



STORM WATER MANAGEMENT PROGRAM PLAN

City and County of Honolulu

Permit No. HI S000002

Public Review

Prepared by
Department of Facility Maintenance
November 9, 2015



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Transmittal Letter

<Transmittal letter to DOH to be included with Final Submittal>

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B PUBLIC EDUCATION AND OUTREACH

- B1 Comprehensive Education and Outreach Plan

C ILLICIT DISCHARGE DETECTION AND ELIMINATION

- C1 Drain Connection Application
- C2 Field Screening Plan,* 2015 <in development>
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D CONSTRUCTION SITE RUNOFF CONTROL

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E POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

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- E2 Draft Rules Relating to Storm Drainage Standards, 2015
- E3 Permanent BMP Inspection Report
- E4 Storm Water Quality Report Template
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** Required Permit Submittal*

F POLLUTION PREVENTION AND GOOD HOUSEKEEPING INCLUDING CITY MUNICIPAL INDUSTRIAL AND SMALL MS4 FACILITIES

- F1 Priority-Based Street Sweeping Maintenance Plan <in development>
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- F5 Action Plan for Retrofitting the Existing MS4 with Structural BMPs*
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** Required Permit Submittal*

List of Acronyms

§	Section	DOH	Department of Health, State of Hawaii
%	Percent		
BLS	Baseline Load Study	DOT	Department of Transportation, State of Hawaii
BMP	Best Management Practice		
CASQA	California Stormwater Quality Association	DOT-HWYs	Highways Division, Department of Transportation, State of Hawaii
CIP	Capital Improvement Program	DPP	Department of Planning and Permitting, City and County of Honolulu
City	City and County of Honolulu		
CBSM	Community-Based Social Marketing	DPR	Department of Parks and Recreation, City and County of Honolulu
CWA	Clean Water Act		
CWB	Clean Water Branch, Department of Health, State of Hawaii	DPW	Department of Public Works, City and County Honolulu (no longer in existence)
DDC	Department of Design and Construction, City and County of Honolulu	DTS	Department of Transportation Services, City and County of Honolulu
DEM	Department of Emergency Management, City and County of Honolulu	EMC	Event Mean Concentration
DES	Department of Enterprise Services, City and County of Honolulu	ENV	Department of Environmental Services, City and County of Honolulu
DFM	Department of Facility Maintenance, City and County of Honolulu	EOP	End-Of-Pipe
DFM-SWQ	Storm Water Quality Branch, Department of Facility Maintenance, City and County of Honolulu	EPA	Environmental Protection Agency, United States
		ERP	Inspection and Enforcement Response Plan
		ESCP	Erosion and Sediment Control Plan
DMR	Discharge Monitoring Report	FOG	Fats, Oils, and Grease

List of Acronyms

FWPCA	Federal Water Pollution Control Act	NPDES	National Pollutant Discharge Elimination System
FY	Fiscal Year	PDA	Personal Digital Assistant
GIS	Geographic Information System	Permit	National Pollutant Discharge Elimination System Permit No. HI S000002
HAR	Hawaii Administrative Rules	POSSE	Public One Stop Service
HART	Honolulu Authority for Rapid Transportation	PSA	Public Service Announcement
HAZMAT	Hazardous Material	ROH	Revised Ordinances of Honolulu
HDOA	Department of Agriculture, State of Hawaii	SDS	Safety Data Sheet
HEER	Hazard Evaluation and Emergency Response Office, Department of Health, State of Hawaii	SIC	Standard Industrial Classification
HFD	Honolulu Fire Department, City and County of Honolulu	SSBMP	Site-Specific Best Management Practice Plan
HPD	Honolulu Police Department, City and County of Honolulu	SWMP	Storm Water Management Program
HRS	Hawaii Revised Statutes	SWMPP	Storm Water Management Program Plan
I&M	Implementation and Monitoring	SWPCP	Storm Water Pollution Control Plan
IPM	Integrated Pest Management	SWPPP	Storm Water Pollution Prevention Plan
LID	Low Impact Development	SWQR	Storm Water Quality Report
LOW	Letter of Warning	TMDL	Total Maximum Daily Load
MEP	Maximum Extent Practicable	TMK	Tax Map Key
MOA	Memorandum of Agreement	TN	Total Nitrogen
MOU	Memorandum of Understanding	TP	Total Phosphorus
MS4	Municipal Separate Storm Sewer System	TSS	Total Suspended Solids
NAV	Notice of Apparent Violation	U.S.	United States
NOI	Notice of Intent	U.S.C.	United States Code
NOO	Notice of Order	USACE	United States Army Corps of Engineers
NOV	Notice of Violation	USSR	Unified Sub-Watershed and Site Reconnaissance

WRAS	Watershed Reconnaissance Assessment Survey
WWTP	Wastewater Treatment Plant

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EXECUTIVE SUMMARY



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Executive Summary



A National Pollutant Discharge Elimination System (NPDES) permit is required for the City and County of Honolulu (City) to discharge storm water into receiving State water bodies. This requirement is regulated by the Clean Water Act (CWA) (33 United States Code [U.S.C.] 125 1 et. seq.; the “Act”); Hawaii Revised Statutes (HRS), Chapter 342D; and Hawaii Administrative Rules, Department of Health (DOH), State of Hawaii, Chapters 11-54 and 11-55, as amended. This Storm Water Management Program Plan (SWMPP) has been updated and modified per the requirements of the City’s Municipal Separate Storm Sewer System (MS4) NPDES Permit No. HI S000002 (Permit) issued by the DOH on January 16, 2015 with an effective date of February 16, 2015 and expiration date of January 15, 2020 (refer to **Appendix A1**). In addition, the SWMPP was revised to address the issues indicated in the Notice of Apparent Violation (NAV) issued on October 16, 2013 by DOH.

The City’s SWMPP has been designed to address the requirements of the Permit and reduce, to the Maximum Extent Practicable (MEP), the discharge of pollutants to and from its MS4 to protect water quality and to satisfy the appropriate water quality requirements of the CWA. This document provides information for each of the following program components (the Permit references are provided in parentheses below):

- Public Education and Outreach (Part D.1.a.)
- Illicit Discharge Detection and Elimination (Part D.1.c.)
- Construction Site Runoff Control (Part D.1.d.)
- Post-Construction Storm Water Management in New Development and Redevelopment (Part D.1.e.)
- Pollution Prevention/ Good Housekeeping (Part D.1.f.)
- Industrial and Commercial Activities Discharge Management Program (Part D.1.g.)

The SWMPP also includes the following programs:

- City Industrial and Other Facilities (Part E.)
- Monitoring Requirements (Part F.)

PERMIT DIFFERENCES and SWMPP REVISIONS

While many Permit requirements remain unchanged (or slightly modified), the current Permit includes some new requirements. Consequently, the revised SWMPP reflects the ongoing program implementation, program updates, and addresses new requirements. The most noticeable revisions are listed below:

- [NEW] The **Public Education and Outreach Program** was been further developed to include a community-based social marketing (CBSM) approach. This approach, which utilizes marketing techniques to influence behaviors that benefit individuals and communities, will be incorporated during this Permit period.
- The **Illicit Discharge Detection and Elimination Program** outfall field screening program was expanded.
- The **Construction Site Runoff Control Program** was further developed to provide guidance for inspection staff and to assess the adequacy and effectiveness of the inspection program.
 - [NEW] A third-party construction oversight inspection program was developed.
 - [UPDATE] An Inspection Program and Enforcement Response Plan (ERP) was developed as guidance for inspection staff on inspection and enforcement procedures.
- The **Post-Construction Storm Water Management in New Development and Redevelopment Program** was further developed to require additional projects to implement Low Impact Development (LID) principles.
 - [UPDATE] LID requirements for projects that disturb an acre or more and small projects with the potential to discharge pollutants are included in the planned revisions to the City's Rules and Standards.
- The **Pollution Prevention/ Good Housekeeping Program** was further developed.
 - [UPDATE] The priority based schedule for inspecting and maintaining the storm drainage system was revised to specify the minimum number inlets and catch basins to be inspected or maintained, number of linear feet of storm drain lines to be inspected per FY, and of those inlets, catch basins, and storm drain lines inspected, 1/3 will be maintained or cleaned.
 - [NEW] A street sweeping pilot study was developed to prioritize street sweeping routes.
- The **Industrial and Commercial Activities Discharge Management Program** was further developed to expand facilities subject to the program.
 - [UPDATE] The inspection program requires the City to inspect, at a minimum, 300 industrial and 100 commercial facilities annually. The City expanded its commercial and industrial facility inventory to meet these requirements.
- The **Training Program** was written to consolidate all training requirements under the Permit to one (1) chapter.
 - [UPDATE] Field training was added to some of the existing training programs.
- The **Monitoring Program** was further developed to include:
 - [NEW] Implementation and Monitoring (I&M) plans for Upper Kaukonahua Stream, Kaneohe Stream, Ala Wai Canal, Kapaa Stream, Kawa Stream, and Waimanalo Stream were developed.
 - [NEW] The City began Event Mean Concentration Monitoring including End-of-Pipe and in Stream data.
 - [UPDATE] Additional parameters were added to the Industrial Facilities Monitoring Program including copper and zinc at wastewater treatment plants (WWTPs) and iron at closed sanitary landfills.

1. OVERVIEW OF DEPARTMENTAL ROLES AND RESPONSIBILITIES

The designated Permittee, who administers the NPDES MS4, is the City Department of Facility Maintenance (DFM). Historically, the Department of Environmental Services (ENV) administered the NPDES MS4 program through the Storm Water Quality Branch (SWQ). On July 1, 2015, SWQ officially transferred to DFM, who now administers the program and is also the primary contact for the following City departments that are covered under this Permit:

- Department of Design and Construction (DDC)
- Department of Enterprise Services (DES)
- Department of Facility Maintenance (DFM)
- Department of Planning and Permitting (DPP)
- Department of Parks and Recreation (DPR)
- Department of Transportation Services (DTS)
- Department of Environmental Services (ENV)
- Honolulu Authority for Rapid Transportation (HART)
- Honolulu Fire Department (HFD)
- Honolulu Police Department (HPD)

The roles and responsibilities of the departments are described as follows.

DFM is responsible for the administration of the Permit, including development and implementation, enforcement of the SWMPP, water quality monitoring and reporting. DFM is also responsible for the operation and maintenance of the City's roadways, drainage, and flood control systems, and certain other facilities. Industrial facilities include Honolulu Hale Complex, Kapolei Hale, and municipal industrial facilities such as corporation yards, vehicle repair/ maintenance facilities, and dewatering facilities. DFM is also responsible for Capital Improvement Program (CIP) projects it manages through SWQ.

DDC is responsible for design, construction, and construction inspection of most City-initiated projects including storm drain systems, flood control structures, and other CIP projects it manages.

DPP is responsible for private sector construction and land development.

DTS is responsible for Permit activities related to certain industrial facilities, including TheBus facilities at Middle Street and Manana, and the design, construction, and inspection of City-initiated transportation CIP projects it manages.

ENV is responsible for Permit activities related to certain industrial facilities and design, construction, and inspection of City-initiated ENV CIP projects it manages. Industrial facilities include closed landfills, refuse transfer stations and convenience centers, WWTPs and pump stations, and the Division of Collection System Maintenance at Halawa Baseyard.

HART is responsible for design, construction, and inspection of construction sites for the CIP projects the department manages, as well as activities for their facilities covered under this Permit.

DES, DFM, DPR, DTS, ENV, HFD, and HPD are responsible for implementing the six (6) storm water best management practices (BMPs) and applicable plans for their respective facilities covered by this Permit.

Table EX.1 lists each of the program components and indicates which departments lead the component implementation and coordination accordingly.

Table EX.1: List of Program Components and Responsible Departments

Program Components (Permit Reference)	DDC	DES	DFM	DPR	DPP	DTS	ENV	HART	HFD	HPD
SWMPP (Part D.1.)			✓							
Public Education and Outreach (Part D.1.a.)			✓							
Public Involvement/ Participation (Part D.1.b.)			✓							
Illicit Discharge Detection and Elimination (Part D.1.c.)			✓		✓					
Construction Site Runoff Control (Part D.1.d.)	✓		✓		✓	✓	✓	✓		
Post-Construction Storm Water Management in New Development and Redevelopment (Part D.1.e.)	*✓		✓		*✓	*✓	*✓	*✓		
Pollution Prevention/ Good Housekeeping (Part D.1.f.)	✓	✓	✓	✓		✓	✓	✓	✓	✓
Industrial and Commercial Activities Discharge Management Program (Part D.1.g.)			✓							
City Industrial and Other Facilities (Part E.)		✓	✓	✓		✓	✓	✓	✓	✓
Monitoring (Part F.)			✓							

* only during design and construction phase

2. STORM WATER MANAGEMENT PROGRAM PLAN

Permit Reference Part D.

As required by the Permit, the framework for each of the program components must consist of BMPs with associated measurable standards and milestones. It must also be clear who will be responsible for implementing the program components. Subsequently, these activities must be monitored and reported to the DOH over the course of the Permit.

The program components are described as follows and are presented in sequence to mirror the outline of the Permit.

a. Public Education and Outreach Program (Part D.1.a.)

The Public Education and Outreach Program component was historically led by ENV but will now be led by DFM as a result of SWQ transferring to the Department. For several years, the City has promoted environmental awareness and behavior change through various events, coordinated year round, for specific types of target audiences as well as the general public.

Community-Based Social Marketing Approach. CBSM is an outreach approach that utilizes technique to influence behaviors that benefit individuals and communities. This approach identifies motivators and barriers to increase the likelihood of achieving desired behavioral shifts that will be used as part of the campaign developed for the General Public.

Targeted Groups. The City’s public education plan includes workshops, speaking opportunities, brochures, presence at trade shows and expos, and training directed at City employees and specific industries (i.e., construction, automotive, and visitor industries) listed in the Permit. Outreach methods range from workshops to mailing printed materials as deemed most appropriate for the respective group.

General Public. A broad assortment of campaigns ranging from community events to the distribution of brochures is also included in the City’s public education plan. Activities include utilizing various forms of media, providing education resources, participating in events, volunteer programs, and maintaining the City’s CleanWaterHonolulu.com website.

Evaluation Methods. Various tools are used to evaluate the progress of the public education program, which include tracking the City’s efforts and public participation in the various programs, and using surveys to compare changes in attitude, awareness, and behavior.

b. Public Involvement/ Participation (Part D.1.b.)

The public is invited to participate in the development of the SWMPP by providing comments on this draft and attending the public information meeting to be held during the 30 day comment period.

c. Illicit Discharge Detection and Elimination Program (Part D.1.c.)

The Illicit Discharge Detection and Elimination Program is managed by DFM-SWQ who is responsible for investigating complaints of improper discharge activities.

Connection Permits for Private Drain Connections. In addition to drainage from City streets, the MS4 includes connections from private properties. Private properties that connect to the City’s MS4 require a storm drain connection license administered through DPP. Discharges

from licensed drain connections must meet the provisions of the Permit to include storm water or allowed NPDES permitted non-storm water.

Field Screening. DFM-SWQ implements a Field Screening Plan for observing major and minor outfalls for improper discharges as part of their prioritized area inspection program.

Tracking. Discharge violations to the MS4 are recorded by DFM-SWQ in a database. The database includes information on the type of discharge, responsible party, the City’s investigation of discharge, and the resolution of the discharge to the MS4.

Investigate Complaints. Public complaints of illicit discharge can be reported to the City through the Environmental Concern Line ([808]-768-3300) or CleanWaterHonolulu.com website. These reports are investigated by DFM-SWQ inspectors and enforcement actions are pursued, as appropriate. The City’s procedures for investigations of illicit discharges are documented in the “Response Plan for Investigations of Illegal Discharges” (revised Prefinal July 2015).

Enforcement. Persons illegally discharging pollutants or owners with illegal drain connections to the City’s MS4 are subject to the City’s enforcement policy. Enforcement actions are progressively escalated using Letters of Warning (LOWs), Notices of Violation (NOVs), and Notice of Orders (NOOs). NOOs can be accompanied by a fine.

Prevent and Respond to Spills to the City MS4. The City has documented its spill prevention and response activities in the document, “Program to Prevent and Respond to Spills to the City MS4,” (revised Draft 2015). This plan provides guidelines to follow in the event of a spill, which includes interdepartmental and interagency coordination.

Facilitate Disposal of Used Oil and Toxic Materials. In an effort to keep household hazardous wastes, such as used oil and vehicle fluids, out of the MS4, the City manages a program to organize and collect these materials. This program facilitates

proper management, disposal, and recycling by the public.

Training. The effectiveness of the City’s Illicit Discharge Detection and Elimination Program depends on an informed workforce. DDC, DES, DFM, DPP, DPR, DTS, ENV, HART, HFD, and HPD staff continue to receive training annually on identifying and eliminating illicit connections, illegal discharges, and spills to the MS4.

d. Construction Site Runoff Control Program (Part D.1.d.)

The Construction Site Runoff Control Program component is centered on the management of storm water from construction projects within the City’s jurisdiction. This includes private projects that apply for permits through DPP, public CIP projects that are administered by DDC, DFM-SWQ, DTS, ENV, HART, and state-funded projects not exempt from City review. From permitting and plan review to construction management and inspection, there are several opportunities for the City to ensure that developers, designers, and contractors comply with storm water rules and policies.

Requirement to Implement BMPs. Construction projects under the City’s jurisdiction are subject to the following planning and design requirements per City Rules and Guidelines: “Rules Relating to Soil Erosion and Sediment Control,” “Soil Erosion and Sediment Control Standards,” and “Storm Water Best Management Practice Manual, Construction.” Not only do these documents prescribe the standards for drainage and erosion control, but they also provide parameters on storm water quality. The City’s “Rules Relating to Soil Erosion and Sediment Control” assigns projects to one (1) of five (5) categories based on the size and extent of land disturbance. The City is currently revising their “Rules Relating to Soil Erosion and Sediment Control” and plans on creating a Category 1 Exempt and Category 1 Non Exempt project category, establishing minimum BMP requirements for each project Category and requiring each project Category to submit either an Erosion and Sediment Control Plan (ESCP) or a

Minimum BMP Checklist for review and approval. For Category 5 projects, the City requires proof of filing a Notice of Intent (NOI) for coverage under the NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activity.

Inventory of Construction Sites. Construction projects under the City’s jurisdiction are recorded using excel spreadsheets, Filemaker Pro or the Public One Stop Service (POSSE) system. These databases maintain an inventory of construction projects that includes information on permits, plan review, and inspection.

Plan Review and Approval. All projects subject to City permits are reviewed for adequate storm water management during construction in addition to satisfying other design and permit requirements. These reviews, performed by DPP, DDC, DTS, HART, ENV, and DFM-SWQ are documented on a plan review checklist, which is specifically organized to evaluate the inclusion of both temporary and permanent BMPs.

Permits Verification. The City does not allow construction to commence on any private or public project, greater than or equal to one (1) acre of disturbed land, until all relevant City Building and Site Development and Subdivision permits have been reviewed and approved by the City and has received a Notice of General Permit Coverage (NGPC) from DOH for the discharge of storm water associated with construction activities.

Inspections. Inspections for private projects are conducted by DPP, while inspections for CIP projects are conducted by DDC and other City agencies, including DTS, DFM-SWQ, HART, EN, and/ or their representatives. City permits and construction contracts are explicit about the implementation of storm water BMPs. Projects classified as Category 1 Non Exempt, 2, 3, 4 or 5 will be required to perform weekly self-inspections and Category 1 Non Exempt projects will be required to conduct monthly inspections or once during the life time of the project (whichever comes first) using a checklist developed by the City

once the City revises their “Rules Relating to Soil Erosion and Sediment Control.” DFM-SWQ, or other third party inspector, will also perform third party oversight inspections of active construction projects to ensure that self-inspections are effective and the construction project is in compliance with the City’s ordinances, permits, and standards. Inspections are conducted in accordance with City guidance documents and include a review of site BMPs as well as project documentation, such as an approved NOI for a general construction NPDES and City permits.

Enforcement. City inspectors are responsible for enforcing City ordinances and rules. Storm water BMPs are included in construction contracts for both City and private projects. In the event that these requirements are not met, City inspectors will follow the procedures outlined in the ERP. DFM-SWQ may also perform an inspection and instruct discrepancies to be remedied on the spot, depending on the severity. If left uncorrected, DFM-SWQ may issue a LOW, which can escalate to a NOV, and can be accompanied by a fine. These enforcement actions assist in the City’s effort to maintain compliance of construction sites under its jurisdiction.

Process to Refer Non-Compliance and Non-Filers to the DOH. While the City exercises its own methods of enforcement, the DOH is also able to take enforcement actions. In the event that a construction site operator poses an immediate and significant threat to water quality and is non-responsive to the City’s enforcement activity, or the City discovers that a NGPC was not obtained, the City will provide oral notifications to the DOH within one (1) week and a written notification will be provided two (2) weeks after the determination.

Training. DDC, DFM, DPP, DTS, ENV, and HART staff whose jobs or activities are engaged in construction activities (including plan review and construction inspection) receive training annually on the requirements of the SWMPP and Permit.

Education. In an effort to educate project applicants, contractors, developers, property

owners, and other responsible parties, the City is continuing to implement an education program on storm water requirements.

e. Post-Construction Storm Water Management in New Development and Redevelopment (Part D.1.e.)

The Post-Construction Storm Water Management in New Development and Redevelopment Program component ensures storm water quality provisions have been incorporated for the life of a development. While similar to the activities in the previous section, the elements of this program component are centered on long-term storm water quality for projects under City jurisdiction.

Standards Revisions. LID is a planning and design approach that promotes natural post-development storm water controls including infiltration, evapotranspiration, or reuse of storm water runoff. Under certain conditions, LID may not be feasible and non-LID BMPs may be used. At the time this SWMPP was developed, the City was revising their “Rules Relating to Storm Drainage Standards.” A draft was submitted to DOH on August 14, 2015. The Drainage Rules are being revised to address projects subject to LID requirements and design requirements for non-LID treatment. These standards are scheduled for adoption in August 2016.

Review of Plans for Post-Construction BMPs. City plan reviewers evaluate project plans for post-construction BMPs used during construction. Projects that meet certain criteria must include a water quality checklist, determine appropriate water quality control measures, identify inspection personnel and frequency, and identify the operation and maintenance requirements after construction is completed. A plan review checklist is used by DDC, DFM-SWQ, DPP, DTS, ENV, and HART to document the inclusion of these items in the project plans.

BMPs, Operation and Maintenance, and Inspection Database. Post-Construction BMPs are inventoried in a database as project plans are routed through

the City during the plan review stage. As new as-built plans are approved by the City, the data are uploaded (manually and electronically) to both the post-construction BMP database and Geographic Information System (GIS) maintained by the City. This database contains the locations, photos, operation, maintenance, and inspection information on post-construction BMPs. It will continue to be updated to capture LID practices, and plans are in place to map these BMPs in the City's GIS.

Post-Construction Inspections. The implementation of the operation and maintenance plans, developed during project design, is essential to ensuring that permanent BMPs effectively manage storm water runoff. City staff inspects these BMPs to ensure operation and maintenance plans are implemented. Inspectors from DFM-SWQ, DPP, DTS, ENV, and HART, as well as their contractors, continue to receive annual training on permanent post-construction BMP inspections and LID practices.

Education and Training. In an effort to promote the inclusion of permanent post-construction BMPs, the City continues to provide education and outreach material on the selection, design, installation, operation and maintenance of post-construction BMPs, and LID practices to parties that apply for City permits.

f. Pollution Prevention/ Good Housekeeping (Part D.1.f.)

The Pollution Prevention/ Good Housekeeping Program consists of activities to prevent and address storm water pollution from the MS4. This effort is led by DFM. This program focuses on the City's own efforts to implement BMPs at City facilities, such as baseyards, and in City maintenance activities, such as system wide maintenance of the City's storm drain system. Per the Permit, this program groups City activities into four (4) BMP programs:

- Debris Control
- Chemical Applications
- Erosion Control
- Municipal Facilities

DEBRIS CONTROL BMPs PROGRAM PLAN

The Debris Control BMPs Program Plan consists of activities performed by DFM that prevent debris from entering the MS4, thereby reducing the volume of pollutants into receiving waters.

Storm Water System Inventory and Mapping. The City maintains an inventory and map of the City's MS4. The City's MS4 consists of nearly 50,000 structures that make up the City's storm drainage system.

Street Sweeping. The City conducts regularly scheduled street sweeping, which helps to reduce the amount of pollutants that are flushed into the MS4. Major streets are swept during the day in residential areas, while commercial/ industrial areas are swept in the evening.

Litter. The City maintains over 1,000 litter containers along major streets throughout the island. Litter containers are emptied on a regular basis.

Maintenance of Structural Controls. The City operates and maintains debris/ boulder basins and detention/ retention basins. While commonly regarded as flood control basins, they are also important to water quality as they are designed to retain large quantities of soil, rocks, boulders, and other items being moved by flood waters. These City-owned structural controls are inspected once a month and cleaned as needed.

Maintenance of Storm Drainage System. Over 27,000 catch basins and over 1,000 miles of pipes make up the City's storm drainage system. The City will inspect or maintain at least 14,000 catch basins/ inlets and 190,000 linear feet of storm drain lines each FY.

Action Plan for Retrofitting the Existing MS4 with Structural BMPs. The City continues to evaluate the existing MS4 to identify where storm water BMP retrofits should be applied. Retrofits are being implemented in areas including Kaelepulu pond, and future projects will be coordinated with the City's trash reduction and Total Maximum Daily Load (TMDL) I&M plans.

Trash Reduction Plan. Trash is a targeted pollutant in the City's MS4 Permit. The City continues to implement the Trash Reduction Plan. Currently, the City is implementing the Baseline Load Study as an effort to qualitatively determine the trash baseline load.

CHEMICAL APPLICATIONS BMPs PROGRAM PLAN

DPR, DES, and DFM maintain various City properties that involve the use of pesticides. An organized Chemical Applications BMPs Program is essential to ensure these chemicals are used responsibly and as necessary to protect water quality.

Training. Personnel tasked with chemical applications, whether City staff or contractors, are required to implement BMPs in municipal areas. Training on certifications, integrated pest management (IPM), native vegetation, chemical application, collection, and disposal is provided annually to City staff.

EROSION CONTROL BMPs PROGRAM PLAN

The Erosion Control BMPs Program targets areas within the City's right-of-way that are particularly prone to erosion. Not only do these areas have higher potential to impact storm water quality, but they can also pose a risk to public safety. The respective departments regularly inspect their designated properties for erosional areas. Smaller scale erosion can be remedied by the departments that use the properties. Larger scale erosion is referred to DFM for maintenance or to either DFM-SWQ or DDC to initiate a CIP project.

MUNICIPAL FACILITIES BMPs PROGRAM PLAN

The Municipal Facilities BMPs Program addresses municipal on-site storm water compliance, whether at a City facility or while performing any City maintenance activities.

BMPs Field Manual. The City provides a Municipal Field Guide to City staff and contractors that includes BMPs for various maintenance activities such as pavement repairs, and landscape

maintenance. This compact pocket-sized guide is currently in circulation and will be updated within the Permit term, as needed.

Develop and Implement Storm Water Pollution Control Plan (SWPCP). The City has developed SWPCPs or Site-Specific BMP Plans for municipal facilities categorized as Industrial or Small MS4. These documents are kept current with up-to-date information on the facility and outline storm water BMPs ranging from preventative maintenance, inspections, spill response, and reporting.

Municipal Facilities. There are currently 96 municipal industrial facilities (and 49 Small MS4 facilities) covered under this Permit. The City will schedule an inspection with each facility annually, and upon inspection, may schedule a follow-up inspection, if needed.

Training. There are thousands of City staff who perform daily maintenance duties across the island. These City personnel receive training annually on proper municipal maintenance BMPs.

g. Industrial and Commercial Activities Discharge Management (Part D.1.g.)

Industrial and commercial areas and activities have the potential to contribute high concentrations of pollutants to the MS4. The Industrial and Commercial Activities Discharge Management Program is managed by DFM-SWQ and consists of the activities described as follows.

Inventory and Map of Industrial and Commercial Facilities and Activities. The City maintains a database that contains information on the location and owner of industrial and commercial properties, as well as any other information gathered from field visits.

Prioritized Areas for Industrial and Commercial Facility and Activity Inspections. The City continues to inventory industrial and commercial facilities. Areas of the island are prioritized based on facility size, type and volume of materials, watershed, and the presence of water bodies in the vicinity.

Inspection of Industrial and Commercial Facilities and Activities. Over 400 inspections are conducted annually. Inspections are performed to check for environmental compliance and provide BMP guidance, and to serve as an impromptu education and outreach opportunity. Deficiencies identified during inspections are noted along with corrective actions.

Enforcement Policy for Industrial Facilities and Activities. Industrial facilities must comply with water quality requirements and are subject to enforcement actions if deficiencies are found. Deficiencies can range from poor BMP implementation, such as a lack of secondary containment for stored chemicals, to blatant water quality violations, such as dumping materials in catch basins.

First or minor deficiencies are typically addressed with a warning advising the facility to implement corrections. More serious or repeated deficiencies may result in fines and may be reported to the DOH for additional enforcement actions.

Training. DFM-SWQ inspectors receive annual training on industrial NPDES requirements, SWPCP requirements, and various inspection and enforcement techniques.

3. MONITORING

Permit Reference Part F.

The City is required to undertake a comprehensive water quality monitoring and activity tracking/reporting program to comply with Part F. of the Permit.

The Permit establishes four (4) monitoring requirements:

1. Prepare and implement an Annual Monitoring Plan.
2. Develop a priority based monitoring program for industrial facilities.
3. Develop or update and implement Wasteload Allocation (WLA) I&M Plans for the existing water bodies for which

TMDLs have been established. Ala Wai Canal, Kawa Stream, Waimanalo Stream, Kapaa Stream, Kaneohe Stream, and the North Fork of Kaukonahua Stream I&M Plans identify City activities targeted to reduce pollutant discharges, water quality monitoring, and activity tracking necessary to comply with the WLAs.

4. Develop an I&M Plan for other WLAs as adopted by the DOH.

The City also implements several other programs including:

- Receiving and MS4 Water Quality Monitoring Program
- Dry and Wet Weather Outfall Field Screening Program
- Watershed Water Quality Management Program
- Bioassessment Monitoring Program

4. REPORTING

Permit Reference Part G.

As required by the Permit, the City will continue to submit an Annual Report, which will include the Annual Monitoring Report.

The Annual Report will document the activities undertaken for each program component over the course of the previous FY, which runs from July 1 to June 30, including the status of the Permit requirements; activities of the past year; planned activities for the year ahead; and information on the resource base. The Annual Report will also report on the effectiveness of the program.

The Annual Monitoring Report will document the activities specifically related to the monitoring requirements of the previous FY. This report will contain detailed information that shows the monitoring objectives established in the Annual Monitoring Report that were achieved and will include data collected along with an assessment of the findings.

5. PERMIT SUBMITTALS

In addition to requiring the implementation of various BMPs, the Permit also requires the development of various documents that must be submitted to the DOH within a specified time from the effective date of the Permit. These documents and due dates are shown in **Table EX.2**.

Table EX.2: Required Permit Submittals to the DOH

Permit Ref	Submittals	DUE within (from effective date of the Permit)
D.1.	SWMPP shall be updated and modified	1 year
E.2.	Revise SWPCPs	90 days
G.1.	Annual Report	Annually, October 31
G.1.d.	Program Effectiveness Assessment Plan	1 year
ILLCIT DISCHARGE DETECTION AND ELIMINATION		
D.1.c.(2)	Revised Connection Permits Requirements	1 year
D.1.c.(3)	Revised Field Screening Plan	1 year
CONSTRUCTION SITE RUNOFF CONTROL		
D.1.d.(6)	Inspection and Enforcement Response Plan	1 year
POST-CONSTRUCTION STORM WATER MANAGEMENT in NEW and REDEVELOPMENT		
D.1.e.(1)	Draft revised Rules Relating to Storm Drainage Standards Final revised Rules Relating to Storm Drainage Standards	6 months 12-18 months
POLLUTION PREVENTION/ GOOD HOUSEKEEPING and INDUSTRIAL AND OTHER FACILITIES		
D.1.f.(1)(iv)	Inspection/ cleaning of structural controls not previously inspected	90 days
D.1.f.(1)(vi)	Updated Action Plan for Retrofitting the Existing MS4 with Structural BMPs	2 years
D.1.f.(1)(vi)	Completed Structural BMP Retrofits for Wailupe Stream, Kuliouou Stream, and Niu Stream	June 24, 2016 Unless reassessed or funding is unavailable in the FY16 Annual Report)
D.1.f.(3)(i)	Completed Islandwide Inventory and Remediation Schedule	3 years
E.2.	SWPCPs for municipally-owned industrial facilities CWB NOI General form, CWB NOI Form B and SWPCP for each Municipal Industrial facility listed in Table 1 of the Permit CWB NOI General Form, CWB NOI Form K and SWMP for each Small MS4 facility listed in Table 2 of the Permit	90 days
INDUSTRIAL AND COMMERCIAL ACTIVITIES DISCHARGE MANAGEMENT		
D.1.g.(2)	Updated industrial facilities and activities inventory	October 31, 2019
D.1.g.(3)	Updated commercial facilities and activities inventory	October 31, 2019
D.1.g.(4)	Prioritized area plan for industrial and commercial facility inspection	1 year
D.1.g.(5)	Industrial and Commercial Facilities Semi-Annual Inspection Reports	Semi-annually, October 31 April 30
D.1.g.(7)	Updates to the industrial and commercial inspection training	Annually, (include discussion in each Annual Report)
MONITORING REQUIREMENTS		
F.1.a.	Annual Monitoring Plan	Annually, June 1
F.3.a.	I&M Plans for: North Fork Kaukonahua Stream WLA Kaneohe Stream WLA, Ala Wai Canal WLA, Kawa Stream WLA, Waimanalo Stream WLA, and Kapaa Stream WLA (submitted separately)	End of FY15
G.2.	Annual Monitoring Report with Discharge Monitoring Reports	Annually, October 31

Note: CWB = DOH Clean Water Branch

1. INTRODUCTION



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1. Introduction



This Storm Water Management Program Plan (SWMPP) has been updated and modified per the requirements of the City and County of Honolulu (City) Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit No. HI S000002 (Permit) issued by the State of Hawaii, Department of Health (DOH) on January 16, 2015 with an effective date of February 16, 2015 and expiration date of January 15, 2020 (**Appendix A1**).

At the time this SWMPP was updated, Parts D.1.c.(3); D.1.d.(5) (ii-iv); D.1.e.(1)(ii-iv); D.1.f.(1)(ii) and (v-vii); D.1.f.(3)(i); D.1.f.(4); D.1.g.(1); E.1; F.3.a; F.3.b.(2-6); F.3.c; and F.3.c.(1-6) with regards to Table 1 of the NPDES Permit are pending a settlement agreement between the City and DOH. The SWMPP includes the proposed best management practices (BMPs) for these parts.



The designated permittee, which administers the Permit, is the City's Department of Facility Management (DFM) which is also the primary contact for the following City departments that are covered under this Permit:

- Department of Design and Construction (DDC)
- Department of Enterprise Services (DES)
- Department of Facility Maintenance (DFM)
- Department of Planning and Permitting (DPP)
- Department of Parks and Recreation (DPR)
- Department of Transportation Services (DTS)
- Department of Environmental Services (ENV)
- Honolulu Authority for Rapid Transportation (HART)
- Honolulu Fire Department (HFD)
- Honolulu Police Department (HPD)



Each of the listed departments implements their own BMPs, which are designed to address the requirements of the Permit and reduce, to the Maximum Extent Practicable (MEP), the discharge of pollutants to and from the City's MS4. These BMPs are the foundation of the City's Storm Water Management Program (SWMP) and contribute to the primary goal of reducing storm water pollution and ensuring Permit compliance.



NPDES Regulatory Background



An NPDES permit is required for the City to discharge storm water to receiving State water bodies. This requirement is regulated by the Clean Water Act (CWA), as amended, (33 United States Code [U.S.C.] 125 1 et. seq.; the “Act”); Hawaii Revised Statutes (HRS), Chapter 342D; and Hawaii Administrative Rules (HAR), DOH, State of Hawaii, Chapters 11-54 and 11-55.

The storm water management regulatory requirements in the United States (U.S.) have evolved over several decades, starting with the Federal Water Pollution Control Act (FWPCA) Amendments of 1972. This established NPDES permits, pretreatment, and construction grant programs. Significant penalties were established for permit violations. The efforts were aimed at setting effluent limits based on technology and water quality, and provided for state regulatory frameworks. The CWA of 1977 shifted the focus from conventional pollutants to toxic pollutants, but continued the FWPCA focus on industrial and municipal wastewater discharges. The Water Quality Act of 1987 was the first effort to specify storm water permitting requirements. It also established non-point source grant programs and increased the penalties for non-compliance.

The statutory framework for the NPDES program requires that all point sources that discharge pollutants to U.S. waters must obtain an NPDES permit from the U.S. Environmental Protection Agency (EPA) or an authorized State (Hawaii is a delegated State). Storm water is regulated under the NPDES program. There has been a phased approach to regulation of storm water. Phase I, effective in 1990, regulates discharges from Medium and Large MS4s, industrial activities, and construction sites that disturb five (5) or more acres. Phase II, effective March 10, 2003, regulates discharges from Small MS4s and construction sites that disturb one (1) to five (5) acres. The regulations require the issuance of permits to authorized dischargers.

In Hawaii, Small MS4s, industrial facilities, and construction activities that disturb one (1) or more acres are covered by general permits. However, if such facilities discharge storm water into sensitive water bodies designated as Class AA marine waters, Class 1 inland State waters, or areas restricted in accordance with the State’s “No Discharge” policy, then those facilities must be covered by an individual permit. Also, Small MS4s and industrial facilities could be covered under an individual permit issued to a Large MS4.

Pollution Prevention is accomplished through the development and implementation of plans such as the MS4 SWMPP and Industrial Storm Water Pollution Control Plans (SWPCPs), along with Erosion and Sediment Control Plans (ESCP) for construction sites.

NPDES permits are subject to federal and state enforcement actions and penalties. The law also provides for injunctive relief, criminal fines, and imprisonment for knowing of and allowing negligent violations.

1.1. Required Information

The Permit details the required contents of the SWMPP document, as stated below:

“Part D.1.

The Permittee shall:

Review, revise, implement, and enforce a SWMP designed to address the requirements of this permit and reduce, to the MEP, the discharge of pollutants to and from its MS4 to protect water quality and to satisfy the appropriate water quality requirements of the Act.

At a minimum, the City must include the following information in its SWMP document:

- 1. Ordinances, or other regulatory mechanisms, providing the legal authority necessary to implement and enforce the requirements of this permit;*
- 2. Statement by the City’s Corporation Counsel certifying to adequacy of legal authority;*
- 3. Written procedures describing how the City will implement each of the SWMP components described in Part D.1.a to Part D.1.g, including the following:*
 - The BMPs, plus underlying rationale, that shall be implemented for each of the program components.*
 - The measurable goals, standards and milestones for each of the BMPs, plus underlying rationale, including interim measures to assess the effectiveness of each program component and to guide the overall program implementation.*
 - The name or position title and affiliation of the person or persons responsible for implementation or coordination of each program component.*
 - Monitoring to determine effectiveness of Wasteload Allocation (WLA) controls and of the overall storm water program.*

- Evaluation of information collected and the resulting programmatic changes in an effort to maximize program resources to comply with this permit.*

Submittal Date. The SWMP shall be updated and modified per the requirements of this permit and be consistent with the format of this permit, and shall be submitted to DOH within one (1) year from the effective date of this permit, or as otherwise specified, and shall fully implement the SWMP upon submittal to DOH. The Permittee shall continue to implement the existing SWMP until submittal of the revision. The SWMP and any of its revisions, additions, or modifications are enforceable components of this permit.”

1.2. City Ordinances or Other Regulatory Mechanisms

The City has legal authority to implement and enforce the requirements of this permit through the Revised Ordinances of Honolulu (ROH) and other regulatory mechanisms. The City uses ordinances as the regulatory mechanism to require the public to comply with the Permit. Memorandum of Agreements (MOAs) and Memorandum of Understandings (MOUs) are used with City Departments and the State Department of Transportation to establish roles and responsibilities under the permit, respectively. More details of the ordinances and other regulatory mechanisms can be found in each Chapter of the SWMPP or MOA/ MOUs further discussed in Section 1.6: Memorandums – Roles and Responsibilities of the City. In addition, a statement by the City Corporation Counsel certifying the adequacy of legal authority is available in **Appendix A2**.

1.3. Document Organization

Consistent with the format of the Permit, a chapter has been assigned for each of the program components in the order shown with the Permit reference in parentheses:

- Chapter 1 - Introduction
- Chapter 2 - Public Education and Outreach Program (Part D.1.a.)
- Chapter 3 - Illicit Discharge Detection and Elimination Program (Part D.1.c.)
- Chapter 4 - Construction Site Runoff Control Program (Part D.1.d.)
- Chapter 5 - Post-Construction Storm Water Management in New Development and Redevelopment (Part D.1.e.)
- Chapter 6 - Pollution Prevention and Good Housekeeping Program (Part D.1.f.) including City Municipal Industrial and Small MS4 Facilities (Part E.)
- Chapter 7 - Industrial and Commercial Activities Discharge Management Program (Part D.1.g.)
- Chapter 8 – Training [Parts: D.1.c.(9), D.1.d.(8), D.1.e.(4), D.1.f.(2)(i), and D.1.g.(7)]
- Chapter 9 – Monitoring Requirements (Part F.)
- Chapter 10 – Program Effectiveness Assessment Plan (Part D.1.a.(3) and G.1.d)

Discussions on Public Involvement/ Participation (Part D.1.b.) and Reporting Requirements (Part G.) have been incorporated into this chapter.

Chapter 2 – Public Education and Outreach Program, describes the various methods that are used to engage the public in storm water awareness events and also engage private businesses in identifying BMP solutions that are most applicable/ relevant to their operations.

Chapter 3 – Illicit Discharge Detection and Elimination Program, describes the multi-faceted approach the City has taken to proactively seek and respond to potential sources of non-storm water discharges into its MS4.

Chapter 4 – Construction Site Runoff Control Program, explains how the City has integrated temporary storm water BMP requirements into the design and construction phase of projects under its jurisdiction.

Chapter 5 – Post-Construction Storm Water Management in New Development and Redevelopment Program, describes the City’s requirements for the permanent, long-term management of storm water following the construction phase.

Chapter 6 – Pollution Prevention and Good Housekeeping Program, examines the City’s island-wide efforts to reduce polluted discharge to and from the MS4. City owned industrial facilities are also discussed in this chapter.

Chapter 7 – Industrial and Commercial Activities Discharge Management Program, details the City’s targeted focus on environmental compliance at privately owned industrial and commercial facilities.

Chapter 8 – Training, describes the training requirements from all components of the SWMP in one (1) chapter.

Chapter 9 – Monitoring Requirements, explains the extensive efforts by the City to undertake a comprehensive water quality monitoring and activity tracking and reporting program.

Chapter 10 – Program Effectiveness Assessment Plan, describes the City’s process for evaluating the effectiveness of the program and improving it over time.

1.3.1. Chapter Features

A program component overview has been provided for Chapters 2 through 9. This overview serves as a simplified listing of the BMPs that form the framework of the respective program component and includes the responsible department, the information that will be monitored/ tracked, and the objective(s) for each program component. Each objective is discussed further in Chapter 10: Program Effectiveness Assessment Plan, including information on the assessment measures that will be used to evaluate effectiveness for each component of the SWMPP. In addition, an organization chart(s) is also provided for Chapters 2 through 7 to describe how each program is

administered within the City and to identify responsible individuals.

Chapter subheadings also include blue text that references the corresponding Permit section(s), as shown in Section 1.4: Public Involvement.

1.4. Public Involvement

Permit Reference Part D.1.b.

As required by Part D.1.b. of the Permit, the public was given an opportunity to be included in the development, review and implementation of the SWMPP. Efforts by the City that included the public include an opportunity to provide comments on this draft and to attend a public informational meeting held during the 30 day comment period. More opportunities for public involvement in implementing the SWMPP are discussed in Chapter 2: Public Education and Outreach.

1.5. Reporting Requirements

Permit Reference Part G.

This SWMPP is effective upon submittal to the DOH, providing the basis of activities that will be tracked and reported annually over the course of the entire Permit term.

A “Table of Compliance” is provided in **Appendix A3**, summarizing the status of SWMPP activities as related to the requirements of the Permit.

1.5.1. Annual Report

Permit Reference Part G.1.

An Annual Report is due by October 31st of each year to document the activities undertaken for each program component over the course of the previous fiscal year (FY), which is July 1 to June 30.

The City has integrated various means to track the activities and performance into each of the program components. Such means will facilitate the following required reporting:

- Status of the Permit requirements.
- Activities of the past year.

- Planned activities for the year ahead.
- Resource base for current and future reporting period.

The structure of the report will be consistent with the structure of this SWMPP.

The Annual Report will also include a description of any modifications to the SWMP and major modifications to the MS4 for the prior year. Modifications to the SWMP may include alterations to the programs, implementation schedules, or monitoring efforts. Modifications to the MS4 may include addition or removal of outfalls, drainage lines, or treatment facilities. Justification will be provided for any modification to the SWMP and MS4.

1.5.2. Annual Monitoring Report

Permit Reference Part G.2.

The Annual Monitoring Report is also due by October 31st of each year and will be included as part of the Annual Report. The Annual Monitoring Report will document the activities related to the Monitoring Requirements (described in Chapter 9 of the SWMPP) for the previous FY.

This report will include a summary of data collected and an assessment of the findings, consistent with the Permit.

The monitoring of storm water associated with Industrial Activities, in compliance with Part F.2. in the Permit will also be reported.

The City will include Discharge Monitoring Reports (DMRs) for Municipal Industrial Facilities in the Annual Monitoring Report and submit this via NetDMR once the web-based tool is established by the DOH.

1.6. Memorandums - Roles and Responsibilities of the City

Permit Reference Part G.3.

The Permit mandates continued maintenance and compliance with the following memorandums, described in greater details as follows:

- “Memorandum of Understanding Between the Department of Transportation Highways Division, State of Hawaii, and the Department of Environmental Services and the Department of Facility Maintenance, City and County of Honolulu,” (2001/ 2002)
- “Memorandum of Understanding between the Department of Health, Environmental Management Division, State of Hawaii, and Department of Public Works, City and County of Honolulu,” (1995)
- “Memorandum of Agreement Responsibilities under NPDES Permit HI S000002 City and County of Honolulu’s Municipal Separate Storm Sewer System and Certain Industrial Facilities and Small MS4s,” (2015)

1.6.1. MOU Between DOT, Highways Division (DOT-HWYs) and the City

Due to the interconnected nature of the City’s MS4 and the State Highway drainage system, the City and DOT have an interagency agreement. The document establishes intergovernmental coordination between the DOT and the City. It clearly delineates the roles and responsibilities of the DOT, the ENV and the DFM. The delineation of responsibilities serves to minimize discharge of pollutants from one municipal system to another while minimizing duplication of effort.

The City will continue to maintain and comply with the “Memorandum of Understanding Between the Department of Transportation Highways Division, State of Hawaii and the Department of Environmental Services and the Department of Facility Maintenance, City and County of Honolulu” signed by the ENV on December 19,

2001; by the DFM on December 27, 2001; and the DOT on February 1, 2002 (See **Appendix A4**).

1.6.2. MOU Between the DOH and the Department of Public Works (DPW)

Although not required by regulations at the time, the DOH and the DPW entered into an interagency agreement to minimize the discharge of any pollutants to the City’s MS4 and state waters to the MEP in 1995 and remains in effect at the time this SWMPP was written. The intent of this MOU is to delineate agency roles and responsibilities, minimize duplication of efforts, and ensure accountability.

Since the enactment of the MOU, the City reorganized and the City’s signatory agency (DPW) no longer exists. The City will revise the MOU between the DOH and the City to reflect the City’s current structure and identify new City signatory agencies. The City will continue to maintain and comply with the provisions of the MOU (See **Appendix A5**).

1.6.3. MOA Between Departments Covered Under NPDES Permit HI S000002

This MOA was recently revised to reflect that the responsibilities of administering the NPDES MS4 switch from ENV to DFM and was signed by the Managing Director of the City on September 2015 (see **Appendix A6**).

This agreement allows DES, DFM, DPR, DTS, ENV, HART, HFD, and HPD facilities that require a Small MS4 permit or industrial permit to be incorporated in the City’s Large MS4 permit. The City facilities are identified in a list in the MOA that is sorted by department.

The MOA describes the roles and responsibilities that are defined for each of the departments covered under the Permit and effectively establishes the following:

- Coordination between departments.
- Delineation of roles and responsibilities of each department to effectively:

- Prohibit non-storm water discharges through the City's MS4, and
- Reduce the discharge of pollutants into the City's MS4 to the MEP.
- Minimize duplication of effort.
- Accountability through judicious application of management practices, design, and engineering methods.
- Authority to redirect department resources as needed to ensure compliance with the Permit requirements.

Overview of MS4 Departmental Roles and Responsibilities (per MOA Between Departments Covered Under NPDES Permit HI S000002) (see Appendix A7)

DFM - responsible for administration of the Permit, including development and implementation; enforcement of the SWMPP, water quality monitoring, and reporting; construction and inspection of DFM-SWQ initiated projects; operation and maintenance inspections of post construction BMPs control measures; responsible for operation and maintenance of City roadways, drainage and flood control systems (owner of the City roadways, catch basins manholes, pipes, channels, and other parts of drainage and flood control system); certain other facilities, including Honolulu Hale Complex, and Kapolei Hale; and municipal industrial facilities, including corporation yards, vehicle repair/maintenance facilities, and dewatering facilities.

DDC - responsible for design, construction, and inspection of City-initiated projects including storm drain systems, flood control structures, and other DDC managed Capital Improvement Program (CIP) projects.

DPP - responsible for control of private sector construction and land development.

DTS - responsible for Permit activities related to certain industrial facilities, including The Bus facilities at Middle Street and Manana, and the design, construction, and inspection of City-initiated DTS managed transportation CIP projects.

ENV - responsible for Permit activities related to certain industrial facilities, including closed landfills, refuse transfer stations and convenience centers, WWTPs and pump stations, the Division of Collection System Maintenance at Halawa Baseyard, and the design, construction, and inspection of City-initiated ENV managed Refuse, Wastewater Treatment and Disposal, and Collection System Maintenance CIP projects.

DES, DFM, DPR, DTS, ENV, HART, HFD, and HPD - responsible for implementing the six (6) minimum control measures for their respective facilities covered by this Permit.

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2. PUBLIC EDUCATION AND OUTREACH



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2. Public Education and Outreach



The City remains committed to providing a comprehensive Public Education and Outreach Program that focuses on affecting behaviors changes that reduce or eliminate pollutant contributions and adverse impacts. The City created a Comprehensive Education and Outreach Plan that expands on the plans presented in this chapter (see **Appendix B1**). Social marketing techniques using outreach activities and events, media campaigns, and educational materials will be used to influence behaviors. The audiences will include the general public residents, homeowners, school children, workers, industrial and commercial businesses, and construction operators.

The Public Education and Outreach Program is implemented according to **Figure 2.1**.

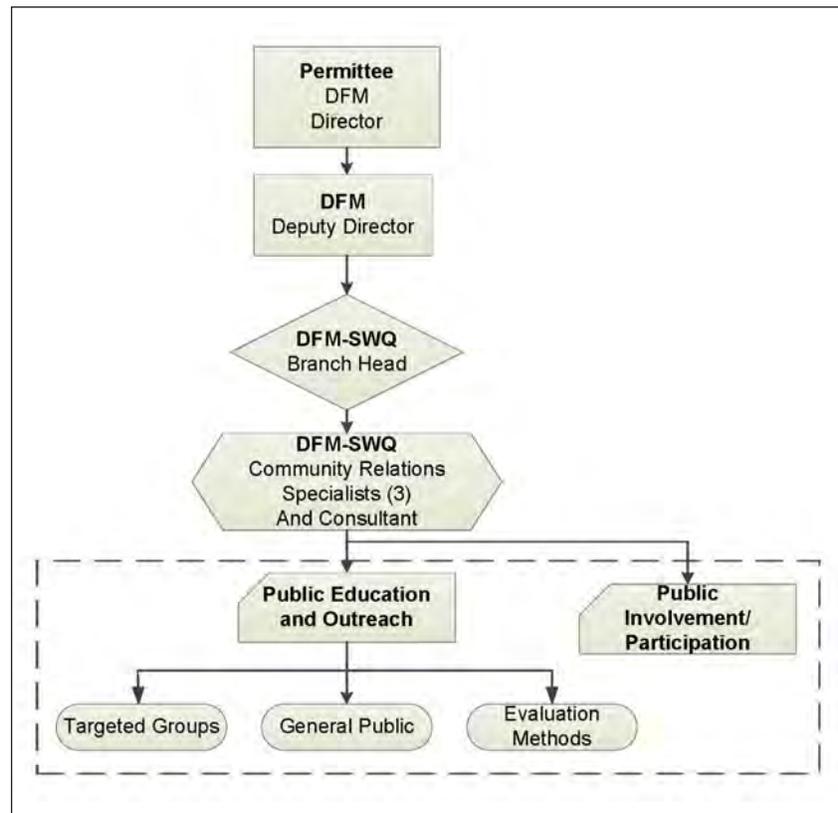


Figure 2.1: Public Education and Outreach Program - City Department Organization Chart

2.1. Component Overview

Section 2.3: General Public	<i>Part D.1.a.(2) and (3)</i>
<i>Objective(s): To change behaviors to minimize pollutants entering the MS4.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Volunteer Program Participation (number of events and results) <ul style="list-style-type: none"> ▪ Adopt-A-Stream ▪ Adopt-A Block ▪ Storm Drain Marking ▪ Clean Up Events • Special event (participation) • School programs (number of educators affected; number of children affected [directly or indirectly]) • Annual survey (results) • Community-Based Social Marketing (metrics to be determined) 	
<i>Referenced Document(s): Comprehensive Education and Outreach Plan (Appendix B1)</i>	
Section 2.4: Targeted Groups	<i>Part D.1.a.(1) and (3)</i>
<i>Objective(s): To change behaviors to minimize pollutants entering the MS4.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Outreach events (number of attendees) • Businesses affected (number and size) • Industrial facilities (number of letters sent) 	
<i>Referenced Document(s): Comprehensive Education and Outreach Plan (Appendix B1)</i>	

As summarized in Section 2.1: Component Overview, the Public Education and Outreach program has two (2) main audience categories:

- **General Public** – broad and extensive public outreach delivered through the CleanWaterHonolulu.com website, volunteer opportunities, distributed educational materials, special events, and other initiatives to facilitate behavior change that improve water quality.
- **Targeted Groups** – outreach and workshops tailored to address storm water issues and BMPs for specific industries identified in the Permit such as the construction, restaurant, landscaping, and automotive industries.

These two (2) audiences will be discussed in further detail later in this chapter.

2.2. Community-Based Social Marketing Approach

Community-Based Social Marketing (CBSM), an outreach approach which utilizes marketing techniques to influence behaviors that benefit individuals and communities, will be incorporated during this Permit period. The process of developing the CBSM includes the following steps: 1) Select Behaviors, 2) Identify Barriers and Benefits, 3) Develop Strategies, 4) Pilot, and 5) Broad-scale Implementation which are described in more detail for each audience, general and targeted.

Compared to more traditional outreach that relies on awareness to inspire behavior changes, the CBSM is a more in-depth approach that looks at various motivators and barriers to increase the likelihood of achieving the desired behavioral shifts. It requires more planning and preparation to tailor programming to the intended outcomes. The trade-off is in the ability to move beyond

awareness to measurable behavioral changes that can contribute to improved water quality.

One hallmark of this approach is rolling or phased implementation that allows for learning by doing. For this reason, certain geographic areas and/ or groups will be targeted for the pilot phase before rolling out the messaging more broadly to other neighborhoods and/ or the entire island.

The City's 2013 Storm Water Survey asked residents surveyed in depth questions regarding storm water related behaviors and choices for pre-selected geographic locations on Oahu. The results of the survey are used in targeting behaviors and geographic areas. The geographic priorities for the initial pilot program will be based on survey data and identified potential partner entities in Kalihi. Subsequent year priorities will be based on the survey and Watershed Reconnaissance Assessment Survey (WRAS). The WRAS will incorporate available data including the CWA 303(d) Impaired Water Body List, ENV wastewater spill history logs, storm water sampling data, DFM maintenance logs and reports, DDC CIP inventory, DPP zoning, building, site development and land use permitting information, State and Federal Census data, and environmental technical reports from the State, Federal, and Local Government level. It may also be used to assess behavioral changes. The CBSM approach shall also incorporate modified concepts and techniques described in the Center for Watershed Protection's Restoration Manual Series specially focusing on the Unified Sub-watershed and Site Reconnaissance (USSR) approach – most information on the USSR approach can be found at www.cwp.org/online-watershed-library/doc_download.

2.3. General Public

Permit Reference Part D.1.a.(2)

Participation of the general public is an important component of this Permit. The City remains committed to providing public education and outreach as a strategy to prevent storm water pollution by facilitating immediate and sustained behavior changes.

2.3.1. Community-Based Social Marketing

The steps of the CBSM approach are described below to highlight the additional detailed campaign development for the General Public that will occur during the Permit period.

1) Select Behaviors - measurable behaviors will be identified based on available data and selected field observations at the neighborhood/ watershed level. Targeted activities may include BMPs such as trash reduction, car washing and maintenance; proper use of fertilizers, pesticides, and herbicides; proper disposal of green waste, litter, pet waste, and household hazardous waste; water conservation, and overall watershed/ neighborhood awareness and maintenance.

2) Identifying Barriers and Benefits – select community members will be surveyed on barriers and benefits to the potential behavioral changes, and, if possible, behaviors will be observed.

3) Develop Strategies - tools will be selected based on the barriers and benefits identified and tested prior to implementing. Tools will likely include some of the Section 2.3.3: Ongoing Outreach Tools, in addition to others to be determined.

4) Piloting - potential strategies will be tested in prioritized neighborhood/ watershed to see how well they achieve the selected behavioral changes. The effects of the strategies will be measured and compared to a control area to assess the effectiveness of the piloted strategies.

5) Broad-Scale Implementation - effective strategies will be implemented in similar neighborhoods/ watersheds. Measurable outcomes will be used to assess effectiveness of implemented strategies which may be adjusted for future implementation.

2.3.2. Education and Outreach Topics

The City has a variety of specific messages relevant to storm water quality that it promotes for the general public (i.e., car washing and maintenance, littering, pet wastes, and overall watershed/

neighborhood awareness and maintenance). Included in this effort are specific topics required by the Permit:

- Proper pesticides, herbicides, and fertilizer use.
- Water conservation.
- Proper disposal of grass clippings, leaves, and other green waste.
- Proper disposal of household hazardous waste.

The City has developed a variety of resources which include pamphlets, brochures, various fact sheets, and tip cards. These resources may be distributed through the City's storm water website, volunteer events, special events, points of sale such as home improvement stores, and direct mailings to residents. For the proper disposal of household hazardous waste, the ENV Refuse Division has additional information for the public through their Opala.org website or by calling the City's Household Hazardous Waste Line ([808] 768-3201). The topic is discussed in greater detail in Chapter 3: Illicit Discharge Detection and Elimination.

These tools are discussed further below, and the City will continue to pursue partnerships with other public and private agencies to help promote these messages in addition to potential usage in the CBSM efforts.

2.3.3. *Ongoing Outreach Tools*

Most existing outreach elements will remain in place to support ongoing initiatives and new CBSM in the priority pilot areas. These are discussed briefly in the following subsections.

2.3.3.1. Storm Water Website

The City's storm water management website (www.cleanwaterhonolulu.com) provides a comprehensive go-to resource for the City's storm water program. The website will be routinely updated with information for residents, homeowners, volunteers, businesses, contractors,

and developers. The website will include current information on the Permit requirements and this SWMPP, volunteer programs and opportunities, BMPs, and special events, and will also contain educational manuals, brochures and pamphlets. Activities are regularly posted and updated through the events calendar on the website. The public can also use the contact form on the website as one way to report water quality violations or suspected illicit discharges.

2.3.3.2. Development of Informational Materials

The City maintains an actively evolving library of educational materials, brochures, fact sheets, and pamphlets with information including BMPs for a range of audiences such as homeowners and residents, businesses and property managers, and school children. These are posted on the storm water management website in addition to distribution at venues including special events, schools, points of sale such as home improvement stores and auto parts stores, and volunteer events such as Adopt-a-Block and storm drain stenciling. These venues are matched with content of each brochure in an effort to reach the most relevant and interested audiences. The City will distribute brochures to the general public and will continue to develop additional brochures and pamphlets as needed to support outreach efforts.

The City distributes brochures during inspections of commercial and industrial facilities and during investigations of illicit discharge to educate the businesses or individuals about storm water management and pollution reduction (refer to Chapter 3: Illicit Discharge Detection and Elimination and Chapter 7: Industrial and Commercial Activities Discharge Management Program). Brochures are available and continue to be developed and distributed for specific industries and groups as described in Section 2.4: Targeted Groups.

2.3.3.3. Adopt-a-Stream, Adopt-a-block, and Storm Drain Marking Programs

The City's Adopt-a-Stream, Adopt-a-Block, and Storm Drain Marking volunteer programs have been successful tools for involving and educating the public about polluted storm water runoff and stream degradation. These programs serve to model desired behaviors in the community and help to build working relationships with key community members. Adoptees sign two-year agreements for scheduled clean-up activities of streams or City blocks. Storm drain marking is available for volunteers not interested in adopting. The City also organizes several special volunteer cleanup events. At all volunteer events, issues surrounding water pollution are presented with information on how residents can continue to take preventative measures.

2.3.3.4. School Programs

The City will continue to provide and promote educational materials (as resources permit) such as "The Journey Home" booklets (1 & 2). The City will encourage and provide guidance for student participation in Adopt-a-Stream and Adopt-a-Block cleanups, storm drain stenciling, and special events. The City will continue its partnership with the Department of Education as well as other professional and non-profit organizations to make available materials and guidance on storm water and pollution prevention education. Opportunities will be sought to support hands-on place-based educational projects.

City will continue to promote water quality monitoring with World Water Monitoring Challenge. In addition, the City is now registered as a facilitator for Project WET, an international and award winning water education program. Through this program, City will offer educator workshops, school events and presentations. The focus will be working with educators so they can further extend the message to students.

2.3.3.5. Participation in Special Events and Exhibits

The City will continue to participate in special events several times a year. Special events present an opportunity to reach a large and diverse audience and educate the public on the causes and effects of polluted storm water runoff. They also provide an opportunity to advertise volunteering activities that improve water quality, and encourage them to adopt BMPs in their daily activities. The City will continue to seek partnerships with other organizations and agencies for these events to reach individuals who might not attend environmentally oriented events. For example, the City may participate in various industry expos (i.e., automotive, home and garden expos) in an effort to reach the general public who are not directly in targeted industries but may still perform related activities that can impact storm water quality.

During the plan period, participation in special events will be linked to the CBSM strategy. There will be greater emphasis on soliciting commitments from event attendees as research shows that doing so positively affects future behavioral changes. Special events are also opportunities for obtaining public feedback to better tailor future messages and programs to be more effective. City participation will be focused on neighborhood/ watersheds where strategies are being piloted and broadly implemented.

2.3.3.6. Public Service Announcements (PSAs)

Different forms of PSAs include informational advertisements or articles in newspapers, radio and television spots, and community association newsletters. The PSAs may be tailored to support various CBSM initiatives in implementation areas.

2.3.3.7. Social Media

The City will continue to use and expand its use of social media platforms as outreach tools. Social media can be utilized to share information and also for more public participation and input from various audiences. The selection of social

media will be matched to targeted audience and level/ type of participation desired for the program being implemented.

2.4. Targeted Groups

Permit Reference Part D.1.a.(1)

Specific groups and industries have been identified in the Permit for targeted outreach based on their prevalence near the City's MS4 and/ or their ability to impact storm water runoff quality. The CBSM approach will be used with the targeted groups to identify key behaviors. The preliminary groups to be targeted are listed in the following sections. Further efforts will be conducted to select behaviors and identify the most effective strategies such as workshops, speaking opportunities, brochures, presence at trade shows and expos, and training tailored to each group using appropriate messages. Outreach efforts will evolve over time as strategies are tested and implemented.

2.4.1. City Employees

To promote the education of its staff, the City plans to provide quick tips and information about good storm water practices. Educational print materials will be provided to City departments such as DFM and DPR that help manage, inspect, and maintain storm water facilities.

2.4.2. City Consultants

Informed and knowledgeable City consultants are necessary for the success of this storm water management program and maintaining compliance with the Permit. Outreach efforts for City consultants include publicizing workshops and providing updates regarding City regulations through an emailed newsletter to consultants via partnerships with professional affiliations like American Council of Engineering Companies of Hawaii, American Society of Civil Engineers, and the Hawaii Water Environment Association. Additional information in booklets or fact sheets is provided through the City's CleanWaterHonolulu.com website.

2.4.3. Construction Industry

An informed and compliant construction industry is necessary in preventing polluted runoff from leaving construction sites. The City has developed the "Storm Water Best Management Practice Manual, Construction," dated November 2011, (herein Construction BMP Manual) that is available on the City's storm water website. Outreach methods include a workshop during the Permit term that provides training and partnerships with contractors, updates to print material for construction sites (as needed), and partnering with groups like the General Contractors Association and the Building Industry Association to provide outreach in their newsletters. Additionally, print material will be placed in areas accessible to the public, such as the building permit counter. References will continue to be developed and updated as needed to provide the most current information such as the information on the revised City's Low Impact Development (LID) standards. Materials will be developed for homeowners of newly constructed homes that have erosion control BMPs that must be maintained until the homeowner's installation of adequately developed landscaping to control sediment losses.

2.4.4. Industrial Facilities Covered By the NPDES Permit Program

Industrial facilities may use, handle, and/ or create materials that have the potential to impact storm water quality. The City will be expanding its database of industrial facilities and number of annual inspections (refer to Chapter 7: Industrial and Commercial Activities Discharge Management for more information). A survey letter and educational materials will be distributed to the expanded listing of industrial properties and priorities will be established for facilities to be inspected.

2.4.5. Visitor Industry

The tourism industry is very important to Oahu's economy and outreach will target this industry in an effort to protect both receiving water quality

and aesthetic and recreational value. Outreach will involve several key sectors for targeted outreach including restaurants, hotels and condominiums, primarily in Waikiki, Downtown, and Chinatown areas. Property and building managers have been identified as important players in choosing contractors and practices. Outreach messages will describe BMPs for building and property management and recommend choosing contractors that employ these storm water BMPs. The City also plans to coordinate with the visitor industry through workshops and/ or pamphlets and newsletters with the Waikiki Improvement Association, Hawaii Hotel and Lodging Association, and other associations, including property managers, via booths at industry specific expos (e.g., the Lodging and Hospitality and Food Service Expo).

2.4.6. Commercial Businesses

Commercial businesses also have the ability to contribute pollutant loads to the City's MS4. Outreach will be conducted to specific commercial industries (i.e., landscape, automotive, gasoline, and restaurant industries) to affect positive behavior changes and reduce pollutant loading. Information and marketing may be via expos and events (such as car shows and Building Industry Association of Hawaii shows), as well as through trade association groups, retail outlets, and/ or large commercial properties. The City will pursue partnerships and coordinate work with other agencies that also have an interest in educating these target industries such as landscaping, automobile detailing, automobile repair and maintenance, retail gasoline outlets and restaurants.

2.4.7. Businesses Involved In Fire Sprinkler Testing, Fire Department Training, and Exterior Building Washing Operations

Three (3) business types specifically targeted in the Permit include those involved in fire sprinkler testing, fire department training, and exterior building washing operations. Outreach materials have been developed for these businesses to

highlight BMPs applicable to each industry. In the case of building washing, these materials will continue to be shared with building and property managers and others to inform them of the measures that should be taken to prevent storm water pollution. For companies that perform fire sprinkler testing, the video with BMPs will continue to be shared. It will also be shown to HFD, who does the fire sprinkler testing in addition to the storm water training video available in ECATTs.

2.4.8. Any Other Source that the Permittee Determines May Contribute a Significant Pollutant Load to Its MS4

Outreach efforts may also target polluters or group of polluters that are identified based on the results of the annual survey or from complaints received.

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3. ILLICIT DISCHARGE DETECTION AND ELIMINATION



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3. Illicit Discharge Detection and Elimination



The purpose of the Illicit Discharge Detection and Elimination Program is to identify and eliminate illegal connections and illicit discharges into the City’s MS4. The Illicit Discharge Detection and Elimination Program is implemented according to **Figure 3.1**.

Illicit discharges can contribute high levels of pollutants (including heavy metals, toxics, oil and grease, solvents, nutrients, and pathogens) that go untreated into receiving water bodies, causing degradation of receiving water quality and threatening fish and wildlife, fragile aquatic ecosystems, public health, and recreational and aesthetic value.



This program includes the following BMPs:

- Requiring licenses for private drain connections.
- Field screening to observe major and minor outfalls for improper discharges.
- Investigating complaints, tracking investigations, and taking appropriate enforcement actions for illicit discharges and illegal connections.
- Implementing prevention and response procedures for spills that may enter the MS4.
- Facilitating the proper management and disposal of potential pollutants including used oil and toxic materials.

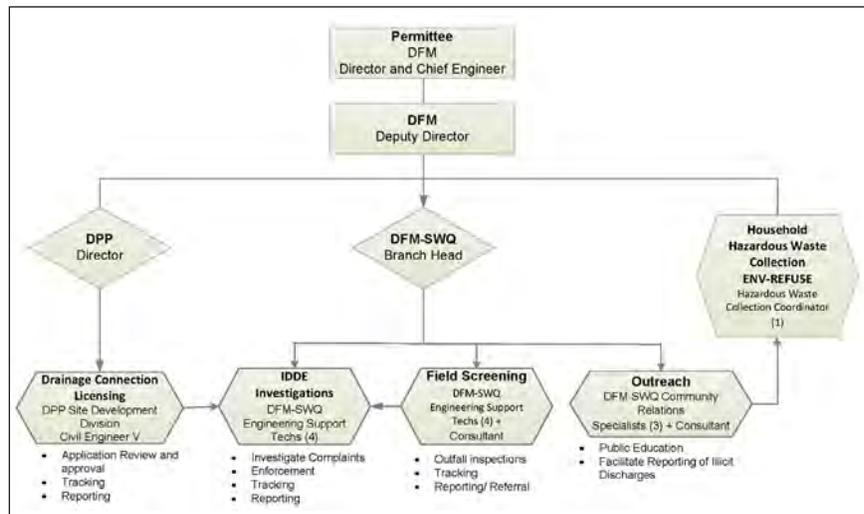
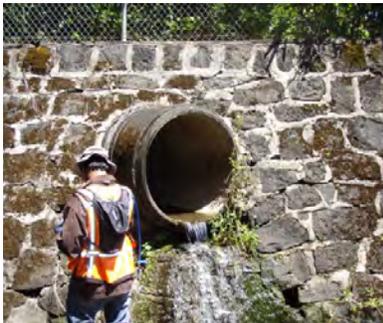


Figure 3.1: Illicit Discharge Detection and Elimination Program - City Department Organization Chart

3.1. Component Overview

Section 3.2: Licenses for Private Drain Connection		<i>Part D.1.c.(2)</i>
<i>Objective(s): To reduce the number of dry weather illicit discharges.</i>		
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD		
BMPs, Monitoring, and Tracking:		
<ul style="list-style-type: none"> • Number of private drain connection licenses issued. • Total number of connection licenses in database. 		
<i>Referenced Document(s): Private Drain Connection License Application (Appendix C1)</i>		
Section 3.3: Field Screening		<i>Part D.1.c.(3)</i>
<i>Objective(s): To reduce the number of dry weather illicit discharges.</i>		
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD		
BMPs, Monitoring, and Tracking:		
<ul style="list-style-type: none"> • Number of major and minor outfall inspections. • Location of priority areas inspected. • Number of illicit discharges and illicit drain connections. 		
<i>Referenced Document(s): Field Screening Plan (Appendix C2)</i>		
Section 3.4: Investigating and Tracking Illicit Discharge		<i>Part D.1.c.(4) and (5)</i>
<i>Objective(s):</i> <ol style="list-style-type: none"> 1. To facilitate public involvement in identifying, reporting, and reducing illicit discharges. 2. To maintain an effective Illicit Discharge Detection and Elimination Investigation and Enforcement Program. 		
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD		
BMPs, Monitoring, and Tracking:		
<ul style="list-style-type: none"> • Number of complaints received and source of complaint. • Number of investigations opened from complaints. • Number of follow-up visits. • Number of facilities showing deficiencies during follow-up visits. 		
<i>Referenced Document(s): Response Plan for Investigating Illegal Discharges (Appendix C3)</i>		
Section 3.5: Enforcement		<i>Part D.1.c.(6)</i>
<i>Objective(s): To maintain an effective Illicit Discharge Detection and Elimination Investigation and Enforcement Program.</i>		
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD		
BMPs, Monitoring, and Tracking:		
<ul style="list-style-type: none"> • Enforcement actions taken. • Number of investigations closed. 		
<i>Referenced Document(s): Response Plan for Investigating Illegal Discharges (Appendix C3)</i>		
Section 3.6: Preventing and Responding to Spills to the City MS4		<i>Part D.1.c.(7)</i>
<i>Objective(s): To maintain an effective Illicit Discharge Detection and Elimination Investigation and Enforcement Program.</i>		
Responsible Dept: <input checked="" type="checkbox"/> DDC <input checked="" type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input checked="" type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input checked="" type="checkbox"/> HFD <input checked="" type="checkbox"/> HPD		
BMPs, Monitoring, and Tracking:		
<ul style="list-style-type: none"> • Report spills in the last FY and response activities. 		
<i>Referenced Document(s): Program to Prevent and Respond to Spills to the City MS4 (Appendix C4)</i>		

Section 3.7: Facilitating the Disposal of Used Oil and Toxic Materials	<i>Part D.1.c.(8)</i>
<i>Objective(s): To facilitate public involvement in identifying, reporting, and reducing illicit discharges.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Number of collection events annually. • Number of appointments made for household hazardous waste drop off. • Gallons of Hazardous Waste collected at collection events. 	
<i>Referenced Document(s): n/a</i>	

3.2. Licenses for Private Drain Connection

Permit Reference Part D.1.c.(2)

Revised Ordinances of Honolulu (ROH) Section (§) 14-12.12,(a),(1) requires that connections from non-municipal and private drainage systems to the city-owned separate storm sewer system shall require a storm drain connection license issued by the DPP chief engineer.

ROH §14-12.2: Definitions defines a “Private Storm Drain Connection” as any conveyance of storm water, including but not limited to any drainage pipe, ditch, or swale connected to any drainage facility or separate storm sewer system, including any curb and gutter.

“Separate Storm Sewer” means a conveyance system or a system of conveyance including City roads and streets with drainage systems, catch basins, curbs, gutters, ditches, manmade channels, or storm drains owned by the City, and designated or used for collecting or conveying storm water.

The licensing program for private drain connections is administered by DPP which continues to maintain a database for all private drain connections to the City’s MS4. The Private Drain Connection License Application has been included as **Appendix C1**. Records of the drainage systems and approved licenses are archived by DFM-SWQ.

Part B.2. Allowable Non-Storm Water Discharge

The following non-storm water discharges may be discharged into the City’s MS4 provided that the discharge is identified below, and meets all conditions specified by the City.

- Water line flushing (using potable water)
- Landscape irrigation (using potable water)
- Diverted stream flows
- Rising ground waters
- Uncontaminated ground water infiltration to separate storm sewers (as defined in 40 Code of Federal Regulation §35.2005(20))
- Uncontaminated pumped ground water
- Discharges from potable water sources and foundation drains
- Air conditioning condensate
- Irrigation water (using potable water)
- Springs
- Water from crawl space pumps and footing drains
- Lawn watering (using potable water)
- Water from individual residential car washing (using potable water)
- Flows from riparian habitats and wetlands
- Dechlorinated swimming pool discharges
- Street wash water without soaps/detergents (using potable water)
- Discharges or flows from firefighting activities

3.3. Field Screening

Permit Reference Part D.1.c.(3)

The City performs field screening of major (36” and larger) and minor (30” and smaller) outfalls to screen for improper discharges as part of their prioritized area inspection program. At least one (1) field screening survey has been conducted annually since 1995. A priority ranking system will be developed to determine recommendations for the frequency of inspections to be performed on major and minor outfalls.

Previously, field screening of outfalls was performed in the same priority areas as the Industrial and Commercial Facilities and Activities Inspection Program, presented in Chapter 7: Industrial and Commercial Activities Discharge Management Program. In this Permit period, field screening will be expanded to include additional priority areas as presented in **Table 3.1**. Priority areas are those with a high density of industrial and commercial facilities, previous storm water violations, water quality impairments, areas heavily frequented by tourists and areas heavily occupied by the homeless. Areas will be alternated annually and all prioritized areas will be inspected or re-inspected by FY20.

Table 3.1: Priority Areas Inspection Schedule

Area	Date of Previous Inspection	Area	Date of Previous Inspection
FY16 Priority Areas			
Ala Wai Watershed	n/a	Nuuanu Stream	FY11
Kaneohe (Kawa Watershed)	n/a	Waimanalo Watershed	n/a
Kaukonahua Watershed	n/a		
FY17 Priority Areas			
Ala Wai Canal	FY13	Kaukonahua Stream (North)	FY14
Halawa Stream, North Segment	n/a	Kaukonahua Stream (South)	FY14
Halawa Stream, South Segment	n/a	Makiki Stream	FY13
Kanaka Stream	FY13	Waikele Stream	n/a
Kapakahi Stream	n/a	Wailani Stream	FY12
FY18 Priority Areas			
Kewalo Basin	FY14	Pacific Ocean off Barbers Point	n/a
Mamala Bay	FY13	Palolo Stream	FY13
Manoa Stream	FY13	Pukele Stream	FY13
Moanalua Stream	FY12, FY14	Waiomao Stream	FY07
FY19 Priority Areas			
Ala Moana Lagoon	FY14	Kawa Stream	FY14
Heeia Stream	n/a	Kawainui (Kaelepulu) Stream	FY10
Kamooalii Stream	FY13	Keaahala Stream, North Branch	n/a
Kapalama Stream	FY11, FY15		
FY20 Priority Areas			
Aiea Stream	n/a	Pearl Harbor (East Loch)	FY09, FY12
Kahawai Stream	FY13	Waiawa Stream	n/a
Kaneohe Stream	FY13	Waimalu Stream	n/a
Keehi Lagoon	n/a	Waimanalo Stream	FY09, FY13

Field screening in prioritized areas involves an intensive search for illegal discharges by reviewing the existing inventory and map of the storm water system in the area, and conducting inspections of drain outfalls in the designated area during dry weather conditions. Outfall inspections include a visual inspection of the physical and environmental conditions at each site. If a dry weather flow is observed, the flow is inspected for characteristics such as color, sheen, odor, temperature and consistency and documented with inspection forms and photographs. If such characteristics are detected, efforts will be made to trace the flow upstream to determine the location and source of the discharge and initiate appropriate enforcement actions, which are described in Section 3.5: Enforcement. All illicit discharges and illegal connections will be reported to DFM-SWQ within 24 hours and all documentation will be submitted for their review for investigation.

A “Field Screening Plan,” for inspection of Outfalls dated May 2015, has been attached as **Appendix C2**.

3.4. Investigating and Tracking Illicit Discharges

Permit Reference Part D.1.c.(4) and (5)

The City’s “Response Plan for Investigations of Illegal Discharges,” (revised Draft October 2015) includes descriptions of how investigations are initiated and response procedures for illegal discharges and any necessary enforcement procedures. The response plan has been included as **Appendix C3**.

DFM-SWQ is responsible for responding to complaints of illicit discharge of pollutants and non-storm water discharges into the City’s MS4. Investigations are initiated through several avenues including public complaints and reports from other agencies including other DFM divisions, the City customer service department, DDC, DPP, DTS, ENV, HART, HPD, Department of Emergency Management (DEM), and DOH Clean Water Branch (CWB).

To facilitate public reports, DFM-SWQ receives complaints from the Environmental Concern Line ([808]-768-3300) and CleanWaterHonolulu.com website. The City also facilitates reports of storm water pollution through the Honolulu 311 smartphone application. Complaints received through the application are forwarded to appropriate City departments for follow-up. Complaints are usually responded to within five (5) business days. If the discharge is an emergency, the Environmental Concern Line instructs callers to contact and report the emergency to HPD via 911 for immediate action.

When DFM-SWQ initiates a storm water investigation of an illegal discharge, discharge without a permit, or illegal connection, a complaint is logged, jurisdiction is verified, and an investigator assigned to the case. An investigation report is generated for all complaints that are investigated. The report documents the complaint, location (Tax Map Key [TMK] and address), type of violation, observations taken in the field, interviews with persons involved or related to the investigation, the investigator’s findings, the alleged violators actions, and recommendations of level(s) of enforcement. If the discharge is to private land or storm drain systems other than the City MS4, the report will be forwarded to the state, federal or appropriate party(ies).

Whenever a Notice of Violation (NOV) has been issued, the DFM-SWQ will follow-up and ascertain compliance. If the violator fails to fully comply with any order, the City/ DFM-SWQ will escalate enforcement, if necessary.

Investigations of illicit discharges are tracked in a database, maintained by DFM-SWQ. The database is used to track the type of discharge, responsible party and area, and is used to identify repeat offenders. Each report is filed into the database by TMK, FY, discharge area, and type of alleged violation(s), and recommended level(s) of enforcement. The database also describes the closure of the investigation through enforcement, referral to another agency, or other resolution.

3.5. Enforcement

Permit Reference Part.D.1.c.(6)

The City has established enforcement procedures to pursue property owners with illegal drain connections and persons illegally discharging pollutants to its MS4. They are described in the Response Plan for Investigations of Illegal Discharges. ROH §14-12 addresses administrative enforcement, judicial enforcement or order, and administrative, civil and criminal penalties for water pollution-related violations. The three (3) most cited ordinances in regards to storm water violations are referenced as follows.

- **ROH §14-12.12 (a)(1)** specifies that all connections from non-municipal and private drainage systems to the city-owned separate storm sewer system shall require a storm drain connection license issued by the chief engineer.
- **ROH §14-12.22 (a)** specifies that no person shall discharge any effluent other than storm water runoff onto any public right-of-way and/ or into any drainage facility without first obtaining a permit from the chief engineer.
- **ROH §14-12.23 (a)** specifies that it shall be unlawful for any person to discharge or cause to be discharged any pollutant into any drainage facility which causes a pollution problem in state waters, or causes a violation of any provision of the Permit or the water quality standards of the State of Hawaii.

Enforcement actions are served to the violator: the person responsible for the violation and may include the fee owner, leaseholder, sub-leaseholder, assignee, or tenant of the real property on which the violation occurs, the permittee of any permit issued by the City, and any general contractor or subcontractor responsible for work on the premises.

DFM-SWQ investigators progressively escalate enforcement actions from Letters of Warning (LOWs), to NOVs, to NOO, which can be issued with a fine.

1. Letter of Warning

LOWs are sent to suspected violators in response to complaints of illegal discharges if an investigation was initiated but either no evidence was found or the responsibility could not be determined.

2. Show Cause Order

The Show Cause Order (ROH §14-12.26) allows the City to take enforcement action for potential violations. Whenever the City finds that a discharge of storm water or effluent or any pollutant is threatening to take place in violation of any requirement imposed by ordinance, regulation or other law, the City may issue a notice of violation and show cause order requesting the property owner or permit holder or discharger to show why there should be no formal enforcement action.

3. Notice of Violation

An NOV is issued to a violator when there is evidence of a discharge and the source can be determined. The NOV describes the violation and orders the violator to stop and correct the violation. The NOV also gives the date by which the necessary corrective actions must be completed to avoid escalated enforcement actions.

4. Notice of Order

An NOO is issued upon determining that a violation is reoccurring or remains uncorrected after the deadline specified in an NOV. The NOO identifies the uncorrected violation and corresponding NOV or prior violations.

The NOO states the amount of the civil fine imposed and the amount of additional civil fines that will be imposed until the date of correction, if any. Violators can be assessed a penalty of not less than \$1,000 nor more than \$25,000 per violation per day. Each day's continuance of the same offense constitutes a separate offense.

5. Referral to DOH

In the event the City has exhausted all available sanctions and cannot bring a facility or responsible party into compliance with local ordinances and the Permit, the DOH will be notified to escalate

the compliance enforcement to the State and/ or Federal level.

6. Unlicensed Drain Connections

Whenever a property owner is cited for an illegal private drain connection to the MS4, ROH § 14-12.12 allows the property owner a period of 90 days from the date of the citation to obtain a connection license. DPP will issue a connection license to the property owner without a penalty within the 90-day period provided that the discharge to the MS4 includes only storm water or allowed NPDES permitted non-storm water. Non-compliance will result in escalated enforcement action.

3.6. Preventing and Responding To Spills to the City MS4

Permit Reference Part D.1.c.(7)

The City’s “Program to Prevent and Respond to Spills to the City MS4,” document (revised Draft 2015), includes descriptions of preventive measures that the City takes including inspection and maintenance of the City’s wastewater collection system; Spill Prevention, Control, and Countermeasure Plans for City facilities; technical training; and industrial and commercial facility surveys (see Chapter 7: Industrial and Commercial Activities Discharge Management Program). The document also includes response procedures for wastewater spills from City facilities and spills from private facilities. The document describes coordination between DFM, ENV, and other key agencies including DEM, U.S. Coast Guard, DOH’s Hazard Evaluation and Emergency Response (HEER) office, DOH CWB, and HFD’s HAZMAT team to ensure maximum water quality protection at all times. Procedures whereby the DOH is notified of all wastewater spills or overflows from private laterals and failing septic systems into the MS4 are also included. The “Program to Prevent and Respond to Spills to the City MS4,” is included as **Appendix C4**.

3.7. Facilitating the Disposal of Used Oil and Toxic Materials

Permit Reference Part D.1.c.(8)

The City has implemented programs to facilitate the proper management and disposal or recycling of homeowner generated used oil, vehicle fluids, toxic materials, and other household hazardous wastes. Material related to used oil and toxic materials can be found at the ENV Refuse Division’s Opala.org website. The website also includes informational material related to fats, oils, and grease (FOG), for both households and businesses. All of the information on the website is printable. The messages focus on waste prevention, along with instructions for the proper disposal or recycling of waste.

Household hazardous waste is accepted by appointment once every two (2) months. The public can call the City’s household hazardous waste line ([808] 768-3201) to schedule an appointment to drop-off waste or to ask questions about proper disposal of household materials. Event dates are announced through various media outlets and on the ENV Refuse website under “Services and Programs.” In addition to household disposal programs, the City has programs in place for the recycling/ disposal of commercial cooking oil and FOG waste.

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4. CONSTRUCTION SITE RUNOFF CONTROL



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4. Construction Site Runoff Control



The Construction Site Runoff Control Program focuses on storm water discharges from construction projects that drain to City drainage facilities and natural drainage ways that falls within the City's jurisdiction including:

- Private sector construction projects.
- CIP construction projects administered by DDC, DFM-SWQ, DTS, ENV's Division of Refuse, Waste Treatment and Disposal, and Collection System Maintenance, HART, and other City departments.
- State-funded construction projects not exempted from DPP review.

From reviewing project design drawings to performing inspections on active construction sites, the City tracks the implementation of BMPs to minimize polluted runoff from these activities. The Construction Site Runoff Control Program is implemented according to **Figure 4.1**.

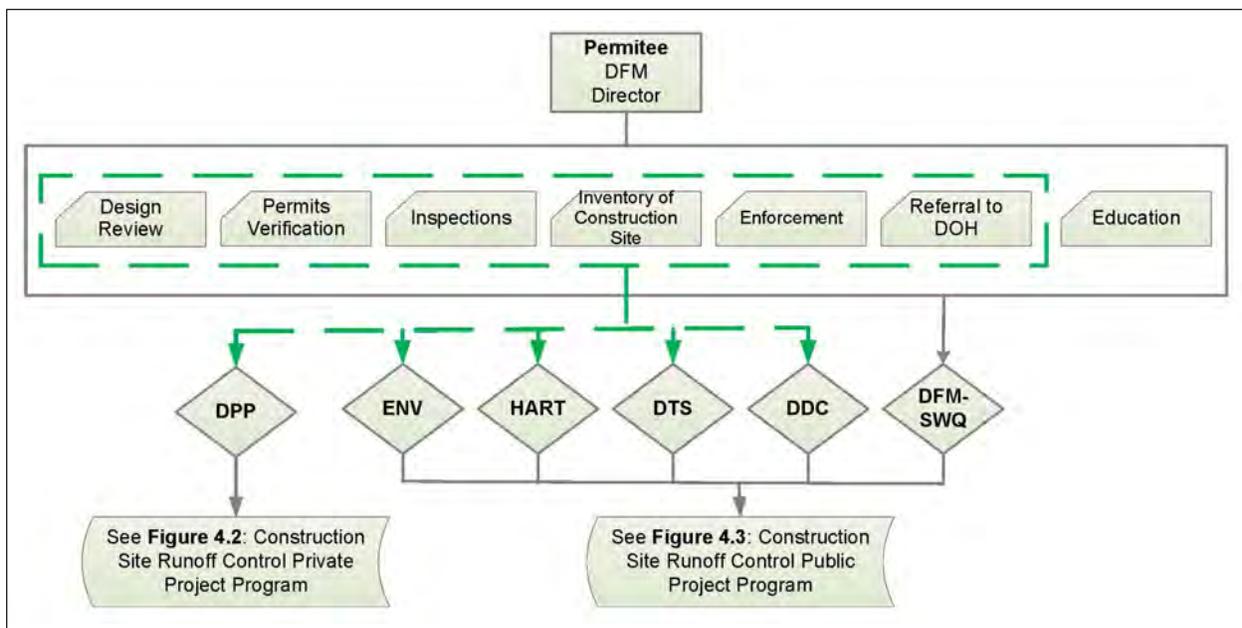


Figure 4.1: Construction Site Runoff Control Program - City Department Organization Chart

4.1. Component Overview

Section 4.2: Requirements to Implement BMPs <i>Part D.1.d.(1)</i>
Objective(s): 1. To maintain an effective Construction Site Permit/ Plan Review Program. 2. To maintain an effective Construction Site Inspection Program.
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD
BMPs, Monitoring, and Tracking: <ul style="list-style-type: none"> Document review and changes to the Rules Relating to Soil Erosion Control and the Erosion and Sediment Control Standards.
Referenced Document(s): Minimum Erosion and Sediment Control BMP Checklist for Category 1 & 2, 3, 4, and 5 (<i>Appendix D1</i>)
Section 4.3: Inventory of Construction Sites <i>Part D.1.d.(2)</i>
Objective(s): To maintain an effective Construction Site Inspection Program.
Responsible Dept: <input checked="" type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD
BMPs, Monitoring, and Tracking: <ul style="list-style-type: none"> Number of new projects for review. Number of projects inspected.
Referenced Document(s): n/a
Section 4.4: Plan Review and Approval <i>Part D.1.d.(3)</i>
Objective(s): To maintain an effective Construction Site Permit/ Plan Review Program.
Responsible Dept: <input checked="" type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD
BMPs, Monitoring, and Tracking: <ul style="list-style-type: none"> Number of environmental, land use, and building documents reviewed. Number of ESCPs reviewed. Number of grading permits issued. Number of trench excavation permits issued. Number of construction dewatering permits issued.
Referenced Document(s): 1. BMP Checklist for Construction Site Approval (<i>Appendix D2</i>) 2. DPP Process Review Flowchart (<i>Appendix D3</i>)
Section 4.5: Permits Verification <i>Part D.1.d.(5)</i>
Objective(s): To maintain an effective Construction Site Permit/ Plan Review Program.
Responsible Dept: <input checked="" type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD
BMPs, Monitoring, and Tracking: <ul style="list-style-type: none"> Number of projects that start prior to City authorizing construction to commence.
Referenced Document(s): n/a
Section 4.6: Inspections <i>Part D.1.d.(6)</i>
Objective(s): To maintain an effective Construction Site Inspection Program.
Responsible Dept: <input checked="" type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD
BMPs, Monitoring, and Tracking: <ul style="list-style-type: none"> Number of Category 1 through 5 project inspections. Number of follow-up/ re-inspections. Number of construction site inspections by DFM-SWQ. Number of Erosion Control BMP deficiencies. Number of Sediment Control BMP deficiencies. Number of Good Housekeeping BMP deficiencies.

Section 4.6: Inspections (continued)	<i>Part D.1.d.(6)</i>
<i>Referenced Document(s): 1. BMP Checklist for Construction Site Approval (Appendix D2) 2. Inspection Program and Enforcement Response Plan for Construction Sites (Appendix D4)</i>	
Section 4.7: Enforcement	<i>Part D.1.d.(6)</i>
<i>Objective(s): To maintain an effective Construction Site Enforcement Program.</i>	
Responsible Dept: <input checked="" type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Number of minor deficiencies. • Number of major deficiencies. • Number of critical deficiencies. 	
<u>Private Projects</u>	
<ul style="list-style-type: none"> • Number of written notices. • Number of stop work orders issued. • Number of revocation of permits and/ denial of future permits. • Number of enforcements from DPP forward to DFM-SWQ. 	
<u>CIP Projects</u>	
<ul style="list-style-type: none"> • Number of written notices. • Number of contract enforcement mechanisms. • Number of enforcements from DDC or DTS forward to DFM-SWQ. 	
<i>Referenced Document(s): Inspection Program and Enforcement Response Plan for Construction Sites (Appendix D4)</i>	
Section 4.8: Process to Refer NonCompliance and Non-Fileers to DOH	<i>Part D.1.d.(7)</i>
<i>Objective(s): To maintain an effective Construction Site Enforcement Program.</i>	
Responsible Dept: <input checked="" type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Number of enforcements from DFM-SWQ to DOH. • Number of non-filers reported to DOH. • Number of critical discharges. 	
<i>Referenced Document(s): n/a</i>	
Section 4.9: Education	<i>Part D.1.d.(8)</i>
<i>Objective(s): To maintain an effective Construction Site Inspection Program.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Number of documents downloaded from the storm water website. • Number of storm water website hits for construction section. 	
<i>Referenced Document(s): n/a</i>	

4.2. Requirement to Implement BMPs

Permit Reference Part D.1.d.(1)

4.2.1. Non-Regulated Projects

The City may exempt certain types of construction projects from the Construction Site Runoff Control Program. Construction projects that pose a minimum risk of storm water pollution are exempt from any storm water construction control measures, including any minimum BMP requirements, and construction inspections under this program, which includes:

- Projects where no soil disturbance is to occur.
- Routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility.
- Interior remodeling with no outside exposure of construction materials or construction waste to storm water.
- Mechanical permit work.
- Emergency construction activities required to immediately protect public health and safety.
- Sign permit work.

Additional exemptions may be determined by the local building official (or equivalent municipal authority) and will be provided to the DOH with a justification for their designation.

4.2.2. Rules Relating To Soil Erosion Control and Soil Erosion and Sediment Control Standards

Under ROH §14-14.2 the City create “Rules Relating to Soil Erosion Standards and Guidelines.” The City plans on revising these rules and creating two separate documents: “Rules Relating to Soil Erosion Control” (Erosion Rules) and “Soil Erosion and Sediment Control Standards” (Erosion Standards). Once the Erosion Rules and Erosion Standards are adopted they will be reviewed annually and revised to reflect current advances in technology and revisions to City

policies and procedures, as needed. Revisions made will be discussed in the Annual Report and the SWMPP will be revised, as needed.

Rules Relating to Soil Erosion Control

Projects that fall under one (1) of the five (5) project categories, as presented in **Table 4.1**, are subject to the current Erosion Rules. The City plans on revising the Erosion Rules to create a Category 1 Exempt and Category 1 Non-Exempt project categories, and to establish new requirements for construction BMPs, ESCPs, Minimum Erosion and Sediment Control BMP Checklists, BMP deficiencies, penalties, and the appeal process. The City is planning on defining Category 1 Exempt Projects as the following project types:

- Activities specified in ROH §14-13.5.
- Redevelopment of existing properties, where work is limited to alterations to the existing building or structure on properties with existing impervious surfaces which does not disturb more than 7,500 square feet of impervious surfaces and alter the existing drainage pattern.
- Redevelopment projects limited to the installation of sidewalks, fences, or driveways upon existing paved surfaces if they do not change existing drainage pattern.
- Emergency work to repair paved surfaces or grades in need of immediate stabilization.
- Other projects that are approved by the Director.

Soil Erosion and Sediment Control Standards

The Erosion Standards will be a technical document that details the specific requirements for construction BMPs and the ESCP, which includes: minimum BMP requirements for each project category, special requirements for Category 5 projects, and submittal requirements for ESCP for each project category including a schedule and revisions to the ESCP.

Table 4.1: Construction Project Category

Category	Description
1	Projects not required to obtain a grading, grubbing or stockpiling permit but which require a building permit and if soil disturbance is to occur.
2	Projects which required a grading or stockpiling permit where the area of the zoning lot or portion thereof subject to the permit is less than 15,000 square feet for single-family or two-family dwelling uses and less than 7,500 square feet for other uses.
3	Projects which require a grading or stockpiling permit where the area of the zoning lot or portion thereof subject to the permit is 15,000 square feet or more for single-family or two-family dwelling uses, or 7,500 square feet or more for other uses, but where the total area graded or stockpiled upon is less than 15,000 square feet for single-family or two-family dwellings uses and less than 7,500 square feet for other uses.
4	Projects which require a grading, grubbing or stockpiling permit where the total area including any areas developed incrementally that is to be graded, grubbed or stockpiled is 15,000 square feet or more for single-family or two-family dwelling uses, or 7,500 square feet or more for other uses; or in the event a proposed cut or fill is greater than 15 feet in height for single-family or two-family dwelling uses, or 7.5 feet in height for other uses.
5	Projects where the total area that is to be graded, grubbed or stockpiled upon is one (1) acre or greater, including any areas developed as part of a larger common plan of development or sale if the larger common plan will ultimately disturb one (1) acre or more of total land, and which require a NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activity issued by the DOH.

Erosion and Sediment Control Plan

Once the Erosion Rules are adopted, the City will require Category 1 Non-Exempt, 2, 3, 4, and 5 projects to submit an ESCP to the City for review. The City plans on requiring the ESCP to incorporate minimum BMPs based on the Project Category (shown in **Table 4.2**) and a construction sequence to minimize erosion and the amount of sediment leaving the site. Category 5 projects will also be required to include a list or table identifying the pre-construction, during construction, and post-construction (permanent stabilization) BMPs.

Category 3, 4, and 5 projects will be required to have a licensed civil engineer in the State of Hawaii stamp the ESCP. Revisions made to the ESCP for Category 3, 4, and 5 projects must be certified by a licensed engineer and made available at the construction site and to the City inspector at all times. The City inspector has the discretion to require a revised ESCP, with major revision, be re-submitted to DPP for review.

Category 1 Non-Exempt and 2 projects will be required to have either a licensed civil engineer

in the State of Hawaii or a Certified Storm Water Pollution Prevention Plan Preparer (SWPPP) prepare the ESCP. A SWPPP is any person that is a Hawaii registered architect, landscape architect, or a certified professional in erosion and sediment control, or storm water quality registered through Enviro Cert International INC. The following Category 1 projects will be exempt from having to submit an ESCP. These projects will be required to submit a Minimum Erosion and Sediment Control BMP Checklist to the City for review.

- Activities specified in ROH §14-13.5.
- Redevelopment of existing properties, where work is limited to alterations to the existing building or structure on properties with existing impervious surfaces which does not disturb more than 7,500 square feet of impervious surfaces and alter the existing drainage pattern.
- Redevelopment projects limited to the installation of sidewalks, fences, or driveways upon existing paved surfaces if they do not change existing drainage pattern.

- Emergency work to repair paved surfaces or grades in need of immediate stabilization.
- Other projects that are approved by the Director.

Minimum Erosion and Sediment Control BMP Checklist

The City plans on revising the Minimum Erosion and Sediment Control BMPs Checklist for Category 1 through 5 Projects (see **Appendix D1**). The Minimum Erosion and Sediment Control BMPs checklists are used as guidance to improve

compliance and facilitate the permit approval process. Only Category 1 Exempt projects will be required to submit a Minimum Erosion and Sediment Control BMP Checklist. These checklists include the minimum BMP requirements for Category 1 through 5 projects, as shown in **Table 4.2**.

4.2.3. NPDES Permits

In addition to City requirements, construction projects may also be subject to the NPDES General Permit Authorizing Discharge of Storm Water Associated with Construction Activity

Table 4.2: Proposed Minimum BMP Requirements for Category 1 through 5 Projects

Minimum BMP	Project Category				
	1	2	3	4	5
Erosion Prevention BMPs					
Minimum Soil Compaction					X
Outlet Protection / Velocity Dissipation Devices				X	X
Permanent Stabilization			X	X	X
Preserving Existing Vegetation					X
Scheduling	X	X	X	X	X
Slope Protection			X	X	X
Temporary Interceptor Dikes / Drainage Swales				X	X
Temporary Stabilization			X	X	X
Sediment Control BMPs					
Buffer Zones					X
Inlet Protection	X	X	X	X	X
Sediment Basin					X
Sediment Fence / Barriers	X	X	X	X	X
Good Housekeeping BMPs					
Dewatering Practices					X
Dust Control	X	X	X	X	X
Maintenance	X	X	X	X	X
Material Use and Pollution Control			X	X	X
Sanitary / Septic Waste Management					X
Spill Prevention and Control			X	X	X
Stabilization Construction Entrance	X	X	X	X	X
Stockpile Management	X	X	X	X	X
Vehicle and Equipment Cleaning			X	X	X
Vehicle and Equipment Fueling					X
Waste Management			X	X	X

(NPDES General Construction Permit) or other NPDES Permit Programs (i.e., individual permit, hydrotesting, or dewatering). These permits are issued and enforced by the DOH.

The planned revisions to the Erosion Rules and Erosion Standards are meant to complement the NPDES General Construction Permit requirements. However, the NPDES General Construction Permit has additional requirements than the planned revisions to the Erosion Rules and Erosion Standards and each applicable private or CIP construction projects must still develop a SWPPP.

The City requires applicable private projects to demonstrate that a Notice of General Permit Coverage (NGPC) under the NPDES General Construction Permit and/or other NPDES Permit program has been obtained prior to issuing a building, grading, grubbing, or stockpiling permit. For applicable CIP project, the City or their contractor obtains a NPDES General Construction Permit or other NPDES permit prior to starting construction. The City ensures that the contractor complies with the Erosion Rules, Erosion Standards, and the NPDES General Construction Permit or other NPDES Permit program. A description of construction projects subject to NPDES General Construction Permit or other NPDES permit is provided in **Table 4.3**.

4.3. Inventory of Construction Sites

Permit Reference Part D.1.d.(2)

The City manages the inventory of private and City CIP construction projects within the City’s jurisdiction covered by Grading/ Building Permits. DDC, DFM-SWQ, DPP, DTS, ENV, and HART actively track in their database programs: the status of plan review and approval; inspection dates; enforcement actions (if applicable); and whether the project has applied for coverage under the NPDES General Permit Authorizing the Discharge of Storm Water Associated with Construction Activity and any other General or Individual NPDES permit program. Inspection personnel also update the database as inspections are conducted with the following information:

- Inspection date
- Inspector’s name
- BMP compliance status

The following information is also included, if applicable:

- Type of violation
- Type of enforcement action
- Violation status
- Violation correction date
- Comments

Table 4.3: Projects Subject to NPDES Permits

NPDES Permit	Construction Projects Subject To NPDES Permit
NPDES General Permit Authorizing Discharge of Storm Water Associated with Construction Activity	Projects that disturb an acre or more of total land area and projects that disturb less than one acre of total land areas that is part of larger common plan of development or sale that will ultimately disturb an acre or more total land area.
NPDES General Permit Authorizing Discharges of Hydrotesting Water	Projects that release or discharge waters used to test the integrity of a tank or pipeline, water used to flush a tank or pipeline and effluent used to disinfect a tank or pipeline.
NPDES General Permit Authorizing Discharge Associated with Construction Dewatering	Projects with discharges from the dewatering process of construction activities of any size, including treated storm water discharges.
NPDES Individual Permit	Any projects with a general permit that DOH requires to apply for and obtain an individual permit. For example, the discharge(s) is a significant contributor of pollutants to state waters.

4.4. Plan Review and Approval

Permit Reference Part D.1.d.(3)

Private and City CIP project plans are reviewed and approved by the City to ensure Construction Site BMP requirements are met, where applicable. The review process is slightly different between private and City CIP projects. Section 4.4.1: Private Projects and Section 4.4.2: City CIP Projects discuss the plan review and approval process for private and City CIP projects, respectively.

Plan reviews for private and CIP projects are documented on the City's BMP Checklist for Construction Site Plan Approval (BMP Checklist), which was submitted to the DOH on August 22, 2011 (see **Appendix D2**). This checklist will be revised once the Erosion Rules and Erosion Standards are adopted.

Once the Erosion Rules and the Erosion Standards are adopted, the City will require an ESCP be submitted for review and acceptance/approval by DPP for Category 1 Non-Exempt, 2, 3, 4 or 5) prior to permit issuance and commencement of ground disturbing activities. For Category 1 Exempt projects, the planned revisions will require the Minimum Erosion and Sediment Control BMP Checklist to be accepted by DPP.

4.4.1. Private Projects

Private projects that fall under Category 1 through 5 projects must submit construction plans, grading plans (Category 3 to 5 only), and ESCPs or Minimum Erosion and Sediment Control BMP Checklists to DPP for review. For Category 5 projects, the review also includes verification that a NGPC was obtained from the DOH. Permits are not issued until all requirements have been met.

Private projects that do not fall under one of these five categories but are subject to City building permit review are provided with a common set of BMP recommendations as part of building permit.

DPP's process for reviewing and approving plans is shown in **Appendix D3: DPP Process Review Flowchart**.

The Private Projects Review program is implemented according to **Figure 4.2**.

4.4.2. City CIP Projects

City CIP construction contracts administered by DDC, DFM, DTS, ENV, and HART, are governed by the "General Conditions of Construction Contracts of the City and County of Honolulu" and adhere to the City's policy relating to construction projects as authorized by the HRS, Chapter 103D, and HAR, Title 3, Department of Accounting and General Services. BMP requirements are included in the contract documents to ensure that selected contractors satisfy BMP implementation requirements. Consequently, the consultants and contractors who are awarded City projects must satisfy BMP requirements on behalf of the City.

The Public Projects Review program is implemented according to **Figure 4.3**.

For Category 1 through 5, City CIP projects plans, specifications, and ESCPs or Minimum Erosion and Sediment Control BMP Checklists submitted by the contractor are reviewed and accepted/approved, as applicable, by the department administering the project for conformance with the Erosion Rules and Standards and any applicable NPDES General Permit (e.g., for the discharge of storm water associated with construction activities, hydrotesting, and/ or dewatering effluent).

City CIP projects that are subject to City permits are submitted to DPP for review. DPP performs a review to verify that the Erosion Rules and Erosion Standards requirements are met. DDC, DFM-SWQ, DTS, ENV, and HART's process for reviewing and approving plans is shown in **Appendix D3: DPP Process Review Flowchart**.

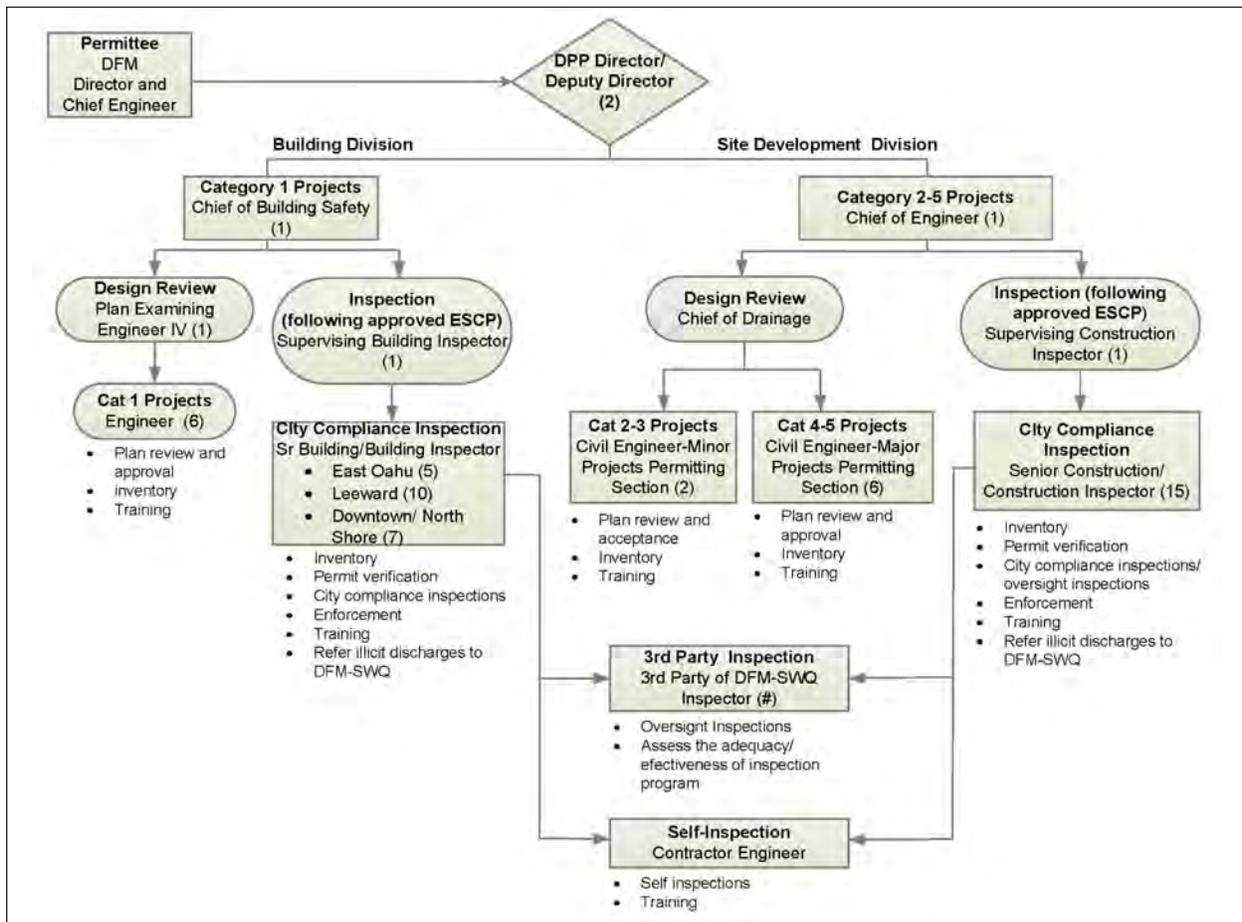


Figure 4.2: Private Projects Program - City Organization Chart

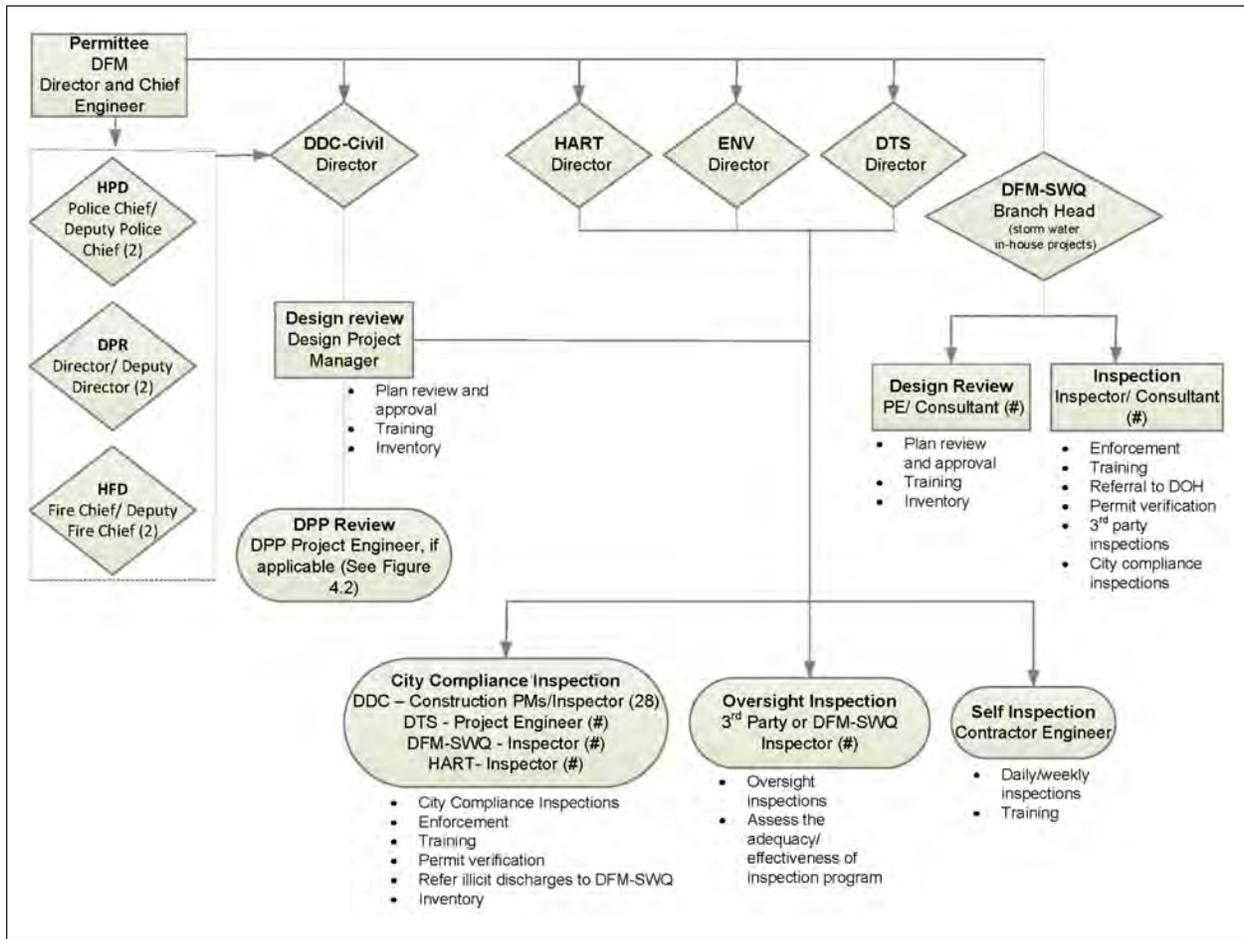


Figure 4.3: Public Projects Program - City Organization Chart

4.5. Permits Verification

Permit Reference Part D.1.d.(4)

The City does not allow construction to commence on any private or public project until all BMP requirements are satisfied. For private projects, DPP issues appropriate permits and the department administering the City CIP project issues a Notice to Proceed when all BMP requirements are satisfied.

The City uses the BMP checklists to verify that the following requirements have been met prior to issuing permits allowing ground disturbing activities to commence, as applicable:

- The project owner has received Notice of General Permit Coverage from the DOH for discharges associated with construction activities.
- The project owner has received Notice of General Permit Coverage from DOH for hydrotesting and/ or dewatering effluent or any other applicable NPDES permit program (i.e., individual NPDES permit).
- An ESCP Plan or Minimum Erosion and Sediment Control BMP Checklist have been reviewed and accepted/ approved by DPP.

4.6. Inspections

Permit Reference Part D.1.d.(5)

Construction site inspections are an integral part of the City's efforts to ensure that the discharge of pollutants from construction sites will be reduced to the MEP. The approach is based on a combination of contractor self-inspections, City compliance inspections, and third party oversight inspections described as follows.

4.6.1. City Compliance Inspection

For both private and City CIP construction projects, the City is responsible for the inspection and enforcement of grading ordinances and any grading permit conditions. Inspections for private projects are conducted by DPP, while inspections for City

CIP projects are conducted by DDC, and other City agencies, including DFM-SWQ, DTS, ENV, and HART or their representatives.

Construction inspections are performed in accordance with the requirements and guidance found in "Inspection Program and Enforcement Response Plan for Construction Sites," (ERP) <in progress> (see **Appendix D4**); Erosion Rules and Standards," <in progress> and "Storm Water Best Management Practice Manual, Construction" (November 2011). At a minimum, the City inspectors will review the following during construction inspections:

- Conformance with building/ grading permits and storm drain connection licenses (private projects), contract documents (CIP projects) and City ordinances.
- Conformance with NPDES permits applicable to the project (CIP projects).
- The contractor's self-inspection checklist to determine whether minimum self-inspections have been performed, including pre-construction inspection.
- Use of minimum BMP requirements to determine whether they are properly implemented and maintained on the construction site.
- The ESCP to determine whether the requirements of the plans are being implemented and maintained properly on the construction site.
- Whether the contractor is making appropriate adjustments when installed BMPs are ineffective or to remedy any additional site conditions that are potential sources of pollutants to the City's MS4.

City inspections for CIP projects are conducted weekly to monthly, depending on the level of construction activity and/ or the occurrence of significant events which may trigger the need for inspections. The City inspection frequency for private projects are shown in **Table 4.4**.

Table 4.4: Private Projects Construction Inspection Frequencies

Category	Private Sector Project
1 Exempt	Annually or once during the life of the project.
1 Non-Exempt	Monthly, or once during the life of the project, whichever comes first, or as-needed to ensure compliance with building permit and City ordinances.
2	Monthly, or as-needed to ensure compliance with grading permit and City ordinances.
3	Monthly, or as-needed to ensure compliance with grading permit and City ordinances.
4	Monthly, or as-needed to ensure compliance with grading permit and City ordinances.
5	Twice a month, or as-needed to ensure compliance with grading permit, ESCP, General Construction Activities Permit, and City ordinances.

When conducting City compliance construction inspections, the City inspectors will use the Construction Site BMP Checklist (see **Appendix D2**) to evaluate conformance with applicable documents, and to document deficiencies and corrective actions. If the construction site is not in compliance with the above requirements, the City inspectors will follow the procedures outline in the ERP (see **Appendix D4**).

4.6.2. Developer/ Contractor Self-Inspections

Construction site BMPs are usually temporary measures that require frequent maintenance to maintain their effectiveness and may require relocation and re-installation, particularly as the construction project progresses. Therefore, the contractor/ developer has the primary responsibility for inspections of Construction Site BMPs.

Prior to the commencement of ground-disturbing activities, except for activities associated with the installation of BMPs, the contractor/ developer must perform a pre-construction inspection. The purpose of the pre-construction inspection is to verify that construction BMPs have been installed correctly and in the correct locations in accordance with the approved ESCP or Minimum Erosion and Sediment Control BMP Checklist. The City will verify that a pre-construction inspection was completed by the developer/ contractor.

The City plans on revising its rules to require contractors/ developers to conduct weekly self-inspections on Category 1- Non-Exempt, 2, 3, 4

and 5 projects and Category 1-Exempt projects must be inspected monthly or once during the life of the project, whichever comes first. In addition, Category 5 projects that discharge to 303(d) list water must also conduct an inspection within 24 hours of rainfall event of a quarter inch (0.25”) or greater. Adjustments to the inspection frequency may be made depending on specific site conditions and stage of construction. The objectives of the self-inspections include: to ensure that BMPs are properly implemented and functioning effectively, and to identify maintenance or repair needs.

Once the Erosion Rules and Standards are adopted, the City will require Category 1 Non-Exempt, 2, 3, 4, and 5 projects to use a Construction Site BMP Checklist (or equivalent) to document the weekly inspections and monthly or once during the life of the project inspection(s) for Category 1 Exempt projects. The City will verify that weekly or monthly inspections are conducted during City compliance or third party inspections.

4.6.3. Oversight Inspection Program

Permit Reference Part D.1.d.(5).(iii)

The purpose of the oversight inspection is to assess the adequacy and effectiveness of the compliance inspection program implemented by DDC, DFM-SWQ, DTS, ENV, DPP-Site Development Division, and DPP-Building Division inspectors, and third party Construction Managers at ensuring compliance with the Permit. At a minimum the inspection will verify that BMPs were properly installed and at the locations specified in the ESCP

or Minimum Erosion and Sediment Control BMP Checklist.

For both private and City CIP projects, oversight inspections will be performed by an inspector who is independent (i.e., not involved in the day-to-day planning, design, or implementation) of the construction project to be inspected. All inspections will be documented using the City’s Oversight Inspection BMP Checklist (see **Appendix D5**).

Third Party Oversight Risk Ranking Process

Project selection for third party oversight inspections is determined by evaluating the risk of the project for discharging pollutants. The risk level is determined using the following criteria to evaluate Category 1 through 5 projects: 1) total disturbed area, 2) distance to watercourse, and 3)

slope. The City will use the process in **Table 4.5** to determine the overall risk of the project.

Low Risk Projects: Low risk project will be inspected at least once annually or once during the life of the project, whichever comes first.

Medium Risk Projects: Medium risk projects will receive quarterly oversight inspection throughout the construction process including the vertical phase of construction, until final completion of the project.

High Risk Oversight Projects: High risk project will receive oversight inspections throughout the construction process, including the vertical phase of construction, until final completion of the project. All high risk construction projects start with monthly inspections. The inspection

Table 4.5: Risk Ranking Process

Risk Criteria	Check Appropriate Box	Rating
1. Total Disturbed Area		
a. ≥ 1 acres	<input type="checkbox"/>	5
b. 7,500 square feet ≤ disturbed area < 1 acre	<input type="checkbox"/>	3
c. < 7,500 square feet	<input type="checkbox"/>	1
2. Distance to Watercourse		
a. ≤ 50 feet	<input type="checkbox"/>	3
b. 50 feet < distance to watercourse ≤ 100 feet	<input type="checkbox"/>	2
c. > 100 feet	<input type="checkbox"/>	1
3. Slope		
a. Length > 10 feet or Height > 5 feet; Slope Grade ≥ 3:1	<input type="checkbox"/>	5
b. Length > 10 feet or Height > 3 feet; 4:1 ≤ Slope Grade < 3:1	<input type="checkbox"/>	3
c. Slope Grade < 4:1	<input type="checkbox"/>	1
Total Rating		
Overall Rating		
7 or greater	High	Monthly
4-6	Medium	Quarterly
3	Low	Once annually or during the life of the project, whichever comes first

frequency may decrease to quarterly if there are no major or critical deficiencies and less than six (6) minor deficiencies with no more than three (3) occurring in one (1) month. The inspection frequency returns to monthly inspections if any quarterly inspection indicates at least one (1) major or critical deficiency, or three (3) or more minor deficiencies.

- **Minor:** Minor deficiencies mean those deficiencies that do not pose a threat for discharge of untreated storm water or pollutants to the MS4, surface waters, or State waters, but are not in strict conformance with an approved ESCP.
- **Major:** Major deficiencies are non-critical deficiencies that indicate a lack of good-faith efforts to comply with the requirements of these rules and those deficiencies that may reasonably be expected to result in the discharge of pollutants to the MS4 or state waters under rain conditions with a 10 year recurrence interval or less.
- **Critical:** Critical deficiencies are any BMP deficiencies that result in or pose an immediate threat of pollutant discharges to the MS4 or state waters. The City will also notify DOH of any critical deficiencies following the procedures outlined in the Inspection Program and Enforcement Response Plan, discussed in more detail in Section 4.7: Enforcement.

4.7. Enforcement

Permit Reference Part D.1.d.(6)

Enforcement of construction project requirements is undertaken by City inspectors and/ or other staff who possess enforcement authority through established policies and procedures. The City created an ERP to provide guidance and establish procedures for appropriate corrective and enforcement actions as well as follow-up inspections when a construction site is not in full compliance with the City's ordinance, permits and/ or standards (See **Appendix D4**).

There are several enforcement mechanisms and penalties to ensure compliance with local ordinances, building/ grading permits, and contract documents. When a project is in violation of permits or codes, inspectors have the authority to enforce respective permit conditions by issuing verbal warnings, written notices, or stop work orders. Additional administrative actions may be taken, including revoking the building/ grading permit or issuing fines. The levels of enforcement and associated penalties are typically issued at the discretion of the authorized officer with consideration of relevant circumstances regarding the violation.

Verbal Warnings: The initial method of requesting corrective action and enforcing compliance will be a verbal warning to the contractor/ developer. Verbal warnings are often sufficient to achieve correction of the violation, often while the inspector is present at the construction site.

Written Notices: If a deficiency that was noted in a prior verbal warning is not corrected by the next inspection, or the severity of the violation is such that a verbal warning is not strong enough, a written notice will be issued. For private projects, written notices may include a Notice of Non-Compliance and/ or Cease and Desist Order. For CIP projects, written notices may include a Notice of Non-Compliance Administrative Compliance Order, Administrative Citations or Fines, and/ or Cease and Desist Order.

Stop Work Orders: If a written notice is not addressed by the next inspection, the developer/ contractor has not complied with their permit requirements, or if a significant threat to water quality is observed, a stop work order will be issued. Stop work orders prohibit further construction activity until the problem is resolved. To restart work once a stop work order has been issued, the contractor's project supervisor must request the inspector to re-inspect the project and verify that the deficiencies have been satisfactorily corrected. If the inspector is satisfied with the corrections, the inspector may sign off on the corrections and work may proceed.

Revocation of Permit(s) (private projects only):

In severe cases of non-compliance or significant discharges, it may be necessary to revoke the grading and/ or building permit that a developer/ contractor is working under or withhold final approval. The developer/ contractor would then have to re-apply for permits and meet any requirements that the City may place on the project. The City may seek legal counsel before revoking permits.

Contract Enforcement Mechanisms (City CIP projects only): If written notices are insufficient, the provisions within the contract are used for enforcement of non-compliance. Language is included in the construction contract that gives the City inspector and/ or construction manager the right to enforce established policies. Contracts also allow enforcement procedures such as withholding payment(s), using contractor’s bonds, applying fines, stopping work (without time penalties) or terminating contracts if the contractor performing the construction activities does not comply with contract documents and local ordinances, and the NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activity (if required).

4.7.1. Private Projects

DPP inspectors will enforce compliance with the grading or building permit, and the NPDES

General Permit Authorizing Discharges of Storm Water Associated with Construction Activity (if required). Levels of enforcement actions are shown in **Figure 4.4**.

4.7.2. City CIP Projects

For City CIP Construction Projects, City inspectors and construction managers will enforce compliance with the contract documents and the NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activity (if required). Levels of enforcement are shown in **Figure 4.5**.

4.8. Process to Refer Noncompliance and Non-filers to DOH

Permit Reference Part D.1.d.(7)

The City follows the process for addressing non-compliance and non-filers as documented in the ERP.

In the event that the City exhausts all the above enforcement procedures and cannot bring the contractor’s or developer’s construction site or construction operations into compliance or otherwise deems the construction site to pose an immediate and significant threat to water quality, human or environmental health, the City will notify the DOH.

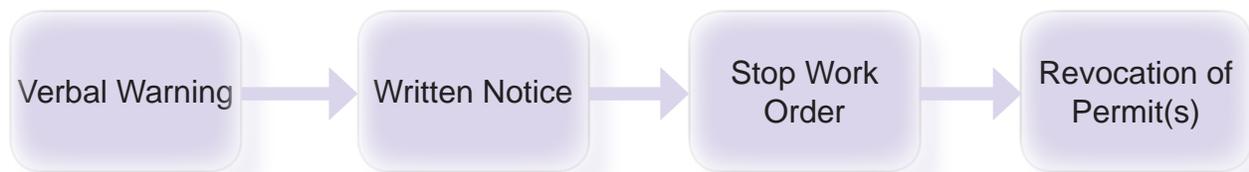


Figure 4.4: Enforcement Actions for Private Projects

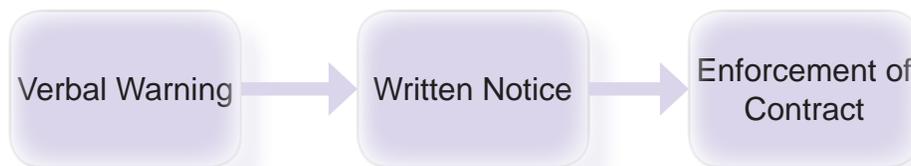


Figure 4.5: Enforcement Actions for CIP Projects

The City will provide verbal notification to the DOH within one (1) week if the aforementioned enforcement procedures cannot bring the contractor's or developer's construction site or construction operations into compliance. The City will follow a verbal notification with a written report and submit it to the DOH within two (2) weeks of the above determination. Written notification(s) will identify the type(s) of noncompliance, describe the actions necessary to achieve compliance, and include all inspection checklists (including notes and related correspondence).

If the City identifies a construction site that is subject to coverage under the NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activity which has not filed an NOI to the DOH to apply for coverage or any other applicable requirements of the Permit program, the City will provide written notification to the DOH within two (2) weeks of the discovery.

4.9. Education

Permit Reference Part D.1.d.(9)

The City continues to implement its education and outreach program for project applicants, contractors, developers, property owners, and other responsible parties as described in Chapter 2: Public Education and Outreach. Outreach materials include pamphlets, fact sheets, and workshops or lunch meetings for targeted groups including City consultants, the construction industry, and other large landowners or developers. All print materials are available online through the City's CleanWaterHonolulu.com website.

4.9.1. On-line Resource Library

The City developed materials to support the implementation of the above-described approach. They are briefly described as follows.

Storm Water BMP Manual, Construction (2011)

The "Storm Water Best Management Practice Manual, Construction" provides general guidance

for selecting and implementing BMPs that will eliminate or reduce the discharge of pollutants from construction sites. Construction projects must identify the BMPs that will be used on the site in either the ESCP or the Minimum BMP Checklist. The necessary BMPs for a construction project fluctuate based on the construction activities at the site and the phase of construction. It is expected that the ESCP will be revised multiple times over the life of the construction project. The manual is intended to provide general guidance and requires a design engineer to exercise professional judgement to BMP design and application.

Minimum Erosion and Sediment Control BMP Checklists

The Minimum Erosion and Sediment Control BMP Checklists were created to assist with and facilitate the preparation of ESCP and exempt Category 1 Projects are required to submit a copy of the checklist to DPP. The Checklists are in writeable Adobe Acrobat PDF file that guide the preparer through which BMPs must be included on the ESCP. Each Checklist includes a section for an owner's certification declaring that the specified BMPs will be implemented and maintained, and an architect/ engineer certification attesting to the accuracy and completeness of the document. A copy of the Minimum Erosion and Sediment Control BMP Checklists are available in **Appendix D1**.

5. POST-CONSTRUCTION STORM WATER
MANAGEMENT IN NEW DEVELOPMENT AND
REDEVELOPMENT



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5. Post-Construction Storm Water Management in New Development and Redevelopment



Storm water runoff from new development or redevelopment has been shown to significantly affect receiving water bodies. The Post-Construction Storm Water Management Program component defines requirements and provides guidance for the project specific planning, selection, and design of permanent BMPs to minimize pollutants in post-construction runoff and to minimize the amount of polluted runoff leaving the site.



New development and redevelopment projects (as defined below), that result in a land disturbance of one (1) acre or more and smaller projects that have the potential to discharge pollutants to the City's MS4, are subject to this program.

New development refers to land disturbing activities; structural development, including construction or the installation of a building or structure, the creation of impervious surfaces; and land subdivision.

Redevelopment means development that would create or add impervious surface area on an already developed site, including, but not limited to:



- Expansion of a building footprint.
- Addition to or replacement of a structure.
- Replacement of an impervious surface that is not part of a routine maintenance activity.
- Land disturbing activities related to structural or impervious surfaces.

The following sections outline the planning, design, construction, inspection, and long-term maintenance requirements for Permanent Post-Construction BMPs.



The Post-Construction Storm Water Management in New Development and Redevelopment program is implemented according to **Figure 5.1**.

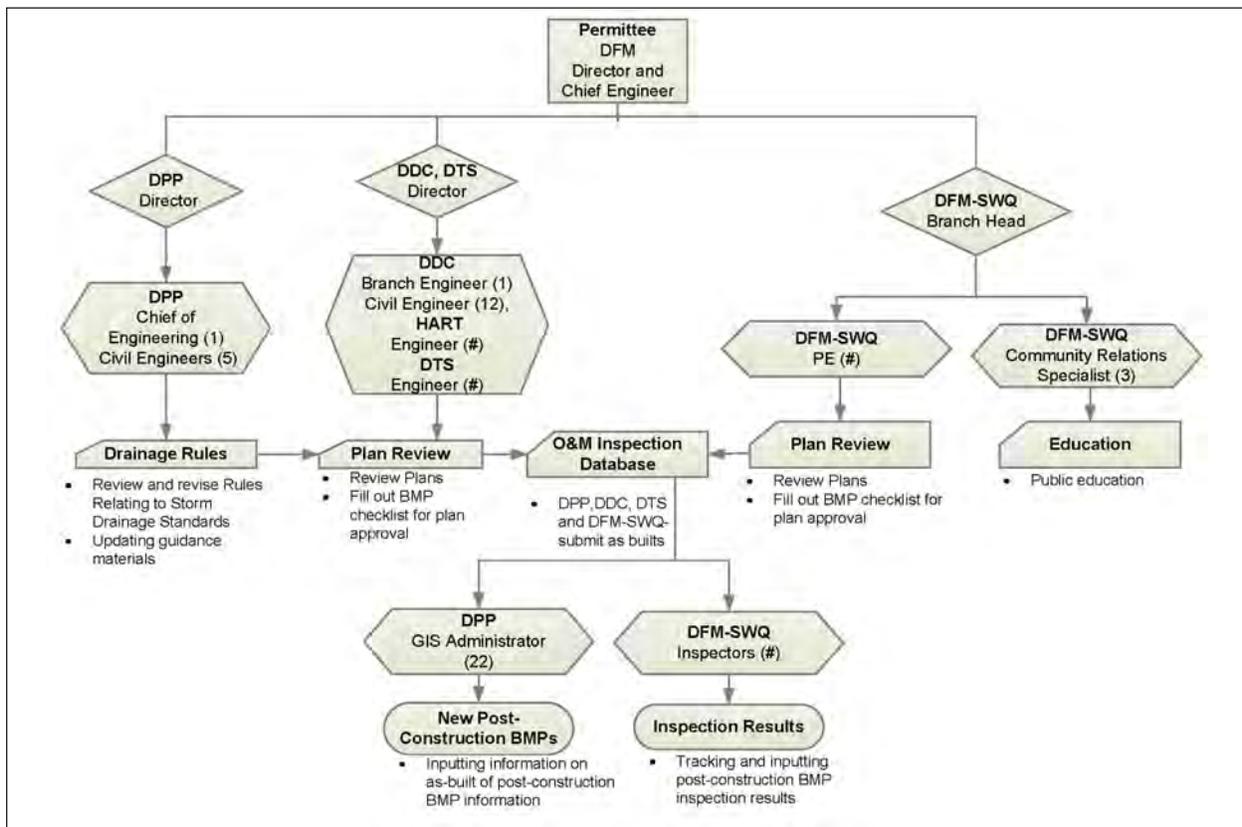


Figure 5.1: Post-Construction Storm Water Management in New Development and Redevelopment Program - City Department Organization Chart

5.1. Component Overview

Section 5.2: Standards Revision	<i>Part D.1.e.(1)</i>
<i>Objective(s): 1. To maintain an effective Construction Site Permit/ Plan Review Program. 2. To utilize LID.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking: <ul style="list-style-type: none"> Revisions made to the Drainage Rules and date of adoption. 	
<i>Referenced Document(s): 1. 2012 Rules Relating to Storm Drainage Standards (Appendix E1) 2. 2015 Draft Rules Relating to Storm Drainage Standards (Appendix E2)</i>	
Section 5.3: Review of Plans for Post-Construction BMPs	<i>Part D.1.e.(2)</i>
<i>Objective(s): 1. To maintain an effective Construction Site Permit/ Plan Review Program. 2. To utilize LID.</i>	
Responsible Dept: <input checked="" type="checkbox"/> DDC <input type="checkbox"/> DES <input type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking: <ul style="list-style-type: none"> Number of Water Quality Reports reviewed. Number of projects using LID Retention. Number of projects using LID biofiltration. Number of projects using other treatment. 	
<i>Referenced Document(s): BMP Checklist for Construction Site Approval (Appendix D2)</i>	

Section 5.4: BMPs, Operations and Maintenance, and Inspection Database	<i>Part D.1.e.(3)</i>
<i>Objective(s): To maintain an effective Post-Construction BMP Inspection and Enforcement Program.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Project name, description, location and general information, including: <ul style="list-style-type: none"> ▪ Project location ▪ Drain connection license ▪ Owner information ▪ TMK ▪ Parcel map number(s) and parcel number(s) ▪ Latitude/ Longitude coordinates ▪ Date of construction (if known) ▪ Frequency of inspections ▪ Date of last inspection ▪ Date of inspection ▪ Date of next scheduled inspection ▪ Photographs ▪ Comments and observations • Type and number newly and total Treatment Control BMPs installed. • Type and number newly and total Source Control BMPs installed. • Number of O&M inspections: <ul style="list-style-type: none"> ▪ Number of inspections with missing BMPs or non-functional BMPs. ▪ Number of inspections with missing O&M plans or inspection/ maintenance records. ▪ Number of inspections where BMPs were not properly maintained. ▪ Number of inspections that required a re-inspection. • Number of enforcement actions 	
<i>Referenced Document(s): Permanent BMP Inspection Report (Appendix E3)</i>	
Section 5.5: Education	<i>Part D.1.d.(4)</i>
<i>Objective(s): To increase LID utilization.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Number of documents downloads from storm water website. • Number of storm water website hits. • Number of CDs and hardcopies provided. 	
<i>Referenced Document(s): 1. SWQC Template for Priority A Projects (Appendix E4) 2. SWQC Template for Priority B Projects (Appendix E5)</i>	

5.2. Standard Revisions

Permit Reference Part D.1.e.(1)

New development and redevelopment projects that disturb one (1) acre or more of land or small projects that have the potential to discharge pollutants to the City MS4 and create water quality impacts will be required to address post-construction runoff using a comprehensive approach focusing on LID principles. LID is a storm water management strategy that seeks to maintain or restore the natural hydrologic character of a site, help reduce off-site runoff, improve water quality, provide groundwater recharge, and mitigate the impacts of increased runoff and storm water pollution. LID refers to a set of site design approaches and integrated management techniques that promote the use of natural systems for infiltration, evapotranspiration, and reuse of storm water.

5.2.1. Exempt Projects

The City may exempt certain types of projects from this program that pose a minimum risk of storm water pollution, such as:

- Routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility;
- Trenching and resurfacing associated with utility work;
- Resurfacing (without grading) and reconfiguring surface parking lots;
- New sidewalk construction, pedestrian ramps, or bike lane on existing roads;
- Replacement of damaged pavement; and
- Emergency construction activities required to immediately protect public health and safety.

Additional exemptions may be determined by the local building official (or equivalent municipal authority) and will be reported to the DOH with a justification for the designation.

5.2.2. Regulated Projects

For purposes of program implementation, new development and redevelopment projects that fall under DPP are shown in **Table 5.1**.

Table 5.1: New and Redevelopment Project Priority Categories

Priority	Description
A	All projects that disturb at least one (1) acre.
B	New development and redevelopment projects that disturb less than 1 acre of land and meet any of the following criteria: <ul style="list-style-type: none"> • Retail gasoline outlets with at least 10,000 square feet of total impervious surface area; • Automotive repair shops with at least 10,000 square feet of total impervious surface area; • Restaurants with at least 10,000 square feet of total impervious surface area; • Parking lots with at least 10,000 square feet of total impervious surface area or greater than 20 stalls; • Buildings greater than 100-feet tall; • Retail malls; or • Industrial parks with at least 5,000 square feet of total impervious surface area.

5.2.3. Rules Relating to Storm Drainage Standards

The City has established policies and procedures for drainage, flood mitigation, and pollution control under ROH §14-12.31, the “Rules Relating to Storm Drainage Standards,” (**Appendix E1**) went into effect in July 2013. At the time this SWMPP was developed the Rules were under revision. The Draft Drainage Rules were submitted to DOH on August 14, 2015 (**Appendix E2**) and the Final Rules will be submitted by August 16, 2016.

The Drainage Rules require Priority Projects to implement post-construction storm water BMPs including: LID site design measures, source control measures and LID-Retention BMPs, LID biofiltration, or other treatment BMPs when LID is infeasible.

The specifics of how the various management practices will be incorporated into a given project will be documented in a Storm Water Quality Checklist (SWQC). The City requires the SWQC to be submitted with grading permit applications, building permit applications, and construction plans. Definitions of post-construction storm water management practices are provided in **Table 5.2**.

Table 5.2: Post-Construction Storm Water Management Practices

Element	Description
LID Site Design	Reduces the hydrologic impact of development and incorporates techniques that maintain or restore the site’s hydrologic and hydraulic functions.
Source Control	Prevents pollutants from coming in contact with runoff and prevents polluted runoff from discharging into the MS4.
LID Retention	Retains runoff on-site with no off-site discharge by infiltration, evapotranspiration, and harvesting/reuse.
LID Biofiltration	Removes pollutants from runoff by filtering storm water through vegetation and soils.
Other Treatment	Removes pollutants from runoff by detention, settling, filtration, and vortex separation.

Water Quality Design Storm (WQDS)

LID retention, LID biofiltration, and other treatment BMPs must be designed to retain the WQDS. In the event that LID retention is infeasible, the project is required to retain as much of the water quality volume onsite and the remaining volume may be treated using LID biofiltration BMPs.

Priority Projects that can demonstrate that it is technically infeasible to retain and/ or biofilter the total WQDS onsite may use one of the following alternative compliance options:

- On-site treatment with other treatment

BMPs (if biofiltration BMPs are infeasible).

- Off-site mitigation with LID Retention BMPs.
- Off-site mitigation with biofiltration BMPs (if LID retention BMPs are infeasible).

5.3. Plan Review for Post-Construction BMPs

Permit Reference Part D.1.e.(2)

Projects under the City’s jurisdiction that meet the priority criteria are subject to review by the City for both temporary and permanent BMP implementation. To facilitate plan review for Post-Construction BMPs, the City uses a BMP Checklist for Construction Site Plan Approval (see **Appendix D2**) to ensure that the post-construction storm water quality management strategy presented in the SWQC is included in the plans. Compliance with operations and maintenance requirements is also documented on the checklist and the City will not issue a grading or building permit unless the applicant has satisfied all checklist requirements. The City will update the current BMP Checklist for Construction Site Plan Approval following the adoption of the revised Drainage Rules.

5.4. BMPs, Operation and Maintenance, and Inspection Database

Permit Reference Part D.1.e.(3)

Post-construction BMPs for public and private projects that discharge into the City’s MS4 will be tracked and managed in the City’s database and Geographic Information System (GIS). This electronic repository is used to record pertinent information from the Plan Reviewers Checklist, BMP Inspection Checklist, and construction as-built drawings. Typical information stored includes the following:

- Project name
- Project description
- Project location
- Owner information

- TMK
- Parcel map number(s) and parcel number(s)
- Drain connection license
- Type and number of Source Control BMPs
- Type and number of Treatment Control BMPs
- Type and number of LID practices
- Operation and Maintenance Requirements
- Latitude/ longitude coordinates
- Date of construction (if known)
- Frequency of inspections
- Date of last inspection
- Date of inspection
- Date of next scheduled inspection
- Photographs
- Comments and observations

5.4.1. *Post-Construction BMP Inspections*

Once built, post-construction BMPs must be properly maintained to make sure they are operating as designed and managing post-construction runoff as intended. Operations, maintenance, and inspection requirements are documented in an operation and maintenance plan that must be submitted as part of the SWQC. The City also requires a Certificate of Completion, signed by a licensed Professional Engineer, confirming that Source Control and Treatment Control BMPs have been installed in conformance with the approved construction plans prior to closing the building and/or grading permit. To ensure that post-construction BMPs are being operated and maintained in accordance with the project's approved operation and maintenance plan, they are inspected by City staff trained specifically for this task (see Section 8.4: Post-Construction Storm Water Management in New Development and Redevelopment Training Program). A Permanent BMP Inspection Report developed by the City will be used by the inspector to document the inspection and record the following: conditions in and around the BMP, whether or not maintenance is required, and

any other observations or remarks the inspector considers appropriate. The current Permanent BMP Inspection Report will be updated following adoption of the revised Drainage Rules (**See Appendix E3**).

5.4.2. *Enforcement*

When post-construction BMP inspections reveal improperly maintained BMPs, City officials will undertake appropriate enforcement actions. The levels of enforcement and associated penalties are typically issued at the discretion of the authorized officer with consideration of relevant circumstances regarding the violation. This may include verbal warnings and written deficiencies.

5.5. **Education**

Permit Reference Part D.1.e.(4)

Outreach material will continue to be developed to provide a better understanding of the permits and requirements involved with construction and post-construction storm water management. Flowcharts and checklists will be made available online at the City's CleanWaterHonolulu.com website and at City permitting offices. The education and outreach for City consultants, the construction industry, and property owners is described in the targeted audiences section of Chapter 2: Public Education and Outreach.

5.5.1. *On-line Resource Library*

The City developed materials to support the implementation of the above-described approach. They are briefly described as follows.

Storm Water BMP Manual, New Development and Redevelopment (2014)

The "Storm Water Best Management Practice Manual, New Development and Redevelopment" provides general guidance for selecting and implementing BMPs to reduce pollutants in runoff in newly developed areas and redeveloped areas. Addressing storm water quality provisions is most cost effective when done early in the

planning stages of a project as it reduces re-design to accommodate proper BMPs. The manual is intended to serve as a planning level document by providing guidance information on Storm Water Quality Planning and Site Assessment; Site and Facility Design for Water Quality Protection; Source Control BMPs; Treatment Control BMPs; and Long Term Maintenance of BMPs. The manual is based on the California Stormwater Quality Association (CASQA) New Development and Redevelopment BMP Handbook (2003), adapted for local conditions.

ease of use. Copies of the sizing worksheets must be attached to the SWQC.

Storm Water BMP Guide

The Storm Water BMP Guide serves as quick reference guide to facilitate implementation of the necessary storm water quality management measures during the planning and design of the project.

SWQC Templates

To assist with and facilitate the preparation of SWQC, the SWQC templates were revised by the City. The templates are a Microsoft Word® file that guides the preparer through the preparation of the document. The template includes a section for an owner's certification declaring that the specified provisions will be implemented and maintained, and an architect/ engineer certification attesting to the accuracy and completeness of the document. A copy of the SWQC template for Priority A projects is available in **Appendix E4** and the SWQC Template for Priority B Projects is in **Appendix E5**.

Treatment Control BMP Sizing Worksheets

BMP sizing worksheets are being revised to ensure that treatment control BMPs are sized in accordance with City standards, to eliminate computational errors, and to promote consistency. The worksheets are Microsoft Excel® spreadsheets, with color coded cells to indicate user-defined design parameters, system-defined design parameters, and system-calculated values. The calculations follow the steps outlined in the Treatment Control Storm Water BMP Guide for

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6. POLLUTION PREVENTION/ GOOD HOUSEKEEPING



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6. Pollution Prevention/ Good Housekeeping



The Pollution Prevention and Good Housekeeping Program addresses BMPs that minimize pollutants generated by municipal operation and maintenance activities. The program also addresses good housekeeping measures to adequately remove trash, debris and other pollutants that accumulate in the City’s MS4 and streets.

The program consists of the following subprograms:

- Debris Control BMPs Program
 - Storm water system inventory and mapping
 - Street sweeping
 - Litter servicing
 - Maintenance of structural controls
 - Maintenance of the storm drainage system
 - Retrofitting the MS4 with structural BMPs
 - Implementing a Trash Reduction Plan
- Chemical Applications BMPs Program
- Erosion Control BMPs Program
- Municipal Maintenance and Industrial Facilities BMPs Program

The Pollution Prevention/ Good Housekeeping Program is implemented according to **Figure 6.1**

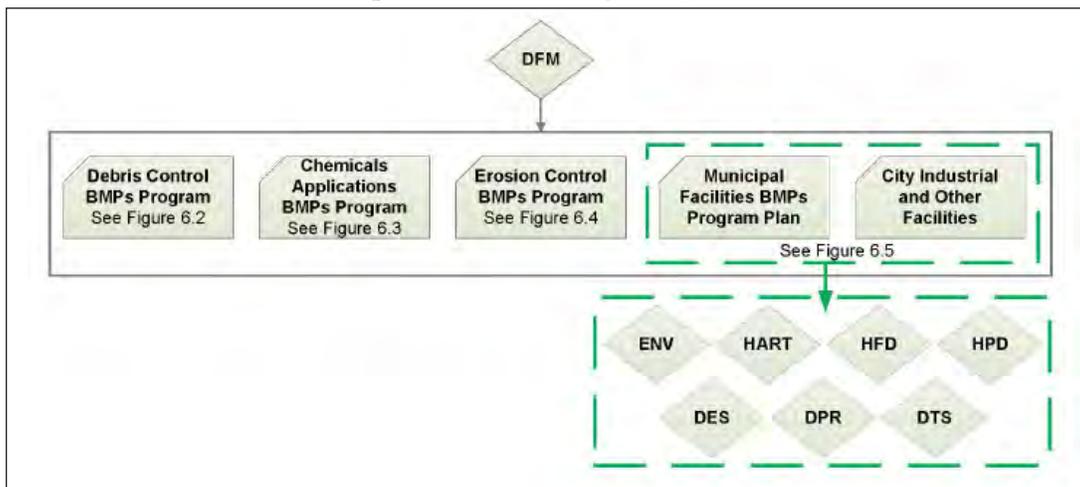


Figure 6.1: Pollution Prevention/ Good Housekeeping Program - City Department Organization Chart

6.1. Component Overview

Section 6.2: Debris Control BMPs Program	<i>Part D.1.f.(1)</i>
Section 6.2.1: Storm Water System Inventory and Mapping	<i>Part D.1.f.(1)(i)</i>
<i>Objective(s): To reduce debris and trash generated from entering the MS4.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Number of new features added to City’s GIS of MS4. • Number of total structures (give breakdown per structure type). 	
<i>Referenced Document(s): n/a</i>	
Section 6.2.2: Street Sweeping	<i>Part D.1.f.(1)(ii)</i>
<i>Objective(s): To reduce debris and trash generated from entering the MS4.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Number of curb miles swept: mechanical and manual (breakdown by district). 	
<i>Referenced Document(s): 1. Priority-Based Street Sweeping Maintenance Plan (Appendix F1) 2. Street Sweeping Pilot Study Plan (Appendix F2)</i>	
Section 6.2.3: Litter	<i>Part D.1.f.(1)(iii)</i>
<i>Objective(s): To reduce debris and trash generated from entering the MS4.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Number of roadways inspected and cleaned, broken down by area. • Number of container, Number of containers pickups, Number of quantity (bags) broken down by area. • Status of litter pick-up checklist. 	
<i>Referenced Document(s): n/a</i>	
Section 6.2.4: Maintenance of Structural Controls	<i>Part D.1.f.(1)(iv)</i>
<i>Objective(s): To reduce debris and trash generated from entering the MS4.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Boulder/ debris cleaning breakdown by district: Basin, Dates Cleaned, and Volume of Debris (cu yard). 	
<i>Referenced Document(s): Priority-Based Schedule for Inspecting/ Maintaining Structural Controls (Appendix F3)</i>	
Section 6.2.5: Maintenance of the Storm Drainage System	<i>Part D.1.f.(1)(v)</i>
<i>Objective(s): To reduce debris and trash generated from entering the MS4.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Number of inlets/ CBs and drain line (ft.) inspected - breakdown by district. • Number of inlets/ CBs and drain line (ft.) cleaned - breakdown by district. 	
<i>Referenced Document(s): Priority-Based Schedule for Inspecting/ Maintaining Storm Drainage Systems (Appendix F4)</i>	

<p>Section 6.2.6: Action Plan or Retrofitting the Existing MS4 with Structural BMPs <i>Part D.1.f.(1)(vi)</i></p> <p><i>Objective(s): To reduce debris and trash generated from entering the MS4.</i></p> <p>Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD</p> <p>BMPs, Monitoring, and Tracking:</p> <ul style="list-style-type: none"> Progress update on retrofit projects listed in the Action Plan and new retrofits added to City CIP. <p><i>Referenced Document(s): Action Plan for Retrofitting the Existing MS4 with Structural BMPs (Appendix F5)</i></p>
<p>Section 6.2.7: Trash Reduction Plan <i>Part D.1.f.(1)(vii)</i></p> <p><i>Objective(s): To reduce debris and trash generated from entering the MS4.</i></p> <p>Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD</p> <p>BMPs, Monitoring, and Tracking:</p> <ul style="list-style-type: none"> Progress of Baseline Load Study. <p><i>Referenced Document(s): Baseline Load Study (Appendix F6)</i></p>
<p>Section 6.3: Chemicals Applications BMPs Program <i>Part D.1.f.(2)</i></p> <p><i>Objective(s): To decrease potential for storm water impact from chemicals applications.</i></p> <p>Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD</p> <p>BMPs, Monitoring, and Tracking:</p> <ul style="list-style-type: none"> Number of employees trained annually. <p><i>Referenced Document(s): n/a</i></p>
<p>Section 6.4: Erosion Control BMPs Program <i>Part D.1.f.(3)</i></p>
<p>Section 6.4.1: Erosional Areas in SMWP <i>Part D.1.f.(3)(i)</i></p> <p><i>Objective(s): To decrease erosional areas within the City's right-of-way.</i></p> <p>Responsible Dept: <input checked="" type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD</p> <p>BMPs, Monitoring, and Tracking:</p> <ul style="list-style-type: none"> Erosion mitigation reports. Inventory of erosional areas and updated priority based schedule. <p><i>Referenced Document(s): 1. Prioritization Criteria and Scoring for Mitigation of Erosion Prone Areas (Appendix F7) 2. MOU between DOH, DPW, 1995 (Appendix A5)</i></p>
<p>Section 6.4.2: Temporary Erosion Control Measures <i>Part D.1.f.(3)(ii)</i></p> <p><i>Objective(s): To decrease erosional areas within the City's right-of-way.</i></p> <p>Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input checked="" type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD</p> <p>BMPs, Monitoring, and Tracking:</p> <ul style="list-style-type: none"> Installation schedule for temporary erosion control measures. <p><i>Referenced Document(s): n/a</i></p>
<p>Section 6.4.3: Maintenance for Plan for Vegetated Portions of the Drainage System used for Erosion and Sediment Control <i>Part D.1.f.(3)(iv)</i></p> <p><i>Objective(s): To decrease erosional areas within the City's right-of-way.</i></p> <p>Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD</p> <p>BMPs, Monitoring, and Tracking:</p> <p><i>Referenced Document(s): Maintenance Plan for Vegetated Portions of the Drainage Systems, 2011 (Appendix F8)</i></p>

Section 6.4.4: Program to Prevent Erosion at Storm Drain System Outlets	<i>Part D.1.f.(3)(v)</i>
<i>Objective(s): To decrease erosional areas within the City's right-of-way.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> Status on any updates. 	
<i>Referenced Document(s): n/a</i>	
Section 6.5: Municipal Facilities BMPs Program Plan	<i>Part D.1.f.(4)</i>
<i>Objective(s): To improve implementation of temporary of permanent BMPs among City municipal staff and facilities to reduce pollutants to the MS4.</i>	
Responsible Dept: <input checked="" type="checkbox"/> DDC <input checked="" type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input checked="" type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input checked="" type="checkbox"/> HFD <input checked="" type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> BMPs implemented for City maintenance activities. Training tracking described in Section 8: Training of the SWMPP. 	
<i>Referenced Document(s): n/a</i>	
Section 6.6: City Industrial and Other Facilities	<i>Part E.1.</i>
<i>Objective(s): To improve implementation of temporary or permanent BMPs among City municipal staff facilities to reduce pollutants to the MS4.</i>	
Responsible Dept: <input checked="" type="checkbox"/> DDC <input checked="" type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input checked="" type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input checked="" type="checkbox"/> HFD <input checked="" type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> Document number of SWPCPs updated in annual report. Document number of new facilities with implemented SWPCPs. Maintain database of SWPCP inspection reports. Take prompt action on recommendations for corrective action. Document new facilities added to the permit. 	
<i>Referenced Document(s): 1. Annual NPDES Facility Inspection Checklist (Appendix F9) 2. List of Municipal Industrial and Small MS4 Facilities Covered under this Permit (Table 1 and 2 of Appendix A1)</i>	

6.2. Debris Control BMPs Program

Permit Reference Part D.1.f.(1)

The Debris Control BMPs program is implemented according to **Figure 6.2**.

6.2.1. Storm Water System Inventory and Mapping

Permit Reference Part D.1.f.(1)(i)

As part of implementing an effective pollution control and prevention program, the City will continue to maintain a comprehensive inventory and map of its MS4 in a GIS database, the Honolulu Land Information System (HoLIS). The inventory includes structural and vegetative BMPs, City owned facilities and roads discharging to

the City MS4. The inventory serves as the basis for the inspection, maintenance, enforcement, and reporting programs, and assists the City in identifying procedures and strategies to reduce potential pollutant discharges to the storm drain system. **Table 6.1** provides a summary of total MS4 features in the GIS, not including roadways and other features.

Ongoing edits of GIS MS4 features and updates to data records occur as part of ongoing GIS data maintenance operations. The City updates, as needed, procedures for entering new storm water conduits and structures. DPP requires all approved private and proposed City right-of-way grading and construction plans to be submitted in a digital format. Once a connection is complete,

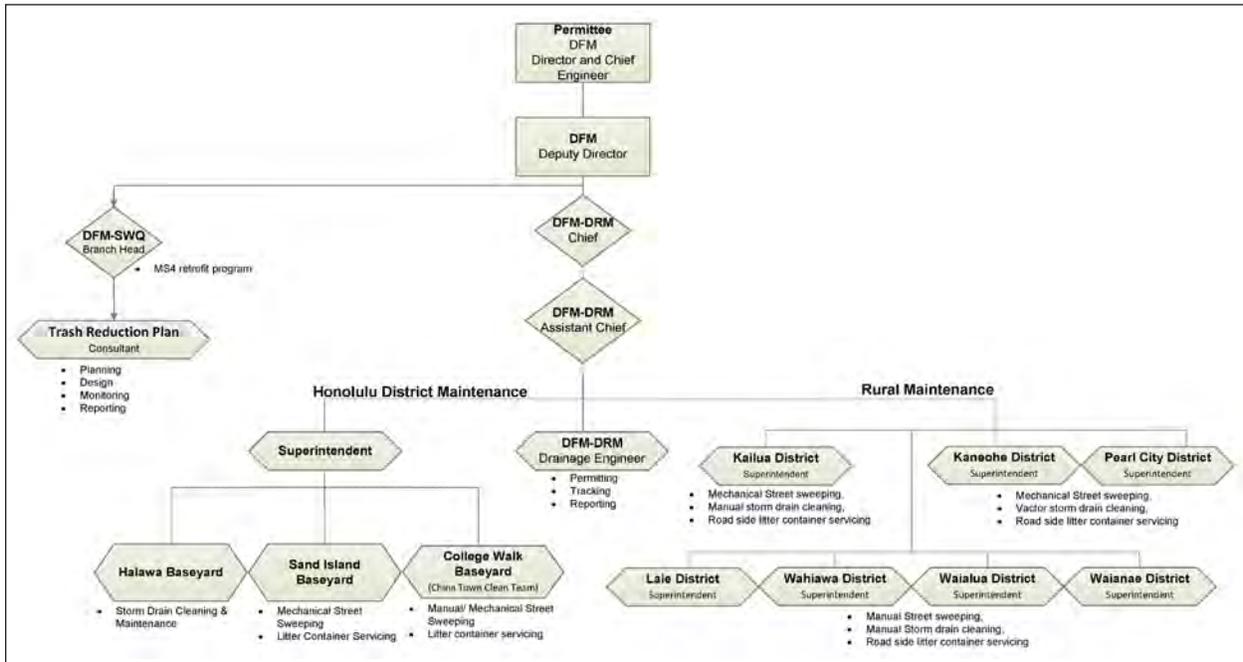


Figure 6.2: Debris Control BMPs Program - City Department Organization Chart

Table 6.1: Existing Structures in GIS

Structure Type	Total
Manholes	14,141
Catch Basins	27,509
Grated Inlets	3,147
Inlets/ Outlets	5,205
Total Structures	50,002
Miles Pipes/ Culverts (segments)	1,065
Outfalls (included in Inlet/Outlet total)	2,159
Detention Basins and Flow-Through Based Water Quality Controls	588

Source: FY15 Annual Report

previously submitted e-plans of the new storm water conveyances are incorporated into GIS. Once construction is complete, the digital plans are re-submitted with as-built changes and incorporated into HoLIS.

Field reporting of new structures or updates to the MS4 system discovered during City maintenance and inspection activities is ongoing and reports are

requested from the City Small MS4 and Industrial facilities personnel, DFM-SWQ Inspectors, DFM-Roads Division, and Storm Water Maintenance Crews. Collaboration with the State Department of Transportation, Highways Division (DOT-HWY) allows for the periodic exchange of GIS data for network connectivity.

6.2.2. Street Sweeping

Permit Reference Part D.1.f.(1)(ii)

As required in the Permit, the DFM performs regularly-scheduled street sweeping on major streets and in industrial, commercial, and residential areas. Currently, DFM maintains a regular street sweeping schedule for Halawa (Honolulu), Kailua, Kaneohe, and Pearl City (which includes Wahiawa) Districts as identified in **Table 6.2**. The Waianae, Waialua, and Laie Districts are currently swept manually. Street sweeping is also performed as part of WLA Implementation and Monitoring (I&M) plans in Total Maximum Daily Load (TMDL) watersheds, discussed in Chapter 9: Monitoring Requirements.

Table 6.2: Current Street Sweeping Schedule

Routes ¹	Route Curb Miles	Frequency ²		
		per week	per month	per year
Honolulu District				
Honolulu # 1 - <i>Downtown Chinatown</i> , Liliha, Kuakini	20	1		
Honolulu # 2 - <i>Downtown Chinatown</i> , Kalihi	15	1		
Honolulu # 3 - <i>Downtown Chinatown</i> , Salt Lake	16	1		
Honolulu # 4 - <i>Downtown Chinatown, McCully</i> , Salt Lake Tow Away	14	1		
Honolulu # 5 - <i>Downtown Chinatown, McCully</i> , Salt Lake Tow Away, Others	13	1		
Honolulu # 6 - Mapunapuna, <i>Waikiki</i> , Diamond Head	44	1		
Honolulu # 7 - Mapunapuna, <i>Waikiki</i> , Moanalua Valley, Foster Village	30	1		
Honolulu # 8 - Mapunapuna, Kapahulu	37	1		
Honolulu # 9 - Mapunapuna, <i>Kaimuki</i> , Diamond Head	34	1		
Honolulu # 10 - Mapunapuna, <i>Palolo</i>	31	1		
Honolulu # 11 - <i>Waikiki</i> , Portlock	32	1		
Honolulu # 12 - <i>Kapiolani, University / Dole</i> , Hawaii Kai	24	1		
Honolulu # 13 - Salt Lake, Hawaii Kai	28	1		
Honolulu # 14 - <i>Kaimuki</i> , Aina Haina, Niu Valley, Waialae Iki	22	1		
Honolulu # 15 - <i>Kapiolani, University / Dole</i> , Aina Haina	21	1		
Honolulu # 16 - <i>Manoa</i>	28	1		
Honolulu # 17 - <i>Makiki</i> , Tantalus	29	1		
Honolulu # 18 - Waialae to Kahala	22	1		
Honolulu # 19 - Diamond Head, Waialae to Kahala	32	1		
Honolulu # 20 - Upper Nuuanu, Pali	23	1		
Pearl City District				
Pearl City # 1 - Halawa	21.3			18
Pearl City # 2 - Pearl City / Newtown	21.0			18
Pearl City # 3 - Newtown / Royal Summit	21.3			18
Pearl City # 4 - Newtown / Pearl City	21.1			18
Pearl City # 5 - Waiau / Pearl City	21.0			18
Pearl City # 6 - Pearl City / Momilani	20.8			18
Pearl City # 7 - Palisades / Manana	20.6			18
Pearl City # 8 - Manana	21.3			18
Pearl City # 9 - Waipio	20.4			18
¹ Existing route maps are included as an Appendix to the Street Sweeping Pilot Study Plan in Appendix F2 . ² Frequencies shown are the maximum scheduled under ideal conditions and do not take into consideration City holidays, unexpected sick leave time off, or scheduled and unscheduled equipment maintenance. The reported frequencies may be further reduced pending inclement weather conditions, natural disasters, or may be altered to coincide with public events taking place on City streets. ³ Based on I&M plans, excluding Ala Wai which is included with Honolulu District. <i>Italicized routes are considered high priority routes.</i>				

Table 6.2: Current Street Sweeping Schedule (Continued)

Routes ¹	Route Curb Miles	Frequency ²		
		per week	per month	per year
Pearl City # 10 - Waipio	17.3			18
Pearl City # 11 - Waikele	20.5			18
Pearl City # 12 - Waipahu	20.6			18
Pearl City # 13 - Waipahu	20.3			18
Pearl City # 14 - Waipahu	19.3			18
Pearl City # 15 - Waipahu	18.2			18
Pearl City # 16 - Village Park	13.1			18
Pearl City # 17 - Village Park	20.2			18
Pearl City # 18 - Village Park / Royal Kunia / West Loch Estates	17.3			18
Pearl City # 19 - West Loch Fairways / Ewa	21.6			18
Pearl City # 20 - Ewa / Soda Creek	20.1			18
Pearl City # 21 - Ewa	14.0			18
Pearl City # 22 - Ewa Beach	19.4			18
Pearl City # 23 - Ewa Beach / Honokai Hale	16.1			18
Pearl City # 24 - Makakilo	18.7			18
Pearl City # 25 - Makakilo	18.0			18
Pearl City # 26 - Makakilo / Kapolei	19.1			18
Pearl City # 27 - Campbell Industrial Park	24.1			18
Kailua District				
Kailua # 1 - Kailua Business District / Coconut Grove	18.2		1	
Kailua # 2 - Waimanalo / Bluffs	18.1		1	
Kailua # 3 - Kaopa Subdivision / Kailua Road / Lanikai Bike Lane	20.2		1	
Kailua # 4 - Keolu Hills	21.1		1	
Kailua # 5 - Enchanted Lake	23.0		1	
Kailua # 6 - Lanikai / Aikahi / Kalaheo High School	15.2		1	
Kailua # 7 - Maunawili / Olomana / Pohakupu	22.4		1	
Kailua # 8 - Streets with Bike Lanes	15.0		1	
Kaneohe District				
Kaneohe # 1 - Haiku Village / Vicinity of Windward Mall	20.1		1	
Kaneohe # 4 - Ahuimanu	21.1		1	
¹ Existing route maps are included as an Appendix to the Street Sweeping Pilot Study Plan in Appendix F2 . ² Frequencies shown are the maximum scheduled under ideal conditions and do not take into consideration City holidays, unexpected sick leave time off, or scheduled and unscheduled equipment maintenance. The reported frequencies may be further reduced pending inclement weather conditions, natural disasters, or may be altered to coincide with public events taking place on City streets. ³ Based on I&M plans, excluding Ala Wai which is included with Honolulu District. <i>Italicized routes are considered high priority routes.</i>				

Table 6.2: Current Street Sweeping Schedule (Continued)

Routes ¹	Route Curb Miles	Frequency ²		
		per week	per month	per year
TMDLs³				
Kaneohe # 2A - TMDL - <i>Kaneohe (Kapunahala / Keapuka)</i>	18.4			6
Kaneohe # 2B - TMDL - <i>Kaneohe (Kapunahala / Keapuka)</i>	17.7			6
Kaneohe # 3 - <i>Kawa</i>	18.9			6
Kaneohe # 5 - TMDL - <i>Kaneohe (Puohala Village)</i>	15.5			6
Kailua # 9 - TMDL - <i>Waimanalo</i>	6.0			5
Kailua # 10 - TMDL - <i>Kapaa</i>	1.2			2
Wahiawa # 1 - TMDL - <i>Kaukonahua</i>	4.0			3
¹ Existing route maps are included as an Appendix to the Street Sweeping Pilot Study Plan in Appendix F2 . ² Frequencies shown are the maximum scheduled under ideal conditions and do not take into consideration City holidays, unexpected sick leave time off, or scheduled and unscheduled equipment maintenance. The reported frequencies may be further reduced pending inclement weather conditions, natural disasters, or may be altered to coincide with public events taking place on City streets. ³ Based on I&M plans, excluding Ala Wai which is included with Honolulu District. <i>Italicized routes are considered high priority routes.</i>				

During this permit period, the City plans to reevaluate existing street sweeping routes and frequencies to develop a priority-based schedule. Previous street sweeping studies by the City (FY98 and FY08) in the Salt Lake neighborhood determined that street sweeping is an effective tool in collecting debris and other medium to large sized particulates from the street. This BMP is preferable to structural or treatment BMPs that can be costly and/ or take up considerable space. The more obvious benefit is the collection and removal of trash, leaves, and other visible debris that collect in the gutters, which can block storm water facilities and can cause localized flooding during heavy rains.

The City will use this permit period to collect data related to material accumulation rates and route efficiency based on the current sweeping schedule. The data will then be evaluated to determine which routes and frequencies would be the most effective in terms of available resources and reducing pollutant loads to the MS4. The Priority Based Street Sweeping Maintenance Plan is included in **Appendix F1**.

The previously mentioned studies in Salt Lake showed that parking restrictions increase efficiency of street sweeping activities. The City will evaluate the possibility for parking restrictions along other street sweeping routes during this data collection phase. Updates will be provided in each Annual Report.

The City also plans to implement a street sweeping pilot study to quantify pollutant removal for Total Suspended Solids (TSS), Total Nitrogen (TN), and Total Phosphorus (TP) from its current street sweeping operations. The objective of the study is to develop a methodology to quantify pollutant removal that occurs as part of the City’s routine street sweeping operations. The City intends to measure the volume of material collected per route, analyze the material for nutrient content and particle size distribution, and convert the volume to mass of pollutant via EPA-published bulk density conversion factors. The data gathered will allow the City to scientifically determine the mass of sediments and nutrients that are removed by its street sweeping operations. The results will

assist in demonstrating the City’s compliance with TDMLs/ WLAs and provide baseline data for future planning purposes. The Street Sweeping Pilot Study Plan is included in **Appendix F2**.

6.2.3. Litter

Permit Reference D.1.f.(1)(iii)

In order to reduce the amount of litter and debris that could reach receiving waters, the City performs a regularly-scheduled roadside litter pickup program and services the trash containers located along major City-owned streets, sidewalks/ plazas in commercial areas, transit/ bus stops and at parks and recreational facilities.

6.2.3.1. Roadside Litter Pickup

Roadside litter and debris removal is performed, as needed, using available City resources. As a public service, this task is performed on unimproved roadways, where abutting property owners are not responsible for roadside maintenance. **Table 6.3** lists the number of roadways per district that are regularly inspected and cleaned, as needed, with available resources.

6.2.3.2. Litter Container Servicing

DFM currently maintains regularly-scheduled litter container service throughout Oahu (see **Table 6.3**). All litter containers are emptied at least weekly.

6.2.4. Maintenance of Structural Controls

Permit Reference D.1.f.(1)(iv)

Existing structural controls for the City’s MS4 include 23 debris/ boulder and retention/ detention basins as shown on **Table 6.4**. The City has developed a priority-based schedule for inspecting and maintaining these structural controls (see **Appendix F3**). The plan will be edited as necessary as structures are built or responsibility of maintenance changes.

Debris/ boulder and retention/ detention basins are inspected monthly and maintained or cleaned as necessary based on inspection results.

Table 6.3: DFM Litter Container Servicing

District	Roads	No. of Containers
Halawa (Honolulu)	7	686
Kailua	16	72
Kaneohe	6	98
Laie	7	50
Pearl City	18	210
Wahiawa	4	82
Waiialua	9	26
Waianae	22	44
Total	89	1,268

Source: FY14 Annual Report

Table 6.4: City Debris/ Boulder and Retention/ Detention Basins

District	Basins
Honolulu	1. 16th Avenue
	2. Hahaione (East)
	3. Hahaione (West)
	4. Kalani Iki
	5. Kamiloiki
	6. Kapakahi (Aina Koa)
	7. Kuliouou
	8. Manauwea Street
	9. Moanalua
	10. Niu Valley (East)
	11. Niu Valley (West)
	12. Nuhelewai (Aupuni)
	13. Waialae Nui (Kilauea)
	14. Wailupe
Pearl City	15. Aiea Stream
	16. Komo Mai Drive
	17. Waiawa
	18. Waimalu Stream
Waianae	19. Kaupuni K2
Laie	20. Paumalu Flood Control
Kaneohe	21. Hio Place
Kailua & Waimanalo	22. Kahawai Stream
	23. Kaopa Silt Basin

Detention/ retention basins are post-construction BMPs designed to temporarily detain or retain storm water flows to prevent downstream flooding, allow pollutants to settle out, and prevent sediment or other pollutants from entering the storm drainage system or receiving waters. Detention basins temporarily store excess storm water that is released through outlet structures. Retention basins do not have outlet structures and the water is stored until it infiltrates, evaporates, or is pumped out.

Debris/ boulder basins are flood control basins designed with a controlled storm water release structure, formed by constructing an embankment across a drainage channel. These basins retain large quantities of soil, rocks, boulders, trees, and trash that are moved by flood waters. Although historically viewed as flood/ debris control for public safety, these structures also protect water quality.

6.2.5. *Maintenance of Storm Drainage System*

Permit Reference Part D.1.f.(1)(v)

The City inspects and maintains the drainage system on a priority-based schedule, as presented in **Appendix F4**. The City will coordinate with DOH to determine areas that receive a high volume of public complaints, and will also research past inspections and cleanings to identify areas that require cleaning more frequently. These areas are marked as priority areas and a priority based schedule is established for inspecting and maintaining storm drain lines, manholes, and inlets/ catch basins (see **Appendix F4**). The City has over 50,000 storm drainage structures. Approximately 30,600 of those structures are inlets and catch basins. Each FY, the City will inspect or maintain 14,000 inlets and catch basins and 1/3 will be maintained or cleaned. All inlets and catch basins must be inspected at least once during the Permit term, with maintenance and cleaning activities counting towards this requirement. Those structures that require minimal maintenance after two (2) consecutive inspections are inspected on an as-needed basis for the remainder of the Permit term. At a minimum, 190,000 linear feet

of storm drain lines will be inspected per FY, and 1/3 of those lines will be maintained or cleaned. A new checklist for storm drain cleaning has been developed and implemented.

The results of the drainage system inspection and maintenance program will be analyzed along with the results of the street sweeping activities to assess the effectiveness of the program and to determine if modifications to priority areas and frequency of inspection are necessary. Inspections from the previous permit period will be analyzed to determine which areas had a high percentage of trash and debris filled drainage structures. The priority-based schedule will be updated as needed throughout the Permit period.

6.2.6. *Action Plan for Retrofitting the Existing MS4 with Structural BMPs*

Permit Reference Part D.1.f.(1)(vi)

The City will submit a revised “Action Plan for Retrofitting the Existing MS4 with Structural BMPs,” within two (2) years of the effective date of the Permit for inclusion in the SWMP. The plan will identify an island-wide inventory of planned retrofits, the basis of their selection, and a priority-based implementation schedule. The plan will be coordinated with other City CIP projects and programs including implementation of the Trash Reduction Plan and TMDL I&M plans.

In the interim, the City will continue to implement the “Action Plan for Retrofitting the Existing MS4 with structural BMPs,” submitted to DOH in June 2012 and included as **Appendix F5**. The City will continue to support the activities of the U.S. Army Corps of Engineers (USACE) for Wailupe Stream, Kuliouou Stream, and Niu Stream, pending federal funding as stated in the 2012 Action Plan. The City also evaluated the recommendations of the report “Storm Water Best Management Practices (BMP) Plan for Four Major Outlets and Kaelepulu Pond,” Kailua, Hawaii, November 2008 and the “Watershed Based Plan for Reduction of Non-point Source Pollution in Wailupe Stream Watershed,” June 2010. Updates for proposed retrofit projects are included in each Annual Report.

6.2.7. *Trash Reduction Plan*

Permit Reference Part D.1.f.(1)(vii)

The City’s Trash Reduction Plan consists of a comprehensive two-phased program to accurately assess trash issues and effectively reduce trash loads from the MS4, described as follows.

Trash Reduction Milestones	Completion Date
Phase 1: Short-term reduction - 50% of baseline load	FY2023
Phase 2: Long-term reduction - 100% of baseline load	FY2034

The first phase is the Short-Term Plan which seeks to reduce the Baseline Load by 50%. It begins with a Baseline Load Study (BLS), **Appendix F6**, to quantitatively determine the City’s trash baseline loads. Individual baseline loads will be developed by land use category, and then combined to create a single baseline load for the City. Through this study, the City will evaluate and quantify the baseline load by collecting and characterizing the trash. The data collected during the BLS will be used to determine the priority areas to target trash reduction efforts. Following the BLS, the City will implement trash reduction strategies to meet the short-term 50% baseline load reduction requirement.

The second phase is the Long-Term Plan which seeks to reduce the Baseline Load by 100%. It begins with a Long-Term Reduction I&M Strategy, which will specify how the City will achieve a 100% baseline load reduction. The strategy will be comprised of an Implementation Plan identifying specific activities and control measures to comply with the 100% baseline load reduction and a Monitoring Plan, describing the monitoring and tracking efforts necessary to assess the effectiveness of the control measures. The strategy will be based on an iterative and adaptive approach for identifying, planning, implementing, and assessing control measures over the compliance schedule.

6.3. Chemical Applications BMPs Program

Permit Reference Part D.1.f.(2)

The Chemical Applications BMPs program is implemented according to **Figure 6.3**.

The purpose of the Chemical Applications BMPs Program is to provide procedures to reduce pollutants associated with the application, storage, and disposal of pesticides, herbicides, and fertilizers in municipal areas, which will also

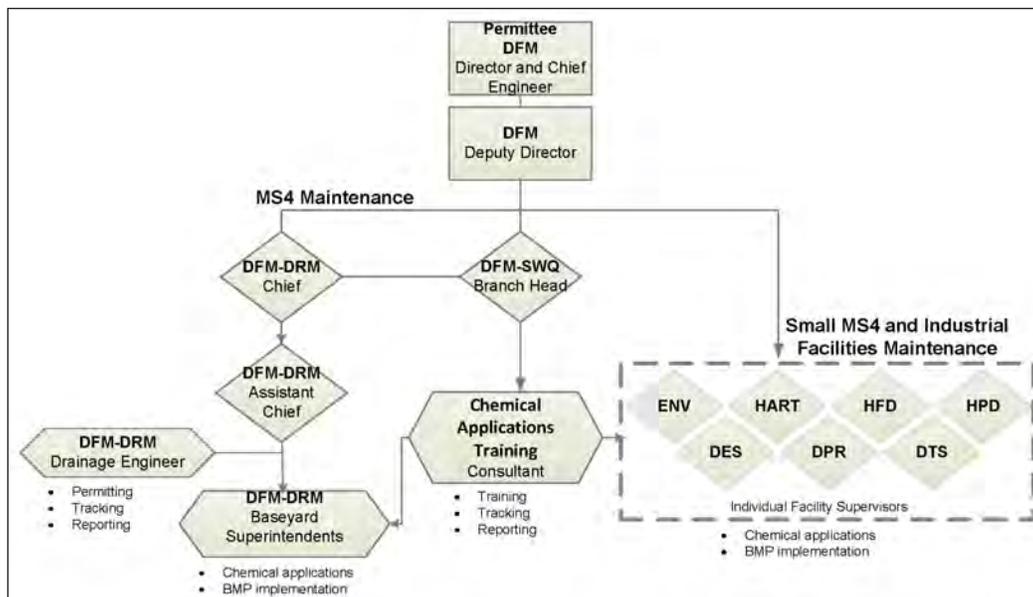


Figure 6.3: Chemical Applications BMPs Program - City Department Organization Chart

prevent these chemicals from entering the City's MS4. These municipal areas include municipal facilities, public rights-of-way, parks, recreational facilities, public golf courses, landscaped areas, and vegetated portions of the MS4.

6.3.1. Training

Permit Reference Part D.1.f.(2)(i)

Training courses provide City staff with a comprehensive review of proper application, storage and disposal of chemicals, and provide updates on the Permit and relevant requirements of the SWMPP. Training is discussed in Chapter 8.

6.3.2. Requirements for Pesticide and Fertilizer Applications

Permit Reference Part D.1.f.(2)(ii)

The Chemical Applications BMPs Program was developed to provide City staff and contractors responsible for the application, storage, and disposal of pesticides, herbicides, and fertilizer with general guidelines for the following:

- Educational requirements, permits, certifications, and other measures for chemical applicators and distributors
- Integrated pest management (IPM) measures that rely on non-chemical solutions
- Use of native vegetation
- Proper chemical application, as needed
- Collection and proper disposal of residual non-reusable pesticides, herbicides, and fertilizers (including empty containers)

All City staff, contractors, or employees of contractors will follow the instructions on the product label, and comply with the Federal and State requirements for all chemical applications. Additionally, all employees will be aware of safety data sheets (SDS) for each chemical they are using and will have these readily available. The City will also collect and dispose of all residual non-reusable pesticides and herbicides on an annual basis. In general, the City does not use fertilizers.

The City currently does not use 'restricted use' pesticides. However, should they be needed, restricted use pesticides will only be applied by or under the direct supervision of Certified Commercial Applicators, certified by the State of Hawaii, Department of Agriculture (HDOA). The certification requires the applicant to pass a written examination(s) and the certification is effective for five (5) years. The HDOA, Pesticides Branch arranges the test and can be contacted at (808) 973-9411.

Guidance Documents. Several City guidance documents include BMPs for proper chemical application for municipal facilities and activities. These include:

- The Municipal Field Guide, September 2011
- SWPCPs and Site-Specific BMP Plans (SSBMPs) for individual Municipal Small MS4 and Industrial Facilities and activities.

Integrated Pest Management. IPM is a strategy that focuses on the long-term prevention of pests and/ or the damage caused by pests through a combination of techniques and limited chemical application. The goal of IPM is not to eliminate all pests, but to keep their populations at tolerable levels. Pesticides may be part of an IPM program, but they should only be used after the pests exceed the established thresholds, and only applied in the affected area. In general, pest control strategies should be those that are least disruptive to biological control organisms (natural controls), least hazardous to humans and the environment (including non-target organisms), and have the best likelihood of long-term effectiveness. The City's IPM system focuses on the following components:

- Pest identification, prevention, and monitoring
- Establishing action thresholds
- Pest control tactics: cultural, mechanical, physical, and biological controls
- Use of native vegetation and climate appropriate plants to reduce water usage and fertilization.

- Proper pesticide application procedures
- Pesticide labels

6.4. Erosion Control BMPs Program Plan

Permit Reference Part D.1.f.(3)

The Erosion Control BMPs program is implemented according to **Figure 6.4.**

6.4.1. Addressing Erosional Areas in the SWMP

Permit Reference Part D.1.f.(3)(i)

The City’s Erosion Control BMPs Program Plan seeks to identify and compile an island-wide inventory of erosional areas with the potential for significant water quality impacts. The City has implemented a field reconnaissance program to systematically canvas the safely accessible areas island-wide, in order to identify erosional conditions. The City also coordinates among its various City Departments to identify other additional erosional areas that may not be identified from the field reconnaissance. With each identified erosional site, an erosion report will be generated

providing the following basic information: site identification, location, watershed, receiving State water, erosion description and photos. A jurisdictional responsibility determination will then be conducted to identify and separate the City owned or City jurisdiction properties from all other Non-City properties that are identified. The erosional reports involving City owned or City jurisdiction properties will be further expanded to include additional useful information to the City, including information on their receiving MS4, discussions regarding erosion mitigation, and updates to the reports. All reports will be compiled and entered into the City’s on-going erosional area database.

Erosional Areas within the City’s Right-of-Ways and Small MS4 Facilities. The City will develop an erosional area priority ranking system, based on factors such as the severity of erosion, proximity to receiving water, receiving water classification, watershed classification, and public safety concerns (see **Appendix F7**). Due to the diversity of the functions and site conditions of the various Small MS4 facilities, each Small MS4 facility will develop an individual priority ranking system

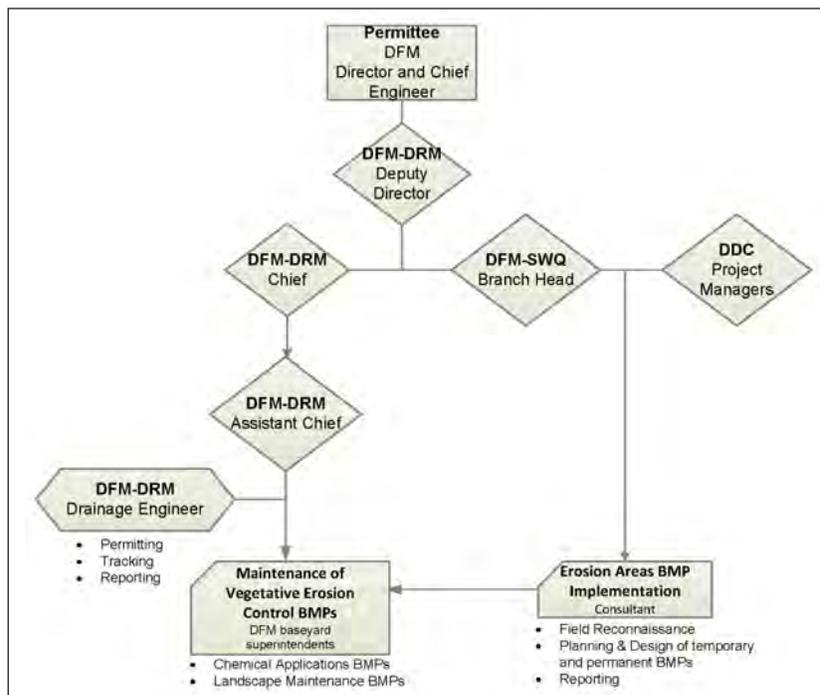


Figure 6.4: Erosion Control BMPs Program - City Department Organization Chart

suited specifically to meet its own erosional area remediation goals.

The City will compile an initial inventory of all the erosional areas that have been identified and establish a priority based remediation schedule, for submittal to DOH, by February 15, 2018. Erosional areas identified in this initial inventory will be remediated within the earliest possible time frame based on priority, with a final completion time no later than June 30, 2034. The remediation measures will involve planning studies, preparation of design documents, reports and environmental permits prior to installing and/ or constructing the recommended improvements. If permanent erosion control measures are not immediately possible, the City will implement temporary erosion control measures.

Besides the initial inventory, the City will continue its effort to identify new erosional areas. These newly identified erosional areas will be added onto the overall inventory and priority based remediation schedule. Remediation of these additional erosional areas will be completed within (5) five years of being identified.

Tracking Erosional Areas. The City will continue its internal tracking program that documents the collective efforts of the individual City Departments and programs to meet the objectives of the NPDES program. Through this tracking program, the City aims to promote awareness, collaboration and responsibility in addressing erosional areas, and to develop a comprehensive database to compile and track the progress of the City's collective erosion mitigation efforts. The database will include the City's project description and source, project location (latitude and longitude, TMK, and address, if applicable), City MS4 information (if applicable), receiving State water identification, watershed identification, erosion description and mitigation recommendation, project status and yearly updates for tracking and reporting purposes.

The status of projects will be updated annually. On an ongoing basis, the City will compile the new inventory of City-wide Operation and Maintenance

and CIP projects that address erosional area improvements and add this information to the database. Throughout the Permit term, the City will continue to improve on the various data sharing procedures and transfer of project information to promote greater continuity and efficiency of the overall tracking program, with the goal of a greater level of automation.

Erosional Areas within Non-City Properties.

The City will continue an ongoing program of enforcement and/ or public education and outreach to address erosional areas on Federal, State, or private property that may discharge polluted runoff into the City's MS4. The City will pursue enforcement against property owners that discharge polluted runoff into the City's MS4, including sediment from erodible areas. Illicit discharge caused by erosional areas which enters the State's MS4 will be reported to the DOT-HWY and/ or the DOH per the MOU between DOT and ENV and DFM, "Memorandum of Understanding between the Department of Health Environmental Management Division, State of Hawaii, and the Department of Public Works, City and County of Honolulu" (effective 1995) (**Appendix A5**).

Reviewing Erosion and Sediment Control BMPs for Construction Activities.

The Permit process (administered through the DPP) will include construction plan reviews to identify construction activities with the potential for significant water quality impact due to soil erosion and sedimentation. Construction activities identified to have a higher likelihood to cause significant water quality impacts will require the implementation of erosion and sediment control BMPs to eliminate or reduce these impacts.

6.4.2. Temporary Erosion Control Measures

Permit Reference Part D.1.f.(3)(ii)

The City will continue to implement temporary erosion control measures along newly identified erosional areas, within City right-of-ways and small City MS4 facilities, with the potential for significant water quality impact if a permanent solution is not immediately possible. Newly

identified erosional areas will be added to the inventory and priority based schedule within the same FY. A schedule for completion of the temporary erosion control measures will be included in the Annual Report. Refer to **Table 6.5** for a list of proposed temporary erosion and sediment BMPs. These temporary erosion and sediment BMPs are referenced to the City’s “Storm Water Best Management Practice Manual, Construction” dated November 2011.

6.4.3. Maintenance Plan for Vegetated Portions of Drainage System used for Erosion and Sediment Control.

Permit Reference Part D.1.f.(3)(iii)

The City continued to implement its “Maintenance Plan for Vegetated Portions of the Drainage System,” (2011). The plan is included as **Appendix F8**, and addresses proper maintenance for vegetated areas used as erosion and sediment control. This includes controlling excessive clearing/ removal, cutting of vegetation, and application of herbicides which may limit the effectiveness of the BMPs. The plan will be updated as needed throughout the Permit period.

6.4.4. Program to Prevent Erosion at Storm Drain System Outlets

Permit Reference Part D.1.f.(3)(iv)

The City has developed a program to prevent erosion at storm drain outlets by use of velocity dissipaters and other erosion control BMPs. The program is based on the following:

- Current records of known outlet erosional areas and outlets where sediment accumulates.
- Field verification inspections of these known areas.
- Field inspections of other areas of potential outlet erosional areas.
- Procedures to identify and implement erosion control projects in these priority areas.

Field verification inspections will be conducted to verify the erosional areas at storm drain outlets on the preliminary inventory. In addition to the information recorded above for erosional areas, the field verification inspections will include the following:

- Area of observed erosion at outlet

Table 6.5: Proposed Temporary Erosion and Sediment Control BMPs for Erosional Areas

Erosion Control BMPs		Sediment Control BMPs	
BMP #	BMP Name	BMP #	BMP Name
EC-0	Employee / Subcontractor Training	SE-1	Silt Fence
EC-1	Scheduling	SE-2	Sediment Basin
EC-2	Preservation of Existing Vegetation	SE-3	Sediment Trap
EC-3	Hydraulic Mulch	SE-4	Check Dams
EC-4	Hydroseeding	SE-5	Fiber Rolls
EC-5	Soil Binders	SE-6	Gravel Bag Berm
EC-8	Wood Mulching	SE-7	Street Sweeping and Vacuuming
EC-9	Earth Dikes and Drainage Swales	SE-8	Sandbag Barrier
EC-10	Velocity Dissipation Devices	SE-10	Storm Drain Inlet Protection
EC-11	Slope Drains	SE-11	Chemical Treatment
EC-12	Streambank Stabilization	SE-12	Locations of Potential Sources of Sediment
EC-14	Seeding, Planting, and Sodding	SE-13	Level Spreader
EC-15	Slope Roughening / Terracing	SE-14	Rip-Rap & Gabion Inflow Protection
EC-16	Topsoil Management	SE-15	Vegetated Buffer Strips and Channels

- Type of erosion observed
- Amount of sediment observed at outlet
- Percent and type of vegetative cover
- Existing erosion or sediment control measures, if any
- Detailed photographs

The above information will be documented on an Erosional Area Inspection Checklist.

Based on the field verification inspections, the City will identify and implement erosion control measures at storm drain outlets, as required.

6.5. Municipal Facilities BMPs Program Plan

Permit Reference Part D.1.f.(4)

The Municipal Facilities BMPs program is implemented according to **Figure 6.5**.

The City has 156 facilities that have been identified as Small MS4 or industrial municipal facilities (parks, recreational facilities, police and fire department facilities, vehicle and equipment maintenance facilities, maintenance base yards, refuse collection and disposal facilities, and wastewater treatment and pump facilities) and all of these facilities have been included in its Large MS4 individual permit to improve oversight, avoid duplication of resources, and improve the consistency of BMP activities and Permit compliance.

The DOH has acknowledged by letter the inclusion of the facilities following the submittals of:

- CWB NOI General Form, CWB NOI Form B and SWPCP for each Municipal Industrial facility
- CWB NOI General Form, CWB NOI Form K and SWMP for each Small MS4 facility

The City can request additional facilities be added to the Permit as necessary.

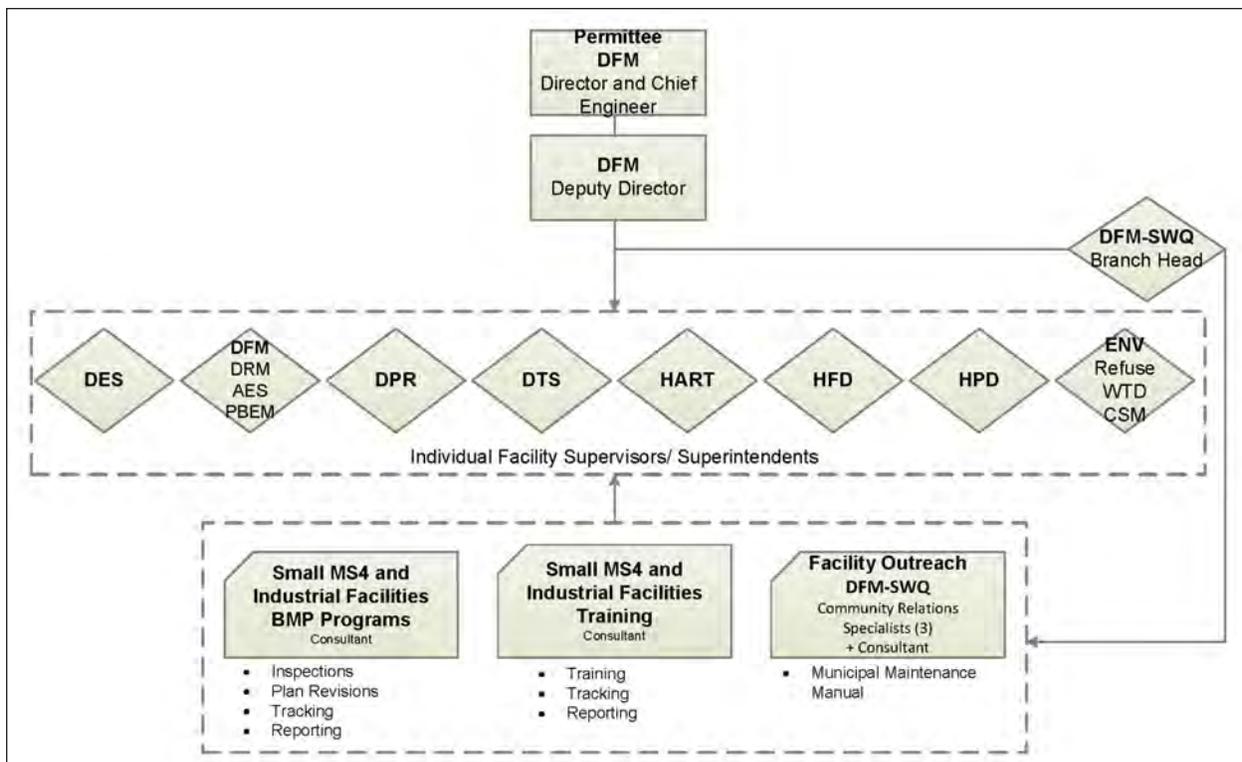


Figure 6.5: Municipal Facilities BMPs Program - City Department Organization Chart

The Municipal Facilities BMPs Program is centered on the operations and maintenance of all City owned facilities as related to storm water pollution prevention. This is largely managed by the development of City guidance documents that are specific for activities and facilities, and by providing proper training for City staff responsible for municipal maintenance activities that could possibly contribute pollutants to the City's MS4. The goal of the plan is to identify and reduce, to the MEP, pollutants potentially generated from municipal industrial activities and facilities. Training provides City facility personnel the information needed to do their part in protecting storm water at their facilities.

6.5.1. *BMPs and Field Manual for Municipal Maintenance Activities*

Permit Reference Part D.1.f.(4)(i)

A field manual with BMPs titled "Municipal Field Guide, First Edition," for municipal maintenance activities, has been in circulation since July 2008. The maintenance field manual is an employee handbook that provides direction, guidance, and procedures for all maintenance activities performed by City maintenance crew on city-owned property or right-of-ways, to reduce, to the MEP, pollutants from being discharged to storm drainage systems or receiving waters.

These guides were developed in a compact format to facilitate use by City staff while performing maintenance activities. It contains BMPs for the most common activities performed in the field which include:

- Pavement maintenance and cleaning
- Landscape maintenance
- Vehicle and equipment maintenance
- Drainage system and utility maintenance

The guide also includes activity checklists as well as helpful contact phone numbers. The manual will be updated once during the Permit term.

6.6. City Industrial and Other Facilities

6.6.1. *Compliance with HAR, Chapter 11-55, Appendix B*

Permit Reference Part E.1

City Municipal Industrial Facilities, including other City-owned and -operated facilities that are potential significant sources of pollution in storm water, will comply with the requirements of HAR, Chapter 11-55, Appendix B. These requirements include utilizing appropriate BMPs to prevent entrainment of potential pollutants in storm water, preparation of SWPCPs, annual inspections, and training of personnel in industrial facility BMPs and compliance.

6.6.2. *Storm Water Pollution Control Plans (SWPCPs)*

Permit Reference Part E.2

The City has developed SWPCPs for each of the City facilities identified as "industrial" under the Permit. These facilities are involved in vehicle or equipment maintenance, vehicle or equipment fueling, vehicle or equipment cleaning, chemical storage, corporation yards, bus facilities, recycling centers, closed landfills, and refuse transfer stations or convenience centers. Site-specific best management practice (SSBMP) Plans have been developed for each of the facilities not identified as industrial but identified as Small MS4 facilities (two [2] or more buildings and a drainage system). Annual inspections by DFM-SWQ are conducted for all municipal facilities with a SWPCP, and facilities with SSBMP Plans are inspected on a rotational basis such that each facility is inspected at least once every five (5) years. Copies of the SWPCPs or SSBMP Plans for each of these facilities are available at DFM-SWQ and maintained at each facility. If additional facilities are added to the inventory, SWPCPs or SSBMP Plans will be developed for those facilities.

Each SWPCP and SSBMP Plan includes a site description, site drainage information, a location map, and a facility site map, as well as sections that

include the proper handling/ application of fuel, paints, and chemicals to prevent spills or exposure to storm water per BMPs such as training and good housekeeping measures. The first step in the development of the SWPCP/ SSBMP Program was to identify facilities that are owned/ operated or owned/ leased by the City. Maintenance functions conducted at these identified facilities include the following:

- Vehicle or equipment maintenance or cleaning
- Vehicle or equipment fueling
- Chemical storage
- Closed landfills
- Refuse transfer stations, convenience centers, and recycling facilities
- Corporation yards
- Bus facilities

The SWPCPs includes the following main components:

- Facility information, including topography, storm water conveyance system and discharge locations, adjacent surface water bodies, etc.
- Facility maps showing all pertinent information
- Activities conducted at facility
- Pollutant source identification
- BMP and control measures
- Inspection requirements, including documentation and notification of discharge procedures
- Water quality sampling data, if required
- Training requirements and documentation

The City began a program to significantly revise the SWPCPs for municipally-owned industrial facilities in FY15. The revised SWPCPs will identify site-specific BMPs in an improved user-friendly format for facility personnel. The SWPCP or SSBMP for each facility contains applicable site-specific BMPs selected to reduce the discharge of pollutants to the Best Available Technology/

Best Conventional Pollutant Control Technology for municipal industrial facilities and to MEP for Small MS4 facilities. The BMP categories are presented in **Table 6.6**.

During the development of the Maintenance Field Manual, the City coordinated the following:

- Development of an inventory of the various facility maintenance activities performed by City personnel such as building and grounds maintenance, storage of hazardous materials and waste, outdoor storage of raw materials, vehicle/ equipment fueling, cleaning and maintenance, and structural/ treatment controls
- Meetings with appropriate City staff to fully determine the procedures involved in all facility activities
- Evaluations of BMPs developed by other municipalities and the EPA

To ensure that the requirements of the SWPCP are properly implemented and maintained, the City will conduct and document inspections of these facilities. The facility supervisor will conduct facility inspections on a monthly basis. SWQ will conduct facility inspections annually. The inspections will be documented on an “Annual NPDES Facility Inspection Checklist.” (See **Appendix F9**)

The City will implement procedures to ensure that the requirements of the SWPCP are properly implemented and maintained.

6.6.3. Coordination and Data Sharing between Municipal Facilities with SWPCPs

Permit Reference Part E.3.

Through its annual inspection program and monthly storm water working group meetings, the City will continue regular coordination and storm water quality data-sharing among DFM-SWQ, ENV Refuse Division, City wastewater treatment facilities and other facilities with SWPCPs and SSBMP Plans. DFM-SWQ maintains a database of inspection data available to facilities to review

Table 6.6: Proposed BMP Categories for City-Owned Industrial Facilities

BMP Category	Criterion
Housekeeping Practices	BMPs implemented to reduce the potential for the discharge of pollutants to the storm drainage system or receiving waters through adherence to good housekeeping practices which maintain a clean, safe, and orderly working environment.
Spill Prevention and Response Plan	BMPs implemented to reduce the potential for discharge of pollutants to the storm drainage system or receiving waters through spill prevention practices and response procedures in the event of a spill.
Building and Grounds Maintenance	BMPs implemented to reduce the potential for the discharge of pollutants associated with building and grounds maintenance, which may include painting as part of building maintenance and chemical application as part of grounds maintenance, from discharging to the storm water drainage system or receiving waters.
Material Storage	BMPs implemented for the proper management of materials to minimize contact of storm water and reduce the potential for discharging materials to the storm water drainage system or receiving waters.
Hazardous Waste Management	BMPs implemented for the proper management of hazardous waste to minimize contact of storm water and reduce the potential of hazardous materials for discharging to the storm water drainage system or receiving waters.
Vehicle and Equipment Fueling	BMPs implemented to minimize contact of storm water and reduce the potential for the discharge of vehicle fluids at fueling areas to the storm water drainage system or receiving waters.
Vehicle and Equipment Maintenance	BMPs implemented to reduce the potential for the discharge of pollutants to the storm water drainage system or receiving waters associated with vehicle and equipment cleaning, maintenance, and repair activities.
Structural or Treatment Controls	Maintenance requirements to ensure that the structural or treatment controls at the facility are properly implemented to reduce the potential for discharge of pollutants to the storm water drainage system or receiving waters.

and track their compliance. Monthly storm water program meetings involve all departments, and provide a forum for sharing lessons learned and storm water quality data between departments. DFM-SWQ is responsible for sampling and testing at the WWTPs and other City industrial facilities. See Chapter 9: Monitoring Requirements for a comprehensive description of monitoring.

Small MS4 facilities into the Permit by request in writing to the DOH. The SWPCP or SSBMP Plan for a facility added to the Permit will be implemented upon submittal of the written request.

6.6.4. Adding Facilities to the Permit

Permit Reference Part E.4.

There are 96 municipal industrial facilities (and 49 Small MS4 facilities) covered under the Permit (see **Table 1 and 2 of Appendix A1** for the List of Municipal Industrial and Small MS4 Facilities covered under this Permit). The City will add new or currently existing Municipal Industrial and/ or

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7. INDUSTRIAL AND COMMERCIAL ACTIVITIES DISCHARGE MANAGEMENT



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7. Industrial and Commercial Activities Discharge Management Program



The City implements an Industrial and Commercial Activities Discharge Management Program to reduce to the MEP the discharge of pollutants from private industrial and commercial facilities and their activities that discharge into the City’s MS4. This program is implemented according to **Figure 7.1**. Facilities categorized by standard industrial classification (SIC) codes as industrial, and commercial facilities that have the potential to discharge pollutants and impact storm water quality, are inspected on a rotational basis based on priority areas.



To date, the City has inventoried approximately 2,700 commercial and 400 industrial facilities operating on Oahu. The inspections are used to evaluate compliance with storm water laws and regulations and as outreach opportunities for privately owned facilities.

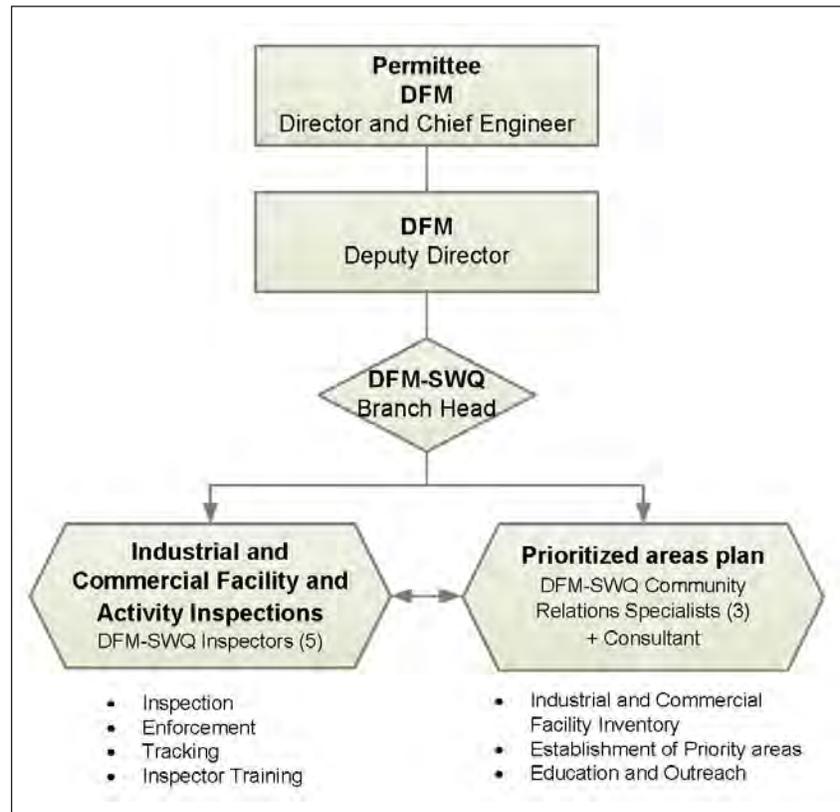


Figure 7.1: Industrial and Commercial Activities Discharge Management Program - City Department Organization Chart

7.1. Component Overview

Section 7.2: Requirements to Implement BMPs <i>Part D.1.g.(1)</i>	
<i>Objective(s): To improve implementation of temporary or permanent BMPs among industrial and commercial facilities to reduce pollutants to the MS4.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • <in progress> 	
<i>Referenced Document(s): Private Drain Connection License (Appendix C1)</i>	
Section 7.3: Inventory and Map of Industrial and Commercial Facilities Activities <i>Part D.1.g.(2) and (3)</i>	
<i>Objective(s): To maintain an effective Inspection and Enforcement Program.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Number of new industrial facilities in database. • Number of new commercial facilities in database. 	
<i>Referenced Document(s): n/a</i>	
Section 7.4: Prioritized Areas for Industrial and Commercial Facility and Activity Inspections <i>Part D.1.g.(4)</i>	
<i>Objective(s): To maintain an effective Inspection and Enforcement Program.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Priority areas for each FY. 	
<i>Referenced Document(s): Response Plan for Investigating Illicit Discharges (Appendix C3)</i>	
Section 7.5: Inspection of Industrial and Commercial Facilities and Activities <i>Part D.1.g.(5)</i>	
<i>Objective(s): To maintain an effective Inspection and Enforcement Program.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Number of industrial facility inspections. • Number of commercial facility inspections. • Number of those facilities that were in priority areas. • Number of those facilities that revisits. 	
<i>Referenced Document(s): Industrial and Commercial Inspection Report (Appendix G1)</i>	
Section 7.6: Enforcement Policy for Industrial Facilities and Activities <i>Part D.1.g.(6)</i>	
<i>Objective(s): To maintain an effective Inspection and Enforcement Program.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Number of LOW, NOV, and NOO issued. • Number of referrals to DOH. • Summary of deficiency reports. 	
<i>Referenced Document(s): Response Plan for Investigating Illicit Discharges (Appendix C3)</i>	

7.2. Requirement to Implement BMPs

Permit Reference Part D.1.g.(1)

The City implements educational outreach (described in Chapter 2: Public Education and Outreach) and enforcement policies (described in Chapter 3: Illicit Discharge Detection and Elimination) during facility inspections to reduce the discharge of pollutants associated with industrial and commercial facilities and activities to the MS4. While the goal of the inspections is to review the activities and BMPs of the businesses, the inspectors also perform the following tasks:

- Verify compliance with NPDES requirements and local ordinances.
- Assess potential impacts to receiving waters.
- Assess potential sources of pollutants to the City MS4.
- Identify necessary controls to prevent discharge of pollutants to the City MS4.

7.3. Inventory and Map of Industrial and Commercial Facilities and Activities

Permit Reference Part D.1.g.(2) and Part D.1.g.(3)

The City maintains a database inventory and maps of industrial and commercial facilities that discharge to the MS4. This inventory was developed with available information on parcel owners available from the City and the State; additional information collected during field activities; and through other readily available intra-agency informational databases, including an inventory of General and Individual NPDES permittees from the DOH. Establishment of complete inventories and mapping of industrial and commercial facilities is essential for an effective inspection and monitoring program due to the significant amounts of pollutants potentially contributed to the MS4 from these facilities. The industrial and commercial inventories consist of the data in **Table 7.1**.

The City will submit an updated inventory and map within the Annual Report for the FY prior to the

Table 7.1: Database Information

Industrial Facilities
<ul style="list-style-type: none"> • Priority area • Facility name • Street address, including TMK • Drain connection • Nature of business or activity • SIC code(s) • Principal storm water contact • Receiving state water • Activities discharging to MS4 • NPDES permit compliance information
Commercial Facilities
<ul style="list-style-type: none"> • Priority area • Facility name • Street address, including TMK • Drain connection • Nature of business or activity • SIC code(s) • Principal storm water contact • Receiving state water

expiration year of the Permit (also known as the Permit renewal application).

In FY17, the City will expand the inventory by sending a survey form to businesses that potentially discharge into the MS4.

At a minimum, the industrial inventory includes facilities and activities such as:

- Municipal landfills,
- Hazardous wastes recovery,
- Treatment, storage and disposal facilities,
- Facilities subject to Section 313 of the Emergency Planning and Community Right-to-Know-Act,
- Facilities subject to General Industrial Storm Water Permit coverage or any other applicable NPDES permit coverage, and
- Any other industrial facility that is contributing a substantial pollutant loading to the City’s MS4.

At a minimum, the commercial inventory includes facilities such as:

- Retail gasoline outlets,
- Retail automotive services (including repair facilities),
- Restaurants, and
- Other commercial facilities that may cause or contribute to an exceedance of State water quality standards.

7.4. Prioritized Areas for Industrial and Commercial Facility and Activity Inspections

Permit Reference Part D.1.g.(4)

The inventory provides a basis for the establishment of priority areas. The priority areas were selected based on:

- Number of industrial and commercial facilities in an area.
- Density of facilities.
- Previous inspections and storm water violations in the area.
- Receiving water is on the State’s CWA Section 303(d) list or in a TMDL.
- Facilities that do not return surveys.

If there are not enough facilities in the priority area to meet the minimum inspection requirements, inspectors may inspect facilities outside of the listed priority areas. The list of priority areas the City has scheduled for inspections from FY16 to FY20 are shown in **Table 7.2**.

The inspection priority may be changed as additional information becomes available and after the expansion of the inventory as previously described. Revisions to the proposed plan will be submitted to the DOH for approval. The inspection process is further discussed in the next section.

Table 7.2: Priority Areas from FY16 to FY20

Area	Date of Previous Inspection
FY16:	
Airport	FY96, FY12
Kapaa Industrial Park	FY12
Waipahu Industrial	FY01, FY12
FY17:	
Halawa (Iwaena Street)	FY04, FY13
Halawa Valley	FY03, FY13
Wahiawa Town	FY13
Waipahu Business	FY08, FY12
FY18:	
Campbell Industrial	FY05, FY13
Gentry Business Park	FY10, FY13
Kakaako	FY00, FY14
Mapunapuna	FY95, FY12, FY14
FY19:	
Ala Moana	FY02, FY14
Iwilei	FY97, FY15
Kailua Semi-Industrial Park	FY11, FY14
Kaneohe Industrial Area	FY07, FY14
FY20	
Aiea / Pearl City	FY08, FY15
Kalihi Kai	FY98, FY99, FY15
Pearl City Industrial	FY06, FY15

7.5. Inspection of Industrial and Commercial Facilities and Activities

Permit Reference Part D.1.g.(5)

The City conducts an annual field screening survey with a minimum of 300 industrial and 100 commercial inspections, performed in compliance with the “NPDES Compliance Inspection Manual” (EPA 305-X-04-001), dated July 2004. The goal of the survey is to review the activities and BMPs at each business. These inspections also serve as outreach opportunities and education materials are distributed during the site visit. The “Industrial and Commercial Inspection Report” has been attached as **Appendix G1**.

Within the established priority areas, the selection of target properties to inspect will be based on a priority-based ranking system. The ranking system will take into account the following criteria:

1. Business location has the potential to discharge to the City MS4.
2. Have an approved drain connection license from DPP.
3. Have received prior warnings or violations from DFM-SWQ.
4. Either have or have applied for a DOH NPDES permit for industrial storm water discharges.
5. The list of industrial facilities in Part 2 of the City's original NPDES application in 1992. This list includes all known connections to the MS4, gas stations, and Resource Conservation and Recovery Act of 1976 and Superfund Amendments and Reauthorization Act of 1986 facilities.
6. Targeted commercial facilities including retail gasoline outlets, retail automotive services including repair facilities and restaurants.
7. Inspected previously to reinforce educational efforts and reduce repeat offenders.
8. Any other commercial facility that the City or DOH determines is contributing pollutants to the City MS4 that may cause or contribute to an exceedance of State water quality standards.

The inspectors are trained to identify deficiencies, assess potential impacts to receiving waters, and evaluate the appropriateness and effectiveness of deployed BMPs and SWPCPs, if applicable. An inspection checklist and photographs are used to document site and BMP conditions. These inspections are consolidated in semi-annual inspection reports that are submitted to the DOH by October 31 and April 30 each year. Records of all inspections are maintained for a minimum of five (5) years.

7.6. Enforcement Policy for Industrial Facilities and Activities

Permit Reference Part D.1.g.(6)

The City's enforcement actions will comply with the requirements of the Permit. Enforcement procedures are discussed in Section 3.4 and in the "Response Plan for Investigations of Illicit Discharges" (**Appendix C3**). Inspectors generally do not take enforcement actions for minor deficiencies or incidents that are not directly observed by the City inspectors if the facility is willing to correct deficiencies. This encourages the facilities to allow inspection. However, the City may issue a LOW, NOV, or NOO with a fine, if deficiencies have not been corrected or if the facility has shown repeated violations during re-visits.

In the event that deficiencies are discovered during an inspection, the enforcement process is initiated with:

- Issuance of written documentation to a facility representative within two (2) weeks of storm water deficiencies identified during inspection. Documentation includes copies of all field notes, correspondence, photographs, and sampling results, if applicable.
- A timeline for correction of the deficiencies.
- Provisions for re-inspection and potential enforcement actions, if necessary.

If City sanctions have been exhausted and the facility or activity cannot be brought into compliance or is continuing to be a significant threat to water quality, the DOH will be notified, and compliance will be elevated to the State level. DOH is also notified when facilities are found that have not applied for a General Industrial Storm Water Permit or another applicable NPDES permit.

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8. TRAINING



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8. Training



Training provides the foundation for meeting the Permit requirements for all SWMP components. In-house employee training programs are established to teach City employees about storm water management, potential sources of contaminants, and BMPs. This program is implemented according to **Figure 8.1**

The City develops training programs to provide its employees with the knowledge and skills necessary to perform their duties effectively and efficiently while being mindful of the environment. The training is tailored for specific groups and personnel levels. Training will be evaluated and refined periodically based upon local issues, past program success and staff needs.

The following overarching goals of the training program are:

- Protect water quality by raising overall storm water pollution prevention awareness in City employees.
- Identify the roles and responsibilities of individuals at various levels of the City regarding the implementation of the SWMP in order to achieve compliance with the City’s Permit.

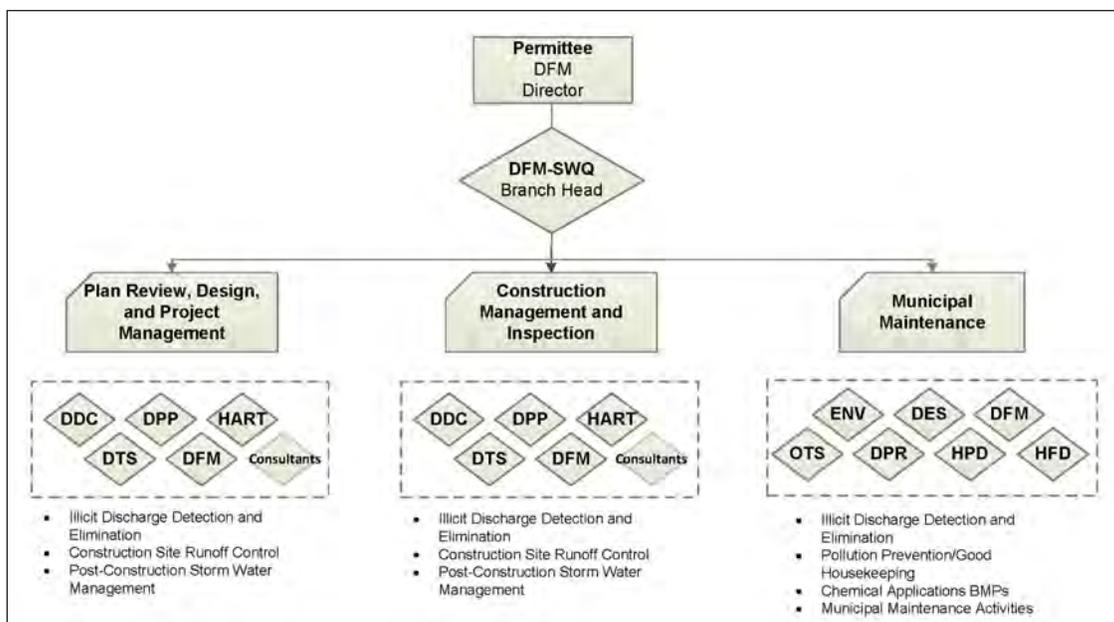


Figure 8.1: SWMPP Component Training Program - City Department Organization Chart

- Inform employees of activities and sources that could lead to storm water pollution and how to prevent these non-storm water discharges.
- Provide employees with a variety of storm water BMPs and how they should be implemented to eliminate or control activities and sources which could lead to non-storm water discharges.

The City will continue to provide annual training for all SWMP components to maintain employees' general awareness of Federal, State, and City storm water rules and regulations, the Permit, and relevant elements of the City's SWMPP. Additionally, tailored training courses will be developed for specific topics and groups within the City. Activities, pollutants, and personnel types will be prioritized as needed so that training efforts can be focused on reducing pollutants to the MEP. City employees are generally classified into three (3) areas of responsibility:

Plan Review, Design, and Project Management: Responsible for the development of BMPs through the project planning, design, and review phases for construction projects.

Construction Management and Inspection: Responsible for implementation of BMPs for projects during construction through completion.

Municipal Maintenance: Responsible for development and implementation of BMPs relating to the maintenance of City facilities.

Additionally, the City requires its consultants to complete the Construction Management and Inspection training program if they are selected for a Third-Party Construction Management contract.

Training is delivered via the following methods to accommodate levels of City resources and effectiveness.

Web-based training: The annual training program is provided and tracked via the City's internal training website: <https://honolulu.ecatts.com/>. Trainees take a quiz at the end of each module and

must achieve a minimum passing score in order to receive a certificate of completion. If they do not achieve a passing score, trainees are allowed to retake the course and quiz in order to achieve the minimum passing score and a certificate of completion. The training website also hosts a database of training materials from previous live training sessions as well as other supplemental materials.

DVD-based training: Many municipal maintenance City employees do not have regular computer access as part of their job. Training for these employees is converted to a DVD that can be played by a supervisor in a classroom setting or it can be viewed as a self-directed training for individual and/ or new employees. Trainees take a quiz at the end of each module of this training program. Supervisors review the quiz answers with their staff and discuss questions about the materials. Trainees complete the sign in sheet (validated by their supervisor) which certifies they have completed the training and are sent a certificate of completion.

Live training: Tailored training sessions are developed for targeted areas of responsibility and job requirements. The training sessions are formatted in a combination of webinar, classroom style, or on-site, depending on the number of trainees and the topics to be covered.

This section describes how the City will comply with the Permit requirements by providing pertinent information regarding storm water quality management to its employees involved in construction and municipal maintenance activities. The City will achieve compliance with the Permit requirements by implementing the Training Program described herein.

8.1. Component Overview

Section 8.2: Illicit Discharge Detection and Elimination Training Program <i>Part D.1.c.(9)</i>	
<i>Objective(s): To maintain an educated and trained City staff regarding illicit discharge detection and elimination.</i>	
Responsible Dept: <input checked="" type="checkbox"/> DDC <input checked="" type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input checked="" type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input checked="" type="checkbox"/> HFD <input checked="" type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking: <ul style="list-style-type: none"> • Quiz scores. • Number of individuals trained. 	
<i>Referenced Document(s): 1. Response Plan for Investigations of Illegal Discharges (Appendix C3) 2. Program to Prevent and Respond to Spills to the City MS4 (Appendix C4)</i>	
Section 8.3: Construction Site Runoff Control Training Program <i>Part D.1.d.(8)</i>	
<i>Objective(s): To maintain an educated trained City staff.</i>	
Responsible Dept: <input checked="" type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking: <ul style="list-style-type: none"> • Quiz scores. • Number of individuals trained. 	
<i>Referenced Document(s): n/a</i>	
Section 8.4: Post-Construction Storm Water Management in New Development and Redevelopment Training Program <i>Part D.1.e.(4)</i>	
<i>Objective(s): To maintain an educated trained City staff.</i>	
Responsible Dept: <input checked="" type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking: <ul style="list-style-type: none"> • Quiz scores. • Number of individuals trained. 	
<i>Referenced Document(s): n/a</i>	
Section 8.5.2: Chemical Applications BMPs Training Program <i>Part D.1.f.(2)(i)</i>	
<i>Objective(s): To maintain an educated trained City staff.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input checked="" type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input checked="" type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input checked="" type="checkbox"/> HFD <input checked="" type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking: <ul style="list-style-type: none"> • Quiz scores. • Number of individuals trained. 	
<i>Referenced Document(s): n/a</i>	
Section 8.5.3: Municipal Maintenance Activities Training Program <i>Part D.1.f.(4)(ii)</i>	
<i>Objective(s): To maintain an educated trained City staff.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input checked="" type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input checked="" type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input checked="" type="checkbox"/> HART <input checked="" type="checkbox"/> HFD <input checked="" type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking: <ul style="list-style-type: none"> • Quiz scores. • Number of individuals trained. 	
<i>Referenced Document(s): n/a</i>	
Section 8.6: Industrial and Commercial Activities Discharge Management Training Program <i>Part D.1.c.(8)</i>	
<i>Objective(s): To maintain an educated trained City inspection staff.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking: <ul style="list-style-type: none"> • Number of inspectors completing training 	
<i>Referenced Document(s): n/a</i>	

8.2. Illicit Discharge Detection and Elimination Training Program

Permit Reference Part D.1.c.(9)

The City’s policy and practice is to provide the necessary training so that employees have the knowledge and skills necessary to perform their function effectively and efficiently. This section describes the objectives for the Illicit Discharge Detection and Elimination Training Program. The City’s courses include a comprehensive overview of identifying and eliminating illicit connections, illegal discharges, and spills to the MS4, and to provide updates on the Permit and relevant requirements of the SWMPP.

8.2.1. Training Objectives

To meet the Permit requirements the following training objectives are identified as goals of the Illicit Discharge Detection and Elimination Program element:

- Create awareness of the negative impacts that illicit discharges and illegal connections have on the environment and the importance of reporting violations.
- Reduce the unauthorized and illegal discharge of pollutants to the City’s MS4 to the MEP.
- Maintain a training program for field staff who may observe illicit discharges and connections during the course of their duties.

8.2.2. Training Approach

The Illicit Discharge Detection and Elimination training program’s key focus is on recognizing signs of illicit discharges, illegal connections, and spills to the MS4. This awareness is not limited to employees whose role is to identify these violations. City employees work and live all over the island and it is everyone’s responsibility to protect our waters. Annual training on recognizing the signs of storm water pollution from illicit discharges is provided to all City employees and

City Construction Management Consultants that participate in the training program (see **Table 8.1**).

DFM-SWQ inspectors investigate reports of illicit discharges and illegal connections. The “Response Plan for Investigations of Illicit Discharges” (**Appendix C3**) and “Program to Prevent and Respond to Spills to the City MS4” dated <to be updated> (**Appendix C4**), provide guidance on various stages of addressing illicit connections, illegal discharges and spills to the MS4, and include appropriate notifications, coordination, containment, and clean-up. Training will be provided as needed for DFM-SWQ inspectors on investigation and response procedures (see **Table 8.1**).

8.2.3. Courses Offered

Illicit Discharges and Illegal Connections is a training module which provides an overview of the City’s illicit discharge and illegal connection program. The video covers definitions, detection, elimination, and reporting of illicit discharges and illegal connections.

Illicit Discharge Response and Elimination is a training course to provide DFM-SWQ inspectors with the procedures to properly implement the City’s “Response Plan for Investigations of Illicit Discharges” and “Program to Prevent and Respond to Spills to the City MS4.”

8.3. Construction Site Runoff Control Training Program

Permit Reference Part D.1.d.(8)

Training courses provide a comprehensive overview of construction storm water issues, raise awareness of problems and causes of storm water pollution from construction sites, provide updates on the Permit and relevant requirements of the SWMP, and outline best practices for various construction BMPs.

8.3.1. Training Objectives

To meet the Permit requirements the following training objectives are identified as goals of the

Table 8.1: Illicit Discharge Detection and Elimination Training Program

Topics Covered	Training Method	Frequency	*Target Audience	Effectiveness Measures
Illicit Discharge and Illegal Connections	Web-Based	Annual	Plan Review, Design, and Project Management, Construction Management and Inspection, Municipal Maintenance, Construction Management Consultants	Number of individuals trained, Quiz scores
	DVD-based	Annual	Municipal Maintenance	Number of individuals trained, Participant surveys and responses
Illicit Discharge Response and Elimination	Web-Based/ Live	To be determined	DFM-SWQ Branch	Number of individuals trained, Quiz scores

*City personnel unless specified

Construction Site Runoff Control Program element:

- City inspectors and construction managers will obtain a better understanding of the requirements and therefore are able to spread education of storm water pollution prevention throughout all levels of workers on their construction site.
- Plan reviewers will be able to effectively evaluate plans for construction site runoff control measures that will reduce to the MEP the discharge of pollutants from construction sites.
- Reduce the discharge of pollutants from both private and public construction sites to the MEP.
- Maintain a training program for staff who are responsible for plan review, inspections and enforcement.

8.3.2. Training Approach

If source and erosion and sediment controls are properly selected at the design phase, storm water pollution can be minimized with minimal change orders. The proper selection of BMPs is dependent on the knowledge and experience of the designer and the City plan reviewer. Training for design consultants will emphasize the high standard to which the City holds its designers to carefully

select appropriate storm water BMPs. Training on the construction BMP selection process and considerations is meant to provide City plan reviewers and project managers with adequate knowledge to evaluate the effectiveness of erosion control plans and storm water management plans, and identify any deficiencies so they can be addressed early in the process.

Once a project is in construction, it is ultimately the responsibility of the construction manager to verify proper installation and maintenance of the BMPs identified in the plans. It also calls upon their knowledge to identify potential problems if a BMP specified in the plans is inadequate. Training for designers through inspectors on recognizing issues early will reduce the number of storm water pollution violations.

For Construction Site Runoff Control, tailored training will focus on annual refresher requirements, the selection and inspection of BMPs, and storm water inspection compliance (see **Table 8.2**).

8.3.3. Courses Offered

Training for Designers or Plans Reviewers is a course which explains the sources of pollutants at construction sites, covers plan review and design considerations for temporary and permanent

Table 8.2: Construction Site Runoff Control Training Program

Topics Covered	Training Method	Frequency	*Target Audience	Effectiveness Measures
Construction Site Runoff Control Designer or Plan Reviewers	Web-Based	Annual	Plan Review, Design, and Project Management	Number of individuals trained, Quiz Scores
Construction Site Runoff Control Inspectors or Construction Managers	Web-Based	Annual	Construction Management and Inspection; Construction Management Consultants	Number of individuals trained, Quiz Scores
Construction Site Runoff Control Targeted Training Sessions	Web-Based, Classroom, Field	To be determined	Plan Review, Design, and Project Management; Construction Management and Inspection; Construction Management Consultants, Design Consultants	Number of individuals trained, Participant surveys and responses, Quiz Scores

*City personnel unless specified

BMPs typically deployed at construction sites, and provides an overview of the responsibilities of designers and plans reviewers for storm water management during and after construction.

Training for Inspectors or Construction Managers is a course which explains the sources of pollutants at construction sites, covers inspection considerations for temporary and permanent BMPs typically deployed at construction sites, and provides an overview of the responsibilities of construction managers and inspectors for storm water management during and after construction.

Targeted Training Sessions are training courses which will be developed to address priority topics and groups identified in the Annual Report’s effectiveness assessment. The training method will range from web-based for overview level material, to field training where training classes are held at active construction sites for hands on activities.

8.4. Post-Construction Storm Water Management in New Development and Redevelopment Training Program

Permit Reference Part D.1.e.(4)(ii)

The City provides training so that employees have the knowledge and skills necessary to perform

their functions effectively and efficiently. Training courses provide a comprehensive review of post-construction storm water BMPs, introduce LID practices, and provide updates on the Permit and relevant requirements of the SWMP.

8.4.1. Training Objectives

To meet the Permit requirements the following training objectives are identified as goals of the Post-Construction Storm Water Management in New Development and Redevelopment Program element:

- Provide adequate knowledge of construction and startup of typical permanent BMPs to inspectors and construction managers.
- Plan reviewers will be able to effectively evaluate if new development and redevelopment projects have adequate permanent BMPs.
- Implement permanent BMPs to help the City minimize water quality impacts to the MEP.
- Maintain a training program for staff who are responsible for plan review, inspections and enforcement.

8.4.2. Training Approach

The ultimate goal of the SWMP is to protect and, if possible, restore water quality. Implementing Post-Construction BMPs and LID designs will help to achieve this goal. The City’s plans reviewers receive training on elements to look for in a post-construction plan to verify that it will be effective in meeting water quantity and quality goals. Training for designers will also include typical BMP design and maintenance considerations because proper implementation and operation are needed to achieve the level of treatment the BMPs are designed for.

Inspectors and construction managers are trained on the construction or installation and start up activities associated with typical post-construction BMPs. They can help to find any deficiencies before the BMPs are turned over to the property owner.

For Post-Construction Storm Water Management, tailored training will focus on annual refresher requirements, and will also introduce new LID requirements for storm water management (see **Table 8.3**). In accordance with the Permit, LID management practices protect water quality via infiltration, evapotranspiration, and/ or storm water reuse.

8.4.3. Courses Offered

Training for Designers or Plans Reviewers is a course which covers planning and design considerations for the proper selection, design, installation, operation, and maintenance of post-construction BMPs. It also includes an introduction to LID storm water management practices.

Training for Inspectors or Construction Managers, Contractors is a course which covers installation, operation and maintenance, and inspection considerations for post-construction BMPs and LID storm water management practices.

Table 8.3: Post-Construction Storm Water Management in New Development and Redevelopment Training Program

Topics Covered	Training Method	Frequency	*Target Audience	Effectiveness Measures
Post-Construction Storm Water Management Designers or Plan Reviewers	Web-Based	Annual	Plan Review, Design, and Project Management	Number of individuals trained, Quiz scores
Post-Construction Storm Water Inspectors or Construction Managers	Web-Based	Annual	Construction Management and Inspection; Construction Management Consultants	Number of individuals trained, Quiz scores
Permanent BMP and LID Inspection and Maintenance	Web-Based/ Live	To be determined	DFM-SWQ Branch	Number of individuals trained, Quiz scores
Post-Construction Storm Water Management in New Development and Redevelopment Targeted Training Sessions	Web-Based, Classroom, Field	To be determined	Plan Review, Design, and Project Management; Construction Management and Inspection; Construction Management Consultants, Design Consultants	Number of individuals trained, Participant surveys and responses, Quiz Scores

*City personnel unless specified

Permanent BMP and LID Inspection and Maintenance is a training course to provide DFM-SWQ Inspectors with the procedures to conduct inspections and evaluate the need for maintenance of permanent BMPs and LID practices after construction.

Targeted Training Sessions are training courses which will be developed to address priority topics and groups identified in the Annual Report's effectiveness assessment. The training method will range from web-based for overview level material, to field training where training classes are held onsite for hands on activities.

8.5. Pollution Prevention/ Good Housekeeping Training Program

This section describes the objectives for the Pollution Prevention/ Good Housekeeping Training Program. The City's courses include a comprehensive overview of the City's maintenance programs, pollution prevention and control measures, and updates on the Permit and relevant requirements of the SWMP.

8.5.1. Training Objectives

To meet the Permit requirements the following training objectives are identified as goals of the Pollution Prevention/ Good Housekeeping Training Program element:

- Create a culture of proactive pollution prevention and good housekeeping within municipal maintenance departments.
- Reduce the discharge of pollutants from City-owned facilities, roads, parking lots, municipal waste facilities, and activities conducted, to the MEP.
- Maintain a training program for municipal maintenance staff whose primary construction, operations, or maintenance job functions may impact storm water quality.

8.5.2. Chemical Applications BMPs Training Program

Permit Reference Part D.1.f.(2)(i)

Training courses provide City staff with a comprehensive review of proper application, storage and disposal of chemicals, and provide updates on the Permit and relevant requirements of the SWMP.

8.5.2.1. Training Approach

For Pollution Prevention/ Good Housekeeping for Chemical Applications, tailored training will focus on annual refresher requirements, as well as best practices to prevent fertilizers, pesticides and other chemicals from entering surface waters (see **Table 8.4**).

8.5.2.2. Courses Offered

Municipal Maintenance Activities Pollution Prevention Chemical Applicators is a module which covers chemical use such as pesticides, fertilizers, and herbicides, including proper application, worker safety, storage, and disposal practices, as well as the implementation of IPM solutions.

Targeted Training Sessions are training courses which will be developed to address priority topics and groups identified in the Annual Report's effectiveness assessment. The training method will range from web-based for overview level material, to field training where training classes are held onsite for hands on activities.

8.5.3. Municipal Maintenance Activities Training Program

Permit Reference Part D.1.f.(4)(ii)

Training courses have been developed to provide a comprehensive overview and raise awareness of problems and causes of storm water pollution from municipal maintenance activities, and provide updates on the Permit and relevant requirements of the SWMP.

Table 8.4: Pollution Prevention/ Good Housekeeping for Chemical Applications Activities Training Program

Topics Covered	Training Method	Frequency	*Target Audience	Effectiveness Measures
Municipal Maintenance Activities Pollution Prevention Chemical Applicators	Web-Based, DVD-Based/ Classroom	Annual	Municipal Maintenance –Chemical Applicators	Number of individuals trained, Quiz scores
Chemical Applications: Targeted Training Sessions	Web-Based, Classroom, Field	To be determined	Municipal Maintenance, Contractor Chemical Applicators	Number of individuals trained, Participant surveys and responses, Quiz scores

*City personnel unless specified

8.5.3.1. Training Approach

City employees perform regular maintenance of City-owned facilities and equipment. These locations and activities are potential sources of storm water pollution. Even maintenance activities intended to prevent or remove pollutants from entering the MS4 pose a threat if proper care is not taken.

For Pollution Prevention/ Good Housekeeping for Municipal Maintenance activities, the tailored training focuses on annual refresher requirements, audit preparedness, and, for City facilities with SWPCPs, site-specific facility information relative to storm water controls (see **Table 8.5**).

8.5.3.2. Courses Offered

Municipal Maintenance Activities Pollution Prevention is a course which raises awareness of BMPs for good housekeeping, material storage, vehicle and equipment maintenance, vehicle and equipment fueling, grounds maintenance, and spill management.

SWPCP/ SSBMP Plan Training is a classroom training which reinforces BMPs included in the SWPCPs/ SSBMPs (for facilities to reduce, to the MEP, the potential for pollutant discharge to the City’s MS4 or receiving waters) and general and unique requirements contained therein.

Table 8.5: Pollution Prevention/ Good Housekeeping for Municipal Maintenance Activities Training Program

Topics Covered	Training Method	Frequency	*Target Audience	Effectiveness Measures
Municipal Maintenance Activities Pollution Prevention	Web-Based, DVD-Based/ Classroom	Annual	Municipal Maintenance Staff	Number of individuals trained, Quiz scores, Participant surveys and responses
SWPCP/ SSBMP Plan Annual Training	In-person, Classroom	Annual	Municipal Maintenance Staff	Number of individuals trained, Participants surveys and responses

*City personnel unless specified

8.6. Industrial and Commercial Activities Discharge Management Training Program

Permit Reference Part D.1.g.(7)

The City continues to provide annual training to staff on how to conduct industrial and commercial inspections, the types of facilities covered by the General Industrial Storm Water Permit (or any other applicable NPDES permit), elements in SWPCPs for industrial facilities, BMPs and source control measures for industrial and commercial facilities, and inspection and enforcement techniques.

8.6.1. Training Objectives

To meet the Permit requirements the following training objectives are identified as goals of the Industrial and Commercial Activities Discharge Management Program element:

- City inspectors will obtain a better understanding of the requirements and therefore are able to spread education of source control measures at industrial and commercial facilities.
- Reduce the discharge of pollutants from industrial and commercial facilities to the MEP.

- Maintain a training program for staff who are responsible for inspection and enforcement.

8.6.2. Training Approach

The City provides targeted training for staff who conducts inspections at private industrial and commercial facilities. Inspectors are required to attend initial illicit discharge detection and elimination training, as well as SWPCP training. Mandatory annual refresher training is also required. As part of the annual reporting process, training will be evaluated to assess its effectiveness. Evaluation methods may include participant feedback, test scores, and on-the-job assessments (see **Table 8.6**).

8.6.3. Courses Offered

Training for Inspectors of Industrial and Commercial Facilities is a course available online and as a DVD to City employees and its consultants. DVD training is given live in a classroom setting to employees who do not have access to the web-based training program. The course covers detection, elimination, and reporting of illicit discharges and illegal connections. Trainees take a quiz at the end of each module of

Table 8.6: Industrial and Commercial Activities Discharge Management Inspector Training Program

Topics Covered	Training Method	Frequency	*Target Audience	Effectiveness Measures
Illicit Discharge Detection and Elimination: Introduction and Overview	Web-Based	Annual	Inspectors of Industrial and Commercial Facilities	Quiz Scores
	DVD-Based, Classroom	Annual	Inspectors of Industrial and Commercial Facilities	Participant surveys and responses
Illicit Discharge Detection and Elimination: Annual Refresher	Web-Based	Annual	Inspectors of Industrial and Commercial Facilities	Quiz Scores
	DVD-Based, Classroom	Annual	Inspectors of Industrial and Commercial Facilities	Participant surveys and responses
SWPCP Inspections	In-person, Field	Annual	Inspectors of Industrial and Commercial Facilities	Participant surveys and responses

*City personnel unless specified

this training program, and must achieve a minimum passing score in order to receive a certificate of completion. If they do not achieve a passing score, trainees are allowed to retake the course and quiz in order to achieve the minimum passing score and a certificate of completion.

SWPCP Training is a classroom training which provides inspectors with general awareness of SWPCP requirements for industrial facilities.

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9. MONITORING REQUIREMENTS



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9. Monitoring Requirements



The overarching goal for the City’s monitoring program required under the Permit relates to both managing and assessing the effectiveness of the SWMP. The primary objective of the SWMP is to reduce pollutants discharged from the City’s MS4 to waters of the State to the MEP, and monitoring results can support management decisions made by the City to fine-tune the SWMP to meet its primary objective. Therefore, the purpose of the water quality monitoring program is both to meet the requirements of the Permit and address key management questions.



In addition, implementing an effective water quality based monitoring program can potentially serve several needs by documenting long-term conditions and identify trends in water quality. In many cases, monitoring for storm water management purposes is coordinated with other measurement programs. For example, monitoring data may be used to support the tracking and compliance with TMDL WLAs, as well as, program effectiveness as it relates to public outreach or BMP efficiencies such as street sweeping.

The monitoring program must be designed and implemented to meet the following objectives:



“Part F.1.a.(1) Assess compliance with this permit (including TMDL I&M Plans and compliance with Waste Load Allocations);

Part F.1.a.(2) Measure the effectiveness of the Permittee’s storm water management plan;

Part F.1.a.(3) Assess the overall health based on the chemical, physical, and biological impacts to receiving waters resulting from storm water discharges and an evaluation of the long term trends;

Part F.1.a.(4) Characterize storm water discharges from MS4;

Part F.1.a.(5) Identify sources of specific pollutants;

Part F.1.a.(6) Detect and eliminate illicit discharges and illegal connections to the MS4; and

Part F.1.a.(7) Assess the water quality issues in each watershed resulting from storm water discharges”



9.1. Component Overview

<p>Section 9.2: Annual Monitoring Plan <i>Part F.1.</i></p> <p><i>Objective(s): To utilize monitoring data to effectively implement the SWMPP and necessary changes.</i></p> <p>Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD</p> <p>BMPs, Monitoring, and Tracking:</p> <ul style="list-style-type: none"> n/a <p><i>Referenced Document(s): FY16 Annual Monitoring Plan (Appendix H1)</i></p>
<p>Section 9.3.1: WLA Implementation for Upper Kaukonahua Stream, Kaneohe Stream, Ala Wai Canal, Kapaa Stream, Kawa Stream, and Waimanalo Stream <i>Part F.3.</i></p> <p><i>Objective(s): To achieve mass pollutant load reductions as listed in the WLA I&M Plans.</i></p> <p>Responsible Dept: <input checked="" type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input checked="" type="checkbox"/> DPP <input type="checkbox"/> DPR <input checked="" type="checkbox"/> DTS <input checked="" type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD</p> <p>BMPs, Monitoring, and Tracking:</p> <ul style="list-style-type: none"> Quantification and analysis of street sweeping material. Activities tracking for sediment basin dredging. CSM pump station grounds maintenance. Maintenance of water quality improvement project sites. Stream cleaning. Storm drain maintenance. Public education and outreach. Volunteer clean-up events. Maintenance and inspection of permanent BMPs. <p><i>Referenced Document(s):</i> 1. I&M Plan for North Fork Kaukonahua Stream WLA (<i>Appendix H2</i>) 2. I&M Plan for Kaneohe Stream WLA (<i>Appendix H3</i>) 3. I&M Plan for Ala Wai Canal WLA (<i>Appendix H4</i>) 4. I&M Plan for Kapaa Stream WLA (<i>Appendix H5</i>) 5. I&M Plan for Kawa Stream WLA (<i>Appendix H6</i>) 6. I&M Plan for Waimanalo Stream WLA (<i>Appendix H7</i>)</p>
<p>Section 9.3.2: Other WLAs <i>Part F.4.</i></p> <p><i>Objective(s): Develop WLA I&M Plans as additional TMDLs are adopted by DOH and approved by EPA that identify the City as a source.</i></p> <p>Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD</p> <p>BMPs, Monitoring, and Tracking:</p> <ul style="list-style-type: none"> none <p><i>Referenced Document(s): FY16 Annual Monitoring Plan (Appendix H1)</i></p>
<p>Section 9.4: Relieving Water Quality Sampling</p> <p><i>Objective(s):</i> 1. To utilize monitoring data to effectively implement the SWMPP and necessary changes. 2. To achieve mass pollutant load reductions as listed in WLA I&M Plans.</p> <p>Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD</p> <p>BMPs, Monitoring, and Tracking:</p> <ul style="list-style-type: none"> Storm water quality monitoring. <p><i>Referenced Document(s):</i> 1. FY16 Annual Monitoring Plan (<i>Appendix H1</i>) 2. Water Quality (Event Mean Concentration) Monitoring Plans (<i>Appendix H8</i>)</p>

Section 9.5: Dry Weather Outfall Field Screening	
<i>Objective(s): To utilize monitoring data to effectively implement the SWMPP and necessary changes.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Number of inspections. • Number of dry weatherflows observed. • Description of discharge and source. 	
<i>Referenced Document(s): Field Screening Plan (Appendix C2)</i>	
Section 9.6: Watershed Water Quality Management Program	
<i>Objective(s): To utilize monitoring data to effectively implement the SWMPP and necessary changes.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Storm water quality monitoring. 	
<i>Referenced Document(s): FY16 Annual Monitoring Plan (Appendix H1)</i>	
Section 9.7: Bioassessment Monitoring Program	
<i>Objective(s): To utilize monitoring data to effectively implement the SWMPP and necessary changes.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Bioassessment data. 	
<i>Referenced Document(s): FY16 Annual Monitoring Plan (Appendix H1)</i>	
Section 9.8: Storm Water Associated with Industrial Activities <i>Part F.2.</i>	
<i>Objective(s): To implement the industrial facilities monitoring requirement.</i>	
Responsible Dept: <input type="checkbox"/> DDC <input type="checkbox"/> DES <input checked="" type="checkbox"/> DFM <input type="checkbox"/> DPP <input type="checkbox"/> DPR <input type="checkbox"/> DTS <input type="checkbox"/> ENV <input type="checkbox"/> HART <input type="checkbox"/> HFD <input type="checkbox"/> HPD	
BMPs, Monitoring, and Tracking:	
<ul style="list-style-type: none"> • Completion of the priority based monitoring schedule as a guide for sampling over the duration of the permit. • Completion of annual sampling as laid out in the monitoring schedule, and submittal of monitoring results on DMR forms. 	
<i>Referenced Document(s): NPDES Permit No. HI S000002, 2015 (Appendix A1)</i>	

9.2. Annual Monitoring Plan

Permit Reference Part F.1.

The City will continue to submit an Annual Monitoring Plan to the DOH for approval by June 1st of every year to be implemented over the following FY. The FY16 Annual Monitoring Plan is included as **Appendix H1**.

The annual monitoring plan includes a written narrative of the following items:

- Proposed monitoring plan's objectives and description of activities.
- Description of how the results will be used

to determine compliance with the Permit.

- Effectiveness and/ or ineffectiveness of management measures at reducing pollutants and flow.
- Documentation of the characteristics, parameters, and discharge volumes being monitored.
- Documentation of the analytical methods to be used.
- Documentation of the Quality Assurance/ Quality Control procedures to be used.
- Estimated budget to be implemented over the coming FY.

The overall monitoring plan is composed of several different monitoring elements, as listed below:

- TMDL WLA Monitoring Program
- Receiving and MS4 Water Quality Monitoring Program
- Dry and Wet Weather Outfall Field Screening Program
- Watershed Water Quality Management Program
- Bioassessment Monitoring Program
- City MS4 Industrial Facilities Monitoring Program
- Program Effectiveness Assessment Program (PEAP), which is described in Chapter 10

Each of these programs was designed to either meet the requirements of the Permit/ SWMP or to track and report the City’s activities as it relates to the TMDL program. Below is a graphical flow chart that identifies how each program element relates to

the City’s permit. Many of the program elements are directly tied into the SWMP effectiveness program while others such as the Bioassessment and Watershed Management Programs are a holistic long term approach to determining if the City’s MS4 program has had any positive water quality impacts on the receiving waters.

Program Effectiveness for SWMP activities is described in Chapter 10. They are tied to the monitoring program as depicted in **Figure 9.1**.

9.3. Total Maximum Daily Load Waste Load Allocation Monitoring Program

9.3.1. WLA Implementation for Upper Kaukonahua Stream, Kaneohe Stream, Ala Wai Canal, Kapaa Stream, Kawa Stream, and Waimanalo Stream

Permit Reference Part F.3.

TMDLs are established to achieve and maintain water quality standards. The DOH has developed

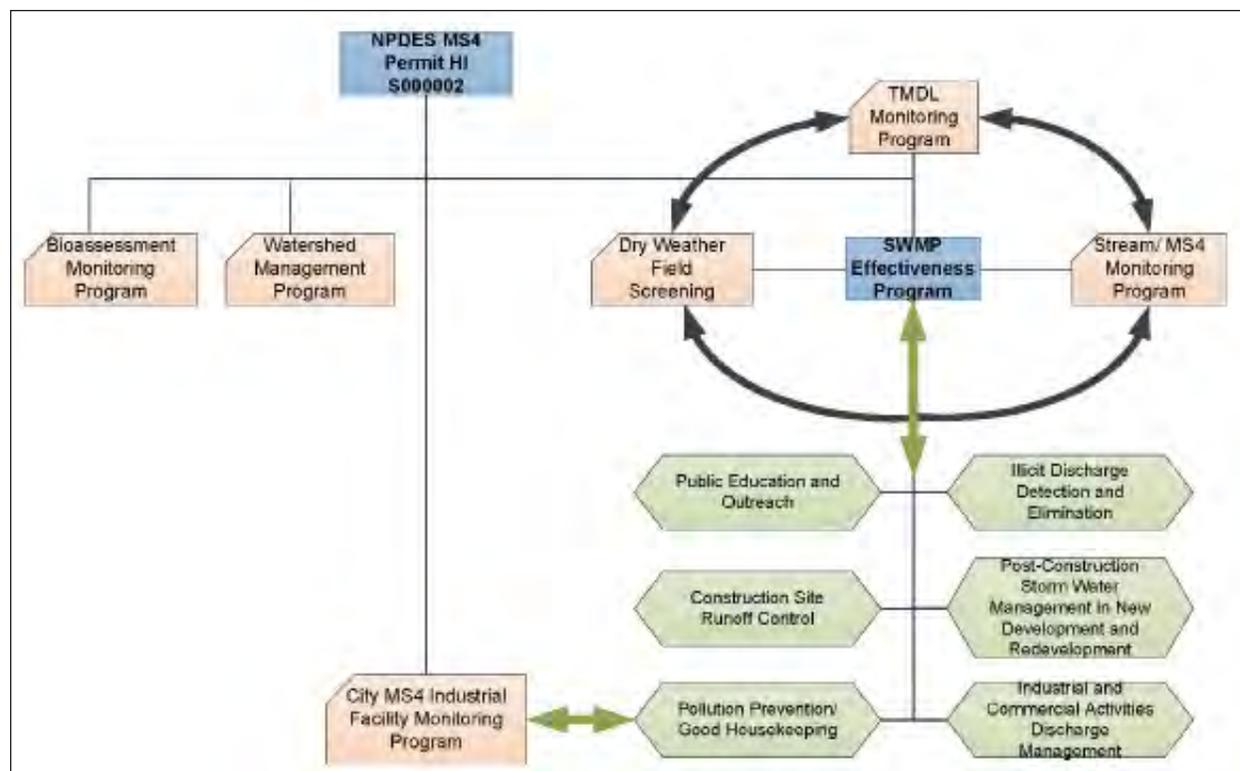


Figure 9.1: City MS4 Monitoring Program Flowchart

TMDLs for Ala Wai Canal, Kawa Stream, Waimanalo Stream, Kapaa Stream, Kaneohe Stream and the North and South Forks of Upper Kaukonahua Stream. In addition, the DOH developed WLAs for selected entities with the goal of waste load reduction for specific pollutants entering each water body. The City received at least one (1) pollutant WLA for each of the TMDL watersheds identified above with the exception of Waimanalo Stream and the South Fork of Upper Kaukonahua Stream.

The Permit further stipulates that the City develop an I&M Plans for the Kaneohe Stream and updated plans for the existing Ala Wai Canal, Kawa Stream, Waimanalo Stream, North Fork of Upper Kaukonahua Stream and Kapaa Stream.

North Fork, Upper Kaukonahua. The City has developed a detailed I&M Plan for the North Fork of the Upper Kaukonahua Stream, which has been included in **Appendix H2**. The City estimated its portion of the total seasonal load reduction for turbidity (wet and dry season) and TN (wet season only) based on flows presented in the DOH TMDL report and updated loading factors based on water quality monitoring data collected on-site between 2012 and 2013. These calculations provide the basis for determining the City's pollutant load reduction goals.

The I&M Plan includes, at a minimum, the following detailed activities to be implemented beginning in FY16. These activities are anticipated to occur in perpetuity unless otherwise noted below or new data becomes available that demonstrates consistency with the WLAs by other means.

- Street sweeping pilot study (scheduled to conclude in FY17)
- Street sweeping (3 times during the wet season)
- Grounds maintenance at Grandview Pump Station (6 times during the wet season)

The final compliance deadline is December 31, 2018.

Kaneohe Stream. The City developed a detailed I&M Plan for Kaneohe Stream which is included in **Appendix H3**. The City estimated its portion of the total seasonal load reduction for TN (wet and dry season) and TP (wet and dry season) based on the data presented in the DOH TMDL report with revisions to account for local storm runoff pollutant loads and updated long-term monthly precipitation averages. These calculations provide the basis for determining the City's pollutant load reduction goals.

The I&M Plan includes, at a minimum, the following detailed activities to be implemented beginning in FY16. These activities are anticipated to occur in perpetuity unless otherwise noted below or new data becomes available that demonstrates consistency with the WLAs by other means.

- Street sweeping pilot study (scheduled to conclude in FY17)
- Street sweeping (3 to 4 times during the wet season and 1 to 2 times during the dry season)
- Continued maintenance of Kaneohe Stream Bank fronting 45-185 Wena Street

The final compliance deadline is December 31, 2018.

Ala Wai Canal. The City developed a detailed I&M Plan for Ala Wai Canal which is included in **Appendix H4**. The City estimated its portion of the total annual load reduction for TN and TP based on the urban land use coverage area serviced by the City's MS4. These calculations provide the basis for determining the City's pollutant load reduction goals.

The I&M Plan includes, at a minimum, the following detailed activities to be implemented beginning in FY16. These activities are anticipated to occur in perpetuity unless otherwise noted below or new data becomes available that demonstrates consistency with the WLAs by other means.

- Street sweeping pilot study (scheduled to conclude in FY17)

- Street sweeping (40 weeks/ yr)
- Stream cleaning (5 days/ yr)
- Storm drain cleaning (400 each/ yr)
- Volunteer clean-up events (4/ yr)
- Maintaining water quality improvement project sites
- Inspecting/ maintaining existing permanent BMP devices

The final compliance deadline is June 30, 2021.

Kapaa Stream. The City developed a detailed I&M Plan for Kapaa Stream which is included in **Appendix H5**. The City estimated its portion of the total seasonal load reduction for TSS (wet and dry season), TN (wet and dry season), and TP (wet and dry season) based on the data presented in the DOH TMDL report with revisions to account for updated runoff characteristics, updated storm runoff pollutant loads, and updated long-term monthly precipitation averages. These calculations provide the basis for determining the City's pollutant load reduction goals.

The I&M Plan includes, at a minimum, the following detailed activities to be implemented beginning in FY16. These activities are anticipated to occur in perpetuity unless otherwise noted below or new data becomes available that demonstrates consistency with the WLAs by other means.

- Street sweeping pilot study (scheduled to conclude in FY17)
- Street sweeping (once during the wet season & once during the dry season)
- Dredging of sediment basin near Kapaa Refuse Transfer Station (once during the wet season)

The final compliance deadline is December 31, 2018.

Kawa Stream. The City developed a detailed I&M Plan for Kawa Stream which is included in **Appendix H6**. The City estimated its portion of the total annual load reduction for TSS, TN, and TP based on the data presented in the DOH TMDL report with adjustments for excessive margin of

safety assumptions. These calculations provide the basis for determining the City's pollutant load reduction goals.

The I&M Plan includes, at a minimum, the following detailed activities to be implemented beginning in FY16. These activities are anticipated to occur in perpetuity unless otherwise noted below or new data becomes available that demonstrates consistency with the WLAs by other means.

- Street sweeping pilot study (scheduled to conclude in FY17)
- Street sweeping (5-6 times per year)
- Implement a public outreach and education campaign to "build awareness about sources of pollution, alternative products, safe disposal of wastes, and stream function and history" per DOH Implementation Plan (2002)

The final compliance deadline is December 31, 2018.

Waimanalo Stream. The City developed a detailed I&M Plan for Waimanalo Stream which is included in **Appendix H7**. The City estimated its portion of the total seasonal load reduction for TN (wet and dry season) and TP (wet and dry season) based on recalculated fluxes and urban land use coverage area serviced by the City's MS4. These calculations provide the basis for determining the City's pollutant load reduction goals.

The I&M Plan includes, at a minimum, the following detailed activities to be implemented beginning in FY16. These activities are anticipated to occur in perpetuity unless otherwise noted below or new data becomes available that demonstrates consistency with the WLAs by other means.

- Street sweeping pilot study (scheduled to conclude in FY17)
- Street sweeping (4 times during the wet season & once during the dry season)
- Continued maintenance of Kumuhau Street bioswale

The final compliance deadline is December 31, 2018.

9.3.2. *Other WLAs*

Permit Reference Part F.4.

The Permit stipulates that the City develop an I&M Plan for a minimum of one (1) additional WLA per year within one (1) year of the adoption date. Because the release of which future TMDL/ WLAs or number of TMDL/ WLAs is unknown, there are currently no plans to develop additional I&M Plans in addition to the plans currently required. However, when the DOH approves new TMDLs where the City is assigned a WLA, the City will develop an I&M Plan.

9.4. Receiving and MS4 Water Quality Sampling

9.4.1. *In-Stream Baseline Grab Sampling*

In FY10, the City modified its stream sampling approach to focus the majority of its sampling resources towards the State's Total Maximum Daily Load (TMDL) program including Manoa, Makiki, Palolo, Kawa, Waimanalo, Kapaa, and Kanaeohē Stream. There are no sampling points proposed for Kaukonahua Stream due to sampling points being inaccessible. Each of the locations were determined based on accessibility and ability to collect a representative sample. The locations are presented in the FY16 monitoring plan attached as **Appendix H1**.

Due to current resource limitations and an increasing number of sampling sites, the City modified its sampling schedule from monthly to quarterly to ensure samples can be successfully collected at all sites.

The quarterly grab samples are collected at all sites to obtain at least two (2) representative data points during the dry and wet seasons, respectively. Parameters analyzed during each sample event includes: Temperature, pH, Turbidity, TDS, Conductivity, and Dissolved Oxygen using the YSI Sonde, while grab samples will be concurrently collected from each of the identified locations and analyzed for TSS, Ammonia Nitrogen, TKN, NO₂+NO₃, TN, TP at an appropriate contract

laboratory. Rainfall depth, duration, location, and storm event return time along with visual observations (i.e. floatables, deposits, color, etc.) will also be monitored. Field monitoring equipment such as the YSI 6600 Multi-Parameter Water Quality Sonde was used to collect basic water quality data supplemented by grab sampling to be analyzed for nutrients and TSS.

9.4.2. *Event Mean Concentration Monitoring*

The City is also undertaking a comprehensive water quality monitoring program to establish event mean concentrations (EMC) for representative land uses within the City's MS4 service area. The primary objective of this water quality monitoring program is to develop localized data that can be used for planning purposes and compliance with TMDL requirements.

The water quality monitoring program consists of:

- **End-of-Pipe (EOP) Monitoring Program:** EOP monitoring sites will be setup for representative land uses on the leeward and windward sides of the island. The six (6) representative land uses include single-family residential, multi-family residential, commercial, light industrial, institutional (schools and hospitals), and open space (parks and golf courses).
- **Stream Monitoring Program:** Stream monitoring sites will be setup to evaluate the effectiveness of the City's BMPs and to monitor the overall health of the watershed.

Water samples will be collected for both EOP and stream monitoring programs after discrete storm events. Automated refrigerated samplers will be used to obtain water samples, which will be analyzed by a laboratory for TSS, Turbidity, TN, Nitrate + Nitrite (NO₃ + NO₂), TP and dissolved metals (lead, copper, zinc). Grab samples and Quality Control samples will also be analyzed as part of the data collection effort.

The City intends to use the collected EMC data for planning purposes, including:

- Permanent BMP Planning tool
- Reference data for watershed modeling, trend analysis, and development/enforcement of storm water regulations
- Tool used to identify pollutant sources in storm water
- Tool used to identify “hot spots” or problem areas and to develop subsequent solutions
- Tool used to prioritize outreach and education efforts
- Tool used to assist other stakeholders in watershed planning
- Reference data for future TMDL/ WLA development

The Quality Assurance Project Plan for the City NPDES MS4 EOP and Stream Monitoring Program is included in **Appendix H8**.

9.4.3. Long Term Mass Loading Receiving Water Sampling

DFM-SWQ will continue long term receiving water sampling including continuous stream measurements for flow and sediments and computing annualized sediment loads, in an effort to better understand major impacts on water quality and evaluate long term trends for improvement or degradation. Long term sampling will be in cooperation with several existing and potential partners including DOT-HWYS, University of Hawaii (UH), USACE, and USGS. All of the agreements are intended to provide DFM-SWQ with an annualized sediment load, as well as an event mean concentration for representative storms throughout the designated monitoring periods.

DFM-SWQ, through its partnership with USGS, plans to establish and maintain permanent gauging stations to collect long term continuous stream measurements for both flow and sediments within priority watersheds that have an approved TMDL such as the Ala Wai, Waimanalo and Kaukonahua

Stream watersheds. Additional TMDL approved watersheds such as Kawa, Kaneohe, and Kapaa Stream are planned for future monitoring pending budget approvals starting in FY17. DFM-SWQ also has agreements in place with USGS for other watersheds such as Honouliuli Stream where major land use changes are planned, such as from agricultural to urbanized, in order to track the water quality impacts as those changes occur.

Additionally, DFM-SWQ is currently monitoring or plans to monitor highly urbanized receiving waters that are privately maintained but accepts storm runoff from adjacent City outfalls and channels, such as Kaelepulu and Salt Lake area, to identify the impacts that urbanization has had on their receiving waters.

9.5. Dry Weather Outfall Field Screening

The City performs dry weather outfalls screening as described in Chapter 3: Illicit Discharge Detection and Elimination. The “Field Screening Plan,” for inspection of outfalls dated February 2016, is attached as **Appendix C2**. Priority areas for field screening include those with a high density of industrial and commercial facilities, previous storm water violations, water quality impairments, areas heavily frequented by tourists and areas heavily occupied by the homeless.

Outfalls inspections include a visual inspection of the physical and environmental conditions at each site. If a dry weather flow is observed, the flow is inspected for characteristics such as color, sheen, odor, temperature and consistency and documented with inspection forms and photographs. If such characteristics are detected, efforts are made to trace the flow upstream to determine the location and source of the discharge and initiate appropriate enforcement actions. This monitoring program is directly linked to SWMP activities as described in **Figure 9.1**.

9.6. Watershed Water Quality Management Program

The objective of the City's Watershed Water Quality Management Program is to prioritize and holistically evaluate various watersheds island-wide and identify specific non-point source pollution issues within each of the targeted watersheds focusing on major land uses including urban, agriculture, conservation and private land owners in order to quantify the amount of pollutants that may be contributing to the continued degradation of the watershed.

The long term goal is to recommend, prioritize, educate and implement feasible and cost effective management measures towards improving water quality. Watersheds are selected based off of a risk based priority system that takes into account multiple factors such as pollutant loads, impairments from the State's 303(d) list of impaired water bodies, exposure of City regulated facilities and MS4, and potential for water quality improvements. Once identified, DFM-SWQ evaluates possible funding and partnership opportunities that may exist in order to proceed with a watershed assessment project.

By collecting water quality data at select points within these watersheds that may either be characterized by a specific land use and/ or drainage area, DFM-SWQ will be able to better determine the source of the pollutants and monitor the short and long term impacts on the surrounding stream environment, as well as track the City's progress towards meeting the TMDL requirements. Findings are planned to target resources toward reducing those particular pollutants, through on-going activities, programs, or procedures that exist within the capabilities of the City. Additionally, the City is committed to working with other stakeholders and agencies in identifying what BMPs or activities that could be implemented within their organizations to improve water quality as part of an integrated planning approach.

9.7. Bioassessment Monitoring Program

The goal of the City's bioassessment program is to develop a "model system" for water quality management, using Manoa-Palolo Stream as a 'testbed' site that will serve as a longterm, scalable, exportable management framework to understand and predict the interactions between the water system with land use, the built environment, and ecosystem function and services.

- Develop a real-time water monitoring system in Waimanalo Stream using wireless sensor networks strategically deployed in natural vs. built environments to provide a holistic understanding of anthropogenic influence on water system attributes to include input/ outputs, water quality changes, wastewater flows and effects on stream habitat and biotic integrity.
- Automate data transmissions from sensor arrays through an advanced cyberinfrastructure which will support model testing/ simulation and 3D visualization ultimately for use in decision-making.
- Develop a data framework using the cyberinfrastructure platform to integrate habitat/ biological assessment and water quality data collected statewide for comparisons to State water quality standards as a tool for assessing and evaluating compliance in permitting and monitoring within an interactive geospatial environment.

The City, in addition to the model system, has discussed with UH future bioassessment and reconnaissance surveys for select streams and watersheds within different parts of the island that may provide critical information as to the watershed health and the feasibility for stream restoration. Based on these discussions, the City is expecting to develop a long term monitoring plan for associated bioassessment studies that will be updated as watershed prioritizations are developed.

Similar to previous studies, the Hawaii Stream Bioassessment Protocol (HSBP) will be applied unless unexpected problems are encountered in which modifications to the HSBP must be made. DFM-SWQ plans to evaluate a project proposal from UH's Hawaii Research Center in this regard. The objectives of the stream assessment are:

- Develop a species list of fish, macroinvertebrates*, and algae* inhabiting the stream.
- Evaluate and compare the condition and species composition of the riparian area adjacent to the study stream reach.
- Evaluate and compare stream habitat quality in the study reach.
- Evaluate and compare the “biotic integrity” of the stream environment to Hawaiian “reference stream” standards.
- Evaluate and compare the relative level of primary and secondary productivity*.

(* Only if algae/ invertebrate sampling is included as an option)

The data from the field study will be used to calculate an overall mean value of biotic integrity and habitat quality for the stream and its tributaries. In addition, the data will be used to compare stream quality/ condition between sites along the stream continuum in order to evaluate the effects of varying stages of urban influences on the environment of this stream.

The City has initiated discussions with UH on the implementation of the proposed model system and future bioassessment studies. Currently, DFM-SWQ is processing an inter-governmental agreement between the City and UH. Pending execution of the agreement, UH anticipates beginning their bioassessment studies in FY16.

9.8. Storm Water Associated with Industrial Activities

Permit Reference Part F.2.

The City has developed a priority based monitoring schedule for each type of Industrial Facility (i.e., convenience centers, refuse collection yards, corporation yards, etc.), with the highest priority on facilities with the greatest potential to discharge pollutants.

The monitoring schedule is presented in the Annual Monitoring Plan. The facilities ranked first (based on priority) within each type will be annually monitored, while other facilities within that type will be monitored on a rotational basis (i.e., at least two facilities monitored per year per type). Annual monitoring will continue at WWTPs and closed sanitary landfills.

Facilities that exceed any of the limitations are required to continue to monitor every representative storm until limitations are met, unless as otherwise informed by DOH, in addition to the next priority facility. For facilities required to be re-sampled because of a previous exceedance or by request to the Director (on a case by case basis) for facilities which are required to be annually monitored (e.g., WWTPs), the City may use the option of implementing/ installing structural BMP(s) during that year in lieu of sampling. The BMP(s) would be selected based on targeting the pollutant(s) which were exceeded. The total cost of the BMP implementation cannot be less than the cost of the sampling. Sampling will continue for the year after the BMP(s) were installed to measure the effectiveness of the BMP(s). The City cannot be granted consecutive year BMP implementation in lieu of sampling. The City will implement procedural changes and/ or install engineering controls to reduce exceedences.

The City will monitor for the parameters specified in the Permit, Part F.2. (see **Appendix A1**), including any additional parameters that the City believes to be present in the storm water runoff. All samples received will be delivered to the City's contract analytical laboratory for follow-up

analysis. At a minimum, the following parameters will be measured or analyzed:

- Flow
- Biochemical Oxygen Demand (5-Day)
- Chemical Oxygen Demand
- Total Suspended Solids
- Total Phosphorus
- Total Nitrogen
- Nitrate + Nitrite Nitrogen
- Oil and Grease
- pH Range
- Ammonia Nitrogen
- Turbidity
- Dissolved Oxygen
- Oxygen Saturation
- Temperature
- Salinity

In addition to the above list of “minimum” parameters, the following parameters will be analyzed for WWTPs:

- Copper
- Zinc

In addition to the above list of “minimum” parameters, the following parameters will be analyzed for closed sanitary landfills:

- Iron

Part F.2. of the Permit provides the discharge limitations for each parameter. DMRs will need to be submitted in each year’s Annual Monitoring Report.

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10. PROGRAM EFFECTIVENESS ASSESSMENT PLAN



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10. Program Effectiveness Assessment Plan



In an effort to evaluate the progress of program implementation and the performance of BMPs, this plan has been revised to: (1) measure progress of permit compliance and implementation of BMPs, (2) track program component effectiveness over the permit period for each BMP, and (3) set the frame work to be able to link program implementation with environmental improvements over time. The following sections describe the strategy to measure effectiveness, means and methods of monitoring BMP implementation, and reporting the results of program assessments.



The City is limited by resources that they apply towards the NPDES program. The City addresses this in the SWMPP by prioritization of areas and BMPs. Not every measurable condition represents a problem, and not all problems are of equal importance. The City intends to use this Permit period to gather and analyze data from existing programs in order to guide and prioritize future activities.

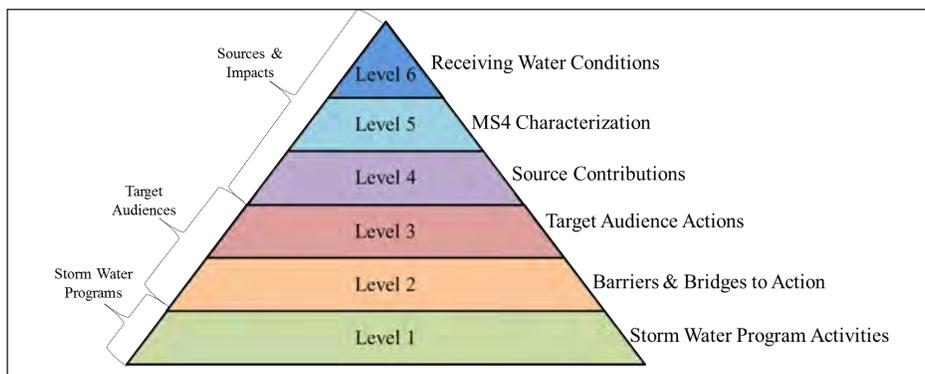
10.1. Strategy



This Program Effectiveness Assessment Plan has been developed to incorporate elements of the CASQA approach to program effectiveness assessment as detailed in their 2007 and 2015 manuals. The approach is based on different outcomes that result from implementing storm water management programs. Outcomes are the results of implementing a storm water control measure, program activity or overall program. These outcomes are characterized into six (6) Outcome Levels which are represented below as a pyramid in **Figure 10.1** which has been adapted from CASQA. The pyramid structure illustrates the progression from implementing activities to protecting water quality. In general, Outcome Levels 1 through 4 are implementation based outcomes which describe program activities, while Outcome Levels 5 and 6 are based on water quality and are more difficult to measure. Outcome Levels help categorize and define the desired results or goals of programs and control measures.



Not every measurable condition represents a problem, and not all problems are of equal importance. To best use available resources, the City prioritizes management activities in the SWMPP. For many programs, the City intends to use this permit period as a data gathering period in order to collect information to guide future activities.



*Figure has been adapted from the CASQA 2007 and 2015 approaches to program effectiveness assessment.

Figure 10.1: CASQA Outcome Levels

Storm Water Program Outcomes:

1 Level 1 - Storm Water Program Activities

Many program activities are directly established as permit requirements, and can be tracked by simply documenting activities. Level 1 Outcomes may take the form of a confirmation of task completion (yes/ no answers) or direct tabulation of efforts (such as the number of inspections completed or plans reviewed). Level 1 Outcomes can also include documenting progress towards measurable goals by confirming whether they have been met or not. Level 1 Outcomes reflect program implementation and permit compliance and are assumed to be beneficial to water quality but are not indicators of the direct impact of program implementation on environmental conditions.

Target Audience Outcomes:

2 Level 2 - Barriers and Bridges to Action

Outcomes at this level reflect how well the program is able to increase the level of knowledge and awareness and change attitudes of target audiences including residents, commercial and industrial businesses, municipal employees, the construction industry and the engineering community. Measuring these outcomes is done through various methods including surveys and training quizzes, and may be inferred through observations of public involvement such as the number of visits

to the City’s storm water website, or other partner websites. Similar to Level 1 Outcomes, Level 2 Outcomes are assumed to be beneficial to water quality but are not indicators of the direct impact of program implementation on environmental conditions.

3 Level 3 - Target Audience Actions

The goal of raising knowledge and awareness (in Level 2 Outcomes) is to effect behavior change that results in the implementation of recommended BMPs. Level 3 Outcomes indicate how effective program components are in motivating behavior change and BMP implementation among target audiences. These changes can be tracked using surveys and observations to solicit information on behaviors from the public; site visits and inspections to observe BMP implementation at sites such as construction sites or industrial facilities; and tabulating changes in program involvement.

Sources and Impacts:

4 Level 4 - Source Contributions

Many BMPs are intended to reduce the amount of pollutants that have the potential to discharge into the MS4. Level 4 Outcomes provide program managers with feedback/ data regarding reductions in pollutant loads from sources which may have benefitted from the implementation or enhancement of a BMP. These outcomes can include information

such as the amount of debris collected during street sweeping, the amount of trash collected during volunteer cleanups, and by examining photos of the debris present in streams, booms, and detention basins. The data should be compared to baseline estimates to provide feedback on the effectiveness of BMPs and control strategies.

 **Level 5 - MS4 Contributions**

The primary goal of the City’s SWMP is to reduce pollutants to the City’s MS4 to the maximum extent practicable and to ensure that discharges do not cause or contribute to exceedances of water quality standards in receiving waters. In many respects, Level 5 Outcomes may be the most direct measure of program effectiveness as it relates to improving the quality of storm water runoff. Level 5 Outcomes may be measured as reductions in one or more specific pollutants and may reflect effectiveness of BMP implementation at the above outcome levels. Importantly, runoff quality is also affected by sources outside of the MS4 such as pollutants from conservation, agriculture, military land use and activities, and other stakeholders.

 **Level 6 - Receiving Water Conditions**

The ultimate objective of any NPDES SWMP is to protect receiving water quality. These outcomes are the most challenging to document and are many

times affected by more than the quality of storm water discharges such as sanitary sewer overflows, rising groundwater, agricultural runoff, and other non-point source pollutants. Additionally, receiving water quality is dependent upon partnerships with other agencies, land owners and stakeholders, and the general public. Assessment methods include compliance with water quality standards, TMDL programs, biological assessments, and other monitoring assessments. It may take years to establish a reliable data set and even longer periods of time to allow the cumulative impacts of multiple program elements to take effect.

10.2. Assessment Measures

As discussed in each outcome level, there are several methods to determine progress towards each outcome. These may include: confirming that permit requirements have been met; tabulating specific activities and quantifying load reduction; surveying the public and tracking quiz scores and evaluations of City employees; inspecting BMPs at construction sites, post-construction BMPs, and private facilities; and monitoring runoff and receiving waters. Each desired outcome should have at least one assessment measure, but some may have multiple measures. A summary of the assessment methods and how they apply at each outcome level are listed in **Table 10.1**.

Table 10.1: Assessment Methods for Different Outcome Levels

Outcome Levels	Assessment Measures				
	Confirmation	Tabulation	Survey	Inspection	Monitoring
 Storm Water Program Activities	✓	✓		✓	
 Barriers and Bridges to Action		✓	✓	✓	
 Target Audience Actions		✓	✓	✓	
 Source Contributions		✓		✓	✓
 MS4 Contributions					✓
 Receiving Water Conditions					✓

*This table has been adapted from CASQA’s Municipal Stormwater Program Effectiveness Assessment Guidance document, 2007 and 2015

The various data collected will be tracked and compared from year to year in order to meet goals or as a way to view trends and help guide the program for subsequent years. The City tracks these assessment measures using program databases and the City GIS which maintains a current inventory of MS4 features and other related data. Maintenance of the City GIS and data tracking is an ongoing process that is integral to allow for effective monitoring and preventative storm water quality measures.

10.3. Document Organization

The following chapters describe the outcomes or goals that the City aims to achieve throughout this Permit term, and the data collected that will be used to assess each program. They are organized as follows:

- **Outcome Objectives:** The goals that the City has for each program throughout the Permit term and longer term. These goals are categorized by Outcome Levels and are labeled using the corresponding colored triangle (as shown in Section 10.1: Strategy).
- **Priority Constituents:** The pollutants of concern that are targeted by each program element.
- **Target Audience:** The people, actions, and sources that are responsible for, or that may help to reduce, the priority constituents under each program.
- **Assessment Measures:** The data that will be used to assess progress towards each goal. These are categorized by assessment method (i.e., confirmation, tabulation, etc.) and may either directly or indirectly measure progress towards the desired outcomes.
- **SWMPP Reference:** Lists the SWMPP section that each goal is linked to. Several SWMPP activities may have the same goal and several SWMPP activities may have more than one goal.

10.4. Program Assessment and Reporting

The Program Effectiveness Assessment Report will be submitted with the annual report on October 31st each year, as required by the Permit. Several data assessment measures may not be available in the first year and will be collected throughout the permit period as it becomes available. Most program assessment will be conducted at the implementation level (Outcome Levels 1 through 4). Water quality assessments (Outcome Levels 5 and 6) are conducted as part of the City's ongoing Annual Monitoring program. Over time, with both sets of data, the City will explore the connections between program implementation and water quality changes in a process called Integrated Assessment.

10.5. Public Education and Outreach Program Assessment

Assessing the Public Education and Outreach Program is an iterative process that relies on a variety of methods. The desired outcomes are to raise awareness and effect behavior change, and the City does this using a variety of methods including distributing educational materials, conducting media campaigns, holding workshops, forming partnerships with other agencies and groups, and participating in special events. An important tool to determine effectiveness of this program is the annual survey conducted each year which includes questions to measure changes in public knowledge, awareness, attitude, and behavior in relation to City outreach efforts. This survey also provides valuable feedback on effective outreach methods. With Community-Based Social Marketing campaigns, additional metrics will be added to chart program effectiveness in changing behaviors.

Priority Pollutants of Concerns
<ul style="list-style-type: none"> • Sediment • Trash • Hydrocarbons • Trash • Liquid waste (oils, paints, solvents, fertilizers, and pesticides)
Target Audience
<ul style="list-style-type: none"> • Residents • Visitors • Property managers • Industrial and commercial businesses • Construction operators • Educators • School children • General public
Outcome Levels

1. INCREASE Public Support, Interest, Knowledge, and Awareness

<u>Outcome Level(s)</u>	<u>Assessment Measures</u>	<i>SWMPP Reference:</i>
 	<p><u>Confirmation:</u></p> <ul style="list-style-type: none"> • Completion of annual survey each year. • Increase website/ social media visits by at least 5% throughout the Permit term. • Develop or redesign and distribute at least two (2) brochures/ pamphlets/ webpages per year. <p><u>Tabulation:</u></p> <ul style="list-style-type: none"> • Number of Storm water website visits. <p><u>Survey:</u></p> <ul style="list-style-type: none"> • Analyze the results of the Annual Survey and link to program activities. 	

2. INCREASE Event Participation

<u>Outcome Level(s)</u>	<u>Assessment Measures</u>	<i>SWMPP Reference:</i>
 	<p><u>Tabulation:</u></p> <ul style="list-style-type: none"> • Number of events. • Number of volunteers. • Number of participants in special events each year. 	

3. INCREASE Public Support, Interest, Knowledge, and Awareness

Outcome Level(s)	Assessment Measures	<i>SWMPP Reference:</i>
	<u>Confirmation:</u>	
	<ul style="list-style-type: none">• Conduct at least one (1) targeted outreach activity per year.	
	<u>Tabulation:</u>	
	<ul style="list-style-type: none">• Number of workshop/ expo attendance.• Number of storm water website visits.	
	<u>Survey:</u>	
	<ul style="list-style-type: none">• Workshop/ expo evaluations.• Targeted outreach evaluations.	
	<u>Inspections:</u>	
	<ul style="list-style-type: none">• Industrial and commercial inspection program data.	

10.6. Illicit Discharge Detection and Elimination Program Assessment

Ultimately, the purpose of the City’s Illicit Discharge Detection and Elimination Program is to eliminate improper discharge activities.

To measure effectiveness of the program, the City has chosen the following three objectives: Reduce dry weather discharges through the outfall screening program and licensing program, maintain an effective investigation and enforcement program, and facilitate public involvement and cooperation in identifying, reporting and reducing illicit discharges.

This program will be assessed primarily at Outcome Levels 1 through 4 and will use confirmation of permit compliance activities and tabulated data below to use as performance indicators towards the goals.

Priority Pollutants of Concerns
<ul style="list-style-type: none"> Liquid wastes (oils, paints, solvents, fertilizers, and pesticides) Trash Sediment Nutrients
Target Audience
<ul style="list-style-type: none"> Residents Private commercial facilities Private industrial facilities Municipal staff
Outcome Levels

1. REDUCE the number of Dry Weather Illicit Discharges

<u>Outcome Level(s)</u>	<u>Assessment Measures</u>	<i>SWMPP Reference: 3.2 and 3.3</i>
	<u>Confirmation:</u>	
	<ul style="list-style-type: none"> City maintains the Drainage Connection License Program. City performs outfall screening in accordance with the revised Field Screening Plan (February 2016). 	
	<u>Tabulation:</u>	
	<ul style="list-style-type: none"> Number of illegal connections discovered and resolved each FY through the Field Screening Plan. 	

2. FACILITATE Public Involvement in Identifying, Reporting, and Reducing Illicit Discharge

<u>Outcome Level(s)</u>	<u>Assessment Measures</u>	<i>SWMPP Reference: 3.4 and 3.7</i>
	<u>Confirmation:</u>	
	<ul style="list-style-type: none"> Maintain the environmental concern line, cleanwaterhonolulu.com website and 311 smartphone application. Maintain household hazardous waste collection program. 	
	<u>Tabulation:</u>	
	<ul style="list-style-type: none"> Number of complaints received by the public. Quantify of household hazardous waste collected at collection events. 	

3. MAINTAIN an effective Illicit Discharge Detection and Elimination Investigation and Enforcement Program

Outcome Level(s)	Assessment Measures	<i>SWMPP Reference: 3.4 and 3.5</i>
	<u>Confirmation:</u>	
	<ul style="list-style-type: none">Annually review “Response Plan for Investigations of Illegal Discharges” and update as needed.	
	<u>Tabulation:</u> <ul style="list-style-type: none">Number of illicit discharge investigations.Number of follow-up visits.Number of investigations resolved.Number of Letters of Warning.Number of Notices of Violations.Number of Notices of Order and fines.	

10.7. Construction Site Runoff Control Program Assessment

The Construction Site Runoff Control Program focuses on storm water discharges from construction projects that fall within the City jurisdiction, including:

- Private sector construction projects.
- CIP construction projects administered by DDC, DFM-SWQ, DTS, ENV, HART, and other City departments.
- State-funded construction projects not exempted from DPP review.

From reviewing project design drawings to performing inspections on active construction sites, the City tracks the implementation of BMPs to minimize polluted runoff from these activities.

Priority Pollutants of Concerns
<ul style="list-style-type: none"> • Sediment • Concrete washout • Hydrocarbons • Paints/ other construction materials
Target Audience
<ul style="list-style-type: none"> • Developers/ property owners • Contractors • Engineers/ Architects • City inspectors • City plan reviewers
Outcome Levels


1. MAINTAIN an effective Construction Site Permit/ Plan Review Program

Outcome Level(s)	Assessment Measures	SWMPP Reference: 4.2, 4.4, 4.5, 4.9, 5.2, and 5.3
  	<p><u>Confirmation:</u></p> <ul style="list-style-type: none"> • Verify submittal of a minimum BMP checklist or ESCP for review and acceptance/ approval prior to permit issuance. • Verify NOI was filed and NGPC is obtained prior to permit issuance • Complete BMP Checklists or Construction Site Plan Approval. <p><u>Tabulation:</u></p> <ul style="list-style-type: none"> • Number of construction sites that do not have applicable permits (i.e., building, grading, grubbing, stockpiling or NOI) prior to commencing construction. • Number of construction sites working without a permit. 	

2. MAINTAIN an effective Construction Site Inspection Program

Outcome Level(s)	Assessment Measures	SWMPP Reference: 4.2, 4.3, and 4.6
	<p><u>Confirmation:</u></p> <ul style="list-style-type: none"> • Private and CIP construction sites are inspected with established frequencies. • Scheduled follow-up inspections are conducted. • Oversight program was developed and implemented. • Inspection data are recorded in database. 	

Outcome Level(s)	Assessment Measures	<i>SWMPP Reference: 4.2, 4.3, and 4.6</i>
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Inspection:

- Analyze oversight inspection program results compared to routine city compliance inspection program for high risk projects.
- Analyze oversight inspection program to determine if high risk projects should be redefined.

3. MAINTAIN an effective Construction Site Enforcement Program

Outcome Level(s)	Assessment Measures	<i>SWMPP Reference: 4.7 and 4.8</i>
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Confirmation:

- Enforcement response plan was developed and implemented.



Tabulation:

- Number of projects referred to DFM-SWQ and DOH.



Inspection:

- Analyze of number of inspections compared to enforcement actions.
- Analyze of the type of deficiencies found.

10.8. Post-Construction Storm Water Management in New Development and Redevelopment Program Assessment

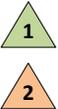
Storm water runoff from new development or redevelopment has been shown to significantly affect receiving water bodies. The Post-Construction Storm Water Management Program component defines requirements and provides guidance for project specific planning, selection, and design of permanent BMPs to minimize pollutants in post-construction runoff and to minimize the amount of polluted runoff leaving the site. This program also includes inspection of operation and maintenance (O&M) of post-construction BMPs.

Priority Pollutants of Concerns
<ul style="list-style-type: none"> • Sediment • Nutrients • Heavy Metals • Trash • Oils • Hydrocarbons
Target Audience
<ul style="list-style-type: none"> • Developers/ property owners • Contractors • Engineers/ Architects • City inspectors • City plan reviewers
Outcome Levels


1. INCREASE LID Utilization

Outcome Level(s)	Assessment Measures	<i>SWMPP Reference: 5.2, 5.3, and 5.5</i>
	<p><u>Confirmation:</u></p> <ul style="list-style-type: none"> • Verify submittal of a SWQC for both Priority A and Priority B projects. • Record post-construction BMPs record in database and GIS. • Confirm educational materials including manuals, guides, templates and worksheets are available on the City website and permitting offices. <p><u>Tabulation:</u></p> <ul style="list-style-type: none"> • Number of projects using LID vs. non-LID BMPs. • Number of projects using LID specific for the pollutants onsite. • The drainage area of new and redevelopment treated each year by LID BMPs. • Analysis on reasons for infeasibility exempt criteria for projects using non-LID BMPs. 	

2. MAINTAIN an effective Post-Construction BMP Inspection and Enforcement Program

Outcome Level(s)	Assessment Measures	<i>SWMPP Reference: 5.4</i>
	<p><u>Confirmation:</u></p> <ul style="list-style-type: none"> • BMPs are installed per construction plans. • Post-construction BMP data are recorded in database. • Post-construction BMPs are inspected with established frequencies. • Scheduled follow-up inspections are conducted. 	

Outcome Level(s)	Assessment Measures	<i>SWMPP Reference: 5.4</i>
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Inspection:

- Analyze of number of inspections compared to enforcement actions.
- Verify BMP maintenance schedule.

10.9. Pollution Prevention/ Good Housekeeping Program Assessment

The Pollution Prevention and Good Housekeeping Program focuses on the maintenance of City facilities and the MS4, including base yards, corporation yards, parks, parking lots, streets, and the drainage system. Through this program, the City focuses on educating its employees, implementing BMPs at its facilities, and reducing pollutant loads that have the possibility to discharge to the MS4. In this permit term, the City aims to increase effectiveness by collecting and analyzing data on existing programs and to adjust programs for the next permit period.

Priority Pollutants of Concerns
<ul style="list-style-type: none"> • Street debris • Sediment • Trash • Hydrocarbons • Herbicides • Other liquid waste from municipal maintenance activities
Target Audience
<ul style="list-style-type: none"> • Municipal maintenance staff • General public
Outcome Levels


1. REDUCE Debris and Trash Generated from entering the MS4

Outcome Level(s)	Assessment Measures	<i>SWMPP Reference: 6.2</i>
   	<p><u>Confirmation:</u></p> <ul style="list-style-type: none"> • Conduct street sweeping pilot study. • Conduct Baseline Load Study. • Implement priority plan for inspection and maintenance of the storm drainage system. <p><u>Tabulation:</u></p> <ul style="list-style-type: none"> • Number of structural BMPs and retrofits installed each FY. <p><u>Monitor:</u></p> <ul style="list-style-type: none"> • Analyze street sweeping data to determine most effective routes. 	

2. DECREASE Potential for Storm Water Impact from Chemical Applications

Outcome Level(s)	Assessment Measures	<i>SWMPP Reference: 6.3</i>
  	<p><u>Confirmation:</u></p> <ul style="list-style-type: none"> • Monitor fertilizer and pesticide application in application logs and reduce usage where feasible. • Periodically collect and dispose of unused pesticides, herbicides and fertilizers according to manufacturers' instructions. 	

3. DECREASE Erosional Areas within the City’s Right-of-Way

Outcome Level(s)	Assessment Measures	<i>SWMPP Reference: 6.4</i>
	<p><u>Confirmation:</u></p> <ul style="list-style-type: none"> Implementation of remediation projects listed on the priority based inventory schedule. Installation of temporary erosion control measures listed on the schedule. BMPs are maintained according to the “Maintenance Plan for vegetated portions of the MS4.” 	
	<p><u>Tabulation:</u></p> <ul style="list-style-type: none"> Quantity of erosional areas remediated each FY. 	

4. IMPROVE Implementation of Temporary or Permanent BMPs among City Municipal Staff and Facilities to Reduce Pollutants to the MS4

Outcome Level(s)	Assessment Measures	<i>SWMPP Reference: 6.5 and 6.6</i>
	<p><u>Confirmation:</u></p> <ul style="list-style-type: none"> Implementation of BMPs identified in the “Municipal Field Guide” to prevent pollution from municipal maintenance activities to the MEP. Revise and implement SWPCPs for municipally-owned industrial facilities. Promptly develop and implement SWPCPs at new facilities. Add new Municipal Industrial or new Small MS4 Facilities to the permit via written request to DOH. 	
		
	<p><u>Inspection:</u></p> <ul style="list-style-type: none"> Conduct annual site inspections at each facility with a SWPCP. 	

10.10. Industrial and Commercial Activities Discharge Management Program Assessment

The Industrial and Commercial Activities Discharge Management Program, details the City’s targeted focus on environmental compliance at privately owned industrial and commercial facilities. This program focuses on documenting the City’s inspection efforts, raising awareness among private commercial and industrial facility personnel and increasing the use of BMPs among these groups.

Priority Pollutants of Concerns
<ul style="list-style-type: none"> • Liquid wastes (oils, paints, solvents, fertilizers, and pesticides) • Trash • Sediment • Nutrients
Target Audience
<ul style="list-style-type: none"> • Private commercial facilities • Private industrial facilities
Outcome Levels


1. MAINTAIN an effective Inspection and Enforcement Program

<u>Outcome Level(s)</u>	<u>Assessment Measures</u>	<i>SWMPP Reference: 7.3, 7.4, 7.5, and 7.6</i>
  	<p><u>Confirmation:</u></p> <ul style="list-style-type: none"> • Inspection of 300 Industrial and 100 Commercial Facilities each year. • Completion of semi-annual commercial and industrial inspection reports October 31st and April 30th. • Submittal of the updated inventory and map of Industrial and Commercial Facilities with the Permit renewal application. <p><u>Tabulation/ Inspection:</u></p> <ul style="list-style-type: none"> • Number of illicit discharge investigations. • Number of follow-up visits. • Number of investigations resolved. • Number of Letters of Warning. • Number of Notices of Violations. • Number of Notices of Order and fines. 	

2. IMPROVE Implementation of Temporary or Permanent BMPs among Industrial and Commercial Facilities to Reduce Pollutants to the MS4

<u>Outcome Level(s)</u>	<u>Assessment Measures</u>	<i>SWMPP Reference: 7.2</i>
  	<p><u>Tabulation:</u></p> <ul style="list-style-type: none"> • Number of SWPCPs and SSBMPs developed and implemented at private industrial/ commercial facilities. • Number of educational materials developed for industrial and commercial facilities. 	

10.11. SWMP Components Training Program Assessment

There are multiple in-house employee training programs that focus on teaching City employees about storm water management, potential sources of pollutants and BMPs. City employees are generally classified into three (3) areas of responsibility:

- Plan Review, Design, and Project Management
- Construction Management and Inspection
- Municipal Maintenance

Training is provided using via web-based, DVD-based and live training.

Priority Pollutants of Concerns
<ul style="list-style-type: none"> • Sediment • Nutrients • Hydrocarbons • Construction materials/ debris • Concrete washout • Street debris • Heavy metals • Trash • Liquid wastes (oils, paints, solvents, fertilizers, and pesticides)
Target Audience
<ul style="list-style-type: none"> • Municipal staff • General public
Outcome Levels


1. MAINTAIN an Educated and Trained City Staff

Outcome Level(s)	Assessment Measures	SWMPP Reference: 8.2, 8.3, 8.4, 8.5, and 8.6
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Tabulation:

- Illicit Discharge Detection and Elimination Training Program quiz scores and numbers of individuals trained.
- Construction Site Runoff Control Training Program quiz scores and numbers of individuals trained.
- Post-Construction Storm Water Management in New Development and Redevelopment Training Program quiz scores and numbers of individuals trained.
- Chemical Applications BMPs Training Program quiz scores and numbers of individuals trained.
- Municipal Maintenance Activities Training Program quiz scores and numbers of individuals trained.
- Industrial and Commercial Activities Discharge Management Training Program and numbers of inspectors trained.

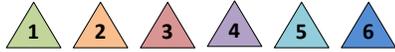
Survey:

- Survey department supervisors for new training topics and topics that need additional focus.

10.12. Monitoring Program Assessment

The overarching goal for the monitoring conducted by the City relates to both managing and assessing the effectiveness of the SWMPP. The primary objective of the SWMPP is to reduce pollutants discharged from the MS4 to receiving waters to the MEP, and monitoring results can support decisions made by the City to fine-tune the SWMP to meet its primary objective. Therefore, the purpose of the Effectiveness Monitoring Program is both to meet the requirements of the MS4 Permit and address key management questions.

Figure 10.2 presents the framework for how this data will be used to measure the effectiveness of the SWMPP. **Figure 10.2** shows how the data will be used to determine when BMPs need to be revised, continue as-is, or even be reduced/eliminated. This strategy will allow the City to manage its limited resources as efficiently and effectively as possible. The decision flowchart uses three pieces of information to determine if the program is effective and if the SWMPP needs to be revised:

Priority Pollutants of Concerns
<ul style="list-style-type: none"> Liquid wastes (oils, paints, solvents, fertilizers, and pesticides) Trash Sediment Nutrients
Target Audience
<ul style="list-style-type: none"> Residents Private commercial facilities Private industrial facilities Municipal staff
Outcome Levels


1. If water quality standards were exceeded.
2. If the historical trend indicates an improvement or degradation in water quality.
3. If the City’s MS4 is the primary cause of the exceedance.

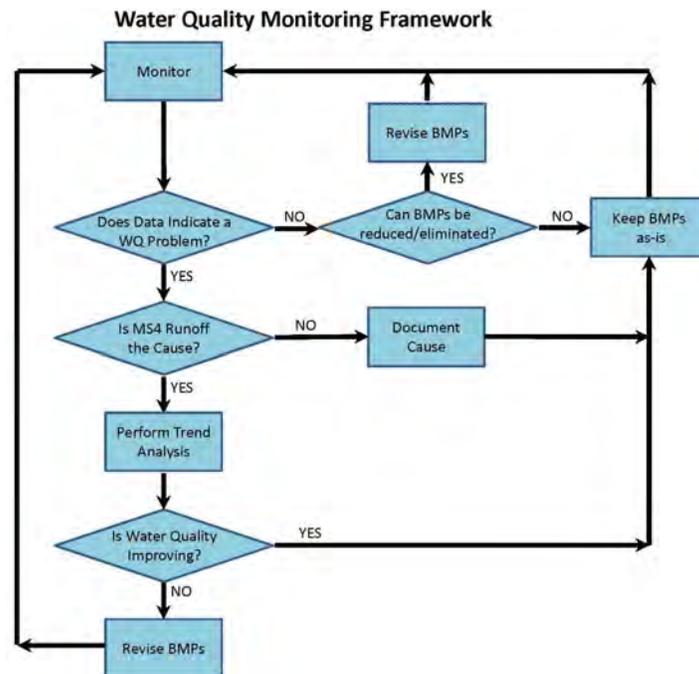
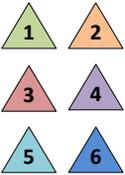


Figure 10.2: Monitoring Framework

Whether or not a change to the SWMPP or Monitoring Plan is warranted depends on the answer to each question. For example, if water quality standards were exceeded and the pollutant concentrations are not decreasing over time and the City’s MS4 is the primary cause of the exceedance, then it can be concluded that the BMPs in place within that particular watershed are not sufficient and the SWMPP and/ or Monitoring Plan will be revised in an effort to address the issue. On the other hand, if water quality standards were not exceeded and the pollutant concentrations are decreasing over time, then it can be concluded that the BMPs in place within that particular watershed are effective, and an assessment will be made to determine if they can be reduced or eliminated.

Specific measurable goals and assessment measures are listed below:

1. UTILIZE Monitoring Data to Effectively Implement the SWMPP and Necessary Changes

Outcome Level(s)	Assessment Measures	SWMPP Reference: 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, and 9.8
	<p><u>Monitoring:</u></p> <ul style="list-style-type: none"> Twice annually, review monitoring data and progress for each monitoring program using the framework in Figure 10.2 to discuss changes to the Annual Monitoring Plan and SWMPP. Discuss changes in each Annual Report and Monitoring Plan. 	

2. ACHIEVE Mass Pollutant Load Reductions as Listed in WLA I&M Plans

Outcome Level(s)	Assessment Measures	SWMPP Reference: 9.3 and 9.4
	<p><u>Confirmation:</u></p> <ul style="list-style-type: none"> Maintenance of water quality improvement project sites. Public education and outreach. Maintenance and inspection of permanent BMPs. <p><u>Monitoring:</u></p> <ul style="list-style-type: none"> Quantification and analysis of street sweeping material. Activities tracking for sediment basin dredging. Collection System Maintenance pump station grounds maintenance. Stream cleaning. Storm drain maintenance. Volunteer clean-up event. 	

3. CONTINUE to Implement the Industrial Facilities Monitoring Requirement

Outcome Level(s)	Assessment Measures	<i>SWMPP Reference: 9.8</i>
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Confirmation:

- Development of a priority based monitoring schedule for each type of Industrial facility.
- Annual Sampling of at least two (2) facilities per type.
- Completion of the priority based monitoring schedule as a guide for sampling over the duration of the permit.
- Completion of annual sampling as laid out in the monitoring schedule, and submittal of monitoring results on DMR forms.

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