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Technical Memorandum

Significant Sediment Nonpoint Sources in the Seneca Creek Watershed

The U.S. Environmental Protection Agency (EPA) requires that Total Maximum Daily Load (TMDL) allocations account for all significant sources of each impairing pollutant (CFR 2009). This technical memorandum identifies the significant nonpoint sources of sediment in the Seneca Creek Watershed. Detailed allocations are provided for those nonpoint sources included within the Load Allocation (LA) portion of the Seneca Creek Watershed Sediment TMDL. These allocations are designed to meet the TMDL thresholds. The State reserves the right to allocate the TMDLs among different sources in any manner that protects aquatic life from sediment related impacts.

The Seneca Creek Watershed Sediment TMDL is presented in terms of an average annual load established to ensure the support of aquatic life. The computational framework chosen for the Seneca Creek Watershed TMDL was the Chesapeake Bay Program Phase 5.2 (CBP P5.2) watershed model. The nonpoint source sediment loads generated within the Seneca Creek Watershed are calculated as the sum of corresponding land use e*dge-of-stream* (EOS) loads within the watershed and represent a long-term average loading rate. Individual land use EOS loads are calculated as a product of the land use area, land use target loading rate, and loss from the *edge-of-field* (EOF) to the main channel (US EPA 2009). Further details of the nonpoint source sediment load calculations can be found in Section 2.2.1 of the main report.

In order to attain the TMDL loading cap, reductions were applied equally to the predominant controllable sediment sources, which were identified as urban land, high till crops, low till crops, hay, and pasture. Within this TMDL, the urban load is used to represent the National Pollutant Discharge Elimination System (NPDES) regulated stormwater load, which is considered a point source that must be included in the Waste Load Allocation (WLA) portion of a TMDL (US EPA 2002). Therefore, the reductions to the urban load are defined in the point source technical memorandum.

Table 1 provides one possible scenario for the distribution of the annual nonpoint source loads between different land use categories in the Seneca Creek Watershed. Additionally, Tables 2 and 3 provide possible scenarios for the distribution of the annual nonpoint source loads between different land use categories in each individual TMDL Segment (See Sections 4.2 - 4.6 of the main report for further details). The source categories in Tables 1, 2, and 3 represent aggregates of multiple sources (e.g. crop source is an aggregate of high till, low till, hay, animal feeding operations, and nursery sources).

Table 1: Seneca Creek TMDL Allocation by Nonpoint Source Category

Nonpoint Source Category	Baseline Load (ton/yr)	LA (ton/yr)	Reduction (%)
Crop	14,583.6	7,625.3	47.7
Extractive	16.9	16.9	0.0
Forest	1,914.6	1,914.6	0.0
Pasture	817.5	420.5	48.6
Total	**17,332.6**	**9,977.3**	**42.4**

Table 2: Seneca Creek TMDL Segment 1 Allocation by Nonpoint Source Category

Nonpoint Source Category	Baseline Load (ton/yr)	LA (ton/yr)	Reduction (%)
Crop	9,294.6	5,213.2	43.9
Extractive	16.9	16.9	0.0
Forest	1,431.4	1,431.4	0.0
Pasture	468.0	261.8	44.1
Total	**11,211.0**	**6,923.3**	**38.2**

Table 3: Seneca Creek TMDL Segment 2 Allocation by Nonpoint Source Category

Nonpoint Source Category	Baseline Load (ton/yr)	LA (ton/yr)	Reduction (%)
Crop	5,289.0	2,412.1	54.4
Extractive	0.0	0.0	0.0
Forest	483.2	483.2	0.0
Pasture	349.5	158.7	54.6
Total	**6,121.6**	**3,054.0**	**50.1**

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REFERENCES

CFR (Code of Federal Regulations). 2009. *40 CFR* 130.2(i).
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US EPA (U.S. Environmental Protection Agency). 2002. *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs*. Washington, DC: U.S. Environmental Protection Agency.

_____. 2009. In Preparation. *Chesapeake Bay Phase V Community Watershed Model*. Annapolis, MD: U.S. Environmental Protection Agency with Chesapeake Bay Program.