

Description

Improperly disposed household wastes are a source of stormwater pollution. These wastes can include household chemicals, pet waste, yard waste, litter, automotive maintenance waste, and others. These materials can be transported in stormwater when the materials are dumped directly into the storm drains or when they are spilled on impervious surfaces and washed into the storm sewer system. Household wastes can contribute solids, nutrients, oxygen demanding substances, toxic substances, and bacteria to receiving waters. Improper disposal of household wastes on the ground surface can also lead to groundwater contamination.

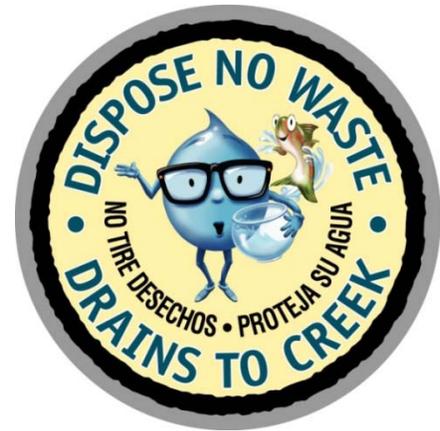
Proper disposal of household waste is dependent on behavioral change, which can be encouraged through public education programs and local ordinances that prohibit improper disposal of household waste. Additionally, local governments can provide appropriate facilities for proper disposal of waste.

This Fact Sheet focuses primarily on household waste. See the Good Housekeeping Fact Sheet for additional information on waste management at commercial and industrial sites.

Appropriate Uses

Educational efforts related to proper disposal of household waste can be targeted to homeowners and businesses through municipal programs, civic groups, and others. Local governments should consider measures needed in the following general categories:

- **Household/Commercial Waste:** Household waste includes materials discarded on the land surface or into the stormwater system from residential and commercial areas. Wastes from commercial businesses are generated by stores, restaurants, hotels, offices, and other non-manufacturing activities. Household waste disposal objectives include containing and properly disposing of refuse (garbage), reducing litter, and encouraging proper household toxic waste disposal through public education and access to appropriate disposal facilities.
- **Litter:** Most litter is biodegradable and can create an oxygen demand in water as it decomposes. Examples of litter are paper products, used diapers, etc. Research by Keep America Beautiful, Inc. (1990) has shown that people litter where litter has already accumulated. Also according to Keep America Beautiful, Inc. (1987), pedestrians and motorists account for less than 25 percent of litter, with the other sources being household waste, commercial and industrial waste, haulage vehicles, loading docks, and construction sites. Reduction of litter through proper disposal can reduce its accumulation on the urban landscape and its eventual entry into the stormwater system.
- **Pet Waste:** Pet waste deposited on the ground can be transported by the storm drainage system to receiving waters or by overland flow into waterways. Fecal matter potentially contains pathogenic viruses and bacteria; it also creates an oxygen demand in water. The majority of improperly disposed pet waste occurs in public areas, such as streets and parks. Pet waste ordinances are common in municipalities; however, these are difficult to enforce, especially with limited municipal resources. Education can help bring this problem to the public's attention, and can thereby reduce deposition of pet waste on urban surfaces.



Photograph DHW-1. Placing storm drain markers (or stenciling) at storm sewer inlets is a public education tool that can be used to educate citizens and discourage improper disposal of household waste in storm drains. Photo courtesy of Nonpoint Source Colorado.

- **Yard Waste:** Yard waste includes limbs, leaves and grass clippings that can contribute nutrients, lawn chemicals, and oxygen demand to receiving waters when washed into storm sewers and waterways. Public education efforts on the benefits of composting and on proper disposal of yard waste can help to reduce the volume of yard waste entering the stormwater system and receiving waters. Most yard waste can be reused following composting, with the exception of weeds and diseased plant materials.
- **Used Oil and Automotive Fluids:** Used oil and automotive fluids including antifreeze, brake fluid, transmission fluid, grease, other lubricants, and petroleum-based cleaning solvents are wastes generated during automobile maintenance by residential households and commercial businesses. These can enter the storm drainage system if poured directly into storm inlets or from residual on concrete or asphalt exposed to precipitation. Improper disposal of used oil and automotive fluids causes receiving waters to become contaminated with hydrocarbons and residual metals that can be toxic to stream organisms. Used oil and other petroleum products can be recycled and are accepted by many auto parts stores and repair shops. Public education on the location of these centers, the benefits of recycling, prevention of fluid leaks, and the importance of proper disposal for improving stormwater quality can reduce the amounts of oil and used automotive fluids reaching receiving waters.
- **Toxic Wastes:** Toxic wastes are generated in small quantities by residential households and commercial businesses. Examples include paint, solvents, putties, cleaners, waxes, polishes, oil products, aerosols, acids, caustics, pesticides, herbicides, and certain medicines or cosmetics. These products and their containers should always be disposed of in accordance with the product label or recycled, if appropriate. When such toxic substances are improperly disposed of by dumping on impervious surfaces or into street gutters or storm inlets, stormwater can transport these materials to receiving waters.

Composting

Composting is a natural method for recycling organics such as yard trimmings and food scraps, which comprise nearly a quarter of municipal solids waste generated (Keep America Beautiful 2010). Nearly half of all U.S. states now ban yard waste from landfills because it represents such a large volume that can be productively composted. Composted yard waste used as mulch or soil amendment can provide landscape water conservation benefits, reduce the burden on landfills and is protective of water quality.

Municipal Recycling Programs

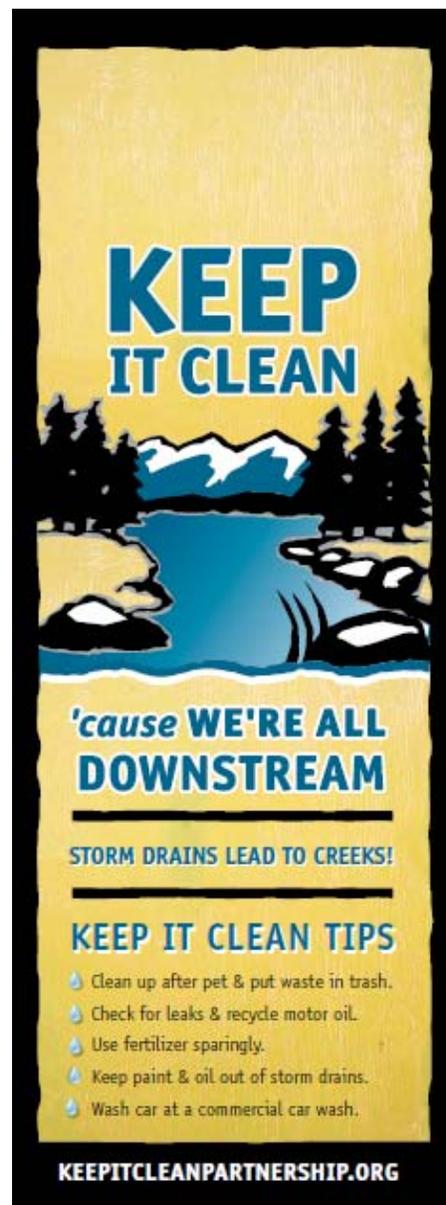
Many communities throughout the country have implemented municipal recycling programs, rather than relying on citizens to research and seek out recycling opportunities on their own. Curbside recycling programs and municipal education campaigns can improve the success of recycling programs. For more information on implementing a municipal recycling program, visit a variety of U.S. Environmental Protection Agency websites such as: <http://www.epa.gov/epawaste/conserv/rrr/index.htm> and <http://www.epa.gov/region4/waste/rcra/mgtoolkit/index.html> or review well developed local programs such as Denver Recycles.

Practice Guidelines

To reduce improper disposal of household waste, implement public education efforts regarding how improper disposal of wastes can degrade the quality of streams, rivers, lakes, and wetlands. Local governments have many public education options that can be tailored to fit local needs and budget constraints the best. Within local governments, opportunities for coordinated efforts among multiple departments may be beneficial. For example, properly composting of yard waste can provide a stormwater benefit when these materials are kept out of the gutter, as well as a water conservation benefit when the materials are reused as mulch and a solid waste management benefit when these materials are kept out of landfills. Similarly, public works and parks and recreation departments both benefit from efforts related to pet waste disposal signage as well as disposal facilities in parks.

Representative public education strategies may include:

- Development, publication, and distribution of brochures.
- Utility bill inserts, flyers, and handbills.
- Newspaper articles and/or advertisements.
- Development and distribution of educational videos.
- Public workshops, field demonstrations, or presentations to targeted civic organizations, youth organizations, etc.
- Developing and offering school curricula or assembly programs.
- Creating posters, signs, and graphics for installation at parks, school hallways, trails, etc.
- Storm drain stenciling to discourage dumping of materials into storm drains.
- Signs, including graphics, on dumpsters and other locations encouraging proper waste disposal.
- Signs in parks and along streets on pet waste control and ordinances.
- Brochures and utility bill inserts on separation of wastes and recycling.
- Advertising the locations of existing toxic disposal sites and waste recycling centers.
- Advertising the locations of existing automobile fluids and used oil disposal sites.



Photograph DHW-2. Check with state and local water quality agencies for public education materials such as this door hanger developed by the Keep It Clean Partnership that can be adopted for use in your community. Photo courtesy of Nonpoint Source Colorado.

- Developing campaigns promoting voluntary neighborhood clean-up efforts.
- Advertisements or notices of private locations accepting yard waste for composting.
- Information on backyard or neighborhood composting and proper disposal of yard waste.

In addition to public education efforts, local governments can provide facilities that provide readily available proper disposal opportunities. These practices include:

- Establishing and maintaining household toxics disposal sites.
- Annual or curbside collection of household toxics.
- Pet waste disposal bags in public parks.
- Providing waste containers in problem litter areas.
- Requiring waste-haulage truck covers.
- Seasonal or on-going collection programs for grass clippings, tree branches, and leaves with disposal at composting or chipping facilities, paired with distribution programs for reuse of composted or chipped materials.

With regard to household toxics, local governments should be aware that collection and disposal of household wastes is expensive. Such programs require adequate training of operators, analysis of unknown materials, safe transport and containers, extensive recordkeeping and awareness of regulatory requirements (e.g., the federal Resource Conservation and Recovery Act) regarding disposal of such materials.