4Y BMPs for Shopping Centers

Shopping Centers

Focus of Document

This guidance presents BMPs to address the discharge of pollutants to the storm drain system from shopping centers. Shopping centers include:

- ✓ Single Business (i.e., convenience stores, automotive parts stores)
- ✓ Multi-Business Centers

Sources of Pollutants

There are several activities that can potentially cause the discharge of pollutants to the storm drain system from shopping centers. These activities of concern include:

- ✓ Facility maintenance and management (sidewalk, parking areas, and building cleaning, storage, spills, outdoor waste receptacle areas, landscaping and grounds maintenance)
- ✓ Parking lots

Pollutants of Concern

Some of the pollutants of concern that may originate from shopping centers are:

- ✓ Metals (copper, zinc, chromium, nickel, and lead) (from parking lots and paved surfaces)
- ✓ Petroleum hydrocarbons (from parking lots and paved surfaces)
- ✓ Organic decaying material (from landscaped areas)
- ✓ Fertilizers, pesticides, and herbicides (from landscaped areas)
- ✓ Sediment (from landscaped areas)

Best Management Practices

Best management practices are common sense, good housekeeping measures that can be implemented with reasonable effort and cost to the property owner or management. BMPs listed below apply mainly to the operations of such facilities. Structural controls or physical improvements have generally not been required for retrofit of existing facilities although opportunities for structural controls should be utilized when new stores/ shopping centers are constructed or exteriors of existing shopping centers are remod-

eled.

To assist the Muncipality in selecting BMPs for implementation by the shopping center operator/owner, BMPs that are considered high priority are marked "• • •"; medium priority are marked "• •" and low priority are marked "•". Rationale used in this prioritization is presented at the end of the appendix.

Parking Lots

• • • Littering in parking lots produces parking lot pollution. Signs prohibiting littering, as well as conveniently located trash cans, can help to reduce this problem.

• • • Spot clean by applying absorbent materials to spilled or leaded automotive or similar fluids (i.e., gasoline, oil, antifreeze). Absorbents can be used in any parking lot where leaks are observed, on wet areas or in frequently used stalls.

• • • Saturated absorbent material should be collected in approved disposal containers, and disposed of properly. In some jurisdictions, oil-soaked absorbent is considered a hazardous waste. Check with your local administering agency (usually Department of Health).

• • • Inspect and clean if necessary, storm drain inlets and catch basins within the property boundary before October 1 each year. Inlet cleaning is usually conducted using one of two methods, manual cleaning or by vacuum truck.

- Manual cleaning is the removal of debris and sediment using shovels, buckets, etc. Manual cleaning is recommended for a few (5 or less) small sized inlets (approximately 3' x 3' x 3').

- For sites with greater than 5 small inlets or large sized inlets, the vacuum truck method should be used. The vacuum truck method includes manual removal of debris (trash, branches, etc.) followed by removal of sediment and/or water with a vacuum truck. A vacuum truck company in your area can be found in the Yellow Pages under Sewer Contractors or Pumping Contractors.

• Signs should be posted prohibiting oil changing and other automotive repairs that could lead to a spill of parking lot pollutants.

• Sediment (less the debris) removed from the catchbasin or inlet cleaning should be analyzed for disposal. Pollutants of concern are lead; oil and grease; and hydrocarbons. In general, based on the analysis of sediments from inlet cleaning, it appears that in older cities all these pollutants have been found at elevated levels whereas, in the newer cities, the main pollutants in inlet sediments are hydrocarbons. If concentrations are elevated, the sediment should be disposed of as hazardous waste.

Landscaping and Grounds Maintenance

- • • Follow federal, state, and local laws governing the use, storage, and disposal of pesticides/herbicides.

- • • Use pesticides only if there is an actual pest problem (not on a regular preventative schedule).

- • • Avoid use of copper-based pesticides if possible. Use the least toxic pesticide for the job if alternatives are available.

  California Department of Pesticide Regulation is conducting a review of pesticidal and non-pesticidal alternatives to diazinon and chlorpyrifos for urban uses (see DPR site on WorldWide Web, www.cdpr.ca.gov).

- • • Do not use pesticides if rain is expected.

- • • Do not mix or prepare pesticides for application near storm drains, and use the minimum amount needed for the job.

- • Use up pesticides. Rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.

- • Collect lawn and garden clippings, pruning waste, and tree trimmings. Chip if necessary, and compost.

- • In muncipalities with yard waste recycling, leave clippings and pruning waste for pickup in approved bags or containers. Or, take to a landfill that composts yard waste.

- • • Do not place clippings, pruning waste, or tree trimmings in gutters. Do not blow or rake leaves, etc. into the street.

- • • Protect stockpiles and landscaping materials from wind and rain by storing them under tarps or secured plastic sheeting.

- • • Store pesticides, fertilizers, and other chemicals indoors or in a shed or storage cabinet.

- • • Schedule grading and excavation projects for dry weather.

Storage of Hazardous Materials

- • • Store hazardous materials and wastes where they are protected from rain and in a way that prevents spills from reaching the sanitary sewer or storm drain.
- • • Keep lids on waste barrels and containers, and store them indoors or under cover to reduce exposure to rain.
- • All hazardous wastes must be labeled according to hazardous waste regulations. Consult the Fire Department or your local hazardous waste agency (typically County Environmental Health) for details.
- • Keep wastes separate to increase your waste recycling/ disposal options and to reduce your costs.
- • Never mix waste oil with fuel, antifreeze, or chlorinated solvents. Consult your hazardous waste hauler for details.
- • Double-contain large quantities of hazardous fluids to prevent accidental discharges to the sanitary sewer and storm drain. Consult the Fire Department for details.
- • • Keep storage areas clean and dry. Conduct regular inspections so that leaks and spills are detected as soon as possible.

Outdoor Waste Receptacle Areas

- Spot clean leaks and drips routinely to prevent runoff of spillage.
- Minimize the possibility of pollution from outside waste receptacles by doing at least one of the following:
  - use only watertight waste receptacle(s) and keep the lid(s) closed, or
  - grade and pave the waste receptacle area to prevent run-on of storm water, and install a low containment berm around the waste receptacle area, or
  - install a roof over the waste receptacle area.

Fountain/Cooling Equipment Maintenance

- • • Never discharge fountain water to a street or storm drain.
- • When emptying a fountain, let chlorine dissipate for a few days, and then recycle/reuse water by draining it gradually onto a landscaped area, or
- • • Contact the local sewage treatment authority. You may be able to discharge to the sanitary sewer.

- Do not use copper-based algaecides unless absolutely necessary. Control algae with chlorine or other alternatives to copper-based pool chemicals. Copper is a powerful herbicide. Sewage treatment technology cannot remove all of the metals that enter a treatment plant.

- Make sure all discharges from cooling towers or boiler blowdown go to the sanitary sewer and not to the street, storm drain or creek. It is okay to discharge condensate from cooling equipment into the storm drain.

- Make sure your maintenance contractor is knowledgeable and skilled at minimizing corrosion with proper chemical treatment.

Shopping Center Maintenance

Table 1 lists BMPs that should be used during maintenance of shopping center structures and surfaces, including sidewalks.

Spill Control

- Maintain and keep current, as required by other regulations, a spill response plan and ensure that employees are trained on the elements of the plan.

- Contain and cover all solid and liquid wastes – especially during transfer.

- Purchase and maintain absorbent materials in accordance with local regulations and procedures for containment and cleanup of different spills, and make sure they are easily accessible anywhere in the shop. Saturated absorbents generally must be disposed of as hazardous waste.

- "Spot clean" leaks and drips routinely. Leaks are not cleaned up until the absorbent is picked up and disposed of properly.

- Check floor drains to ensure that they are not connected to or discharge to the storm drain system.

Education and Training

- Train all maintenance employees upon hiring – and annually thereafter - on personal safety, chemical management, and proper methods for handling and disposing of waste. Make sure that employees understand storm water discharge prohibitions, wastewater discharge requirements, and these best management practices. Use a training log or similar method to document training.

- Post instructional/informational signs around your place of business for customers and employees. Put signs above all sinks prohibiting discharges of vehicle fluids and wastes. Put signs on faucets (hose bibbs) reminding employees and customers to conserve water and not to use water to clean up spills.

Table 1. Cleaning of Surfaces and Structures

Type of Surface	Characteristics	Cleaning Technique	Discharge to Storm Drain	Disposal Alternatives
Sidewalks, Plazas	No oily deposits	Sweep, collect and dispose of debris and trash; then wash.	Okay to discharge to storm drain.	
Sidewalks, Plazas, Driveways	Light oily deposits	Sweep, collect and dispose of debris and trash. Clean oily spots with absorbent, place oil-absorbent boom around storm drain, or a screen or filter fabric over inlet.	Okay to discharge to storm drain, provided an oil-absorbent boom or filter fabric is used. No oily sheen should be visible in the water draining into the storm drain.	
Parking lots and driveways	Heavy oily deposits	Sweep, collect and dispose of debris and trash. Clean oily spots with absorbent materials. Use a screen or filter fabric over inlet, then wash surfaces.	Seal storm drains. Can not be discharged to the storm drain.	Vacuum/pump wash water to a tank or discharge to sanitary sewer.
Building exteriors and walls	Glass, steel, or painted surfaces (post1978/no lead in paint	Washing without soap.	Okay to discharge to storm drain provided the drain is sealed first with a fabric filter to capture dirt, paint particles and flakes or oil absorbent boom.	Can alternately be sent to landscape areas.
		Washing with soap.	Can not be discharged to storm drain.	Direct washwater to sanitary sewer or vacuum/pump water to a tank.
Building exteriors	Painted with lead-based or mercury-additive paint	Washing with or without soap.	Seal storm drains. Cannot be dischsrged to storm drain.	Vacuum/pump to a tank. Check with POTW for discharge to sanitary sewer.
Graffiti Removal	Graffiti	Using wet sand blasting. Minimize use of water; sweep debris and sand.	Can be discharged to storm drain if washwater is filtered through a boom.	Can alternately be directed to landscaped areas.
		Using high pressure washing and cleaning compounds.	Seal storm drains. Cannot be dischsrged to storm drain.	Vacuum/pump washwater to sanitary sewer. Check with POTW about pre-treatment.
Masonary	Mineral Deposits	Acid Washing.	Seal storm drains. Cannot be discharged to storm drain.	Rinse treated area with alkaline soap and direct washwater to a landscaped or dirt areas. Alternately, washwater may be collected and neutralized to a pH between 6 and 10, then discharged to landscaping or pumped to sanitary sewer.

Source: Santa Clara Valley Urban Runoff Pollution Prevention Program

• • • Label storm drain inlets within the property boundary, by paint/stencil (or equivalent), to indicate whether they flow to an on-site treatment device, directly to the sanitary sewer, or to a storm drain. Labels are not necessary for plumbing fixtures directly connected to the sanitary sewer.

Rationale for Assigning High Priority to Selected BMPS

BMPs that are assigned high priority (• • •) are mostly preventative practices that are inexpensive to implement versus collection, treatment and disposal of water that has picked up pollutants. The rationale used in this report is listed below:

1) Rationale: Prevention practices are cost effective, already widely used and relatively inexpensive to implement vs. collection, treatment and disposal of wastewater.

2) Rationale: Pollutants from incidental spills and leaks and trash will collect in storm drain facilities during dry weather period and will be a significant source of pollutants during first significant storm. Cleaning will remove this potential source.

3) Rationale: The public in general do not realize that storm drains flow directly through to the ocean without treatment. Labeling of storm drains is an effective method of public education.

4) Rationale: HAZMAT and HAZWASTE are toxic to aquatic life and waterfowl in streams and ocean and prevention of spills is more cost effective than cleanup.

5) Rationale: Spills are cheaper to clean up when quickly contained. A spill response plan will prepare employees to use equipment and material available for cleanup, and to ensure their safety while doing the cleanup.

6) Rationale: Improperly plumbed floor drains can become a direct point of discharge of spills that occur indoor and outdoors to streams and other waterways.

7) Rationale: Cleaning products, disinfectants, and pesticides are toxic to aquatic organisms and wildlife and must be prevented from entering the storm drainage system.

Most of the information on shopping center BMPs was derived from the following sources:

Santa Clara Valley Urban Runoff Pollution Prevention Program

Tahoe Regional Planning Agency Handbook of Best Management Practices

Sources of Additional Information