

# Statewide Stormwater Management Plan (SWMP)

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California Department of Transportation  
Division of Environmental Analysis  
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<http://www.dot.ca.gov/hq/env/stormwater>

June 2007

**California Department of Transportation  
Statewide Stormwater Management Plan**

**June 2007**

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Date: 6/29/07

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# 1 OVERVIEW

## 1.1 Overview of the Stormwater Management Plan

The mission of the California Department of Transportation (the Department) is to improve mobility across California. The Department plans, designs, constructs, maintains roadways and facilities, and conducts other activities related to transportation on a statewide basis.

This statewide *Stormwater Management Plan (SWMP)* is a revision of the previous SWMP dated May 2003 and has been prepared by the Department to establish a programmatic approach for achieving compliance with anticipated state and federal requirements for the protection of water quality. The SWMP addresses discharges of stormwater and authorized non-stormwater to waters of the United States (as defined by USEPA) and waters of the state of California (as defined by the Porter-Cologne Act). Submittal of this updated edition of the SWMP complies with the Department's requirement under Permit (Order No. 99-06-DWQ) to annually update and revise its program.

### 1.1.1 Purpose

This SWMP was originally developed and submitted on January 15, 2004 to renew the Department's statewide NPDES permit. The Department's current permit, which expired on July 15, 2004, has been administratively extended by the State Water Resources Control Board (SWRCB). The January 2004 SWMP was intended to address anticipated requirements for the Department's statewide permit and the State Construction General Permit Order No. 99-08-DWQ (Construction General Permit). This edition of the SWMP includes additional program activities as requested by the SWRCB to track program activities and measure compliance.

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This SWMP describes the Department's program and addresses stormwater pollution control related to Department activities, including planning, design, construction, maintenance, and operation of roadways and facilities. For municipal-type discharges, the SWMP provisions control pollutants to the Maximum Extent Practicable (MEP) as required by the federal Clean Water Act (CWA). MEP is generally considered to be based on factors such as technical feasibility and related costs to achieve measurable environmental benefits. This SWMP also limits discharges of stormwater pollutants that cause or contribute to a violation of a Statewide Water Quality Control Plan, the California Toxics Rule (CTR), or the applicable Regional Water Quality Control Plan (Basin Plan). The SWMP is designed to include an iterative process of use, evaluation, and modification of best management practices (BMPs) to provide continuing progress toward achieving compliance with stormwater quality requirements.

As required by the CWA, for construction activities, the SWMP requires implementation of BMPs to reduce or eliminate toxic pollutants using Best Available Technology Economically Achievable (BAT) and implementation of BMPs to reduce or eliminate conventional pollutants using Best Conventional Pollutant Control Technology (BCT). This generally refers to a suite of BMPs, which through experience have been found to be effective in controlling construction site runoff water quality.

The SWMP addresses responsibilities within the Department for implementing stormwater management procedures and practices including training, public education, monitoring, program evaluation, and reporting activities. The SWMP addresses the Department's stormwater management activities on a statewide basis. It may include other procedures on regional, local, or site-specific concerns.

The SWMP addresses discharges resulting from stormwater (i.e., those discharges originating from precipitation events, including snowmelt). In addition, the SWMP also addresses certain discharges that meet the definition of "non-stormwater discharges," including illicit discharges, authorized non-stormwater discharges, and emergency response activities. The SWMP does not address discharges of wastes to land, as these operations must be separately permitted.

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### 1.1.2 Regulatory Background

Federal environmental regulations based on the CWA have evolved to require the control of pollutants from Municipal Separate Storm Sewer Systems (MS4s), construction sites, and industrial activities. Discharges from such sources were brought under the NPDES permit process by the 1987 CWA amendments and the subsequent 1990 promulgation of stormwater regulations by the U.S. Environmental Protection Agency (EPA). In California, EPA has delegated administration of the federal NPDES program to the SWRCB and the nine Regional Water Quality Control Boards (RWQCBs). In addition, the SWRCB and nine RWQCBs have authority to regulate waste discharges to land that may affect water quality.

Under the federal stormwater regulations, portions of the Department's properties, facilities, and activities come under the jurisdiction of NPDES stormwater regulations for two primary reasons:

- The Department's highways and highway-related properties, facilities and activities are served by extensive storm drain systems, which are often connected to, and are considered comparable to, urban MS4s covered explicitly in the federal stormwater regulations.
- Construction of the Department's highways and related facilities often results in soil disturbance of areas greater than one acre, for which specific requirements are prescribed by the federal stormwater regulations.

The Code of Federal Regulations (CFR), at 40 CFR 122.26(a)(iii) and (iv), requires that NPDES stormwater permits be issued for discharges from large, medium, and designated small MS4s. The regulations define the term *Municipal Separate Storm Sewer Systems* to mean "a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) owned or operated by a state, city, town, borough, county." The Department, as the owner and operator of an MS4, is subject to an NPDES MS4 permit in those areas of California specified under federal regulation. The Department implements a statewide program for all its stormwater activities.

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The Department developed and implemented its first statewide SWMP in March 1997. However, prior to August 1999, the Department's stormwater discharges were permitted under a variety of specific NPDES Permits issued to some Districts. Some Districts were covered in part by more than one NPDES MS4 permit; others were not covered under any permit. In August 1999, the SWRCB re-issued the statewide general NPDES stormwater permits for designated types of construction (Order No. 99-08-DWQ) activities. The SWRCB also developed and issued the Department's Permit (Order No. 99-06-DWQ) that addressed both municipal-type as well as construction-related discharges. The Department subsequently prepared a new SWMP that was then revised and approved by the SWRCB on May 17, 2001. The permit and the approved SWMP consolidated the Department's stormwater compliance activities under one permit and provided a framework for consistent and effective implementation of stormwater management practices on a statewide basis.

Prior to March 2003, construction projects that disturbed less than five acres of total land area and were not part of a larger common plan of development were exempt from NPDES Permit requirements. These requirements became more stringent on March 10, 2003. The criterion for permit coverage of small construction projects is now one acre of total land disturbance. This SWMP includes the Department's program for complying with the substantive provisions of the Construction General Permit on projects; however, most requirements are met by implementing the Stormwater Pollution Prevention Plans (SWPPPs) prepared for each project.

As statewide stormwater permits for industrial and construction linear projects are adopted or renewed by the SWRCB, the Department will update this SWMP to address statewide general requirements for stormwater and waste discharges to avoid duplicate regulation or parallel programs and consolidate appropriate water quality compliance into one document.

As previously mentioned, the SWRCB has administratively extended the Department's current statewide permit without issuing a new permit. Therefore, this SWMP may need to be updated as appropriate to address any additional requirements that may be imposed by applicable permit revisions and modifications or changes in the Department's business practices.

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### 1.1.3 SWMP Applicability

The stormwater conveyance structures that are part of the Department's statewide system of transportation corridors, facilities, and related appurtenances, are considered an MS4. SWMP requirements apply to discharges from stormwater conveyances, including catch basins and drain inlets, curbs, gutters, ditches, channels, and storm drains within the Department's system. The SWMP applies to discharges consisting of stormwater and non-stormwater resulting from the following:

- Maintenance and operation of State-owned highways, freeways, and roads;
- Maintenance facilities;
- Other facilities with activities that have the potential for discharging pollutants;
- Permanent discharges from subsurface dewatering;
- Temporary dewatering; and
- Construction activities

The discharges addressed by this SWMP flow through municipal stormwater conveyance systems or flow directly to surface water bodies in the State. These surface water bodies include creeks, rivers, reservoirs, lakes, wetlands, lagoons, estuaries, bays, and the Pacific Ocean and tributaries. The statewide permit and this SWMP do not address waste discharges to land. Discharges to land must be separately permitted by individual or general waste discharge requirements adopted by the applicable RWQCB.

This SWMP applies to the oversight of outside agencies or non-Departmental entities (third parties) activities performed within the Department's MS4 system to ensure compliance with stormwater regulations. Non-Department activities include highway construction and road improvement projects, as well as residential use and business operations on leased property. Non-departmental construction activities are discussed in Section 9. Section 10 addresses how the Department will address illicit and illegal third party discharges.

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#### 1.1.4 Relationship of Permit, SWMP, and Related Department Documents

Figure 1-1 indicates how the SWMP is based on the NPDES permit issued by the SWRCB to the Department. The SWMP must be approved by the SWRCB, and as specified in the permit, it is an enforceable document. Compliance with the permit is measured by implementation of the SWMP. The Department's policies, manuals, and other guidance related to stormwater are intended to facilitate implementation of the SWMP. Departmental guidance is referenced in this document, as appropriate, and references are listed in Section 17. These policies, manuals, and related guidance identify the manner of compliance and thus are not enforceable (see Section 13360 of the Water Code).

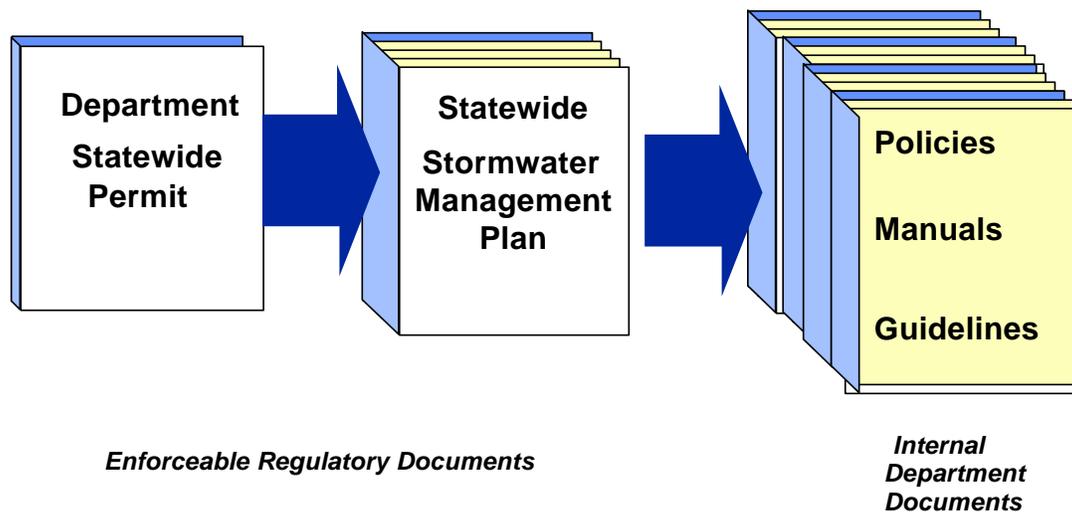


Figure 1-1. Relationship of Permit, SWMP, and Related Department Documents

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### 1.1.5 Other Permits Addressed by this SWMP

This SWMP addresses the requirements of other statewide permits (and one regional permit) listed in Table 1-1. In general, the Department implements the technical requirements of these permits but does not pay separate fees and may have modified notification requirements. As other statewide permits are developed by the SWRCB, the Department may consider revising this SWMP to address the permit requirements.

**Table 1-1. Other Permits Addressed by the SWMP**

<b>Permit</b>	<b>Discussion</b>
Statewide General Permit for Stormwater Discharges Associated with Construction Activity (Order # 99-08-DWQ)	The statewide Construction General Permit and this SWMP address Department discharges from construction sites. Consequently, the Department does not need separate coverage under the Construction General Permit. The Department, however, does send a Notice of Construction and Construction Completion to the Regional Board and implements the substantive requirements of the permit. This SWMP will be updated to address new construction requirements when the CGP is renewed.
Lahontan Region Order Discharges of Stormwater Runoff Associated with Construction Activity Involving Land Disturbance in the Lake Tahoe HU – El Dorado, Placer, and Alpine Counties (Order # 6-00-03)	Department construction projects within the Lake Tahoe hydrologic unit are covered by the Department Statewide Permit; consequently, the specific needs of this area are addressed as described in Section 13 of the SWMP.
Statewide General Permit for Stormwater Discharges Associated with Industrial Activities (Order # 97-03-DWQ)	The Department does not seek coverage under this permit. However, Districts require that contractor batch plants located outside the right-of-way (ROW) obtain coverage under this permit. In addition, batch plants within the ROW are required to obtain coverage if they service more than one project. Third party lessees may also be required to obtain coverage for ROW operations.

## 1.2 SWMP Organization

This edition of the SWMP is organized into sections based on Department activities. Following is a brief description of each SWMP section:

### Section 1 – OVERVIEW

Provides an overview of the purpose of the Department’s Stormwater Management Plan and discusses the regulatory background, relationship of this plan to the statewide stormwater permit, and other permits addressed by the Plan.

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## Section 2 - MANAGEMENT AND ORGANIZATION

Addresses legal authority, access control, budget, and departmental policy related to stormwater quality management. This section also describes the organizational structure of the Department and the functional structure and responsibilities for stormwater management within the organization.

## Section 3 - MONITORING AND DISCHARGE CHARACTERIZATION PROGRAM

Discusses the Department's stormwater monitoring program, including results and key findings of past monitoring, and planned activities.

## Section 4 - BMP DEVELOPMENT

Describes the overall process involved in developing best management practices (BMPs) to control stormwater pollution, including how BMPs are proposed and prioritized for development, the approval process, and the integration and implementation of new BMPs into the Department's business practices.

## Section 5 - PROJECT PLANNING AND DESIGN

Describes how BMPs and other Stormwater Program elements are incorporated into transportation projects during the early planning and design phases of the project.

## Section 6 - CONSTRUCTION

Describes how the Department complies with the technical requirements of the statewide Construction General Permit. The section describes Stormwater Pollution Prevention Plan development and approval responsibilities, construction notifications, and inspection of construction projects.

## Section 7 - ROADWAY MAINTENANCE ACTIVITIES

Describes the Department's roadway maintenance activities that affect stormwater, the BMPs used to control pollution, and routine surveillance and inspection activities to ensure water quality is protected.

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## Section 8 - FACILITY OPERATIONS

Describes the maintenance facilities the Department operates to maintain the highway system and their associated Facility Pollution Prevention Plans (FPPPs). A discussion of how other facilities address stormwater compliance is also included in this section.

## Section 9 - NON-DEPARTMENTAL ACTIVITIES

Describes how the Department ensures compliance of non-departmental activities, including construction activities by private entities that encroach on the Department's property, third party facility operations on leased parcels, and other third party activities.

## Section 10 - NON- STORMWATER ACTIVITIES/DISCHARGES

Addresses discharges other than stormwater as defined by the permit including accidental spills, illegal connections, illegal dumping, and authorized discharges.

## Section 11 - TRAINING

Describes the existing training program and plans for future training of Department staff.

## Section 12 - PUBLIC EDUCATION AND PARTICIPATION

Describes the existing framework and future plans to communicate with and inform the public about stormwater protection.

## Section 13 - LOCATION-SPECIFIC ACTIVITIES

Describes location-specific activities undertaken within the various Districts to address regional stormwater requirements. In addition, this section discusses the Department's involvement with the implementation of TMDLs.

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## Section 14 – PROGRAM EVALUATION

Describes the Department’s plan for compliance with stormwater program evaluation requirements. The section describes the Department’s construction and maintenance field compliance evaluation activities, and includes a plan for evaluating specific targeted program elements.

## Section 15 – MEASURABLE OBJECTIVES

Describes how *Objectives, Activities, and Implementation Tasks* will be performed to for achieve the Department’s overall *Program Goal*. Throughout the SWMP, plans with associated program measurable objectives are shown in parentheses (e.g., [A.16](#), etc.). Use of the electronic copy of this document provides a direct hyperlink to the measurable objective that is associated with the program activity.

## Section 16 – REPORTING

Describes how the Department will report on applicable elements of the SWMP, including the annual report, District Work Plans, proposed SWMP modifications, and noncompliance incidents.

## Section 17 – REFERENCES

Provides a list of references cited in the document.

## Appendix A – DISTRICT DESCRIPTIONS

Provides a narrative description of the each of the Department’s 12 Districts.

## Appendix B – MS4 MAPS

Contains statewide and individual district maps showing MS4 Phase I boundaries (Phase II areas are available on SWRCB website; attachments 1, 2, and 3 of the municipal small MS4 permit). The individual District maps also show the regional board boundaries, and delineation of the rainy season boundaries used for project planning, design, and construction stormwater activities.

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Appendix C - DESCRIPTION OF BEST MANAGEMENT PRACTICES (BMPs)

Provides a summary description of approved BMPs used by the Department for stormwater/water quality protection.

Appendix D - ACRONYMS AND DEFINITIONS

Provides a list of important definitions and acronyms used in this document.

Appendix E - RAINY SEASONS MAP

Contains a map of the state delineating the various rainy seasons.

Appendix F - MONITORING AND CHARACTERIZATION INFORMATION

Summary tables of stormwater monitoring and characterization at Department roadways and facilities are provided.

Appendix G - TRAINING COURSE DESCRIPTIONS

Summary descriptions of all current and proposed stormwater training courses listed in Section 11 are provided.

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## 2 MANAGEMENT AND ORGANIZATION

This section provides an overview of the management and organizational structure of the Department, roles and responsibilities of headquarters staff, a description of the role of the focal point of the Department's Stormwater Program, and a description of the Stormwater Advisory Teams. This section also provides a brief overview of the District Work Plans (DWPs) and the function of the District NPDES Stormwater Coordinator (DNC). The section also describes the delegations of authority, policies, budget, legal authority, and access control protocols.

### 2.1 Department Organizational Structure

The Department is comprised of Headquarters, located in Sacramento, and twelve Districts located throughout the state. Headquarters responsibility includes executive and policy functions for the Department; the 12 Districts construct, operate, and maintain the transportation system within each of the District boundaries.

The Department uses a matrix organization to provide statewide coordination and resource sharing. This matrix organization is comprised of both traditional line management and functional program management. Traditional line management consists of the twelve district directors and the functional division chiefs within each district (i.e., Planning, Design, Construction, and Maintenance<sup>1</sup>). Functional program management consists of the director, the deputy directors, the headquarters division chiefs (Environmental Analysis, Design, Construction, Right-of-Way (ROW), Maintenance, Traffic Operations, etc.), and their respective functional counterparts in the districts (e.g., the functional division chiefs). Figure 2-1 illustrates the relationship between headquarters and district counterparts.

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<sup>1</sup> Some Districts may not have all functional divisions represented (see DWPs for explanation).

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## 2.2 Stormwater Management Structure and Responsibilities

The Stormwater Management Program affects most programs and all districts; however, the level of impact and responsibility varies. Since stormwater protection is an environmental issue, the Headquarters Division of Environmental Analysis undertakes stewardship and management responsibilities for the Stormwater Program. However, all districts and most programs have dedicated staff implementing the program described in this SWMP.

## 2.3 Headquarters

At its headquarters, the Department's executive office develops policy and oversees, monitors, and reports on departmental activities while district personnel have day-to-day responsibility for implementation. The headquarters staff from the Division of Environmental Analysis manages the Stormwater Program and coordinates program implementation with the districts and other headquarters divisions.

### 2.3.1 Focal Point - Chief Environmental Engineer

Due to the significant size of the Department's Stormwater Program, the need for a single focal point was identified and established under a Budget Change Proposal in April 2002. This position is referred to as the Department's Chief Environmental Engineer (CEE) and is located within the Division of Environmental Analysis. The CEE is the Department's focal point for advising executive management, local transportation agencies, and other government entities of procedural requirements for complying with the Department's NPDES Permit and the SWMP. The CEE promotes coordination between the functional units to ensure statewide consistency in the implementation of stormwater management policy and procedures. The CEE is responsible for negotiating and resolving issues with external agencies, and responding to political inquiries and lawsuits related to the Department's Permit and the SWMP.

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The CEE is the single entity for all issues related to the Department's overall Stormwater Program (District coordination is described in Section 2.4.1). In addition to providing program and policy guidance to the functional Programs within the Department, the CEE is a liaison to other agencies, including: Department of Finance, SWRCB, RWQCBs, California Coastal Commission, Department of Toxic Substances Control, U.S. Environmental Protection Agency, California Environmental Protection Agency, and Transportation Planning Agencies.

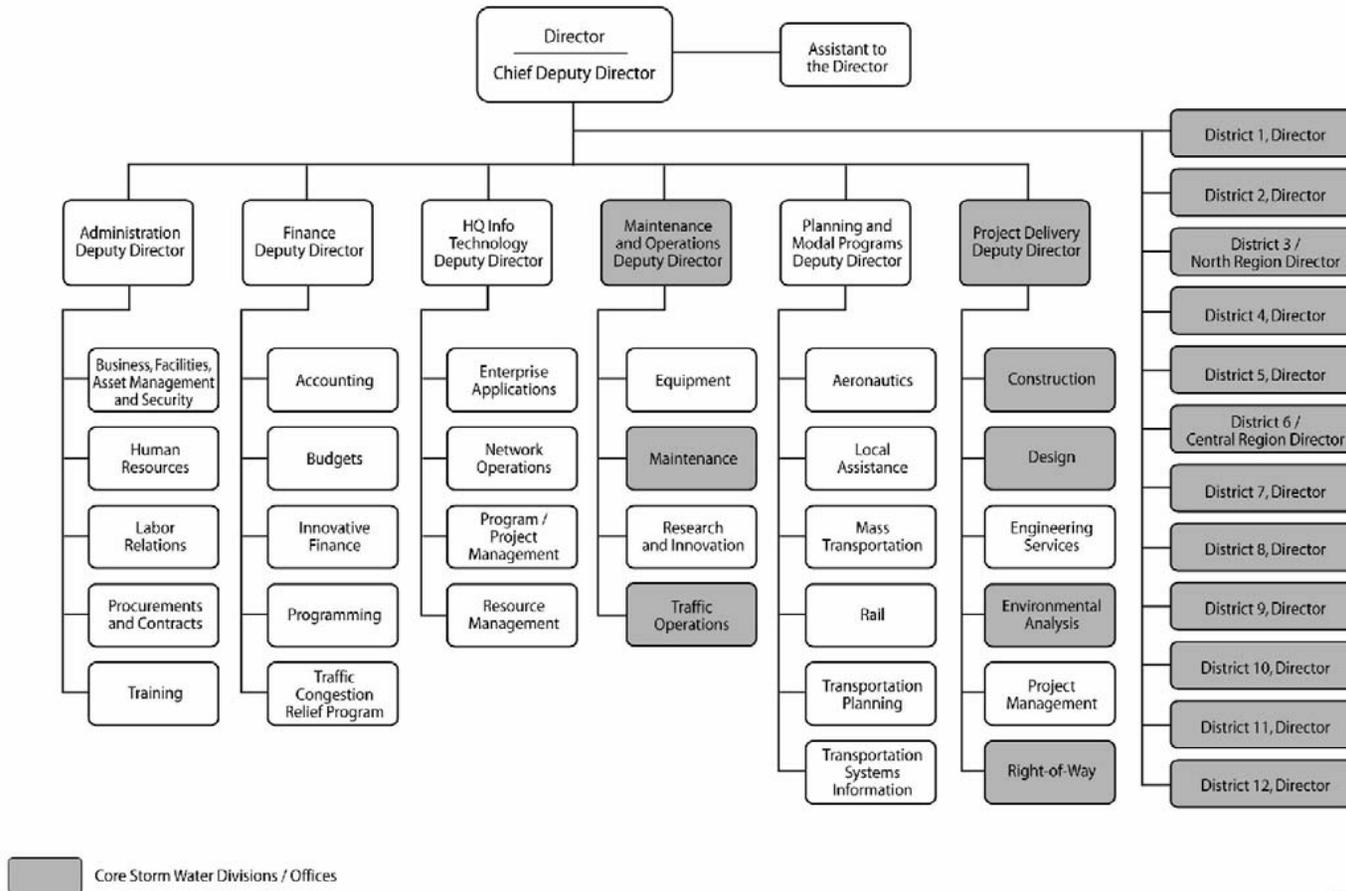
The CEE reports to the Chief of the Headquarters Division of Environmental Analysis. The CEE supervises stormwater staff within the Division of Environmental Analysis.

### 2.3.2 Divisions

There are six headquarter divisions with staff dedicated to address stormwater issues. As shown in Figure 2-1, these divisions include the Divisions of Environmental Analysis, Design, Construction, Maintenance, ROW, and Traffic Operations (i.e., Office of Encroachment Permits). Figure 2-2 illustrates the core Divisions/Offices with stormwater responsibilities.

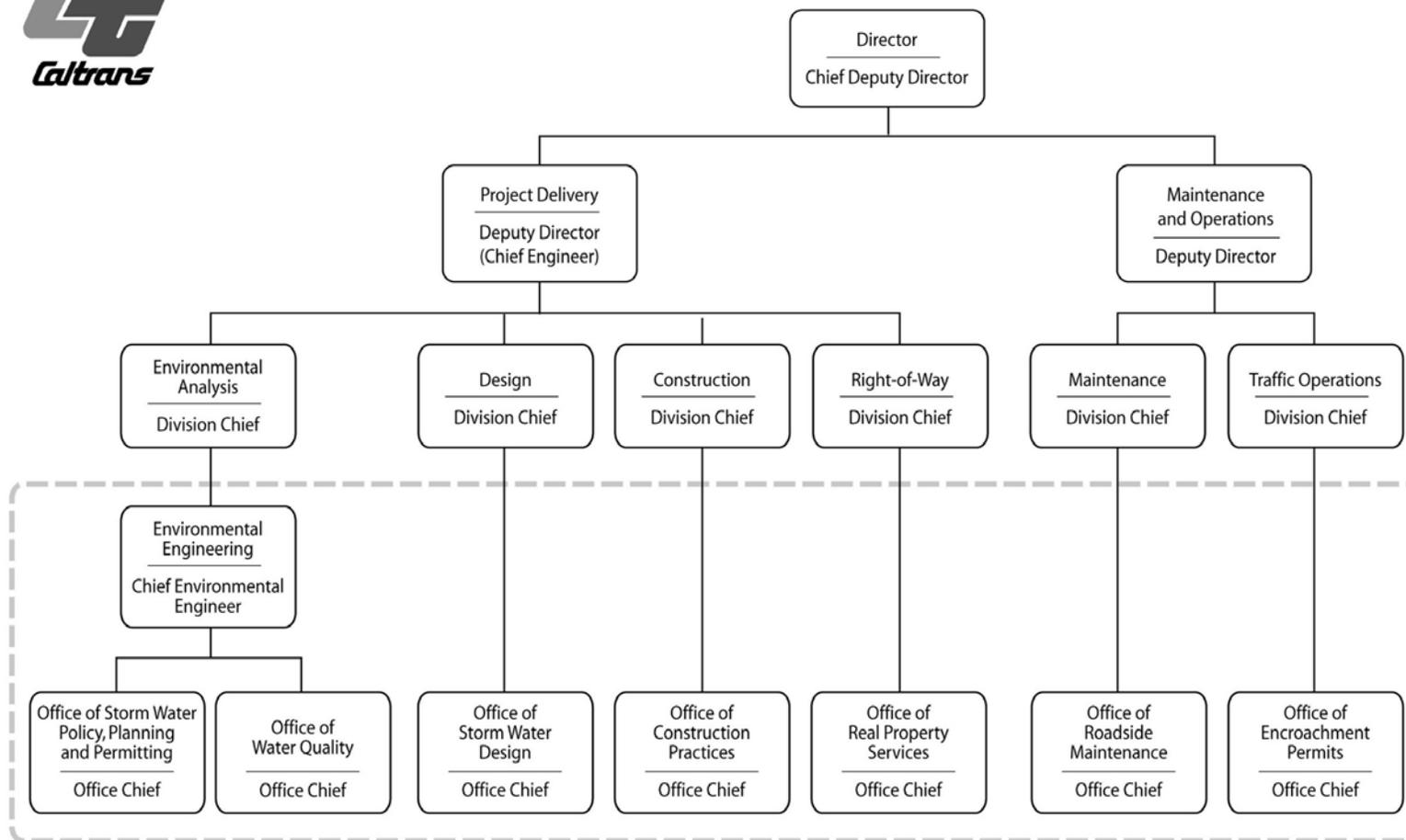
Each division is responsible for the following stormwater tasks related to the Division's core activities:

- Develop tools (e.g., specifications, inspection forms, estimating methods, etc.) for incorporating stormwater measures and requirements into activities.
- Develop guidance and manuals for utilizing stormwater tools and educating staff and contractors on stormwater responsibilities, requirements, and activities.
- Develop and conduct training classes in support of guidance and manuals developed for stormwater quality.
- Provide assistance to the districts and other headquarters divisions on stormwater issues.
- Administer and sponsor the division-specific Stormwater Advisory Team (SWAT), and/or provide representation at other division -sponsored SWATs.



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Figure 2-1. Department Organization



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Figure 2-2. Core Stormwater Divisions/Offices

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In addition to the above, the CEE supervises over Stormwater staff within the Division of Environmental Analysis assigned the following tasks:

- Prepare the Stormwater Management Plan and Annual Reports;
- Ensure establishment, accuracy, and adequacy of stormwater resources for each fiscal year;
- Assist the districts and other Headquarters Divisions in prioritizing and evaluating stormwater resources, activities, and operations;
- Implement and manage program evaluation tasks, including the management and implementation of activities for measuring the level of compliance (i.e., compliance-monitoring);
- Provide guidance and direction necessary to develop strategies for addressing regulations and mandates on stormwater and waste discharges set forth by federal, state, and local regulatory agencies;
- Conduct and manage monitoring activities for characterizing discharges;
- Conduct and manage research activities on devices or practices that potentially improve stormwater quality; and
- Administer and manage public education/information efforts for improving stormwater quality.

### 2.3.3 Stormwater Advisory Teams

The Department has established five Department-wide Stormwater Advisory Teams (SWATs). The purpose of the SWATs is to advise the CEE of technical issues of concern within the program. The CEE must approve any SWAT recommendations before changes can be made to the Stormwater Program. The specific functions of the five SWATs are described as follows:

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- The Maintenance SWAT (M-SWAT) is composed of District Maintenance Stormwater Coordinators and representatives from each of the affected Headquarters Divisions. The M-SWAT provides any necessary review and/or evaluation of proposed and existing BMPs used by the Division of Maintenance. In addition, the M-SWAT reviews and assists in the development of training classes and guidance documents for implementing stormwater activities described in this SWMP for maintaining highways, bridges, facilities, and other appurtenances related to transportation.
  - The Project Design SWAT (PD-SWAT) is composed of District representatives from Design and related functional units and representatives from each of the affected Headquarters Divisions. The PD-SWAT reviews proposed and existing BMPs used in the planning and design of projects. BMPs include construction BMPs, design pollution prevention BMPs, and treatment BMPs. In addition, the PD-SWAT reviews and assists in the development of training classes and guidance documents for implementing stormwater activities relevant to project design.
  - The Construction SWAT (C-SWAT) is composed of District Construction Stormwater Coordinators and representatives from each of the affected Headquarters Divisions. The C-SWAT reviews proposed and existing construction BMPs and measures used for stabilization of soils. In addition, the C-SWAT reviews and assists in the development of training classes and guidance documents for implementing stormwater activities relevant to construction activities.
  - The Encroachment Permits SWAT (EP-SWAT) is composed of District Encroachment Permit Stormwater Coordinators and representatives from each of the affected Headquarters Divisions. The EP-SWAT reviews existing procedures to ensure that they integrate the appropriate stormwater BMPs into the requirements of encroachment permit projects. The EP-SWAT reviews and assists in the development of training classes and guidance documents for implementing stormwater activities for issuing and administering encroachment permit projects.

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- The Water Quality SWAT (WQ-SWAT) is composed of the District NPDES Stormwater Coordinators (DNCs) and representatives from each of the affected Headquarters Divisions. The WQ-SWAT reviews proposed and existing treatment BMPs, and prioritizes research or studies of treatment BMPs. The WQ-SWAT is a forum for discussing stormwater coordination activities underway or planned with other municipalities, reviewing and recommending public education efforts, sharing technical information, providing advice on compliance issues, and resolving issues of dispute on stormwater. Many of these activities result in recommendations for changes to the SWMP or policies and other documents on stormwater. The WQ-SWAT discusses stormwater budget allocations for the Districts and HQ Divisions. The WQ-SWAT reviews data and findings from compliance- monitoring and evaluation activities, and recommends changes in practices to improve compliance efforts.

## 2.4 Districts

Each district has flexibility to address regional requirements as long as it adheres to the overall policy limitations and directives established by the Directorate (i.e., Director and Headquarters Deputy Directors) of the Department. The Districts have the primary responsibility for day-to-day implementation of the SWMP. Responsibility for implementation lies with the District Director and each functional District Division Chief (i.e., Deputy District Directors).

### 2.4.1 District NPDES Stormwater Coordinator

Each district has a designated District NPDES Stormwater Coordinator (DNC). The DNC is the lead on stormwater quality issues within a district. The role of each District NPDES Stormwater Coordinator is to facilitate implementation of the SWMP and the DWP. The DNCs serve as liaison to the Stormwater Program. Liaison activities include conducting meetings related to stormwater management issues with district staff and with other MS4 permittees to discuss problems and concerns. Liaison activities also include regular communications with representatives of the RWQCB. The DNCs also provide coordination between the Department's Headquarters functional programs and the Districts.

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Stormwater Coordinators for other functional units may be established for the District Divisions of Design, Construction, Traffic Operations (Encroachment Permits), and Maintenance. In addition, depending on the complexity of the district, other stormwater coordinators may be identified to represent other functional units or special needs (e.g., TMDLs); these roles are described in the DWP. The functional unit coordinators assist the District Divisions in implementing stormwater management activities.

## 2.5 Delegations of Authority

Persons having signatory authority for the various documents and reports submitted under the requirements of the Department's NPDES Permit and SWMP are limited to specific positions. The CEE has authority to certify reports or documents required under the SWMP and Permit.

Positions having authority to certify reports, notifications, or other information required of a district under the Permit are reserved for each District Director and named positions in each DWP. The intent of the DWP is to allow notifications (especially those related to specific projects) to be delegated to the most-direct position of authority (e.g., resident engineer) related to the project.

When additional information directly associated with the permit is requested in writing by the SWRCB or Regional Board management, it is also submitted under these authorities with a certification statement. Responses to information requests not directly associated with the permit are submitted by the CEE or designee (i.e., direct report); information requests required specifically of a district are submitted by the DNC or other position identified in the DWP.

## 2.6 Department Policies

The Department adopts policies to perform, support, and maintain statewide projects and operations that improve mobility across California. Department policy is also consistent with its stewardship goals, which include protection of the environment. Policy that impacts resources and operations of the entire Department or divisions within the Department typically goes through a Policy Development process that may include the preparation of a "*Decision Document*" that provides an analysis of the purpose, need, and resource evaluation of the proposed policy. This process requires concurrence of divisions within the Department that are affected by the proposed policy.

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Once policy has been established, it is conveyed throughout the Department by the issuance of either a *Director's Policy* or a *Deputy Directive* memorandum. Director's Policy memoranda generally affect divisions within the Department's organization and address policy directly relevant to the Department's mission and goals. Deputy Directive memoranda typically convey departmental policy that may affect one or all divisions within the Department, but are established by the functional division responsible for the policy. Both Director's Policy and Deputy Directive's memoranda discuss applicability and list responsibilities within the organization to the functional level.

Director's Policy memorandum (DP-04) outlines environmental policy and establishes responsibilities among the District and Headquarter functions to ensure environmental compliance. Other policy memoranda emphasize the priority given to protecting the health and safety of Department workers, as well as those using the Department's roadways and facilities.

Implementation of the SWMP is initiated by directives from headquarters. These directives are developed and communicated through both line management and functional program management as follows:

*Director:* General directives issued by the Director are communicated to the Deputy Directors and to the District Directors.

*Headquarters Functional Divisions:* The Headquarters functional Divisions provide focused technical guidance, directives and monitoring to the District functional Divisions.

## 2.7 State Budget

Funding for the Stormwater Program is contained within the budget for the Department. The dollars for the program come from the State Highway Account. Neither the State General Fund nor any federal agency supports the Department's management of the program.

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The Administration and Legislature have shown a high level of resource commitment. The primary means for budget justification is the SWMP. In the rapidly changing regulatory environment of stormwater, the lags inherent in the budget process require the Department to phase in new requirements in a manner consistent with the available resources.

## 2.8 Legal Authority

The Department maintains adequate legal authority to ensure compliance with the provisions of its statewide NPDES permit and SWMP. The California Streets and Highway Code empowers the Department with the authority to conduct operations necessary for the design, construction, and maintenance of state highways. This authority enables the Department to: 1) control contribution of pollutants from its properties, facilities, ROW and conveyance systems, 2) prohibit illicit discharges, 3) control dumping or disposal of materials other than stormwater, 4) require compliance with the permit and SWMP and 5) carry out inspections, surveys and monitoring procedures necessary to determine compliance with permit conditions.

### 2.8.1 Authority to Control Contribution of Pollutants from State Transportation System

According to Section 90 of the Streets and Highways Code, the Department “shall have full possession and control of all state highways and all property and rights in property acquired for state highway purposes. “ It is clear that the Legislature gave the Department authority to control property and facilities within highway ROW. California Streets and Highway Code, section 23, defines “highway” to include “bridges, culverts, curbs, drains, and all works incidental to highway construction, improvement and maintenance.” Under this definition, the Department’s authority extends to highway water conveyance systems. The Department therefore has authority to control contribution of pollutants from its properties, facilities, ROW, and water conveyance systems.

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The Department's ability to control pollutants from its properties, facilities, ROW, and conveyance systems is burdened by limits on its capability to expand its authority to adjacent properties. In circumstances where the contribution of pollutants is unavoidable (beyond the jurisdiction and authority of the Department), the Department will refer these discharges to the RWQCB for appropriate action. However, there are also practical limitations on the ability of the Department to control vehicle emissions, accidents, and other discharges by third party users of the State Highway System.

### 2.8.2 Authority to Prohibit Illegal Connections

Section 670(a)(2) of the Streets and Highways Code requires that encroachments onto the State Highway System be issued permits. Section 670 (b) finds any person who places an encroachment without a permit or changes or fails to renew their permit is guilty of a misdemeanor. Section 660 defines an encroachment to be "any . . . pipe, pipe line, . . . object of any kind or character not particularly mentioned in this section . . . which is in, under, or over any portion of the highway . . .". Section 720 requires that should an encroachment exist, the Department may require its removal. Any connection discharging pollutants to a state highway conveyance system is an encroachment. The Department has the ability to issue a permit for such encroachments; but where no permit exists, the encroachment is deemed an illegal discharge/ illicit connection. The Department has authority to prohibit illicit discharges into its conveyance systems.

### 2.8.3 Authority to Control Spills, Dumping or Disposal of Material other than Stormwater

The state has made it unlawful to dump any refuse matter on a public highway. Section 721(c) of the Streets and Highways Code allows the Department to immediately remove from any state highway any encroachment that consists of refuse. The Department therefore has authority to control spills, dumping, or disposal of material other than stormwater onto state highways.

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#### 2.8.4 Authority to Require Compliance

The state has empowered the California Highway Patrol with the authority to enforce laws applicable to the use of state highways. (CA Vehicle Code § 2400.) The Department relies on the CHP for enforcement of applicable laws pertaining to the State Highway System. In addition, sheriffs and local police departments possess the appropriate legal authority to pursue and take enforcement action against persons causing, or threatening to cause illicit discharges. The Department refers illicit dischargers to the CHP or the RWQCB for appropriate action. The Department may also refer dischargers to the Attorney General's office, the local District Attorney's office, or to the local City Attorney's office for criminal prosecution, as appropriate.

Section 94 of the Streets and Highways Code states the Department "may make and enter into such contracts in the manner provided by law as are required for the performances of its duties." When drafting contract agreements the Department has the ability to include provisions that direct the contractor to comply with the stormwater policies. Therefore, the Department has authority to require its contractors to comply with the conditions of the statewide Permit and policies and procedures outlined in the SWMP.

#### 2.8.5 Authority to Inspect, Survey, and Monitor Procedures for Compliance

Section 92 of the Streets and Highways Code states that the Department "may do any act necessary, convenient or proper for the construction, improvement, maintenance or use of all highways under its jurisdiction, possession or control." As a result, the Department has created a Stormwater Program that directly oversees the implementation of stormwater policies and practices in the design, environmental, construction and maintenance phases of transportation facilities projects. A description of staff roles and responsibilities is included in Section 2.2. The Department has authority to carry out inspection, surveillance and monitoring procedures necessary to determine compliance or noncompliance with permit conditions or policies, and/or procedures set forth within the SWMP.

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### 3 MONITORING AND DISCHARGE CHARACTERIZATION PROGRAM

This section contains a brief overview of the Monitoring and Discharge Characterization Program conducted during the previous permit cycle, descriptions of principal activities conducted under the various program elements, discussions of key findings, and description of future monitoring planned for each program element.

#### 3.1 Overview of Program Activities

The Department conducted a comprehensive, multi-component stormwater monitoring program during the past permit period that was designed to achieve the following objectives:

1. Achieve compliance with NPDES Permit and legal requirements;
2. Produce monitoring data that are scientifically credible and representative of runoff from the Department's roadways and facilities; and
3. Provide information to:
  - Identify constituents of concern;
  - Identify sources of those constituents;
  - Determine if constituents of concern are amenable to reductions through source control or treatment;
  - Evaluate effectiveness of BMPs (see Section 4) and other stormwater program elements; and
  - Optimize future monitoring efforts.

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Monitoring was conducted at more than 180 sites statewide, yielding more than 200,000 data points. Monitoring protocols and data management and analysis tools that ensure the scientific validity of the collected data were developed and implemented. Roadway and facilities monitoring by the Department as part of the monitoring program included: highways, maintenance stations, park-and-ride lots, rest areas, toll plazas, and vehicle inspection/ weigh stations. In addition, the monitoring was conducted at construction sites, erosion control sites, treatment BMP sites, and small-scale pilot studies. Storm drain outfalls were inventoried in nine different Department Districts. Data were statistically analyzed to derive conclusions that, together with other observations and findings from the program, form the basis for development of the Department's future strategies for monitoring and runoff management.

The distribution of the Department's monitoring sites under the monitoring program is illustrated in Figure 3-1. Note that Figure 3-1 does not individually identify all 180 monitoring sites that were used in the Department's program, as many areas contain multiple sites, and special study sites are not included. The monitoring program was comprised of four principal elements or areas of activity:

1. Storm Drain System Inventories;
2. Discharge Characterization;
3. Receiving Water Assessments; and
4. BMP Evaluation (see Section 4).

As part of the "Discharge Characterization" and "Receiving Water Assessments" activities listed above, the Department will implement a long-term discharge characterization study. The study will be the Department's main discharge characterization effort during the next 5 years. It will focus on identifying new trends in the quality of runoff from Department facilities.

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## 3.2 Storm Drain System Inventories

### 3.2.1 Description of Activities

Storm drain system inventories were conducted to comply with the NPDES permit requirement to identify and describe existing major points of discharge to surface water bodies in areas subject to Phase 1 MS4 permit requirements. The information gathered will potentially be useful to the Department in planning maintenance activities, designing roadways and facilities, and in responding to emergencies, such as spills.

### 3.2.2 Future Activities

The Department proposes to perform the following activities related to Storm Drain System Inventories:

- Participate with Phase 2 MS4 municipal stormwater agencies to conduct storm drain outfall inventories in areas required to conduct inventories under the Phase 2 MS4 permits ([B.7](#)); and
- Maintain existing storm drain inventories within Phase 1 MS4 areas.

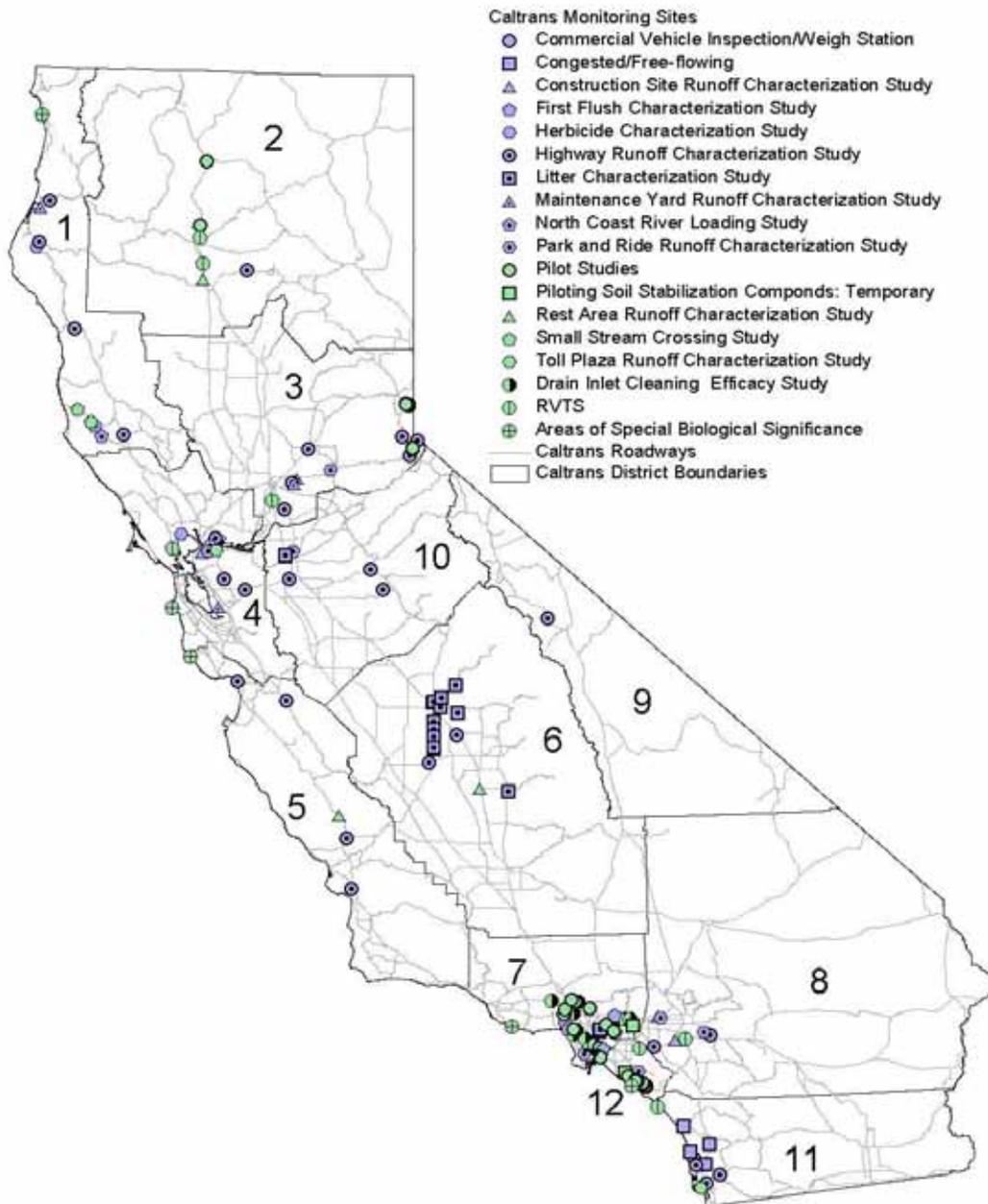


Figure 3-1. Department Stormwater Monitoring Site Locations

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### 3.3 Discharge Characterization

#### 3.3.1 Description of Activities

Discharge characterization activities included two principal studies: the *Statewide Stormwater Runoff Characterization Study* and the *Tahoe Basin Water Quality Characterization Study* (Caltrans 2003c, 2002g). The Department also conducted a series of specialized stormwater runoff characterization studies throughout the state that were designed to answer specific questions related to runoff from Department roadways and facilities. In most cases, the special studies were completed within a 3-year period, while some studies are still in progress. Descriptions of the various discharge characterization studies and planned future activities are summarized in Table 3-1. References are listed in Section 17.

These discharge characterization studies produced a substantial body of scientifically-credible data related to stormwater runoff characteristics. The Department's Stormwater Information System (SWIS) database houses this comprehensive data set, which includes information from monitoring projects. It is continuously updated with information from ongoing monitoring efforts. The Department completed comprehensive and rigorous statistical analyses of the stormwater discharge characterization data. Results of these analyses are reported in the *Discharge Characterization Study Report* (Caltrans, 2003c). It is one of the most comprehensive stormwater runoff characterization data sets available.

**Table 3-1. Summary of Discharge Characterization Activities**

STUDY	DESCRIPTION / STATUS	FUTURE ACTIVITIES
<p><i>Discharge Characterization Study Report</i> (CTSW-RT-03-065.51.42) <a href="#">(C.12)</a></p>	<p>Complete; Study entitled <i>Discharge Characterization Study Report</i>. This report is a comprehensive statistical analysis of data from discharge characterization studies and other studies performed to answer a variety of questions regarding runoff quality from Department roadways and facilities. Includes: relationships between runoff quality and average annual daily traffic (AADT), drainage area, precipitation factors, and antecedent conditions; differences in runoff quality from different geographic regions; trends or annual variation in runoff quality; seasonal and within-storm patterns in runoff quality; relationships (correlations) between runoff quality parameters; and comparison of runoff quality to CTR and other relevant water quality objectives. Results will aid the Department in prioritizing future monitoring and stormwater management activities.</p>	<p>This data set resides in the SWIS Database. Additional evaluation of the data set will be performed, as needed, to answer specific questions about runoff from Department facilities. The data set will be updated continuously with information from the Long Term Discharge Characterization Study, BMP pilot studies, and other specialized monitoring studies.</p>
<p><i>Statewide Stormwater Runoff Characterization Study</i> (CTSW-RT-03-069.51.42) <a href="#">(C.12)</a></p>	<p>Complete; A multi-year study entitled <i>2002-2003 Annual Data Summary Report</i> is designed to characterize the quality of stormwater runoff from representative Department roadways and facilities. Stormwater runoff from over 50 sites representing six different types of Department roadways and facilities (highways, maintenance stations, park and ride lots, rest areas, toll plazas, and vehicle inspection/weigh stations) were monitored during the 2000-01 through 2002-03 wet seasons.</p>	<p>See Long Term Monitoring Study for next steps.</p>

STUDY	DESCRIPTION / STATUS	FUTURE ACTIVITIES
<p><i>Tahoe Basin Water Quality Characterization Study</i></p> <p>(CTSW-RT-03-054.36.02)</p> <p><a href="#">(C.12)</a></p>	<p>Complete; Study entitled <i>Caltrans Tahoe Highway Runoff Characterization and Sand Trap Effectiveness Studies, 2000-2003</i>, designed to provide runoff data from high elevation areas to supplement the existing database that characterizes runoff from various Department roadways and facilities. Six monitoring sites were monitored during the 2000-01 through 2002-03 wet seasons.</p>	<p>Data from this effort has been and will continue to be used by Department and other Dischargers in the Lake Tahoe Basin to address numeric effluent limits and for TMDL development, planning, and implementation efforts. Data from the Long Term Discharge Characterization Study will be added continuously to the data set and analyzed for trends in runoff constituent concentrations. Changes in practices and research goals may be required to address new trends.</p>
<p><i>Long-Term Discharge Characterization Study</i></p> <p><a href="#">(C.12)</a></p>	<p>This study is part of the Department's Monitoring and Reporting Program and will include monitoring at the following location types: Highways (congested and free-flowing), Commercial Vehicle Inspection and Weigh Stations, Park and Ride Lots, Rest Areas, Toll Plazas, Maintenance yards, and Treatment Control Sites.</p>	<p>Evaluate future data to determine runoff constituent trends. Determine impacts to the Department and the environment and modify practices and research goals accordingly. Data from this effort will be added to the SWIS continuously.</p>

STUDY	DESCRIPTION / STATUS	FUTURE ACTIVITIES
<p><i>Statewide Toxicity Testing Study</i></p> <p>(CTSW-RT-05-73-95.1)</p> <p><a href="#">(C.12)</a></p>	<p>Complete; Study entitled <i>Monitoring of Priority Toxic Pollutants in Stormwater Runoff Collected at Caltrans Facilities</i>; A statewide study of 35 sites to assess the toxicity associated with runoff from different Department roadways and facilities, to determine the cause of the toxicity, and provide understanding of the sources of toxicity.</p>	<p>Lessons learned and methods developed during this effort will be used to plan the toxicity sampling/analysis portion of the Long Term Discharge Characterization Study.</p>
<p><i>District 7 Drain Inlet Cleaning Efficacy Study</i></p> <p>(CTSW-RT-03-057.36.1)</p> <p><a href="#">(A.14)</a></p>	<p>Complete; Study entitled <i>Drain Inlet Cleaning Efficacy Study (DICE)</i>, evaluates potential effectiveness of drain inlet cleaning as a management practice for improving the water quality of highway stormwater discharges, and to determine if there is a significant difference in the litter quantity and type in the stormwater discharged from cleaned vs. un-cleaned drain inlets.</p>	<p>Department will use the results of these studies to determine whether their current drain inlet cleaning programs should be modified.</p>
<p><i>Evaluation of Factors Controlling Herbicide Runoff to Surface Water</i></p> <p>(CTSW-RT-03-084.73.04)</p> <p><a href="#">(A.3)</a></p>	<p>Complete; Study entitled <i>Evaluation of Factors Controlling Herbicide Runoff to Surface Water</i> is a part of the Water Quality Research and Maintenance (WQRM) program to address public concerns on herbicide on local water bodies; entitled <i>Evaluation of Factors Controlling Runoff to Surface Waters</i>.</p>	<p>Once the effort is complete, the Department will determine the most effective use of the data and implement as necessary.</p>

STUDY	DESCRIPTION / STATUS	FUTURE ACTIVITIES
<p><i>First Flush Phenomenon Characterization Report</i></p> <p>(CTSW-RT-05-073.02.6)</p> <p><a href="#">(B.3)</a></p>	<p>Complete; Study jointly performed by UCLA and UCD entitled <i>First Flush Phenomenon Characterization Report</i>. Most of the data presented was collected from three highly urbanized highway sites in west Los Angeles. Much effort went into developing a quantitative way of defining the very first flush. Other aspects include: variability of water quality during storm events, litter characteristics, correlation among constituents, first flush of organics and particle size distribution, new methods for measuring oil and grease, and grab and composite sampling strategies.</p>	<p>This data is being used in a modeling effort to determine whether detention basin designs that focus on treating the first flush of a storm event provide better treatment than current detention basin designs.</p>
<p><i>First Flush Characterization Study</i></p> <p>(CTSW-RT-03-064.73.02-d)</p> <p><a href="#">(A.1)</a></p>	<p>Study entitled <i>First Flush Stormwater Runoff Characterization Study</i> assesses the relationships between the periodic dry season deposition of contaminants, storm intensity, and duration, and the contaminant concentrations in stormwater runoff.</p>	<p>Ongoing assessment of pollutant data.</p>

STUDY	DESCRIPTION / STATUS	FUTURE ACTIVITIES
<p><i>Stormwater Monitoring and BMP Development Status Report</i></p> <p>(CTSW-RT-06-167.02.02)</p> <p><a href="#">(B.3)</a></p>	<p>Complete; Status of the monitoring and treatment BMP technology development programs, entitled <i>Stormwater Monitoring and BMP Development Status Report</i>. Summary of the monitoring and applied studies conducted during the 2002/2003 fiscal year and those proposed for the next three years. Combines four prior year reports: <i>Annual Research Summary Report</i>, <i>Characterization Monitoring Plans</i>, <i>3-Year Action Plan</i>, and the <i>Treatment Technology Research Status Report</i>.</p>	<p>Ongoing research and evaluation of new BMPs for Department toolbox.</p>
<p><i>Litter Monitoring Studies</i></p> <p>(CTSW-RT-01-018)</p> <p>(CTSW-RT-02-021)</p> <p><a href="#">(C.13)</a></p>	<p>Complete; Two studies entitled; <i>Monitoring Report 2000-2001: Caltrans Public Education Litter Monitoring Study</i> and <i>Caltrans Public Education Litter Monitoring Study 2001-2002</i>; evaluate highway litter-reducing effect of 1-year public litter education campaign, characterize composition of litter gross pollutants, assess effect of wet season first flush in transporting litter from drain inlets, characterize pollutant loads of litter from highway sites, define event mean concentrations and emission rates of highway litter, correlate litter parameters with storm parameters, and characterize highway litter source and type by category.</p>	<p>This data set provided design parameters that led to the development and “approval” of two gross solids removal devices. The information is in SWIS and all gross solids and litter characterization data collected in the future will be added to SWIS.</p>

STUDY	DESCRIPTION / STATUS	FUTURE ACTIVITIES
<p><i>Construction Site Runoff Characterization Study</i></p> <p>(CTSW-RT-02-055)</p> <p><a href="#">(C.12)</a></p>	<p>Complete; Study entitled <i>Caltrans Construction Sites Runoff Characterization Study</i> that characterizes water quality runoff from a variety of Department construction sites, establish a baseline set of construction site stormwater quality concentrations, compare analyzed construction site runoff data with Department and other highway runoff data, explore relationships between runoff quality parameters with specific construction activities and geographic location of construction sites.</p>	<p>This data set is being used to help design monitoring efforts for temporary erosion control pilot studies.</p>
<p><i>Pathogen Characterization Study</i></p> <p>(CTSW-RT-02-025)</p> <p><a href="#">(A.1)</a></p>	<p>Complete; Study entitled <i>Management of Pathogens Associated with Storm Drain Discharge-Results of Investigations of the Presence of Human Pathogens in Urban Storm Drains</i> assesses the densities of human pathogens in storm drain discharges from Department roadways and facilities with a secondary objective to develop, if possible, new methods of detection and quantification for specific human pathogens.</p>	<p>Once an adequate methodology for detecting the presence of pathogens is developed, standard operating procedures for monitoring pathogens will be developed.</p>
<p><i>Characterization of Runoff Discharged into Areas of Special Biological Significance (ASBS)</i></p> <p><a href="#">(C.12)</a></p>	<p>In progress, this study includes edge of highway composite sampling at 5 coastal sites within 5 different Areas of Special Biological Significance (ASBS). The purpose is to characterize the discharge at these locations.</p>	<p>The data will be evaluated as it becomes available. If necessary, Department may modify it's practices or research goals in accordance with the results.</p>

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### 3.3.2 Key Findings

Key findings and conclusions derived from analysis of discharge characterization monitoring data are found in the *Discharge Characterization Study Report* (Caltrans, 2003c) and are summarized below:

1. Summary statistics for the runoff characteristics from various types of roadways and facilities are provided in Tables F-2 through F-6 in Appendix F. The primary environmental factors affecting the quality of runoff from transportation roadways and facilities have been identified, and some of the major patterns and magnitude of temporal variability (annual, seasonal, and intra-storm) have been characterized. Based on these results, it is concluded that sufficient data were collected to characterize the quality of runoff from Department roadways and facilities throughout the state. Ongoing monitoring would be redundant and only continue to produce similar information about the factors affecting runoff quality from transportation roadways and facilities.
2. Analyses performed as part of the characterization study resulted in the development of a list of minimum constituents and indicators appropriate for future monitoring. The minimum list is provided in Appendix F, Table F-7. The minimum list will be used as a reference when creating monitoring programs. These constituents will be monitored when practical. The intent of the minimum list is to focus monitoring efforts on a limited list of constituents to facilitate comparisons between locations and over time. It is recognized that many monitoring efforts may have different constituent lists to address specific needs such as TMDL implementation.
3. Constituents of highway and facilities runoff that are recommended for exclusion from future monitoring are listed in the following table along with their corresponding justifications:

Parameter	Reason for Exclusion	Relationship	R <sup>2</sup> value
DOC	Correlation with TOC	$DOC = 0.97(TOC) - 2.04$	0.914
Temperature	Not used	NA	NA
pH	Replace with laboratory measurement	NA	NA
TDS	Correlation with EC	$TDS = 0.63*EC + 29$	0.771
Aluminum	Correlation with TSS	$Aluminum = e^{(0.562*Ln[TSS] + 5.0)}$	0.771
Arsenic	Low priority based on comparisons to water quality objectives	NA	NA
Iron	Correlation with TSS	$Iron = e^{(0.977*Ln[TSS] + 3.20)}$	0.806
Ammonia	Not observed at concentrations of concern	NA	NA
Nitrite	Replace with Nitrate + Nitrite	NA	NA
Semi-volatile Organic Compounds	Not observed at concentrations of concern	NA	NA

Descriptions of the various previous and planned discharge characterization studies are summarized in Table 3-1.

### 3.3.3 Characterization Future Monitoring

The need for future monitoring is typically associated with water quality factors including sediment, toxicity and litter and may be triggered by one or more of the following:

- New BMP design and performance evaluation;
- New Discharge limitations;
- TMDL requirements;

- 
- Legal requirements;
  - Change in conditions or Department practices that may affect runoff water quality; and
  - Periodic reassessment to identify trends in runoff quality

The *Annual Monitoring and Reporting Program Report* will present the results of long-term trend monitoring and, in light of the new findings and trends identified, will provide a modified monitoring plan for the upcoming wet season. Adjustments to the plan will also be associated with the “triggers” mentioned above. The general procedures that will be used to conduct future monitoring are illustrated in Figure F-1 in Appendix F. All new monitoring and characterization studies will start with well-defined data collection objectives for each applicable type of monitoring (litter, water quality, particles, and toxicity). When the data collection objectives have been accomplished or when the monitoring no longer produces additional scientifically valid information, the characterization is deemed complete and the monitoring effort will be terminated. The Department plans to perform the following activities related to discharge characterization:

1. Conduct long-term characterization and assess trends.
2. Complete the following special characterization studies :
  - a. CTR Characterization Study
  - b. Areas of Special Biological Significance (ASBS) Study
  - c. Drain Inlet Cleaning Efficacy Study
  - d. Pathogen Characterization Study
  - e. Herbicide Runoff Study
3. Conduct an assessment using all available Department characterization data and water quality standards to:
  - a. Identify Targeted Pollutants;

- 
- b. Determine the sources of the pollutants; and
    - c. Determine the extent that the concentrations of targeted pollutants can be reduced through source and treatment control BMPs.
  4. Modify the Minimum Constituent List based on conclusions from available data and new study data and related information, as they become available.
  5. Monitor BMP pilot sites.
  6. Participate in the new development and implementation of TMDLs. The Department will share the monitoring in proportion to the Department's relative pollutant or runoff contribution. Partnerships will be developed with local agencies and other MS4 Permittees to accomplish these tasks.
  7. Conduct new studies as needed to better identify target pollutants and their sources, answer specific questions of importance to the Department, or comply with new permit or legal requirements;
  8. Analyze the Department's updated characterization stormwater data set for trends and long-term changes, regional characterization, source identification, pollutant source reduction opportunities, and provide general guidance for the monitoring program.

### 3.4 Receiving Water Monitoring and Assessments

#### 3.4.1 Description of Activities

Receiving water monitoring and assessment studies conducted during the previous permit cycle include the following studies:

- *North Coast River Loading Study*
- *Small Stream Crossing Study* (Caltrans 2002b); and
- *San Diego Baseline Receiving Water Study* (Caltrans, 2000).

The 4-year *North Coast Loading Study* (Caltrans, 2002b) was conducted for the Navarro River. The purpose of the study was to determine:

- 
- Background levels and origins of stressors (temperature and sediment);
  - How stressors have changed during the period in which salmonid declines have been observed;
  - Mechanisms by which the stressors impact salmonids;
  - Absolute and relative contribution of the Department to the stressor load; and
  - Timing, magnitude, and duration of the Department's inputs relative to decline of salmonids and their habitat within the watershed.

The *Small Stream Crossing Study* (Caltrans 2002b) was conducted to identify the impact of Department roadways and activities on salmonid communities in the Navarro River. Results of that study are reported in the *Small Stream Crossing Impact Research Project; North Coast River Loading Project* (Caltrans, 2002b).

The *San Diego Baseline Receiving Water Study* (Caltrans, 2000) was conducted to determine ambient water quality in the following six water bodies in District 11: Agua Hedionda Lagoon; Buena Vista Creek; San Diego River; Escondido Creek; San Marcos Creek; Chollas Creek South Fork. Results are reported in the *1999-2000 Annual Data Report* (Caltrans, 2000).

The methodologies and findings of these studies have general applicability to other locations, especially those with similar characteristics. The department will use this information to evaluate target pollutants.

#### 3.4.2 Receiving Water Future Monitoring

The Department will participate in the SWRCB Surface Water Ambient Monitoring Program (SWAMP), and other local agency programs on a watershed basis in proportion to the Department's relative contribution of runoff or pollutants to the receiving waters being monitored as the programs are developed.

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## 4 BMP DEVELOPMENT

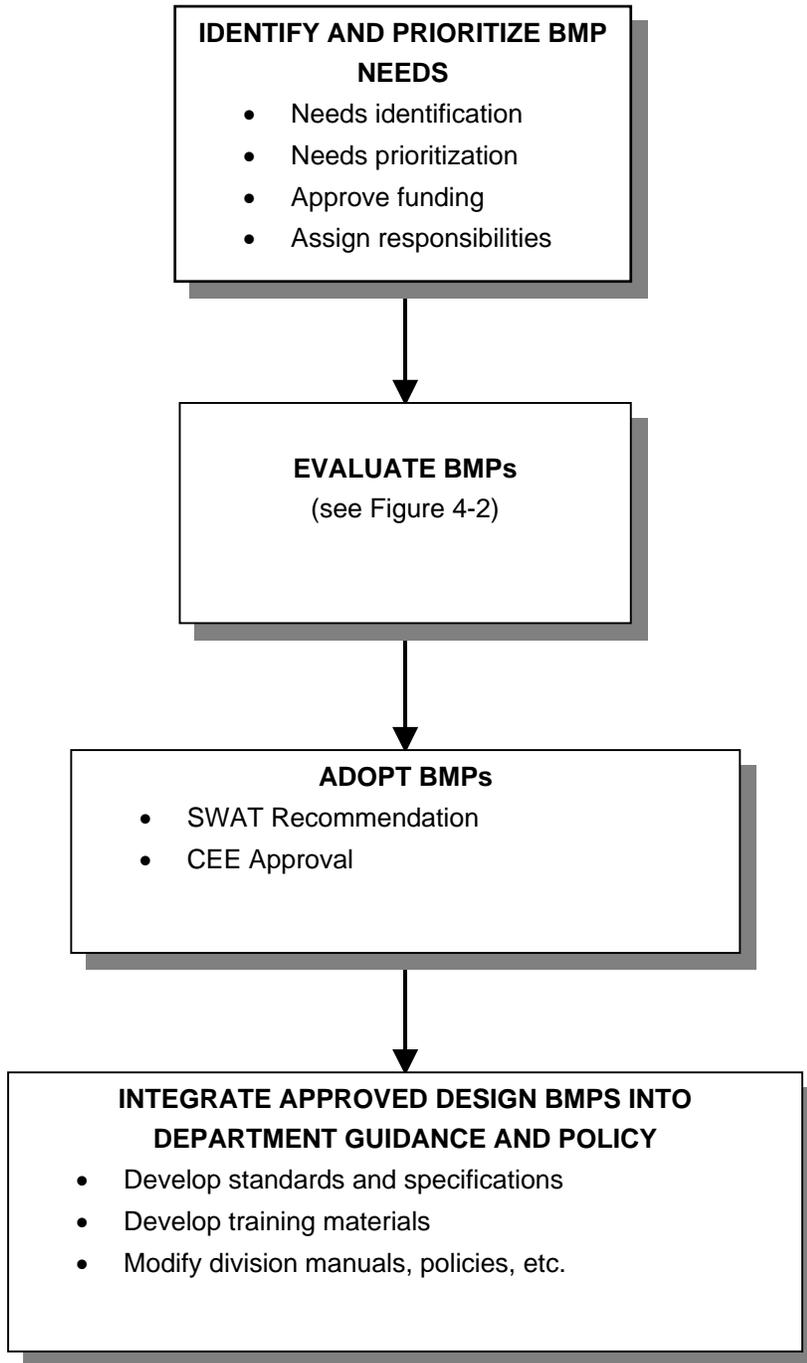
### 4.1 Overview

The Department has created a systematic approach to identify, evaluate, approve, and integrate BMPs into the Department's operations. This process creates a "toolbox" of BMPs that can be used for the Department's transportation projects and activities (see Appendix C). The use of BMPs from the "toolbox" ensures that BMPs are cost-effective, efficient, and appropriate for the transportation infrastructure.

This section describes:

- How new or modified BMPs are identified;
- Criteria used for evaluating BMPs;
- BMP evaluation and approval process, and;
- How BMPs are integrated into the stormwater program.

The Department has been evaluating BMPs for effectiveness in removing pollutants from roadways and facilities since 1996. Evaluations range from literature searches to full-scale pilot testing. The status of the findings of the evaluations are summarized in Annual Reports and made available to the public on the Department's website. To date, the BMP development process has resulted in the approval of a wide range of BMPs now available for implementation. Summary descriptions of approved BMPs are provided in Appendix C. Lists of adopted BMPs used for design, construction, maintenance and facility operations are provided in Sections 5, 6, 7, and 8, respectively. The BMP development process is illustrated by Figure 4.1.



**Figure 4-1. BMP Identification, Development, and Integration Process**

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## 4.2 Identification and Prioritization of BMP Needs

Information and characterization data obtained from the Department's monitoring program contribute valuable information to aid in the Department's BMP development process. Therefore, the development of new BMPs is focused on identifying measures to address the targeted pollutants identified by runoff characterization. The Department identifies and prioritizes BMP needs based on current or future concerns regarding the following:

1. Target Pollutants present in the Department's stormwater runoff ([A.1](#));
2. Adopted TMDLs ([B.1](#));
3. Additional information needed regarding the feasibility of specific BMPs as identified from ongoing applied studies;
4. BMP performance trends that identify weaknesses.

Sources of ideas for potential new BMPs or modifications to existing approved BMPs include literature searches, past and ongoing monitoring, internally generated concepts from technical brainstorming sessions, feedback from the implementation of approved BMPs, and detailed technical research and development.

## 4.3 BMP Evaluation Process

Once the need is identified by the Department, potential new or revised BMPs (materials, procedures, or treatment processes) are evaluated by the appropriate SWAT (Water Quality, Design, Construction, or Maintenance) for adoption and incorporation into the BMP "toolbox." Figure 4-2 illustrates the BMP evaluation process ([B.3](#), [B.4](#), and [B.5](#)).

In general, BMPs are evaluated with respect to the following criteria):

- a. Technical feasibility;
- b. Operation and maintenance requirements;
- c. Performance evaluation, and

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d. Costs of implementation within the transportation infrastructure.

BMPs evaluated by the Department range from simple housekeeping procedures to complex structures. The evaluation process for this range of BMPs may differ significantly. For example, non-structural or administrative BMPs may not need rigorous evaluation with respect to technical feasibility or costs. On the other hand, complex BMPs would require critical evaluation of some or all of the above listed criteria (e.g., sprayed-on tackifiers on construction slopes, or treatment BMPs).

#### 4.3.1 Technical Feasibility

The technical feasibility hinges on whether a potential BMP would be expected to function under conditions encountered at Department roadways and facilities and comply with Department drainage and safety requirements. Specific criteria are listed in detail below:

1. The BMP will function under one or more climatic, geological, and topographical conditions encountered at Department roadways and facilities. Except for initial installation and vegetation establishment periods, irrigation or supplemental water will not be required;
2. The BMP will be able to be sited so it complies with the safety requirements of the Highway Design Manual (HDM, 2001b);
3. The BMP meets drainage design criteria of the HDM. The device will accommodate flow up to and including the highway design flow rate, and;
4. The site, design, and operation of a BMP will not produce any significant adverse environmental impacts.

#### 4.3.2 Operation and Maintenance Requirements

BMPs need to be designed and constructed so they can be effectively operated and maintained during its intended design life. Operation and Maintenance criteria are as follows:

- 
1. The BMP will operate passively during storm events. No personnel are required to be on site prior to or during a storm event to initiate operation of the BMP or perform routine maintenance to keep the BMP operational;
  2. Maintenance requirements for a BMP are well understood and defined with respect to scope and frequency. The goal for permanent BMPs is to use standard maintenance personnel to perform routine inspections and maintenance tasks using available equipment where possible;
  3. Maintenance personnel or Contractors must be able to perform operations and maintenance (O&M) inspections and tasks without significant safety risks;
  4. Long-term maintenance requirements and costs for the BMP are identified and estimated; and
  5. The BMP is designed and operated in a manner that does not create a public nuisance or health hazard. Specifically, it is a concern with regard to potential disease vectors, such as mosquitoes. Structural BMP design and prescribed O&M are adequate to ensure BMP operation and meet water quality goals, while at the same time reducing potential vector concerns to an acceptable level.

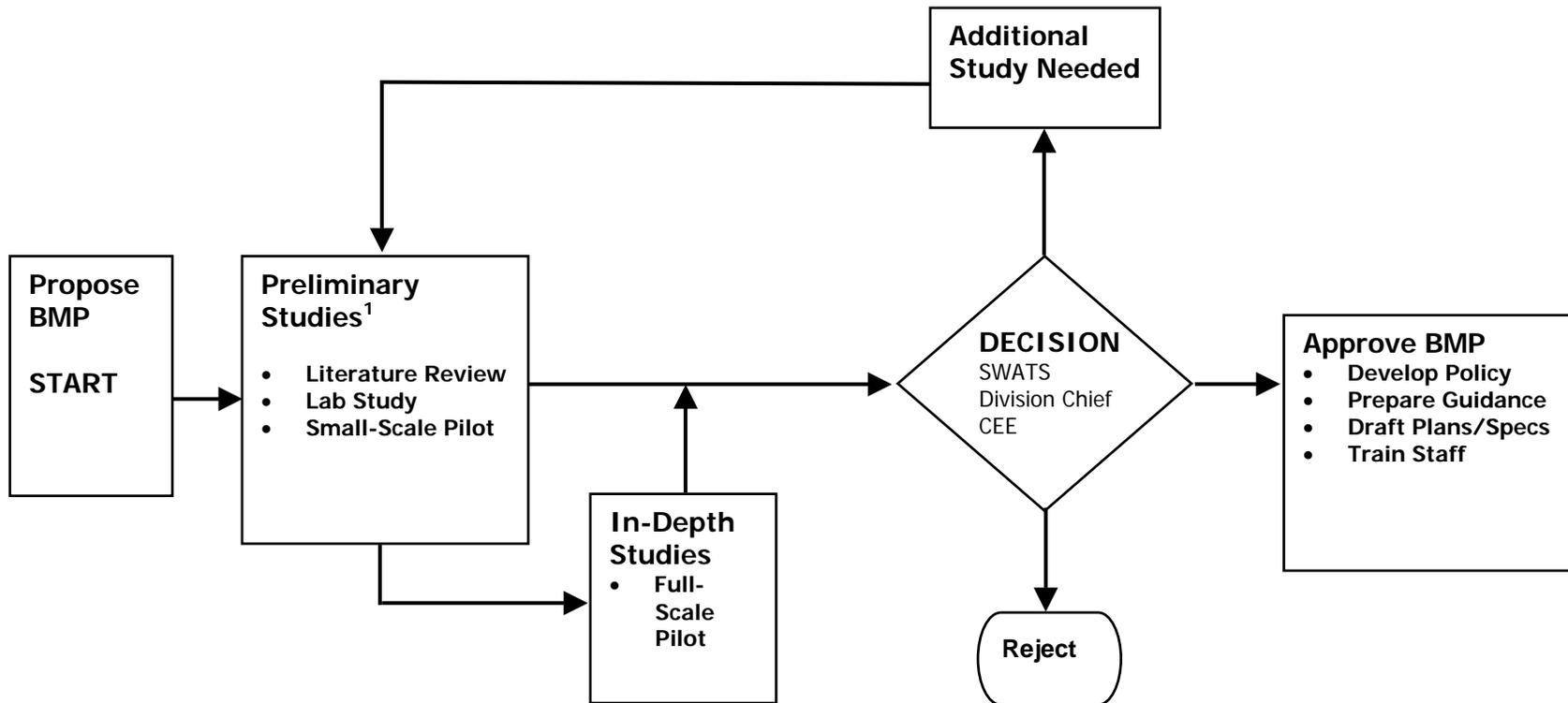
#### 4.3.3 Performance Evaluation

Laboratory studies and /or small-scale studies are performed for more complex BMPs. These studies evaluate specific elements of a BMP technology. For example, a laboratory study may be used to test the effectiveness of different chemical coagulants for potential use in a full-scale detention basin pilot test. Small-scale pilots are a cost effective means of testing technologies needing further development when performance is uncertain and to develop design information for a full-scale treatment unit ([B.3](#), [B.4](#), and [B.5](#)). Treatment BMPs studies should generally demonstrate pollutant removal effectiveness equal to or greater than currently approved BMPs for their targeted constituents to be considered for inclusion in the Department's "toolbox".

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#### 4.3.4 Cost

Pollution control benefits must have a reasonable relationship to the costs to implement the BMP within the Department's transportation infrastructure. Estimated costs are compared to the established costs and cost-effectiveness of other approved BMPs in the Stormwater BMP "toolbox" that target the same constituents in runoff.



<sup>1</sup> Some BMPs may not require all studies listed for evaluation.

Figure 4-2. BMP Evaluation Process

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#### 4.4 Approval of BMPs

The SWATs review studies and appropriate information regarding new BMPs or needed modifications and advise the appropriate Division Chief and the Chief Environmental Engineer (CEE) on whether new BMPs or changes to existing BMPs should be approved. The SWATs will coordinate with other SWATs and HQ Divisions, as needed, to ensure proposed BMPs are supported with appropriate information such as new policy, siting and design criteria, standard plans and specifications, and maintenance protocols for successful implementation. The SWATs may decide to reject proposed BMPs or recommend further studies ([B.3](#), [B.4](#), and [B.5](#)). Upon approval, new or modified BMPs become part of the Department's BMP "toolbox."

#### 4.5 Integration of BMPs into Department Guidance and Policy

Headquarters Divisions use a variety of mechanisms to integrate BMPs into Department activities. Some of these mechanisms include ([B.3](#), [B.4](#), and [B.5](#)):

1. Development of Standard Plans and Specifications for the inclusion of BMPs into projects so they can be appropriately designed, built, operated, and maintained;
2. Development of guidance containing specific procedures and details for Design, Construction, and Maintenance staff;
3. Development of new Stormwater policies, and;
4. Development and implementation of training.

Once approved, BMPs become part of the Department's stormwater BMP "toolbox," and are available for use. See Sections 5 through 9 for descriptions of how the BMPs are implemented within design, construction, maintenance, ROW, and third party activities.

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## 5 PROJECT PLANNING AND DESIGN

### 5.1 Overview

This section describes how the Department incorporates stormwater management into the project planning and design processes. In addition, this section describes the procedures and methodologies used in the selection of Design and Construction BMPs to be used in Department projects.

This section describes:

- The overall project planning and design process;
- BMP identification and selection procedures; and
- Other considerations

### 5.2 Project Planning and Design Process

#### 5.2.1 Project Development Process

The project development process spans a period of time that begins with feasibility studies and ends with the completion of construction. The project development process is as follows:

#### **Project Planning**

PID - Project Initiation Document (PID) phase focuses on identifying and clarifying the specific transportation system problem, and then developing practical solutions. Assessment of potential stormwater issues (e.g., 303d listed water bodies, TMDLs, work within water bodies, etc.) and planning of ROW needs for permanent BMPs begin in the PID phase.

PA/ED - Project Approval/Environmental Document (PA/ED) phase, summarizes the studies of the scope, cost and overall environmental impact of the alternatives, and refines the design concept and design scope of the project alternatives listed in the PID. The outcome of the PA/ED process is a preferred project alternative and its associated BMPs.

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## **Project Design**

PS&E - Plans, Specifications, and Estimates (PS&E) phase. It is during this phase that decisions regarding final BMP design are made.

## **Construction**

The construction phase of the project development process is described in Section 6 of the SWMP.

### 5.2.2 Stormwater Management -Design Program

Key positions responsible for incorporating stormwater elements into the project development process within a District are as follows:

- **Design Division Chief:** The Design Division Chiefs are responsible for the implementation of the policies, procedures and management of Design Program personnel within their respective Districts. This includes ensuring compliance with elements of the SWMP that are required to be implemented by the District Design Division, in addition to ensuring compliance with the *Highway Design Manual (HDM)*, the *Project Development Procedures Manual (PDPM)* (Caltrans, 1999a), and other applicable guidance documents.
- **Project Manager:** A single Project Manager (PM) is responsible for project development phases from project initiation to closeout of the construction contract. During project initiation, the PM identifies the needs and expectations of the project sponsors, including the need for permanent stormwater BMPs. The PM also leads the Project Development Team (PDT). During the design phase of a project, the PM monitors project performance and resolves problems that affect project scope, cost, or schedule. This includes the BMP evaluation and selection process for incorporation into the project. The PM has authority, within the limitations of Department standards and policies, to produce the results that were intended, meet schedules, stay within budget, and keep the sponsors and customers satisfied. Exceptions to these standards and policies are elevated to Headquarters management for approval.

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- **Project Engineer:** The Project Engineer (PE) is responsible for preparation of the PID and PA/ED documents during the planning phases and PS&E documents during the design phase. The Project Engineer is responsible for selecting and incorporating BMPs into project plans and specifications, and is responsible for determining whether a SWPPP is required for the project.
  - **District/Regional Design Stormwater Coordinator:** The District/Regional Design Stormwater Coordinator is responsible for providing support to the DNC and District Design staff throughout all phases of the project planning and design process.

### 5.3 BMP Identification and Selection Procedures

BMPs are selected and designed to protect water quality and minimize life-cycle maintenance costs and resources, provide adequate site access and maximize worker and public safety. Design Pollution Prevention, Treatment, and Construction Site BMPs are incorporated into the plans and specifications. Construction, operating and maintenance costs are considered when selecting permanent project BMPs so adequate cost is projected and enough funding is allocated ([B.9](#)).

Project-specific BMP selection is an iterative process that begins with initial project planning activities. As the project moves into detailed design, the Department revisits the BMP selection process, and a detailed BMP selection and design commences together with detailed design of the highway and drainage facilities. MEP criteria such as economic, social, legal, or technological constraints may affect the feasibility and practicability of permanent BMPs. For example, some highway projects would necessitate extraordinary construction, plumbing, or features to collect and treat runoff. If the Department cannot implement permanent BMPs into a specific project, then the Department documents its findings in a technical report submitted to the RWQCB at PS&E or no later than when project is at Ready-to-List (RTL).

#### 5.3.1 Incorporation of Design Pollution Prevention BMPs into Projects

The Project Engineer uses information gathered during the project planning and design to select appropriate Design Pollution Prevention BMPs. These BMPs are technology-based BMPs selected to reduce post-construction pollutant discharges.

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If implementation of the project will result in an increased potential for downstream erosion or sedimentation in channels, the Department will implement Design Pollution Prevention BMPs. Examples include the following:

- Modifications to channel (both natural and man-made) lining materials, including vegetation, geotextile mats, and rock rip-rap;
- Energy dissipation devices at culvert outlets;
- Smoothing the transition between culvert outlets/headwalls/wing-walls and channels to reduce turbulence and scour;
- Incorporating retention and/or detention facilities to attenuate peak discharges, and;
- Use of pervious surface materials ([B.4](#)) to maximize water quality benefits
- Use of vegetative surfaces.

Table 5-1 lists the Design Pollution Prevention BMPs that have been approved by the Department for project-specific use statewide ([B.4](#)). For summary descriptions of the approved Design Prevention BMPs, see Appendix C.

**Table 5-1. Design Pollution Prevention BMPs <sup>1</sup>**

<b><i>Consideration of Downstream Effects Related to Potentially Increased Flow</i></b>
Peak Flow Attenuation Basins
<b><i>Preservation of Existing Vegetation</i></b>
<b><i>Concentrated Flow Conveyance Systems</i></b>
Ditches, Berms, Dikes and Swales
Overside Drains
Flared Culvert End Sections
Outlet Protection Velocity Dissipation Devices
<b><i>Slope/Surface Protection Systems</i></b>
Vegetated Surfaces
Hard Surfaces

<sup>1</sup>BMP lists and categories are dynamic. New and modified BMPs will be identified in the Annual Report.

The Department also designs vegetative surfaces on completed slope/surface areas to minimize erosion and provide permanent stabilization. These vegetative BMPs are designed to provide long-term sustainability consistent with site conditions and maintenance requirements ([A.7](#)).

To help ensure that the Department meets its goal to incorporate appropriate Design Pollution Prevention BMPs into its projects, the Department provides opportunities for comment from RWQCB staff during the project planning and design phases (see Section 5.4.1). Approved Design Pollution Prevention BMPs, as listed in Table 5-1, are incorporated into projects. However, Districts may propose incorporating a non-approved Design Pollution Prevention BMP as a pilot project (see Section 4.3). The appropriate Headquarters' (HQ) functional units must approve such proposals prior to incorporation of the proposed BMP as a pilot project.

### 5.3.2 Incorporation of Treatment BMPs into Projects

During the project planning and design process, the Project Engineer will incorporate treatment BMPs to the MEP for all projects subject to the statewide permit, and which meet the following criteria ([A.8](#)):

**Table 5-2. Threshold for Implementation of Structural Treatment BMPs into Department Projects**

<b>Project Category</b>	<b>Threshold – Net Additional Impervious Area (2)</b>
Non- Highway Facilities (Rest Areas and Vista Points, Park and Ride Lots, Maintenance and support facilities)	43,560 square feet (1 acre) or local SUSMP impervious area requirement.
Highways (1) (3)	43,560 square feet (1 acre)

(1) Pedestrian/bike path projects do not require treatment BMPs.

(2) If the net impervious area constitutes 50 percent or more of the original facility, then post-construction BMPs will be designed for the entire facility.

(3) Emergency projects are exempt from treatment BMPs based on the immediate need to provide service and protection for the public.

The Department may also have stand-alone projects to construct treatment BMPs to meet location specific pollution control requirements (see Section 13).

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**Table 5-3. Approved Treatment BMPs <sup>1</sup>**

Biofiltration: Strips/Swales
Infiltration Devices
Detention Devices
Traction Sand Traps
Dry Weather Flow Diversion
Media filters
Multi-Chamber Treatment Trains
Wet Basins
Gross Solids Removal Devices

<sup>1</sup>BMP lists and categories are dynamic. New and modified BMPs will be identified in the Annual Report.

The approved treatment BMPs listed in Table 5-3 are fiscally reasonable and technically feasible when project site conditions are favorable. The Department's research program has generally determined these BMPs to be constructible, maintainable, and effective at removing pollutants to the MEP, provided the appropriate siting and design criteria are satisfied. For summary descriptions of the approved treatment BMPs, see Appendix C.

Typically, approved treatment BMPs as described herein are incorporated into projects. However, if project conditions prohibit the use of approved BMPs, then the District may propose incorporating a non-approved BMP as a pilot project (see Section 4.3). The appropriate Headquarters' (HQ) functional units must approve such proposals prior to incorporation of a non-approved BMP as a pilot project. The Department provides opportunities for comment from RWQCB staff by identifying the status of treatment control designs for the projects listed in the DWPs (See Section 16). If requested by the RWQCB staff, the Department reviews the projects with the RWQCB staff.

#### 5.3.2.1 Sizing Treatment BMPs

For water quality treatment purposes, the volume of water to be treated is referred to as the Water Quality Volume (WQV), and the flow rate to be treated is the Water Quality Flow (WQF). The WQV of treatment BMPs are based on using any one of the following options:

- Where there are location-specific criteria as described in Section 13.
- The maximized detention volume determined by the 85<sup>th</sup> percentile runoff capture ratio. This method is described in Chapter 5 of the *Urban Runoff Management WEF Manual of Practice No. 23, 1998* (WEF and ASCE, 1998).

Where there are special circumstances or conditions, the District and the appropriate RWQCB discuss the potential need for modification of the criteria on a case-by-case basis. WQF is the primary design criteria used for various types of flow-based treatment control devices. The Department, the SWRCB, and the nine RWQCBs worked cooperatively to establish rainfall intensities to be used to compute WQFs. WQF criteria for each region are provided in the following table. The listed values of rainfall intensity, as noted in the table, are used in the Rational Formula  $Q = C I A$  (where  $Q$  = discharge rate,  $C$  = runoff coefficient,  $i$  = rainfall intensity,  $A$  = tributary drainage area). This formula is used to estimate runoff from areas that would discharge flow to a filtration treatment device. The resulting runoff rate would be the design WQF to be used at any specific site.

**Table 5-4. Rainfall Intensities used for Design**

<b>Region</b>	<b>Counties/Area</b>	<b>Intensity</b>
Region 1 (North Coast)	Siskiyou and Modoc	0.22 in/hr
Region 1	Trinity, Mendocino, Glenn and Lake	0.27 in/hr
Region 1	Del Norte, Humboldt, Marin and Sonoma	0.36 in/hr
Region 2 (San Francisco)	Entire Region	0.20 in/hr
Region 3 (Central Coast)	Santa Cruz, San Mateo	0.22 in/hr
Region 3	Santa Clara	0.20 in/hr
Region 3	San Benito, Monterey and San Luis Obispo	0.18 in/hr
Region 3	Santa Barbara County and Ventura	0.26 in/hr
Region 4 (Los Angeles)	Entire region	0.20 in/hr

**Table 5-4. Rainfall Intensities used for Design**

<b>Region</b>	<b>Counties/Area</b>	<b>Intensity</b>
Region 5 (Central Valley)	Lassen and Modoc	0.16 in/hr
Region 5	North of Sacramento and Amador (inclusive); All Areas Below 1,000 feet elevation	0.16 in/hr
Region 5	South of Sacramento and Amador; Below 2,000 feet elevation	0.16 in/hr
Region 5	West side of the Coast Ranges	0.16 in/hr
Region 5	North Sierra Nevadas; 1,000 ft - 4,000 feet elevation	0.20 in/hr
Region 5	South Sierra Nevadas; 2,000 ft - 4,000 feet elevation	0.20 in/hr
Region 5	Sierra Nevadas; All Areas above 4,000 feet elevation	0.024 in/hr
Region 6 (Lahontan)	Inyo and south; Pervious surface areas within the Mammoth Creek watershed	0.16 in/hr
Region 6	Truckee River, East and West Forks Carson River, Mammoth Creek, and Lake Tahoe (Location Specific)	See SWMP Section 13
Region 6	All other areas	0.20 in/hr
Region 7 (Colorado River)	Entire region	0.16 in/hr
Region 8 (Santa Ana River)	Entire region	0.20 in/hr
Region 9 (San Diego)	Entire region	0.20 in/hr

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### 5.3.3 Incorporation of Construction Site BMPs into Projects

The Department directs the implementation of Construction Site BMPs on every project by including details and specification requirements in the project's contract documents. Construction Site BMPs are implemented in conformance with the project SWPPP. To prepare the project to address potential stormwater impacts during construction, the Project Engineer incorporates construction site BMPs into the project planning and design process by utilizing the following methods:

1. At every phase in the planning and design process, the PE estimates costs for Construction Site BMPs based upon appropriate estimating methodologies.
2. The PE incorporates those Construction Site BMPs into the project plans and specifications that are essential to protect water quality. These BMPs include but are not limited to such items as concrete washouts, silt fence, drainage inlet protection, or temporary fencing for the preservation of existing vegetation (see Table 6-1). Other Construction BMPs are implemented in accordance with the Contractor's SWPPP (see Section 6).
3. The PE determines the quantities used for each BMP.
4. The PE calculates the expected stormwater run-on to the project site, and provides that information to the RE prior to construction so appropriate control measures can be implemented to convey concentrated flows around or through the site.

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#### 5.3.4 Drinking Water Reservoirs and Recharge Facilities

The Department identifies locations where spills from Department owned rights-of-way, activities or facilities can discharge directly to municipal or domestic water supply reservoirs or ground water recharge (percolation) facilities. The specific location of each facility in relation to the Department's facilities is defined within the DWPs; these locations are determined upon discussions with drinking water suppliers. When developing projects within these defined areas, the Department considers project design features for aiding in the prevention of accidental spills that could impact the area; these features are typically commensurate with safety improvements for reducing vehicle accidents. Examples of these features would include, but not be limited to, median barrier, guardrail, signalization, and vehicle restrictions. Features considered for improving spill response time typically include elongated drainage paths, call boxes, signage, or video surveillance ([A.9](#)).

#### 5.4 Other Considerations

##### 5.4.1 General Correspondence and Communication

The project development process allows for coordination and communication with affected MS4 permittee(s), local agencies, and regulatory agencies (i.e., RWQCB). All projects as identified by the criteria in Section 16.4 are listed in the DWPs. Also, ongoing construction projects are continuously updated on the Department's Internet site at <http://www.dot.ca.gov/hq/construc/statement.html>. These entities have an opportunity to review and comment on project specific related stormwater issues during the environmental review and permitting process, during public hearings, and via special interest regulatory boards or commissions. In addition to project specific coordination, the Districts also discuss stormwater related issues on a broader level by participating in watershed interest groups, municipal water quality teams, and through the completion of public education activities.

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#### 5.4.2 Watershed Planning

Watershed stakeholders coordinate their water quality protection activities to protect the receiving waters. Planning enables multiple jurisdictions to work together to plan for both development and resource conservation that can be environmentally as well as economically sustainable. The Department uses a variety of methods to address land use planning including intergovernmental review and California Environmental Quality Act (IGR/CEQA) process ([A.4](#)).

#### 5.4.3 Hydromodification

Hydromodification is the change in runoff characteristics within a watershed caused by changes in land use (e.g., urbanization). As the total area of impervious surfaces increases in previously undeveloped areas, infiltration of rainfall decreases, causing more water to run off the surface as overland flow, at higher peak rates, and possibly for longer durations. Those storms that previously did not produce runoff in undeveloped conditions now have the potential to produce erosive flows. The increase in volume of runoff may create the potential to intensify erosion, causing changes in sediment transport and the hydraulic geometry (slope, depth, and width) of channels.

The Department incorporates surface paving as needed to enhance project operational safety and functionality. Total paved area and impervious surfaces are kept to a practical minimum to reduce project capital costs. The Department minimizes impacts to receiving waters by maintaining the pre-project runoff hydrograph as closely as is feasible. The peak flow rate, runoff velocities, and erosive characteristics of the soils in the area are assessed with regard to downstream watercourses to determine potential impacts.

The Department is committed to the evaluation and remediation of any hydromodification effects of highway projects ([A.8](#) and [C.14](#)). The Department will participate with other permittees developing watershed-scale approaches for addressing hydromodification ([B.6](#)).

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#### 5.4.4 Notice of Construction

At least 30 days prior to the start of construction, the Department submits a Notice of Construction (NOC) to the appropriate RWQCB for construction projects that require an SWPPP to be prepared for the site. The Project Engineer is typically responsible for preparation of the NOC; other appropriate responsible persons may be described in the DWP. SWPPPs are prepared in accordance with the requirements set forth in the State of California NPDES General Permit for Stormwater Discharges Associated with Construction Activity (Construction General Permit). As described in Section 6 of this SWMP, the SWPPP must be approved by the resident engineer (or authorized staff per a DWP) prior to commencement of soil-disturbing activities or any other activity that could cause stormwater pollution (B.9). For Non-Departmental soil-disturbing activities, the Notice of Construction is discussed in Section 9.

#### 5.4.5 Legal Requirements outside the Permit

The Department's SWMP addresses stormwater discharges from its highways, properties, activities, and facilities throughout the State, as required by the statewide Permit. However, RWQCBs or other agencies may require separate permits or may have additional requirements. The Department will obtain any consultation, permit, license, or certification as required by federal and state laws and regulations for its projects.

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## 6 CONSTRUCTION

### 6.1 Overview

This section describes how the Department addresses its construction activities to reduce the discharge of pollutants from construction sites owned or operated by the Department. The goal of the Department is to protect water quality at all times during the progress of construction. This section describes plans for meeting the requirements of the Construction General Permit. These procedures and directions ensure pollutant discharges from construction sites in the Department's ROW are reduced by either BCT or BAT.

This section is organized to:

- Generally describe the relevant positions for managing day-to-day construction activities relating to stormwater
- Describe the common administrative activities relevant to stormwater during project construction
- Broadly describe the inspection protocols used by the Department to ensure that BMPs are properly implemented and maintained
- Identify the construction BMPs used by the Department

### 6.2 Stormwater Management

Each District has a construction division that administers construction projects. In addition, as shown in Table 9-1, the division provides oversight of certain construction operations conducted by third parties under an encroachment permit (see Section 9) or cooperative agreements (typically with local transportation authorities). The key District positions<sup>2</sup> responsible for implementing stormwater within the Division of Construction ([B.10](#)) are as follows:

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<sup>2</sup> DWPs may describe exceptions to these responsibilities.

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- **Construction Division Chief:** The Construction Division Chief (commonly referred to as District Deputy Director for Construction) is responsible for implementation of policies and procedures, and management of personnel and equipment of the Division. This includes implementation of elements of the SWMP relevant to construction activities.
  - **Resident Engineer (RE):** The RE is the Department's representative charged with administering construction contracts and is responsible for ensuring that stormwater BMPs are implemented, inspected, and maintained on construction sites as specified in the approved Stormwater Pollution Prevention Plan (SWPPP). The RE reviews and approves the SWPPP and notifies the Contractor of any required changes. The RE makes decisions regarding the acceptance of materials furnished and work performed and exercises contractual authority to direct the contractor. The RE is responsible for making project-related notifications and certifications required for stormwater, as described elsewhere in this section. For demolition projects managed by the Division of ROW, the ROW clearance and demolition agent ensures implementation of stormwater BMPs.<sup>3</sup>
  - **Stormwater Inspector:** The RE may assign staff to function as the stormwater inspector. The stormwater inspector assists the RE in carrying out any or all of the inspection tasks and other work of managing the Contractor's activities related to stormwater pollution prevention.
  - **District Construction Stormwater Coordinator:** Districts have a designated Construction Stormwater Coordinator whom implements administrative functions to assist REs. The coordinator is a resource that helps interpret guidance manuals, policies, specifications, permits, and other information that impacts stormwater related decisions. The coordinator identifies the training needs of district construction staff, administers technical expertise resources, and coordinates with other stormwater positions (e.g., DNC) within the District or Headquarters. The DWP provides additional description of the roles and responsibilities of the

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<sup>3</sup> The Division of Right-of-Way is responsible for clearing and demolishing improvements on properties needed for construction or other reasons. The Right-of-Way clearance and demolition agent is responsible for administering contracts and ensuring stormwater BMPs are implemented on demolition sites. Review and approval of the SWPPP, notifications and certifications are completed as specified in the DWP.

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coordinator.

### 6.3 Administration Activities

Administrative activities related to stormwater management address both technical issues and specific permit requirements. These administrative activities are described below:

#### 6.3.1 Pre-Construction

The RE and staff prepare themselves for addressing stormwater issues on a specific project by becoming familiar with the scope of work and the site itself. The RE prepares for stormwater issues by:

- Ensuring that proper notifications have been filed with the RWQCB;
- Meeting with the appropriate environmental and stormwater personnel (e.g., DNC, landscape architect, etc.);
- Reviewing the contract requirements for water pollution control; and
- Conduct a pre-construction meeting with the Contractor to discuss required stormwater measures and requirements. Depending on the project's size and complexity, an additional preconstruction conference may be used exclusively for discussing stormwater control.

#### 6.3.2 Submittal, Review and Approval of SWPPPs

A SWPPP is an implementation plan required under the Construction General Permit for addressing temporary impacts of construction activities upon stormwater. The SWPPP contains project specific information related to the construction; the basic content of the SWPPP is the description of the temporary BMPs to be deployed at the project site.

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The Contractor prepares and submits a completed SWPPP to the RE for review and approval. If revisions are required, the Contractor revises the SWPPP. The time frames for SWPPP submittal, review, and re-submittal are specified in the contract. No construction activity having the potential to stormwater pollution, as determined by the RE, is to be performed until the SWPPP has been approved. To allow construction activities to proceed, the RE may conditionally approve the SWPPP while minor revisions are being completed, or allow activities adequately addressed in the SWPPP to continue with the understanding that an amendment to the SWPPP is submitted by the Contractor for activities not adequately addressed.

If allowed by the RE, specific construction activities, such as traffic control or surveying, that have potential for stormwater pollution may proceed without an approved SWPPP. The SWPPP is approved once the RE has signed the required certification statement in the document.

### 6.3.3 SWPPP Amendments

During construction, changes in conditions of the site may occur that affect the ability of the Contractor to implement the SWPPP as initially approved or the ability of the previously approved SWPPP to meet the objectives for water pollution control. These changes can include, but are not limited to, construction staging or schedule changes, staging area modifications, and unanticipated offsite drainage impacts. The Contractor is required to amend the SWPPP if effectiveness could be diminished by any such changed condition.

Upon the RE's approval, the contractor must incorporate all amendments into the SWPPP. Amendments to the SWPPP are entered into an amendment log contained in the SWPPP. This log is a reflection of dynamic nature of construction activities at the site. Amendments will be prepared to reflect changes in the rainy season or changes in the timing of operations delays or accelerations (C.8).

The RE will review the contractor's proposed SWPPP amendment for completeness and conformance with the revised conditions, and give written approval to the contractor if the amendment is acceptable.

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#### 6.3.4 SWPPP Annual Recertification

On an annual basis, the RE and the Contractor must review and recertify the SWPPP to ensure that it complies with the provisions of the Construction General Permit. The Construction General Permit requires that the recertification be completed by July 1st of each year. However, the Department requires recertification be completed by 1 October of each year. This variance allows the certification to coincide with the typical revision of the SWPPP to address changes in site conditions for the rainy season. Recertification is accomplished by the RE signing and dating the certification statement in the SWPPP.

#### 6.3.5 Applicability of Industrial Stormwater General Permit

In general, the Department's stormwater discharges are regulated by the Department's Statewide Permit and the Department does not apply for coverage under the Statewide Industrial Stormwater General Permit (Order # 97-03-DWQ). However, in certain construction-related situations, the Contractor is required to apply for and operate under the Industrial General Permit. These situations include industrial operations (e.g., batch plants<sup>4</sup>) located outside the Department's project limits and industrial operations that service more than one project ([A.5](#)).

#### 6.3.6 Project Completion

Before accepting the contract (i.e., releasing the Contractor of any further obligations), the RE must do the following:

1. Determine that all unpaved or non-structural surfaces (i.e., open soils) are stabilized in conformance with the contract and have a uniform vegetative cover meeting 70% of the native background vegetative coverage or equivalent stabilization measures;
2. Require the contractor to remove temporary BMPs such as silt fences or other measures that are not a part of permanent BMP, unless Division of Maintenance personnel request these BMPs remain at the facility ([A.10](#)); and

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<sup>4</sup> A batch plant is typically a mixing plant for concrete or asphalt established by contractors to facilitate the construction of a project.

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3. Conduct a final walk-through with the appropriate Division of Maintenance personnel to determine if any additional work within the scope of work and available resources is completed ([A.7](#) and [B.12](#)).

When projects with a SWPPP have been determined to be complete, the RE or authorized designee will submit a Notice of Construction Completion (NCC) to the appropriate RWQCB. The NCC serves as notification that construction activities with a potential to release pollutants are complete and that the construction site is stabilized in accordance with the provisions of the Construction General Permit and any applicable Regional Board Permits.

## 6.4 Inspection

Inspectors from both the Department's staff and the Contractor's staff perform stormwater inspections on construction sites. These inspections are crucial for ensuring the BMPs are properly maintained and functional. The inspections may reveal that additional BMPs are needed or that existing BMPs can be removed; however, site integrity for stormwater pollution prevention must be maintained. In addition, inspections can help in the planning of stormwater BMPs for activities not yet implemented, and can help in the formulation of amendments to the SWPPP.

### 6.4.1 Contractor Inspections

The Department requires its Contractors to be responsible for inspecting the site. To ensure the proper implementation and functioning of stormwater BMPs, the Contractor is to regularly inspect and maintain them. Stormwater inspections occur as follows:

- Prior to a forecast storm;
- After a precipitation event that causes site runoff;
- At 24-hour intervals during extended precipitation events;
- Routinely, a minimum of once every two weeks outside of the rainy season; and
- Routinely, a minimum of once every week during the rainy season

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#### 6.4.2 Department Inspections

The Department performs construction site inspections for all activities related to stormwater pollution protection. The temporary BMPs deployed on Construction sites are regularly inspected coincident with the construction activities that the BMPs are chosen to address. In addition, the designated Stormwater Inspector(s) conducts routine inspections of the site to verify the implementation, functionality, maintenance, and general effectiveness of the BMPs. These inspections are typically done in accordance with the same standards provided to Contractors. In many cases, these inspections occur with the Contractor to avoid disputes and agree upon any needed corrective actions.

#### 6.5 Construction BMPs

The strategy for implementing BMPs at a construction site must consider drainage flow paths, climate, soil conditions, and the type of construction activity to be performed. A construction SWPPP should be a comprehensive plan that meets the following objectives:

- Divert stormwater run-on from contacting site operations.
- Mitigate stormwater induced erosion and sedimentation that occurs within the site.
- Reduce or eliminate sediment and other pollutants associated with construction activities from transport off site in stormwater and authorized non-stormwater discharges.

Methods of handling run-on include complete diversion around the Department's construction site, or directing the run-on through the project in a manner that does not add pollutants resulting from contact with the project.

Successful implementation of BMPs for erosion and sediment control, non-stormwater discharges ([A.2](#)) and waste management is dependent upon the inspection, monitoring, and maintenance practices of the BMPs to ensure functionality and longevity. When defining a strategy of implementation of temporary erosion and sediment BMPs for a construction site, the strategy must consider drainage flow paths (conveyances and topography), climate, soil conditions, and the type of construction activities anticipated.

#### Specific Commitments

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Table 6-1 is a matrix of the construction site BMPs that the Department will implement, as appropriate, on construction sites. These BMPs are required under the Construction General Permit and are intended to implement its technical requirements. The selected BMPs are directed at reducing or eliminating pollutants in stormwater discharges. Descriptions of BMPs are provided in Appendix C.

The individual BMPs designated by an “X” in Table 6-1, as being applicable to a typical construction activity, may not necessarily be appropriate for all projects involving the noted activity. For example, not all projects will have on-site vehicle fueling and maintenance operations; however, those that do conduct the operation are required to conduct the operations in a manner consistent with the BMP identified in Appendix C and described in the Department’s guidance ([A.10](#)). In addition, there are instances where project and site conditions require deviation from the noted BMPs described in Appendix C (Table C-1). However, the BMPs shown in Table 6-1 and further described in Appendix C are typical of those implemented on a project-specific basis.

Project and site conditions may allow implementation of other innovative approaches to construction pollution management in addition to those set forth in Table 6-1. The Department will continue to encourage experimentation and innovation on deploying such measures to minimize pollution; however, the innovative measure must be used in specific applications. Information gathered from the use of innovative measures is analyzed and reported in the Annual Report. Through feedback stemming from these efforts, the Department expects that the construction BMPs identified herein will continue to evolve and improve in its effectiveness in managing the quality of stormwater discharges.

#### 6.5.1 Rainy Season

Appendix E contains mapping of the rainy season for different areas of the State. The rainy season designations are used in conjunction with construction and design guidance to determine the temporary erosion and sediment control BMPs to be implemented at a construction site ([C.8](#)).

Table 6-1. Construction Site BMPs for Typical Highway Construction Activities <sup>1</sup>

BEST MANAGEMENT PRACTICE	Typical Highway Construction Activities																													
	Demolish Pavement/Structures	Clearing & Grubbing	Construct Access Roads	Grading (inc. cut and fill slopes)	Channel Excavation	Channel Paving	Trenching / Underground Drainage	Underground Drainage System Installation	Drainage Inlet Modification	Utility Trenching	Utility Installation	Subgrade Preparation	Base Paving	AC Paving	Concrete Paving	Saw Cutting	Joint Sealing	Grind/Groove	Structure Excavation	Erect False work	Bridge / Structure Construction	Remove False work	Striping	Miscellaneous Concrete Work	Sound Walls/Retaining Walls	Planting and Irrigation	Contractor Activities	Treatment BMP Construction		
<b>Temporary Soil Stabilization</b>																														
Scheduling	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	X	X	X
Preservation of Existing Vegetation		X	X	X			X	X		X									X	X		X			X					
Hydraulic Mulch	X	X		X	X																X					X		X		
Hydroseeding	X	X		X	X																X						X		X	
Soil Binders	X	X		X	X														X		X					X		X		
Straw Mulch	X	X	X	X	X		X	X		X		X							X		X					X		X		
Geotextiles, Mats / Plastic Covers and Erosion Control Blankets	X	X	X	X	X		X	X		X		X							X		X					X		X		

BEST MANAGEMENT PRACTICE	Typical Highway Construction Activities																											
	Demolish Pavement/Structures	Clearing & Grubbing	Construct Access Roads	Grading (inc. cut and fill slopes)	Channel Excavation	Channel Paving	Trenching / Underground Drainage	Underground Drainage System Installation	Drainage Inlet Modification	Utility Trenching	Utility Installation	Subgrade Preparation	Base Paving	AC Paving	Concrete Paving	Saw Cutting	Joint Sealing	Grind/Groove	Structure Excavation	Erect False work	Bridge / Structure Construction	Remove False work	Striping	Miscellaneous Concrete Work	Sound Walls/Retaining Walls	Planting and Irrigation	Contractor Activities	Treatment BMP Construction
Wood mulching																										X		
Earth Dikes / Drainage Swales & Lined Ditches		X	X	X																	X							
Outlet Protection / Velocity Dissipation Devices		X	X	X																	X							
Slope Drains				X																	X							
Streambank stabilization		X		X	X	X			X	X	X								X	X	X	X					X	
Slope Roughening	X	X		X	X																X					X		X
<b>Temporary Sediment Control</b>																												
Silt Fence	X	X	X	X	X		X			X		X							X		X					X		X
Sediment / Desilting Basin	X	X	X	X	X																X					X		X

BEST MANAGEMENT PRACTICE	Typical Highway Construction Activities																											
	Demolish Pavement/Structures	Clearing & Grubbing	Construct Access Roads	Grading (inc. cut and fill slopes)	Channel Excavation	Channel Paving	Trenching / Underground Drainage	Underground Drainage System Installation	Drainage Inlet Modification	Utility Trenching	Utility Installation	Subgrade Preparation	Base Paving	AC Paving	Concrete Paving	Saw Cutting	Joint Sealing	Grind/Groove	Structure Excavation	Erect False work	Bridge / Structure Construction	Remove False work	Striping	Miscellaneous Concrete Work	Sound Walls/Retaining Walls	Planting and Irrigation	Contractor Activities	Treatment BMP Construction
Sediment Trap	X	X	X	X	X		X		X		X								X		X					X		X
Check Dam	X	X		X	X		X																					X
Fiber Rolls	X	X	X	X	X		X		X											X						X		X
Gravel Bag Berm	X	X	X	X	X		X		X											X						X		X
Street Sweeping and Vacuuming	X	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X				X	X	X	X
Sandbag Barrier	X	X	X	X	X		X		X		X								X		X					X		X
Straw Bale Barrier	X	X	X	X	X		X		X		X								X		X					X		X
Slope Drains	X	X	X	X	X		X	X	X	X	X	X			X	X	X	X	X								X	X
Drain Inlet Protection	X	X	X	X	X		X	X	X	X	X	X			X	X	X	X	X								X	X
<b>Wind Erosion Control</b>																												
Wind Erosion Control		X	X	X	X		X		X		X	X	X	X												X		X

BEST MANAGEMENT PRACTICE	Typical Highway Construction Activities																											
	Demolish Pavement/Structures	Clearing & Grubbing	Construct Access Roads	Grading (inc. cut and fill slopes)	Channel Excavation	Channel Paving	Trenching / Underground Drainage	Underground Drainage System Installation	Drainage Inlet Modification	Utility Trenching	Utility Installation	Subgrade Preparation	Base Paving	AC Paving	Concrete Paving	Saw Cutting	Joint Sealing	Grind/Groove	Structure Excavation	Erect False work	Bridge / Structure Construction	Remove False work	Striping	Miscellaneous Concrete Work	Sound Walls/Retaining Walls	Planting and Irrigation	Contractor Activities	Treatment BMP Construction
<b>Tracking Control</b>																												
Stabilized Construction Entrance / Exit		X	X	X																								
Stabilized Construction Roadway		X	X	X																								
Entrance / Exit Tire Wash		X	X	X																						X	X	
<b>Waste Management and Materials Pollution Control</b>																												
Material Delivery and Storage	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Material Use	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Stockpile Management	X		X				X		X	X		X	X	X			X											
Spill Prevention and Control	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

BEST MANAGEMENT PRACTICE	Typical Highway Construction Activities																											
	Demolish Pavement/Structures	Clearing & Grubbing	Construct Access Roads	Grading (inc. cut and fill slopes)	Channel Excavation	Channel Paving	Trenching / Underground Drainage	Underground Drainage System Installation	Drainage Inlet Modification	Utility Trenching	Utility Installation	Subgrade Preparation	Base Paving	AC Paving	Concrete Paving	Saw Cutting	Joint Sealing	Grind/Groove	Structure Excavation	Erect False work	Bridge / Structure Construction	Remove False work	Striping	Miscellaneous Concrete Work	Sound Walls/Retaining Walls	Planting and Irrigation	Contractor Activities	Treatment BMP Construction
Solid Waste Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hazardous Waste Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Contaminated Soil Management	X	X		X			X	X		X	X									X								
Concrete Waste Management	X		X			X		X			X		X		X	X		X	X		X			X	X	X	X	X
Sanitary / Septic Waste Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Liquid Waste Management													X		X	X		X		X		X					X	X
<b>Non-Stormwater Management</b>																												
Water Conservation Practices	X	X	X	X	X	X	X	X	X	X		X				X	X	X	X		X			X		X	X	X
Dewatering Operations	X			X	X	X	X	X	X	X									X		X			X	X	X		X

BEST MANAGEMENT PRACTICE	Typical Highway Construction Activities																												
	Demolish Pavement/Structures	Clearing & Grubbing	Construct Access Roads	Grading (inc. cut and fill slopes)	Channel Excavation	Channel Paving	Trenching / Underground Drainage	Underground Drainage System Installation	Drainage Inlet Modification	Utility Trenching	Utility Installation	Subgrade Preparation	Base Paving	AC Paving	Concrete Paving	Saw Cutting	Joint Sealing	Grind/Groove	Structure Excavation	Erect False work	Bridge / Structure Construction	Remove False work	Striping	Miscellaneous Concrete Work	Sound Walls/Retaining Walls	Planting and Irrigation	Contractor Activities	Treatment BMP Construction	
Paving and Grinding Operations			X			X			X				X	X	X	X	X	X			X								
Temporary Stream Crossing			X				X	X		X	X									X	X	X		X					
Clear Water Diversion	X		X		X	X														X	X	X			X				X
Illicit Discharge / Illegal Connections Detection and Reporting	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Potable Water / Irrigation			X								X																X	X	
Vehicle and Equipment Cleaning	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Vehicle and Equipment Fueling	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

BEST MANAGEMENT PRACTICE	Typical Highway Construction Activities																											
	Demolish Pavement/Structures	Clearing & Grubbing	Construct Access Roads	Grading (inc. cut and fill slopes)	Channel Excavation	Channel Paving	Trenching / Underground Drainage	Underground Drainage System Installation	Drainage Inlet Modification	Utility Trenching	Utility Installation	Subgrade Preparation	Base Paving	AC Paving	Concrete Paving	Saw Cutting	Joint Sealing	Grind/Groove	Structure Excavation	Erect False work	Bridge / Structure Construction	Remove False work	Striping	Miscellaneous Concrete Work	Sound Walls/Retaining Walls	Planting and Irrigation	Contractor Activities	Treatment BMP Construction
Vehicle and Equipment Maintenance	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Pile Driving Operations		X	X	X				X	X	X	X									X					X		X	X
Concrete Curing												X	X	X		X				X				X	X		X	X
Material and Equipment Use Over Water	X	X	X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Concrete Finishing							X	X	X		X				X						X			X	X		X	X
Structure Demolition Over or Adjacent to Waters	X	X	X	X	X		X	X	X	X		X				X		X	X	X	X	X			X		X	X

X = BMP may be applicable to activity.

<sup>1</sup> BMP lists and categories are dynamic. New and modified BMPs will be identified in the Annual Report.

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## 7 ROADWAY MAINTENANCE ACTIVITIES

### 7.1 Overview

The Department performs many activities related to ongoing maintenance and repair of the State's transportation system, including the maintenance of existing treatment BMPs. Considering that these activities may impact stormwater and receiving water quality, the Department implements a program that uses BMPs for stormwater protection during all of its ongoing roadway maintenance activities. This section describes:

- Relevant positions for managing day-to-day maintenance activities relating to stormwater;
- Inspections of maintenance operations to ensure Maintenance BMPs are properly implemented to reduce the potential for stormwater pollution;
- BMPs required as part of the ongoing repair and maintenance activities for existing transportation facilities within state highway ROW;
- Vegetation Management;
- Slope Stabilization;
- Storm Drainage Systems Maintenance;
- Road Sweeping, and;
- Maintenance of Treatment BMPs

### 7.2 Stormwater Management - Roadway

The Headquarters Maintenance Program and District Maintenance Divisions are responsible for maintaining the Department's highways and appurtenances, including appropriate BMPs to protect water quality. The following positions within the Department are responsible for implementing the Stormwater Management Program associated with roadway maintenance activities within the Districts:

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- **Maintenance Deputy District Directors** are responsible for the implementation of policies, procedures, personnel, and equipment of the District Maintenance Stormwater Management Program within their respective Districts. This includes ensuring implementation of the SWMP by the District Maintenance Division.
  - **Maintenance Managers** direct maintenance activities within regions or programs of the District. Each region is subdivided into maintenance areas. Maintenance Managers provide general supervision to Maintenance Area Superintendents within their region or program.
  - **Maintenance Area Superintendents** direct maintenance activities and provide direction to Maintenance Supervisors and are responsible for ensuring maintenance BMPs are implemented in their jurisdictions.
  - **Maintenance Supervisors** are responsible for supervising the maintenance crew. Supervisors provide on-the-job training for specific crew assignments, including compliance with water quality protection requirements. Specific crew assignments are covered in BMP tailgate reviews prior to the start of significant scheduled work activities. Supervisors have onsite responsibility for BMP implementation.
  - **District Maintenance Stormwater Coordinators** are focal points of contact for the DNC. They review stormwater programs for elements related to the Division of Maintenance, monitor and evaluate BMP implementation and effectiveness for Maintenance activities, participate in meetings that potentially impact Maintenance, coordinate stormwater training for District Maintenance staff, and collect, compile, analyze, and prepare materials for the District's maintenance portion of the Annual Report.

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### 7.3 Inspection and Surveillance of Highways

During the course of their routine<sup>5</sup> activities, Maintenance Supervisors and staff continuously make observations of the highway right-of way to identify potential stormwater concerns, such as roadway flooding, damage to slopes, and damaged BMPs (B.12). When conditions warrant implementation or repair of BMPs, the Maintenance Supervisor undertakes actions in accordance with the requirements identified in Section 7.4. In addition, Maintenance Supervisors continuously make observations regarding the specific Maintenance BMPs implemented by staff for the type of activity being performed. If appropriate, additional BMPs are implemented to enhance water quality protection. Illicit discharges are handled in accordance with Section 10 of this SWMP.

### 7.4 Maintenance BMP Requirements

The objective of implementing maintenance BMPs is to ensure that maintenance activities are conducted in a manner that reduces or eliminates the potential for pollutants to be discharged to surface waters via the Department's stormwater drainage systems. Potential pollutants from the Department's maintenance activities include petroleum products, sediment, trash and debris, metals, caustic and acidic substances, nutrients, solvents, paint, herbicides, and other materials. Many of these potential pollutants can be prevented from being discharged via stormwater drainage systems by selecting and implementing BMPs appropriate for the activity and task being conducted.

Maintenance activities are grouped into "families" based on crew assignment (e.g., asphalt paving is in the 'A' Family; Flexible Pavement). These families and associated activities are summarized in Table 7-1. Most maintenance activities are performed in dry weather to minimize impacts to water quality. However, conditions do exist that require some activities to be conducted during wet weather.

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<sup>5</sup> Routine maintenance (see Table 7-1) includes activities conducted by maintenance staff as part of the day-to-day maintenance of roadways, such as sweeping, slope inspection and repair, drain inlet and culvert inspection and cleaning, and vegetation management.

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Division of Maintenance has developed stormwater maintenance guidance (Caltrans, 2003a) that provides detailed descriptions of Maintenance BMPs and addresses implementation of BMPs during maintenance activities ([A.14](#)). The maintenance guidance provides a systematic process for selecting appropriate BMPs at the start of a new activity within another family or within the same family. Maintenance BMPs are listed in Table 7-2; summary descriptions of all BMPs are found in Appendix C. The maintenance guidance provides general and specific BMP options for each specific activity listed in the Maintenance Family ([A.7](#)).

**Table 7-1. Maintenance Families and Related Activities <sup>1</sup>**

<b>Family</b>		<b>Related Activities</b>
A	Flexible Pavement	Maintenance and repair of surface, base, and paved shoulders on all highways with Asphaltic Concrete surfacing.
B	Rigid Pavement	Maintenance and repair of surface, base, and paved shoulders on all highways with Portland Cement Concrete surfacing.
C	Slopes/Drains/Vegetation	Unsurfaced area grading, lateral support repair, replacement, and cleaning of ditches, culverts, under drains, horizontal drains, and misc. headwalls and debris racks. Also included are fence repairs, non-landscaped vegetation management, and repairs and replacement of retaining walls, dikes, and curbs, sidewalks, cattle guards, and other structures.
D	Litter/Debris/Graffiti	All work concerning roadbed and roadside cleanup operations to maintain highway safety and aesthetics.
E	Landscaping	Maintenance and replacement of all vegetative material planted within the highway ROW, including watering, fertilizing, plant replacement, weed control, and miscellaneous work.
F	Environmental	Maintenance stormwater work, including training, meetings, drains and drainage, roadside stabilization, erosion control, stockpile management, BMP implementation, illicit discharges, maintenance of treatment BMPs, and contractor management.
G	Public Facilities	Maintenance of public facilities, such as safety roadside rest areas, vista points, park-and-ride lots, and weigh stations.
H	Bridges	All work performed on structures that provide for passage of highway traffic over, through, or under obstacles and that are assigned bridge numbers by the Office of Structures Maintenance. Work under this family consists of bridge repair, maintenance, painting, and cleaning, including electro-mechanical equipment. Any work covered by an approved Bridge Report.
J	Other Structures	Maintenance, repair, and cleaning of pumping plants, tunnels, tubes, ferries, and docks or slips.
K	Electrical	All maintenance performed on highway electrical facilities used for control of traffic signal systems, highway, sign lighting systems, and all other related electrical systems.
M	Traffic Guidance	All work necessary to replace and maintain roadway markings on the traveled way. Maintenance and replacement of signs placed on state highways for warning, regulating, and guiding traffic. This family also includes the repair, replacement, and cleaning of guideposts or markers, guardrail and median barriers, and energy dissipaters.

Family		Related Activities
R	Snow/Ice Control	All work in connection with snow removal, drift prevention, and maintenance of snow fences, snow poles, and skid chain fabrication and repair. Maintenance and control of chain control locations and appurtenant signs and gates. Truck haul of snow, opening drains covered by snow and ice, and spring opening of roads closed for the winter. Mechanical and hand sanding and the use of deicing agents are also included ( <a href="#">A.13</a> ).
S	Storm Maintenance	Routine patrol activities, as well as repair of both minor and major damage caused by storms or other extraordinary events, such as earthquakes, slides, fires, tidal waves, etc.
T	Management and Support	Management and support to the overall Maintenance Program.

<sup>1</sup>BMP lists and categories are dynamic. New and modified BMPs will be identified in the Annual Report.

**Table 7-2. Maintenance BMPs <sup>1</sup>**

BMPs	BMPs
Scheduling and Planning	Material Delivery and Storage
Sediment Control	Material Use
- Silt Fence	Vehicle and Equipment Operations
- Sandbag or Gravel Bag Barrier	- Vehicle and Equipment Cleaning
- Straw Bale Barrier	- Vehicle and Equipment Fueling
- Fiber Rolls	- Vehicle and Equipment Maintenance
- Check Dam	Paving Operations Procedures
- Sediment Trap	Stockpile Management
Storm Drain Inlet Protection	Water Conservation Practices
Concentrated Flow Conveyance BMPs	Potable Water/Irrigation
- Overside/Slope Drains	Storm Drain Stenciling
- Ditches, Berms, Dikes, and Swales	Safer Alternative Products
- Temporary Diversion Ditches	Drainage Facilities
Soil Stabilization	- Baseline Stormwater Drainage Facilities Inspection and Cleaning
- Compaction	- Enhanced Storm Drain Inlet Inspection and Cleaning Program
- Wood Mulch	- Illicit Discharge Detection, Reporting, and Removal
- Hydraulic Mulch	- Illegal Spill Discharge Control ( <a href="#">A.15</a> )
- Hydroseeding/Handseeding	
- Soil Binders	

BMPs	BMPs
- Straw Mulch - Geotextiles - Riprap	Treatment System Maintenance - Vegetated Treatment Systems (Biofiltration Swales and Strips) - Infiltration Basins - Detention Devices / Traction Sand Trap Devices *Multi-Chambered Treatment Trains *Wet Basins *Media Filters *( <a href="#">B.4</a> ).
Preservation of Existing Vegetation	
Clear-water Diversion	
Work in a Water Body	
Wind Erosion Control	
Sediment Tracking Control - Stabilized Activity Entrance/Exit - Tire Inspection and Sediment Removal	Litter and Debris Removal - Litter and Debris - Anti-Litter Signs
Waste Management - Spill Prevention and Control - Solid Waste Management - Hazardous Waste Management - Contaminated Soil Management - Sanitary/Septic Waste Management - Liquid Waste Management - Concrete Waste Management	Chemical Vegetation Control ( <a href="#">B.12</a> )
	Vegetated Slope Inspection
	Snow Removal and De-Icing Agents
	Stormwater Dewatering Operations (Temporary Pumping Operations)
	Sweeping and Vacuuming
	Maintenance Facility Housekeeping Practices

<sup>1</sup>BMP lists and categories are dynamic. New and modified BMPs will be identified in the Annual Report.

A Maintenance Supervisor is required to conduct regular BMP tailgate meetings prior to each new significant activity assignment (i.e., switch between family activities as shown in Table 7.1). The Maintenance Supervisors review with staff each activity a crew undertakes in a work assignment.

The Division of Maintenance supports innovation in the use of BMPs to minimize the discharge of pollutants. Feedback from the implementation of innovative measures is elevated (formally or informally) for consideration of these BMPs into the Department's stormwater BMP "toolbox" ([B.4](#)). The BMP development process is described in Section 4.

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The Department's maintenance activities are extensive. Some of these routine activities have a proven stormwater quality benefit. For others, the stormwater quality benefit has yet to be proven. These activities, described in the following sections, include: vegetation management, slope stabilization, storm drainage system management, roadway sweeping, and maintenance of treatment control BMPs.

## 7.5 BMPs during Vegetation Management

The Department maintains vegetation on roadsides in a manner compatible with the surrounding environment, safe highway use, and aesthetics ([B.12](#)). The vegetation must be controlled to reduce the risk of roadside fires, maintain sight distance, provide safety, and discourage noxious weeds .

Activities conducted under the Vegetation Control Program include chemical weed control, mechanical weed control, controlled fires, and tree and shrub pruning and removal. Removal of vegetation is generally restricted to a narrow band adjacent to shoulder edges, which is necessary to provide sight distance, protect highway appurtenances such as guardrails and signs, and reduce the threat of fires from disabled vehicles (undercarriage contact) and discarded cigars and cigarettes. Vegetation management practices are designed to control vegetation while minimizing or eliminating discharges from herbicides and nutrient applications ([A.3](#)).

The Department uses integrated pest management principles, including manual, mechanical, chemical, cultural, structural, thermal, and biological to:

- Enhance the establishment of appropriate native and adapted vegetation;
- Maximize vegetative cover where feasible and appropriate;
- Apply vegetation control products in a manner to reduce or eliminate pollutant runoff; and
- Minimize nutrient runoff by applying nutrients according to established application guidelines.

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As required by the California Code of Regulations (Title 3. Food and Agriculture), the Districts submit monthly pesticide use reports to the county agricultural commissioner of the appropriate county. The data includes information about the quantity of herbicides used for vegetation management during the reporting period by District, type of herbicide, and month of application. These reports are compiled by the California Department of Pesticide Regulation and are available online through the California Pesticide Information Portal (CalPIP) at <http://calpip.cdpr.ca.gov/cfdocs/calpip/prod/main.cfm>. The Department will provide a summary of this information in the Annual Report (B.12).

## 7.6 Slope Stabilization

The Department has established a program to periodically inspect roadside slopes to determine the need for remedial measures to stabilize slopes. The program is coordinated by the District Maintenance Stormwater Coordinator and implemented by District staff. The Department uses a standard reporting form for recording, inspection findings, and identifying recommended repairs. These formalized inspections and evaluations are conducted along all roadsides at least once during an established 5-year cycle (B.12). In addition, all newly completed slopes resulting from construction projects will be inspected on a more frequent basis up to one year after project completion (B.10). A summary of the inspections conducted by each District is submitted with the Annual Report.

Slides and slip-outs encountered during routine surveillance and inspections are evaluated for repair. Recommendations are developed for site-specific remedial measures to maintain slope and soil stability. Remedial measures can range from minor grading or seeding to installation of major slope stabilization systems.

Minor slope failures (those within the Division of Maintenance's budget and operational capability) are incorporated into the District Maintenance schedule for repair. Major failures or slopes with significant erosion problems are referred to the State Highway Operation and Protection Program (SHOPP) for project funding and repair. Most projects to repair damage resulting from major storms are usually under active construction or completed before the subsequent rainy season.

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## 7.7 Storm Drainage System Maintenance

Storm drainage systems are inspected annually and are repaired and cleaned as needed to maintain adequate hydraulic capacity per the Department's maintenance guidance. Generally, storm drainage systems are scheduled for cleaning when blockage of 50% of the drainage outlet is observed. Storm drain maintenance activities are typically scheduled to occur prior to the start of the rainy season. Solid and liquid wastes collected from storm drain cleaning are disposed of in accordance with federal, state, and local liquid and solid waste disposal regulations. To date, Departmental research (2003e, Dammel et al., 2001) has concluded that pollutants other than trash and debris are not significantly reduced through storm drain inlet cleaning activities. However, the Department is continuing to conduct further research to assess the stormwater quality benefits of drain inlet cleaning ([A.14](#)). Trash and litter collection activities associated with Storm Drain Maintenance will be provided in the Annual Report ([C.13](#)).

## 7.8 Road Sweeping

The Department conducts roadway and roadside cleanup operations to provide safe highway conditions and to maintain a neat and clean appearance. Sweeping operations are scheduled at the discretion of the Maintenance Supervisor based on accumulation of trash and debris along highly traveled roadways, and in construction areas to control sediment tracking. Litter and debris removal activities include sweeping of the traveled way, paved shoulders, and paved medians. The obvious benefits of road sweeping, in terms of water quality protection, are the removal of trash and other large debris before it can enter drainage systems and waterways. The Department will continue to conduct research of sweeper technology to determine its effectiveness in protecting water quality ([A.14](#)). A discussion of any performed research on road sweeping relevant to water quality will be provided in the Annual Report. Trash and litter collection activities associated with road sweeping will be reported in the Annual Report ([C.13](#)).

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## 7.9 Maintenance of Treatment BMPs

The Division of Maintenance is responsible for ensuring that permanently installed treatment BMPs function as they were designed for the life of the system. These activities are contained in maintenance guidance. Maintenance BMPs for permanent treatment BMPs are listed in Table 7-2. The following factors are addressed in the development of appropriate BMPs ([B.4](#)) for the maintenance of permanent treatment systems:

- Field indicators that trigger required maintenance;
- BMP field measurements;
- Frequency of inspection; and
- Maintenance activities prescribed for specific treatment BMPs.

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## 8 FACILITIES OPERATIONS

### 8.1 Overview

Activities conducted at Department facilities (e.g., maintenance facilities, rest areas, warehouses, etc.) that have the potential to discharge pollutants in stormwater runoff are addressed through the application of BMPs. Furthermore, regular inspections of these facilities are performed to ensure that proper measures are implemented.

This section is organized to:

- Describe management of facilities that may impact stormwater quality;
- Identify the BMPs that are part of the ongoing effort to reduce discharges of pollutants contained in stormwater to the extent feasible, and to prevent pollutants from being present in authorized non-stormwater discharges; and
- Describe the inspection program used to ensure that maintenance BMPs are implemented and maintained.

### 8.2 Stormwater Management – Facilities Operations

Most facilities are managed by the Headquarters Maintenance Program and District Maintenance Divisions. Such facilities include, but are not limited to, maintenance stations/yards, equipment storage areas, and storage facilities. In addition, other Department Divisions may operate fixed facilities addressed in this section. For example, the Equipment Division maintains the Department fleet vehicles and the Procurement Division operates warehouses that may include material storage areas.

For facilities under the Maintenance Division, the positions listed in Section 7.2 are responsible for implementing the Stormwater Management Program within the Districts. For facilities managed by other Divisions (e.g., the Division of Administration), the Building Manager is typically responsible for stormwater compliance at the facility.

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### 8.3 BMP Requirements

BMPs are implemented at facilities to ensure that activities are conducted in a manner that reduces or eliminates pollutants discharged to surface waters. Training programs, as detailed in Section 11 of this SWMP, are designed to ensure Department staff can effectively implement BMPs and inspectors can properly inspect facilities and maintain records appropriately.

Potential pollutants from the Department's facilities include, but are not limited to, petroleum products, sediments, trash and debris, metals, acidic/basic materials, nutrients, solvents, paint, and herbicides. Many of these potential pollutants can be prevented from being discharged via stormwater drainage systems by selecting and implementing BMPs appropriate for the facility activity and task being conducted.

The Department has established a two-pronged effort to address its facilities. First there are specific facilities that warrant special attention due to their activities and potential to discharge pollutants to the stormwater drainage system or directly to surface water. For these facilities, the Department has or will prepare Facility Pollution Prevention Plans (FPPP). The Department has developed a FPPP template that includes chapters on the following ([A.20](#)):

- Facility Information
- Facility Activities
- Pollutant Source Identification
- Control Measures
- Inspection
- Non-Compliance Reporting

Inspections of facilities are the responsibility of the facility manager and are conducted at least once a month. Inspections are necessary to identify potential sources of stormwater pollutants and to ensure that control practices are adequate and effectively implemented.

The second effort is for facilities not required to develop FPPPs (B.11). These facilities are required to control discharge of pollutants through implementation of appropriate source BMPs, but documented inspections and monitoring are not required. However, if discharges of pollutants are discovered, then reporting would be made as described in Section 16.

Table 8-1 identifies the approved BMPs applicable to the typical activities found at its facilities. Descriptions of these BMPs are included in Appendix C.

**Table 8-1. Facilities Operations BMPs<sup>1</sup>**

Best Management Practice (BMP)	Maintenance Stations/yards	Weigh Stations	Rest or Public Areas	Storage Facilities	Lab Facilities
Scheduling and Planning	X	X	X	X	X
Sediment Tracking Control	X			X	
Tire Inspection and Sediment Removal	X			X	
Waste Management	X	X	X	X	X
Spill Prevention and Control	X	X	X	X	X
Solid Waste Management	X	X	X	X	X
Hazardous Waste Management	X	X	X	X	X
Contaminated Soil Management	X	X	X	X	X
Sanitary/Septic Waste Management	X	X	X	X	X
Liquid Waste Management	X	X	X	X	X
Concrete Waste Management	X	X	X	X	X
Materials Handling	X			X	X
Material Delivery and Storage	X			X	X
Material Use	X			X	X
Vehicle and Equipment Operations	X			X	X
Vehicle and Equipment Fueling	X			X	
Vehicle and Equipment Maintenance	X			X	X
Water Conservation Practices	X	X	X	X	X
Potable Water/Irrigation	X	X	X	X	X
Safer Alternative Products	X	X	X	X	X
Litter and Debris	X	X	X	X	X
Litter and Debris	X	X	X	X	X
Anti-Litter Signs	X	X	X	X	X
Snow Removal and De-Icing Agents	X		X	X	
Sweeping and Vacuuming	X	X	X	X	X
Maintenance Facility Housekeeping Practices	X	X	X	X	X
Drain inlet stenciling	X	X	X	X	X

<sup>1</sup>BMP lists and categories are dynamic. New and modified BMPs will be identified in the Annual Report.

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### 8.3.1 Facilities Subject to FPPPs

A Facility Pollution Prevention Plan (FPPP) describes the activities conducted at a facility and the BMPs to be implemented to reduce or eliminate the discharge of pollutants in stormwater runoff from the facility. Generic FPPP elements can be used for activities performed at more than one maintenance facility; however, each site must be evaluated separately and provided with appropriate site-specific BMPs. Facilities subject to developing FPPPs include the following ([B.11](#)):

- Maintenance Stations/Yards;
- Material Storage Facilities (if not totally enclosed); and
- Equipment Storage Facilities (if not totally enclosed)

BMP requirements for these types of facilities are detailed in their respective FPPPs based on the BMPs noted in Table 8-1. Facility managers are responsible for ensuring that the personnel under their direct supervision implement the BMPs called out in the FPPPs.

Facility or site conditions may allow implementation of enhanced BMPs not included in Table 8-1 or described in the guidance. The Department will continue to encourage experimentation and innovation when deploying enhanced BMPs to minimize the discharge of pollutants. Feedback from the implementation of innovative measures is gathered for analysis and reporting in the Annual Report process.

### 8.3.2 Facilities Not Subject to FPPPs

Facilities not subject to FPPP requirements but that might pose a concern for stormwater quality management include ([B.11](#)):

- Park and Ride
- Rest and public areas
- Weigh stations
- Vista points (as signed by the Department)
- Lab facilities (if not totally enclosed)

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- Bridge tenders
  - Border entry stations
  - Commercial inspection facilities
  - Satellite stations

Although the above-listed facilities do not require FPPPs or recurrent stormwater inspections, they must employ appropriate control measures to prevent or reduce pollutant discharges. Facilities not subject to FPPPs are evaluated periodically to ensure that their non-FPPP status remains appropriate ([B.11](#)).

#### 8.4 Inspection

The purpose of the inspection program is to identify areas that contribute to, or have potential to contribute pollutants to a discharge of stormwater or authorized non-stormwater associated with the facility activities and to determine whether control practices identified in the FPPPs to reduce or eliminate pollutant loadings are adequate and properly implemented, or whether additional control practices are needed. The criteria used to evaluate the BMPs during an inspection are defined in Departmental guidance (e.g., 2003a) and described in the FPPP implemented for the facility.

Facilities subject to FPPPs receive monthly inspections documented by the facility manager or designee to monitor the implementation and adequacy of the BMPs. All inspection records are maintained for a period of 3 years. Potential instances of noncompliance are reported to the DNC or other appropriate person as identified in the DWP.

Prior to anticipated storm events and after actual storm events, maintenance facilities will be inspected to ensure that BMPs are in place, and will be documented in a Departmental database system (e.g., Integrated Maintenance Management System [IMMS]). BMPs found to be missing or malfunctioning shall be repaired as soon as practicable and documented in IMMS. Any instances of non-compliance will be reported as described in Section 16.

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## 9 NON-DEPARTMENTAL ACTIVITIES

### 9.1 Overview

The Department has an oversight responsibility to ensure that all activities performed on Department ROW are in conformance with other sections of this SWMP and the General Construction Permit. This section describes the practices used by the Department to manage stormwater activities of non-departmental entities (third parties) within the ROW. The Department manages these activities primarily through the issuance of encroachment permits and other agreements. Often, more than one Division within the Department is involved in the stormwater management of non-Departmental activities. The potential for significant impacts to the safety and operation of the State Highway System determines the level of oversight responsibility by each Division. This section includes:

- Activities Requiring Encroachment Permits
  - Non-Programmed Capital Construction Projects
  - Encroachment Permit Construction Projects
  - Non-Construction Encroachment Activities
- Encroachment Permits Stormwater Management
- Activities Requiring Leases and Other Agreements

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## 9.2 Activities Requiring Encroachment Permits

Most non-departmental activities that occur on Department property (other than the traveling public, residential or commercial leasing) are considered encroachment activities. They require the non-departmental entity to apply for and be subject to the conditions of an Encroachment Permit. Before the Department issues some types of Encroachment Permits, it may also require cooperative agreements or highway improvement agreements with the project or facility sponsors. Encroachment Permits are issued for both construction and non-construction related activities, and must be obtained before the activity can begin.

The Department requires the non-departmental entity to file the NOI and seek coverage under the SWRCB's General Construction Permit, as applicable, before issuing an encroachment permit for any construction activity either partially or completely within state ROW ([A.16](#)). Department oversight and inspection of non-departmental projects is limited to the portion of the project immediately adjacent to or within the Department ROW.

Non-Departmental construction projects are divided into two categories: Non-Programmed Capital and Encroachment Permit construction projects. Oversight responsibility for non-departmental construction projects is summarized in Table 9-1. The Department also issues Encroachment Permits for non-construction activities (see Section 9.2.3).

### 9.2.1 Non-Programmed Capital Construction Projects

Projects that require either a cooperative agreement between the Department and a local government, or a highway improvement agreement between the Department and a private entity are identified as Non-Programmed Capital construction projects. These projects are partially or solely funded by a local or private entity. These agreements require District Design and Construction oversight. Stormwater procedures for all Non-Programmed Capital construction projects are performed in accordance with Sections 5 and Section 6 of this SWMP. In addition, these projects are considered for construction compliance evaluation monitoring in accordance with Section 14.3.

## 9.2.2 Encroachment Permit Construction Projects

Projects constructed by a local agency or a private entity, without a highway improvement or cooperative agreement with the Department, are referred to as Encroachment Permit Construction projects. These projects are generally smaller in scope and have minimal impact on the highway system. The District Encroachment Permit office is solely responsible for oversight of these projects, but does rely upon assistance from other District Divisions. Departmental guidance may specify requirements such as temporary Construction or Design BMPs to ensure water pollution control is provided within the project (A.16). Based on Departmental guidance, the Permit Office determines stormwater inspection frequency for these construction projects by considering project specific factors such as disturbed soil area (DSA), terrain, the proximity to a sensitive receiving water, and whether the project has been issued additional environmental permits, certifications, or agreements.

**Table 9-1. Responsibility and Oversight for Non-Departmental Construction Projects**

TYPE OF PROJECT	DISTRICT DIVISION			NON-DEPARTMENTAL ENTITY
	DESIGN	CONSTRUCTION	PERMIT OFFICE	
Non-Programmed Capital Construction	Verifies NOI <sup>1</sup> Reviews project for Design BMPs <sup>2</sup>	Reviews SWPPP Inspects site Verifies NOT <sup>3</sup>	None	Prepares SWPPP per Department's Guidelines Files NOI Files NOT
Encroachment Permit Construction	None <sup>5</sup>	None <sup>4</sup>	Verifies NOI <sup>1</sup> Inspects project construction <sup>4</sup> Verifies NOT <sup>3</sup> Reviews SWPPP <sup>5</sup> Reviews project for Design BMPs <sup>2</sup>	Prepares SWPPP per CGP Files NOI Files NOT

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<sup>1</sup>NOI or other applicable notification submitted and WDID issued to Permittee for construction stormwater activities.

<sup>2</sup>Design BMPs constructed within ROW will adhere to Department SWMP requirements. Non-Departmental entity is responsible for compliance with local MS4 permit requirements for treatment BMPs outside of Department ROW.

<sup>3</sup>NOT or other applicable notification submitted and approved by RWQCB for construction stormwater activities.

<sup>4</sup>For more complex Encroachment Permit construction projects, the Permit Office may refer SWPPP review and inspection to the District Construction Resident Engineer's office.

<sup>5</sup>For more complex Encroachment Permit construction projects, the Permit Office may refer Design BMP review to the District Design Office.

### 9.2.3 Non-Construction Encroachment Projects

The Department also issues encroachment permits for non-construction activities such as Adopt-A-Highway, special events (i.e. parades, sporting events, banners, snow chain installers, commercial signs, land surveys, monitoring wells, filming, traffic control, and utility maintenance or aerial crossings. Based on Departmental guidance, the District Permit Office may specify BMP implementation requirements based on an assessment of the need for additional stormwater BMPs ([A.16](#)). Additional BMPs and/or provisions will be required as a condition of the encroachment permit where necessary. If the permit applicant proposes to perform an industrial activity subject to coverage under the General Industrial Permit, the applicant will be required to obtain coverage before receiving an encroachment permit.

### 9.3 Encroachment Permits Stormwater Management

The District Encroachment Permit office has the oversight responsibility to review and inspect encroachment permit projects. Key district positions responsible for implementing stormwater within the Office of Encroachment Permits are as follows:

District Permit Engineer (DPE): The DPE is the Department's representative charged with the responsibility of ensuring that the proposed encroachment activity is compatible with the intended primary use of the highway system. The DPE makes decisions regarding the acceptance of changes or improvements performed by the Permittee and or Contractor. The DPE has permit termination authority during non-compliance activities. The DPE delegates review and inspection authority to the Permit Writer and Permit Inspector.

Permit Writer: The Permit Writer ensures the review and approval of plans and specifications for encroachment permit construction activities, and determines when the permit package is complete.

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Construction Oversight Engineer (OSE): The OSE is responsible for providing quality assurance for Encroachment Permit projects that have local agency or private entity contract administration. The OSE makes decisions regarding stormwater implementation and work performance. The OSE may suspend the Encroachment Permit if the contractor fails to take appropriate actions specified in the contract to correct deficiencies.

State Rights-of-Way ROW Utility Coordinator: The ROW Utility Coordinator works with the District Resident Engineer and / or Project Engineer during the scheduling of utility relocation activity.

Permit Inspector: The Permit Inspector is responsible for ensuring that projects are implementing stormwater BMPs. The Permit Inspector notifies the Contractor of the need of amendments to stormwater control plans.

#### 9.4 Activities Managed through Leases and Other Agreements

The Division of ROW manages both properties being held for future highway construction and excess lands until they are sold. The Division of ROW also manages leased properties located within the operating ROW (i.e., “airspace” property). Individuals or agencies that wish to use these properties must sign a lease or other agreement. These agreements specify standard terms and conditions with which tenants are required to comply, including compliance with stormwater requirements.

Properties held for future construction (undeveloped corridors) and excess lands may have residential and non-residential tenants. Maintenance of residential properties is performed by the tenants or the Department’s contractors. All Department properties under lease agreement are managed consistent with local MS4s, and with the SWMP, where applicable. It is accomplished by requiring tenants, via written agreement, to comply with laws and local ordinances, including those pertaining to stormwater. The Division of ROW will ensure that tenants are notified of MS4 and/or SWMP requirements where applicable. Standardized forms used for new leases and rental agreements include such language, where appropriate. The Department is limited in its ability to unilaterally revise existing leases. However, as current leases expire, renewals and new leases will include appropriate stormwater compliance language ([A.16](#)).

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Non-residential leases may include commercial, industrial, agricultural, recreational, and other uses. Maintenance of leased non-residential property is the responsibility of the State's lessee, also required to comply with laws and ordinances.

Some of these activities may be subject to the General Industrial Permit. The General Industrial Permit lists the types of facilities that require coverage. Leased properties are routinely inspected to verify that tenants are maintaining the premises in a neat and orderly manner with no illicit discharges, and with proper storage of materials. Any illicit discharges are reported to the DNC in accordance with Sections 10 and 16 of the SWMP. The Division of ROW inspects properties ([B.14](#)) with industrial activities to determine whether coverage under the General Industrial Permit is required. Tenants subject to this permit are required to provide copies of the Notice of Intent (or No Exposure Certification) filed with the SWRCB, the receipt letter with Waste Discharge Identification Number (WDID), and the SWPPP prepared in compliance with the General Industrial Permit. The Division of ROW will maintain a list of all properties subject to the requirements of the General Industrial Permit, and provide this list in the annual report.

Vacant properties outside the operating ROW (such as those held for future construction and excess lands) are maintained by contractors ([A.16](#)). Unleased properties within the operating ROW (such as vacant airspace properties) are maintained by District Maintenance.

The Division of ROW provides information about BMPs contained in the Department's Stormwater guidance manuals and other available resources. Selection of specific BMPs to be implemented is the responsibility of the tenant and subject to approval of the Department, although the Department may require certain minimum BMPs in its lease.

Facilities managed by other state and federal agencies (weigh stations, agricultural inspection stations, border patrol, etc.), and maintenance activities performed by local government entities are also under written agreement to perform their activities consistent with the SWMP and/or local agency's MS4 permit. Department maintenance activities are also performed at these facilities. These facilities will be reviewed for need for FPPPs along with all other facilities ([B.11](#)).

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## 10 NON-STORMWATER ACTIVITIES / DISCHARGES

### 10.1 Overview

One of the most important reasons for having a stormwater management program is to eliminate pollution caused by wastes other than stormwater from entering the storm drain system. These discharges include accidental spills, illegal connections, and illegal dumping, are considered “illicit” discharges. Other discharges, such as those that are necessary to protect the public, or those that pose no threat to water quality, are considered *authorized* non-stormwater discharges.

The section addresses:

- Plans for monitoring and controlling illicit discharges, including accidental spills, illegal connections, and illegal dumping;
- Management of authorized non-stormwater discharges; and,
- Emergency Operations

### 10.2 Accidental Spills

Accidental spills are illicit discharges resulting from one-time deposits of materials or wastes onto roadways or the ROW which could threaten water quality by potential discharge to water conveyances. The Department notifies the appropriate agencies of reported or discovered spills as defined in Departmental guidance (Caltrans, 1998) ([A.15](#)).

#### 10.2.1 Spill Response

Generally, the responsible party (transporter, etc.) is required by state law to report any spill that threatens public health or the environment. When spills are known to have occurred on state ROW, properly credentialed personnel are mobilized to assess the circumstances. The agency with jurisdiction assumes authority as the incident commander; generally the California Highway Patrol.

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### 10.2.2 Cleanup Activities

The Department's District Hazardous Materials Manager within District Maintenance is in charge of the spill cleanup activity unless directed otherwise by the incident commander (e.g., CHP for highways, etc). The Department has trained in-house and contract hazardous response staff with the responsibility to manage and cleanup spills to protect public safety and the environment. The Department coordinates with local, state, and federal agencies (e.g., County Environmental Health, County Agriculture, Department of Fish and Game, Coast Guard, RWQCB, etc.) as appropriate to determine the approach and level of cleanup needed. Depending on the circumstances or significance of the spill, this coordination is made directly or through the Office of Emergency Services (OES). Each district prepares and implements a District Hazardous Spill Contingency Plan on an annual basis for describing the details of the above activities. Responsible parties are billed for cleanup and disposal costs incurred.

### 10.2.3 Construction Projects

Accidental spills occurring on a construction project are reported by the Resident Engineer to the District Hazardous Waste Coordinator, the DNC, and/or the District HazMat Manager as appropriate. Upon notification, the District Hazardous Waste Coordinator will assess the situation and use an on-call, Hazardous Materials Contractor to respond to emergency spills and conduct cleanup operations. Spills are reported and cleanup activities are conducted as outlined in Section 10.2.1 and 10.2.2.

## 10.3 **Illegal Connections**

Illegal connections may carry unauthorized drainage, wastewater, or other illicit discharges to the Department's storm drain system from adjacent properties. These connections may carry pollutants into the storm drain system. Illegal connections may be intentional or may be unknown to the property owner. The Department has authority over its property, investigates, and resolves illegal connections discovered within the right-of-way. Resolution may include elimination of the connection, proper permitting, or other appropriate actions.

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### 10.3.1 Illegal Connections Reporting

Maintenance, Construction, or Encroachments Permit staff supervising any project, activity, or operation report illegal connections to the DNC. The DNC reports any discharges that threaten public health or the environment to OES, and other agencies as appropriate. In addition, illegal connections outside the ROW and up gradient, so flows enter the Department's stormwater conveyances, are reported to the RWQCB for enforcement ([A.11](#) and [C.9](#)).

## 10.4 **Illegal Dumping**

Illegal dumping is a discharge characterized by one or multiple occasions of intentional dumping of trash, debris, or other wastes on state highways or facilities. Such activity is prohibited by state and local laws and is enforced by the Highway Patrol or local law enforcement agencies. The Department relies primarily upon the CHP for investigation, surveillance, and apprehension of suspects believed to have illegally dumped wastes within the highway system and other Department facilities. If an investigation reveals sufficient evidence, the case will be referred to the District Attorney or County Environmental Health Department is referred to for enforcement. Responsible parties are billed for cleanup and disposal costs incurred ([A.11](#) and [C.9](#)).

### 10.4.1 Management and Reporting of Illegal Dumping

District Maintenance staff is charged with reporting and cleanup of illegal dumping. However, the public also alerts the Department to dumping incidents. The District Public Information Officer (PIO) refers public inquiries or complaints to the appropriate District staff. All significant dumping incidents and cleanup activities are reported to the DNC. The DNC makes any required notifications to response agencies. The Department will evaluate and improve the current illegal dumping reporting/tracking system as necessary.

## 10.5 **Authorized Non-Stormwater Discharges**

Authorized non-stormwater discharges are certain categories of discharges not composed entirely of stormwater but which do not pose a threat to water quality. In some cases they may require the implementation of BMPs. Requirements or exemptions of separate NPDES permits are not addressed in this plan ([A.2](#)).

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### 10.5.1 List of Authorized Non-stormwater Discharges

Unless otherwise identified in Section 13 (Location Specific Activities), this section identifies certain discharges of untreated non-stormwater that pose no threat to water quality and are currently infeasible to eliminate. The Department may update this SWMP to include proposed additions to the current list of authorized non-stormwater discharges as the Department or the SWRCB identifies them. All additional authorized non-stormwater discharges proposed by the Department would include an analysis and justification to present to the SWRCB for approval ([A.2](#)). The following non-stormwater discharges are authorized as long as they are found not to be a significant source of pollution or where appropriate BMPs are implemented to minimize or eliminate pollution:

<ul style="list-style-type: none"><li>• Diverted stream flows</li></ul>	<ul style="list-style-type: none"><li>• Water line/hydrant flushing</li></ul>
<ul style="list-style-type: none"><li>• Slope Lateral Drainage</li></ul>	<ul style="list-style-type: none"><li>• Footing drains</li></ul>
<ul style="list-style-type: none"><li>• Uncontaminated pumped ground water</li></ul>	<ul style="list-style-type: none"><li>• Potable water sources</li></ul>
<ul style="list-style-type: none"><li>• Flows from riparian habitats /wetlands</li></ul>	<ul style="list-style-type: none"><li>• Air conditioning condensate</li></ul>
<ul style="list-style-type: none"><li>• Crawl space pumps</li></ul>	<ul style="list-style-type: none"><li>• Lawn watering</li></ul>
<ul style="list-style-type: none"><li>• De-chlorinated swimming pools</li></ul>	<ul style="list-style-type: none"><li>• Rising ground waters</li></ul>
<ul style="list-style-type: none"><li>• Uncontaminated ground water infiltration to separate storm sewers as defined at 40 CFR §35.2005(20)</li></ul>	<ul style="list-style-type: none"><li>• Springs</li></ul>
<ul style="list-style-type: none"><li>• Discharges or flows from emergency fire fighting activities (See Section 10.6)</li></ul>	<ul style="list-style-type: none"><li>• Foundation drains</li></ul>
<ul style="list-style-type: none"><li>• Irrigation water</li></ul>	<ul style="list-style-type: none"><li>• Residential car washing</li></ul>
<ul style="list-style-type: none"><li>• Landscape irrigation</li></ul>	

Maintenance, Construction, or Encroachments Permit staff report any observed discharges, including those purporting to be one of the above listed authorized non-stormwater discharges ([A.2](#)) suspected of contributing pollution to stormwater conveyance systems within either the Department's highway system or properties to the DNC. Such discharges are investigated as possible illicit discharges and reported as specified.

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Waste discharges to land are not considered non-stormwater discharges under this permit. These operations must be separately permitted by individual or general waste discharge requirements adopted by the applicable RWQCB.

#### 10.5.2 Dewatering Permits Issued by RWQCBs

Dewatering discharge requirements vary among the nine RWQCBs. The Department is currently assembling information regarding dewatering requirements for discharges in order to prepare a comprehensive guidance ([A.6](#)).

### 10.6 Flows from Emergency Activities

Discharges to water conveyances can result from responding to vehicle accidents, storms, landslides, earthquakes, flooding, fires, or other emergencies. These discharges are exempt from the stormwater and non-stormwater discharge ([A.2](#)) prohibitions of the permit. Upon completion of the emergency response as appropriate, the Department will respond to the emergency discharge according to the spill response procedures outlined earlier in Section 10.2. The Department will review the adequacy of response activities ([A.12](#) and [A.15](#)).

### 10.7 Low-Threat Waste Discharges to Land

In April 2003, the SWRCB adopted statewide General Permit (Order No. 2003-0003-DWQ) prescribing waste discharge requirements for certain waste discharges to land with a low-threat to water quality (General WDR). The permit does not allow for any discharges to surface waters. Therefore, these “de minimis” discharges to land are not permitted under our statewide NPDES stormwater permit. Sections 10.7.1 through 10.7.8 describe how each of these low-threat discharges applies to the Department’s statewide activities. Table 10-1 lists the existing stormwater BMPs that may apply to these discharge operations. The Department will review these BMP categories and determine whether modifications to these existing stormwater BMPs can address the waste discharge requirements of the General Permit for Low-Threat Waste Discharges to Land.

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#### 10.7.1 Water / Observation Well Development

The Department performs drilling operations during the planning and design phases of many of its projects. Occasionally, observation wells are constructed and developed in order to obtain geotechnical information. In addition, production water and/or pumping wells may be constructed on state facilities.

#### 10.7.2 Monitoring Well Purge Water

The Department may need to perform measurements and/or sample uncontaminated wells for specific constituents at its properties and projects. These operations may necessitate the need to purge the wells.

#### 10.7.3 Boring Waste: Drill Mud / Cuttings

The Department performs drilling operations to obtain geotechnical information during the planning and design phases of many of its projects. Drill cuttings and drill mud wastes as defined in the General WDR are generated as a result of these operators. A summary of the proposed BMP for Boring Waste Discharges to Land is provided in Appendix C.

#### 10.7.4 Water Main/ Storage Tank / Hydrant Flushing

Water line and hydrant flushing is currently listed as an authorized discharge when discharged to waterways. No BMPs are necessary when discharged to land in a manner that prevents runoff to waterways.

#### 10.7.5 Pipeline/Tank Hydrostatic Testing

The Department routinely performs these operations in order to construct and maintain irrigation lines and to perform facility maintenance.

#### 10.7.6 Small Dewatering Projects

For some construction projects and facilities that require dewatering, discharge to land may be considered as an alternative to discharge to drainages.

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#### 10.7.7 Small Inert Solid Waste Disposal

Small discharges of inert wastes such as those described in the General WDR are generated as a result of certain construction and maintenance operations. These wastes may include uncontaminated soil, rock, and gravel, broken concrete and asphalt, and solid residues from concrete batch, grooving and grinding operations.

#### 10.7.8 Cooling Discharges

Cooling water discharges as defined in the General WDR may occur at some Department facilities and buildings.

**Table 10-1. Discharges to Land and Applicable BMPs**

Stormwater BMP Category	Discharge Category							
	Water / Observation Well Development	Monitoring Well /purge Water	Boring Wastes	Water Main/Storage Tank Flushing	Pipeline / Tank Testing	Small Dewatering Projects	Small Inert Solid Waste Disposal	Cooling Discharges
Solid Waste Management			X				X	
Concrete Waste Management							X	
Liquid Waste Management	X		X					
Water Conservation Practices	X					X		
Dewatering Operations	X					X		
Potable Water/Irrigation	X	X		X	X	X		
Evaporative Water								X
Mud-Jacking and Drilling			X					
Drilling Mud Disposal			X					

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## 11 TRAINING

### 11.1 Overview

The Department is aware of the importance of training employees in basic stormwater management concepts to ensure that all employees have the knowledge and skills necessary to perform their functions within the stormwater program. Each Division regularly presents training sessions, either in person or online, which emphasize essential concepts and build upon them to keep employees informed about such topics as regulation, best management practices, and how to implement good stormwater management.

The Department develops employee-training programs using curricula and materials tailored to specific topics and personnel duties. These programs are evaluated and refined periodically to ensure that the educational messages are both timely and effective ([B.13](#)).

This section describes:

- The overall Department strategy for providing stormwater and related training to its employees and construction contractors;
- Management of the training program;
- Existing and proposed training courses
- Training Course Review & Feedback; and
- Contractor Training

### 11.2 Strategy for Employee Training

The Department's strategy for training current and new employees consists of two parts:

- Develop general training materials incorporated into routine training programs. This strategy is considered to have the highest long-term effectiveness because Department's employees learn to incorporate stormwater quality principles and pollution prevention practices into all aspects of their work.

- 
- Develop and present focused training courses targeted to specific topics, specific groups within the Department, or specific personnel ([A.17](#) and [C.10](#)). DWPs will contain a forecast of the classes and targeted staff to receive each class.

The Department will evaluate the training program annually to assess its effectiveness and provide suggestions for program enhancement, as appropriate ([C.10](#)). Training evaluations are discussed in Section 14.5.

### 11.3 General Management of Employee Training Program

All Department-sponsored training courses, whether developed internally or externally, must be reviewed and coordinated with the Headquarters or District Training Unit to ensure that the courses will meet minimum training requirements. The review looks at such things as pre- and post-course exams, appropriate training methods, course objectives, and other general training requirements. Course content and materials are shared with other divisions within the Department to ensure that policies, procedures, and techniques are compatible and consistent with stormwater requirements (Permit and SWMP) and other regulations that may apply. Copies of all course materials are kept in the Office of Stormwater Quality library.

The purpose of the Employee Training Program is to educate Department employees regarding:

- Stormwater characteristics and water quality issues;
- The roles and responsibilities of individuals, Districts, Divisions and Programs within the Department regarding implementation of the SWMP to achieve permit compliance;
- Activities and practices conducted by Department employees that are or could be sources of stormwater pollution;
- BMPs to be implemented for activities or practices that are or could be sources of stormwater pollution;
- BMPs to eliminate prohibited non-stormwater discharges;
- BMPs for certain authorized non-stormwater discharges; and
- Use of guidelines or other manuals to select and implement BMPs.

## 11.4 Stormwater Courses

Stormwater training courses have been developed by the Department to provide a comprehensive overview of stormwater pollution prevention concepts and practices. The curriculum focuses on stormwater pollution prevention and consists of courses and other training activities. Course topics are updated as needed to reflect modifications to the Department's Stormwater Management Program. Existing and proposed stormwater training courses are listed in Table 11-1 and described in Appendix G.

**Table 11-1. Summary List of Existing and Proposed Training Courses by Division**

<b>Division of Environmental Analysis</b>	
An Introduction to Stormwater	Proposed
Stormwater Quality Fundamentals and Monitoring	Proposed
<b>Division of Design</b>	
Permanent Erosion Control Training	Existing
Construction Site BMP Training for Design	Existing
Project Planning Design Guidance Training ( <a href="#">A.8</a> )	Existing
Water Quality Treatment BMP Design	Existing
Stormwater Data Report Training	Existing
<b>Division of Construction</b>	
Water Pollution Control Compliance on Construction Sites for Resident Engineers	Existing
Stormwater Quality Monitoring and Plan Preparation	Existing
Inspecting for Water Pollution Control on Construction Sites	Existing
Field Erosion Control	Existing

Advanced BMP Training	Existing
Introduction, Laws and Regulations, the Erosion Process	Existing
Advanced Construction Site BMPs and Field Applications	Existing
Water Pollution Control Contract Administration, Inspection and Maintenance on Construction sites	Existing
Management of Construction Site Dewatering Operations	Existing
Water Quality Sampling and Analysis on Construction Sites	Existing
How to Review a SWPPP and Water Pollution Control Program	Existing
Construction Management Training	Existing
<b>Division of Maintenance</b>	
Stormwater Management for Maintenance Activities	Existing
<b>Division of Operations (Office of Encroachment Permits)</b>	
Inspection for Water Pollution Control on Construction Sites	Existing
Encroachment Permit Staff Training	Proposed
<b>Division of ROW</b>	
ROW Stormwater Management	Existing
RW Stormwater Inspections for Leased Property	Proposed

## 11.5 Training Course Review, Feedback, and Improvement

The Department will review individual training courses annually to assess their effectiveness and make improvements where appropriate ([C.10](#)). Information used to review and improve the courses consist of the following elements:

- 
- Review of Pre/Post Training Knowledge Exams
  - Feedback and Suggestions from Student Training Course Evaluations
  - Course Sponsor Evaluation and Recommendations
  - Compliance Monitoring Evaluations (see Section 14)
  - Training Program Evaluation (see Targeted Program Evaluation, Section 14.5)

A summary of the evaluation and any recommendations for revisions will be included in the Department's Annual Report.

## 11.6 Contractors

The Department does not perform training for its contractors, as this would be considered a "gifting of public funds." The Department ensures that construction contractors have a Water Pollution Control Manager that has an appropriate level of qualification. The Water Pollution Control Manager is responsible for providing training to the contractor needed to ensure compliance with the site specific Stormwater Pollution Prevention Plan.

The Department may hold informational sessions for construction contractors to raise their awareness and understanding of the problems and causes of stormwater pollution and to explain their responsibilities. This outreach is done primarily through informational exchanges between the Division of Construction and its contractors. The informational exchanges (e.g., Partnering meetings, Association of General Contractors meetings, Pre-Bid meetings) cover the following topics:

- Provisions, conditions, and requirements of the Permit that apply to their projects;
- Availability of material prepared by the Department for construction contractors; and
- Mandated 24-hour training or certification of the contractor's Water Pollution Control Manager.

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## 11.7 Informational Bulletins

The Department distributes informational bulletins to Department staff. The purpose of these bulletins is to provide up-to-date information about new and proposed water quality regulations, agency guidance, general permits, water quality plans and other related issues that affect implementation of the Department's statewide permit ([B.8](#)).

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## 12 PUBLIC EDUCATION AND PARTICIPATION

### 12.1 Overview

Since the mid-1990s, the Department has developed and presented a variety of public education programs focused on stormwater quality. These programs have been designed to promote awareness of stormwater quality issues and to encourage changes in attitudes and behaviors that may help contribute to the improvement of stormwater quality.

The program was designed to educate the public on the importance of water quality and the impact of their activities on the Department's stormwater drainage system. The Department's statewide public education program includes not only education of the general public, but also education of commercial and industrial entities whose actions may impair the quality of stormwater discharges from Department properties and facilities ([A.18](#) and [B.6](#)). The program includes three elements: (1) research on public behavior that affects the quality of runoff from highways, (2) development of an overall public education strategy, and (3) development and implementation of a mass media advertising campaign as a focal point of the public education strategy.

This section describes:

- The Department's past research into public behavior that affects the quality of runoff;
- Modification of the Department's overall Public Education Strategy;
- The mass media component of the Department's approach to stormwater public education; and
- Public participation and additional resources that help to expand outreach of the Stormwater Public Education Program

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## 12.2 Research and Initial Implementation of the Public Education Plan

The Department recognizes that an effective public education and outreach program is needed to achieve an increased level of awareness of stormwater issues. Accordingly, the approach for the Department's Stormwater Public Education Program during the previous permit cycle was to give the public a basic understanding of water quality issues. This fundamental education was the first step toward creating demonstrable results through behavioral changes. The current program is designed to increase the public's awareness of stormwater quality management and emphasize a message of individual responsibility ([B.6](#) and [C.6](#)).

The Department began implementation of its statewide Stormwater Public Education Program with submission of a plan to expand its existing public education efforts based on a Public Education Research Study. The SWRCB's Executive Director approved the plan in September 2001.

The Department selected the Fresno Metropolitan Area for the location of a pilot research project because of its large size and defined geographical separation from other metropolitan areas. Previous Department research had shown highway litter to be the major concern along highways. Therefore, litter was chosen as the focus of the study, and "Don't Trash Fresno" was selected as the campaign's theme.

Corresponding with the litter reduction approach of the Fresno pilot project, the program emphasizes pollution prevention and pollutant source reduction, focusing on litter along the State's highway system. The program incorporates a variety of methods (e.g., billboards, public service announcements, special events, etc.) to educate the public about the importance of managing stormwater and to promote a change in public behavior regarding the release of potential pollutants (e.g., litter, spilled loads, and oil leaks) on Department properties, facilities and activities.

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### 12.3 Public Education Strategy

Revisions to the public education strategy are based on the results of a litter reduction study discussed in the *Public Education Litter Monitoring Study Report* (Caltrans 2002d). “Don’t Trash California” is the strategy to promote actions that could reduce the amount of highway litter that enters the highway storm drain systems ([B.6](#) and [C.6](#)). The Department intends to partner with various organizations at both the state and local levels. Joint public education initiatives are continuously evaluated to maximize use of educational materials developed from the Department’s Public Education Research Study. The Department anticipates that positive changes in behavior will begin to occur as the “Don’t Trash California” message becomes familiar to California residents ([C.13](#)).

While the “Don’t Trash California” theme will continue to provide the core message for our statewide campaign, outreach efforts will expand to include other target pollutants into our multimedia materials. At the District level, outreach programs for public education are described in the individual DWPs. Although a consistent message is applied statewide, specific content at the District level may vary ([B.6](#) and [C.6](#)).

DNCs work in coordination with their District’s Public Information Officer to educate the public about stormwater pollution. Specific audiences, such as businesses, industry groups, community groups, and environmental groups can be reached with in-depth, targeted materials disseminated through existing newsletters, publications, and event-oriented printed materials.

Additional outreach opportunities, such as the following, may be used to accomplish District outreach and local coordination efforts ([B.6](#)):

- Speakers Bureau Presentations
- Local Events
- School Programs

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There are numerous special events in communities throughout California. Department presence at these events can be used to reach various target audiences within the general public in addition to business, industry, community, and environmental groups. Some major community events for Districts to target may include:

- Community Science Fairs
- Earth Day Celebration
- Water Awareness Month
- County Fairs
- The State Fair
- City/County Clean-up Events
- Creek Week
- Beach Clean-up Events

In addition to the outreach options used for statewide campaigns, the Department's DNCs may use, including, but not limited to:

- Stormwater Public Education brochures
- Stormwater Program brochures
- Brochures specific to aspects of stormwater research
- "Don't Trash California" stickers
- Fact sheets and guidance documents
- Tip cards, post cards, and posters
- Media packages

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## 12.4 Use of Mass Media

The Department enters various media markets with the message, “Don’t Trash California” in its statewide campaign to educate the public on the importance of keeping litter from entering the highway storm drain systems. The following component options may be considered in the implementation of the statewide campaign:

- Newspaper advertisements
- Television and radio public service announcements
- Signage
- Nontraditional media including theater slides, pump toppers, and bus wraps
- Movie theater/cinema slides
- Bus signage
- Shopping Mall and airport graphic signage
- Trade publications
- Press Releases

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## 12.5 Public Participation and Outreach Forums

### 12.5.1 Adopt-A-Highway Program

The Adopt-A-Highway Program provides individuals, community groups, companies, businesses, and other organizations the opportunity to contribute in cleaning up and beautifying California. Adopting a stretch of California highway roadside is a way for these organizations to promote civic responsibility, community pride, and camaraderie while helping to improve the environmental quality along California highways. The *Adopt-A-Highway* Program includes approximately 4,000 groups, representing an estimated 35,000 participants. In 2002, program participants picked up nearly 250,000 bags of trash from California's roadsides. Participants agree to remove litter, plant and establish seedlings, trees and shrubs, and maintain wildflowers, remove graffiti and control vegetation. The *Adopt-A-Highway* signs are installed to identify the participant and let the public know that the section is being maintained by other than state forces. The signs are located at the beginning of each adopted segment. Upon project completion, each participating group is recognized with a Certificate of Appreciation. A report on trash and litter collection activities associated with the Adopt-A-Highway program will be included in the Annual Report ([C.13](#)).

### 12.5.2 Partnerships

The Department's stormwater program will form paid and non-paid partnerships with organizations to improve water quality. The intent of these partnerships is to provide a collaborative effort in getting out the "Don't Trash California" message. Various organizations now use the campaign message on their materials.

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The Department is a member of California Association of Stormwater Quality Association (CASQA), Public Information/Public Participation committee. Quarterly meetings are held to discuss and share stormwater public education information and ideas. We work statewide to form partnerships to benefit all of our stormwater public education programs. The Department partners with CASQA to provide a one-page newsletter available by email subscription to the stormwater community (e.g., stormwater program contractors, regulators, municipal staff working in stormwater, other public agencies, etc.). The purpose of this newsletter is to provide up-to-date information about new and proposed water quality regulations, agency guidance, general permits, water quality plans, and other related issues that affect stormwater (B.6).

#### 12.5.3 Technical Workshops

The Department will continue to host or co-host technical workshops that focus on specific stormwater topics. These workshops are for discussing stormwater issues currently under research and offer the opportunity to share information and facilitate a collective focus on potential solutions to the challenges faced by municipal dischargers. These workshops are held on an as-needed basis and as resources allow (B.6 and C.6).

#### 12.5.4 Online Presence

The Department has an extensive Internet website that includes information regarding the Stormwater Management Program. The website provides information about the stormwater program. The website includes schedule information about upcoming stormwater outreach activities, copies of Public Education Program brochures and bulletins, information related to the BMP development process, construction, and maintenance activities and links to key related sites (B.6 and C.6). The website address is: <http://www.dot.ca.gov/hq/env/stormwater>

The Department also has added a dedicated “Don’t Trash California” Internet website. This website is helpful to the public for downloading educational materials. The website address is: <http://www.dontrashcalifornia.info>

The Department regularly updates the information on these two websites to provide current stormwater program information to the public.

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## 13 LOCATION-SPECIFIC ACTIVITIES

This section provides information about how individual districts are to conduct specific activities or operations for fulfilling issues of concern to a RWQCB (RWQCB). These issues have been developed because of agreed upon conditions or previous permit conditions. These activities are meant to be consistent with other municipal activities within the defined region.

### 13.1 TMDL Requirements

Total Maximum Daily Load (TMDL) requirements are developed by RWQCBs or USEPA pursuant to state and federal requirements to attain the water quality standards for a specific water body. Water Quality Control Plans, also known as Basin Plans, set standards for surface and ground water in the regions. These standards are comprised of designated beneficial uses for surface and ground water, and numeric and narrative objectives necessary to support beneficial uses and the state's anti-degradation policy. A TMDL specifies the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and allocates pollutant loadings to point and non-point sources. The Department will participate in implementation plans of adopted TMDLs with waste load allocations assigned to the Department ([B.1](#)).

Districts are responsible for development and implementation of plans for stakeholder participation to meet the TMDL requirements for a given water body or watershed. Specific implementation plans and documents will be contained in the DWPs prepared for a RWQCB (see Section 16).

### 13.2 Lahontan Region

Portions of Districts 2, 3, 9, and 10 implement specific stormwater management practices within the jurisdiction of the Lahontan RWQCB as follows:

- 
1. Prohibit non-stormwater discharges as follows: a) water line flushing; b) potable water resources; c) uncontaminated pumped groundwater; and d) air-conditioning condensate (not applicable to vehicles) that would violate numerical effluent limitations within the Lake Tahoe Hydrologic Unit ([B.2](#)) or receiving water objectives throughout the Lahontan Region. These prohibitions do not apply to pollutants present due to natural conditions.
  2. A stormwater runoff collection, treatment and/or infiltration disposal facility is to be installed and maintained for discharge of stormwater runoff from impervious surfaces to storm drains or drainages. Treatment shall be provided for the 20-year, one-hour design storm as follows:
    - a. Within the Lake Tahoe Hydrologic Unit: 2.54 cm (one inch) of rain;
    - b. Within the Truckee River Hydrologic Unit: 1.9 cm (3/4 inch) of rain;
    - c. Within the East Fork Carson River and West Fork Carson River Hydrologic Units: 2.54 cm (one inch) of rain; and
    - d. Within the Mammoth Creek Hydrologic Unit above the 2,134 m (7,000-foot) elevation: 2.54 cm (one inch) of rain.

When site conditions do not allow for site runoff to be treated under the conditions above or runoff cannot meet applicable effluent limits and/or receiving water limitations specified in the basin plan, then traction sand trap devices shall be implemented prior to discharge to a storm drain or surface drainage.

3. The Department participates in an Environmental Improvement Program (EIP). The EIP supersedes the Capital Improvement Program (CIP) plans for erosion and runoff control in the Tahoe Basin. The EIP is a comprehensive program that addresses nine (9) environmental thresholds including water quality.

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4. Districts shall not remove vegetation nor disturb the existing ground surface conditions between October 15 of any year and May 1 of the following year unless granted a variance by the Executive Officer within the following areas;
- a) The Lake Tahoe, Truckee River, East Fork Carson River, and West Fork Carson River Hydrologic Units
  - b) Above the 5,000-foot elevation in the portions of Mono and Inyo Counties within the Lahontan Region, activities exempt from this prohibition are as follows:
    - Emergency situations, such as vehicle accidents, fires, floods, criminal investigations, or where public health or welfare is threatened;
    - Work within existing shoulder areas when there is neither snow on the ground nor an immediate threat of precipitation;
    - Placement of erosion control or sediment control measures;
    - Activities that do not cause soil disturbance and that are conducted with the appropriate sediment control and erosion control measures in place; and
    - Ditch and culvert cleaning, or backfilling of drop-off sections when appropriate sediment control and erosion control measures are in place.
5. For projects within the Lake Tahoe Hydrologic Unit that disturb one acre or more of soil, District 3 submits the SWPPP to the RWQCB at least 30 days prior to beginning construction activities. The RWQCB is to notify the District within 15 days of construction of its intent to submit comments and will submit these comments within 10 days of construction; otherwise the District assumes that the RWQCB has no comments or proposed modifications. The RWQCB's proposed modifications shall be addressed within the SWPPP prior to beginning construction activities.

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6. Where abrasives and/or de-icing agents are used on highways within the Lahontan Region, the following shall be recorded:
    - a. Location of the source of abrasives materials.
    - b. Volume of abrasives and de-icing agents used on individual highway segments.

### 13.3 Desert and Low-Rainfall Areas

#### 13.3.1 District 8 (San Bernardino)

The areas below 4000 feet elevation of District 8 within RWQCB Regions 6 and 7 (Lahontan – Victorville and Colorado River Basin Region, respectively) consist principally of the Mojave Desert and the Colorado Desert. Within those deserts, there are few receiving water bodies and very low annual precipitation. Typical storm events are of low frequency and high intensity, generating potential flash flood conditions. None of the Department's approved temporary sediment control BMPs is designed to handle high-flow sudden-onset events. It is generally recognized by both the Department and the RWQCBs in the arid portions of the state that temporary sediment and erosion BMPs are seldom warranted and often unfeasible due to the typical nature of desert thunderstorms. After meetings with the RWQCBs, it was determined that temporary sediment and erosion BMPs are merited for projects that have a high probability of discharging sediment to the following water bodies:

- Mojave River
- Amargosa River
- Colorado River
- Salton Sea

District 8 will implement the following location-specific stormwater management practices:

- 
1. Construction Projects located in District 8 and in RWQCB 6 (Lahontan) will employ temporary soil stabilization, temporary sediment barriers, and temporary desilting basins only if the project is under at least one of the following conditions, or at the specific request of the Regional Board:
    - a. Project location is above 4000-ft elevation;
    - b. Project location discharges stormwater within one mile of any above listed water body; and
    - c. Project location discharges within one mile of tributary stream that lies within one mile of any above-listed water body.

Should these conditions exist in only a portion of a construction project, the BMPs in question will only be applied, as appropriate, in those portions.

2. Construction projects located in District 8 and in RWQCB 7 (Colorado River Basin) will employ temporary soil stabilization, temporary sediment barriers, and temporary de-silting basins only if the project is under at least one of the following conditions, or at the specific request of the Regional Board:
  - a. Project location is above 4000-ft elevation;
  - b. Project location discharges stormwater within five miles of the Colorado River and the Salton Sea; and
  - c. Project location discharges within 500 feet of a permanent or intermittent stream that drains into one of the above-listed water bodies.

Should these conditions exist in only a portion of a construction project, the BMPs in question will only be applied, as appropriate, in those portions.

Construction equipment will be removed from waterways prior to any flash flood events, as indicated by a prediction of rain or issuance of a Flash Flood Advisory or Flash Flood Warning by the National Weather Service in the area of the construction activity for all construction projects in District 8 that are either in:

- RWQCB 6 (Lahontan); or

- 
- RWQCB 7 (Colorado River Basin).

### 13.3.2 Districts 6 and 9

Districts 6 and 9 will implement the location-specific stormwater management practices described in the following paragraphs.

The desert areas of Districts 6 and 9 below 4,000-ft elevation consist principally of the Mojave Desert. Within the Mojave watershed, there are few receiving water bodies and very low annual precipitation. Typical storm events are of low frequency and high intensity, which generate potential flash flood conditions. None of the Department's approved sediment control BMPs is designed to handle such high flow, sudden onset events.

It is generally recognized by both the Department and the RWQCB that in the arid portions of the State, that some temporary sediment and erosion BMPs (such as silt fence) are seldom warranted and, are unfeasible due to the nature of typical desert storm events. Therefore, the deployment of sediment control BMPs will not routinely be required. However, at the direction of the RWQCB, temporary sediment and erosion control BMPs will be considered on a site-specific basis. Additionally, after consultation with the RWQCB Region 6 (Lahontan-Victorville), it was determined that projects that have a high probability of discharging sediment to specific water bodies, however, do merit temporary sediment and erosion BMPs. Specific water bodies include:

- Amargosa River (District 9)
- Owens River (District 9)
- Los Angeles Aqueduct (District 6 and 9)

Construction Projects located in Districts 6 and 9 and in RWQCB 6 (Lahontan-Victorville) will employ temporary soil stabilization, temporary sediment barriers, and temporary desilting basins only if the project meets at least one of the following conditions:

1. Project location is above 4000-ft elevation;

- 
2. Project discharges stormwater within one mile of one of the above-listed water bodies;
  3. Project discharges within one mile of a tributary stream that lies within one mile of one of the above-listed water bodies; and
  4. Project has been specifically identified by the RWQCB as requiring temporary BMPs.

Should any of these conditions exist in only a portion of a construction project, the BMPs in question will only be applied, as appropriate, in those portions.

Construction equipment will be removed from waterways prior to any flash flood events, as indicated by a prediction of rain or issuance of a Flash Flood Advisory or Flash Flood Warning by the National Weather Service at all Construction Projects located in the desert regions of Districts and 9.

#### **13.4 Santa Ana Region**

The current Riverside County MS4 permit requires certain categories of development within the Santa Ana watershed to include a Water Quality Management Plan (WQMP) be submitted for review and approval by the local agency. The Department's requirement to comply with the terms of the Statewide General Construction Permit and the post construction stormwater management elements, as described in Sections 5 and 6 of this SWMP, satisfy the requirements, and apply in lieu of submittal of the WQMP to the local agency.

#### **13.5 San Diego Region**

In response to a joint lawsuit by EPA and citizen groups, the Department began a process of defining and implementing location-specific stormwater management activities in those portions of District 11 that lie within San Diego County and are under the jurisdiction of the San Diego RWQCB. Although these program improvement activities are addressed on the statewide program level in other sections of this SWMP, the District-specific requirements are restated here per agreement between the affected parties.

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District 11 will implement the following location-specific stormwater management practices within the San Diego region:

- Ensure that a Notice of Construction is submitted to the San Diego RWQCB at least 30 days prior to the start of construction for projects that require a WPCP, regardless of the size of the project. The District will also ensure that a Notice of Completion is submitted to the San Diego RWQCB upon completion of construction and stabilization of the site (statewide construction notification program improvement activities are addressed in SWMP Section 5).
- Implement an IC/ID Program includes procedures for the detection and reporting of IC/IDs identified via 1) the Department's field personnel; 2) dry weather field screening results; 3) follow-up on public complaints; or 4) other means. Procedures for conducting follow-up investigations of reported IC/IDs to identify the source have been developed. All identified IC/IDs will be eliminated as expeditiously as possible (statewide IC/ID program improvement activities are addressed in SWMP Section 10).
- Implement a Drain Inlet Inspection and Cleaning Program (statewide roadway maintenance activities, including drain-inlet cleaning, are discussed in SWMP Section 8).
- Annually update FPPPs for all maintenance facilities within San Diego County (statewide FPPP improvements are addressed in SWMP Section 7).
- Participate in a region-wide public education program (the public education program is discussed in SWMP Section 12).
- Implement its program evaluation protocol that serves to assess compliance with the implementation of BMPs within the Department's functional units. Specific mechanisms that serve as a basis to ensure/evaluate compliance are outlined below:

- 
- a) Training - Bi-weekly meetings between the various NPDES Coordinators are held to provide solutions to issues that require immediate resolution. Training for new hires, training schedules and course evaluations are reviewed periodically as part of the Stormwater Coordinator meetings conducted bi-weekly to ensure that training materials and course content are adequate and meet goals (statewide training program improvement activities are addressed in SWMP Section 11).
- b) Project Delivery - Projects are reviewed by the NPDES Unit prior to project completion and advertisement to verify appropriateness of selected measures. Periodic stormwater updates are provided to Project Delivery staff via the NPDES Design Coordinator (statewide program improvement activities related to this task are addressed in SWMP Section 14).
- c) Construction - Compliance reviews are conducted for the Department's construction projects; these reviews provide compliance assistance to field personnel. Rating criteria are specified in the ACCRP. The Department periodically reviews feedback from the compliance reviews to identify and compile information about commonly encountered problems (including conflicts between implementation of stormwater controls and current standard practices and policies), solutions, and suggestions from field personnel. This information forms part of the continuous improvement process for management policies and BMPs. Annual review of noncompliance reports and stop-work orders and other enforcement mechanisms utilized by field personnel related to stormwater compliance is conducted (statewide program improvement activities related to this task are addressed in SWMP Section 14).
- d) Maintenance - Annual review is conducted of the FPPP for maintenance facilities within San Diego County. Maintenance Supervisors conduct monthly inspections of their maintenance facilities to ensure proper implementation of BMPs and timely and adequate corrective actions if deficiencies are noted (statewide FPPP program improvements are addressed in SWMP Section 8).

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### 13.6 Statewide – Pacific Coastline – Areas of Special Biological Significance

In the mid-1970's, 34 areas on the coast of California were designated as areas requiring protection by the SWRCB and were called Areas of Special Biological Significance (ASBS). On October 18, 2004, the Department received a letter from the SWRCB concerning discharges into ASBS from the Department ROW. The letter states that the Department must cease stormwater discharges to all ASBS or, alternatively, must apply for an exception to the Ocean Plan. The Department found that immediate compliance with the discharge prohibition is infeasible. Therefore, on February 1, 2005, the Department submitted a conditional request for an exception. The SWRCB letter of August 18, 2005, also requested information to support the Board's consideration of an exception to the Ocean Plan. The Department submitted the additional information enclosed with a letter dated May 31, 2006. The Department's application for an exception was accepted by the State Board on April 23, 2007.

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## 14 PROGRAM EVALUATION

### 14.1 Overview

Previous sections of this SWMP describe how the Department incorporates stormwater protection into its projects and activities and performs routine inspections to ensure that program elements are incorporated. This section describes how the Department complies with Self-Audit requirements by implementing field compliance evaluation activities and reviewing certain targeted program elements for adherence to the SWMP. This section describes:

- Overall management and responsibilities for program compliance evaluation;
- Compliance evaluation program for field activities (roadway maintenance, facility operations, and construction activities);
- Project Design Compliance Evaluation, and
- Targeted components within the Stormwater Program.

### 14.2 Management and Organization

The Department will perform compliance evaluations for construction, highway maintenance, and facility maintenance activities, as well as targeted program components as described in this section. Program evaluation activities are performed and reported under the direction of the Department's Chief Environmental Engineer. The CEE will provide a management review of program activities on an annual basis; in addition, a comprehensive program evaluation will be performed by year four of the permit cycle that will be used to improve program performance during the next permit re-application period ([C.7](#)).

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### 14.3 Field Activities Compliance Evaluation

The Department continues to implement a program to assess construction field compliance with the Construction General Permit and this SWMP ([C.3](#)). Additionally, the field evaluation program addresses maintenance activities and FPPP implementation for compliance with this SWMP ([A.14](#), [C.4](#), and [C.5](#)). The objectives of this program are to monitor the level of compliance in the field, evaluate trends, and recommend improvements.

#### 14.3.1 Field Compliance Ratings

All field activities selected for compliance evaluations, whether construction, maintenance, or facility operations, will be rated for compliance. Specific rating criteria are established in the individual field compliance evaluation plans for the specific activity being performed (see Section 14.3.2).

#### 14.3.2 Construction, Maintenance, and Facility Operations Compliance Evaluation Plans

Field compliance evaluation plans are prepared for construction, maintenance, and facility operation activities. These plans are annually updated as necessary to improve the program, and will be provided with the Annual Report. The following three plans will be submitted:

- 1) Stormwater Program - Construction Compliance Evaluation Plan
- 2) Stormwater Program - Roadway Maintenance Compliance Evaluation Plan
- 3) Stormwater Program - Facility Maintenance Compliance Evaluation Plan

At a minimum, field compliance evaluation plans contain the following elements:

- Compliance Review Method
- Field Evaluation Selection Criteria
- Inspection Frequency
- Compliance Rating Criteria

- 
- Feedback and Program Improvement

The results of the field evaluation program activities for each fiscal year will be provided in the Annual Report ([C.3](#), [C.4](#), and [C.5](#)).

#### 14.4 Project Design Compliance Evaluation

The objectives of the Project Design Compliance Evaluation are to evaluate compliance of project planning and design activities with requirements of the Permit and SWMP, identify activities that need improvement; and provide necessary feedback and reporting processes ([C.11](#)). These plans may be modified as necessary to improve the design evaluation process, and will be provided with the Annual Report.

At a minimum, design compliance evaluation plans will contain the following elements:

- Design Evaluation Selection Criteria
- Compliance Review Method
- Compliance Rating Criteria
- Treatment BMP Evaluation
- Feedback and Program Improvement

The results of the project design evaluation activities for each fiscal year will be provided in the Annual Report.

#### 14.5 Evaluation of Targeted Program Components

In addition to the Department's compliance evaluations for field and design activities, the Department will examine several targeted components and processes within the program. Targeted program elements are identified in Table 14-2. The Department will develop a plan and implementation schedule for evaluating targeted program components ([C.1](#) and [C.7](#)). The findings and the corrective actions recommended for each component will be provided in the Annual Report.

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**Table 14-2. Targeted Program Components ([C.1](#))**

<b>Component</b>	
1	Final Soil Stabilization Adequacy on Completed Projects.
2	Training Classes.
3	Treatment Control Research.
4	Leased Property.
5	District coordination and communication with the RWQCBs and HQ Staff.
6	Encroachment Permit Applications.
7	Maintenance Slope Stabilization Evaluations.
8	IC/ID Identification and Resolution.
9	Program Structure and Management.
10	Measurable Objectives.

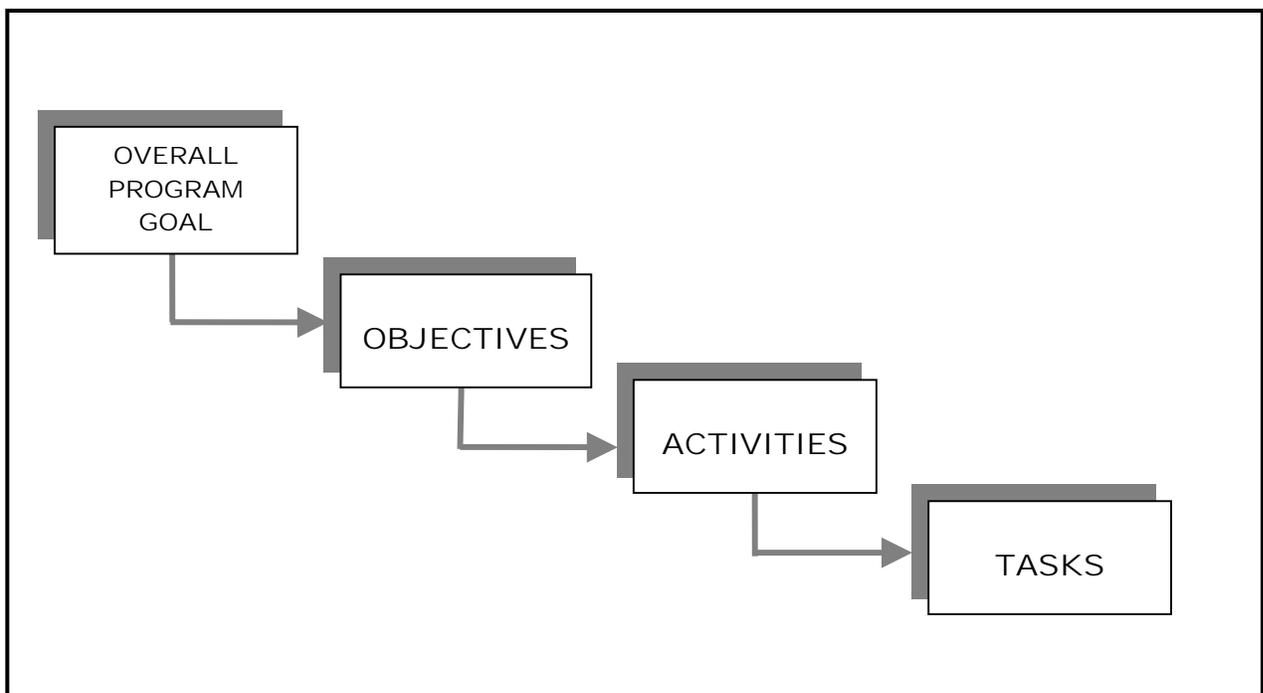
The plan may be modified on an ongoing basis to address necessary changes. Any changes will be identified in the Annual Report.

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## 15 MEASURABLE OBJECTIVES

### 15.1 Overview/Program Goal

The Department's mission is to *improve mobility across California*. To efficiently and effectively carry out its mission, the Department's goal is to achieve seamless integration of stormwater protection activities into normal business practices. Section 15.2 identifies specific program objectives designed to collectively achieve this goal. Section 15.3 describes activities that are either ongoing or planned during the next five years to address the objectives of the program. Section 15.4 lists specific program tasks and a time schedule for each of these tasks to be completed. Achievement of program objectives can be measured by completion of the related activities and tasks. The relationship between the terms described in this section is diagrammed below:



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## 15.2 Program Objectives

Three primary objectives are used to integrate water quality protection into the Department's normal business activities. They are outlined in the following subsections, 15.2.1, 15.2.2, and 15.2.3.

### 15.2.1 Develop the Program

Identify areas of the existing stormwater program that require additional development to address recommended actions and issues.

### 15.2.2 Implement the Program

Implement policy, procedures, guidance, and tools to carry out the program throughout all phases of the Department's projects and activities.

### 15.2.3 Assess and Evaluate the Program

Review, evaluate, and monitor program elements to identify deficiencies, recommend actions, and recognize accomplishments.

## 15.3 Activities

The Department has defined various activities for each program objective that may be performed to help achieve the overall program goal. The number of activities selected for each program objective reflects the overall focus for program improvement within the next permit cycle. Although activities are listed only under one objective, it should be noted that some activities also achieve other stated objectives of the program. Table 15-1 lists proposed activities organized by program objective.

**Table 15-1. Activities Organized by Program Objectives**

<b><i>Objective A – Develop Program</i></b>
<b>A.1.</b> Assess existing pollutant data
<b>A.2.</b> Develop additional guidance for authorized non-stormwater discharges
<b>A.3.</b> Develop improvements for herbicide applications
<b>A.4.</b> Incorporation of stormwater issues in IGR process
<b>A.5.</b> Applicability of General Industrial Stormwater Permit to Department construction activities
<b>A.6.</b> Refine Dewatering Guidance
<b>A.7.</b> Identify potential design procedures and practices to facilitate maintenance activities
<b>A.8.</b> Improve Planning and Design Guidance
<b>A.9.</b> Refine drinking water reservoirs and recharge facility maps
<b>A.10.</b> Improve Construction site BMP Guidance
<b>A.11.</b> Improve current illegal connections and dumping tracking/reporting system, as necessary
<b>A.12.</b> Refine procedures for discharges or flows resulting from emergency activities, as necessary
<b>A.13.</b> Consider potential changes to Deicing Program
<b>A.14.</b> Modify Maintenance Stormwater Guidance
<b>A.15.</b> Refine external spill reporting procedures, as necessary
<b>A.16.</b> Develop Stormwater Guidance for Non-Departmental Activities
<b>A.17.</b> Prepare new training courses to meet stormwater program needs
<b>A.18.</b> Develop Public Education 5-year Strategy
<b>A.19.</b> Evaluate applicability of Industrial Permit to Department activities and facilities
<b>A.20.</b> Upgrade FPPP Template

**Table 15-1. Activities Organized by Program Objectives**

<b><i>Objective B – implement program</i></b>
<b>B.1.</b> Implement adopted TMDLs
<b>B.2.</b> Implement lake Tahoe Retrofit Program
<b>B.3.</b> Review approved BMPs
<b>B.4.</b> Develop and evaluate potential new BMPs to address specific problems
<b>B.5.</b> Review and approve or reject new proposed BMPs for Toolbox
<b>B.6.</b> Implement Public Outreach Strategy
<b>B.7.</b> Conduct inventory of Department storm drainage systems in Phase II MS4s
<b>B.8.</b> Provide staff with information about new stormwater developments related to their work
<b>B.9.</b> Implement Design Program
<b>B.10.</b> Implement Construction Program
<b>B.11.</b> Implement FPPPs for additional Department facilities, as necessary
<b>B.12.</b> Implement Vegetation Maintenance Program
<b>B.13.</b> Train department staff on Stormwater Program responsibilities
<b>B.14.</b> Implement Inspection Program For Lessee Activities
<b>B.15.</b> Implement Annual Reporting Requirements
<b><i>Objective C – Assess and Evaluate Program</i></b>
<b>C.1.</b> Evaluate Target Program Components
<b>C.2.</b> Assess and evaluate Enforcement Actions and Notices of Noncompliance
<b>C.3.</b> Evaluate construction sites for permit compliance
<b>C.4.</b> Evaluate representative roadway maintenance activities statewide for SWMP compliance
<b>C.5.</b> Evaluate compliance of facility operations
<b>C.6.</b> Evaluate Public Education Program
<b>C.7.</b> Assess overall management of Stormwater Compliance Program
<b>C.8.</b> Evaluate rainy season designations
<b>C.9.</b> Evaluate and assess illegal dumping and connections tracking and reporting systems
<b>C.10.</b> Evaluate and assess training courses
<b>C.11.</b> Evaluate Project Design Stormwater Compliance
<b>C.12.</b> Monitor effluent and/or receiving waters
<b>C.13.</b> Trash and litter collection assessment
<b>C.14.</b> Evaluate applicability of hydromodification to Department projects

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## 15.4 Tasks

Table 15-2 lists specific program tasks to be performed for each of the activities listed in Table 15-1. Each task is to be performed in accordance with a time schedule designed to measure the progress toward achieving the program objectives within the next five years. The applicable SWMP section and owner is also listed for each task.

It is the intent of the Department to address each objective during this permit cycle. Tasks or activities listed in the following tables may be modified to improve program performance or otherwise adjusted due to unforeseen problems, changes in funding, policy developments, new regulations and requirements, or other factors.

The status of each task listed in Table 15-2 will be included in the Annual Report. Status reports will include any work performed within the reporting period toward accomplishing the task, including scope of work, milestones, and defined products.

Final products, such as plans and reports, will be submitted to the SWRCB at the time of completion. Notification will be made to the SWRCB once it becomes apparent that any tasks cannot be completed within the prescribed timeframe.

Completion of each task identified in Table 15-2 is to occur as follows:

<b>Measurable Task</b>	<b>Due Date</b>
<b>Year 1</b>	July 1, 2008
<b>Year 2</b>	July 1, 2009
<b>Year 3</b>	July 1, 2010
<b>Year 4</b>	July 1, 2011

Activities performed for tasks due annually will be reported along with the above tasks in the Annual Report to be submitted on October 31 each year.

**Table 15-2. Activities, Tasks, and Schedule**

Activity	Task	SWMP Section	Owner
<b>Objective A – Develop Program</b>			
<b>A.1.</b> Assess Existing Pollutant Data	a) Identify target pollutants and general sources – <i>Year 1, 4</i> b) Incorporate First Flush and CTR characterization study results into Stormwater characterization – <i>Year 2</i> c) Refine the target pollutant sources and make recommendations on source and treatment BMPs – <i>Year 3</i> d) Determine the extent that Department can reduce target pollutants in stormwater discharges – <i>Year 4</i> e) Incorporate findings into Stormwater Program – <i>Annually</i>	3	HQ DEA
<b>A.2.</b> Develop additional guidance for authorized non-stormwater discharges.	a) Review other Department activities to determine if additional discharges (e.g., “free-fall” drainage cleaning) should be included in the list of authorized non-stormwater discharges – <i>Annually</i> b) As appropriate, develop analysis and justification document of proposed authorized non-stormwater discharges for submittal to the SWRCB including appropriate BMPs – <i>Annually</i> Develop proposal to be included in SWMP modifications – <i>Annually</i> Review list of authorized non-stormwater discharges and evaluate need for additional BMPs – <i>Year 1</i>	10	a) HQ Mtce.  b) HQ DEA  c) HQ DEA  d) HQ DEA
<b>A.3.</b> Develop Improvements for Herbicide Applications	a) Review report entitled, “Evaluation of Factors Controlling Herbicide Runoff to Surface Water” and identify potential changes to Department program for herbicide applications – <i>Year 2</i> b) Develop plan to implement changes – <i>Year 2</i>	7	HQ Mtce

**Table 15-2. Activities, Tasks, and Schedule**

<b>Activity</b>	<b>Task</b>	<b>SWMP Section</b>	<b>Owner</b>
<b>A.4.</b> Incorporation of stormwater issues in IGR process	a) Develop guidelines for addressing stormwater issues during the inter-governmental review (IGR) process – <i>Year 2</i> b) Incorporate guidelines into IGR process – <i>Year 3</i>	5	HQ DEA
<b>A.5.</b> Applicability of General Industrial Stormwater Permit for Dept. construction activities	a) Develop policy that addresses industrial facilities located within and outside project limits – <i>Year 1</i> b) Update guidance to address industrial activities, such as concrete batch plants, that reside in the project limits; guidance to include enhanced inspection, monitoring, and reporting at each phase of the project where industrial activities are performed – <i>Year 1</i>	6	HQ Const.
<b>A.6.</b> Refine dewatering guidance	a) Prepare guidance on dewatering to address policies, procedures, identification of BMPs, and other related information for authorized non-stormwater dewatering discharges – <i>Year 1</i>	10	HQ DEA
<b>A.7.</b> Identify potential design procedures and practices to facilitate maintenance activities	a) Evaluate recommendations from the Alternative Highway and Drainage System Design Report – <i>Year 1</i> b) Identify ideas that could be implemented during the project development process to aid maintenance stormwater activities; these ideas could include, but not be limited to, features that reduce herbicide applications, promote better waste management, address historical erosion, etc. – <i>Year 2, 5</i>	5	a) HQ Design b) HQ Mtce.

**Table 15-2. Activities, Tasks, and Schedule**

<b>Activity</b>	<b>Task</b>	<b>SWMP Section</b>	<b>Owner</b>
<b>A.8.</b> Improve planning and design guidance	a) Include recently approved Treatment BMPs into design guidance – <i>Year 1</i> b) Modify Division of Design Guidance – <i>Year 1</i> c) Update Division of Design Guidance – <i>Annually</i> d) Incorporate recommendations of “hydromodification” study, as appropriate, into project design guidance (see measurable objective C.14) – <i>Year 3</i> e) Modify guidance for estimating construction site BMP costs for projects and Develop design guidelines to estimate quantities, costs, and sizing for concrete washouts – <i>Year 1</i>	5	HQ Design
<b>A.9.</b> Refine Drinking Water Reservoirs and Recharge Facility Maps.	a) Refine maps of Drinking Water Reservoirs and Recharge Facilities) to define the highway post mile limits of these areas (to allow easier identification of projects within these limits) – <i>25% Annually</i>	5	HQ Design
<b>A.10.</b> Improve Construction Site BMP guidance	a) Modify Division of Construction Guidance to incorporate new SWMP requirements – <i>Year 1</i> b) Revise guidance for allowing temporary BMPs to remain in place after an NCC has been submitted – <i>Year 1</i> c) Modify construction guidance to incorporate new and/or revised BMPs, including the proper handling and disposal of Portland Cement Concrete grindings and washout wastes – <i>Year 2, annually</i> d) Update construction guidance to comply with renewed General Construction Permit – <i>Once Adopted</i>	6	HQ Const.
<b>A.11.</b> Develop statewide illegal dumping and connections tracking and reporting systems.	a) Based on the results of evaluation of the benefits of illegal dumping reporting (C.9) develop reporting criteria, methodology, and program (if the evaluation in Activity (C.9) shows benefits) – <i>Year 2</i> b) After review by the Districts, finalize program – <i>Year 3</i>	10	HQ Mtce

**Table 15-2. Activities, Tasks, and Schedule**

<b>Activity</b>	<b>Task</b>	<b>SWMP Section</b>	<b>Owner</b>
<b>A.12.</b> Refine procedures for discharges or flows resulting from emergency activities, as necessary.	a) Review current procedures and practices for control of discharges or flows resulting from emergency activities – <i>Year 2</i> b) As appropriate, develop improved procedures – <i>Year 3</i>	10	HQ Mtce.
<b>A.13.</b> Consider potential changes to Deicing Program	a) Review deicing activities throughout the state and determine if statewide or location-specific changes need to be made to maintenance practices or in the type or the application of deicing agents and abrasives – <i>Year 1</i> b) Plan for implementing changes – <i>Year 2</i>	7	HQ Mtce.
<b>A.14.</b> Modify Maintenance SW guidance	a) Modify maintenance guidance to incorporate new SWMP requirements – <i>Year 1</i> b) Modify maintenance guidance to incorporate new approved and/or revised BMPs – <i>Year 2, annually</i>	7	HQ Mtce.
<b>A.15.</b> Refine external spill reporting procedures, as necessary.	a) Review current Department reporting procedures for reportable spills to ensure they meet legal requirements as well as notification of adjacent MS4s when these may be impacted – <i>Year 2</i> b) Evaluate methods of determining if a reportable spill has been reported by the responsible party, or other agency, to those requiring the report – <i>Year 2</i> c) Assess need for developing a “backup” reporting system for situations when the responsible party, or other responder, has not made the required notifications or if reporting status is unknown – <i>Year 2</i> d) As appropriate, develop centralized OES reporting/tracking system (copies of all OES reports are sent to centralized District/HQ Mtce. function) – <i>Year 2</i> e) Implement any necessary changes to Department procedures and practices to ensure that all spills on Department property are appropriately reported – <i>Year 3</i>	10	HQ Mtce.

**Table 15-2. Activities, Tasks, and Schedule**

Activity	Task	SWMP Section	Owner
<p><b>A.16.</b> Develop stormwater guidance for Non-Departmental activities.</p>	<p>a) Establish consistent statewide guidance and requirements for management of non-departmental activities, including guidance on construction and non-construction projects that require Encroachment Permits – <i>Year 2</i></p> <p>b) Implement program for non-departmental activities – <i>Year 3</i></p> <p>c) Develop standardized language for leases and other agreements that conforms with Department policies and procedures including the SWMP – <i>Year 2</i></p> <p>d) Use standardized language that conforms with the SWMP for new leases and other agreements – <i>Year 3</i></p> <p>e) Revise language in existing leases and other agreements to conform with the SWMP as agreements come up for renewal – <i>Annually, beginning Year 3</i></p> <p>f) Amend ROW guidance to include Stormwater guidance for lease inspection procedures and frequencies – <i>Year 2</i></p> <p>g) Conduct inventory non-residential leases with potential industrial activities that may require coverage under the General Industrial Stormwater Permit – <i>Year 1</i></p> <p>h) Conduct annual inspection of non-residential leased property (excluding low impact sites) to assess conformance with lease terms – <i>Annually</i></p> <p>i) Verify that cooperative agreements address stormwater requirements – <i>Year 1</i></p> <p>j) Update encroachment permit guidance to comply with renewed General Construction Permit – <i>Once Adopted</i></p>	<p>9</p>	<p>a) HQ Traffic Ops/HQ Construction/HQ Design</p> <p>b) HQ Traffic Ops</p> <p>c) HQ ROW</p> <p>d) District ROW/DNCs</p> <p>e) HQ ROW/District ROW</p> <p>f) HQ ROW</p> <p>g) HQ ROW</p> <p>h) District ROW/DNCs</p> <p>i) HQ DEA</p> <p>j) HQ Traffic Ops</p>
<p><b>A.17.</b> Prepare new training courses to meet Stormwater Program needs</p>	<p>a) Develop new courses described in Appendix G – <i>Annually</i></p>	<p>11</p>	<p>Affected HQ Divisions</p>

**Table 15-2. Activities, Tasks, and Schedule**

<b>Activity</b>	<b>Task</b>	<b>SWMP Section</b>	<b>Owner</b>
<b>A.18.</b> Develop public education 5-Year Strategy	a) Develop public education program strategy – <i>Year 1</i>	12	HQ DEA
<b>A.19.</b> Evaluate Applicability of Industrial Permit to Department Activities and Facilities	a) Evaluate all Department activities and facilities to determine whether any are subject to coverage under the Stormwater General Industrial Permit – <i>Year 1 and within one year of adoption of new General Industrial Permit – Year 1</i> b) Update based on new Industrial Permit – <i>Once Adopted</i>	8	HQ Mtce.
<b>A.20.</b> Upgrade FPPP Template	a) Incorporate appropriate elements of the Industrial Permit requirements into FPPP template to improve its effectiveness – <i>Year 1 – and within one year of adoption of new General Industrial Permit</i>	12	HQ Mtce.
<b>Objective B – Implement Program</b>			
<b>B.1.</b> Implement adopted TMDLs	a) Participate in the implementation plans of adopted TMDLs with waste load allocations assigned to the Department – <i>Annually, based on TMDL implementation plans</i>	13	HQ DEA/District DNCs
<b>B.2.</b> Implement Lake Tahoe Retrofit Program	a) Install retrofits on existing storm drain facilities – <i>Year 4</i>	13	District 3 DNC
<b>B.3.</b> Review approved BMPs	a) Compare current BMPs based on performance and data regarding target pollutants – <i>Year 2, 3, 4, 5</i> b) Identify potential BMPs for further evaluation – <i>Annually</i>	4	HQ DEA

**Table 15-2. Activities, Tasks, and Schedule**

Activity	Task	SWMP Section	Owner
<p><b>B.4.</b> Develop and evaluate potential new BMPs to address specific problems</p>	<p>a) Conduct BMP monitoring, as necessary, at pilot and special study sites to evaluate effectiveness and appropriateness, and prepare summaries – <i>Annually</i></p> <p>b) Identify projected completion schedules for pilot and special studies/BMPs – <i>Annually</i></p> <p>c) Develop Maintenance BMPs for recently approved Treatment BMPs and incorporate into guidance – <i>Year 2</i></p>	4	HQ DEA
<p><b>B.5.</b> Review and approve or reject new proposed BMPs for toolbox</p>	<p>a) Complete evaluation report and recommend BMPs for consideration for Department Toolbox – <i>Annually</i></p> <p>b) Approve or reject for Department use – <i>Annually</i></p>	4	<p>a) HQ DEA</p> <p>b) CEE</p>
<p><b>B.6.</b> Implement public outreach strategy.</p>	<p>a) Implement the 5-year statewide public education program strategy and report on Measurable Objectives – <i>Annually</i> after Year 1</p> <p>b) Implement statewide Anti-Pollution campaign – <i>Annually</i></p> <p>c) Coordinate public education program with Adopt-a-Highway program to increase awareness of trash control water quality benefits – <i>Year 2, 3, 4, 5</i></p> <p>d) Coordinate public education program with non-profit programs or entities – <i>Annually</i></p> <p>e) Prepare at least four articles re: Dept. SW program or public SW control needs; submit articles to District Newsletters and to local newspapers – <i>Annually</i></p> <p>f) Establish a District web site link to the HQ stormwater web site and the “Don’t Trash California” site – <i>Year 2</i></p> <p>g) Participate on an equitable basis with other MS4 permittees to address hydromodification effects of future development. – <i>Ongoing</i></p>	<p>12</p> <p>16</p>	<p>a)–f) HQ DEA</p> <p>g) District DNCs</p>

**Table 15-2. Activities, Tasks, and Schedule**

<b>Activity</b>	<b>Task</b>	<b>SWMP Section</b>	<b>Owner</b>
<b>B.7.</b> Conduct inventory of Department storm drainage systems in Phase II MS4s	a) Conduct storm drain outfall inventories in areas subject to Phase-2 MS4 permits; priority based on municipality's enrollment in Phase II program – <i>Year 4</i>	3	HQ DEA
<b>B.8.</b> Provide staff with information about new stormwater developments related to their work	a) Prepare regular updates regarding regulatory requirements, policies, procedures, technology, water quality science, and related information and send to staff involved in stormwater activities – <i>Ongoing</i>	11	HQ DEA
<b>B.9.</b> Implement Design Program	For projects listed in the DWP: a) Incorporate stormwater BMPs during PAVED and PS&E phases consistent with Department practices and policies – <i>Annually, 100%</i> b) Submit Notice of Construction to the RWQCB 30 days prior to start of construction – <i>Annually, 100%</i>	5	District Design/DNC
<b>B.10.</b> Implement Construction Program	a) Implement construction stormwater program consistent with SWMP including: - Reviewing SWPPPs - Requiring selection, construction, and maintenance of BMPs consistent with Department guidance - Inspecting construction sites for proper BMP implementation - Requiring the repair/replacement of improperly installed or damaged BMPs b) Annually recertify SWPPP compliance, all tasks – <i>Annually, 100%</i> c) Conduct slope inspections on routine basis on newly constructed slopes up to one year after project completion – <i>Annually</i>	6	c) District Const./DNC  c) HQ DEA

**Table 15-2. Activities, Tasks, and Schedule**

Activity	Task	SWMP Section	Owner
<p><b>B.11.</b> Implement FPPPs for additional Department facilities, as necessary.</p>	<p>a) Review listed facilities not subject to FPPP to confirm whether FPPP is warranted or other BMPs needed – <i>Year 1, 3</i>            b) Prepare and implement FPPPs or other BMPs annually for these facilities – <i>Year 2, 4</i>            c) Update all FPPPs – Within one year of FPPP template upgrade</p>	8	<p>a) HQ Mtce.            b) &amp; c) District DNCs</p>
<p><b>B.12.</b> Implement Vegetation Maintenance Program</p>	<p>a) Provide summary of statewide herbicide use and graphic comparison with Department herbicide reduction goals annually            b) Inspect Roadside Vegetated Slopes; using standard reporting form, perform inspection of all roadside vegetated slopes and provide recommendations for repairs – <i>20% per year</i>            c) Implement changes to Vegetation Control Plans based on <u>A.3</u> (b) task – <i>Year 2</i></p>	7	<p>District Mtce.            District Mtce.            District Mtce.</p>
<p><b>B.13.</b> Train Department staff on Stormwater Program responsibilities</p>	<p>a) Provide stormwater training to the targeted audience utilizing the classes specified in Section 11 (<i>the training goal is 20% of the staff being exposed to one or more stormwater classes per year on average over the five-year period</i>)            b) Incorporate compliance evaluations feedback and develop recommendations for new training or modifications to existing courses – <i>Annually</i></p>	11	<p>Affected HQ Divisions</p>
<p><b>B.14.</b> Implement Inspection Program for Lessee Activities.</p>	<p>a) Inspect non-residential leases with potential for industrial activity for coverage under the General Industrial Permit – <i>Year 2</i>            b) Enforce lease requirement to obtain coverage under the GIP for those lessees determined to be subject to the GIP – <i>Ongoing</i></p>	9	<p>a) District ROW            b) District ROW/DNC</p>

**Table 15-2. Activities, Tasks, and Schedule**

Activity	Task	SWMP Section	Owner
<b>B.15.</b> Implement Annual Reporting Requirements	a) Circulate internal draft of annual report for review – <i>Annually</i> b) Perform independent review of the preliminary internal draft – <i>Annually</i> c) Solicit quarterly reporting data requests to program staff – <i>October, January, April, and July of each year</i> d) Maintain online system to track status of Measurable Objective tasks – <i>Ongoing</i>	16	HQ DEA
<b>Objective C – Assess and Improve the Program</b>			
<b>C.1.</b> Evaluate target program components	a) Develop plan to evaluate target program components – <i>Year 1</i> b) Evaluate targeted program components – <i>Annually after Year 1</i> c) Report on Targeted Program Components – <i>Year 4</i>	14	HQ DEA
<b>C.2.</b> Assess and evaluate enforcement actions and notices of noncompliance	a) Collect data on stormwater-related permit violations and assess trends – <i>Year 2 and Annually thereafter</i>	16	HQ DEA
<b>C.3.</b> Evaluate construction sites for permit compliance	a) Evaluate stormwater compliance of representative construction sites – <i>Annually: 100 sites</i> b) Assess and update construction compliance evaluation plan as needed to improve program – <i>Annually</i>	14	HQ DEA
<b>C.4.</b> Evaluate representative roadway maintenance activities statewide for permit compliance	a) Update roadway maintenance compliance evaluation plan to address drainage cleaning activities, treatment BMPs, rest areas, and park-and-ride lots – <i>Annually</i> b) Evaluate inspection and drainage cleaning activities by section of highway – <i>100 sites per year</i>	14	HQ DEA
<b>C.5.</b> Evaluate compliance of facility operations	a) Review FPPP implementation at District facilities – <i>20% per year</i> b) Update facility maintenance compliance evaluation plan to improve program – <i>Annually</i>	14	HQ DEA

**Table 15-2. Activities, Tasks, and Schedule**

<b>Activity</b>	<b>Task</b>	<b>SWMP Section</b>	<b>Owner</b>
<b>C.6.</b> Evaluate public education program	a) Report on trash abatement public education efforts: number of impressions, demographics targeted by District – <i>Annually</i>	14	HQ DEA
<b>C.7.</b> Assess overall management of stormwater program	a) Review program evaluation results – <i>Annually</i> b) Complete management review of overall program: review adequacy of policies and procedures, staffing and support (and assignment of responsibility and authority), training, performance evaluation and tracking, and continuing improvement process – <i>Year 4</i>	14	HQ DEA
<b>C.8.</b> Evaluate rainy season designations	a) Review rainy season maps for usefulness and appropriateness; develop proposal for improvements, as necessary – <i>Within one year of adoption of Construction General Permit</i>	6	HQ DEA
<b>C.9.</b> Evaluate and assess illegal dumping and connections tracking and reporting systems	a) Assess the benefits of having all districts keep data for a Department database and report on significant illegal dumping/ discharges for development of data tracking program). Note: Currently tracked by District NPDES Coordinator – <i>Year 1</i> b) Implement statewide program developed by measurable objective <u>A.11</u> (b), if found feasible in measurable objective <u>C.9</u> (a) – <i>Year 3</i>	10	HQ DEA
<b>C.10.</b> Evaluate and assess training courses	a) Analyze pre-, post-assessments, and training course evaluation forms and make recommendations for course improvements – <i>Annually</i>	11	Affected HQ Divisions
<b>C.11.</b> Evaluate project design stormwater compliance	a) Submit design compliance plan – <i>Year 1</i> b) Evaluate design projects (Ready-to-List) for compliance – <i>100 projects; annually after Year 1</i>	14	HQ DEA

**Table 15-2. Activities, Tasks, and Schedule**

<b>Activity</b>	<b>Task</b>	<b>SWMP Section</b>	<b>Owner</b>
<b>C.12.</b> Evaluate Effluent and/or Receiving Water Monitoring Data	a) Develop and submit monitoring plan indicative of the monitoring triggers identified in Section 3.3.3 – <i>Year 1</i> b) Amend monitoring plan based on proposed changes identified in DWP's or trend data – <i>Annually as needed</i> c) Conduct long-term trend analysis – <i>After Year 2</i> d) Participate in the Surface Water Ambient Monitoring Program (SWAMP) and with other permitted agencies on a watershed basis and in proportion to the Department's relative contribution of runoff to the receiving waters being monitored – <i>Annual participation as programs evolve</i>	3	HQ DEA
<b>C.13.</b> Trash and Litter Collection Assessment	a) Report on trash and litter abatement for District Maintenance activities – <i>Annually</i> b) Compare trends with Public Education efforts – <i>Annually</i>	3	HQ Mtce.
<b>C.14.</b> Evaluate Applicability of Hydromodification to Department projects.	a) Perform programmatic evaluation of Department highway and facility projects on "hydromodification" and make recommendations, as needed, for modifying Department guidance – <i>As needed</i>	5	HQ Design and HQ DEA Planning

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## 16 REPORTING

### 16.1 Overview

This section describes the following reporting activities:

- Annual reporting of program activities;
- SWMP Revisions; and
- District Work Plans.

### 16.2 Program Annual Report

#### Overview of the Annual Report

The Annual Report summarizes significant activities and events related to implementation of the SWMP for each fiscal year (i.e., July 1<sup>st</sup> through June 30<sup>th</sup>). The Department submits thirteen copies of the Annual Report to the SWRCB by October 31 each year according to the following schedule:

**Table 16-1. Annual Report Submittal Dates**

<b>Fiscal Year (Reporting Period)</b>	<b>Annual Report Due Date</b>
July 07 - June 08	October 31, 2008
July 08 – June 09	October 31, 2009
July 09 – June 10	October 31, 2010
July 10 – June 11	October 31, 2011
July 11 – June 12	October 31, 2012

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The Annual Report provides a summarized narrative discussion of major activities conducted under each section of the SWMP, including the status of each task in Section 15.4. Conclusions and recommendations will be supported by sufficient summary data and analysis. Based on the Report, the Department may propose modifications to the SWMP to improve the performance of the stormwater program. The Annual Report will provide information about how data was collected; compare with previous years' results (including differences between the Districts); discuss how the data or results relate to water quality protection or improvement; and provide suggestions for how the reporting effort could be improved (B.15).

The format of the Annual Report is consistent with the organization of the SWMP. Consequently, activities described in the Annual Report can be compared to the commitments or activities defined in the SWMP. In some cases, information to be reported may not be suitable or convenient for inclusion in the Annual Report and may be issued as supplements, for example, documentation of monitoring data. When supplements are used, the narrative portion of the Annual Report will identify the supplement, and the supplement is provided with the Annual Report, if it has not been previously submitted. The Annual Report and supplemental materials are available to the public via the Department's website (<http://www.caltrans.ca.gov/hq/env/stormwater>), the Department's Stormwater library, or by a public records request.

### 16.3 SWMP Revisions

When Department divisions identify needed changes, they submit these in writing to the Division of Environmental Analysis. Any departmental entity (e.g., Office, SWAT, Division) may request a change, as well as the SWRCB and RWQCBs.

When the Department proposes significant changes for the SWMP, the changes are identified in a proposed SWMP that depicts deleted text in strikeout and added text in underline. The purpose and need of these changes are described either in the Annual Report or in a separate submittal. Significant changes to the SWMP will require a public notice and approval by the SWRCB at a Board Hearing. Minor changes may be approved by the Executive Director. All proposed changes will be included in a formal request from the Department to the Board.

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## 16.4 District Work Plans

Formerly known as Regional Work Plans (RWPs), the District Work Plans (DWP) describe the stormwater organization of the district. The DWPs, prepared and submitted on April 1 each year, outline the planned stormwater activities for the upcoming fiscal year. Each RWQCB (RWQCB) is provided a copy of the DWPs relevant to their jurisdiction. The Districts coordinate and meet with the appropriate RWQCBs to discuss the DWPs at least 30 days prior to their submittal. The DWPs are organized as follows:

- Section 1 – Introduction – contains general statements regarding the DWP and its organization;
- Section 2 – Personnel and Responsibilities - describes positions, addresses, and telephone numbers of personnel with responsibilities for stormwater operations within the districts. This section also identifies positions having signatory authority for various notifications or documents required for submittal by a district (e.g., notice of construction);
- Section 3 – District Facilities and Water Bodies - identifies maintenance stations (to include identification of crew function and street address), vista points, commercial vehicle enforcement areas, roadside rest areas, park and ride facilities, and toll road and bridge plazas. In addition, this section contains a map depicting the roadways, significant water bodies, and RWQCB watersheds (Hydrologic Unit Boundaries);
- Section 4 – Drinking Water Reservoirs and Recharge Facilities - describes and identifies locations where spills from the Department’s owned rights-of-way, activities, roadways or facilities can discharge directly to a municipal or domestic water supply reservoir or a ground water recharge (percolation) facility. Projects that potentially drain to these areas consider project features that enhance spill response;
- Section 5 – Implementation - identifies projects within the development phases of Project Approval/Environmental Document (PA/ED), Plans, Specifications, and Estimates (PS&E), and Construction. These projects are limited to those meeting any of the following criteria:

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1. Equal to or greater than one acre of disturbed land area, including area of a new bridge.
  2. Adjacent to a Drinking Water or Ground Water Recharge Facility, as described in Section 4 of the DWP.
  3. Within the Lake Tahoe Hydrologic Unit.
  4. A supplemental environmental project.
  5. Additional projects per agreement between the District and local Regional Board.

Projects are presented in a manner that identifies the following, if applicable:

1. Location (county, route and post mile limits).
2. Project number (Expense Authorization).
3. Basic Project Description.
4. Disturbed land area.
5. Presence of receiving waters within or adjacent to project limits, with special designation for 303(d) listed water bodies
6. Drinking Water Reservoir or Ground Water Recharge Facility within or adjacent to project (as identified in Section 4 of the DWP).
7. Projected milestone dates of PA/ED, PS&E, begin Construction, and end Construction.
8. Treatment control status.
9. Dredge and fill (CWA-401) activities within the project.

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Updated lists of projects meeting this criteria will also be provided to the RWQCB semi-annually on October 1<sup>st</sup>. Furthermore, Section 5 identifies planned maintenance activities involving water bodies that may require action by the RWQCB under Section 401 of the CWA. Information associated with the activities includes location, affected water body, and area of disturbance. In addition, Section 5 describes planned efforts of municipal coordination, stormwater monitoring, and public education within the district; however, these activities may be conducted jointly with other districts and HQ ([B.6](#)). Consequently, information contained in a DWP may be repeated in another DWP; and

- Section 6 – TMDLs – describes and identifies TMDLs for which the Department has been identified as a stakeholder. A summary of planned TMDL actions is also described. This information may include a general discussion of the load allocation assessment, approach, or strategy for achieving allocations under an Implementation Plan, and coordination of activities with other stakeholders. If the District has not been identified as a stakeholder for a TMDL, then this section may remain blank or contain a statement that the RWQCBs have not notified the Department as being a stakeholder.

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## 17 REFERENCES

### California Department of Transportation (Caltrans) Documents and Studies

- 1998 *Spills of Substances in Highway Rights of Way*, Chapter D5, June 1998.
- 1997 *Street Sweeping Literature Review* – CTSW-RT-97-33, July 1997.
- 1999 *Project Development Procedures Manual*, July 2, 1999.
- 2000 *Stormwater Monitoring & Research Program – Annual Monitoring & Reporting Program*. Results are reported in the *1999-2000 Annual Data Summary Report*, CTSW-RT-00-003, May 2000.
- 2000 *California Department of Transportation District 7 Litter Management Pilot Study Final Report* – CT-SW-RT-00-013, June 2000.
- 2001a *Monitoring Report 2000-01: Caltrans Public Education Litter Monitoring Study*, CTSW-RT-01-018, July 2001.
- 2001b *Highway Design Manual*, November 1, 2001.
- 2002a *Management of Pathogens Associated with Storm Drain Discharge – Results of Investigations of the Presence of Human Pathogens in Urban Storm Drains*, CTSW-RT-02-025, May 2002.
- 2002b *Small Stream Crossing Impact Research Project; North Coast River Loading Project*, CTSW-RT-02-040, July 2002.
- 2002c *Caltrans Stormwater Monitoring Program – Annual Data Summary Report FY 2000-01*, CTSW-RT-02-002, August 2002.
- 2002d *Caltrans Public Education Litter Monitoring Study 2001-2002*, CTSW-RT-02-021, September 2002.
- 2002e *Annual Data Summary Report; Stormwater Monitoring & Data Management*, CTSW-RT-02-048, August 2002.

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- 2002f *Construction Sites Runoff Characterization Study*, CTSW-RT-02-055, September 2002.
- 2003b *Annual Data Summary*, CTSW-RT-03-069.51.42, August 2003.
- 2003c *Caltrans Discharge Characterization Study Report*, CTSW-03-065.51.42, November 2003.
- 2003e *Drain Inlet Cleaning Efficacy Study (DICE), Final Report*, CTSW-RT-03-057.36.1.
- 2004 *Alternative Highway and Drainage System Design Report, Year 1*.
- 2005a *Toxicity of Stormwater from Caltrans Facilities*, CTSW-RT-05-073-10.1
- 2005b *Evaluation of Factors Controlling Runoff to Surface Waters*, CTSW-RT-03-084.73.04.
- 2005c. *Caltrans Tahoe Highway runoff Characterization and Sand Trap Effectiveness Studies, 2000-2003*, CTSW-RT-03-054.36.022005d; *Monitoring of Priority Toxic Pollutants in Stormwater Runoff Collected at Caltrans Facilities*, CTSW-RT-05-73-95.1
- 2005e *First Flush Phenomenon Characterization Report*, CTSW-RT-05-073.02.6
- 2006 *Stormwater Monitoring and BMP Development Status Report* CTSW-RT-067.02.02

#### **Studies in Progress**

- 2003f *First Flush Characterization Study*, Study in progress, CTSW-RT-03-064.73.02-d
- 2003g *CTR Characterization Study*, Study in progress, 2003.
- 2003i *Public Education Research Study – Final Report, June 2003* – CTSW-RT-03-043 –

#### **Other Documents**

- 1992 Jones and Stokes Associates, *Final Environmental Impact Report on Caltrans Vegetation Control Program*, Sacramento, CA. 1992.
- 1998 Water Environment Federation and the American Society of Civil Engineers, *Urban Runoff Management WEF Manual of Practice No. 23*.

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- 2001 E.E. Dammel, B. J. Berger, L.C. Regenmorter, G.S. Lippner, *Evaluating Drain Inlet Cleaning as a Stormwater Best Management Practice*. International Water Association's (IWA) 5th International Conference Proceedings, Milwaukee, Wisconsin, June, 2001.

## Appendix A

### DISTRICT DESCRIPTIONS

This section provides a brief description of the jurisdictional area of each of the Department's 12 operational Districts. Each District description includes a list of Regional Board watersheds (hydrologic unit boundaries) within the District. A complete list of District facilities and water bodies can be found in Section 3 of each District Work Plan (DWP). Section 3 identifies maintenance stations, vista points, commercial vehicle enforcement areas, roadside rest areas, Park-and-Ride facilities, and toll road and bridge plazas. In addition, the DWPs contain maps depicting its roadways, significant water bodies, and Regional Board hydrologic units. DWPs can be accessed online at <http://www.dot.ca.gov/hq/env/stormwater>.

#### 1.1 District 1

##### General

District 1 encompasses primarily the north coast of California. It includes all of Del Norte, Humboldt, Mendocino, and Lake Counties, and the western portions of Siskiyou and Trinity Counties.

##### District 1 Facilities

There are 948 miles of freeway and state highway in District 1. District 1 freeways and highways are subject to an average of 4.9 million vehicle miles of travel each day. Names and locations of other Department facilities, including maintenance stations, Park-and-Ride lots, roadside rest areas, vista points, toll plazas, and inspection stations are listed in the DWP.

Portions of District 1 lie within the areas that are the responsibility of two California Regional Water Quality Control Boards (RWQCBs): the North Coast RWQCB and the Central Valley RWQCB. The relationship between District 1 and RWQCB boundaries is shown in the DWP.

Most of the District 1 facilities lie within watersheds that drain directly to the Pacific Ocean. The largest of these watersheds are the Smith, Klamath, and Eel River drainages (North Coast Region). A small portion of the District in Lake County lies within the Sacramento River watershed, which drains to the Pacific Ocean via San Francisco Bay (Central Valley Region). The RWQCB hydrologic units in District 1 are shown in Table 1.

TABLE 1 - DISTRICT 1 HYDROLOGIC UNIT LIST

RWQCB Region No.	RWQCB Region Name	Hydrologic Unit No.	Hydrologic Unit Name
1	North Coast	101	Winchuck River
1	North Coast	102	Rogue River
1	North Coast	103	Smith River
1	North Coast	105	Klamath River
1	North Coast	106	Trinity River
1	North Coast	107	Redwood Creek
1	North Coast	108	Trinidad
1	North Coast	109	Mad River
1	North Coast	110	Eureka Plain
1	North Coast	111	Eel River
1	North Coast	112	Cape Mendocino
1	North Coast	113	Mendocino Coast
1	North Coast	114	Russian River
5	Central Valley	512	Putah Creek
5	Central Valley	513	Cache Creek

## 1.2 District 2

### General

District 2 covers the northeastern portion of California from the northern end of the Sacramento Valley to the Oregon border. It includes all of Modoc, Shasta, Lassen, Tehama, and Plumas Counties, the eastern portions of Siskiyou and Trinity Counties, and a small portion of Butte County.

### District 2 Facilities

There are 1,752 miles of freeway and state highway in District 2. District 2 freeways and highways are subject to an average of 7.8 million vehicle miles of travel each day. Names and locations of other Department facilities, including maintenance stations, Park-and-Ride lots, roadside rest areas, vista points, toll plazas, and inspection stations are listed in the DWP.

Portions of District 2 lie within the areas that are the responsibility of three RWQCBs: the North Coast RWQCB, the Central Valley RWQCB, and the Lahontan RWQCB. The relationship between District 2 and RWQCB boundaries is shown in the DWP.

Most of District 2 lies within the Sacramento River watershed that ultimately drains to the Pacific Ocean via San Francisco Bay (Central Valley Region). The northwestern portion of the District is in watersheds that drain directly to the Pacific Ocean, primarily the Klamath and Eel River drainages (North Coast Region). The eastern edge of the District is in the Great Basin Physiographic Province, which does not drain to the ocean (Lahontan Region). The RWQCB hydrologic units in District 2 are shown in Table 2.

TABLE 2 - DISTRICT 2 HYDROLOGIC UNIT LIST

RWQCB Region No.	RWQCB Region Name	Hydrologic Unit No.	Hydrologic Unit Name
1	North Coast	102	Rogue River
1	North Coast	105	Klamath River
1	North Coast	106	Trinity River
5	Central Valley	504	Tehama
5	Central Valley	505	McCloud River
5	Central Valley	506	Shasta Dam
5	Central Valley	507	Whitmore
5	Central Valley	508	Redding
5	Central Valley	509	Eastern Tehama
5	Central Valley	518	Feather River
5	Central Valley	522	Stony Creek
5	Central Valley	523	Ball Mountain
5	Central Valley	524	Shasta Bally
5	Central Valley	525	Upper Sacramento
5	Central Valley	526	Pitt River
5	Central Valley	527	Lakeview
6	Lahontan	637	Susanville
6	Lahontan	638	Madeline Plains
6	Lahontan	639	Smoke Creek
6	Lahontan	640	Duck Flat
6	Lahontan	641	Surprise Valley
6	Lahontan	642	Cow Head Lake

### 1.3 District 3

#### General

District 3 is located in the Sacramento Valley and the Sierra Nevada to the east of the Valley. It includes all of Glenn, Colusa, Yolo, Sutter, Sacramento, Yuba, Sierra, Nevada, Placer, and El Dorado Counties, and most of Butte County.

#### District 3 Facilities

All of Sacramento County and the Tahoe Basin (California side of Lake Tahoe) are within District 3 jurisdiction. There are 1,544 miles of freeway and state highway in District 3. District 3 freeways and highways are subject to an average of 27.6 million vehicle miles of travel each day. Names and locations of other Department facilities, including maintenance stations, Park-and-Ride lots, roadside rest areas, vista points, toll plazas, and inspection stations are listed in the DWP.

Portions of District 3 lie within the areas that are the responsibility of two RWQCBs: the Central Valley RWQCB and the Lahontan RWQCB. The relationship between District 3 and RWQCB boundaries is shown in the DWP.

Most of District 3 lies within the Sacramento River watershed that ultimately drains to the Pacific Ocean via San Francisco Bay (Central Valley Region). The eastern edge of the District is in the Great Basin Physiographic Province, which does not drain to the ocean (Lahontan Region). The RWQCB hydrologic units in District 3 are shown in Table 3.

TABLE 3 - DISTRICT 3 HYDROLOGIC UNIT LIST

RWQCB Region No.	RWQCB Region Name	Hydrologic Unit No.	Hydrologic Unit Name
5	Central Valley	504	Tehama
5	Central Valley	509	Eastern Tehama
5	Central Valley	510	Sacramento Delta
5	Central Valley	511	Valley Putah - Cache
5	Central Valley	513	Cache Creek
5	Central Valley	514	American River
5	Central Valley	515	Marysville
5	Central Valley	516	Bear River
5	Central Valley	517	Yuba River
5	Central Valley	518	Feather River
5	Central Valley	519	Valley - American
5	Central Valley	520	Colusa Basin
5	Central Valley	521	Butte Creek
5	Central Valley	522	Stony Creek
5	Central Valley	531	North Valley Floor
5	Central Valley	532	Middle Sierra
6	Lahontan	634	Lake Tahoe
6	Lahontan	635	Truckee River
6	Lahontan	636	Little Truckee River
6	Lahontan	637	Susanville

## 1.4 District 4

### General

District 4 encompasses most of the San Francisco Bay Area. It includes all of Sonoma, Napa, Marin, Contra Costa, San Francisco, Alameda, San Mateo, Santa Clara, and Solano Counties.

### District 4 Facilities

There are 1,447 miles of freeway and state highway in District 4. District 4 freeways and highways are subject to an average of 75.3 million vehicle miles of travel each day. Names and locations of other Department facilities, including maintenance stations, Park-and-Ride lots, roadside rest areas, vista points, toll plazas, and inspection stations are listed in the DWP.

Portions of District 4 lie within the areas that are the responsibility of four RWQCBs. Most of District 4 lies within the boundaries of the San Francisco Bay RWQCB. However, the eastern portions of the District in Napa, Solano, and Alameda Counties lie within the boundaries of the Central Valley RWQCB. The northwest portion of the District lies within the North Coast RWQCB. The southern portion of the District lies within the Central Coast RWQCB. The relationship between District 4 and RWQCB boundaries is shown in the DWP.

Most of District 4 drains directly to San Francisco Bay or the Pacific Ocean (San Francisco Bay Region). The eastern edge of the District (eastern Napa, Contra Costa and Alameda Counties) lies in the Sacramento and San Joaquin watersheds (Central Valley Region). The RWQCB hydrologic units in District 4 are shown in Table 4.

TABLE 4 - DISTRICT 4 HYDROLOGIC UNIT LIST

RWQCB Region No.	RWQCB Region Name	Hydrologic Unit No.	Hydrologic Unit Name
1	North Coast	113	Mendocino Coast
1	North Coast	114	Russian River
1	North Coast	115	Bodega
2	San Francisco Bay	201	Marin Coastal
2	San Francisco Bay	202	San Mateo Coastal
2	San Francisco Bay	203	Central Basin
2	San Francisco Bay	204	South Bay Basin
2	San Francisco Bay	205	Santa Clara Basin
2	San Francisco Bay	206	San Pablo Basin
2	San Francisco Bay	207	Suisun Basin
3	Central Coast	304	Big Basin
3	Central Coast	305	Pajaro River
5	Central Valley Region	510	Sacramento Delta
5	Central Valley Region	511	Valley Putah-Cache
5	Central Valley Region	512	Putah Creek
5	Central Valley Region	543	North Diablo Range
5	Central Valley Region	544	San Joaquin Delta

## 1.5 District 5

### General

District 5 covers the Central Coast of California between the San Francisco Bay Area and Ventura County. The District includes San Benito, Monterey, San Luis Obispo, Santa Cruz, and Santa Barbara Counties.

### District 5 Facilities

There are 1,178 miles of freeway and state highway in District 5. District 5 freeways and highways are subject to an average of 15.6 million vehicle miles of travel each day. Names and locations of other Department facilities, including maintenance stations, Park-and-Ride lots, roadside rest areas, vista points, toll plazas, and inspection stations are listed in the DWP.

Portions of District 5 lie within areas that are the responsibility of three RWQCBs. District 5 lies primarily within the boundaries of the Central Coast RWQCB. The northeast portion (eastern San Benito County) of the District is located in the Central Valley RWQCB, and the northern tip is located in the San Francisco Bay RWQCB. The relationship between District 5 and RWQCB boundaries is shown in the DWP.

Most of District 5 facilities lie within a number of watersheds that drain directly to the Pacific Ocean (Central Coast Region). The largest of these watersheds are the Pajaro, Salinas, Santa Maria, and Santa Ynez River drainages. A small portion of the District is in the San Joaquin River watershed that drains to the Pacific Ocean via San Francisco Bay (Central Valley Region). The RWQCB hydrologic units in District 5 are shown in Table 5.

TABLE 5 - DISTRICT 5 HYDROLOGIC UNIT LIST

RWQCB Region No.	RWQCB Region Name	Hydrologic Unit No.	Hydrologic Unit Name
2	San Francisco Bay	202	San Mateo Coastal
2	San Francisco Bay	205	Santa Clara Basin
3	Central Coast	304	Big Basin
3	Central Coast	305	Pajaro River
3	Central Coast	306	Balsa Neuva
3	Central Coast	307	Carmel River
3	Central Coast	308	Santa Lucia
3	Central Coast	309	Salinas
3	Central Coast	310	Estero Bay
3	Central Coast	311	Carrizo Plain
3	Central Coast	312	Santa Maria
3	Central Coast	313	San Antonio
3	Central Coast	314	Santa Ynez
3	Central Coast	315	South Coast
3	Central Coast	317	Estrella River
3	Central Valley	541	Delta - Mendota Canal
3	Central Valley	542	Middle West Side

## 1.6 District 6

### General

District 6 covers the southern San Joaquin Valley and the Sierra Nevada to the east. The District includes Madera, Fresno, Kings, Tulare, and Kern Counties.

### District 6 Facilities

There are 2,046 miles of freeway and state highway in District 6. District 6 freeways and highways are subject to an average of 22.0 million vehicle miles of travel each day. Names and locations of other Department facilities, including maintenance stations, Park-and-Ride lots, roadside rest areas, vista points, toll plazas, and inspection stations are listed in the DWP.

Portions of District 6 lie within areas that are the responsibility of two RWQCBs. The majority of District 6 lies within the boundaries of the Central Valley RWQCB. A portion of District 6 in eastern Kern County lies within the Lahontan RWQCB area. The relationship between District 6 and RWQCB boundaries is shown in the DWP.

The northern end of District 6 lies within the San Joaquin River watershed, which drains to the Pacific Ocean via San Francisco Bay. Most of the District lies within the Tulare Basin, which is a closed basin draining to Buena Vista Lake via the Kern River and to Tulare Lake via the Tule, Kaweah and Kings Rivers. The RWQCB hydrologic units in District 6 are shown in Table 6.

TABLE 6 - DISTRICT 6 - HYDROLOGIC UNIT LIST

RWQCB Region No.	RWQCB Region Name	Hydrologic Unit No.	Hydrologic Unit Name
5	Central Valley	537	Merced River
5	Central Valley	539	Ahwahnee
5	Central Valley	540	San Joaquin River
5	Central Valley	541	Delta - Mendota Canal
5	Central Valley	542	Middle West Side
5	Central Valley	545	San Joaquin Valley Floor
5	Central Valley	551	South Valley Floor
5	Central Valley	552	Kings River
5	Central Valley	553	Kaweah River
5	Central Valley	554	Kern River
5	Central Valley	555	Southern Sierra
5	Central Valley	556	Grapevine
5	Central Valley	557	South Valley Floor
5	Central Valley	558	South Valley Floor
5	Central Valley	559	Coast Range
6	Lahontan	624	Indian Wells
6	Lahontan	625	Fremont
6	Lahontan	626	Antelope

1.7 District 7

General

District 7 includes Los Angeles and Ventura Counties. It is the most populous of all Department Districts.

District 7 Facilities

There are 1,208 miles of freeway and state highway in District 7. District 7 freeways and highways are subject to an average of 103.2 million vehicle miles of travel each day. Names and locations of other Department facilities, including maintenance stations, Park-and-Ride lots, roadside rest areas, vista points, toll plazas, and inspection stations are listed in the DWP.

Portions of District 7 lie within the areas that are the responsibility of four RWQCBs: the Los Angeles RWQCB, the Central Coast RWQCB, the Central Valley RWQCB, and the Lahontan RWQCB. The relationship between District 7 and RWQCB boundaries is shown in the DWP.

Most of District 7 facilities lie within a number of watersheds that drain directly to the Pacific Ocean. The largest of these watersheds are the Santa Clara, Los Angeles, and San Gabriel River drainages. The RWQCB hydrologic units in District 7 are shown in Table 7.

**TABLE 7 - DISTRICT 7 HYDROLOGIC UNIT LIST**

<b>RWQCB Region No.</b>	<b>RWQCB Region Name</b>	<b>Hydrologic Unit No.</b>	<b>Hydrologic Unit Name</b>
3	Central Coast	312	Santa Maria
4	Los Angeles	401	Pitas Point
4	Los Angeles	402	Ventura River
4	Los Angeles	403	Santa Clara - Calleguas
4	Los Angeles	404	Malibu
4	Los Angeles	405	Los Angeles - San Gabriel River
5	Central Valley	556	Grapevine
6	Lahontan	Region (6)	
6	Lahontan	626	Antelope
6	Lahontan	628	Mojave

## 1.8 District 8

General

District 8 includes San Bernardino County and Riverside County.

District 8 Facilities

There are 1,931 miles of freeway and state highway in District 8. District 8 freeways and highways are subject to an average of 43.7 million vehicle miles of travel each day. Names and locations of other Department facilities, including maintenance stations, Park-and-Ride lots, roadside rest areas, vista points, toll plazas, and inspection stations are listed in the DWP.

Portions of District 8 lie within the areas that are the responsibility of four RWQCBs: the Santa Ana RWQCB, the San Diego RWQCB, the Colorado River Basin RWQCB, and the Lahontan RWQCB. The relationship between District 8 and RWQCB boundaries is shown in the DWP.

The southern portion of the District lies within the watershed of the Salton Sea (Colorado River Basin Region). The northern portion of the District lies in the Great Basin Physiographic Province, and it is internally drained (Lahontan Region). The RWQCB hydrologic units in District 8 are shown in Table 8.

TABLE 8 - DISTRICT 8 HYDROLOGIC UNIT LIST

RWQCB Region No.	RWQCB Region Name	Hydrologic Unit No.	Hydrologic Unit Name
6	Lahontan	609	Amargosa
6	Lahontan	611	Mesquite
6	Lahontan	612	Ivanpah
6	Lahontan	613	Owlshead
6	Lahontan	614	Leach
6	Lahontan	615	Granite
6	Lahontan	616	Bicycle
6	Lahontan	617	Goldstone
6	Lahontan	618	Coyote
6	Lahontan	619	Superior
6	Lahontan	620	Ballarat
6	Lahontan	621	Trona
6	Lahontan	624	Indian Wells

RWQCB Region No.	RWQCB Region Name	Hydrologic Unit No.	Hydrologic Unit Name
6	Lahontan	626	Antelope
6	Lahontan	627	Cuddeback
6	Lahontan	628	Mojave
6	Lahontan	629	Broadwell
7	Colorado River Basin	701	Lucerne Lake
7	Colorado River Basin	702	Johnson
7	Colorado River Basin	703	Bessemer
7	Colorado River Basin	704	Means
7	Colorado River Basin	705	Emerson
7	Colorado River Basin	706	Lavic
7	Colorado River Basin	707	Deadman
7	Colorado River Basin	708	Joshua Tree
7	Colorado River Basin	709	Dale
7	Colorado River Basin	710	Route 66
7	Colorado River Basin	711	Cadiz
7	Colorado River Basin	712	Ward
7	Colorado River Basin	713	Homer
7	Colorado River Basin	714	Chemehuevis
7	Colorado River Basin	715	Colorado
7	Colorado River Basin	716	Rice
7	Colorado River Basin	717	Chuckwalla
7	Colorado River Basin	718	Hayfield
7	Colorado River Basin	719	Whitewater
7	Colorado River Basin	722	Anza Borrego
7	Colorado River Basin	725	East Salton
7	Colorado River Basin	728	Salton Sea
8	Santa Ana		Upper Santa Ana
8	Santa Ana	801	San Jacinto
8	Santa Ana	802	Santa Margarita
8	Santa Ana	902	San Diego Region (9)

## 1.9 District 9

### General

District 9 is located largely in the Trans-Sierra region of California. It includes Mono, and Inyo Counties. Some facilities in eastern Kern County, although located in District 6, are the responsibility of District 9 maintenance personnel.

### District 9 Facilities

There are 750 miles of freeway and state highway in District 9. District 9 freeways and highways are subject to an average of 3.7 million vehicle miles of travel each day. Names and locations of other Department facilities, including maintenance stations, Park-and-Ride lots, roadside rest areas, vista points, toll plazas, and inspection stations are listed in the DWP.

District 9 lies within the boundaries of the Lahontan RWQCB. The relationship between District 9 and RWQCB boundary is shown in the DWP.

Most of District 9 facilities lie within the Great Basin Physiographic Province that is internally drained (Lahontan Region). A small portion of the southwest corner of the District is located in the Tulare Basin, and drains to Buena Vista Lake via the Kern River (Central Valley Region). The RWQCB hydrologic units in District 9 are shown in Table 9.

TABLE 9 - DISTRICT 9 HYDROLOGIC UNIT LIST

RWQCB Region No.	RWQCB Region Name	Hydrologic Unit No.	Hydrologic Unit Name
6	Lahontan	601	Mono
6	Lahontan	602	Adobe
6	Lahontan	603	Owens
6	Lahontan	604	Fish Lake
6	Lahontan	605	Deep Springs
6	Lahontan	606	Eureka
6	Lahontan	607	Saline
6	Lahontan	608	Race Track
6	Lahontan	609	Amargosa
6	Lahontan	610	Pahrump
6	Lahontan	611	Mesquite
6	Lahontan	613	Owlshead
6	Lahontan	620	Ballarat
6	Lahontan	621	Trona
6	Lahontan	622	Coso
6	Lahontan	623	Upper Cactus
6	Lahontan	624	Indian Wells
6	Lahontan	625	Fremont
6	Lahontan	630	East Walker River
6	Lahontan	631	West Walker River

## 1.10 District 10

### General

District 10 is located largely in the northern San Joaquin Valley and the Sierra Nevada to the east. It includes San Joaquin, Amador, Calaveras, Stanislaus, Merced, Mariposa, Tuolumne, and Alpine Counties.

### District 10 Facilities

There are 1,337 miles of freeway and state highway in District 10. District 10 freeways and highways are subject to an average of 25.1 million vehicle miles of travel each day. Names and locations of other Department facilities, including maintenance stations, Park-and-Ride lots, roadside rest areas, vista points, toll plazas, and inspection stations are listed in the DWP.

Portions of District 10 lie within areas that are the responsibility of three RWQCBs. District 10 lies primarily within the boundaries of the Central Valley RWQCB. A small portion of the northeast corner of the District (Alpine County) is located in the Lahontan RWQCB. The northwest portion of the District lies in the San Francisco Bay RWQCB. The relationship between District 10 and RWQCB boundaries is shown in the DWP.

Most of District 10 facilities lie within the San Joaquin and Sacramento River watersheds, which drain to the Pacific Ocean via San Francisco Bay. The portion of the District in the Lahontan RWQCB is in the Great Basin Physiographic Province, which is internally drained. The RWQCB hydrologic units in District 10 are shown in Table 10.

TABLE 10 - DISTRICT 10 HYDROLOGIC UNIT LIST

RWQCB Region No.	RWQCB Region Name	Hydrologic Unit No.	Hydrologic Unit Name
2	San Francisco Bay	204	South Bay Basin
2	San Francisco Bay	205	Santa Clara Basin
5	Central Valley	510	Sacramento Delta
5	Central Valley	531	North Valley Floor
5	Central Valley	532	Middle Sierra
5	Central Valley	533	Upper Calaveras
5	Central Valley	534	Stanislaus
5	Central Valley	535	San Joaquin Valley
5	Central Valley	536	Tuolumne River
5	Central Valley	537	Merced River
5	Central Valley	538	Mariposa
5	Central Valley	539	Ahwahnee
5	Central Valley	541	Delta - Mendota Canal
5	Central Valley	542	Middle West Side
5	Central Valley	543	North Diablo Range
5	Central Valley	544	San Joaquin Delta
6	Lahontan	632	East Fork Carson River
6	Lahontan	633	West Fork Carson River

## 1.11 District 11

### General

District 11 covers the southern end of California. It includes San Diego and Imperial Counties.

### District 11 Facilities

There are 1,031 miles of freeway and state highway in District 11. District 11 freeways and highways are subject to an average of 40.0 million vehicle miles of travel each day. Names and locations of other Department facilities, including maintenance stations, Park-and-Ride lots, roadside rest areas, vista points, toll plazas, and inspection stations are listed in the DWP.

Portions of District 11 lie within the areas that are the responsibility of two RWQCBs: the Colorado River Basin RWQCB and the San Diego RWQCB. The relationship between District 11 and RWQCB boundaries is shown in the DWP.

The western portion of District 11 drains directly to the Pacific Ocean (San Diego Region). The eastern portion of the District drains to the Salton Sea and the Colorado River (Colorado River Basin Region). The RWQCB hydrologic units in District 11 are shown in Table 11.

TABLE 11 - DISTRICT 11 HYDROLOGIC UNIT LIST

RWQCB Region No.	RWQCB Region Name	Hydrologic Unit No.	Hydrologic Unit Name
7	Colorado River	715	Colorado
7	Colorado River	717	Chuckwalla
7	Colorado River	720	Clark
7	Colorado River	721	West Salton
7	Colorado River	722	Anza Borrego
7	Colorado River	723	Imperial
7	Colorado River	724	Davis
7	Colorado River	726	Amos - Ogilby
7	Colorado River	727	Yuma
7	Colorado River	728	Salton Sea
9	San Diego	901	San Juan
9	San Diego	902	Santa Margarita
9	San Diego	903	San Luis Rey
9	San Diego	904	Carlsbad
9	San Diego	905	San Dieguito
9	San Diego	906	Penasquitos
9	San Diego	907	San Diego
9	San Diego	908	Pueblo San Diego
9	San Diego	909	Sweetwater
9	San Diego	910	Otay
9	San Diego	911	Tijuana

1.12 District 12

General

District 12 covers Orange County.

District 12 Facilities

There are 279 miles of freeway and state highway in District 12. District 12 freeways and highways are subject to an average of 32.6 million vehicle miles of travel each day. Names and locations of other Department facilities, including maintenance stations, Park-and-Ride lots, roadside rest areas, vista points, toll plazas, and inspection stations are listed in the DWP.

District 12 is located within the boundaries of the Santa Ana RWQCB and the San Diego RWQCB. The relationship between District 12 and RWQCB boundaries is shown in the DWP.

District 12 facilities lie within the San Gabriel River, Santa Ana River and San Juan Creek watersheds that drain directly to the Pacific Ocean. The RWQCBs are divided into hydrologic units as part of the regional basin plans. The RWQCB hydrologic units in District 12 are shown in Table 12.

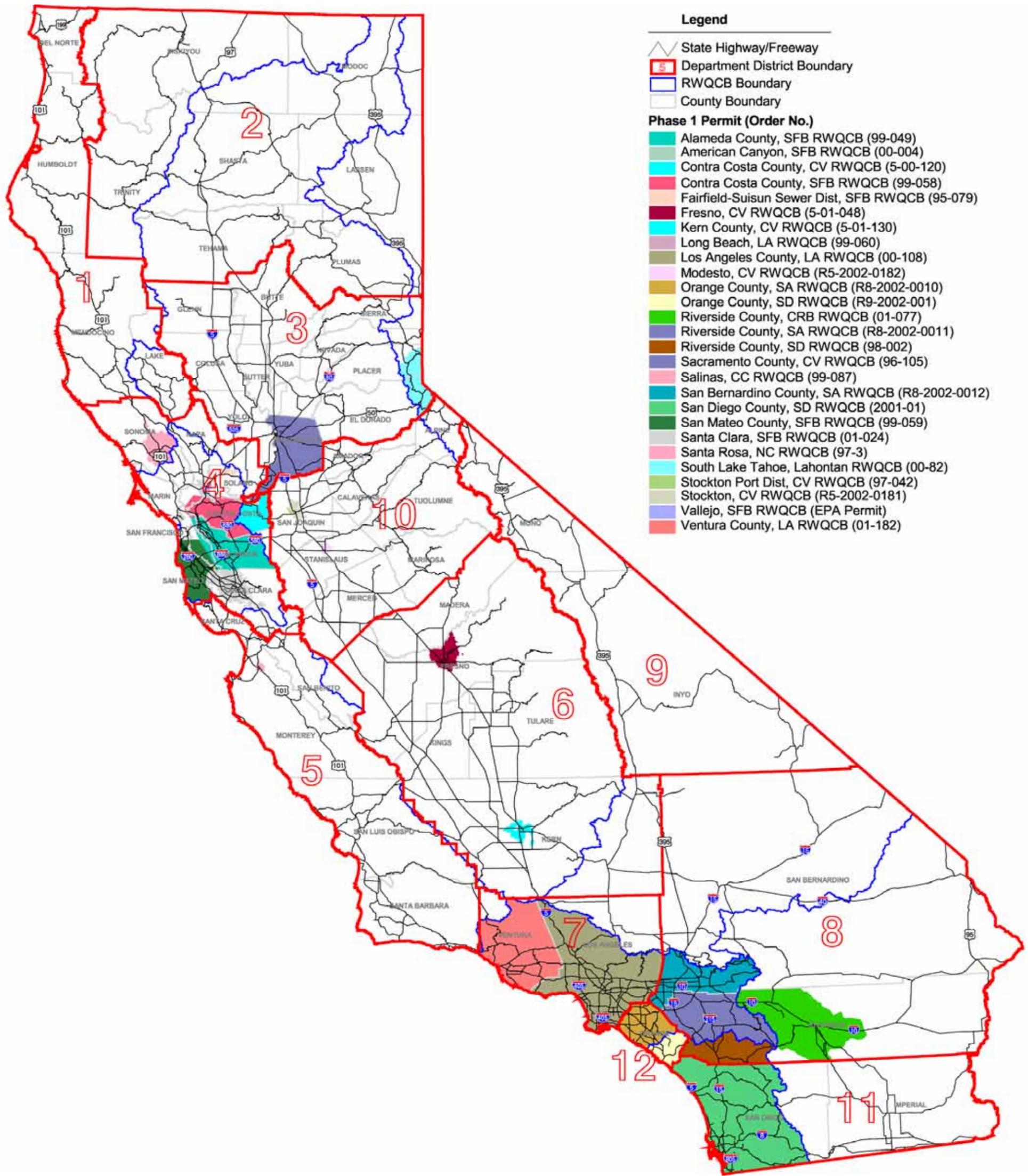
**TABLE 12 - DISTRICT 12 HYDROLOGIC UNIT LIST**

RWQCB Region No.	RWQCB Region Name	Hydrologic Unit No.	Hydrologic Unit Name
8	Santa Ana	801	Upper Santa Ana
8	Santa Ana	802	San Jacinto
8	Santa Ana	805	Lower Santa Ana
9	San Diego	901	San Juan

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Appendix B

MS4 MAPS



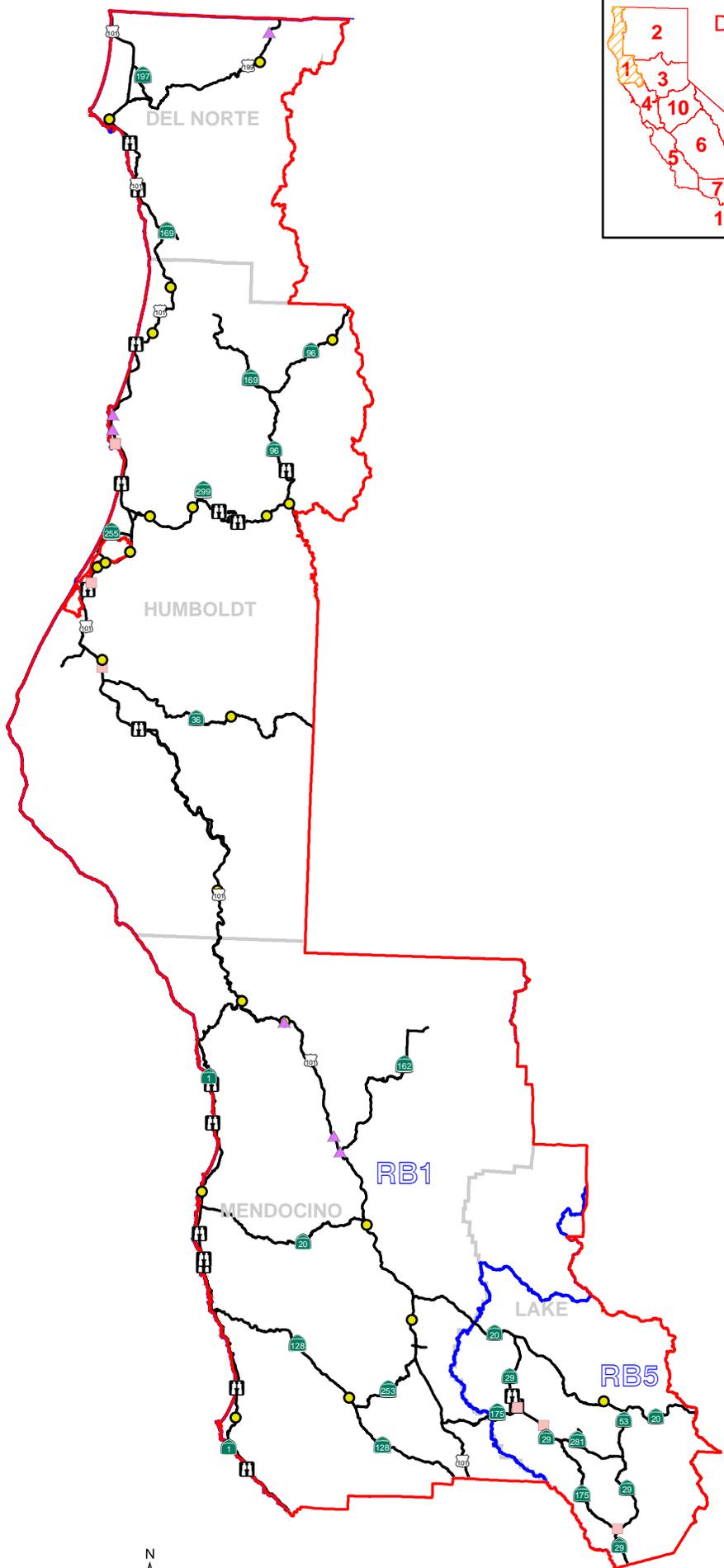
Note: For individual Caltrans district maps, see Figure B-2 to B-13.



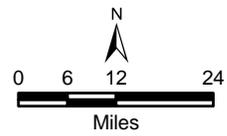
Figure B-1. Phase 1 Permit Boundary Summary Map

**Legend**

- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ▣ Vista
- Department Facility
- ▭ County Boundary
- ▭ Department Boundary
- ▭ RWQCB Boundary



RWQCB Index	
RB1	North Coast Region
RB5	Central Valley Region

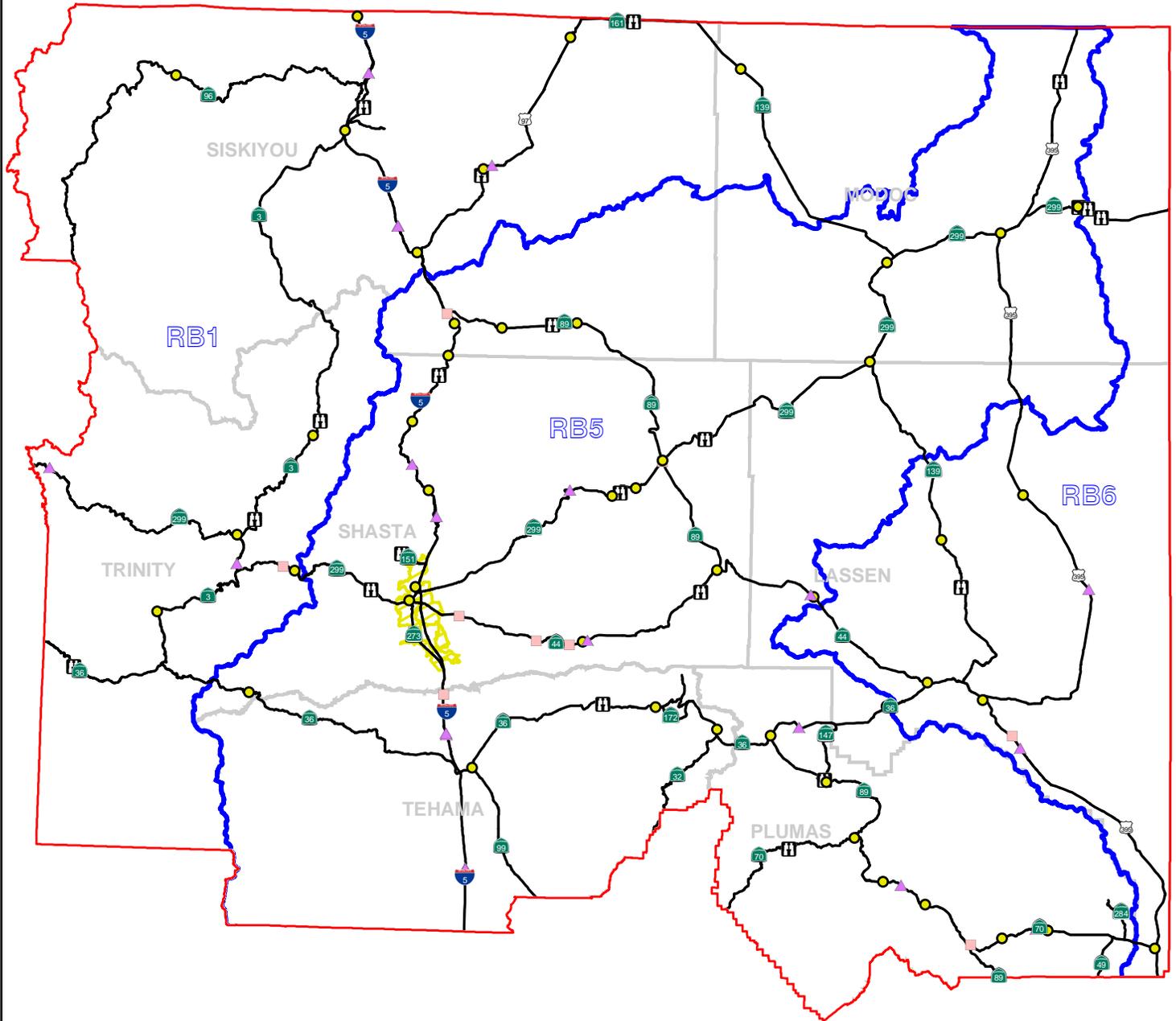
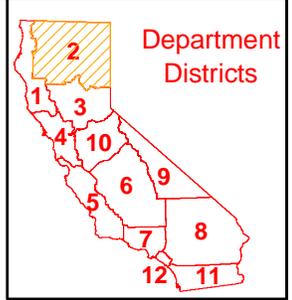


**Figure B-2**  
**District 1 Descriptions**

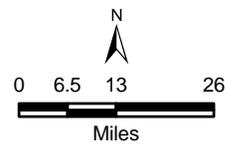
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**Legend**

- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ⊠ Vista
- Department Facility
- ▭ County Boundary
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▨ Urban Area (Census 2000)



RWQCB Index	
RB1	North Coast Region
RB5	Central Valley Region
RB6	Lahontan Region

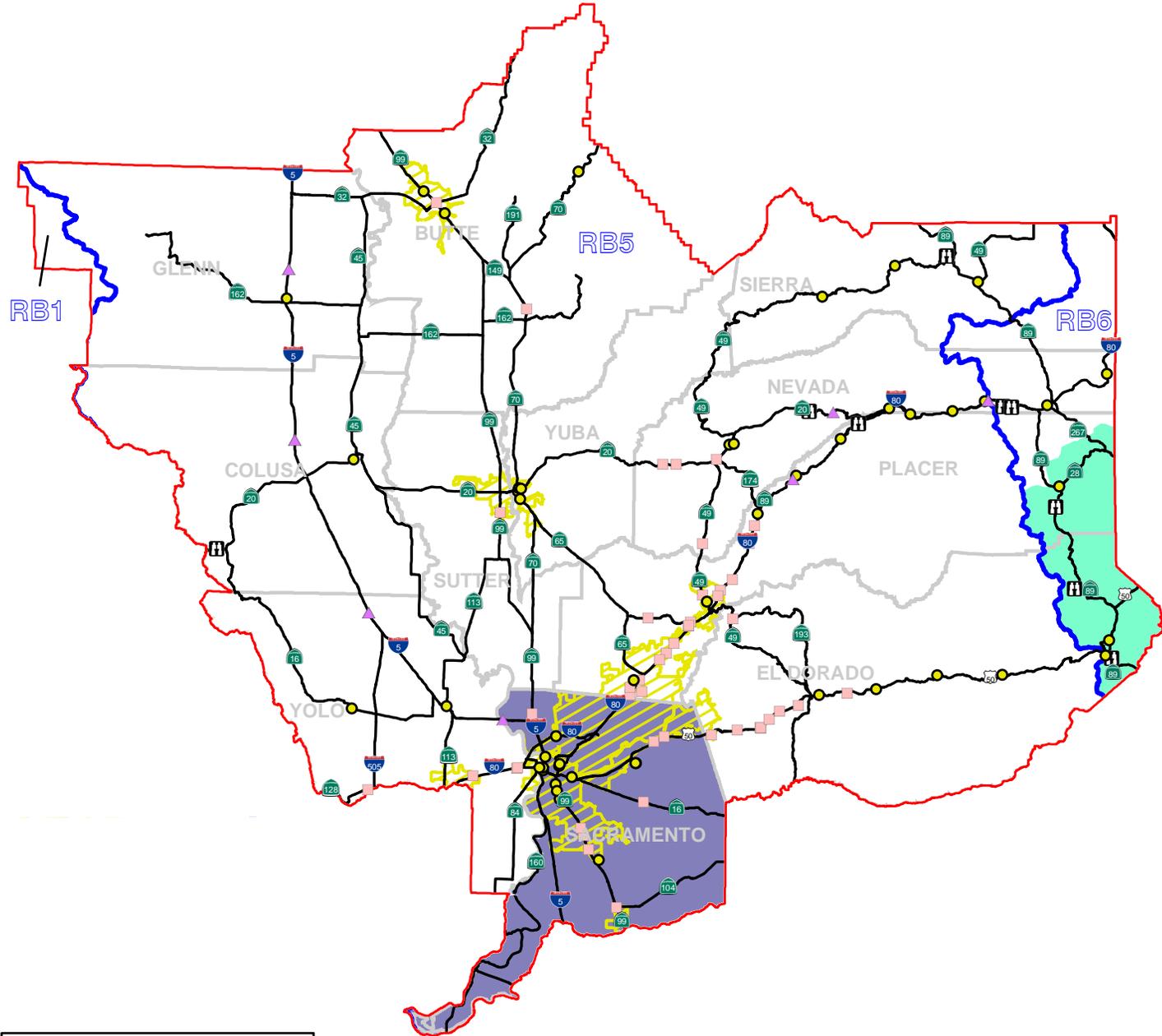
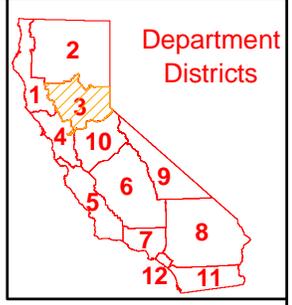


**Figure B-3**  
**District 2 Descriptions**

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**Legend**

- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ⊞ Vista
- Department Facility
- ▭ County Boundary
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▨ Urban Area (Census 2000)

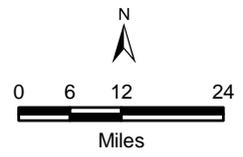


**RWQCB Index**

RB1	North Coast Region
RB5	Central Valley Region
RB6	Lahontan Region

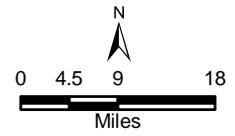
**Phase I Permit (Order No.) Index**

	S.Lake Tahoe, Lahontan RWQCB (00-82)
	Sacramento County, CV RWQCB (96-105)



**Figure B-4**  
**District 3 Descriptions**

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**Legend**

- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ⊠ Vista
- Department Facility
- County Boundary
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▨ Urban Area (Census 2000)

**Phase I Permit (Order No.) Index**

- Alameda County, SFB RWQCB (99-049)
- Contra costa County, CV RWQCB (5-00-120)
- Contra Costa County, SFB RWQCB (99-058)
- Fairfield-Suisun Sewer Dist, SFB RWQCB (95-079)
- Santa Clara, SFB RWQCB (01-024)
- Santa Rosa, NC RWQCB (97-3)
- San Mateo County, SFB RWQCB (99-059)
- Vallejo, SFB RWQCB (EPA Permit)

**RWQCB Index**

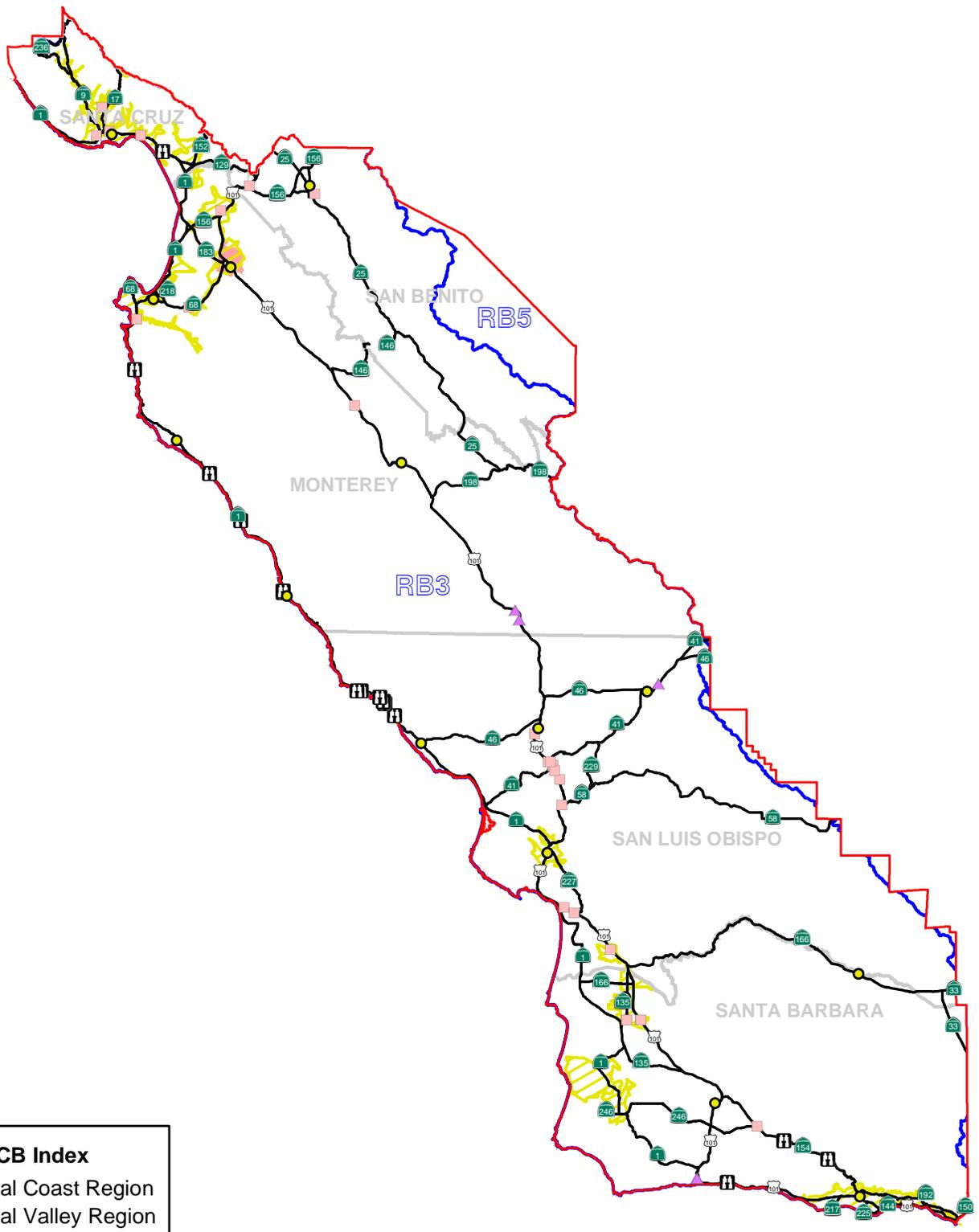
- RB1 North Coast Region
- RB2 San Francisco Bay Region
- RB3 Central Coast Region
- RB5 Central Valley Region

**Figure B-5 District 4 Descriptions**

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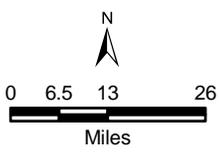
**Legend**

- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ⊞ Vista
- Department Facility
- ▭ County Boundary
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▨ Urban Area (Census 2000)



**RWQCB Index**  
 RB3 Central Coast Region  
 RB5 Central Valley Region

**Phase I Permit (Order No.) Index**  
 Salinas, CC RWQCB (99-087)

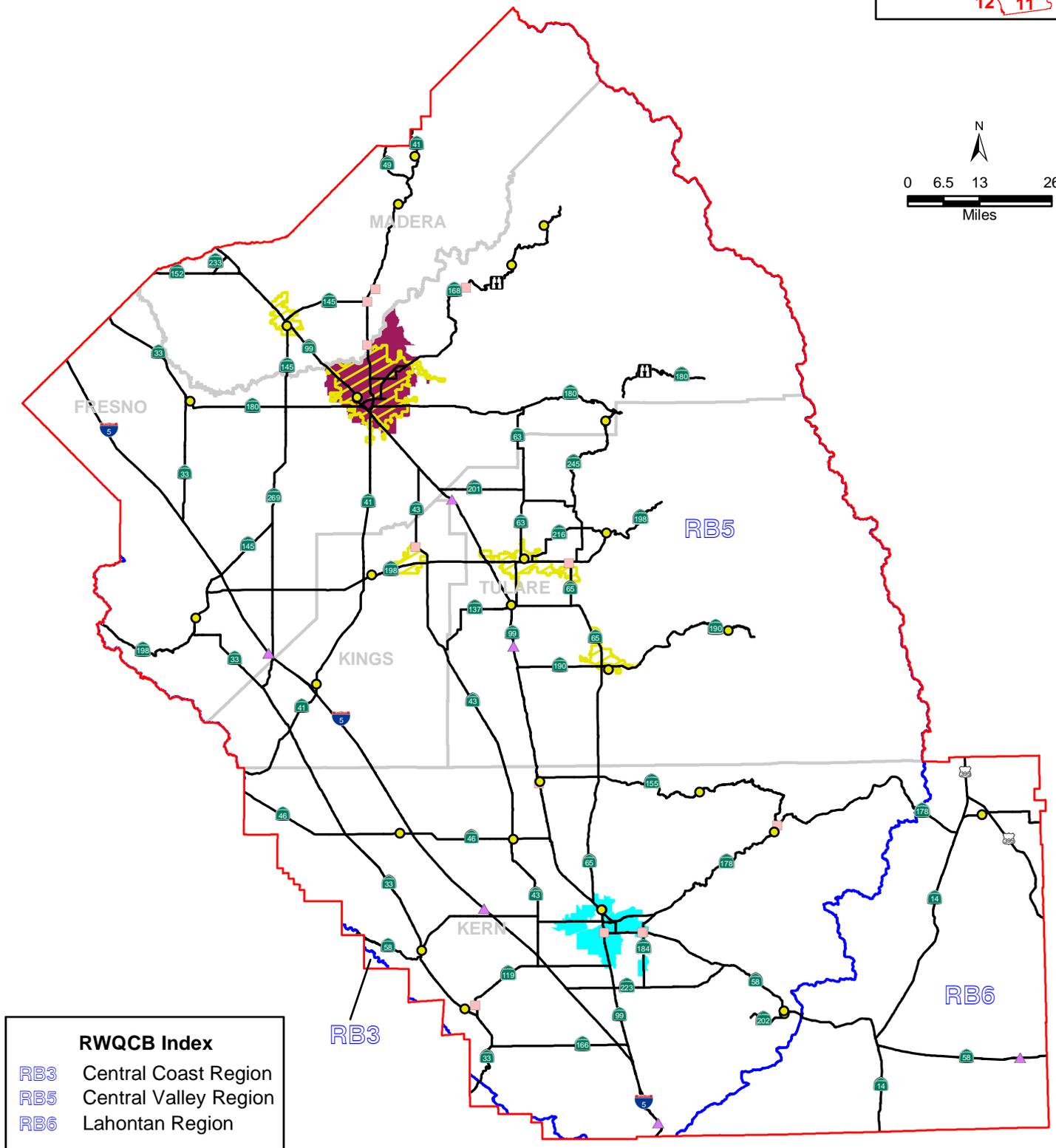
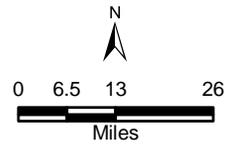
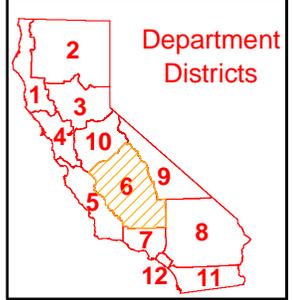


**Figure B-6**  
**District 5 Descriptions**

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**Legend**

- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ▣ Vista
- Department Facility
- County Boundary
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▨ Urban Area (Census 2000)



- RWQCB Index**
- RB3 Central Coast Region
  - RB5 Central Valley Region
  - RB6 Lahontan Region

- Phase I Permit (Order No.) Index**
- Fresno-Clovis Metropolitan Area (5-01-048)
  - Bakersfield and Kern County (5-01-130)

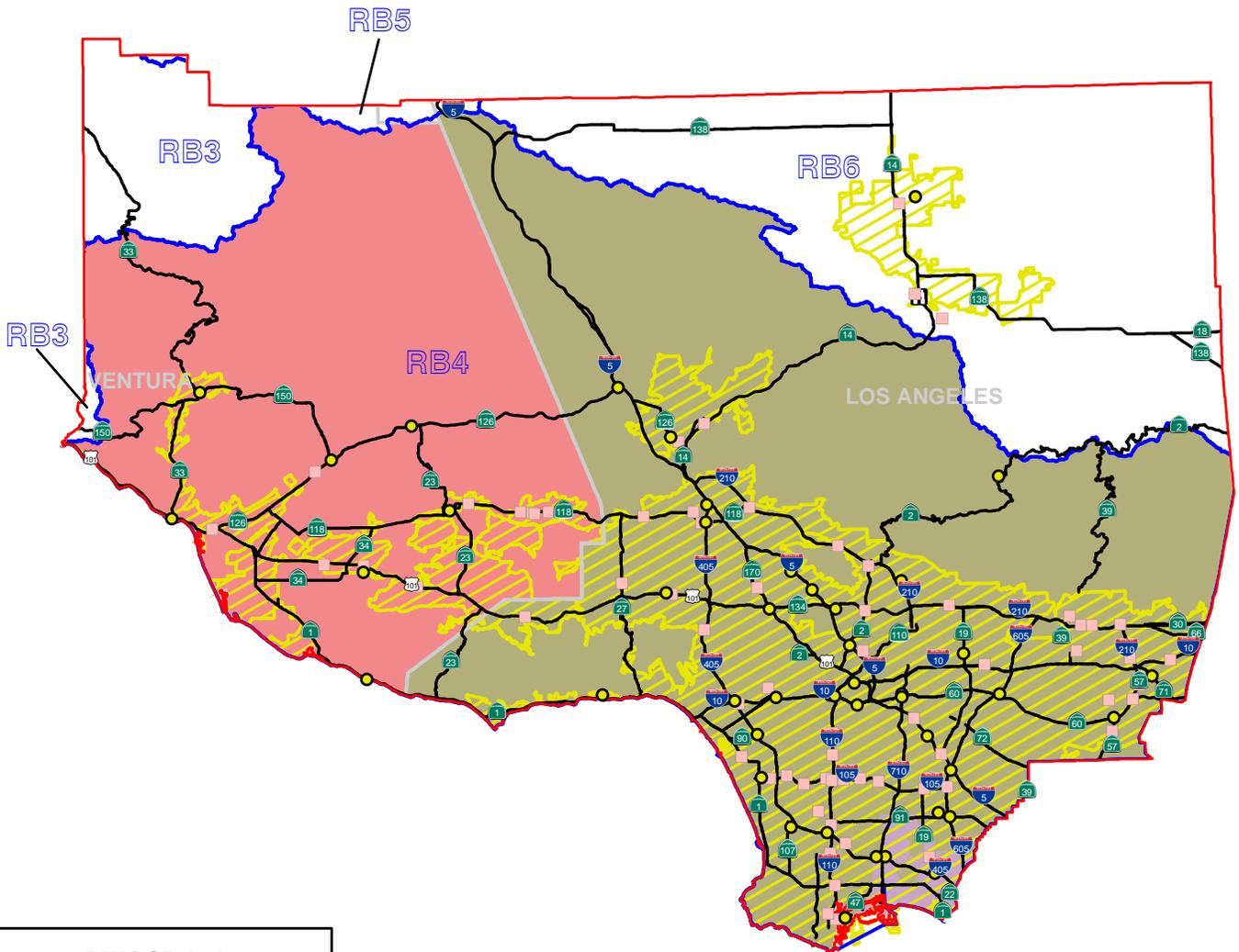


**Figure B-7  
District 6 Descriptions**

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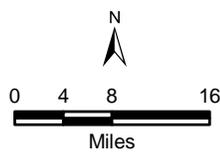
**Legend**

- ▲ Rest Area
- Maintenance Station
- Park & Ride
- 🏠 Vista
- Department Facility
- ▭ County Boundary
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▨ Urban Area (Census 2000)



RWQCB Index	
RB3	Central Coast Region
RB4	Los Angeles Region
RB5	Central Valley Region
RB6	Lahontan Region

Phase I Permit (Order No.) Index	
Red	LA County and Cities (00-108)
Purple	Long Beach (99-060)
Olive Green	Ventura County (01-182)

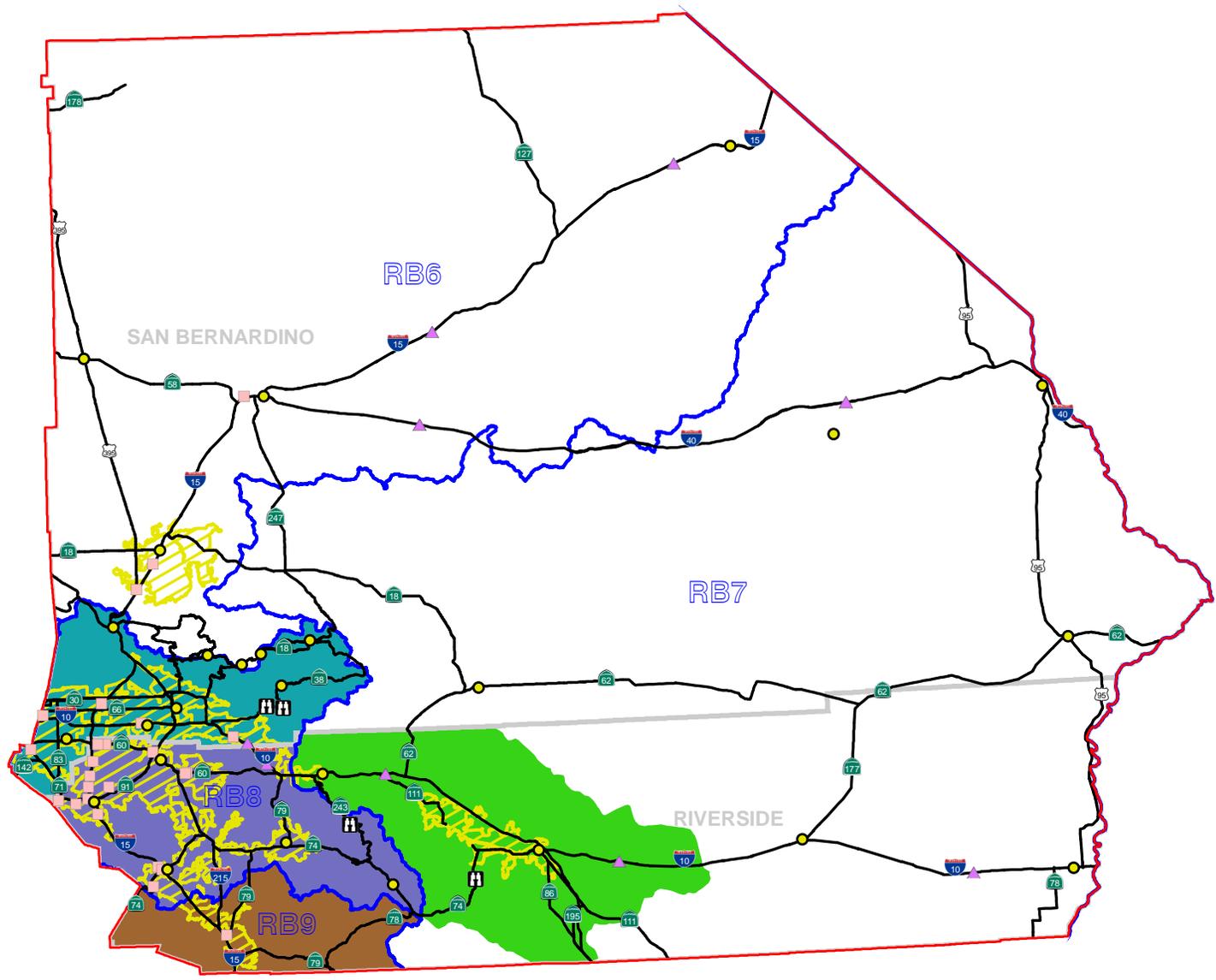
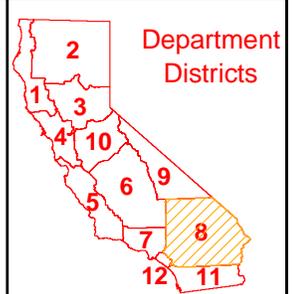


**Figure B-8**  
**District 7 Descriptions**

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**Legend**

- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ⊠ Vista
- Department Facility
- ▭ County Boundary
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▨ Urban Area (Census 2000)

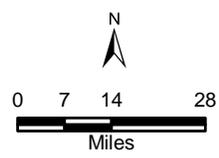


**Phase I Permit (Order No.) Index**

- Riverside County (01-077)
- Riverside County (98-002)
- Riverside County (R8-2002-0011)
- San Bernardino County (R8-2002-0012)

**RWQCB Index**

- RB6 Lahontan Region
- RB7 Colorado River Basin Region
- RB8 Santa Ana Region
- RB9 San Diego Region

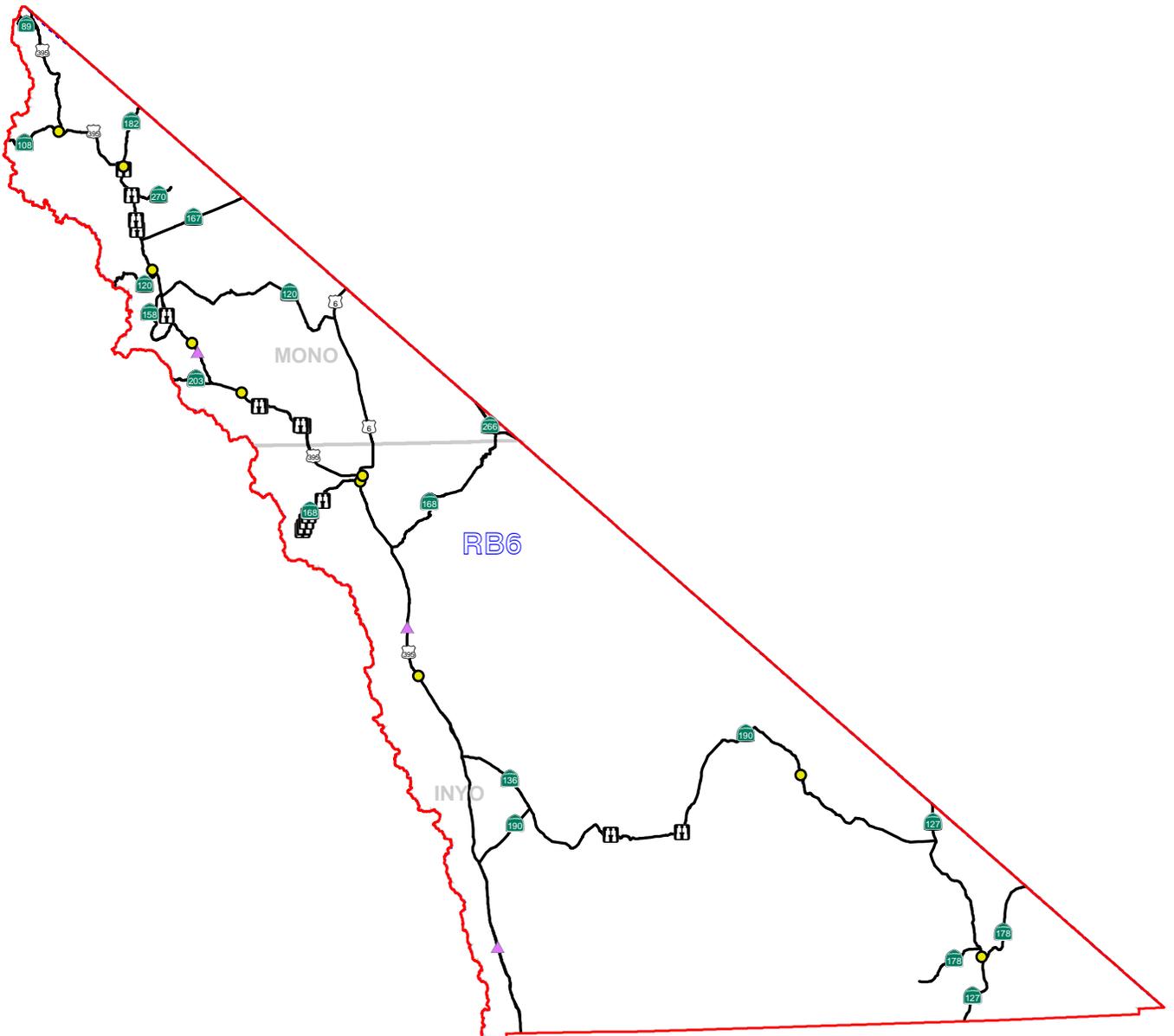
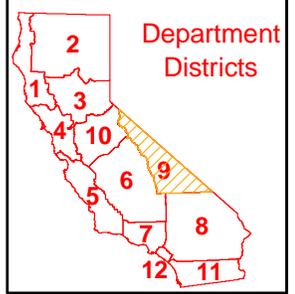


**Figure B-9  
District 8 Descriptions**

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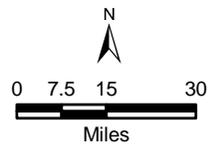
**Legend**

- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ⊞ Vista
- Department Facility
- County Boundary
- ▭ Department Boundary
- ⋯ RWQCB Boundary



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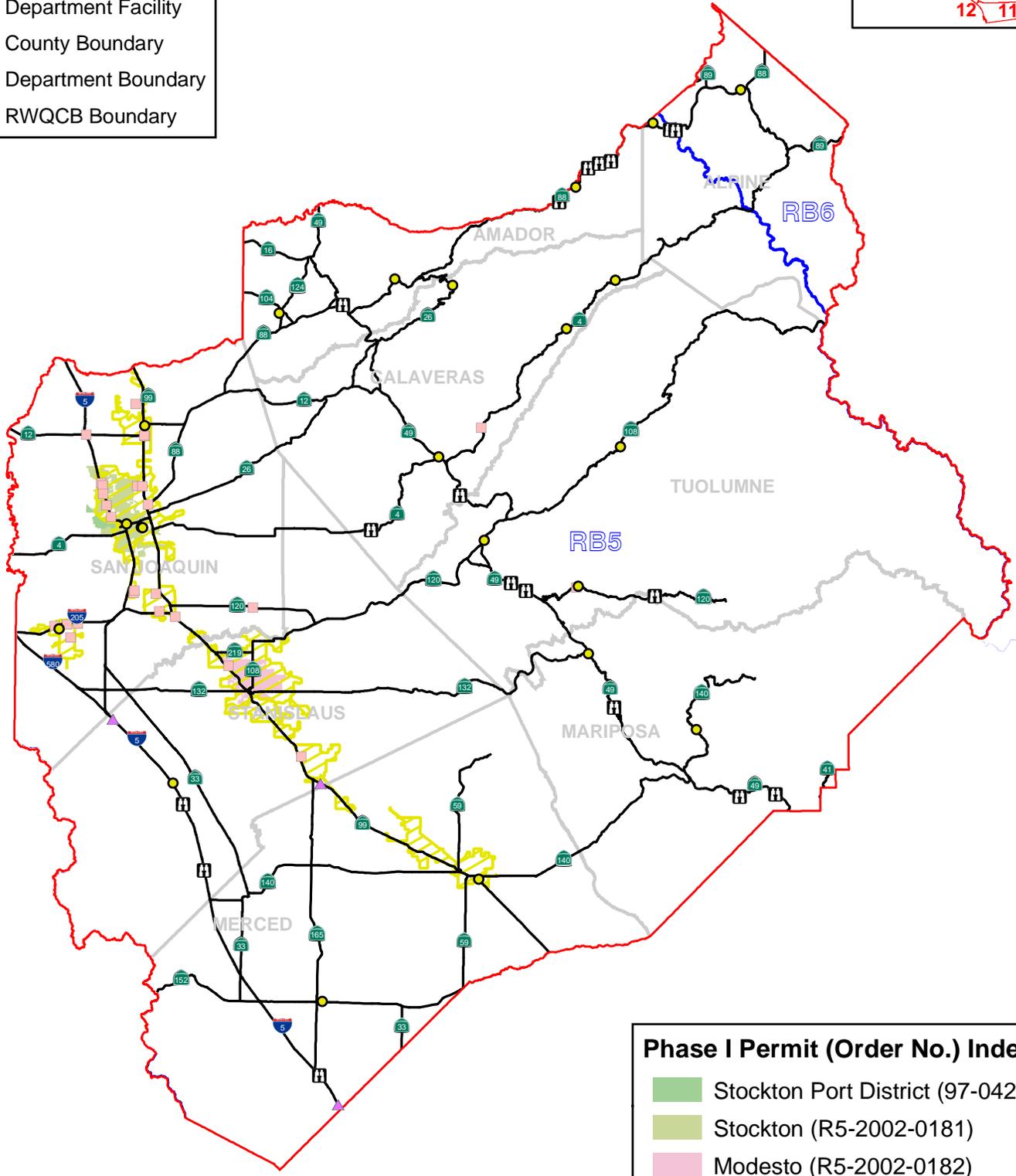
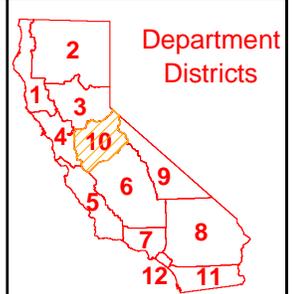
**RWQCB Index**  
 RB6 Lahontan Region



**Figure B-10**  
**District 9 Descriptions**

**Legend**

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- Maintenance Station
- Park & Ride
- ▣ Vista
- Department Facility
- ▭ County Boundary
- ▭ Department Boundary
- ▭ RWQCB Boundary

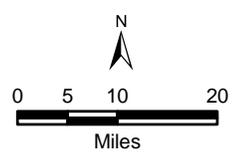


**Phase I Permit (Order No.) Index**

	Stockton Port District (97-042)
	Stockton (R5-2002-0181)
	Modesto (R5-2002-0182)

**RWQCB Index**

RB5	Central Valley Region
RB6	Lahontan Region



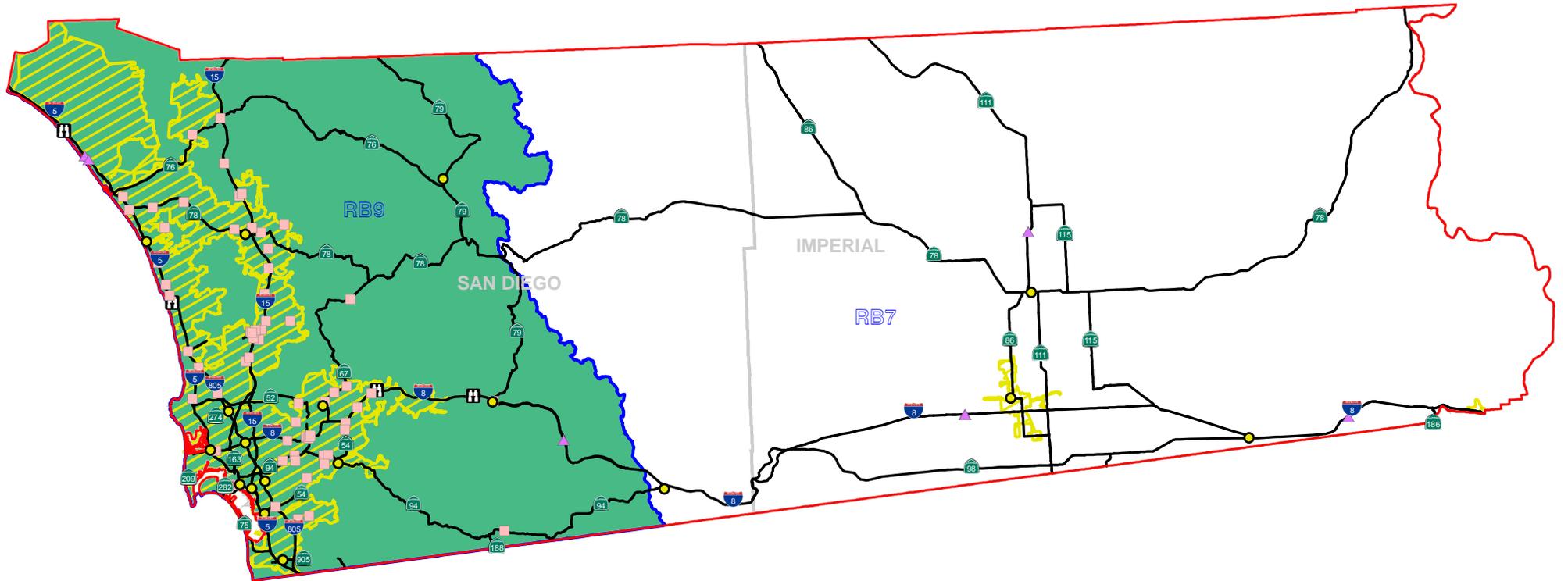
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**Legend**

- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ▣ Vista
- Department Facility
- County Boundary
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▨ Urban Area (Census 2000)

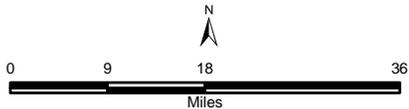
**Phase I Permit (Order No.) Index**

- San Diego County (2001-01)



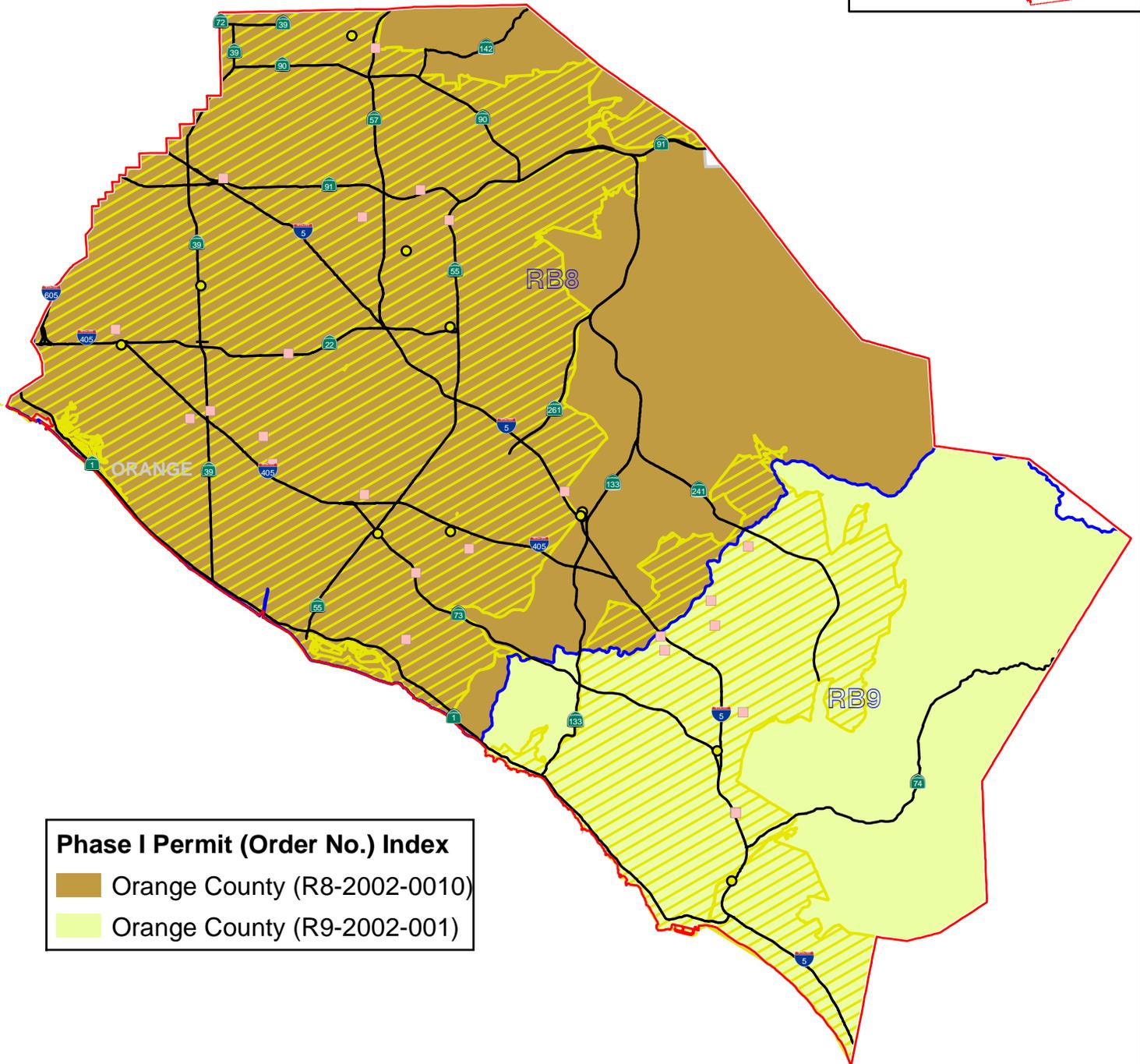
**RWQCB Index**

- RB7 Colorado River Basin Region
- RB9 San Diego Region



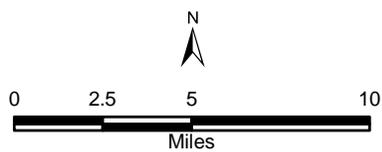
**Legend**

- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ▣ Vista
- Department Facility
- County Boundary
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▨ Urban Area (Census 2000)



- Phase I Permit (Order No.) Index**
- Orange County (R8-2002-0010)
  - Orange County (R9-2002-001)

- RWQCB Index**
- RB8 Santa Ana Region
  - RB9 San Diego Region



**Figure B-13**  
**District 12 Descriptions**

## Appendix C

### SUMMARY DESCRIPTIONS OF BEST MANAGEMENT PRACTICES

#### 1.1 Overview

The Department implements stormwater controls through the use of best management practices (BMPs). Some BMPs are utilized during construction as well as for routine maintenance of highways and existing facilities. In addition, some BMPs are built into the design of projects. This appendix provides:

- A description of the primary types of BMPs.
- A table that illustrates the incorporation of BMPs into various Departmental Stormwater guidance documents.
- A summary description of all BMPs (i.e. “toolbox”) used by the Department for water quality protection.

#### 1.2 BMP Types

For the purpose of describing BMPs implemented by the Department, BMPs are categorized into four primary types as described below:

##### Design BMPs

Design BMPs incorporate permanent water quality protection or control into a project after construction is completed. These include both Design Pollution Prevention and Treatment BMPs. Design Pollution Prevention BMPs incorporate permanent controls into a project for stormwater protection, such as permanent vegetation and flow diversions. Treatment BMPs are designed to remove pollutants from stormwater prior to discharge. Treatment BMPs must first be approved (as described in Section 3) before they can be considered for a project. Examples of treatment BMPs include such measures as infiltration devices and detention devices.

##### Administrative BMPs

These are indirect practices and policies that are employed to ensure that stormwater protection is addressed during the construction of a project or during maintenance of the

Department's highways or facilities.

### **Erosion and Sediment Control BMPs**

The Department employs a variety of BMPs to control erosion on its property and limit the amount of sediment entering drainages. Most of these BMPs are employed during highway construction projects but may be also used during the course of some maintenance activities.

### **Non -Stormwater Pollutants Control BMPs**

These practices address the control of authorized non-stormwater discharges as listed in the SWMP and permit. These BMPs are used during both construction and ongoing maintenance of highways and facilities.

## **1.3 Usage of BMPs by the Department**

Table C-1 lists all BMPs by category and illustrates where descriptions of the BMPs can be found. BMP descriptions will vary depending on the particular guidance and application. Summary descriptions are provided in Section 1.4.

Table C-1. List of BMPs vs. Department Guidance <sup>3</sup>

Department Guidance	Construction Guidance Document	Design Guidance Document	Maintenance Guidance Document	Other Guidance
<b>BMP List by Category<sup>1</sup></b>				
<b>Design BMPs</b>				
<b>Design Pollution Prevention BMPs</b>				
Dry Weather Flow Diversion		X		
Flared Culvert End Sections		X	X	
Gross Solids Removal Device		X	X	X
Hard Surfaces		X	X	
Outlet Protection/Velocity Dissipation Devices	X	X	X	
<b>Treatment BMPs</b>				
Biofiltration: Strips/Swales		X		
Detention Devices		X		
Ditches, Berms, Dikes and Swales		X	X	
Infiltration Devices		X	X	
Media Filter		X	X	
Multi-Chamber Treatment Trains		X	X	
Overside Drains		X	X	
Traction Sand Trap Devices		X		
Vegetated Surfaces		X		
Wet Basins		X		
<b>Administrative BMPs</b>				
Anti-Litter Signs	X		X	
Baseline Stormwater Drainage Facilities Inspection and Cleaning			X	
Enhanced Storm Drain Inlet Inspection and Cleaning Program			X	
Illegal Spill Discharge Control	X		X	
Illicit Connection Detection, Reporting, and Removal	X		X	
Maintenance Facility Housekeeping Practices			X	
Preservation of Existing Vegetation	X	X	X	
Safer Alternative Products	X		X	

<sup>1</sup> BMP lists and categories are dynamic. New and modified BMPs will be added as appropriate and identified in the Annual Report.

Department Guidance	Construction Guidance Document	Design Guidance Document	Maintenance Guidance Document	Other Guidance
<b>BMP List by Category<sup>1</sup></b>				
Scheduling	X	X	X	
Vegetated Slope Inspection			X	
Vegetated Treatment System Maintenance			X	
Work in a Water Body	X		X	
<b>Sediment/Erosion Control</b>				
Check Dam	X		X	
Clear Water Diversion	X		X	
Fiber Rolls	X		X	
Geotextile, Mats/Plastic Covers and Erosion Control Blankets	X		X	
Gravel Bag Berm	X		X	
Hydraulic Mulch	X		X	
Hydroseeding	X		X	
Sandbag Barrier	X		X	
Sediment Trap	X		X	
Sediment/Desilting Basin	X			
Silt Fence	X		X	
Slope Drains	X			
Slope Roughening	X			X
Soil Binders	X		X	
Stabilized Construction Entrance/Exit	X		X	
Stabilized Construction Roadway	X			
Stockpile Management	X		X	
Storm Drain Inlet Protection	X		X	
Straw Bale Barrier	X			
Straw Mulch	X		X	
Streambank Stabilization	X			
Street Sweeping and Vacuuming	X		X	
Temporary Stream Crossing	X			
Tire Inspection and Sediment Removal	X		X	
Wind Erosion Control	X			
Wood Mulching	X			
<b>Non-Stormwater Pollutants Control BMPs</b>				
Chemical Vegetation Control			X	
Concrete Curing and Finishing	X		X	
Concrete Waste Management	X		X	
Construction/Structure Demolition Over Water	X		X	
Dewatering Operations	X		X	

Department Guidance	Construction Guidance Document	Design Guidance Document	Maintenance Guidance Document	Other Guidance
<b>BMP List by Category<sup>1</sup></b>				
Evaporative Water			X	
Hazardous Waste Management	X		X	
Liquid Waste Management	X		X	
Litter and Debris			X	
Material Delivery and Storage	X		X	
Mud-Jacking and Drilling			X	
Paving and Grinding Operations	X		X	
Pile Driving Operations	X		X	
Potable Water/Irrigation	X		X	
Sanitary/Septic Waste Management	X		X	
Snow Removal and De-icing Agents			X	
Solid Waste Management	X		X	
Spill Prevention and Control	X		X	
Vehicle and Equipment Cleaning	X		X	
Vehicle and Equipment Fueling	X		X	
Vehicle and Equipment Maintenance	X		X	
Water Conservation Practices	X		X	

**1.4 BMP SUMMARY DESCRIPTIONS**

A summary description of each BMP, as listed in Table C-1, is provided below. The list is arranged alphabetically and organized by BMP type (Administrative Design, Erosion/Sediment Control, and Non-Stormwater). Detailed descriptions within individual guidance documents may vary depending on the specific application performed by the Division.

**Design BMPs**

**Biofiltration: Strips/Swales** - Designated treatment areas that receive stormwater discharges from the highway or other impervious surfaces. Biofiltration strips are vegetated sections of land over which stormwater flows as overland sheet flow. Biofiltration swales are vegetated channels that convey stormwater. Pollutants are removed by filtration through the soil and transpiration of plants.

**Detention Devices** - Basins or tanks that temporarily detain runoff and reduce flow

velocity to allow particles to settle out.

**Ditches, Berms, Dikes, and Swales** - Concentrated flow conveyances that are either earthen, concrete, or asphalt structures used to intercept, divert, and convey surface runoff in a manner that minimizes erosion.

**Dry Weather Flow Diversion** - Direct flow through a pipe or channel to a local sanitary sewer system for conveyance and treatment at a local wastewater treatment plant during dry weather.

**Flared Culvert End Sections** - Concentrated flow conveyances that are typically placed at inlets and outlets of culverts and open channels to prevent scour and minimize erosion.

**Gross Solids Removal Device (GSRD)** - A device installed at drainage outlets designed to capture gross solids (litter, vegetation, and other large particles). Two types are: Linear Radial and Inclined Screen.

**Hard Surfaces** - Used for slope/surface protection consisting of placed concrete, rock, or combination of materials.

**Infiltration Device** - A device that allow stormwater to infiltrate into the ground. Infiltration effectively prevents pollutants in the captured runoff from reaching the surface waters.

**Media Filter** - A Treatment BMP device that removes fine sediments, particulate-associated pollutants, and sometimes, dissolved pollutants. The normal configuration of such a device consists of an initial sedimentation basin or vault followed by a filtering vault that is lined with a media.

**Multi-Chamber Treatment Trains** - A Treatment BMP device that uses three treatment mechanisms in three different chambers. These include a catch basin with a sump, a sedimentation chamber with tube settlers and sorbent pads, and a filtering chamber lined with media.

**Outlet Protection/Velocity Dissipation Devices** - Devices placed at pipe outlets to prevent scour and reduce the velocity and/or energy of exiting stormwater flows.

**Overside Drains** - Pipes, downdrains, flumes or asphalt concrete overside drains used to protect slopes against erosion.

**Traction Sand Trap Devices** - Devices that temporarily detain runoff and allow traction sand (used for ice control), which was previously applied to snowy or icy roads, to settle

out.

**Vegetated Surfaces** - Establishment of permanent perennial vegetative cover on areas previously disturbed.

**Wet Basins** - A treatment BMP consisting of permanent pools of water designed to mimic naturally occurring wetlands. The main distinction between construction and natural wetlands is that constructed wetlands are placed in upland areas and are not subject to wetland protection regulations; also referred to as Constructed Wetlands.

#### **Administrative BMPs**

**Anti-Litter Signs** - Placement of signs on Department property to prohibit and discourage dumping and littering on the highways.

**Baseline Storm Water Drainage Facilities Inspection and Cleaning** - Culverts, ditches, gutters, underdrains, horizontal drains and downdrains require inspection and cleaning to prevent flooding and to provide for sufficient hydraulic capacity.

**Enhanced Storm Drain Inlet Inspection and Cleaning Program** - An inlet cleaning program based on inspections.

**Illegal Spill Discharge Control** - Reporting procedures for field staff that detect illegal dumping, discharges, and spills of pollutants on Department properties.

**Illicit Connection Detection, Reporting, and Removal** - This procedure directs maintenance staff to detect and report illicit connections and illegal discharges into Caltrans storm water drainage systems. Illicit connections are connections to Caltrans drainage systems that have not been approved by Caltrans. This management practice is directed at continuous or recurring discharges through direct connections to storm water drainage systems or as run-on from adjacent properties.

**Maintenance Facility Housekeeping Practices** - Practices and procedures to eliminate the potential for discharge of pollutants to drainage paths, storm water drainage systems or watercourses by promoting efficient and safe storage, use and cleanup of potentially harmful materials.

**Preservation of Existing Vegetation** - The identification and preservation of vegetation that provides erosion and sediment control benefits.

**Safer Alternative Products** - A process of evaluating new products for potential effect on storm water in order to reduce the potential for the discharge of harmful pollutants to

drainages.

**Scheduling** - Planning construction activities in a manner that will reduce the amount and duration of soil exposed to erosion and sediment transport.

**Vegetated Slope Inspection** - District procedures to routinely inspect and identify slopes in need of repair or revegetation to reduce erosion.

**Vegetated Treatment System Maintenance** - Regular inspection and maintenance of approved installed treatment systems to ensure these devices continue to perform their intended function.

**Work in a Water Body** - Maintenance activities occasionally require equipment or personnel to enter a stream, river, channel, or other water body. This BMP describes measures that are required for maintenance activities in water bodies.

### Erosion and Sediment Control BMPs

**Check Dam** - A small device constructed of rock, gravel bags, or other impedance-like material that are placed across a natural or man-made channel or drainage ditch. Sediment within runoff is reduced by reducing flow velocity.

**Clear Water Diversion** - A system of structures that intercept runoff upstream of a project site or activity, transports it around the site, and discharges it downstream.

**Desilting Basins** - Desilting basins are used to control construction site runoff and are sized as described in the Construction General Permit, unless they are preceded by other BMPs that may allow for a smaller size.

**Fiber Rolls** - Straw or other organic materials rolled or bound into a roll and placed on a slope to intercept runoff.

**Geotextiles, Mats/Plastic Covers and Erosion Control Blankets** - Non-vegetative materials applied to disturbed soil surfaces to prevent erosion.

**Gravel Bag Berm** - Gravel bags installed end-to-end to form a barrier across a slope to intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide some removal of sediment from the runoff.

**Hydraulic Mulch** - A mixture of shredded wood fiber that is applied to slopes and to open soil surfaces to control erosion.

**Hydroseeding** - The application of a mixture of wood fiber, seed, fertilizer and stabilizing emulsion to disturbed areas requiring protection against erosion.

**Sandbag Barrier** - Stacked sandbags designed to intercept and slow the flow of sediment-laden runoff.

**Sediment Trap** - A small temporary containment area with a controlled release structure formed by excavating or constructing an earthen embankment across a ditch or low drainage area.

**Sediment/Desilting Basin** - A temporary basin that allows sediment to settle out before the runoff is discharged. A desilting basin is generally less extensive than a Sediment Basin.

**Silt Fence** - A constructed barrier of permeable fabric designed to intercept and slow the flow of sediment-laden sheet flow runoff from exposed, erodible soil.

**Slope Drains** - A pipe or lined ditch used to intercept and direct surface runoff or groundwater from slopes into a stabilized watercourse, trapping device, or stabilized area.

**Slope Roughening** - Practice of creating defined imprints upon soil surfaces on a slope to establish vegetation or provide interim stabilization.

**Soil Binders** - Polymetric or lignin sulfonate soil stabilizers. Typically applied to disturbed areas requiring temporary protection from erosion.

**Stabilized Construction Entrance/Exit** - Sorted gravel or steel gratings placed at the entrance/exit to a construction site to reduce the tracking of mud and dirt onto public roads by vehicles.

**Stabilized Construction Roadway** - A temporary access road connecting existing public roads to a remote construction area designed to control vehicular tracking.

**Stockpile Management** - Procedures and practices to control stormwater runoff from contacting stockpiles of soil or other materials.

**Storm Drain Inlet Protection** - Practice used to detain and allow sediment to settle prior to discharge of stormwater into stormwater drainage systems.

**Straw Bale Barrier** - Sediment barrier consisting of straw bales designed to intercept and slow the flow of sediment-laden sheet flow runoff.

**Straw Mulch** - Fibrous organic material incorporated into the soil to reduce erosion, often used in conjunction with hydroseeding.

**Streambank stabilization** - Placement of rock gabion, riprap, and other measures to

improve bank stability and reduce erosion.

**Street Sweeping and Vacuuming** - Practices to remove tracked sediment and other materials to prevent them from entering a storm drain or watercourse.

**Temporary Stream Crossing** - Structure placed across a waterway that allows vehicles to cross the waterway during without entering the water during construction activities.

**Tire Inspection and Sediment Removal** - Practices followed at construction road egress points facilities to remove sediment from tires and under carriage, and to reduce or prevent sediment from being transported off site.

**Wind Erosion Control** - Application of water or covering of material as necessary to prevent wind blown sediment from entering drainages.

**Wood Mulching** - Application of chipped material or commercially available wood mulch products to disturbed soil to reduce the potential for erosion.

#### **Non-Stormwater Pollutants Control BMPs**

**Chemical Vegetation Control** - Practices to reduce the potential for the discharge of pollutants generated during chemical vegetation control. This method of vegetation control uses herbicides to eliminate and prevent weed growth. The purpose is to control weed growth that may threaten the growth and health of preferred vegetation, which may become a fire hazard or raise other safety concerns.

**Concrete Curing** - Procedures for the finishing and curing of all concrete elements that protect water quality.

**Concrete Waste Management** - Procedures and practices used to minimize the discharge of concrete waste materials to storm drain systems or to watercourses.

**Construction Demolition Over Water** - Procedures to protect water bodies from debris and wastes associated with structure construction or demolition over watercourses.

**Contaminated Soil Management** - Procedures and practices to protect stormwater from contaminated soil.

**Dewatering Operations** - Practices that address the discharge of water produced by the removal of water from construction site activities.

**Evaporative Water** - Water used for vehicle and equipment cleaning where no discharge to a sanitary sewer system is available.

**Hazardous Waste Management** - Procedures and practices used to protect stormwater from wastes defined as "hazardous" in accordance with CCR, Title 22.

**Liquid Waste Management** - Procedures and practices used to protect water quality and during the creation, collection, and disposal of non-hazardous liquid wastes.

**Litter and Debris** - The collection of litter and debris from roadsides and other Department facilities to prevent their mobilization by runoff.

**Material Delivery and Storage** - Procedures and practices for the proper handling and storage of materials in a manner that minimizes or eliminates the discharge of pollutants.

**Mud-Jacking and Drilling** - Procedures used to prevent release of grout material to stormwater drainages typically used to maintain and repair rigid type surfacing, base and concrete shoulders.

**Paving and Grinding Operations** - Procedures that protect stormwater runoff during the paving of new roadways or treatment of existing roadways.

**Pile Driving Operations** - Procedures for sites near or adjacent to a water body where structure foundation elements are being installed.

**Potable Water/Irrigation** - Measures taken to ensure discharges are not exposed to materials that would introduce pollutants into the runoff.

**Sanitary/Septic Waste Management** - Practices used to minimize or eliminate the discharge of sanitary/septic waste materials to storm drain systems or to watercourses.

**Snow Removal and De-icing Agents** - Practices to reduce the discharge of potential pollutants generated during the mechanical spreading of abrasives and de-icing agents and mechanical removal of snow from the travel way.

**Solid Waste Management** - Procedures and practices to protect stormwater from the temporary storage or removal of solid wastes generated from construction or maintenance.

**Spill Prevention and Control** - Procedures and practices to prevent and control spills in a manner that minimizes or prevents the discharge of spilled material to the storm drain system or watercourses.

**Vehicle and Equipment Cleaning** - Procedures and practices used to reduce or eliminate the discharge of pollutants from vehicle and equipment cleaning operations to storm drain systems or to watercourses.

**Vehicle and Equipment Fueling** - Procedures and practices used to minimize or eliminate the discharge of fuel spills and leaks into storm drain systems or to watercourses.

**Vehicle and Equipment Maintenance** - Procedures and practices used to minimize or eliminate the discharge of pollutants from vehicle and equipment maintenance procedures to storm drain systems or to watercourses.

**Water Conservation Practices** - Activities that use clean water during in a manner that avoids causing erosion and/or the transport of pollutants off-site.

## Appendix D

## ABBREVIATIONS, ACRONYMS, AND DEFINITIONS OF TERMS

## ABBREVIATIONS

<b>C</b>	Celsius
<b>ft</b>	Feet
<b>hr</b>	Hour
<b>in</b>	Inches
<b>L</b>	Liter
<b>Mg</b>	Milligrams
<b>µg</b>	Micrograms
<b>µhos</b>	Micro ohms
<b>µS</b>	Microseconds

## ACRONYMS

<b>AADT</b>	Average Annual Daily Traffic
<b>BAT</b>	Best Available Technology Economically Achievable
<b>BCT</b>	Best Conventional Pollutant Control Technology
<b>BMP</b>	Best Management Practice
<b>Cal/EPA</b>	California Environmental Protection Agency
<b>Caltrans</b>	California Department of Transportation
<b>CASQA</b>	California Stormwater Quality Association
<b>CEE</b>	Chief Environmental Engineer
<b>CEQA</b>	California Environmental Quality Act
<b>CCR</b>	California Code of Regulations
<b>CFR</b>	Code of Federal Regulations
<b>CHP</b>	California Highway Patrol
<b>CIP</b>	Capital Improvement Program
<b>CTR</b>	California Toxics Rule
<b>CWA</b>	Clean Water Act
<b>DNC</b>	District NPDES Stormwater Coordinator
<b>DOC</b>	Dissolved Organic Carbon
<b>DP</b>	Director's Policy
<b>DTSC</b>	Department of Toxic Substances Control
<b>DWP</b>	District Work Plan
<b>DWQ</b>	Division of Water Quality (State Water Resources Control Board)
<b>EC</b>	Electrical Conductivity
<b>EIP</b>	Environmental Improvement Program
<b>EP-SWAT</b>	Encroachment Permits SWAT

## Appendix D

### ACRONYMS

<b>EPA</b>	United States Environmental Protection Agency
<b>FPPP</b>	Facility Pollution Prevention Plan
<b>FY</b>	Fiscal Year
<b>HDM</b>	Highway Design Manual
<b>HQ</b>	Headquarters
<b>HU</b>	Hydrologic Unit
<b>IC/ID</b>	Illicit Connection/Illegal Discharge
<b>IGR</b>	Inter-Governmental Review
<b>IMMS</b>	Integrated Maintenance Management System
<b>KCB</b>	Keep California Beautiful
<b>MEP</b>	Maximum Extent Practicable
<b>MPN</b>	Most Probable Number Assay
<b>MS4</b>	Municipal Separate Storm Sewer System
<b>M-SWAT</b>	Maintenance SWAT
<b>NCC</b>	Notice of Construction Completion
<b>NEPA</b>	National Environmental Policy Act
<b>NOC</b>	Notice of Construction
<b>NOI</b>	Notice of Intent
<b>NOT</b>	Notice of Termination
<b>NPDES</b>	National Pollutant Discharge Elimination System
<b>O&amp;M</b>	Operation and Maintenance
<b>OES</b>	Governor's Office of Emergency Services
<b>PA/ED</b>	Project Approval/Environmental Document
<b>PD-SWAT</b>	Project Development SWAT
<b>PDT</b>	Project Development Team
<b>PE</b>	Project Engineer
<b>PEAR</b>	Preliminary Environmental Analysis Report
<b>pH</b>	Potential of Hydrogen-negative 10-base log (power) of the positive hydrogen ion concentration; measure of acidity
<b>PID</b>	Project Initiation Document
<b>PM</b>	Project Manager
<b>PS&amp;E</b>	Plans, Specifications, and Estimates
<b>RE</b>	Resident Engineer
<b>ROW</b>	Right-of-Way
<b>RWQCB</b>	Regional Water Quality Control Board
<b>SWAT</b>	Stormwater Advisory Team
<b>SWMP</b>	Stormwater Management Plan
<b>SWPPP</b>	Stormwater Pollution Prevention Plan
<b>SWRCB</b>	State Water Resources Control Board
<b>TC</b>	Treatment Control
<b>TDS</b>	Total Dissolved Solids

**ACRONYMS**

<b>TKN</b>	Total Kjeldahl Nitrogen
<b>TMDL</b>	Total Maximum Daily Load
<b>TOC</b>	Total Organic Carbon
<b>TRPA</b>	Tahoe Regional Planning Agency
<b>TSS</b>	Total Suspended Solids
<b>WDR</b>	Waste Discharge Requirements
<b>WLA</b>	Waste Load Allocation
<b>WQ-SWAT</b>	Water Quality SWAT
<b>WQF</b>	Water Quality Flow
<b>WQS</b>	Water Quality Standard
<b>WQV</b>	Water Quantity Volume

**DEFINITIONS OF TERMS****Beneficial Uses:**

The resources, services, and qualities of state waters that may be protected against quality degradation. The uses include, but are not limited to, domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. The specific uses such as 'cold freshwater habitat' and 'water contact recreation' are defined in Section 2 of the RWQCB Basin Plans. Beneficial Uses are defined in California Water Code Section 13050(f).

**Best Available Technology Economically Achievable:**

A term derived from Section 301(b) of the federal CWA and refers to BMPs or other procedures used to reduce toxic and non-conventional pollutants in discharges from construction sites. Toxic pollutants are those defined in Section 307(a)(1) of the CWA and include heavy metals and man-made organic chemicals. Non-conventional pollutants are those pollutants not included in the definition of conventional and toxic pollutants. Non-conventional pollutants include ammonia, chloride, toxicity, nitrogen, etc.

**Best Conventional Pollutant Control Technology:**

A term derived from Section 301(b) of the federal CWA and refers to BMPs intended to control conventional pollutants in discharges (applicable to construction site stormwater runoff). Conventional pollutants include biochemical oxygen demand, total suspended solids, oil and grease, fecal coliform and pH.

**Best Management Practices:**

Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce pollution.

**Catch Basin:**

A storm drain inlet having a sump below the outlet to capture settled solids.

**Code of Federal Regulations:**

The document that codifies all rules of the executive departments and agencies of the federal government. It is divided into fifty volumes, known as titles. Title 40 of the CFR (referenced as 40 CFR) lists the environmental regulations.

**Constituents of Concern:**

Specific chemicals or parameters that are identified for evaluation (e.g., characterization of runoff).

## Appendix D

### **Construction:**

Clearing, grading, excavating, etc. that results in soil disturbance. Construction includes structure teardown. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility; interior remodeling with no outside exposure of construction material or construction waste to stormwater; mechanical permit work; sign permit work, or emergency construction activities. Emergency construction are those activities required to immediately protect the safety of travelers from an imminent threat and to restore roadways to essential travel of emergency vehicles. Emergency construction proceeds as soon as feasible and may not comply with typical notification requirements, which normally pertain to projects. (From Order No. R5-2002-0181 [Stockton])

### **Construction General Permit:**

The NPDES general permit for stormwater discharges associated with construction activity - SWRCB Order No. 99-08 DWQ, NPDES General Permit No. CAS000002 or its subsequent replacement.

### **Conventional Pollutants:**

Those pollutants defined in the federal regulations at 40 CFR 401.16 (pursuant to Section 304(a)(4) of the CWA). These pollutants include biochemical oxygen demand (BOD), total suspended solids (TSS) (nonfilterable), pH, fecal coliform, and oil and grease.

### **Detention Device:**

Facilities designed to collect and temporarily detain the initial volume of stormwater runoff for a specified period, to permit settlement of particulate pollutants.

### **Dewatering Operations:**

The removal of groundwater resulting from excavation activities.

### **Directly Connected Impervious Area:**

The area covered by a building, impermeable pavement, and/ or other impervious surfaces, which drains directly into the storm drain without first flowing across permeable land area (e.g., lawns, swales). (From Attachment 9 to WQO 2003-0005-DWQ)

### **Discharge:**

When used without qualification includes a discharge of a pollutant and a discharge of pollutants.

### **Discharge of a Pollutant:**

Any addition of any pollutant to waters of the United States from any point source. Also, any addition of any pollutant to waters of the contiguous zone or the ocean from any

## Appendix D

point source other than a vessel or other floating craft. (From CFR 122.2) See “point source” for exceptions.

### **District Work Plans:**

Annual detailed plans submitted to the applicable RWQCB(s) that describe how the statewide SWMP will be implemented in each RWQCB jurisdictional area.

### **Drainage Area:**

That portion of the earth’s surface from which precipitation or other runoff flows to a given location. With respect to a highway, this location may be either a culvert, the farthest point of a channel, or an inlet to a roadway drainage system.

### **Drainage Swale:**

A storm drainage conveyance structure designed to intercept, divert and convey surface runoff, generally sheet flow, to prevent erosion and reduce pollutant loading.

### **Emergency Project:**

Services that are required to respond immediately to a sudden, unexpected occurrence that poses a clear and imminent danger, requiring immediate action to prevent or mitigate the loss or impairment of life, health, property, or essential public services. See also Section 13269 of the California Water Code.

### **Encroachment:**

Occupancy of project right-of-way by non-project structures or objects of any kind or character; also, activities of other parties within the operating right-of-way.

### **Encroachment Permit Construction Project:**

Project constructed by a local agency or a private entity without a highway improvement or cooperative agreement with the Department. These projects are generally small, disturb less than one acre of soil, and have minimal impact on the highway system.

### **Environmental Protection Agency:**

The federal agency with primary or oversight responsibility for implementing the federal environmental statutes, including the CWA, Clean Air Act, Safe Drinking Water Act and Resource Conservation and Recovery Act. California is included within EPA Region IX, headquartered in San Francisco.

### **Existing Vegetation:**

A vegetated area that has not been cleared and grubbed.

## Appendix D

### **Facility:**

A building or structure other than road surfaces, support structures (bridges), or adjacent ROW. Facilities include: maintenance stations, storage yards, weigh stations, laboratories, and bridge tenders. The term as used in this document does not include office buildings, which are used exclusively for administrative functions.

### **Facility Pollution Prevention Plan:**

A plan that identifies the functional activities specific to a facility and the applicable BMPs and other procedures utilized by maintenance personnel to reduce the discharge of pollutants in stormwater.

### **Hazardous Waste:**

Specific waste materials regulated by (and defined in) the federal Resource Conservation and Recovery Act (see regulations at 40 CFR 261) and the California Health and Safety Code (Section 25141).

### **Herbicides:**

Chemical compounds that are used to control weeds.

### **Hydrologic Unit:**

A watershed or portion of a watershed defined and catalogued by the United States Geological Survey and used by the RWQCBs for regulatory purposes and are referenced in Basin Plans.

### **Illegal Connection:**

Any man-made connections to the Department's storm sewer systems made by others without permission. Illegal connections are a subset of "Illicit Discharges."

### **Illicit Discharge:**

Unauthorized discharges, including accidental spills, illegal connections, and illegal dumping.

### **Illegal Dumping:**

Discarding or disposal of trash and other wastes in non-designated areas. Illegal dumping may contribute to stormwater pollution."

"Illegal dumping" generally refers to unlawful deposits of solid material while illegal (or illicit) connection and discharge refer to the release of liquid wastes directly or indirectly into stormwater conveyance facilities.

## Appendix D

### **Industrial General Permit:**

The NPDES general permit for stormwater discharges associated with industrial activity - SWRCB Order No. 97-03 DWQ, NPDES General Permit No. CAS000001 or its subsequent replacement.

### **Infiltration:**

The downward entry of water into the surface of the soil. (*From Attachment 9 to WQO 2003-0005-DWQ*)

### **Infiltration Device:**

An infiltration basin or other device designed to infiltrate runoff into the soil.

### **Inter-Governmental Review:**

Transportation planning tool that allows the Department to review, comment, and recommend mitigation measures on local plans, programs, and development proposals that have potential impacts on the state transportation system.

The District IGR Program Coordinators are the point-of-contact for the review of local and regional project development proposals and environmental planning documents.

The Headquarters IGR Program has four primary functions in the Department's Division of Transportation Planning.

- Acting as the legal liaison for planning.
- Providing statewide program administration.
- Advising districts on IGR procedural issues.
- Coordinating Caltrans IGR for Federal and multi-district project proposals.

### **Linear Project:**

Construction project eligible to obtain a Statewide General Permit for Stormwater Discharges Associated with Construction Activity from Small Linear Underground/Overhead Projects, issued by the State Water Resources Control Board.

### **Maintenance Activities:**

Activities that may require clearing, grading, or excavation to maintain original line and grade, hydraulic capacity or original purpose of the facility.

## Appendix D

### **Maintenance Facilities (related to stormwater control):**

Facilities under the Department's ownership or control that contain such areas as fueling areas, waste storage or disposal facilities, wash racks, equipment or vehicle storage and materials storage areas.

### **Major Reconstruction:**

The types of projects that are considered to be a New Facility or Major Reconstruction include, but are not limited to: new highways and freeways, highway related facilities, adding one or more lanes, new or reconstructed interchanges, new or reconstructed bridges, etc. Activities that are not considered to be new construction or major reconstructions are the following: routine maintenance necessary to preserve original line and grade, hydraulic capacity, or original purpose of the facility; projects disturbing less than 3 acres of soil disturbance; and emergency construction activities.

### **Maximum Extent Practicable:**

As applied to pollutant removal, means pollutant control to the maximum extent possible, taking into account equitable consideration of synergistic, additive and competing factors; including, but not limited to, gravity of the problem, fiscal feasibility, public health risks, societal concerns and social benefits. (*From Orange County DAMP*)

### **Measurable Objective:**

Definable tasks or activities that are associated with implementing best management practices and other program components.

### **Median:**

The portion of a divided highway separating the traveled ways for traffic in opposite directions. Often contains storm drain system facilities, such as ditches and swales.

### **Municipal Separate Storm Sewer System:**

Storm drain systems regulated by the federal Phase I and Phase II stormwater regulations. Municipal *combined* sewer systems are regulated separately. MS4s are defined in the federal regulations at 40 CFR 122.26(b)(8).

### **Non-Programmed Capital Construction Project:**

Project requiring either a cooperative agreement between the Department and a local government, or a highway improvement agreement between the

Department and a private entity. They may be funded either solely or in part by local or private entities.

## Appendix D

### **Nonpoint Source Discharge:**

Discharge from a diffuse pollution source (i.e., generally without a single point of origin or not introduced into a receiving stream from a specific outlet). Nonpoint Source Discharges do not require NPDES permits, which only apply to 'point sources'. The RWQCBs or the SWRCB may issue Waste Discharge Requirements to nonpoint source discharges under state law.

### **Non-Stormwater Discharge:**

Any discharge to a storm drain system or receiving water that is not composed entirely of stormwater.

### **Non-Departmental Activities:**

Activities that are primarily controlled by encroachment permits, leases, and rental agreements. They include both construction activities and non-construction activities. The Department generally refers to the entities performing these activities as "third parties." Often more than one Division is involved in the management and oversight of third party activities.

### **Notice of Construction Completion:**

A formal notification submitted by the Department to the appropriate RWQCB upon completion of construction and stabilization of a site, similar to a Notice of Termination (NOT) for construction performed under the Construction General Permit.

### **Notice of Construction:**

A formal notification submitted by the Department to the appropriate RWQCB for construction that will result in the disturbance of one acre or more of soil area, similar to a Notice of Intent (NOI) for construction performed under the Construction General Permit.

### **Nuisance:**

Anything that meets all of the following requirements: (1) is injurious to health or is indecent or offensive to the senses, or an obstruction to the free use of property (interferes with the comfortable enjoyment of life or property); (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; (3) occurs during, or as a result of, the treatment or disposal of wastes. (*From California Water Code 13050 (m)*)

### **Nutrients:**

Any substance assimilated by living things that promotes growth. The term is generally applied to nitrogen and phosphorus in wastewater, but is also applied to other essential and trace elements (from USEPA "Terms of Environment").

**Office of Emergency Services:**

California agency in the Governor's Office with responsibility for coordinating responses to emergencies. OES receives initial hazardous materials spill reports and sends them on to other involved agencies such as RWQCBs and the Department of Fish & Game.

**Outfall:**

A point source at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States. (40 CFR §122.26(b)(9))

**Peak Flow:**

The highest amount of stream or river flow occurring in a year or from a single storm event.

**Permanent BMPs:**

BMPs that are installed during construction and designed to provide long-term stormwater quality protection following a project's completion.

**Permit:**

Refers to the NPDES Stormwater Permit (Order No. 99-06-DWQ) adopted by the SWRCB on July 15, 1999 or subsequent statewide permits issued to the Department.

**Pilot BMP:**

A pilot BMP is a non-approved BMP implemented by a District on an experimental basis to address a specific water quality concern. All pilot BMPs require HQ approval. Implementation and performance are documented for subsequent review by the appropriate SWAT and CEE approval.

**Plans, Specifications and Estimates:**

The bid documents, including general design, specifications and estimated costs. These also include Water Pollution Control Special Provisions.

**Point Source:**

Any discernible, confined, and discrete conveyance or collection system from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff. (See also 40 CFR 122.2 and 122.3).

## Appendix D

### **Pollutant:**

Dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. This term does not mean (A) "sewage from vessels" within the meaning of section 1322 of this title [CWA]; or (B) water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil or gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if such State determines that such injection or disposal will not result in the degradation of ground or surface water resources. (40 CFR 122.2)

### **Pollutant Discharge:**

- Any addition of any pollutant to waters of the United States from any point source
- Any addition of any pollutant to waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft. (From CFR 122.2)
- See "point source" for exceptions.

### **Pollution Prevention:**

Identifying areas, processes, and activities, which create excessive waste products or pollutants in order to reduce or prevent the release of pollutants through alteration or eliminating a process. Such activities are consistent with the Pollution Prevention Act of 1990.

### **Program Evaluation:**

Refers to a variety of activities and processes through which the Department will obtain information relevant to its implementation of and compliance with the stormwater management program so that the need for and/or opportunities for revising or refining its program can be identified.

### **Project Delivery:**

The Department's program that is responsible for the planning, design, and construction of projects; includes associated functional units.

### **Project Engineer:**

The P.E. responsible for the preparation of Project Study Reports and Project Reports during the project-planning phase. The P.E. is also responsible for PS&E documents during the design phase. The stormwater responsibilities are described in Section 5 (Project Planning and Design).

**Project Limit:**

The boundary of a project as defined in the project's environmental or contract documents (e.g., project plans).

**Receiving Water Limitations:**

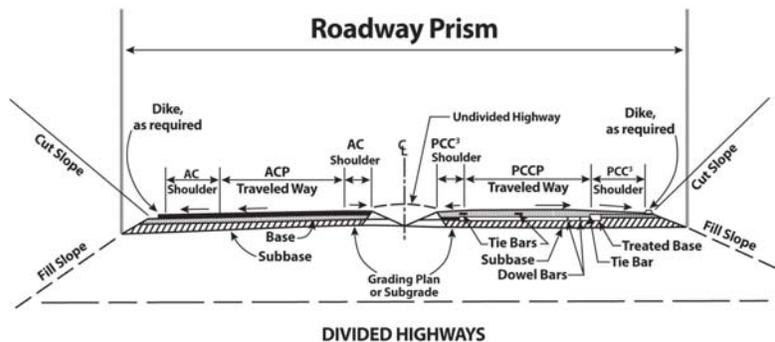
Permit water quality limitations applied to dischargers to prevent violations of water quality standards. Also known as water quality-based effluent limitations (WQBEL).

**Regional Water Quality Control Board:**

Any California Regional Water Quality Control Board for a region as specified in Section 13200 of the California Water Code.

**Roadway Prism:**

The portion of Department-owned highway consisting of the road surface, embankment, and area extending to one-half the depth of the outside edge of shoulder.

**Right of Way**

Property owned or controlled by the Department. Right-of-way that is in current use is referred to as 'Operating ROW'.

**Sanitary Sewer:**

Underground pipes that carry off only domestic or industrial waste, not stormwater.

**Satellite Stations:**

These Division of Maintenance facilities provide locations where crews can have access to additional materials and/or equipment without returning to the regional administrative yard. Maintenance crews are not based at these facilities.

**Sediment:**

Organic or inorganic material that is carried by or is suspended in water and that settles out to form deposits in the storm drain system or receiving waters.

## Appendix D

### **Site:**

The land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.

### **Slope:**

Any area with a grade of 1:20 (V: H) or more.

### **Soil Stabilization:**

BMPs that provide stormwater quality management after construction is completed.

### **Source Control:**

Generally, a range of actions (e.g., removal, treatment in place, containment, etc.) designed to protect the environment by eliminating or minimizing exposure or migration of significant contamination. Sometimes referred to as 'Pollution Prevention,' although Pollution Prevention is probably a broader term, which encompasses 'Source Control'. For stormwater, Source Control involves minimizing the generation of excessive runoff and / or pollution of stormwater at or near its source. Source Control techniques can be categorized into:

- *Non-Structural Source-Control:* techniques that aim to change human behavior to reduce the amount of pollutants that enter stormwater systems.
- *Structural Source-Control:* techniques that aim to reduce the quantity and improve the quality of stormwater at or near its source by using infrastructure or natural physical resources (e.g., vegetated swales). 'Structural Source-Controls' differ from the more conventional, structural 'end-of-pipe' treatment techniques.

### **Spill:**

The sudden release of a potential pollutant from containment to the environment that requires cleanup because of its potential risk to the environment or public health.

### **State Water Resources Control Board:**

As delegated by EPA, California agency that implements and enforces CWA §402(p) NPDES permit requirements. In conjunction with the RWQCBs, the SWRCB regulates the Departments' stormwater discharges.

### **Storm Drain Inlet:**

A drainage structure that collects surface runoff and conveys it to an underground storm drain system.

## Appendix D

### **Storm Event:**

A rainfall event that produces more than 0.1 inch of precipitation and is separated from the previous storm event by at least 72 hours of dry weather. (*From Attachment 9 to WQO 2003-0005-DWQ*)

### **Stormwater:**

Water runoff resulting from precipitation, including snowmelt, into natural drainages and man-made drainage conveyances.

### **Stormwater Advisory Team:**

The Department's teams responsible for supporting policy development and technology assessment as well as evaluating new or revised BMPs. The Department has five SWATs that include: Design, Construction, Maintenance, Encroachments, and, as an umbrella SWAT, Water Quality.

### **Stormwater Drainage System:**

Streets, gutters, inlets, conduits, natural or artificial drains, channels and watercourses, or other facilities that are owned, operated, maintained and used for the purpose of collecting, storing, transporting or disposing of stormwater.

### **Stormwater Pollution Prevention Plan:**

A plan for a specific construction site to control runoff. A general checklist for SWPPP preparation is included in the General Permit for Stormwater Discharges Associated with Construction Activity, issued by the State Water Resources Control Board.

### **Structural BMP:**

Any structural facility designed and constructed to mitigate the adverse impacts of stormwater and urban runoff pollution (e.g., canopy, structural enclosure, treatment facility). The term may include both Treatment Control BMPs and Source Control BMPs. (*Adapted from Attachment 9 to WQO 2003-0005-DWQ*)

### **Sump:**

In drainage, any low area that does not permit the escape of water by gravity flow.

### **Supplemental Environmental Project:**

A beneficial project undertaken for environmental mitigation or for settling an enforcement action.

### **Surface Runoff:**

Precipitation, snowmelt, or irrigation water in excess of what can infiltrate the soil surface and be stored in small surface depressions.

## Appendix D

### **Target Pollutants**

Pollutants that are the focus of the Department's monitoring and control efforts (e.g. research, BMP development, etc.). Targeted pollutants are associated with a transportation land use and prevalent within the Department's runoff at concentrations that consistently exceed regulatory compliance thresholds.

### **Temporary Construction Site BMPs:**

BMPs used to control runoff during construction that are abandoned or removed after the construction project is complete.

### **Temporary Soil Stabilization:**

Soil stabilization BMPs that provide stormwater quality management during construction.

### **Total Maximum Daily Loads:**

A written, quantitative plan and analysis for attaining and maintaining water quality standards in all seasons for a specific water body and pollutant. Generally establishes an allocation of pollutant loading applicable to the discharge sources of the pollutant targeted by the TMDL.

### **Toxic Pollutants:**

Those pollutants defined in the federal regulations at 40 CFR 401.15 (pursuant to Section 307(a)(1) of the CWA). These pollutants are toxic to aquatic organisms or humans and include copper, lead, zinc, other metals, and many synthetic organic compounds, including pesticides and other constituents sometimes found in wastewater.

### **Treatment:**

The application of engineered systems that use physical, chemical, or biological processes to remove pollutants. Such processes include, but are not limited to, filtration, gravity settling, media adsorption, biodegradation, biological uptake, chemical oxidation, and UV radiation. (*From Attachment 9 to WQO 2003-0005-DWQ*)

### **Treatment BMP:**

Any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological, or chemical process. (*From Attachment 9 to WQO 2003-0005-DWQ*)

### **Vegetation Control:**

Maintenance of vegetation on facilities owned by the Department by a combination of chemical application (herbicides) and mechanical methods (mowing, cutting, etc.).

## Appendix D

### **Waste:**

As defined in California Water Code Section 13050 (d), waste includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal. Article 2 of CCR Title 23, Chapter 15 (Chapter 15) contains a waste classification system, which applies to solid and semi-solid waste, which cannot be discharged directly or indirectly to water of the state and which therefore must be discharged to land for treatment, storage, or disposal in accordance with Chapter 15. There are four classifications of waste (listed in order of highest to lowest threat to water quality): hazardous waste, designated waste, nonhazardous solid waste, and inert waste.

### **Waste Discharge Requirements:**

WDRs are permits issued in California for the discharge of wastes to waterways or to land pursuant to the Water Code section 13260. In accordance with Water Code section 13374, the term 'waste discharge requirements' is equivalent to the term 'permits' used in the Clean Water Act (i.e., NPDES permits.) However, WDRs may be issued to discharges, which do not require NPDES permits.

### **Waste Discharge to Land:**

A release (discharge) of solid or liquid wastes to the ground or earthen containment structure intended for permanent disposal. These discharges do not drain into any conveyance to surface waters, and they are therefore not regulated by this permit. Waste discharges to land are regulated under the California Water Code (Porter-Cologne Act). Anyone proposing to discharge wastes to land shall notify the applicable Regional Water Quality Control Board. These discharges may be required to file a Report of Waste Discharge and may be issued waste discharge requirements.

### **Waste Load Allocation:**

The maximum load of pollutants each discharger of waste is allowed to release into a particular waterway. Discharge limits are usually required for each specific water quality criterion being, or expected to be, violated. Also, the portion of a stream's total assimilation capacity assigned to an individual discharge.

### **Water Quality Standards:**

Water quality standards define water quality goals of a water body by designating uses ("beneficial uses") of the water and by setting objectives necessary to protect these beneficial uses. The objectives may be narrative or numeric (e.g., 5 micrograms per liter of copper). The beneficial uses include such things as cold freshwater habitat, domestic [drinking water] supply, and water contact recreation. The standards also include antidegradation requirements. Antidegradation is addressed through the establishment of requirements to "maintain existing or higher quality water."

## Appendix D

Water quality standards are adopted by the state and approved by EPA. They are contained in the Basin Plans, the Ocean Plan, and the California Toxics Rule.

Sometimes the term “water quality objectives” is used interchangeably with “water quality standards.”

### **Watershed:**

The drainage basin contributing water, organic matter, dissolved nutrients, and sediments to a stream, estuary, or lake.

### **Waters of the State:**

Any water, surface, or underground, including saline waters, within the boundaries of the state (See Water Code Section 13050(e)).

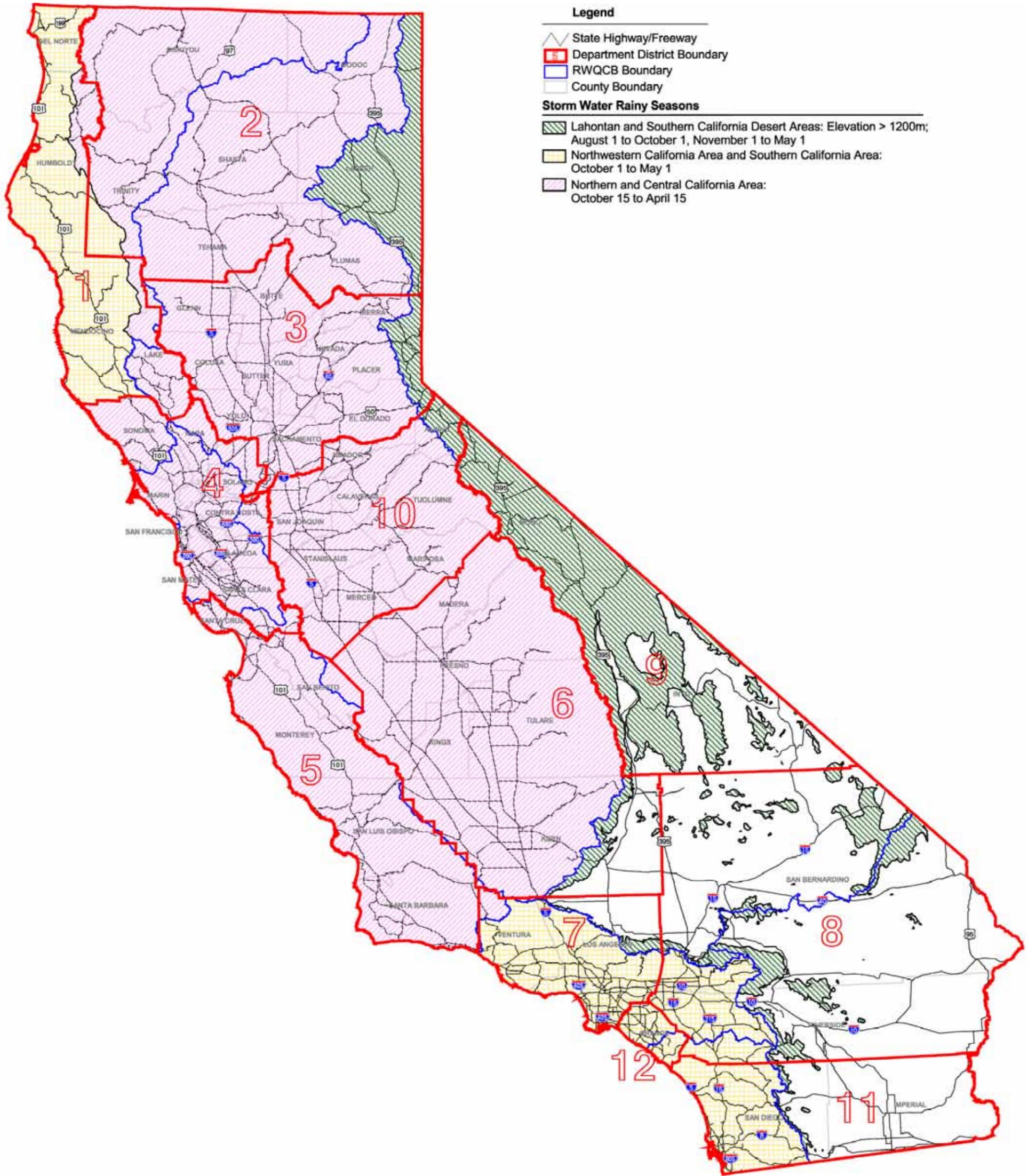
### **Wetland:**

Those areas that are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support vegetation typically adapted for life in saturated soil conditions. Generally includes playa lakes, swamps, marshes, bogs, mudflats, natural ponds, and similar areas. Projects impacting wetlands in California require Waste Discharge Requirements. In most cases, it will also be necessary to receive a Corps of Engineers 404 permit and associated 401 certification. Constructed wetlands used for stormwater treatment purposes, which have not been constructed in a watercourse, do not require 404/401 permitting, and would generally not require a separate WDR.

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Appendix E

RAINY SEASON MAPS



Note: For individual Caltrans District Maps, see Figure E-2 to E-13.



55 0 55 Miles

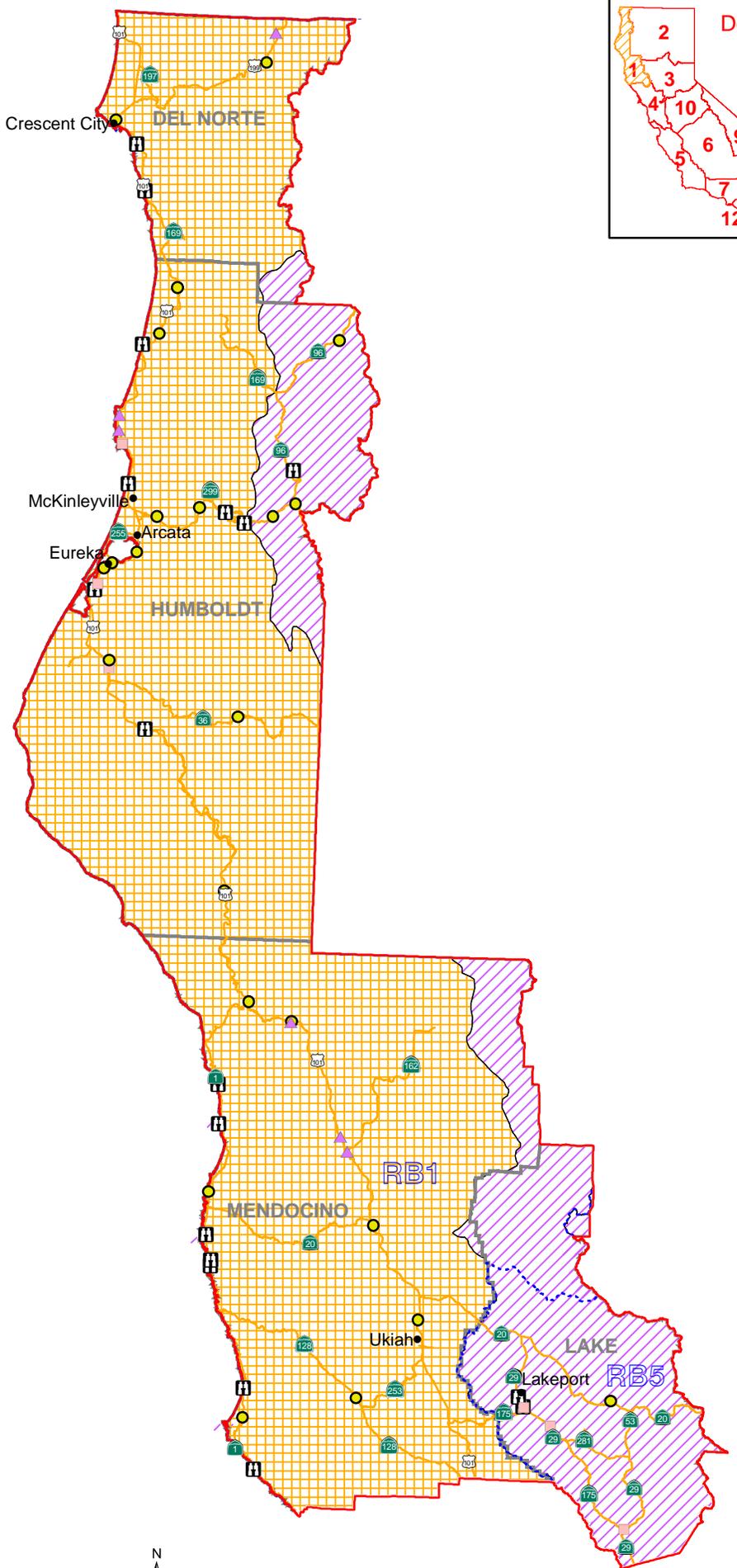
Figure E-1. Rainy Seasons Map

**Legend**

- Major City
- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ⊠ Vista
- Department Facility
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▭ County Boundary

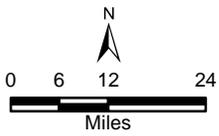
**Rainy Season**

- ▭ Oct to May1
- ▭ Oct15 to April15



**RWQCB Index**

- RB1 North Coast Region
- RB5 Central Valley Region



**Figure E-2**  
**District 1 Rainy Season Map**

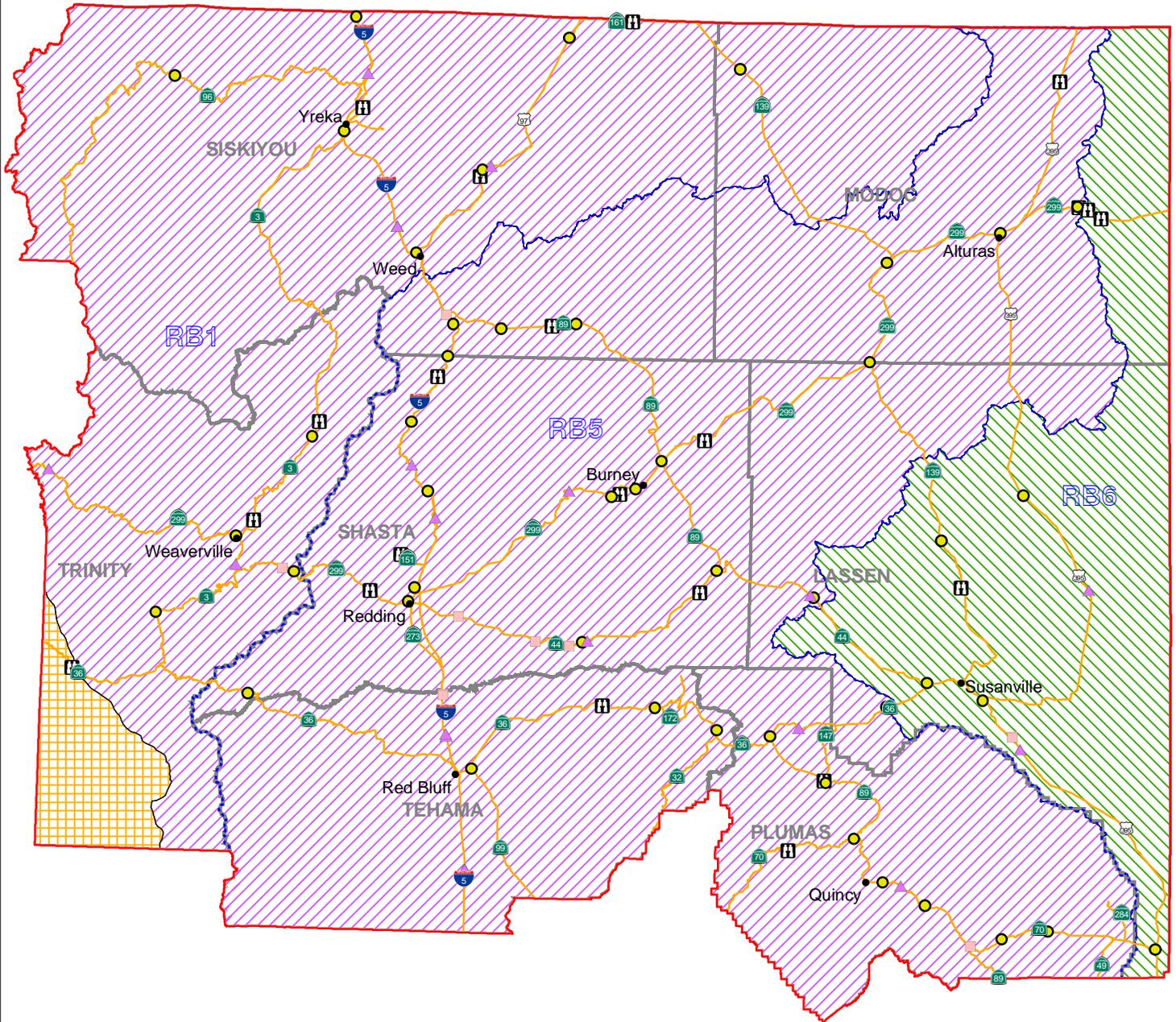
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**Legend**

- Major City
- Maintenance Station
- ▲ Rest Area
- Park & Ride
- ▣ Vista
- Department Facility
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▭ County Boundary

**Rainy Season**

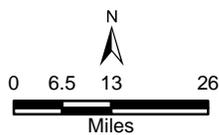
- ▨ Aug1 to Oct1, Nov1 to May1
- ▨ Oct1 to May1
- ▨ Oct15 to April15



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**RWQCB Index**

- RB1 North Coast Region
- RB5 Central Valley Region
- RB6 Lahontan Region



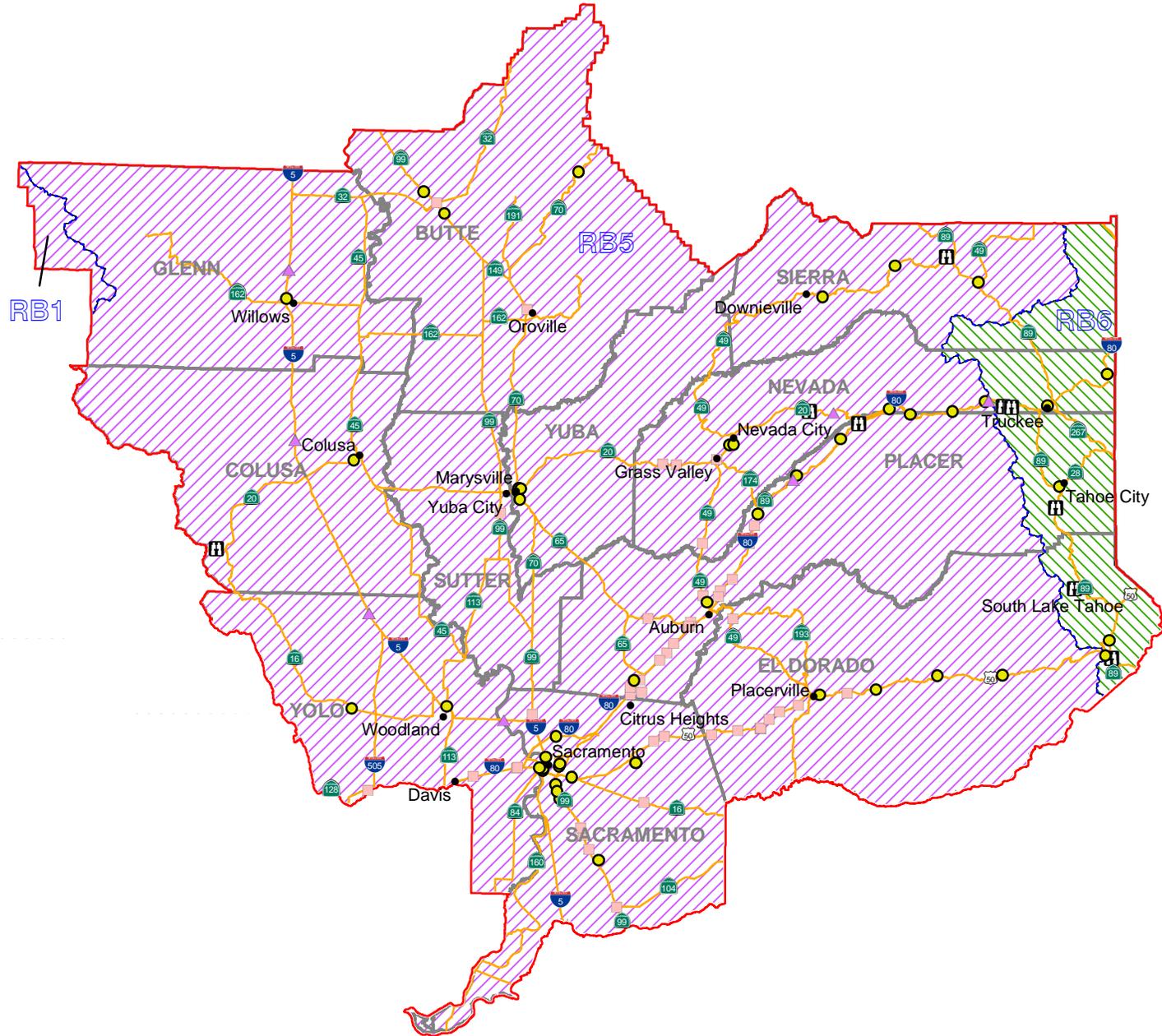
**Figure E-3**  
**District 2 Rainy Season Map**

**Legend**

- Major City
- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ▣ Vista
- Department Facility
- ▭ Department Boundary
- - - RWQCB Boundary
- ▭ County Boundary

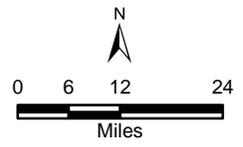
**Rainy Season**

- ▨ Aug1 to Oct1, Nov1 to May1
- ▨ Oct15 to April15



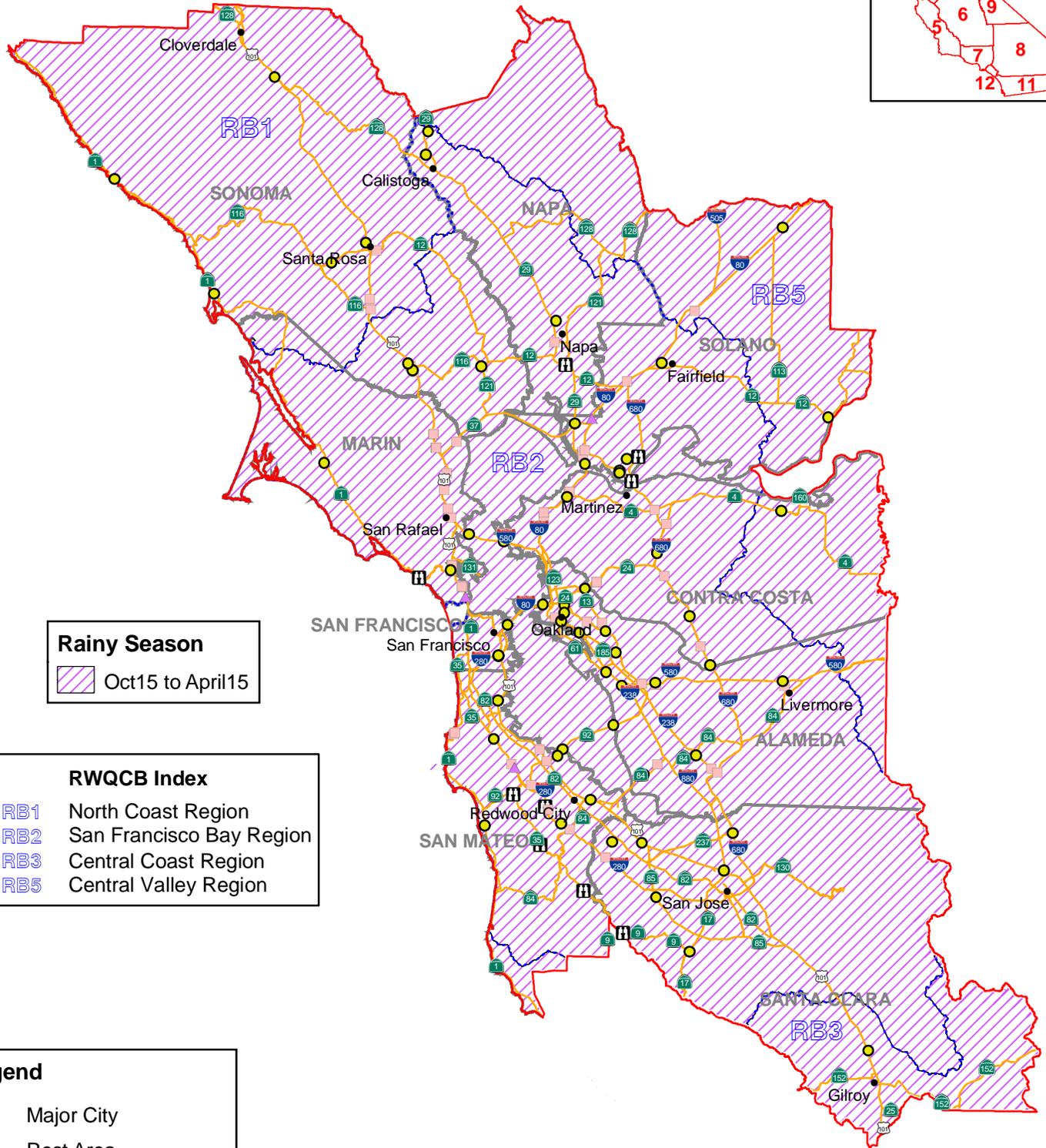
**RWQCB Index**

- RB1 North Coast Region
- RB5 Central Valley Region
- RB6 Lahontan Region



**Figure E-4**  
**District 3 Rainy Season Map**

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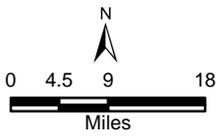


**Rainy Season**  
 Oct15 to April15

**RWQCB Index**  
 RB1 North Coast Region  
 RB2 San Francisco Bay Region  
 RB3 Central Coast Region  
 RB5 Central Valley Region

**Legend**

- Major City
- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ⊞ Vista
- Department Facility
- ▭ Department Boundary
- ⋯ RWQCB Boundary
- ▭ County Boundary



**Figure E-5**  
**District 4 Rainy Season Map**

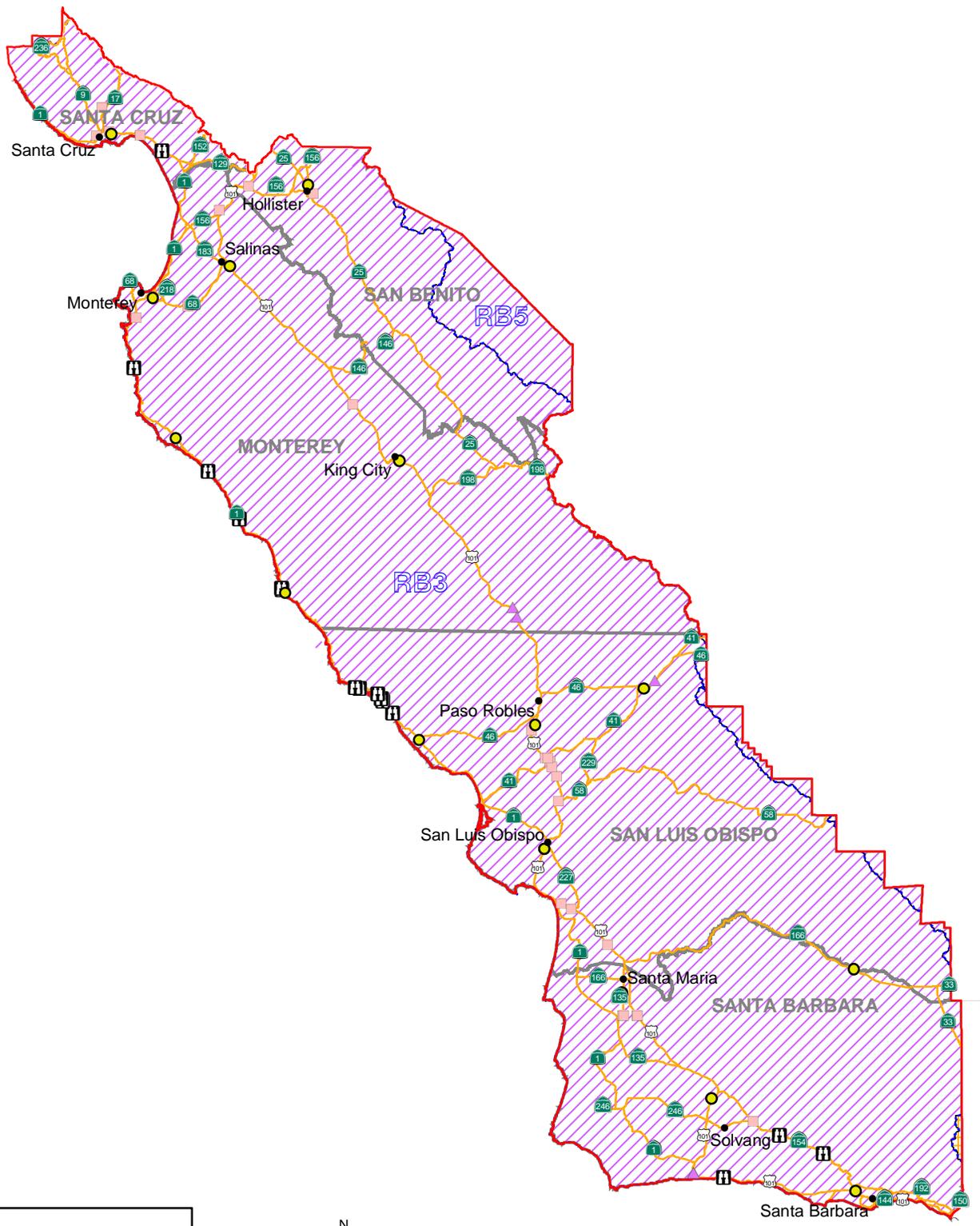
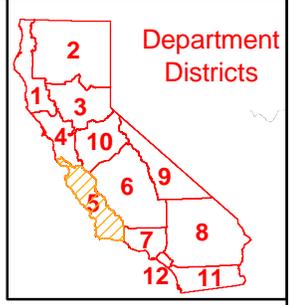
M:\mdata\10103512\GIS\Rainy Season Dist04 8x11.mxd) 3/22/2006

**Legend**

- Major City
- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ⊞ Vista
- Department Facility
- ▭ Department Boundary
- - - RWQCB Boundary
- ▭ County Boundary

**Rainy Season**

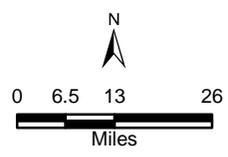
- ▨ Oct1 to May1
- ▨ Oct15 to April15



**RWQCB Index**

RB3 Central Coast Region

RB5 Central Valley Region



**Figure E-6**  
**District 5 Rainy Season Map**

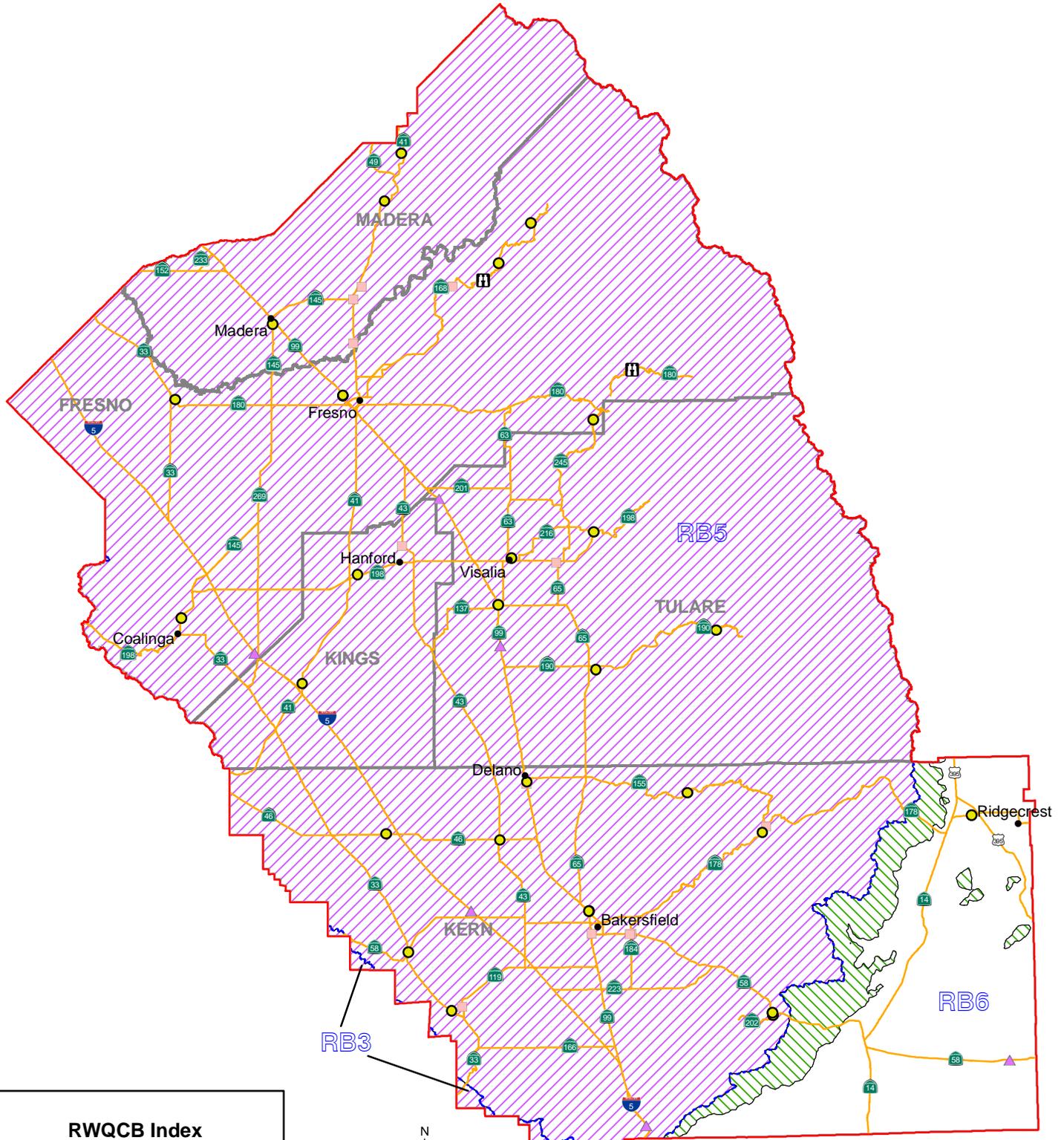
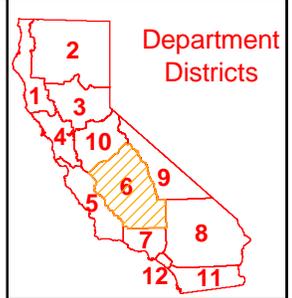
M:\mdata\10103512\GIS\Rainy Season Dist05 8x11.mxd, 3/23/2006

**Legend**

- Major City
- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ▣ Vista
- Department Facility
- ▭ Department Boundary
- - - RWQCB Boundary
- ▭ County Boundary

**Rainy Season**

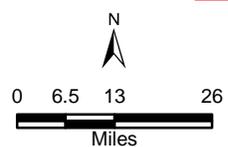
- ▨ Aug1 to Oct1, Nov1 to May1
- ▨ Oct15 to April15



M:\Mdata\10103512\GIS\Rainy Season Dist06 8x11.mxd 3/23/2006

**RWQCB Index**

- RB3 Central Coast Region
- RB5 Central Valley Region
- RB6 Lahontan Region



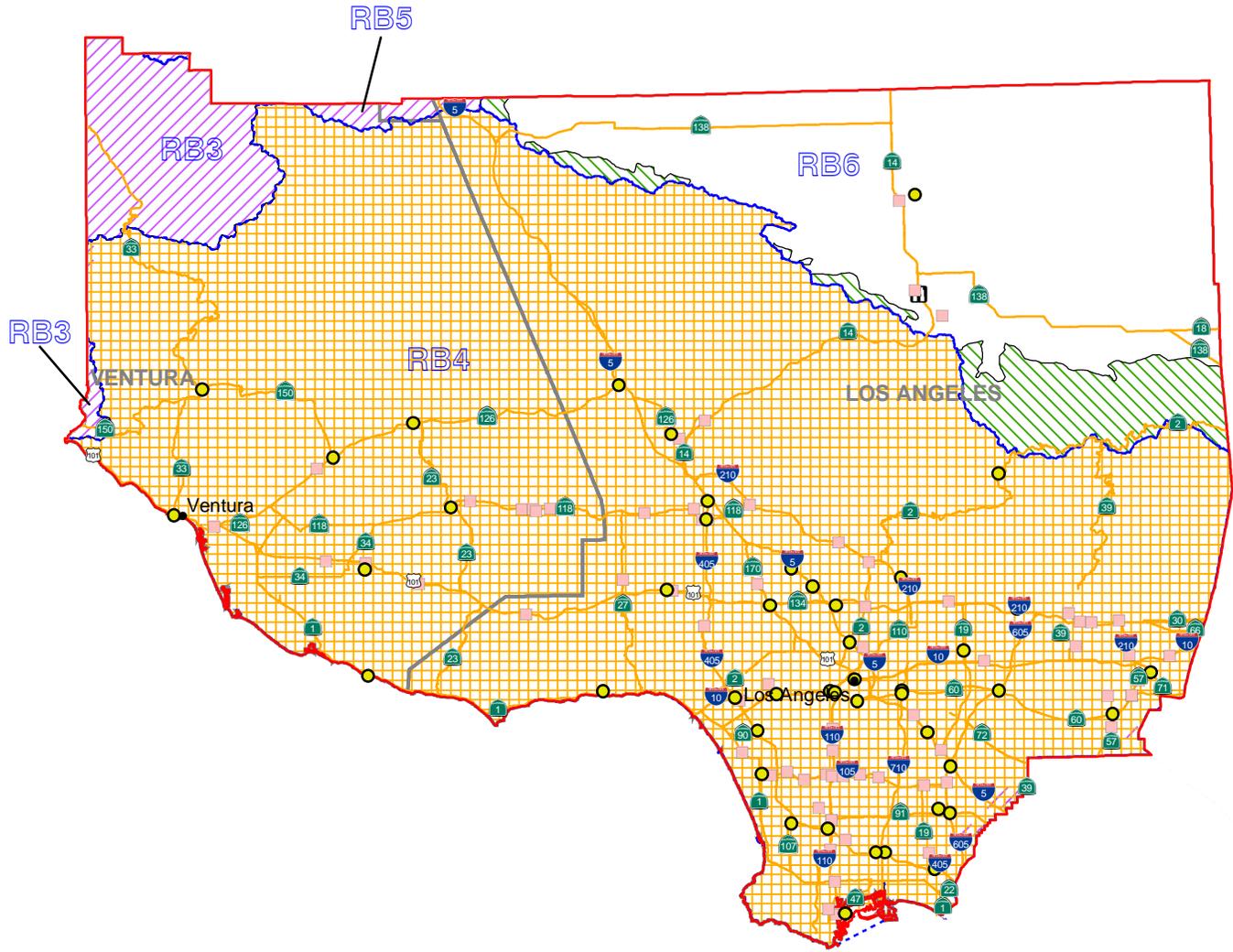
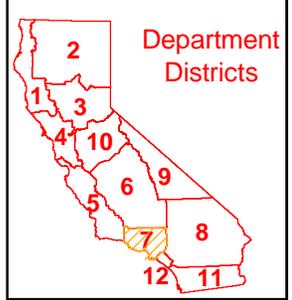
**Figure E-7**  
**District 6 Rainy Season Map**

**Legend**

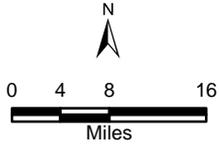
- Major City
- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ▣ Vista
- Department Facility
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▭ County Boundary

**Rainy Season**

- ▨ Aug1 to Oct1, Nov1 to May1
- ▨ Oct1 to May1
- ▨ Oct15 to April15



- RWQCB Index**
- RB3 Central Coast Region
  - RB4 Los Angeles Region
  - RB5 Central Valley Region
  - RB6 Lahontan Region

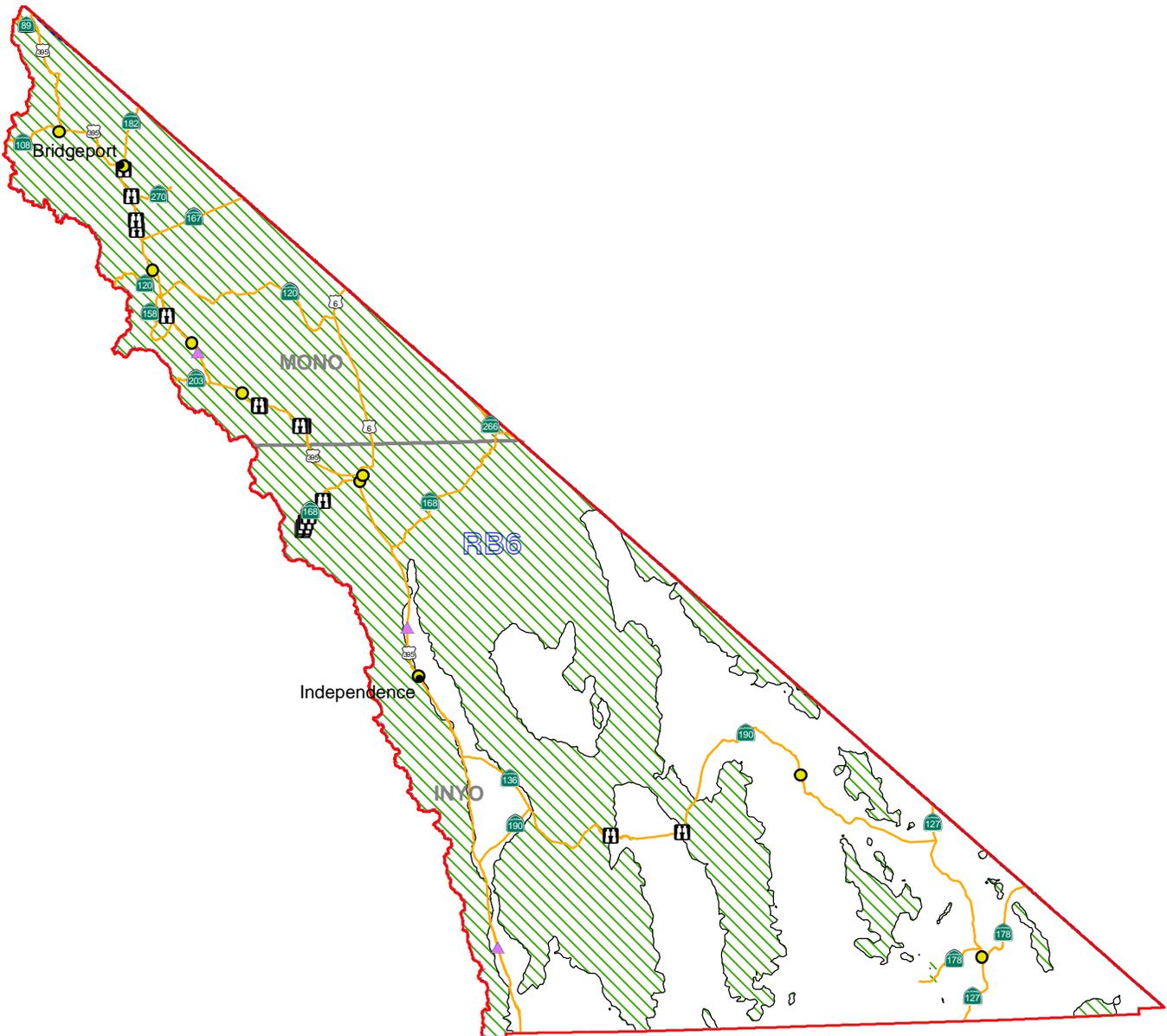


**Figure E-8**  
**District 7 Rainy Season Map**

M:\Mdata\10103512\GIS\Rainy Season Dist07 8x11.mxd 3/23/2006

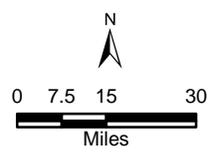


- Legend**
- Major City
  - ▲ Rest Area
  - Maintenance Station
  - Park & Ride
  - 🏠 Vista
  - Department Facility
  - ▭ Department Boundary
  - ▭ RWQCB Boundary
  - ▭ County Boundary



**Rainy Season**  
 ▨ Aug1 to Oct1, Nov1 to May1

**RWQCB Index**  
 RB6 Lahontan Region



**Figure E-10**  
**District 9 Rainy Season Map**

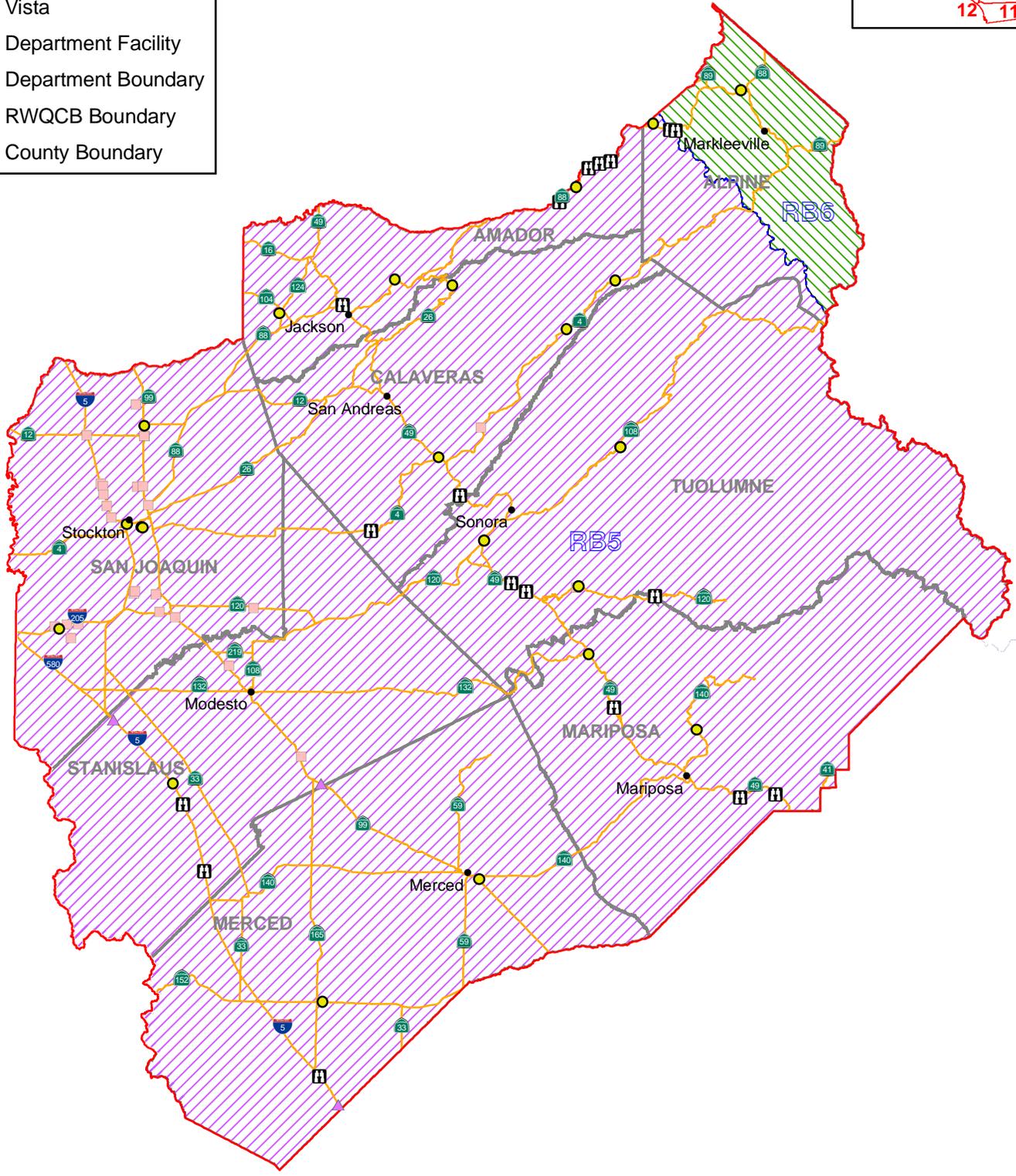
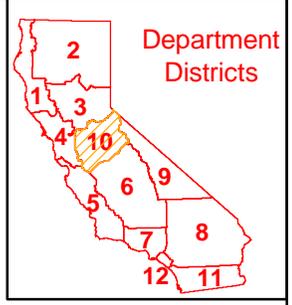
(M:\Mdata\10103512\GIS\Rainy Season Dist09 8x11.mxd) 3/23/2006

**Legend**

- Major City
- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ⊞ Vista
- Department Facility
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▭ County Boundary

**Rainy Season**

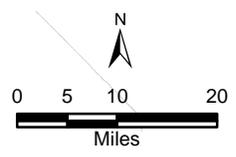
- ▨ Aug1 to Oct1, Nov1 to May1
- ▨ Oct15 to April15



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**RWQCB Index**

- RB5 Central Valley Region
- RB6 Lahontan Region



**Figure E-11**  
**District 10 Rainy Season Map**

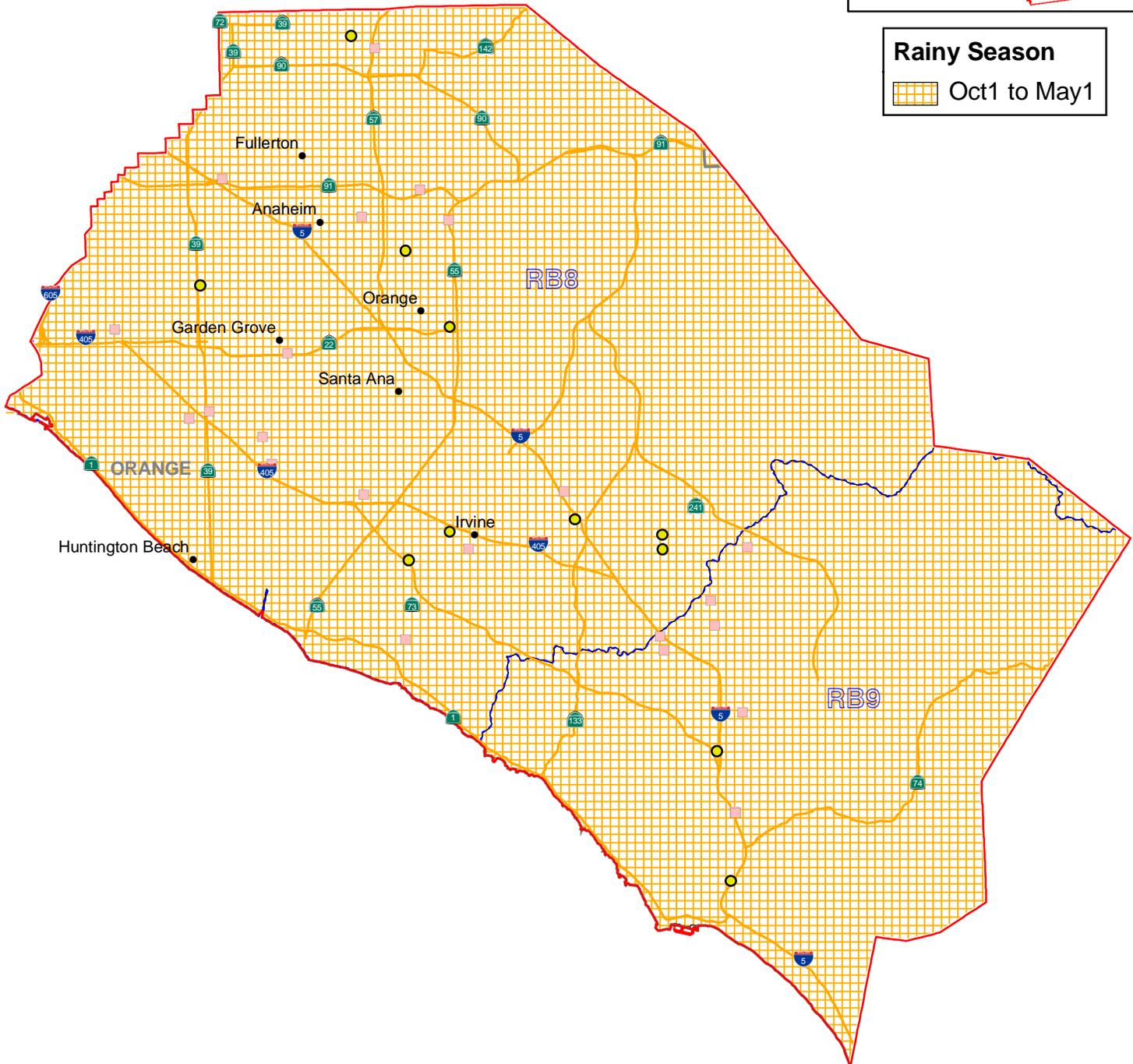


**Legend**

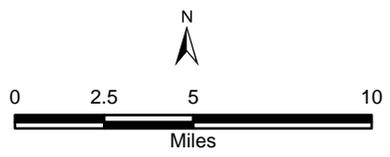
- Major City
- ▲ Rest Area
- Maintenance Station
- Park & Ride
- ▣ Vista
- Department Facility
- ▭ Department Boundary
- ▭ RWQCB Boundary
- ▭ County Boundary



**Rainy Season**  
 Oct1 to May1



**RWQCB Index**  
 RB8 Santa Ana Region  
 RB9 San Diego Region



**Figure E-13**  
**District 12 Rainy Season Map**

(M:\Mdata\10103512\GIS\Rainy Season Dist12 8x11.mxd) 3/23/2006

## Appendix F

## MONITORING AND CHARACTERIZATION DATA

**Table F-1. Summary Statistics for Vehicle Inspection Facilities  
STATEWIDE CHARACTERIZATION STUDY DATA, MONITORING YEARS 2000/01–  
2002/03**

Pollutant Category	Parameter	Units	n	number of sites	% Detected	Min Detected	Max Detected	Median	Mean	SD
Conventional	DOC	mg/L	31	2	100%	2.5	67.1	13.3	18.5	15.9
	EC	µS/cm	31	2	100%	10.9	690	82.1	113.3	137.3
	Hardness as CaCO <sub>3</sub>	mg/L	31	2	100%	5	120	28.6	33.5	22.1
	pH	pH	31	2	100%	6.2	8.15	7.1	7.1	0.4
	TDS	mg/L	31	2	97%	19	470	65.1	84.8	92.1
	Temperature	°C	16	2	100%	7.7	19.3	12.1	12.5	3.3
	TOC	mg/L	31	2	100%	2.6	68	14.3	20.0	16.9
	TSS	mg/L	31	2	97%	20	200	67.3	83.4	53.0
	Turbidity	NTU	—	—	—	—	—	—	—	—
Metals	As, dissolved	µg/L	31	2	42%	1	2.1	1.0	1.0	0.4
	As, total	µg/L	31	2	68%	1.2	64	1.3	3.4	16.1
	Cd, dissolved	µg/L	31	2	45%	0.2	0.7	0.16	0.20	0.16
	Cd, total	µg/L	31	2	87%	0.2	1.7	0.43	0.56	0.40
	Cr, dissolved	µg/L	31	2	68%	1.1	5.5	1.4	1.8	1.2
	Cr, total	µg/L	31	2	100%	2.1	21	6.7	8.1	4.8
	Cu, dissolved	µg/L	31	2	100%	2	51	11.0	15.6	13.3
	Cu, total	µg/L	31	2	100%	6.2	96	24.8	33.6	24.1
	Hg, dissolved	ng/L	3	1	0%	ND	ND	IDD	IDD	IDD
	Hg, total	ng/L	4	1	50%	12.5	120	IDD	IDD	IDD
	Ni, dissolved	µg/L	31	2	81%	1	9.9	2.7	3.5	2.4
	Ni, total	µg/L	31	2	100%	2.9	20	7.4	8.4	4.7
	Pb, dissolved	µg/L	31	2	55%	1	14	1.1	2.7	3.9
	Pb, total	µg/L	31	2	100%	1.6	180	10.9	21.9	37.7
	Zn, dissolved	µg/L	31	2	100%	23	380	66.1	88.2	79.1
	Zn, total	µg/L	31	2	100%	66	700	206.0	244.5	151.6
Nutrients	NH <sub>3</sub> -N	mg/L	—	—	—	—	—	—	—	—
	NO <sub>3</sub> -N	mg/L	31	2	100%	0.15	3.53	0.62	0.89	0.81
	Ortho-P, dissolved	mg/L	30	2	73%	0.046	0.48	0.09	0.13	0.12
	P, total	mg/L	31	2	100%	0.046	0.67	0.23	0.28	0.16
	TKN	mg/L	30	2	87%	0.15	12.3	1.15	2.16	2.72
Pesticide & Herbicides	Chlorpyrifos	µg/L	—	—	—	—	—	—	—	—
	Diazinon	µg/L	6	1	17%	0.1	0.1	IDD	IDD	IDD

Notes: "—" indicates parameter was not monitored for this facility category.

"ND" = parameter was not detected.

"IDD" = insufficient detected data to calculate statistic.

Table F-2. Summary of Statistics for Highway Facilities

Statewide Characterization Study Data, Monitoring Years 2000/01–2002/03

Pollutant Category	Parameter	Units	n	number of sites	% Detected	Min Detected	Max Detected	Median	Mean	SD
Conventional	DOC	mg/L	635	46	100%	1.2	483	13.1	18.7	26.2
	EC	µS/cm	634	46	100%	5	743	72.7	96.1	73.4
	Hardness as CaCO3	mg/L	635	46	99%	2	400	26.9	36.5	34.2
	pH	pH	633	46	100%	4.47	10.1	7.0	7.1	0.7
	TDS	mg/L	635	46	97%	3.7	1800	60.3	87.3	103.7
	Temperature	°C	183	30	100%	4.7	25.4	12.0	12.5	3.4
	TOC	mg/L	635	46	100%	1.6	530	15.3	21.8	29.2
	TSS	mg/L	634	46	99%	1	2988	59.1	112.7	188.8
	Turbidity	NTU	—	—	—	—	—	—	—	—
Hydro-carbons	Oil & Grease	mg/L	49	10	29%	5	61	1.44	4.95	11.41
	TPH (Diesel)	mg/L	32	4	97%	0.22	13	2.52	3.72	3.31
	TPH (Gasoline)	mg/L	32	4	0%	ND	ND	ND	IDD	IDD
	TPH (Heavy Oil)	mg/L	20	4	95%	0.12	13	1.40	2.71	3.40
Metals	As, dissolved	µg/L	635	46	40%	0.5	20	0.7	1.0	1.4
	As, total	µg/L	635	46	62%	0.5	70	1.1	2.7	7.9
	Cd, dissolved	µg/L	635	46	42%	0.2	8.4	0.13	0.24	0.54
	Cd, total	µg/L	635	46	76%	0.2	30	0.44	0.73	1.61
	Cr, dissolved	µg/L	635	46	80%	1	23	2.2	3.3	3.3
	Cr, total	µg/L	635	46	97%	1	94	5.8	8.6	9.0
	Cu, dissolved	µg/L	635	46	100%	1.1	130	10.2	14.9	14.4
	Cu, total	µg/L	635	46	100%	1.2	270	21.1	33.5	31.6
	Hg, dissolved	ng/L	19	4	16%	2.5	110	IDD	IDD	IDD
	Hg, total	ng/L	23	4	39%	7.8	160	26.0	36.7	37.9
	Ni, dissolved	µg/L	635	46	79%	1.1	40	3.4	4.9	5.0
	Ni, total	µg/L	635	46	95%	1.1	130	7.7	11.2	13.2
	Pb, dissolved	µg/L	635	46	60%	1	480	1.2	7.6	34.3
	Pb, total	µg/L	635	46	94%	1	2600	12.7	47.8	151.3
	Zn, dissolved	µg/L	635	46	99%	3	1017	40.4	68.8	96.6
Zn, total	µg/L	635	46	100%	5.5	1680	111.2	187.1	199.8	
Micro-biological	Fecal Coliform	MPN/100 mL	32	5	97%	23	6000	362	1132	1621
	Total Coliform	MPN/100 mL	32	5	100%	34	160000	3966	13438	34299
Nutrients	NH3-N	mg/L	8	1	100%	0.33	3.9	0.77	1.08	1.46
	NO3-N	mg/L	634	46	90%	0.011	48	0.60	1.07	2.44
	Ortho-P, dissolved	mg/L	630	46	64%	0.014	2.4	0.06	0.11	0.18
	P, total	mg/L	631	46	89%	0.03	4.69	0.18	0.29	0.39
	TKN	mg/L	626	46	94%	0.1	17.7	1.40	2.06	1.90
Pesticide & Herbicides	Chlorpyrifos	µg/L	—	—	—	—	—	—	—	—
	Diazinon	µg/L	34	5	21%	0.1	1.33	0.04	0.13	0.29
	Diuron	µg/L	367	30	44%	0.5	220	0.37	4.60	18.24
	Glyphosate	µg/L	541	30	56%	5.1	164	8.88	19.61	26.97
	Oryzalin	µg/L	361	30	16%	0.5	77.8	IDD	IDD	IDD
	Oxadiazon	µg/L	365	30	5%	0.05	0.8	IDD	IDD	IDD
	Triclopyr	µg/L	367	30	2%	0.3	830	IDD	IDD	IDD
Semi-volatile Organics	Acenaphthene	µg/L	32	6	3%	0.25	0.25	IDD	IDD	IDD
	Acenaphthylene	µg/L	32	6	0%	ND	ND	ND	IDD	IDD
	Anthracene	µg/L	32	6	0%	ND	ND	ND	IDD	IDD
	Benzo(a)Anthracene	µg/L	32	6	0%	ND	ND	ND	IDD	IDD
	Benzo(a)Pyrene	µg/L	32	6	0%	ND	ND	ND	IDD	IDD
	Benzo(b)Fluoranthene	µg/L	32	6	3%	0.05	0.05	IDD	IDD	IDD
	Benzo(ghi)Perylene	µg/L	32	6	19%	0.05	0.17	IDD	IDD	IDD
	Benzo(k)Fluoranthene	µg/L	32	6	0%	ND	ND	ND	IDD	IDD
	Chrysene	µg/L	32	6	0%	ND	ND	ND	IDD	IDD
	Dibenzo(a,h)Anthracene	µg/L	32	6	0%	ND	ND	ND	IDD	IDD
	Fluoranthene	µg/L	32	6	19%	0.05	0.1	IDD	IDD	IDD
	Fluorene	µg/L	32	6	3%	0.06	0.06	IDD	IDD	IDD
	Indeno(1,2,3-c,d)Pyrene	µg/L	32	6	0%	ND	ND	ND	IDD	IDD
	Naphthalene	µg/L	32	6	0%	ND	ND	ND	IDD	IDD
	Phenanthrene	µg/L	32	6	9%	0.05	0.14	IDD	IDD	IDD
Pyrene	µg/L	32	6	25%	0.06	0.13	0.05	0.05	0.03	

Table F-3 Summary of Statistics for Maintenance Facilities

Statewide Characterization Study Data, Monitoring Years 2000/01–2002/03

Pollutant Category	Parameter	Units	n	number of sites	% Detected	Min Detected	Max Detected	Median	Mean	SD
Conventional	DOC	mg/L	75	7	100%	1.3	82	11.7	18.2	18.2
	EC	µS/cm	56	7	100%	12	660	49.4	80.9	110.6
	Hardness as CaCO <sub>3</sub>	mg/L	106	7	96%	2	208	17.4	26.7	28.7
	pH	pH	107	7	100%	3.5	8.5	6.8	6.8	0.6
	TDS	mg/L	106	7	97%	4	536	44.6	68.9	78.1
	Temperature	°C	17	2	100%	8.5	16.5	12.2	12.5	2.8
	TOC	mg/L	107	7	100%	1.7	128	12.7	20.6	23.0
	TSS	mg/L	106	7	100%	6	420	62.4	96.4	95.0
	Turbidity	NTU	29	3	100%	36	430	122.95	144.83	92.23
Metals	As, dissolved	µg/L	106	7	82%	0.53	81	2.2	9.5	17.3
	As, total	µg/L	107	7	93%	0.585	91	3.4	12.8	23.1
	Cd, dissolved	µg/L	106	7	49%	0.2	1.2	0.19	0.27	0.22
	Cd, total	µg/L	107	7	84%	0.2	2.7	0.46	0.69	0.63
	Cr, dissolved	µg/L	106	7	53%	1	5.9	1.1	1.4	1.0
	Cr, total	µg/L	107	7	99%	1.01	28	3.9	5.1	4.3
	Cu, dissolved	µg/L	106	7	99%	2.4	100	8.8	14.3	17.6
	Cu, total	µg/L	107	7	100%	3	210	17.3	29.5	37.6
	Hg, dissolved	ng/L	7	1	43%	7.85	77	14.4	27.7	51.4
	Hg, total	ng/L	8	1	75%	14.4	230	41.0	65.4	83.7
	Ni, dissolved	µg/L	106	7	57%	1.6	22	2.37	3.72	4.01
	Ni, total	µg/L	107	7	90%	2.08	51	5.48	7.86	7.68
	Pb, dissolved	µg/L	106	7	44%	1	23	0.74	1.64	2.99
	Pb, total	µg/L	107	7	98%	1	130	11.7	21.3	26.5
Zn, dissolved	µg/L	107	7	98%	1	130	11.7	21.3	26.5	
Zn, total	µg/L	107	7	100%	26	1500	164.6	245.6	259.3	
Nutrients	NH <sub>3</sub> -N	mg/L	—	—	—	—	—	—	—	—
	NO <sub>3</sub> -N	mg/L	107	7	92%	0.12	8	0.41	0.74	1.13
	Ortho-P, dissolved	mg/L	105	7	55%	0.016	3.12	0.04	0.09	0.40
	P, total	mg/L	106	7	95%	0.031	1	0.16	0.23	0.20
	TKN	mg/L	105	7	92%	0.11	11.5	1.24	1.79	1.72
Pesticide & Herbicides	Chlorpyrifos	µg/L	23	3	0%	ND	ND	IDD	IDD	IDD
	Diazinon	µg/L	33	3	39%	0.016	1.4	0.02	0.12	0.30

**Table F-4. Summary of Statistics for Park and Ride Facilities**  
Statewide Characterization Study Data, Monitoring Years 2000/01–2002/03

Pollutant Category	Parameter	Units	n	number of sites	% Detected	Min Detected	Max Detected	Median	Mean	SD
Conventional	DOC	mg/L	179	10	99%	1.03	278	10.8	18.0	28.6
	EC	µS/cm	179	10	100%	6	420	43.6	63.5	65.8
	Hardness as CaCO <sub>3</sub>	mg/L	179	10	97%	2	420	16.3	26.6	45.9
	pH	pH	179	10	100%	3.9	9.68	6.7	6.8	0.7
	TDS	mg/L	179	10	96%	6	720	38.1	61.7	78.3
	Temperature	°C	50	7	100%	7.7	21.8	12.2	12.6	3.4
	TOC	mg/L	179	10	100%	1.3	150	12.2	18.6	20.6
	TSS	mg/L	179	10	99%	2	340	48.3	68.5	59.3
	Turbidity	NTU	2	2	100%	29	36	IDD	IDD	IDD
Metals	As, dissolved	µg/L	179	10	26%	0.53	3	0.5	0.7	0.6
	As, total	µg/L	179	10	47%	0.52	60	0.8	1.4	5.9
	Cd, dissolved	µg/L	179	10	21%	0.2	0.9	0.08	0.12	0.12
	Cd, total	µg/L	179	10	59%	0.2	2.3	0.21	0.30	0.30
	Cr, dissolved	µg/L	179	10	35%	1	5.1	0.7	1.0	0.9
	Cr, total	µg/L	179	10	90%	1	24	2.7	4.0	4.2
	Cu, dissolved	µg/L	179	10	99%	1.1	70	6.2	8.7	8.8
	Cu, total	µg/L	179	10	100%	1.3	120	12.9	17.1	15.2
	Hg, dissolved	ng/L	10	2	0%	ND	ND	IDD	IDD	IDD
	Hg, total	ng/L	11	2	45%	38.6	230	42.7	57.3	73.6
	Ni, dissolved	µg/L	179	10	57%	1	26	2.0	3.3	3.9
	Ni, total	µg/L	179	10	88%	1.9	28	4.8	6.2	4.8
	Pb, dissolved	µg/L	179	10	34%	1	25	0.5	1.3	2.7
	Pb, total	µg/L	179	10	96%	1	78	5.8	10.3	11.5
	Zn, dissolved	µg/L	179	10	96%	1	78	5.8	10.3	11.5
Zn, total	µg/L	179	10	100%	8.2	960	103.3	154.3	157.1	
Nutrients	NH <sub>3</sub> -N	mg/L	—	—	—	—	—	—	—	—
	NO <sub>3</sub> -N	mg/L	179	10	93%	0.1	5.49	0.32	0.57	0.83
	Ortho-P, dissolved	mg/L	178	10	69%	0.03	1.01	0.07	0.15	0.19
	P, total	mg/L	179	10	98%	0.03	3.27	0.20	0.33	0.42
	TKN	mg/L	176	10	94%	0.13	13.6	1.52	2.28	2.20
Pesticide & Herbicides	Chlorpyrifos	µg/L	—	—	—	—	—	—	—	—
	Diazinon	µg/L	20	2	15%	0.6	1.7	IDD	IDD	IDD
Semi-volatile Organics	Acenaphthene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Acenaphthylene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Anthracene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Benzo(a)Anthracene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Benzo(a)Pyrene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Benzo(b)Fluoranthene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Benzo(ghi)Perylene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Benzo(k)Fluoranthene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Chrysene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Dibenzo(a,h)Anthracene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Fluoranthene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Fluorene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Indeno(1,2,3-c,d)Pyrene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Naphthalene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Phenanthrene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD
	Pyrene	µg/L	1	1	0%	ND	ND	IDD	IDD	IDD

Table F-5. Summary of Statistics for Rest Areas

Statewide Characterization Study Data, Monitoring Years 2000/01–2002/03

Pollutant Category	Parameter	Units	n	number of sites	% Detected	Min Detected	Max Detected	Median	Mean	SD
Conventional	DOC	mg/L	53	3	100%	2.1	239	13.0	19.9	39.6
	EC	µS/cm	53	3	100%	9	809	51.7	78.2	132.0
	Hardness as CaCO <sub>3</sub>	mg/L	53	3	98%	3	484	18.0	33.0	81.2
	PH	pH	53	3	100%	5.7	7.9	6.8	6.9	0.4
	TDS	mg/L	53	3	100%	4	778	38.0	61.2	130.0
	Temperature	°C	12	3	100%	5.3	16.3	11.0	11.4	3.2
	TOC	mg/L	53	3	100%	2.5	247	15.0	22.2	40.5
	TSS	mg/L	53	3	98%	7	247	44.2	63.3	54.4
	Turbidity	NTU	—	—	—	—	—	—	—	—
Metals	As, dissolved	µg/L	53	3	47%	1	20	0.6	1.4	3.3
	As, total	µg/L	53	3	57%	1	58	0.9	3.6	11.4
	Cd, dissolved	µg/L	53	3	17%	0.2	1.4	IDD	IDD	IDD
	Cd, total	µg/L	53	3	58%	0.2	2.8	0.17	0.32	0.53
	Cr, dissolved	µg/L	53	3	62%	1	13	1.2	1.9	2.5
	Cr, total	µg/L	53	3	100%	1	18	3.8	4.8	3.8
	Cu, dissolved	µg/L	53	3	100%	2.7	76	7.6	9.6	12.0
	Cu, total	µg/L	53	3	100%	4.6	89	13.1	16.0	14.2
	Hg, dissolved	ng/L	—	—	—	—	—	—	—	—
	Hg, total	ng/L	—	—	—	—	—	—	—	—
	Ni, dissolved	µg/L	53	3	55%	1.3	35	1.9	3.2	5.8
	Ni, total	µg/L	53	3	92%	1.7	42	4.8	7.3	8.3
	Pb, dissolved	µg/L	53	3	45%	1	8.3	0.7	1.2	1.7
	Pb, total	µg/L	53	3	98%	1.1	32	5.1	7.7	8.0
Zn, dissolved	µg/L	53	3	100%	12	1500	46.2	82.5	263.7	
Zn, total	µg/L	53	3	100%	21	1800	91.1	142.4	298.9	
Nutrients	NH <sub>3</sub> -N	mg/L	—	—	—	—	—	—	—	—
	NO <sub>3</sub> -N	mg/L	53	3	94%	0.2	3.83	0.69	0.96	0.88
	Ortho-P, dissolved	mg/L	52	3	83%	0.056	9.3	0.18	0.44	1.67
	P, total	mg/L	53	3	96%	0.08	2.36	0.32	0.47	0.53
	TKN	mg/L	53	3	98%	0.2	81.2	2.10	4.37	14.04
Pesticide & Herbicides	Chlorpyrifos	µg/L	—	—	—	—	—	—	—	—
	Diazinon	µg/L	—	—	—	—	—	—	—	—
	Diuron	µg/L	3	1	33%	2.2	2.2	IDD	IDD	IDD
	Glyphosate	µg/L	3	1	33%	7.7	7.7	IDD	IDD	IDD
	Oryzalin	µg/L	3	1	33%	1.7	1.7	IDD	IDD	IDD
	Oxadiazon	µg/L	3	1	0%	ND	ND	IDD	IDD	IDD
	Triclopyr	µg/L	3	1	0%	ND	ND	IDD	IDD	IDD

Table F-6. Summary of Statistics for Toll Plazas

Statewide Characterization Study Data, Monitoring Years 2000/01–2002/03

Pollutant Category	Parameter	Units	n	number of sites	% Detected	Min Detected	Max Detected	Median	Mean	SD
Conventional	DOC	mg/L	24	2	100%	3.8	73	18.9	25.6	19.8
	EC	µS/cm	24	2	100%	9	370	85.8	118.9	100.2
	Hardness as CaCO <sub>3</sub>	mg/L	24	2	100%	8	120	29.6	37.1	27.7
	pH	pH	24	2	100%	6.3	7.6	6.9	6.9	0.4
	TDS	mg/L	24	2	96%	6	280	51.9	81.5	74.2
	Temperature	°C	18	2	100%	7.8	16.2	12.0	12.3	3.0
	TOC	mg/L	24	2	100%	4.4	76.7	24.7	31.0	20.3
	TSS	mg/L	24	2	100%	20	313	101.4	123.3	77.4
	Turbidity	NTU	—	—	—	—	—	—	—	—
Metals	As, dissolved	µg/L	24	2	25%	1	1.8	0.7	0.8	0.4
	As, total	µg/L	24	2	79%	1	4.2	1.3	1.5	0.8
	Cd, dissolved	µg/L	24	2	100%	0.2	1.2	0.37	0.43	0.29
	Cd, total	µg/L	24	2	100%	0.5	2.5	1.04	1.15	0.56
	Cr, dissolved	µg/L	24	2	100%	1.2	11	4.4	5.1	2.5
	Cr, total	µg/L	24	2	100%	2.2	31	10.3	12.5	7.7
	Cu, dissolved	µg/L	24	2	100%	6.7	75	21.8	27.3	20.6
	Cu, total	µg/L	24	2	100%	26	110	55.5	59.6	23.0
	Hg, dissolved	ng/L	4	—	25%	63	63	IDD	IDD	IDD
	Hg, total	ng/L	4	—	25%	200	200	IDD	IDD	IDD
	Ni, dissolved	µg/L	24	2	100%	1	16	4.8	6.0	4.5
	Ni, total	µg/L	24	2	100%	4.8	31	12.3	13.7	6.8
	Pb, dissolved	µg/L	24	2	71%	1.4	19	3.1	5.2	5.2
	Pb, total	µg/L	24	2	100%	11	120	27.1	31.6	24.3
Zn, dissolved	µg/L	24	2	100%	25	340	98.5	123.7	89.4	
Zn, total	µg/L	24	2	100%	140	650	268.3	292.9	131.9	
Nutrients	NH <sub>3</sub> -N	mg/L	—	—	—	—	—	—	—	—
	NO <sub>3</sub> -N	mg/L	24	2	96%	0.16	2.78	0.55	0.84	0.81
	Ortho-P, dissolved	mg/L	23	2	39%	0.03	0.18	0.03	0.05	0.05
	P, total	mg/L	24	2	92%	0.077	0.52	0.23	0.25	0.11
	TKN	mg/L	24	2	100%	0.56	5.52	1.91	2.38	1.59
Pesticide & Herbicides	Chlorpyrifos	µg/L	—	—	—	—	—	—	—	—
	Diazinon	µg/L	7	1	14%	0.1	0.1	IDD	IDD	IDD

Table F-7. Minimum List of Constituents / Indicators for Future Monitoring

Constituent/Parameter	Units	Reporting Limit
<b>Conventional</b>		
Conductivity	μmhos/cm	±1
Total Organic Carbon (TOC)	mg/L	1
Hardness as CaCO <sub>3</sub>	mg/L	2
PH (lab measurement)	pH units	±0.1
Total Suspended Solids (TSS)	mg/L	1
Turbidity	NTU	0.5
<b>Nutrients</b>		
Nitrate + Nitrite as Nitrogen (NO <sub>3</sub> -N)	mg/L	0.1
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1
Total Phosphorous	mg/L	0.03
Dissolved Ortho-Phosphate	mg/L	0.03
<b>Metals (total recoverable and dissolved)</b>		
Cadmium	μg/L	0.2
Copper (Cu)	μg/L	1
Lead (Pb)	μg/L	1
Zinc (Zn)	μg/L	5
Nickel (Ni)	μg/L	1.0
<b>Pesticide &amp; Herbicides</b>		
Chlorpyrifos	μg/L	0.05
Diazinon	μg/L	0.05

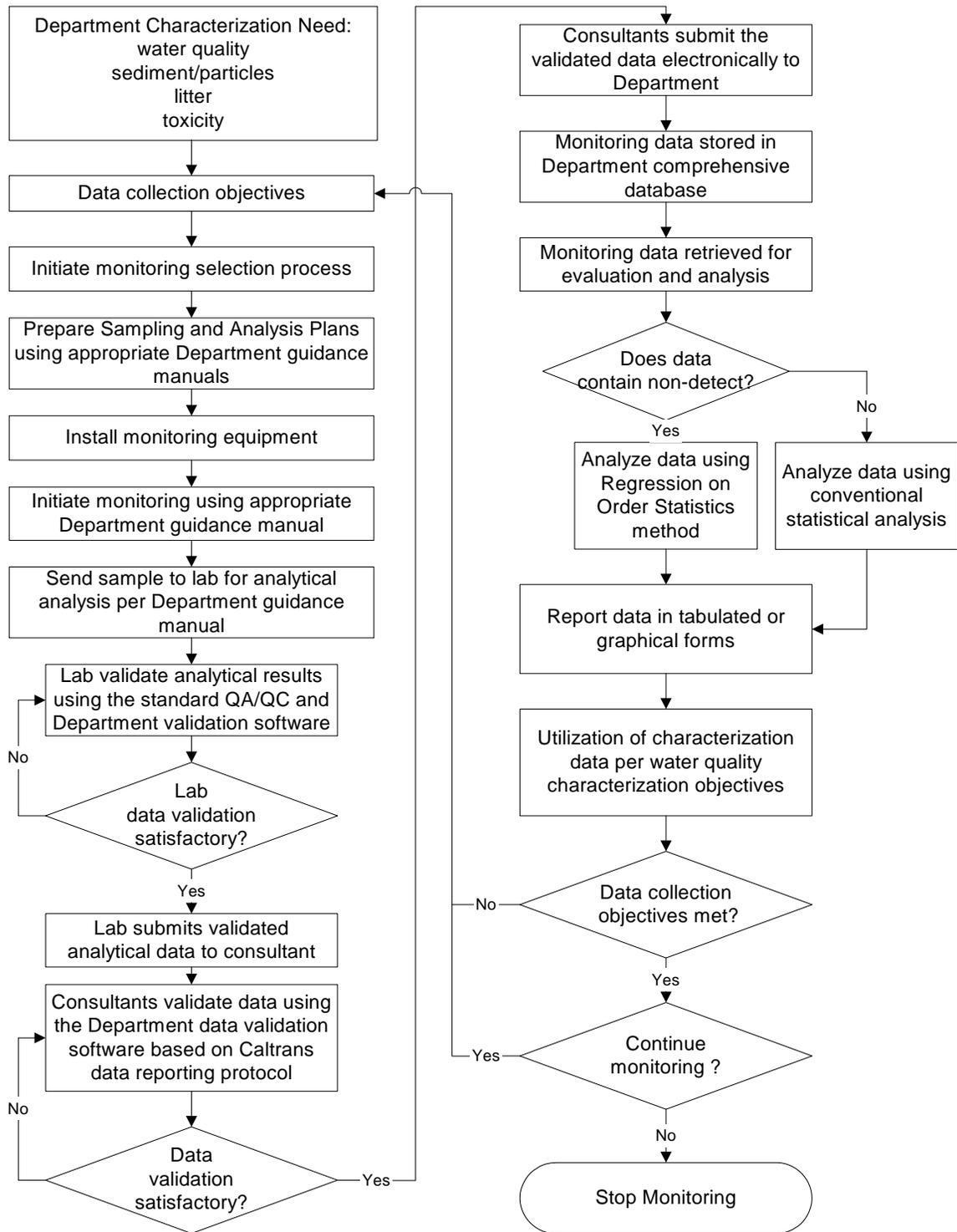


Figure F-1: Procedures for Future Department Characterization Studies

## Appendix G

## STORMWATER TRAINING COURSE DESCRIPTIONS

Table G-1. Division of Environmental Analysis Courses

DIVISION OF ENVIRONMENTAL ANALYSIS	
<b>Course Status:</b>	PROPOSED
<b>Course Name:</b>	An Introduction to Stormwater
<b>Course Description:</b>	This training course will introduce the Department's stormwater program.
<b>Course Contents:</b>	This course introduces the stormwater regulatory framework. The course content focuses on the following areas: (1) Clean Water Act, (2) California Porter-Cologne Water Quality Act, (3) NPDES Permits, (4) Stormwater Management Plan, (5) General Overview of Location Specific Requirements, and (6) Department Policies and Procedures for stormwater.
<b>Primary Audience:</b>	All current and new Department staff unfamiliar with the current SWMP and Permit.
<b>Secondary Audience:</b>	NA
<b>Course Length:</b>	To be determined.

Table G-1. (Continued)

<b>DIVISION OF ENVIRONMENTAL ANALYSIS</b>	
<b>Course Status:</b>	<b>PROPOSED</b>
<b>Course Name:</b>	<b>Stormwater Quality Fundamentals and Monitoring</b>
<b>Course Description:</b>	This training course will introduce stormwater quality fundamentals, including basic water chemistry and monitoring.
<b>Course Contents:</b>	The following 10 subject areas will be covered: (1) Essential water quality parameters (e.g. temperature, pH, etc.), (2) relationships and interactions, (3) environmental effects, (4) water quality standards, (5) water quality measurements, (6) monitoring methods, (7) QA/QC for monitoring data, (8) data analysis and interpretation, (9) Department stormwater monitoring results, and (10) treatment options.
<b>Primary Audience:</b>	Headquarters stormwater staff, DNCs, Construction and Maintenance Staff
<b>Secondary Audience:</b>	Other District staff as approved by DNC
<b>Course Length:</b>	To be determined.

Table G-1. (Continued)

<b>DIVISION OF ENVIRONMENTAL ANALYSIS</b>	
<b>Course Status:</b>	<b>PROPOSED</b>
<b>Course Name:</b>	<b>Dewatering Activities</b>
<b>Course Description:</b>	This training course will provide an overview of regulations governing temporary construction dewatering activities and provide guidance on incorporating anticipated dewatering activities and permits throughout the project planning, design, and construction phases of project delivery.
<b>Course Contents:</b>	The following subject areas will be covered: (1) Overview, (2) Regulatory Framework, (3) Discharge Options and Cost Estimates, (4) Project Delivery Process, (5) Permitting, (6) Construction requirements, (7) monitoring and treatment options.
<b>Primary Audience:</b>	District and Headquarters stormwater staff.
<b>Secondary Audience:</b>	Other District staff as approved by DNC.
<b>Course Length:</b>	To be determined.

Table G-1. (Continued)

DIVISION OF ENVIRONMENTAL ANALYSIS	
<b>Course Status:</b>	<b>PROPOSED</b>
<b>Course Name:</b>	<b>Water Quality Assessment</b>
<b>Course Description:</b>	This course will provide Department staff and consultants with the necessary background to prepare and review water quality assessments for construction projects throughout all Department Districts to meet CEQA (California Environmental Quality Act) and NEPA (National Environmental Policy Act), and other regulations, as appropriate.
<b>Course Contents:</b>	It will include supporting graphics, background discussion of stormwater and water quality issues, the Department SWMP, and contents of the water quality assessment guidance document. (1) Introduction, (2) Screening-level assessment for a Preliminary Environmental Assessment Report (PEAR), (3) Stormwater quality assessment for Project Assessment and Environmental Document (PA/ED), and (4) References and Sources of Information. The focus is on how to use the water quality assessment guidance document, with emphasis on step-by-step procedures.
<b>Primary Audience:</b>	Environmental staff and/or consultants
<b>Secondary Audience:</b>	Design staff
<b>Course Length:</b>	To be determined.

Table G-2. Division of Design Courses

DIVISION OF DESIGN	
<b>Course Status:</b>	EXISTING
<b>Course Name:</b>	Permanent Erosion Control Training
<b>Course Description:</b>	This one-day course addresses the principles of erosion and soil stabilization with an emphasis on roadway construction projects. Information on the design and selection of permanent erosion control best management practices (BMPs) is provided. An emphasis is placed upon incorporating permanent erosion control BMPs into project planning and design, including plans, specifications, and estimates (PS&E). A workshop exercise is offered to test skill development.
<b>Course Contents:</b>	The following areas are addressed in this course: (1) Introduction and Regulatory Framework; (2) Processes of Erosion and Sedimentation; (3) Incorporation of Permanent Erosion and Sediment Control During Design; (4) Design Pollution Prevention BMPs; and (5) Workshop Exercises.
<b>Primary Audience:</b>	Engineers, Landscape Architects, and Stormwater Managers who perform design functions.
<b>Secondary Audience:</b>	Biologists and Environmental Planners who are involved with the project planning and design process.
<b>Course Length:</b>	8 hours, including 6 hours of lecture and 2 hours of workshop exercises

Table G-2. (Continued)

<b>DIVISION OF DESIGN</b>	
<b>Course Status:</b>	<b>EXISTING</b>
<b>Course Name:</b>	<b>Construction Site BMP Training for Design</b>
<b>Course Description:</b>	Training will be given in an instructor led-classroom setting for incorporating Construction Site Best Management Practices (BMPs) into the various phases of project design. This 1-day course will present and discuss the principles of water pollution control related to construction projects. The selection and estimation of construction site BMPs and development of a water pollution control strategy will be emphasized. Recently adopted special provisions, Construction staff concurrence process, and construction site BMP checklists will be featured. A variety of workshop exercises will be included during the class to measure learning objectives.
<b>Course Contents:</b>	The following areas are addressed in this course: (1) Introduction; (2) BMP Implementation Process; (3) Types of BMPs; (4) Design Consideration for Temporary Control Measures; (5) Site Assessment and BMP Deployment; and (6) Workshop Exercises.
<b>Primary Audience:</b>	Engineers, Landscape Architects, and Stormwater Managers that perform design functions.
<b>Secondary Audience:</b>	Biologists and Environmental Planners who are involved with the project planning and design process.
<b>Course Length:</b>	8 hours, including 6 hours of lecture and 2 hours of workshop exercises

Table G-2. (Continued)

<b>DIVISION OF DESIGN</b>	
<b>Course Status:</b>	<b>EXISTING</b>
<b>Course Name:</b>	<b>Project Planning and Design Guidance Training</b>
<b>Course Description:</b>	This course introduces guidance used for project planning and design. The course provides an overview of the Department's Stormwater Program plus Best Management Practices (BMP) selection and design.
<b>Course Contents:</b>	This course includes (1) an introduction to guidance materials, (2) procedure for Best Management Practice Selection, (3) a description of how stormwater issues are addressed during the PID, PA/ED, and PS&E processes, (4) a description of stormwater considerations during construction, and (5) an outline for documentation.
<b>Primary Audience:</b>	Design Engineers and Stormwater Managers who perform design functions.
<b>Secondary Audience:</b>	Environmental staff.
<b>Course Length:</b>	8 hours

Table G-2. (Continued)

DIVISION OF DESIGN	
<b>Course Status:</b>	EXISTING
<b>Course Name:</b>	Water Quality Treatment BMP Design
<b>Course Description:</b>	This course describes siting and design criteria and methodologies for the approved Treatment BMPs.
<b>Course Contents:</b>	The following areas are addressed: (1) Introduction to Treatment BMPs; (2) Treatment BMP selection; (3) Treatment BMP Design; (4) Water Quality Volume; and (5) Water Quality Flow Rate.
<b>Primary Audience:</b>	Design staff
<b>Secondary Audience:</b>	Geotechnical and Environmental staff
<b>Course Length:</b>	1 day. Depending upon modules presented, course is from 4-1/2 to 8 hours.

Table G-2. (Continued)

DIVISION OF DESIGN	
<b>Course Status:</b>	EXISTING
<b>Course Name:</b>	Stormwater Data Report Workshop
<b>Course Description:</b>	This is a 4-hour workshop that details what is expected to be included in a Stormwater Data Report (SWDR) when submitted for approval.
<b>Course Contents:</b>	<p>A Stormwater Data Report (SWDR) is prepared for each project at each phase of the project development process. The SWDR documents key decisions made on a project as they relate to stormwater and takes the Project Engineer through a stormwater Best Management Practice (BMP) evaluation and selection process that will assist in the Department's NPDES Permit compliance effort.</p> <p>The workshop will go through all sections of the SWDR and will discuss types of information that is to be included in the narrative sections.</p> <p>Some of the key topics that will be discussed during the workshop:</p> <ul style="list-style-type: none"> <li>• Treatment BMP checklists and strategies</li> <li>• Design Pollution Prevention BMP checklists and strategies</li> <li>• Construction Site BMP checklists and strategies</li> <li>• Cost Estimating</li> <li>• TDC Approach</li> <li>• Common errors</li> <li>• Language Expectations</li> <li>• Short Form vs. Long Form SWDRs</li> </ul> <p>Attendees are also encouraged to bring SWDRs that they are currently working on that might have questions that need clarification.</p>
<b>Primary Audience:</b>	Project Engineers, Landscape Architects, and any Design staff that prepares a part of the Stormwater Data Report for a project.
<b>Secondary Audience:</b>	Environmental staff, Project Management
<b>Course Length:</b>	4 hours
<b>Implementation:</b>	Ongoing

Table G-3. Division of Construction Courses

<b>DIVISION OF CONSTRUCTION</b>	
<b>Course Status:</b>	<b>EXISTING</b>
<b>Course Name:</b>	<b>Water Pollution Control Compliance on Construction Sites for Resident Engineers</b>
<b>Course Description:</b>	The purpose of this course is to increase familiarity and understanding of water pollution control issues. The course covers RE management responsibilities from project award through project closeout.
<b>Course Contents:</b>	The following topics are covered: (1) Overview of Pre-Construction Conferences with State Personnel, Contractors, and the Regional Water Quality Control Boards; (2) Changes in guidance; (3) BMPs; (4) Stormwater Pollution Prevention Plan (SWPPP) Preparation; (5) SWPPP Approval Process; (6) Responsibilities During Construction; (7) Project Close-out Responsibilities.
<b>Primary Audience:</b>	Principal Assistants, Assistant Resident Engineers, Resident Engineers, Construction Engineers, and all Structure Construction Staff
<b>Secondary Audience:</b>	SWPPP Inspectors
<b>Course Length:</b>	8 hours

Table G-3. (Continued)

DIVISION OF CONSTRUCTION	
<b>Course Status:</b>	EXISTING
<b>Course Name:</b>	Stormwater Quality Monitoring and Plan Preparation
<b>Course Description:</b>	This course covers how to review a Stormwater Quality Sampling and Analysis Plan and proper protocol for stormwater quality sample collection.
<b>Course Contents:</b>	The focus of this course is to provide both Resident Engineers and SWPPP Inspectors with detailed instruction on (1) how to review Stormwater Quality Sampling and Analysis Plans for minimum requirements and (2) how to inspect field-sampling activities for minimum requirements.
<b>Primary Audience:</b>	Resident Engineers and SWPPP Inspectors
<b>Secondary Audience:</b>	Encroachment Permit personnel and Right-of-Way Personnel.
<b>Course Length:</b>	8 hours

Table G-3. (Continued)

DIVISION OF CONSTRUCTION	
<b>Course Status:</b>	EXISTING
<b>Course Name:</b>	Inspecting for Water Pollution Control on Construction Sites
<b>Course Description:</b>	The purpose of this class is to train staff about water pollution control inspections on Department construction sites.
<b>Course Contents:</b>	The following topics are discussed: (1) Necessity for Water Pollution Control; (2) Permit Requirements for SWPPPs and Water Pollution Control on Construction Sites; (3) Overview of Regulatory Requirements and Fines; (4) BMP and SWPPP Guidance Documents; (5) BMP Installation; (6) Preparation for and Conduction of Water Pollution Control Inspections; and (7) How to Handle Inspections and Inspection Paperwork.
<b>Primary Audience:</b>	All Department Personnel involved in the design and implementation of Stormwater Pollution Prevention Plans (SWPPPs). Construction staff
<b>Secondary Audience:</b>	Encroachment Permit Staff
<b>Course Length:</b>	8 hours

Table G-3. (Continued)

DIVISION OF CONSTRUCTION	
<b>Course Status:</b>	EXISTING
<b>Course Name:</b>	Management of Construction Site Dewatering Operations
<b>Course Description:</b>	This is a District-specific classroom-training course focusing on Division of Construction responsibilities in meeting regulatory requirements for all construction dewatering operations, including dewatering impounded stormwater.
<b>Course Contents:</b>	The focus of this training course includes solving District-specific problems utilizing the Department's guidance on dewatering.
<b>Primary Audience:</b>	Resident Engineers, Assistant Resident Engineers, Structure Representatives, Assistant Structure Representatives, SWPPP Coordinators, SWPPP Inspectors, and Engineers responsible for project design.
<b>Secondary Audience:</b>	Encroachment Permit personnel and Right-of-Way Personnel.
<b>Course Length:</b>	8 hours

Table G-3. (Continued)

DIVISION OF CONSTRUCTION	
<b>Course Status:</b>	EXISTING
<b>Course Name:</b>	Field Erosion Control
<b>Course Description:</b>	This course presents advanced erosion and sediment control BMP principles along with a field display for properly implemented BMPs. The class reviews methods, techniques, and products for erosion and sediment controls, which are commonly used on construction sites throughout the State.
<b>Course Contents:</b>	The class covers (1) Application Rates; (2) Time Requirements; (3) Equipment; and (4) Maintenance of Good Records. The class also evaluates the effectiveness of BMPs and suites of BMPs and their application in site-specific situations.
<b>Primary Audience:</b>	Resident Engineers, Construction Stormwater Coordinators, Construction/SWPPP Inspectors, Structure Personnel, Management, Headquarters, Encroachment Permit Personnel, Maintenance staff, and Right-of-way Personnel.
<b>Secondary Audience:</b>	NA
<b>Course Length:</b>	16 hours

Table G-3. (Continued)

DIVISION OF CONSTRUCTION	
<b>Course Status:</b>	EXISTING
<b>Course Name:</b>	Advanced BMP Training
<b>Course Description:</b>	This course will provide additional training for Senior Construction Engineers and RE field staff regarding construction stormwater requirements and BMP implementation.
<b>Course Contents:</b>	This course will improve understanding of Construction's Stormwater Program and its requirements.
<b>Primary Audience:</b>	Resident Engineers, Assistant Resident Engineers, Bridge Representatives, SWPPP Coordinators, and Senior Construction Engineers
<b>Secondary Audience:</b>	Construction Managers
<b>Course Length:</b>	To be determined.

Table G-3. (Continued)

DIVISION OF CONSTRUCTION	
<b>Course Status:</b>	EXISTING
<b>Course Name:</b>	Construction Management Training
<b>Course Description:</b>	This course will provide an overview of the Stormwater Construction Program for management personnel.
<b>Course Contents:</b>	The topics addressed will include: (1) Up-to-Date Regulatory Requirements, (2) Procedures to Enforce Stormwater Contractual Requirements, and (3) Procedures to Respond to Regulatory Enforcement Actions.
<b>Primary Audience:</b>	Senior Construction Engineers, Area Construction Managers, Headquarters Managers, and District Construction Chiefs
<b>Secondary Audience:</b>	NA
<b>Course Length:</b>	To be determined.

Table G-4. Division of Maintenance Courses

<b>DIVISION OF MAINTENANCE</b>	
<b>Course Status:</b>	<b>EXISTING</b>
<b>Course Name:</b>	<b>Stormwater Management for Maintenance Activities</b>
<b>Course Description:</b>	This training provides an explanation of specific pollutants associated with roadway maintenance activities and maintenance facility activities. The training describes and references the approved Best Management Practices (BMPs) that are shown in detail in the Division of Maintenance Guidance .
<b>Course Contents:</b>	District Division Chiefs, District Maintenance Managers, and Deputy District Directors receive a “short course” with emphasis on policy-oriented topics, such as program implementation, regulatory agency interaction, budgeting, and charging practices, as well as an overview of Maintenance BMPs and the BMP implementation program. All other Maintenance staff classifications receive more activity-based comprehensive BMP implementation training.
<b>Primary Audience:</b>	All Division of Maintenance staff.
<b>Secondary Audience:</b>	Construction staff
<b>Course Length:</b>	6 hours. (The policy - oriented “short course” for District Division Chiefs, District Maintenance Managers, and Deputy District Directors is 3 hours.)

Table G-5. Division of Encroachment Permits Courses

<b>DIVISION OF TRAFFIC OPERATIONS</b>	
<b>Course Status:</b>	<b>EXISTING</b>
<b>Course Name:</b>	<b>Inspection for Water Pollution Control on Construction Sites</b>
<b>Course Description:</b>	These training courses are designed to 1) educate Permit Inspectors on BMP implementation and maintenance procedures and 2) prepare Permit Inspectors to ensure that dewatering activities are implemented effectively and in compliance with Permit requirements .
<b>Course Contents:</b>	These courses focus on pollutants, activities, and practices of contractors that can be sources of stormwater pollution.
<b>Primary Audience:</b>	Permit Inspectors and Resident Engineers
<b>Secondary Audience:</b>	Other Field Personnel may attend this course.
<b>Course Length:</b>	8 hours

Table G-5. (Continued)

DIVISION OF TRAFFIC OPERATIONS	
<b>Course Status:</b>	PROPOSED
<b>Course Name:</b>	Encroachment Permit Staff Training
<b>Course Description:</b>	The focus of this training is to provide Encroachment Permit staff awareness of Department stormwater policies and procedures, and implementation that ensures encroachment permits contain appropriate stormwater requirements.
<b>Course Contents:</b>	This training module will include the following areas (1) Stormwater Assessment Flow Chart for Encroachment Permits; (2) Review of Third Party stormwater pollution control plans; and (3) inspections of Encroachment Permit Construction Activities.
<b>Primary Audience:</b>	Encroachment Permits Staff
<b>Secondary Audience:</b>	Construction REs and inspectors with oversight responsibility for encroachment permit projects.
<b>Course Length:</b>	To be determined.

Table G-6. Division of Right-of-Way Courses

<b>DIVISION OF RIGHT-OF-WAY</b>	
<b>Course Status:</b>	<b>EXISTING</b>
<b>Course Name:</b>	<b>Right-of-Way Stormwater Management</b>
<b>Course Description:</b>	This course covers applicability of the Department NPDES Permit and SWMP to Right-of-Way activities involving clearance, demolition, and weed abatement. It also briefly covers property inspections and utilities relocations.
<b>Course Contents</b>	The course addresses the following topics: (1) Introduction/ Background (includes target pollutants; the Department NPDES Permit, the Department Stormwater Management Plan, Stormwater Pollution Prevention Plan (SWPPP), Right-of-Way (ROW) Stormwater guidance, and the role of ROW functions in the Stormwater program. (2) Project Planning/Preparation (includes Permit compliance, Demolition & Weed Abatement, Utilities Relocation Procedures, Options for Reducing Detrimental Impacts, Environmental Permits, Schedule of Values, Information for Contractors, Notification of Construction (demolition), and Planning Costs for Stormwater Activities in ROW Demolition/Weed Abatement. (3) Stormwater Pollution Prevention Plan Reviews for construction projects/Best Management Practices (BMP) Selection & Inspection [includes Reviewing SWPPPs, Department responsibilities for runoff originating elsewhere, selection of temporary BMPs, monitoring contractors, inspection form, soil stabilization and project completion, monitoring post demolition/weed abatement sites, Property Management, and Airspace inspections].

Table G-6. (Continued)

<b>DIVISION OF RIGHT-OF-WAY</b>	
<b>Course Status:</b>	<b>EXISTING (Continued)</b>
<b>Course Name:</b>	<b>Right-of-Way Stormwater Management (Continued)</b>
<b>Primary Audience</b>	Agents working in Clearance and Demolition, Property Management, Airspace, and Utilities Relocation functions.
<b>Secondary Audience:</b>	Other Right-of-Way Staff
<b>Course Length:</b>	12 hours

Table G-6. (Continued)

<b>DIVISION OF RIGHT-OF-WAY</b>	
<b>Course Status:</b>	<b>PROPOSED</b>
<b>Course Name:</b>	<b>ROW Stormwater Inspections for Leased Property</b>
<b>Course Description:</b>	This course will look at ROW leasing and property inspection as they pertain to stormwater pollution prevention and non-stormwater discharges
<b>Course Contents</b>	The course will cover: (1) ROW Responsibilities pertaining to stormwater, (2) Lease Provisions, (3) Property Inspections, (4) BMPs Selection for Lessees, (5) Applicability of Other NPDES Permits, and (6) Reporting of Observed Illegal Connections or Illicit Discharges.
<b>Primary Audience</b>	District/Region ROW Property Management and Airspace agents
<b>Secondary Audience:</b>	Other RW Staff
<b>Course Length:</b>	To be determined.