

SINCE 1968

Houston Clean City Commission

QUARTERLY REPORT Q4 2023; SINGLE-FAMILY RESIDENTIAL YARD WASTE

OVERVIEW

In accordance with the City's Code of Ordinances Chapter 39 Article III, the Houston Clean City Commission is to direct and oversee a comprehensive litter control program for the purpose of reducing and controlling to an acceptable level the concentration of litter in the city and to bring about a long-term improvement in the attitudes and trash handling habits of citizens. The ordinance in Section 39-37 further directs the Commission to "each quarter, during the months of January, April, July and October submit a written report to the mayor and city council summarizing the status of the clean city program". Through a study completed in 2022, the Commission determined that the regional trash handling habit change which will most greatly impact Houston's ability to effectively compete in a future, more-circular economy is to improve the volume and quality of waste materials flowing directly from waste generators to local facilities engaged in related materials reclamation and to support the development of additional local reclamation capability. With this in mind, each of the Commission's Quarterly reports will focus on how a specific waste type is generated and managed in greater Houston and note opportunities for improvement, if identified. Reports will be kept to two pages, submitted in writing to the City and shared at an upcoming public City Council meeting. The Commission will follow up with the City's designated point person within a year of the report date to identify if additional reporting on this topic is needed. **Our Q4 2023 report focuses on single-family residential yard waste (grass trimmings, leaves and small branches), a subset of the broader topic of organic waste.**

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- John Ferguson, Owner, Nature's Way Resources
- Veronica Lizama, Deputy Director, Administration, City of Houston Solid Waste Management Department (SWMD) and the SWMD Operations and Finance teams
- Steve Ghormley, Vice President, Novus Wood Group LP

Houston Clean City Commission Quarterly Report to City Council

Topic:	Single-Family Residential Yard Waste (grass trimmings, leaves and small branches)		
Date:	01/06/23	Committee:	Comm'rs Tyler, Smith, Machado Clark, Gonzalez, & Wilfalk

Overview:

Organic waste is simply any material which originated from a carbon-based life form and will naturally break down outdoors relatively quickly. To break down, it may decompose (which is primarily biologically driven) or it may burn (combust). Natural decomposition mostly occurs under conditions where plenty of oxygen is available (aerobic) and is less frequently accomplished by microbes which do not require oxygen for respiration (anaerobic). Different degradation processes deliver different products as process outcomes and these products then drive other processes. Degradation processes which ultimately support healthy ecosystem functioning or human well-being are beneficial. Degradation processes which fuel the growth of microorganisms that damage marine ecosystems or intensify greenhouse gas release rates are undesirable. **The energy and nutrients released by the degradation processes of well-managed organic waste support desirable outcomes.**

This report focuses on single-family residential yard waste (grass trimmings, leaves and small branches), one type of organic waste. **The best use of yard waste in Houston is to ultimately protect and nurture our soil.** Healthy organic-rich soil, in addition to requiring few or no chemical additives to support plant growth, can hold more water than depleted, compacted soil. More soil water holding capacity leads to reduced runoff (reducing flooding) and reduced need for irrigation (saving water). Saving water means less groundwater withdrawal, and less groundwater withdrawal mitigates regional subsidence. Most Houston area soils have less than 1% organic matter. Most productive agricultural soils have 3-6% organic matter. Remarkably, **a 1% increase in soil organic matter can increase the water holding capacity of that same soil by ~16,500 gallons per acre-ft.** To benefit soil health, organic material like leaves and small branches must eventually be incorporated into the soil. In natural settings, this is primarily accomplished by a diverse community of surface and soil-dwelling organisms, including bacteria and fungi, which interact with plant roots through a complicated, broadly mutually beneficial web of relationships not yet fully understood. In fact, the degree and complexity of life pulsing through soil is rapidly becoming recognized as the most reliable indicator of soil health. Ongoing soil system functioning depends on minimally disturbing and continually supplying this living system with organic material. In disturbed areas, like urban and suburban settings, human activity may aid or significantly disrupt soil bio-cycling. **Using local yard waste to support local soil health provides a broad range of regional benefits.**

Other organic waste streams, such as wood, food, or paper, may have a broader range of beneficial reuse applications than yard waste and will be addressed separately in future reports.

Current State (system participants, areas of local success, regional/national models to follow)

Yard waste and heavy tree waste in Houston is likely ~30% of the total single-family residential municipal solid waste stream generated and most of this is yard waste (grass clippings, leaves and small branches). The City of Houston provides weekly yard waste pickup for households receiving collection service. The yard waste program involves placing leaves, grass and small branches in City-approved compostable bags or in bundles less than 50 lbs and less than 4' long, tied with compostable string. Bags or bundles are then placed at least 3 feet away from residential garbage carts for pick up on the same day as regular trash collection. Yard waste is picked up in a separate truck and delivered directly to a local composting facility. Missed pickups occur a few days later. Yard waste is handled separately from heavy tree waste. Heavy tree waste includes limbs, branches and stumps and is picked up bi-monthly. Landscaping contractors in Houston are expected to haul away both the yard and tree waste their services generate. Area private waste hauling contractors do not pick up yard waste separately so yard waste from households with private waste collection service typically ends up landfilled. Currently, 1% of the solid waste collected by the City is yard waste and

5% is heavy tree waste (6% combined). The gap between a 30% generation rate and a 6% pickup rate signals significant room for program improvement even after considering that 6% underestimates the true pickup rate by not accounting for hauling done by landscaping contractors. Even after considering factors like backyard composting and grass clippings not bagged, it remains likely that more than half of the single-family residential yard waste generated in Houston, which is more than 15% of **total** single-family residential solid waste generated, is landfilled or washed into storm drains.

Challenges and Opportunities

- 1. Increase Public Awareness:** A common theme across most waste streams is citizen's lack of awareness of waste handling options and processes. For yard waste, many citizens seem unaware that the City's yard waste and tree waste programs are separate, each with its own participation requirements. Ensuring citizens know how to appropriately utilize each program is critical for the success of both. Existing communications materials lack sufficient clarity and reach and require immediate review and upgrade. A focused outreach and education campaign about what yard waste is, how it can be disposed of (including at-home options like "leave the leaves" and "grasscycling") and how to set yard waste out for collection would yield a significant uptick in program effectiveness.
- 2. Remove Barriers to Yard Waste Program Participation:** Overly restrictive program participation requirements limit program growth. The requirement that yard waste collection program participants buy and use City approved brands of compostable bags sold by limited distributors decreases program participation rates. Many compostable yard waste bags available for local purchase are not City approved, causing confusion and risking refusal of collection. Since issues with compostable bags failing when lifted have been frequently noted, the impact of allowing or providing appropriate reusable bins, such as hard open-top plastic bins with mesh siding and bottoms, should be studied and tested. This bin design allows collection crews to determine contamination rates prior to accepting yard waste for pickup and will not cause rain-related issues. Soliciting feedback from municipalities that allow yard waste to be placed out in reusable bins is a practical first step.
- 3. Review the City's Yard Waste Contracting Strategy:** Because different approaches to yard and tree waste reclamation are possible and practical, City yard and heavy tree waste processing contracts should be bid separately even if there is considerable bidder overlap. In addition to not being required to handle both yard waste and heavy tree waste, potential service providers should be allowed to bid to provide service for volumes smaller than the City as a whole. This approach would increase the number of potential service providers, reduce transit times/costs by better aligning collection and drop-off, promote smaller businesses and local operators, and facilitate optimal waste reuse. Clauses allowing City operations preferred pricing on compost/mulch products for self-use or distribution to local non-profit organizations engaged in beautification projects should be encouraged.
- 4. Incentivize Landscaping Contractors to Deliver Yard Waste to an Appropriate Reclamation Facility.** When landscaping work is directly contracted by the City, include a clause to ensure that the yard and tree waste that results from the work is diverted from landfill. Develop a City-led recognition program for landscaping contractors who demonstrate that the yard waste their services generate is diverted from landfill. Develop a strategy to enforce the ordinance related to commercial landscaping service providers being responsible for the management of the waste their services create.
- 5. Develop, Implement, Execute and Monitor a Soil Health Plan for City Parks, City-managed Greenspace or Other Space:** The health of the soil across thousands of acres of greenspace affects regional water management issues. These areas could absorb more soil amendment products than are currently being applied and these products can be locally generated from local yard waste.
- 6. Monitor progress:** Given the scale of potential improvement, designate a SWMD point person responsible for monitoring and regularly reporting on yard waste program status/progress.