



Chapter 7

Storing and Disposing of Waste Materials

Types of waste materials

Maintenance practices generate waste materials, such as catchbasin sludges and street sweeping debris. This chapter of the Toolbox reviews the various types of wastes produced and discusses recycling options to reduce costs and help the environment. Also described are ways to protect stormwater quality during waste dewatering process.

Virtually all maintenance practices generate waste by-products. Typical wastes include:

- **Concrete, asphalt, and slurry** from road repair and resurfacing activities and right-of-way utility work.
- **Road fill and base material** and gravels from road base and shoulder repair activities.
- **Sludges, sediment, and debris** from streets, parking lots, catch basins, and storm drain lines which are picked up with mechanical sweepers, vacuum/air sweepers, vacuum equipment, or by hand.
- **Dredged sludge materials** from channel, stream and detention pond maintenance.
- **Dropped leaves** that are collected seasonally.
- **Other vegetation** such as grass clippings, woody debris and dead plants and shrubs, that are collected by crews maintaining streamside areas, roadsides, medians, parks and other vegetated public areas.
- **Deicing sands and gravels** from road and bridge snow and ice control operations.

Recycling

Currently there are several options for recycling some of the waste materials described above. Leaf and other vegetative debris can be made into compost for use at public park facilities, or sold to suppliers in the local area (see Case Study later in this chapter). Sand and gravels can be collected and washed for reuse as deicing materials, or used “as-is” for trench backfill and for road base and shoulder material. ODOT and Multnomah County have initiated a pilot study (see Research Notes later in this chapter) to test alternatives for recycling of waste material from street and storm sewer cleaning operations. It is anticipated that the study results will apply to sediments dredged from stream channels and detention ponds as well.

Dewatering practices

Dewatering is commonly used by most agencies to reduce the volume and weight of debris to be recycled or landfilled. Dewatering facilities should be contained (e.g., concrete pad, berms and roof if possible) and should be plumbed to the sanitary sewer system, not to the storm sewer or nearby streams. The survey conducted for this toolbox did not locate any agencies that recycle or reuse decant water at this time, but a study under way by ODOT and Multnomah County may address this issue (see Research Notes later in this chapter). At this time, agencies with dewatering facilities are landfilling the dried materials. Sampling is conducted to determine the type of landfill that will accept the waste material. The ODOT/Multnomah County research study discussed later in this chapter will result in recommended alternatives for reuse of dried waste materials from dewatering operations. To reduce costs, smaller agencies should consider partnering with the local transportation authority and/or larger municipalities in the region to share a dewatering facility (see Lane County Case Study later in this chapter).

Case Study -



Lane County Agencies Partner In Operating Local Decant Facility

The process of removing the solid and liquid wastes accumulated in the stormwater system generates large volumes of material requiring disposal. These wastes are primarily soil, rock and both fine and coarse sediments. They also contain residues in varying amounts of petroleum hydrocarbons, heavy metals and other contaminants, which, if disposed of improperly, present a potential for pollution of surface and ground waters.

Available methods for the proper disposal of stormwater system waste were previously limited for public works agencies and private industrial cleaning contractors in the Eugene-Springfield area. County guidelines for solid waste disposal and handling designated catch basin waste/drain sludge as “special waste”. This meant the vacuum truck waste would be accepted at the County landfill with a permit from Lane County Waste Management. The waste had to meet the permit criteria for moisture content and waste constituency. In order to meet these criteria, a stormwater waste management facility was developed by the Cities of Eugene and Springfield and Lane County as a viable means of addressing the waste disposal issue on a regional basis.

The facility, located at the Lane County Solid Waste complex in Glenwood, was completed in September 1997. It consists of an open, roofed structure over a 5,000 square foot concrete dumping pad, a solids stockpiling pad, a central drainage/settling trench, and two sedimentation vaults. A vacuum truck backs up to the pad and dumps the watery waste on it. The solid material remains on the pad as the watery sludge runs to the drainage trench and into the sedimentation vaults. In the sedimentation

vaults, the suspended solids settle out and the floatable residues are contained while the liquids flow to a sanitary sewer. The dewatered solids remaining on the pad are permitted to dry sufficiently to pass a paint filter test, and are then removed to the landfill.

The facility is working reasonably well, with a few minor structural and operational refinements being implemented. Cost effective ways to recycle the solids are being examined.

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Research Notes -



Oregon Department of Transportation and Multnomah County Study Disposal and Recycling Options for Highway Generated Waste Materials

Oregon's State Planning and Research Program has accepted a research project proposed by Multnomah County and Oregon Department of Transportation (ODOT) to study the disposal and reuse of waste materials generated through highway maintenance activities. The State Research Program is administering a three-year study investigating disposal and reuse options for these materials. The project is primarily focused on street sweepings and materials generated from cleaning highway catch basins. The study has three phases:

Phase 1. Compile and analyze information and data from various sources around the country on current disposal practices and issues. Results available Spring/Summer 1998.

Phase 2. Conduct a pilot study of various alternative recycling methods.

Phase 3. Develop a waste management plan that can be distributed to other interested agencies by the Year 2000.

Preliminary research shows that there may be various uses and treatment options for this waste. Recycle options that are currently being considered include:

- amendment to compost,
- "as is" for soil amendment in right-of-way areas with no public exposure,
- trench backfill, or
- fill for low-use paved surfaces (e.g., overflow parking lots).

Research about stockpiling and reuse of these waste materials is ongoing. In general, the hydrocarbon pollutants typically found in street waste materials tend to break down fairly rapidly. The University of Washington has done studies showing that aeration of street waste stockpiles does not seem to speed up hydrocarbon breakdown any faster than natural processes.

Microorganisms have been used with some success to speed up hydrocarbon breakdown. More importantly, microorganisms may be effective in breaking down persistent carcinogenic polynuclear aromatic hydrocarbons (PAHs). PAHs are a problem contaminant sometimes found in highway generated wastes.

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