

# Zero Waste Metrics & Measurements

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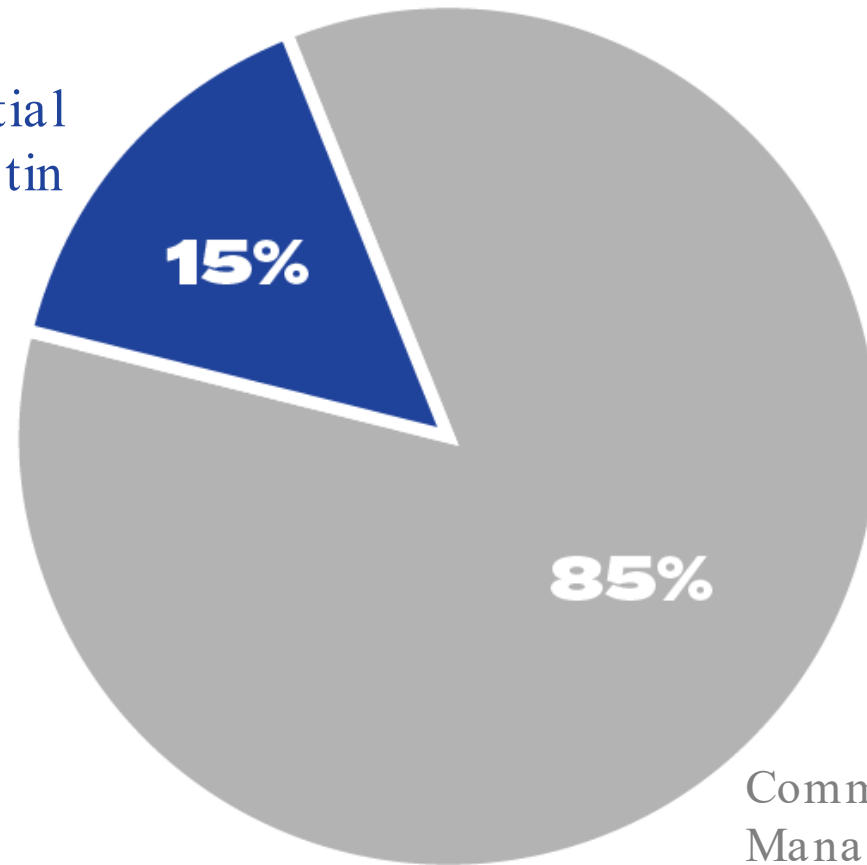


# Zero Waste by 2040



# Austin's Material Generation

Residential  
Managed by City of Austin



Commercial & Multifamily  
Managed by Private Haulers

# Data Sources

- Residential
  - Curbside collections
  - Recycle & Reuse Drop Off Center
- Commercial & Multifamily
  - Contracted third party studies
  - Self-reported data from properties
  - Licensed hauler self-reporting

# Waste Composition Studies



# Comprehensive Plan Goals

- Conduct routine measurement of per capita disposal rate and capture rate, and track over time, aiming for continual improvement.
- Require accurate data measurements in all waste collection contracts.
- Continue to track diversion rate as a measure toward zero waste.

# How is Diversion Rate Calculated?

Diversion Rate is a quantification of how much generated waste is diverted from being landfilled

Tons Diverted = Tons recycled + Tons composted + Tons reused + Tons Reduced

Diversion Rate = Tons Diverted ÷ Tons Diverted + Tons Disposed

2020 Waste Generation in Austin (tons)		
	ARR Collected	Citywide
Total Generation (tons)	265,042	2,448,143
Total Disposal (tons)	159,560	1,527,621
Total Diversion (tons)	105,482	920,522
Diversion Rate	39.80%	37.60%

Austin has a city-wide (commercial and residential) landfill diversion rate of 37% as of 2020

The 2020 Community Diversion Study can be found online at: [www.austintexas.gov/diversion](http://www.austintexas.gov/diversion)

# Municipal Diversion Rates

City	Year	Diversion Rate	Year	Diversion Rate
Portland	2015	47%	2023	44%
Seattle	2018	57%	2023	53%
Austin	2015	42%	2020	37%
Minneapolis	2016	37%	2018	37%
Phoenix	2019	36%	2022	36%
San Antonio	2019	36%	2024	33%
Fort Worth	2018	30%	-	-
Denver	2019	23%	2021	33%
Boston	2019	21%	-	-
Dallas	2016	21%	2020	20%



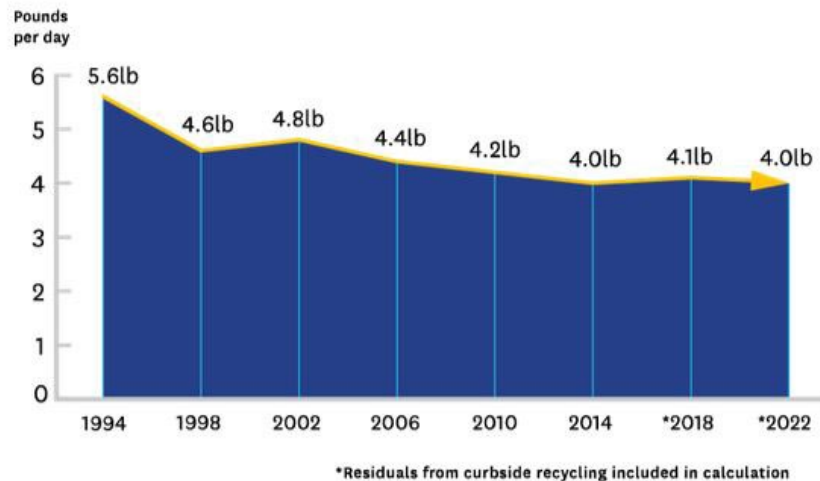
# Capture Rate

2020 Recyclable Materials Capture Rate					
Recyclable Material Categories (tons/year collected)					
Accepted Recycling Material	Trash Generation	Recycling Generation	Compost Generation	Total Generation	Capture Rate
Mixed Paper	1,803	6,338	25	8,166	78%
Corrugated Cardboard	1,898	24,306	170	26,375	92%
Other Paper	9,415	11,218	1,295	21,928	51%
<b>Paper Subtotal</b>	<b>13,117</b>	<b>41,861</b>	<b>1,491</b>	<b>56,469</b>	<b>74%</b>
PET #1	2,703	2,933	17	5,653	52%
HDPE #2	1,130	1,270	1	2,401	53%
LDPE #5	16	33	0	49	67%
Rigid Plastic (#3 & #5)	2,065	679	24	2,768	25%
Other Plastics (#7)	357	114	3	473	24%
<b>Plastics Subtotal</b>	<b>6,270</b>	<b>5,030</b>	<b>44</b>	<b>11,344</b>	<b>44%</b>
Aluminum	2,275	1,588	3	3,867	41%
Ferrous Metal	803	601	1	1,404	43%
Other Metal	2,738	610	3	3,351	18%
<b>Metal Subtotal</b>	<b>5,816</b>	<b>2,799</b>	<b>7</b>	<b>8,622</b>	<b>32%</b>
Glass Jars and Bottles	2,943	7,033	11	9,988	70%
Other Glass and Ceramics	215	45	3	264	17%
<b>Glass Subtotal</b>	<b>3,158</b>	<b>7,079</b>	<b>15</b>	<b>10,252</b>	<b>69%</b>
<b>Recyclable Materials Total</b>	<b>28,362</b>	<b>56,768</b>	<b>1,558</b>	<b>86,688</b>	<b>65%</b>
Compostable Material Categories (tons/year collected)					
Meats	835	22	52	909	6%
Fruits and Vegetables	946	0	263	1,209	22%
Fats and Oils	41	0	0	41	0%
Unpackaged Food Wastes	16,835	105	2,223	19,163	12%
<b>Food Subtotal</b>	<b>18,657</b>	<b>126</b>	<b>2,538</b>	<b>21,322</b>	<b>12%</b>
Compostable Paper	14,150	1,175	1,275	16,599	8%
Yard Wastes	2,794	135	42,895	45,824	94%
Compostable Wood	1,478	179	1,088	2,745	40%
Other Organics/Combustibles	404	9	176	589	30%
<b>Compostable Materials Total</b>	<b>37,483</b>	<b>1,624</b>	<b>47,972</b>	<b>87,079</b>	<b>55.10%</b>

- Capture rate is calculated by determining the percentage of material (eg aluminum) that is placed in the blue bin rather than the trash or compost.
- Capture rate is calculated:  $\text{weight of aluminum cans recovered} \div (\text{aluminum cans recovered} + \text{amount of material disposed})$
- Capture rate of 90% is considered maximized
- Austin intends to measure capture rate by Council District

# Per Capita Disposal

- Per capita disposal is directly tied to consumption
- The lower the number the better
- Captures reduction and reuse. Direct measure of sending less to landfill
- TCEQ has seen increases in per capita disposal for decades
- Austin's programs intend to educate on alternatives to consumption culture to maintain a per capita disposal of 4 lbs with visionary goal of 1 lbs per household.



Per Capita Disposal Rate – ARR hauled materials

- Austin calculates per capita disposal as the total tons of residential material disposed of ÷ the number of households serviced by the department.
- Austin will explore expanding this to include commercial and multifamily properties.

# Trends from the EPA

## Generation Trends

- Generation of paper and paperboard, the largest material component of MSW fluctuates but is on a downward trend.
- Food waste and yard trimmings has increased.

## Recycling and Composting Trends

- National recycling rate did not exceed 15% until 1990, the 2018 rate was 32.1% and has since plateaued.
- Infrastructure for large-scale food waste composting remains limited.

# Impacts to Zero Waste Progress

- Material and product design/packaging
  - Lightweighting
- Consumer behavior and habits
  - Remote work – shifts in waste stream from home to office and vice versa
  - Contamination
- Circular practices - Reuse/Repair
- End markets for commodities
- Legislative impacts – state and federal

