



PART I

Executive Summary

“We are here to protect the health of all Houstonians. We are also here to enhance the community’s environment and respond to the needs of the community in times of emergency. The staff of the Houston Solid Waste Management Department (SWMD) understand the critical nature of the service we provide and the need to assure that over the long-term, the City of Houston has a reliable and comprehensive program to address our municipal solid waste needs.” - Director Harry Hayes speaking on the SWMD’s critical role in protecting the health and environment of the Houston community.

Without much thought, Houston residents place their carts filled with either municipal solid waste (MSW) or recyclables at the curbside. Residents may also be placing their junk waste or tree waste at the curb. At the end of the day, the carts are empty. At the end of the week, the tree waste or junk waste is gone. Few understand the nature of collecting and managing their trash or recyclables as it is, indeed, a complex process. A process that requires constant evaluation and planning in order to provide the level of service Houstonians expect.



In late 2018, the City selected a consulting team to assist the City prepare a long-term solid waste management plan. The “Project Team” includes the firms of Arredondo, Zepeda & Brunz LLC, New Gen Strategies and Solutions, Tetra Tech, Risa Weinberger and Associates and EnFocus Strategies. In 2019, Mayor Turner appointed a Mayor’s Advisory Task Force (MATF) to help prepare a long-term solid waste management plan. The Integrated Resource Recovery Management Plan (“Plan”) is intended to identify the City’s needs, resources, and approaches to addressing waste management through the year 2040. One of the MATF’s primary responsibilities was to develop goals and objectives for the Plan. Specific goals of the Plan, as approved by the MATF, are presented below, and detailed in Part III, Section 7 of the Plan.

The MATF was responsible for developing plan goals and objectives; prioritizing programs and policies; reviewing and approving the Integrated Resource Recovery Management Plan.

- Achieve financial sustainability for solid waste services;
- Increase source reduction, material reuse, recycling and organics diversion while also decreasing environmental risks of waste disposal in landfills;
- Continue to provide quality solid waste services to the residents and businesses of Houston;
- Ensure long-term disposal capacity and sustainable solid waste infrastructure;
- Provide solid waste management services in a safe, equitable, responsive, and environmentally responsible manner.



Background

Houston is the 4th largest city in the country. With a population of 2.3 million people, the City has grown dramatically over the past ten years. It has a vibrant economy that generates over 1.8 million jobs. As a growing city, it faces serious challenges in meeting basic infrastructure needs. Major construction projects can be seen across the City to resolve issues related to transportation, water service and other needs. The City's close proximity to the Gulf of Mexico places it in the path of strong storms and hurricanes – becoming more prevalent in recent years. Each of these factors – a growing population, a strong economy, traffic congestion and storm events - impact the City's solid waste management needs as detailed in Section 3.

City of Houston

4th largest city in the U.S.

2.3 million people

671 square miles

Waste Management Needs & Facilities

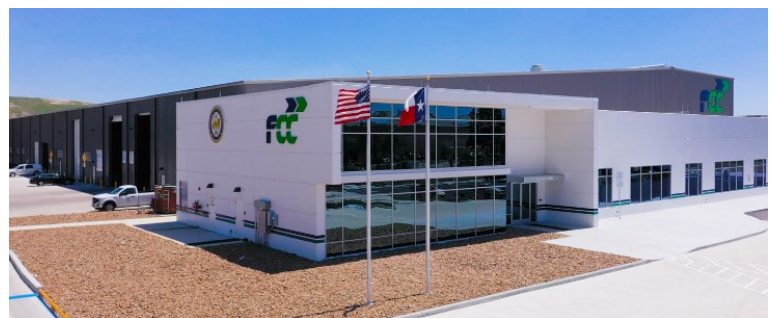
To understand current and future solid waste management needs, the Project Team prepared a Waste Generation Report and a Facilities Report. These reports are summarized in Part II, Sections 4 and 5 of the Plan. In one year, City residents and businesses generate 4.2 million tons of MSW that has to be collected, transported, and disposed. By 2040, with no changes in waste management practices, generation is estimated to increase to 5.3 million tons per year.

It might surprise Houstonians to know how much material is being recycled in the City.

A review of a variety of sources and interviews with local businesses indicates that approximately 2 million tons of materials, organics and construction and demolition (C&D) material are recycled each year – the majority of which is C&D material.

Once collected, recyclable materials are either taken directly to market or a materials recovery facility (MRF). In the case of the recyclables set out at the curb, these materials are taken to the FCC MRF located in northeast Houston. Organic materials are processed into either mulch or compost at privately owned facilities. In order to efficiently transport waste and materials to the appropriate facilities, the City owns three transfer stations that are used to transfer MSW from collection vehicles to more efficient transfer trailers.

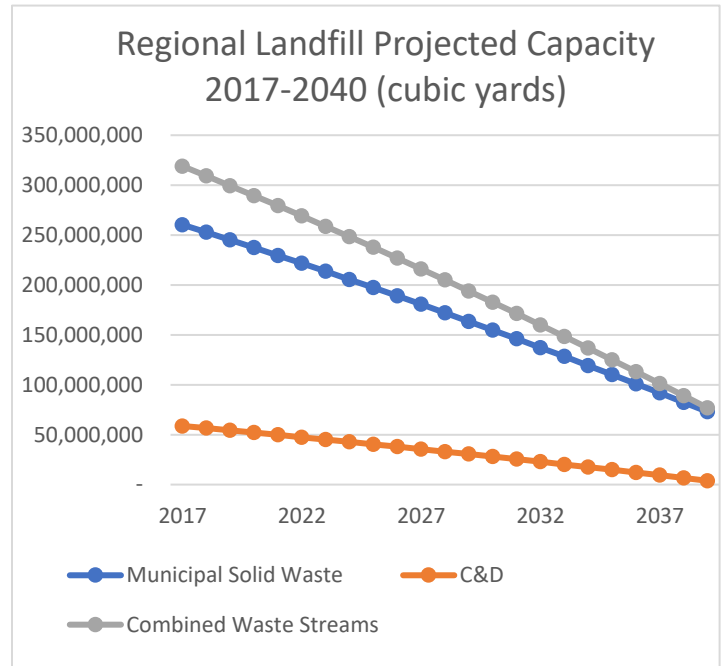
Forecast Waste Generation



FCC Material Recovery Facility opened in 2019 to process Houston residential recyclables



MSW is disposed at one of the region’s 12 MSW landfills or 15 C&D landfills. Landfill capacity in the region is a major issue in terms of meeting future disposal needs. Currently, there is approximately 30 to 40 years of remaining capacity in the region. **By the year 2040, unless there are major landfill expansions, only 5 of the 12 MSW sites will still be in operation. Landfills in the region are privately owned and operated. By 2040, all C&D landfill capacity is projected to be consumed.** This assumes that as landfills reach capacity, the waste normally accepted at the closed facility must go to an alternate site. As more landfills reach capacity, greater quantities must go to fewer landfills, thereby accelerating the time they would reach capacity. For example, if a landfill currently has 60 years of capacity, the additional waste could reduce its capacity by 30 years. Without major expansions or new sites, landfill capacity will shrink from over 350 million cubic yards (267 million tons) to less than 100 million cubic yards (75 million tons) by 2040. Each year, the Houston-Galveston Area Council (H-GAC) region disposes approximately 10 million tons, which is anticipated to increase with increases in population.



City Services

The City has a state mandated obligation to provide for the proper collection and management of MSW. By law, MSW has to be collected at least once per week. The City provides direct collection service to over 396,730 households; approximately 55,000 households receive collection service through sponsorship programs. The City has ordinances in place that require owners of multi-family buildings and businesses to arrange for collection of MSW at least once per week.

Managing MSW also means providing services that reduce the overall environmental impact of its generation. The City’s program focuses on ways to encourage residents and businesses to reduce MSW, increase recycling and manage yard waste and tree waste properly. Some of the key services provided by the City are presented on the right. A more detailed description of these services is presented in Part II, Section 2.

SWMD provides...

- Public Education
- Weekly MSW collection
- Every two week recyclables collection
- Weekly collection of yard waste
- Storm debris collection
- Collection of junk waste and tree waste
- Operation of depositories & recycling centers
- Illegal dump site clean-up
- Assuring disposal capacity
- Tire recovery program



Options & Recommendations

The Project Team presented to the MATF an analysis of the City's current waste and resource management program and identified a range of options designed to achieve their goals and objectives. Part II, Section 6 of the Plan identifies a range of options. Part III, Section 7 provides specific goals and objectives and Part III, Section 8 presents Plan-specific recommendations. The key recommendations of the Plan related to these goals are presented below.

1. Achieve Financial Sustainability for Solid Waste Services

The program is also significantly under funded by an estimated \$20-\$40 million. **The recommended solution is for the City to establish an Enterprise Fund, similar to the City's water and wastewater utility. The Enterprise Fund would provide a more secure funding mechanism for the City. The Enterprise Fund should be funded through a monthly service fee and an environmental fee. The monthly service fee would apply to all single-family residents receiving City services. It is estimated that the monthly service fee would be in the range of \$20 to \$25 per household per month. The actual fee would be determined by evaluating capital needs including fleet, labor costs, disposal costs and the City's needs to improve overall service and implement several of the recommendations made in this Plan to extend landfill capacity through source reduction, recycling and organics management.**

An environmental fee would apply to all single and multi-family households, as well as businesses and institutions in the City. The environmental fees would vary depending on whether the payer is a single-family household, multi-family household, or business. For single family residents receiving City services, the fee is estimated to be approximately \$5.61 per month. *The total environmental fee from all sectors is proposed to generate \$44 million annually to pay for:*

- *illegal dumping clean-up,*
- *increased enforcement of City-codes,*
- *homeless camp clean-ups,*
- *more depositories,*
- *education,*
- *equipment readiness,*
- *container lease and management, and*
- *future disposal capacity.*



Unlike almost every other large city in the country, the City of Houston's waste and resource management program is funded through the General Fund.



Residents receiving City services would pay monthly fees of \$21 to \$26 per month for both the monthly service fee and the environmental fee. A review of other major Texas cities shows that their combined fees range between \$16 and \$51.80 per household per month; the average for 16 major metro areas in the country is \$36 per household per month.

The MATF expressed concern for the financial burden that the fees would place on low-income individuals. The City currently has in place the W.A.T.E.R. Fund Program. This Program is funded entirely through donations but is administered by the City. The program's purpose is to provide financial assistance to low-income individuals who need assistance paying their water bills. Such a program could potentially be expanded to include solid waste fees.

2. Increase source reduction, material reuse, recycling and organics diversion while also decreasing environmental risks of waste disposal in landfills

To preserve landfill space and to reduce the environmental impacts of MSW disposal, the MATF recommends a number of new initiatives for the City to implement. These programs are designed to reduce MSW generation, encourage more recycling and assist in the development of markets for recyclable materials and recovered organics. It is critical that multi-family residences and commercial businesses be part of this solution as they represent 82% of the waste generated in the City. The Plan envisions a long-term partnership between the public and private sectors to work together to address this issue.

3. Continue to provide quality solid waste services to the residents and businesses of Houston

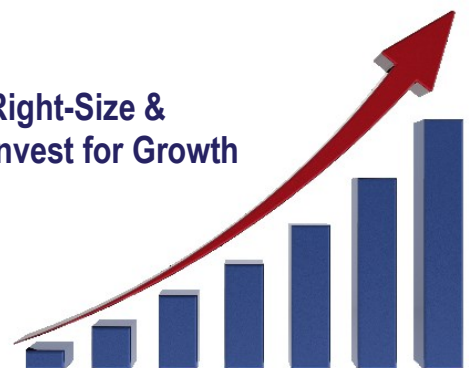
As discussed above, the City provides a wide range of services that are designed to provide reliable and efficient service to Houston residents. **The SWMD's program needs to be RIGHT-SIZED.** An analysis of the City's program in comparison to other cities shows that Houston employees serve nearly twice as many households per employee than the cities of Dallas, Austin, and San Antonio. **The City's program needs to continue to replace older trucks, hire more staff and add routes to meet the needs of residents as the City grows.**

The combined funds would increase the SWMD budget to a level that would provide the SWMD the resources to improve the quality of services provided and meet the future challenges. These challenges include the following.

- Increased population
- Replacement of collection vehicles on a regular basis
- Future storm events
- Illegal dumping & homeless camp clean-up
- Need to increase resource recovery
- Diminishing landfill capacity



Right-Size & Invest for Growth





4. Ensure long-term disposal capacity and sustainable solid waste infrastructure

Currently, there is no silver bullet for making waste go away. Technologies continue to evolve to help move toward a future of zero waste, but it is unlikely that during the planning period, the City's reliance on landfills will come to an end. Securing new disposal capacity is increasingly more difficult to achieve. Under the best of circumstances, securing a new landfill will take between 10 and 15 years to site, permit and construct. The City should continue to monitor landfill capacity in the region. **The City should begin the process of identifying potential sites for future disposal facilities and move to permit and construct its own landfill. Once established, the City can operate with City staff or contract operations as it does with its transfer stations.**



5. Provide solid waste management services in a safe, equitable, responsive, and environmentally responsible manner

The City is committed to providing service in a safe, equitable, and responsive manner. The Plan addresses issues related to improved safety and the need to be equitable as demonstrated by recommending new depositories throughout the City with **recognition that any new facilities take environmental justice into consideration. The MATF also recommended additional actions be taken to address the City's illegal dumping problem. More resources need to be made available including equipment, crews, and depositories to reduce illegal dumping and improve the way illegal dumping ordinances are enforced.**



Covid-19 and Solid Waste Management

The preparation of this Plan was initiated long before Covid-19 was an issue. Our focus was to develop strategies that are designed to provide quality services to Houston's residents in a cost-effective manner while addressing future solid waste management needs. The implications of Covid-19 for the SWMD are dramatic, especially for a department where the safety of SWMD staff has always been a high priority. SWMD staff have not been immune from the virus or its consequences.

Covid-19 has significantly affected the entire solid waste industry. Maintaining a safe working environment for essential service providers has required a significant shift in operations. For example, the SWMD's facilities such as the Environmental Service Department must operate in a manner that promotes social distancing and worker safety. Safety meetings take on a whole new importance as SWMD management addresses staff concerns regarding Covid-19 and how best to avoid becoming infected. Without a vaccine for the virus available, the City and other solid waste service providers will have to develop innovative ways to be able to continue to provide vital solid waste services while protecting the health of their staff.