

Since 2023, Houston's circular economy has continued to grow, though it remains in a relatively early phase compared to other U.S. cities. Grounded in principles of sustainability, efficient resource use, and waste reduction, the circular economy has seen Houston make strides toward sustainability, though certain leading cities have advanced further in some areas..

Houston's waste management system is structured to manage both organic and inorganic waste through various programs and services offered by the city's Solid Waste Management Department (SWMD). Here is an outline of Houston's waste management system, breaking down the handling processes for organic and inorganic waste.

1. Organic Waste Management in Houston

Organic waste includes biodegradable materials such as food scraps, leaves, grass, branches, and other natural debris. Houston has several programs for the collection and management of this waste:

a. Yard Waste Collection

Houston offers a yard waste collection program for organic materials like grass, leaves, branches, and other landscaping debris. These items must be placed in biodegradable bags, yard recycling containers (not trash bins), or in designated piles at the curb for weekly pickup. The city mandates that yard waste remain separate from other trash. Collected yard waste is sent to composting facilities, where it is processed into compost that can enrich soil in gardens, parks, and other green areas.

b. Food Waste

Although Houston lacks a citywide household food waste collection program (unlike some cities with more developed composting systems), certain school composting projects and community programs are incorporating food scraps into the organic recycling process. Additionally, there are pilot projects and private composting options where residents and businesses can bring food waste to specific facilities, though a comprehensive municipal service is not yet in place across the area.

c. Educational and Community Programs

Houston supports composting education and the proper handling of organic waste by hosting workshops and community events. The city also promotes individual efforts, encouraging residents to start home composting and recycle their yard waste. Another important information is that collected organic waste is processed at composting centers, and the resulting compost is either made available to the public or used in city spaces, including parks and community gardens.

2. Inorganic Waste Management in Houston

Inorganic waste includes materials such as plastics, metals, glass, paper, and cardboard, among others. Houston has a comprehensive system for the collection and recycling of these materials:

a. Inorganic Waste Collection (Trash and Recycling)

Houston provides curbside recycling for residents in designated areas. Accepted items include:

Plastics: Bottles, containers, bins (types 1, 2, 3, 4, 5, and 7).

Paper and Cardboard: Newspapers, magazines, cardboard boxes (without excessive grease or food residue), and other paper items.

Glass and Aluminum: Glass bottles and aluminum cans.

Metals: Steel cans and other lightweight metals.

b. Recycling Centers and Collection Points

Houston provides a network of recycling centers and drop-off points for residents who do not have curbside recycling services. These centers accept a broader range of recyclable materials, offering an alternative for those without curbside access.

The city also organizes events for collecting special waste, such as electronics, furniture, batteries, and hazardous materials, either periodically or as scheduled.

c. Electronic Waste Recycling (E-Waste)

Houston has designated collection points for electronic waste, including items like computers, TVs, phones, and other devices, through recycling centers and scheduled events.

3. Grants and funding opportunities

- Houston Sustainability Fund
- Texas Circular Economy Innovation Fund
- Environmental Protection Agency (EPA) – Grants for Waste Management and Circular Economy
- Houston Green Building Resource Center
- Houston Environmental Innovation Fund
- Texas Commission on Environmental Quality (TCEQ) – Waste Management Grants
- GreenBiz Group – Circularity Funding

4. Startups working with circular economy principles in Houston:

- RecycleHub: a digital recycling platform that connects businesses and consumers with local recyclers. Its mission is to improve recycling efficiency through the use of

technology and facilitate the collection of recyclable materials, such as plastics, metals, and paper.

- Brightmark Energy: this company transforms plastic waste into new raw materials for different industrial sectors.
- TerraCycle: a global company that specializes in recycling products and materials that cannot normally be recycled, such as flexible plastics, coffee capsules, and other complex items.
- The Recycling Partnership: an organization that supports recycling projects through donations and educational resources to improve recycling participation and reduce waste.
- The Houston Food Bank: an organization that combats food waste through the collection and redistribution of unsold or excess products that are still fit for consumption.

5. Challenges and Opportunities to promote circular economy in Houston

Houston's recycling rate is around 23% of the waste generated, which shows improvement from previous years but still falls short of the average for many major U.S. cities. This rate has remained fairly consistent over time, with only small-scale initiatives contributing to gradual progress.

In a comparison with other cities, San Francisco leads with a recycling rate exceeding 80%, driven by its ambitious zero-waste goal. The city enforces mandatory recycling and composting policies, creating a strong recycling framework. Seattle follows closely with a 60% recycling rate, supported by policies encouraging mandatory recycling and the composting of organic waste. Los Angeles, with a recycling rate of approximately 40%, has seen steady progress due to its recycling policies and ongoing efforts to expand recycling and composting infrastructure.

Houston has started introducing organic waste composting programs, particularly for yard and food waste in certain areas. However, residential composting is not as widespread as in other cities. In comparison with other cities, San Francisco and Portland have citywide mandatory composting programs for food waste and organic materials. Seattle has a robust composting program, regularly collecting both food and yard waste, which is integrated into its curbside recycling system. New York has initiated pilot composting programs but is still in the process of expanding and testing these initiatives.

While Houston has a relatively advanced waste management system, there are areas for improvement, especially in the large-scale collection and composting of food waste and expanding recycling efforts. Some of the key challenges include:

- Limited composting programs for food waste. It is necessary to expand composting.
- A need for increased community involvement in recycling and composting initiatives.
- Expanding the infrastructure for recycling and composting to serve the entire city. This is necessary to process more complex materials, such as flexible plastics and electronic waste, which would significantly improve its recycling rate.

- Develop circular economy public policies: public policies and regulations that encourage the circular economy through tax incentives, regulations on recycling and composting, and the implementation of waste reduction standards throughout the city.

StoryMap

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https://www.houstontx.gov/solidwaste/longrange/plan/Facility_Report_v09142020.pdf
<https://www.sfenvironment.org/blog/san-francisco-sets-north-american-record-recycling-composting-80-percent-diversion-rate#:~:text=San%20Francisco%20diverts%2080%20percent,Greenest%20City%20in%20North%20America>.
<https://www.seattle.gov/utilities/your-services/accounts-and-payments/rates/collection-and-disposal/recycling-rates>
<https://www.wastedive.com/news/california-2021-recycling-rate-machi-wagoner-plastic-organics/636709/>

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<https://ncnewsline.com/2023/06/20/save-your-food-scraps-save-the-earth-more-cities-and-states-look-to-composting/#:~:text=Mandatory%20composting%20programs%20have%20thrived,for%20local%20parks%20and%20gardens.>)

<https://www.seattle.gov/utilities/your-services/collection-and-disposal/food-and-yard/compost-right>
<https://one5c.com/new-york-city-curb-side-compost-136981715/>