

**Attachment 11:**

**June 2014 Updated Nitrogen Loads**

Attachment 11 includes the updated nitrogen loads from the June 2014 Nitrogen TMDL Groundwater Assessments in an overall table. The December 2014 and the June 2015 Nitrogen TMDL and Non-TMDL assessments used the nitrogen loads in the updated methodology in Attachments 9 and 10.

**Revisions to Nitrogen Loading Rates for Water Bodies with Nitrogen TMDLs  
Originally Assessed in June 2014**

While preparing the Nitrogen Non-TMDL Groundwater Methodology included in the December 8, 2014 submittal to EPA, MassDOT modified the impervious surface nitrogen loading rate used to estimate nitrogen loading from its property as compared to those included in the June 2014 Nitrogen TMDL methodology. This modification was made in order to provide a more accurate estimate of nitrogen loading from MassDOT property using the U.S. Geological Survey (USGS) Stochastic Empirical Dilution Model (SELDM). As explained in MassDOT's Revised Nitrogen TMDL Methodology dated June 8, 2015, the nitrogen loading rate for MassDOT impervious surface has been changed from 8.5 pounds of nitrogen/acre/year to 6.2 pounds of nitrogen/acre/year.

SELDM is a USGS peer-reviewed model and was developed to estimate downstream event mean concentrations of various pollutants based on information from the Highway Runoff Database, as well as decades of precipitation data, and a robust water quality sampling program targeting highway runoff. MassDOT regards SELDM as providing a more accurate estimate of nitrogen loading from MassDOT property than other data sources. Consequently, MassDOT re-evaluated the Nitrogen TMDL assessments originally submitted to U.S. EPA in June 2014 using the revised loading rate. The table below summarizes the original and revised estimates of MassDOT nitrogen loads to impaired receiving waters assessed.

Although some of the nitrogen load values have changed slightly based on the revised loading rates, the conclusions of the assessments remain unchanged. In June 2014, all of the water bodies assessed using the Nitrogen TMDL methodology were determined to have a negligible nitrogen contribution to receiving water bodies, as MassDOT's load was calculated to be less than 3.5% of the total watershed load. This conclusion remains the same for all water bodies re-evaluated with the revised MassDOT property nitrogen loading rates.

**Impaired Water Bodies and Nitrogen Load Revisions**

<b>Waterbody ID</b>	<b>Waterbody Name</b>	<b>Existing Load to Water Body: (lb/yr)</b>	<b>Estimated MassDOT Load: (lb/yr)</b>	<b>MassDOT Contribution to Existing Load: (%)</b>	<b>Revised - Estimated MassDOT Load: (lb/yr)</b>	<b>Revised - MassDOT Contribution to Existing Load: (%)</b>
MA95-15	Phinneys Harbor	28,542	83.4	0.29 %	65.4	0.23 %
MA95-46	Harbor Head	998	18.5	1.86 %	16.2	1.62 %
MA96-08	Shoestring Bay	19,047	29.4	0.15 %	22.5	0.12 %
MA96-24	Mashpee River	45,070	122.1	0.27 %	92.3	0.20 %
MA96-42	Taylor's Pond	6,276	18.1	0.29 %	13.5	0.21 %
MA96-43	Harding Beach Pond	8,047	36.7	0.46 %	27.1	0.34 %
MA96-44	Bucks Creek	5,150	0.3	0.01 %	0.3	0.01 %
MA96-45	Oyster Pond	27,681	95.7	0.35 %	71.0	0.26 %
MA96-46	Oyster Pond River	9,254	20.4	0.22 %	15.2	0.16 %
MA96-53	Perch Pond	3,613	18.9	0.52 %	13.9	0.39 %
MA96-54	Great Pond	52,481	77.3	0.15 %	56.9	0.11 %
MA96-55	Green Pond	66,877	16.9	0.03 %	12.7	0.02 %
MA96-56	Little Pond	18,314	16.2	0.09 %	12.2	0.07 %
MA96-57	Bournes Pond	35,768	25.1	0.07 %	18.4	0.05 %
MA96-70	Areys Pond	6,028	11.0	0.18 %	8.8	0.15 %