The final public meeting for the draft UGC IP report was held on June 21, 2017, at the Wakefield School in The Plains, VA. The meeting was attended by 17 people. The comment period for the draft report extended from June 21, 2017 through July 21, 2017. During this period, staff received written comments from the following two commenters:

- Jeff Sledjeski (citizen)
- Piedmont Environmental Council

Staff responses to written comments are provided in a separate document entitled “Summary of Public Comments and Staff Responses” and dated August 21, 2017.

Revisions to the draft Upper Goose Creek TMDL Implementation Plan report in response to comments and other final edits

Staff considered the comments received and revised portions of the draft reports in response to those comments. Additional changes to the draft report were associated with internal DEQ discussions and final editorial review. All of the revisions (new and revised text is underlined) made to draft report are summarized below:

Executive Summary

1. The final paragraph in the “Review of the TMDL” section of the Executive Summary was revised, as shown below (new and revised text is underlined), to provide more clarity on the reason for selecting an alternative scenario of bacteria reductions from that in the 2003 TDML report for the Implementation Plan:

Finally, the original bacteria pollutant reduction scenarios contained in the 2003 TMDL report were reviewed and an alternative scenario (to the one used in the 2003 TMDLs) was selected by DEQ. The 2003 Goose Creek TMDL was one of the first bacteria TMDLs prepared in Virginia, and it called for bacteria reductions sufficient to achieve no exceedance over a ten year modeling period of the single sample maximum criteria. This would require near elimination of all major sources of bacteria throughout the watershed.

Finally, the original bacteria pollutant reduction scenarios contained in the 2003 TMDL report were reviewed and an alternative scenario (to the one used in the 2003 TMDLs) was selected by DEQ. The 2003 Goose Creek TMDL was one of the first bacteria TMDLs prepared in Virginia, and it called for bacteria reductions sufficient to achieve no exceedance over a ten year modeling period of the single sample maximum criteria. This would require near elimination of all major sources of bacteria throughout the watershed.

The current DEQ (and EPA) expectation for TMDL implementation plans is to achieve bacteria reductions that will result in no exceedance of the geometric mean criterion value, and less than a 10.5% exceedance rate of the single sample maximum value. These water quality end-points fully achieve the Commonwealth of Virginia’s recreational use water quality standard. In light of current practices, it was appropriate to
revisit the bacteria reduction allocations in the TMDL modeling and select a more viable scenario than that selected for the 2003 TMDL allocations.

The pollutant reduction scenario that is the foundation for this plan spreads load reductions more broadly by also addressing cropland, stormwater, and pet waste. This provides an opportunity to more broadly engage the local community in watershed protection and restoration. As a result, bacteria reductions needed from pasture have been reduced from the 98-99% levels called for in the TMDL to a more viable level (75%) in this plan.

Review of the 2003 TMDL and Updated Analysis

2. A typographical error was corrected in the next to last paragraph of the draft IP report, as follows:

The results of this analysis are an increase of 8% to the beef cattle population, and increase of 3% to the horse population, and a decrease of 35% to the dairy cow population included in the 2003 TMDL.

3. Additional text was added to the end of this section to explain the selection of an alternative TMDL modeling scenario for the Implementation Plan than the one used in the 2003 TMDL allocations, and clarify criteria currently used by Virginia in assessing its recreational use/bacteria water quality standard:

Finally, the original bacteria pollutant reduction scenarios contained in the 2003 TMDL report were reviewed and an alternative scenario (to the one used in the 2003 TMDLs) was selected by DEQ. The 2003 Goose Creek TMDL was one of the first bacteria TMDLs prepared in Virginia, and it called for bacteria reductions sufficient to achieve no exceedance over a ten year modeling period of the single sample maximum criteria. The modeling scenario (Scenario 8 in the 2003 TMDL report) that was the basis of the 2003 TMDL allocations called for 100% reduction of direct deposition of bacteria from cattle in streams, 100% reduction of bacteria from failing septic systems, and 98-99% (varied by sub-watershed) reduction of bacteria runoff from pasture; essentially this equates to near elimination of all major sources of bacteria throughout the watershed.

The current DEQ bacteria TMDL development process is to present load allocation reductions that will result in no exceedances of the geometric mean criterion value. In addition, one or more load allocation scenarios are provided that will result in less than a 10.5% exceedance rate of the single sample maximum criterion. This (latter) threshold is used by DEQ to identity bacteria impaired waters and to remove waters from the impaired waters list as water quality improvements are attained. DEQ uses a phased implementation approach in bacteria TMDL implementation plans to achieve the water quality milestones that are described.

The current DEQ (and EPA) expectation for TMDL implementation plans is to achieve bacteria reductions that will result in no exceedance of the geometric mean criterion value, and less than a 10.5% exceedance rate of the single sample maximum value. These water quality end-points fully achieve the Commonwealth of Virginia’s recreational use water quality standard. In light of current practices, it was appropriate to revisit the bacteria reduction allocations in the TMDL modeling and select a more viable scenario than that selected for the 2003 TMDL allocations.
The pollutant reduction scenario (Scenario 9 in the 2003 TMDL report) that is the foundation for this plan lessens the required pasture bacteria reductions from 98-99% to 75%, and adds cropland and developed land reductions of 75%. This shift reduces pasture land management controls to a more viable level, and also spreads load reductions more broadly by also requiring cropland, stormwater, and pet waste management actions. The revised allocations provide an opportunity to more broadly engage the local community in watershed protection and restoration by requiring more management actions on developed lands.

Public Participation

4. Table 4.1 was shifted to follow the second paragraph in this section

5. Additional language was added to the paragraph describing the final public meeting to summarize discussions at the June 21, 2017 meeting.

The final public meeting was held on June 21, 2017 in The Plains, VA. The primary purpose of this meeting was to present the final TMDL IP. A presentation was given describing the implementation plan and its major components. Maps with land use, topographic features, and analysis of best management practices recommended for each watershed were displayed and discussed during the presentation.

There were questions and discussion of how the 75% bacteria reductions from pasture would be obtained and about stream exclusion fencing needs. It was noted that riparian buffers and improved pasture management practices will help address the load reductions needed for pasture land by filtering runoff from farm fields before it enters streams. Several participants stressed the need to “ground-truth” estimated stream exclusion fencing needs in light of fencing already installed and land use changes. DEQ clarified that during project implementation such validation/corrections can be made, and that technical assistance funded with CWA §319 grants could address this need. Additional discussion stressed the importance of addressing horse farm sources of bacteria, and conveyed participants’ perspective that wildlife populations (especially deer and geese) seem to be increasing.

Implementation Actions

6. Section 5.1.2 “Implementation Measures for Pasture and Cropland” was revised for additional clarity, as shown below:

The primary ways to reduce bacteria runoff from pasture or cropland include installing vegetative buffers, using improved pasture management or rotational grazing practices, reducing tillage, planting cover crops, and planting crops along field contours. Since 2002, these types of BMPs installed with funding from state cost-share programs have benefited 10,770 acres across the IP area. The majority of BMPs were installed in the Upper Goose Creek sub-watershed. While progress to reduce bacteria loads in the watershed has been steady since 2002, the bacteria reductions from pasture improvement measures completed between 2002 and 2016 only yielded approximately five percent of necessary reductions (many existing measures have relatively low bacteria reduction efficiencies). Updated analysis shows that significant additional farm field improvements are required to achieve water quality goals. In total, the management measures included in the IP call for some 27,350 additional acres of pasture and cropland improvements.
Cropland contributes a small percentage (less than 1%) of overall bacteria to Upper Goose Creek, Cromwells Run, and Little River (see Table A-12, Table A-13, and Table A-14 in Attachment A). Frequent crop rotation and conversion from cropland to pasture to hay are management measures that help reduce bacteria runoff from farm fields. Distributing water systems across pasture increases forage utilization and has been shown in some cases to allow farmers to increase animal density. Livestock exclusion fencing provides a benefit to pasture and therefore was also included in calculating total bacteria reductions from pasture lands. The efficiency of management measures to reduce bacteria runoff from pasture range from 50 to 99%, with most measures having bacteria reduction efficiencies of 50%. The pasture and cropland measures recommended in this plan provide the additional bacteria controls needed to achieve the 75% reduction allocated to pasture and cropland.

7. A typographical error was corrected in the last sentence on p. 18, as follows:

Reforestation projects in support of water quality improvement would provide additional resource management benefits within this corridor area by also supporting county green infrastructure goals.

8. New language was inserted to Section 5.3.1 “Equine Management” in response to a comment submitted by the Piedmont Environmental Council to acknowledge potential that “persistent herbicides” could be present in harmful amounts in composted manure. DEQ will also ensure this issue is addressed in any future grants awarded to provide cost-share funding for manure composting facilities.

Use of composted manure in gardening applications has many environmental benefits, but warrants care as well. In 2013, the US Composting Council has documented harm (extensive damage to garden vegetables and crops) caused by compost contaminated with persistent herbicides, and called for regulatory action to ban their use. This concern needs to be factored into planning for construction of the community composting facilities recommended in this plan.

9. New language was inserted to Section 5.1.3 “Education and Outreach” in response to a comment submitted by the Piedmont Environmental Council.

Information on the potential adverse effects of persistent herbicides in composted manure should be included in these education and outreach materials.

Measureable Goals and Milestones for Attaining Water Quality Standards

10. New language has been inserted to the beginning of this section to clarify how DEQ assesses for attainment of the bacteria water quality standard, and a new table has been inserted to show the water quality end points projected for each sub-watershed at the end of Phase 1 and Phase II of this plan. The revised opening of this section reads as follows:

Delisting the impaired waters in the plan area is the ultimate goal of this plan. Water segments (“Assessable Units”) within the plan area where water quality monitoring results show less than a 10.5% exceedance rate of the single-sample maximum value of 235 colony forming units of *E. coli* per 100 milliliters (cfu/100mL) can be delisted from Virginia’s impaired waters list. Full attainment of the recreational use water quality
standard would be demonstrated by a geometric mean value based on at least four samples in a single month of no more than 126 cfu/100mL.

As noted, the IP will be carried out in two phases. Phase I covers the first ten years of implementation (Years 1-10). The measures selected for Phase I are considered those most important to achieving near term improvements in water quality. Phase II is the final five years (Years 11-15), and will seek to improve water quality to meet the water quality standard for recreational use.

Table A-21 shows the water quality outcomes that are projected once Phase I and Phase II BMPs are in-place. Specifically, there will be significantly reduced levels of exceedance of the instantaneous bacteria standard in each watershed after Phase I (12% for Upper Goose Creek, 7% for Comwells Run, and 13% for Little River). At the end of Phase II, each sub-watershed is projected to have < 10.5% exceedance rate of the instantaneous standard, and 0% exceedance of the geometric mean standard of 126 cfu/100 mL. Phase II water quality outcomes are projected by the TMDL model, and Phase I outcomes are calculated based on the share of all BMPs that are included in Phase I of the implementation plan.

To best ensure ultimate success, the recommended water quality management measures should be reevaluated toward the end of Phase I, in light of water quality monitoring results. Based on this reevaluation, Phase II BMPs may be altered or not implemented depending on the water quality improvements achieved through the implementation of Phase I measures.

Integration with Other Planning Initiatives

11. Insert at the end of this section the following new entry:

Northern Virginia Regional Commission: In January 2012 NVRC issued a report titled “Conservation Corridor Planning.” This report presents important data analysis that informed the identification of regional conservation “cores” and “corridors” and opportunities for regional collaboration to protect and restore these resources. The Route 15 “Journey Through Hallowed Ground” is within one of the Plan’s five top priority corridors, and falls within the eastern section of the Upper Goose Creek plan area. The NVRC plan’s strategies are consistent with the goals of this IP, including enhancing ecosystem functions with good management and restoring degraded or missing (corridor) connections.

References

12. Added the 2013 US Composting Council position paper on persistent herbicides to the list of references