Memorandum

To: DCR Stormwater Section
10 Park Plaza
Boston, MA 02116

Date: 6/4/25

Project #: 15722.00

From: Sara Molla
Sarah Nalven
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Re: Nutrient Source Identification Report Implementation Update – Permit Year 7

Introduction

The purpose of this memo is to provide a status update of best management practice (BMP) crediting and implementation in watersheds for which DCR has developed Nutrient Source Identification Reports (NSIRs). Per the National Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts (MS4 Permit), DCR must complete a Nitrogen or Phosphorus Source Identification Report for discharges to water quality limited waterbodies and their tributaries where nitrogen or phosphorus, respectively, is the cause of the impairment.[1] DCR has developed these reports, collectively referred to as NSIRs, for the following watersheds:

- Mystic River
- Merrimack River
- Mount Hope Bay
- Outer New Bedford Harbor
- Blackstone River
- Mother Brook
- Ten Mile River
- Proctor Brook
- Long Island Sound

NSIR requirements for tributaries to the waterbodies listed above are met within one of the above watershed-wide NSIRs. DCR's NSIRs can be found at DCR's Stormwater Management webpage.

BMP Crediting

The MS4 Permit requires that permittees track existing, MS4-regulated structural BMPs within NSIR watersheds and estimate pollutant removal provided by these BMPs using methodology in the MS4 Permit's Attachment 3 to Appendix F.[1] DCR fulfilled this requirement in Permit Year (PY) 5 as part of the development of NSIRs and must continue this tracking and accounting annually, according to the MS4 Permit. In PY6, VHB found that no new creditable BMPs had been mapped within DCR's NSIR watersheds. In PY7, VHB reviewed BMPs that had been mapped in NSIR watersheds between February 1, 2024 and March 31, 2025 and identified eight creditable BMPs across four NSIR watersheds. Five of these BMPs are in the Blackstone River watershed, including three that were constructed at

[1] The MS4 Permit's Appendix H Sections I.1.b and II.1.b include this requirement; nitrogen is discussed in Section I and phosphorus in Section II.

the Daniel S. Horgan Memorial Skating Rink primarily to meet Phosphorus Control Plan (PCP) targets. The remaining three BMPs were each constructed to meet the NSIR's demonstration BMP requirement (described further in the following section of this memorandum) and were located at Hampton Ponds State Park (Long Island Sound watershed), George Spatcher Pool (Ten Mile River watershed) and the McVann O'Keefe Skating Rink (Proctor Brook watershed).

Table 1 summarizes each NSIR watershed's total number of credited BMPs and pollutant reduction totals. (Note that some of these BMPs are also located in Phosphorus Control Plan (PCP) watersheds and are also accounted for in the PCP Performance Evaluation.)

Table 1. Creditable BMPs and Estimated Nutrient Load Reduction in NSIR Watersheds

Watershed	Impairment	Number of BMPs	Phosphorus Reduction (lb/yr)	Nitrogen Reduction (lb/yr)
Blackstone River*	Phosphorus	15	6.2	-
Merrimack River	Phosphorus	6	4.2	-
Mother Brook	Phosphorus	7	3.9	-
Mystic River	Phosphorus	11	16.5	-
Ten Mile River*	Phosphorus	1	0.5	-
Proctor Brook*	Phosphorus, Nitrogen	1	0.4	4.9
Mount Hope Bay	Phosphorus, Nitrogen	2	0.5	4.3
Long Island Sound Watershed*	Nitrogen	7	-	65.2
Outer New Bedford Harbor	Phosphorus, Nitrogen	1	0.6	4.8
Total	-	51	32.8	79.2

*Asterisk indicates BMPs were credited in PY7

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BMP Implementation

The MS4 Permit requires DCR to install a minimum of one structural BMP as a demonstration project within six years of the permit effective date.[2] Although not every NSIR watershed had a completed demonstration BMP at the end of PY6, demonstration BMPs have now been installed in all nine NSIR watersheds. At the end of PY6, construction was underway for demonstration BMPs in the Ten Mile and Proctor Brook watersheds (at the George Spatcher Pool and McVann O'Keefe Skating Rink, respectively), and this construction has since been completed. DCR planned to install the Long Island Sound watershed demonstration BMP in PY6 as part of Chicopee State Park bathhouse improvements project, but this project has been delayed. To meet demonstration BMP requirements in the Long Island Sound watershed, in spring 2025 DCR installed a leaching line and leaching catch basin at the Sarah Jane Sherman Pool.

In addition to installing a demonstration BMP, the MS4 Permit requires that DCR provide a list of planned structural BMPs for each NSIR watershed and a schedule for implementation. The MS4 Permit then requires that BMPs are installed according to this implementation plan and schedule. For most NSIR watersheds (all but Mother Brook, where DCR's plan is to construct BMPs if opportunities arise as part of planned capital projects), DCR's implementation plan consists of installing one BMP per watershed per MS4 Permit term. Additionally, DCR utilizes the DCR Stormwater Handbook guidance to incorporate BMPs into capital projects wherever possible, including in NSIR watersheds.

Changes to NSIR Coverage

In PY6, VHB reviewed the 2018/2020 Integrated List of Waters (published November 2021) and determined that, based on newly listed and de-listed waterbodies, two NSIRs needed updates.[3] Specifically, three newly listed waterbody segments needed to be covered by the Mount Hope Bay NSIR and two de-listed segments no longer needed to be covered by the Merrimack River NSIR (Table 3). VHB is currently working to incorporate these updates into NSIRs before the MS4 deadline of February 2026. Note that these updates are mostly administrative and do not materially impact the plans laid out in the reports.

Table 2. Upcoming NSIR Updates

Report	PY7 Update	Relevant Waterbody Segments
NSIR for Mount Hope Bay (MA61-06) and Tributaries	Three (3) waterbody segments added	Taunton River (MA62-02) Taunton River (MA62-03) Taunton River (MA62-04)
NSIR for the Merrimack River (MA84A-04) and Tributaries	Two (2) waterbody segments removed	Nashua River (MA81-07) Nashua River (MA81-09)

[2] The MS4 Permit's Appendix H Sections I.1.c and II.1.c include this requirement; nitrogen is discussed in Section I and phosphorus in Section II.
[3] VHB Memorandum to DCR. "New Impaired Waters Requirements due to MassDEP 2018/2020 and 2022 303(d) List Updates." April 5, 2024.