

Chapter 1 | Solid Waste Management



A brief history of waste and landfills

When the majority of people lived in rural areas, their waste, which consisted almost entirely of organic materials derived from plants, humans, and animals, was burned for fuel, used as crop fertilizers, or fed to livestock. These types of waste management strategies are still practiced in some areas of the world.

As civilization developed and populations concentrated in towns and cities, throwing waste out the door to animals or into the garden posed public health problems.

Some cities, notably in parts of Asia, solved their waste problem by hauling organic waste out to farms and composting it to revitalize crop lands. Another method was to take waste out to the countryside and dump it in piles. Around 500 B.C., Athens issued the first-known law against throwing waste in the streets, requiring it to be dumped no less than one mile outside the city walls. The open dump was born.

Included in this chapter

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Minnesota's waste management history

Prior to the 1960s, most waste was disposed of in open or burning dumps located throughout Minnesota. All waste types were allowed at these sites. The Minnesota Department of Health was given legislative authority over dumps located in tourist camps, summer hotels, and resorts. Cities, villages, or townships maintained regulatory control and responsibility over all other dumpsites.

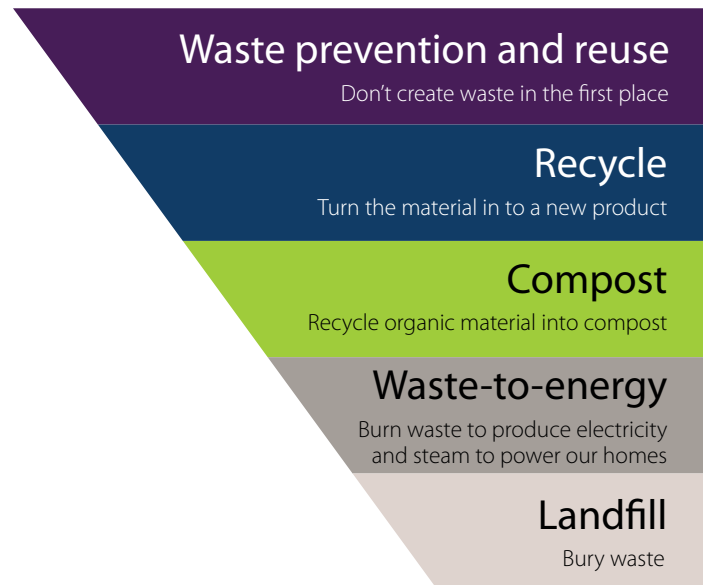
At the time, waste composition was vastly different, and the volume of household wastes was much smaller. Reuse was the norm; containers were made of glass or tin, and food was bought fresh or grown and processed at home. Junk mail and plastic packaging didn't exist. People were, in general, much more frugal. Two world wars and the Great Depression made people more conscious about saving and reusing items as much as they could. Many people went to dumps to scavenge for reusable materials and goods. In northern Minnesota, dumps even served as a social gathering place for activities such as shooting rats and watching bears.

Land use concerns grew as urban areas started to expand. New dumps became harder to site because fewer people were willing to have dumps near their properties. The Legislature passed the Federal Solid Waste Disposal Act in 1965. Two years later, the State of Minnesota created the Minnesota Pollution Control Agency (MPCA) to monitor and regulate air, water, and land pollution. In 1969, the Minnesota Solid Waste Act, which granted oversight of solid waste management to the MPCA, was passed. The act prohibited open burning, established a solid waste permitting process, and emphasized upgrading dumps to sanitary landfills.

During the 1970s, concerns over pollution from landfill sites led to the emergence of regulations for hazardous waste disposal and groundwater protection at landfill sites. These regulations would evolve over the next several decades.

Counties, with oversight from the MPCA, were given responsibility for local solid waste management and were required to submit solid waste management plans to the state. The composition of waste was changing rapidly and now included processed food, plastic packaging, and disposable diapers.

Passed in 1980, the Minnesota Waste Management Act established a waste management hierarchy. The hierarchy prioritizes waste reduction and reuse, recycling, composting, and resource recovery over land disposal. The act also created a landfill siting process and required solid waste abatement planning for metropolitan counties.



The Minnesota Waste Management Act mandates a two-fold strategy:

- Pursue the highest methods of solid waste abatement through source reduction, recycling, organics recovery and resource recovery.
- Minimize the use of landfills and ensure landfills are environmentally sound.

This strategy has helped Hennepin County achieve a recycling rate of approximately 45 percent, supported resource recovery facilities that use solid waste to generate energy, encouraged the implementation of organics recycling programs and the development of composting sites, and introduced source reduction, toxicity reduction, and public awareness activities.

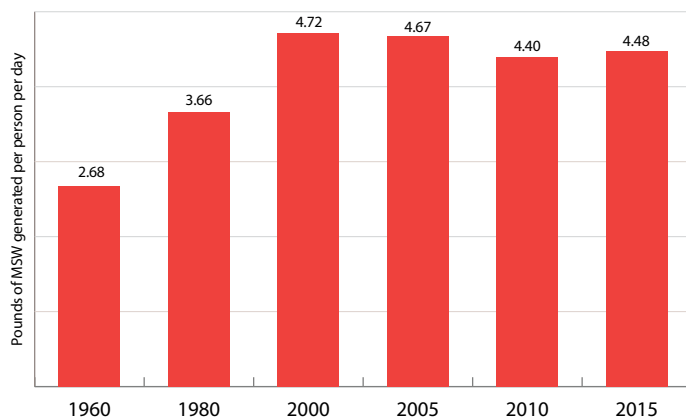
Yet the work is far from over. There is ample opportunity to shift more materials to top of the state's waste management hierarchy by emphasizing waste prevention, recycling and composting.

What do we throw away?

Municipal solid waste (MSW) includes everything we dispose of, including everything we recycle, put in the trash, bring to a household hazardous waste facility, etc. MSW consists of everyday items we use and then throw away. This includes appliances, batteries, bottles, cans, clothing, food scraps, furniture, newspapers, paint, product packaging and much more. MSW is waste that comes from homes, schools, businesses, and public spaces.

In 1960, total MSW generation in the U.S. was 88 million tons. This amount has steadily increased since. In 2015, Americans generated about 262 million tons of MSW, or about 4.5 pounds of waste per person per day.

U.S. MSW generation rate per person

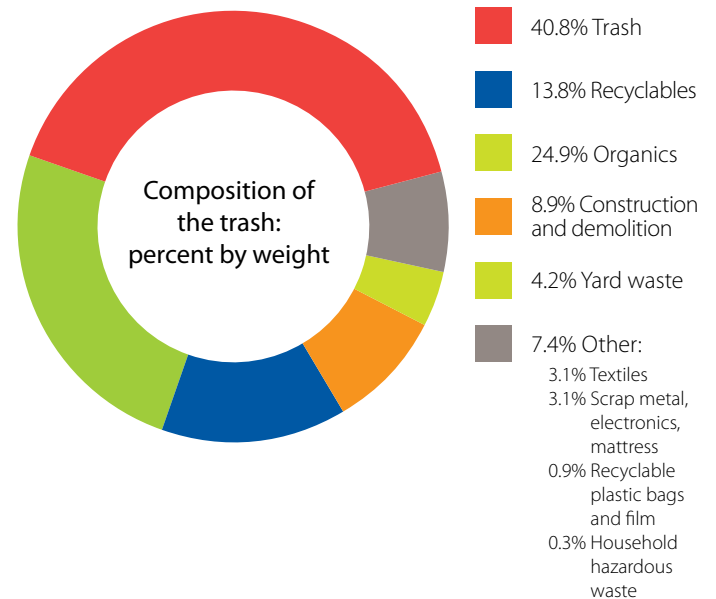


Of those 262 million tons of MSW, more than 91 million tons were recycled or composted. The national recovery rate for recycling, which includes composting, was 34.7 percent.

Hennepin County has a recycling rate that is higher than the national average. In 2017, 44 percent of waste generated in the county was either recycled or composted. Of the trash left, 37 percent was sent to resource recovery/waste-to-energy facilities, and 19 percent was sent to landfills.

A 2016 waste composition study examined the composition of trash in Hennepin County. This reflects only what has been thrown in the trash; not what has already been diverted for recycling or composting.

Hennepin County MSW Composition in 2016



As shown, there are opportunities to increase both recycling and composting. Especially of food waste and other organic waste, which is the most prevalent material in the trash that could be diverted – representing about 25 percent of the trash by weight.

Collection

The Twin Cities solid waste infrastructure is made up of private and public entities that collect, transport, recycle, recover, and land-dispose of the materials generated at homes, businesses, and institutions. Hennepin County licenses nearly 200 waste-hauling businesses to collect and transport MSW. Waste haulers that collect and transport non-MSW, recycling, or organic waste are not licensed. State law requires waste haulers to provide volume-based service, meaning rates are set based on the amount of waste set out for collection.

Most Twin Cities communities allow residents and businesses to choose their waste hauler. This is referred to as open collection. Some cities, such as Minneapolis, arrange for the service by contract or provide their own service. This is referred to as organized collection. Communities with organized collection represent 48 percent of the households in Hennepin County (although most multifamily residences in these cities are not included in these services). There are no organized collection arrangements for commercial waste, although some communities give small businesses access to organized collection services.

Transfer and disposal

In Hennepin County, waste is either hauled directly to the Hennepin Energy Recovery Center (HERC) or a land disposal facility. Waste may also be taken to a transfer station where waste is loaded into trailer trucks and transported to landfills farther away. In the Twin Cities, there are 19 transfer stations; 14 are licensed to accept MSW and five to accept only construction and demolition (C&D) waste.



The Hennepin Energy Recovery Center (HERC) in downtown Minneapolis.

Only one transfer station is publicly owned – the Hennepin County Transfer Station in Brooklyn Park. The remaining are privately owned. Transfer stations allow waste haulers to spend more time picking up waste rather than traveling long distances to dump their loads at the landfill. Four to five waste truckloads can fit into one transfer trailer, reducing traffic to and from the landfill, saving energy, time, and money.



A transfer trailer at the Hennepin County Transfer Station in Brooklyn Park can haul four to five waste truckloads.

The Hennepin County Transfer Station in Brooklyn Park also accepts household hazardous waste and provides free drop-off facilities for recyclables and residential organics.

Disposal

Resource recovery

The Hennepin Energy Recovery Center (HERC) is a waste-to-energy facility in Minneapolis that uses mass-burn technology to generate energy. At HERC, waste is burned to produce high-pressure steam that turns a turbine to generate electricity. A portion of the steam is diverted to provide steam for heating and hot water to the downtown Minneapolis district energy system and Target Field.

Each year more than 11,000 tons of ferrous metal are recovered from the waste stream at HERC and recycled. This is almost double the 6,500 tons of ferrous metal collected annually in curbside and drop-off recycling programs in Hennepin County.

The state permits HERC to process up to 365,000 tons of waste per year. HERC generates enough electricity to power 25,000 homes each year.

Landfills

In 2017, 19 percent of MSW generated in Hennepin County was land disposed in the eight landfills shown below. Most of the waste was landfilled in the metro area.

Landfill	Tons	Location	Owner
Pine Bend	124,861	Inver Grove Heights, MN	Republic
Spruce Ridge	2,614	Glencoe, MN	Waste Management
Burnsville	84,920	Burnsville, MN	Waste Management
Elk River	20,078	Elk River, MN	Waste Management
Nobles County	108	Rushmore, MN	Nobles County
Superior 7-mile	44,807	Eau Claire, WI	Advanced Disposal
Timberline	476	Weyerhaeuser, WI	Waste Management
Lake Area Landfill	2,116	Sarona, WI	Republic
Total	279,980		

Solid waste planning and policy

Solid waste management policy plan

In 2016, the Minnesota Pollution Control Agency (MPCA) approved its new state solid waste management policy plan to set objectives for 2020 and establish a framework for meeting the statutory goal to recycle 75 percent by 2030. State statute requires metropolitan counties to prepare master plans every six years that identify strategies to meet the recycling goals and objectives in the state's Metropolitan Solid Waste Management Policy Plan. The policy plan was adopted by the Commissioner of the MPCA on April 6, 2017, and establishes the framework for managing solid waste in the metro area through 2036.

Hennepin County developed its 2018 Solid Waste Management Master Plan to reach the goal of recycling 75 percent of waste by 2030. View the Hennepin County Solid Waste Management Master Plan at hennepin.us/solidwasteplanning.

Municipal responsibility

Hennepin County Ordinance 13 requires municipalities to adopt local laws relating to the separation of recyclables from waste. Hennepin County's Residential Recycling Funding Policy facilitates the transfer of Select Committee on Recycling and the Environment (SCORE) funds, which the county receives from the state, to municipalities. These funds support curbside recycling and organics recycling programs.

Private sector responsibility

Individuals and businesses are expected to follow the state, county, and municipal laws and regulations and participate in waste management programs. Generally, the public sector relies on the private waste management industry to provide waste management services, including waste and recycling collection, disposal of ash and residues, and handling of problem materials and hazardous wastes.

Hennepin County solid waste management programs and initiatives

Hennepin County has a growing number of programs and initiatives that help cities, residents, organizations, and businesses reduce waste and increase waste diversion. An overview of these programs and initiatives can be found in the county's annual Recycling Progress Report, available at hennepin.us/solidwasteplanning.

Resources

The following resources provide more information about solid waste management in Hennepin County and throughout Minnesota.

- **hennepin.us/solidwasteplanning**: Information about how waste is managed in the county and the solid waste planning process.
- **hennepin.us/HERC**: Information about the Hennepin Energy Recovery Center, the county-owned waste-to-energy facility.
- **revisor.mn.gov/rules/7035/**: The Minnesota Waste Management Act on the Minnesota Office of the Revisor of Statutes website.