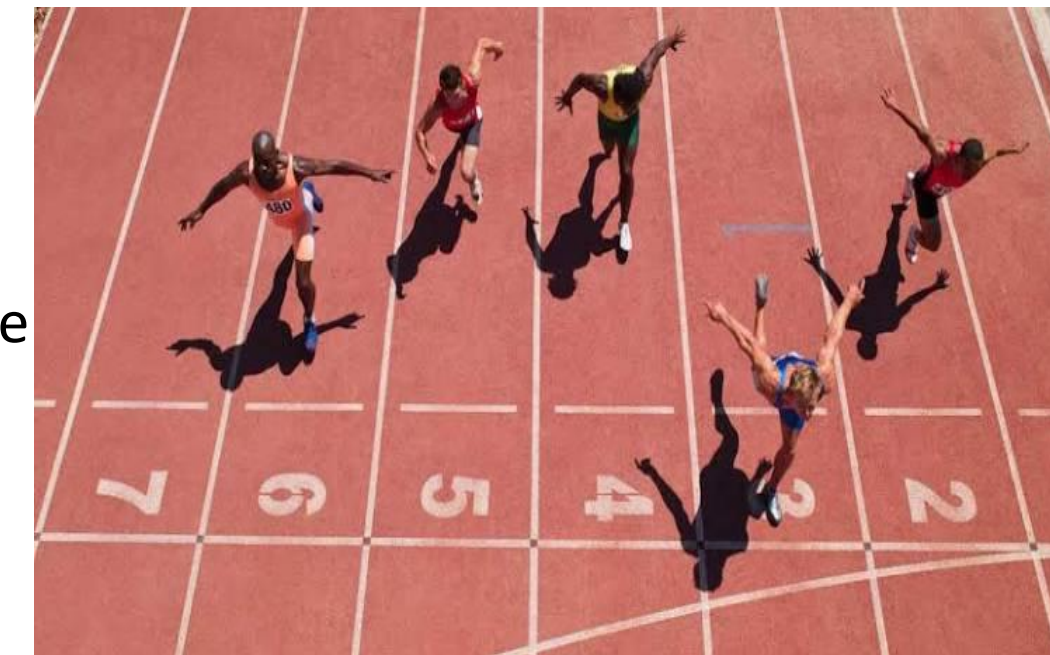
Partnership Review:

Review “Sprints”



1st Sprint of Model Review 1 (~5-6 months):

1. ~3-4 month partnership review (time for RENPS workgroups to meet 2 or 3 times ideally).
2. Get all comments workgroups and jurisdictions in by that time for initial pause and review by MWG. Review can continue but recognize some review may be invalid after hypothetical draft 2.
3. 2 months MWG review, action, and response to comments back to partnership.



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2nd Sprint (This is uncertain, so must be more adaptable with wiggle room in the timeline)

1. As comments are noted and viewed, group updated so they can be reviewed on rolling basis and responded to as needed
2. ~3-4 months as needed; Draft 3 released in similar manner to above if required.



****If flaw results in revised methodology requiring WG approval, this will need to be pursued and achieved immediately by ideally utilizing the next workgroup meeting window and partnership model review timeline communicated.**



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Partnership Review:

Workgroup Review Roles:

CWGT will assign these review roles to each workgroup.

Each Phase 7 model adjacent workgroup will be responsible for these two overarching goals:

1. Ensuring the collective partnership-based decisions have been fully carried out (omissions review)
2. Evaluating model calibration inputs and outputs specific to their respective land uses (evaluate unintended outcomes or consequences) or larger source categories



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Partnership Review:

Workgroup Review Roles:

Urban Stormwater Workgroup

- For all urban sector inputs and land use data, the USWG should review and understand major methodological changes between P6 and P7 and ensure documentation exists to support the changes.
- Review watershed model documentation chapter 2 (Average Loads)
- Review calibration results for suburb/urban development dominated watersheds—both inputs and outputs
 - On the inputs side, the USWG should pay particular attention to non-farm fertilizer and associated documentation
- Regulated Lands CSOs & MS4s (Section 7.2.2) and Construction (Section 7.5.2)





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USWG Workplan Development

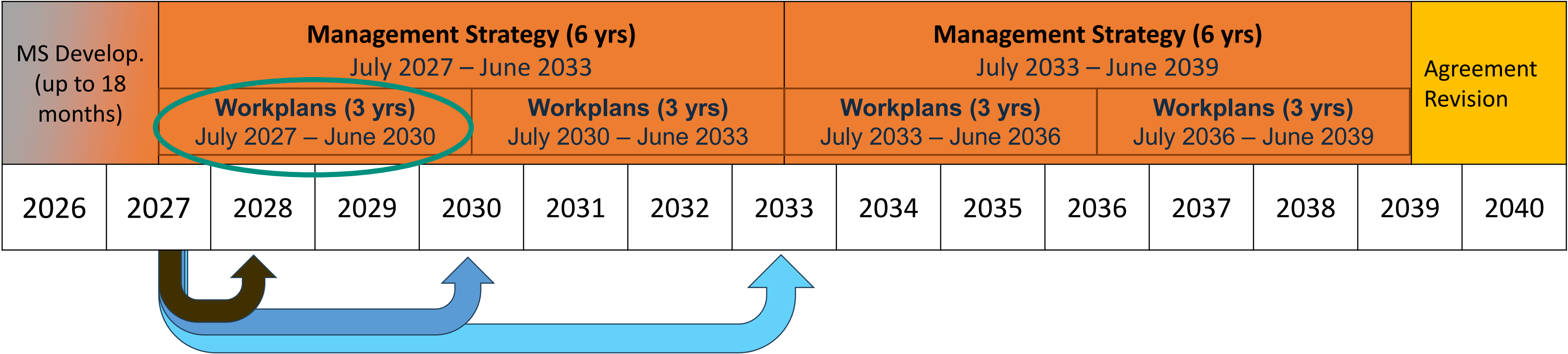
Urban Stormwater Workgroup
October 20, 2026

Relationship Between Key Documents



Management strategies for each Goal chapter will be contained within a single Strategic Plan

Accountability and Adaptive Management



- Annual Check-Ins** – extended PSC meetings that communicate progress, and address and prioritize implementation needs
- Triennial Reviews** – cross-program review & symposium to document successes and challenges and initiate new Workplans
- Strategy and Program Evaluation** – assess the current progress towards achieving the Goals and Outcomes of the Agreement, evaluate the efficacy of existing Management Strategies and identifies opportunities for improvement
- In 2040, the Strategy and Program Review will prompt revision to the Chesapeake Bay Watershed Agreement

Key points

- Each workgroup within CWGT will develop its own 3-year workplan to be approved by the CWGT.
- Each Outcome will have a workplan that incorporates activities compiled from the workgroup workplans.
- These workplans will cover July 1, 2027 – June 30, 2030
- PSC will not review workplans, but the entire CBP is responsible for implementing workplan actions

Workplan drafting guidance

- Workgroup workplan will only include management approaches they expect to contribute to in next 3 years
- The number of actions under a Management Approach does not signify importance; some Approaches or actions will be more time-consuming or higher effort than others
- Member-driven drafting and commitments
- Focus on deliverables and tangible products that will contribute to our outcomes

	Strategic Plan / Clean Water MS	Outcome Level Workplans (RENPS, TEC, WQSAM)	Workgroup Level Workplans
Oct	Draft sent to PSC		CWGT + Workgroups begin brainstorm
Nov	PSC feedback		High level ideas by end of Nov.
Dec	PSC approves draft Strategic Plan		Workgroups continue to fill in workplan templates
Jan	Public feedback	Consolidate RENPS-related workgroup workplans into draft Outcome Workplans (January	Wrap up RENPS drafting Workgroups continue to fill in workplan templates
Feb	Incorporate feedback	Present RENPS workplan to CWGT Consolidate workgroups' workplans into TEC and WQSAM workplans	Wrap up TEC and WQSAM drafting RENPS-related workgroup workplans update as needed
Mar	Incorporate feedback	Present TEC and WQSAM workplans to CWGT	
Apr	Revised Strategic Plan presented to PSC	CWGT reviews/approves <u>all</u> workplans	
May	Goal Teams approve Strategic Plan	CWGT reviews/approves <u>all</u> workplans	
Jun	PSC approves Strategic Plan		



What’s in the workplan(s)?

TABLE for each Management Approach in a workplan (one row = one Activity, can inc. multiple Actions)

Activity Number	Lead Signatory and Participating Partners	Actions	Resource Needed, Committed, and Potential Sources to Fill Gaps	Target Date	Performance Targets and Deliverables	Status Activity Completion
[Goal #, Outcome #, Management Approach #, Activity #]	Lead: [Name and organization of lead. If multiple teams or workgroups are participating, list multiple leads] Signatories: [name signatory partners or partner agencies who will participate] Other Partners: [list non-signatory partners who will participate]	[describe the major actions]	Needed: [how much money or other support will be needed to complete this action] Committed: [how much money or other support is committed to complete this action] Filling Gaps: [how will the partnership fill gaps between resources needed and committed]	[timeline to complete]	[list performance targets and deliverables]	[not started/ ongoing / completed]

Toxic and Emerging Contaminants

Outcome & Target

Reduce the amount and effect of toxic contaminants, such as PCBs, plastics, mercury and PFAS, on the waters, lands, fisheries, wildlife and communities of the Chesapeake Bay watershed through an increased understanding of their impacts and mitigation options.

- Promote information sharing between researchers, program managers and policymakers on the lessons learned, best practices and most up-to-date science, policy and communications around the toxic contaminants impacting the Chesapeake Bay watershed.

RENPS Management Approaches

Number	Management Approach
2.1.1	Complete the Phase 7 Suite of Modeling Tools
2.1.2	Revise planning targets for 2040 based on the final Phase 7 modeling suite
2.1.3	Develop new or amended Watershed Implementation Plans (WIPs)
2.1.4	Continue to increase implementation of Phase 3 WIPs through 2030 to achieve interim planning targets and share successful or emerging innovative strategies or opportunities to achieve greater nutrient and sediment reductions
2.1.5	Continue to research and disseminate microplastic pollution findings to understand the threats of plastic pollution to the Chesapeake Bay and its resources
2.1.6	Assess nutrient mass imbalances and advance innovations that strengthen the adoption or performance of nonpoint source best management practices (BMPs).
2.1.7	Incorporate additional lines of evidence into assessments of progress.

CWGT Goal-level Management Approaches

No.	Management Approach	Guiding thoughts
2.0.1	Continue to improve the effectiveness of the Clean Water Goal Team (CWGT) and its workgroups by enhancing coordination, communication, information sharing, adaptive management, and innovation as it strives to achieve Clean Water goals and outcomes.	This is an ongoing item that will factor into this and the next workplan. Its significance may vary depending on groups’ capacity and priorities, but it should not be a dominant effort compared to outcome-specific activities.
2.0.2	Expand local capacity and technical assistance through strategic cross-partnership collaboration, particularly the Workforce, Land Use Planning & Decision Support, and Local Government Leadership outcomes.	This recognizes the overlapping nature of Clean Water Goal/Outcomes with other Outcomes of the CBWA; this will factor into different groups’ workplans according to their capacity to collaborate with other CBP groups; it is an important but not dominant effort compared to outcome-specific activities
2.0.3	Assess and integrate jurisdictional data sources to improve the accuracy of model predictions.	This is historically a very active set of activities; dependent on frequency of updates to key datasets, needs and model update calendar, this may factor significantly into the current and subsequent workplans



Review and Feedback of Proposed Bullets

- What priorities are missing that should be reflected?
- Are any items listed that SHOULD NOT be part of our 3-year workplan?
- Initial thoughts on responsible parties and specific deliverables.