Potential Milestone Products

	Recommended Product	Addressed by science prioritization needs/ WQGIT 2-year workplan	Contact	Current Partnership Work
1	Verification Protocol Updates (Updated verification protocols affects the development of programmatic milestones and review of progress)	No/Actions #2.2, 5.4	MB/ WQGIT/ Habitat GIT/ workgroups/ BMP verification committee/ EPA	1. On September 26, 2019, the WQGIT submitted a letter to the Management Board requesting a process to address verification protocol updates through formation of a BMP verification subcommittee. BMP verification was last discussed on the February 2019 Water Quality GIT meeting and the July 2019 WQGIT meeting.as well as February, March and September 2019 Watershed Technical Workgroup meetings and the February 2019 Forestry Workgroup Meeting 2. Annually, EPA reviews each states' BMP submissions and BMP Verification Programs. Addition of information to existing CBP BMP Verification documents can be discussed as part of this review process. 3. The approval of new or modified verification protocols currently goes through the relevant source-sector workgroup and the MB/GITs for approval. 4. Annually, jurisdictions provide input on the grant guidance, which includes BMP verification requirements.
2	Guidance to define a process for alternative, expedited crediting of new BMPs	Was not addressed by science prioritization needs but is critical to meeting 2025 goals	PSC/ MB/ WQGIT/ workgroups	A WQGIT subgroup met on October 1 to discuss emerging technologies and how the reductions from these technologies could be credited. The subgroup agreed, as a first step, to develop a summary of the current BMP expert panel process. Current partnership-approved process for "new" BMPs: Protocol for the Development, Review, and Approval of Loading and Effectiveness Estimates for Nutrient and Sediment Controls in the Chesapeake Bay Watershed Model

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				Timing for making updates to the modeling system is controlled by prior PSC, MB, WQGIT decisions.
3	Monitoring progress toward attainment of dissolved-oxygen standards.	Line 53, 70, 71/ Actions #3.1, 3.2, 3.3	CBP Monitoring Team	Annual updates of toward progress in reaching dissolved oxygen standards, based on the CBP tidal monitoring network. The results are available at: https://www.chesapeakeprogress.com/clean-water/water-quality
4	Monitoring progress toward attainment of SAV goal.	Line 53, 57/Actions #3.1, 3.2 and 3.3	CBP Monitoring Team	Monitoring and analysis of SAV acres. and progress toward 185,000 acre target, These results are available at: https://www.chesapeakeprogress.com/abundant-life/sav
5	Watershed and tidal water quality trends	Line 52, 57, 70/ Action #4.5	USGS, CBP monitoring team, CBP Integrated Trends Analysis Team	1. EPA, states, DC, and USGS support the CBP nontidal monitoring network. USGS analyzes the data every 2 years to update trends, with results available at: https://cbrim.er.usgs.gov/ 2. Trends at the nine river input sites are done every year, and the results are available at: https://www.chesapeakeprogress.com/clean-water/water-quality 3. Produce annual-to-biennial trends in tidal water quality conditions. Produce summary tributary reports that combine trends results with information on watershed characteristics and BMP implementation at the tributary scale. New insights on factors affecting water quality changes will be integrated as they emerge. Maps and detailed documentation are currently available at: https://www.chesapeakebay.net/who/projects-archive/integrated_trends_analysis_team. Tributary reports are in development.
7	Bay Watershed Data Dashboard	Line 57, 67, 68 / Action #8.3	CBP GIS team, Emily Trentacoste	Beta version available at: Bay Watershed Dashboard. Currently contains water quality monitoring data and trends, watershed data to help geographically target implementation,

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	(Specifically, ensuring that the most recent data from CAST (land use, annual progress, etc) and newest monitoring data is incorporated into dashboard)		(EPA CBPO), CBP modeling team, WQGIT, jurisdictions	CAST output data, current BMP implementation information and data to help guide land conservation decisions.
8	Optimization engine that builds from previous progress year (Previously, this tool was developed for WIP planning but needs to be restructured for adaptive management and milestone development. Engine usefulness will depend on CAST updates, including cost updates.)	?/Action #7.1, 7.3	CBPO Modeling Team, CAST Team, WQGIT	On-going work – Contact: Dan Kaufman, Research Scientist, Chesapeake Research Consortium, (410) 267-5744, dkaufman@chesapeakebay.net

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9	Tools to facilitate implementation targeting, maximize co-benefits and improve cost effectiveness	Line 57, 67, 68 / Action #8.3	USGS, STAR Integrated Trends and Assessment WG, WQGIT, State Agencies	1. Bay Watershed Dashboard (in addition to have a tool to sort/filter BMPs based on removal and cost efficiencies, also contains a section on maximizing co-benefits based on TetraTech BMP Impact Scoring Report. 2. "Cross-GIT Mapping" tool to understand geographic opportunities for restoration and conservation co-benefits. See: Maps in the Chesapeake Bay Watershed Model Phase 6 Map Viewer and the methods used to identify and merge datasets 3. EPA currently has a 6-year cooperative agreement with the Chesapeake Conservancy which includes a project to build off the Cross-GIT mapping project and/or incorporate that info into the Watershed Data Dashboard. 4. Under the 6-year cooperative agreement with the Chesapeake Conservancy is working with Chesapeake Commons and Drexel University to develop products for BMP prioritization, planning, tracking and reporting, especially at a local level. The first version of these tools is in development as a pilot in Pennsylvania, working with PADEP and Lancaster and York counties. This pilot should expand over the next year or two and will eventually work with all jurisdictions to iteratively develop the products.
10	Improvements to CAST, including updated cost data and how CAST will be used with milestone reporting	Line 51/ Action #5.4, 7.1, 7.2, 7.3	CBPO Modeling Team, CAST Team, WQGIT	1. Ongoing: Updated land cover and land use information. For example, 2019 CAST updates will include updated 1-meter high resolution land cover data for certain areas of the watershed identified as hot spots of change (identified through comparing land use between years and change detection methodologies). Hotpots will again be updated in June 2021. Full watershed-wide wall-to-wall updates of 1-meter high resolution land cover will be made available in June 2020 and June 2023. Full wall-to-wall updates will be converted from land cover to land use in March 2021 and March 2024.

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				2. Cost data updates are typically done as "new" BMPs are introduced. Currently, cost information is being updated to current dollars. CAST has several versions of cost data to choose from for the development of alternative scenarios and there are options to employ user-specified cost data.
11	Tools to analyze estuarine monitoring/attainment trends and to help geographically target implementation to improve water quality attainment (EPA expectations Appendix A)		CBPO Modeling Team, USGS, STAR Integrated Trends and Assessment WG, WQGIT, State Agencies	1. Bay Watershed Dashboard includes monitoring data (e.g. tidal water qualtiy monitoring data, tidal water quality standards attainment data by segment over time, tidal segment-shed boundaries, load estimations by tidal segment, delivery factors from the land to the Bay by land-river segment) 2. The EPA has also developed tools for exploring water quality standards attainment in freshwater rivers and streams (https://www.epa.gov/waterdata/attains) and for exploring all water quality data available for streams (https://watersgeo.epa.gov/mywaterway/mywaterway.html).
12	Process and timing for incorporating updated base data from local partners and industries	?/Action #1.3, 1.4	PSC/ MB/ WQGIT	Timing has been discussed at the WQGIT: https://www.chesapeakebay.net/channel_files/26230/data_input_deadlines_and_guidance_to_inform_planning_using_the_phase_6_model_clean_12072018.pdf The Management Board, in January 2016, made decisions on the timing of updates. See: https://www.chesapeakebay.net/what/event/management_board_meeting_february_2016 https://www.chesapeakebay.net/what/event/management_board_meeting_january_2016

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				PSC made decisions on timing in July 2018: https://www.chesapeakebay.net/channel_files/29609/i.a._psc_actions-decisions_7-9-18_final_2.pdf
13	Process and timing for incorporating updated 2025 forecast of base conditions into CAST and associated tools		MB/ WQGIT	See info directly above.