

# **CHAPTER 1 INTRODUCTION**

This document presents the programs and activities that the State of Hawaii Department of Transportation, Highways Division (HDOT Highways) will implement to reduce, to the maximum extent practicable, the amount of storm water containing pollutants entering and discharging from the HDOT Highways municipal separate storm sewer system on Oahu (Oahu MS4). Storm water collected in the Oahu MS4 is discharged into State waters, which include streams and the ocean. Because storm water runoff often contains pollutants, such as oil, debris and sediments, storm water discharges from the Oahu MS4 can affect the quality of State waters.

To address storm water pollution associated with operating the Oahu MS4 and highway baseyards and maintenance facilities statewide, HDOT Highways implemented the Oahu Storm Water Management Program (Oahu SWMP), which is part of its larger Statewide Storm Water Management Program (SSWMP). A majority of the programs and resources associated with the SSWMP is devoted to Oahu, which has the only “large municipal separate storm sewer system” in the State owned by the HDOT Highways as defined in Code of Federal Regulations (CFR), Title 40, Section 122.26(b)(4). The Oahu MS4 is subject to the permit requirements of the National Pollutant Discharge Elimination System (NPDES) program for storm water discharges. Oahu has the largest overall highway system among all of the islands, including having the most HDOT Highways baseyards, maintenance equipment, vehicles and personnel. Since Oahu is the most populated island, and undertakes the most construction activities, Oahu poses the greatest potential among all islands to cause degradation of water quality to receiving State waters, which warrants preparation of this document, *Storm Water Management Program Plan for the Oahu District* (Oahu SWMP Plan).

## **1.1 Background**

### **1.1.1 Clean Water Act Legislation**

The federal regulations on storm water discharges stem from the 1977 Clean Water Act (CWA) (33 United States Code 1251 et. seq.), as amended in 1987, which established a two-phase regulatory program. Phase I was put into effect through storm water regulations promulgated by the U.S. Environmental Protection Agency (USEPA) in November 1990 (40 CFR 122.26). Phase I required NPDES storm water permits for a large number of priority sources, including industrial sites, construction areas that disturbed greater than five acres, and MS4s serving populations over 100,000, which are considered large separate storm sewer systems. The Phase I MS4 regulations generally require MS4s to reduce discharges of pollutants to the maximum extent practicable and to prohibit illicit discharges into the MS4. The Phase II regulations (40 CFR 122.33) published in December 1999 expanded the program to include small MS4s, which serve populations less than 100,000, construction sites between one to five acres, and previously exempted industrial activities associated with municipalities.

### **1.1.2 Previous Oahu MS4 NPDES Permitting**

Pursuant to Phase I of the NPDES program and Chapter 342D of the Hawaii Revised Statutes (HRS), the State of Hawaii Department of Health (HDOH) issued the first ever individual MS4 NPDES Permit to the HDOT Highways on August 8, 1994 that was effective from September 7, 1994 through September 6, 1999. This permit established discharge limitations, effluent limitations and reporting requirements.

HDOT Highways applied for the next MS4 NPDES Permit in November 1999, and was issued a permit (permit No. HI 0021245) that was effective from July 20, 2000 through September 8, 2004. The next re-application for NPDES permit coverage was submitted in December 2003. HDOH was unable to complete the processing of the re-application before the existing permit would have expired, and therefore, HDOH administratively extended coverage of the permit until a new permit could be processed.

During the evaluation of the application, HDOH found that HDOT Highways was not in full compliance with the terms and conditions of permit No. HI 0021245. In particular, it found that HDOT Highways did not satisfactorily implement the *Storm Water Management Program Plan, Oahu District* (December 2003) (2003 Oahu SWMP Plan). This resulted in the USEPA and HDOH issuing a Consent Decree upon HDOT Highways on January 30, 2006 (also see Section 1.2).

A draft Oahu MS4 NPDES Permit (No. HI S000001) was released by HDOH for a 30-day public review starting from January 13, 2006. The final permit was signed by the HDOH Director on February 28, 2006 and became effective on March 31, 2006, and will expire at midnight, September 8, 2009.

### **1.1.3 2003 Oahu Storm Water Management Program Plan**

The purpose of the 2003 Oahu SWMP Plan was to consolidate descriptions of various components of the HDOT Highways SWMP, including its public education program as it pertains to preventing storm water pollution, into a single unified document for management purposes. The document consisted of sections for the following programs that relate to the SWMP under the administration of HDOT Highways:

- Debris control;
- Construction activities;
- Chemical applications;
- Erosion control;
- Maintenance facilities;
- Storm water pollution control for flood control projects;
- New development and significant redevelopment;
- Inventory of industrial discharges;
- Illicit discharges/illegal connections; and
- Annual storm water monitoring.

The sections provided for construction activities and the new development and significant redevelopment programs included manuals that provided descriptions of best management

practices (BMPs). BMPs include, but are not necessarily limited to, physical treatments, operating procedures or practices, prohibition of practices, maintenance procedures, or other management activities to control site runoff pollution, spillage, leaks, sludge or waste disposal, and drainage from raw material storage. Construction BMPs are generally temporary, and are removed shortly after the construction or construction activity that required the BMP has ended. BMPs for new development/significant redevelopment are generally permanent, and are designed to treat storm water runoff during the operation of the roadway facility.

## **1.2 Oahu MS4 NPDES Permit and Consent Decree**

As noted in Section 1.1.2, HDOH issued an individual Oahu MS4 NPDES Permit (No. HI S000001) to HDOT Highways in February 2006 that became effective on March 31, 2006. The permit will expire at midnight, September 8, 2009. Appendix A.1 contains a copy of the Oahu MS4 NPDES Permit (*Authorization to Discharge under the National Pollutant Discharge Elimination System*). In accordance with the CWA, 40 CFR 122.26, HRS Chapter 342D, and Chapters 11-54 and 11-55 of the Hawaii Administrative Rules (HAR), HDOH authorized HDOT Highways to discharge storm water runoff and certain non-storm water discharges from the outfalls of the Oahu MS4 into State waters in and around the Island of Oahu. However, these discharges are subject to HDOH *Standard NPDES Permit Conditions*, general requirements, monitoring requirements and other stipulations specified in the permit.

The Consent Decree that is noted in Section 1.1.2 was the result of a complaint by the USEPA alleging that HDOT Highways violated provisions of the CWA, including the conditions and limitations of the previous Oahu MS4 NPDES Permit (No. HI S0021245) and the NPDES permit for the Honolulu International Airport (No. HI 00214440). The HDOH joined USEPA in the complaint. The U.S. District Court for the District of Hawaii found that the parties (USEPA, HDOH and HDOT) negotiated in “good faith” to avoid litigation, and that the “Consent Decree is fair, reasonable, and in the public interest.” The Consent Decree was signed by the parties in September 2005. In the Consent Decree, HDOT agreed to “fully comply with the all requirements of the Clean Water Act, as well as the terms and conditions of all applicable NPDES Permits.” In addition, HDOT agreed to comply with additional requirements stipulated in the Consent Decree. Appendix A.2 contains a copy of the Consent Decree.

## **1.3 Purpose of Plan**

The purpose of the Oahu SWMP Plan is to establish a manageable and comprehensive program that encompasses all HDOT Highways activities and functional units that have a relationship with the Oahu MS4. Both the Oahu MS4 NPDES Permit and the Consent Decree stipulated preparation of the Oahu SWMP Plan.

The Oahu MS4 NPDES Permit required that HDOT Highways:

*Develop, implement, and enforce a Storm Water Management Program Plan designed to address the requirements of this permit and limit, to the MEP [maximum extent practicable], the discharge of pollutants to and from its MS4 to protect water quality and to satisfy the appropriate water quality requirements of the [Clean Water] Act.*

The permit required that the Oahu SWMP Plan include:

- BMPs, including the underlying rationale, to be implemented for each of the program components;
- Measurable standards and milestones for each program, including their underlying rationale, and interim measures to aid in determining level of effort and effectiveness of each program component;
- Name or position title and affiliation of the person(s) responsible for implementation or coordination of each program component; and
- Monitoring plan to determine effectiveness of Waste Load Allocation (WLA) controls and of the overall storm water program.

The Consent Decree required that HDOT Highways “revise and submit for approval its Oahu District Storm Water Management Program Plan,” which must incorporate the requirements specified in the Consent Decree. Upon its submittal, HDOT Highways is required to “fully and completely implement all parts of the revised SWMPP,” which will supersede the 2003 Oahu SWMP Plan.

The completion of this document is intended to foster and implement the following elements within HDOT Highways or within its Oahu SWMP:

- An agency culture where HDOT Highways personnel, consultants and contractors have a shared commitment to address and reduce pollutant loading of storm water runoff entering the Oahu MS4 and receiving State waters;
- Definitive points of contact, and areas of responsibility;
- Full use of technology and computerized systems to collect, store, analyze and report data;
- Clearly defined steps to manage, implement and administer aspects of the program;
- Availability of comprehensive BMP information;
- A system of checks and balances, with auditing for compliance;
- Quality control procedures;
- Consistent and periodic training;
- Commitment to fully funding all program components;
- Effective communication both within the Oahu SWMP and with the other agencies and the general public;
- A program adaptable to changing circumstances; and
- A model for quality environmental stewardship.

HDOT Highways prepared the *Oahu SWMP Plan* in August 2006 and a draft in January 2007. The August 2006 version was completed in compliance with the Consent Decree (see Section 1.1.3). The January 2007 version was completed in compliance with the Oahu MS4 NPDES Permit requirement that the *Oahu SWMP Plan* be available for public review and comment.

### **1.4 Plan Organization**

This document is organized into three major parts: (I) Program Administration; (II) Program Design; and (III) Program Evaluation.

Part I, Program Administration, includes Chapters Two and Three.

Chapter Two begins by describing HDOT Highways' legal authority and responsibility for implementing the Oahu SWMP. Next, a general description of the existing organizational structure of Oahu SWMP is provided. This structure includes HDOT Highways staff, but also staff of the "master consultant" and service contractors procured by HDOT Highways to provide for various functions to support development and implementation of the SSWMP, including the Oahu SWMP. More detailed information about specific roles and responsibilities will be provided in the descriptions of the individual programs provided in Part II. Finally, Chapter Two summarizes the fiscal and organizational resources needed to implement the Oahu SWMP over the next four years.

Chapter Three contains a description of the Asset Management System (AMS), which will provide computer-aided processes and solutions to almost all facets of the Oahu SWMP. The AMS involves programming and includes geographic information system (GIS) capabilities, to expedite technical analyses of collected data for administrative and management purposes. Chapter Three also describes the informational (databases), analytical and reporting support the AMS will provide to the programs described in Part II. Briefly, Chapter Three will also describe how users will interface with the database and programming of the AMS.

Part II, Program Design, provides detailed descriptions of the required components of the Oahu SWMP as specified in the Oahu MS4 NPDES Permit and Consent Decree.

Chapter Four covers the *Public Education and Outreach Program* (Public Education Program). This program consists of two basic components: training and public education. The training component administers the training needed for other programs of the Oahu SWMP. This chapter summarizes the training programs, but more detailed information about training is provided in the descriptions of individual programs provided throughout Part II. The second part of Chapter Four addresses the need to inform the public about how their daily activities can have profound effects to the quality of State waters. The elements and activities of existing and upcoming Oahu SWMP public outreach activities are provided in this chapter.

The *Public Involvement Program*, as described in Chapter Five, will ensure that the general public is provided an opportunity to review and comment on the development of the Oahu SWMP, such as development of this document.

Chapter Six, *Illicit Discharge Detection and Elimination Program* (Illicit Discharge Program), describes the component of the Oahu SWMP that prevents, detects and removes illicit discharges and illegal connections into the Oahu MS4 from properties located adjacent to HDOT Highways rights-of-way. The program consists of investigations of parcels suspected of illicit discharges or illegal connections identified through public complaints, follow-up investigations of a survey conducted in the year 2000, and field screening of Oahu MS4 outfalls.

The *Construction Site Runoff Control Program* (Construction Program) is described in Chapter Seven. The purpose of this program is to ensure that all construction projects initiated, approved or permitted by HDOT Highways have received NPDES approval from HDOH, if applicable, and include plans for site-specific construction BMPs, if appropriate. The elements of the program include a plan review and approval process, and an inspection program to ensure that construction BMPs are properly installed and maintained. To assist in the

implementation of these elements, the *Construction Best Management Practices Field Manual* and *Hawaii Standard Specifications for Road and Bridge Construction* (2005) and applicable Special Provisions were updated.

Chapter Eight, *Post-Construction Storm Water Management in New Development and Redevelopment Program* (Post-Construction SWM Program) institutes procedures for new development and significant redevelopment projects so that permanent BMPs are considered and included, as necessary. Criteria, a manual, and other materials were developed to assist project planners, managers, developers, consultants and permit reviewers in determining whether permanent BMPs should be included in projects. Also, a permanent BMP review process was initiated for projects in the design stage. Chapter Eight also provides the scope for a retrofit feasibility study that will explore how to improve the quality of Oahu MS4 discharges that empty into 303(d) water bodies, which are defined as water bodies having beneficial uses but are impaired by one or more pollutants.

Chapter Nine covers five component programs under the *Pollution Prevention and Good Housekeeping Program*: debris control, BMP for chemical applications, BMP for erosion control, BMP for maintenance facilities, and pollution control for flood control projects.

The first section in Chapter Nine describes the *Debris Control BMP Program*, which provides the framework to manage HDOT Highways personnel and service contractors that sweep highways and clean the Oahu MS4. The program includes BMP procedures for conducting inspections and cleaning of all appropriate facilities, such as streets and storm drains, as well as a management system supported by and integrated with the AMS to collect and analyze information relating to sweeping and cleaning activities, which will also assist in scheduling and reporting requirements.

The *Chemical Applications BMP Program*, the second section in Chapter Nine, is designed to reduce the contribution of pollutants from the use of fertilizers, herbicides and pesticides within highway rights-of-ways and landscaped areas, as well as in other HDOT Highways facilities, such as baseyards. The program introduces BMPs that address the application, storage, and disposal of these chemicals, and is directed towards HDOT Highways personnel and landscape contractors (maintenance and construction) who use these chemicals.

The function of the *Erosion Control BMP Program*, the third section in Chapter Nine, is to identify erosional areas within highway rights-of-way based on water quality concerns, and to implement erosion control projects to address these areas. To meet this objective, this section contains a summary of specific erosion control measures that will address the initial ten high priority erosional areas identified for this program. In the long term, this program will continue to identify and prioritize other erosional areas throughout the island of Oahu, field screen Oahu MS4 outfalls that cause erosion, as well as develop erosion control measures to address these areas.

HDOT Highways operates the eight vehicle baseyards on Oahu, which are also used to store materials needed for routine maintenance. The fourth section in Chapter Nine describes the *Maintenance Facilities BMP Program*, which largely consists of preparing and implementing Storm Water Pollution Control Plans (SWPCP) for the baseyards. In addition, the program will include development of a Maintenance Facility BMP Manual. Finally, this section provides the

status of HDOT Highways' plan to develop two dewatering facilities on Oahu, which will be used to dry materials and debris removed from the Oahu MS4 prior to proper disposal.

The storm water pump station located on the H-1 Freeway near the Punahou Street overpass is the only flood control facility on Oahu owned and operated by HDOT Highways. A flood control program was developed, as described in the fifth section of Chapter Nine, for this pump station to assist HDOT Highways personnel who have responsibility for its maintenance. The program largely consists of inspection and maintenance activities.

Chapter Ten describes the *Industrial and Commercial Activities Discharge Management Program*, which is designed to address pollutant discharges into the Oahu MS4 originating from industrial and commercial areas, which may be sources of pollutants that enter the Oahu MS4. The program involves a management system using the tools provided by the AMS, which includes GIS databases of industrial and commercial facilities and activities that discharge directly or indirectly into the Oahu MS4. The management system will be used to identify industrial and commercial areas for priority inspections.

The final chapter of Part II provides a status of the annual monitoring efforts conducted by United States Geological Survey (USGS) for the HDOT Highways in order to assess the characteristics of highway runoff and evaluate potential impact to stream water quality. Chapter Eleven also describes an upcoming monitoring program to be used to assess the Oahu MS4's relative contribution to nutrient loads and other water quality waste loads. This information will be used to assist in the implementation of Waste Load Allocations (WLA) designated to HDOT Highways for the Ala Wai Canal, Kawa Stream, Waimanalo Stream and other watersheds.

Part III, Program Evaluation, consists of Chapters Eleven and Twelve.

Chapter Twelve, *Monitoring Program Effectiveness*, contains the plan to assess the effectiveness of the Oahu SWMP. It consists of program objectives, and for each objective, benchmarks or standards (performance measures) were developed and will be used to measure the progress of individual programs. The objectives and performance measures provided in Chapter Twelve will provide the basis of reporting that is described in Chapter Thirteen.

Chapter Thirteen, *Documenting Program Effectiveness*, describes how the results and achievements of all elements of the Oahu SWMP will be reported to the HDOH, the NPDES permitting agency. This chapter will provide brief descriptions of the reporting procedures and activities, including schedules and the proposed content of Mid-Year and End-of-Year reports.

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