Wisconsin's Waste Characterization Study Provides Glance into Landfills, Recycling

Stefanie Valentic | Oct 25, 2021

In September 2020, SCS Engineers set out to study Wisconsin's landfills to obtain a better understanding of what efforts are needed to reduce waste in the state.

The result was a 228-page comprehensive report that details what the environmental consulting firm found residents are leaving in the trash.

“The DNR is looking for opportunities to minimize and divert waste statewide, but also at the source or regional level,” said Casey Lamensky, Wisconsin Department of Natural Resources (DNR) solid waste coordinator at the study's launch. “The DNR will continue to work with local governments, businesses and organizations to ensure they have the resources they need to divert materials from the landfill.”

This is not the first waste characterization study completed in the state. Wisconsin utilized data gathered in both 2003 and 2009 for waste management decisions such as properly sizing a construction and demolition recycling facility at the Rodefeld Landfill in Dane County.

In a collaboration with the DNR, SCS visited 15 landfills and transfer stations across the state during 2020 and 2021 to gain an understanding of the diversity of solid waste facilities "with respect to geography and size." Nearly 400 samples - 398 pieces of solid waste - were hand sorted from both residential and commercial entities. Another 659 samples of construction and demolition debris were visually inspected.

Two separate time-frames, Sept.-Nov. 2020 and March-April 2021, were studied in order to gain a picture of the pandemic's impact. While examining overall municipal solid waste composition, eight categories were identified. Organics such as food and yard waste comprised 30.4 percent of the waste stream followed by paper at 21.3 percent and plastic at 17.1 percent. The remaining waste types included other waste at 7.7 percent, end of sample fine at 6.9 percent, construction and demolition at 6.8 percent, metal at 4.6 percent, "problem materials" at 3 percent and glass at 2.2 percent.

“Focusing efforts to reduce organic wastes can make a significant difference in Wisconsin’s waste stream and the environment,” Lamensky said, referencing the most recent study. “In addition to taking up valuable landfill space, landfilling these materials contributes heavily to the production of methane, a greenhouse gas 28 times more powerful than carbon dioxide if released into the atmosphere.”

When categorized by weight, the top five materials found in landfill include wasted food that was formerly edible; flexible films such as candy wrappers; food scraps such as peels, bones and shells; textiles; and "compostable paper" such as facial tissues and used paper plates.

The study also placed a spotlight on the state of recycling in Wisconsin. When comparing the results of the 2020 study with the 2009 findings, Wisconsin residents increasingly placed recyclable materials into trash receptacles.

In fact, the DNR estimated that in 2020, 490,300 tons of recyclable materials, a market value of more than $76 million, ended up in landfills. No. 1 and No. 2 plastic containers, glass containers, aluminum and steel containers, cardboard and office paper were found in larger quantities in 2020 when compared with the 2009 study. The agency indicated that 754,000 tons of recycables are processed each year.

The DNR referenced the statewide recycling law which is "designed to provide recycling access to all residential properties, businesses and institutions."

“We know from surveys that some people don’t recycle because they believe separated recyclables end up in the landfill,” Lamensky said. “We want to encourage everyone to take advantage of their local recycling program. The recycling industry in Wisconsin is very good at getting these materials to buyers, so generally, once recyclables are placed in the recycling bin, they are not landfilled.”

While roofing shingles were the second largest material in Wisconsin's MSW streams in 2009, recycling these materials has become "much more prevalent." Infrastructure improvements have led to singles to fall from 30% to 10% of the landfilled construction and demolition waste stream. The material is now repurposed for use in asphalt roadways.

The DNR stated that it will use the findings to drive its waste reduction policy and strategies.