



Targeted Constituents

● Significant Benefit		◐ Partial Benefit		○ Low or Unknown Benefit	
◐ Sediment	◐ Heavy Metals	◐ Floatable Materials	● Oxygen Demanding Substances		
● Nutrients	◐ Toxic Materials	● Oil & Grease	● Bacteria & Viruses	◐ Construction Wastes	

Description

Dumpsters are a major source of pollution throughout the City of Knoxville, usually due to improper use and maintenance. Dumpsters are intended for solid waste only. In most cases, liquid waste should be poured into an indoor drain connected to the sanitary sewer system. Dumpsters are designed specifically to keep solid waste dry (away from rainfall) by closing the top, side doors, and drain plug. Methods to reduce stormwater impact from dumpsters contribute to the many other benefits of dumpsters: rodent and insect control, reducing odors, neat appearances, efficient waste removal.

Approach

A dumpster is a large metal trash bin that is designed to be transported or emptied by specially-equipped trucks. The word “dumpster” is still a registered trademark, but is commonly used without the ® symbol. The dumpster was invented prior to 1940 by native Knoxville George Dempster (who later became mayor of Knoxville in the 1950’s). The novel feature of the Dempster Dumpster was that a metal container could be detached and transported as needed. The detachable metal bins were originally developed for the mining industry, but were adapted for solid waste collection in 1938.

Dumpsters essentially became standard equipment for businesses and industries during the 1950’s. Overall, dumpsters have reduced storage and waste problems for American commerce, and have greatly improved health and sanitation practices in the workplace. The dumpster industry has developed new products and methods throughout the years, and society has truly benefited from advances in solid waste handling and transportation.

Many types of dumpsters are currently available. Smaller businesses often choose a cube-shaped dumpster which can be emptied by front-end loader trucks (with hydraulic forks). Larger businesses and industries may choose a larger rolloff dumpster; when full, the dumpster is loaded onto a truck and transported to the landfill. Construction companies usually select a rolloff-type dumpster.

Dumpsters are intended for solid waste only. Therefore, do not dispose of liquid wastes into a dumpster. Do not put containers or bags with liquid waste into a dumpster. For most commercial dumpsters, a front-end loader truck will raise and tilt the dumpster, which then spills all of the liquids onto the truck and surrounding pavement. The truck hydraulically compacts the trash, which then releases all of the liquids that were inside containers and bottles.

Reasons for proper disposal of solid waste and maintenance of dumpster areas are:

- Dumpsters are usually visible to the general public, and especially the patrons!
- Dumpsters can cause odors.
- Dumpsters can harbor insects, rodents and other pests.
- Dumpsters can cause bacteria and viruses that will harmfully impact employees, patrons, visitors, etc.
- Protect the environment by protecting natural creeks and streams.
- Health inspectors and stormwater inspectors will regularly check dumpsters for inadequate conditions. Fines or other penalties may be issued.

Do not use dumpsters to get rid of used fats, oils and grease (typically used by kitchens and restaurants). In some cases used fats, oils and grease can be recycled using special containers. These substances are not only harmful to natural waterways and the environment, they also clog sanitary sewer lines. See IC-07 (Food Service and Handling) for additional information about grease traps, grease interceptors, sizing requirements, inspections, maintenance, etc.

City stormwater inspectors are often called to investigate leaking dumpsters. The Knoxville Stormwater and Street Ordinance (Chapter 22.5 of the city code) allows the Stormwater Engineering Division to assess civil penalties up to \$5000 per day of illegal discharge. Other entities with the power to assess fines for dumpster violations include the Knox County Health Department and the Tennessee Department of Environment and Conservation (TDEC). City stormwater inspectors may or may not issue a Notice of Violation (see Appendix B of the Land Development Manual), depending on the amount of pollution, intent to pollute, and other factors.

Disposal of any non-stormwater discharges to the ground or to the storm drainage system is illegal; refer to IC-01 for more information. Report illegal dumping to the storm drains or local waterways to the Water Quality Hotline at 215-4147.

Common Waste Types

- Dumpsters are intended for solid waste only. Most dumpsters are emptied by a front-end loader truck that raises and tilts the dumpster. All of the liquids then splash onto the ground, resulting in pollution, odors, harmful bacteria and viruses, stains, etc.
- Do not pour liquid waste into a dumpster. Liquid waste must be handled separately, usually by pouring into an indoor drain connected to the sanitary sewer system. Some types of liquid waste can be recycled, such automotive fluids and restaurant grease. Some liquids are considered to be hazardous wastes. Hazardous wastes can be handled at the City waste collection center (1033 Elm Street) or by using a licensed waste contractor.
- Fats, oils and grease should not be poured into a dumpster. See IC-07 (Food Service and Handling) for more information on grease interceptors, grease traps, and recycling. KUB closely monitors businesses and restaurants for fats, oils and grease due to the high potential for clogging sanitary sewers.
- Automotive fluids can be recycled at automotive retailers, service stations and at the city waste collection center (1033 Elm Street). Automotive fluids are considered as hazardous waste; just a small amount can kill fish, pollute streets, coat storm drains, etc.

Maintenance and Use

- Locate the dumpster away from storm drainage inlets and channels. In addition to being accessible for the dumpster waste contractor trucks, the dumpster must be easily accessible to employees. Consider placing the dumpster in a shaded

area.

- Keep dumpster lids and hatches closed to keep out rainwater. Insist on a fully functional dumpster with adequate lids and doors. Verify that the drain plug at the bottom of a dumpster is securely in place to prevent discharges. Call the dumpster leasing company to replace faulty equipment or fittings.
- Keep dumpster secured to prevent illegal dumping and scavenging. A lockable enclosure may be needed if the dumpster is not behind a secured fence or otherwise protected. A fence may also be desirable if placing a dumpster in a visible area.
- Keep loading areas and surrounding parking lot clean. Pick up trash and litter as needed (at least daily). Sweep areas clean using a broom and dustpan; do not use a pressure washer or a leaf blower to collect litter.
- Never place leaky bags or liquid waste into the dumpster. Drain liquids into an indoor drain that leads to the sanitary sewer system. Use a dry method, such as absorbents or kitty litter, to absorb liquid wastes and spills. Sweep up absorbents promptly and dispose as solid waste.
- Dumpsters must be inspected on a regular basis, preferably daily and at the end of each shift.
- Dumpsters should be cleaned periodically in a manner that does not generate a lot of washwater. In general, do not use power or pressure washing to clean dumpsters or dumpster pads. Use a bucket of water with brushes, sponges and cloths. Minimize the use of detergents and toxic cleaning agents.
- New development or redevelopment projects should include a paved dumpster pad. The pad should incorporate curbs or dikes around the dumpster pad to redirect stormwater.
- Locate the dumpster pad away from storm drainage inlets and ditches. When possible, the dumpster pad should drain to a grassy area with a gentle slope, which functions as a filter. See ST-05 (Filter Strips and Swales) for additional ideas and information.
- Locate the dumpster pad in an area easily accessible for employees and for the dumpster waste contractor trucks. Consider placing the dumpster in a shaded area. Use fences and/or lockable enclosures to prevent illegal dumping and scavenging. Fences and enclosures also improve site aesthetics.
- For areas that require frequent cleaning, a diversion drain can be constructed that will flow to the sanitary sewer system. Please contact the utility service provider for guidance and approval before proceeding to connect any flow or drain to the wastewater collection system.

Design for New Projects

Summary of Benefits

Proper placement and use of dumpsters has many benefits. By reducing exposure to rodents and insects, the dumpster user will also prevent stormwater pollution and the generation of liquid wastes. Dumpsters are designed to minimize opportunities for rodents and insects, as long as the lids and doors are closed at all times. Keep drain plugs, located at the bottom of a dumpster, closed in order to prevent rodents. Place dumpsters on pavement rather on soil, to minimize the number of pests living immediately adjacent to a dumpster.

References 31, 33, 34, 35, 197 (see BMP Manual Chapter 10 for list)