APPENDIX C. TMDL Information Sheet for Neshaminy Creek

TMDL Information Sheet
for Neshaminy Creek Watershed

What is being proposed?
Total Maximum Daily Load or TMDL plans have been developed to improve the water quality in several sub-watersheds of the larger Neshaminy Creek watershed spanning Bucks and Montgomery Counties.

Who is proposing the plan? To whom? Why?
The Pennsylvania Department of Environmental Protection (DEP) is proposing to submit the plan to the US Environmental Protection Agency (EPA) for review and approval as required by the federal regulation.

In 1995, EPA was sued for not developing TMDLs when Pennsylvania did not do so. DEP has entered into an agreement with EPA to develop TMDLs for certain waters over the next several years. DEP developed this TMDL in compliance with the state/EPA agreement.

What is a TMDL?
A Total Maximum Daily Load (TMDL) sets a ceiling on the pollutant loads that can enter a waterbody so that the waterbody will meet water quality standards. The Clean Water Act requires states to list all waters that do not meet their water quality standards even after pollution controls required by law are in place. For these waters, the state must calculate how much of a substance can be put in the water without violating the standard, and then distribute that quantity to all the sources of the pollutant on that waterbody. A TMDL plan includes waste load allocations for point sources, load allocations for nonpoint sources and a margin of safety.

The Clean Water Act requires states to submit TMDLs to EPA for approval. Also, if a state does not develop the TMDL, the Clean Water Act states that EPA must do so.

What is a water quality standard?
The Clean Water Act sets a national minimum goal that all waters are "fishable" and "swimmable." To support this goal, states must adopt water quality standards.

Water quality standards are state regulations that have two components. The first component is a use, such as warm water fishes or recreation. States determine the uses supported by each of their waters. The second component relates to the instream conditions necessary to protect the uses. These conditions or criteria are physical, chemical or biological characteristics, such as temperature, the minimum concentration of dissolved oxygen, and the maximum concentrations of toxic pollutants.

It is the combination of "uses" and "criteria" that make up water quality standards. If criteria are being exceeded, the uses are not being met, and the water is said to be violating water quality standards.

What is the purpose of the plan?
Several stream segments within the Neshaminy Creek watershed were determined to be impaired from excess nutrient and/or sediment contributions. This determination was made based on the health of the biological community residing in the water. The plans developed for each impaired sub-watershed include a calculation of the loading for both nutrients and/or sediment that will meet the water quality objectives.

Why were streams in this watershed selected for TMDL plan development?
Based on the results of biological stream surveys conducted since 1994, 203.3 miles of streams with the Neshaminy Creek watershed (about 48.6% of the total stream miles) have been included on Pennsylvania's 303(d) list of streams having aquatic life use impairments. A complete listing of the segments impacted, along with their respective sources and causes of impairment, are included with the TMDL assessment report.

What pollutants do the TMDLs address?
The proposed plans provide calculations of the stream's total capacity to accept nitrogen, phosphorus and sediments.

Where do the pollutants come from?
The pollution in the Neshaminy Creek watershed comes from both point and non-point sources (NPS) of pollution. Point source pollution comes primarily from wastewater treatment plants in the watershed. Non-point source pollution comes primarily from overland runoff.

How were the TMDL plans developed?
DEP used a reference watershed approach to estimate the necessary loading reduction of nutrients and sediment that would be needed to restore a healthy aquatic community and allow the streams in the watershed to achieve their designated uses. The reference watershed approach is based on selecting a non-impaired watershed that has similar land use characteristics and determining the current loading rates for the pollutants of interest. This is done by modeling the loads that enter the stream, using precipitation and land use characteristic data. For this analysis we used the AVGWLF model (the Environmental Resources Research Institute of the Pennsylvania State University's ArcView based version of the Generalized Watershed Loading Function model developed by Cornell University). This modeling process uses loading rates in the non-impaired watershed as a target for loading reductions in the impaired watershed. The impaired watershed is modeled to determine the current loading rates and determine what reductions are necessary to meet the loading rates of the non-impaired watershed.

The reference stream approach was used to set allowable loading rates in the affected watersheds because neither Pennsylvania nor EPA has water quality criteria for nitrogen, phosphorus or sediment.

How much pollution is too much?
The allowable amount of pollution in a waterbody varies depending on several conditions. TMDLs are set to meet water quality standards at the critical flow condition.

For a free flowing stream impacted by non-point source pollution loading from nutrients and sediment, the TMDL is expressed as a yearly loading. This accounts for pollution contributions over all stream flow conditions.

DEP has established the water quality objectives for nitrogen, phosphorus and sediment by using the reference watershed approach. This approach assumes that when the impaired watershed achieves loadings similar to the unimpaired, reference watershed, the impairment is eliminated. Reducing the current loading rates for nitrogen, phosphorus and sediment in the impaired watershed to the current loading rates in the reference watershed will result in meeting the water quality objectives.

How will the loading limits be met?
BMP's (Best Management Practices) will be installed throughout the watershed to achieve the necessary loading reductions.

How can I get more information on the TMDL?
To request a copy of the full report, contact Dr. Barry M. Evans at (814) 865-3357 or by writing to him at The Pennsylvania State University, Environmental Resources Research Institute, Land and Water Research Building, University Park, PA 16802 or e-mail at bme1@psu.edu.

How can I comment on the proposal?
You may provide e-mail or written comments postmarked no later than _____ to the above address.