Total Maximum Daily Load Restoration Plan for Bacteria
Anne Arundel County
February 2016 Draft Submittal

Response
to
MDE Comments of May 19, 2015

1. Introduction

Anne Arundel County (the County) currently has 19 U.S. Environmental Protection Agency (EPA)-approved bacteria Total Maximum Daily Loads (TMDLs) associated with the County waterways for various bacteria impairments. Fecal coliform is identified as the cause of impairment in the TMDLs for 15 of the 19 waterways. E. coli and Enterococci are identified as the impairments for two TMDLs each. The County is required by its National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit (11-DP-3316, MD0068306) to develop a TMDL Restoration Plan to address the Stormwater Waste Load Allocations (SW-WLAs) identified in the TMDL reports developed by the Maryland Department of Environment (MDE). The Anne Arundel County Department of Public Works (DPW) Watershed Protection and Restoration Program (WPRP), with the help of the URS/ESA Joint Venture (the project team), developed a combined Draft Bacteria TMDL Restoration Plan to address the 19 bacteria TMDLs; that report was submitted to MDE on February 12, 2015. MDE provided comments on the Restoration Plan in a letter to the County Project Manager (Janis Markusic) dated May 19, 2015. MDE's letter included two attachments with comments on the Bacteria TMDL Restoration Plan.

This technical memorandum briefly describes the County's response and revisions incorporated to address MDE comments on the Bacteria TMDL Restoration Plan. The project team discussed these comments with the County Project Manager and DPW WPRP personnel and identified appropriate responses during a meeting on June 24, 2015. Below is a list of the MDE-provided review comments (in italics) and the County's responses. Although MDE also provided comments on Sediment TMDL Restoration Plans, Watershed Assessments, and Chesapeake Bay TMDL compliance, this technical memorandum addresses only the MDE comments that apply to the Bacteria TMDL Restoration Plan.

2. MDE's Attachment 1 Comments

The following comments are from Attachment 1 of MDE's letter dated May 19, 2015. The comments are provided for Watershed Assessments, Restoration Plans, Public Participation and TMDL Compliance under the column "MDE Assessment and Recommendations." The comment numbers below refer to the sub-bullet points listed under the "Restoration Plans" and "Public Participation" sections. Comments 1 through 4 and comment 6 (under Restoration Plans) correspond to comments on the Sediment TMDL Restoration Plans developed by the County and are not applicable to the Bacteria TMDL Restoration Plan.

MDE Comment 5:

Any best management practices (BMPs) used in the modeling of baselines or current load analyses shall be maintained according to State regulations. BMPs that are not inspected at least once every three years and maintained may not be included as treatment when modeling loads.

County Response:

The BMP data included in the Restoration Plan is based on the BMP data compiled by the County for the 2014 NPDES MS4 Annual Report.

MDE Comment 7:

Information used to develop the individual TMDL restoration plans is not consistent with similar information found in other sections of the County's Annual Report and associated databases. For example, the County's urban BMP database indicates that there are ten Bioretention practices with a total drainage area of 23 acres that could be applied to the baseline for the Little Patuxent River watershed. However, the total drainage treated by these practices for the baseline analysis in the restoration plan (see Table 10) is 70.9 acres.

County Response:

The County updated the drainage and impervious areas in the BMP database developed for the 2014 NPDES MS4 Annual Report. The water quality models were revised based on the updated BMP database to maintain consistency in BMP drainage areas in the model with the drainage areas reported in the 2014 NPDES MS4 Annual Report.

Appendix A of the Restoration Plan, which describes the water quality modeling methodology and supporting data in detail, was modified to present the updated methodology and data used to revise the water quality models.

MDE Comment 8:

Anne Arundel County is using an expanded pet waste education program as one of the strategies for reducing bacteria in receiving waters. The credits claimed for this strategy are significant for several of the bacteria TMDLs within the County (e.g., Magothy Mainstem, Forked Creek, Severn River Mainstem). MDE considers this an opportunity to further monitor and research this BMP to verify the water quality benefits claimed. A thorough report shall be provided by the end of the permit term and include adaptive management strategies for achieving the expected load reductions for bacteria.

County Response:

Based on MDE's recommendation, the County's DPW WPRP is in the process of developing a pet waste program and methodologies to evaluate its effectiveness. A list of potential evaluation methodologies that can be adopted by the County to evaluate pet waste program is included in the Section 8 (Methods for Evaluating Progress) of the Restoration Plan. Development/implementation of this

program is also included in the recently submitted Anne Arundel County Phase II WIP Milestones for 2016-2017.

MDE Comment 9:

Each of the restoration plans lacks specificity in how individual TMDLs will be addressed. These plans need to be of sufficient detail to ensure that expected interim milestones can be achieved and the TMDL addressed. Each plan should include a list of specific BMPs that will be implemented during the current permit term to address the TMDLs. This list should include BMP locations, drainage areas, impervious area treated, load reductions, estimated costs, and implementation schedule (e.g., design, construction). This list shall coincide with interim targets identified in the restoration plans.

County Response:

The proposed BMP restoration strategies were revised to include projects that are currently a part of the six-year County Capital Improvement Program (CIP) to be more site-specific. The water quality models for the proposed conditions were also revised to estimate the percent load reductions that would be achieved from each CIP project. The Restoration Plan was updated based on the revised BMP restoration strategies and water quality models.

MDE Comment 10 (Public Participation Comment 1):

Anne Arundel County has developed a website (www.aarivers.org) and an interactive, online application to provide public access to information on watershed assessments and restoration activities.

County Response:

The County is using the above-listed website to list all ongoing restoration programs in the County for public review. The watershed assessments conducted by the County are also available on this website.

MDE Comment 11 (Public Participation Comment 2):

As TMDL implementation plans and new watershed assessments are developed, the information also will be made available on the County website.

County Response:

After updating the Restoration Plan based on MDE and internal County agency comments, the Restoration Plan will be uploaded to the County website for a period of 30-days for public review.

MDE Comment 12 (Public Participation Comment 3):

Anne Arundel County must accept public comments on watershed assessments and watershed restoration plans. The County must provide a summary of how comments received were addressed in its next annual report.

County Response:
The revised Restoration Plan that incorporates MDE and internal County agency comments will be uploaded for a 30-day public comment period. After the end of the public comment period, the County project team will develop a "Response to Public Comments" document addressing the public comments received. This document will be included as a part of the NPDES MS4 Annual Report and as part of the final Restoration Plan.

3. MDE's Attachment 2 Comments

The following comments are from Attachment 2 of MDE's letter dated May 19, 2015. Note that comment numbers below are consistent with those used in Attachment 2 except for the first comment, which was not given a number in the attachment and was included as a general comment for all County TMDL Restoration Plans. In addition, MDE provided one general comment and six specific comments for the Bacteria TMDL Restoration Plans, which are addressed below.

MDE General Comment (see third paragraph on first page of Attachment 2):
These [TMDL restoration plans] lack specificity at a site level scale, probably due to planning uncertainties such as, finding sites, purchasing or gaining access to land, obtaining all required permits and designing BMPs. This is understandable, and MDE recognizes that these plans are still works in progress. During subsequent annual reports, and by the time of the next permit issuance, the county should plan on including a much higher level of site-specific detail on planned implementation.
County Response:
This comment is similar to Comment 9 of Attachment 1 (see above). The water quality models and restoration strategies were updated to include County CIP projects, which are more site-specific.

MDE General Comment 1 (see table on page 2 of Attachment 2):
There is no clear demonstration of consistency between the modeled baseline year and the TMDL's baseline year. MDE suggests adding in a table comparing the TMDL baselines to the Watershed Treatment Model (WTM) baselines in the next revision.
County Response:
The TMDL baseline years for all the watersheds are included in Table 3-1 of the Restoration Plan and, as noted in the Section 2.10 of the plan, 2014 is the modeled baseline year for all the watersheds.

MDE Specific Comment 1:

The numbers for "TMDL Current Load" and "TMDL Allowable load" in Table 3-1 do not match any numbers in the TMDL reports. An example or calculation showing how the TMDL numbers have been translated into the table should be included in the next revision.

County Response:

The County project team researched the discrepancies in TMDL current and allowable loads data published in the MDE TMDL reports and the TMDL Data Center and updated Table 3-1 of the Restoration Plan accordingly.

MDE Specific Comment 2:

Although the required percent reduction in Table 3-1 does match the TMDL, it represents the entire watershed, not just the County's portion. The footnote states differently. Further clarification in the next plan revision should explain the scale at which the percent reduction is applied.

County Response:

The Table 3-1 of the Restoration Plan was modified to clearly identify the reduction goals for the Anne Arundel County portion of the TMDL watersheds. The table was modified based on the SW-WLA search on the MDE's TMDL Data Center website and research of the MDE published TMDL documents.

MDE Specific Comment 3:

The TMDL percent reductions presented in Table 4-6 do not match anything from the TMDL documents, nor do they match Table 3-1. In the next revision of the plan, more clarification should be included as to the origin of these reduction percentages.

County Response:

The Restoration Plan was reviewed to ensure all the percent reductions identified for the TMDL watersheds (in Table 3-1 and 4-6) are consistent throughout the Restoration Plan. The SW-WLA for the County portion of the watersheds published on the MDE TMDL Data Center website and the TMDL documents were used as guidance to revise the Restoration Plan.

MDE Specific Comment 4:

Section 8 on methods for evaluating progress, does not outline the county's monitoring efforts. It provides the contractor's recommendations to the county regarding monitoring. The county should include a more detailed strategy for adaptive management or for using monitoring data to assess general implementation efforts or specific practices. A paragraph could be added to Section 8 about using tracking, monitoring, and evaluation to assess and revise their strategies if the current plan is not achieving the desired results.

County Response:
The County's current monitoring efforts are outlined in Section 8 of the Restoration Plan. The County and the project team developed additional potential bacteria monitoring ideas which were incorporated into Section 8 of the Restoration Plan. Section 8.1.2 was renamed to "Water Quality Monitoring and Evaluation" and includes a description of the methods to be used for evaluating the monitoring data to determine the effectiveness of specific implementation strategies. The strategies will be adjusted in future if the evaluation determines that they are not providing the expected results.

MDE Specific Comment 5:
Although applied bacteria removal efficiencies are referenced in the county's 2014 MS4 annual report, the report does not actually list those referenced efficiencies. The county should elaborate on the origin of the applied efficiencies, including a link to the supporting document if available.
County Response:
The County updated the bacteria removal efficiencies using the data identified in the Center for Watershed Protection's document "Urban Subwatershed Restoration Manual Series" and other related publications. The water quality models and the Restoration Plan were updated based on the revised BMP removal efficiency. The source of the BMP removal efficiencies is also included in the Restoration Plan's Table 2-2 and the Reference section (Section 9).

MDE Specific Comment 6:
The proposed strategies do not meet the required reductions in all watersheds. For example, the Patapsco River Lower North Branch watershed is stated to require a 50% reduction after counting existing practices. The proposed strategies are expected to achieve only 40% reduction (Table 4-7B). This is acknowledged in the report with the statement that "additional restoration opportunities with bacteria removal benefits will need to be identified" (Page 4-16). MDE recommends that the county continue to build upon its ongoing activities toward meeting the reduction target in the next permit cycle.
County Response:
This comment was addressed by incorporating adaptive management strategies in the Restoration Plan.

4. Conclusion

The Bacteria TMDL Restoration Plan was updated based on the MDE comments and is being submitted as an appendix to the Annual NPDES MS4 Report in February 2016. The plan will also be uploaded to the County's web site for a 30-day public comment period.