

2017 INFRASTRUCTURE REPORT CARD



OVERVIEW

Overall management of municipal solid waste (MSW) across America is currently in fair condition. In many cases, the transport and disposal of MSW is self-funded and managed by the private sector, and therefore is sufficiently funded. Americans generate about 258 million tons of MSW annually, of which approximately 53% is deposited in landfills — a share that has plateaued in recent years. Currently, 34.6% of MSW is recycled and 12.8% is combusted for energy production. There is a need to change the way we think of how solid waste is generated, managed, and potentially used as a resource. Americans need to recognize that what is routinely discarded may in fact be a reusable resource.

CAPACITY & CONDITION

Municipal solid waste (MSW) – more commonly called trash or garbage – consists of everyday items that are used and then thrown away, such as product packaging, grass clippings, furniture, clothing, bottles, food waste, newspapers, appliances, paint, and batteries. After these items are removed from the waste stream for recycling and composting, the remainder are deposited into landfills facilities. Americans generated about 258 million tons of MSW in 2014, up from the previous peak of 255 million tons in 2007. The average American produces 4.4 pounds per person per day of MSW, down from the peak of 4.74 pounds in 2000, however that has remained relatively flat over the past 25 years.

Current production and consumption systems do not offer enough incentives for preventing and reducing waste. From product design and packaging to material choices, the entire chain is not designed with waste prevention in mind. Changing the way we think about waste requires effort by all the parties concerned: consumers, producers, policymakers, local authorities, and waste treatment facilities, among others. Increases in recycling can only occur where consumers are willing to sort their household waste and the infrastructure and market is in place to collect and utilize the recycled materials.



While the total capacity of U.S. landfills is difficult to know, as many are privately owned and operated, it appears these facilities are sufficient to handle current capacity. The Environmental Protection Agency (EPA) last reported a total of 1,908 landfill facilities in America as of 2012, including 128 in the Northeast, 668 in the South, 394 in the Midwest, and 718 in the West. Many are permitted, requiring reporting to the EPA and state regulatory agencies. Disposal to landfills has decreased from 89% of MSW in 1980 to less than 52.6% in 2014. The largest decrease in disposal at landfills occurred from between 1980 and 2000, where it had dropped to 57.6%. Since then, levels have dropped slowly and leveled off since 2014.

In addition to landfills there are 633 material recovery facilities (MRF) sorting and processing recyclables, with an estimated 98,449 tons passing through per day. For many years, Americans recycled at increasing rates, resulting in less MSW entering landfills; in 1980 less than 10% of MSW was recycled, rising to over 34% in 2014. However, since 2010 the change represents an increase of only 0.6%. Overall, over 89 million tons of MSW are recycled and composted – 47.4% of MSW generated. However, in many parts of the country, recycling and composting are not occurring due to a lack of market need for recyclable materials, many Americans' lack of desire to sort and separate waste, and the cost associated with sorting out recyclables at collection facilities. According to the EPA, Americans in at least half of the agency's regions still send more than 70% of their MSW to landfills.

A significant amount of MSW is burned and converted to energy. An estimated 86 municipal waste-toenergy operating facilities are designed to convert nearly 100,000 tons of MSW per day to electricity. Overall about 33.1 million tons, or 13%, of MSW was combusted for energy recovery in 2014, this is down slightly from 34 million tons in 2000.

The condition of America's landfills, MRF and Municipal Waste-to-Energy Operating Facilities are generally good due to federal and state regulations for the construction, operation and maintenance, and environmental monitoring requirements. And the rise of recycling, composting, and burning MSW to produce energy provides significant environmental and economic benefits. Recovery of 66.4 million tons of MSW through recycling, 23 million tons through composting, and 33.1 tons through combusting for energy recovery reduces the amount of waste deposited in landfills by about half the total MSW produced.

FUNDING & FUTURE NEED

The waste disposal industry operates largely at the local level, and a 2001 snapshot of the U.S. waste disposal enterprise by the Environmental Research and Education Foundation (EREF) estimated that there were an estimated 27,000 organizations, private sector companies and public or quasi-government organization providing solid waste collection and/or disposal in the United States. More than 55% of these were in the public sector, while the remaining 45%, were privately held.

The continued operation and maintenance of landfills and recycling facilities is self-funded through trash collection fees. The national mean annual tipping fees were \$50.59 per ton in 2014. The 136 million tons disposed of in 2014 equates to \$6.8 billion in tipping fees. In some cases, local governments even use the fees as an income source. Federal and state oversight is funded through license fees. There is, however, a lack of funding for research and for seed capital to help make recyclable materials more



marketable and new innovative ways to manage MSW for a useful purpose of benefit (i.e. waste to energy) or new technologies, which would prevent solid waste from entering a landfill (i.e. anaerobic digesters and plasma gasification). Additional funding mechanisms are needed to help transition to a system that recognizes MSW as more of a resource to be utilized than waste to be disposed.

PUBLIC SAFETY & RESILIENCE

Non-hazardous solid waste is regulated by the federal government. States play a lead role in ensuring the federal criteria for operating municipal solid waste and industrial waste landfills regulations are met, and they may set more stringent requirements. In absence of an approved state program, the federal requirements must be met by waste facilities. Regulations address common problems associated with landfills including location restrictions, liner requirements, leachate collection and removal systems, groundwater monitoring requirements, and closure and post-closure care requirements.

There is a danger posed by natural disasters such as hurricanes, earthquakes, and other events, which can have impacts on groundwater, the overall environment and public health in areas near landfills and other solid waste facilities. Additionally, solid waste management is inherently tied to the proper functioning of other infrastructure, such that without fully-functioning transportation options—roads, bridges, rail, inland waterways—solid waste collection is compromised with the resulting impacts to public health.

RECOMMENDATIONS TO RAISE THE GRADE

- Pass federal and state legislation that would promote, enhance, or facilitate development of resource recovery facilities, including those for recycling, composting, reuse, and energy recovery, as well as technologies for reduction of waste generation.
- Promote development of cost effective recycling and sustainable waste handling options for municipalities, specifically in communities where scale and/or the use of older outdated systems is an impediment.
- Allow for the interstate movement of MSW to regional solid waste facilities designed in accordance with state and federal regulations as part of regional solid waste planning efforts.
- Fund research into alternatives for use of waste, including examining approaches used in other countries.
- Require manufacturers to meet standards for the generation of recyclable materials.
- Address the true cost of waste such as through deposits on bottles and fees on plastic bags.
- Change the way Americans think of solid waste beyond "garbage" or "trash," to understand that "waste is not waste until it is wasted." The materials Americans routinely discard are potential resources.

DEFINTIONS

Energy Recovery from Waste — The conversion of non-recyclable waste materials into useable heat, electricity, or fuel through a variety of processes, including combustion, gasification, pyrolization, anaerobic digestion, and landfill gas (LFG) recovery.



Material Recovery Facilities (MWF) – a specialized plant that receives, separates and prepares recyclable materials.

Municipal Solid Waste (MSW) — Commonly known as trash or garbage.

Tipping fee – the charge levied upon a given quantity of waste received at a waste processing facility. In the case of a landfill it is generally levied to offset the cost of opening, maintaining and eventually closing the site. It may also include any landfill tax that is applicable in the region.

Waste Combustion — Controlled burning or incineration process. Burning waste at extremely high temperatures also destroys chemical compounds and disease-causing bacteria. Combusting may or may not result in energy recovery.

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