

MS4 Baseload and Reduction Target Calculations

Background

Back in 2017, DEC shared draft base load calculations and phosphorus reduction targets for the phosphorus control plan (PCP) requirements for the MS4 permittees. At the time that those calculations were generated, the reduction targets were based on all developed lands within the municipality, whereas the final MS4 permit states that the reductions will be based on the municipally owned and controlled developed lands. This means that the reduction targets that previously shared need to be recalculated, and in most cases will go down (except for non-traditional MS4s, which are not affected by this change).

DEC has not yet redone all these calculations and so some consultants are undertaking this task themselves. For those MS4s attempting to do the calculations, DEC has created the following guidelines.

Identifying Developed Lands

DEC has used the 2011 Lake Champlain Basin Impervious cover dataset and the developed lands category from the National Land Cover Dataset to define developed lands. These sources were chosen to be consistent with the sources used in TMDL modeling. Road impervious was divided into paved and unpaved (gravel) based on the surface type in the VTrans road centerline data.

GIS layers depicting the developed lands within each town are located here:

<https://www.dropbox.com/sh/sfqc6a198rdyz1q/AAB0ttyrBEt9QsP6lsqdvMn9a?dl=0>

Municipally Owned and Controlled Areas

Municipally owned and controlled areas that must be included in the baseload calculations include:

1. Municipal road and municipal right of way.
2. Municipally owned parcels (not including schools)
3. Sites subject to the 3-acre requirements for which the MS4 assumes fully legal responsibility.

This is best done by selecting and copying those parcels from a town parcel boundary layer in GIS and creating a new layer. Road parcels may need to be clipped to exclude parcel areas that contain non-municipal roads. 3 acre properties should be flagged as the target is different for these areas.

NOTE: The layers in the Dropbox link does include partially complete municipal parcel layers for some towns.

Calculations

Base Load

Acres of developed lands subject to the PCP are calculated by intersecting the developed lands layer with the municipally owned and controlled parcels and summarizing the results by land use class, drainage areas, and 3 acre vs municipally owned. Each land use class has a loading rate, which can be found on the "Loading Rate.xlsx" file at the Dropbox.

Reduction Targets

- Municipally owned (road ROW and parcels) – target is equal to the base load multiplied by the developed lands target for the lake segment.

Lake Segment	Developed Lands WLA
South Lake B	21.10%
South Lake A	18.10%
Port Henry	7.60%
Otter Creek	15.00%
Main Lake	20.20%
Shelburne Bay	20.20%
Burlington Bay	24.20%
Malletts Bay	20.50%
Northeast Arm	7.20%
St. Albans Bay	21.70%
Missisquoi Bay	34.20%
Isle La Motte	8.90%

- 3-acre sites – the target is a 35% reduction. This is calculated by multiplying to the 50% Water Quality Volume requirement by time 70%, which is the average reduction expected by practices in the 2017 Vermont Stormwater Management Manual. Section 8.2 of the MS4 permit did state that the required reduction was 50%, but that was based on a draft of the standards for the three acre sites and has since changed.