

Municipal Field Guide

Second Edition, July 2020



Purpose of Field Guide

This Field Guide is intended to be a quick reference on storm water Best Management Practices (BMPs) to be used by municipal maintenance staff during infield activities. By implementing BMPs during field activities we can prevent and reduce storm water pollution and help improve overall water quality. For facility-related activities (work inside facility boundaries) and BMPs, please refer to the site-specific plans developed for each facility.

This guide is divided into six tabs which are grouped by related activities. General BMPs are provided followed by common field maintenance activities and task specific BMPs. For quick reference, “✓” and “✗” marks have been added to pictures to indicate if the control measure shown is a good or bad example of proper installation and maintenance.

Municipal Activity BMP Info Sheets are referenced for each maintenance task to provide additional information and guidance on source control measures. The Activity BMP Info Sheets can be found in the Municipal Maintenance Storm Water BMP Manual located in the City's website cleanwaterhonolulu.com. At the end of the Field Guide are useful telephone numbers of various City departments, State, and Federal agencies.

Environmental Quality Control – ROH Section 14-12.23

Know the laws and implement storm water BMPs during your daily tasks to prevent pollutants from entering the storm drain system and polluting our waters. The Revised Ordinances of Honolulu, Section 14-12.23(a), Environmental Quality Control-Violation states:

“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 City NPDES (National Pollutant Discharge Elimination System) permit or the water quality standards of the State of Hawaii.”

Cover photo credits: 1. (Top left) CCH DRM Paving East Manoa Road 2. (Middle left) CCH Refuse Collection in Kaneohe 3. (Bottom left) CCH Grounds Maintenance at Frank Fasi Municipal Building (courtesy of CCH) 4. (Top center) Stream Mouth Opening (Ulehawa Channel) Maintenance (courtesy of AECOM) 5. (Bottom center) CCH DRM fixing on-street trash receptacle in Manoa 6. (Far right) CCH Hauula Stream inspection (courtesy of AECOM)

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General BMPs



Road, Street, Parking Lot & Sidewalk Maintenance



Road, Street, Parking Lot & Sidewalk Cleaning



Landscape Maintenance



Vehicle & Equipment Maintenance



Drainage System & Utility Maintenance



Municipal operations can cause sediment and other pollutants to flow into our streams and ocean

When it rains or water is used on site, pollutants can flow with water into the storm drain system, travel downstream, and flow **Untreated** into the ocean.



*Use the **Best Management Practices (BMPs)** in this manual to protect our streams and ocean*

Clean Water Starts With You

What is Storm Water Runoff?

Storm water runoff occurs when rain flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent storm water from naturally soaking into the ground.

Why is Storm Water Runoff a Problem?

Storm water can pick up debris, chemicals, dirt, and other pollutants and flow into a storm drain system or directly to a stream or the ocean. Anything that enters a storm drain system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

The Effects of Pollution

Polluted storm water runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- Excess nutrients — from fertilizers and leaf debris for example — can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.

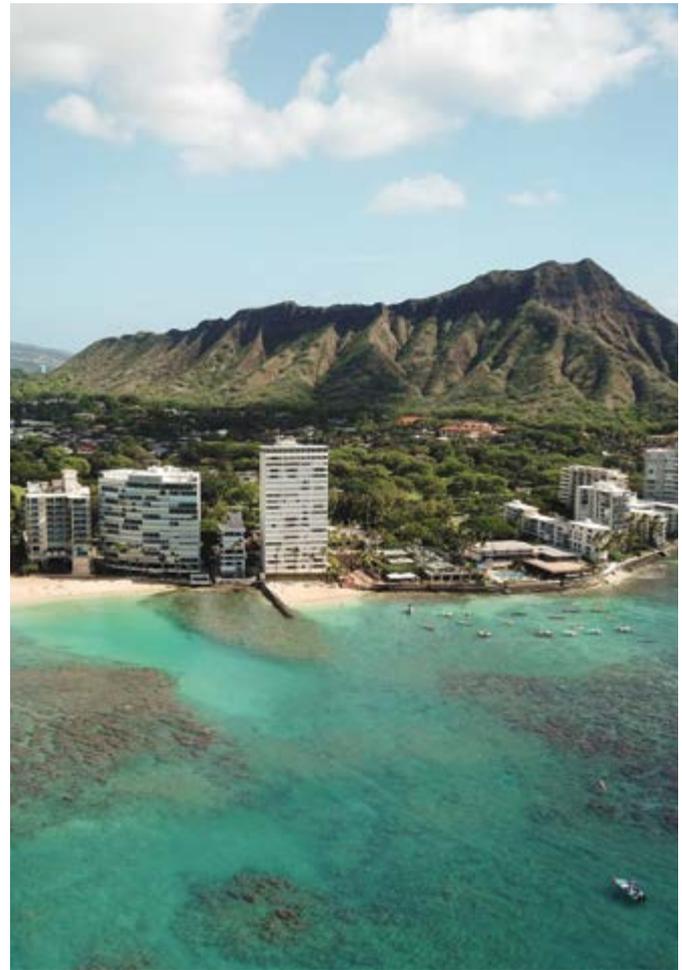
- Debris — plastic bags, six-pack rings, bottles, and cigarette butts — washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life.
- Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Polluted storm water often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

Reference: EPA 833-B-03-002, January 2003

General BMPs

The following General BMPs apply to all field program activities, regardless of whether they are major or minor. Implement these BMPs to prevent and reduce storm water pollution and help improve overall water quality.

- Pollution Prevention
- Rain Response Plan
- Spill Prevention, Control & Cleanup
- On-Street Equipment Staging Area BMPs
- Material Storage
- Waste Collection & Disposal
- Non-Storm Water Management



Pollution Prevention

Covered Activities:	All field program activities and operations.
Targeted Pollutants:	Sediment and debris, fertilizers, pesticides, cleaning solutions, automotive products, paint products, and industrial chemicals.
Why it matters:	General good housekeeping practices prevent harmful materials from entering the storm drainage system and flowing untreated to our streams and ocean.
Implementation:	<ul style="list-style-type: none">• Schedule construction work for dry weather; in the event of unexpected rain, divert runoff around work areas.• See "Rain Response Plan" (pg. 8).• Protect storm drain inlets and adjacent water bodies prior to beginning work.• Do not wash any material, waste, or fluid into the street or storm drain system.• Keep work sites clean and orderly, especially dumpster or other disposal areas and stockpiling or storage areas.• Use less harmful products available.• Hazardous materials and products may be used only where and when needed to complete a task.
Where to get more information:	<ul style="list-style-type: none">• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-3 Housekeeping Practices.



Pollution Prevention

Rain Response Plan

The following will be performed when severe rain is forecast:

Temporarily suspend land disturbing activities including clearing, grubbing, grading, and trenching.

Inspect all BMPs and maintain as needed.

Re-install BMPs that were removed due to active work in the area.

If a severe storm is expected, sweep and remove debris collected around inlet protection devices prior to removal to prevent flooding on surrounding streets.

Secure potential sources of pollution. Cover material stockpiles and liquid material containers with plastic tarps or berm around them if necessary, to prevent transport of materials in runoff.

Place spill pans or absorbent spill pads under leaky construction vehicles for drip control. Properly dispose of any accumulated oily water after the rain event.

Re-inspect project site after the rain event and reposition or maintain BMPs as needed.



If a severe storm is expected, sweep and remove debris collected around inlet protection devices prior to removal so it won't get washed into the drain. Re-inspect project site after the rain event and reposition or maintain BMPs as needed.



If rain is forecast, suspend land disturbing activities including clearing, grubbing, grading, and trenching to avoid polluted runoff washing into storm drains and waterways.

Spill Prevention, Control and Cleanup

Covered Activities:	All field activities with the potential for accidental spills and leaks.
Targeted Pollutants:	Oil and grease, hazardous materials and chemicals (liquid and dry).
Why it matters:	Uncontrolled spills and leaks of hazardous materials can enter the storm drainage system and contaminate our waterways. Always be prepared to contain and control spills at the source.
Implementation:	<ul style="list-style-type: none"> • Inspect vehicles and equipment for leaks and spills daily. • Only transport the minimum amount of material needed for the daily activities. • Bring to the work area appropriate BMP devices for protecting storm drains during field work so that if a spill occurs, the material will be contained. • Keep a spill kit handy (e.g., near storage and fueling areas, in field truck, in heavy machinery cabin). • Place drip pans or absorbent materials beneath all potential drip and spill locations and during fueling. • Store liquid and oil containers in secondary containment or spill pallets. • Respond to spills immediately.
Where to get more information:	<ul style="list-style-type: none"> • Spill Response Decision Tree (see page 12). • Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-1 Spill Prevention, Control and Cleanup.



Place drip pans under idle or leaky construction equipment.



Keep spill kits next to storage, fueling, or maintenance areas and on the field truck at the jobsite.



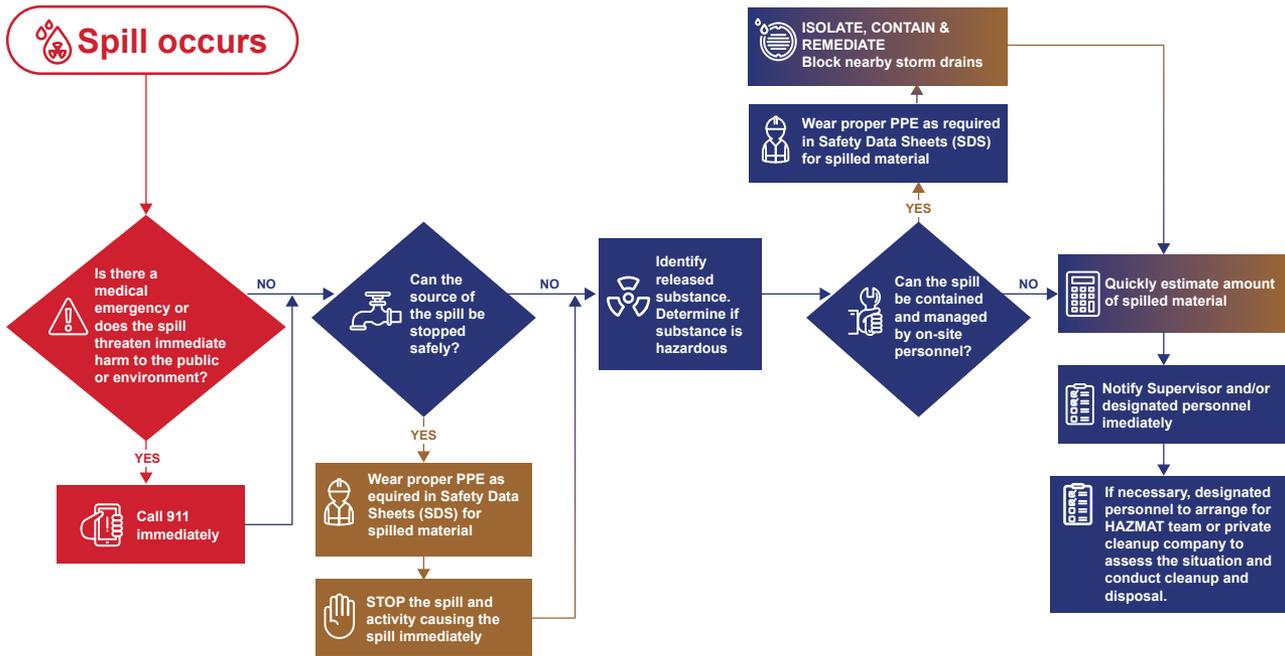
Heavy equipment should not be staged on the right-of-way without drip protection.



Store liquid and oil containers in secondary containment or spill pallets.



Protect storm drains and contain the spill. Use rags or absorbents for clean up of liquids. Use brooms or shovels for cleanup of dry materials.



Notes for Supervisors or designated reporting personnel:

For spills described below, immediately call DFM Storm Water Quality Branch at 768-3242 in addition to calling the following agencies.

Chemical spill to the ground or water:

- Greater than or equal to the reportable quantity* (25 gallons for oil) in any 24-hour period; or
- Less than the reportable quantity* that is not contained and remedied within 72 hours.

Call Hawaii Dept. of Health (DOH) HEER Office at 586-4249 or Hawaii State Hospital Operator at 247-2191 (after hours).

Reportable quantities for other chemicals are listed in Appendix 2-D of the HEER Technical Guidance Manual (TGM). Go to: <http://www.hawaiidoh.org/tgm-pdfs/TGM%20Section%2002-D.pdf>

Any spill amount entering (or threatening to enter) a water body or storm drain system:

Call National Response Center (NRC) at 1-800-424-8802 (24-hour).

This flow chart is only applicable for spills occurring outside of City facility boundaries, or if the facility does not have a site specific plan. The regulatory spill requirements for facilities with a site specific plan are found within the plan.

On-Street Equipment Staging Area BMPs

Covered Activities:	Parking of vehicles and heavy equipment outdoors.
Targeted Pollutants:	Oil and grease, fluids, loose sediment and debris.
Why it matters:	Heavy equipment used outdoors may release oils and fluids during normal operation. Provide and maintain drip protection under vehicles and heavy equipment to prevent drips and spills from washing into storm drains and receiving waters with runoff.
Implementation:	<ul style="list-style-type: none"> • Place equipment staging areas away from storm drains and waterways, if possible. • Install drain inlet protection at catch basins or grated inlets that may be affected. • Park vehicles and heavy equipment entirely within geotextile fabric over plastic sheeting. <ul style="list-style-type: none"> – Install perimeter control such as filter socks to control run-on storm water. – Remove filter socks to allow construction vehicles to drive on/off the staging area. – Do not drive over BMPs. • Inspect vehicles and equipment for leaks and spills daily. • Sweep up sediment tracked onto the street by the end of the day in which the track-out occurs. • Do not wash down the pavement to clean the street. • Wipe up oil and grease droppings immediately.
Where to get more information:	<ul style="list-style-type: none"> • Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-10 Vehicle & Equipment Staging. • Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-1 Spill Prevention, Control and Cleanup.



Good drip protection provided for equipment staging area outdoors (e.g., geotextile fabric over plastic sheeting and filter socks for perimeter controls).



Sediment accumulation in liner and improper perimeter controls can result in polluted runoff. Clean staging area of loose dirt and debris before leaving the site daily.

Material Storage

Covered Activities:	Handling and Disposal of Solid & Liquid Wastes.
Targeted Pollutants:	Sediment and debris, oil and grease, cement, paint products, metals, nutrients (fertilizers), other materials.
Why it matters:	A clean, organized workspace reduces the risk of discharges and creates a safer and more efficient workplace. Prevent exposure of materials to rain and storm water run-on and run-off to prevent storm water contamination.
Implementation:	<ul style="list-style-type: none">• Do not store materials on top of or directly adjacent to storm drain inlets or low-lying areas.• If material stockpiles are stored in the right-of-way, cover them with reinforced tarpaulin or plastic sheeting for temporary protection. Prevent storm water run-on and runoff by enclosing the area or building a berm around it.• Elevate and cover metal rebar, scrap metal, and treated wood products.• Maintain waterproof covers and berms and fix as needed.• Store and contain liquid materials in such a manner that if the container is ruptured, the contents will not discharge, flow, or be washed into the storm drainage system, surface waters, or groundwater.• Secure bags of cement after they are open.• Clearly tag or label all product containers used onsite.• Refer to product's safety data sheet (SDS) for handling and disposal.
Where to get more information:	<ul style="list-style-type: none">• Municipal Maintenance BMP Manual – Activity BMP Info Sheets B-3 Housekeeping Practices; B-12 Liquid Container Storage; B-14 Storage of Solid Materials & Products.



This is a good example of material stockpile BMP in the right-of-way. Material is covered and perimeter controls are provided around stockpile to protect it from rain and run-on.



This is a good liquid material storage solution. Place oil and liquid containers within secondary containment when not in use, away from storm drains and drainage ways.



Bring only the necessary amount of material (e.g., backfill) needed for the day. Unused material stored in the right-of way must be covered and surrounded with perimeter controls. Be sure to sweep up any dirt and debris before leaving the site. Do not flush street into storm drains.



This is a poor example of material storage. Liquid containers should be stored within secondary containment when not in use. Do not store liquid containers in the street or gutter.

Waste Collection & Disposal

Covered Activities:	Waste Collection and Disposal.
Targeted Pollutants:	Trash, debris, floatables, suspended solids, nutrients, animal excrement, oils and greases, metals.
Why it matters:	Waste that is improperly stored/handled is likely to be washed by rains into storm drains and end up in surface waters, posing a risk to human health and our natural ecosystem.
Implementation:	<ul style="list-style-type: none">• Use leakproof trash receptacles and cover them when not in use. This prevents rain from washing waste out of holes and cracks in the bottom of the container.• If waste is not stored in containers, secure waste piles with waterproof cover and perimeter controls.• Keep trash collection areas clean.• Do not fill dumpsters with washout water or any other liquids.• Do not store waste material along the side of the street or near storm drains.• Remove and dispose of wastes as work progresses.• Dispose of solid and hazardous waste appropriately.• Do not discharge or allow to be discharged any leftover or used fluids to the storm drain system.• Recycle/reuse whenever possible.
Where to get more information:	<ul style="list-style-type: none">• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-2 Waste Handling & Disposal.



Keep trash collection areas clean and dumpster lids closed.



Do not overfill dumpsters. Arrange for waste collection before containers overflow. Trash receptacle should be covered when not in use.



Check storage areas for leaks and cover waste containers or piles, except when in use, to prevent rain from washing waste out of holes and cracks in the bottom of the container or piles.



Do not pour any liquid into dumpsters. Allow liquid to soak into absorbent material prior to disposal in order to prevent it from leaking out of holes and cracks in the bottom of the container.

Non-Storm Water Management

Non-storm water discharges are flows that do not consist entirely of storm water. The following are **allowable non-storm water discharges** that may occur from municipal operations. If any of the below are determined to be a source of pollutants, the discharge will no longer be allowed.

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

Prohibited Discharges include but are not limited to:

- ✘ Floor or any building drains directly connected to a stream or the storm drain system instead of a sewer system;
- ✘ Dirt, leaves, or trash entering the storm drain;
- ✘ Fertilizer, pesticide, or herbicide runoff from improper application;
- ✘ Oil or chemical spills entering the storm drain system;
- ✘ Dumping of a chemical substance directly into the street, gutter, or storm drains;
- ✘ Sediment-laden runoff from erosion-prone areas;
- ✘ Water used for dust control leading to runoff;
- ✘ Water used to wash/rinse vehicles and/or equipment;
- ✘ Water used to mop floors;
- ✘ Discharge water from pump priming tests;
- ✘ Water used to wash rinse headboards/backboards.



Water used to mop floors may contain chemicals and other pollutants. Mop water should be disposed of in a designated basin connected to the sanitary sewer. Mop water may NOT be allowed to enter the storm drains.



Headboards/backboards may be rinsed in a designated basin connected to the sanitary sewer or in a landscaped area, if available, so long as it is away from storm drains or other drainage features.

Road, Street, Parking Area & Sidewalk Maintenance

Patching, Resurfacing & Surface Sealing

Covered Activities:	Surface patching, Cold planing, Paving, and Surface Sealing.
Targeted Pollutants:	Sediment, oil and grease, metals, suspended solids.
Why it matters:	Pollutants from construction work and maintenance activities performed in the public right-of-way can enter storm water runoff and wash into storm drains and waterways untreated if not managed properly.
Implementation:	<ul style="list-style-type: none"> • Schedule work for dry weather. See Rain Response Plan (pg. 8). • Protect storm drain inlets and adjacent water bodies prior to beginning work. • Clean and reposition BMPs as needed. • Transfer or load hot bituminous material away from drainage systems or water courses. • Sweep up loose dirt and debris before leaving site. Silt/debris tends to accumulate along curb line. • Clean inlets and remove plugs (barriers) when job is complete.
Where to get more information:	<ul style="list-style-type: none"> • Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-24 Road & Street Maintenance.



Roadway paving



BEFORE: This storm drain inlet protection is not effective. The BMP is damaged and does not properly protect both grate inlet and curb inlet.



AFTER: This is a good storm drain inlet protection BMP consisting of filter fabric under grate inlet and filter sock blocking curb opening.



This is a good installation of storm drain inlet protection in roadway. The BMP protects curb inlet opening and is well-maintained.



This is a good installation of storm drain inlet protection during roadway maintenance. Filtration device protects curb inlet opening while filtering runoff from the work area.



This is a poor example of storm drain inlet protection. The storm drain inlet lacks protection and is at risk of receiving cold planing fines and debris.



This storm drain inlet protection needs maintenance. The filtration device is "falling" into catch basin.



This is a good example of storm drain inlet protection. Filter fabric is placed under grated storm drain inlet.



This is a good example of storm drain inlet protection for a combination curb and grate drain inlet. Filtration devices are positioned to protect both drain openings.

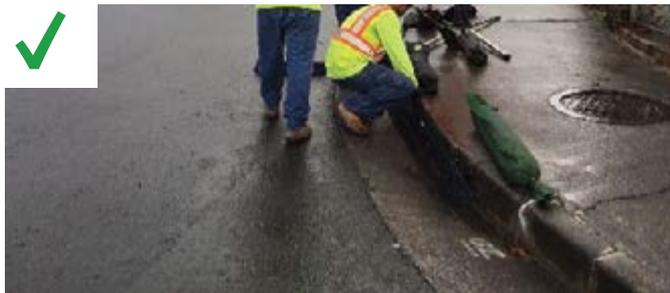
Maintenance of Drain Inlet BMPs is essential:



Check BMP for accumulated sediment, observe its condition and check proper placement.



Remove accumulated sediment and debris.



Reset or replace BMP as needed to protect entire catch basin opening. At the end of the project, clean, remove, and dispose of BMP.

Pavement Marking

Covered Activities:	Roadway Striping and Painting.
Targeted Pollutants:	Paint products.
Why it matters:	Roadway striping and painting activities may result in discharges to the storm drain system if not managed properly.
Implementation:	<ul style="list-style-type: none">• Schedule pavement striping work for dry weather.• Transfer & load paint and thermoplastic material away from storm drain inlets and waterways; do this offsite if possible.• Use a drop cloth underneath material transfer area to catch drips or spills.• Test and inspect striping equipment prior to use.• Have a spill kit readily available.
Where to get more information:	<ul style="list-style-type: none">• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-24 Road & Street Maintenance.



Pavement striping

Sidewalk, Curb & Gutter Repair

Covered Activities:	Repair of Damaged Sidewalks, Curbs & Gutters, and Catch Basins.
Targeted Pollutants:	Sediment and debris, cement slurry, oil and grease, metals.
Why it matters:	Repair of existing structures in the right-of-way can contribute pollutants and discharges of construction materials and wastes into the storm drain system, if not managed properly.
Implementation:	<ul style="list-style-type: none">• Schedule concrete work for dry weather.• Install inlet protection before start of work.• Mix only what is needed for the job; return leftover material to the mixer.• Secure bags of cement after they are open.• Shovel or vacuum saw-cutting slurry as it is generated. Do not allow it to reach storm drains.• Conduct washout offsite or in a designated area onsite, away from the street or any storm drains. Construct and maintain washout to contain all liquid and concrete waste generated onsite.• Dispose of concrete wastes properly.
Where to get more information:	<ul style="list-style-type: none">• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-24 Road & Street Maintenance.



This is an excellent BMP for saw-cutting activities. Slurry is vacuumed as it is generated to keep it from reaching storm drains.



Perimeter controls are installed around open curb and gutter work area to prevent exposure to rain run-on and run-off.



This is an excellent concrete waste management BMP. Liquid washout and concrete waste generated is contained in a leak-proof washout containment.



When repairing drain structures, install appropriate BMPs to prevent construction materials from entering the storm drain system.



This is an example of poor concrete waste management. Leftover concrete material was dumped directly on the ground (at right) instead of returned to the mixer.

Road, Street, Parking Lot & Sidewalk Cleaning

Street Sweeping

Covered Activities:	Street Sweeping.
Targeted Pollutants:	Sediment and debris, trash, bacteria, pathogens, oil and grease.
Why it matters:	Littering and vehicle use in City roads and streets are significant sources of pollutants to storm water. Routine street sweeping minimizes the amount of pollutants entering the storm drain system and surface water bodies.
Implementation:	<ul style="list-style-type: none">• Maintain a consistent sweeping schedule to remove sediments and trash.• Operate sweepers at manufacturer's requested optimal speed to minimize dust.• Record curb miles swept and amount of waste collected.• Do not store swept material along the side of the street or near a storm drain inlet.• Dispose of street sweeping debris and dirt at an authorized landfill.
Where to get more information:	<ul style="list-style-type: none">• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-24 Road & Street Maintenance.



Street sweeping by use of a mechanical broom sweeper or regenerative air sweeper with mist sprayers maximize pollutant removal. Do not flush street to avoid runoff.

TIP

To increase sweeping effectiveness:

- Post permanent or temporary street sweeping signs in problematic areas.

Power Washing & Cleaning of Buildings, Bus Stops, Plazas & Sidewalks

Covered Activities:	Pressure Washing & Cleaning of Surfaces and Building Exteriors.
Targeted Pollutants:	Sediment, suspended solids, trash, bacteria, pathogens, oil and grease, metals, soaps/detergents/chemicals.
Why it matters:	Pressure washing can help improve the quality of our storm water by capturing and removing harmful pollutants that accumulate in our urban environment. However, wash water (with our without soaps or other chemicals) into storm drains is prohibited because it flows untreated into our streams and ocean.
Implementation:	<ul style="list-style-type: none"> <input type="checkbox"/> Sweep up all visible trash, debris, and dirt and dispose properly. <input type="checkbox"/> Absorb any oil spots with absorbents or rags and sweep up and dispose. <input type="checkbox"/> Know where your wash water may flow to or collect. <input type="checkbox"/> Install storm drain inlet protection at or around drains to divert, block, or filter wash water. <input type="checkbox"/> Use the least amount of water needed to clean the area and no soaps. <input type="checkbox"/> Preferred Disposal Option: Direct wash water to a nearby landscaped area that can absorb the water completely. <input type="checkbox"/> Alternatively, wash water that has been filtered through the appropriate filtration devices may enter the storm drain. <input type="checkbox"/> If chemicals are needed to disinfect the area, use the least amount of product possible and collect wash water for reclamation or disposal in sanitary sewer. See TIP box (next page). <input type="checkbox"/> After washing: Sweep up any sediment or debris that may have accumulated at the storm drain and dispose properly. Remove filtration devices once the job is done.
Where to get more information:	<ul style="list-style-type: none"> • Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-18 Power Washing & Cleaning of Surfaces.



This is a good example of bus stop and sidewalk pressure washing. Cleaning of surfaces is done using water only. No chemicals are used unless absolutely necessary.



A filtration device (e.g., wattle) is placed at catch basin to filter wash water (without chemicals) before it enters the storm drain. Ensure entire drain opening is protected before pressure washing.



Vacuum wash water if it contains soaps/detergents/chemicals and dispose properly. See TIP.

TIP Wash Water Disposal

- Wash water containing chemicals may NOT enter the storm drain.
- Obtain permission from property owner(s) before disposing of pressure washing water down a drain on private property as certain connections may be unsuitable (e.g. drains connected to septic systems).
- Disposing wash water into the City's sanitary sewer will require a discharge permit from ENV.

Graffiti Removal/Paint Over

Covered Activities:	Graffiti Removal/Paint Over.
Targeted Pollutants:	Paint products, trash and debris, rinse water.
Why it matters:	Improperly managed paint and paint wastes may wash into the gutter or storm drains and harm aquatic life.
Implementation:	<ul style="list-style-type: none">• Transport paint and materials to and from the job site in containers with secure lids and tied down to the transport vehicle.• Have a spill kit readily available.• Use a ground cloth to collect drips and debris.• Do not transfer or load paint near storm drain inlets or waterways.• Do not overfill paint container.• Use less toxic water-based paints, gels or sprays whenever possible.• Do not dump rinse water from paint application equipment into storm drains or waterways.• Recycle or dispose of unused paint appropriately, see opala.org.
Where to get more information:	<ul style="list-style-type: none">• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-24 Road & Street Maintenance.



If using water-based paints, rinse tools in a sink/basin that is connected to the sanitary sewer.

Landscape Maintenance

Fertilizer Application

Covered Activities:	Fertilizer Application.
Targeted Pollutants:	Fertilizer products containing nutrients (nitrogen and phosphorus).
Why it matters:	Storm water runoff from fertilized areas may flow into our surface waters and cause algal blooms which smother coral reefs, deplete oxygen, and can be toxic to fish.
Implementation:	<ul style="list-style-type: none">• Follow the product label, it is the law!• Use the minimum amount needed for the job.• Use a slow release fertilizer with a balanced N-P-K to avoid excess growth requiring more frequent mowing or trimming.• Calibrate fertilizer distribution to avoid excessive application.• Before applying irrigation water, sweep pavement and sidewalk if fertilizer is spilled on these surfaces to prevent polluted runoff.
Where to get more information:	<ul style="list-style-type: none">• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-20 Landscape Maintenance



Follow labels when using lawn care chemicals (the label is the law!).

Pesticide & Herbicide Application

Covered Activities:	Pesticide & Herbicide Application.
Targeted Pollutants:	Pest and weed control products.
Why it matters:	Pesticides and herbicides are very toxic and persistent in the environment. Apply these products with caution and in accordance with the label instructions to prevent migration into storm drains and receiving waters.
Implementation:	<ul style="list-style-type: none"> • Follow the product label, it is the law. • Read product SDS prior to use. • Do not use if rain is expected. • Do not apply during high winds. • Use the minimum amount needed for the job. • Use for spot treatment. • Apply on an as needed basis, not on a preventative schedule. • Do not mix or prepare near storm drains. • Have spill kit readily available when mixing or transferring product. • Triple rinse containers and use rinse water as product.
Where to get more information:	<ul style="list-style-type: none"> • Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-20 Landscape Maintenance.



Pesticide Regulations

- The State of Hawaii requires a spray applicators license to spray 'restricted use' pesticides. There is no license requirement to spray 'general use' pesticides.

Mowing, Trimming, and Weeding

Covered Activities:	Mowing, Trimming, and Weeding.
Targeted Pollutants:	Green waste - clippings, leaves, and cuttings.
Why it matters:	Green waste put into waterways decomposes and uses up oxygen in the water and can lead to algal blooms and fish kills. It can also obstruct flow and clog downstream culverts.
Implementation:	<ul style="list-style-type: none"> • Do not mow before heavy rains. • Protect storm drain inlets, ditches, and adjacent water bodies prior to beginning work. • Do not cause erosion when conducting mowing activities. • Reestablish vegetation or other erosion control measures on exposed soils. • Gather green waste in mounds, away from storm drains and water courses. • Collect green waste and compost or dispose of as trash. • Do not blow or rake leaves into the street, storm drains, or storm water conveyance systems. • Do not wash any debris into the street or storm drains. • Do not pile grass clippings against the base of trees.
Where to get more information:	<ul style="list-style-type: none"> • Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-20 Landscape Maintenance.



Mowing grass



Implement BMPs during landscape maintenance activities to minimize the discharge of clippings and cuttings to storm water conveyance systems.



Do not blow or dispose of vegetation debris into the street, streams, gulches or storm drainage systems.

Landscape irrigation

Covered Activities:	Irrigation
Targeted Pollutants:	Sediment and debris, nutrients (nitrogen and phosphorus).
Why it matters:	Excessive watering can lead to runoff and washout of lawn care products and debris from landscaped areas into storm drains and waterways.
Implementation:	<ul style="list-style-type: none">• Irrigate slowly or pulse irrigate to prevent runoff.• Repair leaky irrigation systems immediately.• Adjust sprinkler heads to prevent spraying water onto impervious areas.• Choose flowers, trees, shrubs and groundcover that require minimal watering once established.• If re-claimed water is used for irrigation, ensure that there is no runoff from the landscaped area.• If bailing muddy water (e.g. when repairing a water line leak), do not allow muddy water to enter the storm drains; pour over landscaped areas instead.• Check forecast, don't water just before or directly after heavy rainfall events. Turn off timers during periods of moderate to heavy rainfall.
Where to get more information:	<ul style="list-style-type: none">• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-20 Landscape Maintenance



Landscape irrigation



Adjust sprinkler heads to avoid runoff.

Stabilization of Erodible Areas

Covered Activities:	Temporary or Permanent stabilization of exposed areas.
Targeted Pollutants:	Sediment and debris, nutrients.
Why it matters:	City-owned and operated sites with bare soils are prone to erosion by rain and wind. Implement temporary and/or permanent erosion and sediment controls to stabilize soils and reduce pollutant discharges from erodible surfaces.
Implementation:	<ul style="list-style-type: none">• Stabilize loose soils by re-vegetating.• Use soil binders to stabilize soils where seeding practices cannot be used due to season or climate.• Mulch tends to wash away or move due to outside factors, so avoid placing it near the roadway or gutter area.• Select the most appropriate erosion control method based on the conditions leading to the lack of vegetation (e.g., lack of water, poor soils and/or soil compaction; poor fertilization).
Where to get more information:	<ul style="list-style-type: none">• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-15 Contaminated or Erodible Areas



Erosion control mats can minimize soil erosion and sediment migrating to storm drains.



Hydroseeding can be used for temporary stabilization of bare soil areas not subject to heavy traffic.



Erosion and sediment control fencing can provide temporary erosion control and reduce sedimentation until a permanent solution is selected.



Soil binder application along streets and roadways can provide immediate, effective, and inexpensive erosion control to minimize erosion from erodible areas.



Re-vegetating erodible areas where feasible can provide permanent erosion control. Provide adequate perimeter controls until vegetation becomes established.

Vehicle & Equipment Maintenance

Repair

Covered Activities:	Vehicle & Equipment Repair.
Targeted Pollutants:	Oil and grease, fluids, solvents, loose sediment and debris.
Why it matters:	Harmful materials and wastes generated during vehicle/equipment repair processes can contribute pollutants to storm water and cause environmental harm to our waterways.
Implementation:	<ul style="list-style-type: none">• Place drip pans under vehicles or equipment, if leaking. Remove leaky or faulty equipment from the site promptly.• Perform major repairs and maintenance activities (such as oil change or engine work) at a designated facility properly equipped to perform these.• Perform minor routine repair and maintenance, such as greasing of machines or tightening valves, over drip protection and away from storm drains and waterways.• Have a spill kit readily available.• Wipe up leaks or spills with rags or other absorbent material immediately.• Sweep up absorbents when complete. Do not hose down area.• Do not pour fluids and wastes down drains.• Dispose of fluids and wastes according to applicable laws and regulations.
Where to get more information:	<ul style="list-style-type: none">• Refer to General BMPs tab, Spill Prevention, Control and Cleanup.• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-8a Minor Routine Vehicle and Equipment Maintenance & Repair.• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-8b Major Vehicle and Equipment Maintenance & Repair.



Keep drip pans or equivalent drip protection under leaky vehicles or equipment and during routine vehicle and equipment maintenance. Remove leaky or faulty equipment from the site promptly.



Perform major vehicle and equipment repairs and maintenance (such as oil change or engine work) at a designated facility equipped to perform these indoors and under cover.



Wipe up spills with rags or other absorbent material immediately. Remove and dispose of cleanup materials before leaving the site. Sweep up work area when complete. Do not hose down area.

Fueling

Covered Activities:	Vehicle & Equipment Fueling.
Targeted Pollutants:	Oils and fuels.
Why it matters:	Spills or leaks from vehicle/equipment fueling can contribute hazardous pollutants to storm water runoff and contaminate surface waters.
Implementation:	<ul style="list-style-type: none">• Perform fueling at a designated fueling area equipped with drip protection.• Keep spill kits next to the fueling area.• Locate pump emergency shutoff.• Do not leave vehicle/equipment unattended while fueling.• Do not top off fuel tanks.• Check for leaks or spills during pumping of liquids; repair leaks immediately.• Wipe up leaks or spills with absorbent material immediately. Do not hose down the area to a storm drain.
Where to get more information:	<ul style="list-style-type: none">• Refer to General BMPs tab, Spill Prevention, Control and Cleanup.• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-6 Vehicle & Equipment Fueling.



Perform vehicle & equipment fueling at designated City fueling facility, whenever possible. If fueling at the jobsite, use the proper spill prevention and control BMPs.

Cleaning

Covered Activities:	Vehicle & Equipment Cleaning.
Targeted Pollutants:	Oil and grease, sediment, suspended solids, organic compounds, phosphates, metals.
Why it matters:	Vehicle and equipment cleaning performed outdoors or in areas where wash water flows onto the ground can contribute toxic pollutants to storm water runoff and impact surface waters.
Implementation:	<ul style="list-style-type: none">• Avoid performing vehicle and equipment washing at the jobsite.• Perform cleaning and washing at a designated facility with a wash area equipped with an oil-water separator connected to the sanitary sewer or other type of BMPs, whenever possible.• If cleaning outdoors, avoid cleaning with water by wiping down vehicles and equipment.• If water is needed, use the least amount required for the job and no soap. Perform cleaning in an area where water can soak into the ground.• Direct runoff into a landscaped if water does not contain chemicals.• Do NOT discharge to the storm drain system.
Where to get more information:	<ul style="list-style-type: none">• Refer to General BMPs tab, Spill Prevention, Control and Cleanup.• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-7 Vehicle & Equipment Cleaning.



Avoid performing vehicle and equipment washing at the jobsite. Perform these activities at a designated facility equipped with a wash area, whenever possible.

Drainage System & Utility Maintenance

Catch Basin Cleaning

Covered Activities:	Catch Basin and Drain Inlet Cleaning.
Targeted Pollutants:	Trash and debris, sediment, nutrients, animal excrement, oil and grease.
Why it matters:	Maintaining catch basins and drain inlets remove accumulated pollutants, prevent clogging, and restore the systems sediment trapping capability.
Implementation:	<ul style="list-style-type: none">• Clean drainage structures before the wet season.• Clean before the sump is 1/3 full.• Inspect drain line and structures more frequently during the wet season.• Use required equipment for confined space entry.• Perform daily check on assigned truck and attachments, make necessary repairs to prevent discharges.• Dispose of collected waste at a designated disposal site.• Keep accurate logs of number of catch basins cleaned.• Record the amount of waste collected.• Repair damaged drain structures, see pg. 26
Where to get more information:	<ul style="list-style-type: none">• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-22a Drainage System Maintenance (City Facilities).• Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-22b Drainage System Maintenance (Infield Activities).



Regulate and control pressure of water jetting and vacuum apparatus to minimize runoff.



Urban runoff carries trash, leaf debris, sediment, and other pollutants into catch basins. Maintain these structures on a regular schedule to prevent pollutants from being transported directly to our streams and ocean. Prioritize problem areas where sediment or trash accumulates more often.

Stream, Boulder Basin, Stream Mouth Opening & Ditch Cleaning

Covered Activities:	Stream, Boulder Basin, Stream Mouth Opening & Ditch Cleaning.
Targeted Pollutants:	Trash and debris, rocks and silt, vegetation overgrowth, items/obstructions, oil and grease from operation of heavy equipment.
Why it matters:	Clean streams can prevent severe damage from flooding that is caused when debris flows downstream and forms a clog. Implement BMPs during maintenance activities to prevent adverse effects to biological, cultural, and historic resources.
Implementation:	<ul style="list-style-type: none"> • Use standard operating procedures (SOPs) described in Stream Maintenance Manual for various maintenance activities. • Refer to Site-Specific Package for BMPs that apply for each stream site, and for anticipated frequency and schedule limitations. • Follow proper notification procedures prior to start of maintenance work. • Be familiar with Stop Work Procedures described in the Manual. • Do not use compost biofilter socks, soil berms, or BMPs that inhibit fish passage.
Where to get more information:	<ul style="list-style-type: none"> • Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-25 Stream Maintenance. • Stream Maintenance Manual.



BEFORE: Obstructions in streams and conveyance channels pose risk to flowage of storm water during heavy rains. Regular cleaning in trouble-prone areas can go a long way preventing flooding and property damage.



AFTER: Clean streams that are free of garbage are less likely to cause localized flooding and erosion problems downstream.

Illicit Discharges & Illegal Dumping Prevention

Covered Activities:	Illicit Discharges & Illegal Dumping Prevention.
Targeted Pollutants:	Trash and debris, sediment, items/obstructions, spilled substances of unknown origin, toxic compounds.
Why it matters:	Illicit discharges & dumping create unsanitary conditions, blockage, or otherwise become a public nuisance to the health, safety, and welfare of the island residents.
Implementation:	<ul style="list-style-type: none"> • Regularly inspect and clean up hot spots for illegal dumping. • Look for evidence of spills such as paints, discoloring, etc. • Look for odors coming from the drainage system. • Record locations of apparent illegal discharges/illicit connections. • Track flows back to potential dischargers and conduct aboveground inspections. • Once the origin of flow is established, require illicit discharger to eliminate the discharge. • Post “No Dumping” signs. • Install lighting and or/entrance barriers to discourage dumping.
Where to get more information:	<ul style="list-style-type: none"> • Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-22a Drainage System Maintenance (City Facilities). • Municipal Maintenance BMP Manual – Activity BMP Info Sheet B-22b Drainage System Maintenance (Infield Activities).



Post “No Dumping” signs with a phone number for reporting dumping and disposal.



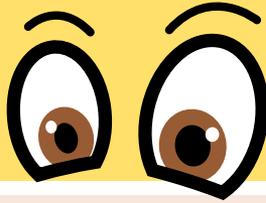
Stencil or demarcate storm drains to prevent illegal disposal of wastes and pollutants.

NO DISCHARGING OR DUMPING

Pollutants like trash affect the health of our neighborhoods, streams and ocean.

When it comes to **ILLEGAL DISCHARGE...**

**IF YOU SEE IT,
REPORT IT!**



- ▶ Use the **Honolulu 311** phone app
- ▶ CALL **911** if actively witnessing
- ▶ Call **768-3300** for past events
- ▶ You can file a report online at: **cleanwaterhonolulu.com**

* The City follows up on reports with education first and enforcement when necessary. Enforcement can include fines up to \$25,000 per violation per day. ROH Section 14-12.23 and 14-12.28



Useful Telephone Numbers

City & County of Honolulu

Environmental Concern Line	768-3300
Department of Emergency Management	732-8960

Department of Planning and Permitting (DPP)

Grading, Stockpiling, Grubbing, Trenching Permits	768-8219
Erosion Control, Grading Plan Review/Approval Process	768-8108
Storm Drain Connection Licenses	768-8106
Effluent Discharge Permit to City Storm Drains—Construction Dewatering	768-8106

Department of Facility Maintenance (DFM)

Effluent Discharges Permit to City Storm Drains—Hydrotesting, Well Drilling, Other Activities (Storm Water Quality Br.)	768-3243
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Department of Environmental Services (ENV)

Industrial Discharges to Sanitary Sewer System (Regulatory Control Br.)	768-3286
Refuse & Recycling (Solid Waste Br.)	768-3200

Hawaii State Department of Health

Stream Protection & Management Br., Commission on Water Resource Management Div	587-0234
Stream Channel Alteration Permit (CWRM Regulation Br.)	587-0225
Dam Safety Program (Engineering Div.)	587-0230

Federal Agencies

US Department of Agriculture—National Resources Conservation Services Pacific Islands Area State Ofc	541-2600
US Army Corps of Engineers—Honolulu regulatory Br. (Permits)	835-4303
US Coast Guard—National Response Center (oil spills or hazardous materials releases)	424-8802
US Environmental Protection Agency, Pacific Islands Contact Ofc.	541-2710

Call “911” to report a situation that may impact public safety or an environmental emergency that requires immediate assistance.

Notes:

1. These telephone numbers were correct at the time of printing but may have changed.
2. General contact information is provided here. Field personnel should follow the proper reporting procedures as established by their Supervisor.

