Worcester Waste Characterization Study

Executive Summary | September 2025

The City of Worcester hired Diversion Designers, LLC. to conduct a comprehensive waste characterization study in April 2025 to provide baseline data for its first Zero Waste Master Plan (ZWMP). Diversion Designers collected 111 samples weighing over 22,000 pounds total from 103 locations across six sectors: residential (1-6 units, serviced by the City's curbside collection programs), multi-family residential (7+ units, not serviced by the City's curbside collection programs), Worcester Public Schools, commercial businesses, municipal buildings, and illegal dump sites. Materials were sorted into 50 categories using stratified random sampling to achieve 90% confidence level statistical significance.

The study results highlight substantial diversion opportunities, with organics as the highest-impact intervention. Targeting organics, strengthening recycling infrastructure, and addressing service gaps will drive measurable progress toward the City's Zero Waste goals.

Key Findings

Organics Present Greatest Diversion Opportunity

- Across all sectors, food scraps, soiled paper, and compostables made up a large share of waste, showing strong diversion potential.
- Worcester Public Schools had the most organics present, with 68.7% of school waste being organics, and 79% of that was edible food scraps.
- Residential (1-6 units) contained 53.87% organics.

Recycling Improvements Needed

- Recyclable materials (paper, plastic, metal, and glass) were present throughout sectors, however glass and metal were very low.
- In municipal trash, paper accounted for nearly 27% (largest of all sectors), including 19% from corrugated cardboard and mixed recyclable paper.

- Plastics made up 15% of municipal trash (largest of all sectors), with nearly one-fifth coming from PET (#1) containers.
- Multi-family recycling was dominated by paper (47.1%), primarily corrugated cardboard and mixed recyclable paper (44.6%).

Curbside Collection Programs Divert More Waste – PAYT Success

- Significantly more divertible materials were found in residential 7+ units trash not serviced by the City's curbside collection programs which demonstrates targeted collection programs achieve significant diversion when properly implemented.

Material	Residential (1-6 units)	Residential (7+ units)
Yard debris	0.12%	4.46%
Bulky waste	0%	10.66%
Construction & demolition	0.60%	4.18%
Recyclables	24.82%	32.15%

Material Composition by Sector

Material	Resi. (1-6)	Resi. (7+)	Comm.	School	Muni.	Illeg.	Recy. (7+)	Recy. Comm
Paper	11.20%	12.55%	16.61%	8.49%	26.78%	2.85%	47.10%	93.80%
Plastics	9.71%	10.52%	10.24%	8.49%	14.58%	4.27%	12.18%	1.36%
Glass	1.41%	3.36%	2.37%	0.02%	1.66%	5.09%	3.81%	2.58%
Metal	2.50%	5.72%	4.99%	0.88%	3.16%	5.45%	2.70%	0.67%
Organics	53.87%	31.76%	28.91%	69.69%	31.32%	18.72%	5.62%	0.49%
C&D	0.60%	4.18%	11.69%	0.02%	1.63%	15.69%	0.13%	0.00%
Bulky	0.00%	10.66%	6.79%	0.00%	1.87%	23.31%	16.91%	0.00%
Other	20.71%	21.25%	18.40%	12.42%	19.01%	24.61%	11.53%	1.11%

Read the full report and learn more about Worcester's Zero Waste Program at WorcesterMA.gov/DSR or contact ZeroWaste@worcesterma.gov.