NCTCOG
Western Region
Solid Waste Capacity Study
FEBRUARY 11, 2021
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This study was funded through a solid waste management grant provided by TCEQ through NCTCOG. This funding does not necessarily indicate endorsement of the study’s findings or recommendations.
Introductions

PROJECT TEAM
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Needs Assessment Results

QUANTIFYING NEEDS & RESOURCES
### Needs Assessment Purpose

The Needs Assessment includes a detailed analysis of waste generation and resources in the western region.

| Understand | Understand waste generation patterns in the western region. |
| Identify   | Identify sources of waste and factors that will influence future quantities of waste. |
| Identify   | Identify resources available to the western region for meeting future needs. |
| Evaluate   | Evaluate haul costs and options for more efficient transportation of waste. |
| Identify   | Identify options for consideration. |
The western region covers 7000 square miles – 2.8 million people

- Erath
- Hood
- Johnson
- Palo Pinto
- Parker
- Somervell
- Tarrant
- Wise
- City of Denton (participant, but not part of Western Region)
Needs Assessment Report

Background
- Region
- Population
- Economic Activity

Waste Generation & Projections
- Sources of Waste by County & Sector
- Waste Projections

Available Resources
- Solid Waste Facilities
- Landfill Capacity Analysis

Current Solid Waste Programs
- Survey findings

Haul Cost Analysis
- Comparison of Direct vs Transfer Haul

Conclusions & Next Steps
Population Projections

In 2050, population = 3.87 million

The region is a mix of urban, suburban and rural areas, each with their own specific waste generation characteristics and needs.

Source: Texas Demographic Center
Based on the Western Region Local Government Survey data, the region has an average single-family generation rate of 6.6 pounds per household per day (phd).

Using Fort Worth Plan sources, multi-family households have a 4.0 phd.*

Total residential generation was 981,000 tons in 2019. 68% is from single-family households.

Source: CalRecycle Waste Characterization Study (Source: https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates).
Employment is 1.07 million (US Bureau of Labor Statistics Fall 2019).

- 84% of individuals are employed in commercial, institutional, government, finance trades or other professional fields.

- 16% of employees are in construction or manufacturing.

- Employment projected by NCTCOG to increase at a rate of 1.06% per year between 2005 and 2045.
## Employers

<table>
<thead>
<tr>
<th>Employer</th>
<th>Employees</th>
<th>Sector</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dallas Fort Worth International Airport</td>
<td>14,000</td>
<td>Retail Trade</td>
<td>Grapevine*</td>
</tr>
<tr>
<td>Naval Air Station Joint Reserve Base Fort Worth</td>
<td>10,500</td>
<td>Public Administration</td>
<td>Fort Worth</td>
</tr>
<tr>
<td>Lockheed Martin Aeronautics Company</td>
<td>10,500</td>
<td>Manufacturing</td>
<td>Fort Worth</td>
</tr>
<tr>
<td>L3 Technologies Aerospace Systems</td>
<td>6,500</td>
<td>Manufacturing</td>
<td>Greenville</td>
</tr>
<tr>
<td>University of Texas Arlington</td>
<td>5,300</td>
<td>Educational Services</td>
<td>Arlington</td>
</tr>
<tr>
<td>Burlington Northern Santa Fe Railway</td>
<td>4,900</td>
<td>Retail Trade</td>
<td>Fort Worth</td>
</tr>
<tr>
<td>John Peter Smith Hospital</td>
<td>4,600</td>
<td>Health Care &amp; Social Assistance</td>
<td>Fort Worth</td>
</tr>
<tr>
<td>Alcon Laboratories</td>
<td>4,500</td>
<td>Manufacturing</td>
<td>Fort Worth</td>
</tr>
<tr>
<td>Arlington Assembly Plant General Motors</td>
<td>4,484</td>
<td>Manufacturing</td>
<td>Arlington</td>
</tr>
<tr>
<td>Texas Health Harris Methodist Fort Worth</td>
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<td>Health Care &amp; Social Assistance</td>
<td>Fort Worth</td>
</tr>
<tr>
<td>Texas Health Resources</td>
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<td>Health Care &amp; Social Assistance</td>
<td>Arlington</td>
</tr>
<tr>
<td>Bell Technical Services Inc.</td>
<td>4,000</td>
<td>Manufacturing</td>
<td>Fort Worth</td>
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<tr>
<td>AMR Corporation</td>
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<td>Retail Trade</td>
<td>Fort Worth</td>
</tr>
<tr>
<td>Wise Regional Health System East Campus</td>
<td>1,400</td>
<td>Health Care</td>
<td>Decatur</td>
</tr>
<tr>
<td>Luminant</td>
<td>1,200</td>
<td>Utilities</td>
<td>Glen Rose</td>
</tr>
<tr>
<td>Tarleton State University</td>
<td>1,055</td>
<td>Educational Services</td>
<td>Stephenville</td>
</tr>
</tbody>
</table>

In 2019, commercial / institutional waste generation was 2.0 million tons. This represented 2/3 of total waste generation in the western region.

Major employers should be key stakeholders in the implementation of any solid waste management program.

Sources of Waste Generation

Why it is important to know:

- Targeting future waste reduction & recycling programs.
- Existing contractual arrangements with sources will be a factor in any regional effort.
- Local governments in Texas have a regulatory responsibility to assure proper management of waste within their jurisdictions. This is done either through contracts or regulations.

Sources of Waste in Western Region

- Single Family Households: 27%
- Multi-Family Households: 7%
- Commercial & Institutional: 66%

Source: Needs Assessment Technical Report
Disposal rates have remained constant. NCTCOG's regional rate has historically been higher than Texas' statewide rate.

Western region rate is 6.45.

Historic Waste Disposal Rates (pounds per capita per day)
Source: TCEQ Annual MSW Report
Disposal quantities have remained constant over past 5 years

Annual Waste Disposal Trends (tons/year)

Source: TCEQ Annual MSW Summary Report

- City of Arlington
- City of Cleburne
- City of Fort Worth
- Progressive Weatherford
- Progressive Turkey Creek
- Westside Landfill
- City of Stephenville
- Fort Worth C&D
Managing MSW is a complex system requiring a variety of facilities.
Landfill capacity in the western region is 63 million tons.

The western region has a total of 63 million tons of capacity.

Annual disposal quantities are 2.8 million tons.

Regional waste generation is anticipated to increase with increases in population and economic activity.

Landfill expansion amendments are in the works for Turkey Creek, Fort Worth.
Projected Waste Generation

Projected Waste Generation & Western Region Landfill Capacity

- **Projected Generation**
- **Current Permitted Capacity**
Waste Generation Scenarios

Scenario Analysis

PCD - pounds per capita per day
Market Subregions were evaluated

**Denton**
- Capacity: 52 million tons
- Annual disposal: 2.5 million tons

**NE**
- Capacity: 86.1 million tons
- Annual disposal: 1.1 million tons

**Dallas**
- Capacity: 168 million tons
- Annual disposal: 5.4 million tons

**SE**
- MMT: 11 million tons
- Annual disposal: 0.1 million tons

Values in million tons. Cap - Capacity, Dis - Annual disposal quantities

Total NCTCOG Region has 381 million tons of capacity and disposes approximately 12 million tons per year.
NCTCOG region has 382 million tons of capacity – approximately 30 years

Disposal Capacity in Five Subregions
% of total
Source: TCEQ Annual Landfill Reports

Disposal Quantities by Subregion
% of total
Source: TCEQ Annual Landfill Reports
Majority of waste is collected by private sector.

All commercial waste is collected by the private haulers.

Flow control will be a critical issue.
Why is flow control important?

Why?
- Knowledge of waste flow critical to facility sizing.
- Waste flows and associated tipping fees are critical to facility economics.

How?
- City establishes franchise that requires waste directed to a specific facility (i.e. Plano and other cities in NTMWD region).
- City contracts for waste management services for residential waste with contract term requiring where waste is to be delivered.
Haul Analysis

There are two options for delivering waste to a landfill – Direct Haul and Transfer Haul.
Figure 6-1 Custer Road Transfer Station
Aerial Source: DFWmaps; NCTCOG
Approximately 30 miles from collection route to landfill is when transfer stations become cost effective.

Actual costs will vary from case to case based on transfer station design & operations.
Investment in transfer stations is complicated in the western region.

Private Sector control over majority of waste collection makes it difficult to determine return on investment. Municipal investment in transfer station will require realized long-term reduced collection fees to justify investment.

Future landfill locations will determine where transfer stations will be needed.

Potential conflicts with private sector transfer stations.
Comments & Discussion
Regional Opportunities and Alternatives

Factors determining alternatives...
- Based on Needs Assessment
- Western region local government survey
- Input from local government officials
- Opportunities to change based on input from the PAG
Issues evaluated in Alternatives Analysis Report

Organizational Structure
Technical, Legal & Regulatory
Cost Benefits Analysis and Funding Options
Transportation Impacts
Environmental Impacts
Key Questions for PAG

- Are these alternatives worth further consideration?
- What are major concerns associated with each of the alternatives?
- What are major opportunities?
- Are there other regional alternatives or approaches that should be considered?
Alternative 1 – Regional Public Information Programs

31 of 38 communities surveyed indicated interest in a regional public Information program.

Focus of program needs to be determined.
Alternative 2 – Cooperative Collection Program

- Inter-local agreements for collection of either MSW or recyclables.
- Majority of communities interested in examining cooperative collection strategies.
- Timing of contracts and scoping will be major issues.
Alternative 3 - Cooperative material marketing

- Opportunities to collaborate and increase revenues through cooperation.
- Existing examples of these programs in place.
- Existing collection contracts may have an impact on ability to undertake such programs.
Alternative 4 – Increase composting capacity

- There are private sector facilities in operation, but minimal capacity for biosolids (sludge) management.
- Weatherford Landfill was disposal site for regional biosolid generators.
- Fort Worth will have to relocate its mulching operation in short-term due to landfill development.
Alternative 5 – Increase number of citizen drop-off centers

- Increased access to citizen drop-off programs can help reduce illegal dumping in the western region.
- Provides an additional service for residents to dispose of wastes, especially bulky wastes.
- Provides an additional opportunity for recycling, especially for residents of multi-family households who don’t have access to single-family residential recycling.
Alternative 6 – Regional Transfer Stations

- There are existing private facilities and facilities that have been permitted but not operating.

- Haul distances in western region will increase due to closure of Weatherford Landfill in short-term and Fort Worth and Turkey Creek in the mid-term.

- Collection system will make this complicated option for local governments.
Alternative 7 – Increase Landfill Capacity

- Disposal capacity in the region is approximately 16 years.
- Private sector has no regulatory responsibility to build facilities.
- Securing new capacity could take 10-15 years and cost approximately $20 - $30 million.
Alternative 8 - Cooperative Disaster Debris Management

- Shared resources for disaster debris management will provide quicker response times in times of emergency.

- Regional disaster debris management plan, approved by FEMA can generate more relief dollars.
Establish a regional agency as a local government corporation.

Purpose is to assist local governments implement regional projects.

Variety of funding options.

Models exist for this type of agency.

Powers and funding to be determined by local governments.
Other alternatives or ideas?
Next Steps...

- Continue to have one-on-one meetings to discuss alternatives.
- Present Needs Assessment Report to the RCC.
- Issue DRAFT Alternatives Analysis Report to PAG.
- PAG to review options and make recommendations on moving forward with specific recommendations.
- PAG to continue to meet to address implementation of recommendations.