

CHAPTER 12

MONITORING PROGRAM EFFECTIVENESS

This chapter contains the plan in which HDOT Highways will use to assess the effectiveness of the Oahu SWMP. The plan consists of program objectives, and for each objective, benchmarks or standards (performance measures) were developed and will be used to measure progress of the programs.

12.1 Objectives and Quantitative Standards

Evaluative objectives and performance measures are provided below for all Oahu SWMP programs with the exception of the Public Involvement and Water Quality Monitoring Programs, which are described in Chapters Five and Eleven, respectively. Assessments of program effectiveness using these performance measures will be conducted semi-annually and will be reported in Mid-Year and End-of-Year reports. The AMS (see Chapter Three) will be instrumental in conducting program evaluations because of its ability to receive, store and analyze information.

12.1.1 Public Education and Outreach Program

Objective 1. All appropriate HDOT Highways personnel, consultants, service contractors, and persons affiliated with the Oahu SWMP on behalf of HDOT Highways or those who work within HDOT Highways right-of-way will understand the overall objectives of the Oahu SWMP and will be properly trained for storm water pollution control.

Performance Measure 1A. The training programs of the Oahu SWMP will be held in accordance with specified schedules of the programs (see Sections 6.6, 7.5, 8.4, 9.1.4, 9.2.2, 9.3.5, 9.4.4, and 10.4).

Objective 2. The general public, including persons affiliated with industrial facilities covered by the NPDES program, will be made aware of HDOT Highways' storm water management and pollution control programs, and understand that littering of highways and other actions that result in oil or chemicals being discharged into the Oahu MS4 or other storm water systems are detrimental to the quality of the State's water resources.

Performance Measure 2A. The Oahu SWMP Public Education Plan (see Section 4.2) completed by March 30, 2007 (This measure was achieved).

Performance Measure 2B. With the first year serving as the base, the annual public surveys (see Section 4.2.4.1) will show an increase in the public's understanding and awareness about the causes of and remedies for water pollution.

12.1.2 Illicit Discharge Detection and Elimination Program

Objective 1. HDOT Highways will detect and identify possible illicit discharges and illegal connections to the Oahu MS4.

Performance Measure 1A. Provide the public with the means to report illicit discharges (see Section 6.2.2) by March 30, 2007 (This measure was achieved).

Performance Measure 1B. The follow-up investigations will be completed in accordance with the schedules provided in Section 6.2.1.

Performance Measure 1C. Public complaints about possible illicit discharges or illegal connections investigated or resolved (case closed without on-site investigation) in accordance with specified response time procedures of the program.

Performance Measure 1D. The procedures plan for field screening major and minor outfalls (see Section 6.2.3) for improper discharges completed by March 30, 2007 (This measure was achieved).

Objective 2. HDOT Highways will eliminate known illicit discharges and illegal connections.

Performance Measure 2A. Investigate observed, suspected, or reported illicit discharges in accordance with specified response time procedures of the program.

Performance Measure 2B. Illicit discharges or illegal connections discovered by investigators brought into compliance in accordance with specified procedures of the program.

Objective 3. HDOT will respond to spills into the Oahu MS4 and prevent spills to the maximum extent practicable.

Performance Measure 3A. An *Oahu SWMP Spill Prevention and Response Plan* (see Section 6.4) completed by March 30, 2007 (This measure was achieved).

Performance Measure 3B. The procedures specified in the Spill Prevention and Response Plan are followed when an incident occurs.

12.1.3 Construction Site Runoff Control Program

Objective 1. HDOT Highways and its contractors will use effective BMPs and techniques that are suitable for the State of Hawaii in controlling storm water pollution runoff from construction projects to the maximum extent practicable.

Performance Measure 1A. Inclusion of BMPs, as specified in the Oahu MS4 NPDES Permit, in the *Construction BMP Field Manual* (see Section 7.2) (This measure was achieved).

Objective 2. Construction of any contract, in-house, maintenance, or encroachment projects, as well as projects outside of HDOT Highways right-of-way that require a connection or discharge permit, will meet the applicable requirements of the Construction Site Runoff Control program.

Performance Measure 2A. Contract, in-house, maintenance, and encroachment construction projects reviewed to determine whether they require an NPDES permit.

Performance Measure 2B. Contract, in-house, maintenance, and encroachment construction projects that require an NPDES permit include construction BMP plans prior to the start of the construction.

Performance Measure 2C. Construction BMPs of contract, in-house, maintenance, and encroachment construction projects that require an NPDES permit inspected prior to approving ground-disturbing activities.

Performance Measure 2D. Construction BMPs of contract, in-house, maintenance, and encroachment construction projects, regardless of whether they require an NPDES permit, inspected periodically by an independent inspector in accordance with schedules specified in the program.

12.1.4 Post-Construction Storm Water Management for New Development and Significant Redevelopment

Objective 1. HDOT Highways and its contractors will use effective permanent BMPs and techniques that are suitable for the State of Hawaii for applicable new development and significant re-development projects.

Performance Measure 1A. A unified rule (see Section 8.1.1), which specifies criteria of when permanent BMPs are to be included in a project to address storm water pollution concerns, completed by March 6, 2006 (This measure was achieved).

Performance Measure 1B. A Permanent BMP Manual (see Section 8.1.2), which included additional BMPs as specified in the Oahu MS4 NPDES Permit, completed by March 30, 2007 (This measure was achieved).

Objective 2. HDOT Highways and its contractors will consider permanent BMPs in every phase of a new development or significant redevelopment project, including planning, design, construction and maintenance.

Performance Measure 2A. Contract, in-house, maintenance, and encroachment construction projects that would create at least one acre of new permanent impervious

surfaces receive proper HDOT Highways review, and if applicable, approved plans for permanent BMPs included prior to issuance of task orders, bidding or approval of projects.

Performance Measure 2B. A BMP operation, maintenance and inspection database (see Section 8.2), which tracks both public and private activities or projects that discharge into the Oahu MS4 beginning in the plan review stage, developed by March 30, 2008.

Objective 3. HDOT Highways will address existing highways without permanent BMPs by establishing a framework for evaluating the quality of storm water runoff generated from these areas.

Performance Measure 3A. Detailed scope of the feasibility study (see Section 8.3) completed by March 30, 2007 (This measure is achieved).

Performance Measure 3B. A Final *Retrofit Feasibility Study* for the existing Oahu MS4 completed by March 30, 2009.

Performance Measure 3C. Design, construct and maintain appropriate permanent BMPs within the existing Oahu MS4 as identified in the Final *Retrofit Feasibility Study*.

12.1.5 Pollution Prevention and Good Housekeeping

As stated in Chapter 9, the overall Pollution Prevention and Good Housekeeping Program consists of the following sub-programs:

- Debris Control BMP Program;
- Chemical Applications BMP Program;
- Erosion Control BMP Program;
- Maintenance Facilities BMP Program; and
- Storm Water Pollution Control for Flood Control Projects

Objectives and Quantitative Standards for each sub-program are provided in Sections 12.1.5.1 through 12.1.5.5.

12.1.5.1 Debris Control BMP Program

Objective 1. HDOT Highways' major debris control programs, such as its street sweeping and drain cleaning activities, will be conducted systematically based on material accumulation rates and the effects on water quality.

Performance Measure 1A. Street sweeping and storm drain inspections conducted in accordance with program schedules.

Performance Measure 1B. A comprehensive AMS (see Chapter Three and Section 9.1.2) completed by January 30, 2008.

Performance Measure 1C. Re-evaluation of street sweeping and storm drain inspection schedules on an annual basis (i.e., every March).

Objective 2. HDOT Highways will maintain the public education component of the Debris Program, and the Informational Placard Program. This program helps promote public awareness of storm water issues, and therefore reduces the amount of debris into the Oahu MS4 to the maximum extent practicable.

Performance Measure 2A. The procedures for the installation, inspection, and maintenance of the storm drain placards (see Section 9.1.3) completed by March 30, 2007 (This measure was achieved).

Performance Measure 2B. Installation, inspection and maintenance of storm drain placards in accordance with specified procedures of the program.

12.1.5.2 Chemical Applications BMP Program

Objective 1. HDOT Highways personnel and contractors working within HDOT Highways rights-of-way and other HDOT Highways properties will properly apply fertilizers and herbicides (e.g., per manufacturer instructions) and use only when necessary.

Performance Measure 1A. The training for the Chemical Program will be held in accordance with specified schedules of the program (see Section 9.2.2).

12.1.5.3 Erosion Control BMP Program

Objective 1 HDOT Highways will systematically implement erosion control projects and improvements within its rights-of-way to reduce the pollutant amounts of sediment, siltation and turbidity in the receiving State waters.

Performance Measure 1A. Design and installation of erosion control measures for the initial ten (fiscal year 2006) high priority sites completed by the end of January 2008.

Performance Measure 1B. *Islandwide Assessment of Erosional Areas on the Island of Oahu* (see Section 9.3.2.2) completed by March 30, 2007 (This measure was achieved).

Performance Measure 1C. For fiscal year 2007, design of the second ten high priority sites or spend a maximum \$1.5 million for the installation of erosion control measures by March 30, 2009.

Objective 2. HDOT Highways will implement projects to reduce pollutant amounts of sediment, siltation and turbidity in receiving State waters at major storm drain outfalls.

Performance Measure 2A. *Islandwide Assessment of Erosion Potential at Storm Drain Outfalls* (see Section 9.3.4) completed by March 30, 2008.

12.1.5.4 Maintenance Facilities BMP Program

Objective 1. The operation and use of HDOT Highways baseyards will follow the appropriate site-specific BMP plan.

Performance Measure 1A. Site-specific SWPCPs for all baseyards on Oahu (see Section 9.4.2) completed by September 25, 2006 (This measure was achieved).

Performance Measure 1B. Independent inspections of all baseyards on Oahu by a trained individual at a minimum quarterly basis.

Objective 2. HDOT Highways will properly dispose of the debris and waste generated through Oahu MS4 cleaning activities (under Debris Control BMPs program).

Performance Measure 2A. A Dewatering Plan (see Section 9.4.5) completed by March 30, 2007 (This measure was achieved).

Performance Measure 2B. Construction of dewatering facilities or implementation of alternative as identified in the Dewatering Plan.

12.1.5.5 Storm Water Pollution Control for Flood Control Projects

Objective 1. HDOT Highways will inspect and clean the Interstate H-1 Punahou Pump Station in accordance with its BMP.

Performance Measure 1A. Conduct standardized operating activities.

12.1.6 Industrial and Commercial Discharge Management Program

Objective 1. HDOT Highways will reduce the pollutant contributions from industrial and commercial facilities and activities that discharge directly or indirectly into the Oahu MS4 to the maximum extent practicable.

Performance Measure 1A. A GIS inventory of industrial and commercial facilities and activities that drain directly or indirectly to the HDOT Oahu MS4 (see Section 10.1) completed by March 30, 2009.

Performance Measure 1B. Inspection of industrial and commercial properties holding connection permits in accordance with the schedule in Section 10.2.1.

Performance Measure 1C. Identify prioritized areas containing industrial and commercial facilities and activities for inspections (see Section 10.2.2) by March 30, 2007 (This measure was achieved).

Performance Measure 1D. Inspection of industrial and commercial facilities in prioritized areas in accordance with the schedule in Section 10.2.2.

Performance Measure 1E. An enforcement policy (see Section 2.4), which can be applied to industrial and commercial facilities and activities if required, completed by September 25, 2006 (This measure was achieved).

12.2 Adaptive Management

Assessment of the Oahu SWMP's effectiveness in improving water quality will take a number of years to fully develop, requiring regular tracking and compilation of data for each program component. The first year of the Oahu MS4 NPDES Permit will be used to establish baseline information and analyses of trends to allow for the improvements to the Oahu SWMP, as appropriate.

As data is compiled, initial assumptions regarding BMP efficiencies and effectiveness will either be substantiated or invalidated. The goal of the ongoing process is to achieve incremental improvement through the evaluation of collected information, allowing for an iterative process of understanding the extent that water quality is being improved by the various Oahu SWMP activities. The relationships between the Oahu SWMP programs and environmental outcomes will be better established by this iterative review process.

Program output (e.g., how many individuals have been trained, how many miles of roadway have been swept, how many cubic yards of debris were collected, the number of permanent BMPs installed, etc.) will be used to assess whether meaningful outcome objectives are being met. Outcome objectives are meeting goals or objectives that will lead to significant improvement to water quality by addressing the root causes of the problems. For example, quantifying the number of training sessions and trainees will be a program output. However, the corresponding desired outcome is whether or not these training activities resulted in improved performance as a result of increased knowledge and a change in attitudes about storm water pollution prevention. Identifying such desired outcomes will provide guidance in establishing the content of programs toward more meaningful results.

Resource constraints will require prioritization of Oahu SWMP activities so that efforts can be focused on program elements where water quality improvements can be achieved cost-effectively. However, while prioritization may result in decisions and choices made in the selection of which BMP activities to emphasize, complying with Consent Decree and Oahu MS4 NPDES Permit requirements will ultimately govern.

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