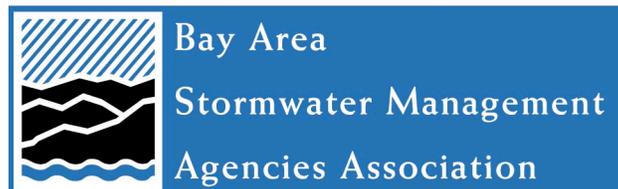


Annual Reporting for FY 2016-2017

New Development and Redevelopment

San Francisco Bay Area Small MS4 Permit Implementation

B A S M A A



March 2018

Table of Contents	Page
Introduction	2
Model Biotreatment Soil Media Specifications	2
Biotreatment Soil Media - Tree Design Work Group	3

Introduction

This report provides information on regionally implemented activities complying with portions of the Small Municipal Separate Storm Sewer System (MS4) [Phase II Permit](#) issued by the State Water Resources Control Board (Water Board). The Phase II Permit covers stormwater discharges from 24 municipalities and special districts (Permittees) in the North San Francisco Bay Area. This report covers new development and redevelopment activities implemented by the Bay Area Stormwater Management Agencies Association (BASMAA) related to the following Phase II Permit provision:

- E.12 Post-Construction Stormwater Runoff Program¹

These regionally implemented activities are conducted under the auspices of BASMAA, a 501(c)(3) non-profit organization comprised of the municipal stormwater programs in the San Francisco Bay Area, including the Permittees. Most of the 2016-2017 annual reporting requirements of the specific Permit provision covered in this report are completely met by BASMAA projects and programs, except where otherwise noted herein or by Permittees in their reports. Development and implementation of scopes, budgets, and schedules for BASMAA projects and programs follow BASMAA's operational Policies and Procedures as approved by the BASMAA Board of Directors. Permittees, through their program representatives on the Board of Directors and its committees, collaboratively authorize and participate in BASMAA projects and programs. All BASMAA members have shared in the regional costs of the projects and programs described herein.

Model Biotreatment Soil Media Specifications

In 2015, the biotreatment soil media (BSM) specification had been in use by the Phase I Permittees for 5 years and in that time those Permittees had identified several components of the soil specification for which review was warranted. In August 2015, the BASMAA Development Committee formed a Work Group on behalf of the Phase I and II Permittees to re-evaluate the soil specification. The Work Group took a two-step approach: first, immediately propose minor modifications to the current soil specification to ensure suppliers can deliver material that complies with the specification, and second, convene a soil specification "roundtable" (similar to the 2010 roundtable used to reach consensus on the MRP 1.0 Attachment L specification). The newly convened soil specification roundtable would investigate the need for

¹ The Municipal Regional Stormwater Permit (MRP)(Order No. R2-2015-0049), issued to 76 Phase I municipalities and special districts (Phase I Permittees) by the Water Board includes a provision (C.3.c.i.(2)(c)(ii)) regarding Model Biotreatment Soil Media Specifications that requires in part that biotreatment (or bioretention) systems be designed to: 1) infiltrate runoff through biotreatment soil media at a minimum rate, 2) sustain healthy, vigorous plant growth, and 3) maximize stormwater runoff retention and pollutant removal; and that Phase I Permittees shall ensure that specified projects use biotreatment soil media that meet the minimum specifications set forth in Attachment L of the previous Phase I permit (Order No. R2-2009-0074)(MRP 1.0); and that Permittees may collectively develop and adopt revisions to the soil media minimum specifications, subject to the Executive Officer's approval.

alternative specifications that might enhance the performance of bioretention facilities under varying microclimates and drought conditions and with diverse planting palettes, including trees.

The BASMAA Soil Specifications Work Group met several times, reviewed the specification regarding the two issues above, researched and made proposed changes, and vetted the proposed changes with the Development Committee and Permittees. In its January 2016 meeting, the BASMAA Board of Directors approved the transmittal of Revised Model Biotreatment Soil Media Specifications to the Regional Water Board for the purpose of MRP compliance. The revised specifications were transmitted to the Regional Water Board on February 5, 2016 and the Regional Water Board Executive Officer approved the revised specifications on April 18, 2016.

The BASMAA Soil Specifications Work Group also initiated a Roundtable project to start to address the remaining issues identified above. BASMAA engaged consultant assistance in February 2016 to prepare research and design considerations for updating the BASMAA Biotreatment Soil Media Specifications to incorporate considerations regarding trees in bioretention areas. The major project tasks included a literature review and the Roundtable, which was conducted in June 2016. The project also resulted in three products:

- *Biotreatment Soil Media and Specification: Current Research on Trees and Water Quality Treatment; Literature Review* – This report: 1) examines potential changes to the BSM and to the design of bioretention systems for the benefit of trees, 2) examines concerns with the performance of the current Biotreatment Soil Media specification, 3) addresses changes to the mix and the design of bioretention that could reduce pollutant leaching and flushing and correct identified problems, 4) provides a review of the available literature and municipal specifications for BSM, and 5) incorporates numerous interviews of experts and stakeholders involved in BSM.
- *Biotreatment Soil and Tree Roundtable Summary; Improvements for the Health of Trees* – This report provides a summary of the discussion, identifies action items from the Roundtable and a summary of the Roundtable evaluation survey responses.
- *Bioretention Design for Tree Health: Literature Review* – This report focuses on how to enhance the soil volume for trees in bioretention – one of the most important factors effecting urban tree health and is relatively limited in bioretention systems as they are currently designed.

The last product is a direct result of a recommended action item from the June 2016 Roundtable.

Biotreatment Soil Media – Tree Design Work Group

In FY 16-17, the Development Committee started to follow-up the previous work above. The Committee considered developing new designs for bioretention areas with trees,

changes to the BSM specification to better promote healthy trees, and convening a work group to discuss potential additional changes to the BSM specification. The Committee was most interested in looking at new designs for bioretention areas with trees and formed the BSM Tree Design Work Group to follow up this aspect of the previous work. The Work Group convened and met three times in FY 16-17, focusing its attention on reviewing information and examples of new designs for bioretention areas with trees. In FY 17-18, the Work Group will review additional examples of tree-specific treatment measure designs, discuss soil and maintenance issues, and develop recommendations for design and maintenance of stormwater tree systems.