North Central Texas Council of Governments

Western Region Landfill Capacity Study

Alternatives Analysis Technical Report

FINAL

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North Central Texas Council of Governments

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Keep Texas RECYCLING

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Executive Summary

The Western Region Solid Waste Capacity Study ("Study") was initiated to determine short-term and long-term solid waste disposal capacity needs that must be addressed in the western eight counties of the North Central Texas Council of Governments ("NCTCOG"). The Resource Conservation Council ("RCC") agreed to fund this Study using Texas Commission on Environmental Quality ("TCEQ") grant funds. The purpose of the Study is to:

The western region includes Erath, Hood, Johnson, Palo Pinto, Parker, Somervell, Tarrant and Wise counties.

(i) examine options for addressing capacity needs;
(ii) identify strategies to reduce waste; and
(iii) recommend strategies to make solid waste collection, processing and disposal more efficient.

The NCTCOG established a Policy Advisory Group (PAG) to review the progress of the Study and provide input on recommendations. The PAG is comprised of solid waste management officials from the western region. The PAG met periodically during this Study to review reports and provide input on the direction of recommendations. Local government input was also sought through a western region local government survey ("Survey"). This Survey was issued to cities and counties in the western region and requested information regarding their current program, planned facilities and interest in working with other local governments on cooperative programs. Throughout the report, "Survey Results" are presented to show which cities and counties are interested in regional programs or are planning waste management projects. The Project Team also reached out to solid waste officials through several one-on-one meetings with the Project Team[1].

The PAG can set an example for the entire NCTOCG region on how to make programs and project more effective through cooperative actions.

Regional Needs

The eight-county western region generates approximately 3 million tons of municipal solid waste ("MSW") per year. For the planning period of 2022-2042, an estimated 69.6 million tons of waste are projected to be generated if waste generation rates remain constant and the region grows in population as anticipated. This waste is processed at one of 24 recycling facilities or 13 mulch/compost facilities or landfilled at one of the five MSW or two construction/demolition (C&D) landfills.

The five MSW landfills in the region have approximately, 63 million tons of capacity, or 15-20 years of remaining capacity. Most of the capacity is located at the Arlington Landfill which is in the extreme eastern part of the western region.

The Needs Assessment Technical Report ("Needs Assessment") was prepared as the first phase of the Study. The Needs Assessment provides an overview of the western region, waste generation patterns, an inventory of waste management facilities and a haul analysis. A conclusion of the Needs Assessment was that there are nine alternatives that should be explored by local governments in the western region to achieve the purpose of the study. These alternatives include:

[1] The Project Team is comprised of Arredondo, Zepeda & Brunz LLC and Keep Texas Recycling

Alternative 1 Establish an On-going Policy Advisory Group ("PAG") and Explore the Potential of Creating a Western Region Solid Waste Management Agency Inc. ("WRSWMA")

Alternative 2 Cooperative Public Information Programs

Alternative 3 Cooperative Material Marketing

Alternative 4 Increased Citizen Collection Stations Availability

Alternative 5 Increased Composting Capacity

Alternative 6 Cooperative Collection Programs

Alternative 7 Cooperative Disaster Debris Management

Alternative 8 Increased Transfer Station Capacity

Alternative 9 Increased Landfill Capacity

Table E-1 provides a summary of the alternatives, their impacts on waste management, fiscal impacts and implementation complexity. To meet all the challenges facing local governments in the western region, it is recommended that city and county officials consider adopting each of these alternatives. Due to decreasing landfill capacity, additional landfill capacity through expansions and the creation of a new landfill is needed. Beyond the additional capacity, the alternatives have the potential to create greater opportunities to reduce waste and improve the efficiency of waste management. It is recommended that local governments consider the establishment of an on-going PAG whose objectives would be to assist the implementation of cooperative approaches to solid waste collection, recycling, organics management, transfer stations and other programs. On a longer-term basis, it is recommended that the PAG evaluate the creation of a WRSWMA. The WRSWMA can help further the development of cooperative programs and make investments that improve long-term operational efficiencies.

Table E-1 Summary of Alternatives						
Alternative	Description	Impact on Waste Capacity	Efficiency Improvements	Implementation Complexity	Fiscal Impacts ***	Other Benefits
Formalize the PAG	This is an interim step towards development of a WRSWMA. Improved communications will help identify short-term wins.	Low*	Medium	Low	Low	This is an interim step towards development of a WRSWMA. Improved communications will help identify short-term wins.
Establish WRSWMA	A WRSWMA has the potential to implement a variety of program that will lead to improvements in regional programs.	Low*	High	High	Low / Medium	A WRSWMA has the potential to implement a variety of program that will lead to improvements in regional programs.
Cooperative public Information programs	Improved program cost-effectiveness and training will lead to better management of programs.	Low	Medium	Low	Low	Improved program cost-effectiveness and training will lead to better management of programs.
Cooperative recycling marketing	Cooperative programs present an opportunity for communities in rural areas to establish and/or operate more cost-effective recycling programs.	Low	Low / Medium**	Low	Low	Cooperative programs present an opportunity for communities in rural areas to more cost-effectively operate recycling programs.
Increase availability of convenience stations & recycling centers	Offers potential to reduce illegal dumping and can offer recycling options in areas where there is not collection program.	Low	Low / Medium**	Medium	Medium	Offers potential to reduce illegal dumping and recycling options in areas where there is not collection program.
Increase organics management capacity	Compost facilities offer an alternative to landfilling brush and biosolids (sludge).	Medium	Medium	Medium	Medium	Compost facilities offer an alternative to landfilling brush and biosolids (sludge).
Cooperative collection services	Multi-city collection contracts should yield lower costs. Can be a means of establishing flow control to a specific facility.	Low	High	Medium	Low / Medium	Multi-city collection contracts should yield lower costs. Can be a means of establishing flow control to a specific facility.
Cooperative disaster debris management programs	Cooperative action to address storm events can improve recovery times and reduce environmental impacts of disaster events.	Low	Medium	Medium	Low	Cooperative action to address storm events can improve recovery times and reduce environmental impacts of disaster events.
Increased transfer station capacity	Transfer stations in certain areas will reduce haul costs and make collection systems more efficient.	Low	High	High	High	Transfer stations in certain areas will reduce haul costs and make collection systems more efficient.
Increase landfill capacity	Region has approximately 15-20 years remaining capacity, about the time it takes to identify, permit and construct new capacity.	High	High	High	High	Region has approximately 15-20 years remaining capacity, about the time it takes to identify new capacity.

*** By themselves these will not significantly reduce waste but they create an organizational structure that can implement the following recommendations.**
**** Low in urban settings, Medium in more rural settings**
***** Low – under $1 million, Medium $1 - $5 million; High over $5 million**

Recommendations

There are opportunities to establish long-term inter-local cooperation to manage waste in the western region. Several communities indicated that they were interested in cooperative actions, including cooperative public information, collection and other types of programs. To facilitate these inter-local efforts, it's recommended that cities and counties in the western region continue discussions through a stakeholder group.

Policy Advisory Group

It is recommended that local governments in the region continue to meet and formalize the PAG. Once established, the PAG would be an independent organization with no formal ties to the NCTCOG. The PAG can work with NCTCOG staff as in the past, however, there is no guarantee NCTCOG will have the resources available to support the PAG in the future. If a formal PAG is established, it will need to establish formal bylaws for the PAG that will define its mission, leadership, potential funding, and frequency of meetings. Specific tasks of the PAG would be to:

- Define a regional public information program that can be shared across the western region as well as a potential sponsor.
- Develop a training program for solid waste management leaders. Identify a committee responsible for identifying topics and securing speakers.
- Evaluate the potential of forming a WRSWMA using the outline defined in this Study. Formalize a memorandum of understanding creating a WRSWMA that can be taken to city councils for consideration.

Western Region Solid Waste Management Agency

Several of the cities and counties in the region expressed interest in a regional approach to several programs or facilities. These regional or sub-regional approaches can be accomplished through inter-local agreements. Another approach that can address potential conflicts is the establishment of a WRSWMA. There is a range of potential projects that a WRSWMA can undertake, including administering multi-city collection programs to building facilities such as citizen convenience stations, transfer stations or landfills.

- It is recommended that the PAG establish a working group to evaluate a draft memorandum of understanding of this report to determine if such an organization is in their best interest.

Public Information & Training Programs

- The PAG can identify regional public information topics that address common public information needs (i.e., illegal dumping, tires, etc.).
- The PAG can identify potential partnerships with organizations such as the NCTCOG, Keep Texas Beautiful or the Recycling Partnership to assist in the implementation of a regional public education program. Funding for a regional program could potentially be secured from participating cities or through grant applications.
- The PAG can prepare grant funding proposals to be submitted to various organizations focused on waste reduction and recycling to assist in funding a western region focused public information program.
- The PAG can institute a program to offer training and continuing education to solid waste officials in the western region. It is possible that this on-going training can assist licensed solid waste professionals meet their continuing educational requirements. The PAG could work with TCEQ to confirm this is feasible. A PAG committee can take responsibility for securing speakers for these meetings.
- Recognizing that a majority of the waste stream is generated from the commercial sector, cities and counties should examine regional public information programs focused on these sectors. Cities in Texas

have adopted commercial sector and multi-family household sector mandatory recycling ordinances, the PAG may wish to evaluate these programs for their own communities.

Cooperative Material Marketing

This program is primarily for local governments in the rural areas of the western region.

- The first step in the process is establishing parties interested in a cooperative recycling program, whether the community utilizes single-stream collection at a drop-off point or separates recyclable materials.
- Establishing the need for inter-local agreements for a cooperative with one managing community overseeing procurement and a contract or if the cooperative will be managed by a newly-formed WRSWMA, a state organization or even the NCTCOG (like in the case of the Panhandle Regional Planning Council " PRPC"). Establish contract manager and inter-local agreements signed or agreements signed with the managing WRSWMA.
- The cooperative's management will issue procurement documents. The review of these documents should be performed by all participants. This might be one of the more difficult aspects, to ensure the services provided by the contractor fits the needs of all participants. The selected contractor will negotiate a contract with the managing entity.

Citizen Convenience Stations and Recycling Centers

- Cities and counties that have indicated an interest in building and operating citizen convenience centers should proceed with construction and evaluate opportunities for cooperative development. Based on survey results, the following joint projects should be considered.
    - Arlington, Mansfield and Dalworthington Gardens
    - Grapevine, Colleyville and North Richland Hills
    - Watauga, North Richland Hills and Haltom City
    - Fort Worth, Westworth Village and Benbrook
    - Weatherford, Annetta North, Aledo and Annetta South
    - Granbury and DeCordova
- Evaluate the potential of expanding the service territory for existing citizen convenience stations. The Fort Worth / Tarrant County cooperative agreement provides a good model for this approach.
- If the WRSWMA is established, it should evaluate opportunities to build regional facilities to address illegal dumping.
- If existing citizen convenience stations do not have recycling capabilities, they should consider adding this to provide greater access to recycling. This can be tied to cooperative material marketing program.

Organics

- The City of Weatherford is currently examining this option which would help reduce the cost of hauling biosolids long distances. It is recommended that the City coordinate with surrounding cities to identify additional sources of feedstocks including biosolids. If there is sufficient interest, the City should negotiate inter-local agreements and perform a feasibility study to determine project viability. If viable, site, design, permit and construct a regional facility.

- Cities in the northeast quadrant of Tarrant County and DFW Airport expressed an interest in compost projects. The cities of Grapevine, Richland Hills and DFW International Airport should meet to determine common interest in a joint program.

Cooperative Collection Programs

By evaluating existing collection contracts, local governments can determine if there are opportunities for cooperative collection contracts. By combining markets, cities could see a reduction in the cost of service. Based on input provided in the Survey, collection contracts and geographic proximity, the following cities should consider joint collection contracts.

- NE Tarrant County: Arlington, Watauga, Colleyville, Grapevine, Bedford, Euless, Hurst, Haltom City and Southlake.
- West Tarrant County: Pantego, Dalworthington Gardens, Mansfield, Kennedale, Everman and Forest Hill (possibly Fort Worth).
- Wise County: New Fairview, Boyd, Rhome and Aurora or
- Wise County Bridgeport and Decatur
- Parker County: Annetta, Annetta North, Annetta South, Hudson Oaks, and Willow Park (existing) plus Weatherford or Aledo
- Palo Pinto/Parker: Mineral Wells, Cool and Milsap
- Johnson County: Burleson, Joshua
- Johnson County: Cleburne, Joshua, Keene
- Hood County: Granbury, DeCordova, Brazos Bend, Tolar (possibly (Glen Rose)
- Erath County: Stephenville, Dublin

To encourage greater recycling by commercial and multi-family household sector, cities may want to consider adopting similar ordinances or public information programs focused on these sectors.

Cooperative Disaster Debris Management

Disaster events rarely track city or county boundaries. These events can place significant stress on solid waste collection and disposal systems. It is recommended that cities and counties explore options to address these events in a cooperative manner. Specifically, cities and counties should negotiate agreements to assist each other with equipment, labor and other support in the event of a disaster event.

Transfer Stations

- Transfer stations are necessary to reduce the cost of hauling waste long distances. It is recommended that the City of Stephenville proceed with the construction of a transfer station for waste generated in its service area. Once the Weatherford Landfill reaches capacity, the construction of the Waste Connection's transfer station in Weatherford will reduce the cost of hauling waste from several western region cities and counties.
- Cities in Tarrant County may require a transfer station due to traffic conditions.
- The Weatherford Transfer Station is needed to provide a more efficient transport option once the Weatherford Landfill has reached capacity.

Landfill

- It is recommended that the planned expansions for the City of Arlington Landfill and the Turkey Creek Landfill move forward.
- The City of Fort Worth needs to determine if it is going to: (i) expand their facility; (ii) identify a new site to meet its long-term needs; (iii) help establish a WRSWMA to take on the responsibility of site selection, permitting and construction of a new landfill; or (iv) take no action and rely on the private sector to

address its disposal needs. If it decides on option iv, the loss of capacity in the western region will certainly increase the cost of disposal throughout the region, as well as place a strain on existing facilities in the NCTCOG region. It is strongly recommended that the City find ways to develop new capacity either as a City endeavor or as part of a newly formed WRSWMA.

- Because there is a likelihood that a new Fort Worth Landfill will have to be located outside the metroplex, the issue of flow control will be a critical issue. The City currently has flow control through its residential contract for residential waste only. This represents approximately 200,000 of the 800,000 to 900,000 tons disposed at the City's landfill. The non-residential waste disposed at the City's landfill comes from businesses in the City and from other cities. Currently, there are few ordinances affecting the flow of waste in the NCTCOG region. Therefore, there is no guarantee that if Fort Worth were to invest in a new landfill, there would be a waste flow to support the investment if less costly, closer facilities such as Arlington, Turkey Creek, Denton or Dallas are available to haulers. Such changes in waste flow have the potential to impact the capacity of these facilities and the infrastructure supporting these landfills (i.e., access roads etc.).

- To secure flow control, Fort Worth has the following options: (i) adopt flow control for all of Fort Worth commercial waste to be directed to the City's facilities (including possible transfer stations) as part of franchise agreements with Fort Worth haulers; (ii) negotiate cooperative collection agreements with surrounding cities which would include provisions that waste collected under the agreement would be directed to a Fort Worth facility; or (iii) assist in establishing WRSWMA that can establish flow control in the same manner that the NTMWD controls the flow of waste from the communities of Allen, Frisco, Plano, Richardson and McKinney. All issues related to contracts and flow control, will need to be given careful legal review.

- The selection of a location for a future disposal site is becoming increasingly more difficult due to continued population growth and the role social media has in organizing opposition. Future landfill sites will have to address not only TCEQ location restrictions but will also have to take into account issues such as good access and have enough acreage to provide significant buffer zones from surrounding landowners. While an unpopular decision, the City or WRSWMA will need to push forward with permitting in order to provide an essential environmental facility that meets the western region's future solid waste management needs.

- Prior to moving forward with the selection of a site, communities will have to demonstrate that they are committed to do taking actions to reduce the need for a future landfill. This will include enhancing source reduction and recycling efforts, including greater use of compost technologies. Municipalities will also have to address the issue of waste generated from the commercial sector which accounts for over 60% of the waste stream. These actions are consistent with EPA's hierarchy and represent sound environmental policy making.

1.0 Introduction

1.1 Purpose

The purpose of the Western Regional Solid Waste Capacity Study ("Study") is to identify regional strategies for addressing the municipal solid waste ("MSW") management needs of the eight-county western region of the North Central Texas Council of Governments ("NCTCOG"). This Alternatives Analysis Report is the second phase of the Study. The focus of this analysis is to identify specific alternatives that can be adopted to reduce the amounts of waste generated, to address capacity issues, and to improve waste management system efficiency.

The western region includes:

8 NCTCOG counties; Erath, Hood, Johnson, Palo Pinto, Parker, Somervell, Tarrant, Wise

2.8 million people

7,006 square miles

The first phase of the Study was a Needs Assessment which addresses the following topics.

- Western region demographics
- Waste generation and projections
- Current management practices
- Solid waste management facilities
- Haul analysis

The conclusions of the Needs Assessment[2] identified nine potential regional alternatives, that local governments should consider as steps to provide more efficient service and assure long-term assuring disposal capacity. The recommended alternatives generally follow the USEPA's MSW management hierarchy. This hierarchy focuses, in descending order of priority, on reducing waste generation, increasing material recovery, energy recovery[3] and landfill disposal. It should be noted that all these alternatives may need to be adopted to provide the most efficient program in the western region. Also, the adoption of one alternative does not necessarily preclude the adoption of other alternatives. The nine alternatives that are evaluated in this Study include the following.

Alternative 1 Establish an On-going Policy Advisory Group ("PAG") and Explore the Potential of Creating a Western Region Solid Waste Management Agency Inc. ("WRSWMA")

Alternative 2 Cooperative Public Information Programs

Alternative 3 Cooperative Material Marketing

Alternative 4 Increased Citizen Collection Stations Availability

[2] The Needs Assessment report can be found at: https://www.nctcog.org/nctcg/media/Environment-and-Development/Documents/Materials%20Management/Needs-Assessment-Combined-DRAFTJan112021-Sent-to-PAG.pdf

[3] No energy recovery options were recommended in the Needs Assessment for consideration in this Study. While recovery of energy in the form of landfill gas is a viable technology, its application does not address the regional issues being studied. Other energy recovery technologies have been determined to be longer term options.

Alternative 5 Increased Composting Capacity

Alternative 6 Cooperative Collection Programs

Alternative 7 Cooperative Disaster Debris Management

Alternative 8 Increased Transfer Station Capacity

Alternative 9 Increased Landfill Capacity

1.2 Stakeholder Involvement

To ensure adequate stakeholder involvement, the NCTCOG established a Policy Advisory Group (PAG) comprised of representatives of county and city governments. The PAG reviewed project reports and presentations and attended a series of project meetings. The PAG also reviewed and approved the list of potential alternatives that were recommended in the Needs Assessment for evaluation in this Alternatives Analysis Report. In addition, the Project Team held several one-on-one meetings with key stakeholders, including members of the PAG.

1.3 Summary of Needs Assessment

In 2019, the western region generated a total of 3.0 million tons of MSW. Most of this waste is generated by the commercial businesses and institutions, followed by single-family and multi-family dwellings. Figure 1-1 illustrates the sources of waste in the western region.[4]

Figure 1-1
Sources of Waste in Western Region

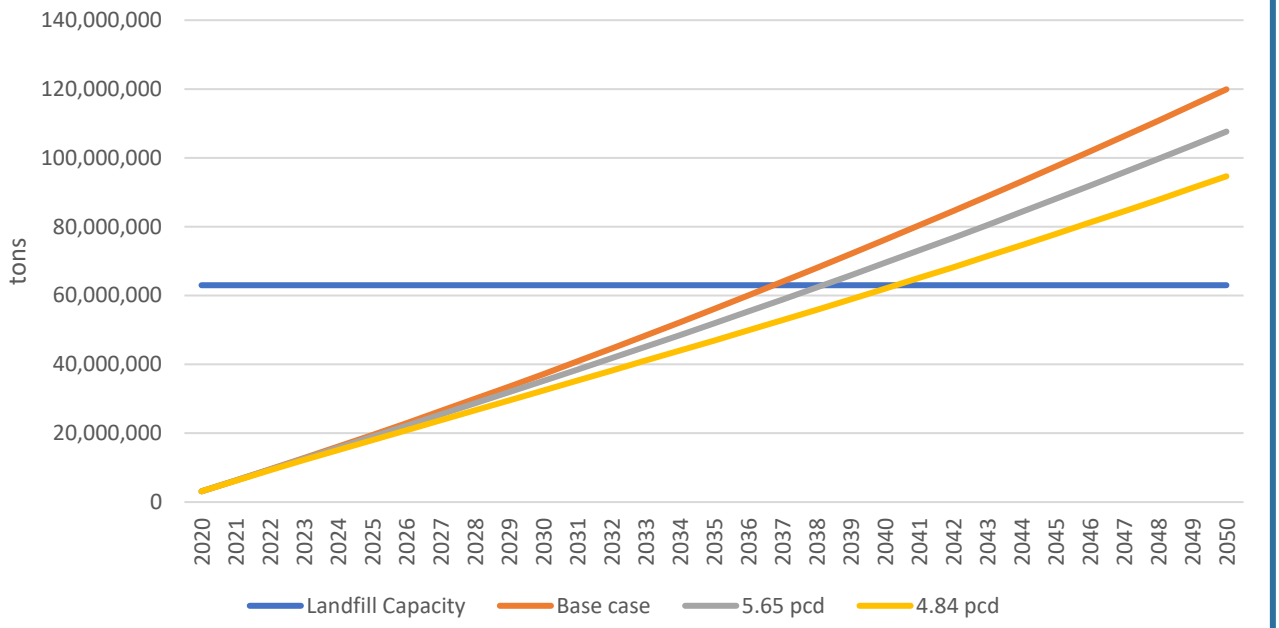
With the exception of Weatherford and Cleburne, cities in the western region contract with private firms to provide for the collection of waste from residents. Businesses throughout the region rely on private haulers for collection, proper processing and disposal of waste.

As the western region's population increases, waste generation is also anticipated to increase. By the year 2040, an estimated 3.6 million tons of waste per year are forecasted to be generated. Cumulative waste generated. for the twenty-year period (2022-2042) is 69.6 million tons. This compares to the existing regional disposal capacity of 63 million tons. If no new landfills are sited, or no major expansions are undertaken at current facilities, landfill capacity will reach its maximum limit by the year of 2036. Cities and counties are sponsoring a variety of programs to reduce the per-capita disposal rate. These programs include public education, recycling and organics management programs. Figure 1-2 illustrates the potential impacts over 30 years of reducing the waste disposal

[4] Source: Needs Assessment l Report

rate from the current 6.45 pounds per capita per day (pcd) to 4.84 pcd[5]. This figure illustrates that even with significant reductions, the region will continue to need additional landfill capacity within approximately 20 years.

Figure 1-2
Cumulative Waste Generation
Various Scenarios



Areas of Concern

The Western Region Local Government Survey (Survey) was conducted as part of the Needs Assessment phase of the Study. The purpose of the Survey was to identify areas of concern and opportunities for regional participation, and to identify plans for facilities. The top four areas of concern expressed by local officials included:

- Long-term Disposal Capacity
- Increased Cost of Waste Management
- Markets for recycle materials
- Transportation Costs

Waste Collection

Most municipalities in the western region rely on the private sector to provide residential collection services. Municipal contracts throughout the western region for this service have several similarities, but they also have differences. The following issues demonstrate both similarities and differences.

[5] 4.84 pcd disposal rate represents a 25% reduction. Currently the Capital Area Council of Governments has a pcd of 6.13 and the Alamo Area Council of Governments has a 5.66 pcd as reported by the TCEQ in their report MSW in Texas, A Year in Review 2019.

- Type of collection provided (manual vs automated)
- Frequency of collection
- Recycling services
- Brush and bulky waste collection services
- Public information responsibilities
- Requirements for disposal at a specific landfill (flow control for disposal)

The ability to secure flow control of waste in the region is an important step in assuring the financial viability of several activities such as resource recovery, transfer station and landfill projects. Under the current collection system, few communities have flow control for waste disposal. Fort Worth and Arlington are exceptions to this by directing the residential waste stream to their respective landfills. The following are ways for communities to assure flow control.

- Collection contracts requiring disposal at a specific landfill,
- Franchise agreements with provisions for disposal at a specific landfill, and
- City ownership of the collection program.

Waste Reduction and Recycling

Several communities in the western region have programs to encourage residents to reduce waste and provide separate collection of recyclable materials. The Needs Assessment Report evaluated waste generation and disposal patterns in the western region, and it is estimated that the region has a waste disposal rate of 6.45 pcd (pounds per capita per day), which is less than the NCTCOG region (7.6 pcd) and the state-wide average (7.2 pcd).

Reducing waste generation is the most cost-effective way of managing waste. Communities were almost unanimous in displaying their interest in regional public information programs.

Based on TCEQ data and local information, approximately 28% of material is recycled by residents and businesses. According to Texas Commission on Environmental Quality ("TCEQ") records, there are 24 recycling facilities and 13 compost facilities authorized by TCEQ throughout the western region[6].

Landfill Disposal

The majority of the waste generated in the western region is disposed at one of the five MSW landfills and two C&D landfills located in the western region. With landfill capacity at 63 million tons, landfill capacity will be reached in approximately 16 years at the current rates of disposal, landfill expansions are planned for the City of Denton, the City of Arlington, and the Turkey Creek Landfill in Alvarado. The Turkey Creek Landfill expansion will increase capacity by 4.85 million tons. On a regional basis, the Turkey Creek expansion will provide 1-2 years of additional capacity. The City of Arlington is still in the planning stages of its expansion and it is uncertain how much additional capacity will be added, but City officials indicated it could provide approximately 40 additional years at current rates of disposal.

[6] Needs Assessment Technical Report. Not all authorized facilities have been constructed or are operating.

2.0 Organizational Structures & Ownership Options

Changing the way that waste is managed in the western region will require an assessment of current and potential organizational structures – specifically who has responsibility for providing service, managing programs, and building and operating solid waste facilities. The current organizational structure is largely decentralized with local governments taking responsibility for their public information programs and collection contracts. Landfills are unique because only a few cities own facilities and most cities rely on either publicly or privately owned landfills to ensure proper disposal of MSW. Alternative organizational models to encourage greater participation are discussed in this section.

Facility ownership is related to organizational structures. The owner of a solid waste facility has the greatest degree of control over how the facility is designed, the cost of the facility, how it is operated, and what wastes /recyclables are acceptable. The issue of ownership is closely tied to the current and future organizational structure because the owner will dictate who can use facilities and whether they are accessible to other local governments.

2.1 Organization

Western Region Policy Advisory Group (PAG)

The Policy Advisory Group was established to help oversee the Study. The PAG provides input into Study goals and objectives, reviews information and provides comment on the final recommendations of this Study. The PAG should formalize an organizational structure to continue to function after the Study is completed.

The roles of the PAG after Study completion can include the following.

- Continue to monitor and report on landfill capacity in the region to local officials
- Sponsor periodic meetings for the purpose of training and continuing education
- Identify opportunities for regional or sub-regional projects or programs
- Provide a communication link among members regarding new programs and facilities
- Apply for grants and other funding to implement regional public information projects or demonstration programs
- Evaluate the potential of a Western Region Solid Waste Management Agency. (“WRSWMA”)

Current Structure

With few exceptions, the current organizational structure for managing waste in the western region is that each community is responsible for its own public information program, collection services, recycling programs, and disposal contracts. This structure provides local governments with the greatest degree of control over the types of services provided, where facilities are to be located and design parameters. Each local government is responsible for the cost of constructing and operating facilities it deems necessary to meet its needs.

public/private partnerships

Almost all cities in the western region rely on private firms to provide residential waste collection services.

The Cities of Fort Worth and Arlington have lease agreements for the operation and maintenance of their landfills.

Most of waste management activities in the western region are managed through public/private partnerships. The advantage of a public/private partnerships is to allow a local government to reduce its staffing and management responsibilities, and to allow firms that specialize in services such as waste collection and landfill management to provide these services. The major disadvantage is a loss of control over the operations depending on contract terms, and potential loss of revenues.

Inter-local Agreements

Cities and counties are authorized to enter into inter-local agreements for the purposes of providing services and protecting the public health. Parties to an interlocal agreement can: (i) study the feasibility of the performance of governmental functions, and (ii) provide a governmental function or service that each party to the contract is authorized to perform individually.[7] Solid waste management is defined as one of the governmental functions for which local governments can enter into an inter-local agreement. Inter-local agreements can be established to provide one or more of the following functions.

- Provide cooperative public information programs.
- Provide collection and processing services.
- Arrange for disposal services.
- Respond to a disaster event in a cooperative manner.

inter-local agreements

The cities of N Annetta, Annetta, Hudson Oaks, S. Annetta, and Willow Park have inter-local agreements for the collection of residential waste.

Another example is the inter-local agreement between the City of Fort Worth and Tarrant County. Tarrant County residents can use the City of Fort Worth citizen convenience stations for a fee.

It should be noted that programs sponsored through inter-local agreements can still include a public/private partnership for implementation. Figure 2-1 illustrates a model that utilizes inter-local agreements for solid waste management services. The model shows three cities working together to provide a service such as solid waste collection. The cities agree on a scope of services while City B takes responsibility for managing the contract. Cities A and C would be expected to assist City B with the cost of managing the contract.

[7] (Source: Texas Administrative Code Chapter 791 https://statutes.capitol.texas.gov/Docs/GV/htm/GV.791.htm)

Figure 2-1 Inter-local Agreement Structure

Utility District

Existing regional utility service providers, such as regional water utilities, have sponsored solid waste management programs as part of their services to communities. In the western region, utilities such as Trinity River Authority (TRA) or Tarrant Regional Water District (TRWD) could provide solid waste services. An expansion into solid waste management arena would require approval by their boards and a comprehensive financial and management system would have to be established before they could invest in services or facilities.

NORTH TEXAS MUNICIPAL WATER DISTRICT

The North Texas Municipal Water District (NTMWD) provides solid waste services to its member cities. NTMWD has built and operates three transfer stations and one MSW landfill.

Local Government Corporation

A Local Government Corporation or "LGC" is a corporation incorporated as provided in Subchapter D of Chapter 431, Texas Transportation Code 9. By being defined as a "corporations" as defined in Chapter 431, an LGC is subject to all laws applicable to Texas non-profit corporations as set forth in Chapter 22, Tex. Bus. Org. Code10.[8].

A LGC may be created "to aid and act on behalf of one or more local governments to accomplish any governmental purpose of those local governments." "Any governmental purpose" means that a city, county, or other local government authorized to create an LGC can do under state law, the LGC can do as well. This would include construction and operation of a landfill.[9] ***Throughout this report, a potential western region local government corporation is referred to as the "Western Region Solid Waste Management Agency ("WRSWMA").***

[8] (Source: Kevin B Laughlin, Local-Goverment-Corporations-TCAA-2016-Summer-Conference-KBL77225.pdf (texascityattorneys.org))
[9] Source: ibid. Special districts: SPECIALDISTRICTLOCALLAWSCODE.pdf (texas.gov)

The Brazos Valley Solid Waste Management Agency Inc. (BVSWMA) was initially established through an inter-local agreement between Bryan and College Station. Due to a series of conflicts over management of the Agency, the cities agreed to incorporate BVSWMA and establishing an accountable board comprised of member cities. BVSWMA owns and operates a landfill and a compost facility.

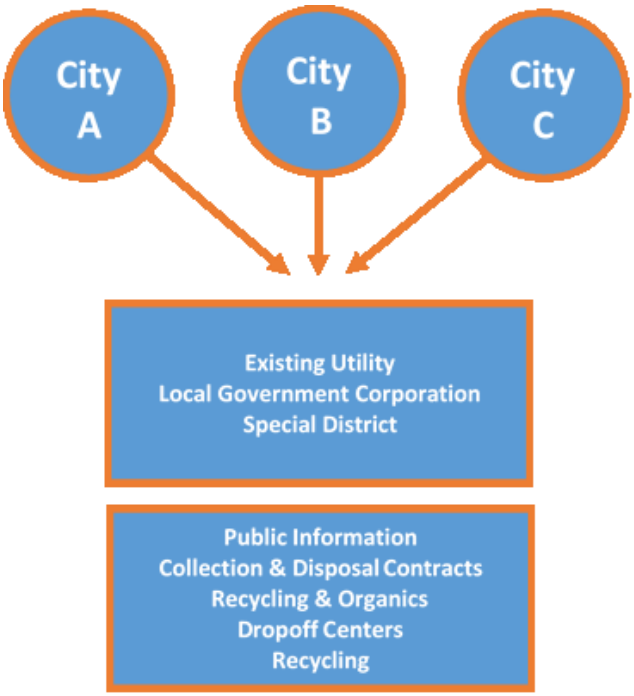
Twin Oaks Landfill
BVSWMA, Inc.

Special District

The legislature can establish special solid waste management districts. These districts have similar powers to a local government, including the powers to tax and use eminent domain. The process is complicated because it requires state legislation and sponsors can anticipate public opposition to the formation of a new taxing authority. A model for a special district is the Upper Sabine Valley Solid Waste Management District ("USVSWMD"). Appendix A includes the legislation outlining is powers and responsibilities of the USVSWMD.

Figure 2-2 illustrates an organizational structure that has cities joining with a regional entity like an existing utility, a local government corporation, or a special district to manage waste. The cities would participate, through some form of inter-local agreement with the regional entity. This agreement would identify the responsibilities of the cities and the regional entity, the services to be provided and funding mechanisms.

Figure 2-2
Utility District, LGC or Special District Structure

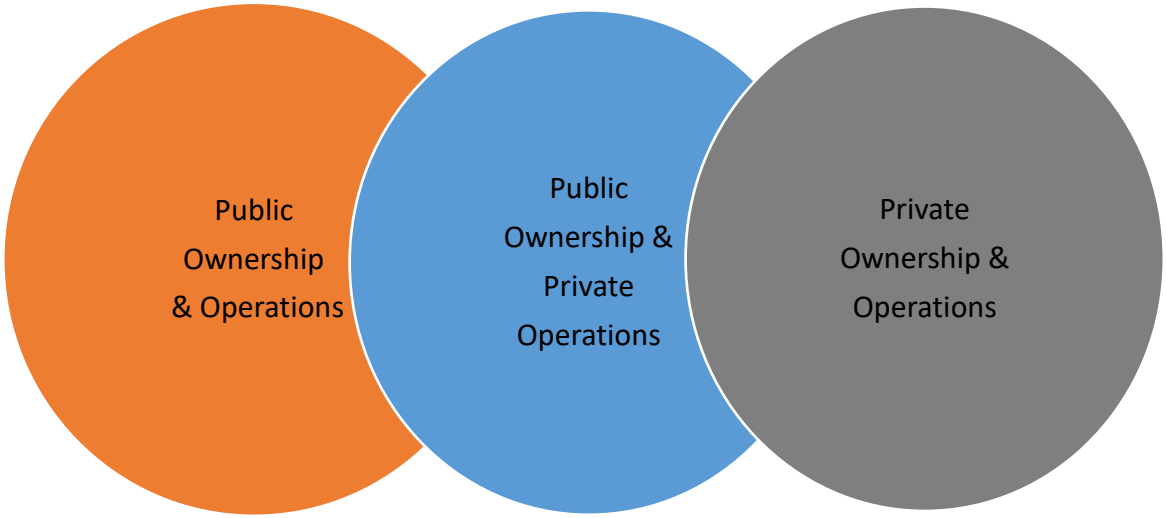


2.2 Public Ownership, Private Ownership and Public/Private Partnerships

Facility ownership determines who maintains control over the design and operation of the facility. There are three options for local governments or agencies to consider related to solid waste facilities such as drop-off centers, compost facilities, material recovery facilities, transfer stations, and landfills. These ownership opportunities include (Figure 2-3):

- Public ownership and public operations,
- Public ownership and private operations, and
- Private ownership and operations.

Figure 2-3 Public Private Ownership & Operation Options



Examples of facility ownership and operation responsibilities are presented in Table 2-1. The table illustrates a mix of public, private and public/private partnerships that are currently functioning in the western region. The following factors that determine which ownership/operation approach is the most appropriate.

- The local government's risk position related to facility development and financing.
- The ability of the private sector to generate a sufficient rate of return on the facility.
- Flow control capabilities.
- Public demand for facilities, especially for drop-off centers.
- Local government need for a facility that is not being developed by the private sector.

Table 2-1 – Facility Ownership & Operation in the Western Region				
Owner	**Facility**	**Public/Public**	**Public/Private**	**Private/Private**
Fort Worth	SE Landfill		●	
Fort Worth	Drop-off centers	●		
Arlington	Arlington Landfill		●	
Cleburne	Transfer station	●		
Various private operators	Composting and Mulching Facilities			●
Various private companies	Transfer Stations			●
Stephenville	Stephenville Type IV Landfill	●		
Arlington	Arlington brush management & compost facility		●	
Various private companies	Material Recovery Facility			●

3.0 Regional Alternatives

The following alternatives for the western region local governments are based on the Needs Assessment, the Western Region Local Government Survey, and input from one-on-one interviews. In this section, goals and objectives for each of the alternatives are followed by a brief program/facility definition, and the positive and negative aspects of specific implementation approaches. In general, four approaches that are considered.

1) City or county sponsorship (current model).
2) Cities and/or counties working through inter-local agreements to implement cooperative programs.
3) Rely on the private sector to implement projects.
4) Establish a WRSWMA to implement projects.

To put these alternatives in a regional context, information from the Survey is included to identify specific cooperative opportunities for each. There is a description of procurement and risk issues, environmental impacts and permitting, fiscal impacts, regional impacts and general implementation steps.

3.1 Alternative # 1 Establish an On-going PAG and Establish a Western Region Solid Waste Management Agency

Goals and Objectives

Goals

- Establish a regional entity that can implement projects for local governments in the western region.
- Move recommendations presented in this Study from a preliminary plan to actual implementation.

Objectives

- Formalize the PAG as an independent organization with its own bylaws and leadership.
- Establish a coordinating committee to develop specific strategies for organizing a WRSWMA.
- Prepare articles of incorporation for the establishment of a WRSWMA and select a board of directors representing cities and counties in the western region.
- Identity specific projects that the WRSWMA can implement.

Program Definition

The PAG was informally established several years ago when western region communities began to explore waste disposal capacity issues and potential regional solutions. As a result of the Study, the PAG was formed to assist in development of specific recommendations to address disposal capacity issues in the western region. Once the Study is completed, it is recommended that local governments in the western region formalize an independent PAG (or other name) for the following purposes.

- Maintaining a degree of communication throughout the western region related to solid waste issues.

The City of Weatherford is now reaching out regionally for a potential compost facility that will manage biosolids. Cooperation among regional cities will help improve the cost-effectiveness of the project and help address a common problem facing several communities in the region. To accomplish this, cities must communicate with each other. A formal PAG will make this cross-city communication more effective and ongoing.

- Identifying specific opportunities for cities and counties to collaborate on specific solid waste projects identified in this Study.
- Sharing information on specific programs and policies such as multi-family residential collection, organics management and the effectiveness of these policies.
- Provide its members with on-going training in areas of solid waste management.

The Western Region Solid Waste Management Agency Inc. is proposed as an organization that can assist participating cities to implement regional, cooperative projects. The WRSWMA would be a non-profit local government corporation.

The following is a list of services that the WRSWMA could provide once established.

- Residential MSW collection
- Residential recyclable material collection
- Construct and operate citizen drop-off centers
- Construct and operate compost and mulch facilities
- Construct and operate MSW transfer stations
- Construct and operate MSW landfills

It is anticipated that the WRSWMA could continue to rely on private firms to provide services, but the WRSWMA could also manage and operate facilities or programs directly if requested by participating members.

Responsibilities and Powers of the WRSWMA

The WRSWMA can provide the services identified in Section 1.0 (Purpose). In order to fulfill its mission, the WRSWMA can do the following tasks.

- Contract with local governments to build and operate facilities
- Contract with local governments to provide multi-jurisdictional collection services
- Conduct feasibility studies
- Conduct site selection studies
- Purchase land
- Issue bonds for facility construction
- Contract with local governments to assure flow control of waste or materials to WRSWMA sponsored facilities
- Collect fees
- Secure grants
- Contract with private firms to provide services and construct facilities

Potential Approach

Table 3-1 presents potential approaches for the formation of a local government corporation to assist in managing future waste from the region.

Table 3-1 Alternative Approaches for WRSWMA		
Alternatives	**Positives**	**Negatives**
Formalize the PAG	Provides a forum for local governments to continue to communicate regarding future solid waste management strategies and establish cooperative agreements to improve efficiencies. Can also provide opportunities for regional solid waste training.	Requires commitment on the part of local governments to continue to meet and participate in programs. May require minimal financial contribution for PAG activities.
Establish a WRSWMA	Establish an WRSWMA that can fund and implement a range of regional solid waste management facilities. Reduces municipal and county debt for program implementation. Aggregates city services to provide more efficient service throughout the western region.	Could reduce control over design and operations from local participating governments.
No WRSWMA formed	Cities and counties will not have to negotiate agreements that will require important concessions by participating cities. Cities or counties maintain full control over solid waste management services.	Lost opportunities to build new facilities or support programs to improve waste management system efficiency.

Memorandum of Understanding Regarding the Western Region Solid Waste Management Agency Inc. (Key Points)

The following presents an outline of key issues that would need to be addressed for the establishment of a WRSWMA. There is considerable flexibility associated with a regional entity and a local government corporation. Participating cities would need to evaluate these issues, identify the goals and objectives of the organization, and develop a memorandum of understanding that leads to the legal establishment of a WRSWMA.

A. Purpose

The Western Region Solid Waste Management Agency ("WRSWMA") is created to provide solid waste management services to member cities. The WRSWMA is a non-profit local government corporation. It is established to assist local governments in the western region of the North Central Texas Council of Governments to implement multi-jurisdictional solid waste management services and the construction and operation of regional facilities.

Services that the WRSWMA may provide include these six.

- Residential MSW collection
- Residential recyclable material collection
- Construct and operate citizen drop-off centers

- Construct and operate compost and mulch facilities
- Construct and operate MSW transfer stations
- Construct and operate MSW landfills.

Services and facilities developed by the WRSWMA would only be undertaken at the bequest of member cities.

It is anticipated that the WRSWMA would continue to rely on private firms to provide services, but the WRSWMA could provide operational staff if requested.

Key issues for the establishment of a WRSWMA include:

- **Purpose**
- **Responsibilities and Powers of the WRSWMA**
- **WRSWMA Authority**
- **Organizational Structure**
- **Duties of the Executive Director**
- **WRSWMA Funding**
- **Participation**

B. Responsibilities and Powers of the WRSWMA

The WRSWMA can provide the services identified in Section 1.0 (Purpose). In order to fulfill its mission, the WRSWMA can do the following things.

- Contract with local governments to build and operate facilities
- Contract with local governments to provide multi-jurisdictional collection services
- Conduct feasibility studies
- Conduct site selection studies
- Purchase land
- Issue bonds for facility construction
- Contract with local governments to ensure flow control of waste or materials to WRSWMA-sponsored facilities
- Collect fees
- Secure grants
- Contract with private firms to provide services or construct facilities

C. WRSWMA Authority

The WRSWMA is established as a local government corporation as established in Subchapter D of Chapter X 431, Texas Transportation Code.

D. Organizational Structure

D.1 Member local governments

Membership in the WRSWMA is voluntary, and no city is required to participate. The WRSWMA shall be comprised of cities or counties located in the western region, or both. The western region is defined as local jurisdictions in Erath, Hood, Johnson, Palo Pinto, Parker, Somervell, Tarrant and Wise counties.

D.2 Board of Directors

The Board of Directors shall include representatives of participating cities or counties. The Board of Directors shall have the following responsibilities.

- Hiring an Executive Director
- Reviewing and approving contracts negotiated by the Executive Director
- Reviewing WRSWMA finances
- Approving any financial instruments used by the WRSWMA to fund projects
- Communicate with member cities the actions of the WRSWMA

E. Executive Director

The Executive Director of the WRSWMA shall be responsible for managing the day-to-day operations of the WRSWMA. The ED may hire additional staff to support WRSWMA functions as long as such hires are approved by the Board of Directors.

- Assist in negotiating agreements between participating cities
- Identify potential projects and prepare proposals for member cities
- Manage contracts
- Manage WRSWMA staff

F. WRSWMA Funding

The WRSWMA shall secure funding from a variety of sources for program management, service contracts and facilities.

- Membership dues
- Share of contract fees
- Bonds
- Grants
- Funding from member cities

G. Participation

Only member cites can use WRSWMA facilities unless the WRSWMA agrees to accept waste for a fee from non-members at higher rates.

Terms of specific projects may limit use of facilities to a limited number of communities. For example, if three cities agree to fund a citizen convenience 'station, the contract may limit use of the facility to those three communities' residents.

Environmental & Permitting

The establishment of a WRSWMA will allow for the development of projects that otherwise might not be invested in to address long-term needs.

The WRSWMA can hold permits. To address financial assurance requirements, the WRSWMA will have to demonstrate long-term financial viability or secure documents such as letters of credit.

Fiscal Impacts

Establishment of a WRSWMA. The WRSWMA is proposed to be a local government corporation. Establishing a local government corporation involving several local governments will require a significant amount of time including to formulate a final agreement that is acceptable to several city councils and county commissions. All the issues described above to establish the WRSWMA will have to be negotiated, which will require significant legal assistance. It will be up to participating cities to invest.

There are a variety of fiscal models that the WRSWMA can adopt to fund projects. Some initial concepts include these.

- WRSWMA funds projects at the request of single or multiple local governments and reimburses the WRSWMA for the project through a long-term contract. There will be a need for both parties to maintain some form of fiscal guarantee to not only complete the construction of the project but also to maintain long-term operations.
- WRSWMA collects funds from member cities and counties to pay for its administration and projects that are agreed to be funded. Membership fees can be set based on city population.

An example of how an WRSWMA maintains long-term funding is the NTMWD's services to communities in Collin and Dallas Counties. Participating cities commit to paying a % of NTMWD solid waste program based on the % of tons they dispose at NTMWD facilities.

- WRSWMA issues bonds to pay for the construction of solid waste facilities. To issue these bonds, the WRSWMA will have to demonstrate it has the fiscal resources to make annual bond payments. Revenues from tipping fees charged at compost facilities, transfer station and landfill facilities can pay the cost of the bonds. To support the guaranteed revenue stream, cities will have to guarantee a waste flow or a fiscal commitment to the WRSWMA.

Implementation

Establishment of a WRSWMA will require a significant shift in how waste is managed, and facilities are developed in the western region. To successfully make this shift, participating local governments will have to develop a consensus on the WRSWMA's goals and objectives, structure, financing, representation and other issues. The PAG can take the lead by addressing the following questions.

- Is it in the best interest of the local governments in the western region to establish a WRSWMA?
- What are the specific roles of the WRSWMA?
- What are the benefits to a local government of participating in the WRSWMA?

Addressing these two questions will establish the groundwork for defining how the WRSWMA will function and be managed. Below are recommended steps for development of a regional WRSWMA to assist in meeting the needs of the western region.

Another critical element of the process is to secure council approvals for the formation of the WRSWMA.

Key Steps in the implementation include the following.

1. PAG meetings to prepare a memorandum of understanding that outlines the framework of the WRSWMA. Framework would include responsibilities, funding, participation requirements and representation. Secure funding for consulting services.
2. Submittal of MOU to City/County management, then to elected officials for approval to move forward with formal documents and incorporation. Secure funding for legal counsel and consulting services to establish WRSWMA.
3. Secure legal counsel to draft formal inter-local agreement establishing the WRSWMA. Secure elected official approvals.
4. Draft articles of incorporation and submit to state.
5. Install predetermined board of directors based on framework agreement.
6. Collect initial funds for implementation, including hiring Executive Director and any other required staff.
7. WRSWMA begins to negotiate agreements for project implementation.

The timeframe for implementation of the above seven steps will vary considerably depending on anticipated complexity of the organization and the complexity of the projects it is intended to manage. It will take at least a few years to complete the role of the seven steps.

3.2 Alternative #2 – Institute Cooperative Regional Public Information Programs

Goals & Objectives

Goals

- Decrease the amounts of waste requiring landfill disposal by informing residents and businesses of strategies to reduce and recycle.
- Train local solid waste management professionals in the western region in specific issues related to local solid waste management options and strategies. Training programs can address source reduction, recycling, organics management, transfer stations, landfill site selection through operations, and disaster debris management.

Objectives

- Provide a focused, regional solid waste educational program that addresses common residential and commercial solid waste management issues in a cost-effective manner. Included in the program is messaging that details the unique position the western region is in related to limited landfill capacity.
- Secure necessary financial resources to maintain an on-going public information campaign.
- Establish an on-going training program that serves local solid waste officials.

Program Definition & Options

Currently, many western region cities and counties have programs designed to provide residents with the following types of information.

- Ways to reduce waste generation
- Proper placement of waste for collection
- Acceptable materials for recycling
- Proper management of household hazardous wastes
- Location of drop-off or recycling centers
- Location of transfer stations and landfills
- Brush and yard waste recycling and disposal options

In addition to the public information programs sponsored by local governments, there are several entities that have MSW and recycling public information/education programs. Examples include:

- NCTCOG: Know What to Throw and Time to Recycle
- Keep Texas Beautiful: Regional training and webinars (Regional Trainings | Education (ktb.org))
- US Environmental Protection WRSWMA Technical Resources: Reduce, Reuse, Recycle | US EPA

Program Approaches

The Table 3-2 illustrates methods that local governments in the western region could adopt to provide a regional public information program.

Table 3-2 Public Information Program Approaches		
Potential Approaches	**Positives**	**Negatives**
Cities and counties - continue to sponsor public information programs that are focused on local issues.	Public information programs sponsored by a city or county can be directed specifically to the services provided in that community. They can also be tailored to specific issues related to local solid waste problems such as management of bulk waste.	There are several common messages that can be distributed regionally versus by a single community. Having each community sponsor its own program creates redundancies and certain inefficiencies.
Regional programs – secure funding for a regional public information program that focuses on the following topics: • Solid waste management needs for the western region • Improving the quality of materials recovered as part of recycling programs • Organics reduction • Commercial reduction / recycling opportunities Program funded through inter-local agreements between several cities working together. Cities would negotiate with a third-party contractor to develop and implement the program.	Cost-effective means of educating a broader population for issues that are relevant region wide. There is no reason for individual messaging for generic topics such as how to manage organics. Note, one of the benefits of a regional collection program is the ability to implement a common public information program for all participating cities.	Does not work for specific issues such as collection method, types of materials collected in recycling bins, and the location of local facilities such as recycling centers and drop-off sites. Requires that participating local governments to agree on the specific messaging, the firm or WRSWMA employed, the budget, and metrics for success.
Regional program sponsored by existing regional entities or a WRSWMA.	Depending on the topic, messaging can reach a broader audience and reduce costs of the program to cities or counties. Also depending on the organization selected, they may already have existing resources that can also help reduce the cost of development and implementation.	The wider the audience, the more general the messaging.

Regional professional training – utilize professional organizations such as SWANA to provide professional training on topics ranging from collection safety, organics management, landfill operations, and landfill gas management. This is sponsored by members of the PAG or a WRSWMA. While SWANA is mentioned as a potential source, it is possible for the PAG to remain active after the conclusion of the Study and to establish periodic meetings and invite professional speakers to present to the group on various solid waste management topics.	This addresses the interest of members of the PAG in training for local government officials for issues including recycling markets, planning, organics management, transfer stations, landfills, and disaster debris management. Provides an opportunity for local government officials to secure training on a variety of topics, thereby improving service to the community and protection of the environment.	No negative aspects, except for the potential financial requirements to get proper training to those requesting training.

Other program approaches include the following.

- Cities can combine fiscal resources and contracting with a non-profit organization to provide regional public information programs.
- Cities can contract with their private haulers to provide a regional public information program. This is feasible where several cities are served by the same hauler and collection methods are identical.
- Cities and counties can establish an inter-local committee (similar to the PAG) to utilize the resources of Keep Texas Beautiful, the Sierra Club, or the Recycling Partnership for cooperative public information programs.
- If the WRSWMA is established, it could take the lead in providing public information programs for cities that are participating in the WRSWMA.

Survey Results

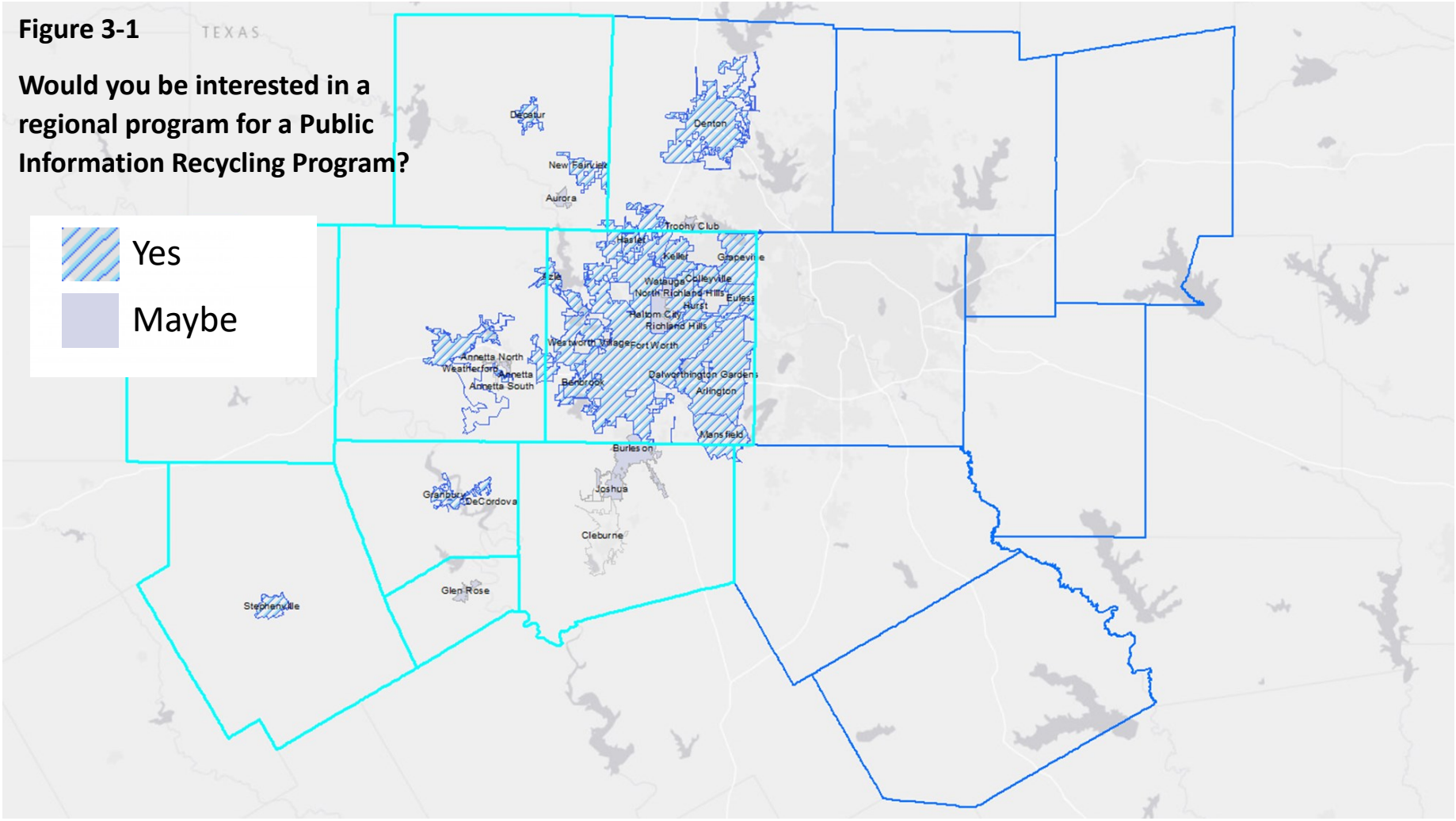
Table 3-3 and Figure 3-1 identifies the cities that indicated that they are interested in a regional public information program.

Table 3-3 Public Information Survey Responses

City	Maybe	Yes
Burleson	●	
Glen Rose	●	
Watauga	●	
Cleburne	●	
Haltom City	●	
Annetta North	●	
Aurora	●	
Joshua, Johnson	●	
Trophy Club	●	
Azle		●
Weatherford		●
Annetta		●
Arlington		●
Granbury		●
Fort Worth, TX		●
Colleyville		●
Decatur/Wise		●
Denton		●
Grapevine		●
Keller		●
Stephenville		●
Fort Worth, TX		●
North Richland Hills		●
New Fairview		●
Hurst		●
Westworth Village		●
Decatur		●
Haslet		●
Mansfield		●
Granbury/ Hood County		●

Figure 3-1

Would you be interested in a regional program for a Public Information Recycling Program?



Procurement Issues & Risk Management

Depending on the approach and funding source(s), a request for qualifications or proposals may be necessary to secure professional services for public information messaging and outreach.

Key procurement considerations include the following.

- Scope of services and messaging goals
- Targeted audience and media to be used, as well as language issues
- Funding level
- Term of program
- Metrics uses to determine success

In comparison to the other alternatives evaluated, risk issues for public information programs are relatively low. Table 3-4 identifies some of the risks that could be associated with a public information program.

Table 3-4 Public Information Program Risk Assessment

Risk	Mitigation Strategy
Non-performance by contractor.	Selection process that selects an experienced and financially sound firm. Detailed scope of services that defines services and expectations in a specific manner.
Securing a consensus by sponsors regarding the program's approach.	Establishment of a regional selection team for determining scope and approach.
Inaccurate information distributed.	Proper quality assurance procedures are taken.
Not reaching diverse audiences.	Conduct a market/demographics study prior to implementation.
Training program lacks leadership/sponsor to maintain for an extended period of time.	Establishment of an active PAG with strong leadership and broad regional support.

Environmental Impacts & Permitting

Public information programs will reduce waste generation, increase recycling, and assure proper disposal of waste.

No permitting issues are related to this alternative.

Fiscal Impacts

The fiscal impacts of a public information program will depend on factors including the size of the messaging program, audience, and the type of media used (social media, radio/tv, newspapers, billboards, mailings, other). A market study is recommended as part of any media campaign which will add to the cost of the program but will likely result in a more targeted and effective program.

The challenge will be identifying a specific group as well as individuals who will take responsibility for selecting topics, speakers, and venues.

A formalized PAG with a small budget could address this challenge.

There is a wide range of potential costs for public information programs. Costs can be relatively low if existing resources are used. However, a new, regional program could be expensive depending on the scope and media used. A regional public information program could reasonably cost between $50,000 and $400,000.

The recommended PAG meetings can be accomplished with little or no costs. Speakers can be selected from professionals across the region and with the availability of virtual meetings, speakers from across the state and country could be secured.

It may be in the interest of the PAG to establish a modest membership fee to cover any expenses and to limit participation to members. A training program for local government officials can have the result of more efficient management of programs, thereby reducing the cost of solid waste management.

Regional Impacts

Any efforts to reduce waste generation, including through public information programs, will improve the overall capacity of the region. Several of the topics that the western region is interested in addressing as part of a public information program would be applicable to the broader NCTCOG region. A combined program involving not just the western region, but the overall region as well, is very possible.

The training program also could be implemented as a NCTCOG regional program or through appropriate non-governmental organizations. Several years ago, TxSWANA sponsored training lunches for its members in the Fort Worth/Dallas metroplex. Coordination between groups such as TxSWANA, Keep Texas Beautiful, the North Texas Council of STAR, Texas Society of Professional Engineers, and other organizations could collaborate on implementing training and provide a range of speakers throughout the region.

Implementation Steps

Below is a list of steps that would be outlined within a Regional Public Information Program and a Training Program:

1. Define public information program purpose.
2. Establish a committee whose purpose is to define specific issues that need to be addressed in a regional public information program. Determine who will take the lead in managing the program (i.e., an individual city, the NCTCOG or another third party.
3. Define a scope of services.
4. Identify funding sources.
5. Select a contractor or a program sponsor.
6. Implement a program.
7. Collect metrics for determining effectiveness.

Local Government Officials Training Program

1. Establish a formal PAG and governing board (consider establishing bylaws and establish a non-profit organization if funds will be involved).
2. Determine if is to be western region only or expanded to the entire NCTCOG region.
3. Determine venue and frequency for training programs (breakfast, lunch, virtual meetings, hybrid).
4. Determine costs for attending and membership requirements.
5. Arrange for a panel of speakers.
6. Follow-up for the effectiveness of the program.

3.3 Alternative #3 – Establish Cooperative Recycling & Materials Marketing

Goals & Objectives

Goal

- Increase the marketability of recyclable materials through separation & increased volumes, in areas that are further from end-markets.

Objectives

- Increase recycling access in areas of the Western Region that do not currently have curbside recycling programs or have existing drop-off programs.
- Increase the value of separated recyclable materials, to create viable and more financially efficient recycling programs.

Program Definition and Options

The majority of the population in the Western Region currently has access to curbside recycling services. However, there are quite a few communities that either report limited drop-off recycling sites and/or no recycling access in their community or county.

For those communities that have drop-off collection sites for recycling and/or no recycling, a cooperative agreement could be established for the marketing of separated materials that have a higher value than single-stream materials. There is also a possibility that the drop-off collection sites could collect single-stream material and a lower processing rate for this material could be negotiated.

In other parts of Texas, recycling cooperatives have been established to provide opportunities that might not otherwise exist if the community goes out for bid or attempts to implement a recycling program on their own.

Direct Mill Marketing: This option sends a truckload (42,000 lbs.) of one type of commodity directly to where it will be processed into new material. This generates higher revenue and lower transportation costs then sending material to a Material Recovery Facility (MRF). One of the most common commodities to direct mill market is cardboard.

Material Marketing Cooperative Example

In 1999, the Panhandle Regional Planning Commission (PRPC) formed the Panhandle Environmental Partnership to promote cost-effective recycling and waste reduction opportunities in the region. The PEP's primary focus is developing programs that promote clean, separated recyclables, which has given the region reliable access to profitable end-markets. The PRPC oversees the implementation of these programs, contracts with vendors, logistics, payments and data collection. This cooperative currently has 16 communities in 14 counties.

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Survey Results

Communities in Erath County, Hood County, Wise County & Somervell County all indicated in the survey that they would be interested in a regional recycling and/or materials marketing program.

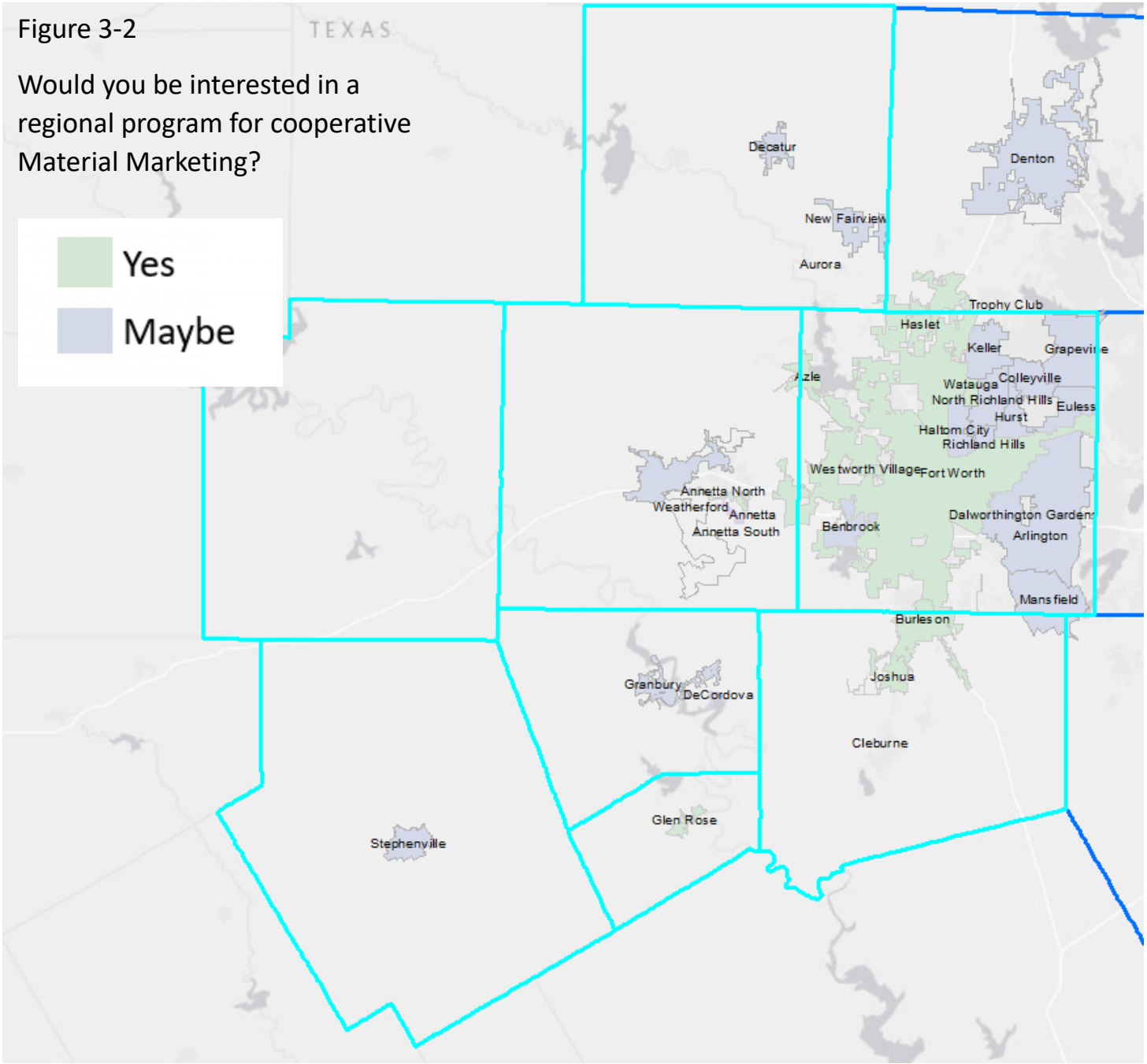
One of the questions the Western Region Local Government Survey asked was "are you interested in a variety of different regional programs for recycling." This included topics such as public information programs, regional drop-offs and marketing materials. Table 3-5 displays the different cities and counties that either have no recycling access or have community drop-off recycling sites. Figure 3-2 illustrates Cities that responded they are or possibly are interested in cooperative marketing. The table also highlights cities/counties that did not participate in the survey but would benefit from a cooperative recycling & materials marketing program. The locations listed below could be ideal for working together to coordinate regional recycling efforts.

Table 3-5 presents current recycling status and interest in regional drop-off recycling and materials marketing.

Table 3-5 Current Status of Recycling & Interest in Regional Drop-Offs (RDO) or Materials Marketing (MM)					
City/County	Drop-Off Recycling	No Recycling	Interest? Yes	Interest? No	Interest? Maybe or Unknown
Cleburne/Johnson	●			● RDO	● MM
Tarrant County	●		● RDO & MM		
Weatherford/Parker	●		● RDO & MM		
New Fairview/Wise		●	● MM		● RDO
Wise County	●		● RDO & MM		
Glen Rose/Somervell		●	● RDO		● MM
Hood County	●		● RDO & MM		
Dublin/Erath		●			●
Stephenville/Erath	●		● RDO & MM		
Erath County		●	● RDO & MM		
Mineral Wells/Palo Pinto & Parker	●				●
Palo Pinto County		●			●

Figure 3-2

Would you be interested in a regional program for cooperative Material Marketing?



Potential Approaches

Table 3-6 Regional/County Drop-Off Sites That Collect Single-Stream Recyclables		
Potential Approach	**Positives**	**Negatives**
• Work with a vendor to place collection bins at citizen collection facilities, county facilities and/or other manned sites to collect single-stream recyclables.	• Minimal investment to start the program, limited staff time needed to process material. • Costs could be reduced by communities working together to ensure there is a sufficient route for the vendor to maximize efficiency and volume.	• Equipment could be cost-prohibitive. Material would need to be clean/dry. • Requires communities to work together to plan out regions that will commit and pay for recycling access in their area. • If the community is too far from the end-market or there are gaps in community participation in certain areas, it might be cost-prohibitive and/or the vendor might not be able to provide service.

Table 3-7 Regional/County Drop Off Sites that Collect & Process Separated Materials		
Potential Approach	**Positives**	**Negatives**
• Cities with recycling drop-offs that are separating material, consider using the same contractor or form a cooperative to market materials. This cooperative would have one contract with the waste/recycling firm. This would ensure volume to the contractor to service a certain area & better pricing for the cooperative members. • Participating communities would need to work under one contract/vendor and have either an WRSWMA or one entity oversee contract.	• A local government can establish a recycling program where one might not otherwise exist because of geographic and/or volume limitations. • Separated materials have a higher value, help offset the cost of a program. If these communities work together there could be opportunities for direct mill and accountability for pricing from the vendor. • Communities have greater control over their program when they separate and process material in a way that makes it more marketable.	• Materials most likely would need to be separated and processed in a similar fashion to make them marketable. Not every program will be exactly the same if there are limitations on staffing, facilities etc. • Communities would need to coordinate pickup of materials with either an WRSWMA that oversees the contract or a single entity within the cooperative. • There will be challenges associated with negotiating a scope of services between participating cities, as well as defining contract responsibilities.

Table 3-8 Implementing New Recycling Drop-Offs Sites & Approaches to both Single-Stream or Separated Materials Marketing		
Potential Approach	**Positives**	**Negatives**
• Communities that do not have access to recycling can work with other members of the materials marketing cooperative to decide if single-stream or separated collection is the right approach for their community. The cooperative or WRSWMA would provide education and technical assistance to these communities to grow recycling access in the region.	• Cooperatively working with surrounding communities to streamline & standardize recycling efforts can help decrease the amount of material going to the landfill and could create opportunities for public information programs to decrease contamination. • Establishing drop-off recycling programs gives the community access to recycling without the higher costs/control by the contractor that curbside services can have. • Buying power is greater, the more communities join the materials marketing cooperative.	• Communities that do not currently have a program would still be responsible for the staff, investment of implementing a new program. Often this is done with solid waste grant funding to help offset these costs. • If a private contractor defaults, the lead community or the management WRSWMA no longer exists, the termination of a regional contract will have repercussions across the entire Western Region.

Procurement Approaches & Risk Issues

Like the cooperative collection strategy, negotiating agreements with participating contractors and/or communities will prove to be one of the most challenging aspects of this approach. To be successful, participating cities/counties, or an WRSWMA, will have to resolve the following issues:

- Various levels of service
- Additional service expectations including public information responsibilities, equipment options, transportation rates (if applicable), commodities accepted, and other non-fee related contract terms
- Management of equipment (if provided by the vendor)
- Responsibility of notifying contractor when collection is needed
- Management and disbursement of revenue collected for materials sold through the cooperative
- Management/collection of fees required for single-stream programs
- Routes & communities willing to participate in the cooperative
- Term of the agreement

A request for proposal would need to be divided into two scenarios. The first would be for communities that wish to establish (or have established) single-stream collection sites and could potentially lower their processing fees for this material. The second scenario is for those communities that have existing drop-off sites, or wish to develop a drop-off site, that collects, separates and processes recyclable material. It's possible that a contractor can service both of these options, or multiple contractors are chosen.

If an WRSWMA is chosen to oversee this cooperative, they will be responsible for issuing the request for proposals. The fees associated with managing the contract will need to be decided between participating communities. It would most likely be a benefit that the WRSWMA would be responsible for transportation coordination, record keeping, accounts payable and receivable, and technical assistance establishing service in communities that do not have existing infrastructure.

If communities choose to oversee this cooperative themselves, similar responsibilities will need to be delegated. It's possible these responsibilities could also be established within the chosen contractor's organization.

Communities will need to establish inter-local agreements outlining the provisions of the contractor agreements. The process will require various agreements to gain city councils approval of the level of service, the selected contractor, fees to be paid for the services provided.

Inter-local agreements or the agreements with the potential WRSWMA/entity overseeing the contract with the contractor include the following:

- Level of service to be provided
- Contract management responsibilities and/or which community will manage the contract
- Provisions for audit
- Recovery of management costs
- Term of the agreement

- Provisions for withdrawing from the agreement
- Management of non-performance (missed collections, payments etc.)
- Revenue sharing from sale of recovered materials, fees associated with single-stream collection

Key elements of the agreement with the contractor include the following.

- Services to be provided to the cooperative
- Grade descriptions
- Pricing structure, preferably tied to market index
- Transportation costs
- End-market options and/or transparency on where the materials are sent/processed
- Reporting requirements
- Payment and/or invoice terms
- Term of the agreement

Risk Issues

There are risk issues (Table 3-9) that need to be considered in evaluating this option for the Western Region.

Table 3-9 Key Risks Associated with Cooperative Recycling & Materials Marketing

Risk	Mitigation
Non-performance by contractor	Contract language related performance and penalties for non-performance
City or counties pull out of agreement	Inter-local agreement that provides advance notice and possible penalties for withdraw from the agreement

Environmental Impacts & Permitting

The major environmental issue related to this alternative is the potential for improved collection efficiencies and direct mill shipments. Moving separated material directly to the mill means there are less trucks on the road and material is not making a stop at a Material Recovery Facility (MRF), it will be delivered where it will be processed into new material. Recycling also saves energy, fuel, and various other natural resources.

According to the Recycling Partnership, every year in the US, 22 million tons of household recyclables go to landfills. Recycling not only saves landfill space; it also saves landfill fees.

There are no permitting issues associated with this alternative.

Fiscal Impacts

A major goal of this alternative is for communities to realize cost savings & potential revenue because of the increased number of cooperative members under the contract.

A cooperative contract for recycling & marketing materials will take time and effort to implement. Two agreements will have to be negotiated: i) the contract among all participants related to scope of service and other issues identified above; and ii) a contract between the communities and a successful contractor.

If a collaborative contract is used to secure end-markets and increase value on recyclable materials, each community's recycling program is more sustainable.

Regional Impacts

To increase recycling access and recycling points throughout the Western Region could have a big impact on the amount of material going to the landfill. This alternative is also designed to improve efficiency and reduce costs. Cost savings can be used to invest in growing programs that are designed to reduce the amounts of waste generated.

Improved program efficiency will also reduce air emissions, which is important to the NCTCOG Region, as this would be a non-attainment for several counties in the region for ozone.

Implementation Steps

The first step in the process is establishing parties interested in a cooperative recycling program, whether the community utilizes single-stream collection at a drop-off point or separates recyclable materials. Understanding each community's operations, accepted materials and current contractors can help discover any underlying themes in service and what major constraints might exist.

The next step is establishing the need for inter-local agreements for a cooperative with one managing community overseeing procurement and a contract or if the cooperative will be managed by a newly-formed WRSWMA, a state organization or even the NCTCOG (like in the case of the PRPC). Once it is decided who will oversee the cooperative, next steps can be made to have inter-local agreements signed or agreements signed with the managing WRSWMA.

The cooperative's managing city or WRSWMA will issue procurement documents. The review of these documents should be performed by all participants. This might be one of the more difficult aspects, to ensure the services provided by the contractor fits the needs of all participants. The selected contractor will negotiate a contract with the managing entity.

3.4 Alternative #4 – Establish More Citizen Convenience Stations and Recycling Centers

Goals and Objectives

Goals

- Reduce the amount of illegal dumping taking place in the western region.
- Increase the amounts of materials recycled, especially by residents of multi-family households who are not provided regularly scheduled recycling collection services

Objectives

- More citizen convenience stations and recycling centers across the western region
- New, cost effective citizen collection stations with recycling capabilities
- Reasonable access to these facilities throughout the region (within 10-mile radius)

Program Definition & Options

TCEQ Definition of a citizens' collection station--A facility established for the convenience and exclusive use of residents (not commercial or industrial users or collection vehicles), except that in small communities where regular collections are not available, small quantities of commercial waste may be deposited by the generator of the waste. The facility may consist of one or more storage containers, bins, or trailers.

Figure 3-3 and Figure 3-4 show aerial photographs of two types of citizens' convenience station models. Figure 3-3 presents the City of Fort Worth's Hillshire drop-off station. This facility's capital cost was approximately $16 million to construct. Figure 3-4 illustrates the Wise County Decatur citizens' drop-off center.

Figure 3-3
In 2020, the City of Fort Worth Hillshire Drop-off Center

- Citizen convenience stations provide an opportunity for residents to dispose of wastes that are not collected during regular residential collection such as large bulky items.
- Recycling centers provide an opportunity for residents of multi-family housing to recycle materials.
- They provide a managed site for disposing materials versus on-site disposal or burning in underserved, typically rural areas.

Table 3-10 presents four approaches to increasing the number of citizen convenience stations, and the positive and negatives aspects of these approaches. The four approaches addressed are listed here.

- Each city or county constructs its own citizen convenience station.
- One city or county constructs and operates the facility but allows other communities to use the facility for a fee.
- Two or more cities negotiate inter-local agreements to share in risks and costs and construct a facility at an agreed upon location.
- A local government corporation, hypothetically the WRSWMA, takes responsibility for constructing and operating the facility at the request of one or more cities.

Figure 3-4
Wise County Citizen Convenience Station

Suggested opportunities for collaborative projects are provided here.

- Arlington, Mansfield and Dalworthington Gardens
- Grapevine, Colleyville and North Richland Hills
- Watauga, North Richland Hills and Haltom City
- Fort Worth, Westworth Village and Benbrook
- Weatherford, Annetta North, Aledo and Annetta South
- Granbury and DeCordova

Table 3-10 Citizen Convenience Station Approaches		
Potential Approaches	**Positives**	**Negatives**
Construct citizens' convenience station(s) with each city addressing its own needs.	City maintains full control over the location, design and operation of the facility.	City has to pay the entire costs for facility construction and operation.
Inter-local agreements to site and construct cooperative citizens' drop-off centers. Cities that are close to each other agree to cost sharing for construction and operation of the facility. One city takes responsibility for contracting for site selection, construction and operation of the facility. Cities agree to pay for the construction and operations of the facility. Termination clauses cover risks associated with one city pulling out and leaving operating expenses to be paid by owner.	Costs for the property, permitting, construction and operation are spread among various cities.	Participating cities will have to agree on the location, design and operation of the facility. There may be challenges in identifying a site that provides regional coverage for the facility that is shared among two or more cities.
One city or county takes responsibility for site selection, permitting, construction and operation. Negotiates agreements with surrounding communities to allow use of the site for an annual fee or a subscription service (similar to the agreement between Fort Worth and Tarrant County)	Sponsoring city maintains complete control over the location, permitting, design and construction, operation of the facility. Provides a regional option. Least complex approach to a regional system.	Location of the facility is likely to favor sponsoring city. Requires participants to negotiate users' fees for the facility.

Western Region Solid Waste Management Agency Inc. takes responsibility for construction and operation of citizen convenience stations. Participating cities enter into an agreement with the WRSWMA to build and operate a citizen convenience station serving their jurisdiction.	The WRSWMA can take on all tasks associated with site selection, permitting, construction and operation. It provides a "neutral" position with respect to site selection of the facility. Using site selection criteria provided by member cities, it can identify potential locations for the cities to evaluate and make a final selection. If there are multiple cities participating, the cost to each city is less for citizen convenience station construction and operation.	Because it will be a regional facility, the site may not be convenient to all residents.

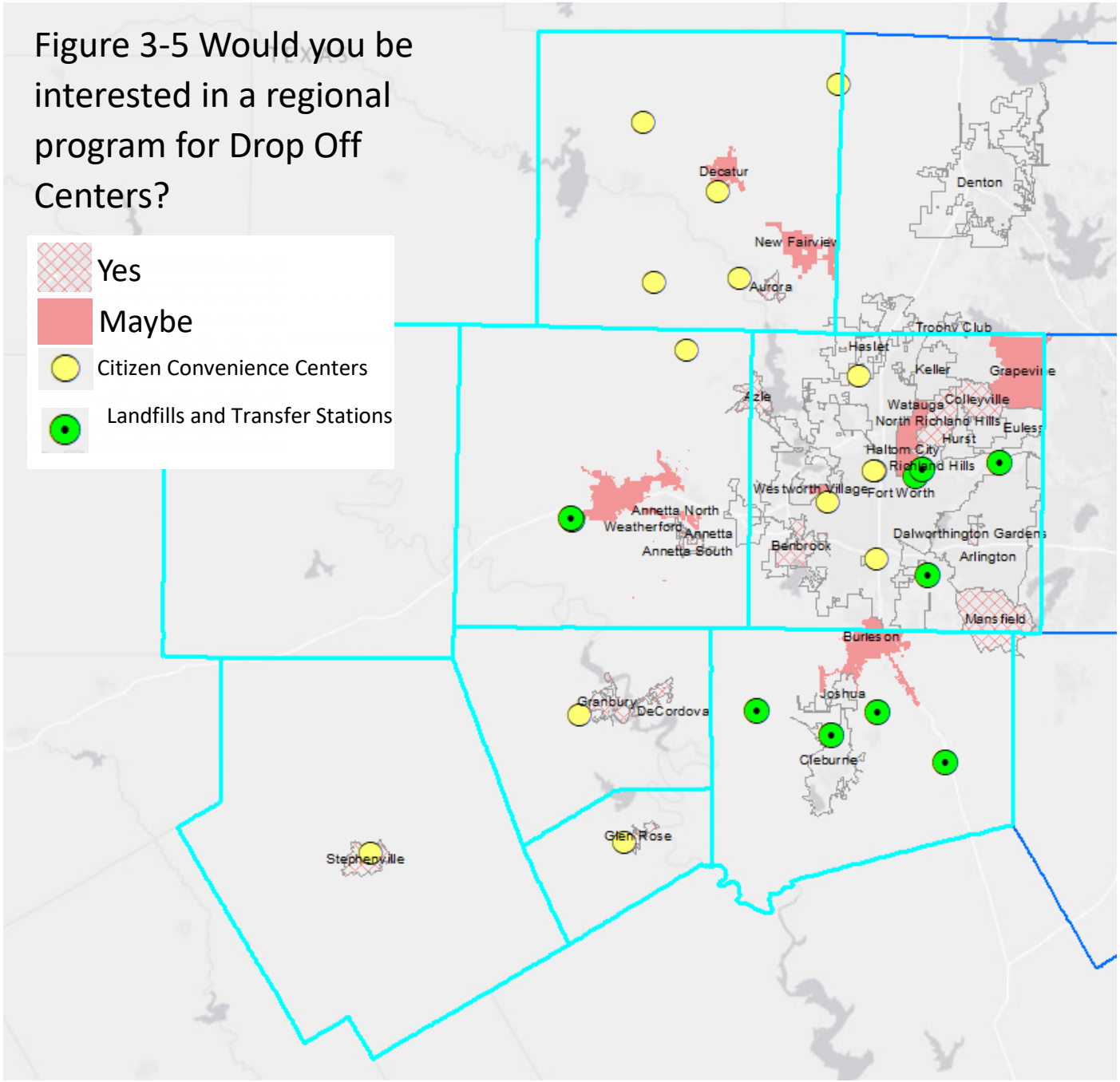
Survey Results

Cities and counties that currently have a citizen convenience station, as well as those cities that have expressed an interest in a facility are identified in Table 3-11. Figure 3-5 illustrate existing facilities and cities interested in building new facilities.

Table 3-11 Citizen Convenience Stations[10]			
City / County	**Existing Facilities**	**Maybe**	**Yes**
Fort Worth	X (4)[11]		
Wise County	X (5)		
Stephenville	X (?)		
Springtown			
Glen Rose			
New Fairview		x	
Westworth Village		x	
Grapevine		x	
Weatherford		x	
Decatur/Wise		x	
Haltom City		x	
Burleson		x	
Annetta North		x	
Watauga		x	
Colleyville			x
Stephenville			x
Benbrook			x
North Richland Hills			x
Annetta			x
Annetta South/Parker			x
Mansfield			x
Granbury/ Hood County			x
Glen Rose			x
Decatur			x
Dalworthington Gardens			x
Stephenville			x
Granbury			x
Arlington			x
Azle			x
Aurora			x
DeCordova			x

[10] Source: Needs Assessment Technical Report
[11] Indicates the number of facilities

Figure 3-5 Would you be interested in a regional program for Drop Off Centers?



Procurement & Risk Issues

Specific issues that need to be addressed include the following.

- Site configuration
- Number of containers
- Site security (fencing, gates, operator's station)
- Roadways and access
- Stormwater management
- Recycling opportunities and other wastes or materials that would be accepted

One of the key issues that local governments should address prior to procurement is to identify a site for the citizens' convenience station. Ideally, the selected site will allow for easy access, be located in an area that has compatible land use, does not have any environmental issues, is not located in areas that might impact water resources, and allows for sufficient buffer areas. A preliminary planning and engineering analysis would be conducted to establish the feasibility of the site.

Table 3-12 outlines risks and their mitigation measures.

Table 3 -12 Risks & Mitigation Associated With Citizen Convenience Stations

Risks	Mitigation
Disposal of unacceptable wastes	Staff sites to monitor what is disposed. Adequate signage and public information concerning acceptable wastes. Lighting and locked gates to prevent illegal dumping after hours. Possibly camera surveillance if warranted.
Facility does not meet citizen demand (crowded conditions)	Design site for potential expansion.
No users	Provide adequate public information program. Easy access to site, extended operating hours. Located in an area that is near major population centers.
Construction Costs too high	Selection a design firm with experience in facility design and construction. Selection of a contractor that has experience and abilities to construct a facility.
Operating costs too high	Adequately budgeting for the facility. Establishing guidelines for use that limit costs to owner. Charging a fee for use of the site to pay for operations. Monitor users to assure that no unacceptable wastes are accepted that would have high disposal costs.
User or employee accidents	Establishing strict safety protocols for staff and all users. Liability Insurance coverage. Staffing the site to assure proper use.

Environmental Issues & Permitting

Citizens' convenience stations do offer environmental benefits to the region. They are designed to allow for the proper disposal of waste and decrease the amount of illegal dumping in the area. They can also increase recycled quantities, especially in more rural areas.

There are environmental concerns (Table 3-13) associated with citizen convenience stations. These concerns can include traffic, odor, noise, increased litter, and a potential increase in vectors such as birds and rodents. To address these concerns, planners need to carefully evaluate site locations and design, and maintain the facility to protect water resources and eliminate nuisances. Facilities should be in areas that are compatible with surrounding land uses and have good access to prevent traffic issues. The design of the facility must protect stormwater from coming in contact with waste and reduce litter.

Recovery rates vary from site to site for citizens' convenience stations. Houston's six depositories, serving a total population of 2.3 million, accept between 65 to 482 tons per year. Three recycling centers recover between 290 and 690 tons per year – a majority from multi-family residents.

Table 3-13 Environmental Issues Associated with Citizen Convenience Stations

Environmental Issues	Mitigation
Increased traffic near the site, congestion, air pollution, etc.	Properly site the facility with good access and in an area that has compatible land uses. Maintain sufficient hours of operation so that there is not traffic congestion due to limited availability.
Increased litter if not properly maintained	Maintain good fencing around the facility. Provide covered containers. Provide wind screens at areas where waste is to be deposited. Have staff available to perform periodic litter clean-up of the site.
Potential for disposal of hazardous or other unacceptable wastes at the site	Maintain full-time staff at the facility to limit access to authorized users. Secure the facility after operating hours. Post signs at the gate and inside the facility identifying acceptable and non-acceptable wastes. Maintain staff to monitor facility users to assure only acceptable wastes are disposed.
Potential for an illegal dump site if hours of operation are not enough	Maintain sufficient hours of operation. Have available disposal options such as transfer stations available for commercial haulers. Keep the site properly lighted and secured during non-operational hours. Maintain a surveillance system at the site, including cameras.

Permit Requirements

Citizen convenience stations are required to secure a TCEQ registration. An exception to this is when the citizen convenience station is located within the permit boundaries of a transfer station or landfill, in which case a permit modification is required. It is important to note that citizen convenience stations are only allowed to accept residential wastes. If commercial waste is accepted, it then becomes a transfer station that requires another type of registration or a full permit (see transfer station alternative section).

Fiscal Issues

According to the City of Fort Worth, their last citizen convenience station had a capital costs of $16 million. This represents the high-end cost for such a facility, and it includes: a gate house; roadways, containers for material disposal; solar roofing and other amenities. The range of costs for citizen convenience stations is between $500,000 and $16 million.

Implementation of six regional citizen convenience stations could cost between $20 and $60 million depending on the size of the facilities and what design options are incorporated into the facility.

Regional Issues

Within the western region, the increased number of citizens' convenience stations and recycling centers will reduce illegal dumping and provide greater opportunities for residents of multi-family households to participate in recycling. Depending on what materials are accepted at the citizen convenience stations, there may also be a corresponding reduction in the disposal of household hazardous materials.

Citizen convenience stations typically provide services to a limited geographic area; therefore, they have limited regional benefits except in the aggregate.

Implementation Steps

Table 3-14 presents an estimated timeline for the development of a citizen convenience station. Given the range of facility configurations, the construction schedule can either be extended or decreased.

Table 3-14 Citizen Convenience Station Schedule

Task	Small Scale	Large Scale
Site Facility	6 months – one year	6 months – one year
Design Facility	6 months – one year	One year – Two Years
Permit	6 months	6 months
Construct	6 months – one year	One year – two years
Total Time	2 years – 4 years	3 years – 5 years

3.5 Alternative #5 – Increase Organics Management Capacity – Including Municipal Wastewater Sludge (Biosolids)

Goals and Objectives

Goals

- Reduce the amounts of organics going to landfills.
- Reduce the amount of biosolids being land applied.
- Reduce the costs of hauling and disposing organic wastes.
- Realize environmental benefits of using compost to improve soil health.

Objectives

- Expand regional compost processing capacity in the western region.
- Increase the amounts of biosolids managed through composting.
- Reduce food waste by recovering food residuals.
- Establish inter-local agreements to process organics.

Program Definition & Options

Municipal organics include brush, yard wastes, pre-consumer and post-consumer food residuals and biosolids. These materials account for approximately 40% to 50% of the overall municipal solid waste stream. Currently, there are 13 organics facilities identified in the western region. In order to further reduce the amounts of organics going into landfills, it will be necessary to expand capacity of the organics management infrastructure. This can be accomplished by either increasing the capacity of existing sites or building new facilities.

It should also be noted that the NCTCOG has received an EPA grant that will evaluate the potential of anaerobic digestion for waste. An anaerobic digestion facility will have higher capital costs; therefore, it will require higher volumes of material to be sent to the facility to generate sufficient up-front tipping fees and back-end product revenues to pay for the operation.

Based on landfill data, there were only approximately 1800 tons of brush landfilled and approximately 70,000 tons of biosolids (sludge) disposed in the western region landfills. Eliminating biosolids from landfills could represent one of the more significant options for reducing tonnages going to landfills, and for reducing associated haul costs.

The cities of Fort Worth and Arlington have separate contracts in place to grind brush material at the two cities' landfills. These operations processed approximately 77,000 tons of material in 2019. It is anticipated that these operations will continue; however, the City of Fort Worth grinding operation will be required to relocate in approximately 5 years. At that time, the area that is currently being used for grinding will be required for landfill development. Both cities currently anticipate continuing to use private contractors for processing brush.

Program Approaches

To achieve the goals and objectives of this alternative, local governments have the following program approaches available.

- Cities develop their own compost operations.
- Cities or counties evaluate the potential of a facility serving several communities, with either public or private operations.
- The WRSWMA builds the facility at the request of a city or cities.
- Cities and counties rely on the private sector to manage organics processing and create economies of scale.

Table 3-15 presents positive and negative aspects of various approaches associated with composting.

Table 3-15 Organics Management Approaches		
Potential Approaches	**Positives**	**Negatives**
City or county builds its own compost facility (public or private operations) Cities to evaluate their current yard waste and biosolids programs and to identify potential composting operations that may be able to accept these materials at current facilities.	Provides the city with greatest degree of control over site selection, facility design and operations. Provides the city with tipping fees, avoided costs and product revenues. Composting in general provides an alternative management options for organic wastes and biosolids which are becoming more difficult to land apply in the western region.	City bears all the costs associated with facility development, operation and marketing of feedstocks and products. City is responsible for facility site selection which can be controversial depending on the site selected. City is also responsible for any permitting that is required. For a single city, there may be challenges in securing appropriate feedstocks for a viable project.
Cities and counties to evaluate current organics and biosolids disposal practices and determine the feasibility of a regional composting project. Identify potential sources of material within a 30-mile radius of a proposed site location. Establish "Participation Agreements" between cities building the facility and those using the facility. The Participation Agreement should include provisions for supplying feedstocks, guarantees regarding facility operations and potential end-use agreements, and	Cooperative actions by local governments can increase the amounts of materials included in the program, improving project cost-effectiveness. Reduces the amount of material landfilled. Results in one site versus several sites, reducing environmental impacts and improving economies of scale. Participating cities are not required to select or permit site.	Requires local governments to negotiate inter-local agreements and gain approval from two or more city councils. Requires some degree of material flow control so that the operation has continued supply of feedstocks. A larger site may be more difficult to identify. Reliance on sponsoring city to secure site and permit.

managing/disposing of contamination. Sponsoring (facility owner) would be responsible for facility site selection, permitting, construction and operation. Participating cities would guarantee a supply of feedstocks.		
WRSWMA takes responsibility for site selection, permitting and construction of a compost facility. This can be accomplished once the WRSWMA receives a request from participating city(ies) to build and operate a compost facility. The site would be constructed under the governing rules of the WRSWMA regarding investments.	The WRSWMA has responsibility for all aspects of the project. Participating cities are required to guarantee feedstocks (quantity and quality) and possibly agree to purchase some of the final product. One facility serves the region, reducing environmental impacts associated with composting. WRSWMA has responsibility for feedstock and material marketing.	Cities may have limited control over site selection and design (dependent on agreement between participating cities and WRSWMA). Requires long-term commitments to supply clean feedstocks by participating cities. Risks to cities if the project no longer is financially feasible. Project closes and cities have to landfill materials.
Reliance on private facilities to process feedstocks and produce compost. Cities are responsible for negotiated tip fee for materials sent to the facility.	Cities do not have any responsibilities for site selection, permitting, construction or operation of the facility. Cities do not have to do any feedstock or material marketing. Cities are able to rely on private sector experience in design and operation of facility.	Cities have no control over site selection, permitting, construction or operation of the facility. No guarantee the facility will stay in business over the long-term. There is currently limited permitted capacity to process either biosolids, or pre- or post-consumer food wastes.

Survey Results

Local Government(s) site, build and operate a new compost facility. The following cities indicated that they are considering a compost facility as part of their future solid waste management strategy. Cities that have indicated through the survey an interest in potentially implementing a compost facility include these six.

- Denton
- Fort Worth
- Weatherford
- Grapevine
- New Fairview
- North Richland Hills[12]

Procurement & Risks

As with the transfer station option, one of the first decisions a local government will have to determine related to the project is ownership. There are a number of private operations in the region that can process yard waste and brush, but few are currently authorized to process biosolids or food residuals other than vegetative material.

If a local government or WRSWMA is to be the owner of the facility, key decisions that will have to be addressed as part of the procurement process include the following. The city or WRSWMA will have to determine whether it wants to take responsibility for selecting the site for the operation. It is recommended that the owner of the facility take on this responsibility. If the plan is to rely completely on the private sector, they will have site selection responsibilities with local input.

- Types of materials to be composted
- Potential markets for the material (this will determine processing techniques and what types of post processing is needed to prepare materials for market
- Process technology (static piles, turned windrows, aerated static piles, in-vessel, hybrid, etc)
- Facility configuration, sizing, design, access and buildings
- Drainage and stormwater management

Risk Issues

Issues to consider are flow control and landfill disposal contracts. As mentioned, flow control is important for facilities that have large capital costs. An assure flow of waste to a facility guarantees a consistent revenue stream. Understanding the estimated waste flows to the facility will require an understanding of base load flows per flow control and any additional waste that can be attracted to the facility in the open market.

Table 3-16 Organics Program – Risks and Mitigation

Risk	Mitigation
Feedstocks are not sufficiently available or products are not locally marketable	Conduct a market analysis as one of the first steps in project development. Negotiate mid-to-long-term contracts for the purpose of securing materials such as wood waste and biosolids. Keep facility tipping fee rates at reasonable levels. Identify product markets and maintain appropriate quality standards.
Permit or registration not approved by TCEQ	Site facility in an area that will not impact surrounding land uses and address location restrictions.

[12] Source: Western Region Local Government Survey

	Design facility to meet all permitting requirements.
Design does not support efficient operations or costs are too high	Develop sufficiently detailed design plans and specifications. Perform adequate testing during construction to assure compliance with design specifications. Require safety plans and enforce compliance.
Operations do not produce a quality product or costs are too high	Maintain operations in a manner that reduces the generation of odors and other nuisances. Operate in compliance with permit requirements. Maintain operational techniques that produce high-quality products. Operate in compliance with a thorough safety plan.
Material marketing is unsuccessful	Perform a material marketing plan to identify necessary product standards. Educate the public on the value of the products. Negotiate sales agreements whenever possible.

Environmental Impacts and Permitting

Composting reduces the amounts of material that are disposed in landfills. In addition, compost has a number of environmental benefits including reducing the need for irrigation and agricultural/horticultural chemicals and improving soil quality for vegetative growth. Based on landfill reports for Fort Worth and Arlington, a total of 77,000 tons of brush and wood waste were recovered in 2019. Based on these same reports, 2,000 tons of brush and 74,000 tons of biosolids are disposed in western region landfills. Throughout the entire NCTCOG Region, a total of 70,000 brush and 367,000 tons of biosolids were disposed in 2019.

To reduce the potential for environmental impacts associated with compost operations, facility owners must design facilities to protect land, water and air resources. Table 3-17 lists some of the key environmental issues and mitigation strategies.

Table 3- 17 Organics Environmental Issues and Mitigation Strategies

Environmental Issues	Mitigation Strategies
Land use impacts	Locate facility in an area that is compatible with surrounding land uses. Establish sufficient buffer zones around the site. Create visual barriers to the site using landscaping and other visual screens. Avoid historical sites, wetland areas, streams and floodplains. Depending on feedstocks, avoid sites near airports.
Traffic impacts	Site facility with good roadway access. Coordinate with TxDOT and local public works departments for any access improvements necessary.
Water quality	Locate facility away from floodplains, wetlands and Waters of the US. Design facility to minimize storm water in contact with material being processed. Design facility with appropriate liners (if biosolids are being composted) to protect groundwater resources.
Nuisance conditions such as dust, odor and noise	Operate facility using best management practices to reduce odors, noise and dust. Avoid nearby residential land uses.

Permitting

Permit requirements for various types of compost operations vary depending on the type of feedstocks. Certain operations, including mulch facilities and compost facilities that manage just yard trimmings, clean wood, vegetative materials and manure may be considered exempt facilities. Notification facilities include those that manage source-separated meat, fish, dead animals, carcasses or dairy materials or source-separated meat and vegetable oils and greases. Registrations are required for municipal sewage sludge, certain positively sorted organic materials, disposable diapers and paper mill sludges. Permits for compost operations under TAC 30-332.3a are required for MSW and grease and grit trap waste. Non-hazardous organics from industrial sources may be authorized to be processed at composting facilities through the municipal solid waste permitting process. Appendix A.

Fiscal Impacts

The following are fiscal impacts associated with composting.

- Types and quantities of materials to be processed
- Whether the operation is a mulching facility (grinding only) or a compost operation
- Size of the operation (there are economies of scale associated with operations)
- Market development

A recent study was completed for the City of Weatherford. The study showed that the capital costs associated with the construction of a compost facility to manage approximately 40,000 cubic yards of material. Table 3-18 contains the estimated costs to construct both a 40,000 cubic yard and a 100,000 -150,000 cubic yard facility. Significant capital costs include:

- Size of site
- Site mitigation requirements (drainage improvements, etc.)
- Roadway requirements
- Potential liner requirements if biosolids are processed
- Equipment

Table 3-18 Compost Facility Cost Ranges

Capital Costs	10-20 acre site anticipated throughput – 40,000 cubic yards of raw feedstocks	40-60 acre site anticipated throughput - 100,000 cubic yards of raw feedstock
Permitting	$60,000	$100,000
Land	$600,000	$1,200,000
Site Improvements	$700,000	$1,200,000
Equipment	$500,000	$2,000,000
Contingency @20%	$372,000	$700,000
Total	**$2,232,000**	**$5,200,000**

Operating costs will also vary considerably depending on the following factors.

- Types of materials to be composted
- Equipment required
- Labor required
- Post-processing to meet market demands

The cost of constructing and operating a compost facility can be offset through tipping fees charged at the gate and through the sale of compost products.

For participating cities, a compost facility also offers a potentially lower cost option for disposing biosolids and other organics such as brush and yard waste. A case in point is the City of Granbury who currently relies on disposing their biosolids at the Weatherford Landfill. Once this facility closes, they will be required to haul their biosolids longer distances. A regional compost facility would offer the opportunity to haul this waste shorter distances.

Regional Impacts

There are currently an estimated 70 ,500 tons of brush and 368,000 tons of biosolids being disposed at municipal landfills located throughout the NCTCOG Region. Increased material diversion through composting will extend the lives of landfills.

The impacts on the NCTCOG region will be to extend total landfill capacity. Increased production of compost material in the western region may have an impact on the value of compost; however, consistently high-quality products combined with an ongoing program to educate the public about the value and economy of compost use is likely to increase demand and support prices in the western region.

Implementation Steps

Feasibility Study: Prior to implementing a compost project, it is important to conduct a feasibility study that addresses market issues for both organic feedstocks and products. This analysis will help determine the financial viability of the project. The feasibility study should also evaluate site options for the project, capital costs and anticipated operating costs. These costs are then compared to other options including land application of biosolids and landfill disposal. In each of these scenarios, the transportation costs should be given careful consideration. Figure 3-6 illustrates a preliminary timeframe for implantation of a compost facility designed to manage biosolids.

Figure 3-6 Compost Project Implementation

Task/Year	1	2	3	4	5
Feasibility & Market Study					
Site selection					
Preliminary Design & Permitting					
Final Design, Procurement & Construction					
Operations					

3.6 Alternative #6 – Establish Cooperative Collection Agreements (Solid Waste/Recycling)

Goals & Objectives

Goal

- Provide quality MSW and recyclable material collection services to western region residents in a cost-effective manner.

Objectives

- Establish inter-local agreements or agreements with a future WRSWMA to provide for multi-jurisdictional services.
- Improve collection route efficiencies.
- Increase participation in residential recycling programs.

Program Definition and Options

The purpose of this alternative is to increase solid waste collection efficiency by encouraging cities to issue joint requests for proposals to provide multi-city collection agreements. The assumption is that two, three, or more cities with similar services are going to secure a more favorable rate than a single city due to economies of scale.

Establishing large collection contracts is also a way to bring about a degree of flow control from a variety of cities to one solid waste facility.

Terms of the contract can require disposal at a specific disposal site.

Table 3-19 presents potential approaches to addressing solid waste collection services.

These options include the following.

- Cities continue to either have their own contracts for service or provide service to their own community (Weatherford and Cleburne).
- Cities collaborate to establish multi-city collection contracts.
- Establish a WRSWMA to manage collection contracts. It is not proposed that there be one contract to serve all cities in the region; but contracts would be on a sub-regional basis.

Cities and counties can also agree to extend certain specific material recovery programs across jurisdictions. A primary example of this is the City of Fort Worth's household hazardous waste program which serves several communities in the western region.

The City of Grapevine provides a commercial food waste collection program. The City of Coppell offers an electronics collection program. Both these programs could benefit from a broader market by expanding the program through joint agreements with surrounding cities.

Table 3-19 Cooperative Collection Approaches		
Potential Approach	**Positives**	**Negatives**
Continue collection program in its current structure with every city responsible for their own collection contracts that also address processing and disposal needs.	A local government can secure collection services specifically tailored to their community's needs.	Costs could be reduced by negotiating contracts for larger populations. Requires city staff to manage and oversee collection contracts.
Cities to collaborate and establish multi-city collection contracts for solid waste and recyclable collection services. This would require cities to develop common scope of services and have one city take responsibility for managing the contract. Cities would need to evaluate timing of contract terms; agree to a specific evaluation process; and agree to contract management procedures and administrative fees. The contracts between the cities and the contract between the cities and the selected private contractor will have to be approved by multiple city councils.	If service levels can be agreed upon, costs per household can be reduced. These savings could then be invested in other waste reduction/recycling programs or could be used to reduce waste generation rates. A cooperative agreement can provide some degree of flow control for a significant amount of waste, which would help make regional facilities (transfer stations, MRF, compost facilities or landfills) more economically viable.	There will be challenges associated with negotiating a scope of services between participating cities, as well as defining contract responsibilities. Requires the approval of multiple city councils. Because the number of households is likely a contributing factor in the rate provided, termination by any one member could have fiscal impacts for the remaining cities, and this issue will have to be addressed in the inter-local agreement. Approach is likely to have an adverse impact on smaller collection firms who may not be able to compete for larger contracts.
Establish a WRSWMA to manage solid waste contracts for multiple local governments. Multiple local governments would request that the WRSWMA can take responsibility for issuing procurement documents for solid waste collection services. The WRSWMC would charge an administrative fee for performing these services and local governments would pay the cost of service to WRSWMC	WRSWMA has responsibility for contract management reduces municipal contract management responsibilities. This limits concerns by one city over the management of the contract by another city.	There is potential for loss of service connection between cities and private haulers that traditionally provided additional services such as funding education programs. However, these provisions can be included as a regional contract. If a private contractor defaults, or the WRSWMA no longer exists, the termination of a regional contract will have repercussions across the entire western region.

Survey Results

One of the questions of the Western Region Local Government Survey was "Are you interested in a cooperative collection program?" Table 3-20 and Figure 3-7 displays the cities' interest in a cooperative collection program. The map indicates that there are specific cities that have the potential for coordinating their collection services.

The table also provides the dates that their current collection contracts are set to expire. Coordinating contract terms will be one of the keys if cities wish to implement a cooperative collection program. If cities act soon on this issue, there may be the opportunity to extend certain contracts for one or two years so that all cooperative cities can participate in a regional collection contract with a consistent contract period.

The cities Hudson Oaks, Annetta South, Annetta, Aledo, Willow Park and Hudson Oaks realized the practicality of one contract serving several communities. They have one collection contract and are operating under that agreement.

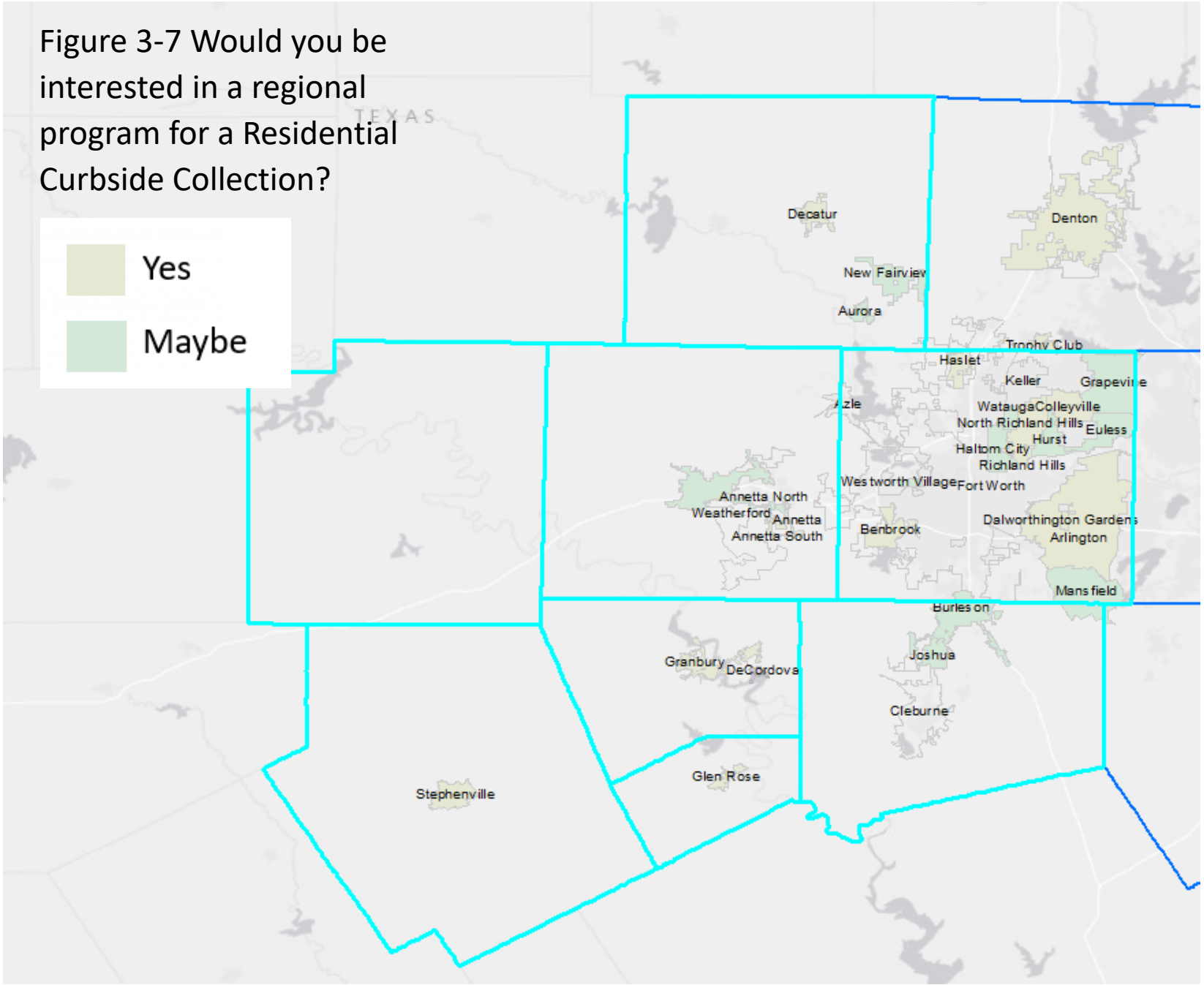
The list below includes potential collection zones .

- NE Tarrant County: Arlington, Watauga, Colleyville, Grapevine, Bedford, Euless, Hurst, Haltom City and Southlake.
- West Tarrant County: Pantego, Dalworthington Gardens, Mansfield, Kennedale, Everman and Forest Hill.
- Wise County: a) New Fairview, Boyd, Rhome and Aurora or b) Bridgeport and Decatur
- Parker County: a) Annetta, Annetta North, Annetta South, ,…
- Palo Pinto/Parker: a) Mineral Wells, Cool and Milsap
- Johnson County: a) Burleson, Joshua b) Cleburne, Joshua, Keene
- Hood County: a) Granbury, DeCordova, Brazos Bend, Tolar (possibly (Glen Rose)
- Erath County: Stephenville, Dublin

Table 3-20 Cooperative Collection Interest			
City	Maybe	Yes	Contract Term Ends
Annetta North	●		
Aurora	●		
Burleson	●		
Cleburne	●		
Euless/Tarrant	●		
Grapevine	●		
Haltom City	●		
Hurst	●		
Joshua, Johnson	●		
Mansfield	●		
New Fairview	●		
Watauga	●		
Weatherford	●		
Westworth Village	●		
Annetta		●	
Annetta South/Parker		●	
Arlington		●	
Benbrook		●	
Colleyville		●	
Dalworthington Gardens		●	
Decatur/Wise		●	
Fort Worth, TX		●	
Glen Rose		●	
Granbury		●	
Haslet		●	
North Richland Hills		●	
Richland Hills		●	
Stephenville		●	
Stephenville		●	
Trophy Club		●	

Source: Survey

Figure 3-7 Would you be interested in a regional program for a Residential Curbside Collection?



Procurement Approaches & Risk Issues

Negotiating an inter-local agreement or an agreement through the WRSWMA will prove to be one of the most challenging aspects of this alternative. To be successful, participating cities or an WRSWMA, will have to resolve the following issues.

- Reconciling various contract periods
- Various levels of service
- Additional service expectations from private haulers, including public information responsibilities, cart replacements, response to missed services, illegal dump clean up, dead animal removal, customer service and other non-fee related contract terms
- Management of existing equipment such as residential carts
- Responsibility for contract management and issues such as notification of the contractor when collections are missed, and required response times
- Penalties and fees for non-performance and who receives these fees
- Determining whether waste must be delivered to a specific disposal site or transfer station or whether it is left to the hauler to determine where waste is disposed
- Period of the agreement
- Billing and customer database
- Liability and indemnification issues

It is not necessary that inter-local agreements for collection include all services provided by a community. Specific services that could potentially be done jointly include the following.

- **Litter control**
- **Electronics pick up services or disposal options**
- **Food waste collection programs**
- **Organic waste/yard waste/brush collection**
- **Disaster debris removal (discussed later)**
- **Public education**

Procurement documents can either be a request for bids where lowest price is the primary selection criteria, or a request for proposals which allows municipalities to evaluate various programs proposed by responders.

Cities will need to establish inter-local agreements outlining the provisions of the collection agreements. The process will require various agreements to gain city councils' approval of the scope of service, the selected contractor, and the fees to be paid for the services provided (Figure 3-8).

Figure 3-8 Cooperative Collection Approval Process

Inter-local Agreements or City/WRSWMA agreements should address the following issues. It is anticipated that staff would first seek City Council approval to move forward with developing a conceptual agreement with participating cities or the WRSWMA. A memorandum of understanding would be prepared that defines the issues listed below that would lead to an inter-local agreement committing the cities to participate in a single collection procurement.

One of the issues that will requires a legal opinion with respect to a multi-city collection program is franchise fees. These fees are charged to haulers primarily to pay for impacts to local streets and infrastructure.

The agreement should clearly define the process for selecting a contractor. Level of service to be provided to residents.

- Contract management responsibilities and which city will manage the contract
- Status of existing equipment (carts if owned by city)
- Provisions for audit
- Recovery of management costs
- Period of the agreement
- Provisions for withdrawing from the agreement
- Management of non-performance (missed collections, etc.)
- Revenue sharing from sale of recovered materials
- Liability and indemnification

The lead city or the WRSWMA would then be responsible for managing the procurement process and securing bids or proposals. After a review of the bids/proposals by participating cities, in accordance with the inter-local agreement, a contractor would be selected. Key elements of the agreement with the contactor include the following.

- Services to be provided to residents
- Cost per household
- Frequency of collection
- Disposal requirements (assure the proper disposal and the possibility of disposal is directed to a specific landfill)
- Reporting requirements
- Period of the agreement
- Liability and indemnification

Risk Issues

There are risk issues (Table 3-21) that need to be considered in evaluating this option for the western region.

Table 3-21 Key Risks Associated with Collaborative Collection Program	
Risk	**Mitigation**
Non-performance by contractor	Contract language related performance and penalties for non-performance
City or cities pull out of agreement	Inter-local agreement that provides penalties for withdraw from the agreement
Accidents	In performance of the contract, the contractor may cause either property damage or personal injuries or death. As contracts are negotiated the terms should be very clear regarding liability and indemnification. The contractor shall also demonstrate through its safety record and that it is committed to executing the contract in a safe manner. A safety plan should be part of the contract agreement and there should be on-going enforcement of the safety provisions.

Environmental Impacts & Permitting

The major environmental issue related to this alternative is the potential for improved collection efficiencies and reduced air emissions.

A 5% to 10% improvement in route efficiencies for residential waste collection throughout the region is equivalent to approximately 10 to 20 trucks per day.

Through a joint procurement, one of the requirements of the agreement may be that all trucks providing collection service be low-emission, CNG, or electric vehicles. This requirement would expand the number of collection trucks using low-emission technologies, thereby reducing greenhouse gasses contributing to ozone, particulate, and other emissions associated with diesel engines.

There are no permitting issues associated with this alternative. Any local standards or regulations related to collection vehicle operations will have to be incorporated into the service contract.

Fiscal Impacts

A major goal of this alternative is for cities to realize cost savings because of the increased number of customers under the contract.

A cooperative contract approach will cost more to implement. Two agreements will have to be negotiated: 1) the contract among all participants related to scope of service and other issues identified above; and 2) a contract between the cities and a successful contractor. Legal fees will be required to assist in drafting both the inter-local agreements and the service contract.

If a collaborative contract is used to secure waste flow to a specific facility, depending on the term of the contract, it could reduce fiscal risks associated with the waste management facility.

It is recommended that local governments would still be allowed to charge haulers franchise fees to operate within their boundaries – this issue should be reviewed by local legal counsel before implementation.

Regional Impacts

The major regional impact of this program would be to establish a model for other local governments throughout the region to evaluate cooperative collection programs. This alternative is designed to improve efficiency and reduce costs. As mentioned above, cost savings can be used to invest in programs that are designed to reduce waste generation.

Improved program efficiency will also reduce air emissions, which is important to the NCTCOG Region because several counties in the region are in non-attainment for ozone.

Implementation Steps

The implementation steps for this process have been discussed earlier in this section. Key steps in the process are shown in Figure 3-9. It should be noted that negotiating inter-local agreements, when service levels vary will take a considerable amount of time. Therefore, cities will need to review the term of their agreements and start planning soon to evaluate the potential of cooperative contracts in order to have a new contract in place before the term of the existing contract expires.

Figure 3-9 Cooperative Collection Implementation timeframe

Task/Years	1	2	3	4	5
Cities negotiate Memorandum of Understanding (MOU)					
Cities gain city council approvals					
Procurement Process					
Contract negotiations					
Contract Performance					

3.7 Alternative # 7 – Establish Regional Solutions to Disaster Debris Management

Goals and Objectives

Goals

- Provide for responsive and environmentally acceptable management of disaster debris generated from both natural and man-made disaster events.

Objectives

- Improve responsiveness to disaster events through coordinated management of disaster events.
- Establish sub-regional response teams comprised of multi-city/county programs.

Program Definition

The western region is prone to a variety of disaster events that lead to a sudden increase in waste in the form of disaster debris. The DFW climate is humid subtropical with hot summers. It is also continental, characterized by a wide annual temperature range. Precipitation also varies considerably across the area, ranging from less than 20 inches per year to 50 inches per year. A large part of the annual precipitation results for thunderstorm activity, with occasional heavy rainfall over brief periods of time. Thunderstorms occur throughout the year but are most frequent in the spring. Hail falls on about two or three days per year, ordinarily with only slight and scattered damage. Windstorms occurring during thunderstorm activity are sometimes destructive and snow is rare. The average length of the warm season (freeze-free period) in the DFW metroplex is about 249 days.

History of Major Disaster Debris Events

Table 3-22 presents a history of major disaster events in the Western Region.

Table 3-22 History of Major Disaster Debris Events in Western Region	
Date	**Event**
March 28, 2000	Tornado, Fort Worth
September 5, 2000	Excessive Heat
May 2005 – December 2006	Drought
January 1, 2006	Wildfires North Texas
April 10, 2008	Tornadoes Johnson County
March 30,2009	Hail – Northeast Tarrant County
April 9-13, 2011	Wildfire – Possum Kingdom Lake
May 15, 2013	Tornado Outbreak – North Texas
October 23-24, 2015	Flash Flood
December 26-27, 2015	Tornado
March 23, 2016	Hail
February 12-17, 2021	Winter Storm Uri

To address potential disaster events, local governments are encouraged to adopt Disaster Debris Management Plans. Several cities in the western region already have a disaster debris management plan in place. These plans are intended to identify specific actions that need to take place in the event of a disaster event. Specific issues related to a disaster debris plan include the following:

- Background on the types of disaster events that might occur.
- City or county disaster debris management organizational structure.
- Inventory of resources for managing disaster debris events.
- Implementation schedule for response to a disaster event.
- Identification of potential sites for storage, processing and disposal of disaster debris.
- Training of staff.

It should be noted that for communities with a FEMA approved disaster debris management plan, the amount of funds reimbursed to the community is increased by a 2% of the total costs. In addition to an approved plan, the local government must also have a pre-selected contractor to manage the disaster event and a firm to collect the disaster debris.

Source: FEMA

Program Approaches

Table 3-23 presents proposed project approaches for regional disaster debris management planning and implementation.

The approaches can include the following scenarios:

- Cities and counties continue to rely on their own resources to manage disaster debris events.
- Cities and counties negotiate inter-local agreements to provide cooperative responses to disaster events and develop joint disaster debris management plans.
- WRSWMA provides additional support in planning and equipment support to all participating communities in the event of a disaster event.

Table 3-23 Disaster Debris Approaches		
Options	Positive	Negatives
City or County prepares a disaster debris management plan for its community.	Plan addresses specific needs of the community. Limited liability to address the needs of other communities impacted by a disaster event.	Limits the potential resources available to a community to address a disaster event. Local government must use its own resources to address the disaster event, which may take longer than if the resources of another community were available.
Neighboring cities or counties team to prepare a multi-jurisdictional disaster debris management plan.	Shared resources will allow disaster events to be addressed more quickly. Costs associated with clean-up can either be shared per the agreement, or the assisting community can bill the host community for their costs.	Greater coordination is required. Contracts between communities should identify response times, responsibilities of participating local governments and reimbursement methods. Data-gathering requirements also need to be very carefully managed to support potential reimbursement by FEMA.
WRSWMA provides additional resources to disaster events. The WRSWMA can provide some degree of support for disaster events. This will depend a great deal on whether the WRSWMA owns any facilities or equipment that can be used to either store, process or dispose of disaster debris.	Additional resources are made available for managing a disaster event.	The WRSWMA's ability to assist will, to a great degree, depend on whether it owns any facilities or equipment that can be used to assist in managing disaster debris.

Environmental Impacts and Permits

The devastation that can be caused by a major storm event or other type of disaster can be significant. The estimated amounts of debris waste that can be generated from a tornado or other storm event can be in the thousands of tons.

There are opportunities to recover materials from a storm event; however, in the case of these events the most pressing issue is to clear the debris and make sure that it is properly managed. A disaster debris management plan can help identify recovery options before the event occurs, making it more likely that material recovery takes place.

One of the elements of a disaster debris management plan is the identification of disaster debris storage and processing sites. These sites are used to store materials before they can be properly recycled or disposed. It is recommended that sites have good access and sufficient area to store large quantities of materials for an extended period of time. These storage sites must be approved by the TCEQ prior to their use. The form for securing TCEQ approval can be found at: ENVIRONMENTAL CONSIDERATION GUIDANCE TO APPLICANTS (texas.gov) The sites must be designed to protect water quality and provide safe ingress and egress.

As mentioned, FEMA provides additional recovery funds if there is an approved disaster debris management plan in place. The checklist for a FEMA plan can be found at: Microsoft Word - PA Alternative Procedures Pilot Program Debris Management Plan Job Aid (091613).docx (texas.gov)

Fiscal Impacts

The fiscal impacts of a disaster event can be in the millions of dollars. To reduce the cost of an event, it is important for local communities to properly plan for how to reduce the impacts of disaster events, identify mitigation strategies and identify recovery/disposal options early.

The equipment and labor resources required to respond to a disaster event vary widely depending on the type and extent of the disaster. The advantage of establishing inter-local agreements or a regional approach to disaster debris responses is that sufficient equipment is available to provide a timely response. There have been instances in Texas when a disaster event such as Hurricane Harvey occurred and solid waste equipment from other cities including San Antonio, Austin and Dallas were sent to Houston to assist with clean-up. In order to implement a cooperative approach timelier, it is recommended that cities and counties establish cooperative arrangements prior to an event. Included in these agreements would be means of compensation for equipment and labor utilized.

The major costs associated with this alternative is born by local governments include the following.

- Preparation costs for disaster debris plans ($50,000 – $100,000).
- Preparation of inter-local agreements (legal costs) for inter-local cooperation in the event of a disaster event.

The financial benefit of a FEMA approved plan is that it provides local government officials with increased reimbursement from FEMA should a disaster event occur. By having a plan in place, the chances of reducing disposal costs are improved by having a greater opportunity for the recovery of materials if there is a plan to separate materials during collection and allowing for segregated storage of materials.

Regional impacts.

The interlocal agreements recommended in this section do not necessarily have to be limited to the western region. It is recommended that local governments throughout the NCTCOG explore opportunities to work together.

Implementation Steps

The following are implementation steps in managing disaster debris regionally.

- Coordination of local governments through PAG meetings.
- Identification of cities/counties with an approved disaster debris management plan.
- Local governments negotiate an inter-local agreement to participate in joint management of disaster debris events.

3.8 Alternative #8 – Construct Additional Transfer Station Capacity Throughout Region

Goals and Objectives

Goals

- Improve the efficiency of waste hauling in the western region.
- Provide additional access to residents for services such as disposal of bulky wastes and other materials.

Objectives

- Construct additional transfer station capacity in the western region.
- Provide municipal access to transfer stations or landfills within 25 miles.

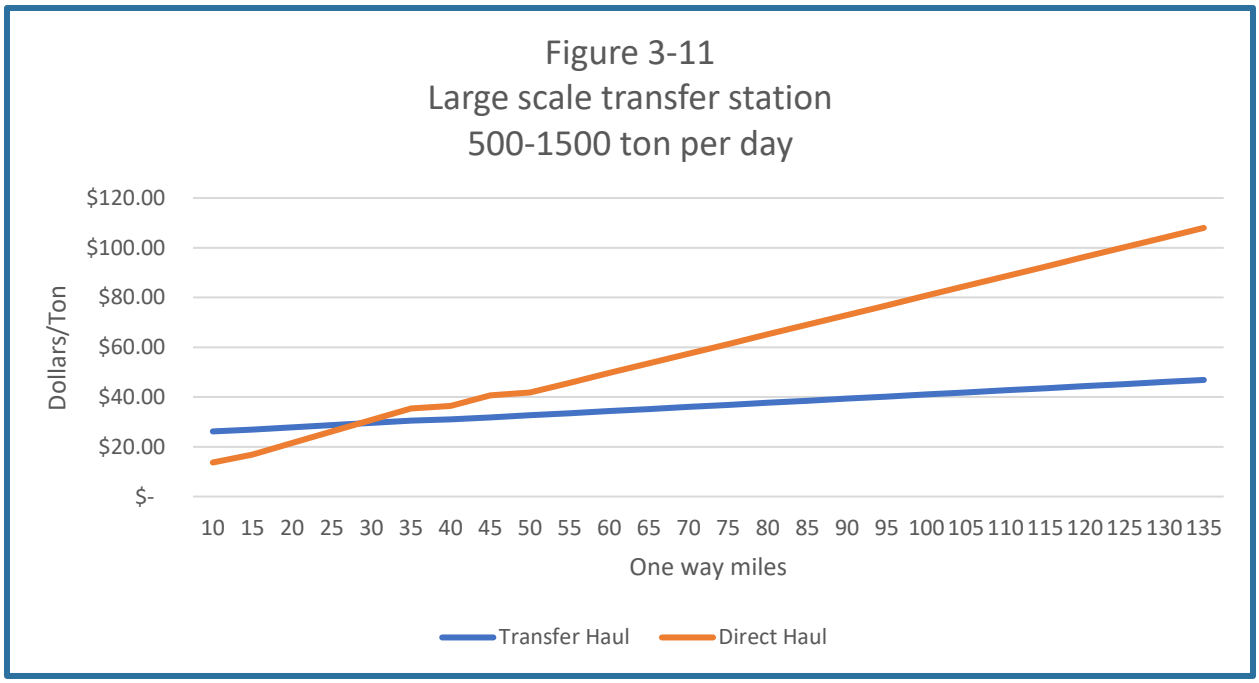
Program Definition & Options

The TCEQ defines a transfer station as a facility used for the transferring of solid waste from collection vehicles to long-haul vehicles (one transportation vehicle to another transportation vehicle). [13] Figure 3-10 illustrates the NTMWD Custer Road Transfer Station.

A haul analysis was performed as part of the Needs Assessment. The haul analysis showed the relationship between haul distances and travel times to various disposal sites, and associated transportation costs. Figure 3-11 illustrates the comparison of direct haul versus transfer haul assuming a mid-to-large scale transfer station. Based on this analysis, for larger transfer stations a distance of approximately 25 to 30 miles from the point when collection vehicles are full (end of route) to the disposal point is the distance at which a transfer station is feasible. The distance when smaller scale transfer stations become feasibility is approximately 30-40 miles.

[13] Source: TAC 30.330

Figure 3-10 NTMWD Custer Road Transfer Station (Plano, Texas)



Program Approaches

The decision for a local government to invest in a transfer station in the western region is complicated by the fact that most of the waste is collected by the private sector.

Transfer stations are designed to reduce the cost of hauling waste from the point of collection to the final disposal site. They do require significant investment and are expensive to operate and maintain. Assuming the private sector maintains control over collection services, local governments considering an investment in a transfer station would require some assurance that cost savings would result in lower collection costs and lower costs for businesses in the community. To some degree, this can be accomplished by **requiring local haulers (both residential and commercial) to use the city or WRSWMA's transfer station** and charge tipping fees to recover capital and operating costs. It is noted that a city can only direct waste within its own jurisdiction to its transfer station. There are also flow control issues for a city to require commercial waste to be directed to a facility outside its jurisdictional control. An example of how this could work is the North Texas Municipal Water District's facilities. The Cities of Allen, Frisco, McKinney, Richardson and Plano all require both residential and commercial waste to be directed to NTMWD's transfer stations or landfills. This is accomplished through the Cities franchise agreements.

Table 3-24 presents program options for implementing transfer station alternatives.

Various approaches are listed below.

- Continue to rely on the private sector to provide collection services and build transfer stations.
- Public/private sector agreements to build and operate transfer stations.
- Cities to build and operate their own transfer stations.
- The WRSWMA builds and operates or contract operates a transfer station.

Table 3-24 Transfer Station Program Options		
Potential Approaches	**Positives**	**Negatives**
Continue to rely on the private sector to provide collection services, and to pay for transfer stations if justifiable to provide competitive advantage between providers when bidding on long-term contracts.	No required action by the public sector. All risks associated with transfer station site selection, permitting, construction and operation are the responsibility of private firms.	Unless required in a collection contract, there are no requirements that a private firm construct a new transfer station. Limited terms on collection contracts increases risks associated with construction of a new facility. Even though a municipality could reduce its long-term haul and disposal costs, there may not be enough of an incentive for the privates to develop transfer stations. This also limits the ability of local governments to direct the flow of waste to a particular landfill.
Public / private partnership to construct and develop transfer stations.	Facilities are constructed under a public/private partnership where both parties share in project risks. Contracts can be written so that a local government has some control over the flow of waste if that is an important issue.	Cities will have some risks in a public/private partnership. It will be important to have proper legal counsel to help guide the City in understanding these risks and how to minimize them over the course of the partnership.
City to build transfer station on its own.	City has complete control over the location, permitting, construction and operation of the transfer station. It can also develop the site to meet other local solid waste management needs, including citizen drop-off centers, recycling centers and brush/yard waste operations.	City has all of the risks associated with the facility. Risks can be reduced through proper planning and other measures discussed later.
WRSWMA builds facility(ies) at the request of local governments or as an action on its own. WRSWMA invests in a facility and relies on tipping fees to pay for the facility's debt and operating costs. Paid for with revenue bonds. WRSWMA will have to work with local governments to assure long-term flow control.	Cities, as members of a board of directors, can provide significant input into the location, design and costs of a transfer station. Cities can then rely on the staff of the WRSWMA to actually implement the project. Depending on how the facility is financed, implementation by the WRSWMA can reduce capital requirements of the	While a city may have input into key site and design decisions, the final decisions will likely be determined by consensus. The exception to this would be if a single city were asking the WRSWMA to build the facility on its behalf and paid the WRSWMA for undertaking the project.

	participating cities. Cities would have to guarantee a certain revenue stream to WRSWMA to pay for any bonds and operating costs associated with the operation.	
Continue to rely on the private sector to provide collection services, and to pay for transfer stations if justifiable to provide competitive advantage between providers when bidding on long-term contracts.	No required action by the public sector. All risks associated with transfer station site selection, permitting, construction and operation are the responsibility of private firms.	Unless required in a collection contract, there are no requirements that a private firm construct a new transfer station. Limited terms on collection contracts increases risks associated with construction of a new facility. Even though a municipality could reduce its long-term haul and disposal costs, there may not be enough of an incentive for the privates to develop transfer stations. This also limits the ability of local governments to direct the flow of waste to a particular landfill.

Survey Results

Cities that indicated that they are considering a transfer station include Fort Worth, Grapevine, Stephenville and North Annetta.

Existing Facilities

Table 3-25 and Figure 3-12 describe current transfer stations in the region.

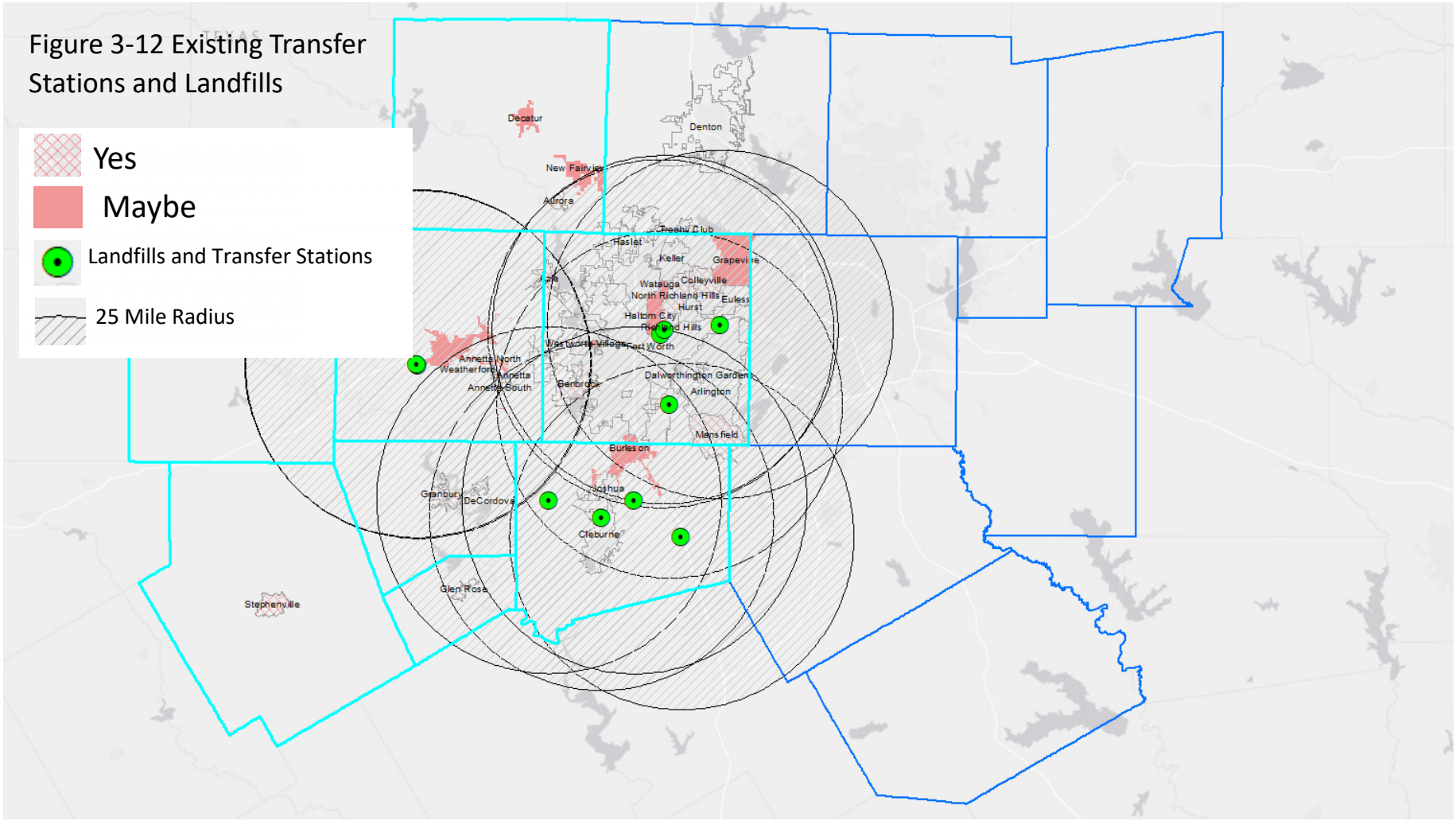
Table 3-25 Western Region Transfer Stations, by County

County	City	Facility	Tons/ Year
Erath	Stephenville	City of Stephenville	None reported
Johnson	Cleburne	City of Cleburne Transfer Station Facility	76,733 5,296 grinding of brush for recovery
Parker		Brazos Transfer Station	inactive
Parker	Weatherford	WC Weatherford Transfer Station	Not operational
Somervell	Glen Rose	Somervell County Transfer Station Facility	10,476
Tarrant	Arlington	Arlington Disposal Transfer Station Facility	Inactive
Tarrant	Fort Worth	North Texas Recycling Complex	11,743 – facility reported all material recovered and not disposed
Tarrant	Haltom City	IESI Minnis Drive Transfer Station	140,777
Tarrant	Fort Worth	Southwest Paper Stock Transfer Station	16,677 of MSW and 28,241 tons recovered
Tarrant	Aledo	Westside Transfer Station	221,532
Tarrant	Euless	Waste Conversions Industries Inc.	Non reported

Regional Needs

Figure 3-12 illustrates the location of current transfer stations and landfills in the western region. The map illustrates areas of the western region that are farther than 25 miles from a landfill. While 30 miles was determined to be a feasible distance for transfer stations, 25 miles is used to account for roadway conditions from either an existing transfer station or a landfill. Areas not within the 25 mile radius should be considered candidates for potential transfer station development. This could be impacted by the location of a future landfill.

Figure 3-12 Existing Transfer Stations and Landfills



Procurement & Risk Issues

Procurement

One of the first decisions that local governments must resolve in evaluating transfer station options is whether they plan to own the facility or rely on private operators to build a transfer station and commit their waste to it on a long-term basis. As mentioned in Section 2.2, there are benefits and risks of facility ownership.

If the local government or WRSWMA is to own the facility, the following key decisions will have to be addressed as part of the procurement process.

- Facility location
- Facility configuration and sizing (access, buildings and type of transfer station design (open-top or compactor)
- Drainage and stormwater management features
- Other services to be provided such as citizen drop-off, recycling opportunities and brush processing
- Household hazardous waste and electronics waste storage

As part of the procurement process, the City may take responsibility for determining which landfill is to be used. If the transfer station is to be part of a regional system, and the transfer station is operated by a private entity, the operating contract can require use of a specific disposal site. An alternative option is to request an operating cost bid which would include disposal and provide the contractor with the flexibility of which landfill to used.

Risk Issues

Issues to consider are flow control and landfill disposal contracts. As mentioned, flow control is important for facilities that have large capital costs. An assured flow of waste to a facility guarantees a consistent revenue stream and facilitates financing. Understanding the estimated waste flows to the facility will require an understanding of base load flows per flow control and any additional waste that can be attracted to the facility due to market conditions.

Table 3-26 outlines transfer station risks and their mitigation measures.

Table 3-26 Risk and Mitigation Issues Related to a Transfer Station

Risk	Mitigation
Insufficient waste stream	Secure flow control through ordinances and contracts. Establish competitive fees to attract private sector waste.
Construction costs too high	Perform preliminary assessments to include all aspects of the facility, including options such as citizen drop-off center. Prepare procurement documents that define project costs and risk sharing in detail. Provide sufficient detail in procurement document so bids are all-inclusive.
Operating costs too high	Conduct a detailed analysis of operating costs. Allow private sector to operate the facility for a set contractual fee.
Safety	Design the facility for safe ingress and egress. Keep residents off the tipping floor of the facility when waste transfer operations are taking place. All staff are to comply with appropriate safety plans.
Disposal availability and costs	Negotiate long-term, competitive disposal agreements. An advantage of a transfer station is that they provide more flexibility to use several sites.

Environmental Impacts and Permitting

Environmental Impacts

Transfer stations do improve regional air quality by reducing the number of collection truck trips that are required. One transfer vehicle is equivalent in volume to approximately 2-3 regular solid waste vehicles. The actual emission reductions that can be achieved will be determined by the types of vehicles used to collect solid waste, the emissions associated with transfer vehicles, and distances between point of collection, the transfer station and the landfill.

The following list includes environmental considerations associated with the construction and operation of a transfer station.

- Traffic
- Land use
- Regulatory location restrictions to protect natural resources (1)
- Environmental justice
- Air quality
- Water quality
- Odor control
- Litter control

From a local perspective, cities can establish zoning ordinances related to where facilities can be located but may not necessarily have direct control over the specific location of a new transfer station.

Table 3-27 provided environmental issues associated with transfer stations and their mitigation measures.

Table 3-27 Environmental Issues Associated with a Transfer Station

Environmental Issue	Mitigation
Increased traffic	Site the facility in an area that has adequate access to handle the anticipated traffic. Conduct a traffic study prior to permitting and work with transportation officials to improve site access if necessary.
Increased litter	Require any vehicles using the transfer station to cover loads. Conduct unloading in an area that will minimize windblown trash. Provide periodic (daily) litter control and pick-up.
Noise	Site the facility away from potential nose receptors. To the extent practical, operate equipment inside buildings with adequate noise suppression. Limit operating hours. Design noise mitigation features into the facility and its site.
Odors	Limit the amount of time that waste is stored at the facility. Provide negative air flow inside the building.
Water quality	Proper site maintenance and adherence to storm water pollution prevention plans and spill plans.

Permitting

Transfer stations may be permitted either as a registration or a full permit depending on the size of the facility, the size of the city or county or whether it is located on an existing or closed landfill. With the exception the list below, transfer stations require a full permit from the TCEQ as defined in TAC 30.330.

A registration is required for a MSW transfer station facility that is used in the transfer of MSW to a solid waste processing or disposal facility from any of the following:

1. a municipality with a population of less than 50,000;
2. a county with a population of less than 85,000;

3. a facility used in the transfer of MSW that transfers or will transfer 125 tons per day or less; or

4. a transfer station located within the permitted boundaries of an MSW Type I or Type IV facility as specified in §330.5(a) of this title (relating to Classification of Municipal Solid Waste Facilities).[14]

Fiscal Impacts

The cost of constructing a transfer station will vary considerably depending on the following factors.

- Facility capacity and site size
- Site mitigation requirements (drainage improvements, etc.)
- Access requirements
- Process and equipment selection
- On-site soil conditions
- Potential liner requirements if biosolids are processed

Operating costs will also vary considerably depending on the following factors.

- Types of materials to be waste throughput
- Equipment required (processing equipment, hauling costs)
- Haul distances
- Labor required (gate attendant, support professionals, operating staff, truck drivers)

The Needs Assessment for this Study includes a Haul Analysis with the estimated capital costs associated with the construction and operation of the facility (Table 3-28).

Table 3-28 Typical Transfer Station Costs (Budgetary Cost Estimates (+/-20%)[15]				
Size of Facility (tons per day)	100	250	500	1000
Annual Throughput Capacity	31,000	77,500	155,000	310,000
Capital Costs	$2,000,000	$4,000,000	$7,000,000	$12,000,000
Annual Debt Service	$134,431	$268,863	$470,510	$806,588
Operating Costs	$500,000	$700,000	$1,000,000	$1,500,000
Total Annual Costs	$634,431	$968,863	$1,470,510	$2,306,588
Costs per ton	$20.47	$12.50	$9.49	$7.44

Regional Impacts

Transfer stations can provide communities with greater options to meet their disposal needs. The availability of a transfer station increases the number of landfills that a community can transport waste economically. This flexibility can allow communities to competitively bid disposal options. So, while transfer stations do not directly add capacity, they can make additional capacity available to communities.

The two market sub-regions identified in the Needs Assessment that are adjacent to the western region include the Dallas sub-region and the Denton sub-region. Both these sub-regions have considerable disposal capacity available if necessary[16]. The Dallas sub-region has approximately 168 million tons of capacity and the Denton sub-region has approximately 52 million tons of capacity. If large quantities of western waste are disposed in these sub-regions, the capacity of landfills in these sub-regions will be impacted negatively. Ultimately, while transfer stations provide efficient transportation of waste, they do not add needed disposal capacity to the western region.

[14] TAC 30.330

[15] Needs Assessment Technical Report

[16] Refer to the Needs Assessment Report for definition of sub-regions and landfills included in those sub-regions.

Implementation Steps

As has been discussed, one of the key issues in determining whether a local government invests in a transfer station is the ability to secure enough waste for the facility, especially because the private sector is responsible for solid waste collection.

Figure 3-13 Transfer Station Schedule

Action	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Facility Feasibility							
Establish contracts for operation/disposal							
Facility Site Selection							
Facility Permitting and Design							
Facility Procurement & Construction							
Facility Operation							

3.9 Alternative #9 – Increase Landfill Capacity

Goals and Objectives

Goals

- Assure that there is long-term, environmentally acceptable disposal capacity available in the region.

Objectives

- Establish a process for local governments to periodically evaluate the status of landfill capacity in the region.
- Site, permit and construct new capacity to meet future needs.
- Secure new capacity while taking into consideration environmental issues, surrounding land uses and environmental justice issues.

56% of responding local governments considered landfill capacity as either a high or med/high concern in the short-term. This rises to **61%** when asked about long-term concerns.

Program Definition & Options

The Western Region has an estimated 58.5 million tons of Type I MSW landfill capacity, and 5.5 million tons of Type IV construction and demolition landfill capacity. At projected rates of waste disposal, Type I capacity is anticipated to be depleted by the year 2036 and Type IV capacity is anticipated to be depleted by 2030. To meet capacity needs over the next 20 to 30 years, new capacity must be secured.

It is estimated that there is a need for an additional 40 million tons of landfill capacity in order to provide a total of 30-40 years of additional capacity for the western region. This would require a total of 80 million cubic yards of landfill airspace. Assuming an average of 30 feet excavation and 100 feet average above gradefill, a site of approximately 500 acres is required as a minimum. It is recommended that a significant amount of land be procured to provide additional buffer zones and to allow for additional waste management activities, including composting, citizen convenience stations, tire management and other services.

Figure 3-14 Southeast Landfill

Landfill Facility Requirements

A municipal solid waste landfill is an engineered facility that must meet all the design and operating requirements as prescribed in 30TAC§330.

Specific design elements of a typical landfill includes the following.

- Buffer zones: separate surrounding land uses from nearby landowners. TCEQ requires that a landfill maintain a 250' buffer zone. To the extent practical, wider buffer zones are highly recommended. Factors affecting desired buffer zones include surrounding land uses, site topography and final landfill elevations.
- Infrastructure: includes scale facility, gate house, administration buildings, equipment maintenance, stormwater management, leachate management and roadways.
- Optional waste management facilities including citizen drop-off, brush storage, composting, tire storage, electronic waste storage and collection container storage.
- Landfill cells: landfill cells require a liner, leachate collection system, landfill gas management system and stormwater management structures
- Closure and Post-closure care plan. Landfill owners must maintain financial assurance that demonstrates the owner can properly close the facility and maintain it over a minimum of a 30-year post-closure care period.

The site must be operated in accordance with 30TAC§330. A required site operating plan is designed to protect environmental resources, assure that only acceptable waste is delivered to the facility, reduce litter, eliminate nuisances, and protect air and water quality. The SOP includes a fire protection plan and plans for cover material.

Program Approaches

- Table 3-29 presents recommended approaches for implementing landfill alternatives. Fort Worth develops a new landfill and the City of Arlington expands its current facility.
- Cities develop a new landfill under an inter-local government agreement.
- WRSWMA takes responsibility for development of a new landfill.

In addition to adding the necessary cubic yards of capacity, other factors need to be considered when implementing recommendations presented in this report. These factors include the following.

- Providing more than one option for disposal capacity. A single site for a wide region could establish a monopoly situation which could lead to higher prices.
- Providing regional flexibility. The Arlington Landfill has, and is anticipated to have significant capacity. However, it is located on the extreme eastern portion of the western region. An option closer to the center of the western region would keep transportation costs reasonable.
- The decision by either Fort Worth or Arlington to maintain control over their landfill assets or transferring ownership to the WRSWMA. This decision would be affected by both fiscal and risk issues.

Private sector is responsible for establishing new capacity by either selecting a new site or further expanding the Turkey Creek Landfill

Table 3-29 Landfill Program Approaches		
Potential Approaches	**Positives**	**Negatives**
Fort Worth develops a new landfill and the City of Arlington expand their current site to provide adequate capacity.	This would be an extension of the current system with the exception that in the mid-term the City of Fort Worth will have to identify a new site or expand its current landfill. No changes in the current organizational structure would necessarily occur due to this alternative. Fort Worth and Arlington would control their risks by having a facility to take their waste. If the policy of accepting waste from other communities remains in place, other cities would not be required to do anything to secure disposal capacity. For cities of Arlington and Fort Worth, these facilities generate significant amounts of revenues, even though they are operated by a private entity.	Fort Worth is required to go through a process of either expanding their current landfill or identifying a new site. Arlington is required to go through the process of amending their landfill. Cities using the landfills have no assurances that either will increase capacity. Either city could limit access to their own residents as a means of extending the life of the landfill. Haulers would be required to haul waste longer distances. Arlington and Fort Worth are required to pay all capital costs associated with either a new facility or an expansion.
Cities develop a landfill in a cooperative agreement.	All cities that want to use the landfill are participants in the landfill, providing them with assurance there will be long-term capacity available. Reduced cost per city for the development of a site. Greater participation in determining the location of the new landfill.	Challenges in securing an agreement to get several participants to agree on a single approach and a site for the new facility. Distributing potential future liabilities associated with the facility will have to be negotiated.
Solid Waste management WRSWMA (WRSWMA) develops a project.	WRSWMA acts somewhat independently of members to implement the project based primarily on technical merits.	Even though there is representation on a board of directors, individual cities will have less control over key decisions regarding site location, design and other issues.

	Costs and revenues of the project are divided among participants. No city has the responsibility for site selection or financing. WRSWMA can limit waste acceptance from only participating cities. Depending on the bylaws of the WRSWMA, local governments can have control over decisions made by the WRSWMA. Funds generated from landfill operations can be used to fund other waste management activities including efforts to reduce waste generation, transfer stations and citizen convenience stations.	Most funds are likely to be used for debt service and operations. Local government assume liabilities and needs should the WRSWMA go bankrupt. To some degree this can be managed by having sufficient cash reserves. The WRSWMA will bear the responsibility for maintaining the site for at least 30 years after site closure.
Private sector builds new capacity either through the selection of new sites or expansion to the Turkey Creek Landfill.	Local governments do not have to fund the capital investment required for the facility. Local governments do not have to allocate staff or other resources to managing the landfill. Local governments do not have to become involved in the selection of the site or the permitting and potential public hearing.	Local governments have no control over the site selection process unless the facility is to be located within their jurisdiction. Local governments have no assurance that a private firm will develop capacity when municipalities need the capacity, and there is no guarantee that the capacity will be available to them if they use a collection firm not affiliated with the landfill. Local governments have no control over the operation or environmental compliance associated with the landfill.

Survey Results

The cities of Fort Worth, Arlington and Stephenville all indicated that they may be expanding their landfills or identifying new landfills in the future. Fort Worth and Arlington own Type I landfills and Stephenville has a Type IV landfill.

Current facilities

Table 3-30 presents a summary of landfills in the western region. The western region has a total of 58.5 million tons of capacity. This represents 14% of the entire NCTCOG region total Type I capacity of 405 million tons. This compares to the fact that the western region generates approximately 20% of the NCTCOG's region's waste. The western region has approximately 5.1 million tons (20%) of the total NCTCOG's 20 million tons of Type IV landfill capacity.

Table 3-30 Type I Landfill Ownership & Capacity[17]

Landfill	Owner	Operators	Permitted Acres	Fill Acres	Remaining Capacity (million tons)	Years Remaining*	Amendment Pending (million tons/capacity)
City of Arlington	City of Arlington	Republic Services	774	391	38.3	42	No
City of Cleburne	City of Cleburne	City of Cleburne	84.7	24.7	7.7	13	No
City of Fort Worth	City of Fort Worth	Republic Services	300.0	128.6	14.9	18	No
Turkey Creek Landfill	Waste Connections	Progressive Waste	219.0	69.0	4.8	7	Yes, would add 3.6 million tons of capacity
Weatherford Landfill	Progressive Waste	Progressive Waste	112.0	35.0	0.4	1.5	No
Total Western Region			**1,490.0**	**668.0**	**58.5**	**24**	**3.6**
Total NCTCOG Region (includes Western Region)			**6,804.0**	**2,399.0**	**405.4**	**38**	**N/A**
Western % of NCTCOG Region			**22%**	**28%**	**14%**		

Source: TCEQ Annual Landfill Reports (2019) * Assumes TCEQ method of assuming no increase in waste disposal quantities in future years.

[17] Source: Needs Assessment Technical Report

Table 3-31 Type IV Landfill Ownership & Capacity[18]							
Landfill	**Owner**	**Operators**	**Permitted Acres**	**Fill Acres**	**Remaining capacity**	**Years Remaining***	**Amendment Pending (million tons)**
City of Stephenville Landfill	City of Stephenville	City of Stephenville	15.0	N/A	0.5	27	No
Fort Worth C&D Landfill	Progressive Waste	Progressive Waste	152.0	74.0	4.6	16	Yes, would add 3.0 million tons
Total			**167.0**	**74.0**	**5.1**	**14**	**3.0**
Total NCTCOG Region (includes Western Region)			**504.0**	**241.0**	**25.0**	**69**	
Western % of NCTCOG Region			33%	**31%**	**20%**		
Source: TCEQ Annual Landfill Reports (2019) ****Assumes TCEQ method of assuming no increase in waste disposal quantities in future years.***							

Regional Needs

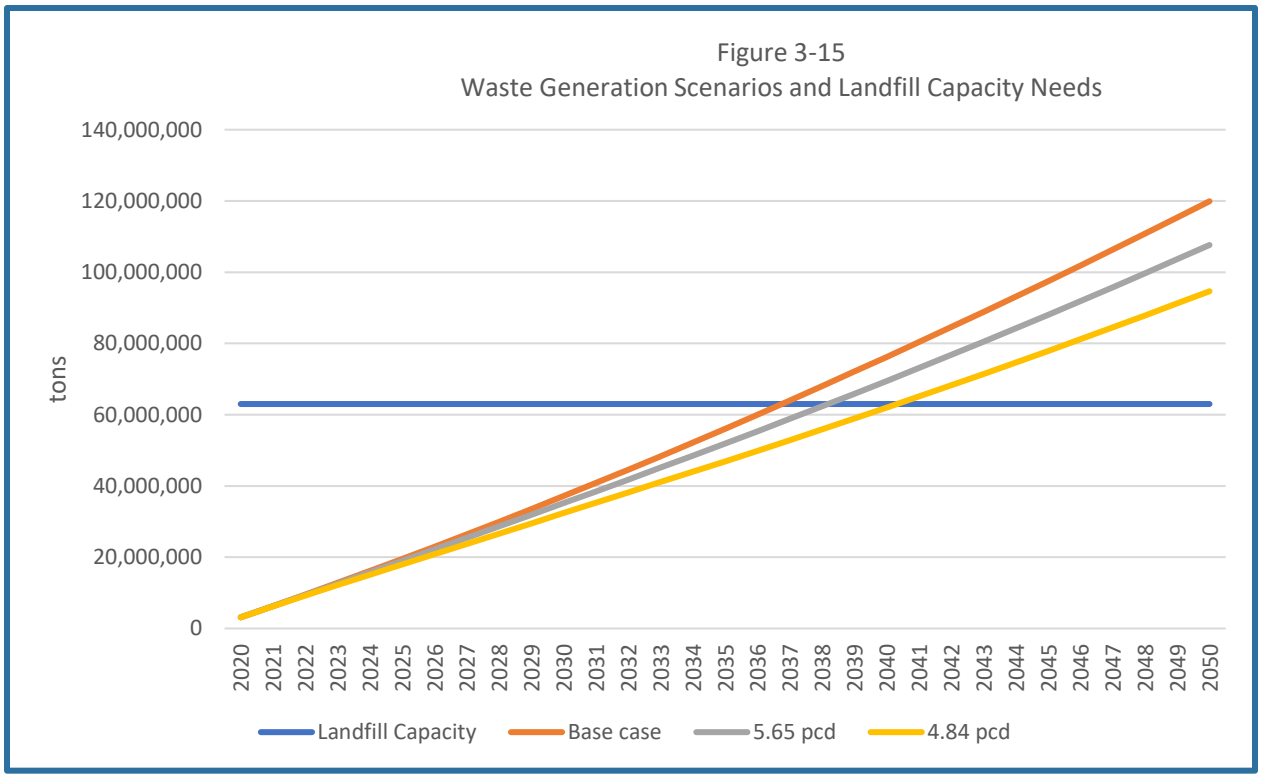
One of the primary reasons for undertaking this Study is that landfill disposal capacity is a major challenge facing the western region. It is estimated that even with a major expansion of the Arlington Landfill, landfill capacity and availability will be an issue for local governments. While it is hoped that waste disposal rates begin to decline from the current 6.4 pounds per capita per day (Base Case), a conservative assessment indicates that approximately 120 million tons of MSW will be generated in the western region between 2021 and 2050. As shown in the previous tables, the western region has a total capacity of approximately 63 million tons. To meet the needs through 2050, approximately 57 million tons of additional capacity is needed (Figure 3-12). To put this in perspective, assuming an average excavation depth of 30 feet and average above-grade height of 150 feet, this would require approximately 500 acres of fill area (does not include buffer areas).

Also shown in figure 3-15 is the potential impacts of significant reductions in waste generation over the course of the planning period. Efforts to reduce waste could extend landfill capacity to the year 2040, instead of 2036. To meet capacity needs to the year 2050, an additional 30 million tons of capacity would be required compared to 57 million tons.

Another aspect of the gap analysis is that this capacity is located in the extreme eastern portion of the region. Once the Fort Worth Landfill reaches capacity, the majority of the remaining Type I landfill capacity will be in

[18] Source: Needs Assessment Technical Report

either Arlington or Alvarado. This will have significant impacts on the cost of hauling. Also, the fewer number of landfills available will likely lead to higher disposal costs as competition decreases.



Procurement and Risk Management

Securing long-term landfill capacity is a multi-year process that involves five major steps.

1) Site Selection
2) Permitting
3) Construction
4) Operation
5) Closure & Post closure care

This analysis will focus on the first three steps.

Site Selection

The local government or regional entity will work with team of professionals (planners, environmental scientists, historians, engineers, and real estate professionals) to identify potential tracts of land for consideration as a future landfill site. A thorough evaluation of site options must be conducted to determine whether they meet local, state, and federal criteria. The site selection process can take between two to three years to complete.

Permitting

Landfills are permitted under 30TAC§330 and 30TAC§305.

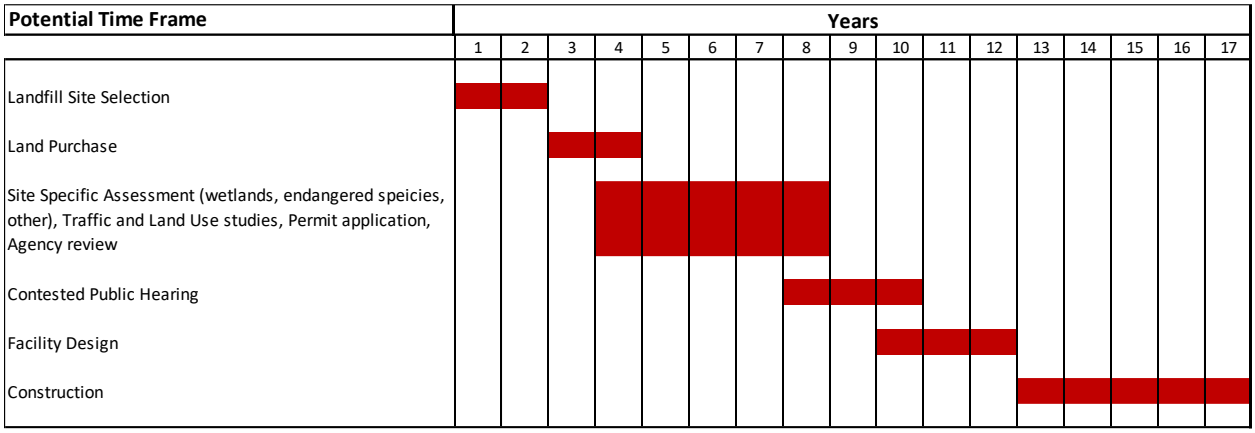
Construction

Once permitted, the landfill can be constructed. For new landfills, this means all of the infrastructure, buildings, and initial landfill cell development will have to be built.

Project Timeframe

The estimated timeframe for selecting a site, permitting and constructing a site is approximately 10-15 years. Figure 3-16 illustrates an estimated timeline for landfill development.

Figure 3-16 Estimated Timeline for Landfill Development



Environmental Impacts and Permitting

Environmental Impacts and Mitigation

Landfills are engineered facilities that are designed to protect land, air and water resources. The majority of the waste that is generated in this region is disposed in landfills located throughout the region. Table 3-32 provides a discussion of environmental impacts and their mitigation measures.

Table 3-32 Landfill Environmental Impacts and Mitigation

Environmental Impacts	Mitigation
Land Use	Select sites that are located in areas that address site restriction requirements. Select sites that are located in areas that comply with local zoning and land use ordinances. Provide sufficient buffers between disposal operations and surrounding land uses that may be sensitive.
Surface water resources	Site the facility that addresses floodplain and wetland areas. Design facility to protect surface water resource during operations through a drainage design that minimizes and manages storm water that comes in contact with solid waste.
Groundwater resources	Design landfill liner and leachate collection system to protect groundwater. Comply with groundwater monitoring requirements (typically twice/year).
Air resources	Comply with landfill gas management requirements. Construct roadways for site access to reduce dust.

	Comply with site operating procedures that are designed to reduce dust and other air emissions.
Environmental justice	Undertake a site selection process that avoids adversely impacting communities that historically have been negatively impacted by land uses that degrade public health and the environment.

Permitting

Landfill permits require an extensive assessment of the property within the permit boundary, surrounding land uses, water resources, geologic conditions, traffic impacts, environmental justice, historical resources and threatened and endangered species. The permit application also requires an analysis of groundwater conditions at the site. A preliminary design of the facility is required as well as plans for management of leachate, landfill gas and storm water. The permit application also includes a site operating plan, a closure plan and post-closure care plan and demonstration of financial assurance to properly close and maintain the site for at least 30 years.

There are opportunities for public comment throughout the permitting process. Additionally, it is possible that the application may be subject to a public hearing, which is much like a contested court trial.

Fiscal Impacts

There are three issues related to fiscal impacts of landfill development in the western region.

Landfill disposal costs in the western region are anticipated to increase because of these major factors. Longer haul distances to available disposal sites

- Decreased competition in the marketplace raising tipping fees
- The cost of new site development
- Longer haul distances. The fiscal impact to local governments is the anticipated higher costs of waste collection services due to longer distances that waste will have to be hauled once existing landfills close. The communities that are likely to be impacted by this are the cities that rely on the Weatherford Landfill. When this facility reaches capacity, waste will likely be hauled to one of three locations including the Turkey Creek Landfill, the Westside Transfer Station or the City of Fort Worth Landfill. The Needs Assessment Report includes a haul analysis that examines the cost of direct haul versus transfer haul.

Reduced options for local governments and decreased competition in the marketplace. Currently, the landfill marketplace in the DFW region is highly competitive. The level of competition among landfill owners for waste keeps disposal costs low in the DFW area. However, as the number of landfills close and competition decreases, landfill costs can be anticipated to increase. Based on TCEQ landfill reports, the weighted average cost of landfill disposal is $31.50 per ton.[19] Using the same methodology for the eastern region of the NCTCOG, the average cost of disposal is $27.50 per ton. There are a number of economic factors that will impact the actual cost of disposal increases due to reduced competition.

Based on reported tipping fees and tonnages disposed, the cost of disposal in the western region for Type 1 waste only is $78 million annually (this does not include haul costs). With decreased competition, these costs can be anticipated to increase.

[19] It is noted that the reported tipping fees do not necessarily reflect actual market rates, as it doesn't necessarily reflect what landfills negotiate with haulers.

The cost of landfill development. To meet long-term disposal needs, the western region needs approximately 60 million tons of additional landfill capacity. To some degree, this can be accomplished through expansions of Turkey Creek and Arlington landfills. Fort Worth's landfill will be much more difficult to expand and the City is now examining its options for addressing future needs. The development of a new landfill can cost between $20 and $25 million. This includes the cost of consulting services, land, permitting and construction. Once constructed, there are operating costs and the need to establish reserves for landfill closure and post-closure care.

Table 3-33 presents the estimated cost of developing a new landfill.

Table 3-33 Capital Costs for Landfill Development		
	Low Range	High Range
Site Selection: Scope issues will include: specific facility definition (size, etc.), search area definition, broad area screening for fatal flaw issues, review of county siting ordinances, and identification of specific site options working with City's land office, specific site screening and recommendations. Project will require a public information process as part of site selection effort.	$ 300,000	$ 500,000
Land Costs – size range from 1000 to 2000acres	$ 8,000,000	$ 12,000,000
Permitting Costs (includes public engagement & meetings)	$ 3,000,000	$ 5,000,000
Contested Case Hearing	$ -	$ 1,000,000
Site Development Costs (includes 10 acre cell and site infrastructure)	$ 10,000,000	$ 15,000,000
Total	**$ 21,300,000**	**$ 33,500,000**

Regional Impacts – Cascading Through the Region

Decreased landfill capacity in the western region, has an impact throughout the entire NCTCOG region. The NCTCOG region has an estimated 30-35 years of remaining capacity. By 2023, the DFW Landfill will have reached capacity and approximately 1.0 million tons of waste per year will be disposed at other facilities. This additional waste will likely strain the existing infrastructure and capacity at remaining landfills.

An example of the "domino effect" is seen in the anticipated closure of the Weatherford Landfill. In 2017, a total of 198,000 tons of waste were disposed there. By 2018, this decreased to 173,900 tons and by 2020 the reported tons were 125,686 tons. At the same time, the amount of waste at the Turkey Creek landfill increased from 557,000 tons in 2019 to 663,000 tons in 2020. The closure of the Weatherford Landfill will result in approximately 200,000 tons of waste per year going to the Turkey Creek Landfill. In 2019, the Turkey Creek Landfill accepted 557,000 tons. A 200,000 ton annual increase represents a 40% increase in volumes. While the Turkey Creek Landfill did secure an increase in capacity, the additional waste will likely mean that it will still reach capacity in about 15 years.

If the western region does not add capacity when the Fort Worth landfill reaches capacity, some waste will likely be disposed at the Arlington Landfill, but there would be limits as to how much this one facility can accept.

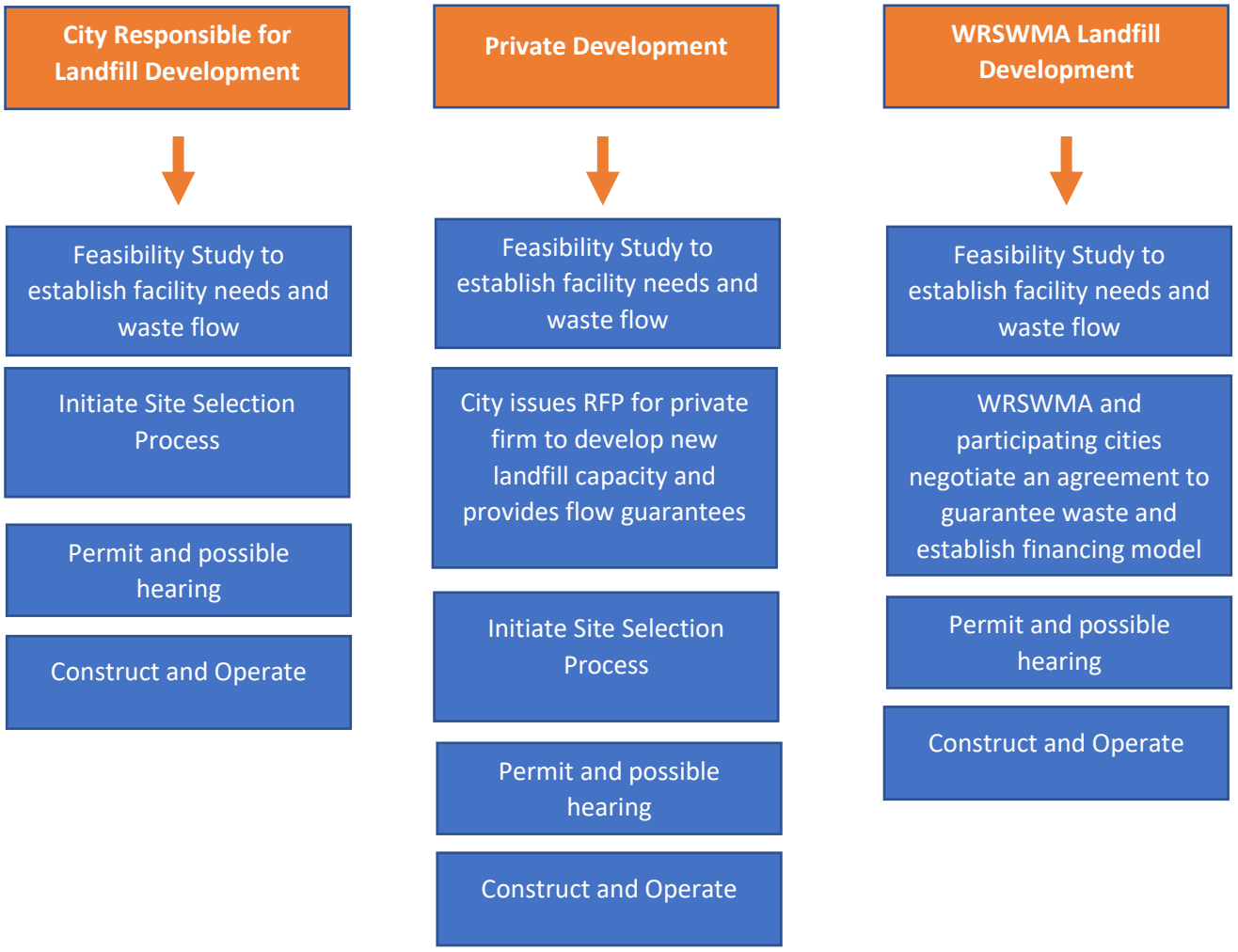
Implementation steps.

Securing long-term capacity for the region is likely the most significant investment that a local government or WRSWMA will make in the short-term to mid-term. The first step in this process is to determine the "organizational structure" for how to secure this capacity. As discussed earlier, the options include the following.

Throughout the permitting process, it will be essential to maintain an active public information program.

- A city takes on responsibility for securing additional capacity.
- Private development of a landfill.
- A WRSWMA takes responsibility for landfill site development.

Figure 3-17 Landfill Development Options



Conclusions

In February 2021, the Project Team presented the findings of a Needs Assessment for the western region of the NCTCOG. This Needs Assessment identified the short-term and long-term solid waste management needs of the region and the results of a local solid waste management survey of local governments. Based on the findings of the Needs Assessment, several alternatives for the region were identified for further analysis. These alternatives include the following.

Alternative 1 Establish an On-going Policy Advisory Group ("PAG") and Explore the Potential of Creating a Western Region Solid Waste Management Agency Inc. ("WRSWMA")

Alternative 2 Cooperative Public Information Programs

Alternative 3 Cooperative Material Marketing

Alternative 4 Increased Citizen Collection Stations Availability

Alternative 5 Increased Composting Capacity

Alternative 6 Cooperative Collection Programs

Alternative 7 Cooperative Disaster Debris Management

Alternative 8 Increased Transfer Station Capacity

Alternative 9 Increased Landfill Capacity

The analysis presented in this Study, identifies various approaches to implementing these alternatives. In general, local governments have four options for implementing programs to reduce waste, provide for efficient collection and assure proper disposal of waste.

1. Cities or counties implement projects on their own, much in the way most of the waste is being managed currently.
2. Cities and counties negotiate inter-local agreements to implement projects jointly. These agreements will improve program efficiencies, but they also reduce some level of control by participating communities.
3. Cities or counties rely on the private sector to address its solid waste management needs.
4. Cities and counties form a WRSWMA. The WRSWMA is a proposed local government corporation that can implement regional or sub-regional programs or build facilities.

Table 4-1 provides a summary of the alternatives presented in this report. The table summarizes the key environmental impacts, key implementation issues and fiscal impacts. Each of the alternatives presented in this report have both positive and negative aspects and the actual implementation will have to take into consideration local conditions, local government risk acceptance/avoidance and long-term needs. The approaches presented in this Study are intended to complement existing local government programs and provide recommendations that will improve both the effectiveness and efficiency of these programs.

Table 4-1 Summary of Alternatives

Alternative	Environmental Impacts	Key implementation Issues	Other Issues	Fiscal Impacts
Maintain a formal PAG	The PAG has the opportunity to expand the number of regional programs through improved communication and shared resources. It can encourage greater training and share information on the environmental benefits of various programs.	The PAG is already established as an organization to review the work under this study. It is recommended that it continue to meet and formalize a structure that promotes long-term participation.	***The PAG can set an example for the entire NCTOCG region on how to make programs and project more effective through cooperative actions.***	Minimal fiscal requirements for the PAG. It may wish to seek assistance in establishing formal bylaws and sponsor periodic meetings. Membership dues may be a way to encourage participation by member cities and counties.
Establish a WRSWMA	The major environmental benefits will be the region's increased capability to implement a range of resource recovery and landfill projects that are necessary to achieve the region's solid waste management goals.	The PAG will need to continue to meet and formulate a strategy to institute a WRSWMA. Memorandums of understanding can identify the purpose and structure of the WRSWMA. These MOUs should then be presented to city and county management and elected officials for their approval.	The WRSWMA will require legal expertise in establishing a clear understanding of the roles, responsibilities and liability issues that will need to be addressed. A board can be established for the WRSWMA to provide oversight and direct the actions of the WRSWMA.	Initially, cities and counties will have to invest in legal and consulting services to establish the WRSWAMA. A financing protocol will have to be established defining how WRSWMA will be funded and how it recovers investments in programs and facilities. The WRSWMA will often be able to implement projects at lower costs because of the economies of scale it can achieve.
Increase Public Information Efforts	Benefits include: reduced waste generation; reduced illegal dumping; and proper program participation. Goal is to reduce waste disposal rate by 25% by 2042 – public information part of comprehensive program to reach this goal.	Regional cooperation required to define scope of program and identify funding sources to pay for program	It is recommended that program focus on ways to reduce waste and explain the need to take action to address western region's specific needs. Needs to have a local government component to explain the basis for	Investment needed to pay for educational programs. Return on investment ("ROI) is lower generation of waste requiring collection, processing and disposal.

			proposed organizational changes.	
Cooperative Material Marketing	Increased opportunities for recycling, especially in rural areas. Reduced disposal needs in these communities.	Local governments should work with existing agencies such as Keep Texas Recycling to identify options for cooperative recycling initiatives.	The development of infrastructure will be required to collect materials. Facilities such as recycling centers and citizen convenience stations will be required.	The cost of required infrastructure should be minimal for communities participating in the program. The ROI will be based on the quantities of materials recovered because of these investments. Factors will include reduced disposal fees, sales of materials and potential reduced haul costs.
Increased Citizen Convenience Station Availability	Increased legal disposal options for residents will reduce illegal dumping. Sites can be designed to allow for greater recycling. Existing facilities have accepted approximately 100-500 tons per year. Recycling quantities are between 100-200 tons per year.	There are several options identified in this report for cooperative facility development. It is recommended that local governments work together to develop joint facilities. If a WRSWMA is established, it can take responsibility for implementing regional facilities. Areas in Palo Pinto, Johnson and Parker Counties are especially in need of these facilities.	Citizen convenience stations have a range of design options from very simple ramps with drop-off boxes to elaborate facilities that offer several waste management services, including collection of household hazardous wastes, recyclables, electronic wastes and brush. Citizen convenience stations are limited to only residential waste – commercial waste cannot be accepted.	The cost of facilities can range from $2 million to $16 million to site, permit and construct. Based on the need for approximately 8-10 facilities, a total investment of approximately $20 to $50 million is required. ROI is determined by the reduced amounts of illegal dumping that is reduced that would otherwise require city or county crews to clean-up. Other factors in determining ROI include the amounts of material recovered reducing disposal costs.
Cooperative Collection	More efficient collection service will reduce the number of collection	Local governments will need to establish a common level of service and time the	A lead city will have to be identified to manage the contract and take	By establishing a larger market base, the cost of service are anticipated to be

	vehicles, resulting in reduced air emissions.	effort to coincide with contract expiration dates.	responsibility of procurement. The WRSWMA can take responsibility for procurement and contract management once it is established. Can negatively affect longer-term competition in the western region. Provides an option for landfill owners to secure waste flows from participating cities.	reduced due to greater efficiencies. The investment required is legal costs for establishing inter-local agreements. The ROI is the lower costs secured for the period of the contract.
Cooperative Material Marketing	Increased opportunities for recycling, especially in rural areas. Reduced disposal needs in these communities.	It is recommended that local governments work with existing agencies such as Keep Texas Recycling to identify options for cooperative recycling initiatives.	The development of infrastructure will be required to collect materials. Facilities such as recycling centers and citizen convenience stations will be required.	The cost of required infrastructure should be minimal for communities participating in the program. The ROI will be based on the quantities of materials recovered because of these investments. Factors will include reduced disposal fees, sales of materials and potential reduced haul costs.
Increase organics management capacity	Composting and mulching operations recover organics including brush, yard waste, tree waste, biosolids and potentially food waste from the waste stream. Approximately 40-50% of the waste stream is organic material that could be composted. Facilities must be located in accordance with TCEQ	A market analysis and feasibility study must be undertaken prior to facility implementation. The market analysis can identify resources to process including tree waste, yard waste, biosolids and food waste. There must be a proper balance of materials to achieve proper carbon/nitrogen ratios.	Biosolids disposal is becoming a significant issue for local governments in the western region. Compost operations can address this waste stream. There are few sites in the western region that currently are permitted to accept biosolids or food waste. Local governments	Investments in compost facilities will vary significantly depending on the size of the facility, annual throughput, types of materials managed and market requirements. A potential investment of $10 to $30 million could be necessary to increase capacity by 100,000 tons per year. This could be significantly less if existing

	location restrictions and be built and operated in compliance with TCEQ regulations.	Implementation Steps. Secure contracts for resources and material markets. Locate a site for the facility. Secure necessary permits. Procure construction and possible operation.	can work with existing private operations to potentially expand their capabilities.	sites could be expanded to manage biosolids. ROI will be determined by the amount facility owners can charge for tipping fees at the site and the revenues generated from the sale of final products.
Cooperative disaster debris management	The major environmental benefit will be the fact that debris will be collected quicker with more resources devoted to clean-up. Planning for debris management should examine ways to recover materials.	Several local governments currently have plans for disaster debris management. It is recommended that cities consider establishing inter-local agreements to assist each other in the event of a disaster event.	FEMA does provide financial incentives for local governments that have approved plans.	Cost of developing plans are not significant. Instituting cooperative agreements should include language for how participating communities will be reimbursed for their services. ROI includes the value of removing materials from communities in an expedited manner. Also, there are financial benefits to communities that have approved plans in place.
Increase Transfer Station Capacity	Increased reliance on transfer station will reduce air emissions through more efficient waste hauling. Facility designs can include opportunities for residents to recycle and deposit segregated brush for recovery. Facilities must be located in accordance with TCEQ location restrictions and local	A feasibility study and market analysis must be undertaken prior to facility development. This will include an analysis of facility sizing. In many cases, local governments will have to coordinate with private haulers to evaluate cost savings associated with public investment in transfer stations.	Transfer stations will provide access to disposal sites located outside the western region. Increased traffic congestion in urban areas will affect transfer station cost feasibility due to increased costs of waste hauling. A WRSWMA can take on the responsibility of facility site selection,	Transfer station costs vary considerably depending on the size of the facility and the additional waste management services provided. Capital investments for future transfer stations will depend on where they are located and the number of facilities required in the future. This will be directly tied to the location of a new landfill.

	land use / zoning requirements.	Flow control issues will need to be addressed to assure tipping fees can pay for facility investment and operations. Implementation steps. Locate a site for the facility. Secure necessary permits. Procure construction and possible operation. Secure bids for disposal contracts if necessary.	permitting and construction if it is guaranteed waste flows from participating cities.	The ROI for the transfer stations is dependent on haul cost savings. For cities or counties investing in these facilities, collection cost savings will have to be realized. Tipping fees charged at the facilities should be set to recover capital costs and operating costs. Transfer station will also provide greater flexibility in selecting a landfill with lower tipping fees, even if the landfill is located farther away than the closest available landfill.
Increase landfill capacity in the western region	Assuring proper disposal capacity is a critical element to managing waste generated in the western region. To assure this capacity, it will be necessary to expand existing facilities and build a new landfill. While there are environmental issues associated with landfill disposal, until resource recovery technologies advance significantly, landfills remain a critical element of waste management in the NCTCOG region. Proper site selection, design, construction and operation	The City of Arlington should evaluate its options to move forward with the implementation of a landfill expansion to increase regional disposal capacity. The City of Fort Worth will have to make a determination regarding how it will secure long-term disposal capacity. The City's options include: expanding the current landfill; building a new facility; build transfer stations to haul waste to landfills in the NCTCOG region; rely on the private sector to build new capacity; or lead in the establishment	The selection of a new landfill will be a controversial project and one that will require a significant amount of inter-local cooperation in the western region. Host community fees paid by the owner of the landfill to the city or county where the facility is located has been used in the past to help address local concerns regarding the impacts of a new landfill on the surrounding community.	The cost of expanding the Arlington Landfill will be significantly less than building a new landfill. The cost of constructing a new landfill is estimated to be approximately $25 to $30 million. ROI will be determined based on the amount of tipping fees generated from the operation of the facility. To assure there is sufficient waste to generate adequate tipping fees, flow control to the facility will be essential.

	can address land use, water, air and other environmental impacts associated with a landfill.	of a WRSWMA to take on responsibility of developing new capacity. Implementation Steps. Site a new facility. Permit the landfill. Procure construction and/or operation of the site.		

In general, cooperative programs including cooperative public information programs, joint marketing efforts, collection programs, organics management, disaster debris management, transfer stations and landfills. These are more cost-effective when undertaken when more cities participate in the program.

The region needs approximately 50 to 57 million tons of additional capacity to meet the region's needs through 2050. It is anticipated that the City of Arlington will increase the capacity of their landfill in the near future. The City of Fort Worth is also in the process of determining whether to expand its current landfill or site a new facility. Combined, these actions can provide adequate long-term disposal capacity for the western region. There may be a role for the WRSWMA to assist in future disposal site selection and construction. Local governments will have to evaluate the role of the WRSWMA and whether it can help meet future disposal needs.

Another issue related to landfill capacity in the region is that distances required to access landfills will potentially be greater. As the Weatherford Landfill closes, for many western region communities, waste will have to be hauled longer distances, thereby increasing the cost of waste collection and disposal. To address longer haul distances, local governments should consider the construction of transfer stations. The city of Stephenville has indicated that they are considering the construction of a transfer station to address their current long-haul situation. Two issues will impact decisions related to the future construction of transfer stations. First, most waste is collected by the private sector and it is these haulers that will gain the most from the construction of a transfer station. Local governments that decide to build a transfer station will have to negotiate collection contracts that guarantee a return on their investment. The other issue is that until a future landfill site is located, it will be difficult to determine the most efficient location for future transfer stations.

Appendix B

Chapter 21. Upper Sabine Valley Solid Waste Management District

SPECIAL DISTRICT LOCAL LAWS CODE

TITLE 2. ENVIRONMENT AND SANITATION

SUBTITLE A. SOLID WASTE MANAGEMENT

CHAPTER 21. UPPER SABINE VALLEY SOLID WASTE MANAGEMENT DISTRICT

SUBCHAPTER A. GENERAL PROVISIONS

Sec. 21.001. DEFINITIONS. In this Act:

(1) "Board" means the district's board of directors.

(2) "Commission" means the Texas Commission on Environmental Quality.

(3) "Director" means a board member.

(4) "District" means the Upper Sabine Valley Solid Waste Management District.

(5) "Local government" means:

(A) a municipality;

(B) a county; or

(C) a water or other special district or authority acting under Sections 52(b)(1) and (2), Article III, or Section 59, Article XVI, Texas Constitution.

(6) "Solid waste" has the meaning assigned by Section 361.003, Health and Safety Code.

(7) "Water" means groundwater, percolating or otherwise, lakes, bays, ponds, springs, rivers, streams, creeks, and all other bodies of surface water, natural or artificial, that are wholly or partly in the district.

(8) "Water pollution" means alteration of the physical, chemical, or biological quality of water or contamination of water that:

(A) renders the water harmful, detrimental, or injurious to:

(i) humans, animal life, vegetation, or property; or

(ii) public health, safety, or welfare; or

(B) impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.002. NATURE OF DISTRICT. The district is a conservation and reclamation district created under Section 59, Article XVI, Texas Constitution.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.003. PURPOSE. The purpose of this chapter is to establish an instrumentality to develop and carry out a regional water quality protection program through solid waste management and regulation of waste disposal for Rains, Upshur, and Wood Counties and for the portion of Smith County that is north of Interstate Highway 20.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.004. FINDINGS AND DECLARATION OF POLICY. (a) The legislature finds that:

(1) the quality of water in East Texas is materially affected by the disposal of waste throughout the region;

(2) a regional effort to study water pollution, plan corrective and preventive measures, provide coordinated facilities for waste disposal, and regulate waste disposal is far more effective than efforts on a smaller scale;

(3) solid waste, as well as other waste, may impair water quality by seepage or drainage; and

(4) creation of the district would advance the established policy of this state to maintain the quality of the water in the state consistent with:

(A) public health and enjoyment;

(B) the propagation and protection of terrestrial and aquatic life;

(C) the operation of existing industries; and

(D) the economic development of the state.

(b) All area included in the district will benefit from the exercise of the power conferred by this chapter.

(c) The district is a public entity performing an essential public function.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.005. STATE POLICY REGARDING WASTE DISPOSAL. The district's powers and duties are subject to the state policy of encouraging the development and use of integrated area-wide waste collection, treatment, and disposal systems to serve the waste disposal needs of this state's residents, if integrated systems can reasonably be provided for an area, so as to avoid the economic burden on residents and the impact on state water quality caused by the construction and operation of numerous small waste collection, treatment, and disposal facilities.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

SUBCHAPTER B. DISTRICT TERRITORY AND CHANGES TO DISTRICT TERRITORY

Sec. 21.051. DISTRICT TERRITORY. Unless the district territory has been modified under this subchapter, Subchapter J, Chapter 49, Water Code, or other law, the district's territory consists of Rains, Upshur, and Wood Counties and the portion of Smith County north of Interstate Highway 20.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.052. ANNEXATION OF COUNTY; PETITION. (a) The board may annex an adjacent county in the manner provided by this section and Sections 21.053 and 21.055.

(b) To initiate annexation proceedings, the commissioners court of the adjacent county must petition the board requesting the board to call an election for the annexation of the petitioner's county. The petition must be in writing and be endorsed by a majority of the members of the commissioners court.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.053. ANNEXATION PETITION HEARING; NOTICE. (a) On receipt of a petition under Section 21.052, the board shall set a date, time, and place to hold a hearing on the petition. The date may not be later than the 20th day after the date on which the board receives the petition.

(b) In addition to the notice required under the open meetings law, Chapter 551, Government Code, the board shall publish notice of the date, time, place, and purpose of the hearing in one or more newspapers with general circulation in the district and in the county to be annexed.

(c) Any person may testify at the hearing for or against annexation of the county to the district.

(d) At the conclusion of the hearing, the board shall determine if an annexation election should be held in the county to be annexed.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.054. EXCLUSION OF COUNTY. (a) The commissioners court of a county in the district may petition the board to hold an election in the county to determine if a majority of voters of that county want to exclude the county from the district.

(b) If the district has not issued bonds or incurred other long-term debt before the commissioners court filed the petition, the board shall, on receipt of the petition, enter an order authorizing the commissioners court to call an election in that county.

(c) If the district issued bonds or other long-term debt before the commissioners court filed the petition, the board must obtain adequate legal and financial assurances that, if the county withdraws from the district, the county will assume and pay to the district the county's proportionate share of the district's outstanding debt based on assessed valuation of taxable property in the county and district. After obtaining assurances the board considers adequate, the board shall enter an order authorizing the commissioners court of that county to call an election in that county to determine if the county should be excluded from the district.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.055. ELECTION ON ANNEXATION OR EXCLUSION OF COUNTY. (a) Annexation or exclusion of a county is final when approved by a majority of the voters at an election held in the county to be annexed or excluded. An election in the existing district accepting the addition of a county is not required.

(b) Section 41.001(a), Election Code, does not apply to an election held under this section.

(c) The election ballots shall be printed to provide for voting for or against the following, as applicable:

(1) "Adding (description of county to be added) to the Upper Sabine Valley Solid Waste Management District."

(2) "(Description of county to be added) assuming its proportionate share of the outstanding debts and taxes of the Upper Sabine Valley Solid Waste Management District, if it is added to the district."

(3) "The exclusion of _____ County from the Upper Sabine Valley Solid Waste Management District and assumption by the county of a duty to pay its proportionate share of the outstanding indebtedness of the district."

(d) If a district has outstanding debts or taxes, the voters in an election to approve the annexation must also determine if the annexed county will assume its proportion of the debts or taxes if added to the district.

(e) If the district has outstanding bonds or other long term obligations, the voters in the election to approve the exclusion must also determine if the excluded county will assume a duty to pay its proportion of the district's outstanding indebtedness.

(f) The board shall file a copy of the election results with the commission.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.056. CONTINUED BOND OBLIGATION FOR EXCLUDED COUNTY. The exclusion of a county under Section 21.054(c) does not relieve the district of its obligation to perform and observe the covenants and obligations or the conditions prescribed by the order or resolution authorizing the issuance of the district's bonds.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

SUBCHAPTER C. BOARD OF DIRECTORS

Sec. 21.101. GOVERNING BODY; COMPOSITION. (a) The district is governed by a board of directors composed of at least six directors.

(b) If the district is composed of only one county, the commissioners court of that county shall appoint six persons to serve as directors.

(c) If the district is composed of two counties, the commissioners court of each county included in the district shall each appoint three persons to serve as directors.

(d) If the district is composed of three or more counties, the commissioners court of each county included in the district shall each appoint two persons to serve as directors.

(e) At least one of the directors appointed by each commissioners court shall represent the interests of municipalities and of unincorporated communities with a population of 1,000 or more that are located in that county.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.102. APPOINTMENT OF DIRECTORS FROM ANNEXED COUNTY. (a) The commissioners court of an annexed county shall appoint two directors to serve on the board.

(b) The newly appointed directors shall draw lots to determine their initial terms of office. One new director shall serve an initial term that coincides with the terms of directors that expire before the expiration of two years and the other new director shall serve a term that expires after the expiration of two years but before the expiration of four years.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.103. TERM. Except as provided by Section 21.102(b), a director serves a term of four years.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.104. ELIGIBILITY TO SERVE. To be eligible to be appointed as or to serve as a director, a person must be:

(1) at least 18 years of age;
(2) a qualified voter; and
(3) a resident of the county governed by the appointing commissioners court.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.105. VACANCY. A vacancy on the board shall be filled in the same manner as the original appointment for the unexpired term.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.106. DIRECTOR'S BOND. Each director must execute a $5,000 bond with a corporate surety authorized to do business in this state and conditioned on the faithful performance of the director's duties.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.107. TERM OF OFFICERS. A person selected as an officer serves for a term of one year.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.108. BYLAWS. The board shall adopt bylaws. The bylaws must prescribe the powers and duties of, and procedures for removal from, a board office.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.109. BOARD MEETINGS. Except as otherwise provided by law, the board shall meet at least one time each quarter and may meet at any other time provided by its bylaws.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.110. COMPENSATION. (a) Unless the board by resolution increases the rate of reimbursement to an amount authorized by Section 49.060, Water Code, a director other than a director

described by Subsection (c) is entitled to receive $50 a day and reimbursement for actual and necessary expenses incurred for each day the director:

(1) attends a board meeting; and

(2) attends to the business of the district that is authorized by board resolution or motion.

(b) A director is not entitled to receive a per diem allowance for more than 60 days in a calendar year.

(c) If a member of a commissioners court or a municipal government officer is appointed as a director, the member's or officer's service as a director is considered an additional duty of the member's or officer's existing office. The member or officer is not entitled to a per diem allowance under this section, but is entitled to reimbursement for actual and necessary expenses incurred in performing official duties as a director.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.111. CONFLICT OF INTEREST IN CONTRACT. A director who is financially interested in a contract to be executed by the district for the purchase of property or the construction of facilities shall disclose that fact to the other directors and may not vote on the acceptance of the contract.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

SUBCHAPTER D. ADMINISTRATIVE POWERS AND DUTIES

Sec. 21.151. PRINCIPAL OFFICE. The district shall maintain its principal office in the district.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.152. GENERAL MANAGER. (a) The board shall employ a general manager for a term and salary set by the board.

(b) The general manager is the chief executive officer of the district. Under policies established by the board, the general manager is responsible to the board for:

(1) administering board directives;

(2) keeping district records, including minutes of the board's meetings;

(3) coordinating with state, federal, and local agencies;

(4) developing plans and programs for the board's approval;

(5) hiring, supervising, training, and discharging district employees;

(6) contracting for or retaining technical, scientific, legal, fiscal, and other professional services; and

(7) performing any other duty assigned to the general manager by the board.

(c) The board may discharge the general manager by a majority vote.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.153. EMPLOYEE AND GENERAL MANAGER FIDELITY BONDS. (a) The general manager and each district employee charged with the collection, custody, or payment of any district money shall execute a fidelity bond. The board shall approve the form, amount, and surety of the bond.

(b) The district shall pay the premiums on employee bonds under this section.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.154. ATTORNEY. (a) The board may appoint an attorney for the district.

(b) The person appointed under this section is entitled to the compensation provided by the district's budget.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.155. RECORDS; LIMIT ON DISCLOSURE. (a) The district shall keep its accounts, contracts, documents, minutes, and other records at its principal office.

(b) The board and its employees may not disclose a district record that relates to trade secrets or the economics of an industry's operations.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

SUBCHAPTER E. GENERAL POWERS AND DUTIES

Sec. 21.201. ADMINISTRATION, ENFORCEMENT, AND ACCOMPLISHMENT OF CHAPTER. (a) The district shall:

(1) administer and enforce this chapter; and

(2) use district facilities and powers to accomplish the purposes of this chapter.

(b) The district may advise, consult, contract, and cooperate with the federal government, the state, a local government, or a private entity to carry out any purpose or power under this chapter.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.202. CONSERVATION AND RECLAMATION DISTRICT POWERS. Except as expressly limited by this chapter, the district has all powers, rights, and privileges necessary and convenient for accomplishing the purposes of this chapter that are conferred by general law on a conservation and reclamation district created under Section 59, Article XVI, Texas Constitution, including the powers, rights, and privileges conferred by Subtitle B, Title 5, Health and Safety Code, on a local or regional government.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.203. RULES; HEARINGS. (a) The board, after notice and hearing, may adopt rules necessary to carry out this chapter.

(b) The board shall adopt rules establishing procedures for giving notice and holding a hearing.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.204. SCOPE OF DISTRICT'S REGULATORY POWER. The regulatory powers of the district under this chapter apply to each person in the district.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.205. PLANS. The district may prepare and adopt plans for and may purchase, construct, acquire, own, operate, maintain, repair, improve, and extend inside and outside district boundaries any works, improvements, waste disposal, treatment, and other facilities, plants, pipelines, equipment, and appliances necessary to collect, transport, process, dispose of, and control domestic, industrial, and communal waterborne and solid waste in the district.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.206. STUDIES AND RESEARCH. The district shall:

(1) study and research the control of water pollution and waste disposal in the district;

(2) cooperate with the commission in any study; and

(3) use the results of the studies.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.207. COOPERATIVE AGREEMENTS WITH OTHER POLITICAL SUBDIVISIONS. The district may enter into a cooperative agreement with a local government or other political subdivision to:

(1) jointly conduct solid waste management activities; and

(2) charge reasonable fees for solid waste management activities.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.208. GIFTS, GRANTS, AND LOANS. The district may apply for, accept, receive, and administer gifts, grants, loans, and other money available from any source to carry out any purpose or power under this chapter.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.209. ACQUISITION OF PROPERTY. The district may acquire by gift, grant, devise, purchase, lease, or the exercise of the power of eminent domain any land, easement, right-of-way, or other property interest necessary to carry out the powers and duties under this chapter.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.210. EMINENT DOMAIN; COST OF RELOCATING PROPERTY. (a) The district may exercise the power of eminent domain to acquire land for a purpose authorized by Section 21.205 if the board determines, after notice and hearing, that it is necessary.

(b) The district must exercise the power of eminent domain in the manner provided by Chapter 21, Property Code, but the district is not required to:

(1) deposit in the trial court money or a bond as provided by Section 21.021(a), Property Code;

(2) pay in advance or give bond or other security for costs in the trial court;

(3) give bond for the issuance of a temporary restraining order or a temporary injunction; or

(4) give bond for costs or supersedeas on an appeal or writ of error.

(c) If the district, in the exercise of the power of eminent domain, requires relocating, raising, lowering, rerouting, changing the grade of, or altering the construction of any railroad, highway, pipeline, or electric transmission and electric distribution, telegraph, or telephone lines, conduits, poles, or facilities, the district must bear the actual cost of relocating, raising, lowering, rerouting, changing the grade of, or altering the construction to provide comparable replacement without enhancement of facilities, after deducting the net salvage value derived from the old facility.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.211. ENTRY ON LAND. (a) A district director, engineer, or employee may go on any land inside or outside the district to survey and examine the land with reference to the location of works, improvements, and waste disposal, treatment, and other facilities, plants, pipelines, equipment, and appliances, and to attend to district business.

(b) The director, engineer, or employee must give the landowner five days' written notice before entering on the land.

(c) If any district activity on the land causes damage to the land or property, the district shall restore the land or property as nearly as possible to its original state. The district shall pay the restoration's cost.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.212. ROAD RIGHT-OF-WAY. A governmental entity having jurisdiction over a right-of-way along and across a public state or county road or highway may:

(1) designate the placement of district facilities located on the right-of-way; and

(2) require the relocation of district facilities to accommodate widening or changing traffic lanes.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.213. CONSENT FOR CHANGE OR DAMAGE TO STATE PROPERTY. The district must obtain the written consent of the governmental entity having control and jurisdiction over state property, including a facility, before the district may proceed with an action to change or damage the property.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.214. BIDS ON CONTRACTS FOR PURCHASE OF VEHICLES, EQUIPMENT, AND SUPPLIES OVER $15,000; EXCEPTION. (a) If the estimated amount of a proposed contract to purchase vehicles, equipment, or supplies is more than $15,000, the board shall ask for competitive bids as provided by Subchapter B, Chapter 271, Local Government Code.

(b) This section does not apply to:

(1) the purchase of property from a public WRSWMA; or

(2) a contract for personal or professional services.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

SUBCHAPTER F. CONSTRUCTION, RENOVATION, AND REPAIR CONTRACTS

Sec. 21.251. AUTHORITY TO ENTER INTO CONSTRUCTION, RENOVATION, AND REPAIR CONTRACTS. The district may contract with any person to construct, renovate, repair, or make improvements to any district works, improvements, waste disposal, treatment, or other facilities, plants, pipelines, equipment, and appliances.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.252. BIDS ON CONTRACTS OVER $15,000. The district may enter into a contract under Section 21.251 that requires an expenditure of more than $15,000 only after competitive bidding as provided by Subchapter B, Chapter 271, Local Government Code.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.253. CONTRACT SPECIFICATIONS, PLANS, AND DETAILS. A contract under Section 21.251 must contain, or have attached to it, the specifications, plans, and details for work included in the contract. The work shall be done according to the plans and specifications under the supervision of the district.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.254. EXECUTION AND AVAILABILITY OF CONTRACTS. (a) A contract under Section 21.251 must be in writing and signed by:

(1) the contractor; and

(2) a district representative designated by the board.

(b) The contract shall be kept in the district's office and must be available for public inspection.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.255. CONTRACTOR'S BOND. (a) A contractor shall execute a bond:

(1) in an amount determined by the board, not to exceed the contract price;

(2) payable to the district and approved by the board; and

(3) conditioned on the faithful performance of the contract.

(b) The bond must provide that a contractor pay to the district all damages sustained as a result of the contractor's default on the contract.

(c) The bond shall be deposited in the district's depository. A copy of the bond shall be kept in the district's office.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.256. BOARD CONTROL AND DETERMINATION. (a) The board has control of construction, renovation, or repairs being done for the district under a contract under Section 21.251.

(b) The board shall determine whether the contract is being fulfilled.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.257. INSPECTION OF WORK. (a) The board shall have the work contracted for under Section 21.251 inspected by engineers, inspectors, and personnel of the district.

(b) During the progress of the contracted work, the engineers, inspectors, and personnel shall submit to the board written reports that show whether the contractor is complying with the contract.

(c) On completion of the contracted work, the engineers, inspectors, and personnel shall submit to the board a final detailed written report that includes information necessary to show whether the contractor has fully complied with the contract.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.258. PAYMENTS FOR WORK. (a) The district shall pay the contract price of a construction, renovation, or repair contract in accordance with this section.

(b) The district shall make monthly progress payments under a contract as the work proceeds or at more frequent intervals as determined by the board.

(c) To provide a basis for determining progress payments, the contractor, on the request of the board, shall furnish, in the detail requested, an analysis of the total contract price showing the amount included for each principal category of the work.

(d) In making progress payments, the board shall retain 10 percent of the estimated amounts until final completion and acceptance of the contract work. The board may authorize any of the remaining progress payments to be made in full if:

(1) the board finds that satisfactory progress is being made; and

(2) at least 50 percent of the work has been completed.

(e) If the work under a contract is substantially complete and the board finds the amount retained to be in excess of the amount adequate for the protection of the district, the board may release to the contractor all or part of the excess amount.

(f) On completion and acceptance of each separate project, work, or other division of the contract on which the price is stated separately in the contract, payment may be made without retention of a percentage.

(g) When work is completed according to the contract, the board shall draw a warrant on the depository to pay any balance due on the contract.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

SUBCHAPTER G. WASTE DISPOSAL

Sec. 21.301. ACQUISITION OF EXISTING FACILITIES. If the district acquires existing works, improvements, and waste disposal, treatment, and other facilities, plants, pipelines, equipment, and appliances that are completed, partially completed, or under construction, the district may:

(1) assume the contracts and obligations of the previous owner; and

(2) perform the obligations of the previous owner in the same manner and to the same extent that any other purchaser or assignee would be bound.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.302. SOLID WASTE RECOVERY FACILITY. The district may construct or acquire and operate a facility used to store, handle, sort, bail, recycle, process, and recover solid waste.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.303. STANDARDS FOR SOLID WASTE HANDLING. (a) The district shall establish minimum standards of operation for all aspects of solid waste handling, including:

(1) storage;
(2) collection;
(3) incineration;
(4) recycling;
(5) sanitary landfill; and
(6) composting.

(b) Before establishing the standards, the district must:

(1) hold public hearings after giving public notice in the time and manner prescribed by board rule;

(2) consult with the commission to ensure that the standards are not inconsistent with established criteria; and

(3) find that the standards are reasonably necessary to protect the public health or welfare from water pollution or other harm to the environment.

(c) To amend the standards, the district must follow the same procedures required for establishing standards.

(d) The board may adopt rules reasonably necessary to implement solid waste disposal standards.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.304. MANAGEMENT OF MUNICIPAL SOLID WASTE. (a) The district may assume the exclusive authority to exercise the powers granted to a county under Section 361.165, Health and Safety Code, including the power to issue licenses and exercise municipal solid waste management authority.

(b) If the district exercises the licensing authority granted under this section, the district must adopt and enforce rules for the management of municipal solid waste.

(c) A rule adopted under this section must be:

(1) compatible with and at least as stringent as those of the commission; and
(2) approved by the commission.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.305. ON-SITE SEWAGE DISPOSAL SYSTEMS. (a) The district may apply to the commission for designation as an authorized agent to implement and enforce on-site sewage disposal rules under Chapter 366, Health and Safety Code.

(b) If the district finds that due to the nature of the soil or drainage in the area it is necessary to prevent water pollution that may injure the public health, the board by rule may:

(1) provide limits on the number and kind of septic tanks in an area defined by the rule;
(2) prohibit the use of septic tanks in the area; or
(3) prohibit the installation of new septic tanks in the area.

(c) The board shall consult with the commission before the adoption of a rule under Subsection (b).

(d) The board may not adopt a rule under Subsection (b) without first holding a public hearing in the area to be affected by the rule.

(e) The board by order may provide for a gradual and systematic reduction of the number or kind of septic tanks in the area and, by rule, may provide for a system to license and issue permits for the installation of new septic tanks in the area affected. If the board adopts a license and permit system, a person may not install a septic tank in the area without a license or permit from the board.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.306. ACQUISITION, CONSTRUCTION, AND OPERATION OF DISPOSAL SYSTEMS. The district may:

(1) acquire and provide by purchase, gift, or lease a disposal system in the district or in a county adjacent to the district;

(2) construct and provide a disposal system in the district or in a county adjacent to the district;

(3) operate or sell a disposal system that it constructs or acquires;

(4) contract with a person to operate and maintain a disposal system belonging to the person; and

(5) contract with a person to train or supervise employees of a disposal system.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.307. WASTE DISPOSAL CONTRACTS. (a) The district may contract to receive and to treat or dispose of waste from a person in the district.

(b) The district shall set fees in the contract after considering:

(1) the quality of the waste;

(2) the quantity of the waste;

(3) the difficulty encountered in treating or disposing of the waste;

(4) operation and maintenance expenses and debt retirement services; and

(5) any other reasonable consideration.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

SUBCHAPTER H. GENERAL FINANCIAL PROVISIONS

Sec. 21.351. ACCOUNTING. The district shall keep complete and accurate accounts of its business transactions in accordance with generally accepted methods of accounting.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.352. ANNUAL BUDGET. (a) The district's annual budget must contain a complete financial statement, including a statement of:

(1) the outstanding district obligations;

(2) the amount of cash on hand to the credit of each district fund;

(3) the amount of money received by the district from all sources during the previous year;

(4) the amount of money available to the district from all sources during the ensuing year;

(5) the amount of the balances expected at the end of the year in which the budget is being prepared;

(6) the estimated amount of revenue and balances available to cover the proposed budget; and

(7) the estimated tax rate that will be required.

(b) The board may amend the budget after adoption.

(c) The district may not spend money for an expense not included in the annual budget or an amendment to it unless the board by order declares the expense to be necessary.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.353. SWORN STATEMENT REGARDING MONEY AND DISBURSEMENTS. As soon as practicable after the close of the fiscal year, the district treasurer shall prepare for the board a sworn statement of:

(1) the amount of money that belongs to the district; and

(2) an account of the disbursement of that money.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.354. DEPOSITORY. (a) The board shall name one or more banks to serve as depository for the district's money.

(b) District money, other than money transmitted to a bank for payment of bonds issued by the district, shall be deposited as received with the depository bank and shall remain on deposit.

(c) Before the district deposits money in a bank in an amount that exceeds the maximum amount secured by the Federal Deposit Insurance Corporation, the bank must execute a bond or provide other security in an amount sufficient to secure from loss the amount of the district's deposits that exceed the amount secured by the Federal Deposit Insurance Corporation.

(d) This section does not limit the board's power to invest the district's money as provided by Subchapter A, Chapter 2256, Government Code.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.355. INVESTMENTS. (a) The board may place district money in a certificate of deposit of a state or national bank or a state or federal savings and loan association in this state if the money is secured in the manner required for the security of county funds.

(b) The board by resolution may provide that an authorized representative may invest and reinvest district money and provide for money to be withdrawn from the appropriate district accounts for investments on terms the board considers advisable.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.356. PAYMENT OF EXPENSES. (a) The board may pay:

(1) costs and expenses necessarily incurred in the district's operation;

(2) legal fees; and

(3) other incidental expenses.

(b) The board may reimburse a person for money advanced for a payment described by Subsection (a).

(c) A payment may be made from the proceeds of district bonds, taxes, or fees or from other district revenue.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.357. BORROWING MONEY. The district may borrow money for any purpose authorized by this chapter.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.358. PAYMENT OF JUDGMENTS. A court of this state that renders a money judgment against the district may require the board to pay the judgment from money in the district depository that is not dedicated to the payment of any district debt.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

SUBCHAPTER I. BONDS

Sec. 21.401. AUTHORITY TO ISSUE BONDS. The board may issue and sell bonds in the district's name to acquire land and construct works, improvements, and waste disposal, treatment, and other facilities, plants, pipelines, equipment, and appliances as provided by this chapter.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.402. BOND PAYMENT. The board may provide for the payment of the principal of and interest on the bonds:

(1) from the imposition of property taxes on all taxable property in the district;

(2) by pledging all or part of the designated revenue from the ownership or operation of the district's works, improvements, and facilities; or

(3) from a combination of the sources listed by Subdivisions (1) and (2).

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.403. BOND ELECTION. (a) The district may not issue bonds until the issuance is approved by a majority of voters voting in the district at an election held for that purpose.

(b) The board may order a bond election. The order calling the election must state:

(1) the hours during which the polls will be open;

(2) the location of the polling places;

(3) the amount of bonds to be authorized; and

(4) the maximum maturity of the bonds.

(c) At an election to authorize bonds, the ballot must be printed to provide for voting for or against the issuance of bonds and the imposition of property taxes for payment of the bonds.

(d) If a majority of the votes cast at the election favor the issuance of the bonds, the bonds may be issued by the board. If a majority of the votes cast at the election do not favor issuance of the bonds, the bonds may not be issued.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.404. MATURITY OF BONDS. District bonds may mature not more than 50 years after the date of issuance.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.405. SIGNATURE. District bonds must be signed and executed as provided by the board in the resolution or order authorizing the bonds.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.406. BOND PROVISIONS. (a) In an order or resolution authorizing the issuance of bonds, including refunding bonds, the board may:

(1) provide for the flow of money;

(2) provide for the establishment and maintenance of an interest and sinking fund, a reserve fund, and other funds; and

(3) prohibit the further issuance of bonds or other obligations payable from the pledged fees or reserve the right to issue additional bonds to be secured by a pledge of and payable from the pledged fees on a parity with or subordinate to the pledge in support of the bonds being issued; and

(4) provide for other provisions as the board determines.

(b) The board may adopt and have executed any other proceeding or instrument necessary and convenient in the issuance of bonds.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.407. MANDAMUS BY BONDHOLDERS. A holder of a district bond is entitled, in addition to any other right or remedy provided by law, to a writ of mandamus requiring the district and its officials to observe and perform any covenant, condition, or obligation provided by the order or resolution authorizing issuance of the bond that the district fails to observe or perform, including:

(1) a default in the payment of principal, interest, or redemption price on the bond when due; and

(2) a failure to make payment into any fund created in the order or resolution.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.408. REFUNDING BONDS. (a) The board may issue refunding bonds to refund outstanding indebtedness issued or assumed by the district.

(b) A refunding bond may be:

(1) sold, with the proceeds of the refunding bond applied to the payment of the bonds to be refunded; or

(2) exchanged wholly or partly for not less than a similar principal amount of outstanding indebtedness.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.409. TAX EXEMPTION. District bonds, transactions relating to the bonds, and profits made in the sale of the bonds are exempt from state taxation or taxation by a municipality, county, special district, or other political subdivision of the state.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

SUBCHAPTER J. TAXES

Sec. 21.451. AUTHORITY TO IMPOSE PROPERTY TAXES. The board annually may impose a tax on all property in the district subject to district taxation.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.452. AMOUNT OF TAX. (a) The amount of tax imposed by the board must be in an amount necessary to pay:

(1) the principal of and interest on district bonds; and

(2) the expense of assessing and collecting taxes.

(b) The district may impose a maintenance and operating tax in an amount not to exceed three cents on each $100 of assessed valuation of property in the district to pay the district's maintenance and operating expenses.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.453. TAX RATE. In setting the tax rate, the board shall take into consideration the income of the district from sources other than taxation.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Sec. 21.454. TAX COLLECTOR. The board may:

(1) provide for the appointment of a tax collector for the district; or

(2) contract for the collection of taxes as provided by the Tax Code.

Added by Acts 2007, 80th Leg., R.S., Ch. 920 (H.B. 3166), Sec. 1.01, eff. April 1, 2009.

Appendix B

Compost Operation Permitting Requirements

Compost Operation	Permit Required
Exempt Facilities	• Composting of source-separated yard trimmings, clean wood material, vegetative material (defined in 30 TAC **332.2**), paper, and manure • Composting of agricultural materials generated and composted on agricultural sites • Mulching • Land application of yard trimmings, clean wood materials, vegetative materials, and manure at rates below or equal to agronomic rates as determined by the Texas Agricultural Extension Service • Application of paper as an erosion control or soil amendment • On-site composting of nonhazardous industrial waste consisting of poultry carcasses, at a facility that is in compliance with 30 TAC **335.2** (relating to Permit Required) and **335.6(a)** (relating to Notification Requirements)
Composting Meat, Fish, Carcasses, Dairy Materials, Oils, and Greases—Notification Required	Submit a compost notification to the TCEQ in accordance with 30 TAC Chapter 332, Subchapter A, **332.3(c)**, and Chapter 332, **Subchapter B**, if you compost any of the following materials: • Source-separated meat, fish, dead animal carcasses, or dairy materials • Source-separated meat and vegetable oils and greases using the **forms for notification-tier compost facilities**. If your notification-tier operation involves storing combustible material outdoors or poses a significant risk to public health and safety, you will also need to establish **financial assurance for closure**, unless your facility is excluded by 30 TAC **328.5(a)**
Composting Sewage Sludge, Diapers, and Paper Sludges—Registration Required	A compost registration from the TCEQ, as required by 30 TAC **332.3(b)** if you compost any of the following materials: • Municipal sewage sludge (exception: operations that compost municipal sewage sludge mixed with municipal solid waste require a permit) • Positively sorted organic materials (defined in 30 TAC **332.2**) in addition to those feedstocks at the exempt tier • Disposable diapers • Paper sludges (evaluated on a case-by-case basis) To apply for a compost registration, you must submit an application in accordance with 30 TAC Chapter 332, **Subchapter C** and **Subchapter G**, and the **forms for composting operations requiring a permit or registration**. In addition, the compost produced must comply with **end-product standards**.

	If your registered composting or mulching operation involves storing combustible material outdoors or poses a significant risk to public health and safety, you may also be required to establish **financial assurance for closure of the facility**.
Composting Grease Trap Waste and Mixed Municipal Solid Waste—Permit Required	You will need to obtain a compost permit from the TCEQ as required by 30 TAC **332.3(a)** if you compost any of the following materials: • Grease-trap wastes • Mixed municipal solid waste that is not positively sorted To apply for a compost permit, you must submit an application in accordance with 30 TAC Chapter 330, **330.1(d)**, and Chapter 332, Subchapters **D**, **E**, **F**, and **G**, and include the **forms for composting operations requiring a permit or registration**. In addition, the compost produced must comply with **end-product standards**.
Source: TCEQ Composting and Mulching: Am I Regulated? - Texas Commission on Environmental Quality - www.tceq.texas.gov	