



July 27, 2015

Ms. Lenka Berlin  
US EPA Region III, 3WP30  
1650 Arch Street  
Philadelphia, PA 19103

Dear Ms. Berlin:

Thank you for the opportunity to comment on the proposed Total Phosphorus Total Maximum Daily Load (TMDL) for the Wissahickon Creek Watershed. Please find Pennsylvania Department of Environmental Protection's (DEP's) comments below.

**1. The existing Wissahickon Creek Sediment TMDL (2003) must also be revised.**

DEP believes that the draft nutrient TMDL for the Wissahickon Creek must be accompanied by a revision to the existing Wissahickon Creek sediment TMDL. Phosphorus loads are inextricably dependent on sediment loading; therefore, Municipal Separate Storm Sewer System (MS4) permittees with Wasteload Allocations (WLAs) in the TMDL must be able to account for phosphorus reductions achieved through sediment removal. While it is conceivable that the sediment reductions required by the 2003 TMDL could be used to calculate associated phosphorus reductions, DEP does not believe that approach is preferred or valid for several reasons.

Firstly, several errors have been found in the existing Wissahickon Creek sediment TMDL that suggest a revision is necessary and to revise the nutrient TMDL with a new watershed modeling effort that includes sediment without redoing the sediment TMDL is inappropriate. The 2003 sediment TMDL report broke the loads, both existing and WLAs, into contributions from overland flow and streambank erosion. Such prescriptive and specifically assigned loadings are meant to target areas of concern and guide implementation efforts. However, the proportion of loads assigned to the two categories (overland flow and in-stream contributions) incorrectly assigns the bulk of the loading to overland flow. For example, one particular urbanized MS4 community's total sediment loadings in the Wissahickon Creek TMDL were estimated to be 768,892 lbs/yr with 695,875 lbs/yr (>90%) being attributed to overland flow contributions. In reality, the primary source of sediment in the watershed is in-stream erosion due to stormwater volume and peak flow impacts. The incorrect assignment of loads between channel erosion and overland flow applies to every municipality and subwatershed in the existing TMDL. This causes issues in the implementation of the sediment TMDL which, in turn, will cause problems implementing any new phosphorus TMDLs/WLAs assigned.

Further, the 2003 and 2015 TMDLs used two different models to calculate watershed sediment load. The 2003 report applied a version of the Generalized Watershed Loading Function (GWLF) model for estimating watershed sediment and nutrient loads, while the 2015 draft TMDL used the Loading Simulation Program in C++ (LSPC). Though DEP has no issue with either model, mixing the results to calculate the phosphorus load reductions achieved in the 2015 LSPC/Environmental Fluid Dynamics Code (EFDC) application using sediment loading estimates from a flawed 2003 GWLF modeling effort is not a technically sound approach to implementing either TMDL. Based on the fact that the LSPC model used to develop the new phosphorus TMDL would have necessarily been calibrated for sediment, the existing sediment TMDL should be revised to fix these errors and provide a more reasonable roadmap for the MS4s along with a consistent tool (the new LSPC model) to assess the impact that volume/peak flow reductions are having on both sediment and phosphorus.

**2. EPA should use the watershed and water quality models developed for the Wissahickon Creek watershed to evaluate response-based total phosphorus endpoints**

To its credit, EPA has developed a comprehensive and complex model for the Wissahickon Creek watershed that entails both loading from the land area in the watershed to fate and transport in the receiving waters. The dynamic model accounts for the chemical and biological processes in the streams that DEP believes are responsible for the adverse effects on the aquatic community. However, DEP does not believe that the models were utilized to their full capability in setting the allowable loading to the stream. Full utilization of the models available would include evaluating the response of the stream to the reduction of nutrients and developing a better understanding of the process by which nutrients affect in-stream primary productivity and daily dissolved oxygen fluctuations. DEP's data suggest that a more appropriate TMDL endpoint could be derived based on an understanding of the process and aided by the sophisticated data collection efforts and mechanistic models assembled throughout the last decade.

**3. The WLA assigned to North Wales Township should be given to Upper Gwynedd Township**

The North Wales Wastewater Treatment Plant no longer exists and does not need a WLA. Please reassign the WLA to Upper Gwynedd Township.

Sincerely,



Lee McDonnell, P.E.  
Director  
Bureau of Point and Non-Point Source Management