

## **SECTION 6 – POLLUTION PREVENTION / GOOD HOUSEKEEPING**

This minimum control measure is critical to the success of the stormwater management program as it helps to improve or protect receiving water quality by evaluating, altering and maintaining department facility operations.

This measure requires the department to examine and subsequently alter its own actions to help ensure a reduction in the amount and type of pollution that collects on roadways, parking lots, open spaces, storage and vehicle maintenance areas, and all department maintained facilities, and any other department owned or leased operation which ultimately discharge into local waterways. This measure will also address pollution that results from actions such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems.

### **6.1 REQUIREMENTS**

#### **Department Wide**

- 6.1.1 The development and implementation of an operation and maintenance program that includes a training component for department employees and contractors and has the ultimate goal of preventing or reducing pollutant runoff from department operations.
- 6.1.2 Utilize training materials that are available from the EPA, the State or other organizations. This program shall include employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance.
- 6.1.3 The development and implementation of a program to sweep all streets at least once a year as soon as possible after snowmelt.
- 6.1.4 The development and implementation of a program to evaluate and, if necessary, clean catch basins and other stormwater structures that accumulate sediment at least once a year including a provision to identify and prioritize those structures that may require cleaning more than once a year.
- 6.1.5 The development and implementation of a program to evaluate and, if necessary, prioritize for repairing, retrofitting or upgrading the conveyances, structures and outfalls of the MS4.

#### **Urbanized Areas**

- 6.1.6 The development and implementation of a program to evaluate and prioritize those streets that may require sweeping more than once a year.

Appropriate BMP's and measurable goals for this minimum control measure must be determined. These must include the persons(s) or position(s) responsible and implementation dates for each BMP.

## **6.2 BEST MANAGEMENT PRACTICES**

The following BMP's will be utilized in the implementation of the program to address the minimum control measure for Pollution Prevention / Good Housekeeping.

### **6.2.1 Operation and Maintenance Program**

Operation and maintenance is an integral component of all storm water management programs. This measure is intended to improve the efficiency of these programs through appropriate maintenance practices, internal procedures and scheduling. Proper development and implementation of these programs reduces the risk of water quality problems. There are several elements that are essential for the success of an operation and maintenance program including, training, record keeping, internal reporting, maintenance and preventative maintenance. The department will include the following elements in the development and implementation of their program.

#### Employee Training

The department will continue a program to provide education and training to its employees, regarding stormwater management and how it relates to the department's design, construction and maintenance operations. The training will focus on pollution prevention, best management practices and good housekeeping. Training may also include topics such as illicit discharge detection, water quality monitoring, inspection, record keeping, internal reporting, general maintenance, preventative maintenance and other topics relating to proper stormwater management and the requirements of the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems. Employee training will be discussed in greater detail in Section 6.2.2.

#### Record Keeping

The department's procedures for record keeping will incorporate the documentation of information and data, resulting from the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems procedures. Keeping records of spills, leaks, and other discharges provide useful information for ensuring proper maintenance of facilities and equipment, and improving best management practices to prevent future spills. Generally record keeping will be conducted on a district level for information pertaining to that district, and will be conducted at the department level (headquarters) for information relating to the permit document. Within the districts records may be kept at individual facilities, providing greater accessibility to personnel that would need immediate information. For example, training logs for the weekly tailgate meetings held by each district's

Office of Maintenance, are kept at the maintenance garages where the meetings are held. The following list of topics are essential for a successful records keeping program, some of which are required for General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems annual reports to CTDEP:

- Public Education
- Public Participation
- Illicit Discharges (including corrective measures)
- Water Quality Monitoring
- Employee Training
- Drainage Facility Inspections
- Street Sweeping
- Catch Basin Cleaning

The key to a successful records keeping program is to maintain records through regularly scheduled updates. The department will utilize the following techniques to document and report their data and results:

- Field notebooks
- Timed and dated photographs
- Drawings and maps
- Computer spreadsheets and database programs

Record keeping will be coordinated with internal reporting and other BMP's as it is integrated into the development of the department's stormwater pollution prevention plan.

The department will submit annual reports containing records required by the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems, to the CTDEP. These annual reports will include the information as described in the Section 7 "Additional Requirements" of this plan.

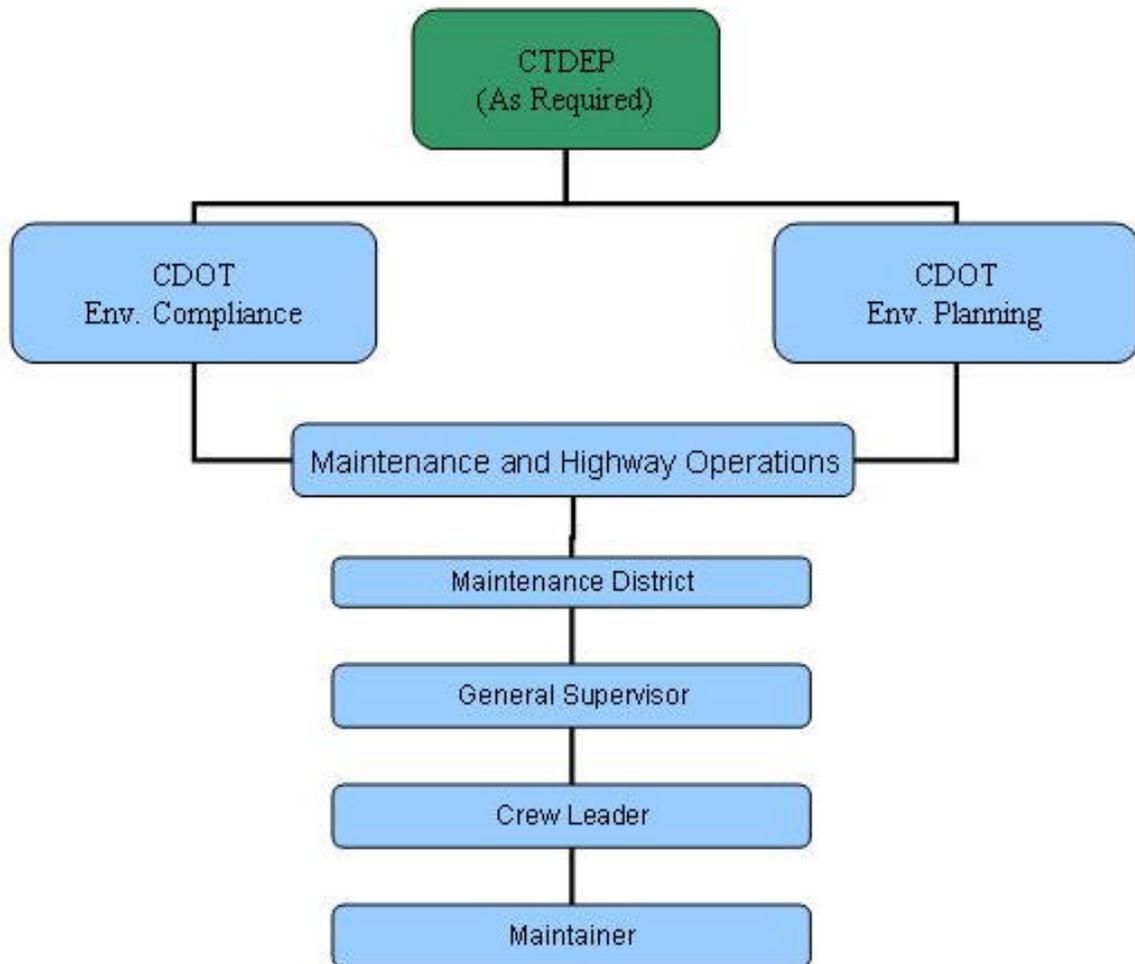
### Internal Reporting

Internal reporting provides a framework for "chain-of-command" reporting of stormwater management issues, and is an essential part of any good records keeping program. When properly employed, an internal reporting program can clearly define individual's roles and responsibilities for implementing and maintaining the stormwater pollution prevention program, thereby making it easier to prevent and contain potential stormwater contamination.

The department's internal reporting procedures will incorporate the additional effort needed with this stormwater management program, and the position(s) responsible for each stormwater management task. In general, the position(s) responsible for each BMP are listed in a table at the end of each section of this stormwater management plan. Typically stormwater management issues will follow similar internal routing

procedures for the offices of maintenance, construction and facilities. Stormwater problems identified in the field will be relayed from the maintainer (field personnel) to the crew leader, then the immediate supervisor, district manager and headquarters and then to the office of Environmental Planning and Environmental Compliance as required. If the issue requires special attention, the department will notify the CTDEP. The following figure depicts the typical interdepartmental reporting hierarchy that may be followed for issues relating to stormwater management.

**Figure 6.1 Typical Internal Reporting Flow Chart for Maintenance**



Maintenance Program

Maintenance involves pollution prevention techniques that reduce or eliminate pollutant loadings from existing roadways, parking lots and facility surfaces as part of the operation and maintenance program. Substantial amounts of sediment and pollutants are generated during daily roadway and facility use, and these pollutant

loadings can threaten local water quality by contributing heavy metals, hydrocarbons, sediment, and debris to stormwater runoff. Good cleaning practices including street sweeping and catch basin cleaning can help limit impacts to stormwater runoff. Sweeping of heavily traveled roadways to remove sediment and debris can reduce the amount of pollutants in runoff. Regular cleaning of runoff control structures such as catch basins can help improve the overall quality of stormwater discharges.

The departments maintenance plan for sweeping roadway, parking lot and facility surfaces and cleaning catch basins will meet the requirements of this stormwater management program.

Street sweeping and catch basin cleaning will be discussed in greater detail in Sections 6.2.3 & 6.2.4 respectively.

Preventative Maintenance Program

Preventative maintenance will be utilized by the department for eliminating potential problems associated with drainage systems, facilities and equipment. These measures are intended to reduce the frequency and quantity of pollutants that are discharged to waterbodies as a result of the failure and deterioration of ageing systems. Preventative measures utilized by the department include the following:

- Catch basin inspection during routine maintenance
- Drainage system inspection for new construction / reconstruction projects
- Drainage system inspection for V.I.P. projects
- Bridge Inspection - Biennial inspections for large drainage culverts as defined by the NBIS
- Railroad Inspection - Inspections of drainage culverts as defined by the NBIS

Preventative maintenance will be discussed in greater detail in Section 6.2.5.

The measurable goals, target dates and responsible position associated with this BMP are detailed in the following table.

**Table 6.1 Operation and Maintenance BMP  
Measurable Goals and Implementation Dates**

Target Date	Activity	Position Responsible
Year 1	Implement Operation and Maintenance requirements	Bureau Chief Arthur W. Gruhn
Years 2-5	Continue Operation and Maintenance requirements	Bureau Chief Arthur W. Gruhn

## **6.2.2 Employee Training Program**

The department's existing continuing education employee training program will add a stormwater management component, discussing potential sources of contaminants, and best management practices. This program will provide personnel with an understanding of the department's stormwater management plan, including BMP's, processes and materials with which they are working, safety hazards, practices for preventing discharges, and procedures for responding quickly and properly to toxic and hazardous material incidents. They will also be informed of the proper procedures for reporting and documenting any potential pollutants discovered.

The program will consist of scheduled training for its design, construction, maintenance, and facility personnel, including both office and field positions. Topics will include sedimentation and erosion control, permanent BMP's, and permit requirements. Training will also be implemented for employees working for non-department agencies/businesses operating and maintaining facilities located on property owned by the department. A schedule describing the locations and dates for these training sessions will be provided to them. The following sub-sections summarize the departments annually scheduled training per office:

### **General**

Training seminars will be held to inform department employees of the requirements associated with the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems. One seminar will be held for each of the Offices of Design, Construction and Maintenance, and a second seminar for the Division of Property and Facility Services. Employees will be advised of modifications to current practices and the incorporation of new procedures along with their anticipated implementation dates and the position(s) responsible. The seminars will be held in the first year of the program.

### **Office of Construction**

The Office of Construction will continue to annually conduct a "Project Engineer School" to instruct the department's front line construction supervisors on policies and procedures, including stormwater management topics and General Permit requirements. The training sessions will continue in the first year of the program and proceed annually throughout the program.

### **Office of Maintenance**

The Office of Maintenance will provide training for General Supervisors, Crew Leaders, Drainage Crews, Drainage Engineers and Managers concerning the latest information and techniques pertaining to stormwater

management, BMP's, permit requirements and water quality issues. The training sessions for this office will be scheduled as follows:

- Annually
- Maintenance Directors' Meetings
- Bi-Weekly Managers' Meetings
- Tailgate Meetings

The training sessions will continue in the first year of the program and proceed annually throughout the program.

### **Office of Design**

The Office of Design will continue to conduct Senior's Meetings at least annually, or as required throughout the year. These meetings are intended to inform and remind personnel from the design unit, of the current design standards. These meetings will incorporate the General Permit requirements. Training will continue in the first year of the program and proceed annually throughout the program. Subsequent meetings will be conducted as refresher courses.

### **Division of Property and Facilities Services**

The Division of Property and Facility Services will continue to conduct an annual hazardous materials refresher. This training session will include the handling, storage and containment of hazardous materials such as asbestos. Stormwater management topics including, cleaning product restrictions, vehicle washing, and pest control will also be discussed. Training will continue in the first year of the program and proceed annually throughout the program.

### **Public Transportation**

Public Transportation will continue to conduct an annual hazardous materials refresher. This training session will include the handling, storage and containment of hazardous materials such as asbestos. Stormwater management topics including, cleaning product restrictions, vehicle washing, and pest control will also be discussed. Training will continue in the first year of the program and proceed annually throughout the program.

The employee training program is intended to train new employees and remind current employees of operations and procedures.

The measurable goals, target dates and responsible position associated with this BMP are detailed in the following table.

**Table 6.2 Employee Training Program BMP  
Measurable Goals and Implementation Dates**

<b>Target Date</b>	<b>Activity</b>	<b>Position Responsible</b>
Year 1	Develop Employee Training Curriculum	Bureau Chief Arthur W. Gruhn
Years 2	Implement Employee Training requirements	Bureau Chief Arthur W. Gruhn
Years 3-5	Continue Employee Training requirements	Bureau Chief Arthur W. Gruhn

### **6.2.3 Street Sweeping Program**

Street sweeping is practiced in most urban areas, to remove sediment buildup and large debris from curb gutters. Street sweeping is also used during the spring snowmelt to reduce pollutant loads from road salt and to reduce sand export to receiving waters.

The department will conduct street sweeping on a scheduled basis to minimize pollutant export to state and local waterbodies. These cleaning practices will remove sediment, large debris from curb gutters and other pollutants, from roadways, parking lots and facility surfaces, which are a potential source of pollution impacting state and local waterbodies. Street sweeping frequency will range from one time per year, to multiple times per year for areas with heavier concentrations of sediment and debris. The department will utilize the following criteria for street sweeping frequency:

#### **Department Wide**

The department will sweep all roadways, parking lots and facilities at least once every year. The sweeping will be performed as soon as possible after snowmelt.

#### **Urbanized Areas**

The department will perform multiple sweeps per year for priority areas, where sediment/debris has been known to accumulate in higher quantities. These priority areas will be based upon the department's knowledge and

experience of the degree of sediment accumulation during the year. Geographical location, climate, traffic patterns and surface geometry may also be factors in determining priority areas. The first sweep will be performed as soon as possible after snowmelt.

The following locations generally receive multiple sweeps per year:

- Interstates
- Interchange Zones
- Urbanized Areas within environmentally sensitive areas such as public watershed areas

Facilities operated and maintained by other leasees, located on department property, shall be subject to the requirements of this section if not already covered under the General Permit for the Discharge of Stormwater Associated with Industrial Activity.

*Photograph of CTDOT street sweeping equipment.*



The measurable goals, target dates and responsible position associated with this BMP are detailed in the following table.

**Table 6.4 Street Sweeping Program BMP  
Measurable Goals and Implementation Dates**

Target Date	Activity	Position Responsible
Year 1	Implement Street Sweeping requirements	Bureau Chief Arthur W. Gruhn
Years 2-5	Continue Street Sweeping requirements	Bureau Chief Arthur W. Gruhn

#### **6.2.4 Catch Basin Maintenance Program**

Catch basins fitted with sumps are intended to retain coarse sediment by trapping this material in a chamber or low area below the invert of the outlet pipe. By trapping sediment, the catch basin prevents solids from clogging the storm sewer and being washed into receiving waters. Catch basins must be cleaned to maintain their ability to trap sediment, and consequently their ability to prevent flooding. The removal of sediment, decaying debris and highly polluted water from catch basins has both aesthetic and water quality benefits. These include reducing foul odors, reducing suspended solids, and reducing the load of oxygen-demanding substances that reach receiving waters.

The department will institute a catch basin maintenance program that will consist of inspecting and if necessary cleaning catch basins on a regularly scheduled basis. The department will use the following criteria for inspecting and cleaning their catch basins:

- The department will attempt to annually clean at least one third (1/3) of their catch basins that have reached at least half of the capacity of the sump. These catch basins may be selected based upon routine scheduled field inspections and also inspections resulting from other program requirements. Priority areas will be established to maximize the effectiveness of the department's available resources for the routine inspections. These priority areas will be developed using the department's knowledge of problem areas, where sediment/debris has been known to accumulate in higher quantities. Geographical location, climate, traffic patterns and vertical sag locations may also be factors in determining priority areas.
- The department will conduct routine inspections by selecting a representative number of catch basins for each stretch of roadway, parking lot and facility, once every year. If a catch basin sump is found to be more than one half (1/2) full, the catch basin will be cleaned. Additional catch basins will be inspected, and cleaned if necessary, for that given stretch to ensure that the cleaning is completed to the maximum extent practicable.

Facilities operated and maintained by other leasees, located on department property, shall be subject to the requirements of this section if not already covered under the General Permit for the Discharge of Stormwater Associated with Industrial Activity.

*Photographs of typical catch basin cleaning equipment.*



The measurable goals, target dates and responsible position associated with this BMP are detailed in the following table.

**Table 6.5 Catch Basin Maintenance Program BMP Measurable Goals and Implementation Dates**

Target Date	Activity	Position Responsible
Year 1	Implement Catch Basin Maintenance requirements	Bureau Chief Arthur W. Gruhn
Years 2-5	Continue Catch Basin Maintenance requirements	Bureau Chief Arthur W. Gruhn

### 6.2.5 Preventative Maintenance Program

Preventative maintenance takes a proactive approach to stormwater management and seeks to prevent problems before they occur. This measure involves the inspection, evaluation and replacement or repair of equipment and operational systems. Inspection can identify cracks, leaks, and other conditions that could cause breakdowns or failures of stormwater structures and equipment, which in turn could result in discharges of pollutants to surface waters either by direct overland flow or through storm drainage systems.

The department's preventative maintenance program requires the participation of several internal offices including Aviation and Ports, Design, Construction, Maintenance, Facilities, Public Transportation, and Bridge Maintenance. In general,

the preventative maintenance of drainage systems is accomplished through visual inspections conducted as a result of new construction projects, routine maintenance such as catch basin cleaning, or inspections of larger scale proportions such as rail inspections.

For new construction / reconstruction projects, the department requires that a condition survey be conducted for the existing drainage facilities that are to remain in place within the project limits to ensure their condition is sound and replacement is not warranted. The guidelines for this survey are summarized below, and are provided in greater detail in the department's "Drainage Manual", Section 3.6.3 and appendices 4.A & B.

- Culvert inspection shall be conducted for existing department culverts to remain in use, as part of a project. Culvert inspection shall follow the guidelines as outlined in the department's "Drainage Manual 2000", appendix 4.A.
- Existing department drainage facilities including pipes, catch basins, manholes, junction chambers, sedimentation/gross particle separators, cross culverts and ditches/swales, which are scheduled to remain in use as part of a project should be inspected to verify their general condition early in the design process. A condition survey must be conducted for drainage systems which have been in service for 10 years or more. Available previous condition reports should be reviewed prior to inspection to identify critical areas that may require special attention. The drainage facility inspection shall follow the guidelines as outlined in the department's "Drainage Manual", appendix 4.B.
- The designer should also consult with the Drainage Engineer of the appropriate Departmental District for past problems, site conditions and proposed future improvements.

In addition to the requirements of the "Drainage Manual", several of the department's offices will provide additional inspection measures and procedures for the preventative maintenance of existing department storm sewer systems. The following is a list of the additional measures:

#### Office of Maintenance

Catch basin inspections will be conducted during the regularly scheduled cleaning, as described in Section 6.2.4

### Rails

Drainage structures over 4' in height or width beneath rails will be inspected every two years.

### Bridge Maintenance

The department's Bridge Safety and Evaluation section will conduct biennial inspections on drainage structures greater than 20' in width of structure opening, as part of their bridge inspection program defined by the National Bridge Inspection Standards (NBIS). The state is required to inspect and evaluate local bridges and structures, and record structure inventory and appraisal information. The Federal Highway Administration (FHWA), U.S. Department of Transportation, is assigned the responsibility for collecting and storing the data reported by the state, and for administering the National Bridge Inventory. For detailed information regarding the inspection of these structures, refer to the department's Bridge Inspection Manual.

For drainage structures less than 20' in width of structure opening, the maintenance unit will inspect these structures biennially as defined by the NBIS.

### V.I.P. Projects

The project supervisor and district drainage engineer inspect the storm drainage systems prior to construction. Maintenance reports and public comments will also be reviewed and implemented as applicable.

Preventative maintenance is also required by public and private agencies disturbing or effecting department storm sewer systems through new development or modifications to adjacent existing developments. These agencies are also required to conduct an "Existing Drainage Facility Conditions Survey" for the portion of the department's drainage system(s) that they will be tying into or affecting as a result of additional discharges. The guidelines for this survey are detailed in the department's "Drainage Manual 2000", appendices 4.A&B.

The measurable goals, target dates and responsible position associated with this BMP are detailed in the following table.

**Table 6.6 Preventative Maintenance Program BMP  
Measurable Goals and Implementation Dates**

Target Date	Activity	Position Responsible
Year 1	Implement Preventative Maintenance requirements	Bureau Chief Arthur W. Gruhn
Years 2-5	Continue Preventative Maintenance requirements	Bureau Chief Arthur W. Gruhn