



**DRAFT**  
**Regional**  
**Solid Waste**  
**Management Plan**  
**2022-2042**

# **Regional Solid Waste Management Plan Volume I**

Regional Solid Waste Management Plans are required by Texas Health and Safety Code (THSC), §363.062, relating to Regional Solid Waste Management Plan (RSWMP). Contents of the RSWMP are described in THSC §363.064 and in 30 Texas Administrative Code (TAC), Chapter 330, Subchapter O.

# Regional Solid Waste Management Plan

## Volume I

### Regional Organization Information

Table 1. Organization Information

<b>Name of Council of Government</b>	Houston-Galveston Area Council
<b>Mailing Address</b>	P.O. Box 22777, Houston, TX 77227-2777
<b>Website</b>	www.h-gac.com
<b>Phone Number</b>	713-627-3200
<b>Email Address</b>	N/A

### Section I. Geographic Scope

Table I.I. Geographic Scope

<b>Names of Member Counties in the Entire Planning Region</b>	Austin, Brazoria, Chambers, Colorado, Fort Bend, Galveston, Harris, Liberty, Matagorda, Montgomery, Walker, Waller, and Wharton
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### Section II. Plan Content

#### II.A. Regional Goals and Objectives

Table II.A. Regional Goals and Objectives

<b>Goal #1</b> Promote the planning for adequate municipal solid waste disposal, handling, processing, transfer, and management facilities	<b>Objective 1.A</b> Encourage the development of facilities that reduce, reuse, and recycle waste materials
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	<p><b>Objective 1.B</b> Encourage appropriate distribution of facilities to minimize transportation costs</p> <p><b>Objective 1.C</b> Encourage the development of larger regional facilities to the extent practical and where such facilities would be the best alternative</p> <p><b>Objective 1.D</b> Encourage expansion and redevelopment of existing municipal solid waste facilities, where feasible, over siting of new facilities</p> <p><b>Objective 1.E</b> Encourage development of transfer stations and citizen collection stations, where appropriate</p> <p><b>Objective 1.F</b> Encourage long-range land use planning at the county level</p> <p><b>Objective 1.G</b> Identify future disposal capacity needs and disposal options</p>
<p><b>Goal #2</b> Educate on all aspects of materials management</p>	<p><b>Objective 2.A</b> Provide information to the public to encourage and enable behavior change</p> <p><b>Objective 2.B</b> Educate local governments, nonprofits, and other groups responsible for materials management</p> <p><b>Objective 2.C</b> Educate parties on new and emerging innovations, technologies, and regulations</p>
<p><b>Goal #3</b> Act as a vehicle for coordination to take advantage of</p>	<p><b>Objective 3.A</b> Develop and maintain regional cooperative service contracts</p>

<p>opportunities for economies of scale and partnerships</p>	<p><b>Objective 3.B</b> Encourage cooperative outreach campaigns</p> <p><b>Objective 3.C</b> Support partnerships and interjurisdictional cooperation on a full range of materials management activities</p>
<p><b>Goal #4</b> Support programs that encourage environmental protections and minimize safety risks</p>	<p><b>Objective 4.A</b> Support the development and utilization of collection programs for components of the waste stream that may pose a special risk or problem</p> <p><b>Objective 4.B</b> Target waste reduction activities to components of the waste stream that may pose a special risk or problem</p> <p><b>Objective 4.C</b> Support planning efforts to abate illegal dumping and litter</p> <p><b>Objective 4.D</b> Support disaster debris management planning efforts</p> <p><b>Objective 4.E</b> Support the enforcement of illegal dumping/disposal of solid waste</p>
<p><b>Goal #5</b> Encourage and promote market development for composted, reused, and recycled goods with a focus on the economic impact of sustainable materials management</p>	<p><b>Objective 5.A</b> Focus outreach efforts to stimulate market development</p> <p><b>Objective 5.B</b> Facilitate opportunities for networking for public and private entities to help create sustainable markets</p> <p><b>Objective 5.C</b> Raise awareness of the economic impact of various aspects of sustainable materials management</p>

<b>Goal #6</b> Facilitate and support the creation and expansion of materials management programs	<b>Objective 6.A</b> Target waste reduction activities to the major components of the waste stream  <b>Objective 6.B</b> Provide resources to help local governments evaluate and implement materials management programs and practices  <b>Objective 6.C</b> Support the development and funding of materials management facilities and infrastructure
<b>Goal #7</b> Support research and data collection efforts related to materials management	<b>Objective 7.A</b> Maintain a regional clearinghouse on materials management practices and activities of H-GAC local governments  <b>Objective 7.B</b> Support efforts to more effectively collect useful data  <b>Objective 7.C</b> Encourage efforts that increase knowledge regarding materials management strategies and needs
<b>Goal #8</b> Develop, support, and maintain partnerships with private industry and nonprofit organizations	<b>Objective 8.A</b> Encourage coordination of public and private interests in addressing solid waste problems  <b>Objective 8.B</b> Support the collection and dissemination of information on materials management facilities and organizations in the region  <b>Objective 8.C</b> Promote best management practices from subject matter experts

## II.B. Efforts to Minimize, Reuse, and Recycle Waste

**Table II.B. Waste Minimization, Reuse, and Recycling**

Subject	Description
Current Efforts to Minimize Municipal Solid Waste and to Reuse or Recycle Waste	<p>Cities and counties provide recycling services to residents through curbside collection or at drop off facilities. Around 63% have access to recycling. Around 50% of the region's residents have access to yard waste collection and around 40% have access to drop off tire collection.</p> <p>Reuse happens through the thrift stores, antique stores, and the companies that refurbish items for resale. Some local governments also get involved in reuse. Two counties offer household hazardous materials that are in good condition for reuse; one county reblends latex paint for resale; and one city has facilities that accept craft materials, books, post-consumer and industrial scrap, and construction materials and then make them available for reuse.</p> <p>Sludge is generally handled in one of four ways in the region, land application of biosolids, use of sludge in composting operations, heat pelletizing of sludge, or landfilled.</p>
Recycling Rate Goal for the Region	The H-GAC region is currently at around a 26% recycling rate. We are proposing that we will recover 10% of what is currently being disposed of over the next 20 years. This results in a recycling rate goal of 31%. The region has good programs aimed at increasing recycling and will continue to improve those programs and make progress in the future.
Recommendations for Encouraging and Achieving a Greater Degree of Waste Minimization and Waste Reuse or Recycling	<ul style="list-style-type: none"> <li>-Increase opportunities for household hazardous waste disposal through events, partnership, and new funding streams</li> <li>-Reduce contamination in single-stream recycling through educational campaigns for awareness and consequences for recycling incorrectly</li> <li>-Collection of food waste by private industry or through backyard composting</li> <li>-Decrease illegal dumping of tires by providing collection events or incentives to return old tires to seller when buying new tires</li> </ul>
Existing or Proposed Community Programs for the Collection of Household Hazardous Waste	With a population of over 7 million people and only seven permanent locations collecting household hazardous waste (HHW) and one collecting just batteries, oil, latex paint, and antifreeze (BOPA) the number of facilities providing

Subject	Description
	<p>collection is inadequate. These facilities are spread among four of the region's counties. This leaves nine counties without a permanent facility collection option.</p> <p>Some cities and municipal utility districts offer curbside pickup of HHW, but this service is not widespread. Residents in the nine counties without a permanent HHW collection option are served by occasional one-day events. Entities rely heavily on TCEQ grant funds to host these one-day events. Other strategies and sources of funding are needed for proper management of household hazardous wastes.</p>
Composting Programs for Yard Waste	<p>The recommended composting programs for yard waste and related organic wastes may include:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> (I) creation and use of community composting centers;</li> <li><input checked="" type="checkbox"/> (II) adoption of the "Don't Bag It" program for lawn clippings developed by the Texas Agricultural Extension Service; and</li> <li><input checked="" type="checkbox"/> (III) development and promotion of education programs on home composting, community composting, and the separation of yard waste for use as mulch.</li> </ul>
Public Education/Outreach	<p>H-GAC conducts outreach and education through a variety of methods. Each month staff develop recycling or reuse related messages to be used on social media on topics such as gardening, plastic, back to school, or cardboard. These messages are used by H-GAC and are also made available to local governments throughout the region to use as their own. H-GAC also maintains educational information on its website, and as needed, produces print materials, ads for radio, ads for print and online newspapers, and videos. When requested, staff gives presentations to community groups, businesses, and schools.</p>



## II.C. Commitment Regarding the Management of MSW Facilities

By checking the boxes below, the Council of Government makes a commitment to the following, regarding the management of MSW facilities:

- ☒ (i) encouraging cooperative efforts between local governments in the siting of landfills for the disposal of solid waste;
- ☒ (ii) assessing the need for new waste disposal capacity;
- ☒ (iii) considering the need to transport waste between municipalities, from a municipality to an area in the jurisdiction of a county, or between counties, particularly if a technically suitable site for a landfill does not exist in a particular area;
- ☒ (iv) allowing a local government to justify the need for a landfill in its jurisdiction to dispose of the solid waste generated in the jurisdiction of another local government that does not have a technically suitable site for a landfill in its jurisdiction;
- ☒ (v) completing and maintaining an inventory of MSW landfill units in accordance with Texas Health and Safety Code, §363.064. One copy of the inventory shall be provided to the commission and to the chief planning official of each municipality and county in which a unit is located; and
- ☒ (vi) developing a guidance document to review MSW registration and permit applications to determine conformance with the goals and objectives outlined in *Volume II: Regional Solid Waste Management Plan Implementation Guidelines* as referenced in 30 TAC §330.643.

## Section III. Required Approvals

Table III.I. Required Approvals

<b>Solid Waste Advisory Committee</b>	January 5, 2022
<b>Public Meeting Dates</b>	January 5, 2022
<b>Executive Committee</b>	January 18, 2022

# Regional Solid Waste Management Implementation Plan Volume II

## Regional Organization Information

Table 1. Organization Information

<b>Name of Council of Government</b>	Houston-Galveston Area Council
<b>Mailing Address</b>	P.O. Box 22777, Houston, TX 77227-2777
<b>Website</b>	www.h-gac.com
<b>Phone Number</b>	713-627-3200
<b>Email Address</b>	N/A

## Section I. Geographic Scope

Table I.I. Geographic Scope

<b>I.A. Names of Member Counties in the Entire Planning Region</b> [Ref. 30 TAC §330.643(a)(1)]	Austin, Brazoria, Chambers, Colorado, Fort Bend, Galveston, Harris, Liberty, Matagorda, Montgomery, Walker, Waller, and Wharton
<b>I.B. Geographic Planning Units Used in the Regional Implementation Plan</b> [Ref. 30 TAC §330.643(a)(1)]	<input type="checkbox"/> Small geographic areas such as census tracts or city boundaries for the most detailed data collection and manipulation; <input type="checkbox"/> Planning areas to be used for the assessment of concerns and the evaluation of alternatives. These planning areas shall be aggregations of small geographic areas; <input type="checkbox"/> County boundaries for the summarization and presentation of key information; or <input checked="" type="checkbox"/> The entire planning region

## Section II. Planning Periods

**Table II.I. Planning Periods**

<b>II.A.1. Current and Historical Information</b>	2019-2020 data was used for the current information. H-GAC hosts quarterly webinars/workshops on a variety of topics to increase the knowledge of local government staff, organizations, nonprofits, and individuals. Topics include illegal dumping enforcement, recycling, household hazardous waste, food waste, electronics, and others. Debris webinars/workshops are held on an annual basis. H-GAC maintains regional contracts for household hazardous waste collection, transportation, and disposal; and electronics collection, transportation, and recycling. Information on solid waste facilities is available on the H-GAC website. H-GAC develops recycling education/outreach messages for use on social media platforms. These are made available for use by others in the region.
<b>II.A.2. Short-range Planning Period</b>	2022-2026 - H-GAC will continue all activities mentioned in II.A.1. Additional activities will include compiling and promoting funding opportunities, developing or coordinating regional education/outreach campaigns, and incorporating automation for data requests from the closed landfill inventory webpage.
<b>II.A.3. Intermediate Planning Period</b>	2027-2031 - H-GAC will continue activities mentioned in II.A.1 and II.A.2 that are ongoing tasks or need to be repeated. Additional activities will include establish a method for sharing ideas/strategies, focus on model policies and best management practices, develop and promote regional standards for data collection and measurement, and conduct analyses to continue the economic impact conversation.
<b>II.A.4. Long-range Planning Period</b>	2032-2042 - H-GAC will continue activities mentioned II.A.1, II.A.2, and II.A.3 that are ongoing tasks or need to be repeated.
<input type="checkbox"/> Check box if additional details provided in <i>Attachment II.A.</i>	

## Section III. Plan Content

### III.A. Demographic Information

**Table III.A.I. Waste Generation\***

Year	Growth Rate per Year	Current Population / Population Projection	Landfill Disposal (Tons)	Disposal Rate (lbs./Person /Day)	Recycling (Tons)	Recycling Rate (lbs./Person /Day)	Waste Generation (Tons)
Current	N/A	7,311,929	9,674,596	7.25	3,442,822	2.58	13,117,418
2022	1.11%	7,476,737	9,892,657	7.25	3,520,422	2.58	13,413,079
2027	1.12%	7,911,361	10,467,719	7.25	3,986,757	2.76	14,454,476
2032	1.06%	8,343,059	11,038,910	7.25	4,480,275	2.94	15,519,185
2037	0.94%	8,746,545	11,572,773	7.25	4,986,269	3.12	16,559,042
2042	0.92%	9,160,912	12,121,031	7.25	5,525,519	3.30	17,646,550

\*This table includes all waste disposed of or recycling that could have been disposed of in municipal solid waste landfills.

**Table III.A.II. Commercial Waste Generation**

Year	Description of significant commercial activities affecting waste generation and disposal in the area.	Expected increase or decrease to Commercial Waste Generation
2022	<p>The total commercial waste is projected to be 4,269,572 tons with a per capita rate at 7.57 lbs/person/day. The total commercial employment is projected to be 3,089,160 people.</p> <p>The current commercial employment by sector is as follows:</p> <p>Accommodation and Food Service - 13.45%</p> <p>Health Care and Social Assistance - 13.12%</p> <p>Retail Trade - 11.21%</p> <p>Educational Services - 10.77%</p> <p>Construction - 8.21%</p> <p>Administrative, Support, Waste Management, and Remediation - 7.57%</p> <p>Wholesale Trade - 6.14%</p> <p>Transportation and Warehousing - 4.85%</p> <p>Finance and Insurance - 3.47%</p> <p>Other Services - 3.09%</p> <p>Public Administration - 2.89%</p> <p>Real Estate, Rental, and Leasing - 2.16%</p>	Increase of 1.13%

	Management of Companies and Enterprises - 1.72% Arts Entertainment, and Recreation - 1.35% Information - 1.20% Utilities - 0.77%	
2027	During this time the fastest growth will be seen in healthcare support, food preparation and serving, personal care and service, and healthcare practitioners. The total commercial waste is projected to be 4,519,703 tons with the per capita rate remaining constant at 7.57 lbs/person/day. The total commercial employment is projected to be 3,264,186 people.	Increase of 1.15%
2032	The total commercial waste is projected to be 4,767,980 tons with the per capita rate remaining constant at 7.57 lbs/person/day. The total commercial employment is projected to be 3,438,021 people.	Increase of 0.94%
2037	The total commercial waste is projected to be 4,999,659 tons with the per capita rate remaining constant at 7.57 lbs/person/day. The total commercial employment is projected to be 3,600,730 people.	Increase of 0.96%
2042	The total commercial waste is projected to be 5,237,460 tons with the per capita rate remaining constant at 7.57 lbs/person/day. The total commercial employment is projected to be 3,767,536 people.	Increase of 0.89%

**Table III.A.III. Industrial Waste Generation**

<b>Year</b>	<b>Description of significant industrial waste activities affecting waste generation and disposal in the area.</b>	<b>Expected increase or decrease to Industrial Waste Generation</b>
2022	<p>The total industrial waste is projected to be 937,128 tons with a per capita rate of 14.98 lbs/person/day. The total industrial employment is projected to be 342,859 people.</p> <p>The current industrial employment by sector is as follows:</p> <p>Manufacturing - 71.41%  Mining, Quarrying, and Oil and Gas - 26.88%  Agriculture, Forestry, Fishing, and Hunting - 1.71%</p>	Increase of 1.09%

2027	During this time the fastest growth will be seen in manufacturing and mining/oil and gas. The total industrial waste is projected to be 990,223 tons with the per capita rate remaining constant at 14.98 lbs/person/day. The total industrial employment is projected to be 362,284 people.	Increase of 1.12%
2032	The total industrial waste is projected to be 1,042,958 tons with the per capita rate remaining constant at 14.98 lbs/person/day. The total industrial employment is projected to be 381,578 people.	Increase of 0.92%
2037	The total industrial waste is projected to be 1,092,318 tons with the per capita rate remaining constant at 14.98 lbs/person/day. The total industrial employment is projected to be 399,637 people.	Increase of 0.86%
2042	The total industrial waste is projected to be 1,142,920 tons with the per capita rate remaining constant at 14.98 lbs/person/day. The total industrial employment is projected to be 418,150 people.	Increase of 0.88%



### III.B. Estimates of Current and Future Solid Waste Amounts by Type

Table III.B.1. Current and Future Solid Waste Amounts by Type

Waste Type	Number of Landfills Accepting Waste Type	Percent of Total Tons Disposed	Current Year	5-year Projection (tons)	10-year Projection (tons)	15-year Projection (tons)	20-year Projection (tons)
Municipal	12	54.93%	5,149,767	5,265,247	5,321,059	5,371,076	5,420,490
Brush	4	0.15%	14,392	14,715	14,871	15,010	15,148
Construction or Demolition	27	27.25%	2,554,559	2,611,843	2,639,529	2,664,341	2,688,852
Litter	0	0%	0	0	0	0	0
Class 1 Non-hazardous	6	2.32%	217,405	222,281	224,637	226,748	228,834
Classes 2 and 3 Non-hazardous	12	8.61%	807,543	825,652	834,404	842,247	849,996
Incinerator Ash	0	0%	0	0	0	0	0
Treated Medical Waste	3 (doesn't mention if it is treated or not)	0.09%	8,096	8,278	8,365	8,444	8,522
Municipal Hazardous Waste from CESQGs	0	0%	0	0	0	0	0
Regulated Asbestos-containing Material (RACM)	5	0.09%	8,868	9,067	9,163	9,249	9,334
Non-RACM	5	0.19%	17,483	18,243	18,436	18,610	18,781
Dead Animals	5	<0.01%	242	247	250	252	254
Sludge	7	3.74%	350,591	358,453	362,252	365,658	369,022
Grease Trap Waste	1	0.01%	1,076	1,100	1,112	1,122	1,133
Septage	0	0%	0	0	0	0	0
Contaminated soil	5	2.11%	198,077	202,519	204,666	206,590	208,490
Tires (split, quartered, shredded)	4	<0.01%	783	801	809	817	824
Pesticides	0	0%	0	0	0	0	0
Used Oil Filter	0	0%	0	0	0	0	0

Waste Type	Number of Landfills Accepting Waste Type	Percent of Total Tons Disposed	Current Year	5-year Projection (tons)	10-year Projection (tons)	15-year Projection (tons)	20-year Projection (tons)
Other* (identify other types reported as <b><i>Attachment III.B.</i></b> )	8	0.49%	45,590	46,612	47,107	47,549	47,987
Total	27	100%	9,374,832	9,585,056	9,686,658	9,777,713	9,867,668
<input type="checkbox"/> Check box if additional details provided in <b><i>Attachment III.B.</i></b>							

\*Other waste includes grit trap waste (2 landfills), non-industrial class 1 waste (1 landfill), non-industrial solids/sand blast material (1 landfill), special waste non-industrial liquids (1 landfill), off specification material (3 landfills), paint waste (2 landfills), food waste (3 landfills), clean fill (3 landfills), and dirt/soil (3 landfills).

### III.C. Description of Current and Planned Solid Waste Management Activities

Table III.C.I. Current Solid Waste Management Activities in the Region

Activity	Description
Generation	In 2019, 9,374,831 tons of waste was disposed of in the region's landfills and 3,277,512.99 tons of materials were recycled. The combined per capita rate of waste disposal and recycling was 9.97 lbs/person/day.
Source Separation	Of the 25 landfills in the region, 7 reported diverting materials. Diverted materials included white goods, construction and demolition materials, yard waste, metal, brick, and concrete.
Collection	Generally, residents in single-family households in the region have access to curbside pickup of waste, and residents of multifamily housing have access to on-site dumpsters for waste collection. Waste collection is largely procured by cities, homeowners' associations, and municipal utility districts, but there are some areas, particularly in unincorporated parts of counties, where collection of curbside waste is procured by individual homeowners/renters. Collection of recycling is handled in much the same way as waste. Some areas have curbside collection of recycling while others rely on one or more of the 64 recycling facilities operated by cities or counties where residents can drop off recyclables. Recycling collection for multi-family housing is limited. There are also 12 citizens' collection stations in 4 counties in the region.
Handling	In the H-GAC region, there are 40 facilities that fall under the category of waste handling: 1 medical waste transfer station, 1 liquid waste transfer station, 26 transfer stations spread among 7 counties, and 12 low volume transfer stations
Storage	The region does not have storage specific facilities, although there are facilities that store items as part of their process, such as tire facilities and material recovery facilities.
Transportation	Transportation of waste and recycling is largely handled by private companies, although some cities handle their own collection and transportation of materials or at least portions of it.
Processing	There are numerous landfills, facilities, and recyclers in the region engaged in processing: 8 landfills that process gas produced by the landfill, and 1 of those 8 landfills sells the processed gas as energy; 5 grease and grit trap facilities; 40 composting facilities; 1 facility classified as a medical waste incinerator; and 86 recyclers processing materials such as mulch, electronics, sand, concrete, shingles, and others.

Activity	Description
Treatment	There are 9 landfills and facilities in the region that treat waste: 2 landfills compost materials, 1 landfill has liquid solidification operations, 4 autoclave facilities with permits, and 2 medical waste facilities.
Resource Recovery	There are 9 beneficial gas recovery facilities in the region, 2 household hazardous waste facilities (HHW) that give out HHW still in good condition to anyone that wants it, and 1 that reblends usable latex paint for resale. There is one city operated facility that accepts building materials for reuse and private companies and nonprofits that take them in for resale. There are also hundreds of thrift stores, antique stores, and other businesses that sell used items across the region.
Disposal of Solid Waste	In 2020, 8.8 million tons of waste was disposed in the region. There are 25 landfills in the region-- 11 Type I landfills and 14 Type IV landfills. A 26th landfill closed at the beginning of 2021. The region's landfills have 35 years of capacity, which is adequate. However, distribution of landfills is geographically concentrated in the central and eastern counties of the region. Of the 13 counties in the region only 6 have a landfill, and 13 of the region's 25 landfills are in Harris County. Average tipping fees for the region's landfills are \$33.03/ton for Type I landfills and \$11.18/uncompacted cubic yard for Type IV.

**Table III.C.II. Planned Solid Waste Management Activities in the Region**

<b>Activity</b>	<b>Description</b>
Generation	No major changes to how waste and recycling are generated are expected.
Source Separation	No major changes to how recycling is separated are expected.
Collection	No major changes to how waste and recycling are collected are expected.
Handling	There are 11 new transfer stations planned in the region: 1 liquid waste transfer station not yet constructed (permit issued in 2015); 7 transfer stations not yet constructed (permits issued in 2005, 2008, 2011, 2012, 2018, and 2021); 2 transfer stations with a pending permit, 2 low volume transfer stations not yet constructed (acknowledgement issued in 2015 for one and the other is pending).
Storage	No storage specific facilities are expected.
Transportation	No major changes to how waste and recycling are transported are expected.
Processing	There are 8 new or expanded facilities for processing waste planned for the region: 1 grit & grease trap facility has a pending expansion; 3 grit and grease trap facilities are not yet constructed (permits issued in 1989, 2009, and 2012); 1 composting facility with a pending permit; 1 medical waste incinerator not yet constructed (permit issued in 1992); and 2 composting facilities not yet constructed.
Treatment	There are two facilities for treating medical waste planned in the region: 1 pending medical waste facility, 1 medical waste facility not yet constructed (permit issued in 1992).
Resource Recovery	There is one beneficial gas recovery facility not yet constructed in the region (permit issued in 2020).
Disposal of Solid Waste	Two Type IV landfill expansions are currently pending. Two landfills are permitted, but not yet constructed. One is a Type I in Walker County not yet constructed, but they've had the permit since 1997, and one is a Type IV not yet constructed in Harris County (permit issued in 2002).
<input type="checkbox"/> <b>Check box if additional information of solid waste management activities is provided as <i>Attachment III.C</i>.</b>	

### III.D. Description and Assessment of the Adequacy of Existing Solid Waste Management Facilities & Practices, and Household Hazardous Waste Programs

Table III.D.I. Adequacy of Existing Facilities and Practices

Program	Facility Adequacy	Practices Adequacy
Resource Recovery	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No, description of facility inadequacy provided in <b><i>Attachment III. D.</i></b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No, description of practice inadequacy provided in <b><i>Attachment III. D.</i></b>
Storage	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, description of facility inadequacy provided in <b><i>Attachment III. D.</i></b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, description of practice inadequacy provided in <b><i>Attachment III. D.</i></b>
Transportation	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, description of facility inadequacy provided in <b><i>Attachment III. D.</i></b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, description of practice inadequacy provided in <b><i>Attachment III. D.</i></b>
Treatment	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, description of facility inadequacy provided in <b><i>Attachment III. D.</i></b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, description of practice inadequacy provided in <b><i>Attachment III. D.</i></b>
Disposal	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No, description of facility inadequacy provided in <b><i>Attachment III. D.</i></b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, description of practice inadequacy provided in <b><i>Attachment III. D.</i></b>
Household Hazardous Waste Collection	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No, description of facility inadequacy provided in <b><i>Attachment III. D.</i></b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No, description of practice inadequacy provided in <b><i>Attachment III. D.</i></b>
Household Hazardous Waste Disposal	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No, description of facility inadequacy provided in <b><i>Attachment III. D.</i></b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, description of practice inadequacy provided in <b><i>Attachment III. D.</i></b>



### III.E. Assessment of Current Source Reduction and Waste Minimization Efforts, Including Sludge, and Efforts to Reuse or Recycle Waste

- ☒ Assessment of current source reduction and minimization efforts, including activities to reduce sludge, and efforts to reuse or recycle waste is provided as *Attachment III.E*.

### III.F. Identification of Additional Opportunities for Source Reduction and Waste Minimization, and Reuse or Recycling of Waste

Table III.F.I Additional Opportunities for Source Reduction and Waste Minimization, Reuse and Recycling of Waste

Category of Activity (Source Reduction and Waste Minimization, Reuse or Recycling of Waste)	Opportunity Name	Brief Description
Waste Minimization	Household hazardous waste collection	Not all cities and counties provide regular collection of household hazardous waste; therefore, many residents only have the option to landfill these materials. While this is a legal method of handling these materials it's not the best or safest. Local governments could consider expanding collection opportunities through partnerships, new funding sources, or the use of the more economical batteries, oil, latex paint, and antifreeze collections.
Source Reduction and Waste Minimization	Food waste collection	Food waste collection is limited in the region. A limited number of restaurants, facilities, and food manufacturers collect food waste for composting or digesting. Some options available for residential food waste collection include at the curb, or door (in the case of apartments), or at a drop off location. A second option for removing food waste from the waste stream is through the use of backyard composting. There is no tracking mechanism in place to know how many households participate in backyard composting, however, this continues to be a viable option for

Category of Activity (Source Reduction and Waste Minimization, Reuse or Recycling of Waste)	Opportunity Name	Brief Description
		residents that could be promoted to a greater degree.
Recycling and Waste Minimization	Debris diversion	Following a disaster, a city or county must balance the need for quick removal of debris with the opportunity to divert some of the debris by sorting the items for collection. Increased outreach efforts before and after a disaster, teaching residents the preferred method of setting out debris could make a difference and allow for greater diversion.
Recycling	Electronics recycling	Electronics recycling opportunities are not equal across the region with those living in urban areas having much better access to electronics recycling than those in rural areas due to a lack of stores or government run drop off facilities that accept them.
Recycling	Tire collection and recycling	Illegal dumping of tires is a common problem for communities across the region. Providing an incentive to leave tires with the tire sellers when new tires are bought would partially address the problem.
Reuse	Expand paint reblending operations	Latex paint is the most commonly collected item at household hazardous waste events and facilities, yet only one county in the region reblends latex paint to sell. Others could learn to do this and incorporate it into their procedures.
Source Reduction	Don't Bag It	Grass clippings can be diverted from landfills with the promotion of the Texas AgriLife Extension's Don't Bag It program which encourages the practice of mulching grass clippings rather than bagging them.

<b>Category of Activity (Source Reduction and Waste Minimization, Reuse or Recycling of Waste)</b>	<b>Opportunity Name</b>	<b>Brief Description</b>
Reuse	Deconstruction and Reuse of Construction and Demolition Materials	Opportunities for reuse of construction and demolition materials are not equal across the region with those in Harris County having easier access to facilities that handle these types of materials. Other counties could start similar programs. Another option is to replicate the building model of using recycled and salvaged materials when building homes which has been done successfully in Walker County.
<input type="checkbox"/> Check box if additional information of opportunities and source reduction and waste minimization, reuse and recycling of waste is provided in <i>Attachment III. F.</i>		

### **III.G. Recommendations for Encouraging and Achieving a Greater Degree of Source Reduction and Waste Minimization, and Reuse or Recycling of Waste**

**Table III.G.I. Recommendations for Greater Source Reduction and Waste Minimization, and Reuse or Recycling of Waste**

<p>#1 Increased opportunities for household hazardous waste disposal -</p> <p>Four of the 13 counties in the H-GAC region have a permanent facility for household hazardous waste. In the other nine counties the residents are served by occasional one-day collection events, and entities rely heavily on TCEQ grant funds to host these events. Other strategies and sources of funding are needed for proper management of household hazardous wastes. Some recommendations that could help to address this need include seeking additional funding sources, such as partnering with local industry to help fund the events; partnering with all cities within the county for a larger event instead of multiple events in multiple cities; or seeking other grant opportunities; and hosting the less expensive batteries, oil, latex paint, and antifreeze collection option more frequently to collect a large portion of the materials.</p>
<p>#2 Reduced contamination in single-stream recycling -</p> <p>When contamination is high in single-stream recycling there is a greater chance that some materials that could have been recycled will instead end up in the waste stream. Contamination can increase the costs to process the materials - a cost that will be passed on to the residents. Recommendations for reducing contamination include developing clear messaging in multiple languages, increasing outreach through a variety of platforms, conducting cart/bin audits, and working closely with neighborhoods and utilizing block leaders.</p>
<p>#3 Collection of food waste -</p> <p>Over half of the region's population has access to recycling either at the curb or through a drop-off facility. The same cannot be said for collection of food waste. Since the 1990's, some companies have begun to collect food waste for composting from residents or businesses, and there are other groups focusing on collecting food that could still be consumed by other people or animals, but more can be done. Recommendations for reducing food waste include increasing education about the rules and regulations surrounding food donation, promoting backyard composting, and improving the information online about donation or composting options.</p>
<p>#4 Decreased illegal dumping of tires -</p> <p>Illegal dumping of tires is a common problem across Texas. Recommendations for decreasing the dumping of tires include increasing outreach to inform residents of all the negative ways illegal dumping affects a community, increasing fines or more awareness about existing fines, developing programs that entice individuals to leave their old tires at the shop for recycling, and developing programs to regulate tire transporters.</p>
<p>#5 Increased opportunities for electronics recycling -</p>

Electronics recycling opportunities are not equal across the region with people in urban areas having much better access to electronics recycling due to a proximity to stores or government run drop off facilities that accept electronics. Residents in areas without a permanent recycling drop off location are served by one-day collection events. These are often use TCEQ grants to fund them. Diversification of funding sources would be beneficial. Some recommendations that could help to address this need include seeking additional funding sources, such as partnering with local industry to help fund the events; partnering with all cities within the county for a larger event instead of multiple events in multiple cities; or seeking other grant opportunities.

**#6 Increased opportunities for construction and demolition material reuse**

Construction and demolition materials make up a large portion of waste disposed of in the region, with Type IV landfills receiving about 24% of the region's waste. Recommendations for increasing the use of construction and demolition material include establishing programs that collect the materials, outreach surrounding any existing construction and demolition reuse facilities to drive people to them for donation or purchase, and outreach surrounding ways that these types of materials have been used in the past for either construction or creative uses.

☐ Check box if additional details are provided in *Attachment III.G.*

### **III.H. Identification of Public and Private Management Agencies and Responsibilities**

- ☒ A list of public and private solid waste management agencies and their responsibilities that affect and impact solid waste management in the planning region is provided as ***Attachment III.H.***

### III.I. Identification of Solid Waste Management Concerns and Establishment of Priorities for Addressing Those Concerns

**Table III.I Solid Waste Management Concerns and Priorities**

Solid Waste Management Concern	Priorities to Address the Concern
Collection of household hazardous waste	<p>Funding and access are concerns for the region. Priorities include:</p> <ul style="list-style-type: none"> <li>-Finding additional funding for collection of HHW</li> <li>-Encouraging partnerships</li> <li>-Encouraging the use of BOPA events</li> </ul>
Illegal dumping	<p>Awareness and enforcement are opportunities for the region. Priorities include:</p> <ul style="list-style-type: none"> <li>-Utilization of more effective penalties</li> <li>-Outreach campaigns focused on               <ul style="list-style-type: none"> <li>-Increased education on environmental enforcement laws</li> </ul> </li> <li>-Increased awareness of legal disposal/recycling options</li> </ul>
Disaster debris	<p>Education and awareness is crucial for the region. Priorities include:</p> <ul style="list-style-type: none"> <li>-Continued education on debris management strategies and rules/regulations</li> <li>-Greater awareness of diversion opportunities and benefits</li> <li>-Increased outreach on the proper way to sort and set out debris</li> </ul>
Recycling contamination	<p>Raising awareness for successful recycling and adding consequences for unsuccessful recycling can make a difference in the region. Priorities include:</p> <ul style="list-style-type: none"> <li>-Better and increased outreach on proper recycling and awareness of the cost to residents of poor recycling and “wishcycling”</li> <li>-Imposing consequences for those recycling poorly such as cart/bin tagging and possible removal of cart/bin</li> </ul>
Electronics recycling	<p>Increased opportunities and awareness are crucial for collecting a greater quantity of electronics. Priorities include:</p> <ul style="list-style-type: none"> <li>-Raising awareness of existing electronic recycling programs</li> <li>-Increasing opportunities for electronics recycling through permanent facilities or one-day collection events</li> </ul>



Solid Waste Management Concern	Priorities to Address the Concern
	<ul style="list-style-type: none"> <li>-Finding additional funding for collection of electronics</li> </ul>
Hard to manage products	<p>Exploring new ideas is important for managing hard to recycle and dispose of items. Priorities include:</p> <ul style="list-style-type: none"> <li>-Promote the concept of the circular economy</li> <li>-Encourage the use of existing laws and the development of new extended producer responsibility laws for hard to manage products</li> </ul>
Collection of food waste	<p>Increased awareness and opportunities are key components of improving food waste reduction in the region. Priorities include:</p> <ul style="list-style-type: none"> <li>-Greater understanding of rules/regulations surrounding food donation</li> <li>-Increasing the opportunities for food composting through either curbside collection, collection from businesses, or drop-off locations</li> <li>-Encouragement of backyard composting</li> </ul>
Landfills and transfer stations (capacity and siting)	<p>Communication, access, and source reduction are strategies to manage expectations associated with new, expanding, or lacking landfills. Priorities include:</p> <ul style="list-style-type: none"> <li>-Researching distances individuals are willing to travel to properly dispose of waste</li> <li>-Encouragement to reduce, reuse, and recycle more</li> <li>-Increased awareness that until zero waste is achieved, trash must go somewhere</li> <li>-Encouraging the development of transfer stations in areas without landfills</li> </ul>
<input type="checkbox"/> Check box if additional details are provided in <i>Attachment III.I</i>	

### **III.J. Planning Areas and Agencies with Common Solid Waste Management Concerns that Could be Addressed Through Joint Action**

**Table III.J.I Planning Areas and Agencies with Common Solid Waste Management Concerns**

<b>Solid Waste Management Concern</b>	<b>Names of Planning Areas and Agencies that Could Address the Concern via Joint Action(s)</b>
Collection of household hazardous waste	Local governments, private companies, H-GAC, homeowners associations, USDA, and municipal utility districts
Illegal dumping	Police departments, solid waste departments, Keep Texas Beautiful affiliates, H-GAC, TCEQ, USDA, Texas Parks and Wildlife, and lawmakers
Disaster debris	Local governments and H-GAC
Recycling contamination	Local governments, H-GAC, private industry recyclers, Keep Texas Beautiful affiliates, EPA, TCEQ, and independent school districts
Electronic recycling	H-GAC, TCEQ, local governments, and private industry
Hard to manage products	H-GAC, TCEQ, lawmakers, industry groups, STAR, and local governments
Collection of food waste	H-GAC, EPA, TCEQ, private industry, and local governments
Landfills and transfer stations (capacity of siting)	H-GAC, local governments, and private industry

### III.K. Identification of Incentives and Barriers for Source Reduction and Waste Minimization, and Resource Recovery, Including Identification of Potential Markets

**Table III.K.I Incentives and Barriers for Source Reduction and Waste Minimization, and Resource Recovery**

<b>Source Reduction and Waste Minimization</b>	
Pushes back the need for greater landfill capacity	Siting a landfill or other waste management facility adjacent to a residential area may be viewed as problematic. One way to avoid the need for more or expanded landfills is to reduce the reliance on greater landfill capacity by minimizing the amount of waste sent to the landfill. This can be accomplished by reducing the quantity of materials consumed by individuals, reusing items that can be reused, and recycling everything left that can be recycled. This cause-and-effect relationship is easy to understand, but many consumers are not thinking about it when they make purchases or dispose of things. Developing and promoting outreach messages on this topic could help to increase the number of people that make the connection and take actions based on their new insights.
Difficult to change individual's behaviors	<p>Convenience is important to people as they move through their busy days, but convenience often translates into increased quantities of waste. Convenience can take the form of single-use plastics, broken items that are easier (and often more cost effective) to replace than repair, and packaging from items sent straight to a residence after shopping online.</p> <p>Another behavior that leads to increased quantities of waste is people's desire to always have the newest thing, whether it be fashion, toys, or electronic gadgets. And the companies selling these items work hard to convince consumers that they need these things.</p> <p>Changing any of these behaviors will be a great challenge.</p>
<b>Resource Recovery</b>	
Job creation	Based on a study conducted by H-GAC in 2013 and a subsequent statewide study, more jobs are created by recycling and reuse than are created by continued disposal of items in the landfill. Job creation, as a cause, is something that all can get behind.
Limited access to recycling in some areas	While a large portion of the population in the H-GAC region has access to either curbside or drop off recycling, there are still areas that don't have those options or the distance someone would have to travel to a drop off recycling facility is too great to realistically expect them to do so. This is true in the rural areas of the region, but it is also true in Harris County, the most urban of the region's counties. Individuals in the unincorporated portions of the county

	have a few drop off options, but because of the traffic and sometimes limited hours of operation the drop off options are not accessible enough.
Confusion around what can and can't be recycled	Knowing what can and can't be recycled is often a challenge. Different materials are accepted in different recycling programs, and the education materials developed to let people know what can be recycled are sometimes confusing. This can lead people to put all sorts of things in the recycling cart/bin that then must be removed during the sorting process.
<b>Potential Markets</b>	
Food waste	According to the "Recycling Market Development Plan" released in August 2021, food waste makes up the largest portion of the waste stream, by weight, in Texas that could be diverted. There has been an interest in food waste collection by some cities and food waste collection efforts by private industry has begun to expand. There is much more that could be diverted.
Paper products	Although paper product recycling is one of the most available recycling services in the region (behind scrap metal recycling), there is still a large quantity of these materials going into the landfill. With a high value for the materials, and an increasing demand for cardboard as a result of the shift to online shopping, there is potential for the paper product recycling markets to grow in the region.
Advances in technology	As new products and technologies emerge, so will the need for managing them when they are no longer usable. This will create the opportunity for the recycling markets to grow, particularly those for electronics. For example, although the first electric vehicle was developed in the 1800's, they have only become commercially viable in the 21 <sup>st</sup> century, with the marketing and associated infrastructure growing during that time. As more individuals and fleets shift to electric vehicles, the need to efficiently recycle their batteries will also grow. It is difficult to forecast what new products and technologies will come on the market by 2042, but recycling and disposal options should be considered and addressed as needed.

### III.L. Regional Goals and Objectives, Including Waste Reduction Goals

Table III.L.I Regional Goals and Objectives

<p><b>Goal #1</b> Promote the planning for adequate municipal solid waste disposal, handling, processing, transfer, and management facilities</p>	<p><b>Objective 1.A</b> Encourage the development of facilities that reduce, reuse, and recycle waste materials</p> <p><b>Objective 1.B</b> Encourage appropriate distribution of facilities to minimize transportation costs</p> <p><b>Objective 1.C</b> Encourage the development of larger regional facilities to the extent practical and where such facilities would be the best alternative</p> <p><b>Objective 1.D</b> Encourage expansion and redevelopment of existing municipal solid waste facilities, where feasible, over siting of new facilities</p> <p><b>Objective 1.E</b> Encourage development of transfer stations and citizen collection stations, where appropriate</p> <p><b>Objective 1.F</b> Encourage long-range land use planning at the county level</p> <p><b>Objective 1.G</b> Identify future disposal capacity needs and disposal options</p>
<p><b>Goal #2</b> Educate on all aspects of materials management</p>	<p><b>Objective 2.A</b> Provide information to the public to encourage and enable behavior change</p> <p><b>Objective 2.B</b> Educate local governments, nonprofits, and other groups responsible for materials management</p>

	<b>Objective 2.C</b> Educate parties on new and emerging innovations, technologies, and regulations
<b>Goal #3</b> Act as a vehicle for coordination to take advantage of opportunities for economies of scale and partnerships	<b>Objective 3.A</b> Develop and maintain regional cooperative service contracts  <b>Objective 3.B</b> Encourage cooperative outreach campaigns  <b>Objective 3.C</b> Support partnerships and interjurisdictional cooperation on a full range of materials management activities
<b>Goal #4</b> Support programs that encourage environmental protections and minimize safety risks	<b>Objective 4.A</b> Support the development and utilization of collection programs for components of the waste stream that may pose a special risk or problem  <b>Objective 4.B</b> Target waste reduction activities to components of the waste stream that may pose a special risk or problem  <b>Objective 4.C</b> Support planning efforts to abate illegal dumping and litter  <b>Objective 4.D</b> Support disaster debris management planning efforts  <b>Objective 4.E</b> Support the enforcement of illegal dumping/disposal of solid waste
<b>Goal #5</b> Encourage and promote market development for composted, reused, and recycled goods with a focus on the economic impact of sustainable materials management	<b>Objective 5.A</b> Focus outreach efforts to stimulate market development



	<p><b>Objective 5.B</b> Facilitate opportunities for networking for public and private entities to help create a sustainable market</p> <p><b>Objective 5.C</b> Raise awareness of the economic impact of various aspects of sustainable materials management</p>
<p><b>Goal #6</b> Facilitate and support the creation and expansion of materials management programs</p>	<p><b>Objective 6.A</b> Target waste reduction activities to the major components of the waste stream</p> <p><b>Objective 6.B</b> Provide resources to help local governments evaluate and implement materials management programs and practices</p> <p><b>Objective 6.C</b> Promote funding opportunities for materials management programs</p> <p><b>Objective 6.D</b> Support the development of materials management facilities and infrastructure</p>
<p><b>Goal #7</b> Support research and data collection efforts related to materials management</p>	<p><b>Objective 7.A</b> Maintain a regional clearinghouse on materials management practices and activities of H-GAC local governments</p> <p><b>Objective 7.B</b> Support efforts to more effectively collect useful data</p> <p><b>Objective 7.C</b> Encourage efforts that increase knowledge regarding materials management strategies and needs</p>
<p><b>Goal #8</b> Develop, support, and maintain partnerships with private industry and nonprofit organizations</p>	<p><b>Objective 8.A</b> Encourage coordination of public and private interests in addressing solid waste problems</p> <p><b>Objective 8.B</b> Support the collection and dissemination of information on materials</p>

	management facilities and organizations in the region
	<b>Objective 8.C</b> Promote best management practices from subject matter experts

### III.M. Advantages and Disadvantages of Alternative Actions

Are alternative actions being considered in this plan for the regional area?	<input type="checkbox"/> <b>Yes.</b> Provide details in <i>Attachment III.M.</i> <input checked="" type="checkbox"/> <b>No.</b> No further action required.
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### III.N. Recommended Plan of Action and Associated Timetable for Achieving Specific Goals and Objectives

Table III.N.I Plan of Action and Timetable for Achieving Specific Goals and Objectives

Goal/Objective	Plan of Action	Milestone Dates
Waste Reduction	Recommended actions focus on supporting the development of new facilities or programs, funding, educating the public, educating local government staff, maintaining information on solid waste facilities, supporting partnerships, and commodity markets.	All planning periods
Composting Programs for Yard Wastes and Related Organic Wastes	Recommended actions focus on funding, educating the public, educating local government staff, maintaining information on solid waste facilities, and supporting partnerships.	All planning periods
Household Hazardous Waste Collection and Disposal Programs	Recommended actions focus on educating the public, educating local government staff, funding, supporting the development of new facilities, continuing the use of regional contracts, supporting partnerships, maintaining information on solid waste facilities, and promoting reuse when appropriate.	All planning periods
Public Education Programs	Recommended actions focus on maintaining information on solid waste facilities, developing education materials and	All planning periods

Goal/Objective	Plan of Action	Milestone Dates
	messages, regional campaigns, and using a variety of formats to reach out to people.	
The Need for New or Expanded Facilities and Practices	Recommended actions focus on maintaining information on solid waste facilities, funding, educating local government staff, commodity markets, and supporting partnerships.	All planning periods
<input checked="" type="checkbox"/> Check box if additional details are provided in <i>Attachment III.N.</i>		

### **III.O. Identification of the Process that Will be Used to Evaluate Whether a Proposed Municipal Solid Waste Facility Application Will be in Conformance with the Regional Plan**

- ☒ The process that will be used to evaluate whether a proposed municipal solid waste facility application will be in conformance with the regional plan is identified in *Attachment III.O.*

## **Section IV. Required Approvals**

**Table IV.I Required Approvals**

<b>Solid Waste Advisory Committee</b>	January 5, 2022
<b>Public Meeting Dates</b>	January 5, 2022
<b>Executive Committee</b>	January 18, 2022

- ☒ Check box if local government and jurisdiction resolutions, and letters of support are included in *Attachment IV.A.*
- ☒ Public notice, agenda, public comments, and the transcript of the required public meeting are included as *Attachment IV.B.*

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## **Facility Adequacy**

### **Resource Recovery**

Electronics recycling opportunities are not equal across the region with those living in urban areas having much better access to electronics recycling than those in rural areas due to a lack of stores or government run drop off facilities that accept them. The issue can be particularly challenging for the larger, older televisions which are not accepted through some recycling programs.

Around 60% of the region's population has access to some type of recycling, either curbside or drop off for materials such as paper, plastic, metal, and cardboard. It is important that access continues to grow if the region is to meet its recycling rate goal.

### **Disposal**

The Houston-Galveston Area Council (H-GAC) region has sufficient capacity for disposal. According to the TCEQ's 2020 Report, *Municipal Solid Waste in Texas: A Year in Review*, the region has 35 years of landfill capacity. The problem is in the distribution of the landfills across the region. Of the 13 counties in the region only six counties have at least one landfill. Additionally, the six counties with landfills are all geographically grouped in the central and eastern portions of the region. The western part of the region is particularly lacking in disposal options.

### **Household Hazardous Waste Collection**

With a population of over 7 million people and only seven permanent locations collecting household hazardous waste (HHW) and one collecting just batteries, oil, latex paint, and antifreeze the number of facilities providing collection is inadequate. These facilities are spread among four of the region's counties. This leaves nine counties without a permanent facility collection option.

### **Household Hazardous Waste Disposal**

There is a landfill in the region that accepts HHW for disposal. Since landfilling is rarely used for HHW disposal, the current capacity is adequate for the region. Fuel blending and recycling are preferred methods for handling HHW. There is also an incinerator for HHW in the region. Prior to the pandemic in 2020, there was adequate capacity for the region's needs. Following the start of the pandemic, labor and supply shortages created capacity issues for the incinerator. However, in time, the situation will eventually correct itself.

## **Practices Adequacy**

### **Resource Recovery**

Residents in the areas without a permanent electronics recycling option rely on occasional one-day events. Often the communities rely on grant funds to host these one-day events. This is not a sustainable solution.

Around 60% of the region's population has access to some type of recycling, either curbside or drop off for materials such as paper, plastic, metal, and cardboard. It is important that access continues to grow if the region is to meet its recycling rate goal.

### **Household Hazardous Waste Collection**

Four counties in the region have a permanent facility for collecting HHW. Nine counties do not have a permanent facility collection option. Some cities and municipal utility districts offer curbside pickup of HHW, but this service is not widespread. Residents in the nine counties without a permanent HHW collection option rely on occasional one-day events. Often the counties rely on TCEQ grant funds to host these one-day events. This is not a sustainable solution. There are not always enough TCEQ grant funds to fund all requests and also fund other types of needed solid waste projects.



## Recycling and Composting

During the development of the Regional Solid Waste Management Plan, Houston-Galveston Area Council (H-GAC) staff sent a survey to all cities and counties to determine the services provided regarding waste and recycling. If a response was not received, staff reviewed the city or county's website to find information on the services provided. If nothing was found on a website, staff assumed services were not provided. As a result, it is likely that the results below may not represent the full extent of services provided in the region.

Service Provided	Population Served*	Percent of the Region's Population*
Curbside Recycling Collection	3,608,732	49.4%
Drop Off Recycling Collection	3,512,258	48.0%
Curbside Yard Waste Collection	3,423,812	46.8%
Drop Off Yard Waste Collection	600,818	8.2%
Curbside Tire Collection	53,996	0.7%
Drop Off Tire Collection	3,029,702	41.4%

\* Some communities have both curbside and drop off options available to residents; therefore, curbside and drop off numbers and percentages must remain separate.

## Reuse

In 2013, H-GAC staff conducted a study on the economic contribution of the recycling industry for the region. At the time there were 368 establishments that fell under the category of reuse and remanufacturing. Types of businesses that were included in this category were tire retreading, electronics refurbishing and reuse, thrift stores, antique stores, and others. These 368 establishments were responsible for more than 3,700 jobs in the region. Although these numbers will have changed slightly since then, this represents a good baseline.

There are additionally some instances where local governments are involved in reuse, such as:

- The Montgomery County household hazardous waste (HHW) facility sells rebleded latex paint.
- The Fort Bend County and City of Houston HHW facilities set aside items brought in that are in good condition that others can take home to use.
- The City of Houston also accepts other materials at some of its facilities that are then made available for reuse. One facility accepts craft materials, books, and post-consumer and industrial scrap to be given out, and another accepts construction materials that are made available for reuse by nonprofit organizations.

## Sludge

Throughout the H-GAC region there are several ways sludge is handled such as:

- Land application of biosolids

### Attachment III.E

- Use of sludge in composting operations
- Heat pelletizing of sludge
- Landfilling

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## **Federal Agencies**

### **Environmental Protection Agency**

The U.S. Environmental Protection Agency (EPA) is responsible for developing the regulations to implement Resource Conservation and Recovery Act (RCRA) and most other solid waste related legislation.

Generally, EPA does not directly permit or regulate individual facilities. It delegates its permitting and enforcement authority to the appropriate state agencies. To receive this delegated authority, a state's requirements must be at least as stringent as EPA's national standards.

EPA has focused on infrastructure to manage hazardous waste, implementing effective framework for municipal solid waste management programs, effectively restored contaminated lands for productive reuse, and partnered with companies to change practices to generate less waste. The RCRA strengthened and increased the recycling infrastructure for recycling and composting rate from 7% to 32% as of 2018.

EPA has developed procurement policies for recycled goods. Guidelines are in place for the purchase of products falling under the following categories paper, non-paper office products, construction, vehicular, parks and recreation, transportation, landscaping, and others.

### **Other Federal Agencies**

Most of the solid waste management issues with which other federal agencies are involved pertain to facility siting. A landfill, incinerator, or recycling operation will fall under the same siting requirements as other types of facilities with respect to wetlands and habitat protection. As a result, the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service may be involved in the permitting process of such facilities. The Federal Aviation Administration also has requirements that limit airport siting and operations in the vicinity of active landfills because of the danger of bird strikes. While U.S. Department of Agriculture (USDA) Rural Development does not play a policy role in solid waste, USDA Rural Development provides grant programs for projects related to solid waste and the elimination of water pollution.

## **State Agencies**

### **Texas Commission on Environmental Quality**

The Texas Commission on Environmental Quality (TCEQ) is the state agency responsible for solid waste management. The TCEQ is responsible for data assessment and planning for the management of the state's hazardous and nonhazardous solid wastes. The TCEQ compiles and assesses data on the generation and disposal of hazardous, industrial nonhazardous, and

## Attachment III.H

municipal solid waste. In addition, the agency prepares a state solid waste management strategic plan every four years.

TCEQ is responsible for implementing the federal and state laws and regulations governing all aspects of permitting for waste programs. It is responsible for permitting and enforcement for landfills, transfer stations, incinerators, and disposal facilities for grease, sludge, and special wastes. TCEQ also develops regulations that must meet or exceed EPA standards to maintain the state's delegated regulatory authority.

The Waste Permits Division serves as the lead for solid waste planning. As part of its waste planning efforts, the TCEQ administers the Regional Solid Waste Grants Program. The grants program supports regional solid waste management planning by the state's 24 regional Councils of Governments (COGs), and a pass-through grant program administered by the COGs to fund regional and local solid waste management projects. The COGs also use these funds to maintain Inventories of Closed Municipal Solid Waste Landfills. The TCEQ Waste Permits Division also maintains a database on landfills from which waste generation and disposal capacity information can be obtained.

Besides funding regional and local planning, TCEQ has a variety of technical assistance programs including ones for emergency response that can assist following a debris generating event and for small businesses and local governments to help make sure they are in compliance with all regulations.

The TCEQ Resource Exchange Network for Eliminating Waste (RENEW) Program maintains a cross-reference of industrial byproducts to encourage inter-industry recycling, and it also conducts industrial waste minimization audits. TCEQ has also been involved in promoting the proper disposal of household hazardous waste (HHW).

### **Other State Agencies**

#### **Texas Economic Development and Tourism Office**

The Texas Economic Development and Tourism Office (EDT) partnered with TCEQ to develop the *Recycling Market Development Plan*. EDT links companies and establishes partnerships with recycling-related representatives, businesses, and stakeholders. The EDT identifies financial incentives for businesses that consume more recycled content and encourages the consumption of Texas-generated recyclable materials.

#### **Texas Parks and Wildlife Department**

In addition to handling enforcement of hunting and fishing laws, the Texas Parks and Wildlife Department trains some of its officers in environmental enforcement. Environmental cases they primarily respond to include hazardous waste and water pollution calls, but if called about illegal dumping they will respond, investigate, and issue enforcement actions.

### **Texas Department of Transportation**

The Texas Department of Transportation (TxDOT) promotes the use of non-hazardous recycled materials in construction and maintenance projects through workshops, demonstrations and specifications. TxDOT's litter policy includes pick up and disposal of litter from right of ways. Striving to find new and innovative ways to recycle, TxDOT often uses baled tires for highway slope repair.

### **Railroad Commission of Texas (RRC)**

The Railroad Commission of Texas (RRC) regulates intrastate trucking and rail operations, both of which impact the recycling industry. The RRC also regulates the disposal of oil field sludge.

## **Regional**

### **Houston-Galveston Area Council**

The Houston-Galveston Area Council (H-GAC) in 1985 became the first Council of Government (COG) in Texas to receive state approval for a regional solid waste management plan. Since that time, permitted facilities in the region have been required to conform to the plan's goals, objectives and recommendations. The plan also remains a policy guide for H-GAC and its local governments with respect to solid waste management. H-GAC distributes funds and oversees pass-through grants through funds received from TCEQ; conducts regional outreach on all topics of solid waste; and hosts training/informational events for local governments and other organizations on recycling, food waste, household hazardous waste, illegal dumping enforcement, disaster debris, and other solid waste topics.

### **Gulf Coast Authority**

The Gulf Coast Authority (GCA) was established by the State Legislature to provide regional industrial and municipal wastewater treatment, solid waste management, and drinking water services statewide. GCA operates an industrial solid waste disposal facility, but it is not heavily involved in municipal solid waste management. GCA's Vince Bayou Receiving Station accepts trucked-in liquid septic wastes and some trucked-in industrial wastewater. GCA owns and operates its own non-commercial industrial solid waste landfill.

## **Local Governments**

### **Cities and Counties**

State legislation requires local governments to provide waste collection and disposal for all residents within their jurisdictions. A city may require its residents to obtain solid waste collection services through the city or one or more contracted private haulers. Or a city may allow its residents to subscribe individually with a private hauler. This includes the option of not subscribing to any garbage service.

Other state legislation gives cities and counties various authorities pertaining to licensing and planning for waste collection and disposal. Home-rule cities may also exert control over facility siting through zoning and nuisance ordinances.

Counties may exert control by designating areas acceptable for solid waste disposal (§363.112 of the Texas Health and Safety Code). Additionally, Texas Legislation provides counties the authority to offer and charge a fee for solid waste disposal services to residents. Additionally, a county may contract with a private or public entity, including a public utility, to collect solid waste fees.

## **Other Local Government and Private Entities**

### **Municipal Utility Districts**

Municipal utility districts (MUDs) are sometimes involved in contracting with private waste haulers on behalf of the subdivisions they serve. However, this is sometimes the responsibility of the individual homeowner. MUDs also impact the waste management system through sludge disposal. There are numerous MUDs in the H-GAC area, most of which contract individually with sludge collection and disposal site operators.

### **Independent School Districts**

While not directly responsible for waste collection or disposal, school districts have the potential to play a major role in regional solid waste management. As a group, school districts represent a major segment of waste production in the H-GAC region. Implementation of region-wide recycling and waste reduction programs in school districts would have a significant impact on the overall waste stream. Also, with their combined purchasing power, school districts' procurement policies can help stimulate markets for recycled products. Finally, school districts have an excellent opportunity to reach children and parents with information about issues such as waste reduction, recycling, and proper management of household hazardous waste.



### **Nonprofit Organizations**

Non-profit organizations play a major coordination and educational role in the H-GAC region's solid waste management system. There are numerous certified Keep Texas Beautiful affiliates in the H-GAC region, all of whom are active in promoting recycling and litter abatement. Keep Texas Recycling, a program of Keep Texas Beautiful, works with communities across the state to increase recycling opportunities and improve existing recycling operations. Civic clubs and nonprofits also play an active role. When not already managed by another group, Homeowner Associations are sometimes involved in contracting with private waste and recycling haulers on behalf of the subdivisions they serve.

The State of Texas Alliance for Recycling (STAR) is an organization that offers recycling education and advocates for recycling changes in the State. They partner with local and national companies and with regional and statewide government entities. STAR offers webinars, summits, and workshops to educate its members on new recycling trends and updates to the industry.

### **Private Sector**

Solid waste management is a highly privatized operation in the H-GAC region. Some local governments operate recycling drop off facilities or collect materials from the curb, but most of the region's landfills, composting facilities, and collection services are operated by private industry.

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# Attachment III.N

The table below includes the goals, objectives, and recommended actions. There are eight goals included in this plan. Goals are numbered one through eight and are indicated by the green color for the rows. Each goal has objectives that fall under it. Objectives are labeled 1.A, 1.B, 2.A, 2.B, etc. and are indicated by the yellow color for the rows. The recommended actions fall under each of the objectives. These are the white rows and have a numbering system that follows the pattern 1.A.1, 1.A.2, etc. Milestone dates (timeframes) are only given for the recommended actions.

#	GOALS, OBJECTIVES, & RECOMMENDED ACTIONS	MILESTONE DATES
1	Promote the planning for adequate municipal solid waste disposal, handling, processing, transfer, and management facilities	
1.A	Encourage the development of facilities that reduce, reuse, or recycle waste materials	
1.A.1	Explore non-traditional funding sources	Short-Range
1.A.2	Develop a clearinghouse/method for sharing of funding opportunities	Short-Range
1.B	Encourage appropriate distribution of facilities to minimize transportation costs	
1.B.1	Maintain databases and GIS maps of all solid waste facilities in the region	All planning periods
1.B.2	Conduct research on the distances people are willing to travel for various solid waste services	Intermediate-Range
1.C	Encourage the development of larger regional facilities to the extent practical and where such facilities would be the best alternative	
1.C.1	Conduct research on the distances people are willing to travel for various solid waste services	Intermediate-Range
1.D	Encourage expansion and redevelopment of existing municipal solid waste facilities, where feasible, over siting of new facilities	
1.D.1	Conduct research on the distances people are willing to travel for various solid waste services	Intermediate-Range
1.E	Encourage development of transfer stations and citizen collection stations, where appropriate	
1.E.1	Identify collection gaps based on the research from Recommended Actions 1.C.2, 1.D.1, and 1.E.1	Intermediate-Range
1.F	Encourage long-range land use planning at the county level	
1.F.1	Encourage local governments to address solid waste facility siting in their comprehensive plans and zoning ordinances	All planning periods
1.F.2	Educate local governments on landfill siting ordinance requirements and restrictions	All planning periods
1.F.3	Encourage the adoption of county landfill siting ordinances	All planning periods
1.G	Identify future disposal capacity needs and disposal options	
1.G.1	Track trends related to capacity, population growth, recycling options, etc.	All planning periods
1.G.2	Compile and distribute information to assist solid waste planning efforts	All planning periods

## Attachment III.N

2	Educate on all aspects of materials management	
2.A	Provide information to the public to encourage and enable behavior change	
2.A.1	Develop new materials and continue to make available existing materials that can be used throughout the region	All planning periods
2.A.2	Ensure accurate information is available online regarding recycling, composting, and disposal	All planning periods
2.A.3	Provide information to the public as requested	All planning periods
2.B	Educate local governments, nonprofits, and other groups responsible for materials management	
2.B.1	Host workshops and webinars	All planning periods
2.B.2	Explore training options beyond in-person workshops and webinars	All planning periods
2.B.3	Explore opportunities to partner with other organizations	All planning periods
2.B.4	Establish a peer exchange structure for sharing ideas/strategies	Intermediate-Range
2.C	Educate parties on new and emerging innovations, technologies, and regulations	
2.C.1	Host workshops and webinars	All planning periods
2.C.2	Maintain subscriptions to industry publications and keep abreast of current topics/events in materials management	All planning periods
2.C.3	Share information using a variety of methods	All planning periods
3	Act as a vehicle for coordination to take advantage of opportunities for economies of scale and partnerships	
3.A	Develop and maintain regional cooperative service contracts	
3.A.1	Maintain regional contracts for electronics recycling and household hazardous waste collection	All planning periods
3.A.2	Promote the use of the regional contracts	All planning periods
3.A.3	Collect data from the use of the regional contracts (i.e. number of entities using, number of times used, volumes collected, etc.)	All planning periods
3.A.4	Explore opportunities for additional regional contracts	Short-Range
3.B	Encourage cooperative outreach campaigns	
3.B.1	Collect input on the outreach needs of those in the region	All planning periods
3.B.2	Facilitate the planning and development of regional or multijurisdictional campaigns	All planning periods
3.B.3	Provide technical assistance to local governments	All planning periods
3.C	Support partnerships and interjurisdictional cooperation on a full range of materials management activities	
3.C.1	Provide materials and information to make partnerships and cooperation more feasible	Intermediate-Range
3.C.2	Maintain databases and GIS maps of all solid waste facilities in the region	All planning periods
4	Support programs that encourage environmental protections and minimize safety risks	
4.A	Support the development and utilization of collection programs for components of the waste stream that may pose a special risk or problem	
4.A.1	Conduct waste generation model to classify types and quantities of waste (tires, electronics, HHW)	Intermediate-Range



## Attachment III.N

4.A.2	Develop and disseminate outreach messages	All planning periods
4.A.3	Encourage and support mentorships and peer exchanges	All planning periods
4.A.4	Promote best management practices and innovative ideas	All planning periods
4.A.5	Encourage partnerships between local governments, nonprofits, and private industry to establish and maintain permanent HHW facilities or regularly occurring collection events	All planning periods
4.B	Target waste reduction activities to components of the waste stream that may pose a special risk or problem	
4.B.1	Host workshops and webinars	All planning periods
4.B.2	Develop and maintain educational materials that can be used throughout the region	All planning periods
4.B.3	Promote the use of reuse opportunities for items that are still of good quality	All planning periods
4.C	Support planning efforts to abate illegal dumping and litter	
4.C.1	Host workshops and webinars allowing for sharing of information and new ideas	All planning periods
4.C.2	Develop and maintain educational materials that can be used throughout the region	All planning periods
4.C.3	Maintain and promote information on solid waste facilities	All planning periods
4.C.4	Promote programs and strategies that have the ability to impact litter and illegal dumping	All planning periods
4.D	Support disaster debris management planning efforts	
4.D.1	Host workshops and webinars	All planning periods
4.D.2	Develop and maintain educational materials, tools for local governments, and other resources that can be used throughout the region	All planning periods
4.D.3	Promote the use of best management practices for different debris streams	All planning periods
4.E	Support the enforcement of illegal dumping/disposal of solid waste	
4.E.1	Host workshops and webinars	All planning periods
4.E.2	Develop and maintain educational materials that can be used throughout the region	All planning periods
4.E.3	Maintain and promote information on solid waste facilities	All planning periods
5	Encourage and promote market development for composted, reused, and recycled goods with a focus on the economic impact of sustainable materials management	
5.A	Focus outreach efforts to stimulate market development	
5.A.1	Host workshops and webinars with a focus on topics such as construction and demolition materials, commercial landscaping, and food waste	All planning periods
5.A.2	Conduct studies or research to develop a clearinghouse of best management practices	Intermediate-Range and Long-Range
5.A.3	Develop and maintain educational materials that can be used throughout the region	All planning periods
5.A.4	Share information with the public using a variety of methods	All planning periods

5.B	Facilitate opportunities for networking for public and private entities to help create a sustainable market	
5.B.1	Explore opportunities to partner with other organizations to host events	All planning periods
5.B.2	Identify groups or individuals with commonalities	All planning periods
5.B.3	Incorporate opportunities for networking during regular events	All planning periods
5.C	Raise awareness of the economic impact of various aspects of sustainable materials management	
5.C.1	Encourage sustainable materials management where it is economically feasible	All planning periods
5.C.2	Support the redesign of procurement programs to stimulate recycling markets	Short-Range
5.C.3	Conduct analyses to continue the economic impact conversation and promote sustainable materials management	Intermediate-Range
6	Facilitate and support the creation and expansion of materials management programs	
6.A	Target waste reduction activities to the major components of the waste stream	
6.A.1	Encourage existing facilities to expand the services offered	All planning periods
6.A.2	Promote backyard composting and the "Don't Bag It" program	All planning periods
6.A.3	Identify service gaps and encourage the development of new facilities or programs	Intermediate-Range
6.B	Provide resources to help local governments evaluate and implement materials management programs and practices	
6.B.1	Explore, develop, and aggregate model policies and best practices on all aspects of materials management	Intermediate-Range
6.B.2	Share information through a variety of methods such as events, print, and online materials	All planning periods
6.B.3	Maintain information on commodity prices and available markets and services	All planning periods
6.C	Support the development and funding of materials management facilities and infrastructure	
6.C.1	Maintain and promote an accessible list of current grant opportunities for all types of solid waste programs	All planning periods
6.C.2	Maintain and promote information on funding best practices	All planning periods
6.C.3	Facilitate the use of mentors for those looking to start or expand a program	All planning periods
6.C.4	Provide technical assistance during the Regional Solid Waste Management Grant Program application process	All planning periods
7	Support research and data collection efforts related to materials management	
7.A	Maintain a regional clearinghouse on materials management practices and activities of H-GAC local governments	
7.A.1	Conduct regular surveys of local governments through direct contact and online research	All planning periods
7.A.2	Improve and maintain the information available online	All planning periods
7.B	Support efforts to more effectively collect useful data	
7.B.1	Develop and promote regional standards for data collection and measurement	Intermediate-Range

## Attachment III.N

7.B.2	Support the efforts of local government or nonprofit groups to collect data	All planning periods
7.C	Encourage efforts that increase knowledge regarding materials management strategies and needs	
7.C.1	Encourage implementation of innovative ideas regarding materials management	All planning periods
7.C.2	Support research efforts	All planning periods
7.C.3	Host knowledge sharing events with a focus on innovation and best practices	All planning periods
7.C.4	Gather information on the greatest areas of need of local governments in the region	All planning periods
8	Develop, support, and maintain partnerships with private industry and nonprofit organizations	
8.A	Encourage coordination of public and private interests in addressing solid waste problems	
8.A.1	Identify gaps in materials management services across the region	Intermediate-Range
8.A.2	Collect and maintain information on best practices involving partnerships	All planning periods
8.B	Support the collection and dissemination of information on materials management facilities and organizations in the region	
8.B.1	Maintain the closed landfill inventory	All planning periods
8.B.2	Set up the closed landfill inventory website to track downloads	Short-Range
8.B.3	Maintain information on the services and service providers present in the region	All planning periods
8.C	Promote best management practices from subject matter experts	
8.C.1	Plan and host workshops and webinars on all topics related to materials management	All planning periods
8.C.2	Explore opportunities to share information on best practices through other avenues	All planning periods

## **Plan Conformance/Permit Review**

The H-GAC Board of Directors (Board) and/or its Project Review Committee will review permit and registration applications filed with the TCEQ to assess their conformance with the Regional Solid Waste Management Plan (RSWMP). The Board's findings will be submitted to the TCEQ for consideration of whether to grant the permit or registration request. The Texas Health and Safety Code §363.066 states that a facility must conform with the RSWMP. However, if the facility does not conform to the RSWMP the TCEQ may grant a variance.

## **Voluntary Pre-Application Review**

A potential permit or registration applicant may request a meeting with H-GAC staff to discuss an impending application, its conformance with the regional plan, and steps that may be taken to meet the region's solid waste planning goals. Staff will provide a copy of the RSWMP, review plans for proposed facilities, and explain the review process. This pre-application meeting is recommended but not required.

## **Submitting a Review Request**

Subchapter B of the TCEQ's permitting procedures (§330.61(p)) states that it is the responsibility of the applicant to submit Parts I and II of the application to the applicable council of governments allowing the council of governments the opportunity to determine conformance with the RSWMP. Applicants may request a conformance review of their registration or permit application by submitting the following information to H-GAC:

- One (1) copy of the Application to the TCEQ for Permit or Registration, Parts 1 and 2 or registration materials.
- Web address of where the full application can be found online.
- A cover letter with contact information for the applicant, the applicant's engineer, and the TCEQ staff person to whom all review-related correspondence should be sent. Contact information should include name, phone number, mailing address, and email address.
- A map showing the physical location of proposed or existing facility.
- Any additional information the applicant wishes to provide to facilitate the H-GAC review process.

Requests for permit or registration review shall be submitted to:

H-GAC  
Solid Waste Manager  
3555 Timmons Lane, Suite 120  
Houston, Texas 77027

The review and comment period will not begin until all required information has been submitted in its completed form.

### **Review Considerations**

The Board will consider conformance with the goals and objectives of the RSWMP when reviewing permit and registration applications.

### **Plan Conformance and Recommendations**

The Board will determine whether the proposed facility conforms with the RSWMP and recommend a course of action to the TCEQ. Under certain conditions, the Board will issue technical comments only. The Board does not approve or deny applications. Rather, it provides a means for the TCEQ to obtain qualified opinions from local governments in the affected region.

- The permit or registration conforms with the RSWMP.
  - The Board recommends approval of the permit or registration.
  - The Board recommends approval with specific comments attached.
- The permit or registration does not conform to the RSWMP.
  - The Board recommends the permit or registration be found inconsistent with the regional plan.
  - The Board recommends withholding approval until specified deficiencies are corrected.
  - The Board recommends additional action by the TCEQ before making a determination on the permit or registration.
- The permit or registration warrants technical comments only.
- The Board lacks sufficient information to make a qualified conformance determination.

### **Report on Review Findings**

H-GAC staff will be responsible for communicating the Board's findings in writing to all affected parties. Within 10 business days of the review meeting, H-GAC staff will send communication to the TCEQ, relating the Board's finding, recommendation, and concerns. H-GAC will send copies of the communication to the applicant.

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Public Hearing held on January 5, 2022

H-GAC Board of Directors meeting held on January 18, 2022

Documents include public notice from newspaper,  
agenda, public comments, meeting transcript, public meeting  
chat transcript, and H-GAC Board of Directors resolution.

**NOTICE of PUBLIC  
MEETING H-GAC  
Regional Solid Waste Management Plan  
(RSWMP) Public Meeting**

The Houston-Galveston Area Council's (H-GAC) Community and Environmental Planning Department is developing a Regional Solid Waste Management Plan 2022-2042 for the next 20 years, as per Texas Commission on Environmental Quality (TCEQ) requirements. The plan addresses all solid waste activities in the region.

The public meeting is scheduled for **Wednesday, January 5, 2022, at 3 p.m.** on-line via Zoom and in person at H-GAC's offices, 3555 Timmons Lane, Houston, Texas 77027.

Zoom - <https://us06web.zoom.us/j/82348920855?pwd=bXU4a3dsS3FkU0p1Qvc1Jcd1ZaUT09>

You can also dial in using your phone.

888 788 0099 US Toll-free

Meeting ID: 823 4892 0855

Passcode: 792200

Both oral and written public comments will be allowed. Written comments may be submitted via email to [swinformation@h-gac.com](mailto:swinformation@h-gac.com) via mail to Erin Livingston, Houston-Galveston Area Council, P.O. Box 22777, Houston, TX 77227-2777 and must be received no later than 4:00 p.m. Wednesday, January 5, 2022.





## AFFIDAVIT OF PUBLICATION

## STATE OF TEXAS:

Before me, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared, the Newspaper Representative at the HOUSTON CHRONICLE, a daily newspaper published in Harris County, Texas, and generally circulated in the Counties of: HARRIS, TRINITY, WALKER, GRIMES, POLK, SAN JACINTO, WASHINGTON, MONTGOMERY, LIBERTY, AUSTIN, WALLER, CHAMBERS, COLORADO, BRAZORIA, FORT BEND, GALVESTON, WHARTON, JACKSON, and MATAGORDA and that the publication, of which the annexed herein, or attached to, is a true and correct copy, was published to-wit:

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A handwritten signature in blue ink, appearing to read "Victoria Bore &amp; K Clark".

NEWSPAPER REPRESENTATIVE

Sworn and subscribed to before me, this 2nd Day of January A.D. 2022



Notary Public in and for the State of Texas

A handwritten signature in blue ink, appearing to read "Veronica Tyrone Stoval".

## Livingston, Erin

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**From:** Livingston, Erin  
**Sent:** Thursday, December 16, 2021 8:54 AM  
**To:** ahernandez@pearlandtx.gov; Alma.Jefferson@tceq.texas.gov; [REDACTED]; [REDACTED]; aisbell; planning1@austincounty.com; [REDACTED]; cheryl.burton@hcpid.org; cheryl.untermeyer@tceq.texas.gov; alexanderc@laportetx.gov; publicworks@cityofmeadowsplace.org; darrell.gertson@co.colorado.tx.us; egallaway@chamberstx.gov; [REDACTED]; [REDACTED]; mstump@texas-city-tx.org; [REDACTED]; pgeorgi@cityofpalacios.org; [REDACTED]; [REDACTED]; carlos.romo@tceq.texas.gov; ccruz@co.matagorda.tx.us; [REDACTED]; [REDACTED]; jason.ybarra@tceq.texas.gov; [REDACTED]; [REDACTED]; sjackson@cityofbellville.com; sfolsom@chamberstx.gov; [REDACTED]; dlinares@sugarlandtx.gov; jessica.uran@tceq.texas.gov  
**Cc:** Mergo, Cheryl; Tantillo, Andrea; Almanzan, Wendy  
**Subject:** Draft Regional Solid Waste Management Plan ready for your review  
**Attachments:** Draft RSWMP 2022-2042.pdf

Good morning,

The Draft Regional Solid Waste Management Plan is attached and ready for your review. Please take a look at it and let me know if you have any comments. Comments can simply be sent back to me via email. All comments must be received by 4:00 p.m. on Wednesday, January 5, 2022.

Next Steps:

**Wednesday, January 5, 2022 at 10 a.m.** – The SWMC will be meeting via Zoom to discuss and approve the draft plan. Register [here](#) to attend the meeting. We will need a quorum for this meeting in order to approve the draft plan.

**Wednesday, January 5, 2022 at 3 p.m.** – A public meeting will be held during which staff will give a brief presentation on the plan and public comments will be accepted. Your attendance at this meeting is not required, but if you want to attend you can do so either in person or via [Zoom](#). If you want to attend in person we will be in Conference Room B on the 2<sup>nd</sup> floor at 3555 Timmons Lane, Houston, Texas 77027.

**Tuesday, January 18, 2022 at 10 a.m.** – H-GAC's Board of Directors will consider the Draft Regional Solid Waste Management Plan during the regular monthly meeting. Once approved it will be sent to TCEQ for final approval. You are welcome to attend this meeting via Zoom if you are interested, but attendance is not required. You'll be able to join the meeting from [H-GAC's calendar](#) on the day of.

Let me know if you have any questions.

### ERIN LIVINGSTON

#### Principal Planner

Houston-Galveston Area Council  
3555 Timmons Lane, Suite 120  
Houston, TX 77027  
Mailing Address: P.O. Box 22777  
Houston, TX 77227  
Direct | 832-681-2525  
h-gac.com

*"H-GAC honors, respects, and promotes the great diversity*

*of our region while serving today and planning for tomorrow.”*

## Livingston, Erin

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**From:** Livingston, Erin  
**Sent:** Thursday, December 16, 2021 10:40 AM  
**To:** Livingston, Erin  
**Cc:** Mergo, Cheryl; Almanzan, Wendy; Tantillo, Andrea  
**Subject:** H-GAC's Draft Regional Solid Waste Management Plan ready for your review  
**Attachments:** Draft RSWMP 2022-2042.pdf

Good morning,

The Draft Regional Solid Waste Management Plan is attached. If interested take a look at it and let me know if you have any comments. Comments can simply be sent back to me via email. All comments must be received by 4:00 p.m. on Wednesday, January 5, 2022.

We also have an opportunity for you to provide comments verbally if you are interested. On **Wednesday, January 5, 2022 at 3 p.m.** we will be holding a public meeting during which staff will give a brief presentation on the plan and public comments will be accepted. If you want to attend you can do so either in person or via [Zoom](#). If you want to attend in person we will be at the H-GAC offices in Conference Room B on the 2<sup>nd</sup> floor at 3555 Timmons Lane, Houston, Texas 77027.

Let me know if you have any questions.

### ERIN LIVINGSTON

#### **Principal Planner**

Houston-Galveston Area Council  
3555 Timmons Lane, Suite 120  
Houston, TX 77027  
Mailing Address: P.O. Box 22777  
Houston, TX 77227  
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h-gac.com

*"H-GAC honors, respects, and promotes the great diversity of our region while serving today and planning for tomorrow."*



**Agenda**  
**Houston-Galveston Area Council**  
**Draft Regional Solid Waste Management Plan Public Meeting**  
**Wednesday, January 5, 2021, 3:00 p.m**  
**3555 Timmons Lane, 2<sup>nd</sup> Floor**  
**Conference Room B**  
**Houston, TX 77027**

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*Due to health and safety concerns related to COVID-19, this meeting will offer the options to participate by videoconference or in-person. The meeting will be open to the public but restrictions regarding masks, allowable room capacity, and seating arrangements may be in place. The public meeting location will be 3555 Timmons Ln. Houston, TX – Conference Room 2B. The presiding officer Commissioner Darrel Gertson of the H-GAC Solid Waste Management Committee, and some members will be physically present. Other members will be participating by videoconference in accordance with the provisions of Section 551.127 of the Texas Government Code applicable to a governmental body that extends into three or more counties.*

Zoom Meeting link: <https://us06web.zoom.us/j/82348920855?pwd=bXU4a3dsS3FkU0p5dkQvcIJqdIZaUT09>

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- 1. Call to Order and Welcome (Commissioner Gertson, Colorado County Commissioner and Vice-Chairperson of the Solid Waste Management Committee)**
- 2. Presentation: Draft Regional Solid Waste Management Plan (Erin Livingston, H-GAC)**  
Erin Livingston will give a brief overview of the Draft Regional Solid Waste Management Plan including what the plan is, how it's used, the current state of solid waste management in the region, and the path moving forward for the next twenty years.
- 3. Public Comments**  
Comments on the Draft Regional Solid Waste Management Plan will be accepted from the public.
- 4. Adjourn**

Draft Regional Solid Waste Management Plan  
Public Comments – January 5, 2022

#	DATE RCVD	FORM	SUBMITTED BY	CATEGORY	COMMENTS	H-GAC RESPONSE
1	1/3/2022	Email	Caroline Kostak	* Additional opportunities	Section III.F lists opportunities to reduce waste, but Deconstruction and C&D Material Reuse are not listed. The City of Houston already engages in some C&D Material Reuse through the ReUse Warehouse, and that effort should continue. There are also opportunities to recover material and reduce C&D Waste through residential deconstruction and building material reuse through expanding the ReUse Warehouse program or through encouraging development of commercial deconstruction and reuse programs. I recommend listing Residential Deconstruction & Building Material Reuse as Opportunities in Table III.F.1 and as Recommendations in Table III.G.1. This is in line with Objective I.B and Goal 5, though there is no specific Objective in Goal 5 for this work (though one could be written), and can be aligned with Goal 6, Objectives 6.A and 6.D and Goal 8, Objectives 8.A and 8.C.	Thank you for your response.  Your suggested additions have been included in Table III.F and III.G.
2	1/5/2022	Oral/Email	Frank Blake	* Data * Recycling rate * Accessibility * Education * Schedule	Regarding Current Efforts, IIB: For access to recycling, I think it would be useful to have separate figures for curbside access, and drop-off access. These are not equivalent types of access, so it would be useful to know the percentage of citizens who have access to each. Also, it would be useful to know what mileage proximity to a drop-off site qualifies it as “accessible.” The figure of 63% of residents having access to recycling may not be a good estimate and may overstate current accessibility. I had attended an earlier public meeting on the draft plan, and it was not clear how residents of apartments are factored in for determining accessibility. A considerable proportion of	Thank you for your comment.  H-GAC has used one figure for recycling access to not double count. When separate figures are used the resulting figures could be incorrectly interpreted and indicate that all in the region have access to recycling.  H-GAC’s definition of access for the purposes of this plan is the presence of a facility in the city or county of residence which the residents are eligible to use. The plan includes a Recommended Action to conduct research on the distances people are willing to travel for various solid waste services.

Draft Regional Solid Waste Management Plan  
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				<p>regional residents reside in apartments. Travel distance and availability of transportation would be factors for residents having access to recycling drop off sites.</p> <p>Regarding Recycling Rate Goal for the Region, IIB: A goal of going from 26% to 31% recycling rate over 20 years should be more ambitious. Why shouldn't the plan aim for a higher rate of somewhere between 36% to 45% or so over this 20-year time span: There is currently more focus on innovation and the speed of new developments. There is also more public awareness. In coming years conserving regional landfill space will become increasingly important. Siting and constructing new landfill sites will become increasingly expensive and difficult and controversial to locate.</p> <p>Regarding Conserving Landfill Space: Most recycling diversion rates seem based on weight alone. It seems that for conserving future landfill space, that there should be volume estimates so that items that are bulkier and that will take up more landfill space could be prioritized for diversion.</p> <p>Regarding Electronics Recycling: I do think more attention should be placed on coordinating electronics recycling so that it is more convenient and accessible. There are too many different categories for electronics and battery recycling, with different drop-off sites. It's very confusing to keep track of who will accept which items, etc. It would be helpful to have consolidated electronics drop-off sites that would take any related</p>	<p>This plan is for a 13-county region. There are certainly instances where individuals with recycling access were not counted and individuals without true access were counted due to lack of information available publicly. For this reason, residents of apartments were not removed from the access numbers when collection of materials happens curbside.</p> <p>Projected per capita rates and recycling rates were based on historic data for the region, the industry trend toward lighter packaging, the trending buying habits of the public, and other factors. No changes were made.</p> <p>Objective 6.A says "Target waste reduction strategies to the major components of the waste stream." The word "major" has not been defined and could be based on volume, weight, or number of items. No changes were made to the data as TCEQ requested the information be submitted in pounds and tons.</p> <p>The stated concerns regarding electronics recycling are addressed by Objectives 1.B, 1.C, 4.A, 6.B, 7.A, and 8.B.</p> <p>Your feedback regarding the timeline and release date of the Draft Regional Solid Waste Management Plan for comment has been noted.</p>
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					<p>items. With the ever-increasing use of electronic devises throughout the population, this is a growing waste/recycling stream.</p> <p>A note: I found the timing of this plan release a bit unfortunate, being the end of the year, over the holiday period, and unfortunately during a period of renewed pandemic issues. I had also assumed that there would be some comment period after the official public meeting on the plan took place. I had attended one prior public meeting on the draft plan and had the impression that there would be additional public meetings on the draft before finalizing the plan. I assume all of these factors will affect public participation.</p>	
3	1/5/2022	Oral	Jim Tucker	* Data	<p>Much of the document that was published is necessarily qualitative, but I'm a science guy, so I was looking at the numbers and I'm presuming that anything indicated as a percent increase or perhaps decrease is relative to whatever five-year period is initiated during that time mark. For example, I'm looking at table III.A.1 on page three as well as the right-hand column on several of the table that follow. Looking at table III.A.1 there is an overall increase in the estimated amount of per capita, whether captured as recycling or disposal. It's interesting that a strategy document such as this does not at least have a scenario for overall waste reduction.</p>	<p>Thank you for your comment.</p> <p>That is a correct interpretation of table III.A.I. The per capita rates included in the table were based on historic data for the region. No changes were made to the table.</p>
4	1/5/2022	Oral/Email	Sara Tyler	* Objectives	<p>Suggestion to add language to Objective 1.G: Encourage long-range land use planning at the county level, <u>including planning for future source-separated</u></p>	<p>Thank you for your comment.</p> <p>Planning for future source-separated collection is</p>



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					<p><u>collection</u></p> <p>Suggestion to add Objective 1.I: Encourage waste management authorities to set aside fixed fractions of their budget for programs that result specifically in materials reuse or waste minimization</p> <p>Suggestion to add Objective 2.D: Develop and implement a regionally acceptable standard way to communicate a diverse range of landfill diversion options to the general public</p> <p>Suggestion to add Objective 5.D: Encourage facilities already engaged in the collection and reclamation of waste material to develop ways to make their services more accessible to a broader range of potential contributors</p> <p>Suggestion to rewrite Objective 6.A: <i>Original version</i> – Target waste reduction activities to the major components of the waste stream <i>Suggested version</i> – Target programs with the potential to significantly improve how a defined waste stream is regionally managed</p> <p>Suggestion to add Objective 7.D: Explicitly include all activity which could be considered landfill diversion as part of this effort</p>	<p>addressed by Recommended Action 1.G.1 of the plan.</p> <p>The waste management needs and budget of each community are unique to that community and will undoubtedly change over time. No changes were made in response to this suggestion.</p> <p>Educating the public on landfill diversion options is addressed by Goal 2 and specifically Recommended Action 2.A.1. No changes were made in response to this suggestion.</p> <p>Greater accessibility of services is addressed by Recommended Actions 3.C.1 and 6.B.1. No changes were made in response to this suggestion.</p> <p>The suggested rewrite of Objective 6.A would change the meaning of the Objective. The original is focused on the top categories of waste while the proposed version is focused on the potential improvements in managing a specific category of material regardless of its prominence or lack of prominence in the waste stream. No changes were made in response to this suggestion.</p> <p>Landfill diversion falls under the umbrella of materials management. The suggestion to support research and data collection efforts on all activities related to landfill diversion is addressed by Objective 7.C. No changes were made in response to this suggestion.</p>
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WEBVTT

1

00:00:22.980 --> 00:00:30.570

3555 Timmons, Conf Room: Good afternoon, this is Commissioner dirksen Colorado county Commissioner vice Chairperson of the solid waste management committee.

2

00:00:32.160 --> 00:00:36.780

3555 Timmons, Conf Room: Welcome, this is a duly called meeting of public hearing on the solid.

3

00:00:38.190 --> 00:00:42.390

3555 Timmons, Conf Room: On the drafts regional solid waste management plan.

4

00:00:43.530 --> 00:01:09.150

3555 Timmons, Conf Room: being hailed as a video conference today January 5 2022 please let the record reflect that I am the presiding officer this meeting I am physically present at 3555 Timmons lane Houston Texas 77027 in a test, this is meeting room is open and accessible to members of the public.

5

00:01:10.470 --> 00:01:15.960

3555 Timmons, Conf Room: Today we're here to accept public comments on the draft regional solid waste management plan.

6

00:01:17.010 --> 00:01:23.820

3555 Timmons, Conf Room: But before we do that Aaron livingston with the Houston Gala scenario Council will be given a quick presentation.

7

00:01:24.540 --> 00:01:43.860

3555 Timmons, Conf Room: previous version of the region plan is from 22,002 and the current draft plan developed by hga see staff with input from the steering committee members and all alternates of the solid waste management committee will take us all the way to.

8

00:01:49.530 --> 00:02:02.370

3555 Timmons, Conf Room: You know i'll now turn it over to Aaron livingston to give us a brief overview of the draft regional solid waste management plan all right, thank you Krishna Robertson so like you said i'm going to give a quick presentation.

9

00:02:03.720 --> 00:02:16.530

3555 Timmons, Conf Room: about this plan, and then we will open it up for public comments after that, before we go any further, though, before I give my presentation, I did want to give a quick overview of how to use zoom so that anybody that wants to provide any comments, is able to do so.

10

00:02:17.730 --> 00:02:28.710

3555 Timmons, Conf Room: So first up I don't know if you heard, but the meeting is being recorded and if you are using your phone or if you're on the computer however you're using it please make sure to mute your microphone when you aren't speaking.

11

00:02:29.520 --> 00:02:37.260

3555 Timmons, Conf Room: We do have the chat function available for you to use if you want to ask or make your public comment that way at the end.

12

00:02:37.800 --> 00:02:44.130

3555 Timmons, Conf Room: But you're also able to make your public comments verbally, so you can unmute or you can raise your hand and we can unmute you.

13

00:02:44.910 --> 00:02:53.100

3555 Timmons, Conf Room: If it doesn't just unmute you on its own and then also if you're on a phone only you can push star nine to raise your hand and then we can unmute you that way.

14

00:02:56.520 --> 00:02:58.710

3555 Timmons, Conf Room: um yeah.

15

00:03:00.150 --> 00:03:08.580

3555 Timmons, Conf Room: So if you are using a handheld device, you can access the chat by clicking on the three dots at the bottom of your screen and then the chat function will open up for you.

16

00:03:09.810 --> 00:03:17.820

3555 Timmons, Conf Room: If you do have issues at any time type those into the chat and somebody will be able to help you out to figure out what the problem is and get you fixed up.

17

00:03:18.660 --> 00:03:30.510

3555 Timmons, Conf Room: And if you are listening to this meeting or participating this meeting with anybody else in the room, with you please type in both of your names are all of your names in the chat box, so that we can accurately document

everybody who's with us today.

18

00:03:33.720 --> 00:03:50.490

3555 Timmons, Conf Room: Alright, so that's all I got for the how to use zoom so we're going to get into the plan now so first of all, what is the plan and how is it actually used, so this is a 20 year plan it guides solid waste management activities for our region, and it is not a regulatory document.

19

00:03:53.550 --> 00:03:58.560

3555 Timmons, Conf Room: So how do we actually use this plan will primarily it gives direction to htc solid waste staff.

20

00:03:59.910 --> 00:04:08.400

3555 Timmons, Conf Room: And we use it to direct our actions we use it when we're doing conformance reviews of solid waste facility permit applications.

21

00:04:08.880 --> 00:04:23.130

3555 Timmons, Conf Room: We don't approve or deny those permits, but we have to determine whether they are consistent with our plan and provide that information to TC Q, we also use this plan to make well only project grant projects are.

22

00:04:24.180 --> 00:04:33.930

3555 Timmons, Conf Room: If they meet a goal at least one goal and one objective of the plan then they're eligible for funding through our solid waste grant program so if they don't, then the project is not eligible.

23

00:04:37.800 --> 00:04:41.640

3555 Timmons, Conf Room: So i'm going to give a quick overview of the region, just a couple of stats.

24

00:04:43.800 --> 00:05:04.590

3555 Timmons, Conf Room: So, first of all, the population is 7.3 million, I give or take and we're expected to reach 9.16 million by the year 2042 we do have 25 landfills in our region 11 of those are Type one landfills and 14 of those are type or landfills, we also have 38 transfer stations in the region.

25

00:05:05.700 --> 00:05:20.610

3555 Timmons, Conf Room: So we did a survey of our local governments throughout the region, all cities and counties and then, when we did not get a survey response, we also checked out their website and that's where we got the information in these

little speedometer looking things so.

26

00:05:22.200 --> 00:05:25.320

3555 Timmons, Conf Room: So it's possible that the information is not.

27

00:05:26.940 --> 00:05:36.330

3555 Timmons, Conf Room: Complete because not everybody puts everything on their website, so this is the best information, we could get though so first step is recycling 63% of the.

28

00:05:36.720 --> 00:05:44.700

3555 Timmons, Conf Room: population of our 13 county region has access to recycling that could be through curbside recycling or either or at a drop off.

29

00:05:45.360 --> 00:06:00.090

3555 Timmons, Conf Room: 40% have some kind of access to tire collection again either a drop off or at the curbside 90% have access to household hazardous waste that is primarily in the.

30

00:06:01.980 --> 00:06:08.880

3555 Timmons, Conf Room: Through the drop offs and then 50% have access to some type of yard waste collection.

31

00:06:11.490 --> 00:06:17.820

3555 Timmons, Conf Room: So here we have a map of our region, it shows the landfills, the transfer stations.

32

00:06:18.180 --> 00:06:27.780

3555 Timmons, Conf Room: The recycling facilities and the household hazardous waste facilities, so the landfills are the little black circles with orange trash can looking things and those.

33

00:06:28.260 --> 00:06:41.790

3555 Timmons, Conf Room: As you can see, are primarily in Harris county or immediately surrounding Harris county we do have a couple of transfer stations in our outlying counties and then recycling is fairly well across the region.

34

00:06:42.840 --> 00:06:52.290

3555 Timmons, Conf Room: And then the hw that house house or space they're little

harder to see but there again, mostly in either Harris county or in the surrounding counties.

35

00:06:54.900 --> 00:07:02.430

3555 Timmons, Conf Room: So what's actually in the plan i'm not going to go through everything that's in the plan i'm just going to give a quick overview or touch on a few of the topics.

36

00:07:04.800 --> 00:07:10.830

3555 Timmons, Conf Room: So, first of all like I mentioned, well, I guess, first of all it's it involves or it.

37

00:07:11.280 --> 00:07:21.030

3555 Timmons, Conf Room: includes information on the current population and current solid waste amounts and also current activities so like I mentioned a while ago, the population is at 7.3 million.

38

00:07:21.960 --> 00:07:31.230

3555 Timmons, Conf Room: The waist is at 9.6 million tons, and this does include always that sent to either Type one or type for landfills in our region.

39

00:07:32.520 --> 00:07:38.580

3555 Timmons, Conf Room: It includes all the different types of facilities landfills transfer stations composting facilities.

40

00:07:39.150 --> 00:07:47.490

3555 Timmons, Conf Room: It has information on any kind of facility that has a permit or registration or anything like that, with the TC Q and then it includes.

41

00:07:48.000 --> 00:07:53.940

3555 Timmons, Conf Room: Information on various methods used for waste and recycling management in our region so talks about.

42

00:07:54.300 --> 00:08:13.740

3555 Timmons, Conf Room: hw collection whether that's through one day collection events or permanent facilities or there's even curbside options available in some communities, it talks about you know the recycling again just how people are doing that in our region curbside or drop off and.

43

00:08:14.880 --> 00:08:24.000

3555 Timmons, Conf Room: You know, transportation, how that it's mostly handled by the private sector in our region and that's just a sampling of what's included in the plan.

44

00:08:25.410 --> 00:08:35.190

3555 Timmons, Conf Room: So it also includes projections for the future and additional opportunities, so the projected population like I mentioned 9.1 million in the year.

45

00:08:36.450 --> 00:08:46.830

3555 Timmons, Conf Room: The projected amount of waste will be 12.1 million tons and again this is all the waste sent to the type one or type for landfills in our region.

46

00:08:47.730 --> 00:08:59.130

3555 Timmons, Conf Room: For hw some additional opportunities are looking for new funding sources or partnerships and also holding more boba collections, which are batteries oil latex paint and any freeze.

47

00:09:00.330 --> 00:09:02.640

3555 Timmons, Conf Room: So those are just some additional ways to.

48

00:09:04.620 --> 00:09:14.550

3555 Timmons, Conf Room: use to collect more of the materials it set it includes information on debris and talking about increased education before and after a disaster and how to.

49

00:09:14.820 --> 00:09:21.270

3555 Timmons, Conf Room: properly set out the debris so that we can divert more of the waste, instead of it going to the landfill, it can be managed in other ways.

50

00:09:21.600 --> 00:09:32.520

3555 Timmons, Conf Room: It also includes information on food waste, such as increasing awareness of the rules and protections surrounding food donation to make people more comfortable doing so and also just knowing how to do it.

51

00:09:35.610 --> 00:09:44.220

3555 Timmons, Conf Room: Another part of the plan or information in the plan includes assessments of facilities and activities and efforts so.

52

00:09:45.390 --> 00:09:53.940

3555 Timmons, Conf Room: We were required to assess the adequacy of various facilities and practices throughout the region, so one of them resource recovery.

53

00:09:55.440 --> 00:10:08.040

3555 Timmons, Conf Room: was found to be inadequate, because there's not electronics recycling is not universal across the region it's easier to do to take in your electronic for recycling if you're an urban area typically.

54

00:10:09.450 --> 00:10:20.850

3555 Timmons, Conf Room: Also recycling is not evenly just regular recycling of like plastic metal those sorts of things is not universal across our region as well, so.

55

00:10:21.480 --> 00:10:29.400

3555 Timmons, Conf Room: So we don't have enough of those facilities or just programs about for recycling for disposal.

56

00:10:30.120 --> 00:10:47.550

3555 Timmons, Conf Room: We do have enough capacity in our region, but it is not spread out across the region like we saw in that map, it is heavily concentrated in Harris county in the areas immediately around Harris county and then household hazardous waste, we do have some facilities, and I think.

57

00:10:49.020 --> 00:10:50.070

3555 Timmons, Conf Room: Maybe six of our.

58

00:10:52.410 --> 00:11:03.630

3555 Timmons, Conf Room: Six of our counties have a permanent facility, but then the rest of them do not, and so they rely on one day collection events so residents do have to hold on to those materials for a long time and.

59

00:11:04.320 --> 00:11:19.530

3555 Timmons, Conf Room: they're probably not held every year, so we also discussed the barriers and incentives of some of the some topics related to solid waste management so first up was source reduction and waste minimization.

60

00:11:21.030 --> 00:11:32.670

3555 Timmons, Conf Room: So an incentive related to that is that if you recycle and



minimize waste we won't need as many landfills, one of the barriers, as that is difficult to change people's behavior.

61

00:11:33.450 --> 00:11:51.090

3555 Timmons, Conf Room: Those don't recycle it sometimes it's hard to get them to recycle or to minimize waste, the second a second area that we looked at for barriers, and so this was resource recovery, so an incentive is that recycling does create more jobs than Liam filling that same amount of waste.

62

00:11:52.470 --> 00:12:01.200

3555 Timmons, Conf Room: Would the jobs that it would create some of the barriers is that recycling is confusing and also that limited access across some parts of our region.

63

00:12:05.310 --> 00:12:19.680

3555 Timmons, Conf Room: So something else that is in the region, regional solid waste management plan is our conformance review process, so it does lay out the full process that we go through every time we are reviewing a solid waste facility permit application or registration.

64

00:12:20.760 --> 00:12:31.770

3555 Timmons, Conf Room: It says what needs to be submitted to hga see in order to for it to be reviewed, it talks about the things that we consider whether it's the surrounding community.

65

00:12:32.670 --> 00:12:36.900

3555 Timmons, Conf Room: impacts on that Community if it's consistent with any of the.

66

00:12:37.830 --> 00:12:51.270

3555 Timmons, Conf Room: goals and objectives of our plan, and then we make we submit information to our board of directors and they make the final determination on whether it's consistent with the plan not consistent with the plan consistent with comments.

67

00:12:52.290 --> 00:12:56.070

3555 Timmons, Conf Room: there's several specific options that they're able to.

68

00:12:57.450 --> 00:13:03.090

3555 Timmons, Conf Room: Their determination can be so that is all laid out in this

plan.

69

00:13:05.010 --> 00:13:17.640

3555 Timmons, Conf Room: And then the final area of the plan, I wanted to just briefly touch on is the goals objectives and recommended actions, so there are eight goals in this plan 31 objectives and 86 recommended actions.

70

00:13:17.970 --> 00:13:23.400

3555 Timmons, Conf Room: They were all written to be flexible, because things are going to change over the next 20 years and we don't want to.

71

00:13:24.270 --> 00:13:31.110

3555 Timmons, Conf Room: not be able to work on something because it's not in our plan, and these are all the recommended actions are.

72

00:13:32.010 --> 00:13:40.920

3555 Timmons, Conf Room: written in a way that they are directed at htc things that we can do to to further solid waste management practices in our region so.

73

00:13:41.730 --> 00:13:51.330

3555 Timmons, Conf Room: These are just kind of some overarching topics I guess we'll say so things like trainings research development of regional outreach materials.

74

00:13:51.780 --> 00:14:07.860

3555 Timmons, Conf Room: That could be videos or flyers or you know anything like that, and then maintaining info on funding opportunities on facilities on things that people are doing throughout the region that different programs that people have and just whatever else is going on in the region.

75

00:14:10.110 --> 00:14:13.350

3555 Timmons, Conf Room: So what are the next steps, after this meeting today.

76

00:14:14.460 --> 00:14:19.650

3555 Timmons, Conf Room: So we will receive the public comments and we will address those comments as needed.

77

00:14:20.370 --> 00:14:25.830

3555 Timmons, Conf Room: We will not be responding to any comments during this

meeting, we will just be receiving them and then addressing them afterwards.

78

00:14:26.790 --> 00:14:34.650

3555 Timmons, Conf Room: Once we complete this meeting today, then it will go to our htc board of directors meeting on Tuesday January 18 where they will.

79

00:14:35.520 --> 00:14:42.870

3555 Timmons, Conf Room: Presumably approve this draft plan and then, once they do that, we will send it to TC Q, for their final approval.

80

00:14:43.290 --> 00:14:50.610

3555 Timmons, Conf Room: And then, once the plan is approved, we will begin using it, and we will use it and those three ways that I talked about earlier about.

81

00:14:51.330 --> 00:15:02.940

3555 Timmons, Conf Room: When we review salvage facility permit applications for grant eligibility and also just to direct our actions over the next 2020 years and that is all I have.

82

00:15:05.940 --> 00:15:09.900

3555 Timmons, Conf Room: Okay, I guess the next is the public comments.

83

00:15:11.430 --> 00:15:19.680

3555 Timmons, Conf Room: If anybody has them, we need to you know get them into the committee to the Aaron and we'll see what.

84

00:15:21.750 --> 00:15:28.830

3555 Timmons, Conf Room: They can be addressed there's any and we have any other business will adjourn.

85

00:15:29.910 --> 00:15:36.210

Andrea Tantillo: And we do have one public comment type in the chat and I will read it into the record, if anyone has any public comment.

86

00:15:36.630 --> 00:15:48.420

Andrea Tantillo: Today that wants to give a verbal public comment you'll have three minutes to do that just raise your hand and I will time you and let you know when your time is up, or if you're in the room and want to make public comment.

87

00:15:48.810 --> 00:15:57.060

Andrea Tantilto: And someone in the room, can turn on the microphone for you and we can accommodate that so First let me read this public comment.

88

00:15:57.660 --> 00:16:07.860

Andrea Tantilto: It is from frank blake it says for access to recycling, I think it would be useful to have separate figures for curbside access and drop off access.

89

00:16:08.250 --> 00:16:21.360

Andrea Tantilto: These are not equivalent types of access, so it would be useful for the percentage of citizens who have access to each also it would be useful to know what mileage proximity to a drop off site whoops.

90

00:16:22.890 --> 00:16:34.440

Andrea Tantilto: to drop off site qualifies as accessible accessible, the figure of 63% of residents having access to recycling may not be a good estimate and may overstate current accessibility.

91

00:16:34.920 --> 00:16:43.710

Andrea Tantilto: I had attended an earlier public meeting on the draft plan, and it was not clear how residents and apartments are factored in, for determining accessibility.

92

00:16:44.400 --> 00:16:57.000

Andrea Tantilto: A considerable proportion of regional residents reside in apartments travel distance and availability of transportation would be factors for residents having access to recycling drop off sites.

93

00:17:01.560 --> 00:17:12.030

Andrea Tantilto: We have another comment written in the chat from frank blake is a goal of going from a 26% to 31% recycling rate over 20 years.

94

00:17:12.420 --> 00:17:22.260

Andrea Tantilto: should be more ambitious, why shouldn't the plan aim for a higher rate of somewhere between 36% to 45% or so over this 20 year time span.

95

00:17:22.830 --> 00:17:34.470

Andrea Tantilto: there's currently more focus on innovation and the speed of new developments there is also more public awareness in coming years, conserving

regional landfill space will become increasingly important.

96

00:17:35.010 --> 00:17:41.520

Andrea Tantillo: Citing and constructing new landfill sites will become increasingly expensive and difficult and controversial to locate.

97

00:17:55.470 --> 00:18:01.020

Andrea Tantillo: There is additional comment from Mr blake and then we have a comment from Sarah Tyler after that.

98

00:18:01.950 --> 00:18:08.790

Andrea Tantillo: Is regarding conserving landfill space most recycling diversion rates seen based on weight alone.

99

00:18:09.210 --> 00:18:20.310

Andrea Tantillo: It seems that for conserving future landfill space that there should be volume estimates, so that items that are bulkier and that will take up more landfill space could be prioritized for diversion.

100

00:18:21.390 --> 00:18:24.120

Andrea Tantillo: Sarah Tyler if you want to unmute and give your comment.

101

00:18:25.110 --> 00:18:31.440

Sara Tyler: Sure, now that i'm seeing the format of this meeting, I think it might have been better to send in written comment.

102

00:18:32.250 --> 00:18:48.150

Sara Tyler: What I did was I pulled table to a the regional goals and objectives and actually put in my my comments as edits on that so i'm happy to read that but i'd also be happy to send that in after this meeting, if that would be okay.

103

00:18:51.300 --> 00:19:02.910

Sara Tyler: and continuing on I guess under goal, one which is to promote the planning for adequate municipal solid waste disposal handling processing transferred mental facilities, while providing recommendations lead in limit adverse impact.

104

00:19:04.230 --> 00:19:14.100

Sara Tyler: to Objective one gee I suggest, for when we are encouraging longer in use planning at the county level to specifically call out.

105

00:19:14.730 --> 00:19:25.110

Sara Tyler: To include planning for future source separated collection, because that is a land use question, and if that does not mean that it's specifically limited to.

106

00:19:25.890 --> 00:19:37.170

Sara Tyler: What would be done at the by the county it could be, on behalf of someone else I also suggest adding Objective one, I to this goal, which is to.

107

00:19:38.970 --> 00:19:53.490

Sara Tyler: Encourage waste management authorities to set aside for fixed fractions of their budget for programs that specifically resulting materials for use and wasted minimization i'm only rushing through to kind of get this under three minutes here.

108

00:19:54.960 --> 00:19:59.250

Sara Tyler: Under goal to I suggest suggest adding an additional objective.

109

00:20:00.300 --> 00:20:11.700

Sara Tyler: Which is to develop and implement a regionally acceptable standard way to communicate a diverse range of landfill diversion options to the general public, it would be great if we had something like that.

110

00:20:12.930 --> 00:20:19.860

Sara Tyler: You know whether or not it's something that looks like what earth 911 does or maybe a little more customized to our area.

111

00:20:21.720 --> 00:20:23.130

Sara Tyler: Under Goal five.

112

00:20:24.210 --> 00:20:26.310

Sara Tyler: which involves promoting.

113

00:20:27.690 --> 00:20:32.160

Sara Tyler: Essentially landfill diversion options, I suggest to add an objective.

114

00:20:32.940 --> 00:20:39.510

Sara Tyler: Objective five D encourage facilities already engaged in the develop in

the collection and reclamation of waste material.

115

00:20:39.870 --> 00:20:47.640

Sara Tyler: To develop ways to make their services more acceptable to a broader range of potential contributors this doesn't necessarily target.

116

00:20:48.420 --> 00:21:05.670

Sara Tyler: municipal programs, but rather private facilities that have often targeted their operations to serve large commercial customers to encourage them to make their their options more broadly accessible both the smaller business and and even to the general public.

117

00:21:07.500 --> 00:21:09.090

Sara Tyler: Under goal six.

118

00:21:10.320 --> 00:21:16.260

Sara Tyler: I object to the idea of targeting waste reduction activities towards major components of the waste stream.

119

00:21:16.710 --> 00:21:27.570

Sara Tyler: One thing that struck me on reading through this plan is how much we absolutely expect nothing to change if you look through it looks like we're just kind of projecting the status quo, to be happening.

120

00:21:28.290 --> 00:21:33.600

Sara Tyler: More and because there's more people, which is, which is actually slightly depressing.

121

00:21:34.110 --> 00:21:39.570

Sara Tyler: And so what we actually need to do is target things that can really change things, so instead of targeting.

122

00:21:39.930 --> 00:21:45.720

Sara Tyler: Large components of the waste stream, I think, for this goal, we should target programs with the potential to improve.

123

00:21:46.110 --> 00:21:56.130

Sara Tyler: How a defined waste stream is regionally managed so once that can really bring change not ones that can you know, maybe tweak something to abroad to just the

big waste streams.

124

00:21:56.610 --> 00:22:10.470

Sara Tyler: And then my final comment I got one more is to undergo seven explicitly include all activity which can be considered landfill diversion as part of our research and data collection efforts.

125

00:22:12.600 --> 00:22:18.150

Andrea Tantilto: I thank you i'm we are happy to accept your comments in writing if that would be easier for.

126

00:22:19.020 --> 00:22:31.620

Andrea Tantilto: None of what would be easier just let you talk for three minutes, but if you would like to submit your comments and writing, we would appreciate that, and you can send them by email by four o'clock today and i'll put aaron's email address in the chat for you.

127

00:22:32.040 --> 00:22:35.310

Sara Tyler: Okay sounds good yeah cuz i'm sure that didn't really come across so thank you.

128

00:22:50.160 --> 00:22:51.810

3555 Timmons, Conf Room: Do we have any more comments.

129

00:22:52.980 --> 00:22:55.230

Andrea Tantilto: We have a couple more comments in the chat.

130

00:22:58.140 --> 00:22:59.190

Andrea Tantilto: From frank blake.

131

00:23:00.420 --> 00:23:05.970

Andrea Tantilto: it's regarding conserving landfill space most recycling diversion right same based on weight alone.

132

00:23:06.360 --> 00:23:17.550

Andrea Tantilto: It seems that for conserving future landfill space, there should be volume estimates, so that items that are bulkier and take and will take up more landfill space could be prioritized for diversion.



133

00:23:18.840 --> 00:23:29.160

Andrea Tantillo: And then, also the deadline for submitting comments was stated at 4pm today and that limits opportunity for public comments typically there's some time for comments allowed following a public meeting.

134

00:23:44.430 --> 00:23:46.140

Tourism there's something like over there.

135

00:24:11.490 --> 00:24:18.720

3555 Timmons, Conf Room: Good afternoon, my name is Jim Tucker i'm a Houston resident 77006.

136

00:24:20.250 --> 00:24:20.670

3555 Timmons, Conf Room: and

137

00:24:22.410 --> 00:24:24.360

3555 Timmons, Conf Room: Much of the.

138

00:24:25.470 --> 00:24:34.770

3555 Timmons, Conf Room: document that was published is necessarily qualitative but i'm a science guys, so I was looking at the numbers and.

139

00:24:37.050 --> 00:24:50.790

3555 Timmons, Conf Room: i'm presuming that anything indicated as a percent increase our perhaps decrease if I didn't see it is relative to whatever five year period.

140

00:24:51.990 --> 00:24:55.500

3555 Timmons, Conf Room: is initiated during.

141

00:24:56.550 --> 00:25:05.070

3555 Timmons, Conf Room: During that time time mark, I mean i'm looking at the table three A, one on page three.

142

00:25:06.240 --> 00:25:19.890

3555 Timmons, Conf Room: For example, as well as the right hand column on several of the tables that follow those increases are during the period that is initiated on the date to the left.

143

00:25:21.720 --> 00:25:24.060

3555 Timmons, Conf Room: until the next five year period.

144

00:25:27.390 --> 00:25:32.310

3555 Timmons, Conf Room: Okay general question also looking at table three again.

145

00:25:34.200 --> 00:25:52.230

3555 Timmons, Conf Room: i'm a science guys so things you don't measure are things that you have trouble analyzing and looking at each line on each of the five year time markers which I guess are milestones for that.

146

00:25:54.150 --> 00:26:01.740

3555 Timmons, Conf Room: There is an overall increase in the estimated amount of per capita.

147

00:26:03.960 --> 00:26:09.360

3555 Timmons, Conf Room: Ordinary waste debris and recycling is that a correct way to read that.

148

00:26:10.800 --> 00:26:11.730

3555 Timmons, Conf Room: That table.

149

00:26:14.520 --> 00:26:16.530

i'm not supposed to respond to comments.

150

00:26:17.730 --> 00:26:29.160

3555 Timmons, Conf Room: i'm sorry I couldn't hear but i'm supposed to respond to comments I understand I know i'm i'm just curious if i'm reading that correctly in that, overall, it is expected.

151

00:26:29.670 --> 00:26:45.060

3555 Timmons, Conf Room: That per capita per household whatever there will be an increase in total debris waste, whether captured as recycling our ordinary waste presumably going to a landfill.

152

00:26:46.620 --> 00:26:48.690

3555 Timmons, Conf Room: It so it's it's.

153

00:26:50.040 --> 00:27:04.530

3555 Timmons, Conf Room: it's interesting that a strategy documents such as this does not at least have a scenario for overall waste reduction, both ordinary ways to landfill and.

154

00:27:06.660 --> 00:27:19.140

3555 Timmons, Conf Room: recyclable capture rate on a per capita basis so that the following comments on encouraging voice projection did not seem to have been successful, thank you.

155

00:27:27.720 --> 00:27:28.170

Thank you.

156

00:27:42.810 --> 00:27:44.490

3555 Timmons, Conf Room: Do we have any other comments.

157

00:27:52.500 --> 00:27:59.400

Andrea Tantilto: We do not have any additional comments in the chat and we do not have any hands raised to make verbal comments.

158

00:28:05.940 --> 00:28:19.740

3555 Timmons, Conf Room: Okay we'll if we have no more comments comments we have will be looked at and at this time, if there is no more comments we will adjourn.

01:01:22 Frank Blake: For 'access' to recycling, I think it would be useful to have separate figures for curbside access, and drop-off access. These are not equivalent types of access, so it would be useful to know the percentage of citizens who have access to each. Also, it would be useful to know what mileage proximity to a drop-off site qualifies it as 'accessible'.

The figure of 63% of residents having access to recycling may not be a good estimate and may overstate current accessibility. I had attended an earlier public meeting on the draft plan, and it was not clear how residents in apartments are factored in for determining accessibility. A considerable proportion of regional residents reside in apartments. Travel distance and availability of transportation would be factors for residents having access to recycling drop-off sites.

01:11:34 Frank Blake: A goal of going from a 26% to 31% recycling rate over 20 years should be more ambitious. Why shouldn't the plan aim for a higher rate of somewhere between 36% to 45% or so over this 20-year time span? There is currently more focus on innovation and the speed of new developments. There is also more public awareness. In coming years conserving regional landfill space will become increasingly important. Siting and constructing new landfill sites will become increasingly expensive and difficult & controversial to locate.

01:13:06 Frank Blake: Regarding Conserving Landfill Space: Most recycling diversion rates seem based on weight alone. It seems that for conserving future landfill space, that there should be volume estimates so that items that are bulkier and that will take up more landfill space could be prioritized for diversion.

01:17:50 Frank Blake: The deadline for submitting comments was stated as 4pm today. That limits the opportunity for public comments. Typically there is some time for comments allowed following a public meeting.

01:19:06 Andrea Tantillo: email public comments to  
erin.livingston@h-gac.com



# RESOLUTION

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE HOUSTON-GALVESTON AREA COUNCIL OF GOVERNMENTS ADOPTING REGIONAL SOLID WASTE MANAGEMENT PLAN 2022-2042 AS THE REGIONAL SOLID WASTE MANAGEMENT PLAN FOR THE GULF COAST REGION.

WHEREAS, the Houston-Galveston Area Council is a regional voluntary association of local governments and local elected officials serving the 13-county Gulf Coast Planning Area, with over 7 million people; and

WHEREAS, the 68<sup>th</sup> Texas Legislature enacted the Comprehensive Municipal Solid Waste Management, Resource Recovery and Conservation Act which provides for the development of regional solid waste management plans; and

WHEREAS, in 1989 the 71<sup>st</sup> Legislature enacted Senate Bill 1519 which stipulated that solid waste management plans must be developed by the State, regional planning agencies, and local governments; and

WHEREAS, the mission of the Houston-Galveston Area Council is to help local governments plan for the future; and

WHEREAS, management of solid waste is and will continue to be a critical issue facing local governments in the Gulf Coast Planning Area; and

WHEREAS, the Houston-Galveston Area Council has a regional solid waste management plan which has been adopted by the Texas Commission on Environmental Quality.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Houston-Galveston Area Council adopts the regional plan and authorizes its submittal to the Texas Commission on Environmental Quality as the regional plan for solid waste management.

PASSED AND APPROVED this 18<sup>th</sup> day of January 2022, at a regularly scheduled meeting of the Board of Directors of the Houston Galveston Area.

APPROVED:

The Honorable Phillip Spenrath  
County Judge, Wharton County  
H-GAC Chair

ATTEST:

DocuSigned by:

The Honorable Rebecca Kiersten Clark  
Commissioner, Galveston County  
H-GAC Vice Chair

