

CHAPTER 12 MONITORING PROGRAM

The purpose of the Monitoring Program is to measure the effectiveness of the SWMP and assess water quality issues in watersheds resulting from storm water discharges to receiving waters. The Monitoring Program is responsible for submitting an Annual Monitoring Plan to DOH by June 1st of each year and implementing it over the coming fiscal year. The Monitoring Program also submits an Annual Monitoring Report by October 31st of each year that covers the past fiscal year. Annual storm water monitoring at DOT-HWYS' baseyards, which is conducted by the Municipal Industrial Facilities Program, will also be addressed in this chapter.

As stated above, the Monitoring Program includes the following control measures:

1. Submit and implement an Annual Monitoring Plan for each fiscal year of the MS4 Permit term.
2. Annually monitor storm water runoff at DOT-HWYS' municipal industrial facilities, for the parameters specified in Part F.2 of the MS4 Permit.
3. Submit an Annual Monitoring Report for each fiscal year of the MS4 Permit term.

The Monitoring Program is administered in accordance with the MS4 Permit requirements outlined in Table 12-1.

Table 12-1. MS4 Permit Requirements for the Monitoring Program

MS4 Permit Reference	SWMPP Section
<i>Part F.1.a Annual Monitoring Plan – The Permittee shall submit the Annual Monitoring Plan to the Director by June 1st of each year for review and acceptance. The Annual Monitoring Plan shall be implemented over the coming fiscal year.</i> <i>The monitoring program must be designed and implemented to meet the following objectives:</i>	Section 12.1
<i>Part F.1.a.(1) Assess compliance with this permit (including TMDL I&M Plans and demonstrating consistency with WLAs);</i>	Section 12.1
<i>Part F.1.a.(2) Measure the effectiveness of the Permittee's storm water management program;</i>	Section 12.1
<i>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;</i>	Section 12.1
<i>Part F.1.a.(4) Characterize storm water discharges;</i>	Section 12.1
<i>Part F.1.a.(5) Identify sources of specific pollutants;</i>	Section 12.1
<i>Part F.1.a.(6) Detect and eliminate illicit discharges and illegal connections to the MS4; and</i>	Section 12.1
<i>Part F.1.a.(7) Assess the water quality issues in watershed resulting from storm water discharges to receiving waters.</i>	Section 12.1
<i>Part F.1.b. The plan shall, at a minimum, include the following items:</i>	Section 12.1

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MS4 Permit Reference	SWMPP Section
<i>Part F.1.b.(1) Written narrative of the proposed monitoring plan's objectives, including but not limited to the objectives identified in Part F.1.a., and description of activities;</i>	Section 12.1
<i>Part F.1.b.(2) For each activity, a description of how the results will be used to determine compliance with this permit.</i>	Section 12.1
<i>Part F.1.b.(3) Identification of management measures proven to be effective and/or ineffective at reducing pollutants and flow.</i>	Section 12.1
<i>Part F.1.b.(4) Written documentation of the following: (i) Characteristics (timing, duration, intensity, total rainfall) of the storm event(s); (ii) Parameters for measured pollutant loads; and (iii) Range of discharge volumes to be monitored, as well as the timing, frequency, and duration at which they are identified;</i>	Section 12.1
<i>Part F.1.b.(5) Written documentation of the analytical methods to be used;</i>	Section 12.1
<i>Part F.1.b.(6) Written documentation of the Quality Assurance/Quality Control procedures to be used; and</i>	Section 12.1
<i>Part F.1.b.(7) Estimated budget to be implemented over the coming fiscal year.</i>	Section 12.1
<i>Part F.2 Storm Water Associated with Industrial Activities – The Permittee shall annually monitor the storm water runoff for the parameters specified below, for each DOT-HWYs Industrial Facility (i.e., baseyards), including any additional parameters which the Permittee also believes to be present in the storm water runoff. (See Tables in Permit)</i>	Section 12.2
<i>Part G.2.a Annual Monitoring Report – The Permittee shall submit the Annual Monitoring Report by October 31st of each year in pdf format (minimum 300 dpi) in accordance with Part A.6. The Annual Monitoring Report shall cover the past fiscal year.</i>	Section 12.3
<i>Part G.2.b The monitoring report shall at a minimum, include the following items:</i>	Section 12.3
<i>Part G.2.b.(1) Discussion on the activities/work implemented to meet each objective, as outlined in Part F.1.a., including any additional objectives identified by the Permittee, and the results [e.g., assessment of the water quality issues in each watershed resulting from storm water discharges, refer to Part F.1.a.(7)] and conclusions.</i>	Section 12.3
<i>Part G.2.b.(2) Written narrative of the past fiscal year's activities, including those coordinated with other agencies, objectives of activities, results and conclusions.</i>	Section 12.3
<i>Part G.2.b.(3) Data gathered on levels of pollutants in non-storm water discharges to the DOT-HWYS MS4; and</i>	Section 12.3
<i>Part G.2.b.(4) Using rainfall data collected by the Permittee and other agencies, the Permittee shall relate rainfall events, measured pollutant loads, and discharge volumes from the watershed and other watersheds that may be identified from time to time by the Director or Permittee.</i>	Section 12.3
<i>Part G.2.b.(5) The date when monitoring occurred for each municipal industrial facility covered under this permit. The monitoring event shall be of a representative storm event, where results were available for all required parameters following the QA/QC measures as described in your Annual Monitoring Plan.</i>	Section 12.3
<i>Part G.2.b.(6) Discharge Monitoring Reports (DMRs) for Municipal Industrial Facilities shall be included in the Annual Monitoring Report and be submitted via NetDMR once established by the DOH. NetDMR is a Web-based tool that allows NPDES permittees to electronically sign and submit their DMRs to EPA's Integrated Compliance Information System (ICIS-NPDES) via the Environmental Information Exchange Network. A DMR must be submitted for the facility which is scheduled to be monitored even if sampling was not conducted. An explanation as to why sampling was not conducted shall be explained with the submittal.</i>	Section 12.3

12.0 Program Organization

To fulfill the requirements of the MS4 Permit and the Consent Decree, the following organizational structure has been established for the Monitoring Program.

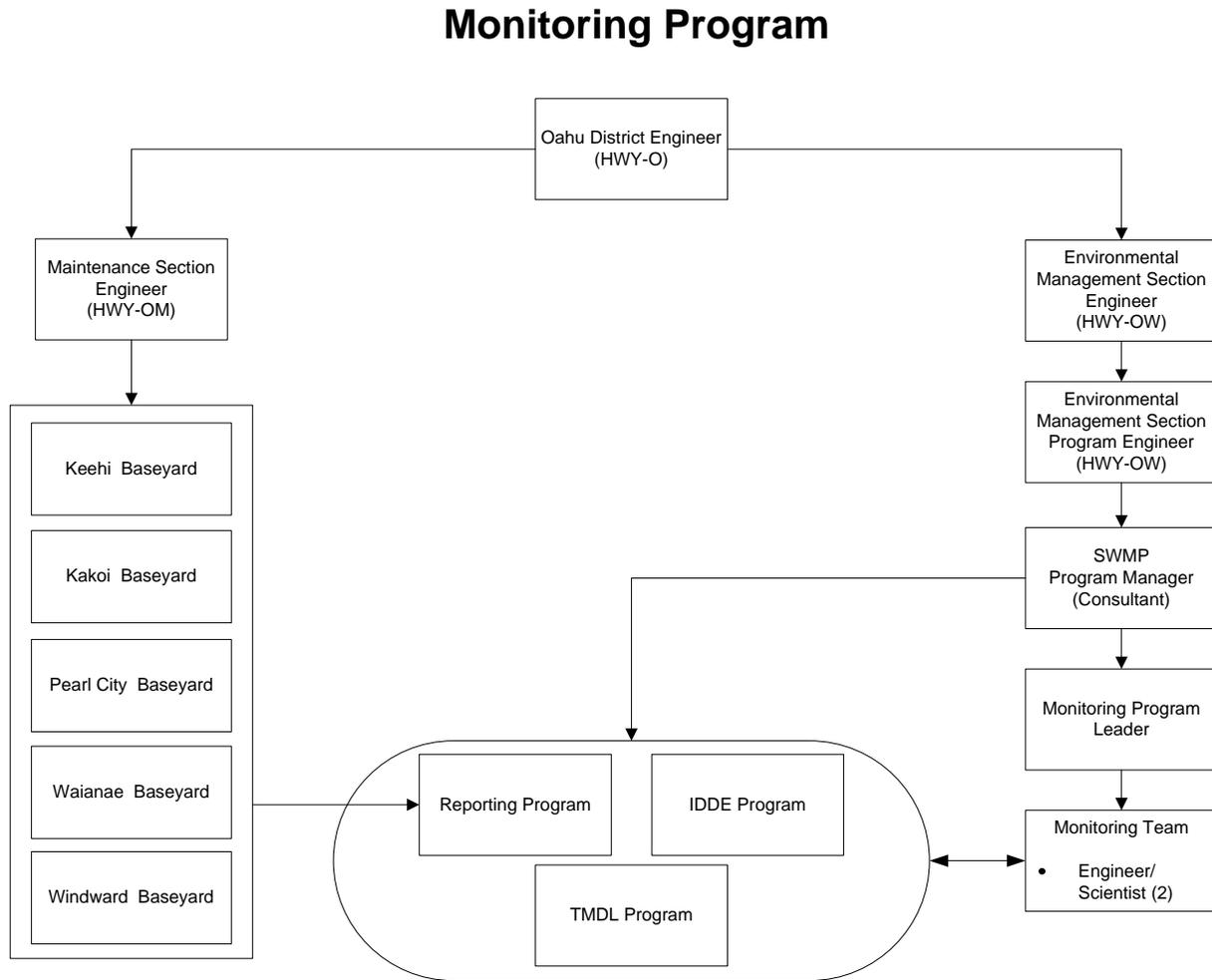


Figure 12-1. Monitoring Program Organizational Chart
(Note: The number in parenthesis indicates the number of individuals involved.)

12.1 Annual Monitoring Plan

Water quality monitoring helps DOT-HWYS assess the characteristics of highway storm water runoff and evaluate potential impacts to stream water quality. The Monitoring Program's activities are designed and implemented to meet the objectives outlined in Part F.1.a.(1) through Part F.1.a.(7) of the MS4 Permit.

The Annual Monitoring Plan (hereinafter referred to as "Plan") is submitted to the Director of DOH by June 1st of each year for review and acceptance. The purpose of the Plan is to outline DOT-HWYS' storm water monitoring procedures for each monitoring year. The Monitoring Program implements the submitted Plan over the coming fiscal year, which is defined as July 1st of the submittal year, through June 30th of the following year. The Plan includes the information specified in Part F.1.b.(1) through Part F.1.b.(7) of the MS4 Permit.

DOT-HWYS utilizes a watershed approach for its Monitoring Program by monitoring runoff within high priority watersheds. Monitoring efforts are concentrated in watersheds where total maximum daily load (TMDL) studies have been established or identified, or that have approved TMDLs in place for one or more pollutant(s). DOT-HWYS may also collect hand grab samples from historically sampled watersheds or additional watersheds listed in the CWA Section 303(d) list of impaired waters.

The Monitoring Program selects sampling locations within high priority watersheds that best characterize the runoff from DOT-HWYS' right-of-way to State Waters and, to the extent practicable, distinguishes these flows from storm water runoff discharged from off-site and non-DOT-HWYS' sources. All complete samples, including grab samples, are analyzed for total suspended solids (TSS), total nitrogen (TN), and total phosphorous (TP). Analyses are made between all variables of rainfall volume and intensity, runoff volume, and pollutant load for a range of storm intensities.

The Plan is developed and implemented by the Monitoring Team, under the guidance of the Monitoring Program Leader, as depicted in Figure 12-2.

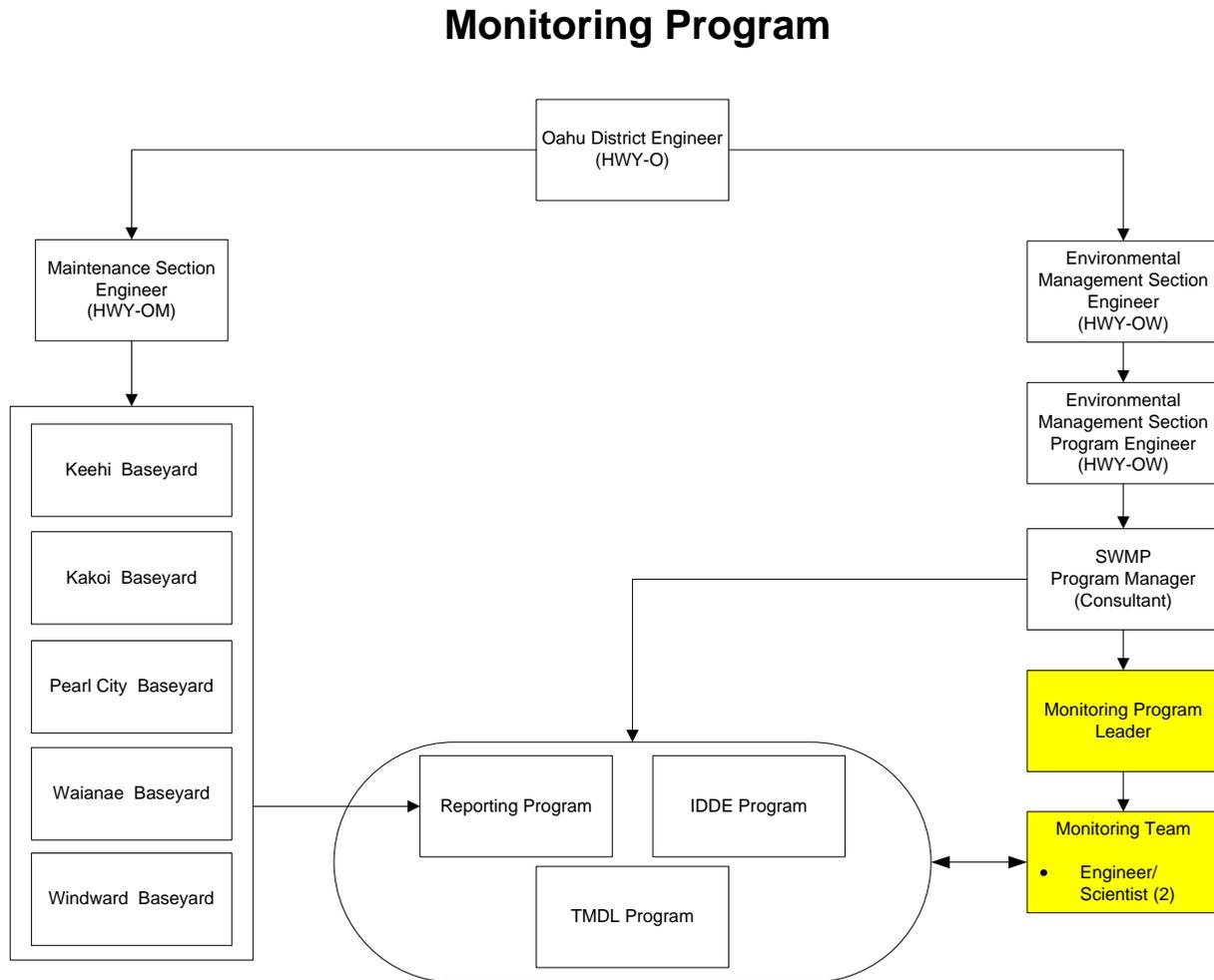


Figure 12-2. Monitoring Program Organizational Chart for Roles and Responsibilities Related to the Annual Monitoring Plan

12.2 Storm Water Monitoring at Baseyards

Storm water monitoring is conducted at DOT-HWYS' five baseyards (e.g., Keehi, Kakoi, Pearl City, Waianae, and Windward Baseyards) in accordance with the requirements set forth in HAR 11-55, App. B and Part F.2 of the MS4 Permit. Each baseyard's SWPCP contains a Storm Water Monitoring Plan, which is specific to that baseyard. The Storm Water Monitoring Plans describe the sampling methods and procedures utilized when collecting storm water samples at DOT-HWYS' baseyards. The SWPCPs also include a sampling checklist, which delineates procedures for proper water quality sampling at baseyards.

DOT-HWYS annually monitors storm water runoff at each baseyard for the parameters specified in Part F.2 of the MS4 Permit. One sample is collected from each baseyard's sampling collection point at least once per calendar year, during a representative storm event. A representative storm event is defined as rainfall that accumulates more than 0.1 inches of rain and occurs at least 72 hours after the previous measurable rain event of greater than 0.1 inches.

Samples are delivered to an approved laboratory with a completed Chain of Custody form, to ensure the integrity of the samples. Once laboratory analysis is received, a Discharge Monitoring Report (DMR) is completed and submitted to the DOH no later than 60 calendar days after the sample collection date. Additionally, a DMR for each baseyard is included in the Annual Monitoring Report and submitted to USEPA's Integrated Compliance Information System in accordance with Part G.2.b.(6) of the MS4 Permit. A DMR must be submitted with the Annual Monitoring Report even if sampling was not conducted during the calendar year. An explanation as to why sampling was not conducted shall be explained with the submittal.

DOT-HWYS' five baseyards, which are overseen by the Maintenance Section Engineer, are responsible for annually monitoring storm water runoff at the baseyards and preparing corresponding DMRs, as shown in Figure 12-3.

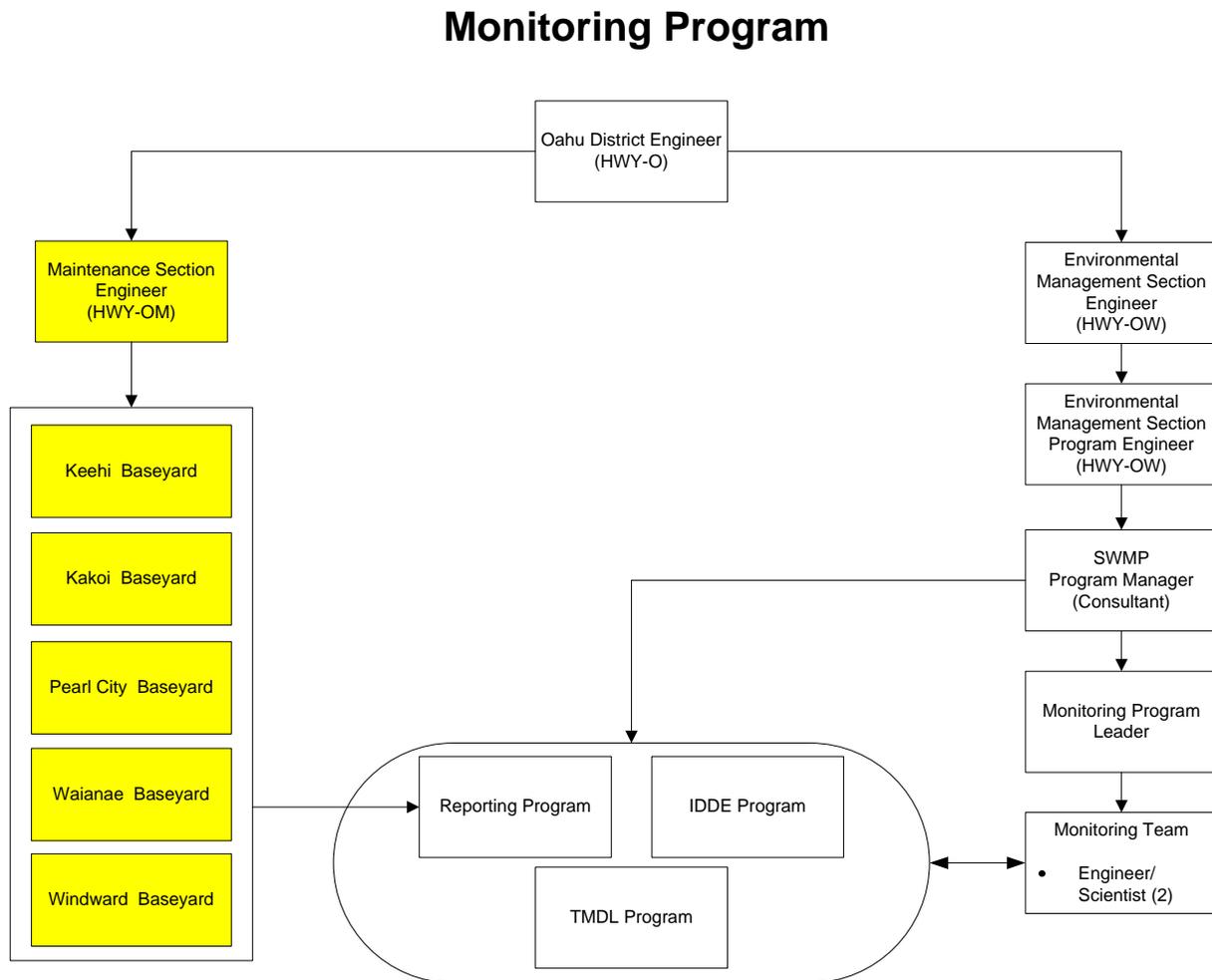


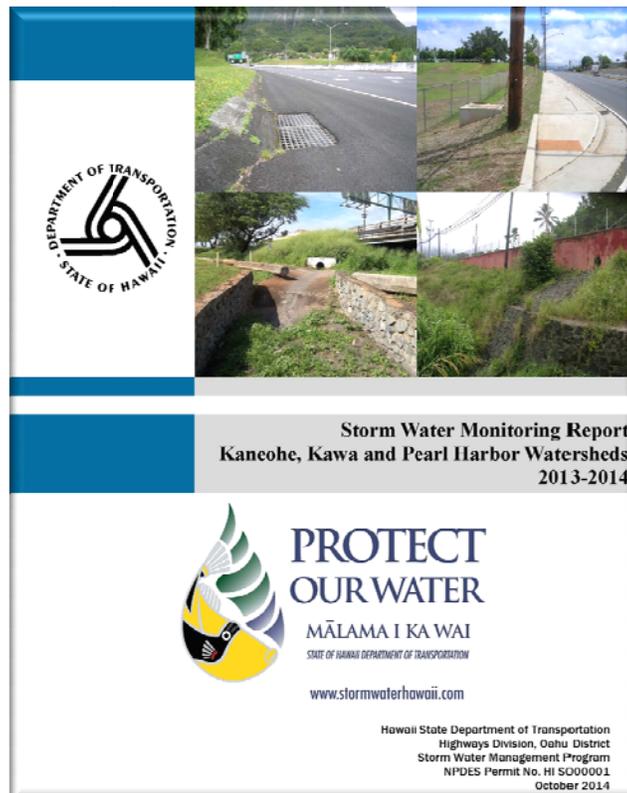
Figure 12-3. Monitoring Program Organizational Chart for Roles and Responsibilities Related to Storm Water Monitoring at Baseyards

12.3 Annual Monitoring Report

Annual Monitoring Reports detail the efforts conducted during the previous monitoring season. As required by Part G.2 of the MS4 Permit, DOT-HWYS submits an Annual Monitoring Report for the samples collected during the past fiscal year, by October 31st of each year.

In addition to the items required by Part G.2.b of the MS4 Permit, Annual Monitoring Reports include the following information:

- A detailed description of sampling activities, including types of samples, frequency of sample collection, and sampling methods used;
- Sampling date, time, location, and analytical results (includes the dates samples were received by the laboratory, analyzed, and reported);
- Analysis of the data to identify water quality trends and potential problems (including a comparison of rainfall events to pollutant loads and discharge volumes); and
- Discussion of potential pollutant source(s) in the event that elevated concentrations of a specific constituent are detected in the samples.



Monitoring runoff within high priority watersheds helps DOT-HWYS assess the characteristics of highway storm water runoff and evaluate potential impacts to stream water quality.

The Monitoring Team is responsible for developing the Annual Monitoring Report. They are supported by the Reporting Program, which coordinates with DOT-HWYS' baseyards to obtain information regarding their monitoring efforts and sampling results, as shown in Figure 12-4.

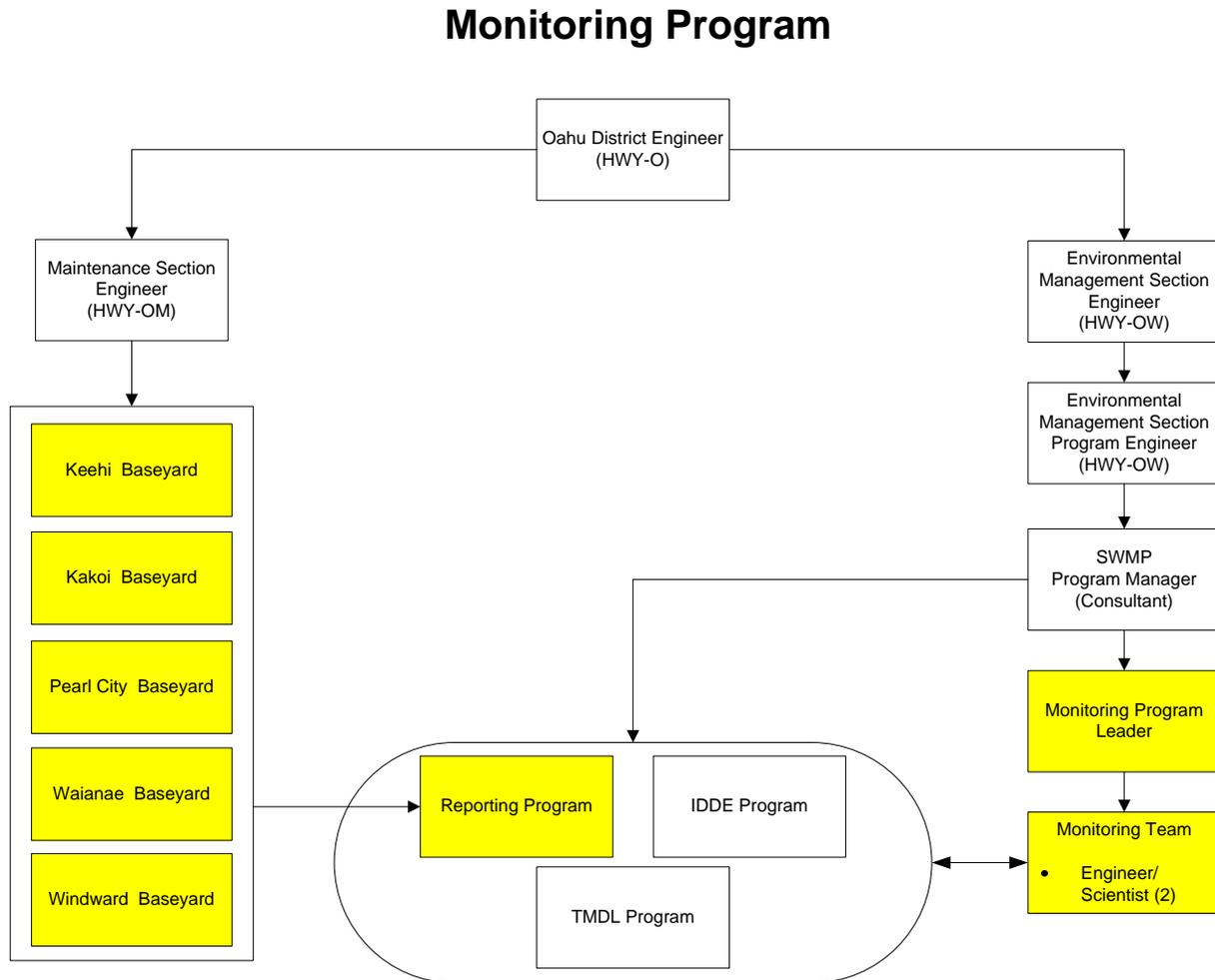


Figure 12-4. Monitoring Program Organizational Chart for Roles and Responsibilities Related to the Annual Monitoring Report

12.4 Monitoring Program Effectiveness

Table 12-2 provides measurable standards/milestones for the BMPs discussed in this chapter and DOT-HWYS' strategy for monitoring the effectiveness of their implementation.

Table 12-2. Standards/Milestones for the Monitoring Program

Section	BMP	Standard/Milestone	Monitoring Effectiveness
12.1	Annual Monitoring Plan	<ul style="list-style-type: none"> • Submit an Annual Monitoring Plan (AMP) by June 1st of each year, for the extent of the MS4 Permit term. • Implement the AMP to assess water quality issues resulting from storm water discharges to receiving waters. • Assess the impacts to receiving waters resulting from storm water discharges. • Identify sources of specific pollutants. • Detect and eliminate illegal connections and illicit discharges. • Assess the water quality issues in watersheds resulting from storm water discharges. 	<ul style="list-style-type: none"> • Milestone completed on June 1st of each year. • Provide a written narrative of past fiscal year's activities in the Annual Monitoring Report (AMR). • Utilize monitoring data from DOT-HWYS and others to assess impacts to receiving waters. • Identify specific pollutant sources based on inspections, water quality monitoring results, and other sources. • Report illegal connections and illicit discharges, and provide follow-up on their elimination. • Utilize monitoring data from DOT-HWYS and others to assess watershed issues.
12.2	Storm Water Monitoring at Baseyards	<ul style="list-style-type: none"> • Conduct water quality monitoring at DOT-HWYS' baseyards during a representative storm event, for the parameters required in Part F.2 of the MS4 Permit, once per calendar year. • Submit DMRs within 60 days of sampling and with the AMR. 	<ul style="list-style-type: none"> • Report water quality monitoring completion dates for each DOT-HWYS' baseyard in the AMR. • Maintain proof of submittals.
12.3	Annual Monitoring Report	<ul style="list-style-type: none"> • Submit an AMR by October 31st of each year, for the extent of the MS4 Permit term. 	<ul style="list-style-type: none"> • Milestone completed on October 31st of each year.