

FACT SHEET FOR THE GENERAL PERMIT FOR DESIGNATED DISCHARGES IN THE CHARLES RIVER WATERSHED IN MILFORD, BELLINGHAM AND FRANKLIN MASSACHUSETTS

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FACT SHEET STRUCTURE AND SUPPLEMENTAL INFORMATION

This Fact Sheet explains the terms and conditions of the proposed general permit that the United States Environmental Protection Agency (“EPA”) is issuing to authorize storm water designated discharges (“designated discharge” or “DD”) as identified in EPA’s final residual designation determination decision that will be issued at the close of the public comment period on this permit. Those discharges are located in the Charles River watershed in the municipalities of Milford, Bellingham and Franklin, Massachusetts.

As noted in EPA’s preliminary residual designation Record of Decision issued on November 12, 2008, the final residual designation determination does not become effective until EPA issues a final general permit that authorizes discharges subject to the determination.

EPA is today proposing two amendments to the preliminary residual designation decision in a separate but related document entitled “Proposed Final Residual Designation.” It is appended to this Fact Sheet as Attachment 4. The proposed changes will, if adopted, amend the scope of the residual designation as follows:

1. The preliminary residual designation determination states that a designated discharge is a storm water discharge from two or more acres of impervious surfaces that are located on a single lot or two or more contiguous lots aggregated in accordance with 314 Code of Massachusetts Regulations (CMR) 21.05. This element of the definition was based on draft Massachusetts regulations that were under development at the time the preliminary determination was issued.

The definition of designated discharge in the proposed final designation changes the aggregation rules to combine impervious surfaces where they are on contiguous lots owned by the same person; or where the footprint of the same building, structure, low impact development techniques or structural storm water best management practice spans the contiguous lots owned by different persons.

2. The preliminary residual designation states that in aggregating impervious surfaces to determine if they constitute a designated discharge, impervious surfaces owned or operated by a local government unit, the Commonwealth of Massachusetts or the federal government should not be included. The definition of designated discharge in the proposed final designation does not contain that exclusion. The proposed, final designation does, however, exclude any property owned by a local, state or federal government unit where the property discharges wholly into an MS4 system operated by that local, state or federal government unit and that unit holds a valid NPDES permit.

The preliminary residual designation stated that the comment period on it would remain open until the close of the comment period on this draft permit. EPA is inviting additional comment on the proposed final designation it is issuing today. The agency will respond to all significant comments on the designation and the draft permit at the close of the comment period on this permit.

For purposes of this draft permit, EPA is using the definition of “designated discharge” that is contained in the proposed final designation of today. Thus, for purposes of the draft permit and fact sheet, a designated discharge is defined as follows:

A Designated Discharge is two or more acres of impervious surfaces located: (1) in the Charles River watershed; (2) in whole or in part in the municipalities of Milford, Bellingham and Franklin Massachusetts; and (3) on a single lot or two or more contiguous lots aggregated as follows: when measuring the impervious surfaces to determine if they meet the two acre threshold, the following impervious surfaces shall not be included:

Any impervious surfaces associated solely with any of the following land uses:

- a. Sporting and recreational camps;
- b. Recreational vehicle parks and campsites;
- c. Manufactured housing communities;
- d. Detached single-family homes located on individual lots;
- e. Stand-alone multi-family houses with four or fewer units; and
- f. Any property owned by a local, state or federal government unit where the property discharges wholly into an MS4 system operated by that local, state or federal government unit that has a valid NPDES permit.

For the purpose of defining “designated discharge,” a stand-alone multi-family house with four or fewer units does not include any multi-family houses that are part of a condominium, cooperative, apartment complex, townhouse, or other residential or mixed-use development with more than four dwelling units, or any multi-family houses that share private access roads, driveways or parking areas with contiguous lots containing additional dwelling units where the total number of units served by the shared access road, driveway or parking area is more than four.

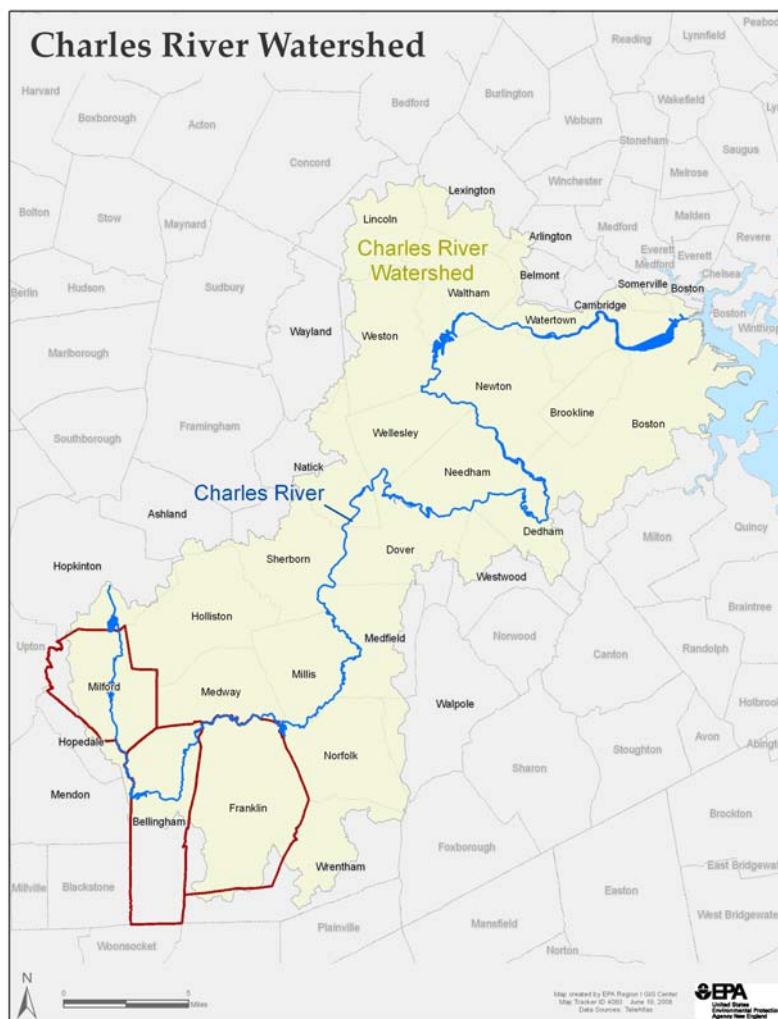
When measuring impervious surfaces to determine if they meet the two acre threshold for a designated discharge, the impervious surfaces on contiguous lots shall be included provided that:

- (1) The contiguous lots are owned by the same person; or
- (2) The footprint of the same building, structure, low impact development techniques or structural storm water best management practice spans the contiguous lots owned by different persons.

EPA may require that impervious surfaces on contiguous lots that do not meet the requirements above be included for purposes of determining whether they meet the two acre threshold for a designated discharge if it finds that ownership of the contiguous lots asserted to be in separate ownership was arranged to circumvent the requirements of the permit including evidence that on or after the publication date of the draft permit two or more owners of the contiguous lots have acted in concert to acquire or dispose of contiguous lots to avoid the requirements of the permit.

For purposes of this fact sheet and permit, the Charles River watershed includes all areas that discharge directly to the Charles River or its tributaries or indirectly to the Charles River or its tributaries through Municipal Separate Storm Sewer Systems (MS4s) or other private or public conveyance systems, including structural storm water best management practices (“BMPs”). The watershed boundary of Milford, Bellingham and Franklin is approximately delineated in Figure 1 below. This boundary was established using surface elevation data from a USGS topographic map.

Figure 1 Charles River watershed with Municipal Boundaries for Milford, Bellingham, and Franklin, Massachusetts



This Fact Sheet is organized to mirror the structure of the DD permit. With the exception of the Background Section immediately below, each of its major sections parallels a related major section of the permit, with the parallel sections identified by the same Roman numeral.

The major sections of the fact sheet and permit are as follows:

- I. Discharges Authorized by Permit
- II. Discharges Not Authorized by Permit
- III. Baseline Performance Standards
- IV. Phosphorus Reduction Requirement
- V. Annual Certification of Compliance
- VI. Transfer of Authorization under the DD Permit
- VII. Modification, Revocation and Reissuance and Termination of Permits; and Modification of Site Management Plan and Final Phosphorus Reduction Plan
- VIII. Submissions
- IX. Signature, Certification and Attestation Requirements
- X. General Conditions
- XI. Water Quality-Based Effluent Limitations

Appendices:

- Appendix A -- Requirements for Notice of Intent
- Appendix B -- Definition of Permit Terms
- Appendix C -- Alternative or Individual Permits
- Appendix D -- Phosphorus Reduction Requirement
- Appendix E -- Special Eligibility Determination Relating to National Historic Properties
- Appendix F -- Illicit Discharge Detection and Elimination
- Appendix G -- Standard Permit Conditions

BACKGROUND

A. General Background

The Director of the Office of Ecosystem Protection, EPA-Region 1, is proposing to issue a National Pollutant Discharge Elimination System (“NPDES”) general permit for sites with a residually designated discharge in the Charles River watershed located, in part or in whole, within the municipalities of Milford, Bellingham, and Franklin, Massachusetts. Designated discharges are storm water discharges from impervious surfaces that have been designated by the Regional Administrator of EPA Region I under the provisions of Section 402(p) of the Clean Water Act (“CWA”) as needing storm water controls and NPDES permits.

B. EPA’s NPDES Permitting Authority

Section 301(a) of the CWA prohibits the discharge of pollutants into waters of the United States except in compliance with certain sections of the CWA including, among others, Section 402 of

the CWA. Section 402 of the CWA provides that the Administrator of EPA may issue NPDES permits for discharges of any pollutant into waters of the United States according to such specific terms and conditions as the Administrator may require. EPA's regulations provide for the issuance of general permits to authorize one or more categories or subcategories of discharges, including storm water point source discharges within a geographic area pursuant to 40 CFR §122.28(a)(1) and (2)(i)). A violation of a general permit condition constitutes a violation of the CWA and may subject the discharger to enforcement action by EPA as provided in Section 309 of the Act, including an action for injunctive relief and/or penalties. Section 402 of the CWA authorizes EPA to issue NPDES permits allowing discharges that will meet certain specified requirements. The conditions in the permit are established pursuant to the CWA and 40 CFR Parts 122 and 124.

Section 402(p)(2)(E) and (6) of the CWA and implementing regulations at 40 CFR § 122.26 (a)(9)(i) provide that in states where there is no approved state program, the EPA Regional Administrator may designate a storm water discharge as requiring an NPDES permit where he determines that: “...(C) storm water controls are needed for the discharge based on wasteload allocations that are part of total maximum daily loads that address the pollutants of concern, or (D) the discharge, or category of discharges within a geographic area, contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.” The storm water discharges subject to this permit are proposed for final designation for NPDES permitting because their control is necessary based on wasteload allocations in the Final Total Maximum Daily Load for Nutrients in the Lower Charles River Basin, Massachusetts CN 301.0 (“Lower Charles River Phosphorus TMDL” or “TMDL”) and because they are contributing to water quality standards violations.

The permit establishes requirements to assure that discharges from a permittee’s DD site do not cause or contribute to violations of Massachusetts water quality standards.

EPA has determined that implementation of best management practices (“BMPs”) designed to control storm water runoff from a DD Site is generally the most appropriate approach for reducing pollutants to satisfy the required phosphorus load reductions. Pursuant to 40 CFR § 122.44(k), the permit requires the use of BMPs, including the development and implementation of a comprehensive storm water management plan (SMP) and a Final Phosphorus Reduction Plan, as the mechanisms to achieve the required pollutant reductions.

C. Relationship of this permit to the Lower Charles River Phosphorus TMDL and Residual Designation Determination

On October 17, 2007, EPA approved a TMDL for phosphorus discharges to the Lower Charles River that was cooperatively developed by the Massachusetts Department of Environmental Protection (“DEP”) and EPA. The TMDL addresses severe water quality impairments resulting from the excessive growth of algae caused by an over-abundance of phosphorus in discharges to the Charles River system. In summary, the TMDL sets wasteload reductions from phosphorus sources throughout the entire Charles River watershed. Watershed-wide reductions are needed

because of the relative location of the Lower Charles River in the watershed, the severity of its phosphorus-related water quality problems, and the magnitude of the overall phosphorus load reductions needed to restore water quality and attain Massachusetts water quality standards. A summary of the TMDL and the bases for the Phosphorus Reduction Requirement of this permit are provided in Attachment 3 to this fact sheet.

With respect to storm water generally, the TMDL indicates that dramatic reductions in phosphorus loads in storm water are needed for the lower Charles River to attain state water quality standards. At the time of the establishment of the TMDL, NPDES storm water permitting addressed only discharges from Municipal Separate Storm Sewer Systems (“MS4s”), limited industrial activity sectors, and construction activities disturbing one or more acres of land. EPA believes that such a permitting regimen is not sufficiently comprehensive to achieve the necessary cuts in phosphorus loads in the Charles River and that new strategies are needed to implement the TMDL. To achieve these ends, EPA is expanding the scope of its storm water permitting program in the three uppermost municipalities in the Charles River watershed by including large impervious surfaces primarily in commercial and industrial use to which the TMDL attributed significant phosphorus loads.

On November 12, 2008, the Regional Administrator of EPA Region I made a preliminary determination proposing that designated discharges warranted NPDES permit coverage. This determination is documented in the EPA Region I Record of Decision (ROD) dated November 12, 2008 and provided as Attachment 1 to this Fact sheet. At the time of the preliminary determination, EPA invited comment on its decision until the close of the comment period on the permit discussed in this fact sheet. EPA’s final residual designation determination, which is expected to occur at the time this general permit is issued in final form, will respond, as appropriate, to significant comments received on the residual designation decision. EPA is proposing changes to the preliminary designation, as noted above.

The permit authorizes storm water discharges from impervious surfaces meeting the definition of “designated discharge” at the time of the final residual designation or at any later time. The dates by which a permittee must comply with various requirements related to the permit differ, however, between designated discharges existing at the time of the final designation and those later coming into existence. Section V (B)(7) of the permit requires that, with respect to designated discharges coming into existence after the effective date of the permit, the permittee must comply with all requirements relating to baseline performance standards under Section III of the permit and all substantive requirements relating to its Phosphorus Reduction Requirement in section IV(A) and Appendix D prior to or at commencement of the discharge. Thereafter, the permittee must comply with all terms of the permit as if its DD Site were in existence upon the effective date of the permit. This schedule is appropriate because a permittee whose impervious surfaces are coming within the scope of the permit by virtue of their creation or expansion will be able to incorporate storm water controls as part of the construction project.

With respect to the filing of a Notice of Intent (“NOI”), owners of Designated Discharge Sites that come into existence after the effective date of the permit must submit an NOI consistent with

Appendix A within 180 days of the effective date of the permit or within sixty days after the project for the creation of impervious surfaces commences, whichever last occurs. A project for the creation of impervious surfaces commences upon any associated land disturbance activity. When EPA requests that an operator submit an NOI, that notice must be submitted within ninety days of the request.

As described in the Record of Decision, the basis for the EPA's designation of the storm water discharges in the Charles River watershed within the three communities is the excessive aquatic plant growth regularly occurring throughout the Charles River system during warm weather. The excessive plant growth in the Charles River system is the result of a surfeit of phosphorus from a variety of watershed sources. A land use analysis supporting the wasteload allocations in the TMDL indicates that notable among these sources are storm water discharges from large impervious surfaces.

This permit, thus, is one piece of a broader phosphorus control strategy for the Charles River. Future NPDES permits issued to control other discharges of phosphorus to the Charles River--including discharges from wastewater treatment facilities and storm water discharges from municipal separate storm sewer systems ("MS4s") --will include requirements for the reduction of phosphorus consistent with the wasteload allocations of the TMDL.

This permit is also the centerpiece of a storm water management pilot program that EPA and DEP are implementing in Milford, Bellingham and Franklin, Massachusetts. Similar storm water management programs are being implemented in impaired streams in South Burlington, Vermont and in Long Creek in and around South Portland, Maine. As with this proposed permit, both of those programs grew from residual designation determinations requiring storm water controls on previously unregulated discharges. This permit will provide a third regional model for the designation and permitting of storm water discharges to impaired waters, a significant environmental concern in New England.

I. DISCHARGES AUTHORIZED BY THIS STORMWATER PERMIT

Prerequisites to Discharge: The introductory section of the permit identifies four prerequisites for authorization to discharge under this permit. They are:

1. That the discharge is a "designated discharge;"
2. That the permit is eligible for coverage in accordance with Appendix E (Special Eligibility Determination Relating to National Historic Preservation);
3. That the permittee submits a complete and accurate NOI in accordance with the schedule and format identified in Appendix A; and
4. That the permittee receives written authorization to discharge from EPA

1. Definition of designated discharge

As noted above, a designated discharge is, with specific, limited exceptions, a storm water discharge from two or more acres of impervious surfaces that are located on a single lot or two or more contiguous lots in Milford, Bellingham or Franklin, Massachusetts and in the Charles River watershed. In determining whether the impervious surfaces located on a single lot or two or more contiguous lots constitute impervious surfaces covered by this permit, certain aggregation rules apply. When measuring impervious surfaces to determine if they meet or exceed the two acre threshold, impervious surfaces on contiguous lots are included where the lots are owned by the same person or where the footprint of the same building, structure, low impact development techniques or structural storm water best management practice spans the contiguous lots owned by different persons. The aggregation of contiguous lots in these instances is based on practical considerations of how storm water pollution is most efficiently managed: where a pollutant source like impervious surfaces is under single ownership, the owner can efficiently implement a uniform storm water management plan across the entire area; where an impervious surface or a storm water BMP spans contiguous lots, a unified management scheme also provides efficiencies. The definition of designated discharge and other critical terms of the permit are provided in Appendix B of the permit.

A designated discharge includes an impervious surface meeting the provided definition at the effective date of the permit or any later time.

2. Special Eligibility Determination Relating to Other Federal Laws

National Historic Preservation Act

The authorization to discharge under this permit is subject to the National Historic Preservation Act (“NHPA”), and eligibility to discharge is conditioned upon certain determinations.

When EPA undertakes certain actions, those actions must be consistent with other federal laws and regulations. Regulations at 40 CFR §122.49 contain a listing of federal laws that may apply to the issuance of an NPDES permit. For purposes of this permit, a relevant federal program is the NHPA. Section III (L) of the permit requires compliance with the NHPA, and Appendix E of the permit contains instructions on how to satisfy the eligibility-related requirements of that Act for this permit. These requirements are discussed in the fact sheet below in its discussion of Section III (L) of the permit.

Endangered Species Act

An NPDES permit may in some instances require an eligibility determination under the Endangered Species Act (ESA) for discharges or discharge-related activities that are likely to adversely affect any species that are listed as threatened or endangered under the ESA or result in the adverse modification or destruction of habitat that is designated as critical under the ESA. EPA has reviewed the federally listed endangered and threatened species in Massachusetts to determine if federally protected species are present in the three relevant communities, Milford (Worcester County), Bellingham, and Franklin (both in Norfolk County). Based on this review,

EPA has concluded that there are no federally listed endangered or threatened species for these communities. Consequently, EPA has determined at this time that compliance activities under this permit will not adversely affect endangered species and that a permittee is not required to assess ESA requirements as part of obtaining authorization to discharge under this general permit. However, section II (J) of the permit prohibits discharges of storm water and discharged related activities that are likely to adversely affect endangered or threatened species or their habitat. This provision addresses the event that endangered or threatened species or their habitat is identified after the effective date of the permit.

Essential Fish Habitat

Under the 1996 Amendments to the Magnuson-Stevens Fishery Conservation and Management Act, EPA is required to consult with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service ("NMFS") if EPA proposes a permit action that may adversely impact any essential fish habitat ("EFH"). The Amendments broadly define EFH as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." "Adversely impact" means any impact which reduces the quality and/or quantity of EFH.

EFH is only designated for species for which federal Fisheries Management Plans exist. A NOAA Fisheries website (See <http://www.nero.noaa.gov/hcd/webintro.html>) contains maps of designated EFH. In some cases, a narrative identifies rivers and other waterways that should be considered EFH due to present or historic use by federally managed species such as Atlantic salmon.

EPA's review of available EFH information indicates that the upper Charles River and its tributaries are not designated EFH for any federally managed species. Therefore, EFH consultation with NMFS is not required for initial authorization to discharge. However, the permit contains Section II(J) in the event that EFH is identified after the effective date of the permit.

3. Submission of an NOI

Before the owner of part or all of a Designated Discharge Site is authorized to discharge under this permit, it must submit an NOI to EPA consistent with Appendix A. An owner is a person that has a legal or equitable ownership interest alone or with others in real property. For purposes of the permit, an owner does not include a person that is not in possession of the real property and whose only interest in the real property is as a secured lender.

EPA expects that in some instances, the owner of a Designated Discharge Site may not control or have the right to control all of the activities of which control is necessary to assure compliance with the permit. In such an instance, the owner must identify in its NOI what activities it does not control or have the right to control, the specific provisions of the permit that require their control and the identity of each person who has the control or the right to control such activity. That other person would be an operator as defined by the permit. EPA may request that the operator submit an NOI or an application for an individual permit. EPA may subsequently

authorize that other person to discharge subject to its compliance with the applicable provisions of the relevant permit. Once authorized under this permit, the operator would be a co-permittee. Any person that is notified to submit an NOI or an application for individual permit and fails to do so is subject to an EPA enforcement action for discharging without authorization.

Once it submits an NOI consistent with Appendix A and is authorized to discharge, the owner of the DD Site becomes a permittee and is responsible for compliance with all of the permit's terms, unless an additional party is authorized to discharge as a co-permittee. Where an additional person is authorized to discharge as a co-permittee, the co-permittee will be required to comply with those requirements of the permit that it controls or has the right to control. In such a case, the permittee must still assure compliance with all applicable terms and conditions of the permit that it controls or has the right to control; further, it must coordinate its compliance with the activities of all co-permittees who receive authorization to discharge. Where a co-permittee and permittee share obligations under the permit, EPA considers them to be jointly and severally liable for the shared obligations.

For more effective coordination of storm water control activities, EPA encourages a cooperative effort by all owners and operators at a Site to prepare and participate in a comprehensive storm water management plan (SMP) and Phosphorus Reduction Plan. In instances where there is more than one SMP or Phosphorus Reduction Plan for a DD Site, cooperation between the permittees and co-permittees is encouraged to assure that the plans are consistent with one another.

Appendix A specifies the information that must be included in an NOI. It requires that an NOI contain information on all lots comprising the Designated Discharge Site for which a person is submitting an NOI.

A person required to submit a Notice of Intent shall submit it to EPA as follows:

(A) Single or Multiple Lots within a DD Site with the Same Owner. If the entire DD Site is owned by a single person, the owner shall submit a single NOI for the entire DD Site.

(B) Single Lot/ Multiple Owners. Where a DD Site is comprised of a single lot with multiple owners, any one or more of the owners shall submit a single NOI for the lot that comprises the DD Site.

(C) Multiple Lots/Multiple Owners. Where a DD Site is comprised of more than one lot and the lots are owned by more than one person, the owner of the DD Site shall submit a single NOI or multiple NOIs in accordance with (1) or (2) below:

(1) Any one or more of the owners shall submit a single NOI for the entire DD Site; or

(2) The owners shall submit multiple NOIs as follows:

- a. For all lots owned by the same person, the owner shall submit a single NOI for its lot(s); and
- b. For each and every lot owned by more than one person, any one or more of the owner(s) shall submit an NOI for such lot.

EPA expects that in instances where a Designated Discharge Site has multiple owners, all owners will collectively determine through contractual agreements which person or persons will satisfy the permit's requirements. Alternatively, multiple owners may agree to jointly or separately participate in a Certified Municipal Phosphorus Program ("CMPP") as discussed below.

Any submissions to EPA required by the permit must indicate what lots are covered by that submission. Where a permittee and co-permittee have joint control or the right to joint control of activities that are necessary to assure compliance with the permit, each is responsible for all shared permit requirements relating to those activities and EPA may enforce against any or all permittees for that action.

All NOIs from owners for existing designated discharges must be submitted to EPA-Region 1 within 180 days of the effective date of the permit. For DD Sites that come into existence after the effective date of the permit, the owner(s) must submit an NOI consistent with Appendix A prior to commencement of the discharge. A designated discharge that comes into existence after the effective date of the permit must also comply with all requirements relating to the construction of structural BMPs before it commences a discharge.

Any operator who is requested by EPA to submit an NOI shall submit that notice within ninety days of receiving the request. That request may require the submission of information different from the information required in an NOI submitted by an owner. A shorter timeframe is appropriate because an operator's Notice of Intent will generally be less complicated than an owner's; also, an operator will be submitting its Notice of Intent after the owner has done so, and a shorter time frame for the operator's Notice of Intent will put owners and operators in a situation where they are better able to coordinate activities.

EPA will invite public comment on each NOI for a minimum of 30 days after its posting on the Region 1 Storm water website: <http://www.epa.gov/region1/npdes/stormwater/index.html>

4. Permittee's Receipt of Written Authorization to Discharge

Following the close of the comment period, EPA will authorize the discharge covered by an NOI, not authorize the discharge, or require additional information. The permit states that a designated discharge is not authorized to discharge under the permit until receipt of written authorization from EPA. EPA may also deny coverage under the general permit and require an owner or operator to obtain coverage under an alternative general permit or an individual permit.

II. DISCHARGES NOT AUTHORIZED BY THIS PERMIT

This permit does not authorize the following discharges:

A. Mixed storm water/non-storm water discharges. This permit does not authorize storm water discharges that are mixed with sources of non-storm water unless the non-storm water discharges are in compliance with a separate NPDES permit. One type of non-storm water discharge that is of particular concern is an illicit discharge, which is often an unintended connection between a sanitary or wastewater conduit within a facility to a storm drain system. Appendix F of the permit sets out requirements requiring that illicit discharges from a DD Site be identified and eliminated as part of the baseline performance standards.

B. New or increased storm water discharges (as defined in 40 CFR § 122.2) to waters designated as Tier 3 for antidegradation purposes at 40 CFR § 131.12 (a) (3). These include outstanding resource waters and special resource waters as defined at 314 CMR 4.06(3). Where a permittee intends to commence a discharge to special or outstanding resource waters, it must first obtain an individual permit. As discussed more thoroughly below in Section XI of the fact sheet, Massachusetts antidegradation tier II requirements apply to new or increased discharges to high quality waters resulting from the creation or expansion of impervious surfaces.

C. Discharges of wastewater as defined in 314 CMR 3.02 to waters of the United States. Any discharge of a wastewater from a Designated Discharge Site must obtain authorization under an individual permit or alternative general permit.

D. Storm water discharges that cause or contribute to violations of the Massachusetts surface water quality standards. As discussed in Section XI of the fact sheet, the permit treats bacteria and phosphorus discharges from a Site differently from discharges of other pollutants in light of the existing pathogen and phosphorus TMDLs for the Charles River.

The residual designation determination recognizes that, in the absence of storm water controls, discharges authorized by this permit do cause and contribute to water quality standards violations relating to phosphorus. EPA expects that a permittee who complies with all of the requirements of the permit will be in compliance with the relevant phosphorus wasteload allocation. EPA also expects that implementation of the BMPs required by this permit will ensure that any bacteria in discharges will be reduced or eliminated such that they will not cause or contribute to water quality standards violations.

E. Storm water discharges associated solely with industrial activity as described at 40 CFR § 122.26(b) (14); the definition of discharges from activities associated with industrial activities excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with regulated storm water discharging from areas where industrial activities do occur. This permit applies to plant areas separate from industrial facilities where they constitute part or whole of a designated discharge.

F. Storm water discharges related to construction described in either 40 CFR § 122.26(b) (14) (x) or 40 CFR § 122.26(b) (15). Section III (B) of the baseline performance standards requires the stabilization of disturbed areas. Some of the BMPs required by that section may already be mandated by the Construction General Permit. Where that is the case, the permittee should cross reference the BMPs required by the Construction General Permit with the BMPs in the SMP of this permit.

G. Storm water discharges currently authorized under another NPDES permit, including discharges authorized under other regionally issued general permits. The designated discharge determination covers discharges that flow directly into the Charles River and its tributaries as well as discharges that flow into the Charles River and its tributaries through MS4 systems or other private or public conveyance systems. In determining whether impervious surfaces meet the two acre threshold, local state and federal government properties that discharge wholly into an MS4 owned and operated by the government unit need not be included. Those discharges are already being addressed by the government unit under its MS4 permit. However, a non-government property that discharges into an MS4 system must be counted in determining if the two acre threshold for a designated discharge is met.

H. Storm water discharges or implementation of a storm water management program that would adversely affect properties listed or eligible to be listed on the National Register of Historic Places. The permittee must follow the procedures in Appendix E of the permit to make a determination regarding eligibility.

I. Storm water discharges or discharge related activities that are likely to adversely affect any species that are listed as endangered or threatened under the Endangered Species Act or result in the adverse modification or destruction of habitat that is designated as critical under the Endangered Species Act. See Section I.2 above for discussion of this requirement.

J. Storm water discharges whose direct or indirect impacts do not prevent or minimize adverse effects on any Essential Fish Habitat. See Section I.2 above for discussion of this requirement.

K. Storm water discharges that are prohibited under 40 CFR § 122.4. Forty CFR §122.4 enumerates circumstances under which an NPDES permit may not be issued. One prohibition that is potentially relevant to this permit concerns 40 CFR §122.4(i), which prohibits a discharge from a new discharger if the discharge from its construction or operation will cause or contribute to the violation of waters quality standards. The definition of “new discharger” and the applicability of this specific provision are discussed in Section XI of the fact sheet discussing water quality.

L. Discharges subject to state ground water discharge and Underground Injection Control (UIC) regulations. Although the permit includes provisions related to storm water infiltration and groundwater recharge, structural controls that discharge storm water to the ground may be subject to UIC regulations. Authorization for such discharges must be obtained from the

relevant authority depending on the location of the discharge. A permittee should be aware that Massachusetts has regulations pertinent to acceptable locations and conditions for the recharge of storm water to groundwater.

III. BASELINE PERFORMANCE STANDARDS: TECHNOLOGY-BASED EFFLUENT LIMITATIONS

The Use of Best Management Practices

All NPDES permits are required to contain technology-based limitations. When EPA has not promulgated effluent limitation guidelines (“ELG”) for an industry, or if an operator is discharging a pollutant not covered by an effluent guideline, permit limitations may be based on the best professional judgment (“BPJ”) of the permit writer pursuant to CWA Section 402 (a)(1) and 40 CFR §125.3(c). For this permit, the technology-based limits are based on BPJ decision-making because no ELG applies.

The BPJ limits in this permit are in the form of non-numeric control measures, also referred to as best management practices (“BMPs.”). Non-numeric limits are employed under certain circumstances as provided in 40 CFR § 122.44(k). Due to the variability of pollutant loads from different sources associated with storm water, EPA believes the use of BMPs is the most appropriate method to regulate discharges of storm water authorized by this permit.

With respect to non-conventional pollutants such as phosphorus, CWA Section 301(b)(2)(A) requires that permits contain effluent limitations representing best available technology (BAT). The variability of effluent and efficacy of appropriate control measures make setting uniform effluent limits for storm water extremely difficult. However, general storm water management science recognizes that many non-structural BMPs, such as those contained in the baseline performance requirements of the permit, represent what is the best available technology for managing the type of storm water authorized by this permit. This common suite of management practices—such as street sweeping, housekeeping activities that isolate pollutant sources from storm water runoff, management of snow and hazardous and solid wastes—are widely employed. That these types of BMPs represent BAT for storm water of the type authorized by this permit is a conclusion supported by EPA’s use of these BMPs in its multi-sector general permit and its small MS4 permit regulations.

Storm Water Management Plan

Section III of the permit requires the permittee to implement a series of best management practices to control on-site storm water. These practices include activities to achieve the baseline performance standards identified in Section III (A) through (L) of the permit. Section III also requires the permittee to develop detailed standard operating procedures for implementing the practices and to assemble all relevant documents into Storm water Management Plan (“SMP”). The SMP is a document that sets out some of the activities necessary to meet the conditions of the permit. The permittee must provide a certification to EPA within 30 days of receiving

authorization to discharge under this permit that it has developed an SMP and that it has commenced implementation of the SMP. In light of the fact that a permittee does not need to submit its NOI to EPA for up to 180 days after the effective date of the permit, a permittee should be adequately prepared to implement these procedures within thirty days of authorization. As part of its Annual Certification of Compliance under Section V or the permit, the permittee must certify that it has implemented the tasks described in the SMP during the reporting period.

While the requirements included in the permit focus on controlling the discharge of phosphorus in storm water, some of the same storm water management strategies address discharges of bacteria from separate storm sewer systems. At present, the discharges of phosphorus and bacteria from separate storm sewer systems are significant contributing factors in violations of Massachusetts water quality standards in most of the Charles River and its tributaries. The permit requirements are intended to assure that a permittee will implement a comprehensive set of controls that will reduce pollutant sources at the DD Site. Satisfying the requirements of this permit will, in addition to controlling phosphorus discharges, also control the discharge of bacteria from a DD Site so that it is not causing or contributing to violations of bacteria-related water quality standards. A permittee that conducts the various practices required by Part III of the permit, implements a rigorous illicit discharge detection and elimination program, and conducts the additional BMPs required to satisfy the Phosphorus Reduction Requirement of Part IV, will dramatically reduce any discharge of bacteria from its Site.

The permit requires that the SMP be contained in a written document whose development is certified in accordance with Section IX of the permit. The SMP should be kept on site for easy reference, but if there is no building on the Site, it should be kept at the principal office of each person submitting an NOI. In instances where more than one person is submitting an NOI, a copy of the SMP must be kept at the principal office of each person submitting an NOI. Each Annual Certification of Compliance shall indicate all locations where the SMP is maintained

The SMP must be immediately available to EPA upon request. The permittee must also make the written SMP available to any member of the public who makes a request in writing.

The individual components of the baseline performance standards, whose implementation is required by Section III (A) through (L) of the permit, are summarized below. The basis for each is also described.

A. Storm Water Management Team: The permittee must form a Storm Water Management Team for the DD Site. The SMP must identify the name and title of each person with responsibility for implementing the SMP. Formation of the team will help assure that the roles and responsibilities of individuals charged with carrying out permit requirements are clearly documented.

B. Sweeping Program: The permit requires that the permittee sweep all paved surfaces at the DD Site. At a minimum, sweeping must occur at least twice a year to keep all paved surfaces free of sand, litter, and other gross pollutants, once between November 14 and December 15

(after leaf fall) and once during the month of April (after snow melt). Leaf litter and accumulated sediments on paved surfaces contain phosphorus that can be mobilized by runoff and subsequently discharged to receiving waters. The sweeping program will stem the transport of bulk sediments--accumulating during the winter season--and leaf litter to downstream BMPs and receiving waters. Prompt removal of these materials from impervious surface at these key times will prevent their clogging or impairing the effectiveness of down-gradient BMPs. A permittee who wishes to undertake an enhanced sweeping program as part of its Phosphorus Reduction Plan should refer to the relevant portions of Appendix D to the permit and to the fact sheet.

C. Management of Snow and Deicing Chemicals: The permit requires that the permittee undertake the management of snow and deicing chemicals to control the release of pollutants to surface waters, to prevent releases of contaminants in toxic amounts, and to prevent interference with the operation and functioning of BMPs. Many deicing chemicals contain phosphorus, and their improper release to surface waters would contribute to elevated phosphorus levels in the Charles River.

The permittee should be aware that Massachusetts has specific rules that govern the management of snow disposal and deicing chemical storage in water supply protection areas. For further information on the Bureau of Resource Protection's Snow Disposal Guidance, visit <http://www.mass.gov/dep/water/laws/snowdisp.htm>. For further information on the DEP Bureau of Resource Protection's Guidelines on Deicing Chemical Storage, visit <http://www.mass.gov/dep/water/laws/saltgui.htm>.

D. Management of Solid Waste and Hazardous Materials: The permit requires that the permittee manage solid waste and hazardous materials to minimize the risk that storm water discharges from the DD Site will be contaminated by them or that they will interfere with the proper operation of the storm water management system. Where appropriate, the permittee must provide for the proper disposal of pet waste and, at a minimum, conduct weekly inspections of the Site for trash and debris. Pet waste is a source of both bacteria and phosphorus and should be removed immediately from impervious surfaces.

E. Stabilization of Exposed Soil Areas: The permit requires that the permittee minimize the risk that any exposed soil areas will contribute pollutants to storm water discharges from the Site. Phosphorus is commonly associated with soils and, therefore, soil erosion is a source of phosphorus to receiving waters. Also, high sediment loading to down-gradient BMPs may cause clogging and reduce treatment effectiveness.

F. Proper Management of Landscaped Areas: The permit requires the permittee to minimize the risk that any landscaped pervious surfaces will contribute pollutants to storm water discharges from the Site. Landscaping activities have the potential to be significant sources of phosphorus because of the potential use of fertilizers that contain phosphorus and because soils and organic materials (plant clippings, etc.) also contain phosphorus that may become available for transport by runoff.

The permit requires the permittee to reduce or eliminate the use of fertilizers containing phosphorus. In many cases within the Charles River watershed, soil testing has found soils to have ample phosphorus to support plant growth without soil additives. In such cases, the use of a phosphorus-free fertilizer is appropriate. The permit also requires a grass cuttings and leaf litter collection program designed to regularly remove grass cuttings, leaf litter, and other organic waste materials from impervious surfaces. Doing so prevents these phosphorus containing materials from being readily transported by runoff to storm water systems and/or receiving waters. These activities will help to reduce the phosphorus loading from the Site and help prevent discharge of debris to down-gradient BMPs that could compromise their phosphorus removal performance. In managing grass clippings and leaves, the permittee must assure that the disposal of these materials will not contribute pollutants to any discharge to surface water. The permittee is strongly encouraged to avoid cleaning techniques such as leaf blowers that broadly disperse organic material rather than collecting and disposing of it.

The permittee should be aware that, as with the management of snow and deicing chemicals, Massachusetts has specific rules that govern the proper management of landscaped areas within water supply areas.

G. Additional Pollution Prevention and Source Control Measures for Portions of the Designated Discharge Site Devoted to Non-residential Uses: The permit requires the permittee to adopt standard operating procedures for carrying out additional source control and pollution prevention measures on those portions of a Site that are devoted to non-residential uses. This requirement is to assure that all raw materials, intermediate products, by-products, final products, accessories and equipment stored outside are covered, moved inside, or maintained in a manner that avoids or minimizes the risk that these materials or their residue will add pollutants to storm water discharges.

Also, the permittee must assure that no water from the washing of any raw materials, intermediate products, by-products, final products, waste materials, accessories, equipment, storage areas, outside sales/garden areas, loading docks, parking areas, or from the washing of vehicles or buildings with detergents will be discharged to a storm water management system, municipal separate storm sewer system, or a water of the United States. Discharges from these sources are specifically not authorized by Section II(A) of the permit. Many detergents contain very high concentrations of phosphorus. Measures to eliminate the discharge of detergents from vehicle and building washing also apply to residential areas of DD Sites.

H. Structural Storm Water BMPs: As an initial measure under the baseline performance standards, the permittee is required to take an inventory of all BMPs, to assess their condition and to make repairs where necessary. Many permittees may have existing BMPs that, if operating properly, will contribute toward phosphorus reductions. As discussed below, the permit requires the permittee to operate and maintain structural storm water BMPs at the Site. Structural BMPs include low impact development techniques. The long term operation and maintenance requirements for BMPs are in Section IV(C) of the permit.

I. Integration of Storm Water Management Activities under other NPDES Storm water Permits with the SMP:

EPA has issued an NPDES construction general permit that governs the management of storm water from construction Sites disturbing one or more acres of land. It has also issued a multi-sector general permit that may govern some storm water management related to industrial activities at a DD Site. Storm water management activities undertaken pursuant to one of those permits should be coordinated with activities under this permit. For example, a facility may be subject to an NPDES permit for storm water discharges from industrial activities subject to the multi-sector storm water general permit. A parking lot adjacent to the area regulated by that permit may be covered by this permit. In such an instance, the storm water management plans for the two permits should be cross-referenced and the storm water management activities integrated. Where required, the permittee must apply for authorization under the construction general or the multi-sector general permit and comply with its terms, independent of this permit. For further information on the construction general permit, visit <http://cfpub.epa.gov/npdes/stormwater/cgp.cfm>. For further information on the multi-sector general permit, visit <http://cfpub.epa.gov/NPDES/stormwater/msgp.cfm>.

J. Logbook: The permit requires the implementation of many activities over a lengthy period of time. A logbook documenting that these activities have occurred, when they have occurred, and who was responsible for their implementation is critical to the overall management of the storm water program. A logbook will serve to track compliance with requirements of the permit for regulatory purposes, and it should also serve as a management tool for the DD Site owner and operator. The logbook must be maintained at the DD Site and made available to EPA upon request. If there is no building at the Site, the logbook must be maintained at the principal office of the person submitting an NOI. In instances where more than one person is submitting an NOI, a copy of the logbook must be kept at the principal office of each person submitting an NOI. Each Annual Certification of Compliance shall indicate all locations where the logbook is maintained. As with other documents required by the permit, the logbook must be retained by the permittee for a minimum of five (5) years.

K. Illicit Discharge Detection and Elimination (IDDE) Program: The permit requires the permittee to implement an IDDE program to systematically find and eliminate sources of non-storm water that may mix with storm water and contribute to increased pollutant discharges from the DD Site. Non-storm water discharges are specifically not authorized under Section II of the permit. Non-storm water discharges include sanitary or process water lines discharging to storm drain systems. Many sources of non-storm water that could potentially mix with storm water from the DD Site may contain high levels of phosphorus and bacteria, both of which would contribute to water quality impairments in the Charles River.

Of particular concern is the discharge of untreated sanitary sewage, which has very high concentrations of phosphorus and pathogens. According to the Final Massachusetts Year 2008 Integrated List of Waters (available at <http://www.mass.gov/dep/water/resources/08list2.pdf>), the segments of the Charles River that flow through the municipalities of Milford, Bellingham, and Franklin presently violate Massachusetts water quality standards because of high concentrations of indicator bacteria. Illicit sanitary discharges may flow from a variety of sources, including

cross-connections between sanitary sewer systems and storm sewer systems, indirect connections such as sanitary wastes infiltrating into storm drains, or spills collected by drain inlets.

Untreated wastewater typically has high concentrations of phosphorus. Total phosphorus (“TP”) concentrations found in raw sanitary wastewater typically range from 4 to 12 mg/l as compared to typical TP concentrations in urban storm water of 0.3 mg/l. The extent of illicit sanitary discharges to the Charles River is currently unknown because substantial portions of the drainage systems, particularly those on private properties, have not been investigated.

L. Documentation of Compliance with the National Historic Preservation Act: Appendix E of the permit contains requirements relating to the National Historic Preservation Act (“NHPA”). Section 106 of the NHPA requires federal agencies to take into account the effects of federal “undertakings” on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. The term federal “undertaking” is defined in the NHPA regulations to include a project, activity, or program of a federal agency, including those carried out by or on behalf of a federal agency, those carried out with federal financial assistance, and those requiring a federal permit, license or approval. Historic properties are defined in the NHPA regulations to include prehistoric or historic districts, sites, buildings, structures, or objects that are included in, or are eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and remains that are related to and located within such properties.

EPA’s issuance of the permit is a federal undertaking within the meaning of the NHPA regulations. To address any issues relating to historic properties in connection with issuance of the permit, EPA has included eligibility criteria in Appendix E to assist a permittee in certifying that potential impacts of their activities covered by this permit on historic properties have been appropriately considered and addressed. Although the NOI for the permit does not constitute a separate federal undertaking, the screening criteria and certifications provide an appropriate site-specific means of addressing historic property issues in connection with EPA’s issuance of the permit. Owners and operators of designated discharges seeking coverage under this permit are thus required to make certifications regarding the potential effects of their storm water discharges and discharge-related activities on properties listed or eligible for listing on the National Register of Historic Places.

A permittee must meet one or more of the following four criteria (A-D) to be eligible for coverage under this permit:

Criterion A. Storm water discharges do not have the potential to have an effect on historic properties and the permittee is not constructing or installing storm water control measures that cause less than one acre of subsurface disturbance; or

Criterion B. Discharge-related activities (i.e., construction and/or installation of storm water control measures that involve subsurface disturbance) do not have the potential to affect historic properties; or

Criterion C. Storm water discharges and discharge-related activities have the potential to have an effect on historic properties, and the permittee has obtained and is in compliance with a written agreement with the State Historic Preservation Officer (SHPO) that outlines all measures the permittee will carry out to mitigate or prevent any adverse effects on historic properties; or

Criterion D. The permittee has contacted the State Historic Preservation Officer and EPA in writing informing them that the permittee has the potential to have an effect on historic properties and the permittee did not receive a response from the SHPO within 30 days of receiving the permittee's letter.

Authorization to discharge under the permit is available only if the applicant certifies and documents permit eligibility using one of the eligibility criteria listed above and in Appendix F of the permit. A permittee is reminded that it must comply with applicable state and local laws concerning protection of historic properties and include documentation supporting the determination of permit eligibility in the SMP.

Electronic listings of National and State Registers of Historic Places are maintained by the National Park Service - <http://www.nps.gov/nr/> and the Massachusetts Historic Commission www.sec.state.ma.us/mhc

IV. PHOSPHORUS REDUCTION REQUIREMENT

A. OVERVIEW OF PHOSPHORUS REDUCTION REQUIREMENT

In addition to implementing non-structural BMPs required by Section III of the permit, the permittee must undertake additional actions to reduce phosphorus discharges to the Charles River and its tributaries. Section IV and Appendix D of the permit provide a process for planning and implementing these additional actions.

Consistent with the wasteload allocation of the TMDL, each permittee is required to assure a phosphorus load reduction that equals 65% of the load from the developed areas of the permittee's DD Site. The basis for the required 65% reduction is presented in Attachment 3 of this fact sheet and in the TMDL. This load reduction, which must be calculated in accordance with Attachment 1 of Appendix D, is expressed as "DD Site Phosphorus Reduction in Pounds" or "Reductions in Pounds" and is referred to in the permit as the permittee's "Phosphorus Reduction Requirement." This reduction can be achieved by any one or combination of three methods: 1) enhanced non-structural BMPs; 2) on-site structural BMPs; and 3) participation in a Certified Municipal Phosphorus Program ("CMPP").

EPA has recently issued a draft general permit that authorizes discharges from MS4s in the Charles River watershed (Draft Massachusetts North Coastal Small MS4 General Permit, available at http://www.epa.gov/ne/npdes/stormwater/draft_manc_sms4gp.html). EPA regulations require that any NPDES permit contain effluent limits consistent with the

assumptions and requirements of any available wasteload allocation in an approved TMDL. Thus, the Draft Massachusetts North Coastal Small MS4 General Permit includes requirements for Milford, Bellingham and Franklin to reduce phosphorus loads to the Charles River by 57%, 51.8%, and 52.1%, respectively, from their MS4s. The Draft Massachusetts North Coastal Small MS4 General Permit requires persons that operate regulated MS4s located within municipalities that discharge to the Charles River or within its tributary watershed to develop and implement a Phosphorus Control Plan (“PCP”) no later than four (4) years from the effective date of the permit, and complete implementation the PCP no later than ten (10) years from the effective date of the permit. The PCP includes measures necessary to reduce phosphorus loadings from MS4s to the Charles River watershed in order to support achievement of the wasteload allocation in the approved TMDL.

EPA believes that an efficient way to integrate the related activities being undertaken by municipalities and designated discharge permittees under separate permits is to allow for the formation of a Certified Municipal Phosphorus Program (CMPP) to organize the activities of all permittees covered by the two independent, general storm water permits.

EPA analyzed the technical efficiency of a variety of storm water management approaches and anticipates that once individuals and municipalities have assembled and examined a complete array of phosphorus reduction alternatives, most permittees will opt to participate in a comprehensive municipal program. EPA’s preliminary analysis indicates that for municipalities to achieve the phosphorus load reductions required by their MS4 permits, they will need to secure reductions from sources throughout their municipalities, including reductions from private properties. A program that optimizes locations, types and sizing of structural BMPs on private and public properties combined will provide technical efficiencies and cost savings for both the municipalities and the participating private permittees. In light of these analyses, EPA is structuring the DD permit and MS4 permit to encourage MS4 and DD permittees to coordinate their efforts, primarily through the creation of CMPPs.

Ideally, participation in a CMPP should be open to any designated discharge that flows to an MS4. It should also be open to any designated discharge that goes directly into the Charles River or one of its tributaries. The wasteload allocations in the TMDL are based on land use analyses of municipalities, without regard to whether a specific land use area is discharging to an MS4.

Section III (B) of the fact sheet identifies criteria that EPA is proposing to use in establishing a CMPP program. These criteria aim to provide municipalities with the flexibility to create programs that meet their unique needs while satisfying EPA’s regulatory mandate to issue NPDES permits that are enforceable and that assure compliance with the wasteload allocations of the TMDL.

The structure will also allow for private property owners and municipal officials to coordinate a comprehensive municipal plan. This approach encourages the placement of BMPs at optimal locations, where site conditions are most favorable for infiltration practices (the most effective BMP for capturing phosphorus) and where runoff from large impervious surfaces can be

collected and treated. The strategy also allows for the creation of a trading system by which a permittee that is able to over-control discharges on its own Site could sell reduction “credits” to a permittee that is unable or who otherwise does not wish to engage in on-site construction projects. EPA is establishing a flexible framework that would allow for a variety of possible approaches and invites comment on this CMPP conceptual framework and on the proposed approval criteria.

As noted, the permit also allows for any permittee to work independently to satisfy its Phosphorus Reduction Requirement on its own Site without participating in a municipal program. This may occur if a CMPP is not established, is not timely established, or is not an attractive compliance strategy for an individual permittee. Finally, the permit provides flexibility to each permittee to develop a plan that allows for any combination of enhanced non-structural BMPs, structural BMPs and participation in a CMPP, so long as the combination satisfies the permittee’s Phosphorus Reduction Requirement.

Section III (B) of Appendix D to the permit provides procedural and reporting requirements where a permittee is participating in a CMPP. While the final design of a CMPP is left open by the permit and fact sheet, a permittee who participates in an approved CMPP must annually report on the activities and progress of the CMPP and must certify that the permittee has met the requirements for participation established by a CMPP. While EPA is allowing for flexibility in developing CMPPs and encouraging public comment on approaches, the final permitting regimen must establish specific, clearly enforceable permit conditions that ensure compliance with water quality standards. Where a permittee is unable to participate in a CMPP, it must meet its Phosphorus Reduction Requirement independently by the deadlines established in the permit.

B. SUMMARY OF FIVE MAJOR STEPS TO SATISFY A PERMITTEE’S PHOSPHORUS REDUCTION REQUIREMENT

The permit and Appendix D to the permit set out a series of site assessment, analysis, planning, information-sharing, and implementation tasks that each permittee must conduct by specified deadlines. This framework, comprised of five major steps, is designed and sequenced to provide the permittee (and each municipality with a CMPP) the information necessary to develop and implement phosphorus reductions that achieve compliance with water quality standards. Each step requires the development of a plan, report and/or certification. EPA encourages each permittee to make major documents available on line or at a public repository such as a public library.

1. Step One: Preliminary Phosphorus Reduction Plan: On or before the second anniversary of the date of authorization to discharge, the permittee must develop a Preliminary Phosphorus Reduction Plan which consists of two major pieces: a Site Suitability Analysis that assesses the potential of a DD Site to achieve phosphorus reductions through on-site BMPs; and an initial election of compliance mode, stating the permittee’s preliminary intentions regarding participation in a CMPP. The permittee must provide the plan to the municipality in which it is located or an upstream municipality in whose CMPP it wishes to participate if its own

municipality does not have a CMPP. The permittee must also certify to EPA consistent with Section IX of the permit that it has developed the plan and submitted it to the relevant municipality.

Development of the Preliminary Phosphorus Reduction Plan requires site investigations and development of conceptual designs to achieve the specified levels of control. Site investigations will include preparing a detailed inventory report of the DD Site, conducting evaluations of existing storm water BMPs, and performing soil investigations to evaluate the feasibility of applying infiltration practices at the DD Site. EPA estimates the time required to engage a storm water professional, conduct the site investigations, develop the site inventory report, and prepare the conceptual BMP designs to range between nine months and one and a half years, under favorable conditions. EPA took several additional factors into account in proposing a schedule for this work: 1) the number of permittees (approximately 180 permittees) and the limited number of Storm Water professionals available to conduct the work may create delays; 2) some field work, such as soil investigations and existing BMP evaluations must be conducted under favorable climate conditions when the ground is not frozen and is free of snow, another possible delay factor; and 3) these undertakings will be novel for many of the permittees. Taking these factors into account, EPA is proposing a two year time frame for the development of a Preliminary Phosphorus Reduction Plan. The proposed two year time frame is also intended to give municipalities sufficient time to begin development of CMPPs.

2. Step Two: Final Phosphorus Reduction Plan: On or before the third anniversary of the date of authorization to discharge, the permittee must develop a Final Phosphorus Reduction Plan and certify to EPA consistent with Section IX of the permit that the plan is consistent with Section III of Appendix D to the permit.

The draft permit provides one year between the completion of the Preliminary Phosphorus Reduction Plan and the completion of the Final Phosphorus Reduction Plan, due by the third anniversary of the date of authorization. EPA estimates that a period of up to one year is appropriate for a permittee to negotiate its involvement in a CMPP before finalizing its approach to satisfying the Phosphorus Reduction Requirement of the permit.

During this one year period, CMPPs will be receiving Site Suitability Analyses from up to 180 different Site owners. The municipalities will need time to review the analyses and evaluate optimal phosphorus reduction opportunities among the DD Sites. Even those municipalities that have conducted preliminary advance work on their CMPPs, such as adopting necessary bylaws and developing fee structures during the first two years of the permit term, will need to undertake complex and time-consuming technical analyses once they receive site suitability analyses.

3. Step Three: Complete Plans and Permits or Certification of Participation in a CMPP: On or before the fourth anniversary of the date of authorization to discharge, the permittee must develop complete plans and secure all necessary permits for its Final Phosphorus Reduction Plan if it is constructing on-site BMPs. Where it is satisfying some or all of its phosphorus reductions requirements through participation in a CMPP, the permittee must certify that it is participating

in a CMPP consistent with Appendix D. In either case, the permittee must again certify to EPA that it has satisfied the permit requirements for this step.

The permittee has a minimum of one year following its decision to implement on-site BMPs to prepare final plans and construction specifications and obtain necessary permits to construct. Normally, proceeding from conceptual design to final design should not take more than a few months. However, the large number of potential BMP projects that are likely to fall under Massachusetts Wetland Protection Act jurisdiction may create a heavy permitting burden for the local conservation commissions. EPA has conducted GIS based analysis and estimates that approximately 60 to 80 percent of the DD Sites may require permits from the local conservation commission if on-site BMPs are constructed. In light of the administrative burden on municipalities, EPA is proposing a one year timeframe to finalize designs and specifications and obtain necessary permits.

4. Step Four: Structural storm water BMPs Constructed: On or before the fifth anniversary of the date of authorization to discharge, the permittee must construct all BMPs proposed in its Final Phosphorus Reduction Plan and certify to EPA that they are constructed and operational.

The draft permit proposes that the permittee complete construction and the post-construction survey by the fifth anniversary of the date of authorization to discharge. This would provide a minimum of one year to complete construction following the completion of the final plans and specifications for the on-site BMPs and to certify that the BMPs have been constructed as designed. EPA estimates that on average, construction of individual projects and follow-up surveys may take anywhere from one to six months. EPA is proposing one year for this process to account for inclement weather and seasonal conditions that would prevent or hinder construction activities; additionally, EPA recognizes that the number of permittees simultaneously meeting construction and post-construction requirements will create competition for the limited time of construction contractors, local conservation commissions conducting project reviews, and Storm Water Professionals inspecting and certifying that BMPs were constructed consistent with their designs.

5. Step Five: Annual Compliance Certification: On or before each anniversary of a permittee's authorization to discharge, it must certify, consistent with Section IX of the permit, that it is satisfying ongoing obligations under the permit. Each permittee must certify that it is implementing measures to satisfy the baseline performance standards. Additional certifications depend on whether the permittee is implementing enhanced non-structural BMPs, constructing on-site structural BMPs, or relying on participation in a CMPP to satisfy some of its Phosphorus Reduction Requirement. In the last case, the permittee must certify that it is satisfactorily participating in the CMPP and that the CMPP is satisfactorily operating its storm water program. The specific requirements for a permittee to demonstrate its satisfactory participation in a CMPP and a CMPP's satisfactory operation of a storm water management program will be developed during the course of EPA's development of final approval criteria for CMPPs as discussed below.

C. REQUIRED ELEMENTS OF PRELIMINARY PHOSPHORUS REDUCTION PLAN (SEE APPENDIX D)

On or before the second anniversary of the date of authorization to discharge, the permittee must develop and submit to the relevant municipality a Preliminary Phosphorus Reduction Plan; further, it must certify to EPA that it has developed and submitted the Plan to the municipality. The timing of this submission is keyed to the schedules for municipalities to develop and implement Phosphorus Control Plans (“PCP”) under the Draft Massachusetts North Coastal Small MS4 General Permit: within four (4) years of the effective date of its permit the MS4 must develop its PCP and within ten (10) years from the effective date of the permit, it must implement its Phosphorus Control Plan.

The Preliminary Phosphorus Reduction Plan must contain two primary components: a Site Suitability Analysis and a Preliminary Election of Compliance Mode.

1. First Element of Preliminary Phosphorus Reduction Plan: Site Suitability Analysis Appendix D, Section II (A):

The first component of the Preliminary Phosphorus Reduction Plan is a Site Suitability Analysis. To optimize coordination and cooperation across all designated discharge and municipal permittees, EPA is requiring each DD permittee to assess the highest practical phosphorus load reductions from its Site and to provide this information to the municipality in which it is located. If the municipality is not expected to develop a CMPP, the permittee must submit a plan and report to any upstream municipality that is expected to develop a CMPP and in which the permittee may prospectively participate. Once all designated discharge permittees submit this information, municipalities will be able to design the optimal plan for satisfying the phosphorus reductions of the TMDL by identifying those Sites that achieve the greatest reductions most efficiently.

(a) DD Site Map Appendix D, Section II (A)(1): The permit requires the permittee to develop a detailed map of the DD Site. The map must include locations and types of impervious surfaces, drainage system components, BMPs, buildings, sanitary sewer systems, sewage disposal systems, landscaped areas, natural vegetated and/or undisturbed pervious areas, storage areas, locations of outfall pipes to receiving waters, connection points to separate storm sewer systems, and boundaries of ground water protection zones. This information is needed to evaluate how best to achieve the identified levels of phosphorus control using structural BMPs on the DD site. Additionally, the map and inventory (discussed below) will assist the permittee in the identification of phosphorus sources and potential illicit sources of bacteria on the DD site and in the development of appropriate pollutant source controls.

(b) DD Site Inventory Report Appendix D, Section II (A)(2): The permit requires the permittee to conduct an inventory of the Site’s characteristics and regularly occurring activities. The information must be incorporated into a site inventory report and must present details of the information depicted on the site map and details of the activities and types of uses that occur at the DD Site. The report must quantify impervious and pervious areas by use for each sub-

drainage area identified on the map and present details of the storm drainage infrastructure including any storm water BMPs existing on the Site. The information developed for this report must be used in the development of the Preliminary Phosphorus Reduction Plan required under Appendix D, Section II of the permit.

Developing the site-specific information included in the mapping and inventory report will also provide the storm water management team with information to design the optimal plan to implement the baseline requirements in Section III of the permit.

(c) Initial Analysis of Enhanced Non-Structural Storm Water Phosphorus BMPs-Appendix D, Section II (A)(3): A permittee may satisfy part of its Phosphorus Reduction Requirement by implementing enhanced non-structural BMPs. The enhanced non-structural BMPs are generally of the same kind as the baseline performance BMPs; however, they generally represent a more aggressive degree of control than those defined in the baseline program

Regular catch basin cleaning, reduced fertilizer use, and proper management of landscaping wastes are addressed minimally in the baseline performance standards specified in Section III of the permit. However, DD Site characteristics and how these controls are applied will determine whether the permittee is allowed to claim credit toward satisfying its Phosphorus Reduction Requirement for the controls. Attachment 2 to Appendix D provides default removal credit factors and acceptable methodologies for calculating removal credits for these controls when implemented as enhanced non-structural BMPs. If the permittee chooses to use enhanced non-structural and structural BMPs to earn phosphorus reduction credits for the DD Site, then the Site Suitability Analysis must include supporting computations for the proposed phosphorus reduction credits. In addition, the controls must be incorporated into the SMP and the Preliminary Phosphorus Reduction Plan. The permittee will also need to certify annually that the pollution prevention and non-structural BMPs continue to be implemented in order to continue to earn any phosphorus reduction credit from them.

The enhanced non-structural BMPs that a permittee may implement under section IV(A) of Appendix D are:

- 1) Enhanced sweeping of impervious roadways and parking areas;
- 2) Semi-annual catch basin cleaning;
- 3) Elimination of fertilizers containing phosphorus; and
- 4) Organic waste and leaf litter collection program.

Enhanced sweeping program of impervious roadways and parking areas: The permittee may enhance the sweeping program in Baseline Performance Standard B to earn a phosphorus reduction credit for sweeping. To do so, the enhanced program must increase the frequency of sweeping from semi-annually to at least monthly. The permittee can earn credits only for swept areas that do not drain to structural storm water BMPs. With respect to many of the enhanced BMPs, the credit is derived by looking at areas that are not draining to BMPs. Where an area is draining to structural BMPs, the bulk of the phosphorus load will be reduced by the structural

BMP and the permittee will receive phosphorus removal credits based on the effectiveness of that BMP. With respect to enhanced sweeping, the amount of credit will depend on the frequency of sweeping, the type of sweeping technology used, and the amount of impervious area not draining to a structural BMP that is swept. The methodology for calculating the credit and the default removal factors to calculate the credit are provided in Attachment 2 of Appendix D.

Enhanced sweeping generates a phosphorus reduction credit because more frequent sweeping of impervious surfaces will remove particulate matter and associated contaminants, such as phosphorus, from impervious surfaces before they can be mobilized by the next rain event. The phosphorus removal credit for enhanced sweeping is a function of the sweeper technology used and the frequency at which the sweeping is performed.

Table 2-2 from Attachment 2 to Appendix D of the permit (shown below), presents the default phosphorus removal factors for calculating phosphorus reduction credits for enhanced sweeping programs. As indicated, the phosphorus removal factors vary according to sweeper type and the frequency of sweeping. EPA is using default factors that were developed by the Center of Watershed Protection (CWP) in fulfillment of an EPA Chesapeake Bay Program grant to develop information on reliable pollutant removal rates for sweeping and catch basin cleaning programs. The findings of this project are presented in the final report entitled “*Deriving Reliable Pollutant Removal Rates for Municipal Street Sweeping and Storm Drain Cleanout programs in the Chesapeake Basin*” and dated September 2008. This CWP project includes an extensive literature review of studies previously conducted to evaluate the pollutant removal effectiveness of sweeping and storm drain cleanout programs. EPA considers the findings from this project to represent sound science based on the currently available information on overall program effectiveness.

Table 2-2. Phosphorus removal efficiency factors (PRF_{sweeping}) for sweeping impervious areas.

Frequency*	Sweeper Technology	PRF_{sweeping}
Monthly	Mechanical Broom	0.03
Monthly	Regenerative Air/Vacuum Assisted	0.04
Weekly	Mechanical Broom	0.05
Weekly	Regenerative Air/Vacuum Assisted	0.08

* Sweeping must be conducted year round.

While the CWP study evaluates a large body of historical information on the effectiveness of sweeping programs, those historical studies did not fully evaluate the latest generation of high-efficiency sweeping technologies. In light of the advancements in sweeping technology, EPA is evaluating the potential effectiveness of high-efficiency sweeping technologies. Presently, a study is being conducted in the City of Cambridge, Massachusetts by the U.S. Geological Survey (USGS) in cooperation with Cambridge, DEP, EPA, and a manufacturer of high-efficiency

sweepers to supplement the existing body of information and refine the default phosphorus removal factors provided in the draft permit. This study will develop performance information representative of a high-efficiency sweeping technology based on pollutant build-up and wash-off data from local conditions within the Charles River watershed, and a well established City sweeping program. The results of this study are scheduled to be available by 2013.

Sweeper technologies vary in the ability to pick up particulate matter from impervious surfaces. Mechanical broom type sweepers are effective at collecting larger particle sizes and debris while vacuum assisted sweepers and regenerative air sweepers are capable of picking up a wider range of particle sizes including small or fine sized particles that a mechanical broom sweeper would miss. Controlling fine sized particles is crucial to managing phosphorus in storm water runoff, because a large fraction of phosphorus in storm water is highly associated with the presence of fine particles. As indicated, the vacuum assisted and regenerative air sweeper technologies earn a higher phosphorus removal credit than the mechanical broom sweeper for a given frequency of sweeping.

The frequency at which impervious surfaces are swept affects the overall efficiency of the sweeping program at reducing the phosphorus load in storm water: frequent sweeping will remove a greater pollutant load from impervious surfaces before it can be washed off and discharged to receiving waters. In the metropolitan Boston area, rainfall occurs on average once every three days. This high frequency of rainfall will limit the overall effectiveness of a sweeping program because with each rainfall/runoff event, some portion of the pollutant load is washed-off from impervious surfaces, the amount depending on the intensity and volume of the rainfall. Theoretically, the most effective sweeping program for reducing storm water phosphorus loading would sweep with a high-efficiency sweeper immediately before each rainfall/runoff event. However, such a program has practical limitations. Typically, sweeping programs follow a regular schedule to sweep impervious surfaces (e.g., first Monday of every month). Thus, default phosphorus reduction factors have been developed for monthly and weekly sweeping frequencies.

To prevent double counting of phosphorus reduction credits under the enhanced sweeping program, credits are granted only for those portions of swept impervious surfaces not draining to structural BMPs. For such areas, sweeping removes a portion of the accumulated pollutant load that would otherwise be conveyed to surface waters without treatment. Conversely, runoff from impervious areas that drain to structural BMPs will receive treatment before discharging to receiving waters for every rain event, whether or not the impervious surface has been swept. Properly functioning structural BMPs will consistently remove a portion of particulate matter and associated contaminants that are mobilized by every runoff event.

Semi-annual catch basin cleaning: The permittee may earn a phosphorus reduction credit for cleaning its catch basins serving the DD Site's drainage system twice per year (semi-annually), provided that the catch basins do not drain to a structural BMP. Catch basin cleaning must include the removal and proper disposal of recovered materials consistent with local and state

requirements. The methodology for calculating the credit and the default removal factors to calculate the credit are provided in Attachment 2 to Appendix D of the permit.

Catch basins can provide for the capture of limited phosphorus, provided that the available storage capacity in the catch basin sump is sufficient to hold gross particles. Catch basins are most efficient at capturing coarse sediments and debris and are not efficient at capturing fine sized particles with which phosphorus is highly associated.

Table 2-3 from Attachment 2 to Appendix D (shown below), presents the default phosphorus removal factor for calculating the phosphorus reduction credit for semi-annual catch basin cleaning. EPA is using a default factor that was developed by the CWP under the same project cited above. The CWP determined from previous studies that a catch basin will function properly when the sump storage capacity is at least 50% of the total sump capacity. The CWP study estimates that, in general, cleaning a catch basin on a semi-annual basis will be sufficient to maintain this capacity. EPA considers the findings from the CWP project to represent the best currently available information on overall effectiveness of properly maintained catch basins to reduce phosphorus loading.

**Table 2-3. Phosphorus removal efficiency factor (PRF_{CB})
for semi-annual catch basin cleaning.**

Frequency	Practice	PRF _{CB}
Semi-annual	Catch Basin Cleaning	0.02

To prevent double counting of phosphorus reduction credits, only the semi-annual cleaning of those catch basins that drain impervious surfaces not discharging to structural BMPs will earn phosphorus reduction credits. EPA estimates that structural BMPs are capable of capturing the coarse sediments that would be captured by catch basins.

Elimination of fertilizers containing phosphorus: The permittee may earn a phosphorus reduction credit by not applying fertilizers that contain phosphorus to managed, pervious, landscaped areas from which runoff discharges from the DD Site. The amount of phosphorus reduction credit will depend on the amount of managed, pervious, landscaped area identified in accordance with Appendix D (II)(A)(2)(d) to which no phosphorus containing fertilizers are applied. Attachment 4 to Appendix D provides the methodology for calculating the phosphorus reduction credit.

Phosphorus in fertilizers applied to landscaped areas and lawns is an obvious potential source of phosphorus to receiving waters in urban/suburban areas. There are a number of factors that determine the phosphorus load in storm water from fertilized areas. These factors include the timing of fertilizer applications relative to rain events, application techniques, and whether or not the soils are phosphorus deficient for plant growth. Many lawns in the Charles River watershed do not need phosphorus from fertilizers for healthy growth; in many cases within the Charles River watershed, soil testing has found soils to have ample phosphorus to support plant growth without soil additives. Phosphorus containing fertilizers applied to such lawns result in

excessive phosphorus levels in the turf and, consequently increased phosphorus transport during runoff events.

Studies to quantify the benefits of phosphorus fertilizer bans conducted in Ann Arbor, Michigan, and Minnesota indicate that the use of phosphorus free fertilizers results in lower phosphorus loading to receiving waters. However, due to the many variables that affect phosphorus levels in receiving waters, including other non-fertilizer sources, it is difficult to quantify the exact benefit. EPA, however, recognizes the potential water quality benefit of limiting the use of phosphorus containing fertilizer and proposes allowing a 10 % phosphorus reduction credit in the draft permit for a permittee that certifies that no phosphorus containing fertilizers have been applied to any portion of a DD Site.

The proposed reduction of 10 % applied to the phosphorus load export rate for the developed portion of the DD Site falls generally between the limited results presented by the Michigan and Minnesota studies. The Ann Arbor study indicates a phosphorus reduction of 0.08 lbs/acre/year (approximately 5-8% for the phosphorus load export rates for the DD Site land use categories); similar work in Minnesota estimates that phosphorus free fertilizer use could reduce phosphorus load export rates from residential areas by 12-16%. Overall, these studies confirm the potential benefit of limiting the use of phosphorus containing fertilizers and support a phosphorus reduction credit under this permit.

Organic waste and leaf litter collection program: The permittee may earn a phosphorus reduction credit by enhancing Baseline Performance Standard F by performing proper management and disposal of landscaping wastes, organic debris, and leaf litter at an increased frequency. In order to earn the credit, the permittee must, on a weekly basis between April 1 and December 1 of each year, assure that all impervious roadways and parking lots are free of landscaping wastes, organic debris, and leaf litter. The permittee must assure that the disposal of these materials will not contribute pollutants to any surface water. The permittee may not use leaf blowers or similar technology to move organic waste and leaf litter from the Site. The permittee may use an enhanced sweeping program (e.g., weekly frequency) as a component of the enhanced organic waste/leaf litter collection program, provided that the sweeping targets organic materials. Attachment 2 to Appendix D provides the methodology and default removal factor for calculating the credit.

Organic matter, including grass clippings, leaves and mulch, all contain phosphorus that can be released when saturated with water. As a result, organic matter deposited in drainage system components (e.g., catch basins and structural BMPs) and mobilized to receiving waters during runoff events is likely to become a long-term source of phosphorus. A study investigating sources of phosphorus in two residential basins in Madison, Wisconsin estimated that approximately 30 % of the total phosphorus measured in street dirt samples was from leaf matter. Phosphorus release from decaying matter is intensified under conditions of low dissolved oxygen, which is a common condition in catch basin sumps and certain BMPs such as wet ponds.

EPA considers that the transport of organic materials by runoff a considerable source of phosphorus to the Charles River; activities that prevent these material from entering drainage systems are worthy of a reduction credit. Consequently, EPA is proposing a phosphorus reduction credit of 5% for an organic waste and leaf litter collection program that regularly removes organic matter from impervious surfaces during the growing season and throughout leaf fall. EPA considers the 5% reduction credit to be a reasonable default value based on available information.

(d) Initial Analysis of Structural BMPs – Appendix D, Section II (A)(4): Section II(A)(4)(a) of Appendix D requires the permittee to evaluate the suitability of the Site to achieve two levels of control through structural BMPs where the permittee may satisfy some or all of its Phosphorus Reduction Requirement through their use. The two phosphorus reduction levels of control that must be analyzed are:

- (i) The highest practicable level of storm water phosphorus control for the DD Site with a maximum level of control up to the capture, treatment, and no discharge for one inch of rainfall from all impervious and pervious developed surfaces on the DD Site; and
- (ii) A 65% reduction in annual phosphorus loading from the impervious and pervious developed surfaces on the DD Site. This analysis will evaluate the technical approach that a permittee would take where it satisfies its Phosphorus Reduction Requirement with on-site structural controls without participating in a CMPP.

Analysis for each level of control is required for several reasons. The requirement to assess control to the highest practicable level will allow both the permittee and a CMPP in which it may be participating to assess the benefits to each from its participation. Where a permittee can achieve a phosphorus reduction at a cost that is low relative to the implementation of BMPs at other Sites, it may be to the benefit of the permittee and a CMPP to include its Site in the CMPP.

EPA in cooperation with DEP and others conducted two storm water management modeling analyses to support the need for and value of defining the highest practicable level of storm water phosphorus control for DD Sites. These analyses are: 1) *Storm Water Best Management Practices (BMP) Performance Analysis*, Tetra Tech, Inc., December 2008; and 2) *Optimal Stormwater Management Plan Alternatives: A Demonstration Project in Three Upper Charles River Communities*, Tetra Tech, Inc., December 2009.

The first analysis developed information and estimates of the long-term cumulative performances of several types of BMPs for removing phosphorus from storm water runoff from developed areas, assuming local rainfall patterns. The second analysis, “the optimization analysis,” involved developing optimized storm water management strategies for Milford, Bellingham, and Franklin. The analysis considered land use, soil conditions, imperviousness, space limitations, topography, depths to groundwater and bedrock, BMP efficiencies, and BMP costs to develop the best approach to the storm water management in those municipalities. The

results provide an estimate of the total amount of phosphorus control, expressed in terms of BMP type, BMP capacity, and drainage area to be treated necessary to meet the TMDL reductions.

Key findings from these two analyses include the following:

BMP performance for capturing phosphorus varies considerably depending on BMP type and capacity. Infiltration systems have the highest phosphorus removal efficiencies and can achieve high phosphorus capture rates even for small sized systems. For example, an infiltration system designed with a half inch (0.5) of storage capacity can achieve estimated phosphorus removal efficiencies of between 65% and 88%, depending on the infiltration rate of the subsurface soil. BMPs that include a filtering medium such as bioretention/filtration systems, gravel wetlands, and porous pavement are the next best performers for removing phosphorus. Such BMP systems sized for storing a half inch (0.5) of runoff are estimated to achieve long-term phosphorus removal rates of between 46% and 55%, respectively. BMPs such as detention basins and wet ponds that rely mostly on the settling of particulate matter to remove pollutants have the poorest performance rates. For example, phosphorus removal efficiencies for dry detention ponds are estimated to level off at 15%, even for large capacity systems sized for 2.0 inches of runoff.

With respect to long-term cumulative phosphorus removal, the performance of infiltration BMPs treating impervious runoff noticeably levels off when the BMP storage capacity exceeds approximately 1.0 inch of runoff.. This is because much of the pollutant load available for wash-off from impervious surfaces is mobilized during the frequently occurring small sized rain events and during the early phases of less frequently occurring large rain events. In other words, an infiltration system sized for one inch of runoff will capture most of the phosphorus load that is cumulatively washed off of impervious surfaces over a long period of time.

A program aimed at optimizing phosphorus reduction strategies across a municipality will favor a management approach that maximizes the use of the most effective BMPs (e.g., infiltration practices), installs these BMPs in areas where site conditions are favorable for their use (e.g. highly permeable soils) and positions them where runoff from high phosphorus loading areas (e.g., impervious surfaces) can be captured and treated. Such a program will also size the BMPs for these optimal locations in order to most effectively capture phosphorus and achieve high removal efficiencies (e.g., 80-90%). Optimizing the type, sizing, and placement of BMPs throughout a municipality will deliver the greatest amount of phosphorus load reduction using the fewest number of BMPs. Such a strategy will also reduce the overall costs associated with the engineering, design, construction, inspection, and operation and maintenance activities of BMPs.

The site structural BMP analysis will also assist the permittee in developing an overall effective site plan, sorting through the benefits of adding various components to its storm water management scheme, including a strategy that combines non-structural and structural BMPs.

Additionally, the site specific knowledge will assist the permittee in meeting the baseline performance standards in Section III of the permit.

Analyses of the second level of control identified in (ii) above, a 65 % reduction in annual phosphorus load from the DD Site, is consistent with the wasteload allocation of the TMDL based on a breakout by land use. More specifically, a 65% reduction in annual phosphorus load from a DD Site--property devoted to industrial, commercial and high-density residential use-- is needed to meet the wasteload allocation of 48% reduction in annual phosphorus load assigned to the watershed upstream of Watertown Dam. To achieve the overall 48% annual phosphorus load reduction at the Watertown Dam, the TMDL analysis determined that land use categories with relatively high loading rates, such as commercial, industrial, and high density residential uses, require a 65 % annual phosphorus load reduction. These higher reductions (greater than 48%) are necessary because some land uses in the upstream watershed, most notably forested areas, do not provide reasonable opportunities for significant reductions. Attachment 3 of this fact sheet provides additional details on this analysis.

Section II (A)(4)(b) of Appendix D requires the permittee to evaluate how site physical conditions and site design might affect the feasibility of applying BMPs involving groundwater recharge through infiltration.

In developing its phosphorus reduction plan, the permittee must maximize the use of infiltration BMPs to achieve the two identified levels of phosphorus control at the DD Site. A permittee should be aware that Massachusetts regulates the location at which infiltration of groundwater is permissible and imposes various pre-treatment and engineering requirements for infiltration.

Infiltration is among the most effective storm water BMPs for controlling phosphorus and bacteria in storm water runoff. Additionally, infiltration practices offer numerous other benefits including ground water recharge, peak runoff rate attenuation, reduced thermal impacts to receiving waters, and enhanced base flow to local streams. In short, properly placed and installed infiltration BMPs will address many aspects of water quality degradation caused by storm water runoff from developed sites.

Where physical constraints at the DD Site prevent the installation of infiltration BMPs that fully achieve the two identified levels of storm water phosphorus control, the permittee must assess non-infiltration structural BMPs. Once infiltration BMPs have been applied maximally, non-infiltration BMPs must be assessed and may be used to achieve the remaining phosphorus reductions. If non-infiltration storm water BMPs are used to meet part or all of the Phosphorus Reduction Requirement for a Site, the permittee must identify the site constraints that limit the use of infiltration BMPs. Those constraints may include:

- (i) The Site is comprised solely of soils classified as Hydrological Soil Groups C and D or of soils with bedrock near the land surface;
- (ii) The Site is a disposal site that requires remediation;

- (iii) Contamination including hazardous substances has been capped in place at the Site;
- (iv) The Site is subject to an Activity and Use Limitation issued by DEP pursuant to M.G.L. c. 21E and the Massachusetts Contingency Plan, 310 CMR 40.0000, that preclude recharge to the ground water;
- (v) A solid waste landfill as defined in 310 CMR 19.000 is located at the Site; or
- (vi) Ground water from the Site flows directly to a solid waste landfill or M.G.L. c. 21E site.

The Site Structural BMP Analysis should also assess the use of existing BMPs and/or retrofits of existing BMPs on the DD Site as an element of achieving the two identified levels of storm water phosphorus control.

(e) Phosphorus Reduction Estimates– Appendix D, Section II (A)(5): Section II(A)(5) requires the permittee to estimate the phosphorus load reductions that can be achieved through implementation of non-structural and structural BMPs for two different levels of control mentioned above. The load reduction estimates must be expressed as pounds of phosphorus annually removed from the DD Site storm water discharge for each non-structural and structural BMP and as a net overall percent reduction of the DD Site's annual phosphorus load as determined under Appendix D II(A)(2)(e). This analysis will assist in assessing whether the specific BMPs in the Phosphorus Reduction Plan will collectively meet the permittee's Phosphorus Reduction Requirement; it will also be helpful to a CMPP assessing strategies for a municipal-wide program.

For structural BMP phosphorus load reduction credits, Attachment 3 to Appendix D provides long-term cumulative BMP performance information that the permittee may use to calculate the annual phosphorus load reduction for each structural BMP identified in its Site Suitability Analysis. For BMPs selected by the permittee that are not identified in Attachment 3, the permittee must develop a phosphorus load reduction credit and include in the Site Suitability Analysis supporting calculations and documentation that justify use of the credit. The permittee may perform continuous BMP model simulations using a verified BMP model and a long-term local rainfall record to determine the credit.

Attachment 1 to Appendix D provides a methodology for quantifying annual phosphorus loading from a DD Site. That analysis is needed to calculate the net phosphorus load reduction resulting from multiple BMPs under varying site conditions. The estimates of annual phosphorus load and load reductions by BMPs are intended to be used by the permittee to demonstrate compliance with the relative phosphorus load reduction requirement of the permit (i.e., 65% of the DD Site phosphorus load). The estimates will also allow EPA and the municipality in which the Site is located to track progress towards achieving the overall relative phosphorus load reductions determined necessary for the municipality to attain its waste load allocation under the TMDL

The calculated phosphorus loads and load reductions for the Site should be used by the permittee to calculate the overall relative reduction in phosphorus load from the DD Site and to demonstrate that the identified BMPs will achieve compliance with the permit requirements.

The phosphorus load export rates presented in Table 1-1 of Attachment 1 to Appendix D represent estimates of the annual phosphorus load that would be delivered from impervious and pervious surfaces for nine (9) land use categories. The composite phosphorus loading export rate presented in Table 2-1 of Attachment 2 to Appendix D represents the overall (composite) annual loading rate that would be delivered from both impervious and pervious surfaces within a land use category. These composite export rates represent the average conditions in terms of percentage of imperviousness of the land use category. These export rates illustrate the relative magnitude of phosphorus loading from the various land uses. As explained in the Lower Charles River Phosphorus TMDL, the land use categories with the higher percent imperviousness have the higher export rates. As discussed previously, this is primarily due to the fact that impervious surfaces generate greater volumes of runoff than pervious surfaces and because phosphorus is more readily washed off of impervious surface than pervious surfaces.

The export rates presented in Attachments 1 and 2 to Appendix D are taken from the recent study by Tetra Tech, *Optimal Stormwater Management Plan Alternatives: A Demonstration Project in Three Upper Charles River Communities*, Tetra Tech, Inc., December 2009. The export rates represent a refinement of the values used in the land-use based loading analysis conducted for the Lower Charles River TMDL. The rates were refined to estimate phosphorus loads from impervious and pervious surfaces separately in the Tetra Tech demonstration study and to reflect the recent modeling work conducted by the Charles River Watershed Association for the Upper and Middle Charles River Phosphorus TMDL.

These export rates are provided in the draft permit to allow the permittee to estimate the net reduction that would be achieved from a variety of BMPs treating runoff from varying land uses with varying phosphorus loading export rates. The ultimate uses of the calculated reductions based on these export rates are for a permittee to demonstrate compliance with the **relative** phosphorus load reduction requirement for the DD Site (i.e., 65% reduction). These export rates may also assist municipalities in tracking progress towards achieving the **relative** phosphorus load reduction identified for it in the TMDL, to meet requirements of the Draft Massachusetts North Coastal Small MS4 General Permit

(f) Availability of Site Suitability Analysis: Appendix D, Section II (A)(6): Section II of Appendix D requires the permittee to develop a Site Suitability Analysis. It also requires the permittee to submit the Site Suitability Analysis and supporting report to the municipality in which the Site is located and to any other municipality in whose CMPP it may participate.

Section II(A)(6) of Appendix D requires the permittee to maintain a copy of the Site Suitability Analysis and accompanying certification and to make it available on-site and to EPA upon request. This will facilitate any site inspections.

2. One Inch Certification: A permittee may streamline its approach and bypass development of a Site Suitability Analysis by constructing on-site structural BMPs that capture and do not discharge a runoff volume equivalent to the one inch depth. A permittee choosing this compliance route must submit a certification consistent with Section IX of the permit that the on-site work will meet the one inch standard. The accompanying report must provide a description of the controls on the Site and demonstrate with supporting calculations and illustrations that the controls are sufficient to capture and not discharge at the one inch standard for the entire impervious area of the Site. For the purpose of complying with this standard, “not discharging” means that a runoff volume at a minimum equal to 1.0 inch depth over the entire impervious area of the Site must be controlled by structural storm water BMPs that result in ground water recharge and evapotranspiration on the Site. Temporary storage of runoff is acceptable provided the runoff volume is stored for the purpose of ground water recharge or for water reuse at the DD Site (e.g., landscape irrigation) and provided that the stored runoff does not ultimately discharge from the Site. The report must document the maximum amount of runoff volume that will be captured and have no discharge at the Site expressed in terms of inches of runoff depth over the entire impervious area.

A permittee choosing to satisfy its Phosphorus Reduction Requirement in this way must meet two additional requirements: (1) it must certify that it has satisfied the requirements of Appendix F relating to illicit discharge detection and elimination; and (2) it must submit as part of its Annual Certification of Compliance that it is satisfying the baseline requirements of Section III of the permit and satisfying all operation and maintenance requirements under Section IV(C) of the permit.

The one inch certification provision encourages a permittee to build structural BMPs at an earlier date than required by the permit and encourages a permittee, by meeting the one inch standard, to possibly exceed a 65% phosphorus load reduction, which will typically be the result. A benefit for the permittee is that, to the extent that it exceeds the 65% reduction level, it may generate phosphorus reduction credits that might be exchanged through a CMPP. It also relieves the permittee from the requirement of conducting a Site Suitability Analysis.

3. Non-binding Election of Compliance Mode: A permittee must include in its Site Suitability Analysis a statement indicating if the permittee intends to satisfy its Phosphorus Reduction Requirement through enhanced non-structural BMPs, through structural BMPs, through participation in a CMPP or through a combination of these options. The schedule is designed so that a permittee is not required to make a preliminary decision on whether it will meet its Phosphorus Reduction Requirement through one or more of the approaches until it has developed adequate information to make an informed choice. Adequate information should exist by the completion of the Site Suitability Analysis. This statement of intent is not binding on the permittee.

This preliminary election is intended to foster communications between the permittee considering participation in a CMPP and the relevant municipality. Under the Draft Massachusetts North Coastal Small MS4 General Permit, municipalities that operate MS4s that

discharge to the Charles River or its tributaries are subject to the Lower Charles River Phosphorus TMDL will be required to develop a municipal-wide Phosphorus Control Plan meeting the wasteload allocations of the TMDL within four years of the effective date of that permit. To achieve this goal, MS4s will likely invite owners of residually designated discharges to participate in the larger program. Various elements of this permit--such as the non-binding election of compliance mode, Site Suitability Analysis, and final election of compliance mode--are designed to allow timely coordination between permittees and MS4s.

If a DD Site is located outside of a municipality with a CMPP, the permittee may participate in a CMPP in a municipality that discharges to the Charles River upstream of the DD Site. Participation in a municipality downstream would dilute the water quality benefits of a permittee's participation and would not address local water quality impairments.

D. REQUIRED ELEMENTS OF FINAL PHOSPHORUS REDUCTION PLAN

The Final Phosphorus Reduction Plan must identify the permittee's overall strategy for satisfying its Phosphorus Reduction Requirement and the extent to which it will rely on enhanced non-structural BMPs, structural BMPs and participation in a CMPP. The Final Phosphorus Reduction Plan must include sufficient information to demonstrate that the permittee is prepared to move forward to final design of the non-structural and structural controls for the DD Site and/or to participate in a CMPP. It must also include a technical determination including supporting computations that the proposed strategy will satisfy the permittee's Phosphorus Reduction Requirement. While EPA intends to provide municipalities with support and flexibility in developing CMPPs, a municipality must have established an approved program in sufficient time to allow Site owners and operators to make final decisions regarding their involvement when they submit a Final Phosphorus Reduction Plan, that is, by the third anniversary of their authorization to discharge.

A. Final Phosphorus Reduction Plan and Report- Appendix D III (A) -Compliance through BMPs on the on DD Site

Where the permittee elects to satisfy its Phosphorus Reduction Requirement in part or in whole through the use of enhanced non-structural and structural BMPs on the DD Site, the permittee is required to develop a Final Phosphorus Reduction Plan on or before its third anniversary of authorization to discharge. The purpose of the plan and report is to assess the extent to which the on-site BMPs will satisfy the permittee's Phosphorus Reduction Requirement. This assessment involves estimating the phosphorus load reduction that must be achieved to satisfy the reduction requirements, estimating the reductions that the planned on-site BMPs will achieve and calculating the difference between the required and expected reductions, referred to in the permit as the shortfall, which must be satisfied by participating in a CMPP.

The permittee must submit a certification to EPA consistent with Section IX of the permit that the plan and report have been completed. The plan must also be submitted to a municipality in whose CMPP the permittee is participating. This will allow a municipality to assess the

reductions that will be achieved by all interested participating permittees, to assess ways to optimize a comprehensive plan, and to estimate the extent to which the municipality will satisfy the load reductions required by its MS4 permit.

Appendix D identifies the technical information that must be contained in the plan and report. This includes the type and size of proposed enhanced non-structural and structural BMPs. The permit requires that the Final Phosphorus Reduction Plan and Report contain sufficient information to demonstrate that the proposed BMPs are feasible for the DD Site. It must also document that it incorporates infiltration BMPs to the extent feasible and identify any site constraints that limit the use of infiltration BMPs. As discussed above, EPA considers infiltration practices to be the preferred BMP for the Charles River watershed when site conditions are suitable.

B. Final Phosphorus Reduction Plan and Report- Appendix D III(B) -Compliance through Participation in a Certified Municipal Phosphorus Program (CMPP)

As specified in Section D III (B) of Appendix D, a permittee may satisfy part or all of its Phosphorus Reduction Requirement through participation in a CMPP.

This option is included in the permit because EPA expects there could be a number of advantages to both a permittee and a municipality if the municipality's overall phosphorus load reduction is accomplished under a coordinated and centralized management program. Some of the expected advantages from a CMPP Program include: lower total program costs for meeting phosphorus reduction objectives through optimized placement and sizing of the best performing BMPs; shared responsibility for installing, operating, and maintaining BMPs; and efficiencies in the number of BMPs likely to be needed community-wide to achieve the phosphorus reductions. Fewer BMPs will lower overall operation and maintenance demands. Both the permittee and the municipality with a CMPP also enjoy the benefit that each can apply the phosphorus reductions against its own phosphorus reduction obligations.

At present, CMPP programs have not been developed. However, EPA expects that municipalities may develop such programs as an element of the Phosphorus Controls Plans required by the [Draft Massachusetts North Coastal Small MS4 General Permit](#). As noted earlier, all permits issued subsequent to EPA's approval of the Lower Charles River phosphorus TMDL must be consistent with the wasteload allocations of the phosphorus TMDL. Thus, the draft North Coastal MS4 General Permit includes requirements to achieve significant phosphorus load reductions, estimated for Milford, Bellingham, and Franklin as 57%, 51.8% and 52.1%, respectively. Because of the magnitude of these required reductions and the significant contributions to phosphorus discharges attributable to large impervious surfaces, EPA expects municipalities to show interest in developing comprehensive municipal programs that account for reductions from all regulated sources.

In order for a permittee to satisfy Phosphorus Reduction Requirement through participation in a CMPP, the CMPP must first be approved by EPA. EPA has not decided upon any final

standards for approval of CMPPs, but anticipates that the public comment period on this permit will provide an opportunity for all affected parties to present suggestions.

For purposes of soliciting comment on standards by which to judge a program, EPA is proposing the following factors:

- Geographic size of the program;
- Enforceability of reduction requirements;
- Accuracy of estimated phosphorus reduction calculations;
- BMP design criteria;
- Operation and maintenance procedures;
- Review and audit procedures;
- Strategy for assuring achievement of phosphorus reductions in the TMDL;
- Accessibility of information to the public;
- Reliability of phosphorus reduction accounting procedures;
- Adequacy of legal authority supporting program;
- Long term financial stability of program; and
- Ability of a CMPP to demonstrate that it can satisfy an implementation schedule that comports with applicable NPDES requirements.

EPA is also proposing that a CMPP have the following elements:

- The program must be established and managed by a municipal government, a group of municipal governments, or by a legal entity established under state law (Program Administrator).
- The Program Administrator must have the legal authority to undertake all actions necessary to achieve the phosphorus load reductions required by the permit and any relevant MS4 permit.
- The Program Administrator must develop and implement a plan that will achieve phosphorus load reductions consistent with: the TMDL; any schedules, terms, conditions and standards contained in this permit; with the requirements of the NPDES permit program; and with any other legal requirements under federal law.
- The Program Administrator may implement the program through the collection of fees to finance phosphorus load reductions activities; through agreements with DD permittees by which storm water management is conducted on DD Sites; through agreements with other NPDES regulated entities; through storm water management proposals approved by EPA; or any combination of the above.
- The CMPP must develop a mechanism to assure that its obligations will be satisfied in the event of the termination of the CMPP. In addition, if a CMPP seeks to terminate its program, the Program Administrator must notify EPA in writing at least 180 days before

the program is terminated. Such notice must include information on all lots subject to the CMPP Program, including the name and address of each participant, the address of each Site involved in the program and the area of the Site covered by impervious surfaces. If a CMPP terminates before all reductions have been achieved, from the date of termination of the CMPP Program and continuing thereafter, each permittee that has participated in the CMPP Program must comply with the requirements of this permit independent of the CMPP and satisfy its Phosphorus Reduction Requirement. At least 180 days before the program is terminated, the Program Administrator must notify each participant in writing that the program is being terminated. A permittee that participated in a CMPP Program that is terminated is subject to the requirements of the permit regardless of whether it receives notice from the local government unit that the CMPP Program has been terminated.

EPA is seeking input on the structure of CMPPs before it adopts a specific approach for several reasons: allowing input on the structure of a CMPP will allow all prospective permittees an opportunity to propose standards that will protect all interests; it will provide flexibility to permittees and municipalities to design programs that they find implementable and beneficial; and it will provide public input on an acceptable approach.

If EPA is not able to establish standards for approving programs, a permittee will be required to satisfy its Phosphorus Reduction Requirement through implementation of on-site BMPs. The same result will occur where no CMPP is approved by EPA after establishment of standards.

Section III of Appendix D also contains various certification requirements for a permittee undertaking BMPs on its Site, participating in a CMPP or both. Compliance with the permit requires satisfaction of these certification requirements. Section IX of the permit specifies the contents for a certification. Section IV of Appendix D contains similar certification requirements.

E. IMPLEMENTATION OF PHOSPHORUS REDUCTION PLAN REQUIREMENTS AT THE DD SITE

(A) Implementation of Enhanced Non-structural BMPs:

Where a permittee is relying in part or in whole on non-structural BMPs to meet its Phosphorus Reduction Requirement, it is required to identify them in its Final Phosphorus Reduction Plan. Upon submission of the certification that the Final Phosphorus Reduction Plan is complete, the permittee shall commence, and continue thereafter, implementation of the enhanced non-structural BMPs. The enhanced non-structural BMPs will have been identified during the development of the Site Suitability analysis, will not require complex design or construction efforts, and can likely be incorporated into routine facility operations. The sooner they are implemented, the greater their environmental benefit, and thus their immediate implementation is reasonable.

(B) Design Plans and Construction Specifications for Structural Storm Water BMPs:

Section IV(B) of Appendix D requires that BMPs be designed by a Storm Water Professional, defined as a Massachusetts Registered Professional Engineer or a Massachusetts Registered Landscape Architect experienced in storm water management. EPA intends that by requiring professional expertise in the design of storm water management systems, it will assure a technically sound program. The design of structural BMPs is probably beyond the ken of most private land owners without a technical background. Involvement of a Storm Water Professional will assure both EPA and the permittee that the structural BMPs will perform appropriately and be technically adequate to satisfy the permit's performance standards.

Section IV (D) of Appendix D requires that all structural storm water BMPs be designed and constructed in accordance with the specifications of the Massachusetts storm water handbook. In 1996, DEP issued its Storm Water Policy aimed at encouraging recharge and controlling environmental degradation caused by storm water. The handbook and the Storm water Management Standards it established serve as the current, acceptable protocol for the design and construction of storm water control systems in the Commonwealth. The Storm water Management Standards were subsequently incorporated into regulations under the state Wetlands Protection Act and Water Quality Certification regulations. Thus, the Stormwater handbook has been a practice guide for storm water control efforts for over a decade and provides a field-tested manual with which professionals in Massachusetts should be familiar. DEP's Stormwater standards and Handbook are available on the following website:

<http://www.mass.gov/dep/water/laws/policies.htm#storm>

Section IV(D) adopts as a federal requirement that the permittee satisfy the DEP design and construction standards where BMPs are intended to manage storm water runoff from land uses with higher potential pollutant loads, where they have discharges near or to critical areas, or where they are located in areas with an infiltration rate greater than 2.4 inches per hour. These are all standards that are described in the Stormwater Handbook.

The Stormwater Handbook has various requirements relating to recharge of storm water in areas where it may affect private or public drinking water supplies. DEP has also promulgated separate drinking water regulations, as the Commonwealth has primary jurisdiction to protect groundwater as a drinking water supply. The permittee is advised to consult the state regulations directly to understand its legal obligations under state law.

The permit requires the permittee to complete its design plans and construction specifications at or before the fourth anniversary of authorization to discharge. This provides the permittee with a full year to convert its Final Phosphorus Reduction Plan to final design plans and construction specifications. As discussed more thoroughly below, NPDES regulations require that where a compliance schedule is deemed appropriate, compliance with the permit must be achieved "as soon as possible." The schedules in this permit relating to design and construction requirements appropriately balance relatively straightforward technical activities with the fact that this will be the first time that many permittees will be complying with an NPDES permit.

(C) Local, state and federal Permits needed for Construction of Structural Storm Water BMPs:

The permit requires that the permittee secure any necessary permits by the fourth anniversary of authorization. As with design plans and construction specifications, EPA believes allowing one year between the completion of the phosphorus reduction plans and acquisition of permits is reasonable under the “as soon as possible” schedule standard of the NPDES regulations.

(D) Construction of Structural Storm Water BMPs at the DD Site:

The permit provides an additional one year beyond the completion of design plans for the construction of BMPs. Again, EPA believes this is a reasonable period, given the relative simplicity of the technology involved, the five years between issuance of the permit and the final construction deadline, and the regulatory requirement that compliance be achieved “as soon as possible.”

(E) Certification of Participation in CMPP Program:

In developing the CMPP timelines of this permit, EPA has attempted to reconcile the complexity of establishing a CMPP program with the legal requirements of the NPDES program. As noted above, 40 CFR § 122.47(a) requires that before a permitting authority includes a compliance schedule in a permit, it must find that a compliance schedule “is appropriate” and that the permit requires compliance “as soon as possible....” Agency policy states that “factors relevant to whether a compliance schedule in a specific permit is appropriate include how much time the discharge has already had to meet the water quality based effluent limitations under prior permits.” One of the major factors that EPA is considering in its finding that a compliance schedule is appropriate in this permit is that this permit presents the first instance in which EPA is imposing storm water control requirements on these permittees. Many permittees will be unfamiliar with federal environmental regulation and can be expected to need time to consult lawyers and technical experts to comply with the permit.

Agency policy identifies among other factors relevant to whether a particular schedule requires compliance “as soon as possible” a consideration of the steps needed to modify or install treatment facilities, operations or other measures and the time those steps would take. In this regard, EPA has considered a number of factors: the level of effort required of municipalities developing a CMPP—a novel undertaking for each; the need for close coordination between municipalities and DD permittees before, at and subsequent to the design process; and the fact that physical construction activities will require some months.

EPA is also mindful that the number of permittees involved in a CMPP may affect the negotiations among participants. EPA anticipates that Milford, Bellingham and Franklin will begin to develop CMPP programs within the first year of their MS4 permit term. EPA also anticipates that many regulated permittees will participate for financial reasons: for example where a DD Site overlies class A soils, a permittee may find a monetary incentive to control above the 65% reduction minimum and to sell excess phosphorus reduction credits to other permittees through a CMPP. A permittee needing credits to meet its Phosphorus Reduction Requirement will seek out credits at the lowest possible cost. Establishing a trading mechanism,

setting the pricing factors for phosphorus “credits,” conducting multi-party negotiations to develop an agreement among all permittees that will assure compliance with the permit—all of these activities can conceivably be complex and time consuming.

(F) Operation and Maintenance of BMPs:

Section IV(C) of the permit contains a number of operation and maintenance requirements. These requirements relate to all BMPs that a permittee relies on to meet its obligations under the permit, including non-structural and structural BMPs. With respect to on-site BMPs, the permittee must develop a plan that includes all of the relevant operation and maintenance procedures for those BMPs. This is critical to ensuring that these practices and all associated equipment function as designed and maintain optimal pollutant removal and hydraulic performances. The requirements include monthly inspections, periodic removal of accumulated sediment and debris, routine maintenance, and repairs needed to assure that the BMPs operate as designed.

The permittee must develop and maintain at the DD Site an operation and maintenance plan that incorporates all of the operation and maintenance requirements relating to on-site non-structural and structural BMPs. With respect to many structural BMPs, accumulation of sediments and debris may cause the clogging of filter media and will reduce the hydraulic capacity of the structure. This in turn will degrade its overall pollutant removal performance. Other equipment, such as street sweepers, will also require maintenance to operate as designed and to achieve the phosphorus reductions on which permit requirements are based. If there is no building on the Site, the plan shall be kept at the principal office of the person submitting an NOI. In instances where more than one person is submitting an NOI for a Site, a copy of the plan shall be kept at the principal office of each person submitting an NOI. Each Annual Certification of Compliance shall indicate all locations where the plan is maintained.

The operation and maintenance plan must address the proper management of the sludge and sediments removed from structural storm water BMPs. To obtain a phosphorus removal credit for existing LID practices and BMPs, the permittee must document adherence to the operation and maintenance activities detailed in the plan.

Section IV(C) of the permit also requires that the permittee assure that all BMPs implemented by a CMPP in which it is participating be maintained according to the standards in the permit. The ability of a CMPP to assure proper operation and maintenance of its BMPs is one of the criteria EPA proposes to use in its approval of CMPPs.

V. ANNUAL CERTIFICATION OF COMPLIANCE

The permittee must submit an annual certification reporting on its compliance with this permit. The certification of compliance must be submitted by February 15 each year and must cover the compliance related activities of the permittee during the preceding calendar year. Where a Site has multiple owners, a report from one or more of them that provides the requisite information will suffice. The information that must be included in the annual certification includes:

- whether the Site storm water is being managed in accordance with the baseline performance standards of the permit;
- a report on any noncompliance with the permit and an explanation of and schedule for corrective measures;
- a status report on any land disturbance or construction activity that has taken place over the reporting period;
- a report on any measures taken to correct a discharge contributing to a water quality standards violation under Section XI(A)(2) of the permit; and
- any additional information required by EPA to assess compliance with and the effectiveness of the permit

As noted above, this permit requires self-certification by the permittee at various compliance points. To assure that complex, technical work performed under the permit is consistent with applicable regulations and acceptable standards, the permit requires preparation of certain documents by a Storm Water Professional. EPA expects that this permit will cover roughly one hundred and eighty (180) DD Sites and the Agency's limited resources are best expended through a targeted enforcement program based on self-reporting by permittees. By requiring a permittee to submit compliance reports to EPA, the Agency can direct its enforcement activities toward reports of noncompliance, insufficient reporting, and the failure to report altogether. EPA believes that a permittee will provide accurate information in light of the significant civil and criminal penalties that arise from submitting false information, as well as from the general effort that most regulated parties generally make to comply with environmental laws. EPA also intends to develop an audit program by which it will monitor compliance with the permit and respond with technical assistance or enforcement, as appropriate.

VI. TRANSFER OF AUTHORIZATION UNDER PERMIT

The permit contains a provision allowing for the transfer of authorization to discharge under the permit. This provision contains standard language from the NPDES regulations at 40 CFR §122.61(b) relating to automatic transfers. EPA anticipates that most of the transfers of authorization to discharge under this permit will involve the transfer of property rights such as a sale or lease or other routine commercial transaction. This permit section provides for automatic transfer upon the satisfaction of a specified, straightforward process. Where a permit transfer does not meet the requirements of this provision, the transfer is subject to 40 CFR §122.61 (a).

VII. MODIFICATION, REVOCATION, AND REISSUANCE AND TERMINATION OF PERMITS

The NPDES regulations at 40 CFR §122.62 contain provisions relating to the conditions under which a permit may be modified, revoked and reissued, or terminated. The permit incorporates those provisions by reference.

In addition to including provisions that relate to the amendment of the permit itself, the permit includes provisions relating to the modification of the Storm water Management Plan and the

Final Phosphorus Reduction Plan. These provisions anticipate that a permittee may want to adapt its housekeeping procedures and BMPs as conditions at its Site change or as storm water management technology develops. The SMP must be modified: when operation and maintenance measures are modified to address new or modified structural storm water BMPs; when there is a change in the use of the DD Site that has the potential to affect storm water quality, the composition of the Storm water Management Team, or the arrangements for participation in a CMPP. The permittee may, at its election, modify the SMP to improve the effectiveness of the SMP or to adapt to changing conditions. When modified, the modified SMP shall be kept at the location(s) where it was kept prior to its modification, shall be made available to EPA upon request, and shall be submitted to EPA with the next-occurring Annual Certification of Compliance.

The modification language relating to the SMP and the Final Phosphorus Reduction Plan has been drafted to allow for a streamlined process for modifying those documents, while at the same time providing a process by which the modified plans will remain as environmentally protective as the pre-modification plans.

VIII. SUBMISSIONS

The permit requires various submissions, which should be mailed or delivered to the EPA address specified in the permit.

IX. CERTIFICATION, ATTESTATION AND SIGNATURE REQUIREMENTS

The NPDES regulations at 40 CFR §122.22 specify signature requirements for permit applications. These regulations also allow for the delegation of signature authority under specified conditions. The permit adopts these provisions for certain submissions: the NOI, the Annual Certification of Compliance, and requests for transfer, modification, revocation and reissuance or termination of the permit. Section IX of the permit also adopts language from 40 CFR §122.22 that must be included in specified submissions that attests to their truth, accuracy and completeness.

Section IX also sets out a series of requirements that apply to those instances where a permittee must submit to EPA a certification that an action has occurred or that a document has been prepared. The requirements are designed to provide EPA with a reliable and efficient compliance monitoring mechanism. The certification requirements aim to assure the agency that the permittee's storm water management activities are technically sound, clearly documented, and easily reviewable by EPA and interested CMPPs. All certifications must, among other things, identify the requirement to which they relate and be supported by a report containing a technical justification for its conclusions. They must also be prepared, signed and attested to by a Storm Water Professional and document his or her qualifications. These are minimum requirements appropriate to assure compliance with water quality standards.

X. GENERAL CONDITIONS

The NPDES regulations at 40 CFR §122.41 contain general condition provisions applicable to all NPDES permits. These conditions are reproduced verbatim in Appendix G and are applicable to the permit.

XI. WATER QUALITY BASED EFFLUENT LIMITATIONS

A. Applicable Water Quality Standards

The Phosphorus Reduction Requirement of Section IV and Appendix D, among other sections of the permit, contain specific provisions to protect water quality through the implementation of BMPs and/or participation in a CMPP. Section XI supplements those provisions of the permit and contains requirements relating to increased discharges, new dischargers and antidegradation.

Section XI(A)(1) of the permit states the general prohibition of discharges that cause or contribute to violations of Massachusetts water quality standards. This provision applies to all pollutants discharged from a DD Site and is a condition of the permit necessary to assure compliance with water quality standards consistent with 40 CFR §122.4(d).

Section XI(A)(2) requires a permittee to identify impairments to the Charles River other than phosphorus or bacteria to which its discharge may be contributing, and to incorporate into its baseline Site Management Plan and Phosphorus Reduction Plan controls that are necessary to assure that its discharge does not cause or contribute to standards violations. A permittee should consult DEP's Section 303 (d) list, so called, which can be found on the DEP website at <http://www.mass.gov/dep/water/resources/tmdls.htm#info> . The permittee should then assess whether its discharge will be contributing to an impairment, and should build into its SMP and Phosphorus Reduction Plans, and subsequently execute, any additional measures where necessary to assure that the discharge is not contributing to an impairment.

Section XI(A)(3) requires any permittee that becomes aware that a discharge causes or contributes to a violation of water quality standards to take corrective action within 60 days to assure that the discharge is no longer contributing to a violation. Documentation concerning the exceedance and corrective measures must be included in the next annual Certification of Compliance. This provision is primarily meant to address pollutants other than bacteria and phosphorus, which are addressed more specifically in Section XI(A) (3) and (4). Those two pollutants are treated differently from other pollutants because of applicable TMDLs. Section XI(A)(3) and (4) address the situation where a discharge is not consistent with the assumptions and requirements of the wasteload allocations in the phosphorus and pathogen TMDLs.

EPA's residual designation determination is based, in part, on a finding that the designated discharges are contributing to water quality standards violations related to phosphorus. The permit requires controls to reduce the loading of phosphorus from the DD Sites so that it is consistent with assumptions and requirements of the wasteload allocation in the TMDL. Because a TMDL establishes the amount of a pollutant that a water body can assimilate and still attain water quality standards for that pollutant, EPA views the permit's requirements related to

satisfying the wasteload allocations of the phosphorus TMDL as being adequate to assure compliance with applicable water quality standards for phosphorus.

EPA has also determined that the illicit discharge detection and elimination requirements and other storm water controls imposed by the permit establish requirements that assure compliance with the applicable water quality standards for bacteria. In the Lower Charles River, illicit sources have been identified as a significant contributor to indicator bacteria criteria exceedances. Eliminating such sources in the upper Charles River is essential to attaining compliance with Massachusetts indicator bacteria criteria throughout the Charles.

The types of storm water controls required in the permit to achieve substantial phosphorus reductions are generally the most effective types of control practices for bacteria. The draft permit requires the use of infiltration BMPs when feasible. Infiltration practices are highly effective at removing bacteria from storm water runoff. Where infiltration is not feasible, a permittee must implement non-infiltration BMPs that are capable of high phosphorus reductions. Consequently, non-infiltration BMPs will necessarily include a filtering mechanism to achieve the high phosphorus reductions. These mechanisms will also effectively remove bacteria. The IDDE requirements, baseline SMP requirements, and BMPs designed to achieve at least a 65% reduction in the DD Site phosphorus load are, in combination, expected to achieve compliance with bacteria standards and to satisfy the wasteload allocations in the pathogen TMDL.

Sections XI(A)(3) and (4) require a permittee who becomes aware that its discharge is not consistent with the wasteload allocations in the phosphorus and/or the pathogen TMDLs to take corrective actions and report on it to EPA. EPA also reserves the right to impose additional requirements under the permit on a permittee whose discharge is contributing to a water quality standards violation or is inconsistent with the assumptions and requirements of an available wasteload allocation.

B. Increased Discharges of Pollutants for which the Charles River is Impaired

The permit also addresses instances where there is an increased discharge from a Site. The permit defines an increased discharge as an increase in the volume of storm water discharged from a site that commences after the effective date of this permit and that results from the creation of new impervious surface.

The permit assures that such increased discharges do not contribute to water quality standards violations by imposing additional or enhanced controls. With respect to pollutants for which the Charles River is impaired other than phosphorus and bacteria, the permit requires that the permittee enhance or add BMPs or secure offsets such that the net result is a decrease in pollutant load when the existing discharge and increased discharge are viewed in combination. Because a permittee must control its existing discharges so that they do not contribute to water quality standards violations in impaired waters, any increased discharge necessarily requires a commensurate or an increased level of control. The permit requires a net decrease in the combined loads to introduce a margin of safety in measuring loads and the effectiveness of new controls or offsets.

Increased discharges of storm water with phosphorus and bacteria must be controlled so that the waste load reductions required by the wasteload allocations of the TMDLs are achieved. Above and beyond the TMDL-mandated reduction, any increased load must be controlled to achieve a net reduction in loads from an increased discharge. This can be achieved by addition to or enhancement of existing BMPs or by securing an offset through a CMPP or in any other manner where consistent with law and EPA policy.

As with other measures to address discharges causing or contributing to water quality standards violations, the permittee must document the action taken in its next Annual Certification of Compliance.

C. New Dischargers

The NPDES regulations impose strict requirements on “new dischargers” as required by 40 CFR § 122.4. The definition of “new discharger” and the terms within that definition are found at 40 CFR § 122.2. “New Discharger” means “any building, structure, facility, or installation (a) from which there is or may be a ‘discharge of pollutant’; (b) that did not commence the ‘discharge of pollutants’ at a particular ‘site’ prior to August 13, 1979; (c) which is not a ‘new source’; and (d) which has never received a final effective NPDES permit for discharges at that ‘site.’” The term “site” is defined to mean “the land or water area where any ‘facility or activity’ is physically located or conducted, including adjacent land used in connection with the facility or activity.” “Facility or activity” is defined to mean “any NPDES ‘point source’ or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.” Finally, the “discharge of pollutants” means “(a) any addition of any ‘pollutant’... to ‘waters of the United States’ from any ‘point source’...” This definition includes additions of pollutants into waters of the United States from surface water collected and channelized by man; discharges through pipes, sewers or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works.

The “new discharger” provision of the permit is relevant where a current or prospective permittee creates an entirely new impervious surface that meets the definition of designated discharge. For example, a permittee may want to construct a new building or parking lot. Such a discharge would be considered a “new discharger” for purposes of 40 CFR § 122.4(i) where the new impervious surface is not on or adjacent to the permittee’s existing Designated Discharge Site. The term would also apply in the example where a person who is not currently a permittee constructs an impervious area meeting the definition of designated discharge.

In assessing when a new discharge should be treated as a new discharger, EPA is using as a determining date the effective date of the permit, rather than August 13, 1979. The “new discharger” category of discharges was created by a regulation promulgated on June 7, 1979 and it used, as a determining date for the definition, October 18, 1972, the date of enactment of the Federal Water Pollution Control Act, the predecessor to the CWA. EPA changed the determining date for “new discharger” when it amended 40 CFR §122.4 on September 1, 1983. That amendment was in response to industry petitioners who argued that, with the creation of the

“new discharger” category on August 13, 1979, the Agency was imposing stricter requirements on existing facilities that had been in operation for years but that had never received permits, even though applications had been filed. A similar logic applies to the application of the “new discharger” requirements under this permit. In setting a requirement that is more stringent than the one applied to an existing discharge, it is logical to define “new” as a discharge that begins after the new requirement is effective. Otherwise, an existing discharge that commenced between 1979 and the effective date of the permit, but that is legally required to obtain an NPDES permit for the first time under this permit, would be subject to the prospectively-focused requirements of a new discharger under 40 CFR §122.4(i).

A new discharger from a Designated Discharge Site that contains pollutants other than phosphorus and bacteria for which the Charles River is impaired is not eligible for authorization under this permit unless it is able to obtain an offset in a greater than one to one ratio and that is consistent with law and EPA policy. Alternatively, a person who creates a new impervious surface equal to or greater than two acres in size and who is able to contain all storm water on-site, is not discharging to a water of the United States and, hence, is not subject to the new discharger provision. Also, a prospective owner or operator of a discharge meeting the definition of new discharger may: prevent exposure of storm water to the pollutants of concern; or assure that its discharge is meeting in-stream water quality standards for bacteria and phosphorus at the point of discharge. Alternatively the discharger may apply for an individual permit for any such discharge.

Where a new discharger is discharging storm water with bacteria or phosphorus, pollutants for which TMDLS exist, 40 CFR §122.4(i) provides that the new discharger is not authorized under the permit unless the permittee submits to EPA documentation before the effective date of authorization that:

- There are sufficient remaining pollutant load allocations in all TMDLs applicable to the discharge; and
- The existing discharges to the waterbody are subject to compliance schedules designed to bring the waterbody into attainment with water quality standards.

The permit also requires that for a new discharger to be authorized, the permittee must receive an affirmative determination from EPA that the new discharger meets the requirements of this paragraph and the permittee must retain any relevant documentation with the SMP.

As an alternative to meeting those requirements, the permit also provides that, to the extent that it is consistent with law and EPA policy, a new discharger may be authorized where it establishes an offset for the discharge of the pollutant identified in the TMDL. This permit condition is provided to accommodate any future changes that may occur in the requirements of 40 CFR § 122.4.

D. Antidegradation

NPDES regulations require states to promulgate antidegradation regulations that apply to new and increased discharges. These regulations are meant to maintain and protect existing uses and high quality waters. A permittee is required to notify EPA and DEP a minimum of sixty (60) days prior to commencement of a new or increased discharge with a description of the discharge and documentation demonstrating that the discharge will satisfy the antidegradation provisions of Massachusetts water quality standards. The permittee must take into account in its antidegradation analysis that Massachusetts evaluates whether a water is a “high quality” water on a pollutant-by pollutant basis. Thus, for antidegradation purposes, a water may be high quality for some pollutants and not high quality for others.

For a new or increased discharge to any surface water, the permittee must demonstrate that the level of water quality necessary to protect existing uses will be maintained and protected. For any new or increased discharges to Tier II waters, defined by 314 CMR 4.04 to mean high quality waters, the permittee must demonstrate that the discharge does not have the potential to cause any significant lowering of water quality by documenting one or more of the following:

- The discharge is not significant because it is de minimis as defined by state policy;
- The discharge is not significant because it is temporary in nature and that upon completion of the discharge period the existing water uses and water quality will be equal to or better than that existing prior to the commencement of the discharge;
- The discharge does not cause a significant lowering of water quality because the effluent will be of a quality equal to or better than the existing water quality of the receiving water; or
- Storm water controls are designed such that there is no discharge of storm water from the volume associated with a 1 inch storm event. The volume of storm water to be controlled is determined by multiplying the amount of impervious area by 1 inch. Massachusetts has determined that a discharge from a Designated Discharge Site that meets this level of control is not significant for purposes of Tier II review under its antidegradation regulations. This determination is provided in Attachment 2 of this fact sheet.

Under this permit, EPA and DEP reserve the right to consider a discharge meeting the requirements above to be significant for reasons additional to or different from those relied upon by the permittee, including where the cumulative effect of the discharge and previously or contemporaneously approved discharges produce a significant lowering of water quality.

If the permittee cannot demonstrate and document that its new or increased discharge to a Tier II water is insignificant according to the above criteria, it may attempt to obtain a variance from DEP pursuant to 314 CMR 4.04(4).

A new or increased discharge to outstanding resource waters or special resource waters is not authorized under this permit and the permittee must seek authorization under an individual permit after satisfying the Massachusetts antidegradation requirements. In such an instance, a permittee is advised to review the Massachusetts antidegradation provisions at 314 CMR 4.00 and any related state policy.

XII. INFORMATION AND RESOURCES

EPA has developed several tools to assist permittees in the development of their storm water management programs (SMPs) and Phosphorus Reduction Requirement. The following is a non-inclusive list of some of the available resources:

1. [Storm water Best Management Practices \(BMP\) Performance Analysis](#)
1. [Illicit Discharge Detection and Elimination Guidance Manual](#)
2. EPA's National [Menu of BMPs](#)
3. [EPA Stormwater Homepage](#) contains links to various stormwater publications green infrastructure and urban retrofits.
4. Source Water Practices Bulletin. [Managing Stormwater Runoff to Prevent Contamination of Drinking Water](#)
5. [Center for Watershed Protection](#)
6. [Low Impact Development Center](#) and [Low Impact Development Urban Design Tools](#)
7. [Charles River TMDLs](#)
8. [314 CMR 4.00: Massachusetts Water Quality Standards](#) and [EPA Water Quality Standards Library](#)
9. [Stormwater Center](#)
10. [New England Interstate Water Pollution Control Commission](#)

OTHER LEGAL REQUIREMENTS

A. Environmental Impact Statement Requirements

The permit does not authorize discharges from any new sources as defined under 40 CFR §122.2. Therefore, the National Environmental Policy Act, 33 U.S.C. Sections 4321 et seq., does not apply to the issuance of this general NPDES permit.

B. Section 404 Dredge and Fill Operations

The permit does not constitute authorization under 33 USC Section 1344 (Section 404 of the Clean Water Act) of any discharge of dredged or fill material into waters of the United States.

C. Executive Order 12866

EPA has determined that this draft general permit is not a "significant regulatory action" under the terms of Executive Order (EO) 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under the EO.

D. Paperwork Reduction Act

The information collection requirements of this draft permit were previously approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act, 44 USC § 3501 et seq. and assigned OMB control number 2040-0086 (NPDES permit application) and 2040-0004 (Monitoring Reports).

E. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA), 5 U.S.C. 601 et seq., requires that EPA prepare a regulatory flexibility analysis for rules subject to the requirements of 5 U.S.C. 553(b) that have a significant impact on a substantial number of small entities. The permit proposed today, however is not a rule subject to the requirements of 5 U.S.C. 553(b) and is therefore not subject to the RFA.

F. Unfunded Mandates Reform Act

Section 201 of the Unfunded Mandates Reform Act (UMRA), Public Law 104-4, generally requires federal agencies to assess the effects of their “regulatory actions” on tribal, state, and local governments and the private sector. The UMRA defines “regulatory actions” to include proposed or final rules with federal mandates. The draft permit proposed today, however, is not a “rule” and is therefore not subject to the requirements of UMRA.

ATTACHMENTS TO FACT SHEET

- 1. Preliminary Designation Record of Decision of November 12, 2008**
- 2. Antidegradation Findings**
- 3. Basis for Phosphorus Reduction Requirement**
- 4. Proposed Final Residual Designation Amendments**