

# Solid Waste and Recycling

## Background

A solid waste is defined in New Jersey's Solid Waste Regulations<sup>1</sup> as any garbage, refuse, sludge, or any other waste material. Certain exemptions are made under the regulatory definition, including source separated food wastes collected for livestock feed, certain recyclable materials, spent sulfuric acid used to produce virgin sulfuric acid, and certain dredged materials, among others. N.J.A.C. 7:26-1.6 provides additional details. The definition of solid waste includes a wide variety of materials that have served or can no longer serve their original intended use that are discarded, intended to be discarded, accumulated in lieu of being discarded, or burned for energy recovery. Solid waste includes residential, commercial, and institutional solid waste generated within a community, which is termed municipal solid waste, or MSW. Solid waste also includes items such as construction and demolition waste and bulky waste including appliances and furniture. Certain solid wastes are classified as hazardous wastes, and are subject to specific management requirements.<sup>2</sup> Certain other materials are exempted from the solid waste definition pursuant to New Jersey's Recycling Regulations, for example tree branches, limbs, trunks, brush and wood chips that will be received, stored, or processed in accordance with the regulations.<sup>3</sup> N.J.A.C. 7:26A-1.4 provides additional information on exemptions under the recycling regulations.

Historically, solid waste was disposed of with relatively unsophisticated methods, including the use of local dumps where waste often was stored for long periods of time in the open air and periodic open burning was practiced to reduce volume. At one time, New Jersey had more than 400 landfills in operation. Many of these old landfills were small, privately-operated sites, and some were poorly managed. In addition to landfills, waste was incinerated, both at relatively large central facilities and at numerous small facilities such as apartment houses. This incineration was essentially uncontrolled; i.e., no technology was used to minimize emissions of particles, acid gases or other pollutants.

With the advent of new pollution-control laws, the practice of waste disposal changed. New Jersey began regulating the handling of waste in 1970. At that time and up until the early 1980s, New Jersey received large amounts of waste from other states. It is estimated that more than 12 million tons of waste per year, much of it from New York and Pennsylvania, were deposited in New Jersey. By the late 1980s, state regulations required the closing of many landfills and incinerators, causing the amount of waste disposed of in New Jersey to decline to less than 6

million tons per year. In the late 1980s and early 1990s, a new generation of MSW incinerators featured greatly improved emissions controls. During this period, new, state-of-the-art landfills replaced older facilities. Also, by the mid-1990s, due to the New Jersey Statewide Mandatory Source Separation and Recycling Act of 1987, recycling of many items, including glass and metal containers and many types of paper, increased substantially.

Today, the DEP's solid waste management regulations include environmental controls for waste management practices; planning and financing of facilities and systems for waste reduction; recycling; resource recovery, destruction and disposal; and economic regulation and integrity review of the entities involved in waste management. New Jersey's hazardous waste management regulations parallel the federal hazardous waste regulations that were established through the Resource Conservation and Recovery Act of 1976 and the Hazardous and Solid Waste Amendments of 1984. They provide for the identification of waste classified as hazardous; the registration of hazardous waste generators, transporters, and treatment, storage and disposal facilities; the establishment of the cradle-to-grave manifest tracking system for all hazardous waste shipments; as well as environmental controls on hazardous waste management facilities.

The DEP receives information from disposal facilities on the amounts of wastes disposed, and from municipalities on the amounts of materials recycled. Additional data are also collected from industry sources.

## Goals

The DEP has consistently sought to achieve goals of recycling 50 percent of the municipal solid waste stream, including yard and vegetative waste, and 60 percent of the overall waste stream, as set forth in the Mandatory Source Separation and Recycling Act (N.J.S.A. 13:1E-99.11 et seq.). The Act calls for the collection and proper disposal of abandoned or illegally dumped scrap tires, which are potential breeding sites for mosquitoes, and seeks to establish a market development policy and product stewardship principles for used electronic parts from computers, televisions, and other electronic devices.

Discarded motor vehicles represent a significant portion of the metals waste that is recycled for use by iron and steel manufacturing facilities. Some of these vehicles have mercury-containing switches that contaminate the recycled metals; this mercury can be released when the metals are melted to make new products.

Mercury is a well-known pollutant that accumulates in fish and can harm public health. The Mercury Switch Removal Act of 2005, which became effective March 23, 2005, requires manufacturers of motor vehicles sold in New Jersey to develop and implement a plan to remove mercury-containing switches from end-of-life vehicles. The law also requires all vehicle and scrap recyclers to remove mercury switches before end-of-life-vehicles are crushed or shredded.

### Status and Trends

In 2014, New Jersey generated 20.8 million tons of solid waste and recycled 12.8 million tons, which is 62 percent of the total amount generated from municipalities and all other sources. Of the 8.0 million tons of solid waste that were not recycled, 3.4 million tons were disposed of in-state while the remaining 4.6 million tons were disposed of out-of-state (See Figure 1).

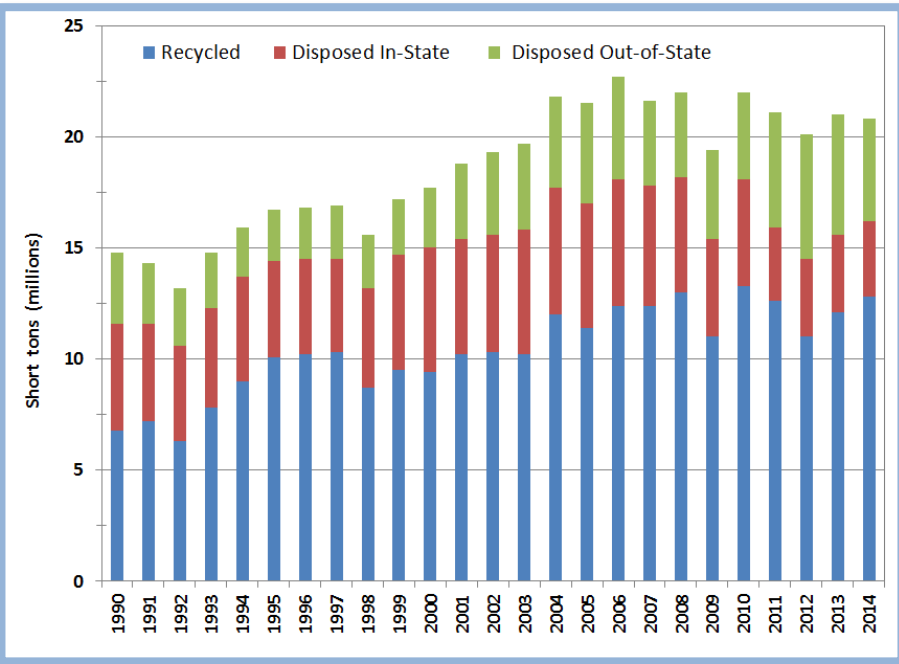


Figure 1: Fate of solid waste generated in New Jersey.

Recycled material includes not only glass, cans, plastic and newspapers from municipal waste, but also scrap iron, concrete, wood and other items from commercial waste. At that time when the Mandatory Source Separation and Recycling Act was passed, many county and municipal recycling programs were already collecting plastics, tin and bimetal cans, white goods (e.g. refrigerators), used motor oils, yard waste, and other materials. The current recycling rate of 62% of all solid waste material exceeds the targeted rate of 60% and is the highest rate of recycling since 1994. Municipal solid waste generated totaled 9.6 million tons, of which 4.0 million tons, or 41%, were recycled in 2014 (Figure 2). This rate remains below the targeted 50% recycling rate for municipal solid waste. Recycling of municipal solid waste has averaged 42% over the last five years.

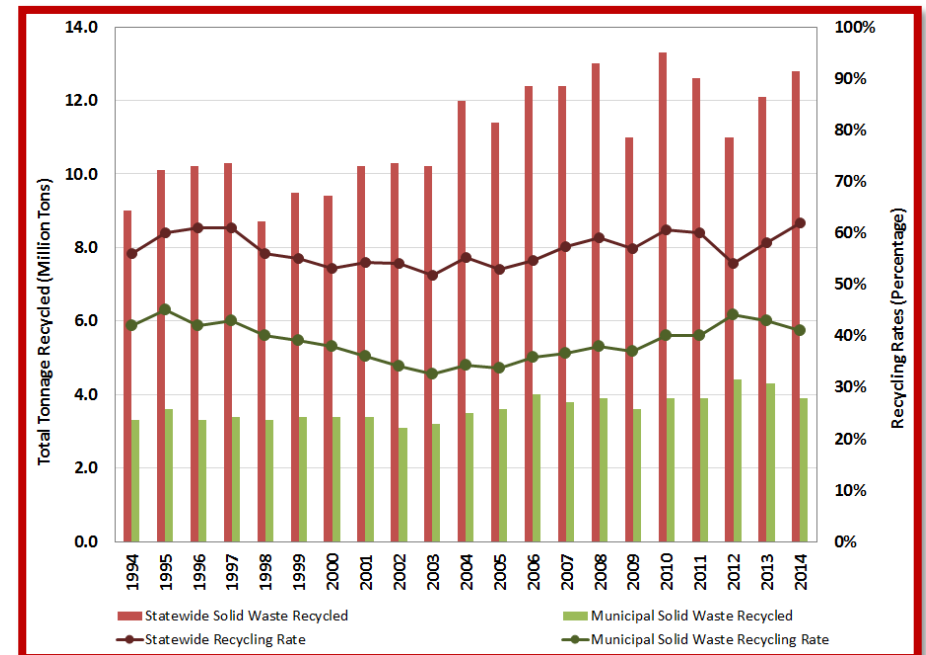


Figure 2: Total annual tons of municipal and statewide solid waste recycled and corresponding annual rates of recycling.

A major factor in the decline in recycling rate from the late-90s until recently was a 1997 federal court decision that led to the deregulation of the solid waste system in the State, which had given counties control over their waste flow and enabled them to fund significant recycling programs. The cessation of a state tax that supported the provision of grant monies to local recycling programs also led to less promotion of recycling.

However, in 2008, the Recycling Enhancement Act was passed. This law assesses a tax of three dollars per ton of waste. Solid waste being transported out-of-state, either directly or by railroad, is also subject to the new recycling tax. This Act calls for 60% of the recycling tax fund to be used for recycling grants to municipalities, and 25% of the fund going to aid counties in preparing, revising, and implementing their solid waste management plans, including implementation of the goals of the State Recycling Plan. An additional 5% is provided to the counties for public education and education programs concerning recycling, up to 5% of the fund can be directed to research and education, and 5% directed to NJDEP for the State recycling program planning and administrative oversight.

There is a statistically significant long-term trend of increasing amounts of solid waste generated per person (Kendall-tau correlation  $\tau = 0.724$ ,  $p$ -value  $< 0.001$ ; Figure 3). Unless an increasing percentage of this waste is recycled, this trend means that more waste must be disposed of in landfills or incinerators.

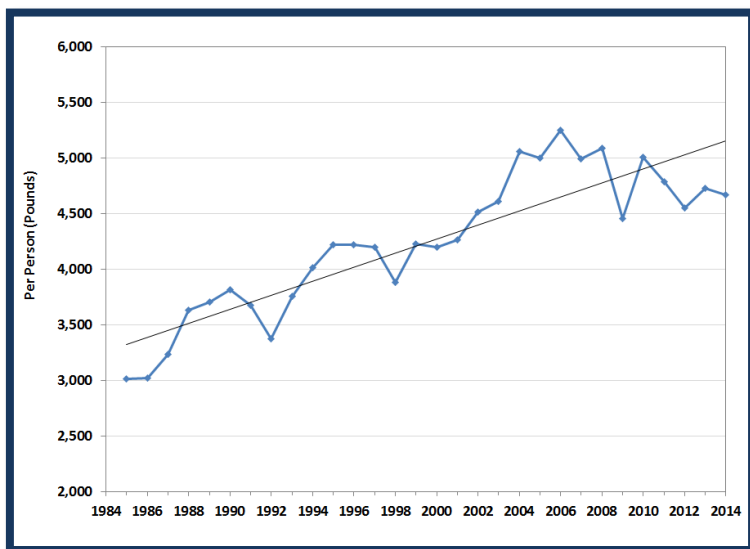


Figure 3: Per capita solid waste generation (pounds) between 1984–2014.

As an additional component of New Jersey’s recycling efforts, the Electronic Waste Recycling Act became effective January 13, 2008. There have been several amendments to the Act, one of which changed the name to the Electronic Waste Management Act. The latest amendment was on January 9, 2017. The Act established a recycling system for the safe and environmentally sound management of certain end-of-life electronic devices and components. It requires original equipment manufacturers to pay a registration fee to the Department and establish a collection, transportation, and recycling system, either independently or jointly, for the recovery of computers and televisions. The registration fees are used to fund the administration of the program by the Department, which determines and issues manufacturers’ collection obligations and goals and reviews the manufacturers’ registrations, renewals, collection plans and annual reports. The Act also established a disposal ban effective January 1, 2011, which was the date by which manufacturers must implement their collection plans. In support of this legislation, the Department developed and adopted rules and regulations to assist in the implementation of the program. These included amendments to the Solid Waste rules at N.J.A.C. 7:26 and the Recycling Rules at N.J.A.C. 7:26A-1 and the adoption of new rules for the Electronic Waste (e-waste) Management Program at N.J.A.C. 7:26A-13. The amount of e-waste recycled each year since 2011 is highlighted in Figure 4.

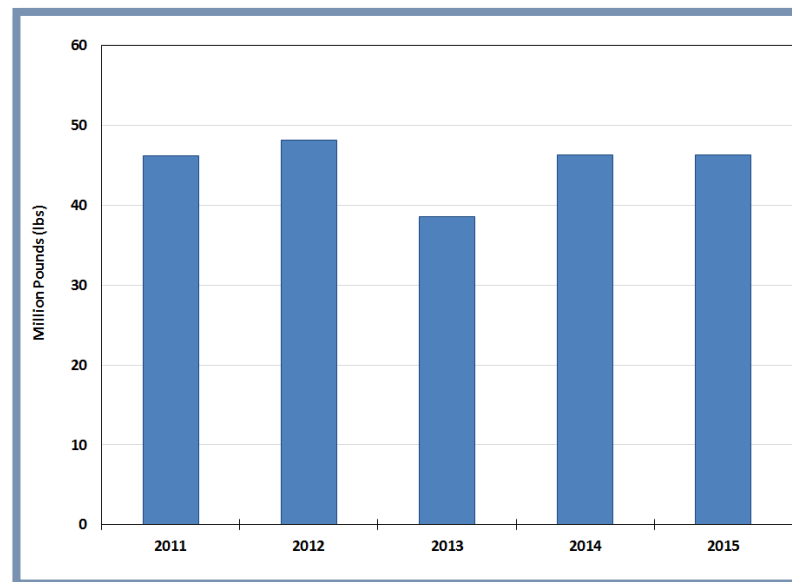


Figure 4: Amount of recycled e-waste (millions of pounds) as reported by manufacturers

The amendments to the Electronic Waste Management Act that were adopted on January 9, 2017 will provide the Department with additional authority and tools to ensure that manufacturers are responsible for their market share in weight based on actual weight of all covered electronic devices collected in a program year.

### ***Outlook and Implications***

The Recycling Enhancement Act reestablished a source of funding for recycling in New Jersey through tax on solid waste. The reestablishment of a funding source for recycling is especially significant, as inadequate funding has been considered one of the key reasons behind New Jersey's lower recycling rates in the past. Furthermore, these funds are used to promote and expand recycling activities throughout the State.

In 2006, DEP also updated its Statewide Solid Waste Management Plan, which can be found at <http://www.nj.gov/dep/dshw/recycling/swmp/index.html>, to identify ways to increase recycling and composting, as well as to improve source reduction and the removal of household hazardous waste from the normal disposal stream.

### ***More Information***

There is more information on the Department's recycling program, including guidance for the manufacturers, retailers, and consumers on the Department's website at <http://www.state.nj.us/dep/dshw/recycling/index.html>.

The solid waste generation and recycling data are compiled annually by the DEP's Division of Solid and Hazardous Waste, Bureau of Recycling and Planning. These data are available on the NJDEP Web page at <http://www.state.nj.us/dep/dshw/recycling/stats.htm>. Information concerning these data can be obtained by contacting the Bureau of Recycling and Planning at 401 East State Street, P.O. Box 414, Trenton, NJ 08625 or (609) 984-3438.

### ***References***

- <sup>1</sup>See N.J.A.C. 7:26-1, et seq.
- <sup>2</sup>See N.J.A.C. 7:26G-1, et seq.
- <sup>3</sup>See N.J.A.C. 7:26A-1, et seq.