

Appendix A. EPA’s “a through i” criteria

EPA’s “a-i” criteria for NPS watershed planning

The priority objective for the use of Clean Water Act Section 319 Nonpoint Source (NPS) grant funds is to implement NPS programs that restore and maintain the chemical, physical, and biological integrity of the Nation’s waters¹. To ensure that Section 319 projects make progress towards restoring waters impaired by NPS pollution, watershed-based plans that are developed or implemented with Section 319 funds to address 303(d)-listed waters must meet EPA’s “a-i” criteria below².

EPAs “a-i” criteria description	Section-Page Reference with Comments
A. Identification of causes and sources of impairment(s)	
<p>a. Sources of impairment are identified and described</p>	<p>2-1: Figure 2-1 ranks water quality in the Coastal Bays based on impairments and substances; sidebar summarizes watershed issues and pollution sources</p> <p>2-2: lists NPS pollutants and sources; provides discussion about natural sources, i.e. livestock and geese</p> <p>2-2 through 2-5: discussion about how agricultural and urban areas contribute to pollution through land use, atmospheric deposition, and water recreation</p> <p>2-6: Discusses point source pollution from WWTPs.</p> <p>2-7: table 2-1 identifies point sources</p> <p>2-7 through 2-10: summarizes (including figures) nutrient synoptic survey results including conductivity, nitrogen, phosphorus and dissolved oxygen</p> <p>2-11: discusses excessive algae blooms and sedimentation</p> <p>2-13: discussion about stream corridor assessment results</p> <p>2-16: discusses of wildlife habitat impacts</p>
<p>b. Specific sources of impairment are geographically identified (i.e. mapped)</p>	<p>2-8 through 2-10: figure 2-3 through figure 2-8 maps nitrate/nitrite, orthophosphate, specific conductivity, and dissolved oxygen.</p> <p>2-11: figure 2-9 maps chlorophyll sampling results</p>

¹ EPA. Supplemental Guidelines for the Award of Section 319 Nonpoint Source Grants to States and Territories in FY 2003. Available at <http://www.epa.gov/cgi-bin/eparintonly.cgi>. January 29, 2008.

² Maryland Department of Environment. Elements and Evaluation Criteria spreadsheet.

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	<p>2-12: figure 2-10 maps MBSS results</p> <p>2-14: table 2-3 identifies specific potential problems by sub-basin</p> <p>2-15: figure 2-11 Stream Corridor Assessment—Inadequate Buffers</p> <p>3-3: Explains why Greys Creek should be targeted for BMP implementation</p>
<p>c. Pollution loads are attributed to each source of impairment and quantified</p>	<p>3-1: sidebar summarizes estimated existing nitrogen loads from sources</p> <p>3-2: figure 3-1 illustrates nitrogen loads by sources; table 3-1 reflects existing nitrogen loads by sub-basin</p> <p>3-4: table 3-2 summarizes the existing loads, nitrogen reduction, and nitrogen goal by sub-basin</p>
<p>d. Data sources are accurate and verifiable, assumptions can be reasonably justified</p>	<p>Appendix D: The Chesapeake Bay Program Phase 4.3 Model loads was used to calculate the loading rates; the Maryland Department of Planning 2002 GIS landcover file was used to determine landcover acreages</p>
<p>e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)</p>	<p>3-1: sidebar summarizes interim nitrogen reduction goal</p> <p>3-3: sidebar details interim water quality goal by sub-basin and landcover type</p> <p>3-4: table 3-3 details the nonpoint source nitrogen reduction goal by sub-basin; table 3-4 details the nonpoint source nitrogen goal, or water quality goal, by landcover for each sub-basin</p>
B. Expected load reductions	
<p>a. Load reductions achieve environmental goal (e.g. TMDL allocation)</p>	<p>3-1: introduction discusses need for identifying quantitative goal without a TMDL (a TMDL should be approved in 2008). A nitrogen reduction goal was developed based on implementing all proposed BMPs.</p> <p>5-15 through 5-18 discusses nitrogen reduction in atmospheric deposition</p>
<p>b. Desired load reductions are quantified for each source of impairment identified in “A”</p>	<p>3-4: table 3-3 details the nonpoint source nitrogen reduction goal by sub-basin</p> <p>6-3: figure 6-1 indicates threshold values for indicators, specifically total nitrogen, chlorophyll a, dissolved oxygen, algae blooms, seagrass, fish, shellfish, blue crabs, and</p>

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	benthic animals, to maintain healthy waters
c. Expected load reductions are estimated for each management measure identified in “C”	5-19: table 5-2 summarizes the landcover total nitrogen load per acre, BMP efficiency, and total nitrogen reduction (lbs/yr)
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	Appendix D: The Chesapeake Bay Program Phase 4.3 Model loads was used to calculate the loading rates; the Maryland Department of Planning 2002 GIS landcover file was used to determine landcover acreages
C. Proposed management measures	
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	5-1: prioritized BMPS per landcover type are briefly described and pertain to the Maryland and Delaware portions of the watershed unless otherwise noted 5-3 through 5-18: fifteen best management practices are described in detail with appropriate illustrations.
b. Proposed management measures are strategic and feasible for the watershed	5-1: prioritized BMPS per landcover type are briefly described and pertain to the Maryland and Delaware portions of the watershed unless otherwise noted 5-3 through 5-17: fifteen best management practices are described in detail with appropriate illustrations.
c. Proposed management measures achieve load reduction goals	5-1: This plan acknowledges that focusing on the 15 BMP recommendations reduces nutrients by 16,751lbs/yr. This plan is designed to present an initial strategy to work towards achieving the goal. 5-19: table 5-2 provides a summary of proposed BMPs and load reductions. This plan acknowledges that the spreadsheet model considered many more BMPs which are listed in appendix D. The document proposes that specific BMPs per landcover type and sub-basin are targeted and prioritized for this initial watershed plan. As the initial BMPs are implemented, the plan documented can be revisited to incorporate new BMPs, recognize implemented BMPs, and account for changes in the landscape.
d. Critical/Priority implementation areas have been identified	2-11 through 2-12: MBSS results including Figure 2-10 used to rationalize use of land use planning and management in problem areas 2-14: table 2-2 summarizes severity of potential problems and is used to help prioritize BMP implementation

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	3-3: discussion rationalizes why Greys Creek should be targeted for BMP implementation
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	2-14: identified length of channel alteration, inadequate buffer, and erosion 5-2: table 5-1 shows BMP implementation goal by sub-basin
f. Adaptive management process in place to evaluate effectiveness of management measures	6-2: see “Load Reduction Evaluation Criteria” which includes public outreach, the <i>Nutrient Reduction Plan</i> , and measuring total nitrogen and phosphorus
D. Technical and financial assistance needs	
a. Cost estimates reflect all planning and implementation costs	5-3 through 5-14: project estimates provided for recommended BMPs
b. Cost estimates are provided for each management measure	4-3 and 4-4: cost-benefit analysis economic summary for all proposed BMPs to show the “time value of money” 5-3 through 5-18: costs estimates per project are provided
c. All potential Federal, State, Local, and Private funding sources are identified	4-5: funding opportunities are discussed Appendix F: funding program names are identified
d. Funding is strategically allocated—activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	Appendix F: descriptions of eligible projects are provided for each funding program
E. Information, education, and public participation component	
a. A stakeholder outreach strategy has been developed	6-6: Worcester County, acting as the lead agency, will work in cooperation with the IC and provide biennial status reports; 6-6: Potential members of the watershed action group, WAG, are listed in the sidebar.
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	6-4: sidebar lists all relevant stakeholders involved in monitoring component 6-6: The Implementation Committee, or IC, will have oversight of the plan’s implementation. The IC will coordinate among the Policy Committee members, STAC and Citizens Advisory Committee to ensure progress is being made towards achieving this plan’s goals. 6-6: sidebar lists stakeholders that could participate in watershed action group
c. Public meetings and forums	6-6: WAG members shall meet quarterly and operate on a

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have been/are scheduled to be held	two-year cycle Appendix B: summary notes for past watershed meetings are provided
d. Educational/outreach materials will be/have been disseminated	1-7: characterization report, stream corridor assessment, and nutrient synoptic survey were completed; website has been developed for the WRAS—see http://www.co.worcester.md.us/cp/wras.htm
F/G. Schedule and milestones	
a. Implementation schedule includes specific dates and expected accomplishments	5-20: The plan recommends 25% completion for each of BMP recommendation by the end of 2011 followed by 50% completion by 2014, 75% completion by 2017, and 100% completion by 2020. Biennial reporting will be due at that time. 5-3 through 5-18: BMP recommendations are discussed. Nitrogen reduction estimates are provided for each.
b. Implementation schedule follows a logical sequence	4-2: review “BMP strategy”
c. Implementation schedule covers a reasonable time frame	5-20: The implementation schedule, upon County Commissioner approval, should begin in 2009 and ends 2020. Biennial reviews will be completed intermittently to determine necessary changes.
d. Measurable milestones with expected completion dates are identified to evaluate progress	5-20: The plan recommends 25% completion for each of BMP recommendations by the end of 2011 followed by 50% completion by 2014, 75% completion by 2017, and 100% completion by 2020. Biennial reporting will be due at that time. 6-3: figure 6-1 provides threshold values and monitoring frequency for specific environmental indicators.
e. A phased approach with interim milestones is used to ensure continuous implementation	5-20: The plan recommends 25% completion for each of BMP recommendation by the end of 2011 followed by 50% completion by 2014, 75% completion by 2017, and 100% completion by 2020. Biennial reporting will be due at that time.
H. Load reduction evaluation criteria	
a. Proposed criteria effectively measure progress toward load reduction goal	5-2: see Table 5-1 “BMP Implementation Goal by sub-basin” 5-19: see Table 5-2 “BMP Implementation Summary” 6-2: see “Load Reduction Evaluation Criteria”
b. Criteria include both: quantitative measures of implementation progress and pollution reduction; and	5-2: see Table 5-1 “BMP Implementation Goal by sub-basin” 5-19: see Table 5-2 “BMP Implementation Summary”

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<p>qualitative measures of overall program success (including public involvement and buy-in)</p>	<p>6-2: see “Load Reduction Evaluation Criteria” which includes public outreach, the <i>Nutrient Reduction Plan</i>, and measuring total nitrogen</p>
<p>c. Interim water quality indicator milestones are clearly identified; The indicator parameters can be different from the water quality standard violation</p>	<p>6-3: figure 6-1 indicates threshold values for indicators, specifically total nitrogen, chlorophyll a, dissolved oxygen, algae blooms, seagrass, fish, shellfish, blue crabs, and benthic animals, to remain healthy</p> <p>7-1 through 7-4: Review policy changes that will help improve water quality and wildlife habitat. They are conducting a comprehensive rezoning of the watershed, adopting a green infrastructure overlay zoning district, and implementing conservation subdivision principles.</p>
<p>d. An adaptive management approach is in place, with threshold criteria identified to trigger modifications</p>	<p>6-1 through 6-2: The County proposes to partner with the Maryland Coastal Bays Program in the adaptive management process.</p> <p>6-6: Biennial status reports will include the following:</p> <ul style="list-style-type: none"> • Quantify and map acres of existing BMPs, newly implemented BMPs as a result of the WRAS, and a two-year future plan of BMP implementation • Quantify existing nitrogen levels and nitrogen loads reduced • Characterize and quantify impact on water quality and wildlife habitat • Summarize new information or data pertaining to the watershed not yet in the plan document <p>The biennial status report shall be amended to the WRAS document with the first biennial status report to be completed two years from the date of this plan’s adoption. To ensure continued progress, Worcester County will work with the Implementation Committee who will coordinate among the Policy Committee members, STAC and Citizens Advisory Committee.</p> <p>6-7: A comprehensive update of this document shall be considered if any one of the following occurs:</p> <ul style="list-style-type: none"> • A TMDL is approved for the Assawoman Bay or its tributaries • New information or data changes the interim nitrogen reduction goal or the interim water quality goal

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	<ul style="list-style-type: none"> • After 25%, 50%, 75%, and 100% of the prioritized BMPs are implemented • Legislation requires changes to watershed planning activities
I. Monitoring component	
<p>a. Monitoring plan includes an appropriate number of monitoring stations</p>	<p>6-5: Figure 6-2 shows 6 monitoring stations in the Assawoman Bay watershed. DNR has 42 monitoring stations in the Coastal Bays; 5 are located in the Assawoman Bay. The MCBP has 1 monitoring station in the watershed.</p> <p>Refer to figure 2-2 and figure 6-2 for map locations.</p>
<p>b. Monitoring plan has an adequate sampling frequency</p>	<p>6-3: figure 6-1 identifies monitoring frequency per indicator component</p>
<p>c. Monitoring plan will effectively measure evaluation criteria identified in “H”</p>	<p>6-3: figure 6-1 identifies threshold values for evaluation criteria identified in “H”</p> <p>6-4: Describes monitoring programs by the Maryland DNR, UMCES, USGS, the Virginia institute of Marine Science, MDE, and the University of Delaware used to assess conditions and track changes in the Maryland Coastal Bays.</p>