

# *Addressing Houston's Long-term Municipal Solid Waste Management Needs*

## **City of Houston Integrated Resource Recovery Management Plan**



Mayor's Advisory Task Force Meeting  
March 7, 2019



# Agenda

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- 2:00 Welcome
- 2:05 Introductions – Task Force Members
- 2:35 Why is the City doing a Plan?
- 2:45 Communications Plan
- 3:00 Overview of City's Program
- 3:15 Preview of Waste Generation & Facilities Reports
- 3:30 Plan Goals & Objectives
- 3:55 Discussion of Next Meetings
- 4:00 Adjourn

# Roles of the Task Force

- ▶ Provide insight and perspective on solid waste management issues important to Houston
- ▶ Assist in establishing goals and objectives
- ▶ Provide comments and recommendations on planning documents
- ▶ Comment on the final plan
- ▶ Assist in communicating to the public

# Task Force Commitment

- ▶ Attend approximately 6 total meetings
- ▶ Be prepared to discuss reports
- ▶ Provide comments on reports & plan
- ▶ Observe Task Force Guidelines

# Project Team

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- ▶ City of Houston Solid Waste Management Department
- ▶ Mayor's Advisory Task Force
- ▶ Consulting Team
  - ▶ Arredondo, Zepeda & Brunz LLC
  - ▶ NewGen Strategies & Solutions
  - ▶ Risa Weinberger & Associates
  - ▶ Tetra Tech
  - ▶ EnFocus



Michael Carleton is the project manager. Mike has over 35 years experience working on local solid waste management plans, facility site selections, permitting, project financing and risk analysis.

# Why is Houston doing a Long Range Solid Waste Plan?

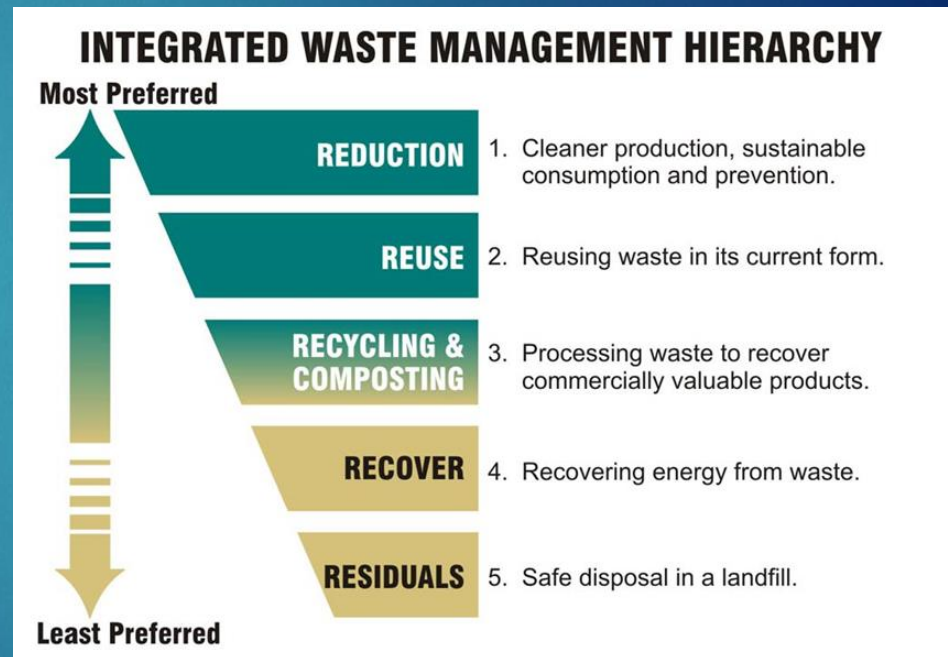
To address the key waste management needs of Houston for the next twenty years including:

- ▶ Improving Houston's environment
- ▶ Increasing landfill diversion of valuable resources
- ▶ Ensuring long-term disposal needs are met
- ▶ Addressing future risks and challenges including major storm events and the changing needs of the city
- ▶ Establishing a financially sustainable program

*A completed plan is good governance, providing the city's leadership, citizens, environmental groups and businesses with a best practices roadmap to future Houston and its cornucopia of solid waste services, programs and regulations.*

# History of City of Houston Solid Waste Planning

- ▶ 1988: Solid Waste Department published a 20 year plan for Houston Solid Waste services
- ▶ 1990: Mayor Kathy Whitmire commissioned the Citizens Advisory Committee on Solid Waste Disposal Solutions. The City also contracted with HDR and Epsilon Engineering to guide the committee and write the report/plan
- ▶ 2006: Mayor Bill White commissioned the Solid Waste Task Force to review Houston's solid waste management programs and services. The task force was chaired by Controller Annise Parker and Sanifill CEO Lorne Bain
- ▶ 2016: Mayor Sylvester Turner authorized procuring services for a comprehensive Long Range (or Zero Waste) Plan to guide the city's decisions for the next several years. Contract approved in late 2018; system analysis and plan development currently underway



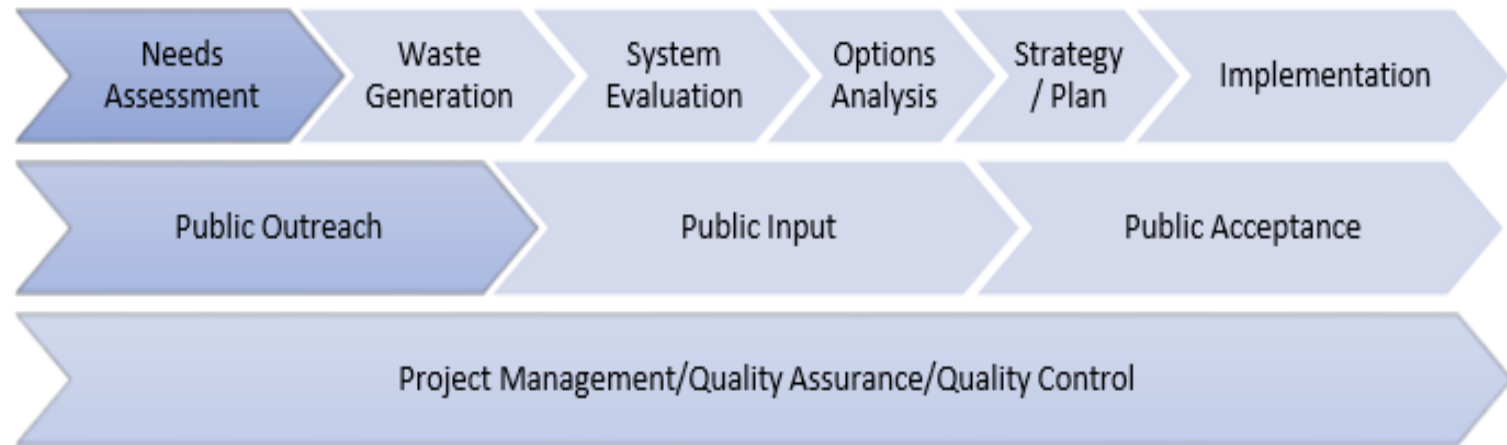
# Issues To Be Addressed in Current Long Range Plan

- ▶ Solid Waste Collection Services
- ▶ Source Reduction & Recycling Opportunities
- ▶ Organics Management
- ▶ Transfer Stations
- ▶ Disposal Capacity & Long-term Options
- ▶ Illegal Dumping
- ▶ Financial Sustainability



# Planning Process

## PLANNING FOR REAL RESULTS...



# Communications Plan

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Phase I – Planning & Preparation

Phase II – Launch

Phase III – Implementation

Phase IV – Summary & Final Deliverables



Tammi Wallace  
EnFocus

# Communications Plan: Purpose

- Educate residents, elected officials, business community and other key stakeholders about the planning process and purpose of long-range plan
- Provide clear information about the City's current solid waste programs, challenges and opportunities
- Seek input and feedback from stakeholders to help inform recommended strategies
- Share draft plan with public and other stakeholders

# Communications Plan: Components

- Create a project-specific web site for sharing information and updates on project
- Develop and distribute a public input survey and review results – Task Force input
- Social media messaging
- Outreach to community via existing Solid Waste Management Department channels

# Communications Plan: Components

- Hold public meetings to review draft plan
- Update City Council with project presentations
- Media outreach regarding planning process & findings



# Solid Waste Program Overview

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- ▶ Department Mission and Mission Tasks
- ▶ Customer Base and Major Services
- ▶ Resources Management
- ▶ Current Major Initiatives
- ▶ Summary



# Core Services of Houston

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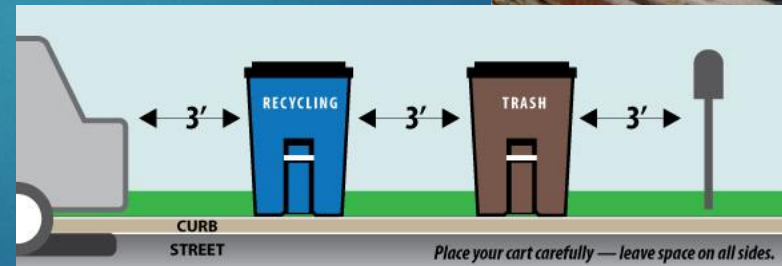


“The City of Houston’s core services are public safety, water & wastewater, streets & drainage, and solid waste management.”

# Department Mission & Services

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- ▶ Provide cost effective, environmentally sound and safe solid waste services which are inclusive of:
  - ▶ Residential Garbage
  - ▶ Junk/Tree Waste
  - ▶ Recycling Services
    - ▶ Curbside Collection
    - ▶ Recycling Centers
    - ▶ Electronic Scrap & Household Hazardous Waste
  - ▶ Yard Waste
  - ▶ Dead Animals
  - ▶ Disposal Management
  - ▶ Community Clean-Up
  - ▶ Illegal Dumping Abatement
- ▶ 425,512 direct service customers
- ▶ Disaster Recovery
- ▶ Scrap Tire Regulation





# Future Opportunities

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- ▶ Expand number of Neighborhood Depository sites to address illegal dumping
- ▶ Expand organics recovery
- ▶ Improve quality and quantity of recovered resources
- ▶ Increase recovery of recycling from areas not directly serviced by the SWMD e.g. multifamily, businesses, etc.
- ▶ Provide sustainable funding for equipment replacement and right sizing of department

# City Owned Transfer Stations

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*Over 75% of Houston's waste goes through transfer stations before being sent to a landfill*

- ▶ City owns three transfer stations
  - ▶ NW Transfer Station
  - ▶ SW Transfer Station
  - ▶ SE Transfer Station



# Curbside Recycling History

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- ▶ Curbside recycling began as a pilot program in 1990, with the small 18-gallon bins being provided in large part through donations from local and major corporations;
- ▶ The original program had only 27,000 homes, which grew to over 200,000 homes with the small dual stream bins before the City began converting and expanding the single stream program.
- ▶ February 2015, Houston achieved it's goal of offering curbside recycling to all homes with City solid waste services. A big win!



# Current Projects

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- ▶ Opening of new single stream MRF, March 2019.
- ▶ Implementation of route optimization software.
- ▶ Development of long range 20-year plan for resource management.
- ▶ Continue management of recovery from Hurricane Harvey.
- ▶ Respond to equipment and labor challenges through short term supplemental collection contract; equipment leases; and procurement of new equipment.



# Current Service Challenges

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- ▶ Aging equipment
- ▶ Route densification
- ▶ Labor shortages
- ▶ Funding shortfalls



# Services Per year

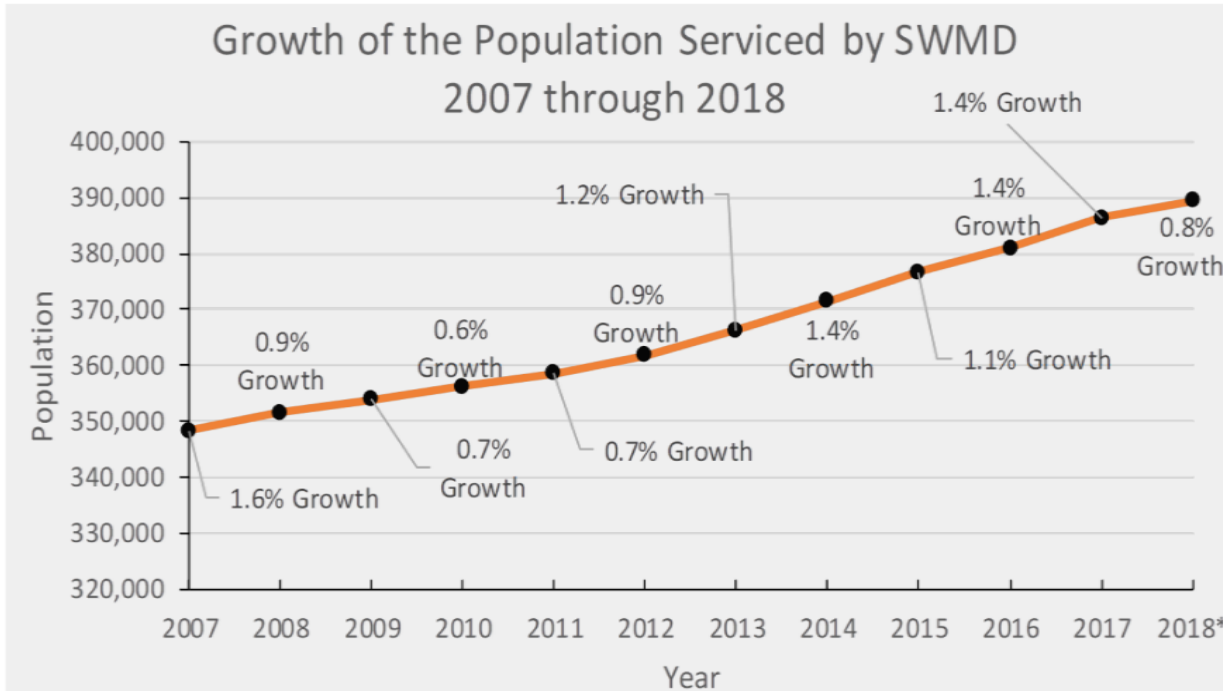


With less than 2% error rate.

Service	Customers	Iteration	Count	Annual Visits
Garbage	390,000	Weekly	52	20,280,000
Yard Waste	390,000	Weekly	52	20,280,000
Recycling	390,000	Bi-weekly	26	10,140,000
Tree Waste	390,000	Bi-Monthly	6	2,340,000
Junk Waste	390,000	Bi-Monthly	6	2,340,000
				<b>55,380,000</b>

# Customer Base

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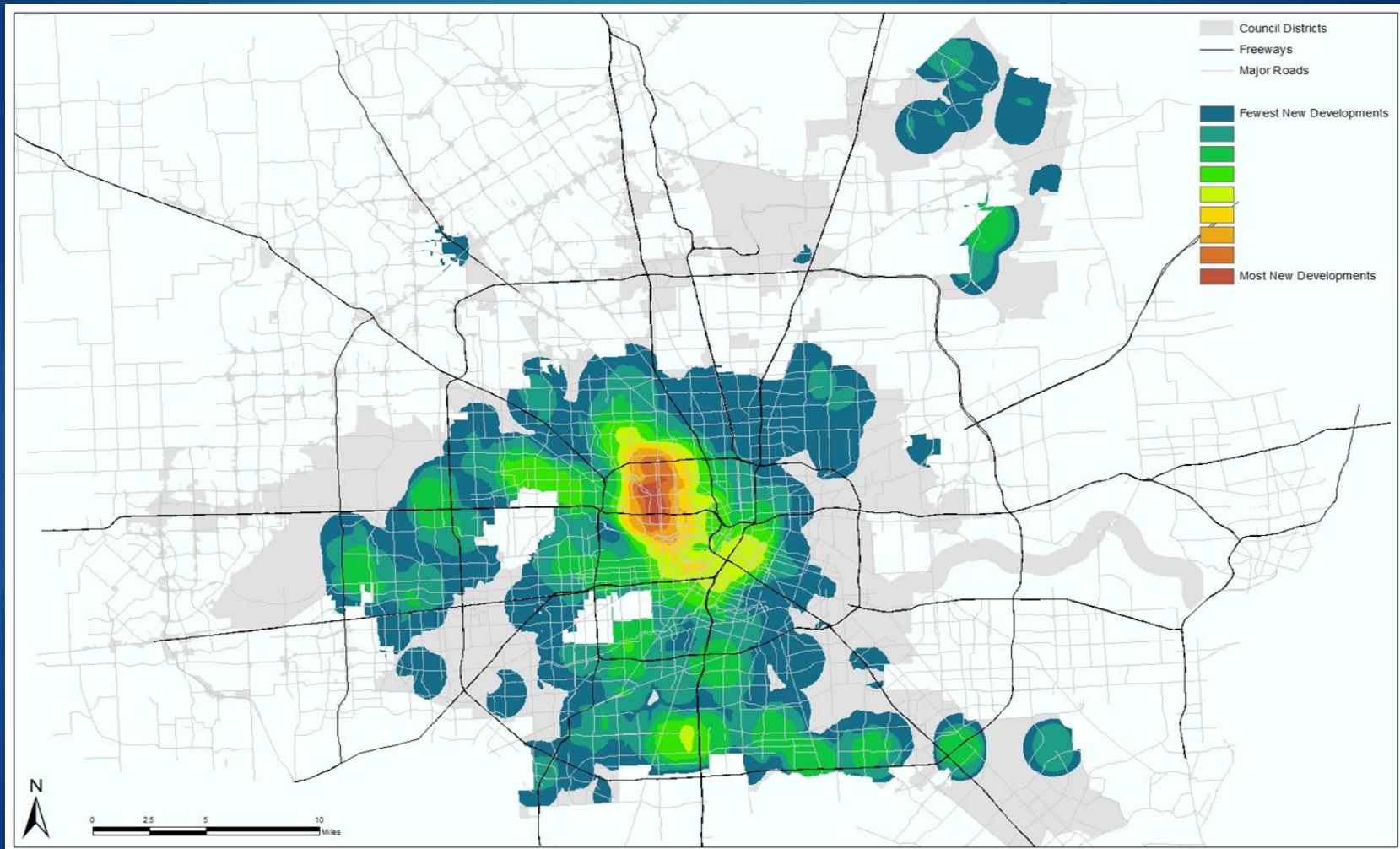


*\*2018 growth percentage is a conservative estimate extrapolated from the trend as reported Jan 2018 through June 2018*

- Since June 2007, the number of households serviced by the City of Houston has increased approximately 12%.
- Inner Loop 610 has shown the largest increase in customer growth.
- Route density inside the loop is an operations concern.

# Customer Base - Growth

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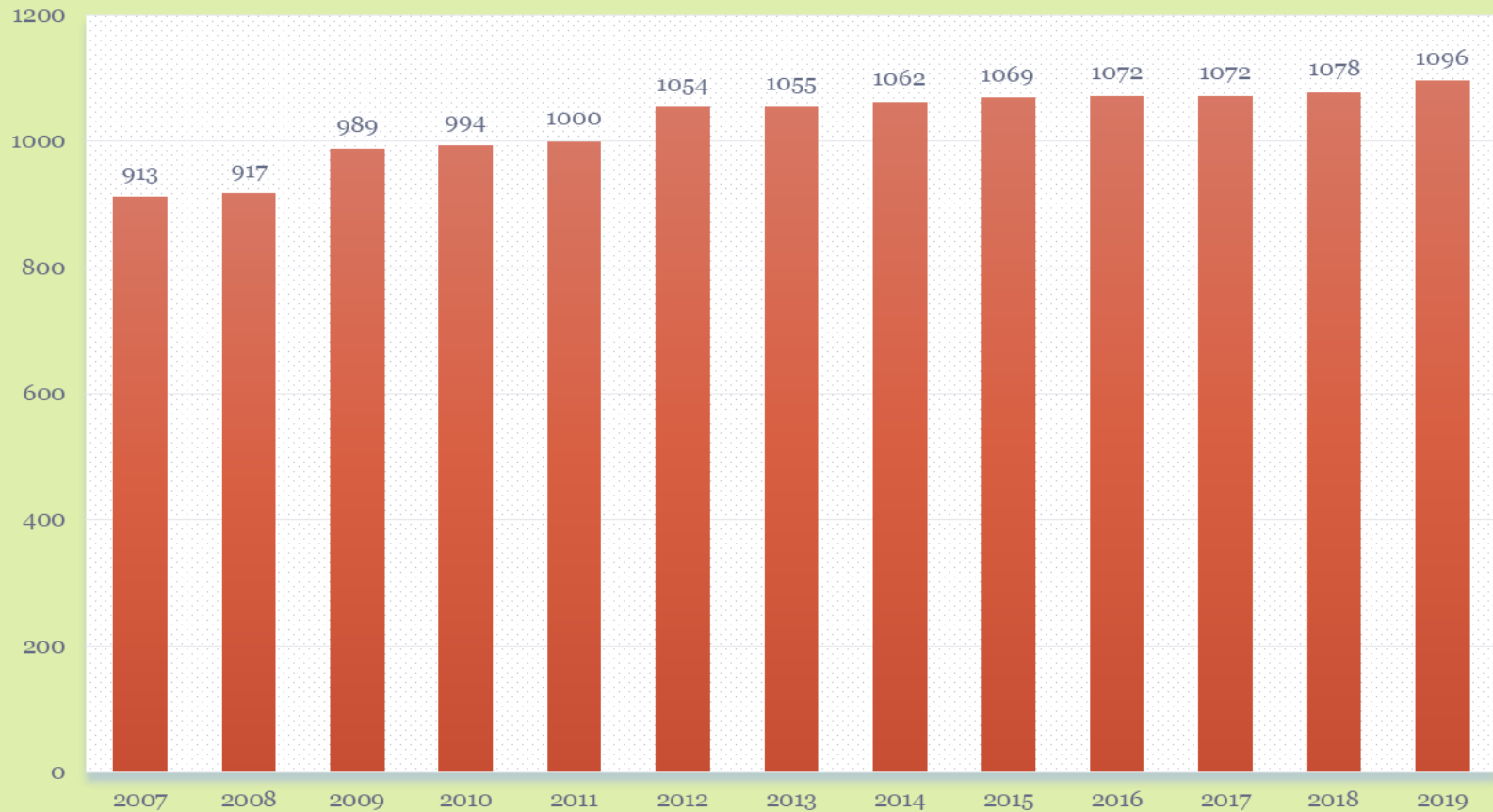




# Number of Homes per SWMD Garbage Route

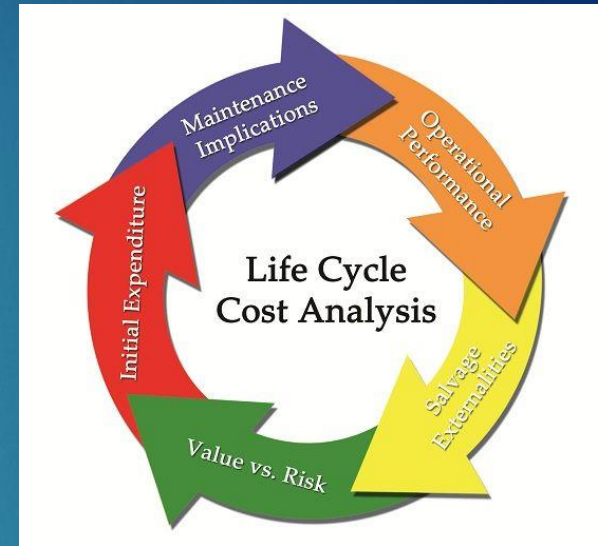
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Average Route Size per Year



# Equipment

- ▶ Equipment profile based on route size that is more than a decade old
- ▶ Equipment replacement schedule has been sporadic due to City's strained finances
- ▶ Spikes and bumps in equipment replacement does not comport with fleet management best practices
- ▶ No sustained funding to keep operations and equipment "right-sized" to easily meet core needs
- ▶ Equipment is front line for disaster response/recovery operations, working throughout major disaster debris recovery operational periods



# Short Term Priorities

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- ▶ Continue receipt of purchased equipment through the summer
- ▶ Ready department for upcoming storm season
- ▶ Work with HR and Finance on competitive salaries for key operations personnel
- ▶ Continue full-court press on hiring operators and mechanics.
- ▶ Consider PFM recommendations towards outsourcing areas of the city that support right-sized service level
- ▶ Update sponsorship agreement to reflect the city's planning/budgeting cycles

# Long Term View

- ▶ Ensure adequate disposal capacity for the City and surrounding region.
- ▶ Secure sustainable funding for department services.
- ▶ Provide a high quality level of service to Houston residents.
- ▶ Continue to find opportunities for diversion that make Houston a cleaner, greener place to live.

# Summary



- ▶ To remain a quality choice for service delivery the department must do the following:
  - ▶ Remain responsive and flexible to meet the needs of its regular customers.
  - ▶ Seek continuous improvements to reduce the cost of operations.
  - ▶ Forge strategic partnerships with public, private and civic groups in the greater Houston community.
  - ▶ Continue to hire, train and promote dedicated workers.

## *A Municipal Solid Waste Generation and Diversion Forecast for the City of Houston*



David S. Yanke  
NewGen Strategies &  
Solutions

NewGen  
Strategies & Solutions

# Project Purpose

The purpose of the waste generation forecast is to identify the following waste quantities over a 21-year period (2019-2040)

- ▶ Putrescible Waste
- ▶ Organics
- ▶ Recyclables
- ▶ Construction & Demolition Waste

Single-family, multi-family, and commercial putrescible waste is forecasted separately.

# Population, Households, Employment Forecast

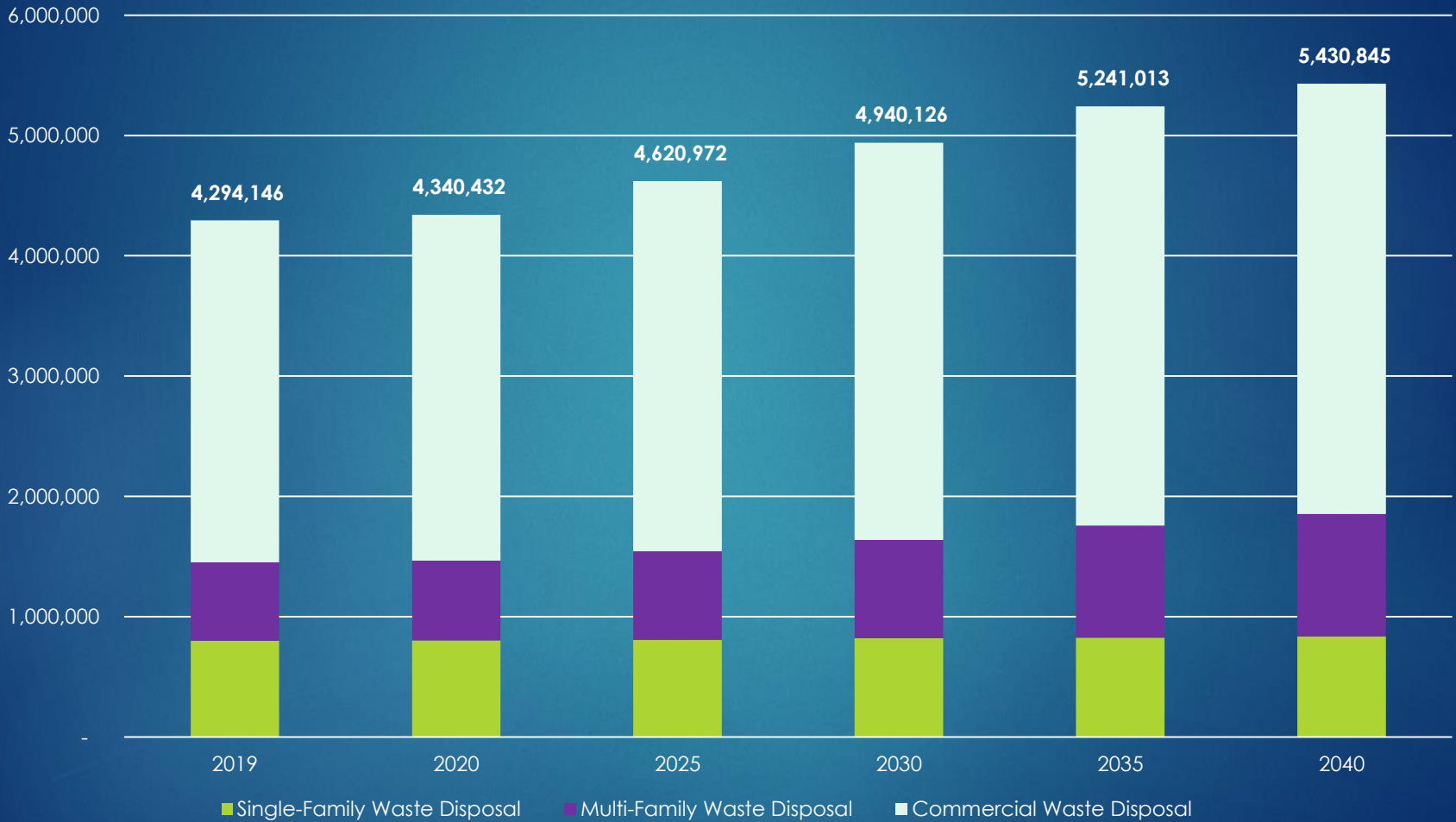
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	2019	2020	2025	2030	2035	2040
<b>Total Population</b>						
Single-Family	1,314,079	1,317,941	1,325,285	1,350,392	1,357,019	1,371,235
Multi-Family	1,069,596	1,089,551	1,210,602	1,337,771	1,530,155	1,673,795
Total Population	2,383,675	2,407,492	2,535,887	2,688,163	2,887,174	3,045,030
<b>Total Households</b>						
Single-Family	462,736	464,696	474,620	484,756	495,109	505,683
Multi-Family	478,538	488,601	540,884	599,117	682,942	758,524
Total Households	941,274	953,297	1,015,504	1,083,873	1,178,051	1,264,207
<b>Total Employment</b>						
Employment	1,882,233	1,903,278	2,037,272	2,187,204	2,306,186	2,368,224



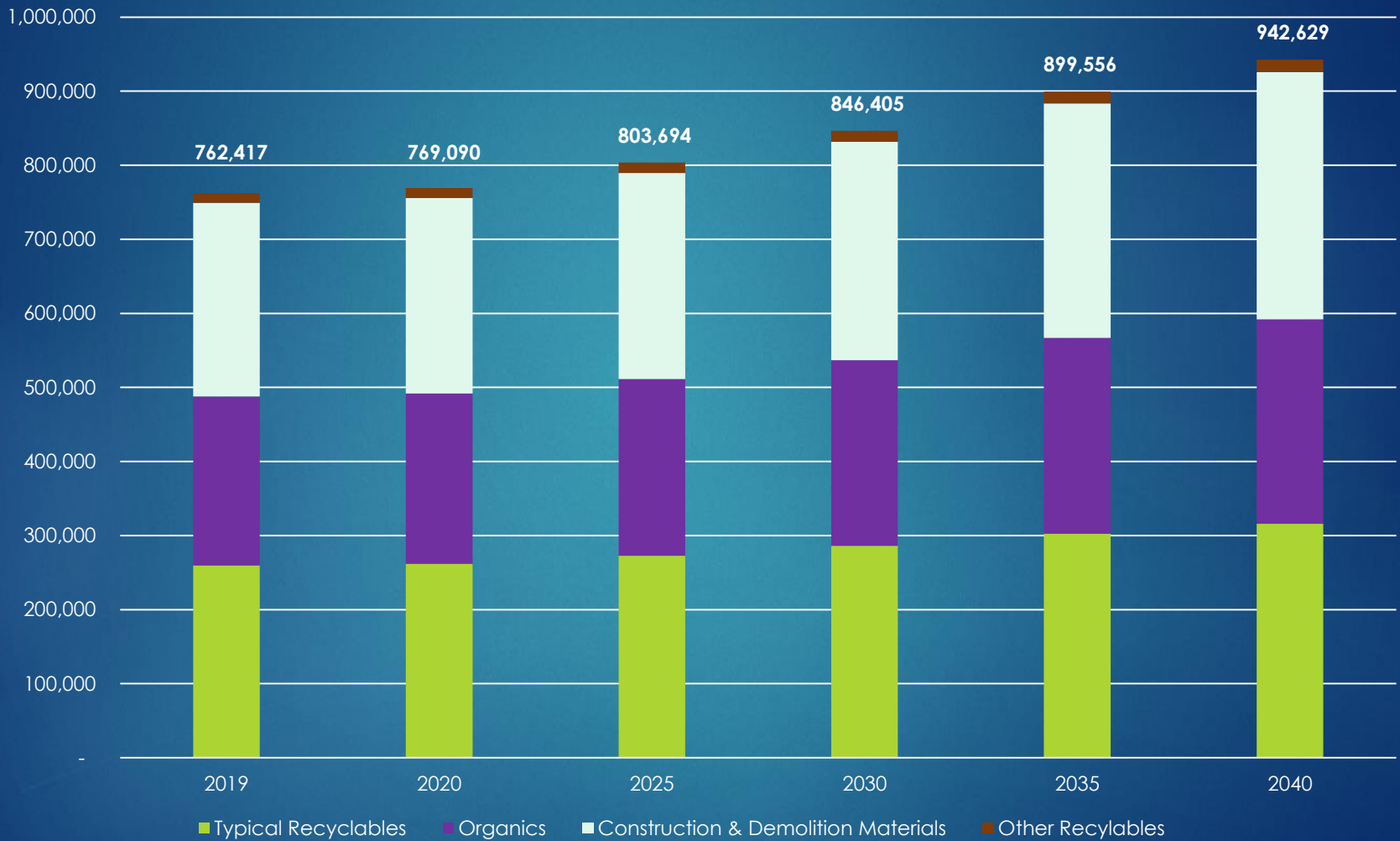
# Projected Waste Disposal

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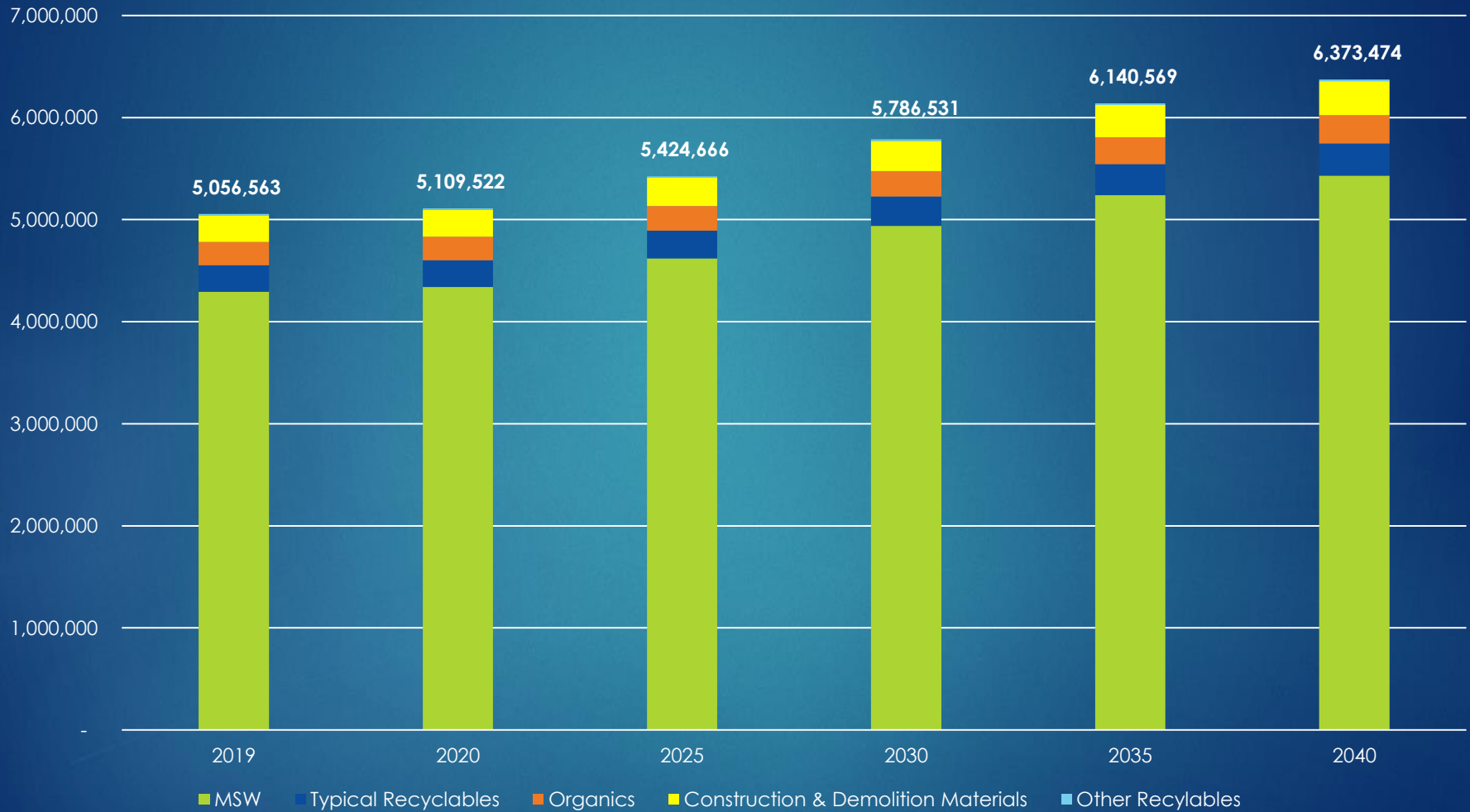
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# Projected Recyclables



# Projected Waste Generation

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# Facilities Summary

City relies on an integrated solid waste management system that includes the following types of facilities

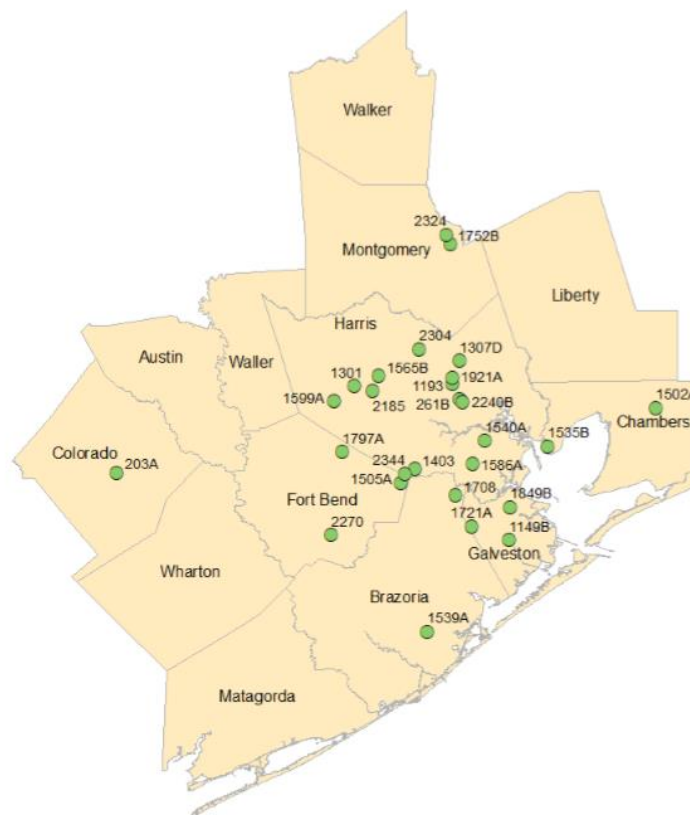
- ▶ Depositories & Recycling Centers
- ▶ Material Recovery Facilities
- ▶ Organics Management Sites (mulch operations & composting)
- ▶ Transfer Stations
- ▶ MSW & C&D Landfills
- ▶ Tire Processors
- ▶ Other specialty waste facilities



# Regional Approach to Facility Assessment

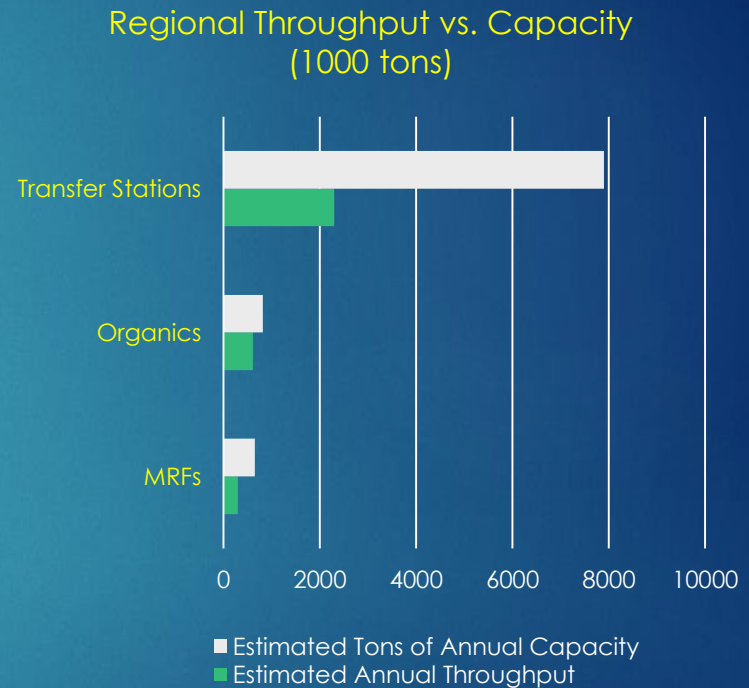
- ▶ City relies on facilities across the H-GAC region for waste processing and disposal
- ▶ The majority of facilities managing MSW are either privately owned or operated

COG 16: Houston-Galveston Area Council—Landfill Locations



# Summary of Facilities

- ▶ 9 Depositories & Recycling Centers
- ▶ 2 Environmental Service Centers
- ▶ 4 Regional Operations Centers
- ▶ 6 MRFs with FCC to begin operations in March (over 650,000 tons of regional capacity / 300,000 tons processed in 2017)
- ▶ 52 organics processors (over 815,000 tons of capacity / 613,000 tons processed in 2017)
- ▶ 13 operating transfer stations in Houston (7.9 million tons of annual capacity / 2.3 million processed in 2017)



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# Landfill Capacity

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- ▶ Type I landfill capacity
  - ▶ 12 Type I facilities accepting municipal solid waste\*
  - ▶ 267 million tons of capacity (37 years) at current rates of disposal
  - ▶ 2018 tons disposed was 7.2 million tons
- ▶ Type IV landfill capacity
  - ▶ 15 Type IV facilities accepting construction / demolition waste
  - ▶ 60.8 million tons of capacity (33 years) at current rates of disposal
  - ▶ 2018 tons disposed was 2.8 million - approximately 1 million tons more due to Hurricane Harvey

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# Vision

*THE VISION OF HOUSTON'S SOLID WASTE MANAGEMENT PLAN  
IS TO PROVIDE A  
FINANCIALLY SUSTAINABLE SOLID WASTE MANAGEMENT  
PROGRAM THAT  
ENHANCES HOUSTON'S ENVIRONMENT  
ENCOURAGES REDUCED PER-CAPITA DISPOSAL AND  
ENSURES LONG-TERM DISPOSAL CAPACITY.*



# Major Goals Identified by City

- ▶ **Achieve Financial Sustainability for Solid Waste Services**
- ▶ **Continue to Provide Quality Solid Waste Services**
- ▶ **Increase Reuse, Recycling and Organics Diversion**
- ▶ **Ensure Long-term Disposal Capacity and Sustainable Solid Waste Infrastructure**

# Goals & Objectives

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## **Goal: Increase Source Reduction, Resource Reuse & Recycling**

- ▶ Objective: Expand and innovate recycling opportunities to all Houston residents and businesses to increase amounts and types of materials that can be recycled, while reducing contamination.
  - ▶ Example Specific Objectives:
    - ▶ Increase participation of single family homes in recycling programs, to increase amounts and types of materials and decrease contamination
    - ▶ Encourage greater recycling within the multifamily sector to increase amounts and types of materials and decrease contamination
    - ▶ Encourage greater recycling within the commercial sector to increase amounts and types of materials and decrease contamination
    - ▶ Identify deficits in end markets and work to better develop lacking end markets
- ▶ Objective: Encourage and facilitate waste prevention and reduction for all Houston residents and businesses, while leading by example.
- ▶ Objective: Preserve landfill capacity and realize environmental and economic benefits by reducing the disposal of organic resources within regulatory and economic constraints.

# Goals & Objectives

## **Goal: Address the Continue to Provide Quality Solid Waste Service**

Overall Objective: Provide quality and efficient collection of MSW and recyclables to Houston residents.

Example Specific Objectives:

- ▶ Provide efficient once per week collection of municipal solid waste from residents. Address upcoming challenges associated with greater urban density, increased traffic and suburban sprawl.
- ▶ Provide for the collection of recyclable materials in a manner that is both cost-effective and enhances the recovery of recyclable materials with low levels of contamination.
- ▶ Provide for collection strategies that increase recovery of brush materials and organics.
- ▶ Provide for the cost-effective collection of bulky waste.
- ▶ Reduce transportation costs associated with the collection and hauling of wastes and recyclable materials through efficient routes and strategic use of transfer stations.
- ▶ Provide opportunities for the collection of recyclable materials at commercial and multi-family units.
- ▶ Provide for the collection of household hazardous materials through City facilities and point-of-sale centers.
- ▶ Provide for safe collection of municipal solid waste throughout the City.

# Goals & Objectives

## ***Goal: Achieve Financial Sustainability for Solid Waste Services***

Overall Objective: Institute an affordable, sustainable financial program for meeting the City's long-term solid waste management program

## ***Goal: Ensure Long-term Disposal Capacity***

Overall Objective: Assure Long-term Disposal Capacity

# Questions & Discussion

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