

Appendix R.4

PCP Resources Library

Tool Name	Information for Use	Link to Access/Download
<i>Estimating Approximate Number and Type of Structural BMPs to Implement PCP</i>		
Estimating Approximate Number of Structural BMPs Needed to Meet Allowable Phosphorus Load	Tool developed by CRWA to assist communities with estimating the types and number of structural BMPs to achieve the required reduction and meet the allowable phosphorus load for each Phase of the PCP.	https://www.crwa.org/project-resources.html
<i>Calculating Phosphorus Removal from Structural BMPs</i>		
MS4 GP Appendix F Attachment 3	This attachment provides methods to determine design storage volume capacities and to calculate phosphorus and nitrogen (nutrient) load reductions for certain structural and semi-structural Best Management Practices (BMPs).	https://www3.epa.gov/region1/npdes/stormwater/ma/2016fpd/appendix-f-attach-3-2016-ma-sms4-gp-mod.pdf
Best Management Practice Accounting and Tracking Tool (BMP-BATT)	The BMP Accounting and Tracking Tool (BATT) is a customized spreadsheet-based tool for EPA Region 1 that facilitates watershed-based nutrient accounting, tracking, and reporting associated with nutrient load reduction requirements in the Massachusetts and New Hampshire small MS4 permit. The tool provides three primary functions: (1) accounting and tracking of BMP implementation, (2) accounting and tracking changes in land use, and (3) reporting	https://www.epa.gov/npdes-permits/stormwater-tools-new-england#swbmp
Stormwater Management Optimization Tool (Opti-Tool)	Stormwater Nutrient Management Optimization Tool (Opti-Tool) is a spreadsheet-based tool that provides both a planning level and an implementation level analysis to assist stormwater managers in developing technically sound and economically feasible management plans to address stormwater impacts and reduce excessive nutrient loadings. The planning level analysis uses BMP performance curves and Excel Solver to identify an optimal solution. The implementation level analysis calls the	https://www.epa.gov/npdes-permits/stormwater-tools-new-england#swbmp

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	SUSTAIN (System for Urban Stormwater Treatment and Analysis Integration) dynamic link library to estimate BMP performance and retrieve optimization results to provide cost-effective BMP sizing strategies.	
Baseline P Loads Spreadsheet		Phosphorus Control Planning Support - Charles River Watershed Association (crwa.org)
<i>Recommendations to facilitate Documentation of Phosphorus Reduction on Private New and Redevelopment Sites, Recommendations to help Track Maintenance on Private Sites</i>		
Northern Middlesex Stormwater Collaborative Model Bylaw (Can be used as Ordinance)	Proposed model language for ordinance/bylaw that includes documentation of phosphorus tracking and reporting, as well as operation and maintenance requirements and reporting.	https://www.nmstormwater.org/s/NMSC-Model-Stormwater-Bylaw.docx
Northern Middlesex Stormwater Collaborative Model Regulations		https://www.nmstormwater.org/s/NMSC-Model-Stormwater-Regulations.docx
CRWA Phosphorus-Specific Additions to Ordinance/Bylaw		https://www.crwa.org/uploads/1/2/6/7/126781580/crwa_recommended_additions_to_stormwater_bylaws_re_phosphorus_reduction-2.pdf
CRWA Phosphorus-Specific Additions to Regulations		https://www.crwa.org/uploads/1/2/6/7/126781580/crwa_recommended_additions_to_stormwater_regs_re_phosphorus_reduction-2.pdf
<i>Developing and Implementing a Stormwater BMP Operation & Maintenance Program</i>		
Central Massachusetts Regional Stormwater Collaborative Town-wide Operation and Maintenance Plan Template	Template for a town-wide plan for all requirements of the MS4GP. See Section 6 of the plan for Structural Stormwater BMP O&M guidance/template.	https://www.centralmastormwater.org/toolbox/pages/operation-maintenance-plan-template

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Central Massachusetts Regional Stormwater Collaborative SOP 9: Inspection and Maintenance of Structural Stormwater Best Management Practices (BMPs)	This Standard Operating Procedure (SOP) provides general inspection and maintenance frequencies and procedures for eight common structural stormwater BMPs. This SOP is based on the Massachusetts Stormwater Handbook and is not intended to replace the stormwater BMP Operation and Maintenance guidance contained in the Handbook.	PDF: https://www.centralmastormwater.org/sites/g/files/vyhlif386/f/uploads/sop9structuralbmps.pdf Word: https://www.centralmastormwater.org/home/files/sop9-forms https://www.centralmastormwater.org/home/files/sop9-forms
<i>Land Use</i>		
2005 MassGIS Land Use	Can be used to understand and identify phosphorus load increases and reductions since the TMDL was completed.	https://www.mass.gov/info-details/massgis-data-land-use-2005
2016 MassGIS Land Use		https://www.mass.gov/info-details/massgis-data-2016-land-coverland-use
<i>Environmental Justice & Climate Vulnerable Population Identification</i>		
Massachusetts Environmental Justice Information	Environmental Justice communities and neighborhoods should be considered in PCP development and implementation	Information: https://www.mass.gov/info-details/environmental-justice-populations-in-massachusetts Viewer: http://maps.massgis.state.ma.us/map_ol/ej.php
Climate Vulnerable Populations	Populations vulnerable to climate change impacts should be considered in PCP development and implementation. EEA now has an Environmental Justice & Equity portal for reference information. The MA Department of Public Health “Climate Change Vulnerability Map” is a statewide resource that quickly sorts by typical indicator groups (age, poverty, education, living alone, English isolation).	Information: https://resilientma.org/mvp/content.html?toolkit=justice Map: http://maps.massgis.state.ma.us/map_ol/cc_vuln.php
<i>Policy References</i>		
Policy Toolkit Matrix	Tool developed by CRWA to assist communities with identifying benefits, policy tools, and examples for various	Phosphorus Control Planning Support - Charles River Watershed Association (crwa.org)

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	strategies recommendations about stormwater and GSI, climate resilience, wetlands restoration/conservation, etc.	
<i>Stormwater Utility References</i>		
MassDEP's list of stormwater utilities in Massachusetts	Helps understand other communities stormwater utilities, including date established, fees, and exemptions, and provides links and additional notes.	https://www.mass.gov/doc/massachusetts-stormwater-fee-summary/download
Metropolitan Area Planning Council Stormwater Financing/Utility Starter Kit	MAPC and project partners developed a Stormwater Utility/Funding Starter Kit to help municipalities take control of local water quality issues via a long-term funding source for stormwater management, which is encouraged by the U.S. Environmental Protection Agency and The Massachusetts Department of Environmental Protection.	https://www.mapc.org/resource-library/stormwater-financing-utility-starter-kit/
Getting Community Buy-in for Stormwater Funding: A Four Session Participatory Workshop: Facilitator Manual	This resource can help local utility proponents understand how to successfully "sell" a stormwater utility. While this is a Facilitator Manual for an agency or organization to implement a multi-session, a participatory workshop for municipalities to engage their communities in the development of stormwater funding solutions, the approach and lessons learned are applicable to individual communities. The Manual is a paired resource with a Participant Workbook.	https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=NHEERL&dirEntryId=346132
The Potential Advantages of a Stormwater Utility for Financing Your Stormwater Management Needs		https://www.hrg-inc.com/the-potential-advantages-of-a-stormwater-utility-for-financing-your-stormwater-management-needs/
<i>Cost Estimation Information</i>		
Stormwater Program Cost Evaluation for Massachusetts	Excel workbooks provide cost-estimation guidance for hours needed for various parts of MS4 permit compliance.	https://www.epa.gov/npdes-permits/stormwater-tools-new-england#ms4cei

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	This can be used as a guide to estimate labor associated with developing and implementing PCP.	
Community-enabled Lifecycle Analysis of Stormwater Infrastructure Costs (CLASIC) tool	The CLASIC tool is a screening tool utilizing a lifecycle cost framework to support stormwater infrastructure decisions on extent and combinations of green, hybrid green-gray and gray infrastructure practices. Users can create scenarios of stormwater control measures including climate and land use projections to assess lifecycle costs, performance, and co-benefits associated with those scenarios.	clasic.erams.com
Sustainable Stormwater Funding Evaluation for the Upper Charles River Communities of Bellingham, Franklin, and Milford, MA	Provides a program cost framework starting point. Costs are dated 2011.	https://www3.epa.gov/region1/npdes/charlesriver/pdfs/20110930-SWUtilityReport.pdf
Stormwater Management Optimization Tool (Opti-Tool)	Includes capital and maintenance costs prepared by CRWA and University of New Hampshire Stormwater Center in 2016.	https://www3.epa.gov/region1/npdes/stormwater/magreen-infrastructure-stormwater-bmp-cost-estimation.pdf
San Francisco Public Utilities Commission Green Infrastructure Maintenance Cost Model	Overview of San Francisco's maintenance cost model. More detail provided on the City's Public Utilities Commission website.	http://www.12000raingardens.org/wp-content/uploads/2019/05/GI-Maintenance-Model-Webinar-050719.pdf
National Cooperative Highway Research Program (NCHRP) (2014) "Long-Term Performance and Life-Cycle Costs of Stormwater Best Management Practices" Report 792		http://www.trb.org/Publications/Blurbs/171471.aspx

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BMP-REALCOST: Best Management Practices - Rational Estimation of Actual Likely Costs of Stormwater Treatment		https://www.horrycounty.org/Portals/0/Docs/stormwater/Documents/Engineers/Cost%20Estimators/BMP-REALCOSTManual_V1.0.pdf
Cost-Benefit Toolkit for Phosphorus Control BMPs	Compiles cost information from numerous communities to provide an estimate for the cost of phosphorus removal in the Charles River watershed	https://www.crwa.org/phosphorus-control-planning-support.html
<i>Subwatershed Plans with Phosphorus Reduction Goals</i>		
Subwatershed Restoration Plan for Milford, MA	Includes a list of nearly 70 proposed BMPs to achieve a target phosphorus reduction for the subwatershed study area.	https://www.crwa.org/uploads/1/2/6/7/126781580/crwa_subwatershed_restoration_plan_12-30-20.pdf
Stormwater Management Plan for Spruce Pond Brook Subwatershed	Subwatershed plan (developed prior to the 2016 MS4 permit) with phosphorus reductions targets. Multiple BMPs proposed in this plan have now been implemented. Page 6 describes a method for delineating drainage areas in urban settings.	https://www.crwa.org/uploads/1/2/6/7/126781580/crwa_franklin_plan.pdf