

## **Program Evaluation Report**

# **San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation**

### **Executive Summary**

Tetra Tech, Inc., with assistance from the California Regional Water Quality Control Board, San Diego Region, conducted an evaluation of 10 of the 21 copermittees' Standard Urban Storm Water Mitigation Plan (SUSMP) programs in March 2005. The primary goal of the program evaluation was to determine each permittee's overall success in meeting the SUSMP conditions and requirements contained within the permit, with a focus on how each permittee reviews, approves, and implements the SUSMP requirements for individual projects.

This report describes the program evaluation, provides a summary of findings from the evaluation, and presents the individual evaluation results for each of the 10 copermittees reviewed. The evaluation of each copermittee consisted of an assessment of their SUSMP review procedures, a review of individual SUSMP plans submitted to the copermittee, and an evaluation of how SUSMP BMPs were implemented and maintained in the field.

For each copermittee, the evaluation team assessed the following:

- Requirements, including ordinances and local SUSMPs
- Tracking and screening of SUSMP priority projects
- SUSMP plan review procedures
- Maintenance requirements
- Field evaluation of constructed SUSMP projects

This report also contains a SUSMP evaluation checklist (Attachment 1) used by each team to verify that SUSMP reports complied with the requirements in the model SUSMP and a SUSMP evaluation reference sheet (Attachment 2) that summarizes some of the key tables and design information from the model SUSMP.

**TABLE OF CONTENTS**

Executive Summary ..... i

1.0 Introduction ..... 1

    1.1 Program Evaluation Purpose ..... 1

    1.2 Permit History ..... 1

    1.3 Logistics and Program Evaluation Preparation ..... 1

    1.4 SUSMP Requirements ..... 2

    1.5 Program Areas Not Evaluated ..... 3

    1.6 Program Areas for Additional Review ..... 3

2.0 Common Findings from the Program Evaluation ..... 4

3.0 Program Evaluation Results ..... 4

    3.1 County of San Diego ..... 7

    3.2 City of Carlsbad ..... 12

    3.3 City of Chula Vista ..... 16

    3.4 City of El Cajon ..... 19

    3.5 City of Escondido ..... 22

    3.6 City of Lemon Grove ..... 26

    3.7 City of National City ..... 28

    3.8 City of Oceanside ..... 32

    3.9 City of Poway ..... 36

    3.10 City of San Diego ..... 39

## 1.0 Introduction

### 1.1 Program Evaluation Purpose

The primary goal of the program evaluation was to determine each permittee’s overall success in meeting the SUSMP conditions and requirements contained within the permit, with a focus on how each permittee reviews, approves, and implements the SUSMP requirements for individual projects.

### 1.2 Permit History

The NPDES storm water permit was issued February 21, 2001, and is scheduled to expire February 21, 2006. The current permit, the second issued to the copermitees, requires each copermitee to develop and implement a Jurisdictional Urban Runoff Management Plan (JURMP). A component of the JURMPs is a program for land use planning for new development and redevelopment. This new development program includes the SUSMP requirements.

### 1.3 Logistics and Program Evaluation Preparation

Before initiating the on-site program evaluation, Tetra Tech, Inc., conducted a review of available program materials. The goals for the file review were (1) to gain greater knowledge of the existing program, permit requirements, performance criteria, and past activities and (2) to prepare for on-site activities. The following materials were reviewed:

- NPDES Permit No. CAS0108758
- Model SUSMP for San Diego, approved by SDRWQCB on 6/12/02
- Information, including local SUSMPs, submitted by each copermitee

Four evaluation teams were used in order to review the SUSMP programs of ten copermitees over three days. The evaluation schedule for the copermitees was as follows:

	<b>Team 1</b>	<b>Team 2</b>	<b>Team 3</b>	<b>Team 4</b>
Tuesday, March 1, AM	San Diego County	Carlsbad	Chula Vista	Poway
Tuesday, March 1, PM	San Diego County	Carlsbad	Chula Vista	Poway
Wednesday, March 2, AM	San Diego County	San Diego County	Oceanside	El Cajon
Wednesday, March 2, PM	City of San Diego		Oceanside	El Cajon
Thursday, March 3, AM	City of San Diego	Lemon Grove	National City	Escondido
Thursday, March 3, PM	City of San Diego	Lemon Grove	National City	Escondido

Each copermitttee was asked to submit to the Regional Board a copy of their local SUSMP, the number of reviewed and approved SUSMP projects for the past reporting period, and the number of approved SUSMP projects that have been constructed. The evaluation addressed the following topics for each copermitttee:

### **SUSMP review procedures**

The evaluation teams discussed the SUSMP review procedures with each Copermitttee. The evaluation also addressed tracking and review of SUSMP plans and how new projects are screened to determine SUSMP applicability.

### **Review of SUSMP plans**

The evaluation team reviewed SUSMP plans that were either reviewed and approved by the copermitttee or were still in the review process. Plans and files were reviewed to determine project compliance with the final model SUSMP. The total number of SUSMP plans reviewed varied by copermitttee.

### **Field visits to verify SUSMP designs and BMPs**

Finally, where approved SUSMP projects have been constructed or are undergoing construction, the evaluation team conducted field visits to verify that approved BMPs have been installed and are being operated and maintained in the field.

## **1.4 SUSMP Requirements**

### *Terminology*

The term Standard Urban Storm Water Mitigation Plan (SUSMP) refers to both the post-construction runoff control requirements placed on a project and the site-specific plan developed to meet those requirements. Some copermitttees also use the terms Storm Water Management Plan (SWMP) or Water Quality Technical Report (WQTR) to refer to these site-specific post-construction runoff control plans. In general, the terms SUSMP, SWMP, and WQTR are interchangeable for the purposes of this report.

### *MS4 Permit Requirements*

Part F.1 of the MS4 NPDES permit requires copermitttees to “minimize the short- and long-term impacts on receiving water quality from new development and redevelopment to the maximum extent practicable.” The SUSMP requirements are within Part F.1.b(2), which requires the copermitttees to collectively develop a model SUSMP within one year and adopt a local SUSMP within 180 days of Regional Board approval of the model SUSMP.

Part F.1.b(2) describes the categories of priority development projects subject to SUSMP, the general BMP requirements applicable to SUSMP projects, numeric sizing criteria for treatment control BMPs, the requirement to address pollutants of concern, and the requirement to develop an implementation process for SUSMPs.

### *Model SUSMP Requirements*

The final model SUSMP was approved by the Regional Board on June 12, 2002.

All new development and significant redevelopment projects that fall into one of 9 priority project categories are subject to the SUSMP requirements. The SUSMP requires project proponents to identify pollutants from the project area, identify the pollutants of concern in receiving waters, and identify the hydrologic conditions of concern for the project. This information will help the project proponent to then select appropriate storm water BMPs, including site design BMPs, source control BMPs, and treatment control BMPs. The model SUSMP describes the different types of site design BMPs that projects should consider and the source control BMPs that must be implemented when projects contain certain features. Treatment control BMPs that meet specific numeric sizing criteria are also required, along with proof of ongoing storm water BMP maintenance.

### **1.5 Program Areas Not Evaluated**

This evaluation focused on the SUSMP requirements implemented by each copermittee and did not address other components of the copermittee's JURMPs such as construction or illicit discharges.

The following copermittees were not evaluated during this review:

- City of Coronado
- City of Del Mar
- City of Encinitas
- City of Imperial Beach
- City of La Mesa
- City of San Marcos
- City of Santee
- City of Solana Beach
- City of Vista
- San Diego Unified Port District
- San Diego County Regional Airport Authority

### **1.6 Program Areas for Additional Review**

The evaluation team recommends the following program areas for additional review:

- A follow-up evaluation after additional SUSMP projects have been constructed to assess compliance.
- An evaluation of the site design techniques being approved by copermittees under the SUSMP requirements.
- Because many of the site visits were to projects either still under construction or recently constructed, a follow-up evaluation of the long-term operation and maintenance of treatment control BMPs is recommended after additional projects have been constructed and have been in use for a year or two.

## **2.0 Summary of Findings from the Program Evaluation**

This section summarizes the SUSMP program findings identified during the evaluation in order to assist all copermittees in improving the implementation of their SUSMP program. This summary presents some of the key activities copermittees should consider in implementing their SUSMP program. Findings specific to each copermittee are identified in section 3.0 of this report.

### **SUSMP Requirements**

Each copermittee has adopted a storm water ordinance and has developed a local SUSMP. The SUSMP requirements should be easily available to project proponents via the City's Web site or other means. Also, copermittees must ensure SUSMP requirements apply to both discretionary and ministerial projects that fall under one of the priority development categories.

### **SUSMP Tracking/Screening**

Copermittees need a systematic method of screening incoming projects for SUSMP applicability. The use of a checklist to identify the priority development category and site design, source control, and treatment control best management practices required on-site is essential. If project applicants are required to complete such a checklist with their permit application, then the copermittee can verify the information during plan review. The same checklist should also be required to be completed for public projects.

Two specific issues that can be difficult to screen for are whether the project is discharging to an Environmentally Sensitive Area and whether the project is a significant redevelopment. Copermittees must ensure projects that replace more than 5,000 ft<sup>2</sup> of impervious surface and are not part of a routine maintenance activity comply with SUSMP requirements.

Copermittees also must develop a system to track SUSMP projects. This will help copermittees to report the total number of SUSMP projects to the Regional Board each year and will ensure that the copermittees can identify these priority projects in the future.

### **SUSMP Plan Review**

The review of SUSMP plans is the most critical step in the SUSMP process. Plan review staff should have a formal document review process for SUSMPs. This includes the use of a checklist or similar mechanism to verify that the numerous SUSMP requirements have been appropriately addressed. An example of a SUSMP review checklist is provided in Attachment 1 of this report. Also, public SUSMP projects should undergo the same or an equivalent review process as private SUSMP projects.

#### *Site design*

Many of the SUSMP plans reviewed for this program evaluation did not adequately address site design. The Model SUSMP requires priority projects to “consider, incorporate, and implement where determined applicable and feasible” a series of site design BMPs. Copermittees should require project proponents to describe how they met each of the site design options, including where the project proponent deemed an option not feasible. To assist in understanding better site design concepts, several site design references are provided below for copermittees:

- As an educational resource to understand the concepts of better site design, the Bay Area Storm Water Management Agencies Association (BASMAA) published in May 2003 the document *Using Site Design Techniques to Meet Development Standards for Storm Water Quality*. This document is available from [http://www.scvurppp-w2k.com/pdfs/0203/c3\\_related\\_info/startatthesource/using\\_sas.pdf](http://www.scvurppp-w2k.com/pdfs/0203/c3_related_info/startatthesource/using_sas.pdf).
- The Santa Clara Valley Urban Runoff Program has developed a guidebook of site design examples available from the City of Fremont's web page at <http://www.ci.fremont.ca.us/Construction/StormwaterRegulations/SiteDesignTechniques.htm>.
- The Low Impact Development Center provides examples of LID techniques at <http://www.lid-stormwater.net/intro/sitemap.htm>.

#### *Source controls*

The appropriate source controls for the project should be listed in the SUSMP and should include the same detailed requirements as described in the model and local SUSMPs (for example, irrigation systems should employ rain shutoff devices, be designed to the landscape area's specific water requirements, use flow reducers or shutoff valves, etc.). These detailed requirements for source controls should also be translated to the engineering plan sheets used by inspectors in the field.

#### *Treatment controls*

Many SUSMP reports did not adequately describe the selection of treatment controls to remove pollutants to the maximum extent practicable. Project proponents should begin with the treatment control that is most effective at removing the pollutant(s) of concern (Table 3 from the Model SUSMP) and provide a justification if that treatment control BMP is not selected. Copermittees should not approve SUSMP reports that propose drainage inserts (generally the lowest removal efficiency for most pollutants) without justification that other treatment control BMPs were considered and their implementation was found to be infeasible.

Also, some SUSMP reports did not clearly describe how treatment control BMPs were designed. Either the design criteria were not included in the report or the engineer attached multiple pages of printouts and other charts that did not clearly describe the BMPs' design. Copermittees could require developers to use standard forms to document the design of treatment control BMPs. As an example, Ventura County has developed a BMP manual that includes standard design procedure forms for BMPs. Ventura County's *Technical Guidance Manual for Storm Water Quality Control Measures* is available at <http://www.vcstormwater.org/tech-man1-03.pdf>. Copies of the design procedure forms are in Appendix G and Section 5.

#### **SUSMP Maintenance Requirements**

Project applicants are required to provide proof that structural treatment controls will be maintained. Maintenance can be performed by the landowner or an assessment district, home owner's association, or public entity. The copermittees should ensure that proof of how maintenance will be conducted is identified in the SUSMP report.

Source and treatment control BMPs should be tracked in order to assess the number of BMPs installed, for reporting purposes, and to create an inventory for verifying maintenance in the future.

Copermittees should also develop a process to periodically verify the effectiveness of selected BMPs. This could consist of random inspections of a small subset of BMPs to verify that they are being maintained. Inspectors conducting industrial or commercial inspections should also verify that structural treatment controls are being maintained. In order to assist with the process of verifying maintenance, copermittees should develop a system to track source control and treatment control BMPs. This information will help copermittees to ensure BMPs are not modified or removed (for example, storm drain labels could disappear or catch basin inserts could be removed).

### **SUSMP Field Evaluation**

The thorough review of SUSMP reports is only half the process. The BMPs in an approved SUSMP report must be successfully installed and maintained in the field in order to protect water quality. Copermittees should ensure that the BMP design details in SUSMP reports are translated to the engineering plan sheets used in the field.

Inspection staff must also ensure that the SUSMP BMPs are properly installed in the field. This includes verifying factors such as the location, sizing, and type of BMPs installed. If during construction a change to site design, source control, or treatment control BMPs is necessary, that change should go through the same review process as the original SUSMP plan to ensure consistent application of the SUSMP requirements.

### **Training and Education**

Training of copermittee staff and education of developers/engineers submitting SUSMP plans is critical to the success of the SUSMP program. Training for copermittee staff should focus on specific topics such as employing better site design techniques, identifying source controls, and selecting the most effective treatment controls for the targeted pollutants. Field staff should also receive training on source and treatment control BMP installation and maintenance.

Developers and engineers also must be educated on the SUSMP requirements and BMPs so they submit more effective SUSMP reports. This begins by making sure developers and engineers have the relevant regulations and standards readily available. Copermittees can also encourage better site design by providing developers/engineers with examples of local projects using innovative site design techniques.

### **3.0 Program Evaluation Results**

Sections 3.1 through 3.10 below summarize the program evaluation results for each of the copermittees evaluated. Each copermittee section addresses the following SUSMP topics:

- SUSMP Requirements
- SUSMP Tracking/Screening
- SUSMP Plan Review
- SUSMP Maintenance Requirements
- SUSMP Field Evaluation
- Training and Education

This report briefly summarizes the copermittee’s activities for each of the SUSMP topics and highlights key program strengths and weakness, where applicable. A program strength was identified when the activity was not common to all copermittees and could be applied by other copermittees to help implement their program. A program weakness was identified when a copermittee was not fully implementing the SUSMP requirements.

Because the evaluation team reviewed only a limited number of SUSMP reports and conducted a limited number of field evaluations, program weaknesses identified for one copermittee could also apply to other copermittees. Also, some copermittees had not reviewed many SUSMP projects yet, therefore the evaluation team was limited in the information available to review.

### **3.1 County of San Diego**

#### **3.1.1 SUSMP Requirements**

The County’s Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) requires both discretionary and ministerial permit applicants to demonstrate how the specific requirements in Appendix A of the WPO will be met before the decision maker approves the permit. Appendix A of the WPO contains the Stormwater Standards Manual (SSM), which describes in more detail, by project category, what dischargers must do to comply with the WPO and receive permits for projects and activities subject to the WPO. The WPO, including the SSM, defines the requirements that are legally enforceable by the County in the unincorporated parts of San Diego County. The WPO and SSM are available from:

<http://www.projectcleanwater.org/html/ordinance.html>

Section G of the SSM addresses “Land Development and Redevelopment.” The SSM largely codifies the requirements in the Model SUSMP and addresses additional requirements such as a list of site factors that must be considered in selecting BMPs (section G.4.2.1), a preference for natural BMPs (section G.4.4), practices to minimize impervious surface area (section G.4.6), and requirements for buffer zones (section G.4.7).

The County has developed a SUSMP Manual (available at [http://www.sdcountry.ca.gov/dpw/watersheds/land\\_dev/susmp.html](http://www.sdcountry.ca.gov/dpw/watersheds/land_dev/susmp.html)) that requires project proponents to develop a storm water management plan (SWMP) to comply with the SUSMP Manual and WPO. The SUSMP Manual describes the permitting procedures and process for SUSMP projects. The SUSMP Manual largely follows the Model SUSMP but does not address

all requirements in the WPO or SSM. For example, the requirement in section G.4.4.1 of the SSM that requires that “BMPs which incorporate natural systems or approaches shall be considered and shall be utilized whenever practical” is not specifically mentioned in the SUSMP Manual.

Program Strength:

- *The County’s Watershed Protection Ordinance (WPO) and Stormwater Standards Manual (SSM) provide specific legal authority to help the County implement the SUSMP requirements.*

The WPO and SSM are very specific in terms of the new development and redevelopment requirements for storm water. For example, Section 67.818 of the WPO requires all projects, whether a County permit or approval is required or not, to implement BMPs, if applicable, such as pollution prevention and source control, site design and site planning, BMPs for trash storage, and structural treatment BMPs.

Program Weaknesses:

- *The SWMP example provided in Appendix C of the County’s SUSMP Manual is not detailed enough to serve as a good example for project engineers.*

Most of the SWMPs reviewed by the evaluation team relied heavily on the example SWMP in Appendix C to dictate the format, content, and level of detail that should be in their SWMP. Unfortunately, this is generally not a good example for most projects to follow, and the example does not even comply with all of the requirements in the SSM. For example, the source control BMPs in the example largely list educational brochures. The source control BMPs do not address the specific requirements to use efficient irrigations systems (G.5.2.2.4), address storm drain tiles and signage (G.4.9), and address residential driveways (G.5.2.2.5(b)).

The example SWMP is generally lacking in detail and gives project proponents the erroneous assumption that all plans should follow this format and contain this level of detail. Moreover, many project proponent SWMPs simply reiterate the language provided by the example SWMP, regardless of whether the language is applicable to the specific project or not. The County should consider either revising the example SWMP to more closely and specifically meet the WPO requirements, or remove the example SWMP and list the required elements of a SWMP instead. If the County chooses to revise the example SWMP, it should work with other jurisdictions in San Diego to review SUSMP plans that are more detailed and more closely meet the model SUSMP requirements.

- *The WPO Treatment Control BMP Selection Matrix is inconsistent with the Model SUSMP*

Attachment G-3 of the WPO includes a Treatment Control BMP Selection Matrix, to be used in identifying treatment control BMPs that are effective in removing pollutants of concern from project runoff. However, the effectiveness rankings for “drainage inserts” listed in this matrix are not consistent with the Model SUSMP effectiveness rankings. Attachment G-3 provides “drainage inserts” with higher effectiveness rankings for various pollutants of concern than the effectiveness

rankings found in the Model SUSMP. The County must update Attachment G-3 to ensure that the listed BMP effectiveness rankings are consistent with the Model SUSMP. In addition, the County must closely review future SWMPs to ensure that the proper BMP effectiveness rankings are being used by project proponents.

- *The WPO limits the standards to only new project features.*  
WPO Section 67.818(a) states that “Post-construction BMP requirements imposed by this section and by the Stormwater Standards Manual shall not apply to those physical aspects of the project that have been completed or substantially completed pursuant to and as required by a valid County permit or approval, at the time a complete application for a subsequent permit or approval is submitted.” However, section F.1.b.2.a of the permit requires that redevelopment projects which result in an increase of greater than fifty percent of the impervious surfaces of a previously existing development must treat the runoff from the entire development. The County should clarify when the WPO and SSM apply to the entire project site for redevelopment projects, and not just to the new project feature under construction.

### **3.1.2 SUSMP Tracking/Screening**

The County generally requires SWMPs for all projects disturbing greater than 5,000 square feet. The County’s permit tracking system, KIVA, does not currently track SUSMP priority development projects or the status of SWMP reviews. Because the County does not specifically flag projects that fall under one of the SUSMP priority project categories, the County was not able to easily identify SUSMP projects for the evaluation team to review.

#### Program Weaknesses:

- *The County does not adequately screen for and track SUSMP projects.*  
During the evaluation, the County could not easily identify projects that fell into one of the priority development project categories described on pages 7-8 of the WPO. By not tracking SUSMP category projects, the County is unable to effectively report the number of SUSMP projects reviewed annually to the Regional Board. The County should develop a process so that new projects that fall into one of the priority development project categories are appropriately screened and tracked for SUSMP compliance.
- *The County failed to apply SUSMP requirements to a County construction project.*  
The Riverside Drive Improvement project was scheduled to be sent out for bid on March 18, 2004. Although the County identified this as a priority development project, a formal SUSMP report was not prepared because the County believed that the project began before SUSMP requirements became effective. SUSMP requirements apply to all projects that had not yet begun grading or construction activities as of December 2002, therefore this project should have complied with the SUSMP requirements.

### **3.1.3 SUSMP Plan Review**

Both the Planning and Land Use (DPLU) department and Public Works (DPW) Land Development section review WQMPs. DPLU staff are responsible for reviewing basic project

information and water quality information, while DPW staff are responsible for reviewing drainage, BMPs, and maintenance. Other than conditions of approval, neither department completes a detailed review checklist or develops written documentation demonstrating that the project has met the specific requirements in the WPO, SSM, and SUSMP Manual.

Program Weakness:

- *The County is not adequately reviewing SWMPs to ensure they comply with the WPO, SSM, and SUSMP Manual.*

As described in Section 2.1.1 above, most of the SWMPs submitted to the County essentially mirror the example SWMP provided in Appendix C of the SUSMP Manual. County plan review staff generally approve plans that follow the example, even though these plans may not address all the requirements in the SUSMP Manual. Collectively, the WPO, SSM and SUSMP Manual represent more than 225 pages of requirements that would be difficult for a plan reviewer to memorize when reviewing plans. Plan review staff should document their review of SWMPs using a detailed checklist or similar document. An example of a SUSMP checklist is provided in Attachment 1 of this report.

- *The County is not adequately reviewing SWMPs to ensure treatment control BMPs are treating runoff from all areas of development projects.*

During the field inspection, it was found that only approximately half of the under-construction Hidden Glen subdivision drained to a storm water detention basin for treatment, while the other half of the project drained to a concrete ditch without treatment. According to the field inspector, this design was in accordance with the approved plans for the project. SWMP plans should be more closely reviewed to ensure that runoff from all areas of development projects is being treated by treatment control BMPs.

- *Site design and source control BMPs are inadequately addressed in most approved SWMP plans.*

Out of about a dozen SWMP plans reviewed during the evaluation, ten projects copied the language in the example SWMP in addressing site design and source control BMPs. The County's SUSMP Manual requires project applicants to "consider, incorporate, and implement where determined applicable and feasible" a series of site design BMPs. The example SWMP provides only minimal information on these BMPs and does not document how other BMPs not listed were considered. Each SWMP should document how site design BMPs are considered and should provide an explanation or justification if a site design BMP is not considered feasible.

For source control BMPs, as described in section 3.1.1, the example does not provide details on the required source control BMPs for the project.

- *The County should require more detail before approving SUSMP plans.*

Some of the SUSMP reports reviewed by the evaluation team lacked the necessary detail to determine whether the plan fully complied with the SUSMP requirements. The following are specific issues identified during the evaluation:

- Proponents of priority projects are not selecting treatment controls based on their efficiency. For a specific pollutant of concern, project proponents should start by considering treatment control BMPs with high removal efficiencies for that pollutant. Where a BMP with a high removal efficiency is not practicable, a justification should be provided in the plan before a lower efficiency BMP is accepted.
- Engineering plan sheets used by inspectors during construction should include the necessary details from the SUSMP plans. These inspectors often do not see the SUSMP plans, therefore the engineering plan sheets should include all necessary design details to ensure compliance.

### **3.1.4 SUSMP Maintenance Requirements**

The County requires maintenance agreements for treatment control BMPs. In the County SUSMP Manual, the County has designated four categories of maintenance mechanisms. The first and second categories apply to maintenance on private property, while the third and fourth categories apply to BMPs the County will maintain.

#### Program Weakness:

- *The County should develop a system to track installed BMPs to help verify maintenance.*

In order to verify that source control and treatment control BMPs are being adequately maintained, the County will need to develop a system to track the location of these controls. Then the County could conduct periodic inspections of a selected subset of projects to verify that the BMPs are being adequately maintained. This will also assist the County in annual reporting of the numbers of BMPs installed in the County.

### **3.1.5 SUSMP Field Evaluation**

The audit team conducted field evaluations of four SUSMP projects—two completed projects and two under construction. All four projects generally met the approved design outlined in the SWMPs; however, the approved SWMP designs did not adequately meet the SUSMP requirements. For example, at a subdivision still under construction, only half of the site drained to a storm water detention basin for treatment while the other half of the project drained to a concrete ditch without treatment. Another commercial site visited did not employ site design BMPs such as directing roof runoff to vegetated areas and labeling catch basins. These problems reflect inadequate SWMP review, rather than lack of field verification.

### **3.1.6 Training and Education**

County staff have received internal training on SUSMPs and have attended regional SUSMP workshops. The County also provides information on SUSMPs, including the County's SUSMP Manual, on its Web site.

#### Program Weakness:

- *The County should train staff annually and educate external stakeholders on SUSMP BMPs and requirements.*

Although the County has held a variety of training sessions on SUSMP topics for staff, additional training on topics such as better site design techniques, source controls, and selecting the most effective treatment controls for the targeted pollutants is needed to ensure the SUSMP requirements are fully met. DPW Engineers should also receive additional training on SUSMP BMPs and requirements. Field staff should receive training on source and treatment control BMP installation and maintenance.

The County should also conduct external training and education on SUSMP requirements, better site design techniques, BMPs, maintenance, and how to develop better SUSMP plans. This training and education should include developers, contractors, property owners, consultants, community planning groups, the construction community, and other interested groups.

## 3.2 City of Carlsbad

### 3.2.1 SUSMP Requirements

The City has developed a SUSMP manual both for construction and permanent storm water BMPs (April 2003) (<http://www.ci.carlsbad.ca.us/stormwater/susmppdf/susmp.pdf>). The SUSMP Manual describes the review and permitting procedures and process for SUSMP projects. The Manual includes two flow charts that outline the review process for “discretionary actions” and projects requiring a construction permit. Discretionary actions are defined by this manual (Figure 1, p. 5) as those that include “land use plan amendments, rezonings, subdivisions, planned development permits, planned industrial permits, redevelopment permits, coastal development permits, conditional use permits, [and] site development plans.” The second flow chart (Figure 2, p. 6) states that projects that require construction permits are building permits, grading permits, demolition permits, ministerial permits, and public right-of-way permits.

#### Program Strength:

- *The City of Carlsbad reviews all businesses applying for conditional use permit renewals for SUSMP applicability.*  
Various businesses in the City are required to have conditional use permits (CUPs) in order to operate in certain areas of the City (i.e. drive-thru restaurants, veterinary hospitals). Each business owner is required to renew his/her CUP every five years. The City reviews each CUP renewal application and considers each site for SUSMP requirements. If the business is considered a priority project, the City requires the submittal of a SWMP.

#### Program Weakness:

- *The City’s SUSMP Manual does not indicate that all ministerial projects must be reviewed to determine whether post-construction SUSMP requirements apply.*  
During the interview process, City staff indicated that all projects, discretionary and ministerial, are reviewed by Engineering Department staff for applicability of SUSMP requirements. A checklist was provided that showed that post-construction SUSMP requirements must be considered when submitting an application for a

grading permit, which covers many ministerial projects. However, the City's SUSMP manual (Figure 2) indicates that high priority projects requiring a construction permit (including ministerial permits) only require the development of SWPPP, not a post-construction SWMP. The City should amend the manual to indicate that all discretionary and ministerial priority projects must comply with post-construction SUSMP requirements.

### **3.2.2 SUSMP Tracking/Screening**

Currently, the City is mapping public stormwater BMPs in a GIS Asset Inventory program. This program catalogs the location of various City assets and links the mapping to work maintenance software to indicate the locations of public infrastructure and track maintenance needs. Currently, the Asset Inventory includes publicly owned catch basins, outfalls, and regional detention facilities. Additional publicly maintained BMPs are being incorporated into the system later this year.

The City is developing a Treatment Control BMP Database to catalog private storm water management BMPs as well. Currently the City tracks the private development review process using Permits Plus software. This software only tracks SUSMP projects that paid the SWMP review fee that has been required since November 2003. The current database does not track the specific BMPs installed at SUSMP projects.

The planned new version of the Permits Plus database will require that applicants complete the Storm Water Requirements Applicability checklist and that information will be entered into the new database for review to determine if the project is a priority project. Any additional information submitted in a subsequent SWMP or SWPPP will also be entered and submittals and corrections will be tracked as well.

The locations of any private post-construction BMPs will be cataloged in the existing GIS Asset Inventory system to assist with scheduling of maintenance and inspection activities. By June 2005, the Treatment Control BMP Database system (including changes to Permits Plus and Asset Inventory) will begin incorporating private, "day forward" BMPs. No plans have been made to catalog existing, historic structures already installed.

The evaluation team reviewed a list of recent projects screened for SUSMP applicability and found that SUSMP projects were properly identified.

#### Program Strength:

- *The City is updating an existing database structure to improve SUSMP review and BMP installation tracking and reporting.*  
The new database structure will allow the City to track not only the SUSMP review process, but also the types and locations of installed post-construction BMPs so that the City will be able to adequately inspect and enforce maintenance requirements.

#### Program Weakness:

- *The City does not plan to locate and track existing or approved BMPs prior to the "day forward" date for the Treatment Control BMP Database implementation.*

In the City of Carlsbad, SUSMP requirements have been implemented at least since December 2002, therefore numerous post-construction BMPs undoubtedly have been installed during the last 2+ years. The City will need to know where these BMPs are in order to adequately inspect and maintain the BMPs.

### 3.2.3 SUSMP Plan Review

According to staff interviewed, all discretionary projects are reviewed by the Development Services Division of the Engineering department to determine whether they qualify as a priority project. In addition, Appendix A of the City's SUSMP Storm Water Standards provides a checklist for developers to use to determine the applicability of storm water requirements. Currently, the City does not require that this checklist be submitted by the developer. In addition, the City has developed a "Grading and Erosion Control Plan Submittal" checklist to assist developers with the submittal process. The checklist indicates that a storm water management plan (SWMP) is listed as a requirement for initial plan check "if the project is defined as a priority project per SUSMP or if conditioned with the project."

All proponents of discretionary projects are encouraged to prepare and submit a preliminary SWMP with a menu of possible BMPs. This SWMP is then reviewed and an "issues letter" is sent outlining problems or suggestions regarding the preliminary SWMP. This preliminary review costs \$500 but is strongly recommended for most discretionary projects to ensure a more timely review and approval of final SWMPs. Approximately 40–50 percent of projects go through this process, which can also include a pre-project planning meeting with City staff.

Carlsbad public capital improvement projects (CIP) are designed in-house by City designers. According to staff interviewed, post-construction storm water requirements are determined using the CEQA environmental review process, not the Carlsbad SUSMP review document. The SUSMP is sometimes referenced to determine which "standard practices" should be used on certain public projects, but the review process is not followed during the design of public projects.

#### Program Weaknesses:

- *The City of Carlsbad is not incorporating SUSMP requirements into CIP projects.*  
The City's NPDES MS4 permit requires and the Carlsbad SUSMP Manual confirms that public projects are required to comply with all Manual requirements. Interviews with applicable staff, however, indicated that this site design process was not being followed and staff interviewed did not have a basic knowledge of SUSMP requirements. The evaluation team did not review specific SUSMP plans for CIP projects as staff indicated that SUSMP requirements were not currently being incorporated into CIP projects.
- *The City should require more detail before approving SUSMP plans.*  
Some of the SUSMP reports reviewed by the evaluation team lacked the necessary detail to determine whether the plan fully complied with the SUSMP requirements. The following are specific issues identified during the evaluation:
  - The model SUSMP requires priority project proponents to "consider, incorporate, and implement where determined applicable and feasible" a

series of site design BMPs. The City should ensure that plans address these site design options and provide a justification if an option is not included in the design.

- Proponents of priority projects are not selecting treatment controls based on their efficiency. For a specific pollutant of concern, proponents should start by considering treatment control BMPs with high removal efficiencies for that pollutant. Where a BMP with a high removal efficiency is not practicable, a justification should be provided in the plan before a lower efficiency BMP is accepted.
- Engineering plan sheets used by inspectors during construction should include the necessary details from the SUSMP plans. These inspectors often do not see the SUSMP plans, therefore the engineering plan sheets should include all necessary design details to ensure compliance.

### **3.2.4 SUSMP Maintenance Requirements**

The City has mapped basic storm water public infrastructure and maintains those assets accordingly. In addition, as previously stated, the City of Carlsbad is developing a comprehensive database system to consistently track post-construction BMPs on private and public projects in the City. This database will be used to manage maintenance activities for publicly-owned BMPs as well as to track and inspect private facilities to ensure compliance with maintenance agreements required by the SUSMP.

#### Program Weakness:

- *The City should develop a system to track installed BMPs to help verify maintenance.* In order to verify that source control and treatment control BMPs are being adequately maintained, the City will need to develop a system to track the location of these controls. Then the City could conduct periodic inspections of a selected subset of projects to verify that the BMPs are being adequately maintained. This will also assist the City in annual reporting of the numbers of BMPs installed in the City.

### **3.2.5 SUSMP Field Evaluation**

The evaluation team visited two different projects in the City of Carlsbad, one CIP and one subdivision.

#### Program Weakness:

- *The field evaluation confirmed that the City is not consistently incorporating post-construction BMPs into CIP projects.* One of the projects visited was a CIP road extension that was necessary for serving a subdivision. For this reason, the Cannon Road extension was partially built by the developer and the remainder is being constructed by the City. The storm water from the portion of the road that was required in the private development SUSMP is being treated with post-construction BMPs (i.e., detention pond). The remaining section of the roadway, which discharged directly into a surface water, was being constructed by the City and did not incorporate any post-construction SUSMP requirements. City staff indicated that this project began prior to SUSMP requirements implemented in

December 2002, however, no retrofit of catch basins has been incorporated into the public roadway design.

### 3.2.6 Training and Education

Engineering staff indicated that weekly meetings are held to discuss development project requirements and educate staff members about new BMPs and site design techniques. Staff attend periodic seminars presented by consultants and vendors.

#### Program Weakness:

- *The City should train staff annually and educate stakeholders on SUSMP BMPs and requirements.*

Although the City has held a variety of training sessions on SUSMP topics for staff, additional training on topics such as better site design techniques, source controls, and selecting the most effective treatment controls for the targeted pollutants is needed to ensure the SUSMP requirements are fully met. Field staff should also receive training on source and treatment control BMP installation and maintenance.

The City should also conduct external training and education on SUSMP requirements, better site design techniques, BMPs, maintenance, and how to develop better SUSMP plans. This training and education should include developers, contractors, property owners, consultants, community planning groups, the construction community, and other interested groups.

## 3.3 City of Chula Vista

### 3.3.1 SUSMP Requirements

The City of Chula Vista SUSMP is based on the model SUSMP and is implemented through the City's *Development and Redevelopment Projects Storm Water Management Standards Requirements Manual* (November 26, 2002) available at [http://www.chulavistaca.gov/City\\_Services/Development\\_Services/Engineering/stormWaterManual.asp](http://www.chulavistaca.gov/City_Services/Development_Services/Engineering/stormWaterManual.asp). This Manual provides information to applicants for development, redevelopment, and public projects that are processed through the City on how to comply with permanent storm water requirements. The City uses the Manual to implement section 14.20.120.A of the Chula Vista Municipal Code, which makes it unlawful for any person not to comply with BMPs and pollution control requirements established by the City or other responsible agency to eliminate or reduce pollutants entering the City's storm water conveyance systems. The Manual is currently being updated by the City.

Part II of the Manual, titled Project Review & Permitting Process, specifies that both discretionary and ministerial projects are subject to priority project permanent storm water requirements. Appendix A of the Manual requires that applicants complete the "Storm Water Requirements Applicability Checklist." Applicable SUSMP requirements must be incorporated per Appendix B1 of the Manual, which specifies that project proponents must incorporate all necessary permanent BMPs into the project plans prior to submittal, regardless of project type. Another requirement is the preparation and submission of a Water Quality Technical Report (WQTR) in accordance with Attachment B1 of the Manual. The WQTR must include an

analysis of the project's anticipated pollutants of concern in downstream receiving waters as well as conditions of concern.

Ultimately, the process consists of project screening to determine applicable storm water BMP requirements, project review after applicants prepare and submit an appropriate plan culminating in the City making a determination of the adequacy of the proposed plan, and project tracking and inspection to ensure implementation and maintenance requirements are met.

Program Weakness:

- *The City should ensure that the review process addresses all SUSMP requirements.* The City's recent reorganization that changed its internal review process for SUSMP requires that up to 7 organizations provide some SUSMP review function. Although the new organization appears to be logical as described by the City, because so few SUSMP projects have made it all the way through the process, it is still too early to tell if some of the SUSMP program elements have the potential to fall through the cracks without being addressed.

### **3.3.2 SUSMP Tracking/Screening**

The evaluation team reviewed the 30 most recent projects received for screening by the City. The vast majority of these projects required SUSMPs and the City was accurately screening these projects to ensure the SUSMP requirements were applied.

The City is in the process of developing a computer system by which SUSMP projects identified as such during the grading permit process are linked to the City's Building Inspections database (their Permits Plus computer system) and flagged for SUSMP requirements. The City intends to obtain project CADD files to enter into the system and then edit them once they are verified following project completion. This system has a field for SUSMP priority development projects and a separate GIS layer for future maintenance requirements and agreements that are tied to specific BMP facilities.

### **3.3.3 SUSMP Plan Review**

The City's Planning Division is the first to review private development applications and evaluate them for potential environmental issues. Planning also routes Initial Studies, EIRs, Tentative Maps, and other development-related documents to the Engineering Division and the Public Works Operations Storm Water Management Section for review and comment. These two groups screen for SUSMP and other requirements and provide feedback to the Planning Division. Development applicants are required to comply with the City's *Development and Redevelopment Projects Storm Water Management Standards Requirements Manual*.

Preparation and submission of a water quality technical report (WQTR) is required for all SUSMP projects. The WQTRs identify pollutants of concern and propose source control and treatment control BMPs. The City has an independent consultant to essentially serve as City review staff to assess and verify developers' analyses contained in special permit applications, WQTRs, and grading plans prior to permit issuance.

The City's Community Development department routes its projects to the Engineering Permits Section for review and screening for SUSMP requirements. The General Services Design

Section develops CIPs and includes SUSMP requirements in the design of these projects where required. The General Services Parks and Buildings Section develops public parks and other building projects. SUSMP requirements are included where required based on review by the Storm Water Management Section.

Program Weakness:

- *The City should require more detail before approving SUSMP plans.*  
Attachment B1 of the City’s Manual provides direction on the content of WQTRs, however, some of the SUSMP reports reviewed by the evaluation team lacked the necessary detail to determine whether the plan fully complied with the SUSMP requirements. The following are specific issues identified during the evaluation:
  - The model SUSMP requires proponents of priority projects to “consider, incorporate, and implement where determined applicable and feasible” a series of site design BMPs. The City should ensure that plans address these site design options and provide a justification if an option is not included in the design.
  - Proponents of priority projects are not selecting treatment controls based on their efficiency. For a specific pollutant of concern, proponents should start by considering treatment control BMPs with high removal efficiencies for that pollutant. Where a BMP with a high removal efficiency is not practicable, a justification should be provided in the plan before a lower efficiency BMP is accepted.
  - Engineering plan sheets used by inspectors during construction should include the necessary details from the SUSMP plans. These inspectors often do not see the SUSMP plans, therefore the engineering plan sheets should include all necessary design details to ensure compliance.

### **3.3.4 SUSMP Maintenance Requirements**

Public Works inspectors ensure that development projects are constructed according to approved plans, which includes inspection and approval of installed/constructed treatment control BMPs. The Engineering Division develops agreements with private developers for long-term maintenance of structural treatment control BMPs. These take the form of agreements with Home Owners’ Associations that in some instances become part of the Codes, Covenants, & Restrictions (CC&Rs) or result in the establishment of Community Facility District (CFD) Agreements, both of which include maintenance and funding mechanisms whereby the responsible parties are required to conduct inspections and maintenance as well as maintain a log for inspections by the City’s Storm Water Management staff. The Storm Water Management Section maintains publicly owned SUSMP treatment control BMPs.

Program Weaknesses:

- *Maintenance agreements are not always approved at the same time as the WQTR.*  
Although the City appears to be working towards implementation of a comprehensive approach to ensuring owner maintenance responsibility through the use of model maintenance agreements, supplementary declarations, and CFD agreements, the evaluation team observed that fully executed and enforceable agreements are not always in place at the time that SUSMP projects are approved.

- *The City should develop a system to track installed BMPs to help verify maintenance.* In order to verify that source control and treatment control BMPs are being adequately maintained, the City will need to develop a system to track the location of these controls. Then the City could conduct periodic inspections of a selected subset of projects to verify that the BMPs are being adequately maintained. This will also assist the City in annual reporting of the numbers of BMPs installed in the City.

### **3.3.5 SUSMP Field Evaluation**

Generally, infiltration BMPs are not being encouraged by the City, so there appears to be a tendency for the approved treatment control BMPs to be proprietary flow-based inserts and filtration devices. The field evaluation consisted of visiting four SUSMP projects and found generally that SUSMP BMPs were being implemented as designed.

### **3.3.6 Training and Education**

Department of Public Works Operations Storm Water Section and Engineering Division staff receive external storm water-related training 3 or 4 times per year. The City also provides internal training that may include storm water topics at biweekly staff meetings. This training is tailored to the responsibilities that each City agency has regarding storm water and SUSMP requirements. The City is also proactive with developers and the general public regarding storm water awareness.

#### Program Weakness:

- *The City should train staff annually and educate stakeholders on SUSMP BMPs and requirements.*

Although the City has held a variety of training sessions on SUSMP topics for staff, additional training on topics such as better site design techniques, source controls, and selecting the most effective treatment controls for the targeted pollutants is needed to ensure the SUSMP requirements are fully met. Field staff should also receive training on source and treatment control BMP installation and maintenance.

The City should also conduct external training and education on SUSMP requirements, better site design techniques, BMPs, maintenance, and how to develop better SUSMP plans. This training and education should include developers, contractors, property owners, consultants, community planning groups, the construction community, and other interested groups.

## **3.4 City of El Cajon**

### **3.4.1 SUSMP Requirements**

The City adopted Ordinance No. 4717, which is an amendment to the Municipal Code Title 16, Subdivisions 16.100 through 16.108, and includes the language for the SUSMP requirements (available at <http://municipalcodes.lexisnexis.com/codes/elcajon/>). The Ordinance was adopted on December 17, 2002, and follows the format and language of the model SUSMP. Ministerial and discretionary projects undergo an identical initial screening process for SUSMP requirements.

The City adopted a Jurisdictional Urban Runoff Management Program (JURMP) on February 12, 2004, that provides descriptions of specific measures to minimize or eliminate the impacts of human activities to receiving waterbodies. The JURMP is available online at <http://www.ci.el-cajon.ca.us/content/forms/JURMP.pdf>.

### **3.4.2 SUSMP Tracking/Screening**

The City has developed project tracking and screening tools that have evolved with the program over time. A spreadsheet was developed that tracks all the SUSMP projects, including the priority development project category, project description, BMPs implemented, and project status. A development review process is established that ensures all projects are screened for SUSMP applicability. The City has not had any recent public projects, so only private projects have been screened and tracked at this time.

#### Program Strength:

- *The City has an excellent tracking and screening system.*  
The City keeps thorough records of current, future, and past projects, what was done, what the trigger was, and the BMP types that were implemented. The development review is set up such that the Storm Water Section is one of the first to review plans for SUSMP applicability.

#### Program Weakness:

- *The City does not adequately identify projects that fall into multiple SUSMP categories.*  
A project can fall under more than one priority project category, thereby requiring additional source controls for each category. During the evaluation, the City stopped the initial review once a project had been identified as a SUSMP project, ignoring the fact that the project may actually fall into more than one category. For example, the City identified a new car dealership as a SUSMP project because of the added impervious area but missed the fact that this project also contained a garage that would fall under the automotive repair shop priority project category.

### **3.4.3 SUSMP Plan Review**

The City prepared a flow chart to show the proper routing of the review process, which ensures all projects are reviewed in the proper order by the appropriate staff. A SUSMP Implementation Checklist is used to verify that the project meets SUSMP requirements and that the plans reflect what is proposed. The City will soon publish a Storm Water Management Plan template that will provide applicants with a format for drainage reports and submittals to streamline the review process.

#### Program Weaknesses:

- *The City does not currently have a standard format for plan submittals related to storm water.*  
The City has not established clear standards for the format and content of SUSMP reports, resulting in staff spending a significant amount of time trying to locate

information in the document. The City is currently developing a document that will specify the format for SWMPs, providing consistency for review staff.

- *The City should require more detail before approving SUSMP plans.*  
Some of the SUSMP reports reviewed by the evaluation team lacked the necessary detail to determine whether the plan fully complied with the SUSMP requirements. The following are specific issues identified during the evaluation:
  - The model SUSMP requires proponents of priority projects to “consider, incorporate, and implement where determined applicable and feasible” a series of site design BMPs. The City should ensure that plans address these site design options and provide a justification if an option is not included in the design.
  - Proponents of priority projects are not selecting treatment controls based on their efficiency. For a specific pollutant of concern, proponents should start by considering treatment control BMPs with high removal efficiencies for that pollutant. Where a BMP with a high removal efficiency is not practicable, a justification should be provided in the plan before a lower efficiency BMP is accepted.
  - Engineering plan sheets used by inspectors during construction should include the necessary details from the SUSMP plans. These inspectors often do not see the SUSMP plans, therefore the engineering plan sheets should include all necessary design details to ensure compliance.

#### **3.4.4 SUSMP Maintenance Requirements**

A Storm Water Management/BMP Facilities Agreement is executed between the City and the property owner prior to project acceptance. The City allows several options for maintenance, including public equity maintenance, project proponent agreements, conditional use permits, etc. The Agreement stipulates that the City has the right to maintain storm water facilities should the owner not properly maintain them. The Agreement becomes part of the land record for the property and annual inspections are required at a minimum.

##### Program Weakness:

- *The City should develop a system to track installed BMPs to help verify maintenance.*  
In order to verify that source control and treatment control BMPs are being adequately maintained, the City will need to develop a system to track the location of these controls. Then the City could conduct periodic inspections of a selected subset of projects to verify that the BMPs are being adequately maintained. This will also assist the City in annual reporting of the numbers of BMPs installed in the City.

#### **3.4.5 SUSMP Field Evaluation**

The evaluation team visited seven projects in the field, including commercial and residential projects and a parking lot. The principal SUSMP reviewer spends a great deal of time in the field verifying compliance with the permits, especially after rain events.

##### Program Weakness:

- *Several of the sites visited did not conform to the approved plans.*

Designs, as approved, were not constructed in the field properly and the City did not identify these problems. In situations where the BMPs were not functioning or built properly, City staff had difficulty understanding why the device was not functioning and what should be done to repair or remedy the situation.

### 3.4.6 Training and Education

City staff have not received any formal training other than a periodic day-long seminar. The City has a good public outreach program and distributes flyers, brochures, and fact sheets in the City offices and on their Web site. The City also has a PowerPoint presentation on storm water training for public employees on the City's Web site.

#### Program Weakness:

- *The City should train staff annually and educate stakeholders on SUSMP BMPs and requirements.*

Although the City has held a variety of training sessions on SUSMP topics for staff, additional training on topics such as better site design techniques, source controls, and selecting the most effective treatment controls for the targeted pollutants is needed to ensure the SUSMP requirements are fully met. In particular, staff should also receive training on technical storm water design issues such as peak flow control and water quality control requirements. Field staff should also receive training on source and treatment control BMP installation and maintenance.

The City should also conduct external training and education on SUSMP requirements, better site design techniques, BMPs, maintenance, and how to develop better SUSMP plans. This training and education should include developers, contractors, property owners, consultants, community planning groups, the construction community, and other interested groups.

## 3.5 City of Escondido

### 3.5.1 SUSMP Requirements

Escondido Municipal Code, Chapter 22, Article 2, Storm Water Management and Discharge Control, Sections 22-19 through 22-31, address the NPDES permit requirements, although the phrase SUSMP does not appear in the ordinance. The City of Escondido Zoning Code Article 55, Grading and Erosion Control Ordinance requires that all new development and redevelopment activities comply with the Storm Water Management Requirements. The Ordinance is available at <http://www.ci.escondido.ca.us/depts/pw/utilities/stormwater/regulations/stormord.pdf>. The Municipal Code can be found at <http://ordlink.com/codes/escondid/index.html> and the Grading and Erosion Control Ordinance is located at <http://www.ci.escondido.ca.us/depts/pw/utilities/stormwater/regulations/gradord.pdf>.

In addition, the City has a *Storm Water Management Requirements and Local Standard Urban Storm Water Mitigation Plan* document that was approved on November 13, 2002. The document contains the SUSMP specifics, construction and post-construction BMP information, and implementation and maintenance requirements. The document also provides a SUSMP applicability form, water quality technical report guidelines, and various BMP/pollutant

matrices. This document is available at <http://www.ci.escondido.ca.us/depts/pw/utilities/manual/index.html>.

### 3.5.2 SUSMP Tracking/Screening

As part of the erosion control plan required for all earth-disturbing projects, the City also requires conformance with the storm water requirements. Public projects do not undergo the same screening process as private projects, and many public projects discussed did not address storm water at all.

Projects are tracked by grading permit number in a spreadsheet. The evaluation team found it difficult to follow exactly how the projects were tracked for SUSMP compliance. A hand-written logbook was used to enter projects, and SUSMP-applicable projects were not clearly marked.

#### Program Weaknesses:

- *The City does not adequately screen for and track public SUSMP projects.*  
During the evaluation, the City admitted that public projects do not undergo the same review process as private projects and that SUSMP requirements are addressed in-house by the design engineer. There is no designated staff lead who verifies SUSMP compliance on public projects.
- *The City failed to apply SUSMP requirements to a City construction project.*  
The Bear Valley Parkway Project, which began after the SUSMP requirements took effect, is in Phases II and IV of construction but a SUSMP report has not been developed. Two additional transportation improvements were included on the City's SUSMP list – El Norte (a City road improvement project) and Oakhill (street widening) – but the SUSMP plans were not available to the evaluation team for review. However, these two projects listed “storm drain facilities” as their SUSMP BMP, which is similar to the BMP listing for the Bear Valley Parkway Project. The City should ensure that all public projects that fall within one of the priority project categories comply with the SUSMP requirements.

### 3.5.3 SUSMP Plan Review

Projects that are determined to be SUSMP-applicable are reviewed by Planning, Engineering, and Storm water staff. A checklist or format is not available for reviewers to follow for consistency and accuracy. Written documentation of the review and comment stages is not kept.

#### Program Strength:

- *The City encourages each project submitted for review to use natural techniques to manage storm water.*  
Although not specifically required by the Stormwater Standards Manual, City staff stated that they encourage project proponents to use natural, vegetative techniques to promote infiltration and reduce runoff volume when practical. This encouragement has resulted in most of the SUSMP projects using biofiltration BMPs instead of other structural treatment controls.

Program Weaknesses:

- *The City should improve the coordination between Planning and Engineering departments on SUSMP reviews.*  
Because both Planning and Engineering staff review SWMPs, ownership of the SUSMP process and final approval of SWMPs is sometimes unclear. The City should designate a lead review authority for SWMPs and also document a process that identifies department responsibilities for SUSMP compliance.
- *The City should require more detail before approving SUSMP plans.*  
Some of the SUSMP reports reviewed by the evaluation team lacked the necessary detail to determine whether the plan fully complied with the SUSMP requirements. For example, pollutants of concern were not properly identified and required site design and source controls were not always included. The following are specific issues identified during the evaluation:
  - The model SUSMP requires proponents of priority projects to “consider, incorporate, and implement where determined applicable and feasible” a series of site design BMPs. The City should ensure that plans address these site design options and provide a justification if an option is not included in the design.
  - Proponents of priority projects are not selecting treatment controls based on their efficiency. For a specific pollutant of concern, proponents should start by considering treatment control BMPs with high removal efficiencies for that pollutant. Where a BMP with a high removal efficiency is not practicable, a justification should be provided in the plan before a lower efficiency BMP is accepted.
  - Engineering plan sheets used by inspectors during construction should include the necessary details from the SUSMP plans. These inspectors often do not see the SUSMP plans, therefore the engineering plan sheets should include all necessary design details to ensure compliance.
- *The City does not maintain records of review comments.*  
The City sends mark-up reviews back to the developer and does not maintain a copy in-house. Any revisions made to the plans are listed on the final set of plans that are approved. Inaccuracies or omission of information in the original submittal and drainage report are not required to be revised.

### **3.5.4 SUSMP Maintenance Requirements**

Maintenance of BMPs is required twice monthly and after rainfall events. The City has a landscape maintenance district and contracts with a local landscape firm to maintain BMPs periodically. A maintenance agreement is a condition of plan approval and acceptance.

Program Weakness:

- *The City should develop a system to track installed BMPs to help verify maintenance.*  
In order to verify that source control and treatment control BMPs are being adequately maintained, the City will need to develop a system to track the location of these controls. Then the City could conduct periodic inspections of a selected subset

of projects to verify that the BMPs are being adequately maintained. This will also assist the City in annual reporting of the numbers of BMPs installed in the City.

### 3.5.5 SUSMP Field Evaluation

Several different types of projects were evaluated in the field. The evaluation team also reviewed the SUSMP report for most of the projects visited.

#### Program Weaknesses:

- *Many of the facilities visited were not maintained.*  
Several biofilters and basins visited were under-performing with evidence of large amounts of sediment build-up that decreased capacity and reduced hydrologic benefits. At one location, a charter school, the filter inserts to two catch basins were missing. The City should remind property owners of the need to adequately maintain BMPs and should periodically inspect selected SUSMP projects to verify if BMPs are being properly maintained.
- *Two sites did not conform to the approved plans.*  
Two sites that were visited were required to have roof drains connected to landscaped areas and biofilters. Both sites had the roof drains discharging to the parking lot and the biofilters were under-sized and lacked sufficient storage and filtration capacity. City inspectors should ensure that BMPs are installed as designed on approved SUSMP plans.

### 3.5.6 Training and Education

The City has good information regarding storm water pollution prevention available through the City's Web site, as well as various brochures and pamphlets available in City Hall. City staff have not received any formal training, and understanding of storm water quality fundamentals was poor overall.

#### Program Weakness:

- *The City should train staff annually and educate stakeholders on SUSMP BMPs and requirements.*  
Although the City has held a variety of training sessions on SUSMP topics for staff, additional training on topics such as better site design techniques, source controls, and selecting the most effective treatment controls for the targeted pollutants is needed to ensure the SUSMP requirements are fully met. Field staff should also receive training on source and treatment control BMP installation and maintenance.

The City should also conduct external training and education on SUSMP requirements, better site design techniques, BMPs, maintenance, and how to develop better SUSMP plans. This training and education should include developers, contractors, property owners, consultants, community planning groups, the construction community, and other interested groups.

## 3.6 City of Lemon Grove

### 3.6.1 SUSMP Requirements

The City of Lemon Grove has developed a SUSMP document that outlines, using both narrative text and flow charts, the SUSMP requirements for the City ([http://www.ci.lemon-grove.ca.us/clg\\_copy\(1\)/cityhall/departments/SUSMP.pdf](http://www.ci.lemon-grove.ca.us/clg_copy(1)/cityhall/departments/SUSMP.pdf)). All discretionary and ministerial projects are reviewed by the Water Quality Program Coordinator (Public Works department) for SUSMP applicability. The City is mostly built out with very little new development. Staff stated that approximately 10 to 14 infill projects were proposed each year, with most being single family houses.

### 3.6.2 SUSMP Tracking/Screening

The City currently tracks SUSMP projects using a paper filing system. Due to the low number of development projects submitted annually, a comprehensive database has not been developed for the program. The Water Quality Program Coordinator plans to develop a simple database to track SUSMP projects and requirements. There are only six approved SUSMP projects in the City and none have been implemented to date.

### 3.6.3 SUSMP Plan Review

A recently hired Water Quality Program Coordinator in the Public Works department reviews all ministerial and discretionary projects to determine SUSMP applicability. She also participates in pre-project planning meetings with Community Development staff and reviews all submitted SWMPs. No checklists are used to review proposed projects or submitted SWMPs.

Various BMPs are being required and approved by the City. However, file reviews and staff interviews revealed that the City often approves existing “urban storm water conveyance channels” as storm water BMPs on proposed projects. The City was informed that if those channels are actually receiving waters of the State, they may not be used for storm water treatment and storm water is to be treated prior to discharge to any such receiving water. The City’s SUSMP definition of “receiving waters” includes streams that are perennial, intermittent, and ephemeral that exhibit bed, bank, and an ordinary high water mark, which is consistent with the definition of State waters. Site inspections on several proposed projects were scheduled to verify whether assumed urban storm water conveyance channels were actually waters of the State.

#### Program Weaknesses:

- *The City does not utilize a SUSMP checklist during the review of potential projects or to determine if submitted SWMPs meet the requirements of the local SUSMP.*  
The City should develop several checklists for use by the Water Quality Program Coordinator. An applicability checklist should be used to determine if proposed projects should be considered priority projects under the SUSMP requirements. This checklist should then be kept on file for reference when reviewing submitted SWMPs. A second checklist should then be used to review SWMPs for compliance with the local SUSMP requirements, including whether appropriate pollutants of concern are identified and whether all required site design, source control, and

treatment control BMPs are addressed. These checklists could also be provided to applicants to assist in the timely submittal of compliant SWMPs.

- *The City should require more detail before approving SUSMP plans.*  
Some of the SUSMP reports reviewed by the evaluation team lacked the necessary detail to determine whether the plan fully complied with the SUSMP requirements. The following are specific issues identified during the evaluation:
  - The model SUSMP requires proponents of priority projects to “consider, incorporate, and implement where determined applicable and feasible” a series of site design BMPs. The City should ensure that plans address these site design options and provide a justification if an option is not included in the design.
  - Proponents of priority projects are not selecting treatment controls based on their efficiency. For a specific pollutant of concern, proponents should start by considering treatment control BMPs with high removal efficiencies for that pollutant. Where a BMP with a high removal efficiency is not practicable, a justification should be provided in the plan before a lower efficiency BMP is accepted.
  - Engineering plan sheets used by inspectors during construction should include the necessary details from the SUSMP plans. These inspectors often do not see the SUSMP plans, therefore the engineering plan sheets should include all necessary design details to ensure compliance.

#### **3.6.4 SUSMP Maintenance Requirements**

Maintenance agreements and plans are required for SUSMP projects, however, during the file review, one project (Winemiller development) did not include the necessary detailed maintenance plan.

##### Program Weakness:

- *The City should develop a system to track installed BMPs to help verify maintenance.*  
In order to verify that source control and treatment control BMPs are being adequately maintained, the City will need to develop a system to track the location of these controls. Then the City could conduct periodic inspections of a selected subset of projects to verify that the BMPs are being adequately maintained. This will also assist the City in annual reporting of the numbers of BMPs installed in the City.

#### **3.6.5 SUSMP Field Evaluation**

Because there were no SUSMP projects constructed, the evaluation team visited two small proposed subdivision projects in the City. Both are in the preliminary planning stages and the City is currently negotiating initial project requirements. The sites were selected to determine whether existing ditches on the sites were “urban drainage channels” that can be used for storm water treatment, or waters of the State, which are considered receiving waters and cannot be used for storm water treatment.

Program Weakness:

- *The field evaluation confirmed that the City is incorrectly characterizing waters of the State as urban storm water conveyance channels.*

The channels inspected at both proposed projects exhibited bed, bank, and an ordinary high water mark. Staff were informed that the channels could not be used as storm water treatment and should be considered the receiving waters for each proposed development. The City was encouraged to contact the Regional Board with questions about future projects.

### **3.6.6 Training and Education**

The current SUSMP reviewer was hired in the fall of 2004. She has not received any formal SUSMP training to date but is scheduled to attend BMP training in May 2005. She has received on-the-job training and appears adequately knowledgeable about basic SUSMP requirements; however, the inspection team recommends that she receive additional site design and low-impact development training to assist in SWMP review.

Program Weakness:

- *The City should train staff annually and educate stakeholders on SUSMP BMPs and requirements.*

Additional training for staff on topics such as better site design techniques, source controls, and selecting the most effective treatment controls for the targeted pollutants is needed to ensure the SUSMP requirements are fully met. Field staff should also receive training on source and treatment control BMP installation and maintenance.

The City should also conduct external training and education on SUSMP requirements, better site design techniques, BMPs, maintenance, and how to develop better SUSMP plans. This training and education should include developers, contractors, property owners, consultants, community planning groups, the construction community, and other interested groups.

## **3.7 City of National City**

### **3.7.1 SUSMP Requirements**

The City Council of the City of National City passed their SUSMP ordinance on November 19, 2002. The ordinance is enforceable pursuant to Section 1.20.010 of the City's Municipal Code. According to the ordinance, the SUSMP provisions take precedence over the City's Municipal Code in case of a conflict. The ordinance requires that all City departments must implement, administer, and enforce the SUSMP.

Page 1 of the City's SUSMP implementation document, dated November 6, 2002, specifies that the City will approve SUSMP project plans as part of the development plan approval process for discretionary projects, and prior to issuing permits for ministerial projects.

The City's SUSMP is based on the San Diego Model SUSMP.

### 3.7.2 SUSMP Tracking/Screening

The City keeps track of its development projects manually through the use of project case files. An evaluation of the list of the most recent project applications that the City had received indicated that all but one of the SUSMP projects had been adequately screened and identified.

Each of the SUSMP project files reviewed during the audit contained a completed “Priority Project Applicability Checklist” that identified the project name, location, address, receiving water information (hydrologic unit and sub area), and whether any previous storm water action is on file for the site. The form includes a yes/no checklist that review staff complete for each project. This guides the reviewer through the basic SUSMP applicability types to determine priority project permanent storm water BMPs and to determine standard permanent storm water requirements.

#### Program Weakness:

- *The City should improve their SUSMP tracking mechanism.*  
Information on SUSMP projects is contained within individual project files. The City does not track SUSMP projects using a computerized system and therefore is unable to quickly track or summarize SUSMP projects. The City will need this tracking system as more SUSMP projects are approved in order to assist with both reporting on SUSMP activities and verifying maintenance of SUSMP BMPs.

### 3.7.3 SUSMP Plan Review

The City has identified the departments responsible for ensuring that SUSMP requirements are implemented and the roles and responsibilities that each department has under the review process. SUSMP requirements must be incorporated into project designs at specific points along the way during the development review process. For both discretionary and ministerial projects, SUSMP requirements must be incorporated into the project design and shown on the plans before the approval of required permits. City departments that implement public projects that are not required to obtain permits are responsible for ensuring that SUSMP requirements are incorporated into project designs and shown on plans before bidding for construction contracts can occur.

The City requires preparation and submission of water quality management plans (WQMPs) along with project applications for SUSMP projects. The City’s consultant, D-Max Engineering, reviews and provides a recommendation of approval to the City for WQMPs. D-Max uses the WQMP Checklist to document their review. The checklist includes various SUSMP and other local review elements.

#### Program Weaknesses:

- *The City should ensure that developers consider various site design, source control, and treatment control BMPs and justify their selection of BMPs.*  
Due to site size constraints, particularly with redevelopment projects, the City often ends up approving the developer’s use of storm drain inserts and other proprietary storm water treatment devices rather than requiring them to seriously consider other site design opportunities. The City should require developers to document which BMPs they considered in their design and justify their BMP selection. This is

especially critical when a project proponent selects a BMP such as a catch basin insert, which has a low removal efficiency for most pollutants.

- *The City should require more detail before approving WQMPs.*  
Some of the WQMPs reviewed by the evaluation team lacked the necessary detail to determine whether the plan fully complied with the SUSMP requirements. The following are specific issues identified during the evaluation:
  - The model SUSMP requires proponents of priority projects to “consider, incorporate, and implement where determined applicable and feasible” a series of site design BMPs. The City should ensure that plans address these site design options and provide a justification if an option is not included in the design.
  - Proponents of priority projects are not selecting treatment controls based on their efficiency. For a specific pollutant of concern, proponents should start by considering treatment control BMPs with high removal efficiencies for that pollutant. Where a BMP with a high removal efficiency is not practicable, a justification should be provided in the plan before a lower efficiency BMP is accepted.
  - Engineering plan sheets used by inspectors during construction should include the necessary details from the WQMPs. These inspectors often do not see the WQMPs, therefore the engineering plan sheets should include all necessary design details to ensure compliance.

### **3.7.4 SUSMP Maintenance Requirements**

The City has developed a template for a “Private Storm Water Treatment Maintenance Agreement” between the Director of Public Works/Engineering and private project proponents. This agreement is supposed to be recorded and then kept on file with the City Clerk. The City described that they also require assurance that annual maintenance of treatment control BMPs has occurred before the onset of the wet season. However, the evaluation team was not able to view any documentation that this has actually occurred in the field with any of the SUSMP treatment control practices.

#### Program Weakness:

- *The City should develop a system to track installed BMPs to help verify maintenance.*  
In order to verify that source control and treatment control BMPs are being adequately maintained, the City will need to develop a system to track the location of these controls. Then the City could conduct periodic inspections of a selected subset of projects to verify that the BMPs are being adequately maintained. This will also assist the City in annual reporting of the numbers of BMPs installed in the City.

### **3.7.5 SUSMP Field Evaluation**

The field evaluation consisted of visiting three sites. The evaluation team was not able to review the WQMPs for the projects but generally found that BMPs were being implemented. One large commercial project showed no evidence of site design BMPs being used. At a new condominium that was nearly completed the plan had called for roofs to drain to landscaped areas as required by site design BMPs. However, during construction, a change was made to allow the roof drains

to discharge to the parking lot instead of the landscaped area. It was not clear in the field whether these plan changes were approved by the City or not.

Program Weakness:

- *The City should improve their management of WQMP files.*  
Due to hard copy file management and storage issues, the City was unable to produce complete sets of the plans, including drainage studies and WQMPs, for the three sites visited in the field. The City should improve their tracking and information management of WQMPs to ensure the information is readily available during both plan review and construction of projects.
- *Changes to WQMP plans during construction should go through the same review process as the original plan.*  
During one of the field visits, the construction operator stated that some BMPs were changed and “approved” by the City. A copy of the WQMP plan was not available, so it was unclear whether, like the original plan, the change was reviewed and approved by the City’s consultant. Whenever changes are made to site design, source control, or treatment control BMPs, these changes should go through the same review process as the original plan.

### **3.7.6 Training and Education**

The City’s consultant, D-Max, provided training to City staff with SUSMP responsibilities in January 2005. The training consisted of a PowerPoint presentation of SUSMP requirements and how they are being applied in National City. The training materials presented succinct information for both planning and engineering staff and had examples of what developers are required to provide, how plans should be reviewed and evaluated, and examples of engineering calculations for BMP sizing.

Program Weakness:

- *The City should train staff annually and educate stakeholders on SUSMP BMPs and requirements.*  
Although the City has held a variety of training sessions on SUSMP topics for staff, additional training on topics such as better site design techniques, source controls, and selecting the most effective treatment controls for the targeted pollutants is needed to ensure the SUSMP requirements are fully met. Field staff should also receive training on source and treatment control BMP installation and maintenance.

The City should also conduct external training and education on SUSMP requirements, better site design techniques, BMPs, maintenance, and how to develop better SUSMP plans. This training and education should include developers, contractors, property owners, consultants, community planning groups, the construction community, and other interested groups.

## 3.8 City of Oceanside

### 3.8.1 SUSMP Requirements

The City's Clean Water Coordinator leads SUSMP program management and oversight in Oceanside. The Planning and Engineering departments play important project screening and review roles, although the consulting firm PBS&J has been retained by the City to conduct most of the SUSMP program implementation activities. The Engineering department conducts the project completeness determinations and all priority projects are routed to PBS&J staff, who are responsible for the review and evaluation for compliance with SUSMP requirements.

The City's SUSMP was originally prepared in November of 2002 and was most recently revised on February 6, 2003. The City's SUSMP is based on the Model SUSMP developed collectively by the copermittees.

In addition to the SUSMP requirements, the City also requires a Runoff Assessment Report (RAR) for projects that fall just below the SUSMP thresholds. This includes residential developments between 5 and 9 units, commercial and industrial developments creating 2,500 to 4,999 square feet of impervious area, and parking lots from 5 to 14 parking spaces.

Materials used internally by PBS&J staff include a Storm Water Mitigation Plan (SWMP)/Runoff Assessment Report (RAR) Review Checklist, an Operation and Maintenance (O&M) Review Checklist, SUSMP/RAR Tracking Spreadsheet, and a Post-construction BMP Tracking Spreadsheet.

Additional information on the City's storm water program can be found at <http://www.oceansidecleanwaterprogram.org/> by selecting "development" and then "local development information."

#### Program Strengths:

- *The City requires more than just priority project category projects to implement post-construction BMPs.*  
The City requires implementation of BMPs for projects that do not trigger SUSMP projects (i.e., non-priority projects) through its Runoff Assessment Report (RAR) requirements. These projects are smaller than SUSMP priority projects and include projects that are just under the threshold for SUSMPs.
- *The City has developed a clear and detailed Web site to guide developers through the storm water requirements.*  
The City's Clean Water Program Web site (<http://www.oceansidecleanwaterprogram.org/>) includes information that clearly guides a developer through the various storm water-related requirements. This includes explaining the State construction general permit process and the City's local process for SUSMPs and RARs. Information on construction site prioritization, inspections, BMPs, and other topics is also included.

### 3.8.2 SUSMP Tracking/Screening

An evaluation of the list of the 30 most recent project applications received indicated that the SUSMP projects are being screened and identified adequately. The projects that were not considered SUSMP (or RAR) included several very small development sites with small impervious footprints and a general plan amendment, which by itself does not represent any actual development.

The City's SUSMP project electronic tracking system is a spreadsheet-based system that contains information on the status of the storm water mitigation plan (SWMP) reviews. The City has developed some internal information tracking mechanisms, such as the Runoff Assessment Report Submittal Requirements Checklist, which is a comprehensive approach to tracking and effectively managing the information submitted. However, this checklist does not appear to have been integrated into an automated system to track SUSMP projects as they are being developed or treatment control BMPs once they have been installed.

#### Program Weakness:

- *The City's electronic SUSMP project tracking system should be upgraded to enable it to capture all facets of the SUSMP program.*  
The electronic tracking system should include information on the source control and treatment control BMPs selected, as well as information from the requirements checklist. This information will help the City ensure consistent review of projects and assist in verifying maintenance of BMPs.

### 3.8.3 SUSMP Plan Review

The City provides SUSMP information to project proponents via the *Application Package for Planning Department Processing*, the *Development Processing Guide*, and the City's SUSMP requirements document.

An applicant proposing a development project requiring a discretionary action obtains a copy of the *Application Package for Planning Department Processing*, which informs the applicant of SUSMP and RAR requirements. The applicant may request a pre-submittal development conference to determine SUSMP/RAR applicability. The City requires that a complete and comprehensive SWMP or RAR be prepared and submitted to the Planning department as part of a complete application. The application package is routed to the Engineering department for a completeness determination. If the application is incomplete, the Engineering department provides comments to the Planning department, which are then sent to the applicant.

Complete applications are reviewed by the Engineering department's consultant for a determination that the SWMP or RAR is acceptable. If not, the cycle is repeated via comments to the Planning department, which are in turn sent back to the applicant for reconsideration/revision. Once considered to be acceptable by the Engineering department and the Application Review Committee, conditions of approval are provided to the Planning department, who incorporates the SWMP or RAR into the project's environmental documentation. The Planning Commission then reviews and renders approval or disapproval of discretionary actions.

Program Strength:

- *The City encourages passive BMPs and requires project applicants to provide justification if an alternative is selected.*

City staff state that they encourage passive, open channel BMPs, and applicants are required to justify the selection of an alternative to these types of BMPs. The City also requires that applicants use the efficiencies identified in Table 3 of their February 6, 2003, SUSMP when demonstrating the appropriateness of certain BMPs for given pollutants of concern.

Program Weakness:

- *The City should require more detail before approving SWMPs.*

Some of the SWMPs reviewed by the evaluation team lacked the necessary detail to determine whether the plan fully complied with the SUSMP requirements. The following are specific issues identified during the evaluation:

- The model SUSMP requires proponents of priority projects to “consider, incorporate, and implement where determined applicable and feasible” a series of site design BMPs. The City should ensure that plans address these site design options and provide a justification if an option is not included in the design.
- Proponents of priority projects are not selecting treatment controls based on their efficiency. For a specific pollutant of concern, proponents should start by considering treatment control BMPs with high removal efficiencies for that pollutant. Where a BMP with a high removal efficiency is not practicable, a justification should be provided in the plan before a lower efficiency BMP is accepted.
- Engineering plan sheets used by inspectors during construction should include the necessary details from the SWMPs. These inspectors often do not see the SWMPs, therefore the engineering plan sheets should include all necessary design details to ensure compliance.

### **3.8.4 SUSMP Maintenance Requirements**

Maintenance of SUSMP BMPs is ensured through a requirement that recorded agreements are executed between project proponents and the City. A letter of credit (bond) covering 10 years of estimated maintenance costs, easements, and conditions of approval are also specified for each SUSMP structural BMP. The City provides an O&M Submittal Requirements and Procedures package to each project proponent, Storm Water Facilities Maintenance Agreement (SWFMA) Guidelines for their submittal, a template for the Maintenance Agreement, Letter of Credit, and a copy of the Standard Conditions of Approval.

Following project approval by the Planning Commission, the applicant prepares or revises their SWMP O&M Plan, the 10-year O&M cost estimate, and the letter of credit that is equal to the 10-year cost estimate. The project proponent then executes the maintenance agreement with the City, and once the Engineering department determines that these materials are acceptable, they are routed to the City Attorney for review. If the City Attorney determines that the O&M materials are unacceptable, they are sent back to the applicant for revision and resubmission.

Once the City Attorney finds the agreement to be acceptable, it is recorded with the San Diego County Recorder and also kept on file with the City's Engineering department.

Program Strength:

- *The City has developed detailed standards for O&M plans that include a security for 10 years of maintenance costs.*

The City recently developed in February 2005 submittal requirements for O&M plans. These submittal requirements describe the required components of an O&M Plan, including an annual and ten-year cost estimate for maintenance. In addition to a storm water facilities maintenance agreement, project applicants are required to include a security that covers 10 years of maintenance costs.

Program Weakness:

- *The City should develop a system to track installed BMPs to help verify maintenance.* In order to verify that source control and treatment control BMPs are being adequately maintained, the City will need to develop a system to track the location of these controls. Then the City could conduct periodic inspections of a selected subset of projects to verify that the BMPs are being adequately maintained. This will also assist the City in annual reporting of the numbers of BMPs installed in the City.

### **3.8.5 SUSMP Field Evaluation**

The field evaluation consisted of visiting four sites. In general, site design, source control, and treatment control BMPs were implemented at the sites. At one site, a church, bioswales with a significant standing water problem were observed, indicating the final grade of the bioswale was not implemented according to the approved plan.

Program Weakness:

- *The City needs to ensure that BMPs are installed according to the approved plans.* The standing water problem that was observed in the bioswale at the church project indicated that the final grade of this bioswale was not implemented according to the approved plan. City inspectors should ensure that BMPs are installed according to the approved plans.

### **3.8.6 Training and Education**

City staff that have SUSMP implementation responsibilities receive periodic training from PBS&J staff. An internal training titled "Urban Runoff Requirements for Development" was held on November 5, 2003, and was attended by all relevant staff. Staff also attended a SUSMP Workshop held in May 2004.

Program Weakness:

- *The City should train staff annually and educate stakeholders on SUSMP BMPs and requirements.*

Although the City has held a variety of training sessions on SUSMP topics for staff, additional training on topics such as better site design techniques, source controls, and selecting the most effective treatment controls for the targeted pollutants is needed to

ensure the SUSMP requirements are fully met. Field staff should also receive training on source and treatment control BMP installation and maintenance.

The City should also conduct external training and education on SUSMP requirements, better site design techniques, BMPs, maintenance, and how to develop better SUSMP plans. This training and education should include developers, contractors, property owners, consultants, community planning groups, the construction community, and other interested groups.

### **3.9 City of Poway**

#### **3.9.1 SUSMP Requirements**

The City adopted Ordinance No. 569, which amends Title 16, Subdivisions and Other Land Use Regulations, of the Poway Municipal Code for Standard Urban Storm Water Mitigation Plan, on January 22, 2002. Poway's Municipal Code is located at [http://search.mrsc.org/nxt/gateway.dll/pwaymc?f=templates&fn=pwaypage.htm\\$vid=municodes:Poway](http://search.mrsc.org/nxt/gateway.dll/pwaymc?f=templates&fn=pwaypage.htm$vid=municodes:Poway). The Ordinance is similar to the model SUSMP.

Chapter 16.102 of the Ordinance contains the provisions for SUSMP requirements. The City adheres to the conditions of the Ordinance and encourages all project proponents to incorporate BMPs into their site plans. Both ministerial and discretionary permits are required to comply with the Ordinance requirements. A maintenance agreement is required to be submitted with the project prior to the issuance of permits.

##### Program Strength:

- *The City has a development review committee that meets weekly to discuss new and ongoing projects.*  
The City meets regularly so that all departments can discuss upcoming and ongoing development projects. This enables each department to be aware of what is going on and allows inspectors from different departments to check on SUSMP projects in the field.

##### Program Weakness:

- *A standard format has not been established for submission of SUSMP projects.*  
The City had not developed a standard format for the drainage report. The drainage reports reviewed during the audit lacked consistency and not all of the required components of the report were included, such as proper pollutant identification. It has not yet been a problem for the City because the majority of the projects were parking lots; however, this lack of consistency can pose problems in the future if more complex projects are proposed.

#### **3.9.2 SUSMP Tracking/Screening**

The City has had 22 projects reviewed and approved since the SUSMP requirements went into effect. The City tracks all projects that require any type of permit, both public and private, and maintains project folders that include the project history and associated communications with

applicants. The Development Services department has an established SUSMP screening process in place.

### 3.9.3 SUSMP Plan Review

As most of the SUSMP projects were priority projects because of the parking lot requirements, it was difficult to assess how the review process would work for other types of priority projects. A checklist is not used to review projects for SUSMP requirements. There is some confusion as to whether some projects required a SUSMP, such as long driveways creating >5,000 ft<sup>2</sup> of imperviousness. The City has requested clarification on these issues. The City's consultant, D-Max Engineering Inc., performs the more complex SUSMP submittal reviews.

#### Program Weaknesses:

- *The City should develop a standard protocol for SUSMP plan review.*  
Without a formal process, such as a checklist, to document whether the many requirements involved in a SUSMP project are met, it is difficult to ensure that all aspects have been included. For example, plan review staff must check whether the correct pollutants of concern are listed, whether all site design and source control BMPs have been considered and included, and whether the best treatment control BMPs has been selected. Because the vast majority of the SUSMP projects fall under the parking lot priority development category, the City may wish to include in the protocol more specific information for the review of these types of projects.
  
- *The City should require more detail before approving SUSMP plans.*  
Some of the SUSMP reports reviewed by the evaluation team lacked the necessary detail to determine whether the plan fully complied with the SUSMP requirements. The following are specific issues identified during the evaluation:
  - The model SUSMP requires proponents of priority projects to “consider, incorporate, and implement where determined applicable and feasible” a series of site design BMPs. The City should ensure that plans address these site design options and provide a justification if an option is not included in the design.
  - Proponents of priority projects are not selecting treatment controls based on the efficiency. For a specific pollutant of concern, proponents should start by considering treatment control BMPs with high removal efficiencies for that pollutant. Where a BMP with a high removal efficiency is not practicable, a justification should be provided in the plan before a lower efficiency BMP is accepted.
  - Engineering plan sheets used by inspectors during construction should include the necessary details from the SUSMP plans. These inspectors often do not see the SUSMP plans, therefore the engineering plan sheets should include all necessary design details to ensure compliance.

### 3.9.4 SUSMP Maintenance Requirements

The City requires that a maintenance mechanism be in place before the final acceptance of structural BMPs. Each structural BMP presented for the project must have an Operation & Maintenance Plan and access agreement. A maintenance agreement is executed between the City

and the owner as to how the installed BMPs will be maintained. The City has the right to maintain the BMP if the owner fails to comply with the agreement, and all costs incurred by the City are billed to the owner.

Program Strength:

- *The City inspects structural BMPs frequently and departments are cross-trained.*  
At a minimum, the City inspects constructed structural BMPs on a yearly basis, and the City inspects structures more frequently during construction and significant rainfall events. Various types of inspectors are trained in SUSMP requirements, and these inspectors look for maintenance problems during other types of inspections (e.g., building or erosion and sediment control inspections).

Program Weakness:

- *The City should develop a system to track installed BMPs to help verify maintenance.*  
In order to verify that source control and treatment control BMPs are being adequately maintained, the City will need to develop a system to track the location of these controls. Then the City could conduct periodic inspections of a selected subset of projects to verify that the BMPs are being adequately maintained. This will also assist the City in annual reporting of the numbers of BMPs installed in the City.

### **3.9.5 SUSMP Field Evaluation**

Seven sites were reviewed in the field, most all of them parking lots with filter inserts, as the majority of the City's SUSMP projects were of this type. One residential community that was not a SUSMP project but had incorporated site and source control BMPs was also visited.

Program Weakness:

- *Sites reviewed in the field lacked sufficient maintenance.*  
The majority of the sites visited during the field review lacked adequate maintenance and were under-performing. Most of the filter inserts were clogged or not installed properly and not functioning as intended. The City should remind property owners of the need to adequately maintain BMPs and should periodically inspect selected SUSMP projects to verify if BMPs are being properly maintained.

### **3.9.6 Training and Education**

The City staff responsible for implementing the SUSMP requirements have been with the City since the inception of the Ordinance. Staff has received formal training via workshops and seminars. The City provides information to the development community via brochures, handouts, and online resources.

Program Weakness:

- *The City should train staff annually and educate stakeholders on SUSMP BMPs and requirements.*  
Although the City has held a variety of training sessions on SUSMP topics for staff, additional training on topics such as better site design techniques, source controls, and selecting the most effective treatment controls for the targeted pollutants is needed to

ensure the SUSMP requirements are fully met. Field staff should also receive training on source and treatment control BMP installation and maintenance.

The City should also conduct external training and education on SUSMP requirements, better site design techniques, BMPs, maintenance, and how to develop better SUSMP plans. This training and education should include developers, contractors, property owners, consultants, community planning groups, the construction community, and other interested groups.

### **3.10 City of San Diego**

#### **3.10.1 SUSMP Requirements**

The City of San Diego primarily implements the SUSMP requirements through their Stormwater Standards Manual (available at <http://www.sandiego.gov/development-services/news/newslst.shtml#storm>). The Stormwater Standards Manual describes the project review and permitting process for both permanent BMPs and construction BMPs. Discretionary actions and projects requiring a construction permit (such as building permits, grading permits, demolition permits, or right-of-way permits) are required to comply with the Manual.

All projects are required to complete a “Storm Water Requirements Applicability Checklist” that identifies whether the project falls into one of the priority development categories. Projects subject to the priority project requirements must submit a Water Quality Technical Report (WQTR) and address requirements in the Manual on identifying pollutants and conditions of concern. The Manual describes how project applicants are to identify pollutants and conditions of concern and BMPs for site design, source control, and treatment control.

The City’s main storm water Web site is at <http://www.sandiego.gov/stormwater/>.

##### Program Strength:

- *The City’s Stormwater Standards Manual includes guidelines on the contents of WQTRs.*  
Appendix D of the Manual specifies the contents and minimum requirements in a WQTR. These guidelines list the contents for a site map, issues that need to be addressed for pollutants and conditions of concern, and the major factors to consider in selecting BMPs. This provides developers with guidance on how to write the WQTRs and helps to ensure a consistent format when reviewing the WQTRs.

#### **3.10.2 SUSMP Tracking/Screening**

As mentioned above, the City uses an applicability checklist to identify SUSMP priority projects. The City also uses databases, including the Project Tracking System (PTS) database, to track SUSMP projects.

##### Program Strength:

- *The City requires project applicants to complete a Storm Water Requirements Applicability Checklist with their permit application.*

The Storm Water Requirements Applicability Checklist is a standard form that is required to be completed and submitted with permit applications. The checklist asks project applicants whether they meet one of the SUSMP priority project categories, whether the project will include certain features (such as trash storage areas or new impervious areas), and asks about construction-related requirements. The checklist is then checked by City staff to verify the information is accurate. The applicability checklist allows the City to easily screen projects that may be subject to SUSMP requirements. A copy of the checklist is available at <http://www.sandiego.gov/development-services/news/pdf/ds-5601stormwtr.pdf>.

### 3.10.3 SUSMP Plan Review

The Development Services department reviews plans and Water Quality Technical Reports for compliance with the Storm Water Technical Standards. The Engineering and Capital Projects (ECP) department takes the lead for all public projects subject to SUSMP requirements. ECP will route plans to the Storm Water Program staff for review and comment. Storm Water Program staff sometimes receive plans late in the review process and do not always receive information indicating how their comments were resolved.

#### Program Weaknesses:

- *The City should develop a better process to ensure that SUSMP requirements are included in CIP projects.*

The City should develop a more formal process to ensure that public projects address all requirements in the Stormwater Standards Manual. The process should specify how and when Storm Water Program staff will be involved in the review process and how issues identified during the Storm Water Program staff's review will be addressed. Project plans and WQTRs for CIP projects should be specific and detailed where appropriate. For example, the plans for a new Central Police Facility included a vehicle maintenance and K9 area, yet the Water Quality Technical Report did not include the required source controls for maintenance bays, fueling areas, and vehicle wash areas.

- *The City should require more detail before approving WQTRs.*  
Some of the WQTRs reviewed by the evaluation team lacked the necessary detail to determine whether the plan fully complied with the SUSMP requirements. The following are specific issues identified during the evaluation:
  - The model SUSMP requires proponents of priority projects to “consider, incorporate, and implement where determined applicable and feasible” a series of site design BMPs. The City should ensure that plans address these site design options and provide a justification if an option is not included in the design.
  - Proponents of priority projects are not selecting treatment controls based on their efficiency. For a specific pollutant of concern, proponents should start by considering treatment control BMPs with high removal efficiencies for that pollutant. Where a BMP with a high removal efficiency is not practicable, a justification should be provided in the plan before a lower efficiency BMP is accepted.

- Engineering plan sheets used by inspectors during construction should include the necessary details from the WQTRs. These inspectors often do not see the WQTRs, therefore the engineering plan sheets should include all necessary design details to ensure compliance.

#### **3.10.4 SUSMP Maintenance Requirements**

The City requires signed maintenance agreements that are recorded against the property for all permanent storm water BMPs. The project applicant is required to also develop an operation and maintenance plan that describes the party responsible for maintenance, employee training program and duties, operating schedule, maintenance frequency, and other relevant information.

##### Program Weakness:

- *The City should develop a system to track installed BMPs to help verify maintenance.* In order to verify that source control and treatment control BMPs are being adequately maintained, the City will need to develop a system to track the location of these controls. Then, the City could conduct periodic inspections of a selected subset of projects to verify that the BMPs are being adequately maintained. This will also assist the City in annual reporting of the numbers of BMPs installed in the City.

#### **3.10.5 SUSMP Field Evaluation**

The evaluation team visited two SUSMP projects, a commercial storage yard and a public capital improvement project. One project was still largely under construction. The commercial project's engineering plan sheets lacked detail on the design of the treatment control, resulting in a detention basin that was not installed properly.

##### Program Weakness:

- *The City should ensure that approved SUSMP design details are also on the engineering plan sheets that field staff use to review projects.* Field inspection staff typically use engineering plan sheets to verify that projects meet City-approved plans. These inspectors do not have copies of the WQTRs developed to comply with the SUSMP requirements. Therefore, where critical design details are approved in the WQTRs, these design details should also be included on the engineering plan sheets. For example, where a non-retail fueling area is proposed for a project, the engineering plan sheets should specify Portland cement extending 6.5 feet from the corner of each fuel dispenser, a proper slope to prevent ponding, a grade break to prevent run-on of urban runoff, etc.

#### **3.10.6 Training and Education**

For education on SUSMP requirements, the City has information and brochures available on both their storm water Web site (<http://www.sandiego.gov/stormwater/>) and the Think Blue Web site (<http://www.thinkbluesd.org/>). Brochures on the SUSMP requirements and BMPs are available, along with a copy of the Stormwater Standards Manual.

Staff training was accomplished through regularly scheduled staff meetings as well as a series of training sessions on the Stormwater Standards Manual. The training sessions were spread over

six weeks and addressed specific SUSMP topics during two-hour training sessions. The City also hosted a CASQA training session on the New Development BMP Handbook.

Program Weakness:

- *The City should train staff annually and educate stakeholders on SUSMP BMPs and requirements.*

Although the City has held a variety of training sessions on SUSMP topics for staff, additional training on topics such as better site design techniques, source controls, and selecting the most effective treatment controls for the targeted pollutants is needed to ensure the SUSMP requirements are fully met. Field staff should also receive training on source and treatment control BMP installation and maintenance.

The City should also conduct external training and education on SUSMP requirements, better site design techniques, BMPs, maintenance, and how to develop better SUSMP plans. This training and education should include developers, contractors, property owners, consultants, community planning groups, the construction community, and other interested groups.

## **Attachment 1 – SUSMP Evaluation Checklist**

This checklist was developed by the evaluation team in order to ensure that the SUSMP plans reviewed addressed all of the requirements in the model SUSMP. The checklist is provided as a resource to copermitees as they continue to review SUSMP plans.

**Project Information**

Project Name: \_\_\_\_\_ Public or Private Project

Project Address: \_\_\_\_\_

Project size (acres) \_\_\_\_\_ Hydrologic Area Number: \_\_\_\_\_

SUSMP Engineer: \_\_\_\_\_ SUSMP Report Date: \_\_\_\_\_

Project Description: \_\_\_\_\_

Does project discharge to an Environmentally Sensitive Area? Yes / No

**SUSMP Category**

Check all SUSMP categories that apply to the project:

- Residential development of 100 units or more
- Residential development of 10 to 99 units
- Commercial development greater than 100,000 ft<sup>2</sup>
- Automotive repair shops
- Restaurants
- Steep hillside development > 5,000 ft<sup>2</sup>
- Projects discharging to receiving waters within Environmentally Sensitive Areas (ESA) that creates 2,500 ft<sup>2</sup> or more of impervious surfaces or increases area of imperviousness of project site to 10% or more of its naturally occurring condition and:
  - Project is within 200 ft of an ESA
  - Project is more than 200 ft from an ESA but discharges urban runoff to receiving water within ESA without mixing with flows from adjacent land
- Parking Lots > 5,000 ft<sup>2</sup> or with > 15 parking spaces and potentially exposed to urban runoff
- Streets, roads, highways, and freeways which would create a new paved surface that is  $\geq 5,000$  ft<sup>2</sup>.
- Significant Redevelopment - create or add  $\geq 5,000$  ft<sup>2</sup> of impervious surfaces on an already developed site

**Identify Pollutants from the Project Area**

- Check that all pollutants anticipated to be generated from the project area correspond with the anticipated pollutants in Table 1.

**Identify Primary and Secondary Pollutants of Concern**

Check that primary and secondary pollutants of concern for the project have been correctly identified and compared with pollutants identified in Table 1.

- Which receiving water(s) does the project discharge to? \_\_\_\_\_
- What are the pollutants for which the receiving water is impaired? \_\_\_\_\_
- Did project compare receiving water pollutants with pollutants generated from project area? Y / N
- What are the primary pollutants of concern \_\_\_\_\_
- What are the secondary pollutants of concern \_\_\_\_\_

**Identify Conditions of Concern**

- Was a drainage study report prepared? Y / N
- Was the report prepared by a registered civil engineer? Y / N Who? \_\_\_\_\_
- Was a field reconnaissance conducted? Y / N

- Did drainage study compute:
    - Peak flow rate
    - Flow velocity
    - Runoff volume
    - Time of concentration
    - Retention volume
    - 2-year frequency storm
    - 10-year frequency storm
- What duration storm was used?
- 6 hour or  24 hour

Were conditions of concern adequately identified? Y / N

If so, has the project implemented site design, source control, and/or treatment control BMPs to maintain pre-project hydrologic conditions affecting downstream conditions of concern? Y / N

**Establish Storm Water BMPs**

***Site Design BMPs***

SUSMPs must consider, incorporate and implement where determined applicable and feasible by the MS4 (check all that were considered, incorporated, or implemented):

- Maintain Pre-Development Rainfall Runoff Conditions
  - Minimize project’s impervious footprint
  - Conserve natural areas
  - Construct low traffic areas (walkways, trails, patios, parking lots, alleys, etc.) of permeable surfaces
  - Construct streets, sidewalks, and parking lot aisles to minimum widths
  - Maximize canopy interception by preserving existing trees and shrubs
  - Minimize use of impervious surfaces, such as decorative concrete, in landscape design
  - Preserve natural drainage systems
- Minimize directly connected impervious areas
  - Drain rooftops into landscaping
  - Drain sidewalks, walkways, trails, and patios into landscaping
  - Protect slopes and channels

Comments: \_\_\_\_\_

***Source Control BMPs***

Does the project:

- Provide storm drain system stenciling and signage
- Design outdoor material storage areas to reduce pollution introduction
- Design trash storage areas to reduce pollution introduction
- Use efficient irrigations systems & landscape design
- Incorporate requirements applicable to priority project categories (see model SUSMP for detailed requirements):
  - Private Roads
  - Residential Driveways & Guest Parking
  - Dock Areas
  - Maintenance Bays
  - Vehicle Wash Areas
  - Outdoor Processing Areas
  - Equipment Wash Areas
  - Parking Areas
  - Roadways
  - Fueling Areas
  - Hillside Landscaping

***Treatment Control BMPs***

Check the treatment control(s) selected:

- Biofilters
- Detention basin
- Infiltration Basin
- Wet pond
- Constructed Wetland
- Filtration system

- Infiltration basin
- Infiltration trench
- Porous asphalt, concrete, or modular concrete block
- Drainage insert
  - Oil/Water Separator
  - Catch basin insert
  - Other \_\_\_\_\_
- Do treatment controls effectively address primary pollutants of concern (“H” or “M”)? Y / N

If No, describe: \_\_\_\_\_

Verify the design of selected treatment controls:

Was the treatment control BMP designed for:

- Volume
- Flow
- Did the SUSMP present the BMPs design process? (e.g., the specific design criteria used)
- Did the SUSMP use the 85<sup>th</sup> percentile storm event for design? Y / N
- What design storm was used to calculate numeric sizing criteria? \_\_\_\_\_
- Was the BMP designed properly? If not, describe: \_\_\_\_\_

- 
- Is BMP(s) located near pollutant sources? Y / N
  - Are there restrictions on use of infiltration BMPs?

#### **Maintenance Requirements**

- Was an O&M plan attached?
  - Does plan require annual inspection and maintenance of all structural BMPs?
- Was an access easement/agreement included?

#### **Waiver of Structural Treatment BMP Requirements**

- Was a waiver of infeasibility granted?
- Was RWQCB notified?

#### **Other Information**

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#### **Field Inspection**

During BMP installation:

- Did the MS4 verify that treatment control BMPs were properly constructed in the field? Y / N
- Did the MS4 verify that site design BMPs and source control BMPs were installed? Y / N

After project completion:

- Are all site design BMPs still in place?
  - Are all source control BMPs still in place?
  - Are treatment control BMPs still in place?
  - Are all BMPs being maintained? Y/ N If No, then describe: \_\_\_\_\_
-

## Attachment 2 – SUSMP Evaluation Reference Sheet

### SUSMP Effective Date

Copermittees were required to develop local SUSMP by December 2002 (180 days after approval of the Model SUSMP on 6/12/02). Immediately following adoption of its local SUSMP, each Copermittee was required to ensure that all new development and significant redevelopment projects meet SUSMP requirements. SUSMP requirements were to apply to all priority projects or phases of priority projects that have not yet begun grading or construction activities.

### Pollutants

Each SUSMP priority project category must address the following anticipated and, if applicable, potential pollutants.

**Primary** pollutant of concern = pollutant generated by project and receiving water impaired by that pollutant.

**Secondary** pollutant of concern = pollutant generated by project but receiving water is not impaired by that pollutant.

Table 1. General Pollutant Categories									
Priority Project Categories	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Detached Residential Development	X	X			X	X	X	X	X
Attached Residential Development	X	X			X	p <sup>(1)</sup>	p <sup>(2)</sup>	P	X
Commercial Development >100,000 ft <sup>2</sup>	p <sup>(1)</sup>	p <sup>(1)</sup>		p <sup>(2)</sup>	X	p <sup>(5)</sup>	X	p <sup>(3)</sup>	p <sup>(5)</sup>
Automotive Repair Shops			X	X <sup>(4)(5)</sup>	X		X		
Restaurants					X	X	X	X	
Hillside Development >5,000 ft <sup>2</sup>	X	X			X	X	X		X
Parking Lots	p <sup>(1)</sup>	p <sup>(1)</sup>	X		X	p <sup>(1)</sup>	X		p <sup>(1)</sup>
Streets, Highways & Freeways	X	p <sup>(1)</sup>	X	X <sup>(4)</sup>	X	p <sup>(5)</sup>	X		
X=anticipated P=potential (1) A potential pollutant if landscaping exists on-site. (2) A potential pollutant if the project includes uncovered parking areas. (3) A potential pollutant if land use involves food or animal waste products. (4) Including petroleum hydrocarbons. (5) Including solvents.									

## Source Controls

All projects are required to implement site design and source control BMPs.

Individual project categories may have additional source control BMPs as indicated on Table 2 (see model SUSMP pages 22-26 for specific source control BMP requirements)

Table 2. Site Design and Source Control Storm Water BMP Selection Matrix												
Priority Project Categories	Site Design BMPs	Source Control BMPs	Requirements Applicable to Individual Priority Project Categories									
			a. Private Roads	b. Residential Driveways & Guest Parking	c. Dock Areas	d. Maintenance Bays	e. Vehicle Wash Areas	f. Outdoor Processing	g. Equipment Wash Areas	h. Parking Areas	i. Roadways	j. Fueling Areas
Detached Residential Development	R	R	R	R								R
Attached Residential Development	R	R	R									
Commercial Development >100,000 ft <sup>2</sup>	R	R			R	R	R	R				
Automotive Repair Shops	R	R			R	R	R		R			R
Restaurants	R	R			R				R			
Hillside Development >5,000 ft <sup>2</sup>	R	R	R									R
Parking Lots <sup>(1)</sup>	R	R								R		
Streets, Highways & Freeways	R	R									R	
R=Required (1) Paved area totals >5,000 ft <sup>2</sup> or with >15 parking spaces and is potentially exposed to urban runoff												

Source Controls required for ALL projects:

**Provide Storm Drain System Stenciling and Signage**

- Stencil all storm drain inlets
- Post signs prohibiting illegal dumping at public access points along channels and creeks in project area
- Maintain legibility of stencils and signs

**Outdoor Material Storage Areas for Hazardous Materials**

- Hazardous materials in enclosure or secondary containment
- Storage area paved
- Storage area shall have a roof or awning

**Trash Storage Areas** (except detached residential homes)

- Paved, designed to prevent run-on from adjoining areas, and screened or walled to prevent off-site transport of trash
- Lids on all trash containers

**Irrigation Systems and Landscape Design.** Following shall be considered and implemented where deemed applicable and feasible by Copermittee:

- Use rain shutoff devices
- Design irrigation systems to each landscape areas specific water requirements
- Use flow reducers or shutoff valves to prevent water loss from broken sprinkler heads

Source Controls for individual priority project categories:

**Private Roads.** Use at least one of the following:

- Rural swale system
- Urban curb/swale system
- Duel drainage system
- Other comparable methods

**Residential driveways and guest parking.** Use at least one of the following:

- Design driveways with shared access, flared, wheel strips, or drain into landscaping first
- Guest parking on private residential lots: paved with permeable surface or designed to drain into landscaping first

**Loading/unloading dock areas**

- Cover dock areas, or design to preclude run-on and runoff
- Direct connections to storm drains from depressed loading docks prohibited

**Maintenance Bays**

- Maintenance bays shall be indoors or designed to preclude run-on and runoff
- Design bay to capture all wash water; connect drains to a sump; direct connection to storm drain system prohibited

**Vehicle Wash Areas**

- Self-contained or covered with a roof or overhang
- Equipped with a clarifier or other pretreatment facility
- Properly connected to sanitary sewer

**Outdoor Processing Areas** (such as rock grinding or crushing, painting or coating, grinding or sanding, degreasing or parts cleaning, landfills, waste piles, and wastewater and solid waste treatment and disposal)

- Control runoff from areas that are most significant sources of pollutants (cover, slope to dead-end sump, or discharge to sanitary)
- Grade or berm to prevent run-on
- Installation of storm drains in areas of equipment repair is prohibited

**Equipment Wash Areas**

- Self-contained or covered
- Equipped with a clarifier, grease trap or other pretreatment facility, as appropriate
- Properly connected to sanitary sewer

**Parking Areas** Following shall be considered and implemented where deemed applicable and feasible by Copermittee:

- Where landscaping is proposed, incorporate into drainage design
- Overflow parking may be constructed on permeable paving

**Fueling Areas** (non-retail fueling areas)

- Overhanging roof structure or canopy, drainage away from fuel dispensing area; fueling area must drain to the treatment control BMP prior to discharge to MS4
- Paved with Portland cement (asphalt concrete prohibited)
- Sloped to prevent ponding; grade break to prevent run-on
- Concrete fuel dispensing area must extend 6.5 feet from the corner of each fuel dispenser

**Hillside Landscaping**

- Hillside areas that are disturbed must be landscaped with deep-rooted, drought tolerant plant species selected for erosion control

## Treatment Control Selection

For **priority** pollutants, project must “select a single or combination of storm water BMPs from Table 3 which maximizes pollutant removal for the particular primary pollutant of concern” (i.e., a single BMP proposed for a project must have a H or M removal efficiency).

For **secondary** pollutants, “L” removal efficiency is OK, but project must show why other BMPs with a higher removal efficiency were rejected.

Pollutant of Concern	Treatment Control BMP Categories						
	Biofilters	Detention Basins	Infiltration Basins	Wet Ponds or Wetlands	Drainage Inserts	Filtration	Hydrodynamic Separator Systems
Sediment	M	H	H	H	L	H	M
Nutrients	L	M	M	M	L	M	L
Heavy Metals	M	M	M	H	L	M	L
Organic Compounds	U	U	U	U	L	M	L
Trash & Debris	L	H	U	U	M	H	M
Oxygen Demanding Substances	L	M	M	M	L	M	L
Bacteria	U	U	H	U	L	M	L
Oil & Grease	M	M	U	U	L	H	L
Pesticides	U	U	U	U	L	U	L
L: Low removal efficiency M: Medium removal efficiency H: High removal efficiency U: Unknown removal efficiency							