

CHAPTER 11

MUNICIPAL INDUSTRIAL FACILITIES PROGRAM

The Municipal Industrial Facilities Program takes a deliberate approach to assessing the source and type of potential pollutants associated with operations conducted at municipal industrial facilities (i.e., baseyards), and strategically implements the BMPs necessary to reduce the discharge of pollutants from baseyards and related maintenance activities to the MEP. HWY-OM is responsible for implementing and overseeing the Municipal Industrial Facilities Program.

The Municipal Industrial Facilities Program includes the following control measures:

1. Inspect baseyards.
2. Submit and implement Storm Water Pollution Control Plans (SWPCPs).
3. Implement BMPs during baseyard operations and maintenance activities.
4. Provide training to baseyard staff, including training a supervisor or designee(s) at each baseyard who is responsible for overseeing daily activities and ensuring SWPCP implementation.

The Municipal Industrial Facilities Program is administered in accordance with the MS4 Permit and Consent Decree requirements outlined in Table 11-1 and Table 11-2, respectively.

Table 11-1. MS4 Permit Requirements for the Municipal Industrial Facilities Program

MS4 Permit Reference	SWMPP Section
<i>Part E.1 DOT-HWYS Municipal Industrial facilities (i.e., baseyards) covered under this permit shall comply with the requirements in HAR, Chapter 11-55, Appendix B. The following baseyards are covered under this permit: Keahi, Kakoi, Pearl City, Waianae, and Windward Baseyards.</i>	Section 11.1
<i>Part E.2 An individual at each facility (e.g., yard foreman) shall be charged with ensuring implementation of the SWPCP. This individual shall be trained to implement the SWPCP, including but not limited to, collecting storm water samples and analyzing samples for temperature and pH, conducting inspections, identifying deficiencies and performing corrective actions. To ensure consistency and provide assistance and oversight, the Permittee shall identify an individual, also trained in the above independent of any specific baseyard, who shall conduct inspections of all five (5) baseyards semi-annually.</i>	Section 11.1.1 Section 11.1.4
<i>Part E.3 The Permittee shall submit within 90 calendar days from the effective date of this permit for review and acceptance, the CWB NOI General Form, CWB NOI Form B and SWPCP for each baseyard, which has not yet been submitted and be included within its SWMP Plan. The SWPCPs must be implemented upon submittal to DOH.</i>	Section 11.1.2
<i>Part E.4 The Permittee may add new or currently existing Municipal Industrial facilities into this permit by requesting in writing to the DOH. Along with a written request, the Permittee shall submit the applicable NOI Forms and SWPCP, and other attachments to the DOH for review and comment, including updating its SWMP Plan. Upon acceptance of the information, the DOH will acknowledge by letter, the inclusion of the facility into this permit. The SWPCP must be implemented upon the start-up of the facility or for an existing municipal</i>	

MS4 Permit Reference	SWMPP Section
<i>industrial facility; the SWPCP must be implemented upon submittal of the written request.</i>	
Part E.5 <i>For the submittal of facility information, please contact the CWB for the forms and submittal instructions.</i>	

Table 11-2. Consent Decree Requirements for the Municipal Industrial Facilities Program

Consent Decree Reference	SWMPP Section
Pg 15, Section V.9.e(1) <i>To ensure consistency and provide assistance and oversight, HDOT shall identify an individual, also trained to conduct inspections and identify areas for BMP improvement and independent of any specific baseyard, who shall conduct inspections of all six baseyards at least quarterly.</i>	Section 11.1.1

11.0 Program Organization

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

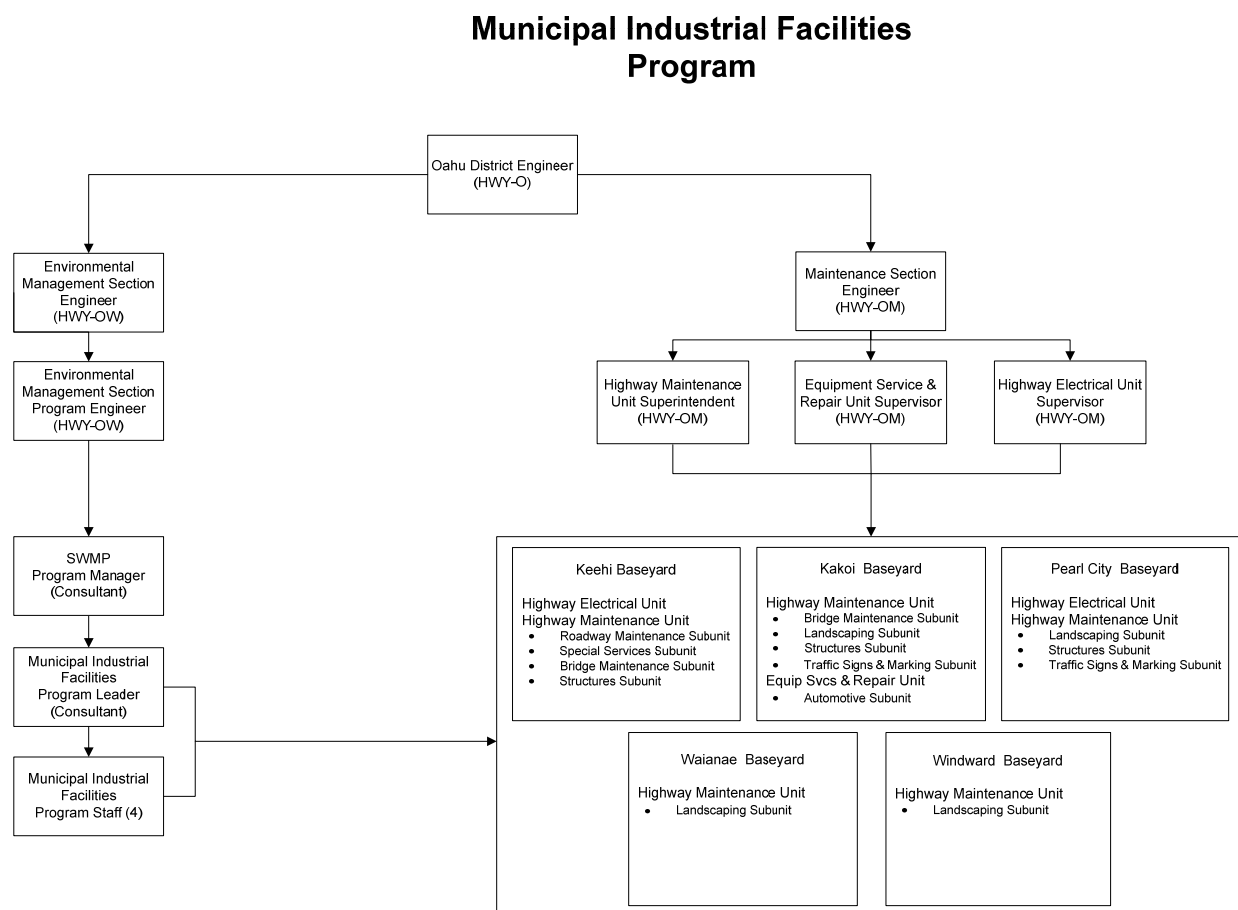


Figure 11-1. Municipal Industrial Facilities Program Organizational Chart
(Note: The number in parenthesis indicates the number of individuals involved.)

11.1 Baseyard Overview

DOT-HWYS owns and operates five industrial baseyards on Oahu that are covered by the MS4 Permit and required to comply with HAR, Chapter 11-55, Appendix B (HAR 11-55, App. B). The Municipal Industrial Facilities Program provides the framework for the proper management of those baseyards.

The five baseyards, named for their locations, are:

- Keehi;
- Kakoi;
- Pearl City;
- Waianae; and
- Windward Baseyards.

Figure 11-2 depicts the locations of these five baseyards.

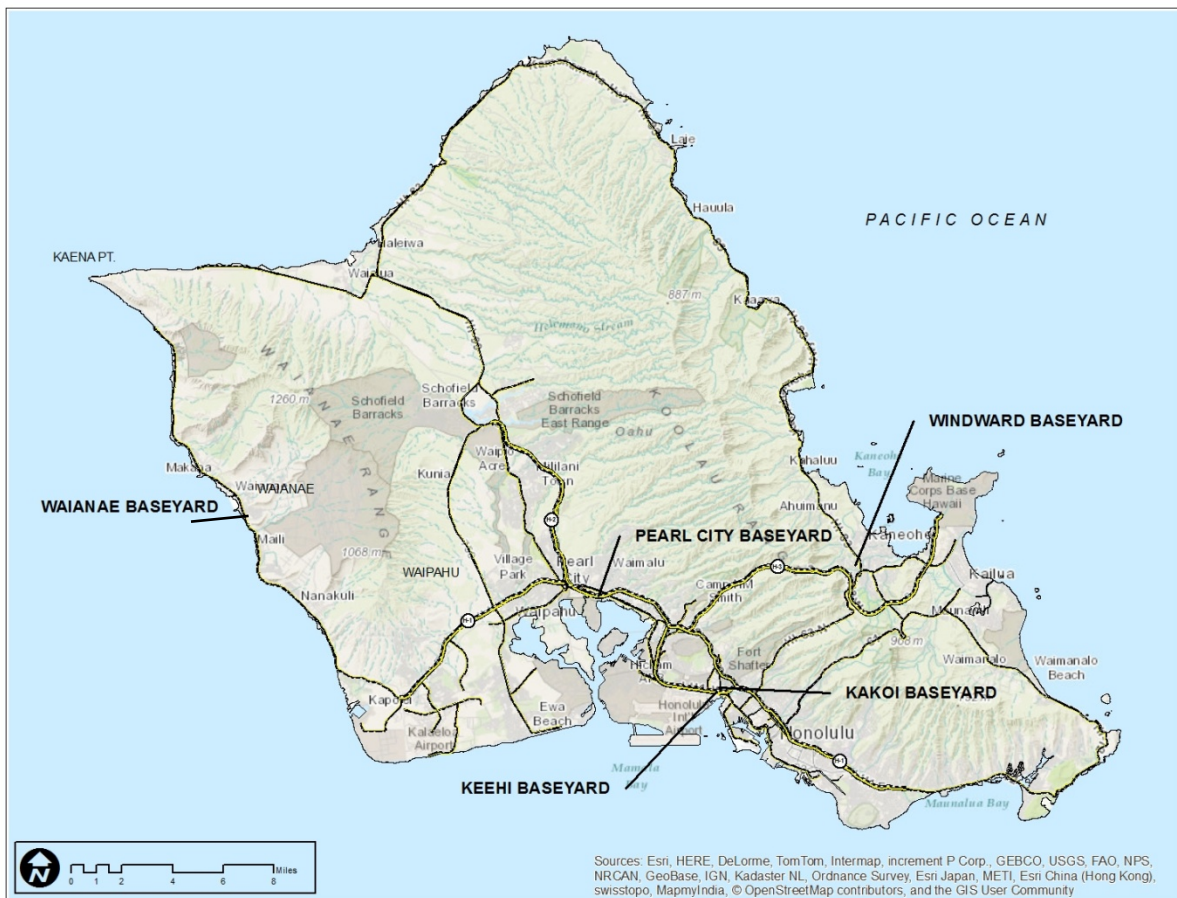


Figure 11-2. Locations of DOT-HWYS' Oahu Baseyards

In general, baseyards support maintenance activities conducted by HWY-OM and various DOT-HWYS' units and subunits. They are primarily used for parking and storing light vehicles and heavy equipment. Baseyards are also used to store various hazardous materials (e.g., paint, herbicide, petroleum products, etc.), raw materials (e.g., aggregates), and traffic marking and safety devices (e.g., guardrails, chain-link fence, traffic signs, etc.). Vehicle wash racks are operated at the Keehi, Pearl City, Waianae, and Windward Baseyards. Certain activities are conducted at the Kakoi Baseyard only, including vehicle and equipment fuel dispensing via diesel and gasoline underground storage tanks (USTs), used oil storage, and light vehicle and heavy equipment repair and maintenance. Solid and hazardous waste, scrap metal, green waste, mattresses, and rubber tire waste are handled at the Keehi Baseyard prior to recycling or disposal. A dewatering facility is operated at the Pearl City Baseyard. Section 11.2 provides further information regarding the activities conducted at each baseyard.

The baseyard operations described in this section are carried out by the various units, subunits, and personnel depicted in Figures 11-3 through 11-6.



Only the Kakoi Baseyard has a vehicle and equipment fuel station with dispensing via diesel and gasoline underground storage tanks.

11.1.1 Baseyard Inspections

In order to provide assistance, pollution control consistency, and additional oversight, an inspector that is independent of any specific baseyard conducts quarterly inspections of the baseyards, as dictated by the Consent Decree. Upon termination of the Consent Decree, inspections may be reduced to a semi-annual frequency, as required by Part E.2 of the MS4 Permit. The AMS is used to track inspection dates, findings, and, if applicable, corrective actions. Inspection findings are accompanied by photograph documentation.

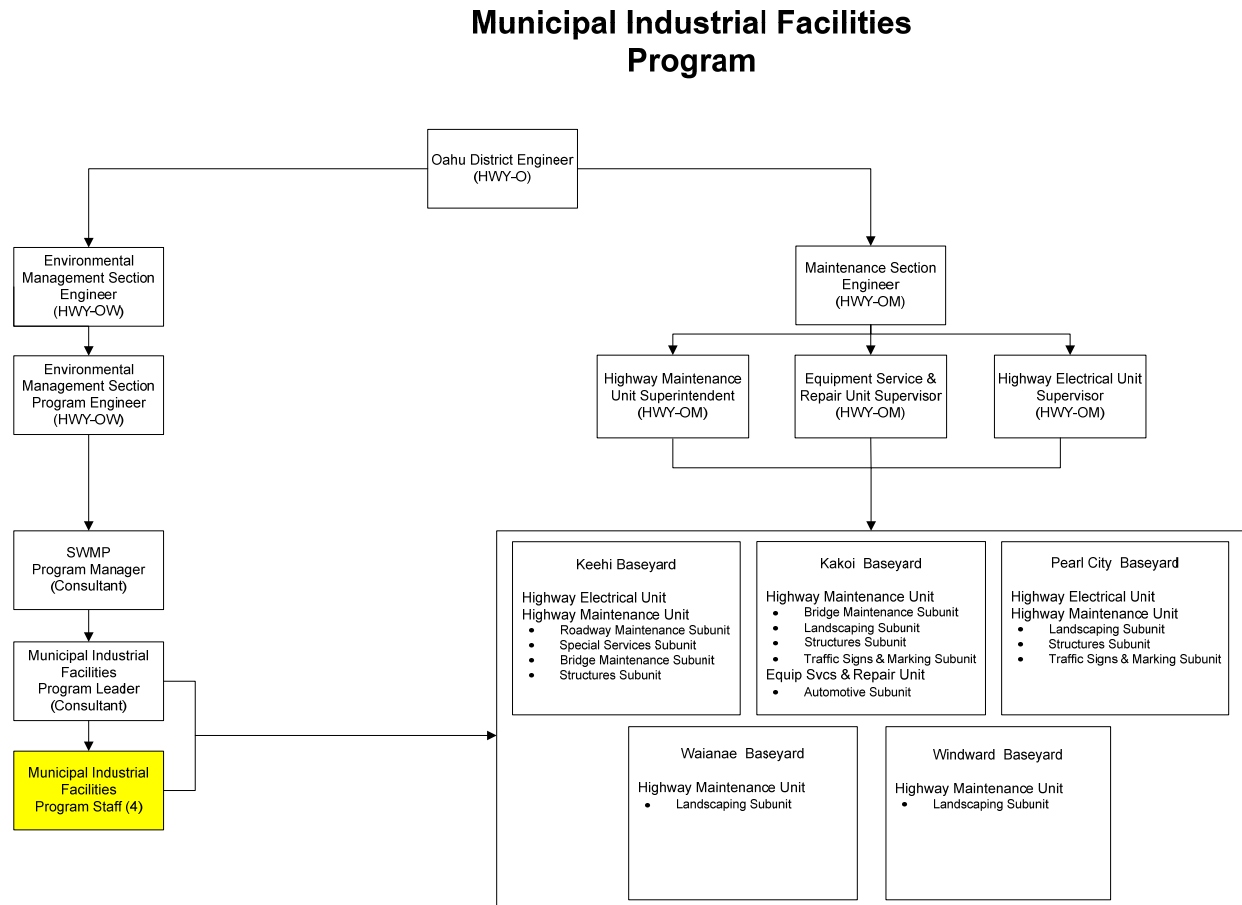


Figure 11-3. Municipal Industrial Facilities Program Organizational Chart for Roles and Responsibilities Related to Baseyard Inspections

11.1.2 SWPCPs Implementation

The Municipal Industrial Facilities Program sees that all baseyards are operated and maintained in full compliance with their respective SWPCPs and the stipulations set forth by HAR 11-55, App. B. As required by the MS4 Permit, Part E.3, an Industrial Storm Water Discharge Notification Form and a SWPCP were submitted for all five baseyards within 90 days of the effective date of the MS4 Permit. The SWPCPs are available on www.stormwaterhawaii.com. Any changes made to SWPCPs will be disclosed in the Annual Report.

The SWPCPs establish the BMPs that are implemented at the maintenance baseyards. The BMPs included in the SWPCPs are site-specific and account for the types of industrial activities conducted and materials stored at a given baseyard. A hard copy of the respective SWPCP is kept at each baseyard. In order to minimize the discharge of pollutants in storm water runoff, HAR 11-55, App. B dictates the content of the SWPCPs and establishes water quality monitoring requirements for the baseyards. As stipulated, SWPCPs include the following information:

- Brief facility description;
- Detailed site map;
- Discussion of drainage areas;
- Pollutant control strategy;
- Spill prevention and response plan;
- Information about previous leaks and/or spills over a five year period;
- Information regarding storm water discharges that required notification;
- Inspection checklist; and
- Storm water monitoring plan.

The storm water monitoring plan for each baseyard includes a rationale for selecting water sampling locations, a description of sample collection methods, a list of parameters to be monitored, the sample type, test procedures, detection limits, flow calculation methods, procedures for data collection, and inspection procedures.

Spill prevention and response plans are included in each baseyard's SWPCP, and spill response materials are kept on-site at each facility.

Contact information for the supervisor of each baseyard, and the personnel that are to be notified in the case of an emergency spill, including the Emergency Coordinator and Division Environmental Engineer, are listed in each SWPCP. Some SWPCPs have multiple pollution control contacts because these baseyards support multiple units or subunits.

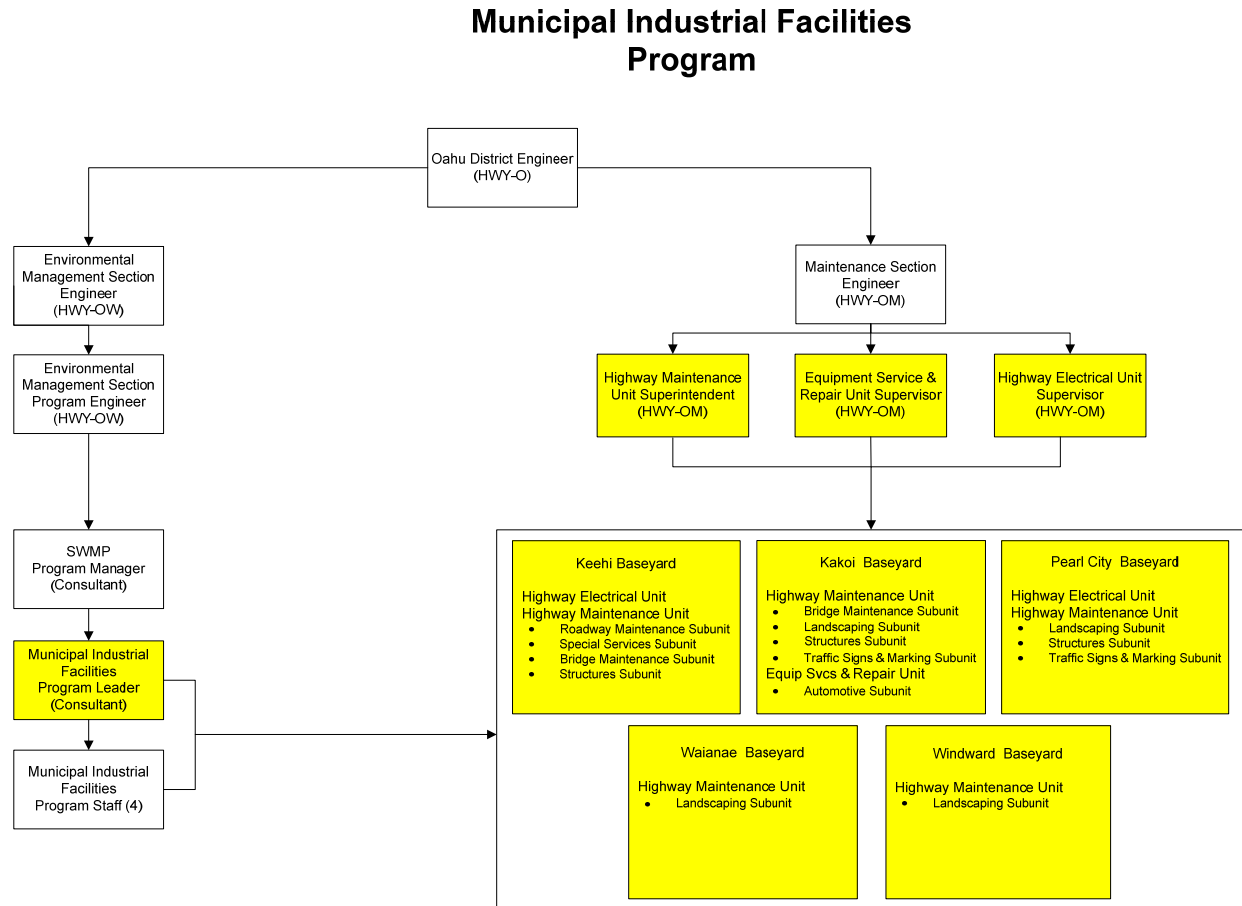


Figure 11-4. Municipal Industrial Facilities Program Organizational Chart for Roles and Responsibilities related to SWPCP Implementation

11.1.3 BMP Implementation

Preventative, source control strategies are the most cost-effective approach to reducing the discharge of pollutants to storm water runoff. Proper BMP implementation is central to protecting the quality of receiving water.

The pollutant control strategies found in the SWPCPs outline the BMPs used to minimize the discharge of pollutants at each baseyard. The strategies list potential pollutants and recommended BMPs for each type of industrial activity conducted on-site. Industrial activities and their corresponding BMPs are separated into activity-based categories, such as good housekeeping, baseyard operations, washing, fueling, vehicle and equipment storage, material storage, waste management, and structural BMPs. Photos and a brief description of each BMP provide an easy-to-follow, site-specific approach to proper BMP implementation.



Keehi Baseyard vehicle and equipment wash rack is designed to contain, collect, treat, and recycle wash water for vehicle washing.

It is important to select appropriate methods of material storage that reduce the risk of potential pollutants contaminating storm water runoff. Typically, solid waste picked up from highways and bulk materials, such as gravel, sand, and asphalt, are stored within concrete bins. Materials such as paints, herbicides, and motor oil, are kept in their manufacturers' containers (or other approved containers) and are typically stored indoors. If hazardous materials are stored outdoors, they are placed under cover and on spill prevention pallets, so they will not come in contact with storm water sheet flow. Proper methods for material storage are discussed in detail in the SWPCPs.

The *Maintenance BMPs Field Manual* (Appendix I.1) provides additional guidance for baseyard personnel on proper BMP selection and implementation.

The site descriptions, operations, drainage characteristics, and potential pollutants associated with each baseyard will be discussed at length in Section 11.2.

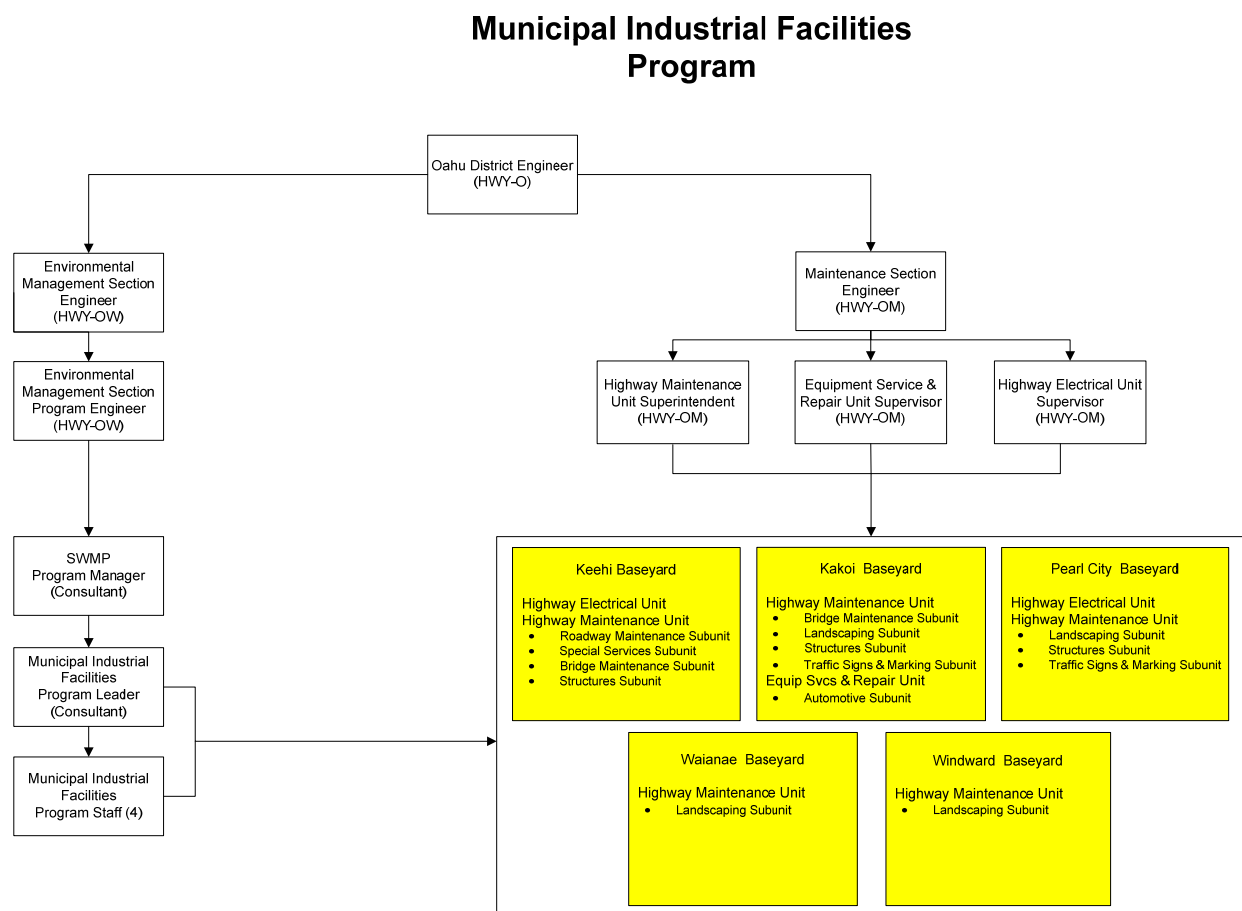


Figure 11-5. Municipal Industrial Facilities Program Organizational Chart for Roles and Responsibilities related to BMP Implementation

11.1.4 Training

Baseyards support crews that conduct a large portion of their day-to-day activities in the field (e.g., landscaping maintenance, sign replacement, etc.). Maintenance staff, including crews that utilize baseyards, annually attend the Maintenance Baseyard Storm Water Training (Section 9.2). The training covers topics such as the identification of potential sources of pollutants, BMP and SWPCP implementation, and staff's role in protecting water quality both at baseyards and in the field.

The Maintenance Baseyard Storm Water Training addresses the following topics:

- Content and application of the *Maintenance BMPs Field Manual*;
- Identification of potential sources of pollutants;
- BMP selection and implementation;
- Trainees' roles in protecting water quality;
- SWMP general awareness;
- Environmental policy and MS4 Permit requirements;
- EMS overview;
- Vehicle washing;
- Fuel handling;
- Vehicle maintenance;
- Material storage;
- Erosion and sediment control;
- Debris control; and
- Chemical applications.

In addition to attending the Maintenance Baseyard Storm Water Training, baseyard supervisors or designee(s) are trained on the following activities, as required by Part E.2 of the MS4 Permit:

- SWPCP implementation;
- Collecting storm water samples;
- Analyzing samples for temperature and pH;
- Conducting inspections;
- Identifying deficiencies; and
- Performing corrective actions.

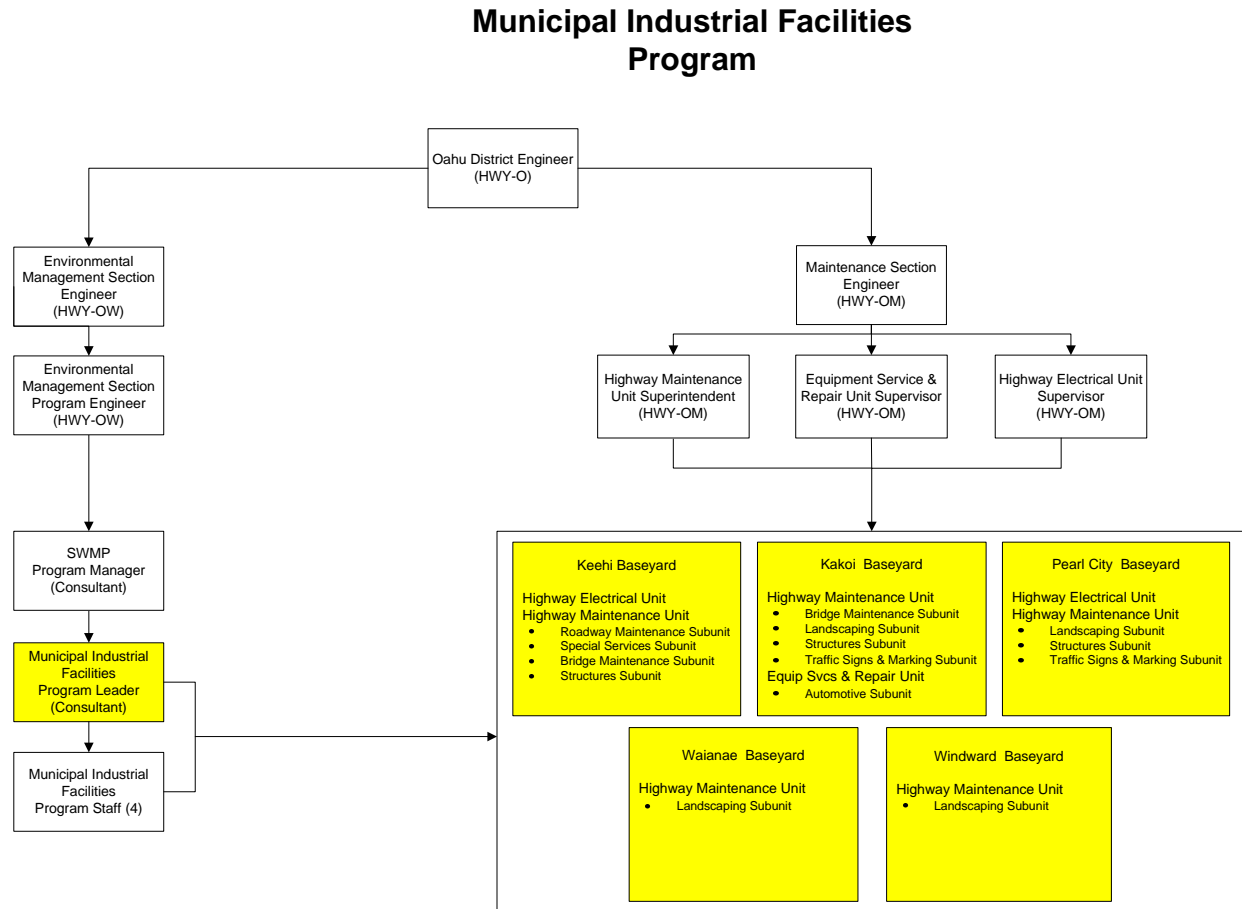


Figure 11-6. Municipal Industrial Facilities Program Organizational Chart for Roles and Responsibilities Related to Training

11.2 Baseyard Descriptions

This section provides brief descriptions of the site layout, uses, drainage conditions, and potential pollutants associated with each baseyard. More detailed descriptions are provided in the baseyards' SWPCPs.

11.2.1 Keehi Baseyard

The Keehi Baseyard is located at the Keehi Viaduct, beneath the Interstate H-1 Freeway, in Honolulu.

Site Description and Use

The baseyard has an elongated shape that is bordered on the north and south sides by the westbound and eastbound lanes of Nimitz Highway, respectively. The baseyard is bordered on the east side by Moanalua Stream. An unnamed canal runs west to east through the middle of the site and drains into the Moanalua Stream.

The Keehi Baseyard contains the following DOT-HWYS' Electrical and Maintenance Units:

- Highway Electrical Unit;
- Roadway Maintenance Subunit;
- Special Services Subunit;
- Bridge Maintenance Subunit; and
- Structures Subunit.

The facility is used as a storage area for DOT-HWYS' maintenance supplies and equipment. Equipment and materials stored on-site include vehicles, street sweepers, vacuum trucks, trucks and trailers, and materials supplies. The baseyard is also used to temporarily store solid and hazardous wastes picked up from DOT-HWYS' right-of-ways throughout Oahu, prior to transport and disposal at an appropriate facility.

The Highway Electrical Unit occupies the western-most portion of the site. In addition, the Highway Electrical Unit uses an area near the eastern boundary to store telephone and light poles. The Roadway Maintenance Subunit is responsible for maintaining the waste storage area located in the southeastern corner of the site. The Special Services Subunit, which includes plumbers, street sweepers, and vacuum truck operators, utilizes the site primarily to store their trucks, vehicles and parts. The Bridge Maintenance Subunit occupies the northwestern portion of the site (woodworking shop and storage compound), and the Structures Subunit occupies the northeastern portion of the site (storage compound). There is an office building, which consists of three trailers. Vehicles stored at this baseyard are parked near the office and along the southern perimeter. The site also has a vehicle wash rack that is designed to contain, collect, treat, and recycle wash water for vehicle washing. A designated hazardous waste storage area is located at the entrance of the baseyard, close to the guard shack.

A site map of the Keehi Baseyard is provided in Figure 11-7.

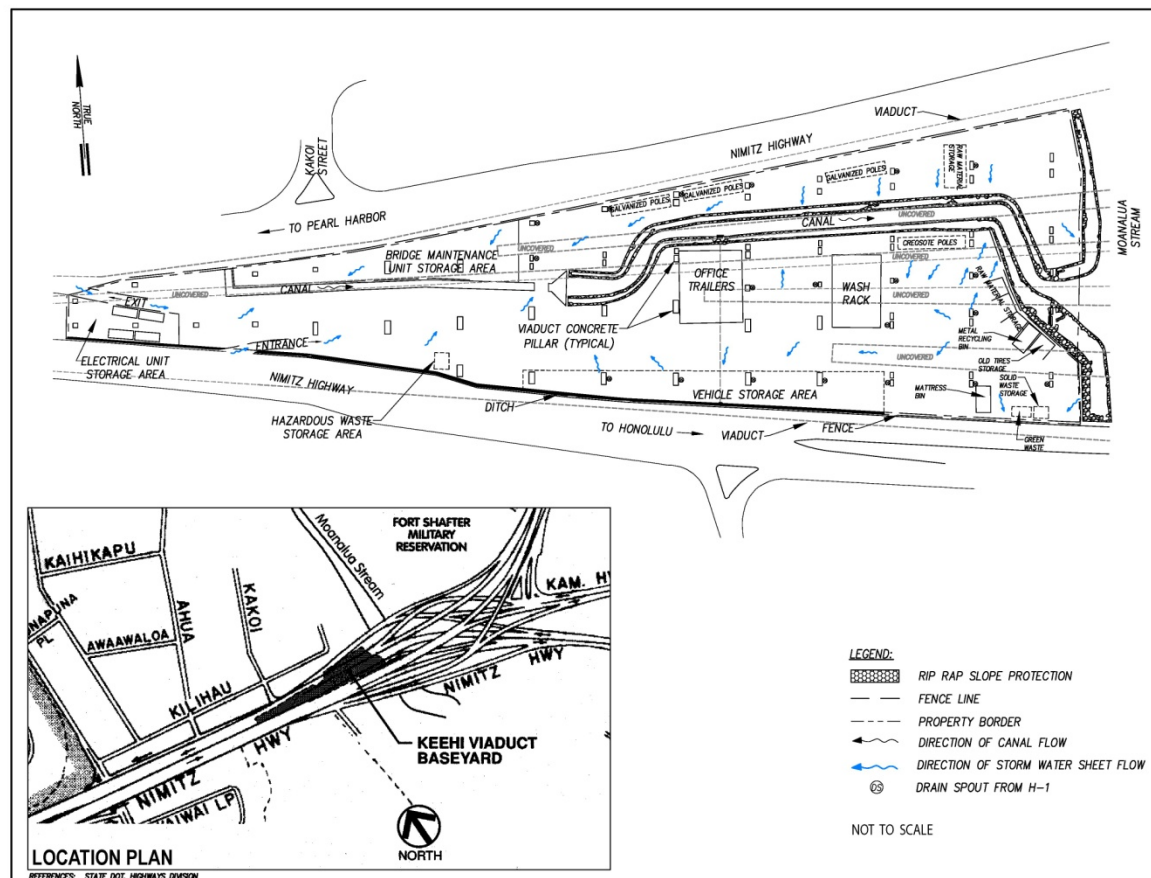


Figure 11-7. Site Map of Keehi Baseyard

Drainage Characteristics

There are no drainage inlets on-site. However, the drainage ditch along the southern boundary of the site is connected to the unnamed canal that runs through the center of the site via an underground pipeline that runs beneath the offices.

The majority of the site is under the cover of the freeway viaduct and therefore, is not exposed to rainfall. However, storm water can flow through the site from the entrance and exit to Nimitz Highway, the uncovered areas of the site, and from the freeway viaduct downspouts. Storm water runoff generally sheet flows either to the unnamed canal or the southern drainage ditch.

Storm water can enter the unnamed canal either directly or through the discharge pipe from the southern drainage ditch. Berms have been placed on the land surface surrounding the unnamed canal to prevent debris from flowing into the waterway. The unnamed canal flows from west to east through the center of the site into the Moanalua Stream, which is considered a Class 2, Inland Stream. The Moanalua Stream, which borders the eastern edge of the site, empties into Keehi Lagoon, which is identified as a Class A, Embayment.

Potential Pollutants Associated with Baseyard Activities

Potential pollutants associated with activities at the Keehi Baseyard may include:

- Universal and hazardous wastes;
- Petroleum products (e.g., gasoline, diesel, motor oil, and hydraulic oil);
- Herbicides (e.g., Roundup®);
- Minor leaks/drips of oils and lubricants from vehicles;
- Hazardous material storage;
- Miscellaneous paints and solvents;
- Tar from tack oil spray;
- Soaps, detergents, and wash waters;
- Creosote-treated wooden telephone poles;
- Street sweepings, green waste, and solid waste; and
- Sand, gravel, etc.



Keehi Baseyard storage areas for solid waste and raw materials are beneath the Interstate H-1 Freeway viaduct.

11.2.2 Kakoi Baseyard

The Kakoi Baseyard is located in Mapunapuna, an industrial and warehouse district in Honolulu.

Site Description and Use

The Kakoi Baseyard is occupied by the following DOT-HWYS' Maintenance and Equipment Service and Repair Units:

- Bridge Maintenance Subunit;
- Landscaping Subunit;
- Equipment Service and Repair Unit;
 - Heavy Automotive Subunit
 - Small Engine Shop
 - Welding Shop
- Structures Subunit;
- Traffic Signs and Marking Subunit; and
- District Warehouse.

Except for limited portions of landscaped areas, the entire site is paved. The DOT-HWYS Oahu District Office Administration Building is located in the northwest portion of the property with a Fuel Station located to the east of the building. The Maintenance Building is located along the southwestern portion of the property. The Sign Shop and Marking Subunit Storage Area are located in the southwestern corner. The District Warehouse is located along the southern portion of the property and the Landscaping Subunit occupies the southeastern corner of the baseyard. The Equipment Service and Repair Unit (Heavy) is located in the western portion of the property, and the Automotive Subunit is located in the central portion of the property. Shops and maintenance crews use the baseyard to store equipment and materials and to support various DOT-HWYS' maintenance operations. The Equipment Service and Repair Unit repairs vehicles and equipment and also operates the Small Engine Shop and the Welding Shop. With the exception of refueling vehicles and equipment, all significant maintenance operations and activities occur under cover or indoors. The baseyard does not maintain raw material stockpiles or perform any vehicle or equipment washing. These activities are conducted at the nearby Keehi Baseyard.

A site map of the Kakoi Baseyard is provided in Figure 11-8.

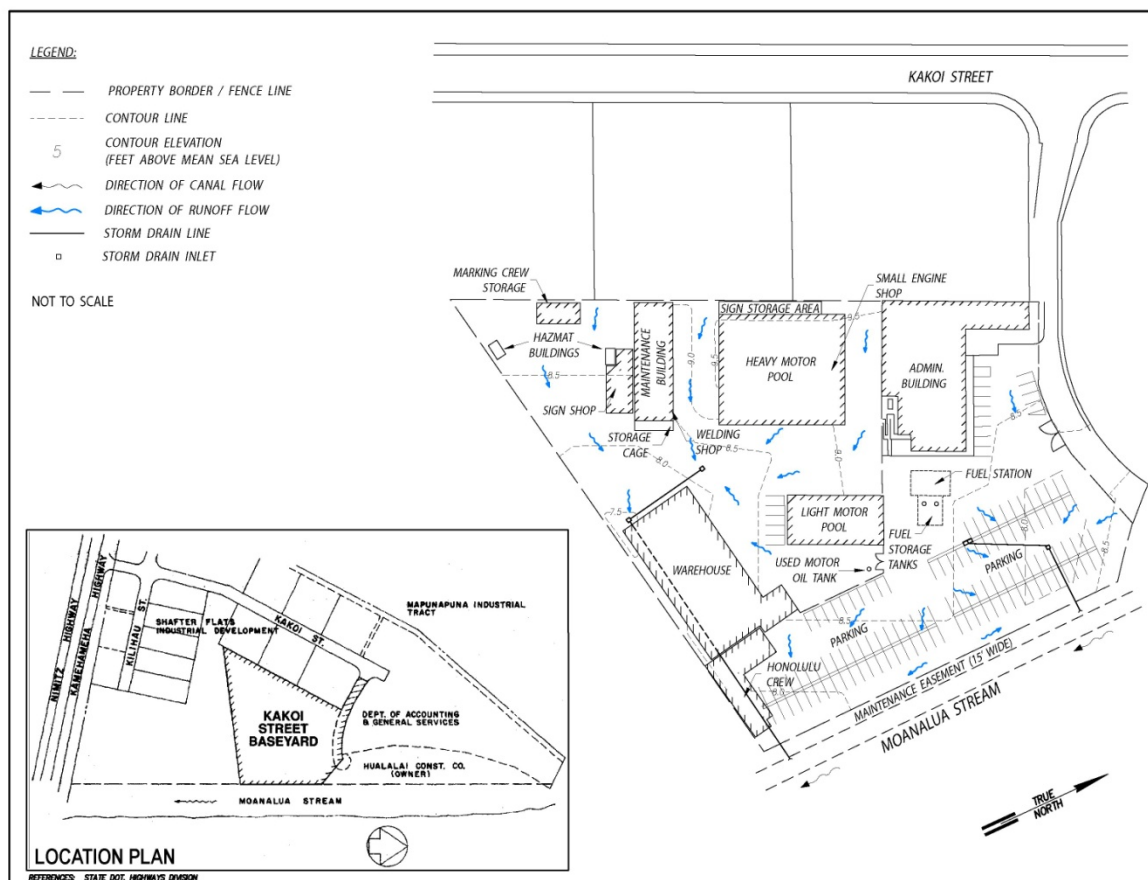


Figure 11-8. Site Map of Kakoi Baseyard

Drainage Characteristics

The majority of the site is graded towards the paved area in the southern portion of the property where two storm drain inlets are located. These two storm drains are connected to a drain pipe that runs along the southern border of the site and discharges to Moanalua Stream at a point located just off of the southeast corner of the baseyard. Two additional storm drain inlets are located in the parking lot in the northeastern portion of the property. These two storm drains collect runoff from the eastern portion of the site and are connected to a drain pipe that discharges to Moanalua Stream off of the northeastern corner of the baseyard. The property is bordered by Moanalua Stream, and it empties into the Keehi Lagoon.

Potential Pollutants Associated with Baseyard Activities

Potential pollutants associated with activities at the Kakoi Baseyard may include:

- Gasoline and diesel stored in USTs;
- Minor leaks/drips of oils and lubricants from vehicles;

- Miscellaneous paints, solvents, aerosols, adhesives, cleaners, herbicides, and mercury lamps;
- Petroleum lubricants, solvents, brake fluid, hydraulic oil, motor oil, antifreeze, etc.; and
- Used oil stored in USTs.



Kakoi Baseyard shops and maintenance crews use the baseyard to store equipment and materials (top photo). The Light Vehicle and Heavy Equipment Motor Pool is located in the central portion of the property (bottom photo).

11.2.3 Pearl City Baseyard

The Pearl City Baseyard is located in the south central portion of Oahu, beneath the H-1 Freeway in Pearl City.

Site Description and Use

The Pearl City Baseyard contains the following DOT-HWYS' Electrical and Maintenance Units:

- Highway Electrical Unit;
- Landscaping Subunit;
- Structures Subunit; and
- Traffic Signs and Marking Subunit.

The primary purpose of the Pearl City Baseyard is to support roadwork and landscape maintenance conducted nearby by HWY-OM and the Landscaping Subunit. The Landscaping Subunit uses the baseyard to park vehicles and landscape maintenance equipment (e.g., mowers, weed eaters, bobcat loader, etc.) and to store fuels and hazardous materials. Flammable cabinets located inside a storage container are also used to store small quantities of herbicide, gasoline, motor oil, and 2-cycle oil. Occasionally, minor equipment maintenance is conducted within the covered paved areas. Only limited equipment (e.g., lawn mowers, chainsaws, etc.) fueling is conducted on-site. Vehicles are not fueled within the baseyard. The Highway Electrical Unit, Traffic Signs and Marking Subunit, and Structures Subunit also use the baseyard, primarily for the purpose of storing supplies.

Access to the baseyard is available through an unnamed access road off of Lehua Avenue. The access road connects to the baseyard driveway, which forms the southern boundary of the facility. Highway pillars serve to divide the baseyard into different service areas. From west to east, these service areas include: salvage equipment storage, Highway Electrical Unit storage area, Traffic Signs and Markings Subunit storage area, aggregate storage, employee parking and office, wash rack, dewatering area, and Structures Subunit. The majority of the site is situated under the cover of the freeway viaduct and groundcover generally consists of asphalt with isolated areas of exposed soil. The paved areas are used for parking and storage of vehicles and supplies. The paved area is also used to store raw materials, such as gravel, sand, and asphalt. An administration building is located in the central portion of the site, and two Conex shipping containers are used to store equipment adjacent to the raw material storage. The baseyard is outfitted with a wash rack that serves as a vehicle and equipment washing location for numerous landscape and roadway maintenance vehicles and small equipment. The baseyard dewatering facility serves as a pre-treatment location for storm drain wash water derived by roadway maintenance crews. The wash water from the wash rack and liquids from the dewatering facility are processed in oil/water separators prior to being discharged into the City and County of Honolulu's (CCH's) sanitary sewer system. No wash water flows offsite or into any storm drains or natural waterways.

A site map of the Pearl City Baseyard is provided in Figure 11-9.

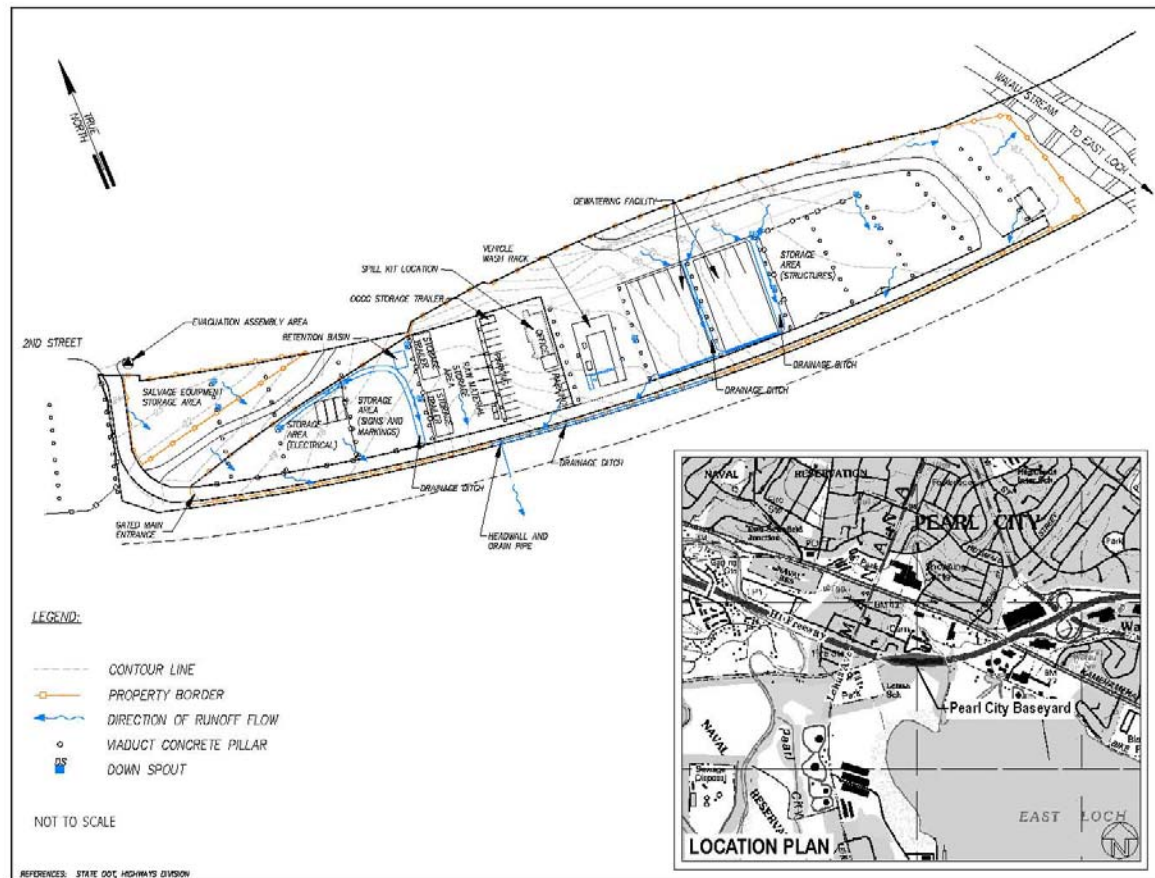


Figure 11-9. Site Map of Pearl City Baseyard

Dewatering Facility

The Pearl City Baseyard operates a dewatering facility to meet this requirement. It includes the following elements:

- Settling basins;
- Filter beds;
- Collection and transport pipes;
- Oil interceptor pit; and
- Post-dewatering debris or storage area.

The settling basin is a concrete-lined area in which saturated debris, sediment, and trash removed from the Oahu MS4 are dumped and left to settle. The settling basins are constructed partially below grade and are accessible by truck ramps. The capacity of the settling basin is approximately 11,370 gallons. The water from the debris undergoes primary filtering in the

filtering beds before it is discharged into the CCH's sanitary sewer system. Like the settling basins, the filter beds are constructed partially below grade and are accessible by truck ramps. As the heavier debris settles in the bottom of the settling basin, the water, which still contains some sediment, flows into the filter bed through openings between the settling basin and drying bed. The flow rate can be controlled by placing stop logs within the gaps. The bottom of the filter bed contains a multi-layered granular filter. A system of collection drain pipes is placed below the filter to capture the water. The pipes direct water to an oil/water separator. The water is then discharged through pipes to the CCH's sanitary sewer system. The materials remaining in the settling basin and the filter beds are transported to a municipal landfill for disposal. Temporary storage areas are available for material that cannot be immediately transported to a landfill.

Drainage Characteristics

Most of the baseyard is situated under the cover of the freeway viaduct, and therefore, is not exposed to rainfall. However, storm water can flow through the property from areas located outside of the freeway viaduct overhang and from several freeway downspouts. There is one drainage headwall located outside of the baseyard area that drains all the water flowing from the baseyard to the south toward a field. Discharge to the field may percolate into the ground or be conveyed to the East Loch of Pearl Harbor. The wash rack, which is used by numerous landscape and roadway maintenance crews to wash vehicles and equipment, is situated on the northern side of the baseyard. The wash water is captured in a trench drain and sump and is processed in an oil/water separator before discharging into the CCH's sanitary sewer system.

The nearest water body is the Waiiau Stream, which is a Class 2 stream that borders the eastern edge of the facility. The Waiiau Stream empties into the East Loch of Pearl Harbor, which is classified by HAR 11-54-5.2(d) as an inland estuary.

Potential Pollutants Associated with Baseyard Activities

Potential pollutants associated with activities at the Pearl City Baseyard may include:

- Metals and minor leaks/drips of oils and lubricants from vehicles and equipment;
- Metals from equipment and material storage areas;
- Petroleum products (e.g., gasoline, diesel, motor oil, and hydraulic oil);
- Herbicides (e.g., Roundup®);
- Sand, gravel, etc.;
- Rubbish;
- Soaps, detergents, and wash waters (wash rack area); and
- Sediment and other materials (dewatering facility).

11.2.4 Waianae Baseyard

The Waianae Baseyard is located on the leeward side of Oahu, along Farrington Highway, in Waianae.

Site Description and Use

The Waianae Baseyard contains the following DOT-HWYS' Maintenance Unit:

- Landscaping Subunit

The baseyard is utilized as a staging area for landscape maintenance operations and minor repair activities on DOT-HWYS' roadways on the western portion of the island of Oahu. Minor repairs may include masonry, carpentry, signs and markings, potholes, guardrails, crash attenuators, chain link fence, and graffiti removal. The baseyard is outfitted with a wash rack that is utilized for washing vehicles and small equipment.

The baseyard includes an elevated paved area that is used for vehicle parking and storage. A mobile office trailer and vehicle shed are located on the pavement on the southwest corner of the site. The only other structures are four shipping containers used as storage; two 20-foot containers side-by-side located near the western area of the baseyard and two 40-foot containers located in the center of the paved portion of the baseyard. The unpaved portion of the facility is used primarily for storage of concrete pillars and raw materials (e.g., sand and gravel). The baseyard is outfitted with a wash rack that serves as a washing location for vehicles and equipment. The wash water is captured in a sump and is processed through a filtration system followed by an oil/water separator prior to being discharged into the CCH's sanitary sewer system. No wash water flows offsite or into any storm drains or natural waterways.



Waianae Baseyard is outfitted with a vehicle and equipment wash rack.

A site map of the Waianae Baseyard is provided in Figure 11-10.

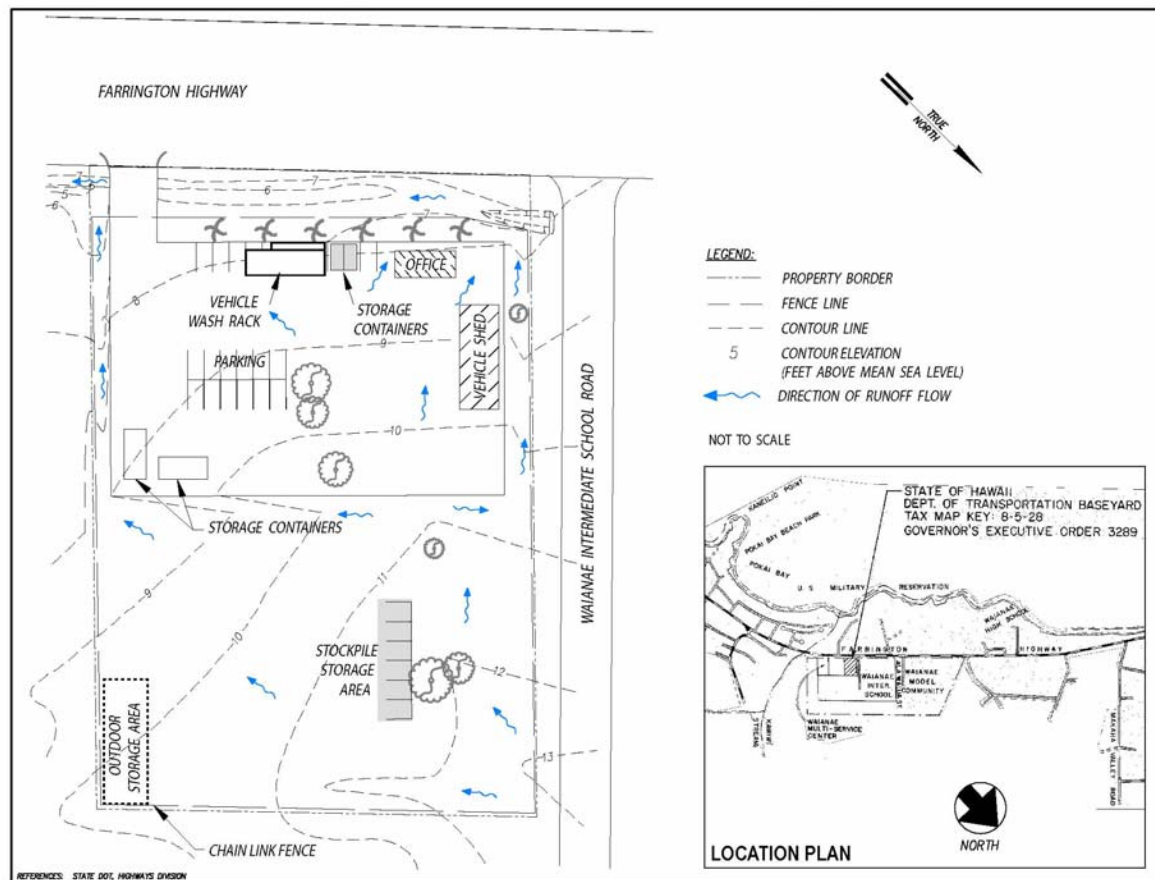


Figure 11-10. Site Map of Waianae Baseyard

Drainage Characteristics

There are no storm drain inlets at the facility. Generally, storm water at the site sheet flows in a southerly direction, towards the south corner of the facility. Drainage from the paved areas typically sheet flows to grassy or landscaped areas, where it infiltrates into the ground. Storm water may also sheet flow into a vegetative swale that is located along the southeastern edge of the property. The vegetative swale leads from the northwest to the southeast, to a storm drain inlet that is located approximately 100 feet southeast of the facility. The storm drain system empties into the Kaupuni Stream and eventually the Pacific Ocean, which is located approximately 1,000 feet to the south of the facility.

Potential Pollutants Associated with Baseyard Activities

Potential pollutants associated with activities at the Waianae Baseyard may include:

- Soaps, detergents, and wash waters (wash rack area);
- Gravel, dirt, concrete, and other materials;
- Minor leaks/drips of oils and lubricants from vehicles;
- Petroleum products (e.g., gasoline, diesel, motor oil, and hydraulic oil); and
- Herbicides (Roundup®).



Waianae Baseyard has designated storage areas for stockpile and aggregate.

11.2.5 Windward Baseyard

The Windward Baseyard is located near the Likelike and Kahekili Highways, on the windward side of the island.

Site Description and Use

The Windward Baseyard contains the following DOT-HWYS' Maintenance Unit:

- Landscaping Subunit

The baseyard is utilized as a staging area for landscape maintenance operations and minor repair activities on DOT-HWYS' roadways on the eastern portion of the island of Oahu. Minor repairs may include masonry, carpentry, signs and markings, potholes, guardrails, crash attenuators, chain link fence, and graffiti removal.

Access to the baseyard is available through a gate on the northeast end of the property that connects to Pookela Street. The baseyard is entirely paved except for landscaped areas along the southern, eastern, and western boundaries of the facility. The paved areas are used for parking and storage of vehicles and supplies. The paved area is also used to store raw materials, such as gravel, sand, and asphalt, as well as concrete barricades on the northern end of the facility. An administration building and vehicle shed are located on the southeastern end of the site, and two enclosed storage units are located within the paved area of the facility. A hazardous material storage container is located just north of the vehicle shed, and a Conex shipping container is used to store equipment in the center of the western side of the parking lot. The baseyard is outfitted with a wash rack that serves as a washing location for vehicles and small equipment. The wash water is captured in a sump and is subsequently processed in an oil/water separator prior to being discharged into the CCH's sanitary sewer system. No wash water flows offsite or into any storm drains or natural waterways.

A site map of the Windward Baseyard is provided in Figure 11-11.

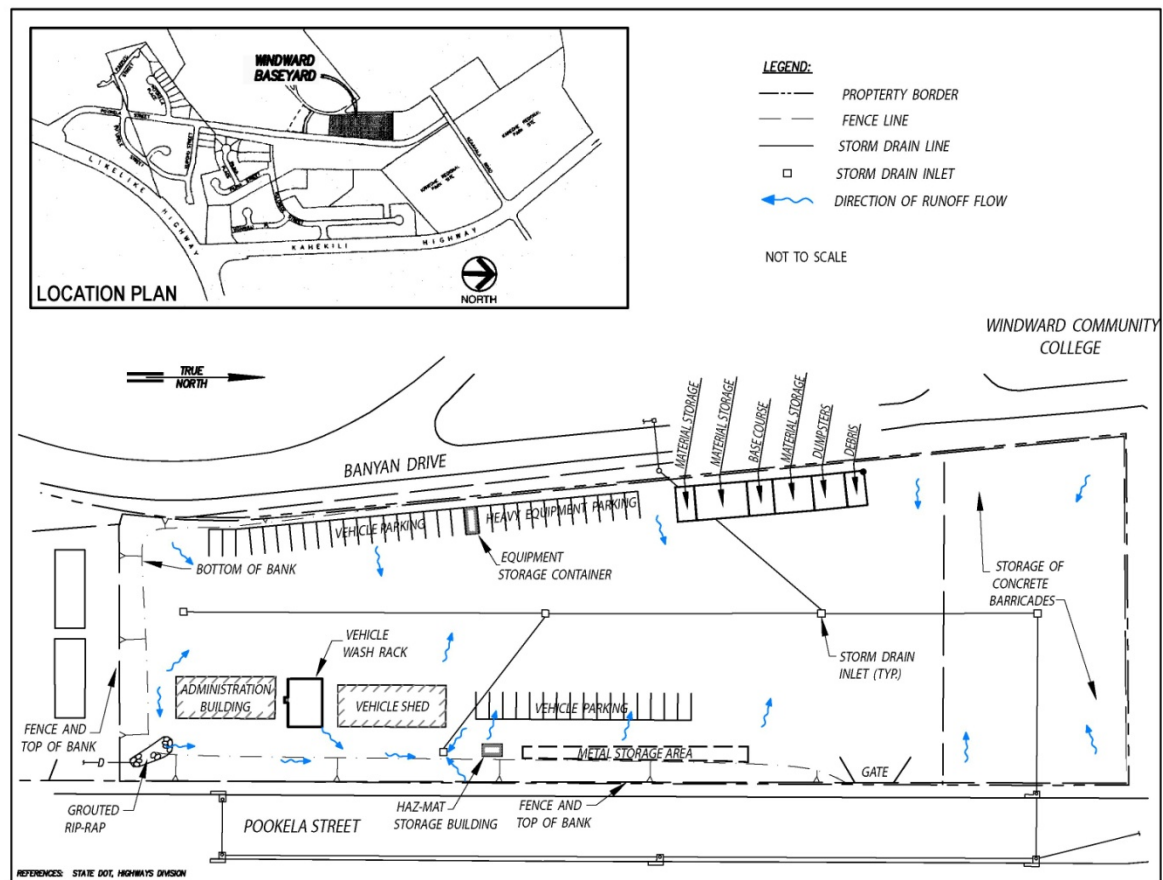


Figure 11-11. Site Map of Windward Baseyard

Drainage Characteristics

The site is graded towards the center of the property, including the landscaped areas, where storm drain inlets are located. There are four storm drain inlets in the center portion of the paved area and one storm drain inlet in the grassy swale near the eastern boundary. The drain inlets are interconnected and flow by gravity to the northernmost inlet within the baseyard. This last inlet is connected to the storm drain system on Pookela Street.

There is a drain pipe that discharges runoff from the HWY-O Kaneohe Field Office property into the Windward Baseyard property at the southeast corner behind the Administration Building. This flow drains through a grassy swale to the storm drain inlet behind the vehicle shed. Additionally there is a curb cut drain inlet located along Banyan Drive on the west edge of the facility that collects runoff from the roadway leading to the state hospital. Flow from this drain inlet connects into the baseyard storm drain system. The nearest water body is the Kapunahala Stream, which is located approximately 1,600 feet to the east of the facility, across Kaneohe Highway. Kapunahala Stream feeds into Kaneohe Stream which empties into the Pacific Ocean.

Potential Pollutants Associated with Baseyard Activities

Potential pollutants associated with activities at the Windward Baseyard may include:

- Petroleum products (e.g., gasoline, diesel, motor oil, and hydraulic oil);
- Herbicides (Roundup®);
- Soaps, detergents, and wash waters (wash rack area);
- Metals from equipment parking and outdoor storage; and
- Gravel, dirt, concrete, and other materials.



Windward Baseyard stockpile and aggregate storage areas are located at the northern end of the facility.

11.3 Monitoring Program Effectiveness

Table 11-3 provides measurable standards/milestones for the BMPs discussed in this chapter and DOT-HWYS' strategy for monitoring the effectiveness of their implementation.

Table 11-3. Standards/Milestones for the Municipal Industrial Facilities Program

Section	BMP	Standard/Milestone	Monitoring Effectiveness
11.1.1	Baseyard Inspections	<ul style="list-style-type: none">• An inspector that is independent of any specific baseyard conducts inspections of the baseyards.	<ul style="list-style-type: none">• Use the AMS to track inspection dates, results and, if applicable, corrective actions. Include photograph documentation.• Compare results from inspections to identify trends and areas for improvement and/or training needs.
11.1.2	SWPCPs	<ul style="list-style-type: none">• Operate and maintain baseyards in accordance with their respective SWPCPs.• Keep a hard copy of the respective SWPCP at each baseyard.• Conduct storm water sampling in accordance with the SWPCPs.• Keep spill response materials on-site at each facility.	<ul style="list-style-type: none">• Conduct SWPCP inspections to help ensure that baseyards are operated and maintained in accordance with their respective SWPCPs, and use the AMS to track inspection results.• As part of the SWPCP inspections, verify the location of the respective SWPCP at each baseyard.• As part of the SWPCP inspections, verify storm water sampling records (Discharge Monitoring Reports) for each baseyard.• As part of the SWPCP inspections, verify that spill response materials are kept on-site at each facility.

Section	BMP	Standard/Milestone	Monitoring Effectiveness
11.1.3	BMP Implementation	<ul style="list-style-type: none"> • Implement the BMPs found in the pollutant control strategies of the SWPCPs. • Implement the BMPs found in the <i>Maintenance BMPs Field Manual</i>. 	<ul style="list-style-type: none"> • Conduct baseyard inspections to ensure that BMPs outlined in the SWPCPs are implemented, effective, and maintained.
11.1.4	Training	<ul style="list-style-type: none"> • Provide annual Maintenance Baseyard Storm Water Training to maintenance staff. • In addition to the Maintenance Baseyard Storm Water Training, provide training to baseyard supervisors or designee(s) on collecting storm water samples, conducting inspections, identifying deficiencies; and performing corrective actions. 	<ul style="list-style-type: none"> • Maintain training records on the HWY-O AS400 database. • Maintain training presentations on the HWY-O server.