## A-5.0 MUNICIPAL ACTIVITIES COMPONENT

The municipal activities component of this plan is composed of the following elements:

1. **Section A-5.1**, Program Summary
2. **Section A-5.2**, Model Municipal Activities Program Details
3. **Section A-5.3**, Model Integrated Pest Management, Pesticides and Fertilizer Guidelines
4. **Section A-5.4**, Education and Training

## A-5.1 PROGRAM SUMMARY

The City of Lake Forest implements a municipal program which meets the requirements of Directive F.3.a and in accordance with the City's stormwater ordinance, prevents illicit discharges into the MS4, reduces municipal discharges of stormwater pollutants from the MS4 to the Maximum Extent Practicable, and seeks to prevent municipal discharges from the MS4 from causing or contributing to a violation of water quality standards.

The City of Lake Forest has also incorporated the Model Municipal Activities Program described in **DAMP Section 5** of the Orange County Drainage Area Management Plan (**DAMP**) as the basis for this section of the Local Implementation Plan. Subsequent sections of A-5 describe and outline guidelines, procedures and requirements for the city.

### A-5.1.1 Program Overview

The Local Implementation Plan has been developed to assist municipal staff in complying with San Diego Regional Board Order No. R9-2009-0002 and Santa Ana Regional Board Order No. R8-2009-0030.

The list below provides contact information for and describes the role that each of the various city departments that own, operate, or maintain municipal areas and activities/Fixed Facilities, Field Programs, and Drainage Facilities. For each Department, the contact information for the employee who has the primary responsibility and oversight for ensuring that the program has been implemented has been included.

*Public Works Department*
***Drainage and Flood Control***
Contact Name: Luis Estevez
Title: Public Works Manager
Telephone: 949-461-3485

Responsible for the operation and maintenance of local drainage and flood control facilities throughout the municipality. Activities conducted within the flood control facilities may include the use of pesticides or herbicides, flushing, sediment removal, vegetation and debris removal and a variety of structural repairs.

***Landscape and Park Maintenance***
Contact Name: Luis Estevez
Title: Public Works Manager
Telephone: 949-461-3485

Responsible for the operation and maintenance of landscaping of public parks, including parking lots, buildings and recreational facilities.

***IPM Pesticide and Fertilizer Maintenance***
Contact Name: Luis Estevez
Title: Public Works Manager
Telephone: 949-461-3485

Responsible for implementation of the Integrated Pest Management (IPM) Policy.

***Solid Waste***
Contact Name: Luis Estevez
Title: Public Works Manager
Telephone: 949-461-3485

Responsible for waste management of facilities.

***Street Sweeping***
Contact Name: Luis Estevez
Title: Public Works Manager
Telephone: 949-461-3485

Responsible for street sweeping on all public streets and parking lots.

***Street and Median Maintenance***
Contact Name: Luis Estevez
Title: Public Works Manager
Telephone: 949-461-3485

Responsible for minor repairs on streets, maintenance of medians and rights-of-way adjacent to streets, signage and catch basin stenciling. Maintenance activities include application of pesticides and herbicides to control vegetation.

***Engineering Division***
Contact Name: Theodore Simon
Title: Engineering Services Manager
Telephone: 949-461-3488

Responsible for the administration of public improvement projects.

Other Departments:

***Fire Services (Orange County Fire Authority)***
Contact Name: Michael Boyle
Title: Battalion Chief
Telephone: 949-389-0077

Operates and maintains fire stations throughout the municipality and conducts training exercises and responds to hazardous material spills.

***Police Services (Orange County Sheriff's Department)***
Contact Name: Lt. Doug Doyle
Title: Chief of Police Services
Telephone: 949-461-3541

Operates facilities in the municipality.

A-5.1.2 Program Commitments

The major program commitments and the subsections in which they are described in detail include:

- Maintain/update inventories of Fixed Facilities, Field Programs and Drainage Facilities that exist within the jurisdiction (**A-5.2.1**).
- Prioritize fixed facilities, for the purposes of determining the frequency of inspections; for the San Diego Region, all high priority sites are inspected annually. For the Santa Ana Region, sites are inspected annually, bi-annually and once per permit term for high, medium and low priority sites, respectively (**A-5.2.2**).
- Maintain all Municipal Areas and Activities/Fixed Facilities, Field Programs and Drainage Facilities in accordance with Model Maintenance Procedures and as determined by inspections (**A-5.2.3**).
- Enforce the maintenance requirements through internal procedures and external contract language (**A-5.2.4**).
- Implement an Integrated Pest Management policy (**A-5.3**).
- Educate and train municipal staff (**A-5.4**).

A-5.1.3 Regulatory Requirements

The Model Municipal Activities Program and the Model Integrated Pest Management, Pesticide and Fertilizer Guidelines were developed in order to fulfill the municipal activity commitments and requirements of:

- Section F.3.a of the San Diego Regional Water Quality Control Board Municipal NPDES Stormwater permit, Order No. R9-2009-0002; and

- Section XIV of the Santa Ana Regional Water Quality Control Board Municipal NPDES Stormwater permit, Order No. R8-2009-0030.

## A-5.2 MODEL MUNICIPAL ACTIVITIES PROGRAM DETAILS

### A-5.2.1 Municipal Inventories

An inventory of all Municipal Areas and Activities/Fixed Facilities, Field Programs and Drainage Facilities sites has been compiled and is updated prior to the start of the wet season (October 1). These include all sites meeting the definition of a municipal area or activities/ fixed facility, field program, or drainage facility, as described in **DAMP Section 5.2.1**. Based on this inventory and inspection records, the City of Lake Forest annually evaluates the maintenance frequency for cleaning of MS4 facilities/drainage facilities, including catch basins.

The City of Lake Forest's comprehensive municipal program inventories are included in **Exhibit A-5.I** to this LIP.

### A-5.2.2 Prioritization

In the San Diego Region, Municipal MS4 facilities are prioritized as high based on the threat to water quality. Other municipal areas and activities are prioritized as high in accordance with Directive F.3.a.8.

In the Santa Ana Region, fixed facility sites are prioritized into *high, medium,* or *low* categories, based on the threat to water quality and the procedures set forth in **DAMP Section 5.2.2**. Drainage facility and field program sites are prioritized *high* based on the threat to water quality. The prioritized fixed facility, field program, and drainage facility sites for the City of Lake Forest is included in **Exhibit A-5.I.**

### A-5.2.3 Model Maintenance Procedures

Staff perform operations at municipal areas/fixed facilities and perform municipal activities/field programs according to the pollution prevention methods in its municipal program and Best Management Practices (BMPs) as described within the model maintenance procedures. These methods include designation and implementation of minimum BMPs for all municipal areas and activities and are area/activity-specific.

For those San Diego Region municipal areas or activities tributary to a Clean Water Act 303(d) impaired water body segment in which the area or activity generates pollutants for which the water body segment is impaired, enhanced measures will be designated. Similarly, additional controls will be designated for municipal areas and activities within or directly adjacent to or discharging directly to coastal lagoons, the ocean, or other receiving waters within environmentally sensitive areas.

Optional enhanced BMPs described within the model maintenance procedures have been implemented at high priority fixed facilities, field programs, and drainage facilities within the

Santa Ana Region if operational history, inspection findings, or other special situations warrant implementation.

The city implements procedures to assess potential water quality impacts to receiving water bodies and ensure that flood management processes and projects do not contribute pollutants to receiving waters to the maximum extent practicable.

Model maintenance procedures relevant to the City of Lake Forest Municipal Areas and Activities/ municipal facilities and field programs are included in **Exhibit A-5.II**. The various types of fixed facilities, field programs and drainage facilities within the city are listed below in **Figure A-5.2**.

**Figure A-5.2**

| Field Programs | Fixed Facilities | Drainage Facilities |
|---|---|---|
| ☐ Lake Management | ☐ Bay/Harbor Activities | ☒ Drainage System |
| ☒ Landscape Maintenance | ☒ Building Maintenance/Repair | |
| ☒ Roads, Streets & Highways | ☐ Equipment Main./Repair | |
| ☒ Sidewalk, Plaza & Fountains | ☐ Fueling | |
| ☒ Solid Waste Handling | ☒ Landscape Maintenance | |
| ☐ Water & Sewer Utility Ops. | ☒ Material Loading/Unloading | |
| ☐ Fire Department Activities | ☒ Material Storage, Handling & Disposal | |
| | ☒ Minor Construction | |
| | ☒ Parking Lot Maintenance | |
| | ☒ Spill Prevention & Control | |
| | ☐ Vehicle & Equipment Cleaning | |
| | ☐ Vehicle & Equipment Storage | |
| | ☒ Waste Handling & Disposal | |

The City of Lake Forest coordinates with the local sewage collection/treatment agency to ensure swift response to and containment of sewage spills. In addition, the City of Lake Forest participates in the Countywide Area Spill Control (CASC) Program described in **DAMP Section 10.0**.

A-5.2.4 Municipal Inspection and Requirements

Inspections of municipal areas and activities/fixed facilities, field programs, and drainage facilities are performed to verify that the maintenance procedures are being implemented, are appropriate for that municipal area and/or activity/fixed facility, field program or drainage facilities and are protective of water quality.

Inspections are based upon the priority of the area and/or activity/fixed facility or field program, and their threat to water quality as indicated in the site priority list included in

**Exhibit A-5.I**. All MS4/drainage facilities are considered high priority. Inspection frequency is consistent, whether a facility or program is operated and maintained by municipal staff, contracted staff, or lessors.

A-5.2.4.1 Inspection Frequencies

The frequency of municipal facility and program inspections is shown in **Tables A-5.1a and A-5.1b** below:

**Table A-5.1a**
**Inspection Frequencies – San Diego Region**

| **Municipal Area/Activity* – High Priority** | **Inspection Frequency** |
|---|---|
| Roads, Streets, Highways and Parking Facilities | Annually |
| Flood Management Projects and Flood Control Devices | Annually |
| Areas/activities tributary to a 303(d) impaired water body segments or where an activity generates pollutants for which the water body segment is impaired | Annually |
| Areas and activities within or adjacent to or discharging directly to coastal lagoons, the ocean or other receiving waters within environmentally sensitive areas | Annually |
| Municipal Airfields | Annually |
| Parks and Recreation Facilities | Annually |
| Special event venues following special events | Annually |
| Power washing activities | Annually |
| Other municipal areas and activities that the City determines may contribute a significant pollutant load to the MS4 | Annually |
| **Municipal Facilities – High Priority** | **Inspection Frequency** |
| Active or closed municipal landfills | Annually |
| Publicly owned treatment works (including water and wastewater treatment plants) and sanitary sewage collection systems | Annually |
| Solid waste transfer facilities | Annually |
| Land application sites | Annually |
| Corporate yards including maintenance and storage yards for materials, waste, equipment and vehicles | Annually |
| Household hazardous waste collection facilities | Annually |
| **MS4 and MS4 Facilities** | **Inspection Frequency** |
| MS4 Facilities | Annually Before the Wet Season, with Additional Inspections as Needed During the Wet Season (see specific indications below) |

**Table A-5.1b**
**Inspection Frequencies – Santa Ana Region**

| Facility/Program | Inspection Frequency |
|---|---|
| **Fixed Facilities** | |
| Municipal Corporation Yards | Annually |
| High Priority Fixed Facility | Annually |
| Medium Priority Fixed Facility | Biannually During First Year of Program Implementation |
| Low Priority Fixed Facility | Once During First Year of Program Implementation |
| **Field Programs** | |
| High Priority Field Programs | Annually |
| **Drainage Facilities** | |
| Drainage Facilities | Annually (see specific indications below) |

*Other municipal activities will be inspected as needed and in response to water quality data, valid complaints and findings from municipal or contract staff.

For the San Diego Region, MS4 facilities are inspected prior to the wet season (between May 1 and September 30). Subsequent to two full years of inspections, any facility determined to require an inspection frequency less than annually will be inspected as needed, at least every other year.

For the Santa Ana Region, municipal corporation yards are inspected annually. At least 80 percent of drainage facilities are inspected, cleaned, and maintained on an annual basis, with 100 percent of the facilities included in a two-year period. Fixed Facilities and Field Programs will be inspected as indicated above, however in the event of an observed problem, such as ineffective maintenance procedures or detected non-stormwater discharges, the inspection frequency will be increased as appropriate to facilitate correction of the problem.

A-5.2.4.2 Inspection Documentation Procedures

The inspection forms used during inspection consist of the following:

- General Inspection Forms – This primary form provides for a general characterization of the municipal area/activity/fixed facility, field program, or drainage facility being inspected, including the type of area or activity/facility or program, the reason for inspection, and activities that may take place. A general cover sheet inspection form is required for all inspections.

- Activity Specific Inspection Forms – These secondary forms provide a series of questions about specific activities taking place at a municipal area or for a municipal activity/fixed

facility, field program, or drainage facility, as well as a list of suggested corrective action plans that can be implemented should a problem be found.

Inspection forms for each municipal area or activity/fixed facility, field program, and drainage facility in the City of Lake Forest are included in **Exhibit A-5.III**.

A-5.2.4.3 Enforcement Procedures

To ensure compliance, the City of Lake Forest will implement enforcement procedures as described in **DAMP Section 5.2.4.3**.

A-5.2.4.4 Municipal Retrofitting

The City of Lake Forest examines opportunities to retrofit existing MS4 conveyance systems, parks and other recreational areas, where feasible. Countywide analysis of retrofitting opportunities is described in **DAMP Section 5.2.4.4**.

For the San Diego Region, the City of Lake Forest will evaluate existing flood control devices, identify devices causing or contributing to a condition of pollution, identify measures to reduce or eliminate the structure's effect on pollution, and evaluate the feasibility of retrofitting the structural flood control device.

## A-5.3 MODEL INTEGRATED PEST MANAGEMENT, PESTICIDES AND FERTILIZER GUIDELINES

The City of Lake Forest has adopted an Integrated Pest Management (IPM) policy consistent with **DAMP Section 5.3.** The City of Lake Forest IPM policy is included in **Exhibit A-5.IV**.

The city will implement BMPs in accordance with the aforementioned IPM policy and that encourage the use of native vegetation, set schedules for irrigation and chemical application and for the collection and proper disposal of unused pesticides, herbicides and fertilizers. The city will also conduct annual IPM self-audits in accordance with the adopted IPM policy.

## A-5.4 TRAINING AND EDUCATION

To assist the responsible municipal staff of the City of Lake Forest in understanding the Municipal Activities Maintenance Procedures, training sessions are conducted. In addition to Permittee sponsored training, the City provides the means for staff to attend training seminars or workshops related to stormwater management and water quality conducted by other organizations, as needed. Required training for municipal employees is included in **Table A-3.2** of this LIP. Records of both Permittee and Non-Permittee sponsored training provided to City staff are maintained.

*Model Municipal Program Training Modules*

To support implementation of the Municipal Activities Program element, five municipal activities training modules were developed during the Third Term Permits as described in **DAMP Appendix B**, **Section B-5**. The five modules include: *Municipal Activities Program*

*Management, Fixed Facilities Maintenance Procedures, Field Program Maintenance Procedures, Program Management – IPM, Pesticide and Fertilizer Guidelines and Integrated Pest Management Approaches*. The modules will be substantially updated in 2010-11 to reflect the requirements of the Fourth Term Permits.

# Exhibit A-5.I

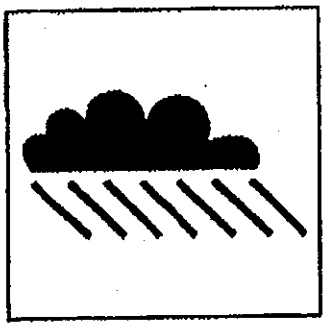
# Municipal Facilities and Activities Inventory (Inventory & Prioritization Spreadsheet/Map)

# City of Lake Forest Municipal Facility Inventory

| No. | Facilities | (IOD) | Address | Parking Lot | Restroom | Reclaimed Water | Acres | Watershed | Priority | Inspection Date | bg_lat | bg_long |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cherry Park | | 22651 Cherry Avenue | | | | 4.5 | Aliso Creek | High | | 33.6330246 | -117.679642 |
| 2 | Darren Park | | 22461 Cherry Avenue | X | | | 3.1 | Aliso Creek | High | | 33.6349765 | -117.677245 |
| 3 | El Toro Park | | 23701 Los Alisos Boulevard | | X | | 10 | Aliso Creek | High | | 33.6186718 | -117.69018 |
| 4 | Heroes Park | | 25420 Jeronimo Road | X | X | | 12.5 | Aliso Creek | High | | 33.6247221 | -117.686723 |
| 5 | Montbury Park | | 21962 Montbury Drive | | | X | 3.5 | Aliso Creek | High | | 33.644232 | -117.667882 |
| 6 | Pebble Creek Park | | 26441 Pebble Creek Road | | | | 1.9 | Aliso Creek | High | | 33.637744 | -117.668935 |
| 7 | Pittsford Park | | 21701 Pittsford Drive | | X | X | 10 | Aliso Creek | High | | 33.647968 | -117.671278 |
| 8 | Regency Park | | 21478 Regency Lane | | | X | 5 | Aliso Creek | High | | 33.6573931 | -117.661238 |
| 9 | Regency Slope | | Across from 21478 Regency Lane | | | X | 0.5 | Aliso Creek | High | | 33.6573931 | -117.661238 |
| 10 | Sundowner Park | | 22041 Sundowners Lane | | | | 0.8 | Aliso Creek | High | | 33.6426594 | -117.665981 |
| 11 | Vintage Park | | 21000 Vintage Street | | | X | 4.8 | Aliso Creek | High | | 33.6542522 | -117.657958 |
| 12 | Alton Park | X | 18992 Alton Parkway | | | | 2.3 | Newport Bay | High | | 33.6829022 | -117.666859 |
| 13 | Borrego Overlook Park | X | 21 Viaggio Lane | | | | 1.6 | Newport Bay | High | | 33.689572 | -117.656211 |
| 14 | Borrego Park | X | 26982 Cabriole | X | X | | 11 | Newport Bay | High | | 33.6811891 | -117.658574 |
| 15 | Cavanaugh Mini Park | | 23782 Cavanaugh Road | | | | 6.4 | Newport Bay | High | | 33.6172767 | -117.709256 |
| 16 | Concourse Park | | 18931 Saddleback Ranch | X | | | 7 | Newport Bay | High | | 33.6847805 | -117.63072 |
| 17 | Etnies Skate Park | | 20028 Lake Forest Drive | X | X | X | 5.3 | Newport Bay | High | | 33.6474452 | -117.68475 |
| 18 | Foothill Ranch Community Park | X | 19422 Rue de Valore | X | X | | 15.5 | Newport Bay | High | | 33.6840617 | -117.651065 |
| 19 | Lake Forest Park | | 24000 Serrano Road | | | | 2.3 | Newport Bay | High | | 33.6475082 | -117.698665 |
| 20 | Mountain View Park | | 24601 Dylan Street | | | | 5.3 | Newport Bay | High | | 33.6291005 | -117.708736 |
| 21 | Nature Park | | 26215 Dimension Drive | X | | | 4.5 | Newport Bay | High | | 33.662175 | -117.672526 |
| 22 | Peachwood Park | X | 21132 Peachwood | | | X | 2.7 | Newport Bay | High | | 33.655563 | -117.687226 |
| 23 | Rancho Serrano Park | | 20842 Paseo Sombra | X | | X | 5.1 | Newport Bay | High | | 33.6601969 | -117.694407 |
| 24 | Ranchwood Park | | 22500 Killy Street | | | | 2.4 | Newport Bay | High | | 33.6360394 | -117.684761 |
| 25 | Rimgate Park | | 25772 Rimgate Drive | | | X | 5 | Newport Bay | High | | 33.644687 | -117.679198 |
| 26 | Serrano Creek Park | | 25101 Serrano Road | | X | | 44 | Newport Bay | High | | 33.6390778 | -117.687192 |
| 27 | Tamarisk Park | X | 20960 Tamarisk at Peachwood | X | | X | 11.2 | Newport Bay | High | | 33.6565218 | -117.689068 |
| 28 | Village Pond Park | | 23102 Ridge Route Drive | | | | 4.7 | Newport Bay | High | | 33.625524 | -117.7074 |

# Exhibit A-5-II

# Maintenance Procedures
# (Facility/Procedures Summary Spreadsheets)



# DF-1

# DRAINAGE FACILITY OPERATION AND MAINTENANCE

**As a consequence of its function, the stormwater conveyance system collects and transports urban runoff and storm water that may contain certain pollutants. Consequently these pollutants may accumulate in the system and must be removed periodically. In addition, the systems must also be maintained to function properly hydraulically to avoid flooding. Maintaining the system may involve the following activities:**

**Inspection and Cleaning of Stormwater Conveyance Structures**

**Controlling Illicit Connections and Discharges**

**Controlling Illegal Dumping**

## MODEL PROCEDURES:

### 1. Inspection and Cleaning of Drainage Facilities

**General Guidelines**

- ✓ Annually inspect and clean drainage facilities as needed. Maintain appropriate records. This information should be used to determine problem areas that may need to be checked more often.
- ✓ Remove trash and debris as needed from open channels and properly dispose of these materials (at an approved landfill or recycling facility). It should be noted that major debris removal may require other regulatory permits prior to completing the work.
- ✓ Conduct annual visual inspections during the dry season to determine if there are problem inlets where sediment/trash or other pollutants accumulate.
- ✓ Eliminate any discharges that may occur while maintaining and cleaning any municipal drainage facilities.
- ✓ Train crews in proper maintenance activities, including record keeping and disposal.
- ✓ Provide energy dissipaters (e.g. riprap) below culvert outfalls to minimize potential for erosion.

**Storm Drain Flushing**

- ✓ Flushing of storm drains or storm drain inlets should only be done in emergencies.
- ✓ If flushed, the material should be collected (vacuumed), treated with an appropriate filtering device to remove sand and debris and disposed of properly.

**Waste Management**

- ✓ Store wastes collected from cleaning activities of the drainage facilities in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
- ✓ Dewater the wastes if necessary with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device to remove the sand and debris prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not permitted, water should be pumped or vacuumed to a tank and properly disposed of. Do not dewater near a storm drain or stream.

→ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewering agency.*

OPTIONAL:

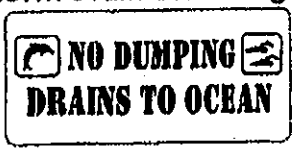
- Provide for laboratory analysis of at least one randomly collected sediment (less the debris) sample per year from the storm drain inlet cleaning program to ensure that it does not meet the EPA criteria for hazardous waste. If the sample is determined to be hazardous, the sediment must be disposed of as hazardous waste.

## 2. Controlling Illicit Connections and Discharges

**Improper physical connections to the storm drain system can occur in a number of ways, such as overflow cross-connects from sanitary sewers and floor drains from businesses like auto shops and restaurants. Illicit discharges and illegal connections can generally be detected and investigated through a combination of programs and approaches that target a variety of pollutants and sources.**

- ✓ Report prohibited discharges such as dumping, paint spills, abandoned oil containers, etc. observed during the course of normal daily activities so they can be investigated, contained, and cleaned up.
- ✓ Conduct field investigations to detect and eliminate existing illicit connections and improper disposal of pollutants into the storm drain (i.e. identify problem areas where discharges or illegal connections may occur and follow up stream to determine the source(s)).
- ✓ Report all observed illicit connections and discharges to the 24-hour water pollution problem reporting hotline (714) 567-6363.
- ✓ Encourage public reporting of improper waste disposal by distributing public education materials and advertising the 24-hour water pollution problem reporting hotline.

**Storm Drain Stenciling**




*Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets.*

✓ Implement a storm drain stenciling program.

OPTIONAL:

- Create a volunteer work force to stencil storm drain inlets; municipal staff must organize, market, and provide training to initiate the volunteer program:
  - Promote volunteer services through radio/television and mail-out campaigns.
  - Educate businesses and residents about storm water pollution, the storm drain system, and the watershed and provide information on alternatives such as recycling, household hazardous waste disposal, and safer products.

## 3. Controlling Illegal Dumping

**Illegally dumped wastes can cause storm water and receiving water quality problems as well as clog the storm drain system itself. Non-hazardous solid wastes may include garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semi-solid wastes and other discarded solid or semi-solid waste provided that such wastes do not contain wastes which must be managed as hazardous wastes, or wastes which contain soluble pollutants in concentration which exceed applicable water quality objectives or could cause degradation of waters of the state.**

**Field Investigation**

✓ Report prohibited discharges such as dumpings observed during the course of normal daily activities so they can be investigated, contained and cleaned up.

✓ Conduct field investigations to detect and eliminate improper disposal of pollutants into the storm drain (i.e. identify problem areas where discharges or illegal connections may occur and follow up stream to determine the source(s)).

✓ Report all observed illicit connections and discharges to the 24-hour water pollution problem reporting hotline (714) 567-6363.

✓ Encourage public reporting of improper waste disposal by distributing public education materials and advertising the 24-hour water pollution problem reporting hotline.

OPTIONAL:

- Post "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.

**Training/Education/ Outreach**

✓ Annually train municipal employees to recognize and report illegal dumping.

✓ Encourage public reporting of illegal dumping by advertising the 24-hour water pollution problem reporting hotline (714) 567-6363.

OPTIONAL:

- Educate the public with public education materials such as a hotline and/or door hanger (door hangers are placed on the front doors in neighborhoods where illegal dumping has occurred to inform the reader why illegal dumping is a problem, and that illegal dumping carries a significant financial penalty).
- Educate the public through volunteer water quality monitoring programs. Volunteers can be trained to notice and report the presence and suspected source of an observed pollutant to the appropriate public agency.

## LIMITATIONS:

Clean-up activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.

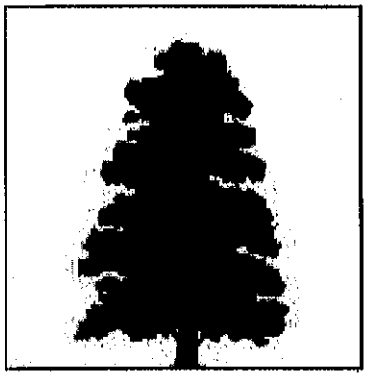
## REFERENCES:

California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.

Harvard University. 2002. Solid Waste Container Best Management Practices – Fact Sheet On-Line Resources – Environmental Health and Safety.

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.



# FP-2

# LANDSCAPE MAINTENANCE

**The model procedures described below focus on minimizing the discharge of pesticides and fertilizers, landscape waste, trash, debris, and other pollutants to the storm drain system and receiving waters. Landscape maintenance practices may involve one or more of the following activities:**

1. **Mowing, Trimming/Weeding, and Planting**
2. **Irrigation**
3. **Fertilizer and Pesticide Management**
4. **Managing Landscape Waste**
5. **Erosion Control**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for landscape maintenance include:

- Implement an integrated pest management (IPM) program. IPM is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools. Refer to Appendix D, Fertilizer and Pesticide Management Guidance for further details.
- Choose low water using flowers, trees, shrubs, and groundcover.
- Appropriate maintenance (i.e. properly timed fertilizing, weeding, pest control, and pruning) will preserve the landscapes water efficiency.
- Once per year, educate municipal staff on pollution prevention measures.

## MODEL PROCEDURES:

### 1. Mowing, Trimming/Weeding, and Planting

**Mowing, Trimming/Weeding**

✓ Whenever possible, use mechanical methods of vegetation removal rather than applying herbicides. Use hand weeding where practical.

- ✓ When conducting mechanical or manual weed control, avoid loosening the soil, which could erode into streams or storm drains.
- ✓ Use coarse textured mulches or geotextiles to suppress weed growth and reduce the use of herbicides.
- ✓ Do not blow or rake leaves, etc. into the street or place yard waste in gutters or on dirt shoulders. Sweep up any leaves, litter or residue in gutters or on street.
- ✓ Collect lawn and garden clippings, pruning waste, tree trimmings, and weeds. Chip if necessary, and compost or dispose of at a landfill (see waste management section of this procedure sheet).
- ✓ Place temporarily stockpiled material away from watercourses, and berm or cover stockpiles to prevent material releases to storm drains.

**Planting**

- ✓ Where feasible, retain and/or plant selected native vegetation whose features are determined to be beneficial. Native vegetation usually requires less maintenance (e.g., irrigation, fertilizer) than planting ornamental vegetation.
- ✓ When planting or replanting consider using low water use groundcovers.

OPTIONAL:

- Careful soil mixing and layering techniques using a topsoil mix or composted organic material can be used as an effective measure to reduce herbicide use and watering.

## 2. Irrigation

- ✓ Utilize water delivery rates that do not exceed the infiltration rate of the soil.
- ✓ Use timers appropriately or a drip system to prevent runoff and then only irrigate as much as is needed.
- ✓ Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering, and repair leaks in the irrigation system as soon as they are observed.
- ✓ Where practical, use automatic timers to minimize runoff.
- ✓ Use popup sprinkler heads in areas with a lot of activity or where there is a chance the pipes may be broken. Consider the use of mechanisms that reduce water flow to sprinkler heads if broken.
- ✓ If re-claimed water is used for irrigation, ensure that there is no runoff from the landscaped area(s).
- ✓ If bailing of muddy water is required (e.g. when repairing a water line leak), do not put it in the storm drain; pour over landscaped areas.

## 3. Fertilizer and Pesticide Management

**Usage**

- ✓ Utilize a comprehensive management system that incorporates integrated pest management techniques.
- ✓ Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.
- ✓ Educate and train employees on use of pesticides and in pesticide application techniques to prevent pollution.
- ✓ Pesticide application must be under the supervision of a California qualified pesticide applicator.
- ✓ When applicable use the least toxic pesticides that will do the job. Avoid use of copper-based pesticides if possible.
- ✓ Do not mix or prepare pesticides or fertilizers for application near storm drains.
- ✓ Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the pest.
- ✓ Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.
- ✓ Calibrate fertilizer and pesticide application equipment to avoid excessive application.
- ✓ Periodically test soils for determining proper fertilizer use.
- ✓ Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- ✓ Inspect pesticide/fertilizer equipment and transportation vehicles daily.
- ✓ Refer to Appendix D for further guidance on Fertilizer and Pesticide management

OPTIONAL:

- Work fertilizers into the soil rather than dumping or broadcasting them onto the surface.
- Use beneficial insects where possible to control pests (green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seedhead weevils, and spiders prey on detrimental pest species).
- Use slow release fertilizers whenever possible to minimize leaching.

**Scheduling**

- ✓ Do not use pesticides if rain is expected within 24 hours.
- ✓ Apply pesticides only when wind speeds are low (less than 5 mph).

**Disposal**

- ✓ Purchase only the amount of pesticide that you can reasonably use in a given time period (month or year depending on the product).
- ✓ Triple rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- ✓ Dispose of empty pesticide containers according to the instructions on the container label.

## 4. Managing Landscape Waste

*Also see Waste Handling and Disposal procedure sheet*

- ✓ Compost leaves, sticks, or other collected vegetation or dispose of at a permitted landfill. Do not dispose of collected vegetation into waterways or storm drainage systems.
- ✓ Place temporarily stockpiled material away from watercourses and storm drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- ✓ Reduce the use of high nitrogen fertilizers that produce excess growth requiring more frequent mowing or trimming.
- ✓ Inspection of drainage facilities should be conducted to detect illegal dumping of clippings/cuttings in or near these facilities. Materials found should be picked up and properly disposed of.
- ✓ Landscape wastes in and around storm drain inlets should be avoided by either using bagging equipment or by manually picking up the material.

## 5. Erosion Control

*Also see Waste Handling and Disposal procedure sheet*

- ✓ Maintain vegetative cover on medians and embankments to prevent soil erosion. Apply mulch or leave clippings to serve as additional cover for soil stabilization and to reduce the velocity of storm water runoff.
- ✓ Minimize the use of disking as a means of vegetation management because the practice may result in erodable barren soil.
- ✓ Confine excavated materials to pervious surfaces away from storm drain inlets, sidewalks, pavement, and ditches. Material must be covered if rain is expected.

## LIMITATIONS:

Alternative pest/weed controls may not be available, suitable, or effective in every case.

## REFERENCES:

*California Storm Water Best Management Practice Handbooks. Industrial/Commercial Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. July 1993.*

County of Orange. 2000. Public Facilities and Resources Department, Management Guidelines for the Use of Fertilizers and Pesticides. September.

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. 1995. King County Surface Water Management. July. On-line: http://dnr.metrokc.gov/wlr/dss/spcm.htm

Los Angeles County Stormwater Quality Model Programs. Public Agency Activities
http://ladpw.org/wmd/npdes/model_links.cfm

Model Urban Runoff Program: A How-To Gulde for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.

# FP-3

# ROADS, STREETS, AND HIGHWAYS OPERATION AND MAINTENANCE

**Streets, roads, and highways are significant sources of pollutants in storm water discharges, and operation and maintenance (O&M) practices, if not conducted properly, can contribute to the problem. O&M practices may involve one or more of the following activities:**

1. **Sweeping & Cleaning**
2. **Street Repair & Maintenance**
3. **Bridge and Structure Maintenance**

**Streets, roads, and highways are significant sources of pollutants in storm water discharges, and operation and maintenance (O&M) practices, if not conducted properly, can contribute to the problem. O&M practices may involve one or more of the following activities:**

**Pollution prevention measures that should be consider and the minimum required and optional model procedures for each performance standard are provided below.**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measure for roads, streets, and highways operation and maintenance include:

- Use the least toxic materials available (e.g. water based paints, gels or sprays for graffiti removal)
- Recycle paint and other materials whenever possible.
- Once per year, educate municipal staff on pollution prevention measures.

## MODEL PROCEDURES:

## 1. Sweeping & Cleaning

**Sweeping Frequency and Timing**

- ✓ Maintain a consistent sweeping schedule. Provide minimum monthly sweeping of streets.
- ✓ Perform street cleaning during dry weather if possible.
- ✓ Avoid wet cleaning or flushing of streets, and utilize dry methods where possible.
- ✓ If flushing of a street is absolutely necessary, sweep and remove debris before flushing. Do not let wash water enter storm drain inlets. Collect wash water and direct to a dirt or vegetated area, pump into a vacuum truck and dispose of properly.

OPTIONAL:

- Consider increasing sweeping frequency based on factors such as traffic volume, land use, field observations of sediment and trash accumulation, proximity to water courses, etc.

**Equipment Operation and Selection**

- ✓ Maintain cleaning equipment in good working condition and purchase replacement equipment as needed. Old sweepers should be replaced as needed with new technologically advanced sweepers (preferably regenerative air sweepers) that maximize pollutant removal.
- ✓ Operate sweepers at manufacturer requested optimal speed levels to increase effectiveness.
- ✓ Clean sweepers at a wash rack that drains to the sanitary sewer. The wash rack area should be covered and bermed and wash water should drain to a clarifier prior to entering the sanitary sewer.
- ✓ Regularly inspect vehicles and equipment for leaks, and repair immediately.

> ➔ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewering agency.*

OPTIONAL:

- If available use vacuum or regenerative air sweepers in the high sediment and trash areas (typically industrial/commercial).

**Management of Material Removed by Sweeping**

- ✓ Dispose of street sweeping debris and dirt at a landfill.
- ✓ Do not store swept material along the side of the street or near a storm drain inlet.
- ✓ If dewatering of saturated materials is necessary it should be conducted in a designated area away from storm drain inlets and the water contained for proper disposal.

✓ If authorized by the local sanitation agency, water may be discharged to the sanitary sewer only after passing through a clarifier. As an alternative, dewatering can be conducted in a containment area in which saturated materials are placed on a tarp and allowed to dry. Dry debris is then disposed of properly.

✓ Keep debris storage to a minimum during the wet season or make sure debris piles are contained (e.g. by berming the area) or covered (e.g. with tarps or permanent covers).

→ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewering agency.*

**Maximize Access for Sweepers**

✓ Keep accurate operation logs to track program.

✓ Properly maintain and operate equipment; which will increase efficiency.

✓ Sweeping should be conducted as close to the curb line as possible.

OPTIONAL:

- Institute a parking policy to restrict parking in problematic areas during periods of street sweeping.
- Post permanent street sweeping signs in problematic areas; use temporary signs if installation of permanent signs is not possible.
- Develop and distribute flyers notifying residents of street sweeping schedules.

## 2. Repair and Maintenance

**Pavement Marking**

✓ Develop paint handling procedures for proper use, storage, and disposal of paints.

✓ Transfer and load paint and hot thermoplastic away from storm drain inlets.

✓ Street or hand sweep thermoplastic grindings. Yellow thermoplastic grindings may require special handling as they may contain lead.

✓ Replace paints containing lead and tributyltin with less toxic alternatives.

✓ Use water based paints. Clean application equipment in a sink that is connected to the sanitary sewer.

✓ Properly store leftover paints if they are to be kept for the next job, or dispose of properly.

✓ See *Spill Control procedure sheet* for guidance on the proper cleanup of paint spills.

**Concrete Installation and Repair**

✓ Avoid mixing excess amounts of fresh concrete or cement mortar on-site. Only mix what is needed for the job.

✓ Wash concrete trucks off site or in designated areas on site, such that there is no discharge of concrete wash water into storm drain inlets, open ditches, streets, or other stormwater conveyance structures.

- ✓ Store concrete materials under cover, away from drainage areas.
- ✓ Return leftover materials to the transit mixer. Dispose of small amounts of hardened excess concrete, grout, and mortar in the trash.
- ✓ Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile, or dispose in the trash.
- ✓ When washing poured concrete areas to remove fine particles and expose the aggregate, contain the wash water for proper disposal; do not discharge water to the storm drain system.
- ✓ Do not allow excess concrete to be dumped on-site, except in designated areas.
- ✓ Apply concrete, asphalt, and seal coat during dry weather to allow the material to adequately dry prior to a rain event.
- ✓ When making saw cuts in pavement, use as little water as possible and perform during dry weather. Cover each nearby or appropriate storm drain inlet completely with filter fabric or plastic during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the inlets. After the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove from site. Alternatively, a small on-site vacuum may be used to pick up the slurry as this will prohibit slurry from reaching storm drain inlets.

## Patching, Resurfacing, and Surface Sealing

- ✓ Pre-heat, transfer or load hot bituminous material away from storm drain inlets.
- ✓ Apply concrete, asphalt, and seal coat during dry weather to allow the material to adequately dry prior to a rain event.
- ✓ Where applicable, cover and seal each nearby or appropriate storm drain inlet (with waterproof material, plastic or mesh) and maintenance holes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from covered man holes and storm drain inlets when the job is complete.
- ✓ Use only as much water as necessary for dust control, to avoid runoff.
- ✓ Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.
- ✓ Prior to a rain event or at the completion of a project, sweep the project area by hand or with a street sweeper.

## Equipment Cleaning, Maintenance, and Storage

*Also see Equipment Repair & Maintenance procedure sheet.*

- ✓ Clean equipment including sprayers, sprayer paint supply lines, patch and paving equipment, and mudjacking equipment at the end of each day. If equipment can be cleaned and materials reapplied at the job site, do so in compliance with the laws and regulations. Clean in a sink or other area (e.g. vehicle wash area) that is connected to the sanitary sewer.

- ✓ If refueling or repairing vehicles and equipment must be done on-site, conduct the activity away from storm drain inlets and watercourses.
- ✓ Place drip pans or absorbent materials under heavy equipment when not in use.
- ✓ Clean paint brushes and tools covered with water-based paints in sinks connected to sanitary sewers. Brushes and tools covered with non-water-based paints, finishes, or other materials must be cleaned in a manner that enables collection of used solvents (e.g., paint thinner, turpentine, etc.) for recycling or proper disposal.

→ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewering agency.*

OPTIONAL:

- Conduct cleaning at a corporation or maintenance yard if possible.
- When practical, perform major equipment repairs at the corporation yard.

→ *In addition to the procedures above, review and apply general procedures outlined for Minor Construction activities when conducting street, road, and highway repair and maintenance activities.*

## 3. Bridge and Structure Maintenance

**Painting and Paint Removal**

- ✓ Transport paint and materials to and from job sites in containers with secure lids and tied down to the transport vehicle.
- ✓ Do not transfer or load paint near storm drain inlets or watercourses.
- ✓ Test and inspect spray equipment prior to starting to paint. Tighten all hoses and connections and do not overfill paint container.
- ✓ If sand blasting is used to remove paint, cover nearby storm drain inlets prior to starting work.
- ✓ If the bridge crosses a watercourse, perform work on a maintenance traveler or platform, or use suspended netting or tarps to capture paint, rust, paint removing agents, or other materials, to prevent discharge of materials to surface waters. If sanding, use a sander with a vacuum filter bag.
- ✓ Recycle paint when possible (e.g. paint may be used for graffiti removal activities). Dispose of paint at an appropriate household hazardous waste facility.
- ✓ See Spill Control procedure sheet for guidance on the proper cleanup of paint spills.

**Graffiti Removal**

- ✓ Avoid graffiti abatement activities during rain events.
- ✓ Protect nearby storm drain inlets prior to removing graffiti from walls, signs, sidewalks, or other structures needing graffiti abatement. Clean up

afterwards by sweeping or vacuuming thoroughly, and/or by using absorbent and properly disposing of the absorbent.

- ✓ Note that care should be taken when disposing of waste since it may need to be disposed of as hazardous waste.
- ✓ When graffiti is removed by painting over, implement the procedures under Painting and Paint Removal above.
- ✓ Direct runoff from sand blasting and high pressure washing (with no cleaning agents) into a landscaped or dirt area.
- ✓ If a graffiti abatement method generates wash water containing a cleaning compound (such as high pressure washing with a cleaning compound), plug nearby storm drains and collect wash water and dispose of properly.

OPTIONAL:

- Consider using a waterless and non-toxic chemical cleaning method for graffiti removal (e.g. gels or spray compounds).

**Guardrail and Fence Repair**

- ✓ When cleaning guardrails or fences follow the appropriate surface cleaning methods (depending on the type of surface) outlined in the *Sidewalk, Plaza, and Fountain Maintenance and Cleaning* procedure sheet.
- ✓ If painting is conducted, follow the *Painting and Paint Removal* procedures above.
- ✓ If graffiti removal is conducted, follow the *Graffiti Removal* procedures above.
- ✓ If construction takes place, see the procedure sheet for *Minor Construction*.
- ✓ Recycle materials whenever possible.

## LIMITATIONS:

Limitations related to street sweeping may include high equipment costs, the potential inability to restrict parking in urban areas, the need for sweeper operator training, the inability of current sweeper technology to remove oil and grease, and the lack of scientific evidence regarding the expected levels of pollutant removal.

## REFERENCES:

*Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.*

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

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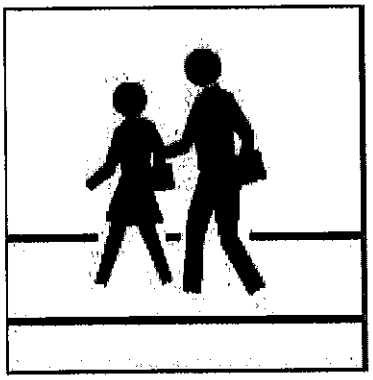

# FP-4

# SIDEWALK, PLAZA, AND FOUNTAIN MAINTENANCE AND CLEANING

**Pollutants on sidewalks and other pedestrian traffic areas and plazas are typically due to littering and vehicle use. Fountain water containing chlorine and copper-based algaecides is toxic to aquatic life. Proper inspection, cleaning, and repair of pedestrian areas and city surfaces and structures can reduce pollutant runoff from these areas. Maintaining these areas may involve one or more of the following activities:**

1. **Surface Cleaning**
2. **Graffiti Cleaning**
3. **Sidewalk Repair**
4. **Controlling Litter**
5. **Fountain Maintenance**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for sidewalk, plaza, and fountain maintenance and cleaning include:

- Use dry cleaning methods whenever practical for surface cleaning activities.
- Use the least toxic materials available (e.g. water based paints, gels or sprays for graffiti removal).
- Once per year, educate municipal staff on pollution prevention measures.

## MODEL PROCEDURES:

### 1. Surface Cleaning

Discharges of wash water to the sto rm water drainage system from cleaning or hosing of impervious surfaces is prohibited.

**Sidewalks, Plazas**

- ✓ Use dry methods (e.g. sweeping, backpack blowers, vacuuming) whenever practical to clean sidewalks and plazas rather than hosing, pressure washing, or steam cleaning. DO NOT sweep or blow material into curb; use devices that contain the materials.
- ✓ If water must be used, block storm drain inlets and contain runoff. Discharge wash water to landscaping or contain and dispose of properly.

**Parking Areas, Driveways, Drive-thru**

- ✓ Parking facilities should be swept/vacuumed on a regular basis. Establish frequency of public parking lot sweeping based on usage and field observations of waste accumulation.
- ✓ If water must be used, block storm drain inlets and contain runoff. Discharge wash water to landscaping or contain and dispose of properly.
- ✓ Sweep all parking lots at least once before the onset of the wet season.
- ✓ Use absorbents to pick up oil; then dry sweep.
- ✓ Appropriately dispose of spilled materials and absorbents.

OPTIONAL:

- Consider increasing sweeping frequency based on factors such as traffic volume, land use, field observations of sediment and trash accumulation, proximity to water courses, etc.

**Building Surfaces, Decks, etc., without loose paint**

- ✓ Use high-pressure water, no soap.
- ✓ If water must be used, block storm drain inlets and contain runoff. Discharge wash water to landscaping or contain and dispose of properly.

**Unpainted Building Surfaces, Wood Decks, etc.**

- ✓ If water must be used, block storm drain inlets and contain runoff. Discharge wash water to landscaping or contain and dispose of properly.
- ✓ Use a biodegradable cleaning agent or acid wash to remove deposits, wood restorer, or other chemicals. Screen wash water using an appropriate filtering device (e.g. filter fabric), if needed, to catch debris.
- ✓ Make sure pH is between 6.5 and 8.5 THEN discharge to landscaping (if cold water without a cleaning agent) otherwise dispose of properly.

## 2. Graffiti Cleaning

**Graffiti Removal**

*See Roads, Streets, and Highways Operation and Maintenance procedure sheet.*

- ✓ Avoid graffiti abatement activities during rain events.
- ✓ When graffiti is removed by painting over, implement the procedures under Painting and Paint Removal in the *Roads, Streets*, and *Highway Operation and Maintenance* procedure sheet.

- ✓ Protect nearby storm drain inlets prior to removing graffiti from walls, signs, sidewalks, or other structures needing graffiti abatement. Clean up afterwards by sweeping or vacuuming thoroughly, and/or by using absorbent and properly disposing of the absorbent.
- ✓ Note that care should be taken when disposing of waste since it may need to be disposed of as hazardous waste.

OPTIONAL:

- Consider using a waterless and non-toxic chemical cleaning method for graffiti removal (e.g. gels or spray compounds).

## 3. Sidewalk Repair

### Surface Removal and Repair

- ✓ Schedule surface removal activities for dry weather if possible.
- ✓ Avoid creating excess dust when breaking asphalt or concrete.
- ✓ Take measures to protect nearby storm drain inlets prior to breaking up asphalt or concrete (e.g. place hay bales or sand bags around inlets). Clean afterwards by sweeping up material.
- ✓ Designate an area for clean up and proper disposal of excess materials.
- ✓ Remove and recycle as much of the broken pavement as possible.
- ✓ When making saw cuts in pavement, use as little water as possible. Cover each storm drain inlet with filter fabric during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the inlets. After the liquid drains shovel or vacuum the slurry, remove from site and dispose of properly.

*Also see the street sweeping section of the Roads, Streets, and Highways Operation and Maintenance procedure sheet.*

- ✓ Always dry sweep first to clean up tracked dirt. Use a street sweeper or vacuum truck. Do not dump vacuumed liquid in storm drains. Once dry sweeping is complete, the area may be hosed down if needed. Discharge wash water to landscaping, pump to the sanitary sewer if permitted to do so or contain and dispose of properly.

### Concrete Installation and Repair

- ✓ Avoid mixing excess amounts of fresh concrete or cement mortar on-site. Only mix what is needed for the job.
- ✓ Wash concrete trucks off-site or in designated areas on-site, such that there is no discharge of concrete wash water into storm drain inlets, open ditches, streets, or other storm water conveyance structures.

*See Roads, Streets, and Highways Operation and Maintenance procedure sheet.*

- ✓ Store dry and wet concrete materials under cover, protected from rainfall and runoff and away from drainage areas. After job is complete remove temporary stockpiles (asphalt materials, sand, etc.) and other materials as soon as possible.
- ✓ Return leftover materials to the transit mixer. Dispose of small amounts of

excess concrete, grout, and mortar in the trash.

- ✓ When washing concrete to remove fine particles and expose the aggregate, contain the wash water for proper disposal.
- ✓ Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stock pile, or dispose in the trash.
- ✓ Protect applications of fresh concrete from rainfall and runoff until the material has hardened.

## 4. Litter Control

- ✓ Enforce anti-litter laws.
- ✓ Provide litter receptacles in busy, high pedestrian traffic areas of the community, at recreational facilities, and at community events.
- ✓ Cover litter receptacles and clean out frequently to prevent leaking/spillage or overflow.

OPTIONAL:

- Post "No Littering" signs.

## 5. Fountain Maintenance

- ✓ Do not use copper-based algaecides. Control algae with chlorine or other alternatives, such as sodium bromide.
- ✓ When draining fountains, never discharge water to a street or storm drain; discharge to the sanitary sewer
- ✓ Allow chlorine to dissipate for a few days and then recycle/reuse water by draining it gradually onto a landscaped area. Water must be tested prior to discharge to ensure that chlorine is not present (concentration must be less than 0.1 ppm).

## LIMITATIONS:

Surface cleaning activities that require discharges to the local sanitation agency will require coordination with the agency.

## REFERENCES:

Bay Area Stormwater Management Agencies Association. 1996. Pollution From Surface Cleaning.

*Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality*

- ✓ Include properly designed trash storage areas.
- ✓ Regularly inspect solid waste containers for structural damage. Repair or replace damaged containers as necessary.
- ✓ Secure solid waste containers; containers must be closed tightly when not in use.
- ✓ Do not fill waste containers with washout water or any other liquid.
- ✓ Remove all debris from containers prior to cleaning with water. Only clean out containers in a designated area that drains to a landscaped area or a washrack that is connected to a sanitary sewer.
- ✓ Minimize spillage/leaking from solid waste containers. For larger solid waste containers (especially compactors) that utilize a hydraulic fluid pump system, regularly inspect and replace faulty pumps or hoses to minimize the potential of releases and spills.

*Also see Emergency Spill Response procedure sheet.*

- ✓ Ensure that only appropriate solid wastes are disposed of. Certain wastes such as hazardous wastes, appliances, fluorescent bulbs, pesticides, etc. may not be disposed of in solid waste containers.

## 2. Waste Reduction and Recycling

**Although many types of waste can be recycled, recycling options for each waste type may be limited. All gasoline, antifreeze, waste oil, and lead-acid batteries can be recycled. Latex and oil-based paint can be reused, as well as recycled. Materials that cannot be reused or recycled should be disposed of properly.**

- ✓ Provide containers for the collection and storage of recyclable materials.
- ✓ Do not mix liquid wastes, this can cause chemical reactions or make recycling impossible and complicate disposal.
- ✓ Recycle used motor oil. Municipalities are required to have a used oil recycling element within their integrated waste management plan.

> ➔ *The California Integrated Waste Management Board has a Recycling Hotline, (800) 553-2962, that provides information and recycling locations for used oil.*

## 3. Hazardous Waste Collection

**Household hazardous wastes (HHW) are defined as waste materials which are typically found in homes or similar sources, which exhibit characteristics such as: corrosivity, ignitability, reactivity, and/or toxicity, or are listed as hazardous materials by EPA.**

*List of most common HHW products:*
*Drain opener*
*Oven cleaners*
*Wood and metal cleaners and polishes*
*Paint Thinners*
*Automotive oil and fuel additives*
*Adhesives*
*Grease and rust solvents Batteries*
*Herbicides*
*Paint strippers and removers Pesticides*
*Fungicides/wood preservatives*
*Starter fluids*
*Carburetor and fuel injection cleaners*

✓ Follow proper storage and disposal measures for hazardous waste materials as identified on packaging or Material Safety Data Sheets.

✓ Emergencies related to hazardous waste should be reported to 911

OPTIONAL:

- Identify and promote use of non-hazardous alternatives.
- Promote household hazardous waste (HHW) reuse and recycling.

## 4. Litter Control

✓ Enforce anti-litter laws.

✓ Provide litter receptacles in busy, high pedestrian traffic areas of the community, at recreational facilities, and at community events.

✓ Clean out and cover litter receptacles frequently to prevent overflow.

✓ Increase litter control for events generating substantial quantities of litter.

OPTIONAL:

- Post "No Littering" signs
- Place trash receptacles at transit stops and maintain as necessary.
- Participate in and/or organize additional clean up programs (e.g. "Coastal Clean Up Day", "Pride Days", "Volunteer Connection Days").

## LIMITATIONS:

Requires continuous public education.

## REFERENCES:

Bay Area Stormwater Management Agencies Association. 1996. Pollution From Surface Cleaning.

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning*

*Associates for Stormwater Quality Task Force. March 1993.*

Environmental Protection Agency (EPA). Pollution Prevention and Good Housekeeping for Municipal Operations Storm Water. Pet Waste Collection. Office of Wastewater Management. Online: http://www.epa.gov/npdes/menuofbmps/poll_3.htm

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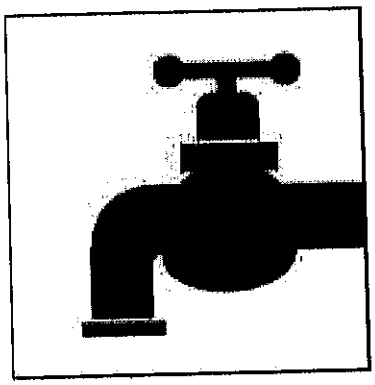

# FP-6

# WATER AND SEWER UTILITY OPERATION AND MAINTENANCE

**Although the operation and maintenance of public utilities are not considered themselves a chronic source of stormwater pollution, some activities and accidents can result in the discharge of pollutants that can pose a threat to both human health and the quality of receiving waters if they enter the storm drain system. Activities associated with the operation and maintenance of water and sewer utilities to prevent and handle such incidents include the following:**

1. **Water Line Maintenance**
2. **Sanitary Sewer Maintenance**
3. **Spill/Leak/Overflow Control, Response, and Containment**

**Cities that do not provide maintenance of water and sewer utilities should coordinate with the contracting agency responsible for these activities and ensure that these model procedures are followed.**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for water and sewer utility operation and maintenance include:

- Inspect potential non-storm water discharge flow paths and clear/cleanup any debris or pollutants found (i.e. remove trash, leaves, sediment, and wipe up liquids, including oil spills).
- Once per year, educate municipal staff on pollution prevention measures.

## MODEL PROCEDURES:

### 1. Water Line Maintenance

**Procedures can be employed to reduce pollutants from discharges associated with water utility operation and maintenance activities. Planned discharges may include fire hydrant testing, flushing water supply mains after new construction, flushing lines due to complaints of taste and odor, dewatering mains for maintenance work. Unplanned discharges from treated, recycled water, raw water, and groundwater systems operation and maintenance activities can occur from water main breaks, sheared fire hydrants, equipment malfunction, and operator error.**

**Planned Discharges**

✓ For planned discharges use one of the following options:

- Reuse water for dust suppression, irrigation, or construction compaction
- Discharge to the sanitary sewer system with approval
- Discharge to the storm drain system or to a creek using applicable pollution control measures listed below (this option is ONLY applicable to uncontaminated pumped ground water, water line flushing, fire hydrant testing and flushing, discharges from potable water sources other than water main breaks) and may require a permit from the Regional Water Quality Control Board.

✓ If water is discharged to a storm drain inlet (catch basin), control measures must be put in place to control potential pollutants (i.e. sediment, chlorine, etc.). Examples of some storm drain inlet protection options include:

- Silt fence – appropriate where the inlet drains a relatively flat area.
- Gravel and wire mesh sediment filter – Appropriate where concentrated flows are expected.
- Wooden weir and fabric – use at curb inlets where a compact installation is desired.

✓ Prior to discharge, inspect discharge flow path and clear/cleanup any debris or pollutants found (i.e. remove trash, leaves, sediment, and wipe up liquids, including oil spills).

✓ Select appropriate pollution control measure(s) considering the receiving system (i.e. curb inlet, drop inlet, culvert, creek, etc.) and ensure that the control device(s) fit properly.

✓ General design considerations for inlet protection devices include the following:

- The device should be constructed such that cleaning and disposal of trapped sediment is made easy, while minimizing interference with discharge activities.
- Devices should be constructed so that any standing water resulting from the discharge will not cause excessive inconvenience or flooding/damage to adjacent land or structures.

✓ The effectiveness of control devices must be monitored during the discharge period and any necessary repairs or modifications made as needed.

OPTIONAL:

- Sediment removal may be enhanced by placing filter fabric, gravel bags, etc. at storm drain inlets.

**Unplanned Discharges**

✓ Stop the discharge as quickly as possible by turning off water source.

✓ Inspect flow path of the discharged water:

- Control erosion along the flow path.
- Identify areas that may produce significant sediment or gullies, use sandbags to redirect the flow.
- Identify erodible areas which may need to be repaired or protected during subsequent repairs or corrective actions

✓ If repairs or corrective action will cause additional discharges of water, select the appropriate procedures for erosion control, chlorine residual, turbidity, and chemical additives. Prevent potential pollutants from entering the flow path and ensure that no additional discharged water enters storm drain inlets.

## 2. Sanitary Sewer Maintenance

**Applicable to municipalities who own and operated a sewage collection system. Facilities that are covered under this program include sanitary sewer pipes and pump stations owned and operated by the Permittee. The owner of the sanitary sewer facilities is the entity responsible for carrying out this prevention and response program.**

**Sewer System Cleaning**

✓ Sewer lines should be cleaned on a regular basis to remove grease, grit, and other debris that may lead to sewer backups.

✓ Establish routine maintenance program. Cleaning should be conducted at an established minimum frequency and more frequently for problem areas such as restaurants that are identified

✓ Cleaning activities may require removal of tree roots and other identified obstructions.

**Preventative and Corrective Maintenance**

✓ During routine maintenance and inspection note the condition of sanitary sewer structures and identify areas that need repair or maintenance. Items to note may include the following:

- cracked/deteriorating pipes
- leaking joints/seals at manhole
- frequent line plugs
- line generally flows at or near capacity
- suspected infiltration or exfiltration

✓ Document suggestions and requests for repair and report the information to the appropriate manager or supervisor.

✓ Prioritize repairs based on the nature and severity of the problem. Immediate clearing of blockage or repair is required where an overflow is currently occurring or for urgent problems that may cause an imminent overflow (e.g. pump station failures, sewer line ruptures, sewer line blockages). These repairs may be temporary until scheduled or capital improvements can be completed.

✓ Review previous sewer maintenance records to help identify "hot spots" or areas with frequent maintenance problems and locations of potential system failure.

## 3. Spill/Leak/Overflow Control, Response, and Containment

**Control**

*Also see Drainage System procedures sheet*

✓ Refer to countywide *Illicit Discharge Detection and Elimination Program.* Components of this program include:

- Investigation/inspection and follow-up
- Elimination of illicit discharges and connections
- Enforcement of ordinances
- Respond to sewage spills

- Facilitate public reporting of illicit discharges and connections. A citizen's hotline for reporting observed overflow conditions should be established to supplement the field screening efforts being conducted by the Principal Permittee.

**Response and Containment**

✓ Establish lead department/agency responsible for spill response and containment. Provide coordination within departments.

✓ When a spill, leak, and/or overflow occurs, keep sewage from entering the storm drain system to the maximum extent practicable by covering or blocking storm drain inlets or by containing and diverting the sewage away from open channels and other storm drain facilities (using sandbags, inflatable dams, etc.).

✓ If a spill reaches the storm drain notify County of Orange Health Care Agency through Control One at (714) 628-7208.

✓ Remove the sewage using vacuum equipment or use other measures to divert it back to the sanitary sewer system.

✓ Record required information at the spill site.

✓ Perform field tests as necessary to determine the source of the spill.

✓ Develop additional notification procedures regarding spill reporting as needed.

## LIMITATIONS:

Private property access rights needed to perform testing along storm drain right-of-ways. Requirements of municipal ordinance authority for suspected source verification testing necessary for guaranteed rights of entry.

## REFERENCES:

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.*

Los Angeles County Stormwater Quality. Public Agency Activities Model Program. On-line: http://ladpw.org/wmd/npdes/public_TC.cfm

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.

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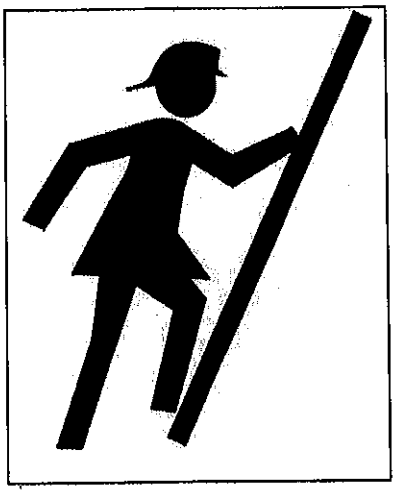


# FP-7

# FIRE DEPARTMENT ACTIVITIES

**Although fire department activities are not considered a chronic source of stormwater pollution, some activities can result in the discharge of water containing pollutants that can pose a threat to both human health and the quality of receiving waters if they enter the storm drain system. Fire department activities include the following:**

1. **Emergency Fire Fighting Activities**
2. **Post-Emergency Fire Fighting Activities**
3. **Fire Fighting Training Activities**
4. **Fire Station Activities**
5. **Fire Hydrant and Fire Sprinkler Testing**
6. **Trauma Scene Clean-up**

**Cities that do not provide fire department services should coordinate with the agency responsible for these activities and ensure that these model procedures are followed.**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for fire department activities include:

- To the extent allowed by the circumstances at the scene and without compromising the health and safety of personnel or the public, inspect potential non-storm water discharge flow paths and clear/cleanup any debris or pollutants found (i.e. remove trash, leaves, sediment, and wipe up liquids, including oil spills).
- Once per year, educate fire department staff on pollution prevention measures.

## MODEL PROCEDURES:

### 1. Emergency Fire Fighting Activities

An "emergency" exists from alarm notification until, in the opinion of the incident commander, the emergency has concluded and emergency equipment is returned to the station. Discharges occurring during emergency fire fighting activities (i.e. flows necessary for the protection of life and property) do not require BMPs and are not prohibited under the stormwater permits. However, to the extent allowed by the circumstances at the scene and without compromising the health and safety of personnel or the public, emergency fire fighting activities should be performed in a manner that avoids or minimizes discharges to the storm water system.

BMPs that may be considered during emergency fire fighting activities include the following:

- Minimize the use of water on the fire and/or use foam;
- Block the storm drains that may be impacted to prevent the runoff from entering the storm drain system;
- Avoid directing fire fighting flows directly on erodible surfaces if runoff will enter receiving waters or storm drains;
- Apply fire fighting flows such that runoff will flow over vegetated areas prior to entering receiving waters or storm drains.

### 2. Post-Emergency Fire Fighting Activities

The post-emergency rehabilitation and maintenance of response equipment should be performed in a manner that prevents discharges to the storm water system whenever practicable, and minimizes discharges to the storm water system when elimination of discharges is practically unavoidable.

### 3. Fire Fighting Training Activities

Training activities, which simulate emergency responses, should be performed in a manner that reduces or prevents discharges to the storm water systems. In addition, when the elimination of discharges into the storm water system is unavoidable (i.e., equipment failures), measures should be implemented to minimize the potential impacts to water quality:

- Fire training should be conducted, where feasible, in facilities where runoff controls protecting the storm drain system have been engineered and built into the facility;
- Direct water flows to landscaped or green areas whenever possible and safe to do so without causing damage or erosion;

- When flowing water can not be contained in the landscaped areas, survey the area prior to the training exercise to ensure that debris and pollutants will not enter the storm water system as a result of the flows generated during the drill;
- When practicable and necessary, divert flows to the sewer, with the permission of the local sewering agency;
- Use fog streams for short durations;
- Use lower gallon per minute (GPM) nozzle settings;
- Prevent discharge of foam to the storm drain system. If training activities involve the use of foam, seal all potentially affected storm drain inlets with plastic sheeting and sandbags or temporary berms, collect the runoff, apply a defoaming agent, and discharge to the sanitary sewer, with the permission of the local sewering agency;
- Pre-plan live fire training activities to allow integration of structural BMPs to control runoff.

## 4. Fire Station Activities

Fire stations are identified in the Drainage Area Management Plan (DAMP) as a Municipal Fixed Facility. Potential pollutant generating activities typically performed at fire stations that could result in discharge of pollutants to the storm drain system include the following:

- Building Maintenance and Repair: FF-2
- Equipment Maintenance and Repair: FF-3
- Fueling: FF-4
- Material Storage, Handling, and Disposal: FF-7
- Spill Prevention and Control: FF-10
- Vehicle and Equipment Cleaning: FF-11
- Vehicle and Equipment Storage: FF-12
- Waste Disposal and Handling: FF-13

Fire station personnel are referred to various Fact Sheets listed above that describe pollution prevention and model procedures associated with these activities. Pertinent Fact Sheets are identified by number (e.g. FF-2) in the above list of activities.

## 5. Fire Hydrant and Fire Sprinkler Testing

Fire hydrant and fire sprinkler testing are normally performed by water utility or other non-fire fighting personnel. However, in the event that such activities are performed by fire fighting personnel, the model procedures contained within Fact Sheet FP-6 in Appendix A-5 and Fact Sheet IC-23 in Appendix A-9 of the Local Implementation Plan should be followed.

## 6. Trauma Scene Clean-up

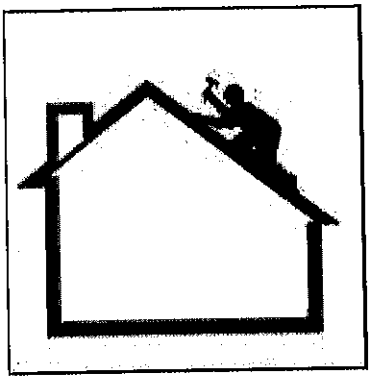
Although fire fighting personnel are not routinely involved in the clean-up of trauma scenes, they may be incidentally involved while performing other work. Trauma scene clean-up must only be performed by OSHA – blood-borne pathogen trained personnel. Specific guidance on trauma scene clean-up procedures is provided in Section 10.2.9.1 of the DAMP.

**Additional information and guidance for clean-up policies and procedures for bodily fluids may be obtained 24 hours a day by contacting the Orange County Health Care Agency (HCA) – Public Health by calling Orange County Control One at (714) 628-7008.**

## REFERENCES:

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbooks. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.*

*California Storm Water Best Management Practice Handbooks. Industrial/Commercial and Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates for California Stormwater Quality Association. January 2003.*



# FF-2

# BUILDING MAINTENANCE AND REPAIR

**Stormwater runoff from building repair, remodeling, and other maintenance activities can be contaminated with toxic hydrocarbons in solvents, other toxic organic compounds, suspended solids, heavy metals, abnormal pH, and oils and greases. Specific activities may involve one or more of the following:**

1. **Building Maintenance**
2. **Material Storage**
3. **Building Cleaning**
4. **Graffiti Cleaning**
5. **Painting**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for building maintenance and repair include:

- Use dry cleaning methods whenever feasible.
- Use a waterless and non-toxic chemical cleaning method for graffiti removal.
- Once per year, educate municipal staff on pollution prevention measures.

## MODEL PROCEDURES:

### 1. Building Maintenance

**General Guidelines**

*See Minor Construction procedure sheet*

✓ Review maintenance activities to verify that they minimize the amount of pollutants discharged. Keep accurate maintenance logs to evaluate materials removed and improvements made.

✓ If when repairing roofs, small particles have accumulated in the gutter, either sweep out the gutter or wash the gutter and trap the particles at the outlet of the downspout. A sock or geofabric placed over the outlet may effectively trap the materials. If the downspout is tight lined, place a

temporary plug at the first convenient point in the storm drain and pump out the water with a vactor truck and clean the storm drain inlet where you placed the plug if necessary.

✓ If water is used for cleaning out gutters, seal storm drain inlets to prevent water from entering. Either direct the water to a landscaped area or dispose of properly.

✓ When the work involves exposing large areas of soil, employ the appropriate soil erosion and control techniques.

✓ Clean storm drain inlets in the immediate vicinity of the construction activity after it is completed if necessary.

OPTIONAL:

- Recycle residual paints, solvents, lumber, and other materials

**Good Housekeeping**

✓ Keep the work site clean and orderly. Remove debris in a timely fashion. Sweep the area.

✓ Cover materials of particular concern that must be left out, particularly during the rainy season.

✓ Do not dump waste liquids down the storm drain.

✓ Properly dispose of wash water, sweepings, and sediments; do not allow these materials to enter the storm drain.

**Spill Response**

*Also see Spill Prevention and Control procedure sheet*

✓ Clean up spills immediately.

✓ If a spill occurs on dirt, excavate and remove the contaminated (stained) soil.

## 2. Material Storage

*Also see Material Storage/ Handling/ Disposal procedure sheet*

✓ Properly store and cover materials that are normally used in repair and remodeling such as paints and solvents, to protect them from rain.

✓ Properly store and dispose waste generated from the activity.

## 3 Building Cleaning

**General Guidelines**

✓ When cleaning building exteriors and walls composed of glass, steel, or painted surfaces with no lead or mercury:

- Do not allow wash water to enter the storm drain.
- When washing without soap, discharges can be directed to landscaped or dirt areas.

→ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewering agency.*

  - When washing with soap, direct discharges to the sanitary sewer if permitted to do so or vacuum/pump water to a tank and dispose of properly

✓ When washing building exteriors painted with lead-based or mercury additive paint:

  - Do not allow discharges to enter storm drain
  - Vacuum/pump discharges to a tank
  - Dispose of as a hazardous waste as needed

✓ When acid washing mineral deposits:

  - Do not allow discharges to enter storm drain.
  - Rinse treated area with alkaline soap and direct washwater to a landscaped or dirt area
  - Alternatively, washwater may be collected and neutralized to a pH between 6 and 8, and disposed of properly.

OPTIONAL:

- If cleaning agents are used, select biodegradable products whenever feasible.

## 4. Graffiti Cleaning

### Graffiti Removal

*Also see Roads, Streets, and Highways Operation and Maintenance procedure sheet.*

✓ Avoid graffiti abatement activities during rain events.

✓ When graffiti is removed by painting over, implement the procedures under Painting and Paint Removal in the *Roads, Streets*, and *Highway Operation and Maintenance* procedure sheet.

✓ Protect nearby storm drain inlets prior to removing graffiti from walls, signs, sidewalks, or other structures needing graffiti abatement. Clean up afterwards by sweeping or vacuuming thoroughly, and/or by using absorbent and properly disposing of the absorbent.

✓ Note that care should be taken when disposing of waste since it may need to be disposed of as hazardous waste.

✓ OPTIONAL:

✓ Consider using a waterless and non-toxic chemical cleaning method for graffiti removal (e.g. gels or spray compounds).

## 5. Painting

### General Guidelines

✓ Develop paint handling procedures for proper use, storage, and disposal of paints.

✓ Painting operations should be properly enclosed or covered to avoid drift.

- ✓ If transporting paint and materials to and from job sites, use containers with secure lids and tie down to the transport vehicle.
- ✓ Test and inspect spray equipment prior to starting to paint. Tighten all hoses and connections and do not overfill paint container.
- ✓ Mix paint indoors before using so that any spill will not be exposed to rain. Do so even during dry weather because cleanup of a spill will never be 100% effective.
- ✓ Transfer and load paint and hot thermoplastic away from storm drain inlets.
- ✓ Replace paints containing lead or tributyltin with less toxic alternatives.
- ✓ Where there is significant risk of a spill reaching storm drains, plug nearby storm drain inlets prior to starting painting and remove plugs when job is complete.
- ✓ If sand blasting is used to remove paint, cover nearby storm drain inlets prior to starting work and collect wash water and dispose of properly.
- ✓ If painting requires scraping or sand blasting of the existing surface, use a ground cloth to collect the chips. Dispose of the residue properly.
- ✓ If using water based paints, clean the application equipment in a sink that is connected to the sanitary sewer.
- ✓ Brushes and tools covered with non-water-based paints, finishes, or other materials must be cleaned in a manner that enables collection of used solvents (e.g., paint thinner, turpentine, etc.) for recycling or proper disposal. Waste solvents or oil based paints must be disposed of as hazardous waste.

**Paint Disposal**

- ✓ Paints containing lead or tributyl tin are considered a hazardous waste and must be disposed of at an appropriate hazardous waste facility.
- ✓ Properly store leftover paints if they are to be kept for the next job.

OPTIONAL:

- Recycle paint whenever possible.

## LIMITATIONS:

Safer alternative products may not be available, suitable, or effective in every case.

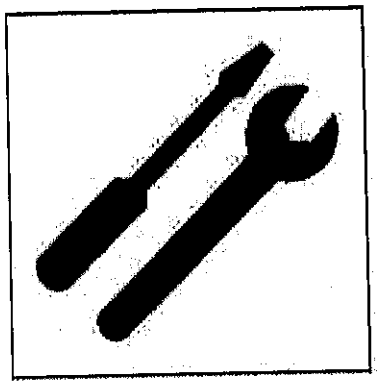
## REFERENCES:

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.*

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.



# FF-3

# EQUIPMENT MAINTENANCE AND REPAIR

**Vehicle or equipment maintenance has the potential to be a significant source of stormwater pollution. Engine repair and service (parts cleaning, spilled fuel, oil, etc.), replacement of fluids, and outdoor equipment storage and parking (dripping engines) can all contaminate stormwater. Conducting the following activities in a controlled manner will reduce the potential for stormwater contamination:**

1. **General Maintenance and Repair**
2. **Vehicle and Machine Repair**
3. **Waste Handling/Disposal**

**Related vehicle maintenance activities are covered under the following program headings in this manual: "Vehicle and Equipment Cleaning", "Vehicle and Equipment Storage", and "Vehicle Fueling".**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for equipment maintenance and repair include:

- Review maintenance activities to verify that they minimize the amount of pollutants discharged to receiving waters. Keep accurate maintenance logs to evaluate materials removed and improvements made.
- Switch to non-toxic chemicals for maintenance when possible.
- Choose cleaning agents that can be recycled.
- Minimize use of solvents. Clean parts without using solvents whenever possible. Recycle used motor oil, diesel oil, and other vehicle fluids and parts whenever possible.
- Once per year, educate municipal staff on pollution prevention measures.

## MODEL PROCEDURES:

### 1. General Maintenance and Repair

**General Guidelines**

→ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewering agency.*

- ✓ Review maintenance activities to verify that they minimize the amount of pollutants discharged to receiving waters. Keep accurate maintenance logs to evaluate materials removed and improvements made.
- ✓ Regularly inspect vehicles and equipment for leaks.
- ✓ Move activity indoors or cover repair area with a permanent roof if feasible.
- ✓ Minimize contact of stormwater with outside operations through berming and drainage routing.
- ✓ Place curbs around the immediate boundaries of the process equipment.
- ✓ Clean yard storm drain inlets regularly and stencil them.

**Good Housekeeping**

→ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewering agency.*

- ✓ Avoid hosing down work areas. If work areas are washed and if discharge to the sanitary sewer is allowed, treat water with an appropriate treatment device (e.g. clarifier) before discharging. If discharge to the sanitary sewer is not permitted, pump water to a tank and dispose of properly.
- ✓ Collect leaking or dripping fluids in drip pans or containers. Fluids are easier to recycle or dispose of properly if kept separate.
- ✓ Keep a drip pan under the vehicle while you unclip hoses, unscrew filters, or remove other parts. Place a drip pan under any vehicle that might leak while you work on it to keep splatters or drips off the shop floor.
- ✓ Educate employees on proper handling and disposal of engine fluids.
- ✓ Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
- ✓ Do not pour liquid waste to floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections.
- ✓ Post signs at sinks and stencil outdoor storm drain inlets.

### 2. Vehicle Repair

**General Guidelines**

*Also see Waste Handling procedure sheet*

- ✓ Perform vehicle fluid removal or changing inside or under cover where feasible to prevent the run-on of stormwater and the runoff of spills.
- ✓ Regularly inspect vehicles and equipment for leaks, and repair as needed.
- ✓ Use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- ✓ Immediately drain all fluids from wrecked vehicles. Ensure that the drain pan or drip pan is large enough to contain drained fluids (e.g. larger pans are needed to contain antifreeze, which may gush from some vehicles).

- ✓ Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
- ✓ Recycle used motor oil, diesel oil, and other vehicle fluids and parts whenever possible.
- ✓ Oil filters disposed of in trash cans or dumpsters can leak oil. Place the oil filter in a funnel over a waste oil recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask your oil supplier or recycler about recycling oil filters.
- ✓ Store cracked batteries in a non-leaking secondary container and dispose of properly at recycling or household hazardous waste facilities.

**Vehicle Leak and Spill Control**

- ✓ Use absorbent materials on small spills. Remove the absorbent materials promptly and dispose of properly.
- ✓ Place a stockpile of spill cleanup materials where it will be readily accessible.
- ✓ Sweep floor using dry absorbent material.

## 3. Machine Repair

*Also see the Spill Prevention and Control procedure sheet*

- ✓ Keep equipment clean; don't allow excessive build-up of oil or grease.
- ✓ Minimize use of solvents.
- ✓ Use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- ✓ Perform major equipment repairs at the corporation yard, when practical.
- ✓ Following good housekeeping measures in *Vehicle Repair* section.

## 4. Waste Handling/Disposal

**Waste Reduction**

- ✓ Prevent spills and drips of solvents and cleansers to the shop floor.
- ✓ Do liquid cleaning at a centralized station so the solvents and residues stay in one area. Recycle liquid cleaners when feasible.
- ✓ Locate drip pans, drain boards, and drying racks to direct drips back into a solvent sink or fluid holding tank for reuse.

**Safer Alternatives**

OPTIONAL:

- If possible, eliminate or reduce the amount of hazardous materials and waste by substituting non-hazardous or less hazardous material:
  - Use non-caustic detergents instead of caustic cleaning for parts cleaning.

- Use a water-based cleaning service and have tank cleaned. Use detergent-based or water-based cleaning systems in place of organic solvent degreasers.
- Replace chlorinated organic solvents with non-chlorinated solvents. Non-chlorinated solvents like kerosene or mineral spirits are less toxic and less expensive to dispose of properly. Check list of active ingredients to see whether it contains chlorinated solvents.
- Choose cleaning agents that can be recycled.

**Recycling**

*Also see Waste Handling procedure sheet*

OPTIONAL:

- Separate wastes for easier recycling. Keep hazardous and non-hazardous wastes separate, do not mix used oil and solvents, and keep chlorinated solvents separate from non-chlorinated solvents.
- Label and track the recycling of waste material (e.g. used oil, spent solvents, batteries).
- Purchase recycled products to support the market for recycled materials.

## LIMITATIONS:

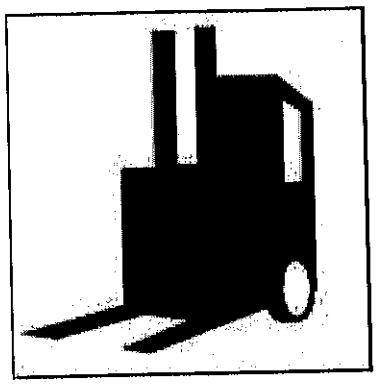
Space and time limitations may preclude all work being conducted indoors. It may not be possible to contain and clean up spills from vehicles/equipment brought on-site after working hours. Dry floor cleaning methods may not be sufficient for some spills – see spill prevention and control procedures sheet. Identification of engine leaks may require some use of solvents.

## REFERENCES:

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.*

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. 1995. King County Surface Water Management. July. On-line: http://dnr.metrokc.gov/wlr/dss/spcm.htm

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.



# FF-6

# MATERIAL LOADING AND UNLOADING

**The loading/unloading of materials usually takes place outside; therefore, materials spilled, leaked, or lost during loading/unloading have the potential to collect in the soil or on other surfaces and be carried away by runoff or when the area is cleaned. Additionally, rainfall may wash pollutants from machinery used to unload or move materials. Material loading and unloading involves the following activities:**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for material loading and unloading include:

- Check loading and unloading equipment regularly for leaks.
- Cover loading docks.
- Once per year, educate municipal staff on pollution prevention measures.

## MODEL PROCEDURES:

**General Guidelines**

- ✓ Regularly clean work areas to remove materials such as debris, sandblasting material, etc.
- ✓ Design loading/unloading area to prevent stormwater runon that would include grading or berming the area, and positioning roof downspouts so they direct stormwater away from loading/unloading areas.
- ✓ Use overhangs or door skirts that enclose the trailer.
- ✓ Park tank trucks or delivery vehicles so that spills or leaks can be contained.
- ✓ Avoid loading and exposing materials during rain events unless the loading dock is covered and protected from rain. A seal or door skirt between the trailer and the building may also prevent exposure to rain.
- ✓ Shipboard cooling and process water discharges should be directed to minimize contact with spent abrasives, paint, and other debris.

**Tank truck transfers**

- ✓ The area where the transfer takes place should be paved. If the liquid is reactive with the asphalt, Portland cement should be used to pave the area.
- ✓ Transfer area should be designed to prevent runon of stormwater from adjacent areas. Sloping the pad and using a berm around the uphill side of the transfer area should reduce runon.
- ✓ Transfer area should be designed to prevent runoff of spilled liquids from the area. Sloping the area to a drain should prevent runoff. The drain should be connected to a dead-end sump. A positive control valve should be installed on the drain.

**Spill Control**

*Also see Spill Prevention and Control procedures sheet*

- ✓ Contain leaks during transfer.
- ✓ Use drip pans under hoses.
- ✓ Have an emergency spill cleanup plan readily available.
- ✓ Place spill kits and materials next to or near each loading/unloading area.
- ✓ Use drip pans or comparable devices when transferring oils, solvents, and paints.

**Training**

- ✓ Make sure forklift operators are properly trained.
- ✓ Train employees regarding spill containment and cleanup.
- ✓ Employees trained in spill containment and cleanup should be present during the loading/unloading.
- ✓ Use a written operations plan that describes procedures for loading and/or unloading.

**Inspection**

*Also see Spill Prevention and Control procedures sheet*

- ✓ Check loading and unloading equipment regularly for leaks, including valves, pumps, flanges and connections.
- ✓ Inspect regularly for leaking valves, pipes, hoses, or soil chutes carrying either water or wastewater.
- ✓ Look for dust or fumes during loading or unloading operations.

## LIMITATIONS:

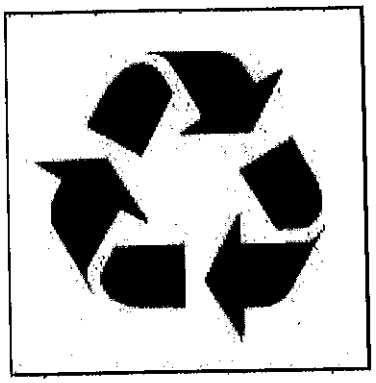
Space and time limitations may preclude all transfers from being performed indoors or under cover. It may not be possible to conduct transfers only during dry weather.

## REFERENCES:

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook.*

*Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.*

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.



# FF-7

# MATERIAL STORAGE, HANDLING, AND DISPOSAL

**Accidental releases of materials from aboveground liquid storage tanks, drums, and dumpsters present the potential for contaminating stormwater with many different pollutants. Maintaining these areas may involve one or more of the following activities:**

1. **Material Storage**
2. **Chemical Material Handling and Disposal**
3. **Hazardous Material Handling and Disposal**

**Accidental releases of materials from aboveground liquid storage tanks, drums, and dumpsters present the potential for contaminating stormwater with many different pollutants. Maintaining these areas may involve one or more of the following activities:**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for material storage, handling, and disposal include:

- Store material indoors, or covered if outdoors.
- Prevent storm water run-on.
- Once per year, educate municipal staff on pollution prevention measures.

## MODEL PROCEDURES:

### 1. General Material Storage, Handling, and Disposal

**Storage**

✓ Store materials indoors if possible. If stored outdoors, cover the storage area with a roof or withy temporary cover during rain events. [*Note: the local fire authority/department must be consulted for limitations on clearance of roof covers over containers used to store flammable materials*].

- ✓ Keep storage areas clean and dry. Conduct regular inspections so that leaks and spills are detected as soon as possible.
- ✓ Minimize stormwater run-on and runoff by covering, enclosing or providing secondary containment for the area.
- ✓ Keep outdoor storage areas in good condition (e.g. repair roofs, floors, etc. to limit releases to runoff).
- ✓ Drums stored in an area where unauthorized persons may gain access must be secured to prevent accidental spillage, pilferage, or any unauthorized use. Only personnel with proper training may handle hazardous waste. *See Waste Handling and Disposal Procedures*
- ✓ Wood products treated with chromated copper arsenate, ammonical copper zinc arsenate, creosote, or pentachlorophenol should be covered with tarps during rain events or stored indoors.
- ✓ Parking lots or other surfaces near bulk materials storage areas should be swept periodically to remove debris blown or washed from storage area.
- ✓ Train employees in proper storage measures.

**Secondary Containment**

- ✓ Tanks should be bermed or surrounded by a secondary containment system such as dikes, liners, vaults, or double walled tanks.
- ✓ Keep liquids in a designated area on a paved impervious surface within a secondary containment.
- ✓ The area inside the berm should slope to a drain with a dead-end sump that is periodically pumped out.

**Inspection**

- ✓ Inspect storage areas regularly for leaks or spills.
- ✓ Conduct routine inspections and check for external corrosion of material containers. Also check for structural failure, spills and overfills due to operator error, failure of piping system.
- ✓ Check for leaks or spills during pumping of liquids or gases from trucks to a storage facility or vice versa.
- ✓ Visually inspect new tank or container installations for loose fittings, poor welding, and improper or poorly fitted gaskets.
- ✓ Inspect tank foundations, connections, coatings, and tank walls and piping system. Look for corrosion, leaks, cracks, scratches, and other physical damage that may weaken the tank or container system.

## 2. General Chemical Material Handling and Disposal

**General Guidelines**

- ✓ Do not store chemicals, drums, or bagged materials directly on the ground. Place these items in secondary containers. Designate a secure chemical material storage area that is paved with Portland cement concrete, free of cracks and gaps, and impervious in order to contain leaks and spills.

✓ Containers should be placed in a designated area and covered.

✓ Design and maintain chemical storage areas that reduce exposure to storm water:

- Store materials inside or under cover on paved surfaces
- Use secondary containment (see section above)

*Types of chemical materials that may be stored:*
*Liquid chemicals*
*Waste oils*
*Solvents*
*Petroleum products*
*Paints*
*Cleaners*
*Pesticides*
*Fertilizers*
*Etc.*

✓ Use covered dumpsters for waste product containers. Dumpsters shall be kept in good condition without corrosion or leaky seams. Garbage dumpsters shall be replaced if they are deteriorating to the point where leakage is occurring.

✓ Liquid materials should be stored in UL approved double walled tanks or surrounded by a curb or dike to provide the volume to contain 10 percent of the volume of all the containers or 110 percent of the volume of the largest container, whichever is greater.

✓ Try to keep chemicals in their original containers, and keep them well labeled.

✓ Keep secured lids on waste barrels and containers.

### Spill Control

*See Spill Prevention and Control procedures sheet*

✓ Clean up spills immediately.

✓ Safeguards against accidental releases:

- Overflow protection devices to warn operator or automatic shut down transfer pumps
- Protection guards (bollards) around tanks and piping to prevent vehicle or forklift damage

✓ Clear tagging or labeling, and restricting access to valves to reduce human error.

✓ Employees trained in emergency spill cleanup procedures should be present when dangerous waste, liquid chemicals, or other wastes are delivered or transferred off-site.

## 3. General Hazardous Material Handling

### General Guidelines

*Also see Spill Control Section above and the Spill Prevention and Control procedures sheet*

✓ All hazardous waste must be labeled according to hazardous waste regulations. Consult your Fire Department or your local hazardous waste agency for details.

✓ Store as few hazardous materials on-site as possible. Do not store any hazardous waste directly on the ground. Place these items in secondary containers. Designate a secure hazardous waste storage area that is paved with Portland cement concrete, free of cracks and gaps, and impervious in order to contain leaks and spills.

✓ Handle hazardous materials as infrequently as possible. Only properly trained personnel should handle hazardous waste.

- ✓ Storage of oil and hazardous materials must meet specific Federal and State standards including:
  - Spill Prevention Control and Countermeasure Plan
  - Secondary containment
  - Integrity and leak detection monitoring
- ✓ Never mix waste oil with fuel, antifreeze, or chlorinated solvents. Consult your hazardous waste hauler for details.
- ✓ Develop emergency preparedness plans.
- ✓ Employees should be familiar with the Hazardous Materials Disclosure Plan, if applicable .
- ✓ Employees trained in emergency spill cleanup procedures should be present when dangerous waste, liquid chemicals, or other wastes are delivered or transferred off-site.

**Batteries**

- ✓ Store new batteries securely to avoid breakage and acid spills during earthquakes. Shelving should be secured to the wall.
- ✓ Store used batteries indoors and in plastic trays to contain potential leaks.
- ✓ Recycle old batteries.

## LIMITATIONS:

Storage sheds often must meet building and fire code requirements.

## REFERENCES:

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.*

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. 1995. King County Surface Water Management. July. On-line: http://dnr.metrokc.gov/wlr/dss/spcm.htm

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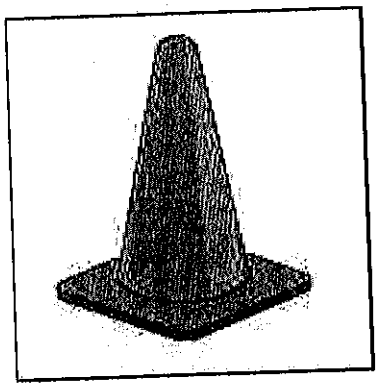

# FF-8

# MINOR CONSTRUCTION

**Minor construction activities can result in the use of materials or generation of waste that may contain toxic hydrocarbons or other organic compounds, suspended solids, heavy metals, abnormal pH, and oils and greases. Minor construction activities may involve one or more of the following:**

1. **General Construction Activities**
2. **Interim Material Storage**
3. **Concrete Work**
4. **Building Work**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for minor construction include:

- Schedule activities during dry weather whenever possible.
- Use dry cleaning methods whenever possible.
- Once per year, educate municipal staff on pollution prevention measures.

## MODEL PROCEDURES:

### 1. General Construction Activities

✓ Prevent debris from entering the storm drain.

✓ Do not wash materials into a storm drain or bury spilled dry material.

✓ Do not clean or rinse equipment into a street, gutter, or storm drain.

✓ Use a storm drain cover, filter fabric, or similarly effective runoff control mechanism if dust, grit, wash water, or other pollutants may escape the work area and enter a storm drain inlet. This is particularly necessary on rainy days. The containment device(s) must be in place at the beginning

*See Waste Handling and Disposal procedure sheet*

of the work day, and accumulated dirty runoff and solids must be collected and disposed of before removing the containment device(s) at the end of the work day.

- ✓ Clean the storm drain inlets in the immediate vicinity of the construction activity after it is completed.
- ✓ If a spill occurs on dirt, excavate and remove the contaminated (stained) soil.
- ✓ Clean up spills and leaks immediately using dry methods, whenever possible.
- ✓ Designate an area for clean up and proper disposal of excess materials.
- ✓ Sweep up dry materials and residue from cleaning operations. Avoid using water to clean up.
- ✓ Use soil erosion control techniques if bare ground is temporarily exposed.
- ✓ Promptly clean up trash, debris, and litter from job sites and dispose properly.
- ✓ Inspect vehicles and equipment used at the construction site regularly for leaks.
- ✓ Train employees and subcontractors in proper waste management.

## 2. Interim Material Storage

- ✓ Properly store and cover materials that are normally used during minor construction such as paints, solvents, equipment, fuel, asphalt/concrete materials, sand, etc.
- ✓ Properly store and dispose of wastes generated from the activity.
- ✓ Store dry and wet materials under cover, protected from rainfall and runoff and away from storm drain inlets. After job is complete, remove temporary stockpiles (asphalt materials, sand, etc.) and other materials as soon as possible.
- ✓ Apply and store all products in accordance with manufacturer's instructions and proper safety measures.
- ✓ Store products in labeled containers and with covers or lids.
- ✓ Keep paved areas adjacent to stockpiles and earthwork sites free from loose sediment and tracked materials.
- ✓ Place stockpiled materials away from storm drain inlets, drainage paths, and natural waterways and provide cover to protect from runon/runoff if feasible.
- ✓ Control stockpiled materials if windy or rainy weather is predicted (e.g. tarps, berming, sandbags, etc.).
- ✓ Prevent storm water from eroding loose soil and stockpiles.

✓ Inspect stockpiles regularly and after significant rain events.

## 3. Concrete Work

✓ Take measures to protect nearby storm drain inlets prior to breaking up asphalt or concrete (e.g. place hay bales or sand bags around inlets). Clean afterwards by dry sweeping up as much waste material as possible.

✓ When making saw cuts in pavement, use as little water as possible. Cover each storm drain inlet completely with filter fabric during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the inlets. Vacuum saw cuttings and water from the pavement or gutter and remove from site.

✓ Avoid mixing excess amounts of fresh concrete or cement mortar on site.

✓ Apply concrete, asphalt, and seal coat during dry weather to prevent contamination form contacting stormwater runoff.

✓ Protect applications of fresh concrete from rainfall and runoff until the material has dried.

✓ Do not allow excess concrete to be dumped on-site, except in designated areas and promptly remove when concrete has dried.

✓ Tarps should be placed under concrete pumper trucks and the rear of trucks while concrete is being delivered or transferred from one area to another.

✓ Wash concrete trucks and concrete pumper trucks and trailers off site or in designated areas on site, such that there is no discharge of concrete wash water into storm drains, open ditches, streets, catch basins, or other stormwater conveyance structures.

✓ For on-site washout:

- Locate washout area at least 50 feet from storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed of properly.
- Whenever possible, recycle washout by pumping back into mixers for reuse.
- Never dispose of washout into the street, storm drains, drainage ditches, or creeks.

✓ When washing concrete to remove fine particles and expose the aggregate, contain the wash water for proper disposal. Do not allow water to enter storm drain inlets.

✓ Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stock pile, or

dispose in the trash

✓ Return left-over materials to the transit mixer. Dispose excess concrete, grout, and mortar in the trash.

## 4. Building Work

**General Guidelines**

✓ Use ground or drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of collected material daily.

✓ Do not dump any toxic substance or liquid waste on the pavement, the ground, or toward a storm drain.

✓ Use a ground cloth or oversized tub for activities such as paint mixing and tool cleaning.

✓ Clean paint brushes and tools covered with water-based paints in sinks connected to sanitary sewers. Brushes and tools covered with non-water-based paints, finishes, or other materials must be cleaned in a manner that enables collection of used solvents (e.g., paint thinner, turpentine, etc.) for recycling or proper disposal.

✓ If a spill occurs on dirt, excavate and remove the contaminated (stained) soil.

**Building Demolition**

✓ Spray water throughout the site to help control wind-blowing of fine materials such as soil, concrete dust, paint chips, and metal chips. The amount of water must be controlled so that runoff from the site does not occur; yet dust control is accomplished.

✓ Oils must never be used for dust control.

✓ Place filter fabric or a similarly effective device at nearby storm drain inlets to prevent particles and solids from entering the storm drainage system. Filters should be placed at the beginning of the workday and the accumulated materials collected and disposed properly before removing them at the end of the workday

✓ Dry sweep surrounding street gutters, sidewalks, driveways, and other paved surfaces at the end of each workday to collect and properly dispose of loose debris and garbage, do not hose down the area to a storm drain.

✓ Use permanent soil erosion control techniques if a building cleared from an area is not to be replaced.

## LIMITATIONS:

This procedure sheet is for minor construction only; the State's General Construction Activity Storm Water permit has more requirements for larger projects. Be certain that actions to help stormwater quality are consistent with Cal- and Fed-OSHA and air quality regulations.

## REFERENCES:

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.*

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. 1995. King County Surface Water Management. July. On-line: http://dnr.metrokc.gov/wlr/dss/spcm.htm

The Stormwater Managers Resource Center (http://www.stormwatercenter.net/)

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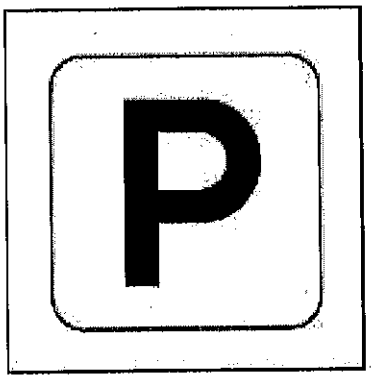

FF-9

# PARKING LOT MAINTENANCE

**Litter accumulation in parking lots can contribute suspended solids to stormwater runoff; runoff from parking lots may also contain hydrocarbons, oil and grease, and heavy metals to stormwater. Maintaining these areas may involve one or more of the following activities:**

1. **Sweeping and Cleaning**
2. **Repair**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for parking lot maintenance include:

- Keep accurate maintenance logs to evaluate materials removed and improvements made.
- When repairing parking lots, consider making retrofits that will reduce storm runoff quantities (i.e. permeable surface, directing surface flows to landscaped areas, etc.)
- Once per year, educate municipal staff on pollution prevention measures.
- Educate others about storm water pollution prevention.

## MODEL PROCEDURES:

### 1. Sweeping and Cleaning

✓ Sweep/vacuum all parking lots at least once before the onset of the wet season.

✓ When cleaning with water use the procedures below:

- Block the storm drain or contain runoff.
- Wash water should be collected and disposed of properly. If wash water does not contain soap or other cleaning agents the water may be discharged to a pervious surface (dirt or landscaped area).

✓ Dispose of parking lot sweeping debris and dirt at a landfill.

✓ When cleaning heavy oily deposits:

- Clean oily spots with absorbent materials
- Do not allow discharges to the storm drain
- Collect wash water and dispose of properly.

✓ Appropriately dispose of spilled materials and absorbents.

✓ If cleaning agents are used, select biodegradable products.

OPTIONAL:

- If necessary, establish more frequent sweeping schedule based on usage and field observations of waste accumulation.

**Litter Control**

✓ Enforce anti-litter laws.

✓ Provide an adequate number of litter receptacles.

✓ Clean out frequently and/or cover litter receptacles to prevent spillage.

✓ Sweep/vacuum all parking lots at least once before the onset of the wet season.

OPTIONAL:

- Post "No Littering" signs.

## 3. Surface Repair

✓ Pre-heat, transfer or load hot bituminous material away from storm drain inlets.

✓ Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff.

✓ Cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered maintenance holes and drains for proper disposal.

✓ Use only as much water as necessary for dust control, to avoid runoff.

✓ Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

## 4. Control Spills

✓ If a spill occurs on dirt, excavate and remove the contaminated (stained)

*See Spill Prevention and Control*

*procedure sheet*

dirt.

- ✓ Store spill response materials at a central location and keep maintenance vehicles adequately supplied.
- ✓ Appropriately dispose of spilled m aterials and absorbents.

## LIMITATIONS:

Limitations related to sweeping activities at large parking facilities may include current sweeper technology to remove oil and grease.

## REFERENCES:

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.*

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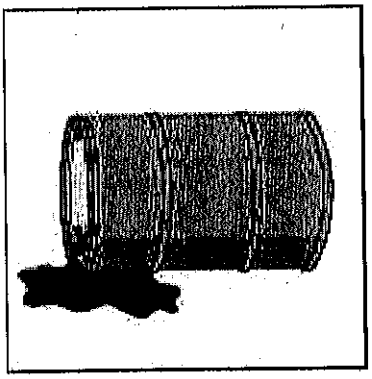

# FF-10

# SPILL PREVENTION AND CONTROL

**Preparation for accidental or illegal spills, with proper training and reporting systems implemented, can minimize the discharge of pollutants to the environment. Specific spill prevention and response activities may involve one or more of the following activities:**

1. **Preparation/Prevention**
2. **Spill Response**
3. **Reporting**
4. **Training**

**An emergency spill response plan, the Orange County Hazardous Materials Area Plan, has been developed. Each City should adopt this plan or an equivalent plan to respond to hazardous materials emergencies.**

## MODEL PROCEDURES:

### 1. Preparation/Prevention

- ✓ Adopt the Orange County Hazardous Materials Area Plan or equivalent plan which includes a set of planned responses to hazardous materials emergencies, addressing chain-of-command, public agency participation and allocation of authority.
- ✓ Place a stockpile of spill cleanup materials where it will be readily accessible.
- ✓ Develop procedures to prevent/mitigate spills to storm drain systems. Develop and standardize reporting procedures, containment, storage, and disposal activities, documentation, and follow-up procedures.
- ✓ Identify key spill response personnel.

## 2. Spill Response

- ✓ Clean up leaks and spills immediately.
- ✓ On paved surfaces, clean up spills with as little water as possible. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to a certified laundry (rags) or disposed of as hazardous waste.
- ✓ Never hose down or bury dry material spills. Sweep up the material and dispose of properly.
- ✓ Use adsorbent materials on small spills rather than hosing down the spill. Remove the adsorbent materials promptly and dispose of properly.
- ✓ For larger spills, a private spill cleanup company or Hazmat team may be necessary.

OPTIONAL:

- If illegal dumping is observed at the facility post "No Dumping" signs with a phone number for reporting dumping and disposal.

## 3. Reporting

- ✓ Report spills or problems to a city Authorized Inspector

## 4. Training

- ✓ Educate employees about spill prevention and cleanup.

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## LIMITATIONS:

For hazardous spills, a private spill cleanup company or Hazmat team may be necessary. Proper training is crucial to reducing the frequency, severity, and impacts of leaks and spills.

## REFERENCES:

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.*

The Stormwater Mangers Resource Center (http://www.stormwatercenter.net/)

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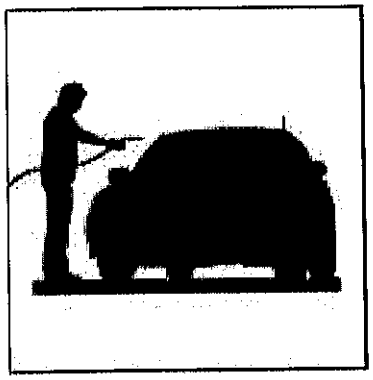
Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.



# FF-11

# VEHICLE AND EQUIPMENT CLEANING

**Vehicle and equipment cleaning activities can contribute toxic hydrocarbons and other organic compounds, oils and greases, nutrients, heavy metals, and suspended solids to stormwater runoff. Use of the procedures outlined below can prevent or reduce the discharge of pollutants to stormwater during vehicle and equipment cleaning.**

1. **Inspection and Cleaning of Stormwater Conveyance Structures**
2. **Controlling Illicit Connections and Discharges**
3. **Controlling Illegal Dumping**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for vehicle and equipment cleaning include:

- Use outside service agencies to clean vehicles and equipment.
- Once per year, educate municipal staff on pollution prevention measures.

## MODEL PROCEDURES:

If your facility washes or steam cleans a large number of vehicles or pieces of equipment, consider contracting out this work to a commercial business. These businesses are better equipped to handle and dispose of the wash waters properly. Contracting out this work can also be economical by eliminating the need for a separate washing/cleaning operation at your facility.

If washing/cleaning must occur on-site follow these procedures:

- ✓ Use designated, covered, wash areas to prevent contact with stormwater and bermed to contain wash water.
- ✓ Designated wash areas must be well marked with signs indicating where and how washing must be done.
- ✓ Water may be discharged to the sanitary sewer after flowing through a clarifier. If the above conditions are not met, other pre-treatment may be

→ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewering agency.*

required.

✓ Do not permit steam cleaning or engine degreasing at the wash out area.

✓ Washing operations should be conducted in a designated wash area having the following characteristics:

- Paved with Portland cement concrete
- Covered or bermed to prevent contact with storm water
- Sloped for wash water collection
- Connected to the sanitary sewer – upon approval.
- Clearly designated

OPTIONAL:

- Consider filtering and recycling wash water.
- Equip wash areas with oil/water separators.

## LIMITATIONS

Steam cleaning can generate significant pollutant concentrations requiring permitting, monitoring, pretreatment, and inspections. The measures outlined in this procedure sheet are insufficient to address all the environmental impacts and compliance issues related to steam cleaning.

## REFERENCES:

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.*

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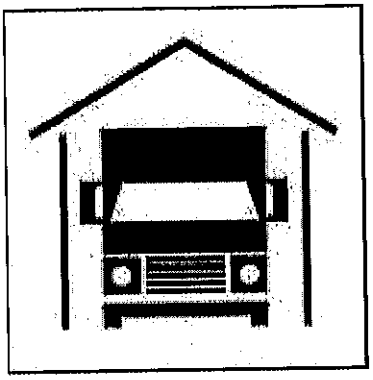

# FF-12

# VEHICLE AND EQUIPMENT STORAGE

**Stormwater runoff from vehicle and equipment storage areas can be contaminated with toxic hydrocarbons and other organic compounds, oils and greases, heavy metals, nutrients, and suspended solids. Activities associated with vehicle and equipment storage may involve one or more of the following:**

1. **Storing Vehicles and Equipment**
2. **Wrecked Vehicle Storage**
3. **Cleaning Storage Areas**

**Related vehicle maintenance activities are covered under the following program headings in this manual: "Vehicle and Equipment Cleaning", "Equipment Maintenance and Repair", and "Vehicle Fueling".**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for vehicle and equipment storage include:

- Use outside service agencies to clean vehicle storage areas and collect water for off-site disposal.
- Once per year, educate municipal staff on pollution prevention measures.

## MODEL PROCEDURES:

### 1. Storing Vehicles and Equipment

**General Guidelines**

- ✓ Place drip pans or absorbent materials under vehicles and heavy equipment when not in use.
- ✓ Inspect the storage yard for filling drip pans and other problems (leaking equipment) regularly.
- ✓ Train employees on procedures for storage and inspection items.

**Batteries**

- ✓ Store batteries that have been dropped or are cracked in a secondary container even if it appears that the acid has already drained.

## 2. Wrecked Vehicle Storage

- ✓ As the vehicles arrive, place drip pans under them immediately, even if the fluids have leaked out before the car arrives.
- ✓ Drain all fluids from wrecked vehicles and "part" cars. Also drain engines, transmission, and other used parts.
- ✓ Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers lying around.
- ✓ Do not store vehicles near storm drain inlets.
- ✓ Comply with all applicable State and Federal regulations regarding storage, handling, and transport of petroleum products.

## 3. Cleaning Vehicle Storage Areas

- ✓ Dry sweep parking lots, storage areas, and driveways at least once per month to collect dirt, waste, and debris, do not hose down the area to a storm drain.
- ✓ Considering using an outside service to clean vehicle storage areas and collect water for off-site disposal.

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## LIMITATIONS:

It may not be possible to contain and clean up spills from vehicles/equipment brought on-site after working hours.

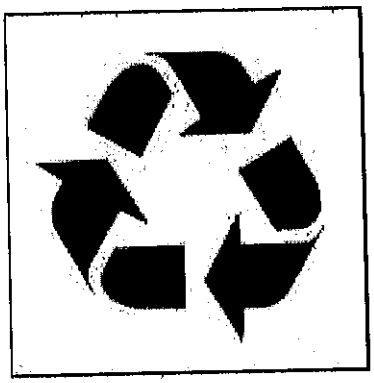
## REFERENCES:

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.*

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. 1995. King County Surface Water Management. July. On-line: http://dnr.metrokc.gov/wlr/dss/spcm.htm

Los Angeles County Stormwater Quality Model Programs. Public Agency Activities
http://ladpw.org/wmd/npdes/model_links.cfm

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.



# FF-13

# WASTE HANDLING AND DISPOSAL

**Improper storage of solid wastes can allow toxic compounds, oils and greases, heavy metals, nutrients, suspended solids, and other pollutants to enter stormwater runoff. The discharge of pollutants to stormwater from waste handling and disposal can be prevented and reduced by tracking waste generation, storage, and disposal; reducing waste generation and disposal through source reduction and recycling; and preventing run-on and runoff. Proper waste handling and disposal activities include the following:**

1. **Litter Control**
2. **Waste Collection**
3. **Spill/Leak Control**
4. **Run-on/Runoff Prevention**

## POLLUTION PREVENTION:

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for waste handling and disposal include:

- Reuse products when possible.
- Recycle leftover products that are recyclable.
- Once per year, educate municipal staff on pollution prevention measures.

## MODEL PROCEDURES:

### 1. Litter Control

**General Guidelines**

✓ Enforce anti-litter laws.

✓ Provide a sufficient number of litter receptacles at each fixed facility.

✓ Clean out and cover litter receptacles frequently to prevent spillage.

OPTIONAL:

- Post "No Littering" signs.
- Place trash receptacles at transit stops and maintain as necessary

## 2. Waste Collection

### General Guidelines

✓ Keep waste collection areas clean.

✓ Regularly inspect solid waste containers for structural damage. Repair or replace damaged containers as necessary.

✓ Secure solid waste containers; containers should be closed tightly when not in use.

✓ Do not fill waste containers with washout water or any other liquid.

✓ Ensure that only appropriate solid wastes are added to the solid waste container. Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc. may not be disposed of in solid waste containers (see chemical/ hazardous waste collection section below).

✓ Do not mix liquid wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.

### Good Housekeeping

✓ Use the entire product before disposing of the container.

✓ The waste management area should be kept clean by sweeping and cleaning up spills immediately.

✓ When cleaning around dumpster areas use dry methods when possible (e.g. sweeping, use of absorbents). If water must be used after sweeping/using absorbents, collect water and discharge to landscaped area or discharge through grease interceptor to the sewer if permitted to do so.

→ *Note: Permission must be obtained for any discharge of wash water to the sanitary sewer from the local sewering agency.*

### Chemical/Hazardous Waste Management

✓ All hazardous waste must be labeled according to hazardous waste regulations. Consult your Fire Department or your local hazardous waste agency for details.

✓ Educate/train employees and subcontractors in proper hazardous waste handling management practices.

✓ Handle hazardous materials as infrequently as possible. Only properly trained personnel should handle hazardous waste.

✓ Select designated hazardous waste collection areas on-site and make sure that hazardous waste is collected, removed, and disposed of only at these authorized disposal areas.

✓ Hazardous wastes may only be stored for 90 days or less, unless the facility obtains a permit.

✓ Hazardous materials and wastes should be stored in covered containers and protected from vandalism.

✓ Place hazardous waste containers in secondary containment.

✓ Stencil storm drains on the facility's property

**Waste Reduction/ Recycling**

✓ Recycle materials whenever possible.

OPTIONAL:

- Reduce the amount of waste generated by using source controls such as:
  - Production planning and sequencing
  - Process or equipment modification
  - Raw material substitution or elimination
  - Loss prevention and housekeeping
  - Waste segregation and separation
  - Close loop recycling
- Establish a material tracking system to increase awareness about material usage. This may reduce spills and minimize contamination, thus reducing the amount of waste produced.

## 3. Spill/Leak Control:

*Also see Spill Prevention and Control procedure sheet*

✓ Clean up spills immediately.

✓ Spill cleanup materials should be placed where they are easily accessible.

✓ Minimize spillage/leaking from solid waste containers. For larger solid waste containers (especially compac tors) that utilize a hydraulic fluid pump system, regularly inspect and replace faulty pumps or hoses to minimize the potential of releases and spills.

✓ Check waste management areas for leaking containers or spills.

✓ Leaking equipment including valves, lines, seals, or pumps should be repaired promptly.

✓ Transfer waste from damaged containers into safe containers.

✓ Vehicles transporting waste should have spill prevention equipment that can prevent spills during transport. The spill prevention equipment includes:

- Vehicles equipped with baffles for liquid waste
- Trucks with sealed gates and spill guards for solid waste

✓ Special care should be taken when loading or unloading wastes *See Loading and Unloading procedure sheet.*

## 4. Run-on/Runoff Prevention

✓ Prevent stormwater run-on from entering waste management areas by enclosing the area or building a berm around the area.

✓ Prevent the waste materials from directly contacting rain.

✓ Cover waste areas with a permanent roof if feasible. If not feasible, cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropylene or hypalon.

✓ If possible, move the activity indoors; ensuring first that all safety concerns such as fire hazard and ventilation are addressed.

✓ Dumpsters should be covered to prevent rain from washing waste out of holes or cracks in the bottom of the dumpster.

OPTIONAL:

- Minimize the runoff of stormwater for land application by:
  - Choosing a site where slopes are under 6%, the soil is permeable, there is a low water table, it is located away from wetlands or marshes, there is a closed drainage system.
  - Avoiding application of waste to the site when it is raining or when the ground is saturated with water.
  - Growing vegetation on land disposal areas to stabilize soils and reduce the volume of surface water runoff from the site.
  - Maintaining adequate barriers between the land application site and the receiving waters. Planted strips are particularly good.
  - Using erosion control techniques such as mulching and matting, filter fences, straw bales, diversion terracing, and sediment basins.
  - Performing routine maintenance to ensure the erosion control or site stabilization measures are working.

## LIMITATIONS:

Hazardous waste cannot be re-used or recycled; it must be disposed of by a licensed hazardous waste hauler.

## REFERENCES:

*Bay Area Stormwater Management Agencies Association. 1996. Pollution From Surface Cleaning.*

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning*

*Associates for Stormwater Quality Task Force. March 1993.*

Harvard University. 2002. Solid Waste Container Best Management Practices – Fact Sheet On-Line Resources – Environmental Health and Safety.

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.

# IC24. DISPOSAL OF WASTEWATER GENERATED BY MOBILE BUSINESSES & OUTDOOR ACTIVITIES

## Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner.[1] The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

**MINIMUM BEST MANAGEMENT PRACTICES**

Pollution Prevention/Good Housekeeping

- Dispose of wastewater according to the instructions below. No wastewater shall be disposed of into the stormdrain system.

Training

- Train employees on these BMPs, stormwater discharge prohibitions, and wastewater discharge requirements.
- Provide on-going employee training in pollution prevention.

The BMPs outlined in this fact sheet target the following pollutants:

| Targeted Constituents | |
|---|---|
| Sediment | X |
| Nutrients | X |
| Floatable Materials | X |
| Metals | X |
| Bacteria | X |
| Oil & Grease | X |
| Toxic Organic | X |
| Pesticides | X |
| Oxygen Demanding | X |

Purpose of this BMP:

Orange County cities and the County of Orange are mandated under NPDES Permits issued by the California Regional Water Quality Control Boards to prohibit the discharge of pollutants and non-stormwater runoff into the stormdrain system. Therefore, untreated wastewater (including wastewater from mobile detailing, pressure washing, steam cleaning, carpet cleaning, or similar activities) shall **not** be discharged to the stormdrain system.

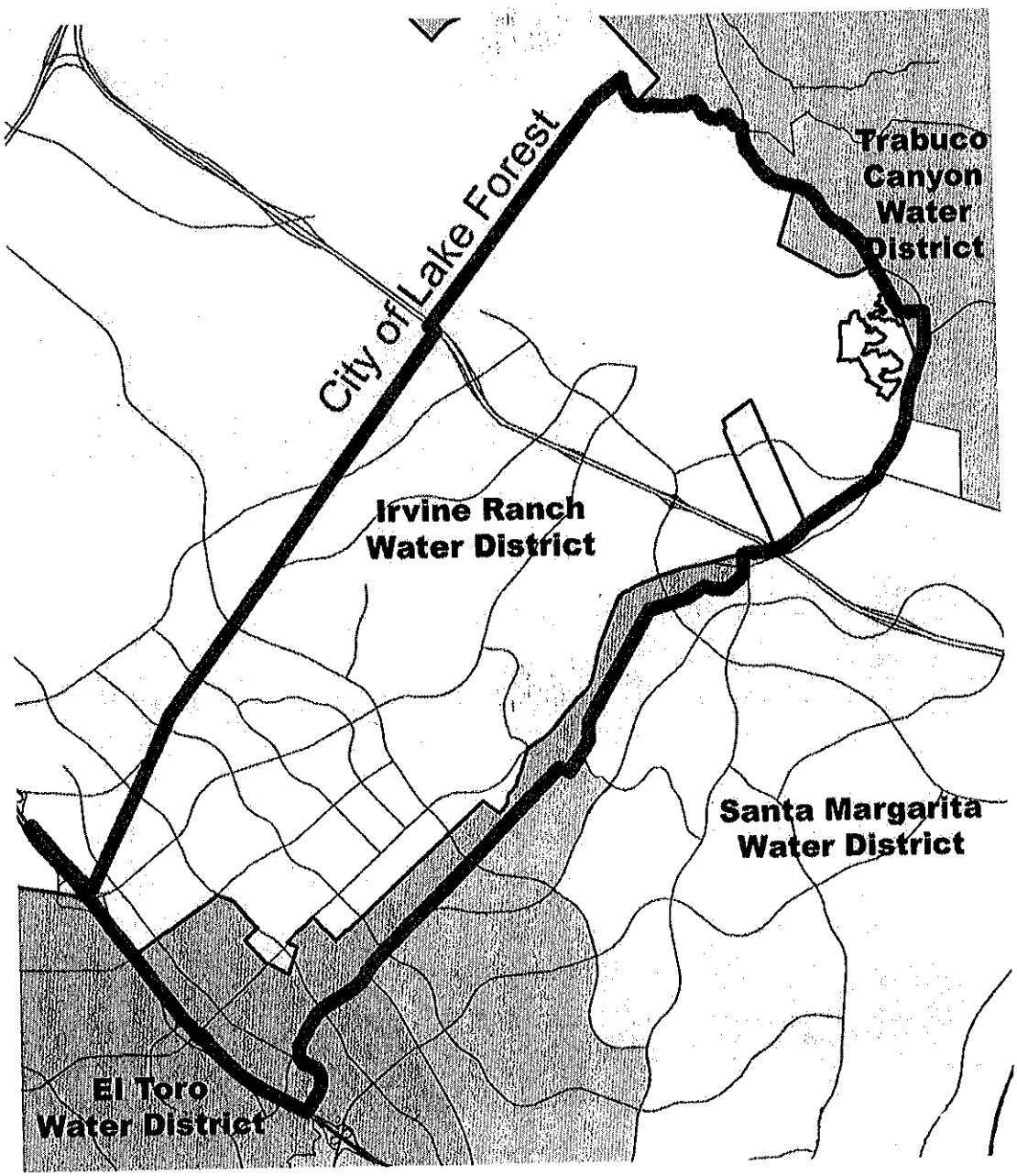
In an effort to help businesses comply with the NPDES Permit, the cities of Orange County, County of Orange, South Orange County Wastewater Authority, Orange County Sanitation District, and Irvine Ranch Water District have developed the following best management practices (BMPs) for the proper disposal of wastewater generated by mobile business operations and outdoor activities.

[1] EPA " *Preliminary Data Summary of Urban Stormwater Best Management Practices"*

If you have specific questions regarding any of the BMPs herein, please call your local sewering agency or your City's NPDES Coordinator. The telephone numbers are listed at the end of this document.

Attached is a map delineating the various sewer district boundaries for your reference.

## Water District Boundary Map



## 1. General Best Management Practices (BMPs) and Preparation of Work Area

### *What should I do prior to conducting a job?*

The BMPs presented below are intended to help you comply with local and state regulations that prohibit wastewater from entering the stormdrain system. The following BMPs must be followed by all mobile businesses or outdoor activities of a fixed business that generate wastewater, regardless of the type of surface to be cleaned or cleaning operation to be performed:

- Evaluate the chemicals and compounds used for cleaning and reduce or eliminate the use of those that contain solvents, heavy metals, high levels of phosphates, or very high/very low pH that exceeds the local sewering agency requirements.
- Walk through the area where the cleaning will occur prior to the start of the job and identify all area drains, yard drains, and catch basins where wastewater could potentially enter the stormdrain system.
- Block/seal off identified drains or catch basins using sand bags, plugs, rubber mats, or temporary berms.
- Collect all trash and debris from the project area and place them in a trash bin for disposal.
- Sweep all surface areas prior to cleaning to minimize the amount of suspended solids, soil, and grit in wastewater.
- Identify the wastewater disposal option that will be used. Whether you are discharging to landscaping or the sanitary sewer, it is necessary that you meet all the requirements identified below.
- Conduct mobile washing in accordance with all operating instructions provided by the equipment supplier. Maintain equipment in good working order and routinely check and test all safety features.

### *What methods can be used to collect wastewater at a site?*

There is no specific containment method that must be used for wastewater collection/diversion. However, the system must be adequately designed so that the wastewater does not flow into an on-site or off-site stormdrain inlet. All mobile and existing businesses should use one of the following methods, regardless of the surface to be cleaned or the type of cleaning operation to be performed:

- Portable containment areas can be made from waterproof tarps, heavy-duty plastic, or rubber matting equipped with berms to prevent wastewater from running into stormdrain inlets or discharge off-site. Materials that can be used for berms include sand bags or water-filled tubing. Whatever containment material is used, it must seal tightly to the ground so that no wastewater can pass under or over the berms.
- When power washing smaller pieces of equipment, containment devices to use may include portable vinyl swimming pools, plastic 55-gallon drums on casters, and flat metal or plastic containment pads.
- Depending on the volume of wastewater generated, it may be necessary to use a pump system, which may range in size from a wet-dry vacuum to a sump pump. A natural basin from which to pump can also be set up by establishing a slightly sloped containment area.
- Stationary or more permanent containment areas can be constructed with cement. Berms and pump systems may be used to contain wastewater and divert it to a holding tank.

- Commercial wastewater collection systems are also available for power washing. These systems can range from portable wash pits to self-contained water recycling systems. A list of companies selling this type of equipment can usually be found in the telephone book under "Pressure Washing Services and Equipment".

- Stormdrain inlet covers can be made of an impermeable barrier such as a heavy-duty vinyl or plastic secured in place with materials such as concrete blocks, gravel bags, or sand bags. Stormdrain inlet covers may also be available though commercial vendors.

**Note:** Blocking stormdrain catch basin inlets in the public right-of-way (i.e. public street, or other publicly owned facility) is prohibited as a method of containment, unless expressly permitted by the municipality typically through an encroachment permit process. Wastewater should be contained on-site prior to entering the public right-of-way. Contact the local municipality for more information.

## 2. Wastewater Disposal Options

### How can I dispose of my wastewater?

Wastewater is not allowed in the stormdrain or street. However, the wastewater may be discharged to landscaping or the sanitary sewer, or it may be picked up and disposed of by a waste hauler. Please note that if you are unsure of the types of pollutants in the wastewater, laboratory analysis may be required to establish the proper disposal method.

Choose one of the three wastewater disposal options listed below based upon the following conditions:

#### Option 1: Discharge Wastewater to a Landscaped Area

The wastewater must meet the following requirements if discharging to landscaping:

- The pH must be between 6.5 and 8.5. This can be checked quickly and easily through the use of pH paper test strips.

- The wastewater should not contain large volumes or concentrations of:

    - Toxic materials.
    - Degreasers.
    - Pollutants that may create a fire or explosion hazard (e.g., gasoline, diesel).
    - Solid or viscous pollutants in amounts sufficient to cause obstruction or blockage of flow.
    - Petroleum oil, or other products of mineral oil origin.
    - Paint.

  Prior to surface washing, you must exercise any reasonable means to eliminate large volumes or concentrations of the above listed pollutants. Common methods to eliminate standing pools of pollutants include the placement of absorbent to adsorb the pollutant, dry-sweeping the absorbent, and disposing of the absorbent properly.

- In addition, wastewater from cleaning food-related vehicles or areas, vehicle exteriors or engines, and buildings with lead- or mercury-based paint should **not** be discharged to landscaping.

- Filter the wastewater if it contains debris, fibers, or other suspended solids.

- Ensure that the wastewater is fully contained within the landscaped area and will fully infiltrate into the ground prior to leaving the job site.

**Option 2: Discharge Wastewater to the Sanitary Sewer**

*The wastewater must comply with the following conditions if disposed of into the sanitary sewer system:*

- The wastewater temperature must be less than 140°F (60°C).
- The pH must be between 6.0 and 12.0. This can be checked quickly and easily through the use of pH paper test strips. Adjust the wastewater to a pH that is between 6.0 and 12.0. Dilution is not an effective or acceptable pretreatment.
- The wastewater quality must comply with the local sanitary sewer district's discharge limits and requirements. The wastewater should not contain large volumes or concentrations of:
    - Pollutants that may create a fire or explosion hazard (e.g., gasoline, diesel).
    - Solid or viscous pollutants in amounts sufficient to cause obstruction or blockage of flow.
    - Petroleum oil, non-biodegradable cutting oil, or other products of mineral oil origin.
    - Oil based paint.

  Prior to surface washing, you must exercise any reasonable means to eliminate large volumes or concentrations of the above listed pollutants. Common methods to eliminate standing pools of pollutants include the placement of absorbent to adsorb the pollutant, dry-sweeping the absorbent, and disposing of the absorbent properly.
- No wastewater shall be discharged into any publicly owned sewer manholes without the sewer agency's written authorization.
- Filter the wastewater if it contains debris, fibers, or other suspended solids.
- If chemicals (e.g., solvents or acids) are used during the cleaning process, additional precautions may be needed. Contact your local sanitation district to learn if wastewater containing these chemicals requires pretreatment before discharge to the sanitary sewer or if it needs to be treated as hazardous waste.
- Ensure that the wastewater is released at a flow rate and/or concentration, which will not cause problems, pass through, or interference with the sewerage facilities. Generally, if you are using a privately owned cleanout, sink, toilet, or floor drain at a client's property, and the flow does not backup, the flow amount will not cause problems, pass through, or interference with the sewerage facilities.
- Utilize an approved discharge point such as:
    - Privately owned cleanout (or sink, toilet or floor drain), oil/water separator, or below ground clarifier at the client's property where the wash water is generated;
    - Privately owned industrial sewer connection at the client's property where the wash water is generated;
    - Waste hauler station at sanitary sewer facility; and
    - Any other disposal points approved by the sanitary sewer facility.
- Maintain a logbook of all discharges.

## Option 3: Dispose of Wastewater Using a Professional Hazardous Waste Hauler

*Wastewater that can be characterized in any of the following ways must be disposed of using a hazardous waste hauler:*

- Is corrosive (as indicated by a pH value of less than 5.5) or caustic (as indicated by a pH value of greater than 10.0).
- Contains a pollutant that may create a fire or explosion hazard (e.g., gasoline, diesel fuel).
- Contains solid or viscous pollutants in amounts sufficient to cause obstruction or blockage of flow.
- Contains petroleum oil, non-biodegradable cutting oil, or other products of mineral oil origin.
- Contains other potential hazardous wastes. Examples of other potential hazardous wastes include:
    - Wastewater generated from power washing old paint off a building. Paint chips need to be collected, evaluated, and disposed of properly. Paint chips cannot be left on the ground at the job site. Old paint stripped off commercial buildings may contain metals (e.g., lead, chromium, cadmium, and mercury), causing it to be a regulated hazardous waste.
    - Wastewater used in conjunction with certain solvents and degreasing agents, which may cause the wastewater to be classified as a listed or characteristic hazardous waste.

*You must comply with the following conditions if a hazardous waste hauler is used:*

- Ensure that the waste hauler is certified by the appropriate sanitary sewering agency and the Orange County Health Care Agency, is Hazardous Waste DOT certified, and is complying with applicable discharge regulations, which may include obtaining necessary permits and conducting water quality monitoring requirements. Please contact the Orange County Health Care Agency and/or your local fire department for specific requirements.
- Identify the wastes involved and determine if a hazardous waste has been generated.
- Maintain a logbook of all discharges and hazardous waste manifests, if applicable.

**For additional information contact:**

City of Lake Forest
Public Works Department
25550 Commercentre Drive
Lake Forest, California 92630
(949) 461-3480
www.ci.lake-forest.ca.us

El Toro Water District
24251 Los Alisos Boulevard
Lake Forest, California 92630
(949) 837-0660
www.etwd.com

Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618
(949) 453-5300
www.irwd.com

Trabuco Canyon Water District
32003 Dove Canyon Drive
Trabuco Canyon, California 92679
(949) 858-0277
www.tcwd.ca.gov

# Exhibit A-5-III

# Municipal Inspection & Enforcement

# Fixed Facility Inspection Forms

# FIXED FACILITY GENERAL INSPECTION FORM

COVER SHEET (Required for all inspections)

**Inspection Performed by:** **Time of Inspection:**
**Date:** **Weather at Time of Inspection:**

## Fixed Facility Information

Name of Facility: Contact Name:
Address: Title:
Phone Number:

Number of Employees at Facility: Days of Operation per Week:

## Leased Facility Information

Is this Fixed Facility leased?
Yes No
☐ ☐
Is this a lessor self-inspection?
Yes No
☐ ☐

Lessor Contact Information:
Contact Name:
Title:
Company Name:
Phone Number:
Address:

## Type of Fixed Facility (choose one):

Municipal Waste Facilities
- ☐ Municipal Landfill
- ☐ Publicly Owned Treatment Works
- ☐ Incinerator
- ☐ Solid Waste Transfer Facility
- ☐ Land Application Site
- ☐ Site for Disposing/Treating Sewage Sludge
- ☐ Hazardous Waste Treatment, Disposal Site
- ☐ Sanitary Landfill

Corporation Yards
- ☐ Corporate Yard
- ☐ Maintenance Yard
- ☐ Storage Yard for Materials

Other Owned/Operated Facilities
- ☐ Municipal Air Field
- ☐ Parks/Cemetery
- ☐ Public Building (Police, Fire, Libraries)
- ☐ Stadium
- ☐ Stable
- ☐ Boat/Shipping Yard
- ☐ Animal Shelter/Services
- ☐ Public Parking Facility
- ☐ Other:_____

## Identification of Activities That Occur at this Fixed Facility

(For each identified activity - complete the attached activity specific inspection form)

- ☐ Building Maintenance and Repair
- ☐ Parking Lot Maintenance
- ☐ Landscape Maintenance
- ☐ Waste Handling, Storage, Disposal
- ☐ Material Handling, Storage, Disposal
- ☐ Fueling
- ☐ Vehicle and Equipment Cleaning
- ☐ Vehicle and Equipment Storage
- ☐ Material Loading and Unloading
- ☐ Minor Construction
- ☐ Bay / Harbor Activities

(Spill Prevention and Control is incorporated within other forms)

## Reason for Inspection:

- ☐ Routine (Annual) Inspection
- ☐ Routine (Quarterly) Corporate Yard Inspection
- ☐ Facility Moved/Changed
- ☐ First Inspection
- ☐ Follow-up Inspection
- ☐ Complaint Inspection
- ☐ Other: _____

## Outcome of Inspection:

- ☐ Disciplinary Action
- ☐ Verbal Warning
- ☐ Written Warning
- ☐ NOV - Notice of Violation
- ☐ No Corrective Action Necessary
- ☐ Other:_____

# ACTIVITY SPECIFIC INSPECTION FORM

## Bay / Harbor Activities

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***On Board and General Maintenance*** | | |
| If non-stormwater discharge occurs, can sediment, trash, or other materials potentially wash into storm drains or waterbodies? | ☐ Yes<br>☐ No | ☐ Sweep surfaces or use other dry methods to clean objects.<br>☐ If water or liquids must be used, wash away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of washing area (sandbags, silt fence).<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ If a sprayer must be used, consider a high pressure sprayer.<br>☐ Other: |
| Has fuel or other fluids entered waterbodies from leaks or spills within the last reporting period? | ☐ Yes<br>☐ No | ☐ Designate maintenance areas away from drainage systems and water courses.<br>☐ Use extreme care when fueling adjacent to water.<br>☐ Place a barrier around perimeter of maintenance area (sandbags, silt fence).<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Use absorbent materials on small spills rather than hosing down or burying the spill.<br>☐ Remove absorbent materials promptly and dispose of properly.<br>☐ Other: |
| ***Disposal of Wastewater and Ballast Water*** | | |
| Is direct discharge of wastewater and ballast water occuring? | ☐ Yes<br>☐ No | ☐ Properly dispose of such water in an approved marine sanitation devise (MSD)<br>☐ Other: |
| ***Cleaning, Chipping, and Painting*** | | |
| Does discharge into a storm drain or waterbody occur when washing, chipping, or painting boats, piers, etc.? | ☐ Yes<br>☐ No | ☐ Perform activities away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of activity (sandbags, silt fence).<br>☐ If a hose is used, consider a high pressure sprayer.<br>☐ Use environmentally friendly products.<br>☐ Use dry methods to clean objects and surfaces.<br>☐ Limit over hull maintenance to minor sanding and painting.<br>☐ Conduct major hull resurfacing on land.<br>☐ Do not mix paint or chemiclas on docks.<br>☐ Shelter blasting and painting with tarps.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# ACTIVITY SPECIFIC INSPECTION FORM

## Building Maintenance and Repair

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Building Maintenance*** | | |
| When using liquids to repair roofs, do small particles in the gutter have the potential to leave the jobsite? | ☐ Yes<br>☐ No | ☐ Wash the gutter and place geofabric over gutter outlet.<br>☐ Sweep gutter and dispose of particles properly.<br>☐ If the downspout is tight lined, place a temporary plug at first available point and pump out water with vactor truck. Clean inlet where plug was placed.<br>☐ Other: |
| Do exterior painting activities contribute liquids or other materials to storm drains? | ☐ Yes<br>☐ No | ☐ Mix paint and liquids indoors or in a containment area.<br>☐ Use recycled and less hazardous products when possible.<br>☐ Perform activities away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of activity (sandbags, silt fence).<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Other: |
| ***Material Storage*** | | |
| Do maintenance and repair materials have the potential to travel beyond the property? | ☐ Yes<br>☐ No | ☐ Store materials in a covered area.<br>☐ Place a barrier around perimeter of the storage area (sandbags, silt fence).<br>☐ Other: |
| ***Building Cleaning*** | | |
| Do exterior cleaning activities such as window cleaning have the potential to travel behond the property? | ☐ Yes<br>☐ No | ☐ Use the minimum amount of water and/or detergent possible.<br>☐ Use recycled, biodegradable and less hazardous products when possible.<br>☐ Perform activities away from drainage facilities or water courses.<br>☐ Dry surface as soon as possible (sponge or blower).<br>☐ Other: |
| ***Graffiti Cleaning*** | | |
| Are graffiti abatement activities performed during rain events? | ☐ Yes<br>☐ No | ☐ Postpone cleaning activities until after rain event.<br>☐ Other: |
| Does graffiti cleaning require wash water that may carry pollutants? | ☐ Yes<br>☐ No | ☐ Plug nearby storm drains and vacuum/pump wash water to sanitary sewer.<br>☐ Other: |
| ***Painting*** | | |
| Does cleaning of paint brushes, etc. occur in the street, gutter, or near a storm drain? | ☐ Yes<br>☐ No | ☐ Rinse paint brushes, etc. in sink connected to a sanitary sewer system.<br>☐ Never clean brushes, etc. in the street, gutter, or near a storm drain<br>☐ Other: |

| ***Miscellaneous*** | | |
|---|---|---|
| Do any other non-stormwater discharges occur, such as floor washing, water leakage from equipment/vehicles, or possible illicit connections? | ☐ Yes<br>☐ No | ☐ Perform activity away from drainage facilities or water courses.<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Use less water during activity.<br>☐ Divert wash water into a treatment basin.<br>☐ Other: |
| Does this Fixed Facility have an inadequate spill prevention and containment plan? | ☐ Yes<br>☐ No | ☐ Develop a comprehensive spill prevention plan.<br>☐ Use absorbent materials on small spills rather than hosing down or burying the spill.<br>☐ Remove absorbent materials promptly and dispose of properly.<br>☐ Stock appropriate clean-up materials.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# ACTIVITY SPECIFIC INSPECTION FORM

## Equipment Maintenance and Repair

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***General Maintenance and Repair*** | | |
| Are vehicles and/or equipment stored in an uncovered area? | ☐ Yes<br>☐ No | ☐ Store vehicles and equipment in covered areas.<br>☐ If covered areas for storage are unavailable, inspect storage areas frequently for leaks and damage.<br>☐ Store vehicles and equipment away from drainage systems and waterbodies.<br>☐ Other: |
| ***Vehicle and Machine Repair*** | | |
| Do vehicles and/or equipment leak oil, or any other fluids? | ☐ Yes<br>☐ No | ☐ Use absorbent materials on small leaks rather than hosing down or burying. Remove absorbent materials promptly and dispose of properly.<br>☐ Use drip pan underneath equipment/vehicle.<br>☐ Stock appropriate clean-up materials.<br>☐ Inspect vehicles and equipment frequently for leaks.<br>☐ Other: |
| Is vehicle and/or equipment repair/maintenance performed near a drain not connected to the sanitary sewer system? | ☐ Yes<br>☐ No | ☐ Designate maintenance areas away from drainage systems and water courses.<br>☐ Protect maintenance areas by placing a barrier around perimeter.<br>☐ Consider using portable tents or covers over maintenance areas.<br>☐ Do not dispose oil in dumpster, storm drain or waterbody.<br>☐ Other: |
| ***Waste Handling/Disposal*** | | |
| Do non-stormwater discharges occur, such as shop floor washing, or water leakage from equipment? | ☐ Yes<br>☐ No | ☐ Store equipment away from drainage facilities or water courses.<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Clean area with mechanical sweeper, rather than hosing.<br>☐ Contain water and haul for treatment.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# ACTIVITY SPECIFIC INSPECTION FORM

## Fueling

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| Can fueling activities impact area storm drains? | ☐ Yes<br>☐ No | ☐ Designate a fueling area away from drainage facilities and water courses.<br>☐ Protect fueling areas by placing a barrier around perimeter.<br>☐ Use drain pans or drop cloths to catch spills or leaks while fueling.<br>☐ Do not top-off fuel tanks.<br>☐ Other: |
| Can overflow occur when fueling vehicles and/or equipment on-site? | ☐ Yes<br>☐ No | ☐ Designate a fueling area away from drainage facilities and water courses.<br>☐ Protect fueling areas by placing a barrier around perimeter.<br>☐ Use drain pans or drop cloths to catch spills or leaks while fueling.<br>☐ Do not top-off fuel tanks.<br>☐ Use absorbent materials to clean-up spills rather than hosing down or burying.<br>☐ Other: |
| Can stormwater run on to fueling areas? | ☐ Yes<br>☐ No | ☐ Designate a fueling area away from drainage facilities and water courses.<br>☐ Protect fueling areas by placing a barrier around perimeter.<br>☐ Use drain pans or drop cloths to catch spills or leaks while fueling.<br>☐ Do not top-off fuel tanks.<br>☐ Use absorbent materials to clean-up spills rather than hosing down or burying.<br>☐ Other: |
| Is the fueling area uncovered? | ☐ Yes<br>☐ No | ☐ Place a canopy over fueling area.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# ACTIVITY SPECIFIC INSPECTION FORM

## Landscape Maintenance

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Mowing, Trimming/Weeding and Planting*** | | |
| Do green waste trimmings or clippings enter storm drains, gutters, or travel off site? | ☐ Yes<br>☐ No | ☐ Perform landscaping activities away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of landscape activity area (sandbags, silt fence).<br>☐ Install baggage for clippings on mowers.<br>☐ Train staff to improve dry clean-up of green waste from gutters and drain systems.<br>☐ Other: |
| ***Irrigation*** | | |
| Does excess irrigation runoff have the potential to carry pollutants into the stormdrain? | ☐ Yes<br>☐ No | ☐ Berm the irrigation area to prevent run-on and runoff.<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Ensure sprinklers are spraying appropriately.<br>☐ Reduce the amount of water being applied or modify sprinkler heads to spray more efficiently.<br>☐ Other: |
| ***Fertilizer and Pesticide Management*** | | |
| Are fertilizers and pesticides mixed or prepared near a storm drain? | ☐ Yes<br>☐ No | ☐ Mix and prepare fertilizers and pesticides away from storm drains.<br>☐ Use the minimal amount of fertilizers and pesticides.<br>☐ Other: |
| Are fertilizers and pesticides spilled accidentally or discarded onto the surface? | ☐ Yes<br>☐ No | ☐ Work fertilizers and pesticides into the soil rather than dumping.<br>☐ Other: |
| Are fertilizers and pesticides over applied? | ☐ Yes<br>☐ No | ☐ Train staff to use proper fertilizer and pesticide application procedures.<br>☐ Use the minimal amount of fertilizers and pesticides.<br>☐ Other: |
| Are fertilizers and pesticides applied when there is a 25% or more chance of rain? | ☐ Yes<br>☐ No | ☐ Apply fertilizers and pesticides when there is a 75% or more chance of no rain.<br>☐ Other: |
| Are more fertilizers and pesticides stored on site than needed? | ☐ Yes<br>☐ No | ☐ Only purchase and store what is needed.<br>☐ Other: |
| Have fertilizers and pesticides been disposed of improperly? | ☐ Yes<br>☐ No | ☐ Rinse containers with fertilizer/pesticide and use rinse as product. Dispose of unused fertilizer/pesticide as hazardous waste.<br>☐ Other: |
| ***Managing Landscape Waste*** | | |
| Are compost leaves, sticks, or other collected vegetation disposed near a waterway or storm drain system? | ☐ Yes<br>☐ No | ☐ Dispose of materials at a permitted landfill<br>☐ Place vegetation piles away from drainage facilities or water courses.<br>☐ Install baggage for clippings on mowers.<br>☐ Train staff to improve dry clean-up of green waste from gutters and drain systems.<br>☐ Other: |
| ***Erosion Control*** | | |
| Is discing used as a means of vegetative management? | ☐ Yes<br>☐ No | ☐ Use other methods for vegetative management.<br>☐ Train staff to improve erosion control on-site.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# ACTIVITY SPECIFIC INSPECTION FORM

## Material Loading and Unloading

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| Is debris present around the loading / unloading area that has the potential to enter storm drains or drainage facilities? | ☐ Yes<br>☐ No | ☐ Regularly clean work areas to remove materials.<br>☐ Avoid loading or exposing materials during rain events.<br>☐ Direct stormwater to minimize contact with waste materials.<br>☐ Load / unload only during dry weather.<br>☐ Other: |
| Can handled materials come into contact with stormwater? | ☐ Yes<br>☐ No | ☐ Designate storage areas away from drainage system or water course.<br>☐ Load / unload in covered or enclosed areas.<br>☐ Direct stormwater with sloping pavement to minimize contact with waste materials.<br>☐ Pave area where transfers occur.<br>☐ Place a barrier around perimeter of loading/unloading area.<br>☐ Load / unload only during dry weather.<br>☐ Other: |
| Does the Fixed Facility have an inadequate spill prevention and cleanup program? | ☐ Yes<br>☐ No | ☐ Develop a emergency spill cleanup plan.<br>☐ Use drip pans or comparable devices during transfers.<br>☐ Remove absorbent materials promptly and dispose of properly.<br>☐ Place spill kits near the loading / unloading area.<br>☐ Stock appropriate clean-up materials.<br>☐ Know who to contact if large or hazardous spills occur.<br>☐ Other: |
| Are staff unaware of their roles and responsibilities during spills (with emphasis on new employees)? | ☐ Yes<br>☐ No | ☐ Properly train forklift operators.<br>☐ Determine roles and responsibilities of employees and supervisors and train accordingly.<br>☐ Provide "refreshers" training for existing employees.<br>☐ Train new employees.<br>☐ Develop procedures for loading and unloading.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# ACTIVITY SPECIFIC INSPECTION FORM

## Material Storage, Handling, and Disposal

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***General Material Storage, Handling, and Disposal*** | | |
| Can stored materials come in contact with stormwater? | ☐ Yes<br>☐ No | ☐ Designate secured storage areas away from storm drain system and water courses.<br>☐ Store materials indoors if possible, or cover with a roof.<br>☐ Inspect storage areas before and after rainfall events, and at least weekly all other times.<br>☐ If materials are stockpiled, place a barrier around perimeter (berm, sandbags, silt fence).<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Keep an accurate and up-to-date inventory of materials delivered and stored on-site.<br>☐ Place plastic cover over stored material, especially those treated with amendments.<br>☐ Train employees in proper storage measures.<br>☐ Minimize the amount of material stored on-site.<br>☐ Other: |
| Are materials able to escape containment and litter or run off the Fixed Facility? | ☐ Yes<br>☐ No | ☐ Inspect storage areas before and after rainfall events, and at least weekly all other times.<br>☐ If materials are stockpiled, place a barrier around perimeter (berms, sandbags, silt fence).<br>☐ Place plastic cover over stored material.<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Store materials in a shed.<br>☐ Store liquids in a designated area on an impervious surface within secondary containment.<br>☐ Slope the area inside a curb to a drain with appropriate best management practice in place to treat waste.<br>☐ Other: |
| Is debris allowed to litter the work site, enter storm drains, or travel beyond the site? | ☐ Yes<br>☐ No | ☐ Designate storage areas away from storm drain system and water courses.<br>☐ If material is stockpiled, place a barrier around perimeter (sandbags, silt fence).<br>☐ Sweep parking lots or other surfaces near storage areas regularly.<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Store materials in a shed.<br>☐ Minimize the amount of material stored on-site.<br>☐ Other: |

| | | |
|---|---|---|
| Have any spills occurred within the last year at the material storage area(s) that contributed pollutants to stormwater? | ☐ Yes<br>☐ No | ☐ Develop a spill prevention plan.<br>☐ Inspect storage areas regularly for leaks or spills.<br>☐ Inspect waste containers routinely for structural damage and repair or replace damaged containers as needed.<br>☐ Check for leaks or spills during material loading and unloading.<br>☐ Use absorbent materials on small spills rather than hosing down or burying the spill.<br>☐ Remove absorbent materials promptly and dispose of properly.<br>☐ If a large spill occurs, notify manager immediately and contain spread of spill.<br>☐ Stock appropriate clean-up materials.<br>☐ Other: |
| ***Chemical Material Handling and Disposal*** | | |
| Are chemical materials being stored improperly without safeguards against accidental spills? | ☐ Yes<br>☐ No | ☐ Place materials in secondary containers.<br>☐ Designate covered areas with impervious surfaces for chemical storage.<br>☐ Keep chemicals in original well-labeled containers.<br>☐ Store materials in covered dumpsters or waste containers with secure lids.<br>☐ Surround liquid material containers with a curb or dike.<br>☐ Install overflow protection devices.<br>☐ Post restricted access warnings.<br>☐ Other: |
| ***Hazardous Material Handling*** | | |
| Are staff unaware of their roles and responsibilities for hazardous waste handling or during a hazardous waste spill? | ☐ Yes<br>☐ No | ☐ Contact the local HAZMAT office or Fire Department for hazardous waste labeling regulations.<br>☐ Develop hazardous waste storage and handling procedures.<br>☐ Develop spill prevention control and countermeasure and emergency preparedness plans.<br>☐ Determine roles and responsibilities of employees and supervisors.<br>☐ Designate authorized hazardous waste collection areas on-site.<br>☐ Obtain permit for hazardous waste storage for more than 90 days.<br>☐ Minimize the amount of hazardous material stored on-site.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# ACTIVITY SPECIFIC INSPECTION FORM

## Minor Construction

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***General Construction*** | | |
| Is uncontolled construction debris present on site, or can debris escape from the site? | ☐ Yes<br>☐ No | ☐ Prevent debris from entering storm drains.<br>☐ Do not rinse or wash materials into gutters or storm drains.<br>☐ Place sandbags around inlets, drainage facilities, and water courses.<br>☐ Use prompt, dry clean-up methods.<br>☐ Other: |
| Is water used for consturction or dust control purposes? | ☐ Yes<br>☐ No | ☐ Use water without causing non-stormwater discharge.<br>☐ Protect drain inlets where necessary.<br>☐ Use appropriate amount of water to provide dust control without causing a discahrge.<br>☐ Other: |
| Have spills occurred at the construction site within the last reporting period? | ☐ Yes<br>☐ No | ☐ Develop a spill prevention plan.<br>☐ Use absorbent materials on small spills rather than hosing down or burying the spill.<br>☐ Remove absorbent materials promptly and dispose of properly.<br>☐ If large spill occurs, notify manager immediately and contain spread of spill.<br>☐ Stock appropriate clean-up materials.<br>☐ Other: |
| Do non-stormwater discharges occur from on-site construction activites? | ☐ Yes<br>☐ No | ☐ Perform activity away from drainage facilities or water courses.<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Use less water during activity.<br>☐ Collect water and hual for treatment.<br>☐ Other: |
| Is staff unaware of who to notify when potentially hazardous spills occur? Is staff unaware of their roles during a hazardous spill? | ☐ Yes<br>☐ No | ☐ Contact the local HAZMAT office and ask who should be contacted in case of a hazardous spill.<br>☐ Develop a spill prevention plan.<br>☐ Designate and Haz-Mat certify employee(s).<br>☐ Determine roles and responsibilities of employees and supervisors.<br>☐ Other: |

| | | |
|---|---|---|
| ***Interim Material Storage*** | | |
| Can stormwater run through or directly contact stored materials and carry pollutants into drainage ways? | ☐ Yes<br>☐ No | ☐ Designate storage areas away from drainage system or water course.<br>☐ Place a barrier around perimeter of storage area (sandbags, silt fence).<br>☐ Place plastic cover over stored waste.<br>☐ Promptly remove and properly dispose waste materials.<br>☐ Inspect storage areas before and after rainfall events, and at least weekly all other times.<br>☐ Place sandbags around inlets, drainage facilities, and water courses.<br>☐ Store hazardous waste materials on pallets or in secondary containment.<br>☐ Minimize the amount of waste stored on-site.<br>☐ Other: |
| ***Concrete Work*** | | |
| Do materails from concrete work have the potential to enter strom drains? | ☐ Yes<br>☐ No | ☐ Prevent debris from entering storm drains.<br>☐ Do not rinse or wash materials into gutters or storm drains.<br>☐ Designate and properly maintain a wash-out area.<br>☐ Place sandbags around inlets, drainage facilities, and water courses.<br>☐ Other: |
| Can saw cutting result in non-stormwater discharges? | ☐ Yes<br>☐ No | ☐ Use as little water during saw cutting as possible.<br>☐ Place sandbags around inlets, drainage facilities, and water courses.<br>☐ Other: |
| Does truck wash-out have the potential to enter storm drains? | ☐ Yes<br>☐ No | ☐ Establish an on site wash-out area.<br>☐ Place sandbags around inlets, drainage facilities, and water courses.<br>☐ Properly maintain wash-out area.<br>☐ Other: |
| ***Building Work*** | | |
| Can demolition debris travel off-site or enter storm drains? | ☐ Yes<br>☐ No | ☐ Prevent debris from entering storm drains.<br>☐ Do not rinse or wash materials into gutters or storm drains.<br>☐ Place sandbags around inlets, drainage facilities, and water courses.<br>☐ Use prompt, dry clean-up methods.<br>☐ Cover debris to extent practicable.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# ACTIVITY SPECIFIC INSPECTION FORM

## Parking Lot Maintenance

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Sweeping and Cleaning*** | | |
| Are storm drain inlets or catch basins in need of maintenance and/or cleaning? | ☐ Yes<br>☐ No | ☐ Inspect, maintain, and/or clean storm drain inlets as required.<br>☐ Other: |
| Can sediment, trash, or other materials potentially enter a storm drain during parking lot sweeping? | ☐ Yes<br>☐ No | ☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Train contractors to avoid discharge into drainage facilities.<br>☐ Use the most advanced equipment to perform lot sweeping.<br>☐ Other: |
| Is the parking lot cleaned by using water? | ☐ Yes<br>☐ No | Use dry cleaning methods such as a street sweeper instead.<br>☐ Perform hosing/washing away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of area (sandbags, etc). Vacuum water and dispose of properly.<br>☐ Use cold water, not hot.<br>☐ Minimize containment area by only cleaning spot areas with water as needed and then dispose of properly.<br>☐ Other: |
| Can litter potentially enter storm drains, or travel off of the property? | ☐ Yes<br>☐ No | ☐ Provide waste containers in convenient places for employees and the public.<br>☐ Use enclosed trash containers to limit contact with wind and rain.<br>☐ Place trash containers away from inlets, drainage facilities and water courses.<br>☐ Other: |
| ***Surface Repair*** | | |
| Are any materials prepared or transferred near storm drain inlets? | ☐ Yes<br>☐ No | ☐ Perform these activities away from storm drain inlets.<br>☐ Cover storm drain inlets during repair.<br>☐ Other: |
| Are concrete, asphalt or seal coating activities performed during wet weather? | ☐ Yes<br>☐ No | ☐ Perform these activities during dry weather.<br>☐ Other: |
| ***Control Spills*** | | |
| Do spills remain on facility soils? | ☐ Yes<br>☐ No | ☐ Always excavate and remove contaminated soil.<br>☐ Other: |
| Are spilled materials and absorbents ever been disposed of improperly? | ☐ Yes<br>☐ No | ☐ Dispose of spill material and absorbent pads in proper location and in accordance with Haz-Waste regulations if applicable.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# ACTIVITY SPECIFIC INSPECTION FORM

## Parking Lot Maintenance

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Sweeping and Cleaning*** | | |
| Are storm drain inlets or catch basins in need of maintenance and/or cleaning? | ☐ Yes<br>☐ No | ☐ Inspect, maintain, and/or clean storm drain inlets as required.<br>☐ Other: |
| Can sediment, trash, or other materials potentially enter a storm drain during parking lot sweeping? | ☐ Yes<br>☐ No | ☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Train contractors to avoid discharge into drainage facilities.<br>☐ Use the most advanced equipment to perform lot sweeping.<br>☐ Other: |
| Is the parking lot cleaned by using water? | ☐ Yes<br>☐ No | Use dry cleaning methods such as a street sweeper instead.<br>☐ Perform hosing/washing away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of area (sandbags, etc). Vacuum water and dispose of properly.<br>☐ Use cold water, not hot.<br>☐ Minimize containment area by only cleaning spot areas with water as needed and then dispose of properly.<br>☐ Other: |
| Can litter potentially enter storm drains, or travel off of the property? | ☐ Yes<br>☐ No | ☐ Provide waste containers in convenient places for employees and the public.<br>☐ Use enclosed trash containers to limit contact with wind and rain.<br>☐ Place trash containers away from inlets, drainage facilities and water courses.<br>☐ Other: |
| ***Surface Repair*** | | |
| Are any materials prepared or transferred near storm drain inlets? | ☐ Yes<br>☐ No | ☐ Perform these activities away from storm drain inlets.<br>☐ Cover storm drain inlets during repair.<br>☐ Other: |
| Are concrete, asphalt or seal coating activities performed during wet weather? | ☐ Yes<br>☐ No | ☐ Perform these activities during dry weather.<br>☐ Other: |
| ***Control Spills*** | | |
| Do spills remain on facility soils? | ☐ Yes<br>☐ No | ☐ Always excavate and remove contaminated soil.<br>☐ Other: |
| Are spilled materials and absorbents ever been disposed of improperly? | ☐ Yes<br>☐ No | ☐ Dispose of spill material and absorbent pads in proper location and in accordance with Haz-Waste regulations if applicable.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# ACTIVITY SPECIFIC INSPECTION FORM

## Spill Prevention and Control

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Preparation and Prevention*** | | |
| Are chemical materials being stored improperly without safeguards against accidental spills? | ☐ Yes<br>☐ No | ☐ Place materials in secondary containers.<br>☐ Designate covered areas with impervious surfaces for chemical storage.<br>☐ Keep chemicals in original well-labeled containers.<br>☐ Store materials in covered dumpsters or waste containers with secure lids.<br>☐ Surround liquid material containers with a curb or dike.<br>☐ Install overflow protection devices.<br>☐ Post restricted access warnings.<br>☐ Other: |
| Does the Fixed Facility lack a spill prevention program? | ☐ Yes<br>☐ No | ☐ Identify staff members responsible for developing a spill prevention program.<br>☐ Research other Fixed Facilities with spill prevention programs and use as a guideline.<br>☐ Know who to contact if large or hazardous spills occur.<br>☐ Other: |
| ***Spill Response*** | | |
| Have any spills occurred within the last year in th area(s) that contributed pollutants to stormwater? | ☐ Yes<br>☐ No | ☐ Develop a spill prevention plan.<br>☐ Inspect storage areas regularly for leaks or spills.<br>☐ Inspect waste containers routinely for structural damage and repair or replace damaged containers as needed.<br>☐ Check for leaks or spills during material loading and unloading.<br>☐ Use absorbent materials on small spills rather than hosing down or burying the spill.<br>☐ Remove absorbent materials promptly and dispose of properly.<br>☐ If a large spill occurs, notify manager immediately and contain spread of spill.<br>☐ Stock appropriate clean-up materials.<br>☐ Other: |
| ***Reporting and Training*** | | |
| Are staff unaware of their roles and responsibilities for hazardous waste handling or during a hazardous waste spill? | ☐ Yes<br>☐ No | ☐ Contact the local HAZMAT office or Fire Department for hazardous waste labeling regulations.<br>☐ Develop hazardous waste storage and handling procedures.<br>☐ Develop spill prevention control and countermeasure and emergency preparedness plans.<br>☐ Determine roles and responsibilities of employees and supervisors.<br>☐ Designate authorized hazardous waste collection areas on-site.<br>☐ Obtain permit for hazardous waste storage for more than 90 days.<br>☐ Minimize the amount of hazardous material stored on-site.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# ACTIVITY SPECIFIC INSPECTION FORM

## Vehicle and Equipment Cleaning

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| If vehicle and/or equipment washing takes place, does wash water enter an on site storm drain? | ☐ Yes<br>☐ No | ☐ Wash away from drainage facilities or water courses.<br>☐ Berm the wash area to prevent run-on and runoff.<br>☐ Discharge wash water to sanitary sewer.<br>☐ Use less water, consider a high pressure sprayer.<br>☐ Construct a wash rack for the washing area.<br>☐ Do not use solvents to clean.<br>☐ Other: |
| If vehicle and/or equipment washing takes place, does the wash water run off-site? | ☐ Yes<br>☐ No | ☐ Construct a wash rack for the washing area.<br>☐ Berm the wash area to prevent run-on and runoff.<br>☐ Discharge wash water to sanitary sewer.<br>☐ Divert wash water to a treatment basin.<br>☐ Other: |
| Does steam cleaning or engine degreasing take place on-site that has the potential to affect stormwater quality? | ☐ Yes<br>☐ No | ☐ Perform steam cleaning and engine degreasing at a more appropriate location, off-site.<br>☐ Berm the wash area to prevent run-on and runoff.<br>☐ Discharge wash water to sanitary sewer.<br>☐ Divert wash water to a treatment basin.<br>☐ Other: |
| Is a mobile washer used that results in wash water runoff? | ☐ Yes<br>☐ No | ☐ Construct a wash rack for the washing area.<br>☐ Berm the wash area to prevent run-on and runoff.<br>☐ Wash away from drainage facilities or water courses.<br>☐ Discharge wash water to sanitary sewer.<br>☐ Divert wash water to a treatment basin.<br>☐ Make certain wash water runoff is clear.<br>☐ Other: |
| Is a mobile washer used that results in discharge to an on-site storm drain? | ☐ Yes<br>☐ No | ☐ Construct a wash rack for the washing area.<br>☐ Berm the wash area to prevent run-on and runoff.<br>☐ Wash away from drainage facilities or water courses.<br>☐ Discharge wash water to sanitary sewer.<br>☐ Make certain wash water runoff is clear.<br>☐ Divert wash water to a treatment basin.<br>☐ Other: |
| Does any other washing take place that may enter storm drains or affect stormwater quality? | ☐ Yes<br>☐ No | ☐ Construct a wash rack for the washing area.<br>☐ Berm the wash area to prevent run-on and runoff.<br>☐ Discharge wash water to sanitary sewer.<br>☐ Wash away from drainage facilities or water courses.<br>☐ Divert wash water to a treatment basin.<br>☐ Other: |
| Does any other washing take place that may run off-site? | ☐ Yes<br>☐ No | ☐ Construct a wash rack for the washing area.<br>☐ Berm the wash area to prevent run-on and runoff.<br>☐ Wash away from drainage facilities or water courses.<br>☐ Discharge wash water to sanitary sewer.<br>☐ Divert wash water to a treatment basin.<br>☐ Other: |
| If an oil/water separator is on site, is it in need of maintenance and/or cleaning? | ☐ Yes<br>☐ No | ☐ Inspect, maintain, and/or clean the oil/water separator.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# ACTIVITY SPECIFIC INSPECTION FORM

## Vehicles and Equipment Storage

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Storing Vehicles and Equipment*** | | |
| Are vehicles and/or equipment stored in an uncovered area with the potential to affect stormwater quality? | ☐ Yes<br>☐ No | ☐ Store vehicles and equipment in covered areas.<br>☐ If covered areas for storage are unavailable, inspect storage areas frequently for leaks and damage.<br>☐ Store vehicles and equipment away from drainage systems and waterbodies.<br>☐ Other: |
| Do vehicles and/or equipment leak oil, or any other fluids? | ☐ Yes<br>☐ No | ☐ Use absorbent materials on small leaks rather than hosing down or burying. Remove absorbent materials promptly and dispose of properly.<br>☐ Use drip pan underneath equipment/vehicle.<br>☐ Stock appropriate clean-up materials.<br>☐ Inspect vehicles and equipment frequently for leaks.<br>☐ Other: |
| Is vehicle and/or equipment repair/maintenance performed near a storm drain? | ☐ Yes<br>☐ No | ☐ Designate maintenance areas away from drainage systems and water courses.<br>☐ Protect maintenance areas by placing a barrier around perimeter.<br>☐ Consider using portable tents or covers over maintenance areas.<br>☐ Do not dispose oil in dumpster, storm drain or waterbody.<br>☐ Other: |
| ***Wrecked Vehicle Storage*** | | |
| Are wrecked vehicles stored near storm drain inlets? | ☐ Yes<br>☐ No | ☐ Store vehicles away from drainage facilities or water courses.<br>☐ Place drip pans under vehicles immediately.<br>☐ Drain all fluids, including air conditioner coolant.<br>☐ Cover vehicles with plastic and secure firmly.<br>☐ Dispose of and transfer fluids properly.<br>☐ Other: |
| ***Cleaning Vehicle Storage Areas*** | | |
| Do non-stormwater discharges occur, such as shop floor washing, or water leakage from equipment? | ☐ Yes<br>☐ No | ☐ Store equipment away from drainage facilities or water courses.<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Clean area with mechanical sweeper, rather than hosing.<br>☐ Post water quality awareness signage for employees.<br>☐ Contain water and haul for treatment.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# ACTIVITY SPECIFIC INSPECTION FORM

## Waste Handling and Disposal

**Complete this form only if related activities are conducted at this Fixed Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Controlling Litter*** | | |
| Have self generated solid wastes been allowed to litter the Fixed Facility? | ☐ Yes<br>☐ No | ☐ Provide waste containers in convenient places, such as transit stops, for employees and the public.<br>☐ Use enclosed trash containers to limit contact with wind and rain and prevent spillage.<br>☐ Collect trash regularly to prevent spillage, especially during rainy and windy conditions.<br>☐ Post "No Littering" signs.<br>☐ Other: |
| ***Waste Collection*** | | |
| Is the waste area littered and/or not well maintained? | ☐ Yes<br>☐ No | ☐ Regularly inspect solid waste containers for structural damage and repair or replace damaged containers as necessary.<br>☐ Designate separate waste containers for wastes that can cause chemical reactions and complicate recycling or disposal.<br>☐ Prevent any wastes other than solid wastes from being disposed of in the waste container.<br>☐ Sweep and clean up spills in the waste management area immediately, using dry methods when possible.<br>☐ Other: |
| Are staff unaware of their roles and responsibilities for hazardous waste handling or during a hazardous waste spill? | ☐ Yes<br>☐ No | ☐ Contact the local HAZMAT office or Fire Department for hazardous waste labeling regulations.<br>☐ Contact the local HAZMAT office or Fire Department ask who should be contacted in case of a hazardous spill.<br>☐ Develop hazardous waste storage and handling procedures.<br>☐ Determine roles and responsibilities of employees and supervisors.<br>☐ Designate authorized hazardous waste collection areas on-site.<br>☐ Obtain permit for hazardous waste storage for more than 90 days.<br>☐ Stencil storm drains on the Fixed Facility.<br>☐ Other: |
| Is the amount of waste generated more than necessary, and is waste not being recycled? | ☐ Yes<br>☐ No | ☐ Recycle materials whenever possible.<br>☐ Establish source controls.<br>☐ Establish a material usage tracking system to increase awareness.<br>☐ Other: |

| | | |
|---|---|---|
| ***Spill/Leak Control*** | | |
| Does the Fixed Facility lack a spill prevention program? | ☐ Yes<br>☐ No | ☐ Identify staff members responsible for developing a spill prevention program.<br>☐ Research other Fixed Facilities with spill prevention programs and use as a guideline.<br>☐ Know who to contact if large or hazardous spills occur.<br>☐ Other: |
| Have any spills occurred at the waste loading area over the past year that contributed pollutants to stormwater? | ☐ Yes<br>☐ No | ☐ Develop a spill prevention plan for loading and unloading and transporting waste.<br>☐ Repair or replace leaking containers or equipment and transfer waste from damaged containers to safe containers.<br>☐ Regularly inspect and replace faulty pumps or hoses on solid waste containers that utilize a hydraulic fluid pump system.<br>☐ Remove absorbent materials promptly and dispose of properly.<br>☐ If large spill occurs, notify manager immediately and contain spread of spill.<br>☐ Stock appropriate clean-up materials.<br>☐ Other: |
| Do non-stormwater discharges occur in this area, such as water draining from stored wastes? | ☐ Yes<br>☐ No | ☐ Perform activity away from drainage facilities or water courses.<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Contain and haul drainage for proper disposal.<br>☐ Other: |
| ***Runon/Runoff Prevention*** | | |
| Can stormwater run through stored wastes and carry pollutants into drainage ways? | ☐ Yes<br>☐ No | ☐ Designate storage areas away from drainage system or water course.<br>☐ Place a barrier around perimeter of waste management area (berm, sandbags, silt fence).<br>☐ Place plastic cover over stored waste.<br>☐ Store waste materials in a shed.<br>☐ Cover dumpsters.<br>☐ Inspect storage areas before and after rainfall events, and at least weekly all other times.<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Store hazardous waste materials on pallet or in secondary containment and cover.<br>☐ Minimize the amount of waste stored on-site.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# Field Program Inspection Forms

# FIELD PROGRAM GENERAL INSPECTION FORM

COVER SHEET (Required for all inspections)

**Inspection Performed by:**
**Date:**
**Time of Inspection:**
**Weather at Time of Inspection:**

**Fixed Facility Information**

Name of Program:
Address:
Contact Name:
Title:
Phone Number:

Number of Employees:
Days of Operation per Week:

**Leased Facility Information**

Is this Field Program contracted?
Yes No
☐ ☐
Is this a contractor self-inspection?
Yes No
☐ ☐

Contractors Contact Information:
Contact Name:
Title:
Company Name:
Phone Number:
Address:

**Type of Field Program and Activities That Occur (choose one):**
(For each identified field program - complete the attached specified inspection form)

☐ Road, Streets and Highways O&M
- ☐ Sweeping and Cleaning
- ☐ Street Repair and Maintenance
- ☐ Bridge and Structure Maintenance

☐ Landscape Maintenance
- ☐ Mowing, Trimming/Weeding and Planting
- ☐ Irrigation
- ☐ Fertlizer and Pesticide Management
- ☐ Managing Landscape Waste
- ☐ Erosion Control

☐ Solid Waste Handliing
- ☐ Solid Waste Collection
- ☐ Waste Reduction and Recycliing
- ☐ Hazardous Waste Collection
- ☐ Controlling Litter

☐ Sidewalk, Plaza, and Fountain Maintenance and Cleaning
- ☐ Surface Cleaning
- ☐ Graffiti Cleaning
- ☐ Sidewalk Repair
- ☐ Controlling Litter
- ☐ Fountain Maintenance

☐ Water Sewer Utility O&M
- ☐ Water Line Maintenance
- ☐ Sanitary Sewer maintenance
- ☐ Spill/Leak/Overflow Control, Response and Containment

☐ Drainage System O&M
- ☐ Management of the Municipal Drainage System
- ☐ Controlling Illicit Connections and Discharges
- ☐ Controlling Illegal Dumping
- ☐ Management of the Miscellaneous Facilities
- ☐ Inspection and Cleaning of Stormwater Conveyance Structures

☐ Lake Management
- ☐ Fertlizer and Pesticide Management
- ☐ Mowing, Trimming/Weeding and Planting
- ☐ Managing Landscape Waste
- ☐ Controlling Litter
- ☐ Erosion Control
- ☐ Controlling Illegal Dumping
- ☐ Bacteria Control
- ☐ Monitoring
- ☐ Dredging

**Reason for Inspection:**

- ☐ Routine (Annual) Inspection
- ☐ Facility Moved/Changed
- ☐ First Inspection
- ☐ Follow-up Inspection
- ☐ Complaint Inspection

**Outcome of Inspection:**

- ☐ Disciplinary Action
- ☐ Verbal Warning
- ☐ Written Warning
- ☐ NOV - Notice of Violation
- ☐ No Corrective Action Necessary
- ☐ Other:_____

# INSPECTION FORM

## Lake Management

**Complete this form only if related activities are conducted at this Field Program**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Fertilizer and Pesticide Management*** | | |
| Are fertilizers and pesticides mixed or prepared near a storm drain? | ☐ Yes<br>☐ No | ☐ Mix and prepare fertilizers and pesticides away from storm drains.<br>☐ Use the minimal amount of fertilizers and pesticides.<br>☐ Other: |
| Are fertilizers and pesticides dumped or broadcasted onto the surface? | ☐ Yes<br>☐ No | ☐ Work fertilizers and pesticides into the soil rather than dumping.<br>☐ Other: |
| Are fertilizers and pesticides over applied? | ☐ Yes<br>☐ No | ☐ Train staff to use proper fertilizer and pesticide application procedures.<br>☐ Use the minimal amount of fertilizers and pesticides.<br>☐ Other: |
| Are fertilizers and pesticides applied when there is a 25% or more chance of rain? | ☐ Yes<br>☐ No | ☐ Apply fertilizers and pesticides when there is a 75% or more chance of no rain.<br>☐ Other: |
| Is more fertilizers and pesticides stored on site than needed? | ☐ Yes<br>☐ No | ☐ Only purchase and store what is needed.<br>☐ Other: |
| Are fertilizers and pesticides not disposed of properly? | ☐ Yes<br>☐ No | ☐ Rinse containers with fertilizer/pesticide and use rinse as product. Dispose of unused fertilizer/pesticide as hazardous waste.<br>☐ Other: |
| ***Mowing, Trimming/Weeding and Planting*** | | |
| Do green waste trimmings or clippings enter storm drains, gutters, or travel off site? | ☐ Yes<br>☐ No | ☐ Perform landscaping activities away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of landscape activity area (sandbags, silt fence).<br>☐ Install baggage for clippings on mowers.<br>☐ Train staff to improve dry clean-up of green waste from gutters and drain systems.<br>☐ Other: |
| ***Managing Landscape Waste*** | | |
| Are compost leaves, sticks, or other collected vegetation disposed near a watercourse or storm drain system? | ☐ Yes<br>☐ No | ☐ Dispose of materials at a permitted landfill<br>☐ Place vegetation piles away from drainage facilities or water courses.<br>☐ Install baggage for clippings on mowers.<br>☐ Train staff to improve dry clean-up of green waste from gutters and drain systems.<br>☐ Other: |
| ***Controlling Erosion*** | | |
| Are there any large slopes in the area? | ☐ Yes<br>☐ No | ☐ Ensure slopes are vegetated, if not properly secure slopes if necessary.<br>☐ Train staff to improve erosion control on-site.<br>☐ Other: |

| | | |
|---|---|---|
| ***Controlling Illegal Dumping*** | | |
| Have any illegal dumpings occurred in the past year? | ☐ Yes<br>☐ No | ☐ Regurarily inspect and clean areas where illegal dumpings have occurred.<br>☐ Promptly investigate spill and dumps.<br>☐ Other: |
| ***Bacteria Control*** | | |
| Is there a bacteria problem in the lake? | ☐ Yes<br>☐ No | ☐ Reduce the feeding of waterfowl.<br>☐ Place signage by lake to minimize the amount of feeding to the waterfowl and to only feed with designated food.<br>☐ Monitor lake for fecal chloroform, nutrient levels and trace metals.<br>☐ Other: |
| ***Dredging*** | | |
| Are proper dredging procedures not followed? | ☐ Yes<br>☐ No | ☐ Dredge with shovels when laying/maintaining pipes.<br>☐ Dredge large lakes every 10 years.<br>☐ Use vacuum equipment when dredging large lakes..<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# INSPECTION FORM

## Landscape Maintenance

**Complete this form only if related activities are conducted at this Field Program**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Mowing, Trimming/Weeding and Planting*** | | |
| Do green waste trimmings or clippings enter storm drains, gutters, or travel off site? | ☐ Yes<br>☐ No | ☐ Perform landscaping activities away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of landscape activity area (sandbags, silt fence).<br>☐ Install baggage for clippings on mowers.<br>☐ Train staff to improve dry clean-up of green waste from gutters and drain systems.<br>☐ Other: |
| ***Irrigation*** | | |
| Does non-stormwater discharge occur from irrigation systems that has the potential to carry pollutants? | ☐ Yes<br>☐ No | ☐ Berm the irrigation area to prevent run-on and runoff.<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Ensure sprinklers are spraying appropriately.<br>☐ Other: |
| ***Fertilizer and Pesticide Management*** | | |
| Are fertilizers and pesticides mixed or prepared near a storm drain? | ☐ Yes<br>☐ No | ☐ Mix and prepare fertilizers and pesticides away from storm drains.<br>☐ Use the minimal amount of fertilizers and pesticides.<br>☐ Other: |
| Are fertilizers and pesticides dumped or broadcasted onto the surface? | ☐ Yes<br>☐ No | ☐ Work fertilizers and pesticides into the soil rather than dumping.<br>☐ Other: |
| Are fertilizers and pesticides over applied? | ☐ Yes<br>☐ No | ☐ Train staff to use proper fertilizer and pesticide application procedures.<br>☐ Use the minimal amount of fertilizers and pesticides.<br>☐ Other: |
| Are fertilizers and pesticides applied when there is a 25% or more chance of rain? | ☐ Yes<br>☐ No | ☐ Apply fertilizers and pesticides when there is a 75% or more chance of no rain.<br>☐ Other: |
| Is more fertilizers and pesticides stored on site than needed? | ☐ Yes<br>☐ No | ☐ Only purchase and store what is needed.<br>☐ Other: |
| Are fertilizers and pesticides not disposed of properly? | ☐ Yes<br>☐ No | ☐ Rinse containers with fertilizer/pesticide and use rinse as product. Dispose of unused fertilizer/pesticide as hazardous waste.<br>☐ Other: |
| ***Managing Landscape Waste*** | | |
| Are compost leaves, sticks, or other collected vegetation disposed near a watercourse or storm drain system? | ☐ Yes<br>☐ No | ☐ Dispose of materials at a permitted landfill<br>☐ Place vegetation piles away from drainage facilities or water courses.<br>☐ Install baggage for clippings on mowers.<br>☐ Train staff to improve dry clean-up of green waste from gutters and drain systems.<br>☐ Other: |
| ***Erosion Control*** | | |
| Is disking used as a means of vegetative management? | ☐ Yes<br>☐ No | ☐ Use other methods for vegetative management.<br>☐ Train staff to improve erosion control on-site.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# INSPECTION FORM

## Roads, Streets and Highways Operations and Maintenance

**Complete this form only if related activities are conducted at this Field Program**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Sweeping and Cleaning*** | | |
| Does sediment, trash, or other materials enter a storm drain during sweeping or cleaning procedures? | ☐ Yes<br>☐ No | ☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Train contractors to avoid discharge into drainage facilities.<br>☐ Use the most advanced equipment to perform sweeping.<br>☐ Other: |
| Is sweeping and cleaning performed during wet weather conditions? | ☐ Yes<br>☐ No | ☐ Perform street cleaning/sweeping during dry weather.<br>☐ Perform hosing/washing away from drainage facilities or water courses.<br>☐ Train contractors to avoid discharge into drainage facilities.<br>☐ Other: |
| Do sweeping vehicles or equipment leak? | ☐ Yes<br>☐ No | ☐ Regularly inspect vehicles and equipment for leaks, and repair immediately.<br>☐ Operate sweepers at manufacturer requested optimal speed levels to increase effectiveness.<br>☐ Maintain equipment to keep in good working condition.<br>☐ Other: |
| ***Repair and Maintenance*** | | |
| Do pavement marking activities contribute liquids or other materials to storm drains? | ☐ Yes<br>☐ No | ☐ Mix paint and liquids indoors or in a containment area.<br>☐ Use recycled and less hazardous products when possible.<br>☐ Perform activities away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of activity (sandbags, silt fence).<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Other: |
| Do materials from concrete work have the potential to enter storm drains? | ☐ Yes<br>☐ No | ☐ Prevent debris from entering storm drains.<br>☐ Do not rinse or wash materials into gutters or storm drains.<br>☐ Place sandbags around inlets, drainage facilities, and water courses.<br>☐ Other: |
| If vehicle and/or equipment washing takes place, does wash water enter an on site storm drain or run off-site? | ☐ Yes<br>☐ No | ☐ Wash away from drainage facilities or water courses.<br>☐ Berm the wash area to prevent run-on and runoff.<br>☐ Discharge wash water to sanitary sewer.<br>☐ Use less water, consider a high pressure sprayer.<br>☐ Construct a wash rack for the washing area.<br>☐ Do not use solvents to clean.<br>☐ Other: |
| Are vehicles and/or equipment stored in an uncovered area with the potential to affect stormwater quality? | ☐ Yes<br>☐ No | ☐ Store vehicles and equipment in covered areas.<br>☐ If covered areas for storage are unavailable, inspect storage areas frequently for leaks and damage.<br>☐ Store vehicles and equipment away from drainage systems and waterbodies. |

| | | |
|---|---|---|
| | | ☐ Other: |
| Do vehicles and/or equipment leak oil, or any other fluids? | ☐ Yes<br>☐ No | ☐ Use absorbent materials on small leaks rather than hosing down or burying. Remove absorbent materials promptly and dispose of properly.<br>☐ Use drip pan underneath equipment/vehicle.<br>☐ Stock appropriate clean-up materials.<br>☐ Inspect vehicles and equipment frequently for leaks.<br>☐ Other: |
| ***Bridge and Structure Maintenance*** | | |
| Does cleaning of paint brushes or sand blasting occur in the street, gutter, or near a storm drain? | ☐ Yes<br>☐ No | ☐ Rinse paint brushes, etc. in sink connected to a sanitary sewer system.<br>☐ Never clean brushes, etc. in the street, gutter, or near a storm drain<br>☐ Sandblast away from storm drain inlets and watercourses<br>☐ Other: |
| Is paint transferred or loaded near a storm drain inlet or watercourse? | ☐ Yes<br>☐ No | ☐ Perform activities away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of activity (sandbags, silt fence).<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Other: |
| Does graffiti cleaning require wash water that may carry pollutants? | ☐ Yes<br>☐ No | ☐ Plug nearby storm drains and vacuum/pump wash water to sanitary sewer.<br>☐ Other: |
| ***Guard Rail and Fence Repair*** | | |
| Do any cleaning or repair activities have the potential to pollute stormwater? | ☐ Yes<br>☐ No | ☐ Perform activity away from drainage facilities or water courses.<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Use less water during activity.<br>☐ Divert wash water into a treatment basin.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# INSPECTION FORM

## Sidewalk, Plaza and Fountain Maintenance and Cleaning

**Complete this form only if related activities are conducted at this Field Program**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Surface Cleaning*** | | |
| Does discharge into a storm drain or waterbody occur when cleaning sidewalks or plazas? | ☐ Yes<br>☐ No | ☐ Perform activities away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of activity (sandbags, silt fence).<br>☐ If a hose is used, consider a high pressure sprayer.<br>☐ Use environmentally friendly products.<br>☐ Use dry methods to clean objects and surfaces.<br>☐ Do not mix paint or chemicals on sidewalk/plaza.<br>☐ Other: |
| Does sediment, trash, or other materials enter a storm drain during parking lot sweeping? | ☐ Yes<br>☐ No | ☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Train contractors to avoid discharge into drainage facilities.<br>☐ Use the most advanced equipment to perform lot sweeping.<br>☐ Other: |
| Does cleaning the exterior of buildings/fountains utilize water or other liquids that may enter a storm drain or run off site? | ☐ Yes<br>☐ No | ☐ Use minimal water, consider a high pressure sprayer.<br>☐ Place a barrier around perimeter of cleaning area (sandbags, silt fence).<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Divert water or other liquids away from drainage facilities or water courses.<br>☐ Other: |
| ***Graffiti Cleaning*** | | |
| Are graffiti abatement activities performed during rain events? | ☐ Yes<br>☐ No | ☐ Postpone cleaning activities until after rain event.<br>☐ Other: |
| Does graffiti cleaning require wash water that may carry pollutants? | ☐ Yes<br>☐ No | ☐ Plug nearby storm drains and vacuum/pump wash water to sanitary sewer.<br>☐ Other: |
| ***Sidewalk Repair*** | | |
| Do surface removal activities ever occur during wet weather conditions? | ☐ Yes<br>☐ No | ☐ Schedule surface removal activities for during dry weather if possible.<br>☐ If water or liquids must be used, wash away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of washing area (sandbags, silt fence).<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Other: |
| Do materials from concrete work | ☐ Yes | ☐ Prevent debris from entering storm drains.<br>☐ Do not rinse or wash materials into gutters or storm drains. |

| | | |
|---|---|---|
| have the potential to enter storm drains? | ☐ No | ☐ Place sandbags around inlets, drainage facilities, and water courses.<br>☐ Other: |
| Does truck wash-out have the potential to enter storm drains? | ☐ Yes<br>☐ No | ☐ Establish an on site wash-out area.<br>☐ Place sandbags around inlets, drainage facilities, and water courses.<br>☐ Other: |
| ***Controlling Litter*** | | |
| Have solid wastes been allowed to litter the area? | ☐ Yes<br>☐ No | ☐ Provide waste containers in convenient places, such as transit stops, for employees and the public.<br>☐ Use enclosed trash containers to limit contact with wind and rain and prevent spillage.<br>☐ Collect trash regularly to prevent spillage, especially during rainy and windy conditions.<br>☐ Post "No Littering" signs.<br>☐ Other: |
| ***Fountain Maintenance*** | | |
| When fountain is drained, is water discharged into street or storm drain? | ☐ Yes<br>☐ No<br>_ | ☐ Discharge into sanitary sewer.<br>☐ Allow chlorine to dissipate for a few days and then recycle/reuse water by draining into a landscaped area (testing is required).<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# INSPECTION FORM

## Solid Waste Handling

**Complete this form only if related activities are conducted at this Field Program**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Solid Waste Collection*** | | |
| Are any solid waste storage areas littered and not well maintained? | ☐ Yes<br>☐ No | ☐ Regularly inspect solid waste containers for structural damage and repair or replace damaged containers as necessary.<br>☐ Designate separate waste containers for wastes that can cause chemical reactions and complicate recycling or disposal.<br>☐ Prevent any wastes other than solid wastes from being disposed of in the waste container.<br>☐ Sweep and clean up spills in the waste management area immediately, using dry methods when possible.<br>☐ Other: |
| Can stored waste come in contact with stormwater? | ☐ Yes<br>☐ No | ☐ Designate secured storage areas away from storm drain system and water courses.<br>☐ Store materials indoors if possible, or cover with a roof.<br>☐ Inspect storage areas before and after rainfall events, and at least weekly all other times.<br>☐ If materials are stockpiled, place a barrier around perimeter (berm, sandbags, silt fence).<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Keep an accurate and up-to-date inventory of materials delivered and stored on-site.<br>☐ Place plastic cover over stored material, especially those treated with amendments.<br>☐ Train employees in proper storage measures.<br>☐ Minimize the amount of material stored on-site.<br>☐ Other: |
| Do non-stormwater discharges occur such as water draining from stored wastes? | ☐ Yes<br>☐ No | ☐ Place lids or covers over all waste.<br>☐ Place sandbags around inlets, drainage facilities and water courses.<br>☐ Contain and haul drainage for proper disposal.<br>☐ Other: |
| ***Waste Reduction and Recycling*** | | |
| Is the amount of waste generated more than necessary, and is waste not being recycled? | ☐ Yes<br>☐ No | ☐ Recycle materials whenever possible.<br>☐ Establish source controls.<br>☐ Establish a material usage tracking system to increase awareness.<br>☐ Other: |

| ***Hazardous Waste Collection*** | | |
|---|---|---|
| Are staff unaware of their roles and responsibilities for hazardous waste handling or during a hazardous waste spill? | ☐ Yes<br>☐ No | ☐ Contact the local HAZMAT office or Fire Department for hazardous waste labeling regulations.<br>☐ Contact the local HAZMAT office or Fire Department ask who should be contacted in case of a hazardous spill.<br>☐ Develop hazardous waste storage and handling procedures.<br>☐ Determine roles and responsibilities of employees and supervisors.<br>☐ Designate authorized hazardous waste collection areas on-site.<br>☐ Obtain permit for hazardous waste storage for more than 90 days.<br>☐ Other: |
| Are chemical materials being stored improperly without safeguards against accidental spills? | ☐ Yes<br>☐ No | ☐ Place materials in secondary containers.<br>☐ Designate covered areas with impervious surfaces for chemical storage.<br>☐ Keep chemicals in original well-labeled containers.<br>☐ Store materials in covered dumpsters or waste containers with secure lids.<br>☐ Surround liquid material containers with a curb or dike.<br>☐ Install overflow protection devices.<br>☐ Post restricted access warnings.<br>☐ Other: |
| ***Controlling Litter*** | | |
| Have self generated solid wastes been allowed to litter the area? | ☐ Yes<br>☐ No | ☐ Provide waste containers in convenient places, such as transit stops, for employees and the public.<br>☐ Use enclosed trash containers to limit contact with wind and rain and prevent spillage.<br>☐ Collect trash regularly to prevent spillage, especially during rainy and windy conditions.<br>☐ Post "No Littering" signs.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# INSPECTION FORM

## Water and Sewer Operation and Maintenance

**Complete this form only if related activities are conducted at this Field Program**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Water Line Maintenance*** | | |
| When planned discharges occur, are control measure not put in place? | ☐ Yes<br>☐ No | ☐ Place sandbags around inlets, drainage facilities, and water courses.<br>☐ Perform activities away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of activity (sandbags, silt fence).<br>☐ Prior to discharge, inspect flow path and clear debris.<br>☐ Other: |
| ***Sanitary Sewer Maintenance*** | | |
| Are sewer lines not cleaned on a regular basis? | ☐ Yes<br>☐ No | ☐ Place sandbags around inlets, drainage facilities, and water courses.<br>☐ Perform activities away from drainage facilities or water courses.<br>☐ Place a barrier around perimeter of activity (sandbags, silt fence).<br>☐ Prior to discharge, inspect flow path and clear debris.<br>☐ Other: |
| ***Spill/Leak/Overflow Control, Response, and Containment*** | | |
| Have any spills occurred in the area over the past year? If so, why? | ☐ Yes<br>☐ No | ☐ Develop a spill prevention plan.<br>☐ Use absorbent materials on small spills rather than hosing down or burying the spill.<br>☐ Remove absorbent materials promptly and dispose of properly.<br>☐ If large spill occurs, notify manager immediately and contain spread of spill.<br>☐ Stock appropriate clean-up materials.<br>☐ Other: |
| Does the Field Program lack a spill prevention program? | ☐ Yes<br>☐ No | ☐ Identify staff members responsible for developing a spill prevention program.<br>☐ Research other Field Programs with spill prevention programs and use as a guideline.<br>☐ Know who to contact if large or hazardous spills occur.<br>☐ Other: |
| Is staff unaware of who to identify when hazardous spills occur? Is staff unaware of their roles during a hazardous spill? | ☐ Yes<br>☐ No | ☐ Contact the local HAZMAT office and ask who should be contacted in case of a hazardous spill.<br>☐ Develop a spill prevention plan.<br>☐ Determine roles and responsibilities of employees and supervisors.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# Drainage Facility Inspection Forms

# DRAINAGE FACILITY GENERAL INSPECTION FORM

COVER SHEET (Required for all inspections)

**Inspection Performed by:**
**Date:**

**Time of Inspection:**
**Weather at Time of Inspection:**

**Drainage System Information**

Name of Program:
Address:

Contact Name:
Title:
Phone Number:

Number of Employees:

Days of Operation per Week:

**Leased Information**

Is this Program contracted?
Yes No
☐ ☐

Is this a contractor self-inspection?
Yes No
☐ ☐

Contractors Contact Information:
Contact Name:
Title:
Company Name:
Phone Number:
Address:

**Reason for Inspection:**

☐ Routine (Annual) Inspection
☐ First Inspection
☐ Follow-up Inspection
☐ Complaint Inspection

**Outcome of Inspection:**

☐ Disciplinary Action
☐ Verbal Warning
☐ Written Warning
☐ NOV - Notice of Violation
☐ No Corrective Action Necessary
☐ Other:_____

# DRAINAGE FACILITY INSPECTION FORM

## Drainage Facility Operation and Maintenance

**Complete this form only if related activities are conducted at this Drainage Facility**

| Question | Answer Yes/No | If Answered Yes, Suggested Corrective Action Plan (See Model Maintenance Procedures for further Suggested Corrective Action Plans) |
|---|---|---|
| ***Inspection and Cleaning*** | | |
| Are drainage facilities not inspected and cleaned as required? | ☐ Yes<br>☐ No | ☐ Inspect drainage facilities as required.<br>☐ Maintain appropriate records.<br>☐ Eliminate discharges that may occur during maintenance.<br>☐ Prior to discharge, inspect flow path and clear debris.<br>☐ Other: |
| If storm drain flushing occurs, is material not collected and treated properly? | ☐ Yes<br>☐ No | ☐ Vacuum material as needed.<br>☐ Dispose of vacuumed material properly.<br>☐ Other: |
| ***Illicit Connections and Discharges*** | | |
| Has an illicit discharge or connection to the storm drain system occurred in the past year? | ☐ Yes<br>☐ No | ☐ Report prohibited discharges during the course of normal daily activities.<br>☐ Conduct field investigations to detect and eliminate existing illicit connections and improper disposal of pollutants into the storm drain .<br>☐ Encourage public reporting of improper waste disposal .<br>☐ Other: |
| ***Illegal Dumping*** | | |
| Has an illegal dumping occurred in the past year? | ☐ Yes<br>☐ No | ☐ Report all dumping that occurs.<br>☐ Conduct regular field investigations.<br>☐ Encourage the public to report illegal dumpings.<br>☐ Train employees to report illegal dumpings.<br>☐ Other: |
| Is staff unaware of who to identify when illegal dumps occur? Is staff unaware of their roles when an illegal dump occurs? | ☐ Yes<br>☐ No | ☐ Contact the pollution problem reporting hotline (714) 567-6363.<br>☐ Train employees to report illegal dumpings.<br>☐ Encourage the public to report illegal dumpings.<br>☐ Other: |

**If Answering "Yes" to any of the above questions refer to "Suggested Corrective Action Plan".**

# Exhibit A-5-IV

# Integrated Pest Management Policy

**INTEGRATED PEST MANAGEMENT (IPM) POLICY &**
**IMPLEMENTATION GUIDELINES**

**FOR THE CITY OF LAKE FOREST**

## *GENERAL IPM POLICY:

For the last 55 years, the trend in pest management has increasing relied on synthetic chemical pesticides. The result has been not only a tremendous increase in the use of many dangerous chemicals, but also an increase in the number of pests that are resistant to the pesticides or new organisms becoming pests. Additionally, some pesticides used for terrestrial pest management have been found in waterways causing problems in the aquatic environment.

Pest control managers are now moving away from their reliance on pesticides alone toward an integrated approach that combines limited pesticide use with more environmentally friendly pest control techniques. This system is known as integrated pest management (IPM), a strategy that focuses on the long-term prevention of pests or their damage through a combination of techniques, including preventative, cultural, mechanical, environmental, biological, and chemical control tactics (**Figure 1**). The techniques are utilized simultaneously to control pest populations in the most effective manner possible.

Developing a comprehensive Integrated Pest Management (IPM) Program and approach allows us to focus on our primary efforts of pollution prevention. By monitoring and preventing pests as well as minimizing heavy pest infestations we can reduce the need for chemicals and/or multiple applications.

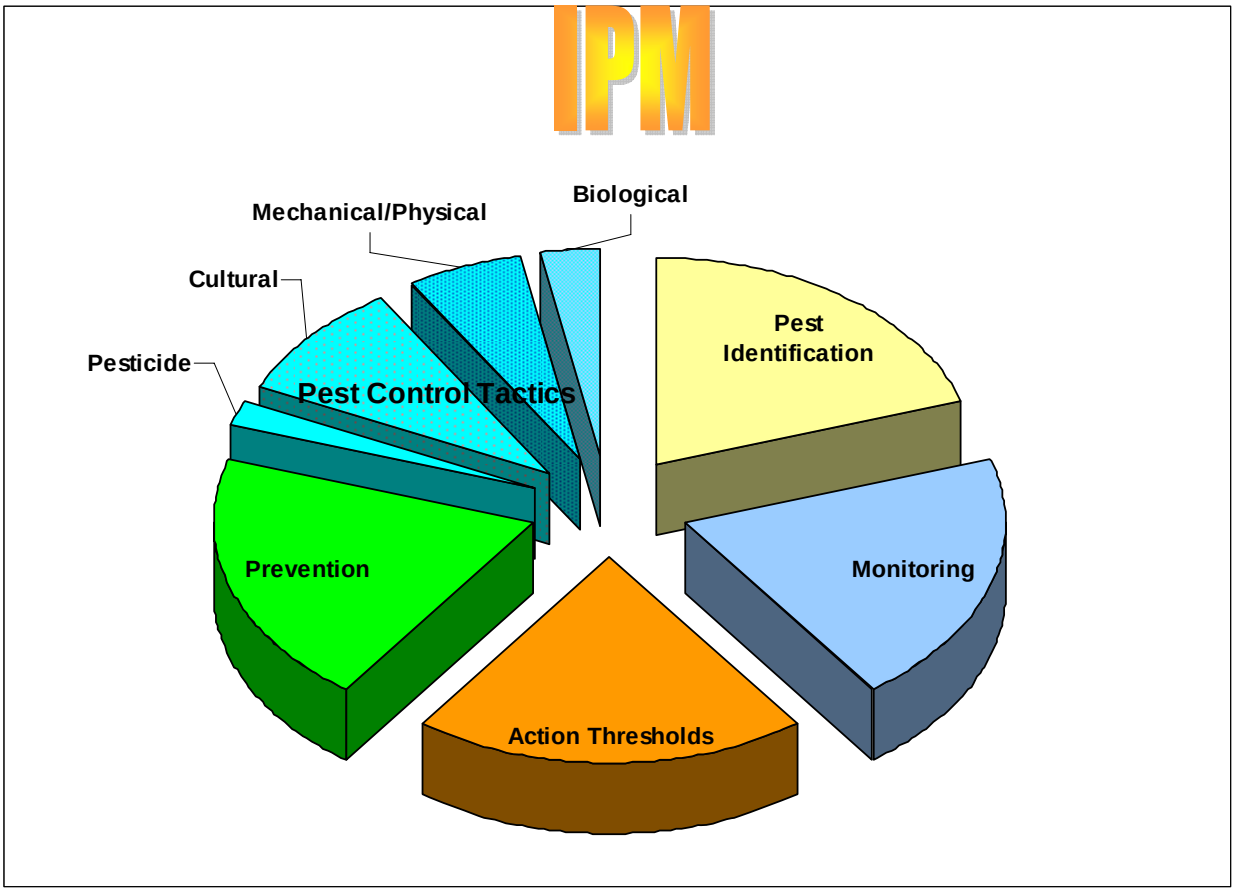
IPM programs utilize monitoring techniques and injury and economic thresholds to determine when to implement control strategies. Treatments are used only used according to established guidelines after monitoring indicates that such treatment is appropriate. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms and the environment.

The use of pesticides is often a measure of last resort. Because of this, the management guidelines for pesticide use are presented in a separate section immediately following the IPM guidelines.

* Original language is contained in Orange County Drainage Area Management Plan, Section 5.5.2 Integrated Pest Management adopted in 2003.

**Figure 1**

**Components of an Integrated Pest Management Program**




## Scope of IPM Policy and Implementation Plan

IPM practices are encouraged over the sole use of pesticides as the primary means of pest management (**Table 1**). As a part of the Municipal Activities Program Manual, the public agencies and their contractors should evaluate the non-chemical components of IPM before intensive use of pesticides.

The goal of IPM is not to eliminate all pests, but to keep their populations at tolerable levels. Pesticides may be part of an IPM program, but they should only be used after the pests exceed established thresholds and only applied in the affected area (in the case of disease prevention, some modifications may be allowed). In general, all pest control strategies should be those that are least disruptive to biological control

organisms (natural enemies), least hazardous to humans and the environment (including non-target organisms), and have the best likelihood of long-term effectiveness.

**Table 1. Advantages and Disadvantages of a Pesticide-Based Program versus an IPM-Based Pest Control Program**

| **Pesticide Based Pest Control** | | **IPM Based Pest Control** | |
|---|---|---|---|
| **Advantages** | **Disadvantages** | **Advantages** | **Disadvantages** |
| Quick suppression of pests | Not long-term | Long-term control | It may take longer to see results |
| | Pest control is reactive | Can be proactive in pest control actions | Must establish thresholds |
| | Loss of natural controls.<br><br>Often get outbreaks of other pests | Reduces disruption of natural enemies | |
| | | Pesticides can be used (only used as last resort). | Must have knowledge of pesticides and their effects on other organisms. |
| Labor is only for spraying | Extra work in cleanup | Staff becomes more knowledgeable of pests and injury symptoms | Labor is required for monitoring and regular scouting<br><br>Training is required to identify pests and natural enemies. |
| Not much preparation or follow-up needed | Need a PCA recommendation | Pest management is more organized | Must maintain a record-keeping system. |

| | | |
|---|---|---|
| | Pesticide safety issues for applicators, public, animals | Less exposure to pesticides |
| | More pesticides in environment | Safer to the environment |
| | Contamination of water bodies from runoff | Reduces contamination from runoff |

Pesticides should not be applied until pests are approaching damaging levels. Because this requires early detection of the pests, monitoring on a regular basis is extremely important and should also be used to determine if natural enemies are present and adequately controlling the pest. If possible, a person should be trained and assigned to scout the sites on a regular basis.

**Components of an IPM Program**

An IPM program is a long-term, multi-faceted system to manage pests (**Figure 1**). Use of pesticides is a short-term solution to pest problems and should be used only when the other components fail to maintain the pests or their damage below an acceptable level. Successful IPM practitioners are knowledgeable about the biology of the plants and pests and successful IPM programs primarily use combinations of cultural practices as well as a combination of physical, mechanical and biological controls.

Pest Identification

It is important to learn to identify all stages of common pests at each site. For example, if you can identify weed seedlings, you can control them before they become larger and more difficult to control and before they flower, disseminating seeds throughout the site. It is also important to be sure that a pest is actually causing the problem. Often damage such as wilting is attributed to root disease but may actually be caused by under watering or wind damage.

Prevention

Good pest prevention practices are critical to any IPM program, and can be very effective in reducing pest incidence. Numerous practices can be used to prevent pest incidence and reduce pest population buildup such as the use of resistant varieties, good sanitary practices and proper plant culture. Examples of prevention include choosing an appropriate location for planting, making sure the root system is able to grow adequately and selecting plants that are compatible with the site's environment.

Monitoring

The basis of IPM is the development and use of a regular monitoring or scouting program. Monitoring involves examining plants and surrounding areas for pests, examining tools such as sticky traps for insect pests and quantitatively or qualitatively measuring the pest population size or injury. This information can be used to determine if pest populations are increasing, decreasing, or staying the same and to determine when to use a control tactic. Weather and other environmental conditions may also play

a factor in whether a pest outbreak may occur so it is important to monitor temperature and soil moisture as well.

It is important to use a systematic approach when monitoring, for example you should examine leaves of a similar age each time you check for pests, rather than looking at the older leaves on some plants and younger ones on others. Randomly looking at a plant and its leaves does not allow you to track changes in pest population or damage over time.

It is important to establish and maintain a record-keeping system to evaluate and improve your IPM program. Records should include information such as date of examination, pests found, size and extent of the infestation, location of the infestation, control options utilized, effectiveness of the control options, labor and material costs.

## Injury Levels and Action Thresholds

In order to have a way to determine when a control measure should be taken, injury levels and action thresholds must be set for each pest. An injury level is the level of unacceptable damage. For example, the injury level for a leaf-feeding beetle may be set at 30% of the leaves being damaged. Action thresholds are the set of conditions required to trigger a control action. An example of this would be finding an average of 5 or more beetles on 10 shrubs in a location. Action thresholds are set from previous experience or published recommendations and based on expected injury levels. Injury levels are often set by the public's comments.

## Pest Control Tactics

Integrated pest management programs use a variety of pest control tactics in a compatible manner that minimizes adverse effects to the environment. A combination of several control tactics is usually more effective in minimizing pest damage than any single control method. The type of control that an agency selects will likely vary on a case-by-case basis due to the varying site conditions.

The primary pest control tactics to choose from include:

- Cultural
- Mechanical/Physical
- Biological

- Pesticide

*Cultural Controls*

Cultural controls are modifications of normal plant care activities that reduce or prevent pests. In addition to those methods used in the pest preventions, other cultural control methods include adjusting the frequency and amount of irrigation, fertilization, and mowing height. For example, spider mite infestations are worse on water-stressed plants, over-fertilization may cause succulent growth which then encourages aphids, too low of a mowing height may thin turf and allow weeds to become established.

*Mechanical/Physical Controls*

Mechanical control tactics involve the use of manual labor and machinery to reduce or eliminate pest problems using methods such as handpicking, physical barriers, or machinery to reduce pest abundance indirectly. Examples include hand-pulling or hoeing and applying mulch to control weeds, using trap boards for snails and slugs, and use of traps for gophers.

The use of physical manipulations that indirectly control or prevent pests by altering temperature, light, and humidity can be effective in controlling pests. Although in outdoor situations these tactics are difficult to use for most pests, they can be effective in controlling birds and mammals if their habitat can be modified such that they do not choose to live or roost in the area. Examples include removing garbage in a timely manner and using netting or wire to prevent bird from roosting.

*Biological Controls*

Biological control practices use living organisms to reduce pest populations. These organisms are often also referred to as beneficials, natural enemies or biocontrols. They act to keep pest populations low enough to prevent significant economic damage. Biocontrols include pathogens, parasites, predators, competitive species, and antagonistic organisms. Beneficial organisms can occur naturally or can be purchased and released.

The most common organisms used for biological control in landscapes are predators, parasites, pathogens and herbivores.

- Predators are organisms that eat their prey (e.g. Ladybugs).

- Parasites spend part or all of their life cycle associated with their host. Common parasites lay their eggs in or on their host and then the eggs hatch, the larvae feed on the host, killing it (e.g. Tiny stingless wasps for aphids and whiteflies).

- Pathogens are microscopic organisms, such as bacteria, viruses, and fungi that cause diseases in pest insects, mites, nematodes, or weeds (e.g. *Bacillus thuringiensis* or BT).

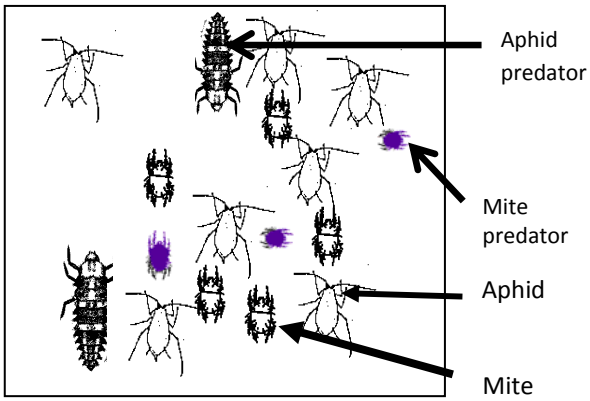
- Herbivores are insects or animals that feed on plants. These are effective for weed control. Biocontrols for weeds eat seeds, leaves, or tunnel into plant stems (e.g. goats and some seed and stem borers).

In order to conserve naturally occurring beneficials, broad-spectrum pesticides should not be used since the use of these types of pesticides may result in secondary pest outbreak due to the mortality of natural enemies that may be keeping other pests under control (**Figure 2**).

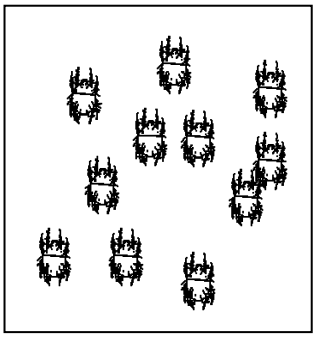
**Figure 2**

**Example of Secondary Pest Outbreak**
**Caused By Use of a Broad Spectrum Insecticide**

A. Aphids and mites controlled by predators




B. After a broad spectrum spray for aphids, predators for mites and aphids are also killed, resulting in an outbreak of mites.



*Pesticide Controls*

Any substance used for defoliating plants, regulating plant growth or preventing, destroying, repelling or mitigating any pest, is a pesticide. Insecticides, miticides, herbicides, fungicides, rodenticides and molluscides are all pesticides. Anything with an EPA or DPR registration number on the label is a non-exempt pesticide.

Pesticides should only be used when other methods fail to provide adequate control of pests and just before pest populations cause unacceptable damage. The overuse of pesticides can cause beneficial organisms to be killed and pest resistance to develop. When pesticides must be used, considerations should be made for how to use them most successfully. Avoid pesticides that are broad-spectrum and relatively persistent since these are the ones that can cause the most environmental damage and increase the likelihood of pesticide resistance. Always choose the most specific but least toxic to non-target organisms method.

In addition, considerations should be given to the proximity to water bodies, irrigation schedules, weather (rain or wind), etc. that are secondary factors that may result in the pesticide being moved off-site into the environment. Consideration should be made of the temporary loss of use of an area (application in a park may result in the area being sectioned off)

**IMPLEMENTION GUIDELINES:**

**Enter Designated IPM Coordinator or IPM Contact Information in Box Below:**

Luis Estevez
Public Works Manager
City of Lake Forest
949-461-3485

Personnel responsible for the care and maintenance of facilities under the above-mentioned jurisdiction agree to implement a suite of basic integrated pest management procedures selected from the following five main components of an IPM program:

I) Prevention

II) Pest and Symptom Identification

III) Monitoring for Pests and Problems

IV) Action Thresholds and Guidelines

V) Selection of Appropriate Management Methods (Control Tactics)

The procedures seek to increase the long-term prevention and suppression of pest problems (insects, weeds, diseases, and vertebrates) with the minimum impact on human health, the environment, and non-target organisms. Emphasis is placed on improving cultural practices to prevent problems and utilizing alternative control measures instead of broad spectrum pesticides.

Information on the latest IPM information including management of new pests in the landscape is obtained from local UC Cooperative Extension Advisors, UC IPM Regional Advisor, or the Statewide UC IPM Web Site at www.ipm.ucdavis.edu.

## I. PREVENTION

### A. Landscape Design Procedures *(a minimum of three must be selected)*

☒ Drainage, soil characteristics, water quality and availability are considered during plant selection.

☒ Sun exposure, heat, and high temperature conditions are considered during plant selection.

☒ Adequate space is allowed for root growth, especially trees.

☒ Nursery stock is inspected and rejected if not healthy (injuries, diseased, circling roots/potbound, poor staking and/or pruning).

☒ Pest resistant species and cultivars are selected.

☒ Plants with similar growth characteristics and irrigation requirements are grouped together.

☒ Landscape design matches available irrigation technology to avoid excess water use and to minimize surface runoff.

### B. Site Preparation and Planting Procedures *(a minimum of three must be selected)*

☒ Assess soil drainage properties and improve compacted soils prior to planting.

☐ Conduct a soil analysis to determine chemical and physical properties of the existing soil and then add appropriate amendments such as organic matter.

☒ Ensure irrigation is installed as designed in order to avoid poor uniformity once plants are in place.

☒ Follow proper planting procedures for particular plant species to avoid planting too deeply or too shallow.

☒ Nursery tree stakes are removed at planting and replaced with staking that allows trunk to flex; removing these stakes after 1 to 1.5 years.

☒ Utilize a soil probe or other soil moisture measurement device to monitor soil moisture levels in existing root ball and surrounding soil during establishment period.

**C. Water Management** *(a minimum of three must be selected)*

☒ Plants are examined weekly for symptoms of water stress and to assist in determining irrigation scheduling.

☒ Monitor soil moisture with a soil probe or soil moisture sensors to assist in scheduling irrigation.

☒ Utilize evapotranspiration (ET) data or 'smart' clock technology to schedule irrigation.

☒ Cyclic irrigation (short-multiple run times) is employed to minimize surface runoff.

☒ Utilize low precipitation sprinklers or low-volume systems to reduce surface runoff.

☒ Systems are inspected monthly to check for leaks, broken pipes, and clogged or broken sprinkler heads.

☒ Adjust sprinklers to avoid application of water directly to the trunk of trees (can promote disease) or on to concrete surfaces where it can enter storm drains.

☒ Establish a hotline or email or other dedicated method where citizens can report leaks and broken sprinkler heads

**D. Fertilizing Procedures** *(a minimum of three must be selected)*

☒ Fertilize only when plants are actively growing to avoid nutrient losses below the root zone.

☒ Fertilizer is not applied within 48 hours of a rain event to avoid losses below the root zone and in surface runoff.

☒ Soil analyses are conducted in order to determine existing nutrient levels in the soil prior to fertilizing.

☐ Turf grass fertilizer maintenance schedules are based on UC recommendations found online at UC Guide for Healthy Lawns.

http://www.ipm.ucdavis.edu/TOOLS/TURF/MAINTAIN/fertilize.html

☐ Sports turf grass fertilizer maintenance guidelines are based on UC recommendations found in **Establishing and Maintaining the Natural Turf Athletic Field (UCR ANR Publication Number: 21617).**

☒ Overfertilization, especially of trees and shrubs, is avoided to ensure plant growth is not excessively succulent making it more susceptible to pest infestations.

☒ Off-target fertilizer applications or spills are cleaned up immediately by sweeping up and applying to landscape or turf or replacing in spreader or bag to ensure material does not enter storm drains.

**E. Pruning Procedures** *(a minimum of three must be selected)*

☒ Damaged or diseased wood is regularly pruned from landscape plants.

☒ Trees are pruned according to standards set forth by a professional tree care organization such as the International Society of Arboriculture.

☒ Replace plants too large for a space instead of pruning them severely.

☒ Unnecessary pruning is avoided as wounds are entry sites for decay and disease organisms.

☒ The age and species of the plant is taken into account when determining the time of year to prune. For example, eucalyptus should be pruned in December and January when long-horned beetles are not active.

☒ Tree height reduction is discouraged. When deemed necessary by a licensed arborist, the crown reduction method approved by a professional tree care organization is utilized. Topping is never done to reduce tree size. NO TOPPING OR 'HAT RACKING' IS PERMITTED.

## II. PEST AND SYMPTOM IDENTIFICATION

**A. Insects, Mites, and Snails and Slugs** *(a minimum of three must be selected)*

☒ Field personnel are trained to recognize basic pests found in the landscape in the following groups: insects, mites, and mollusks.

☒ A licensed Pest Control Adviser is on staff or hired to properly identify a pest and the symptoms caused by the pest.

☒ Field personnel are trained to utilize disease life cycles to apply treatments when the organism can be controlled most effectively.

☒ Field personnel are trained to distinguish between beneficial insects and actual pests found in the landscape (e.g. parasitizing wasps).

☒ Unknown samples are submitted to the Orange County Agricultural Commissioner for identification by the county entomologist or plant pathologist.

☒ Abiotic or nonliving factors (wind, sunburn, air pollution, etc…) are considered as possible causes of observed symptoms as well as biotic (living) factors.

**B. Weeds** *(a minimum of one must be selected)*

☒ Field personnel are trained to identify common weeds in the landscape.

☒ Field personnel are trained to utilize weed life cycles to properly control weeds such as controlling crabgrass utilizing a pre-emergent herbicide applied in mid-January.

☒ A licensed Pest Control Adviser is on staff or contracted to properly identify the pest.

**C. Diseases** *(a minimum of one must be selected)*

☒ Field personnel are trained to recognize common diseases or their signs/symptoms in the landscape.

☒ Field personnel are trained to utilize disease life cycles to apply treatments when the organism can be controlled most effectively.

☒ Field personnel are trained to recognize the difference between biotic and abiotic problems.

☒ Field personnel are trained to understand how common diseases are spread throughout the landscape.

☒ Disease signs and symptoms are sampled and submitted to the Orange County Agricultural Commissioner for identification by the county plant pathologist.

☒ A licensed Pest Control Adviser is on staff or contracted to properly identify the pest.

☐ Photographs of disease signs and symptoms are taken and compared to reference guides such as UC IPM's *Pests of Landscape Trees and Shrubs*.

**D. Vertebrates** *(a minimum of one must be selected)*

☒ Field personnel are trained to recognize vertebrate pests and the damage they cause in the landscape.

☒ Field personnel are trained to utilize vertebrate behavior to properly control the pest most effectively.

☒ At least one field staff member is trained in vertebrate baiting and trapping.

☒ A licensed Pest Control Adviser is on staff or contracted to properly identify vertebrate pest.

## III. MONITORING FOR PESTS AND PROBLEMS

**A. Insect/Mollusk Monitoring Procedures** *(a minimum of three must be selected)*

☐ Visually inspect plants for insects, mites, snail and slug damage at least monthly; recording results utilizing a method conducive to tracking changes and easy recall of data.

☐ Yellow sticky traps are utilized to assess populations of insects.

☒ Insects are dislodged from plants by shaking over a collection surface usually consisting of a clipboard with a white sheet of paper.

☐ If available for a particular insect, phermone-baited traps are utilized.

☒ Soil-dwelling turf insects are brought to the surface for monitoring by flushing a specific area of soil (i.e. 2' x 2' grid) with plain water or a soapy water mixture.

☒ The amount of honeydew (aphids) and frass (caterpillars) present is utilized as an indicator of population levels.

**B. Weed Monitoring Procedures** *(a minimum of two must be selected)*

☒ Landscapes are inspected at least 4 times a year (early winter, early spring, summer and early fall) for weeds in order to determine if and when a weed problem exists.

☒ Utilize site surveys to record the location, date, and severity of weed problem; recording results utilizing a method conducive to tracking changes and easy recall of data.

☐ Count and record the number of weeds encountered at periodic intervals (e.g. every 1 to 2 feet) along a straight line transecting a landscapes area or within a selected area, for example 4 sq. ft. samples done in random places in a bed or turf area.

**C. Disease Monitoring Procedures** *(a minimum of two must be selected)*

☒ Landscapes are regularly checked for conditions, such as overwatering and injuries, which promote disease.

☒ Landscapes are checked monthly, at a minimum, for disease symptoms and signs. Disease prone plants are checked more frequently.

☐ Records are kept utilizing a method conducive to tracking changes and easy recall of data of each landscape inspection noting, date when disease signs and symptoms were first noticed and the current environmental conditions and soil moisture levels.

**D. Vertebrate Monitoring Procedures** *(a minimum of two must be selected)*

☒ Landscapes are regularly inspected for vertebrate presence either by damage caused by animal, actual animal sightings, and/or droppings.

☐ Records are kept of the absence or presence of actual vertebrates, the damage caused, and/or the presence or absence of droppings.

☐ Maps are created and updated at least twice a year, recording area of high vertebrate damage or signs (such as gopher mounds).

## IV. ACTION THRESHOLDS AND GUIDELINES

**A. Insect/Mollusk Thresholds and Guidelines** *(a minimum of one must be selected)*

☒ Insect tolerance levels are established based on the public's acceptance of damage to the landscape or a certain level of nuisance pests (i.e. ants), the actual plant species in the landscape, and long-term monitoring and knowledge of pests causing the damage.

☒ Thresholds are based on levels were reasonable control of the pest can be achieved with minimum impact on the environment.

☐ Insect monitoring records are utilized to establish threshold levels for the implementation of control strategies. For example, the threshold for the presence of aphids on a rose garden at City Hall is low, while in a native shrub border it might be considerably higher.

**B. Weed Thresholds and Guidelines** *(a minimum of one must be selected)*

☒ Weed tolerance levels are established based on public safety or the public's acceptance and the resources available to manage the landscape at that level.

☐ Weed monitoring records are utilized to rank the percentage of the landscape area infested (none, light, moderate, heavy, or very heavy) with weeds.

☒ Public areas are ranked according to high, medium, or low level of weed control and management conducted according to levels set for each rank (see Appendix A)

**C. Disease Thresholds and Guidelines** *(a minimum of one must be selected)*

☒ Disease tolerance levels are established based on the public's acceptance and the resources available to manage the landscape at the level required.

☐ Disease monitoring records are utilized to establish threshold levels for the implementation of control strategies. For example, the threshold for the presence of powdery mildew on roses at City Hall is much lower than the threshold for its presence on Euonymus in a parking lot at a city sports park.

**D. Vertebrate Thresholds and Guidelines** *(a minimum of one must be selected)*

☒ Vertebrate tolerance levels are established based on public safety, the public's acceptance and the resources available to manage the landscape at the level required.

☐ Vertebrate monitoring records are utilized to establish threshold levels for the implementation of control strategies. For example, the threshold for the presence of gopher mounds in a sport field is zero, while in a native shrub border it might be two before a trapping strategy is implemented.

## V. SELECTION OF APPROPRIATE MANAGEMENT METHODS

### A. Insect/Mollusk Management Methods

***Cultural/Mechanical/Physical Control Methods*** *(a minimum of three methods must be selected)*

☐ Sticky barriers are applied to trunks of trees and large shrubs to prevent ants and other wingless invertebrates from plant canopies.

☒ Small insect infestations are removed by pruning infested plant parts.

☐ Copper bands are installed around base of trees or planting areas where snail and slug infestations are prevalent.

☒ Plant canopies are thinned to increase light penetration to exposure certain soft-bodied insects (soft-scale) as well as snails and slugs to heat.

☒ Strong streams of water are used to dislodge insects such as aphids and whiteflies, from leaves.

☒ Avoid use of plants that snails and slugs use for shelter.

☐ Avoid irrigating between 5pm and 5am when moisture remains on plant material for several hours.

***Biological Control Methods*** (*a minimum of one method must be selected)*

☒ Persistent broad-spectrum pesticides are avoided, especially if biological control of an insect has been established by UC researchers. Examples include parasitoid wasps controlling Eugenia Psyllids, Giant Whitefly, and Ash Whitefly.

☐ Natural predators (beneficial insects) are augmented with purchases of additional predators from commercially available resources.

***Pesticide Control Methods*** (*a minimum of five methods from must be selected)*

☒ The most selective, rather than broad-spectrum, pesticide is used

☐ If available for controlling a particular insect, biological and botanical pesticides are selected

☒ Insecticidal soaps are utilized to control infestations of soft-bodied insects such as aphids, thrips, and immature scales.

☒ Horticultural oils (neem oil and narrow-range refined oils) are utilized to control infestations of soft-bodied immature and adult insects such as aphids, scales, and whiteflies.

☒ Pesticides are only utilized when the potential for impacts to the environment, especially water quality, are minimized.

☒ Equipment is calibrated prior to the application of the insecticide to avoid excess material being applied to the landscape environment.

☒ Applicators are trained to not apply pesticides to hard surfaces and to not allow any pesticide to enter the storm drain system

☒ Spot treatments are utilized rather than broadcast methods

☒ Insecticide/fertilizer combinations are only used if appropriate timing for BOTH the insecticide application and the fertilizer application.

**B. Weed Management Methods**

***Cultural, Mechanical, and Physical Control Methods*** *(a minimum of three methods must be selected)*

☒ Timers are set to avoid overwatering as weeds establish in areas where soil moisture is excessive.

☒ Drainage is managed to avoid wet areas.

☒ Weeds are removed from a site prior to planting.

☒ Mower height is adjusted to turf species and time of year.

☐ Mower is washed after mowing a weedy site.

☐ Hand-pulling, mowing, trimmers/brushcutters, flaming, hoeing, and rototilling around landscape plants are the main methods utilized to control annual weeds and young perennial weeds.

☐ Soil solarization is utilized to control some annual and perennial weed species.

☒ Bare soil areas are covered with a thick layer of mulch to suppress weeds and conserve soil moisture.

☒ Soil, mulch, and plant material is weed-free before it is introduced into the landscape.

***Pesticide Control Methods*** *(a minimum of three methods must be selected)*

☒ Spot treatments are utilized rather than broadcast methods.

☒ Herbicide/fertilizer combinations are only used if appropriate timing for BOTH the herbicide application and the fertilizer application.

☐ Herbicides are utilized according to established thresholds (see Appendix A).

☐ Organically acceptable herbicides (shown to be effective through science-based research) are used where appropriate.

☒ Herbicides are applied to the stage of weed growth most susceptible to the chemical.

☒ Equipment is calibrated prior to the application of the herbicide to avoid excess material being applied to the landscape environment.

**C. Disease Management Methods**

***Cultural, Mechanical, and Physical Control Methods*** *(a minimum of three methods must be selected)*

☒ Prune out and dispose of localized areas of diseased plants.

☒ Pathogen-infested plant parts are removed from the soil surface area to reduce certain pathogens (e.g. Camellia Petal Blight).

☒ Pruning tools are sterilized (e.g. a diluted bleach solution) between plants to prevent the spread of pathogen to other plants.

☒ Proper irrigation and fertilization are maintained to prevent plant stress, water-logging, and subsequent susceptibility to disease.

☐ Soil solarization is utilized to control soil pathogens in annual beds where it is most effective.

☒ Mulch is kept at least 6” from base of plants to avoid excessive moisture around crown possibly resulting in crown rots and is no deeper than 4”

☐ Replace disease-prone plants with non-susceptible species.

***Pesticide Control Methods*** *(a minimum of two methods must be selected)*

☒ Preventative fungicides and bactericides are only used where diseases can be predicted from environmental conditions and applied prior to infection or the appearance of symptoms.

☒ Synthetic fungicides are used sparingly in the landscape and only in high visibility areas in order to minimize development of resistance.

☐ Organic fungicides and bactericides are utilized in combination with cultural, mechanical, and physical control methods in order to improve their effectiveness.

☒ Copper-based fungicides are only utilized in situations where its entry into surface runoff and storm drains is virtually impossible and after consultation with PCA and IPM coordinator.

☐ Mycopesticides, commercially available beneficial microorganisms, are used where appropriate.

☒ Fungicides classes are rotated to avoid resistance.

**D. Vertebrate Management Methods**

***Cultural and Physical Control Methods*** *(a minimum of two methods must be selected)*

☒ Groundcovers are maintained such that they do not harbor rats.

☒ Shrubs pruned at least 1 foot from the ground (rats).

☒ Sources of drinking water removed (leaky faucets, puddles).

☒ Trash cans have lids and are emptied daily (rats).

☒ Screens or other barriers installed under structures that have a space between soil and floor (rabbits).

☒ Habitat modification, based on pest biology is used to reduce shelter.

☒ Trapping is used for gophers when safe and practical.

☒ Kill traps used for ground squirrels and rabbits, are checked daily, and in places not accessible by children or non-target animals.

☐ Gas cartridges are used for ground squirrels according to UC recommendations.

***Pesticide Control Methods*** *(a minimum of two methods must be selected)*

☒ Anti-coagulant baits are used and applied according to label and UC recommendations.

☒ Bait is applied in a manner that non-target animals do not access to it.

☒ Restricted use rodenticides, aluminum or zinc phosphide, are used only after applicator has been trained for that product or only by a wildlife management contractor.

## VI. GENERAL PESTICIDE MANAGEMENT PRACTICES

*(all practices listed below must be selected)*

☒ Restricted use pesticides are only used when no other alternatives are practical.

☒ If pesticides are necessary, CAUTION-labeled pesticides are considered before more toxic alternatives.

☒ Only small quantities of pesticides are purchased eliminating the need for stockpiling.

☒ MSDSs are regularly updated to reflect new pesticides or label changes to pesticides in storage.

## Appendix A

**Ranking public areas for weeds (or other pest) management:**

Areas ranked as **HIGH** may include areas that the public sees and expects to be well-maintained. Examples are entrances to public buildings such as city hall and libraries.

*These areas are allowed to use pesticides based on established thresholds.*

Areas ranked as **MEDIUM** may include areas the public sees but does not expect a high level of maintenance. Examples are landscaped areas away from the entrance, recreational and picnic areas. These areas can tolerate a higher lever of weeds.

*These areas are allowed to use pesticides but the threshold is much higher and pesticides are used infrequently and only after consultation with IPM coordinator*.

Areas ranked as **LOW** may include areas the public rarely sees or does not expect a high level of maintenance. Examples are medians, landscaped areas in parking lots, wildlands. These areas can tolerate a higher lever of weeds.

*These areas are not allowed to use pesticides except in extreme cases and only after consultation with IPM coordinator.*