#13: SOLID WASTE

OPTIONAL METRIC FOR CATEGORY **A & B** & **C** COMMUNITIES

Bold, green font indicates metrics that must improve to be recognized at Step 5

METRICS

13.1 Residential solid waste generated per resident per day (lbs.)
13.2 Commercial solid waste generated per job per day (lbs.)
13.3 Percent of residential solid waste recycled
13.4 Percent of residential solid waste composted
13.5 Government operations solid waste generated per year (tons)
13.6 Government operations construction & demolition waste per year (tons)
- a-c: Percent of C&D waste reused, recycled, landfilled

METRIC DEFINITION

- **Solid waste** for this metric is mixed municipal solid waste – garbage, recyclables (fibers, containers), compostables – but not yard waste. (Metric 13.1 and 13.2)
- **Commercial solid waste** includes food-to-livestock programs and food-donation programs. (Metric 13.2)
- **Excluded in these residential, commercial and government-operations waste amounts** are household hazardous wastes and industrial wastes and construction and demolition waste (except for metric13.6). (Metrics 13.1-13.6)
- **Residential** includes collection amounts/percentages from single-family dwellings, duplexes, triplexes and four-plexes. (Metric 13.1)
- **Commercial** includes multi-unit housing larger than four-plexes, retail stores, businesses other than industries, offices (including government offices), and institutions such as hospitals. (Metric 13.2)
- **Recycled** material includes fibers (newspaper, paper, cardboard) and containers (glass, plastic, metal). (Metric 13.3)
- **Composted** material includes organic waste (kitchen/restaurant scraps, soiled paper) but not yard waste. (Metric 13.4)
- **Government operations** includes waste from city/tribal buildings and facilities including parks and drinking water plants. (Metrics 13.5 and 13.6)
- **Construction and demolition (C&D) waste** is land clearing debris (soil, plant material) and structural debris from lot-clearing operations. (Metric 13.6)
- **Reused C&D** includes deconstructed building materials such furnishings and flooring, and fill, reused in mostly their original form. (Metric 13.6)
- **Recycled C&D** includes soil, asphalt and concrete processed for another use, and does not include material used as alternative daily cover (ADC) at a landfill. Note that some C&D businesses include ADC in their calculation of percent recycled C&D. (Metric 13.6)

DATA SOURCES

- **Waste hauler reports** required by county, and/or city or tribal license (Metrics 13.1-13.6)

- **City-level data submitted in SCORE** reports by city staff to counties in the 7-county Twin Cities metro area (Metrics 13.1-13.6)
- **County solid waste officers** for county-level Re-TRAC hauler data, from which city-level data may be available, either in estimated or reported form. County staff can sometimes use SCORE data to derive city-level data for greater Minnesota cities (Metrics 13.1-13.6)
- **Regional Indicators data** for those cities that have data available at https://www.regionalindicatorsmn.com/waste-chart (Metrics 13.1 - 13.3)
    - 13.1 – select "normalization" option to "per capita/day"
    - 13.2 – select "normalization" option to "per job/day"
    - 13.3 – select "dataset" option to "waste by type"
- **Jobs data** from North American Industry Classification System (NAICS) and the Quarterly Census of Employment Wages (QCEW); use Quarter 2 data, as it tends to be least affected by seasonal fluctuation: https://apps.deed.state.mn.us/lmi/qcew/ResultsDisp.aspx (Metric 13.2)
- **Staff data/project data** (Metrics 13.5 and 13.6)

METRIC CALCULATION AND PUBLIC REPORTING

- **Annual measurement and reporting** for these metrics is based upon one calendar year's data prior to the GreenStep reporting year. (Metrics 13.1-13.6)
- **Data definitions/consistency** is varied across different data collection systems (hauler data, C&D facility reports, SCORE, Re-TRAC, Regional Indicators) and so different communities will find different data sets more, or less, useful. (Metrics 13.1-13.6)
- **Communities in greater Minnesota** may choose to do what the Regional Indictors Initiative did for select cities for select years, which is to take total county wide data and apportion waste quantities to your city based upon the city's proportion of total county population. RII data, however, is currently only (1) available for a few dozen cities through 2015, (2) combines recycled and composted amounts, and (3) normalizes residential and commercial amounts by job. (Metrics 13.1-13.4)

METRIC RATIONALE

The dominant model for our society's use of materials is a linear "take, make, waste" one made possible by a half-century of plentiful, inexpensive energy and the assumption that throwing stuff "away" would have no ecological or financial consequences. The "waste" part, however, is larger than we think. As a rule of thumb, every ton of garbage (mixed municipal solid waste) at the consumer end of the materials management stream has also required the production of 5 tons of waste at the manufacturing stage and 20 tons of waste at the site of initial resource extraction (mining, pumping, logging, and farming).

Post-WWII the greenhouse gas emissions from the "taking and making" part (including food) increasingly happened outside city boundaries, but when accounted for in a city consumption-based GHG inventory, city greenhouse gases can grow up to 40% larger. Hence the need for city measurement and reporting of solid waste generation and management methods: to generate community understanding of the need and benefits of taking actions to reduce waste generation and to manage wastes higher up on the State of Minnesota's legislatively adopted waste management hierarchy of landfill, incinerate, recycle, compost, reuse, reduce.

Collection of most solid waste data is optimized for reporting at the county level. But local/tribal governments, being 'closer to the customer' (community members), have most control over actually changing people's attitudes and actions around preventing waste and better managing it through reuse, composting and recycling. Ideally communities organize the collection of garbage and recyclables/compostables and require, through hauler licenses, the reporting of data. Short of that, communities have to work with several data sources to find the best data for their community.

While data from waste generation in a community can be sliced and diced in many ways for different purposes, GreenStep has settled on tracking:

- **The percent of total residential waste** being 'thrown away' that is recycled and composted, because roughly half is not being recycled and composted and can be by people simply putting 'waste' in three containers, rather than one container.
- **Commercial solid waste generated** by job, to get a sense of the magnitude of businesses' 'non-product output' and thus the potential for businesses to save money by preventing the generation of waste, even if it is managed higher up on the hierarchy (e.g., food donations, food-to-livestock). Normalizing waste by job provides a better data point for comparison year by year.
- **Tons of waste generated by government operations** provides a number which staff can work to reduce, thus (1) saving money (especially via waste recycling and composting, which incurs no county garbage fees), (2) 'walking the talk' and showing community members the importance of reducing, reusing and recycling, and (3) understanding the challenges of waste prevention and reduction so as to have knowledge and legitimacy when assisting local residents and businesses to prevent and reduce waste generation.
- **Tons of C&D waste generated by city operations**, most of which can be reused and recycled, will typically dwarf tons of mixed municipal solid waste generated by city operations, and thus is inherently worth measuring.

STEP 5 METRIC TARGETS

Individual communities are best equipped to set realistic goals for metric improvement, and any improvement in the metrics is good: decreasing total solid waste; increasing proportion of waste recycled and composted; increased C&D reused and recycled.

That said, the 2014 Legislature set 2030 recycling goals as follows: (1) 35% (by weight of total solid waste generation) for a county outside of the Twin Cities metro area, and (2) 75% (60% recycling and 15% organics) for a metropolitan county. Each county will develop and implement or require political subdivisions within the county to develop and implement programs, practices, or methods designed to meet these goals.

While not a waste diversion goal, owners of commercial property in the seven-county metro area need to make sure their buildings have recycling services along with garbage collection. This 2014 law applies to most commercial buildings (including multifamily housing) that have service for 4 cubic yards (or more) of trash per week, and requires that a minimum of three material types be collected for recycling.

A 75% C&D reuse/recycling minimum is required by several Minnesota cities (see GreenStep best practice action 22.8) for their own operations and for city-funded development projects, and the State of Minnesota's B3 green building guidelines require diversion of at least 75% (by weight) of construction, demolition, and land clearing debris from landfill disposal.

LEED FOR CITIES & COMMUNITIES

https://www.usgbc.org/leed/rating-systems/leed-for-cities-communities

MR Prerequisite: Waste Performance

- Measure the total weight of waste (in lbs., kg, or tons) that is generated, and the total weight that is diverted from landfills or incineration for one whole calendar year within the last five years. LEED points are based on waste performance in Arc across two metrics:
    - Municipal solid waste generated (in metric tons per year per capita)
    - Municipal solid waste diverted (% of total generated)

- Municipal solid waste (MSW) generated must include waste generation from all sectors within the city including but not limited to residential, institutional, commercial, other sectors and open spaces. Exclude construction, deconstruction, and demolition waste, land clearing debris, soil and landscaping materials. Incineration does not count as waste diversion method. Obtain a minimum waste performance score of 40 (using Arc).

MR Credit: Special Waste Streams Management

- Measure and report the total weight of waste generated under hazardous waste and any two special waste streams mentioned below, and the total of such waste diverted from landfill or incineration. Report data available for most recent calendar within the past five years.
- Special waste streams: Non-municipal solid waste generated within the city, including industrial, electronic, agricultural, chemical, bio-medical, hazardous, pre-consumer food waste, and/or construction, deconstruction and demolition waste.

NEED HELP? CONTACT

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