

Recommended Additions to Enhance Stormwater Regulations to Comply with the Charles River Watershed Phosphorus TMDL Requirements in Appendix F of the MS4 General Permit

Charles River Watershed Association has developed the following recommended additions to stormwater regulations to assist Charles River watershed communities in complying with the Charles River Watershed Phosphorus TMDL Requirements in Appendix F of the MS4 General Permit. We include examples of how this language can be used with the model stormwater regulations developed by the Northern Middlesex Stormwater Collaborative and the Neponset Stormwater Partnership, both of which are available from the EPA: <https://www.epa.gov/npdes-permits/stormwater-tools-new-england>.

Note that enhanced language should consider all TMDLs and impairments a community must address under Appendices F and H of the MS4 General Permit. Communities may wish to expand upon the language provided below as appropriate to address other pollutants of concern.

ADD TO: Purpose

Under the MS4 General Permit, [City/Town] must reduce its annual phosphorus load from land area within its jurisdiction that drains to the Charles River and its tributaries by ____ kg/year or lb/year (“Municipal Phosphorus Reduction Requirement”). To support this requirement, [City/Town] must develop a Phosphorus Control Plan (“PCP”) designed to reduce the amount of phosphorus in stormwater discharges from its MS4 to the Charles River and its tributaries. [City/Town] is required to complete the PCP in three phases that consist of planning, implementation, and assessment. The PCP must be fully developed and implemented as soon as possible but no later than 2038. 20% of [City/Town]’s total Phosphorus Reduction Requirement must be achieved by June 30th, 2026, 25% of [City/Town]’s total Phosphorus Reduction Requirement must be achieved by 2028, 50% of [City/Town]’s total Phosphorus Reduction Requirement must be achieved by 2033, and 100% of [City/Town]’s total Phosphorus Reduction Requirement must be achieved by 2038.

ADD TO: Definitions

- **EXISTING PHOSPHORUS LOAD:** Existing phosphorus load is calculated based on pre-development conditions. Existing phosphorus loading is calculated in accordance with the methods detailed in the MS4 General Permit, Appendix F, Attachment 1. Specifically, existing phosphorus load should utilize the methodology presented for “Baseline Phosphorus Load”.

- SITE-SPECIFIC PHOSPHORUS REDUCTION REQUIREMENT: The amount by which each project site that drains to the Charles River and its tributaries must reduce its annual phosphorus load in accordance with the TMDL for Nutrients in the [Upper/Middle Charles River (May 2011) or Lower Charles River Basin (2007)] so that [City/Town] will be able to comply with Appendix F of the MS4 General Permit. The Site-Specific Phosphorus Reduction Requirement is calculated based on the Existing Phosphorus Load and the following reduction goals:
 - Stormwater management systems on new development shall be designed to meet an average annual pollutant removal equivalent to 90% of the average annual load of Total Suspended Solids (TSS) related to the total post-construction impervious area on the site AND 60% of the average annual load of Total Phosphorus (TP) related to the total postconstruction impervious surface area on the site AND the following:
 - Any existing land use of forest¹ on a project site shall control all phosphorus on-site and shall not add any additional phosphorus load to local waterbodies.
 - Any existing land uses of commercial, industrial, high density residential, medium density residential, and highway² on a project site shall reduce phosphorus for the entire area of land use by 65% from existing phosphorous load.
 - Any existing land uses of low density residential³ on a project site shall reduce phosphorus for the entire area of land use by 45% from existing phosphorous load.
 - Any existing land uses of open land or agriculture⁴ on a project site shall reduce phosphorus for the entire area of land use by 35% from existing phosphorous load.
 - Stormwater management systems on redevelopment sites shall be designed to meet an average annual pollutant removal equivalent to 80% of the average annual postconstruction load of Total Suspended Solids (TSS) related to the total post-construction impervious area on the site AND 50% of the average annual load of Total Phosphorus (TP) related to the total post-construction impervious surface area on the site AND the following:

¹ See Appendix F, Attachment 2, Table 2-3: Crosswalk of Mass GIS land use categories to land use groups for P load calculations.

² *Id.*

³ *Id.*

⁴ *Id.*

- Any existing land use of forest⁵ on a project site shall control all phosphorus on-site and shall not add any additional phosphorus load to local waterbodies.
 - Any existing land uses of commercial, industrial, high density residential, medium density residential, and highway⁶ on a project site shall reduce phosphorus for the entire area of land use by 65% from existing phosphorous load.
 - Any existing land uses of low density residential⁷ on a project site shall reduce phosphorus for the entire area of land use by 45% from existing phosphorous load.
 - Any existing land uses of open land or agriculture⁸ on a project site shall reduce phosphorus for the entire area of land use by 35% from existing phosphorous load.
- PROPOSED PHOSPHORUS LOAD: The proposed phosphorus load (lbs/year or kg/year) is calculated by Applicants based on post-construction land use and taking into account proposed structural and non-structural control measures in accordance with methods detailed in the MS4 Permit, Appendix F, Attachments 2 and 3.
 - MUNICIPAL PHOSPHORUS REDUCTION REQUIREMENT: The amount by which [City/Town] must reduce its annual phosphorus load from land area within its jurisdiction that drains to the Charles River and its tributaries, as set forth in the MS4 General Permit, Appendix F, Table F-2 or F-3, as applicable.
 - PHOSPHORUS CONTROL PLAN (“PCP”): A plan developed in accordance with the requirements in the MS4 General Permit that is designed to reduce the amount of phosphorus in stormwater discharges from [City/Town]’s MS4 to the Charles River and its tributaries.

⁵ *Id.*

⁶ *Id.*

⁷ *Id.*

⁸ *Id.*

ADD TO: Administrative Land Disturbance Reviews

Add to: Application Requirements

- Applicants located in the Charles River watershed shall submit calculations of existing phosphorus load and proposed phosphorus load in mass/year for the site. Calculations may use pollutant load reduction estimation tool(s) approved by EPA for all non-structural and structural stormwater control measures and shall be calculated consistent with Appendix F of the MS4 General Permit.

Add to: Performance Standards

- In areas that drain to the Charles River and its tributaries, Applicants shall reduce the site's annual phosphorus load in accordance with the site-specific phosphorous reduction requirement to help the [City/Town] comply with the MS4 General Permit and the TMDL for Nutrients in the [Upper/Middle Charles River (May 2011) or Lower Charles River Basin (2007)].

For example:

In the Northern Middlesex Stormwater Collaborative Model Stormwater Regulations (Aug. 2020), this language could be added under "Section 5. Administrative Land Disturbance Approval Review Procedures and Standards" Section B (Application) and C (Performance Standards) as new numbered items.

In the Neponset River Model Annotated Stormwater Regulations (May 2019), this language could be added under "Section 6. Administrative Land Disturbance Review Procedure and Standards" under Section C (Application Requirements and Performance Standards) Parts 1 and 2 as new numbered items.

ADD TO: Land Disturbance Permits

- Add a section to require applicants, in their Permit Application Project Narrative, to specifically explain how the project will reduce phosphorus loading in stormwater runoff in accordance with the Charles River TMDL for Nutrients in the Upper/Middle Charles River and the MS4 General Permit.
- Add to list of plans to be submitted that Applicant provide: existing land use and associated areas, proposed land use and associated areas, impervious areas, pervious areas, and soils information, to support phosphorus calculations.
- Require that, for Applicants located in the Charles River watershed, Stormwater Management Plans include calculations of existing phosphorus load and proposed phosphorus load in mass/year for the site. Calculations may use pollutant load reduction estimation tool(s) approved by EPA for all non-structural and structural

stormwater control measures and shall be calculated consistent with Appendix F of the MS4 General Permit.

- Under Performance Standards, require Applicants to reduce the annual phosphorus load from the site in compliance with the Site-Specific Phosphorus Reduction Requirement.

By better managing stormwater, we can make our communities more resilient to climate change. For more information or questions about stormwater regulations, contact Charles River Watershed Association at (781) 788-0007 or charles@crwa.org. Also check out the resources available on CRWA's website at www.crwa.org/climate-resilience-toolkit.html.