



URBANA MATERIALS MANAGEMENT REPORT

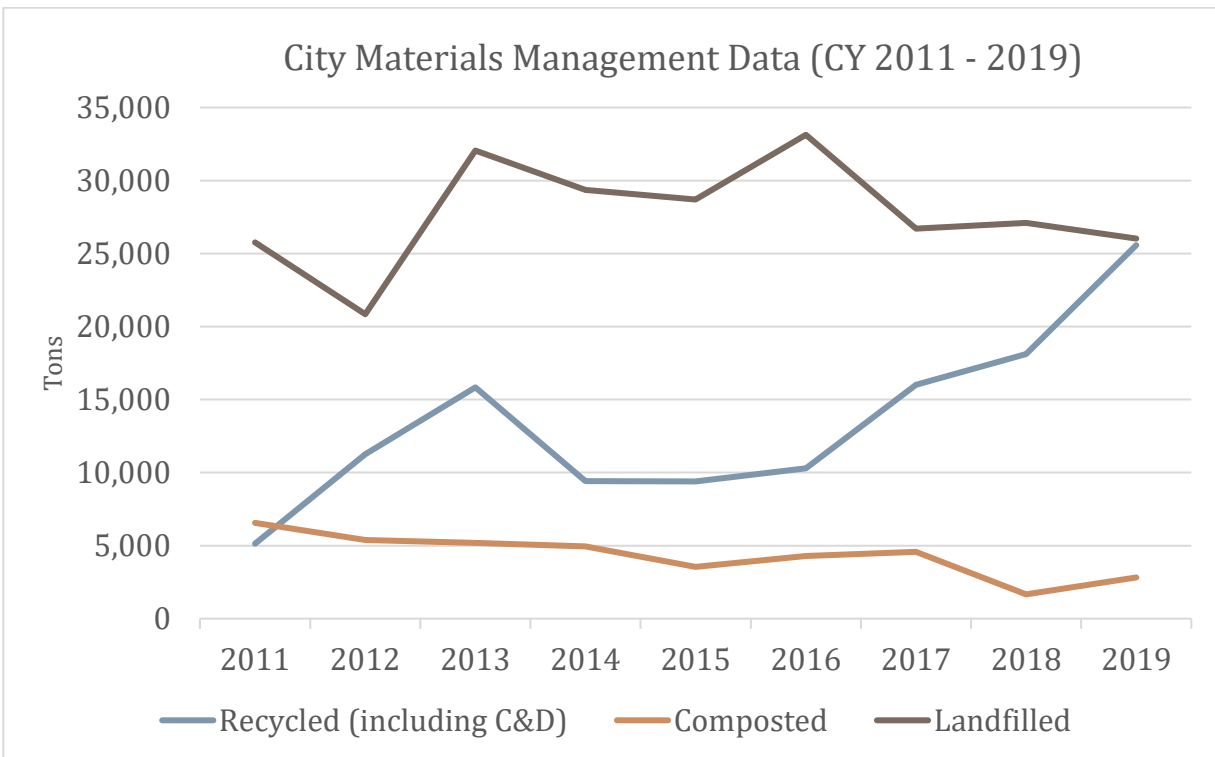
CY 2019

A summary of waste diversion and recycling activities in the City of Urbana.

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Diversion Rate

In 2019, there was a total of 54,427 tons of materials *generated* in Urbana. This includes garbage, construction & demolition (C&D) debris recycled, commodity recycling from households, and landscape materials composted. Data was compiled using the totals that haulers provide for an annual survey, along with materials diverted or landfilled from city departments. Of the total waste generated, 26,037 tons were landfilled; 25,576 tons were recycled, including C&D; and 2,814 tons were composted. Urbana's waste diversion rate in 2019 was 52%. Below is a look at recycled, composted and landfilled tonnages for the past nine calendar years:



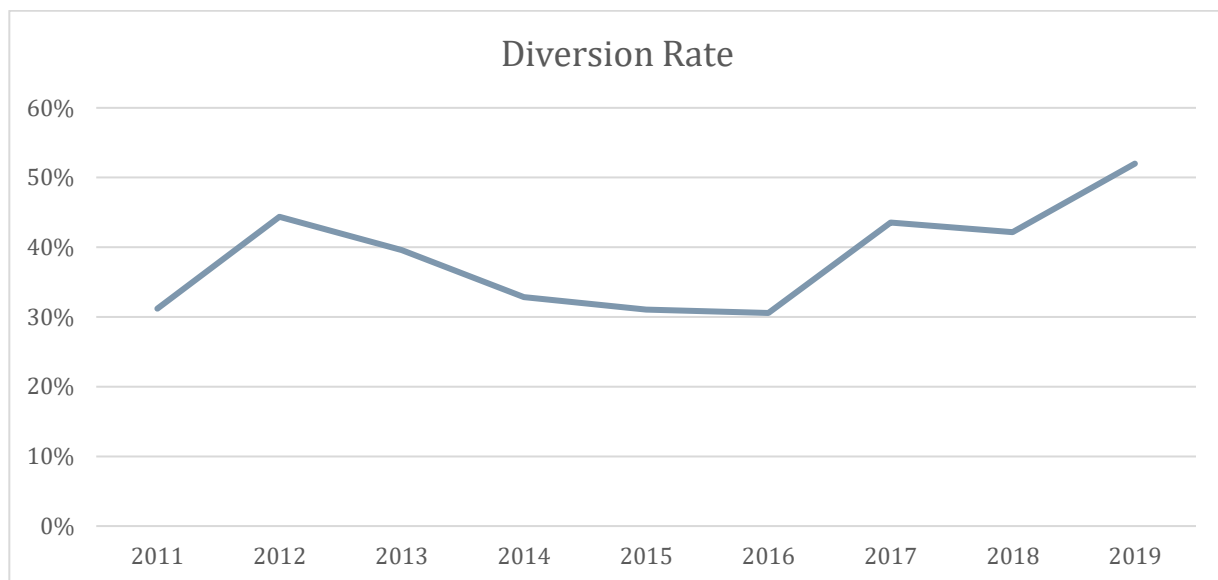
The City began tracking data in 2011 when licensed garbage haulers in Urbana were required to provide the quantity of garbage, recycling (including C&D) and landscape debris collected on an annual basis. Comparing 2019 to 2011 recycling data, Urbana has increased materials diverted five-fold. In 2011, more than 5,000 tons of materials were recycled. In 2016, materials recycled included both commodity recycling and

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construction & demolition (C&D) materials so the number jumped to 10,000 tons recycled. Materials recycled in 2019 ballooned to more than 25,000 tons.

Landscape materials composted has decreased significantly since 2011 due to factors such as the City of Champaign no longer bringing materials to the facility, and fewer leaf collections by the City due to budget constraints. Overall, garbage landfilled has remained relatively consistent the past nine years, leveling out in 2017, 2018 and 2019. The diversion rate in CY 2019 rose 10% over CY 2018 mainly due to higher amounts (weight) of C&D materials recycled in engineering projects (concrete, asphalt, etc.). Overall, the average diversion rate for the past nine calendar years is 39%.

Here are the diversion rates by year:

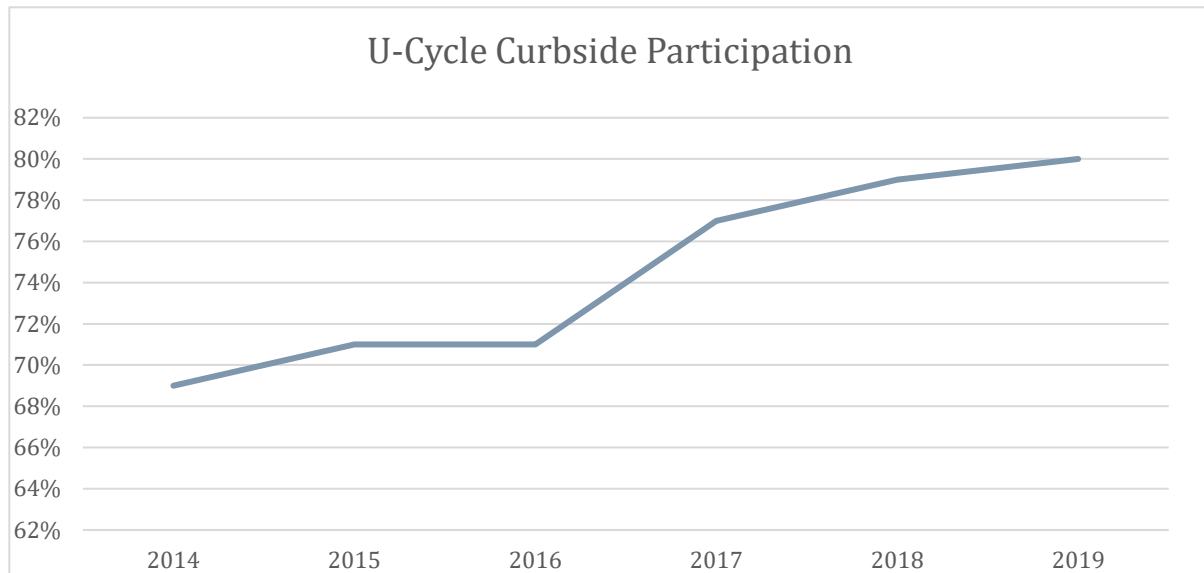


Participation Rate: Curbside U-Cycle Program

The participation rate in the curbside U-Cycle program has been tracked since 2014. In 2014, the participation rate was 69%. In 2019, the participation rate rose to 80%, an increase of 11% since 2014. Participation rate is calculated by dividing the total number of single-family through four-plex households in Urbana by the number of households

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that have requested a U-Card or recycling bin (historically). Participation rate assumes those households with recycling receptacles are setting out recycling semi-frequently (averaging twice per month).



Environmental Impacts

Combined, the curbside and multifamily U-Cycle programs recycled 3,913 tons of materials in 2019, averaging 326 tons of recyclables per month. According to the U.S. EPA's Waste Reduction Model (WARM) calculator, 1,124 metric tons of CO₂ emissions are avoided every month (and 13,488 metric tons annually) by recycling 326 tons of commingled recyclables; with the equivalent of 2,912 vehicles taken off the road monthly.

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Method 2 - Using Monthly Total Tonnage

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3.45 Tons CO2E saved per Ton of Material Recycled/Composted

GHGs/month avoided by recycling/composting rather than landfilling using EPA's WARM model

$$\frac{326 \text{ ton}}{\text{mo}} \times \frac{3.44796 \text{ ton CO2e}}{\text{ton recycled}} = 1124.04 \text{ Metric tons/month of avoided CO2E emissions}$$

Equivalent number of cars taken off the road = 2912.01

Economic Impacts

In 2019, the average annual household garbage collection cost in Urbana was \$20.09/month or \$241.08 annually. The average recycling collection cost in Urbana was \$3.25/month or \$39/annually.

Solid Waste Disposal

- Average garbage disposed* in Illinois = 2,088 lbs./person/year
- Average number of people per household = 1.92
- Average annual household garbage disposed = 4,009 lbs. per household per year

$$(2,088 \text{ lbs./person/year} \times 1.92/\text{HH} = 4,009 \text{ lbs./household/year})$$

*https://igpa.uillinois.edu/sites/igpa.uillinois.edu/files/reports/IR10-09_Waste_&_Recycling.pdf (Institute of Government & Public Affairs Report (2010))

Curbside Solid Waste Landfilled

- Curbside housing units 8,498
- Curbside Solid Waste Landfilled/Year (Est.) = 17,034 tons

$$(8,498 \text{ HH} \times 4,009 \text{ lbs./HH/year} = 34,068,482 \text{ lbs.} / 2000 = 17,034 \text{ tons})$$

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Curbside Households Garbage Cost (Based on hauler prices, not tipping fees)

- Estimated at \$2,048,698 per year
(8,498 HH x \$241.08/annual (avg.) = \$2,048,698)
- Cost per ton = \$120/ton
((\$2,048,698 / 17,034 tons = \$120/ton)
- Cost per pound = \$0.06/lb.
((\$120/ton / 2000 = \$0.06/lb.)

Multifamily Solid Waste Landfilled

- Multifamily Housing Units = 9,911
- Multifamily Solid Waste Landfilled/Year (Est.) = 19,867 tons
(9,911 units x 4,009 lbs./HH/year = 39,733,199 lbs. / year / 2000 = tons)

Multifamily Households Garbage Cost (Based on hauler prices, not tipping fees)

- Estimated at \$1,228,568 per year
(9,911 units x \$10.33/unit/month (avg.)* x 12 months = \$1,228,568 per year)
- Cost per ton = \$62/ton
((\$1,228,568/19,867 tons = \$62)
- Cost per pound = \$0.03/lb.
((\$62 per ton / 2000 = \$0.03/lb.)

*<https://www.hennepin.us/-/media/hennepinus/your-government/projects-initiatives/documents/multifamily-waste-study-2017.pdf>

Curbside Recycling Costs

- Annual contractual cost in CY 2019 = \$163,371

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- Tons of curbside recyclables collected in CY 2019 = 2,301 tons
- Cost per ton = \$71/ton
($\$163,371 / 2,301 \text{ tons} = \$71/\text{ton}$)
- Cost per pound = \$0.04/lb.
($\$71/2000 = \$0.04/\text{lb.}$)

Multifamily Recycling Costs

- Annual contractual cost in CY 2019 = \$175,914
- Tons of multifamily recyclables collected in CY 2019 = 1,612 tons
- Cost per ton = \$109/ton
($\$175,914/1,612 \text{ tons} = \$109/\text{ton}$)
- Cost per pound = \$0.05/lb.
($\$109/2000 = \$0.05/\text{lb.}$)

Conclusion

Materials recycled, with the inclusion of C&D, have increased since CY 2011. Materials landfilled have remained relatively consistent since CY 2011. Landscape materials composted have decreased the past couple years. Urbana's diversion rate in CY 2019 was 52%, which is the highest diversion rate since data tracking began in CY 2011. Urbana's average diversion rate since CY 2011 is 39%. The curbside U-Cycle participation rate continues to increase every year. Curbside disposal costs per pound are double that of multifamily disposal costs due to bulk collection savings at multifamily properties. Multifamily recycling costs per pound are higher than curbside recycling costs due to less recyclables collected and higher contamination rates. Staff will continue education efforts, particularly in regards to reducing contamination in the recycling stream.