

PHOSPHORUS CONTROL PLAN (PCP) DRAFT TEMPLATE

Based on a document originally prepared by Kleinfelder for Charles River Watershed Association (CRWA) and MassDEP in June 2021. Updated June 2022, with additional information and feedback from MassDEP.

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Reference Appendices (companion documents for template):

- R.1 PCP Approach Guidance**
- R.2 Worksheets for Calculation Support**
- R.3 Funding Source Assessment: Overview and Guidance**
- R.4 Resource Library**
- R.5 Guidance Memorandum on Location Screening and Prioritization for Structural Controls**
- R.6 Implementation Schedule Tracking Spreadsheet**

Recommended (if not included in body of PCP template):

- A. Legal Analysis**
- B. Funding Source Assessment**
- C. Supporting Calculations for Non-Structural Controls**
- D. Supporting Calculations for Structural Controls (or documentation of location(s) stored)**
- E. Operations and Maintenance Program (or documentation of location(s) stored)**
- F. Priority Ranking of BMPs and Implementation Planning**
- G. Documentation of Public Comment Process and Comments Received**
- H. Alternative Schedule Request (if submitted)**

● DOCUMENT USE

This document is intended to serve as a guide as municipalities develop and adapt their PCP. This document does not constitute legal advice and use of the template does not guarantee compliance with the terms and conditions of the MS4 permit. Municipalities should consult legal counsel for consistency with applicable laws and regulations, including the MS4 Permit.

Template Instructions: *Throughout the template, instructional text is included, which aims to guide the user and describe the requirements for each section. This text is formatted as colored, italicized text in boxes (like this text). In preparing your PCP, this text can be removed after the instructions are no longer needed.*

Additionally, information located between two pound signs (“##EXAMPLE##”) is placeholder text for the user to customize. You should replace these instances with the corresponding data that pertains to your municipality.

Black, non-italicized text is template text which should be reviewed and edited as relevant to your community. The MS4 Permit requirements are included as black italicized text to facilitate understanding of the specific PCP section and can be kept or deleted as desired by each permittee.

Document Use:

The purpose of this document is to provide a framework and template for permittees subject to the Charles River Phosphorus Control Plan (PCP) requirements of the Massachusetts MS4 General Permit that can be customized to reflect their unique needs and compliance approach. This version of the proposed PCP template is intended for use by Charles River watershed communities; a separate template is available to meet the lake and pond PCP requirements for communities elsewhere in the Commonwealth. Use of this template is not a requirement for the PCP, but rather offered as a guide to assist in the development and implementation of the PCP as prescribed by the MS4 Permit.

This document has been developed to serve the following purposes:

- *Assist communities to meet the planning and documentation requirements of the PCP outlined in the MS4 Permit;*
- *Provide step-by-step guidance and support for establishing baseline conditions and accounting for retrospective 2005 – present development credits/impacts;*
- *Provide guidance on identifying potential strategies to meet the implementation schedule milestones;*
- *Provide references and resource materials for planning, and prospective tracking of structural and non-structural best management practice (BMP) reductions;*
- *Maintain a centralized record of activities and tasks undertaken in performance of the PCP objectives;*
- *Serve as a template for the written PCP due in permit year 5; and*
- *Provide guidance for the small number of communities that need to decide on their PCP scope in permit year 4.*

This document was originally developed by Kleinfelder and Charles River Watershed Association in spring 2021, and updated June 2022. Input was provided by MS4 communities that are required to develop PCPs through one-on-one interviews, written surveys, and discussions at Charles River Municipal Stormwater Collaborative meetings. Input was also provided by EPA Region 1

and MassDEP, although their involvement does not constitute approval of the template. Additional support materials are also referenced and provided from a series of web trainings conducted in Spring 2022. The workshops (1, 2, and 3) referenced in the instructions throughout this document were presented as part of that series. They are available on CRWA's YouTube page (go to YouTube and search Charles River Watershed Association). This template was developed with funding from the MassDEP Municipal Assistance Grant Program.

Note: Portions of this template can be copied and updated for Phases 2 and 3. Section 1.3, PCP Load Reduction Targets, does not need to be repeated or updated in future phases.

Meeting the requirements of the PCP will require many communities to update and expand their existing stormwater programs. In preparation for completing your PCP, we recommend working through the exercises in Appendices R.1:

- Appendix R.1 contains some PCP Guidance Tools, which aim to lead you through specific exercises to better understand how the unique features of your community can be best leveraged into a robust PCP. The results generated as you work through Appendix R.1 aim to guide a programmatic approach to permit compliance, which will take the form of your own PCP that reflects your community's particular strengths and needs.
- Appendix R.2 contains a calculation support worksheet, which will guide you through your near-term permit requirements: selecting your PCP baseline (if applicable), accounting for changes since 2005 due to development, tracking existing structural and non-structural BMPs, and thinking through workflows for tracking planned BMPs in the later permit years. The results generated as you work through Appendix R.2 will feed directly into the PCP template; there are many explicit references in the template to fill in tables based on the Appendix R.2 worksheets.

PHOSPHORUS CONTROL PLAN (PCP)

DRAFT TEMPLATE V2

1 PHASE 1

The 2016 National Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts (“MS4 Permit” or “the Permit”) took effect on July 1, 2018. The Permit was subsequently modified on December 7, 2020. The MS4 Permit conditions the operation, regulation, and management of MS4s in subject Massachusetts municipalities. Terms and conditions include requirements across six Minimum Control Measures (also referred to as Maximum Extent Practicable or MEP provisions), and water quality-based effluent limitations (WQBEL), including requirements for water bodies with approved Total Maximum Daily Loads (TMDLs) and other water quality-limited waters.

There are two approved nutrient TMDLs for the Charles River; one for the Lower Charles River Basin, published in 2007¹, and one for the Upper/Middle Charles River Basin, published in 2011². As an element of the Permit’s WQBEL provisions, communities within the Charles River watershed are obligated to address phosphorus impairments through the development and implementation of a Phosphorus Control Plan (PCP). Appendix F of the MS4 Permit describes specific requirements of the PCP, implementation of which is anticipated to achieve the TMDL-established targeted phosphorus reductions over a 20-year timeframe. PCP implementation includes structural and non-structural best management practices (BMPs) executed through programs, projects, and policies. The PCP must be fully implemented within 20 years of the Permit effective date (i.e., by 2038), as illustrated in Table 1-1. The targeted phosphorus reductions are broken out into interim mandatory milestones, culminating in achievement of the allowable TMDL phosphorus loads for each municipality at the end of the 20-year schedule.

Table 1-1. General PCP Implementation Timeline for Charles River Watershed Communities

1-5 years after permit effective date [2018-2023]	5-10 years after permit effective date [2023-2028]	10-15 years after permit effective date [2028-2033]	15-20 years after permit effective date [2033-2038]
Create Phase 1 Plan	Implement Phase 1 Plan		
	Create Phase 2 Plan	Implement Phase 2 Plan	
		Create Phase 3 Plan	Implement Phase 3 Plan

¹ Massachusetts Department of Environmental Protection. 2007. Final TMDL for Nutrients in the Lower Charles River Basin. CN 301.1

² Massachusetts Department of Environmental Protection. 2011. Total Maximum Daily Load for Nutrients in the Upper/Middle Charles River Basin, Massachusetts. CN 272.0

1.1 OVERVIEW OF ALL PCP PHASE 1 MILESTONES

Phase 1 of the PCP must achieve the first 25% of each permittee’s phosphorus load reduction requirement within 10 years (i.e., by June 30, 2028), with an interim milestone of achieving the first 20% of phosphorus load reduction by Year 8 (i.e., by June 30, 2026). The detailed components of the PCP due within Phase 1 are outlined in Table 1-2.

Table 1-2. Phase 1 Component Deadlines

Permit Year #	Year-End (June 30th)	PCP Component(s) Due
Year 1	2019	N/A
Year 2	2020	Legal Analysis
Year 3	2021	Funding Source Assessment
Year 4	2022	PCP Scope
Year 5	2023	Descriptions of the following Phase 1 items: <ul style="list-style-type: none"> - Nonstructural controls - Structural controls - O&M program for structural controls - Implementation schedule - Phase 1 cost estimate - Written Phase 1 PCP - Full implementation of nonstructural controls
Year 6	2024	Performance Evaluation
Year 7	2025	Performance Evaluation
Year 8	2026	Performance Evaluation & Implementation of structural controls to achieve 20% of target phosphorus reduction
Year 9	2027	Performance Evaluation
Year 10	2028	Performance Evaluation & Implementation of structural controls to achieve 25% of target phosphorus reduction

##MUNICIPALITY## acknowledges that to meet the phosphorus reduction deadlines set forth in the MS4 Permit, significant preparation is required. In order to plan, allocate funds to, design, and construct structural controls to meet the Year 8 and Year 10 reduction deadlines, there is significant work to be completed during the initial years of PCP implementation. Some controls that rely on local bylaw or regulatory updates, or engaging landowners directly through incentives, may take even longer to implement. This is taken into account in the Phase 1 implementation schedule.

1.2 WATERSHED AND COMMUNITY CHARACTERIZATION

Instructions: Add general information on your community's MS4 extents, land use/character, general opportunities/constraints (e.g. build-out, economic development activity, environmental assets), historic stormwater management approach, etc. [OPTIONAL]

The Charles River collects water from a total land area of 308 square miles. The River twists and turns on an 80-mile route from Hopkinton to Boston Harbor. The River flows through 23 communities and the total watershed encompasses 35 communities, adding many political complexities to watershed management. Some 80 brooks and streams, and several major aquifers, feed the Charles River. The watershed contains many lakes and ponds, most of them manmade, many through the construction of dams. The river drops about 350 feet in its unhurried journey to the sea. Lacking speed and force, the slow-moving Charles River is naturally brownish in color, because the water steeps like tea through the abundant wetlands along its path.

The Charles River watershed is home to over a million residents. As an urban river, it is impaired by multiple pollutants and has many areas with altered and degraded habitat. Three Total Maximum Daily Loads (TMDLs) have been developed for the watershed: two for nutrients and one for bacteria. The river has borne the brunt of much of the development in the greater Boston area through damming, pollution, and disruption from traditional development practices. A nearly five-decade cleanup effort has resulted in water quality improvements, primarily from elimination of industrial discharges and a significant reduction in untreated sewage flowing into the river. The primary challenge facing the river today is stormwater runoff. Phosphorus loading in stormwater runoff is a particular challenge to the river, leading to summertime cyanobacteria blooms and overgrowth of invasive aquatic plants in many areas of the watershed.

##ADD COMMUNITY-SPECIFIC INFORMATION##

1.3 PCP LOAD REDUCTION TARGETS

Permit Requirement: *The permittee shall indicate the area in which it plans to implement the PCP. The permittee must choose one of the following: (1) to implement its PCP in the entire area within its jurisdiction (for municipalities this would be the municipal boundary) within the Charles River Watershed; or (2) to implement its PCP only in the urbanized area portion of the permittee's jurisdiction within the Charles River Watershed. The implementation area selected by the permittee is known as the "PCP Area" for that permittee. ... The permittee shall select the Baseline Phosphorus Load, Stormwater Phosphorus Reduction Requirement and Allowable Phosphorus Load that corresponds to the PCP Area selected. The selected Stormwater Phosphorus Reduction Requirement and Allowable Phosphorus Load will be used to determine compliance with PCP milestones of this Phase and Phase 2 and Phase 3. ...*

Instructions: See Appendix R.2 Table 1. For communities where the entire portion of the community within the Charles River Watershed is Urbanized/Regulated Area (a.k.a "no decision communities" shown in Appendix R.2 Table 1), use the text in Section 1.3.1.A and delete Section 1.3.1.B. If you are choosing between two PCP Areas (a.k.a "decision communities" shown in Appendix R.2 Table 1), delete Section 1.3.1.A and use Section 1.3.1.B. The Calculation Support Worksheet No. 1 in Appendix R.2 and Workshop #1 will walk you through key considerations for determining your PCP Area (if applicable).

1.3.1 PCP Area, Baseline Phosphorus Load, Allowable Phosphorus Load, and Stormwater Phosphorus Reduction Requirement from MS4 Permit

- 1.3.1.A Text for “No Decision Communities”

Instructions: For communities where the entire Charles River watershed portion of the community is urbanized, use this language.

##MUNICIPALITY##’s will implement the PCP within the entirety of the community that falls within the Charles River Watershed as the entire area is Urbanized/Regulated Area. The Allowable Phosphorus Load reported in Appendix F for ##MUNICIPALITY## is shown in Table 1-3.

Instructions: Fill in Table 1-3 using the information from Appendix R.2 Table 2

Table 1-3. PCP Timeline of Phase 1 Reduction Requirements

Condition	Value
Baseline P-Load, lbs/yr	[Item 1.1]
Allowable P-Load, lbs/yr	[Item 1.3]
Stormwater P-Load Reduction Requirement, lbs/yr	[Item 1.2]
Year 8 Milestone: 20% of Reduction, in lbs/yr	0.2 * [Item 1.2]
Year 10 Milestone: 25% of Reduction, in lbs/yr	0.25 * [Item 1.2]

To achieve the target of reducing phosphorus loads by ##YEAR 10 MILESTONE VALUE## lbs/yr by 2028, ##MUNICIPALITY## will be planning and implementing a series of structural and non-structural BMPs, updating regulatory mechanisms as necessary to aid with achieving these goals, evaluating funding mechanisms and costs, and developing its O&M and recordkeeping programs to ensure continued compliance and functionality of all installed BMPs.

- 1.3.1.B Text for “Decision Communities”

Instructions: For communities where the Urbanized/Regulated Area portion of the community within the Charles River watershed is not coincident with the portion of your municipality within the Charles River watershed (“decision communities”), use this text.

##MUNICIPALITY## has the option to implement its PCP either within the entirety of the community that falls within the Charles River watershed, or just the MS4-regulated area of our community within the Charles River watershed.

Based on an assessment of factors relevant to the selection criteria, ##MUNICIPALITY## will implement the PCP on ##SELECT JURISDICTION## and therefore be held to the Allowable Phosphorus Load reported in ##TABLE F-2 OR F-3 OF THE MS4 Permit##. The Allowable

Phosphorus Load reported in **TABLE F-2 OR F-3** of Appendix F for **MUNICIPALITY** is shown in Table 1-3.

[OPTIONAL] OUTLINE FINDINGS – Document rationale (sample text below)

MS4-Regulated (Urbanized) Area: **MUNICIPALITY** is opting to implement the PCP within the MS4-regulated (urbanized) area because it is a smaller load and a smaller, more manageable area. We anticipate having the available space within this area to meet our MS4 Permit phosphorus reduction requirements. We do anticipate, however, that there will be improvements to stormwater management practices outside of this designated area as well due to the adoption of new stormwater policies and requirements that will be implemented at the municipal scale. We understand that these improvements will not count towards **MUNICIPALITY’S** phosphorus reduction requirement.

Entire Charles River Watershed Area: **MUNICIPALITY** is opting to implement the PCP on the entire Charles River watershed area within our community boundaries because (delete all that do not apply):

- Most readily-developable and re-developable land is located outside the urbanized area;
- Key large parcels suitable for structural BMPs are located outside the urbanized area;
- Soil types, groundwater conditions, etc. that are most suitable to BMPs are located outside the urbanized area (this may be a consideration for communities with a very small difference in required phosphorus reduction between the urbanized area and entire watershed area);
- New development with modern stormwater controls is present/prevalent outside the urbanized area; and/or
- Planned practices/approaches will be implemented at the municipal scale and we want to “take credit” for all the non-structural and structural stormwater practices being implemented in the community.

Instructions: Fill in Table 1-3 using the information from Appendix R.2 Table 2 based on your urbanized area or entire watershed area selection.

Table 1-3. PCP Timeline of Phase 1 Reduction Requirements

Condition	From Permit ¹
Baseline P-Load, lbs/yr	[Item 1.1]
Allowable P-Load, lbs/yr	[Item 1.3]
Stormwater P-Load Reduction Requirement, lbs/yr³	[Item 1.2]
Year 8 Milestone: 20% of Reduction, in lbs/yr	0.2 * [Item 1.2]
Year 10 Milestone: 25% of Reduction, in lbs/yr	0.25 * [Item 1.2]

To achieve the target of reducing phosphorus loads by **YEAR 10 MILESTONE VALUE** lbs/yr by 2028, **MUNICIPALITY** will be planning and implementing a series of structural and non-structural BMPs, updating regulatory mechanisms as necessary to aid with achieving these goals, evaluating funding mechanisms and costs, and developing its O&M and recordkeeping programs to ensure continued compliance and functionality of all installed BMPs.

1.3.2 Increases or Decreases to Baseline Phosphorus Load Since 2005

The Baseline Load displayed in Table 1-3 above was calculated using land use data from 2005. Due to development in ##MUNICIPALITY## since then, the current phosphorus load has changed, as illustrated below.

Note: This section is recommended, but not required until the Performance Evaluations.

Instructions: Complete Calculation Support Worksheet No. 2 in Appendix R.2, which includes calculation support for estimating the changes in phosphorus export loads due to development. Use the results of Part 2(a) of Calculation Support Worksheet No. 2 to inform the following paragraph. Discuss the following items:

- *Whether land use, impervious cover addition/disconnection, and other development has contributed to an increase or decrease in phosphorus load over your Baseline Load (“Pinc” in Appendix F);*
- *A brief summary of what contributed to this change (i.e., was it mostly large new developments that changed land use types, was it impervious cover, etc.)*
- *Quantify the load change, and the Current Load (Baseline Load + changes since 2005).*

Sample text to fill in is below. Note that the Current Load is noted as “Item 2.1” in Calculation Support Worksheet No. 2 in Appendix R.2. Workshop #1 provides information on calculating phosphorus load changes due to development since 2005. Two methods are presented in the Workshop for calculating these load changes, if you utilize one of these methods describe it the paragraph below.

Due to significant ##TYPE OF DEVELOPMENT CONTRIBUTING TO LOAD CHANGE OR CHANGE IN OVERALL IMPERVIOUS COVER##, the current annual phosphorus load has ##INCREASED OR DECREASED## since 2005 by ##AMOUNT##. Therefore, the Current Phosphorus Load has ##INCREASED OR DECREASED## from the Baseline Load of ##BASELINE## to ##CURRENT LOAD##. As land use, development, and impervious cover continue to change, this information will be updated, ensuring that ##MUNICIPALITY## is on track to still achieve the required 20% and 25% reduction milestones by Years 8 and 10.

Instructions: The Table below accounts for the changes since 2005 and calculates the adjusted load reduction requirement. Then the 20% and 25% milestones are applied to this new reduction value to show how your requirements have evolved when accounting for current conditions. This exercise will be replicated during the Performance Evaluations, which track not only the progress of implemented BMPs, but any changes to the annual export load.

Complete Calculation Support Worksheet No. 2 in Appendix R.2, including the calculations that create Table 6 in the Worksheet. These values can be copied into the Table below.

Table 1-4. Phosphorus Load Characteristics

Condition	Value
Baseline P-Load, lbs/yr	[Item 1.1]
Allowable P-Load, lbs/yr	[Item 1.3]
Stormwater P-Load Reduction Requirement, lbs/yr	[Item 1.2]
Current P-Load Reduction (from currently maintained BMPs), lbs/yr	[Item 2.2]

Current Stormwater P-Load Reduction Requirement, lbs/yr	Item 2.3 = [Item 2.2 – Item 1.3]
Year 8 Milestone: 20% of Reduction, in lbs/yr	0.2 * [Item 2.3]
Year 10 Milestone: 25% of Reduction, in lbs/yr	0.25 * [Item 2.3]

1.4 LEGAL ANALYSIS

Permit Requirement: *The permittee shall develop and implement an analysis that identifies existing regulatory mechanisms available to the MS4 such as bylaws and ordinances, and describes any changes to regulatory mechanisms that may be necessary to effectively implement the entire PCP. This may include the creation or amendment of financial and regulatory authorities. The permittee shall adopt necessary regulatory changes by the end of the permit term.*

Instructions: *The legal analysis was required to be developed by end of MS4 Permit Year 2.*

At the very least, the legal analysis should ensure that current rules and regulations meet Permit requirements and absolutely do not restrict or prohibit the implementation of BMPs. We encourage the permittee to explore legal avenues that could facilitate implementation of the PCP such as establishment of a Stormwater Utility or enhancement of post-construction stormwater regulations through local stormwater bylaws and other mechanisms to impact more development projects. CRWA has developed model language for stormwater bylaws and regulations to facilitate compliance with the phosphorus reduction requirements of Appendix F of the MS4 Permit, which is included in the Resource Library in Appendix R.4. The model language allows communities to gather necessary stormwater management data (e.g., pre-development phosphorus load, post-development phosphorus load, load reductions associated with each structural BMP, operation and maintenance plan including responsible party) during project review processes and enables ongoing tracking of operation and maintenance of BMPs.

Regulatory changes also provide an opportunity to engage the private sector in phosphorus reduction calculations and documentation of BMP maintenance by requiring submission of such calculations in a designated format (i.e., using the BATT tool) and regular maintenance reports. Note that regulatory changes are not required to be implemented until the end of the Permit term, but often require extensive planning, community support, and bureaucratic approvals that can take time. Initiating this process sooner than later would be advantageous to meeting PCP milestones.

Tip/Trick: *While the Legal Analysis for the PCP was due by end of Permit Year 2, Part 2.3.6 b and c of the MS4 permit require additional evaluation of “current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover” and development of “a report assessing existing local regulations to determine the feasibility of making, at a minimum, [green roofs, infiltration practices, and water harvesting devices] allowable when appropriate site conditions exist.” This effort should consider the PCP requirements, and the updated Legal Analysis in Phase 2 should reflect this work.*

Appendix F of the MS4 Permit requires ##MUNICIPALITY## to develop and implement an analysis that identifies existing regulatory mechanisms available to the MS4 such as bylaws and ordinances, and describes any changes to regulatory mechanisms that may be necessary to effectively implement the entire PCP (the “Legal Analysis”). This may include the creation or amendment of financial and regulatory authorities. ##MUNICIPALITY’S## Legal Analysis is attached as Appendix A.

1.5 FUNDING SOURCE ASSESSMENT

Permit Requirement: *The permittee shall describe known and anticipated funding mechanisms (e.g. general funding, enterprise funding, stormwater utilities) that will be used to fund PCP implementation. The permittee shall describe the steps it will take to implement its funding plan. This may include but is not limited to conceptual development, outreach to affected parties, and development of legal authorities.*

Instructions: Appendix F requires that the permittee describe known and anticipated funding mechanisms (e.g., general funding, enterprise funding, stormwater utilities, permit fees or penalties, user fees, grant funding, etc.) that will be used to fund PCP implementation as well as the steps it will take to implement its funding plan. The funding source assessment should include preferred funding sources, why they are appropriate and sufficient to fund PCP implementation, and a timeline to establish those funding sources. If a stormwater utility is being considered, you must account for a substantial public outreach and education campaign to garner support. Please see the funding source assessment guidance provided in Appendix R.3.

The Funding Source Assessment will need to consider planned non-structural and structural controls and associated estimates of probable cost over each phase of work. This Assessment requires some iteration with other parts of the PCP not due until end of Permit Year 5. Information compiled in the worksheets in Appendices R.2 and R.3 are designed to help support this process.

Appendix F of the MS4 Permit requires ##MUNICIPALITY## to describe known and anticipated funding mechanisms (e.g., general funding, enterprise funding, stormwater utilities) that will be used to fund PCP implementation (the “Funding Source Assessment”). ##MUNICIPALITY## must describe the steps it will take to implement its funding plan. This may include but is not limited to conceptual development, outreach to affected parties, and development of legal authorities. ##MUNICIPALITY##’s Funding Source Assessment is attached as Appendix B.

[OPTIONAL] Key takeaways include the following:

- ##ENTER KEY TAKEAWAYS HERE##

1.6 NON-STRUCTURAL CONTROLS

Permit Requirement: *The permittee shall describe the non-structural stormwater control measures necessary to support achievement of the phosphorus export milestones in Table F-1 [of Appendix F of the MS4 Permit]. The description of non-structural controls shall include the planned measures, the areas where the measures will be implemented, and the annual phosphorus reductions that are expected to result from their implementation in units of mass/yr. Annual phosphorus reduction from non-structural BMPs shall be calculated consistent with Attachment 2 to Appendix F.*

Instructions: Using guidance provided in PCP Workshop #2 (Slides 10-15) and data gathered to complete the exercise in Calculation Support Worksheet No. 2 of Appendix R.2, summarize average annual acres of roadway swept, number of catch basins (CBs) cleaned, and/or leaf litter program schedules/results to determine current and planned annual phosphorus reductions for non-structural controls per Appendix F, Attachment 2 (which will vary from year to year based on actual acres swept, CBs cleaned, etc.). Results should be presented as current non-structural

BMPs below. Any identified enhancements to or addition of any of these programs to further PCP compliance should be described in the planned non-structural BMP section.

##MUNICIPALITY##'s approach for non-structural BMP implementation for PCP compliance is detailed in this section.

1.6.1 Current Non-Structural BMPs

##MUNICIPALITY## is currently implementing non-structural BMPs, which can qualify for phosphorus reduction credits. These are presented in Table 1-5. Credits were calculated using the updated phosphorus load export rates reported in Attachment 2 to Appendix F. These credits will count towards the required phosphorus reduction outlined in Table 1-4. Current non-structural BMPs are those that are anticipated to continue at current resource levels, or 'business as usual'. The information presented in Table 1-5 is further detailed in Appendix C and our Stormwater Management Plan (SWMP).

Instructions: Copy and paste the results of Calculation Support Worksheet No. 2, Part 2(b), specifically Table 7, into the table below. See Appendix R.2.

Table 1-5. Existing Non-Structural BMPs

Planned Non-Structural BMP	Implementation Levels (schedule, equipment, BMP details)	Average Annual P-Reduction (lbs/yr)
Street Sweeping		
CB Cleaning		
Leaf Litter Program		
Total Existing Non-Structural Credit		

The existing non-structural controls have already contributed ##AMOUNT## lbs/yr to the annual phosphorus reduction requirement of ##REDUCTION REQUIREMENT##.

1.6.2 Planned Non-Structural BMPs

Instructions: Planned non-structural BMPs represent additions and upgrades to current non-structural programs and/or operations for PCP compliance such as upgrades in equipment, increased cleaning/sweeping frequencies, addition of new leaf litter programs, etc. Planned Non-Structural BMPs would result in phosphorus reductions outlined in Table 1-6 and further detailed in Appendix C.

Insert descriptions of Planned Non-Structural BMPs here and fill in Table 1-6, or state that there are no Planned Non-Structural BMPs but instead you will continue with current Non-Structural BMPs throughout the PCP. You can reuse the guidance in PCP Workshop #2 (Slides 10-15) and in Calculation Support Worksheet No. 2 Part (2b) to estimate the reductions anticipated from your planned non-structural BMPs. It will most likely be easiest to calculate the total reduction from your new programs in Table 1-6, as opposed to just calculating the credits from new activities although you can use the table either way, just note whether your new total is in addition to current programs or the new total for your entire non-structural BMP program.

Note: Per Part 2.3.7.a.iii., catch basins in the Urbanized/ Regulated area must be cleaned such that a minimum sump storage capacity of 50% is maintained throughout the year. If you are already implementing such a program in compliance with the permit, you will need to evaluate the catch basin cleaning areas compared to the Urbanized/Regulated MS4 area and your PCP Area defined in Section 2.2.

Tip/Trick: For a more robust analysis, you may wish to calculate total life cycle costs associated with proposed BMPs. For non-structural BMPs, life cycle costs should include capital (equipment purchase or rental) and operation and maintenance costs (e.g., gas/diesel/oil, parts, repairs, disposals of sweepings or catch basin cleanings, staff, water, etc.). These costs can be normalized against estimated lbs/yr per area and compared to structural BMP costs. In particular, costs associated with enhanced sweeping and leaf litter programs may be greater per pound of phosphorus removed than structural BMPs.

###MUNICIPALITY### is planning on making the following changes to our non-structure controls starting in permit year 5. Phosphorus reductions are presented in Table 1-6.

Street Sweeping: [None or describe]

CB Cleaning; [None or describe]

Leaf Litter Program: [None or describe]

Table 1-6. Planned Non-Structural Control Summary

Planned Non-Structural BMP	Average Annual Acres Managed	Implementation Levels (schedule, equipment, BMP details)	Average Annual P-Reduction (lbs/yr)	Anticipated Implementation
Street Sweeping				
CB Cleaning				
Leaf Litter Program				
Total #ADDITIONAL NON-STRUCTURAL OR NEW PROGRAM# Credit				

1.7 STRUCTURAL CONTROLS

Permit Requirement: *The permittee shall develop a priority ranking of areas and infrastructure within the municipality for potential implementation of structural phosphorus controls during Phase 1. The ranking shall be developed through the use of available screening and monitoring results collected during the permit term either by the permittee or another entity and the mapping required pursuant to part 2.3.4.6 of the Permit. The permittee shall also include in this priority ranking a detailed assessment of site suitability for potential phosphorus control measures based on soil types and other factors. The permittee shall coordinate this activity with the requirements of part 2.3.6.8.b of the Permit. A description and the results of this priority ranking shall be included in Phase 1 of the PCP. The permittee shall describe the structural stormwater control measures necessary to support achievement of the phosphorus export milestones in Table F-1 [of Appendix F of the MS4 Permit]. The description of structural controls shall include the planned and existing measures, the areas where the measures will be implemented or are currently implemented, and*

the annual phosphorus reductions in units of mass/yr that are expected to result from their implementation. Structural measures to be implemented by a third party may be included in a municipal PCP. Annual phosphorus reductions from structural BMPs shall be calculated consistent with Attachment 3 to Appendix F.

Instructions: Per Appendix F, Attachment 3, each structural and semi-structural BMP type has a unique phosphorus load reduction based on the BMP's treatment capacity which is applied to the phosphorus loads from the BMP's drainage area to determine individual phosphorus reductions.

Customize language below as necessary to reflect your municipality's experience with structural BMPs to date. This should include language addressing how you have historically and plan to address structural BMPs on private properties – i.e. obtaining calculations from developers, provisions in regulations to enable this, references to your stormwater permitting process, etc. Some example resources are included in the Resource Library in Appendix R.4 and in PCP Workshop #2 (Slides 18-38) and Workshop #3.

Our community will employ structural BMPs to detain, treat, and better manage runoff from areas of impervious surface, such as roads, parking lots, or rooftops. Semi-structural BMPs are more passive stormwater management approaches that can still produce excellent water quality benefits such as rainwater harvesting, impervious area disconnection, conversion of impervious area to pervious, and enhancement of pervious areas. For the purposes of this document, the term structural controls refers to both structural and semi-structural BMPs.

Structural BMPs historically have been incorporated into ##MUNICIPALITY## via stormwater compliance projects (for public and private development projects), using various sources of grant funding, or as part of our capital infrastructure program. Structural BMPs presently in place are evaluated in Section 1.7.1.

Our planning in support of PCP development determined that a significant investment in structural BMPs will be required to achieve the required target phosphorus reductions. Structural BMP opportunities were evaluated to allow for adaptive management during the development and execution of the PCP, that is presented below.

The following sections describe the assessment, performance and implementation of Current Structural BMPs (those that were already built, or will be prior to development of this PCP) and Planned Structural BMPs (those that were newly identified for PCP compliance or will be implemented after this written PCP is submitted).

1.7.1 Current Structural BMPs

Instructions: In this section, summarize the implementation mechanisms (regulatory, capital improvements, grant funding, repaving programs, etc.) that have resulted in the implementation of existing structural BMPs, and quantify the phosphorus reductions with the associated current structural BMPs. This will report the results of the structural BMP accounting from Calculation Support Worksheet No. 2, Part (2c) in Appendix R.2, and it shall be updated with the Permit Year 5 deadline to report existing structural BMPs. Planned structural BMPs will be in the next sub-section.

The ##CITY/TOWN## already employs a mix of regulatory, incentive programs and capital improvement programs to implement structural BMPs. Constructed structural BMPs have resulted

in phosphorus reductions outlined in Table 1-7 and further detailed in Appendix D. The reductions are presented on a high-level for summary, and all of the calculations were performed following the equations and requirements in Attachment 3 to Appendix F of the Permit. These systems are being maintained to function as designed.

Instructions: Insert summary of existing structural BMP performance in table below on a macro-level by BMP type. Detailed reductions by individual BMP to be included in the Appendix referenced above. This can be outputs from tools such as EPA’s BATT Tool, or a simplified accounting spreadsheet, so long as the calculations follow those in Attachment 3 to Appendix F of the Permit. Workshops #3 discuss credit calculations for structural BMPs.

Fill in this table based on the results of Calculation Support Worksheet No. 2 Part (2c), specifically Table 8.

Table 1-7. Summary of Current Structural Controls

Current Structural BMP Type	Number of BMPs	Total Acres Managed	Total Annual P-Reduction (lbs/yr)
<i>Total Phosphorus Credit from Current Structural BMPs</i>			

Existing structural BMPs have contributed to an annual load reduction of ##AMOUNT## lbs/yr.

1.7.2 Planned Structural BMPs

References: Use the guidance in the PCP Guidance Tools in Appendix R.1 to begin building your PCP approach. This will help to create a system for planning BMPs, including the structural BMPs reported in this section. Also reference community-specific maps included in Appendix R.5 that show favorable locations for BMPs based on suitability and need as well as additional social considerations such as Environmental Justice Communities and Greenspace Deserts. Maps display areas considered a priority for upland restoration based on a conservation and restoration tool developed by CRWA and The Nature Conservancy (TNC), this tool is also available online at: <https://maps.coastalresilience.org/massachusetts>. Maps also display the largest (>5 acres) continuous impervious areas that are publicly owned (based on available data in MassGIS). Highly impervious publicly owned sites are often good sites to implement town-controlled projects and can be opportunities to receive a large amount of pollutant removal. Many of these sites are schools and municipal buildings and can therefore offer considerable public education opportunities.

Tip: Be cognizant of the threat of “green gentrification” when working in Environmental Justice neighborhoods. A recommended practice for avoiding unintended negative consequences is to engage residents in the planning process from the beginning. There are many resources available on effective community engagement.

Instructions:

First, identify areas (including municipal properties with significant impervious cover such as parking lots, buildings, and maintenance yards) and infrastructure (e.g., drainage systems, roadway projects, etc.) where BMP implementation may be possible and provide pollution reduction benefits. Second rank these opportunities based on priority for implementation.

The following must be used to identify and rank priority areas and infrastructure:

- *Available screening and monitoring results collected during the permit term either by the municipality (e.g., IDDE dry and/or wet weather outfall screening) or another entity (watershed organization, public health agency, state agency, etc.). The intent of using these data is to help communities identify catchments with higher phosphorus loading and plan to address those areas with phosphorus BMPs through the PCP as soon as possible.*
- *The MS4 mapping, including any of the recommended elements (e.g., sanitary sewer, septic systems, topo, private drainage, etc.) included in the mapping per Part 2.3.4.5 of the Permit. The intent of this is to support the suitability assessment, and ultimately site selection. Opportunities sites located at the downstream end of large drainage areas provide considerable pollution reduction opportunities through the implementation of a single BMP.*
- *Site suitability based on soil types and other factors including access for maintenance purposes; subsurface geology; depth to water table; proximity to aquifers and subsurface infrastructure including sanitary sewers and septic systems; opportunities for public use and education (See Matrix in R.5 for some recommended considerations and accompanying GIS data available through MassGIS).*
- *Capital plans for facilities, utility including sewer and drainage work, roadway programs including paving.*
- *Current storm sewer level of service.*
- *Discharges to water quality limited waters, first or second order streams, public swimming beaches, drinking water supply sources, and shellfish growing areas may be appropriate to target first because of the additional public health benefits improved water quality can provide.*

The following should be used to identify and rank priority areas and infrastructure:

- *Previously developed watershed management plans or results from watershed planning tool (Opti Tool)*
- *Development/redevelopment permits, as any site undergoing new or redevelopment poses an opportunity to install structural BMPs.*
- *Anticipated private projects.*
- *Results from the Charles River Flood Model (available online)*
- *MVP, Open Space, Local Hazard Mitigation, Master and other local plans*

The following also may be used to identify and rank priority areas and infrastructure:

- *Green infrastructure co-benefits, community wants and needs, as well as political climate.*
- *Implementation mechanisms that suit the political and physical constraints and opportunities in your municipality, including enhanced regulations and incentive programs.*

Note: An Excel spreadsheet, EPA's OptiTool, and ArcGIS can be useful tools to perform the prioritization. This effort should ideally be combined with the assessment completed prior to end of Year 4 that identifies minimum of 5 permittee-owned properties that could potentially be modified or retrofitted with BMPs designed to reduce the frequency, volume, and pollutant loads of stormwater discharges to and from the MS4 through the reduction of impervious area (see Part 2.3.6.d of the Permit). Numerous communities have developed green infrastructure plans that may serve as a model for identifying BMP opportunities.

Tip/Trick: Consider keeping your "ranking" simple because conditions can change frequently:

High = planned public or private projects which will incorporate BMPs, likely to be constructed before year 8

Medium = favorable site conditions on municipally controlled parcels and roadways and/or "pollutant hotspot" based on screening and monitoring, opportunity site based on community values such as equity, habitat restoration, climate adaptation, education, or other; likely to be constructed before year 10. This can also include private sites likely to be redeveloped during Phase 1.

Low = least favorable site conditions based on site suitability, sites unlikely to undergo redevelopment in the near term, sites not likely to be implemented during Phase 1

For those interested in a more complex ranking system consider developing a rating system that considers a 1 through 5 scale reflecting screening/monitoring, site suitability, known/approved and planned projects, pollutant removal, cost, co-benefits, and other metrics important to your community.

##MUNICIPALITY## has developed a priority ranking of areas and infrastructure within the municipality for potential implementation of structural phosphorus controls during Phase 1. This priority ranking was prepared as follows:

Instructions: Describe ranking based on instructions above.

Implementation of structural BMPs is dependent on physical constraints and opportunities. Much of the phosphorus in ##MUNICIPALITY## is coming from the following land uses:

Instructions: Insert breakdown of phosphorus load by land use category here, such as a pie chart or table. Describe physical constraints and opportunities identified during this analysis here, including maps highlighting these factors and potential project areas (Appendix R.5). Note that the resources inventories through the PCP Guidance Tools in Appendix R.1 (PCP Toolbox and Strategies) can factor into your prioritization as well.

Additionally, a high-level BMP suitability assessment was conducted using ##SPREADSHEET /ARCGIS## to determine what structural BMPs could be implemented to mitigate phosphorus and to help prioritize an implementation schedule.

Several other factors besides phosphorus reduction were used to determine structural BMP selection, siting, and prioritization such as:

Instructions: Second, you must determine the approximate number of BMPs you will need to install to meet the Year 8 and Year 10 reductions. This can be accomplished with a simplistic estimation process or more advanced modeling and planning. The number of BMPs will depend on the amount of phosphorus each BMP can remove.

Instructions: Third, you must prepare a list of BMP locations and/or overall parcels on which BMPs may be constructed. This list should be ordered from highest to lowest priority and consider the overall approximate number of BMPs needed to achieve the reduction goals. It should be assumed BMPs are intended to be installed on High and Medium priority sites. Opt for infiltration BMPs on any site where soil and water table information demonstrate that infiltration may be possible as these are the most cost-effective structural solutions per lb of phosphorus removed annually.

Tip/Trick: List more BMPs than the minimum necessary, as conceptual planning progresses and projects evolve, some BMPs may no longer be feasible.

The planned structural BMPs are listed in Appendix D and are summarized in Table 1-8.

Note: This table is optional. List may be maintained in appendix.

Table 1-8. Planned Structural Control Summary

Planned Structural BMP (Address, Coordinates) or Site with Locations for Structural BMPs (Address)	BMP Type	Anticipated Acres Managed (Total Impervious and Pervious Area)	Potential/Estimated Annual P-Reduction (lbs/yr)

1.8 DESCRIPTION OF OPERATION AND MAINTENANCE (O&M) PROGRAM FOR ALL EXISTING AND PLANNED STRUCTURAL BMPS

Permit Requirement: *The permittee shall establish an Operation and Maintenance Program for all structural BMPs being claimed for phosphorus reduction credit as part of Phase 1 of the PCP. This includes BMPs implemented to date as well as BMPs to be implemented during Phase 1 of the PCP. The Operation and Maintenance Program shall become part of the PCP and include: (1) inspection and maintenance schedule for each BMP according to BMP design or manufacturer specification and (2) program or department responsible for BMP maintenance.*

Instructions: To meet this requirement, your community needs to:

- 1. Detail existing maintenance plans, programs, and requirements. Note that maintenance programs may span many tools and departments, including conservation, planning, stormwater regulations/ ordinances /bylaws, other local code, good housekeeping practices, etc.*
- 2. Clearly outline who will be conducting BMP maintenance work (i.e. private developers, municipal staff or contractors, or NGOs/private landowners) for each BMP being credited under the PCP.*
- 3. Identify anticipated increase in needs. Many of the watershed planning tools provide maintenance requirement guidelines to anticipate increased FTEs, equipment, and labor hours as BMPs increase over time.*

4. Describe how maintenance guidance will be communicated to responsible parties to set a maintenance standard all BMP owners should work towards.

Note: Consider self-certification programs (see EPA website for further information) as one means of meeting requirements for certifying maintenance of privately owned BMPs for which reductions are claimed on an annual basis. See Workshop #2 for more information.

Note: For municipally owned structural BMPs, the O&M program will be defined by the written plan prepared under Part 2.3.7 and/or by O&M Plans prepared and approved under local permitting processes including Conservation, Planning, Stormwater, etc.. Communities should create consistency as appropriate.

Note: In accordance with MS4 Permit Part 2.3.7.a. iii, “all permittee-owned stormwater treatment structures (excluding catch basins) shall be inspected annually at a minimum.”

The ##CITY/TOWN##’s Operation and Maintenance Program is documented in Appendix E.

1.9 PHASE 1 IMPLEMENTATION SCHEDULE

Permit Requirement: A schedule for implementation of all planned Phase 1 BMPs, including, as appropriate: obtaining funding, training, purchasing, construction, inspections, monitoring, operation and maintenance activities, and other assessment and evaluation components of implementation. Implementation of planned BMPs must begin upon completion of the Phase 1 Plan, and all non-structural BMPs shall be fully implemented within 5 years of the permit effective date. Structural BMPs shall be designed and constructed to ensure the permittee will comply with the 8 and 10 year phosphorus load milestones established in Table F-1 [of Appendix F of the MS4 Permit]. The Phase 1 plan shall be fully implemented as soon as possible, but no later than 10 years after the effective date of permit.

Instructions: In this section, provide a reference to the implementation schedule(s) determined for each BMP type (structural, non-structural, non-traditional) as well as the development of O&M programs (e.g. by when will new staff need to be hired). Your schedule must lay out a plan to work towards the Year 8 and Year 10 phosphorus load milestones identified in Table 1-4.

Support tools: A basic template for the implementation schedule is provided in Appendix R.6. “Implementation Schedule Tracking Spreadsheet”

Note: Your community may use CMMS programs, Microsoft Project, Asset Management Software, etc., to track the overall PCP schedule instead, however, documentation must be provided in your PCP.

Tip/Trick: Your schedule should align with other planned projects (public and private), such as roadway, utility, and/or facility upgrades and improvements.

Note: In your schedule, you will need to consider how to fully implement non-structural BMPs by end of Permit Year 5 (June 30, 2023). Ensure in your schedule that your community has allocated adequate time to obtain additional funding, procure goods or services, and/or create new positions and hire additional staff, as appropriate, to successfully enhance street sweeping, catch basin cleaning, and/or leaf litter pickup. You will also need to consider how many structural BMPs you need (See Section 1.7.2) and the timing to complete design, permitting, bidding, and construction,

as appropriate. It may be most effective to work backwards from Permit Year 10 in planning this effort.

##MUNICIPALITY## has prepared an implementation schedule for Phase 1 of the PCP. This schedule is included in Appendix F of the PCP. Additional detail is available from ##MUNICIPAL STAFF OR OFFICE## as ##MUNICIPALITY## utilizes.

By Year 6, non-structural BMPs are anticipated to reduce a total of ##XX lbs/yr## of phosphorus in Phase 1 of the PCP, or XX% of the target phosphorus reduction.

By Year 10, structural and semi-structural BMPs are anticipated to reduce a total of ##XX lbs/yr## of phosphorus in Phase 1 of the PCP, or XX% of the target phosphorus reduction using the mechanisms described above. The implementation schedule in Appendix F further details the schedule for BMP implementation.

Instructions: Insert chart showing total annual phosphorus reductions vs target phosphorus reduction. [OPTIONAL]

1.10 ESTIMATED COST FOR IMPLEMENTING PHASE 1 OF THE PCP

Permit Requirement: *The permittee shall estimate the cost of implementing the Phase 1 non-structural and structural controls and associated Operation and Maintenance Program. This cost estimate can be used to assess the validity of the funding source assessment completed by year 3 after the permit effective date and to update funding sources as necessary to complete Phase 1.*

Instructions: This section should estimate your costs to implement the Phase 1 PCP. This includes implementation of structural BMPs, non-structural BMPs, semi-structural BMPs, and supporting planning, staff, and other resources necessary. Costs must be documented in the written PCP. Costs can be included in an appendix and summarized herein.

Developing accurate cost estimates is a very community-specific task. Construction costs; including labor, materials, police detail, equipment rental, etc., vary considerably across communities and will even vary within a community between projects. Additionally, construction costs are only one element of the life cycle cost of new infrastructure that the community should consider. Due to the variability and complexity of making cost estimates it is highly recommended that communities use one of the tools referenced in Appendix R.4 and details provided in PCP Workshop #3 as a guide to exploring all the cost considerations and to help develop reasonable cost estimates.

For communities that wish to perform the cost estimates on their own, the following resources included in this template will be useful:

- 1. PCP Workshop #3 and the accompanying memo included as R.7 present aggregated local unit costs for pounds phosphorus removed for structural controls. The user could also perform an aggregation with local costs for individual types of structural and non-structural controls to get a more precise unit cost for different BMPs. Recommendations for doing this are included in the Calculation Support Worksheet in Appendix R.2*

2. Using the unit cost estimates determined in accompanying memo included as R.7, the identified BMPs and the phosphorus removal targets for each in the planning spreadsheet provides a rough cost estimate for PCP implementation.

Resources: Some resources for estimating costs include:

- Planning level tools like OptiTool or the newly released EPA CLASIC Tool have cost estimating capabilities; see resource library in Appendix R.4 for additional tools.
- Historical implementation data from your municipality; see Calculation Support Worksheet 2.
- You may enhance the Implementation Schedule Tracking Spreadsheet (Appendix R.6) to include cost planning based on your own experience with or research of cost/lb phosphorus removed.

Reference: Developing your cost analysis should reflect the results of your Funding Source Assessment including a Stormwater Program Management Cost Analysis. See also the Resource Library in Appendix R.4 for other tools to support cost estimating.

##MUNICIPALITY## has developed an estimated cost to implement Phase 1 of the PCP. This cost estimate is included in Appendix F. Additional detail is available from ##MUNICIPAL STAFF OR OFFICE## as ##MUNICIPALITY## utilizes.

1.11 PERFORMANCE EVALUATIONS

Permit Requirement: The permittee shall evaluate the effectiveness of the PCP by tracking the phosphorus reductions achieved through implementation of structural and non-structural BMPs and tracking increases resulting from development. Phosphorus reductions shall be calculated consistent with Attachment 2 to Appendix F (non-structural BMP performance) and Attachment 3 to Appendix F (structural BMP performance) for all BMPs implemented to date. Phosphorus export increases since 2005 due to development shall be calculated consistent with Attachment 1 to Appendix F. Phosphorus loading increases and reductions in unit of mass/yr shall be added or subtracted from the applicable Baseline Phosphorus Load given in Table F-2 or Table F-3 [of Appendix F of the MS4 Permit] depending on the Scope of PCP chosen to estimate the yearly phosphorus export rate from the PCP Area. The permittee shall also include all information required in part I.2 of this Appendix in each performance evaluation. Performance evaluations will be included as part of each permittee's annual report as required by part 4.4 of the Permit

Instructions: Each year starting in Year 6, you must complete a Performance Evaluation to track the effectiveness of the BMPs installed compared to your plan. This exercise will essentially be an annual repetition of the calculations performed using the Calculation Support for Structural and Non-Structural BMP Tracking in Calculation Support Worksheet 2 (Appendix R.2) You will need to track the following items in each Performance Evaluation:

- (1) Changes to phosphorus loading due to development, land use changes, and changes in impervious cover;
- (2) Phosphorus credits due to structural and non-structural BMPs; and
- (3) The resulting progress towards your Allowable Phosphorus Load.

All phosphorus loading increases and reductions must be calculated using the equations in Attachments 1-3 to Appendix F of the Permit, and can be performed using tools such as the BATT,

or a simplified accounting spreadsheet. The Workshop series on PCP compliance will also continue to be relevant as long as the 2016 MS4 permit is in place.

Earlier in the Template, we provided guidance to account for phosphorus loading changes due to development (also presented in Workshop #1); if you followed this guidance, you can use the values calculated there, updated for Year 6, and enter that into the Table below. If you did not yet perform this task, you will now have to calculate how development, land use changes, and changes to impervious cover have all contributed to changes in phosphorus load.

Tip: The Calculation Support for Structural and Non-Structural BMP Tracking and Workshops #2 and #3 provides information on where information needing to be tracked can be located and how to estimate Land Development Impacts, approach to Non-structural BMP reductions, and approach to structural BMP accounting.

Note: Baseline Load, Allowable Load, Year 8 Milestone, and Year 10 Milestone are from Table 1-4.

1.11.1 Performance Evaluation for Year 6

##MUNICIPALITY## has completed the required Performance Evaluation that assesses our PCP progress through Year 6. Documentation of the Land Development Impacts and Phosphorus Credits for this effort is included in ##LOCATION##.

A summary of ##MUNICIPALITY’S## performance through Year 6 is included in Table 1-9.

Table 1-9. Year 6 Performance Evaluation Summary

Parameter	Value (lbs/yr)
Baseline Load	
Allowable Load	
Calculations to Update to Current Conditions	
Changes in P-Load Since 2005	
Current Phosphorus Load = Baseline +/- Impacts	
Updated Phosphorus Reduction Required to Meet Allowable Load (Allowable Load)	
Year 8 Milestone (lbs/yr)	
Year 10 Milestone (lbs/yr)	
Phosphorus Credits for Year 6	
Total Reduction from Non-Structural BMPs	
Total Reduction from Structural BMPs	
Evaluation	
Remaining Phosphorus Reduction Requirement (Updated Phosphorus Reduction Requirement to Meet Allowable Load – Total Reductions)	

Instructions: Divide the remaining requirement into the number of years to your first deadline to estimate an average annual requirement to build reductions. Compare this to your planned BMPs, and comment on if this indicates that you are on track to meet requirements or not.

Tip: You can estimate if your community is on track by looking at how many lbs/yr you will have to remove each year over two additional years to achieve the Year 8 Milestone, and then compare that to your planned nonstructural and structural BMPs. For Example, if you have 20 lbs/yr left to reach your Year 8 Milestone, but your planned BMPs only total 15 lbs/yr, you are not currently on track to meet your Year 8 Milestone.

Note: If your community is not on track to meet the Year 8 milestone of 20% progress toward reduction, the Performance Evaluation should include a plan for Year 7 and Year 8 to increase non-structural and/or structural BMP implementation, improve identification and maintenance of previously installed BMPs, changes to Legal Analysis, and increases/changes to funding.

Based on this year’s evaluation, ##MUNICIPALITY## has successfully reduced phosphorus by ##AMOUNT## lbs/yr, and ##REMAINING## lbs/yr is required to meet the Phase 1 milestone reduction of ##PHASE 1 MILESTONE##.

Based on this evaluation, the ##CITY/TOWN## ##IS OR IS NOT## on track to meet the Year 8 milestone of 20% progress toward meeting our required reduction. To meet this milestone, we have to continue to implement BMPs to achieve credits at a rate of ##LBS/YR##, and based on our ##UPDATED## implementation schedule outlined in Section 1.9, we are on track to meet this.

1.11.2 Performance Evaluation for Year 7

##MUNICIPALITY## has completed the required Performance Evaluation that assesses our PCP progress through Year 7. Documentation of the Land Development Impacts and Phosphorus Credits for this effort is included in ##LOCATION##.

A summary of ##MUNICIPALITY’S## performance through Year 7 is included in Table 1-10.

Instructions: Repeat the calculations performed in Year 6, but updating for activities in Year 7. Note that rows like “Baseline Load” and “Allowable Load” will stay the same, while rows like “Changes in P-Load since 2005” and “Total Reduction from Non-Structural BMPs” may change if development has occurred and/or if implementation of non-structural BMPs has changed between Year 6 and 7, respectively. You can and should build these annual calculations off the prior year, just building the new year’s worth of data into the existing calculations. If preferred add a new row for “Changes in P-Load since previous year” to keep an ongoing account of load changes due to development.

Table 1-10. Year 7 Performance Evaluation Summary

Parameter	Value (lbs/yr)
Baseline Load	
Allowable Load	
Calculations to Update to Current Conditions	
Changes in P-Load Since 2005	
Current Phosphorus Load = Baseline +/- Impacts	
Updated Phosphorus Reduction Required to Meet Allowable Load (Allowable Load)	
Year 8 Milestone (lbs/yr)	
Year 10 Milestone (lbs/yr)	

Parameter	Value (lbs/yr)
Phosphorus Credits for Year 7	
Total Reduction from Non-Structural BMPs	
Total Reduction from Structural BMPs	
Evaluation	
Remaining Phosphorus Reduction Requirement (Updated Phosphorus Reduction Requirement to Meet Allowable Load – Total Reductions)	

Instructions: Divide the remaining requirement into the number of years to your first deadline to estimate an average yearly requirement to build reductions. Compare this to your planned BMPs, and comment on if this indicates that you are on track or not.

Tip/Trick: You can estimate if your community is on track by looking at how many lbs/yr you will have to remove to achieve the Year 8 Milestone, and then comparing that to your planned nonstructural and structural BMPs. For Example, if you have 20 lbs/yr left to reach your Year 8 Milestone, but your planned BMPs only total 15 lbs/yr, you are not currently on track to meet your Year 8 Milestone.

Note: If your community is not on track to meet the Year 8 milestone of 20% progress, the Performance Evaluation should include a plan for Year 8 to increase non-structural and/or structural BMP implementation, improve identification and maintenance of previously installed BMPs, changes to Legal Analysis, and increases/changes to Funding Source Assessment.

Based on this year’s evaluation, ##MUNICIPALITY## has successfully reduced phosphorus by ##AMOUNT## lbs/yr, and ##REMAINING## lbs/yr is required to meet the Phase 1 milestone reduction of ##PHASE 1 MILESTONE##.

Based on this evaluation, the ##CITY/TOWN## ##IS OR IS NOT## on track to meet the Year 8 milestone of 20% progress toward required reduction. To meet this milestone, we have to continue to implement BMPs to achieve credits at a rate of ##LBS/YR##, and based on our ##UPDATED## implementation schedule outlined in Section 1.9, we are on track to meet this implementation rate.

1.11.3 Performance Evaluation for Year 8

Note: Be sure to compare this evaluation to the Year 8 milestone of 20% reduction.

##MUNICIPALITY## has completed the required Performance Evaluation that assesses our PCP progress through Year 8. Documentation of the Land Development Impacts and Phosphorus Credits for this effort is included in ##LOCATION##.

A summary of ##MUNICIPALITY’S## performance through Year 8 is included in Table 1-11.

Table 1-11. Year 8 Performance Evaluation Summary

Parameter	Value (lbs/yr)
Baseline Load	
Allowable Load	

Parameter	Value (lbs/yr)
Calculations to Update to Current Conditions	
Changes in P-Load Since 2005	
Current Phosphorus Load = Baseline +/- Impacts	
Updated Phosphorus Reduction Required to Meet Allowable Load (Allowable Load)	
Year 8 Milestone (lbs/yr)	
Year 10 Milestone (lbs/yr)	
Phosphorus Credits for Year 8	
Total Reduction from Non-Structural BMPs	
Total Reduction from Structural BMPs	
Evaluation	
Remaining Phosphorus Reduction Requirement (Updated Phosphorus Reduction Requirement to Meet Allowable Load – Total Reductions)	

Instructions: compare this evaluation to the Year 8 milestone of 20% reduction. Compare this to your planned BMPs, and comment on if this indicates that you are on track to achieve your Year 10 milestone.

Tip/Trick: You can estimate if your community is on track by looking at how many lbs/yr you will have to remove each year over two additional years to achieve the Year 10 Milestone, and then comparing that to your planned nonstructural and structural BMPs. For Example, if you have 20 lbs/yr left to reach your Year 10 Milestone, but your planned BMPs only total 15 lbs/yr, you are not currently on track to meet your Year 10 Milestone.

Based on this year’s evaluation, ##MUNICIPALITY## has successfully reduced phosphorus by ##AMOUNT## lbs/yr, and ##HAS OR HAS NOT## met the Year 8 Phase 1 milestone reduction of ##PHASE 1 MILESTONE##.

1.11.4 Performance evaluation for Year 9

##MUNICIPALITY## has completed the required Performance Evaluation that assesses our PCP progress through Year 9. Documentation of the Land Development Impacts and Phosphorus Credits for this effort is included in ##LOCATION##.

A summary of ##MUNICIPALITY’S## performance through Year 9 is included in Table 1-12.

Table 1-12. Year 9 Performance Evaluation Summary

Parameter	Value (lbs/yr)
Baseline Load	
Allowable Load	
Calculations to Update to Current Conditions	
Changes in P-Load Since 2005	
Current Phosphorus Load = Baseline +/- Impacts	
Updated Phosphorus Reduction Required to Meet Allowable Load (Allowable Load)	
Year 10 Milestone (lbs/yr)	
Phosphorus Credits for Year 9	

Parameter	Value (lbs/yr)
Total Reduction from Non-Structural BMPs	
Total Reduction from Structural BMPs	
Evaluation	
Remaining Phosphorus Reduction Requirement (Updated Phosphorus Reduction Requirement to Meet Allowable Load – Total Reductions)	

Instructions: Compare your remaining requirements to the Year 10 milestone to your planned BMPs, and comment on if this indicates that you are on track or not.

Tip/Trick: You can estimate if your community is on track by looking at how many lbs/yr you will have to remove to achieve the Year 10 Milestone, and then comparing that to your planned nonstructural and structural BMPs. For Example, if you have 20 lbs/yr left to reach your Year 10 Milestone, but your planned BMPs only total 15 lbs/yr, you are not currently on track to meet your Year 10 Milestone.

Note: If your community is not on track to meet the Year 10 milestone of 25% progress toward your reduction, the Performance Evaluation should include a plan for Year 10 to increase non-structural and/or structural BMP implementation, improve identification and maintenance of previously installed BMPs, changes to Legal Analysis, and increases/changes to Funding Source Assessment.

Based on this year’s evaluation, ##MUNICIPALITY## has successfully reduced phosphorus by ##AMOUNT## lbs/yr, and ##REMAINING## lbs/yr is required to meet the Phase 1 milestone reduction of ##PHASE 1 MILESTONE##.

Based on this evaluation, the ##CITY/TOWN## ##IS OR IS NOT## on track to meet the Year 10 milestone of ##PERCENT## reduction. To meet this milestone, we have to continue to implement BMPs to achieve credits at a rate of ##LBS/YR##, and based on our implementation schedule outlined in Section 1.9, we are on track to meet this implementation rate.

1.11.5 Performance evaluation for Year 10

Note: Be sure to compare this evaluation to the Year 10 milestone of 25% progress toward reduction.

##MUNICIPALITY## has completed the required Performance Evaluation that assesses our PCP progress through Year 10. Documentation of the Land Development Impacts and Phosphorus Credits for this effort is included in ##LOCATION##.

A summary of ##MUNICIPALITY’S## performance through Year 10 is included in Table 1-13.

Table 1-13. Year 10 Performance Evaluation Summary

Parameter	Value (lbs/yr)
Baseline Load	
Allowable Load	
Calculations to Update to Current Conditions	

Parameter	Value (lbs/yr)
Changes in P-Load Since 2005	
Current Phosphorus Load = Baseline +/- Impacts	
Updated Phosphorus Reduction Required to Meet Allowable Load (Allowable Load)	
Year 10 Milestone (lbs/yr)	
Phosphorus Credits for Year 10	
Total Reduction from Non-Structural BMPs	
Total Reduction from Structural BMPs	
Evaluation	
Remaining Phosphorus Reduction Requirement (Updated Phosphorus Reduction Requirement to Meet Allowable Load – Total Reductions)	

Based on this year’s evaluation, ##MUNICIPALITY## has successfully reduced phosphorus by ##AMOUNT## lbs/yr, and ##HAS OR HAS NOT## met the Phase 1 milestone reduction of ##PHASE 1 MILESTONE##.

1.12 PUBLIC COMMENT

Permit Requirement: *The permittee shall make the Phase 1 Plan available to the public for public comment during Phase 1 Plan development. EPA encourages the permittee to post the Phase 1 Plan online to facilitate public involvement.*

Instructions: Any public engagement activities – including compliance with state public notice requirements per Part 2.3.3. of the MS4 Permit, public comments received, responses, copy of / link to website with PCP posting, etc., should be included in the appendix noted above and updated as the PCP evolves.

Tip/Trick: If your community has an Environmental Justice Population and/or Climate Vulnerable Populations, this effort includes an opportunity to reach out directly to those groups for input on this process. You should provide information in predominant non-English languages.

In conformance with the Permit’s requirements for each Phase of the PCP, ##MUNICIPALITY## made the draft written Phase 1 PCP available for public comment. Appendix G provides documentation of public engagement, including:

- Public Meeting/Public Hearing at ____ (Board/Commission/etc.) on ____ (date).
- Website
- Social media posts
- Etc.

Here is a summary of the comments received:

##insert summary of comments received in bulleted or paragraph form##

1.13 PHASES 2 AND 3

Note: This template is based on the 2016 MA MS4 permit, only use this template while that permit is in effect.

This template, while formulated for Phase 1 of the PCP, can be easily replicated for Phases 2 and 3. Many of the requirements are the same, but updated in your progress towards your Allowable Load. The table below is included to illustrate the comparative timelines for both Phases 2 and 3. This is a replication of Table 1-2, and the values here can be replaced in Table 1-2 when you start your written Phase 2 and Phase 3 documents.

Note: The starting requirements for each phase overlap the prior phase. E.g. you must create your written Phase 2 PCP in Year 10, as you are completing your final Phase 1 Performance Evaluation.

Phase 2 Permit Year (year)	Phase 3 Permit Year (year)	PCP Component(s) Due
As necessary	As necessary	Legal Analysis
N/A	N/A	Funding Source Assessment
N/A	N/A	PCP Scope
10 (2028)	15 (2033)	Descriptions of the following Phase 2/3 items: <ul style="list-style-type: none"> - Nonstructural controls - Structural controls - O&M program for structural controls - Implementation schedule - Phase 2/3 cost estimate - Written Phase 2/3 PCP - Full implementation of nonstructural controls
11 (2029)	16 (2034)	Performance Evaluation
12 (2030)	17 (2035)	Performance Evaluation
13 (2031)	18 (2036)	Performance Evaluation & Implementation of structural controls to achieve XX% of target phosphorus reduction ¹
14 (2032)	19 (2037)	Performance Evaluation
15 (2033)	20 (2038)	Performance Evaluation & Implementation of structural controls to achieve XX% of target phosphorus reduction ²

¹Interim target of 35% for Phase 2; 70% for Phase 3

²Final Phase target of 50% for Phase 2; 100% for Phase 3

2 DOCUMENTATION AND REPORTING

Upon completion, the PCP is required to be added to the written Stormwater Management Plan (SWMP) as an attachment. This can be a separate document made by reference in the SWMP or added to the SWMP file itself. As the PCP is an attachment to the SWMP, the person listed as the program contact must retain a copy of the current SWMP. In addition, the SWMP must be available to the public during normal business hours and posted online if the community has a website on which to post the SWMP. As a reminder, the SWMP including any significant revisions, such as the PCP, are required to be signed in accordance with Appendix B, Subsection 11, including the date of signature.

The following information must be reported in the municipality's Annual Reports:

- Annual progress updates on the PCP
- Performance Evaluations for Years 6-10

Annually, starting Permit Year 5, the following must also be reported in each Annual Report:

- All non-structural controls implemented in the reporting year and associated phosphorus reduction
- All structural controls implemented during the reporting year, locations, associated phosphorus reduction, and date of latest maintenance and inspections
- Phosphorus load increases due to development
- Estimated yearly phosphorus export rate, subtracting reductions
- Certification that all structural BMPs are being inspected and maintained according to O&M program
- Certification that all municipally owned and maintained turf grass areas are being managed in accordance with Massachusetts Regulation 331 CMR 31 pertaining to proper use of fertilizers on turf grasses

Optional: Per Appendix F Part A.I.1.a.3), "the Permittee may submit more accurate land use data from 2005, which is the year chosen as the baseline land use for the purposes of permit compliance, for EPA to recalculate baseline phosphorus stormwater loads for use in future permit reissuances. Updated land use maps, land areas, characteristics, and MS4 area and catchment delineations **shall be submitted to EPA along with the year 4 annual report** in electronic GIS data layer form for consideration for future permit requirements³. Until such a time as future permit requirements reflect information submitted in the year 4 annual report, the permittee shall use the Baseline Phosphorus Load, Stormwater Phosphorus Reduction Requirement and Allowable Phosphorus Load Table F-2 [of Appendix F of the MS4 Permit] (if its PCP Area is the permittee's entire jurisdiction) or Table F-3 [of Appendix F of the MS4 Permit] (if its PCP Area is the regulated area only) to calculate compliance with milestones for Phase 1, 2, and 3 of the PCP."

³ This submission is optional and needs only be done if the permittee has more accurate land use information from 2005 than information provided by MassGIS (<http://www.mass.gov/anf/research-andtech/it-serv-and-support/application-serv/office-of-geographic-informationmassgis/datalayers/lus2005.html>, retrieved 10/1/2013) or the permittee has updated MS4 drainage area characteristics and the permittee would like to update the Baseline Phosphorus Load.

The most current information for annual updates to ##MUNICIPALITY'S## PCP progress can be found in the following appendices:

- For non-structural controls: Appendix C
- For structural controls: Appendix D
- For the operations and maintenance program: Appendix E

This data is also tracked in each year's Annual Reports, which can be found at ##DIRECT LINK TO ANNUAL REPORTS##.