



COMPOSTING as a RECYCLING STRATEGY

Trends and Status in Commercial Composting

H-GAC Regional Recycling Roundtable

NOVEMBER 15, 2018 | PRESENTATION

Composting as a Recycling Strategy



TEXAS COMMISSION
ON ENVIRONMENTAL QUALITY

Per TCEQ there are **106** Authorized
Facilities in Texas

0 Exempt Facilities

87 Notification

8 Permitted

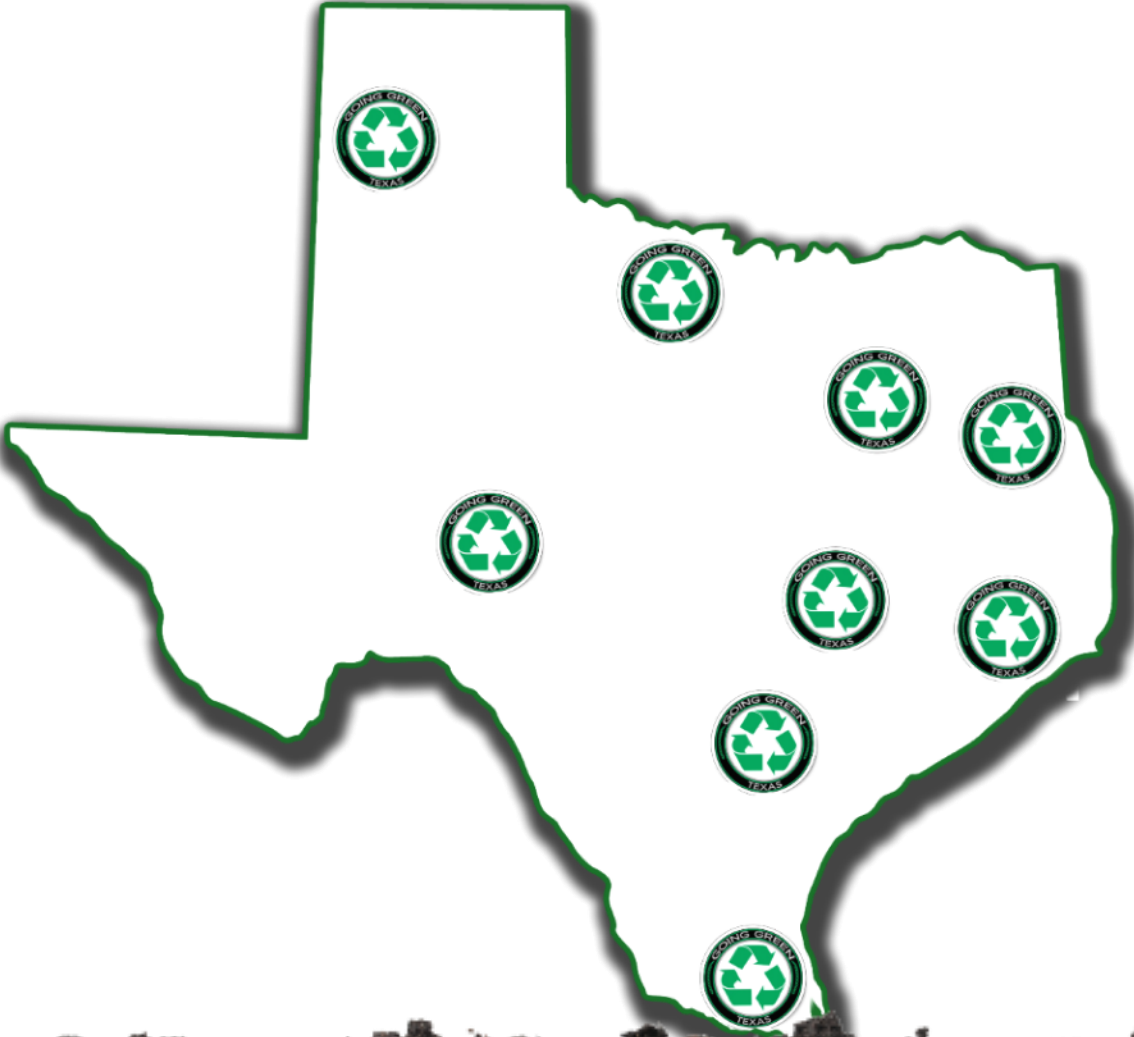
11 Registered



US Composting
Council®
Proud Member

48 Texas Compost Facilities
participate in the USCC Seal
of Testing
Assurance
Program (STA)

Data as of 11.01.2018



Commercial Composting in Texas: Policies, Procedures

Where the Rules Begin: Title30, Texas Administrative Code – Chapter 330 → 332

Section 330.1(d) – This Chapter does not apply to any person that composts MSW in accordance with Chapter 332 unless a Permit is required

Chapter 332 – Applies to persons who compost or mulch. Chapter 330 does not apply . . . Unless a Permit is required

TCEQ Authorizations Types for Compost Facilities

- ✓ Exempt
- ✓ Notified
- ✓ Registered
- ✓ Permitted



Exempt Authorization

Notice of Intent to Operate a Recycling Facility

Feedstock Material	Notice Requirements	Public Participation?	Subject to Recycling and Compost Rules?	End Product Testing	Approximate Timeframe to Complete Review Process
<p>source separated;</p> <p>yard trimmings;</p> <p>clean wood material;</p> <p>vegetative material;</p> <p>Paper; and</p> <p>Manure</p>	<p>To TCEQ's MSW Permits Section</p>   	<p>None</p>	<p>Yes:</p> <p>General Requirements (Section 332.4);</p> <p>Air Quality Requirements [(Section 332.8(b));</p> <p>Storage Limitations (Section 328.4);</p> <p>Reporting and Recordkeeping (Section 328.5)</p>	<p>None</p>	<p>60-90 days</p> 

Exempt Authorization

Notice of Intent to Operate a Recycling Facility

Form TCEQ-20049 Attachments:

- A. Map of Site Location
- B. Description of Operation – Compost or Mulch (Option 2,3,4)
- C. End Use for Finished Product
- D. Closure Cost Estimate/Financial Assurance. Section 328.4 (c) through (e)
- E. Alternative Compliance Demo - Sections 328.4 (c), (e),(f)
- F. Bexar County Section 328.4 (g)



Compost Notification

Notice of Intent to Operate a Compost Facility

Section 332.32(c) and Chapter 332, Subchapter B

Feedstock Material	Notice Requirements	Public Participation?	Subject to Recycling and Compost Rules?	End Product Testing	Approximate Timeframe to Complete Review Process
<p>Exempt material plus: source separated;</p> <p>Meat</p> <p>Fish</p> <p>Dead Animals</p> <p>Dairy Material</p> <p>Meat/Vegetable</p> <p>Oils and Greases NOT FOG from Grease trap / interceptors</p>	<p>Mailed Notice to Adjacent Land Owners via TCEQ's MSW Permit Section and OCC</p>	<p>Limited to Adjacent Land Owners via letter correspondence:</p> <p>No Motion to Overturn; No Public Meetings; No Public Hearing available</p>	<p>Yes:</p> <p>General Requirements (Section 332.4);</p> <p>Air Quality Requirements [(Section 332.8(c));</p> <p>Storage Limitations (Section 328.4);</p> <p>Reporting and Recordkeeping (Section 328.5)</p> <p>Plus some operational requirements (Section 332.23)</p>	No	60-120 days



Compost Registration

Section 332.32(b), Chapter 332, Subchapter C & Sub G

Feedstock Material	Notice Requirements	Public Participation?	Subject to Recycling and Compost Rules?	End Product Testing	Approximate Timeframe to Complete Review Process
<p>Exempt material plus:</p> <p>Compost Notification Material</p> <p>Plus:</p> <p>Municipal Sewage Sludge</p> <p>Disposable diapers</p> <p>Paper Sludges</p>	<p>Mailed Notice to Adjacent Land Owners via TCEQ's MSW Permit Section and OCC</p> <p>Published Notice</p>	<p>Opportunity for Public Meetings (Published and Mailed)</p> <p>Opportunity for Motion to Overturn ED Decision (mailed)</p>	<p>No to Recycling Yes to Compost:</p> <p>General Requirements (Section 332.4);</p> <p>Air Quality Requirements [(Section 332.8(c));</p> <p>Operational requirements (Section 332.27); plus</p> <p>Soil Liner Required</p>	<p>Yes</p> <p>Sludge = Chapter 312 and 332.72(d)(2) (A) and (D)</p> <p>No Sludge = 332.71 and 332.72</p>	<p>6-12 months</p> <p>Admin and Tech</p>



Compost Permit

Chapter 332, Subchapters D, E, F, and G & Applicable Portions of Chapter 330

Feedstocks that Trigger a Permit:

- Grease Trap Waste
- Mixed Municipal Solid Waste




Compost Permit

Chapter 330: Section 330.1(d)

Chapter 332, Subchapter D, E, F and G; Section 332.3(a)

Feedstock Material	Notice Requirements	Public Participation?	Subject to Recycling and Compost Rules?	End Product Testing	Approximate Timeframe to Complete Review Process
<p>Exempt material Plus: Compost Notification Material</p> <p>Plus: Mixed MSW Waste Grease Trap Waste</p>	<p>Mailed Notice to Adjacent Land Owners via TCEQ's MSW Permit Section and OCC</p> <p>Published Notice</p>	<p>Opportunity for Public Meetings (Published and Mailed)</p> <p>Opportunity for Motion to Overturn ED Decision (mailed)</p> <p>Opportunity for Contested Case Hearing</p>	<p>No to Recycling Yes to Compost:</p> <p>General Requirements (Section 332.4);</p> <p>Air Quality Requirements [(Section 332.8(e));</p> <p>Operational requirements (Section 332.45); plus</p> <p>Soil Liner Required</p> <p>Groundwater Monitoring Required</p>	<p>Yes</p> <p>Sludge = Chapter 312 and 332.72(d)(2) (A) and (D)</p> <p>No Sludge = 332.71 and 332.72</p>	<p>9-18 months</p>

What's Going on in Texas



Most **Landscape Companies** are utilizing mulch and composting facilities vs. landfill to dispose of green waste. Numerous **Commercial generators** of vegetative residuals, clean wood scraps, and **Texas Municipalities** offering curbside brush and yard trimmings collection divert organic materials to compost/mulch facilities vs. landfill.

Compost Facilities vs. Landfills

- Convenient, accessible locations
- Lower Tipping Fees
- Materials managed for beneficial uses
- Increased Recycling Rates for Customer

What's Going on in Texas

- Low landfill tipping fees result in a very small amount of post-consumer food waste currently being recycled.
- Post-consumer food waste is often contaminated, resulting in higher processing costs.
- Food waste produces very little product to sell.



First City in Texas to implement Curbside Organics Collection program to include Food scraps, Meat

- Pilot Program Implemented 2011-2012
 - 30,000 residents receive 96-gallon green cart
 - \$1.3 million cost to provide carts for pilot program
 - Transition to subscription service completed March 2013
- Transition from Subscription to City Wide Residential Service 2015
 - Rolled out October 2015 alongside PAYT initiative
 - Service approximately 360,000 residents; Billed according to Cart size
 - Green Cart: Yard trimmings, Food Scraps, Soiled Paper



City of San Antonio

City offers Brush collection 2 x year

Leaf collection 2 x year

- Residential call in service (311)

Contamination

- Pro: Easy to spot contamination • Challenge: Manual Sorting Process
- Loads are rejected if more than 10% non-program material
- Rejection Rate FY2018 around 25%

SOLID WASTE SERVICE MONTHLY RATES

PAYT	SMALL	MEDIUM	LARGE
Solid Waste Fee	\$16.76	\$18.76	\$26.76
Environmental Fee	\$2.24	\$2.24	\$2.24
Total City Services (Taxable)	\$19.00	\$21.00	\$29.00

OTHER FEES

These fees are collected through the CPS Energy electric bill (City Services).

ITEM	FEE
Blue Cart Contamination Fee	\$25.00
Extra Garbage Collection Fee	\$10.00



Residential Brush Program - Collected 6 x Year

- City utilizes five of Contractors conveniently located brush recycling facilities, minimizing trucking costs
- **381,874 tons** brush diverted and recycled for beneficial use (April 2009 - October 2018)

Residential Yard Trimmings – Collected Weekly

- Leaves, grass clippings are collected in ASTM D6400 approved Compostable bags (supplied by residents)
Small bundled twigs
- Material is so clean, Contractor pays City for the yard trimmings
- **129,072 tons** yard trimmings diverted and composted (April 2009 – October 2018)

Food Waste Diversion

- H-GAC Study: Commercial Food Waste Collection in the H-GAC Planning Region August 2015

<https://www.h-gac.com/community/recycling/documents/CommercialFoodWasteCollectionStudy2015.pdf>



Residential Curbside Organics Collection Pilot to Permanent

- 1st Phase ended 2013
 - **Yard Trimmings made up 89.5%; Food Scraps 2.4%**
- 2nd Phase initiated in 2014 (14,000+ homes served)
 - Results reported January 2015
- Backyard Composting Education & Incentive Program
- First Major Expansion of Program September 2017
 - Carts delivered to approx. 38,000 homes
- Second Major Expansion of Program June 2018
 - Carts delivered to approx. 38,000 homes

Currently there are about 90,000 homes on the program

- Planning to continue expansion through 2020 (two more phases)
- Curbside compost program contamination rate: About 2%



<https://austintexas.gov/austincomposts>

Universal Recycling Ordinance (URO) Phase 1

- Requires all multifamily buildings, office buildings, institutional properties in the City to recycle
- Fully implemented by October 1, 2017

URO Phase 2

- Expands to all remaining properties in Austin including retail centers, and includes food permit holders to divert organic material. Timeline was moved to 2018 for full implementation
 - City will incentive early adopters to offset their start up costs up to \$1,800

Green Curb Cart Program - \$3.00/month

• Accepted Materials

- Grass Clippings
- Wood, Limbs, Leaves
- Kitchen Food Waste
- Paper products
- Milk and Juice Cartons
- Phone Books



ACCEPTABLE ORGANIC MATERIAL



GRASS CLIPPINGS



TREE TRIMMINGS



FOOD WASTE



PAPER GOODS

Facility also processes:

- Agricultural
- Horse Manure

Commercial

- Landscape trimmings (Leaves, Grass)
- Brush & Branches
- Clean Wood (chips, sawdust, lumber)

Free Compost Events for Residents. Wichita Falls Landfill.

Residential Brush Collection Program Every 4-6 weeks

Compost Facility Receives Wastes from:

- Residential – Yard trimmings
- Commercial – Brush, Clean Wood
- Industrial (e.g., food processors)

Materials Accepted for Composting

- **Food Waste & Compostable Products**
 - Fruits, Vegetables, Trimmings, Paper, Corrugated
- **Yard Trimmings**
 - Leaves, Grass Clippings
 - Logs & Stumps; Brush & Branches
 - Clean Wood (chips, sawdust, lumber)



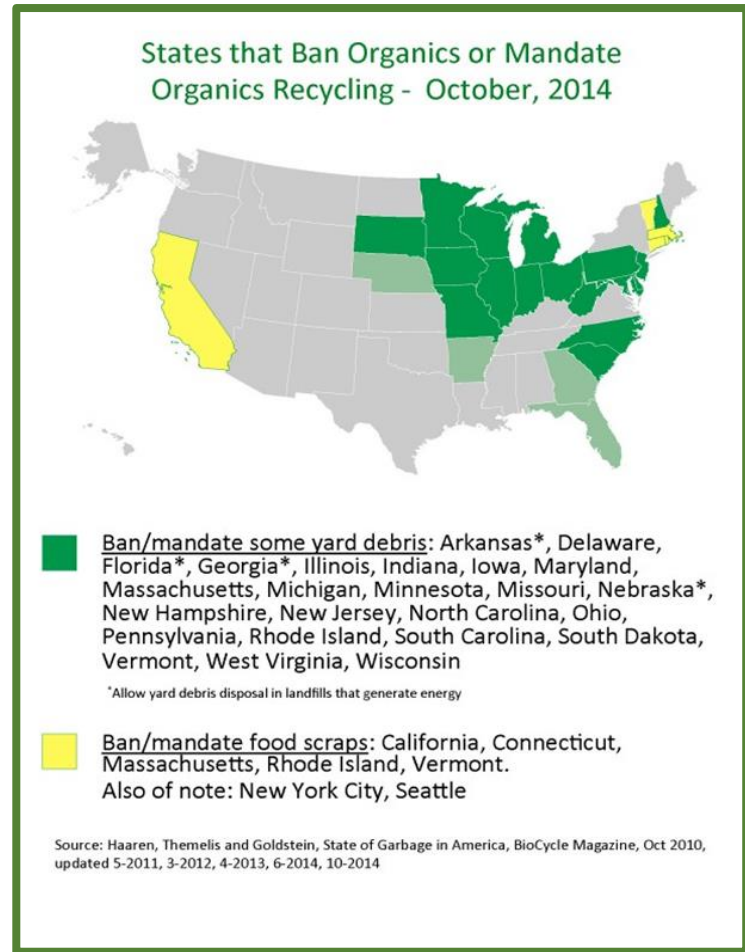
City of McAllen

Save the Greens Program

City Owned and Operated compost facility. Program is operated by the Department of Public Works.

How the Commercial Compost Industry is Developing

Growth in Municipal Green Waste Diversion Ban of Organics in Landfills



How the Compost Industry is Developing

Compostable 'Plastics' & Other Products



Food Discards

Check with Compost facility for Acceptance

**Keep Good Food Out of Your Garbage Pail and Kitchen Sink
Don't Feed High-Priced Human Food to Hogs or Chickens**

WASTE NO FOOD!

HOUSEHOLD WASTE ABOUT 700 MILLION DOLLARS

"For partial immediate relief, every individual and community should consider carefully the matter of food conservation and the limitation of waste. As a nation we seem to have a disinclination of economizing. In many homes there is a strong feeling that it is 'only decent' to provide more food than will be eaten and that it is degrading to reduce closely. The experts of the Department of Agriculture report to me that the dietary studies made by them point to an annual food waste of about \$700,000,000. Of course, the waste in families of very limited means is slight, but in the families of moderate and ample means the waste is considerable. Even if the waste were reduced by half, the waste would still be enormous. The food waste in the household, the 'spare meat,' results in large measure from bad preparation and bad cooking, from improper care and handling, and, so well-to-do families, from serving an undue number of courses and an over-abundant supply and failing to save and utilize the food not consumed. As an instance of improper handling, it is discovered that in the preparation of potatoes 20 per cent of the edible portion is every year so discarded."—Secretary of Agriculture, March 5, 1917.

FOOD IS WASTED


When anything edible is allowed to go to the garbage pail or allowed to spoil for lack of proper handling

<p>FOOD IS WASTED</p> <p>When too much is served at a meal. Uneaten portions are left on the plate and later thrown into the garbage pail. Learn to know the needs of your family and serve each no more than you think he will want.</p> <p>When too much is prepared for a meal. Unneeded portions are likely to be thrown into the garbage pail or allowed to spoil. Many housekeepers do not know how to use left-over foods to make appetizing dishes.</p>	<p>FOOD IS WASTED</p> <p>When burned or spoiled in cooking. Improperly prepared or poorly seasoned food will be left on the table and probably wasted. Buy food wisely and then prepare it carefully.</p> <p>When handled carelessly. Buy clean food, keep it clean until used, and be neat in all details of cooking and serving. This lessens waste and is a valuable health measure as well.</p>
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FOOD IS WASTED

When we eat more than our bodies need for growth and repair and to supply energy for our work

Overeating tends to poor health and fat instead of brawn, makes us sluggish and indolent instead of energetic and resourceful. Eat enough and no more. Eat for physical and mental efficiency.



**DEMONSTRATE THRIFT IN YOUR HOME
MAKE SAVING, RATHER THAN SPENDING, YOUR SOCIAL STANDARD**



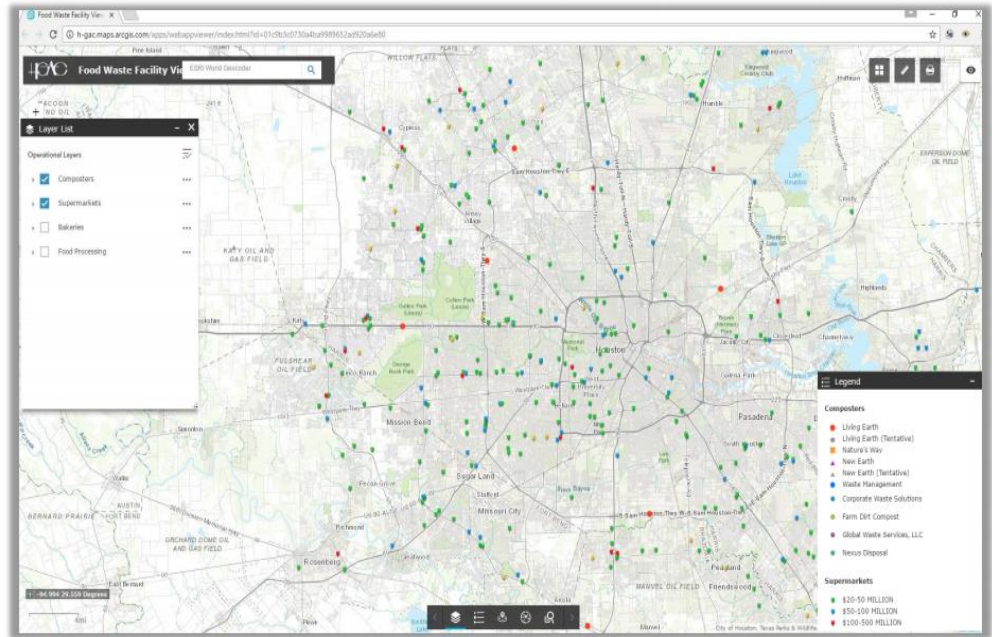
Begin to save to-day. For practical advice on how to feed your family efficiently and make the most of the food you buy or raise write to-day to your State Agricultural College, to your county agent, or to the

**U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.**

Compost Industry Challenge – Closing Infrastructure Gaps

Challenges

- Premium Cost for Service
- Route Density Challenges
- Proximity to Processors



Solutions

Data Base & GIS Mapping to Connect Generators, Haulers, Processors

*Source: Houston-Galveston Area Council



Living Earth's Take: New Entrepreneur Opportunities and Areas of Future Focus



US Composting Council®

Farm Dirt Houston



Compost Peddlers Austin



Turn Compost Dallas



Food Waste Recycling



Resources:

✓ **Composting Topics:**

<http://www.tceq.texas.gov/p2/nav/composting.html>

- ✓ <https://compostingcouncil.org/blog/resources/best-management-practices-bmps-for-incorporating-food-residuals-into-existing-yard-waste-composting-operations-2/>



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