

# NCTCOG

# Western Area Waste Regional Workshop

MICHAEL CARLETON

ARREDONDO, ZEPEDA & BRUNZ LLC &

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS



# Introduction

## Michael Carleton

- ▶ Project Manager with Arredondo, Zepeda & Brunz LLC
- ▶ 35 years experience in energy and environmental programs
- ▶ 3600 acres of Landfill Site Selections for BVSWMA, Corpus Christi, Lubbock and TASWA
- ▶ Permitting Experience for Laredo, BVSWMA, Arlington and 12 landfills/transfer stations
- ▶ Solid Waste Management Plans including Fort Worth, Arlington, Burleson and NCTCOG
- ▶ Energy from Waste Experience
- ▶ **Recently presented to NCTCOG an assessment of regional disposal capacity and benchmarking analysis of waste disposal comparisons**

**AZ&B is a 36 year old Dallas / Fort Worth based planning, engineering and surveying firm**

# Purpose

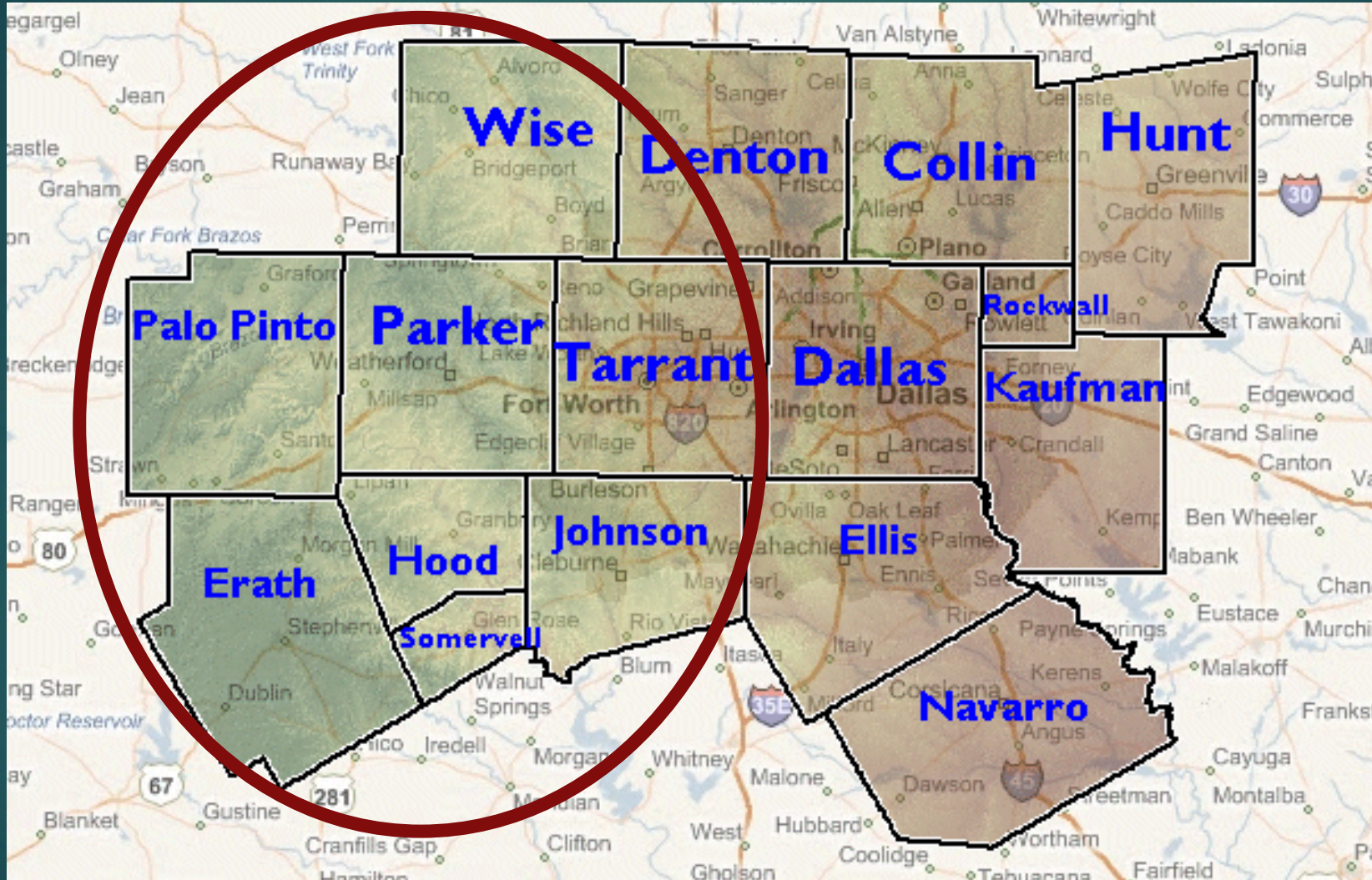
- ▶ Waste management issues in western NCTCOG Region including forecasted waste generation & disposal
- ▶ Requirements for new capacity and transfer options
- ▶ Regional opportunities for solving problems
- ▶ Future discussion of needs, options and solutions
- ▶ Source reduction, recycling, organics management, etc.

**In 2016, the NCTCOG region has 35 years disposal capacity.**

**Western region capacity is projected to be 25 to 30 years.**

**The estimated time to gain new capacity 10 to 15 years.**

# The Region



Wise  
Tarrant  
Parker  
Palo Pinto  
Erath  
Hood  
Somervell  
Johnson

*Close to the size  
of Connecticut*

*3.95 million acres*

# Population Characteristics & Forecast

Counties	Population		
	2010	2040	% increase
Erath	37,890	50,968	135%
Hood	35,089	41,935	120%
Johnson	150,934	228,160	151%
Palo Pinto	15,216	17,667	116%
Parker	116,927	255,153	218%
Somervell	8,490	11,395	134%
Tarrant	1,809,034	2,579,553	143%
Wise	59,127	110,668	187%
Total	2,232,707	3,295,499	148%

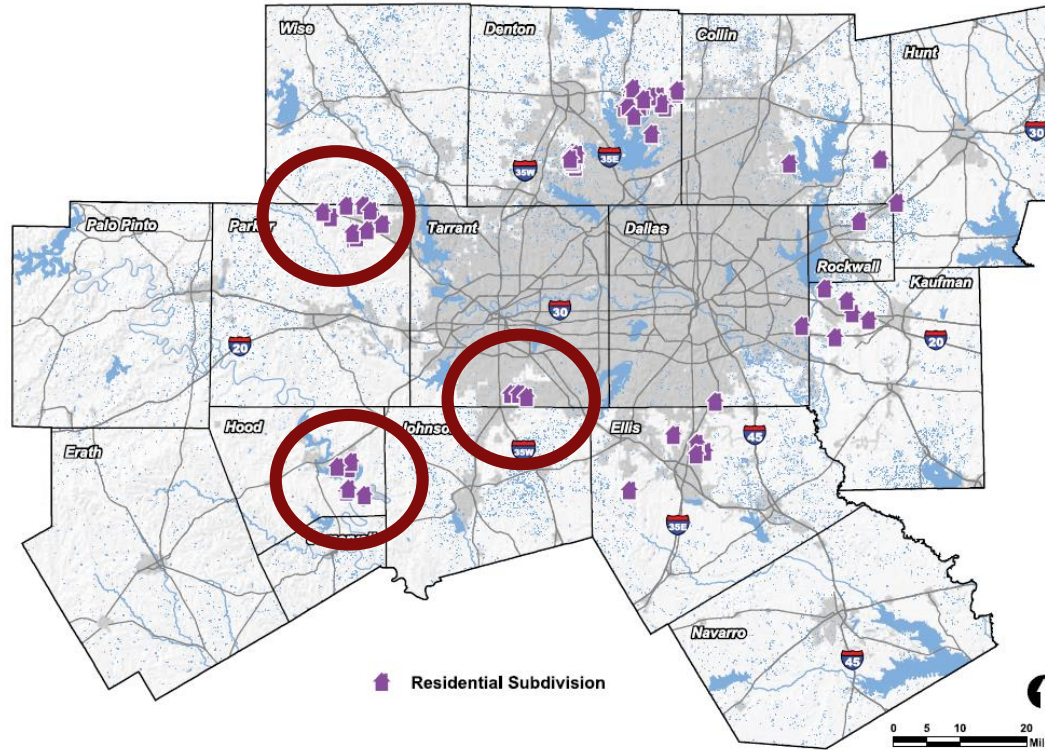
Cities	Population	% of Total
Fort Worth	815,430	63%
Arlington	382,230	30%
Cleburne	29,780	2%
Glen Rose	2,490	0%
Weatherford	27,660	2%
Stephenville	21,950	2%
Granbury	9,310	1%
<b>Total</b>	<b>1,288,850</b>	<b>100%</b>
Cities % of County	52%	

Western area of NCTCOG would be #36 in order of population among 50 states

# New challenges in unincorporated areas

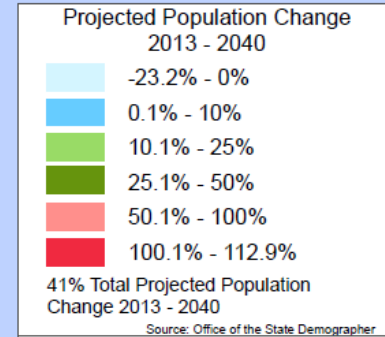
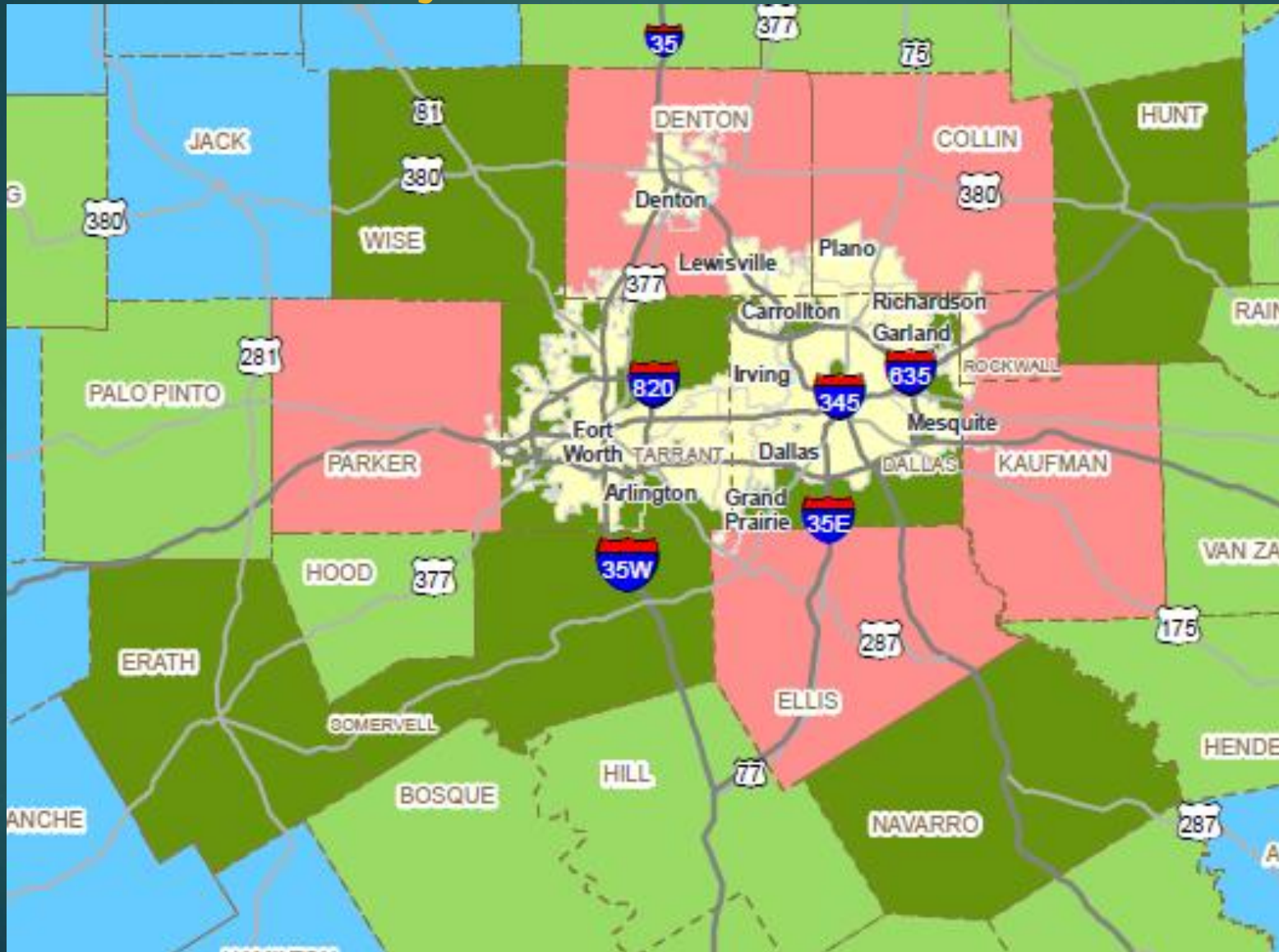


Exhibit 4.7: Unincorporated Residential Subdivisions



New trend of large subdivisions built in unincorporated areas poses a new solid waste management issue for communities

# Growth Projections



- Interstate Highway
- U.S. Highway
- County Boundary
- Gulf Intracoastal Waterway
- Major City



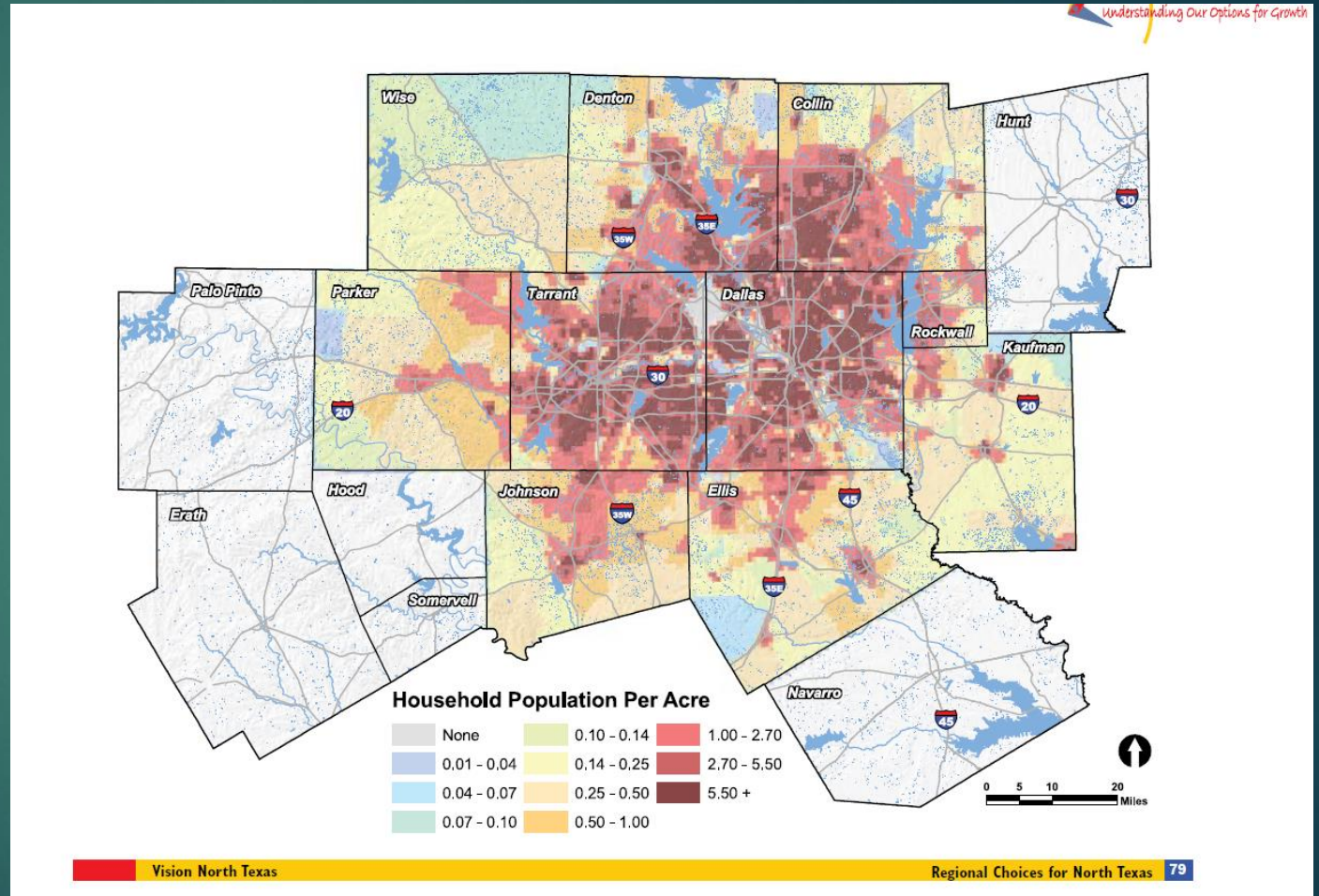
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Notice

This map was produced for internal use within the Texas Department of Transportation. Accuracy is limited to the validity of available data as of December 31, 2012.

# Land Use

## Forecast Residential Development Pattern, 2030

2015 Land Area			
County	Total Acres	Vacant Acres	% Vacant
Erath	697,446	632,966	91%
Hood	279,519	207,742	74%
Johnson	469,982	340,873	73%
Pal Pinto	630,583	494,836	78%
Parker	582,327	298,532	51%
Somervell	122,805	69,588	57%
Tarrant	577,162	158,039	27%
Wise	590,386	340,424	58%
<b>Total</b>	<b>3,950,210</b>	<b>2,543,000</b>	<b>64%</b>



Continued increases in population and development will make selecting sites increasingly complex & controversial



# Projected Waste Disposal

Current disposal rate per capita

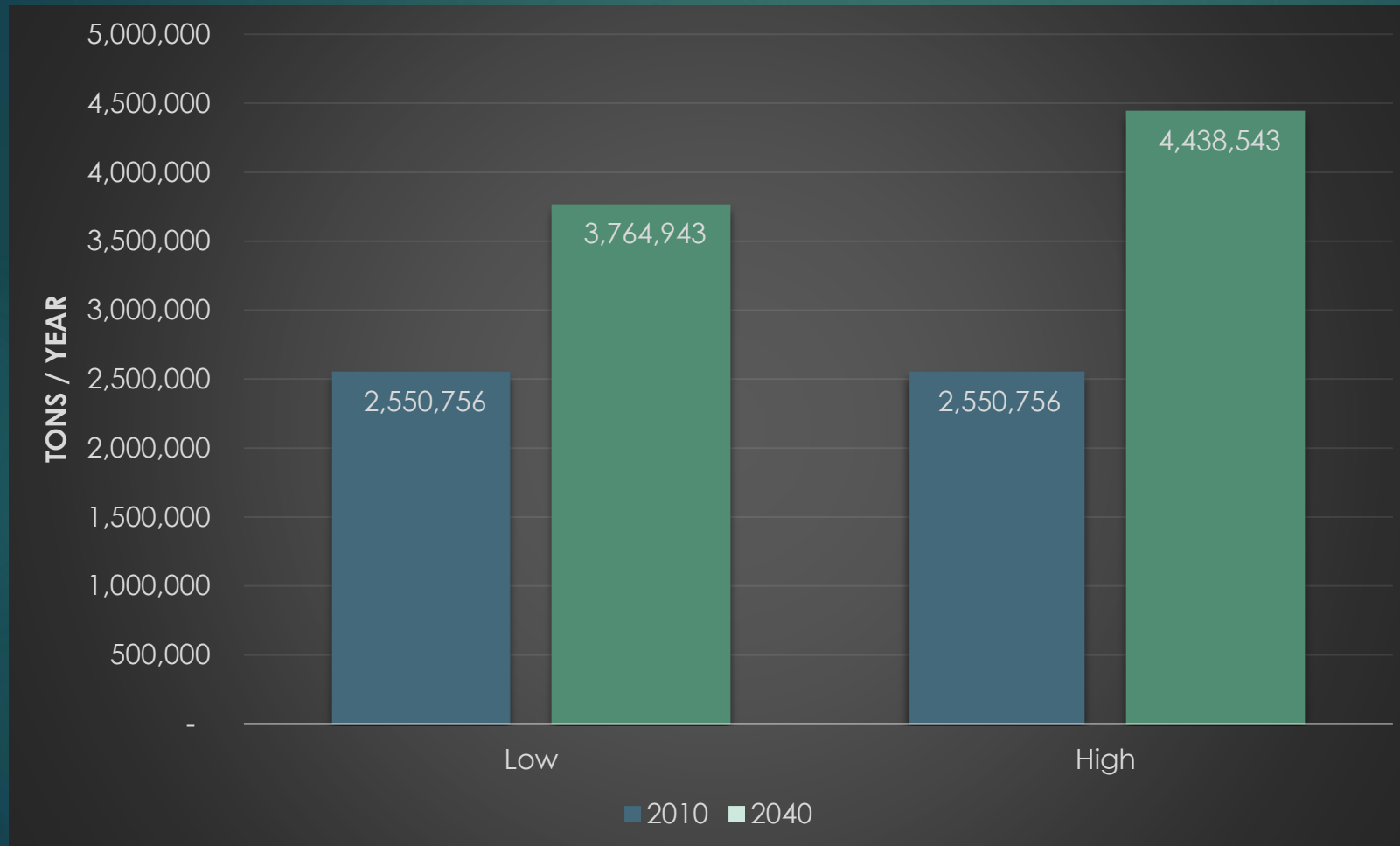
County	2010	2040	Change in Annual Tons	2010 tpd	2040 tpd	Change in Daily
Erath	43,287	68,646	25,359	119	188	69
Hood	40,087	56,480	16,393	110	155	45
Johnson	172,435	307,297	134,863	472	842	369
Palo Pinto	17,384	23,795	6,411	48	65	18
Parker	133,583	343,653	210,070	366	942	576
Somervell	9,699	15,347	5,648	27	42	15
Tarrant	2,066,731	3,474,271	1,407,540	5,662	9,519	3,856
Wise	67,550	149,053	81,504	185	408	223
Total	2,550,756	4,438,543	1,887,787	6,988	12,160	5,172
Pounds / Capita / Day	6.26	7.38				

	NCTCOG	HGAC	AACOG	CAPCOG
2005	8.54	7.11	7.70	7.35
2010	6.72	6.49	6.06	5.95
2013	6.89	7.00	6.35	5.58
2014	7.14	7.22	6.65	5.73
2015	7.30	7.15	6.60	5.79
2016	7.86	6.75	6.10	5.98

# Benefits of waste reduction

County	2010	2040	Change in Annual Tons	2010 tpd	2040 tpd	Change in Daily
Erath	43,287	58,228	14,941	119	160	41
Hood	40,087	47,909	7,821	110	131	21
Johnson	172,435	260,661	88,227	472	714	242
Palo Pinto	17,384	20,184	2,800	48	55	8
Parker	133,583	291,500	157,916	366	799	433
Somervell	9,699	13,018	3,319	27	36	9
Tarrant	2,066,731	2,947,010	880,279	5,662	8,074	2,412
Wise	67,550	126,433	58,883	185	346	161
<b>Total</b>	<b>2,550,756</b>	<b>3,764,943</b>	<b>1,214,187</b>	<b>6,988</b>	<b>10,315</b>	<b>3,327</b>
<b>Pounds / Capita / Day</b>	<b>6.26</b>	<b>6.26</b>				

# Projected 2040 Waste Disposal



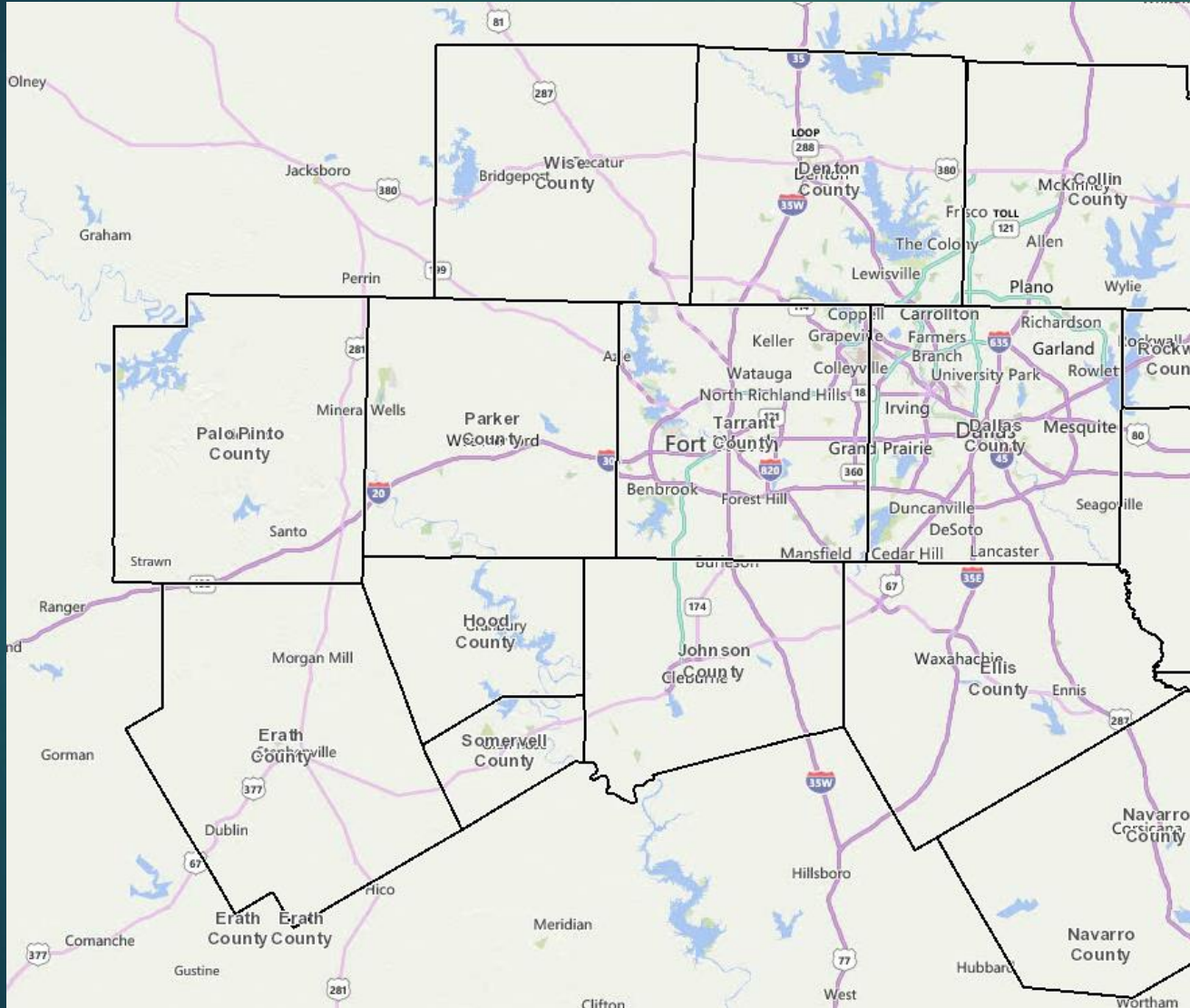
**State of Iowa generates a total of 2.8 million tons per year.**

**Between 2018 - 2040 estimated total disposal 74 to 83 million tons of MSW.**

**Total CURRENT disposal capacity in Western Area is 63 million tons**

Low assumes waste generation rate of 6.96 pcd (2010 rate)  
High assumes waste generation rate of 7.38 pcd (2016 rate)

# Transportation Network



Limited number of major highways, majority of which are east / west roadways

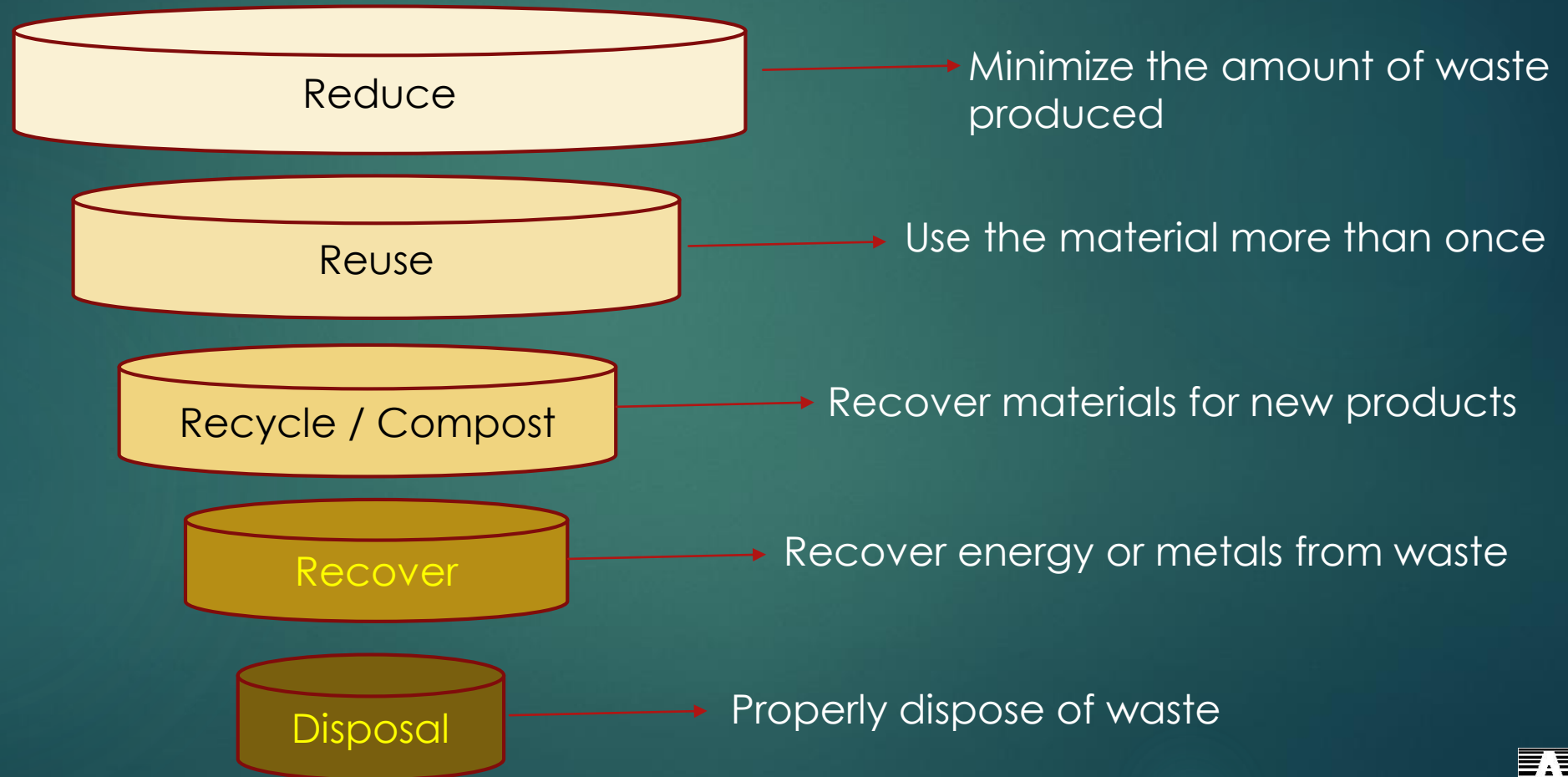
Why its important...

- Access to facilities is critical site selection issue
- Cost of hauling materials & waste impacted by quality of roadways
- Congestion may result in more trucks needed to haul waste

# What is your biggest interest?

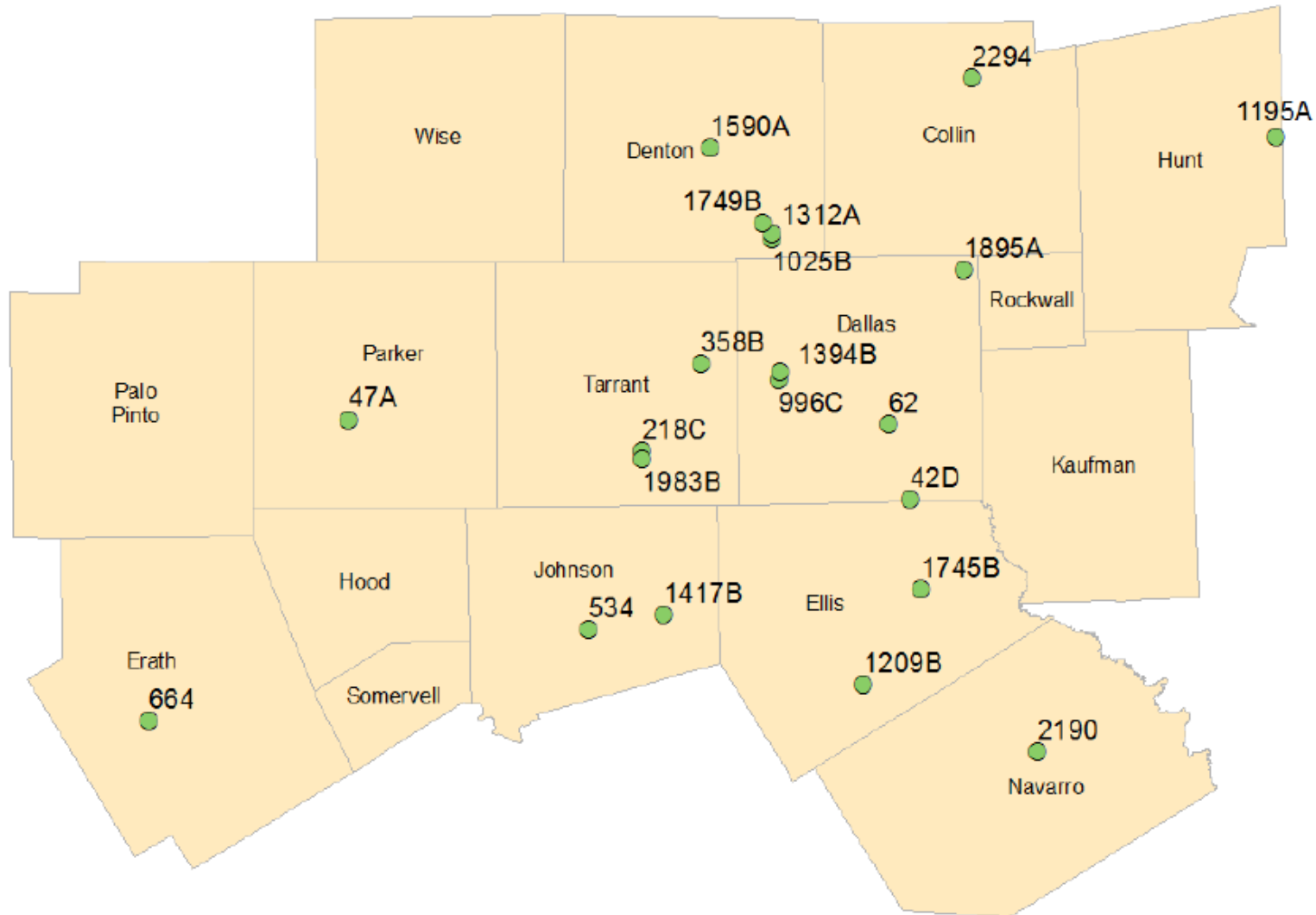
Issue		Issue	
Illegal dumping		Waste-to-energy	
Residential Collection Service		Disaster Debris Management	
Commercial Collection Service		Public Information	
Available Disposal Capacity		Citizen Convenience Stations	
Tires		Composting	
Residential Recycling		Brush Management	
Landfill Sites		Contracts for Collection	
Household Hazardous Waste		Contracts for Disposal	
Transfer Stations		Public Opposition	
Litter		Cost of Disposal	
Cost of Collection		Food Waste	
Small Hauling Firms		Unincorporated areas	
Other		Other	

# Comprehensive solid waste management

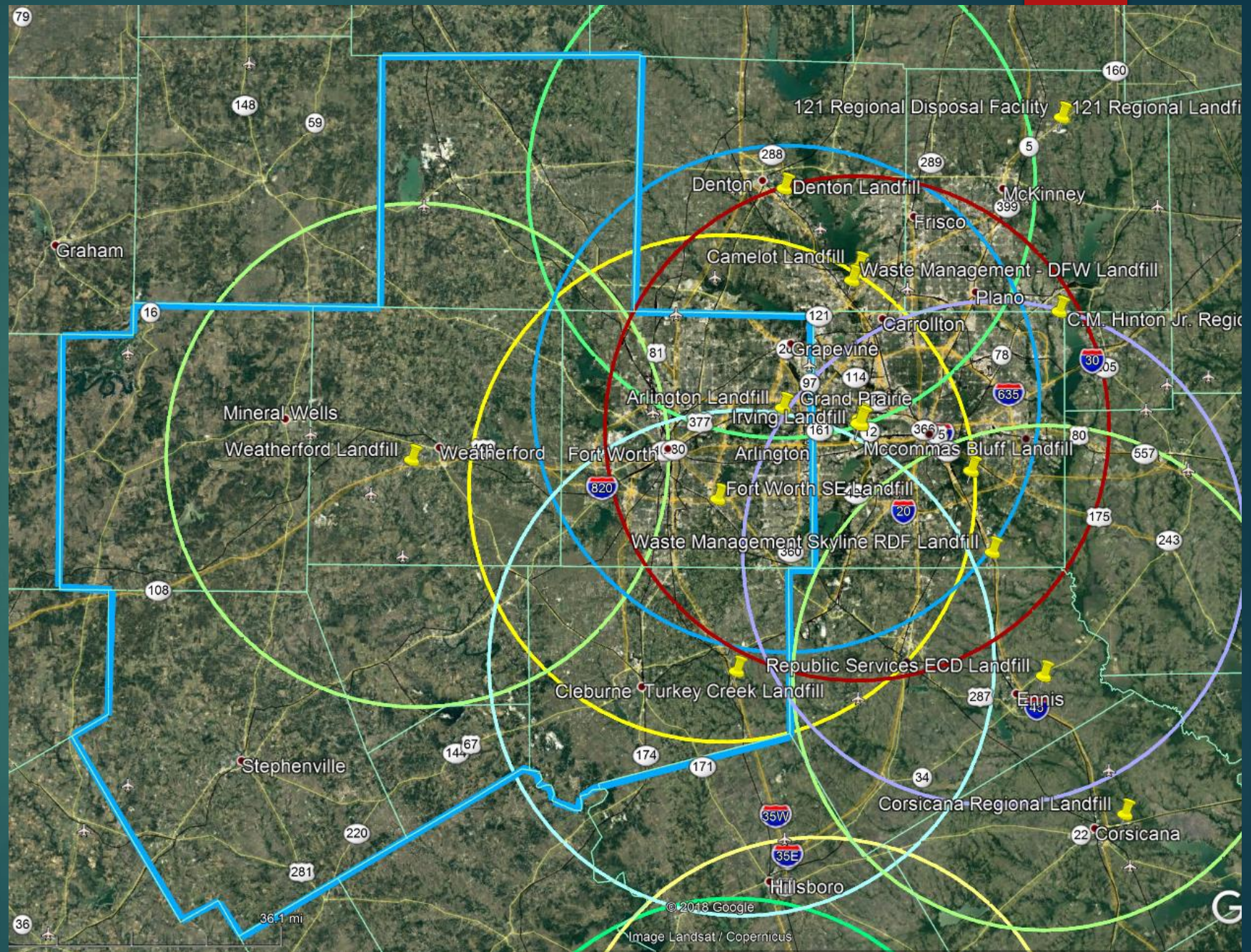


# 2016 Landfill Location Map

COG 4: North Central Texas Council of Governments



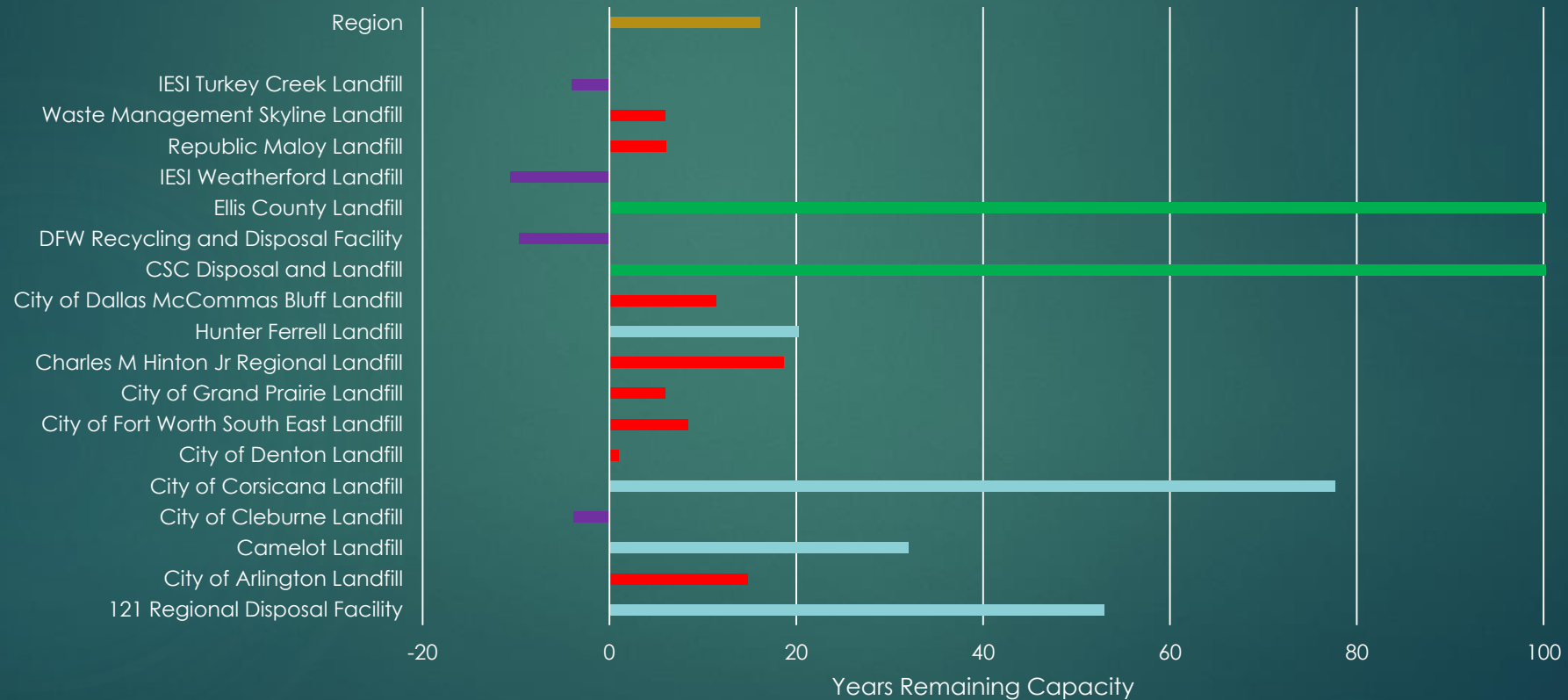
# 30 mile radius to operating regional Type I landfills





# 2030 Projected Years of Type I MSW Capacity

NCTCOG Type I Regional Capacity 2030



# Landfill Capacity

Landfill	2016 (000 Tons)	2017 (000 Tons)	2017 (000 CY)	2017 (000 Ton)	Years
Arlington Landfill	999	997	49,380	37,630	33
Fort Worth SE Landfill	637	557	23,260	16,480	30
Cleburne Landfill	0.7	0.7	18	90	12
IESI Turkey Creek (2017 not available)*	524	na	8,142	6,303	12
IESI Weatherford	207	198	830	544	3
<b>Total</b>	<b>2,367.7</b>	<b>1,752.7</b>	<b>81,630</b>	<b>61,047</b>	<b>30-35</b>
IESI Fort Worth C&D Landfill	368	367	8,101	3,985	11
Stephenville C&D Landfill	12	12	822	493	63
<b>Total</b>	<b>380</b>	<b>379</b>	<b>8,923</b>	<b>4,478</b>	<b>12</b>

***In 2016, the estimated total NCTCOG region disposed of over 10 million tons  
 Estimated regional capacity is 360 million tons  
 Recognize that waste from region is going outside the region***

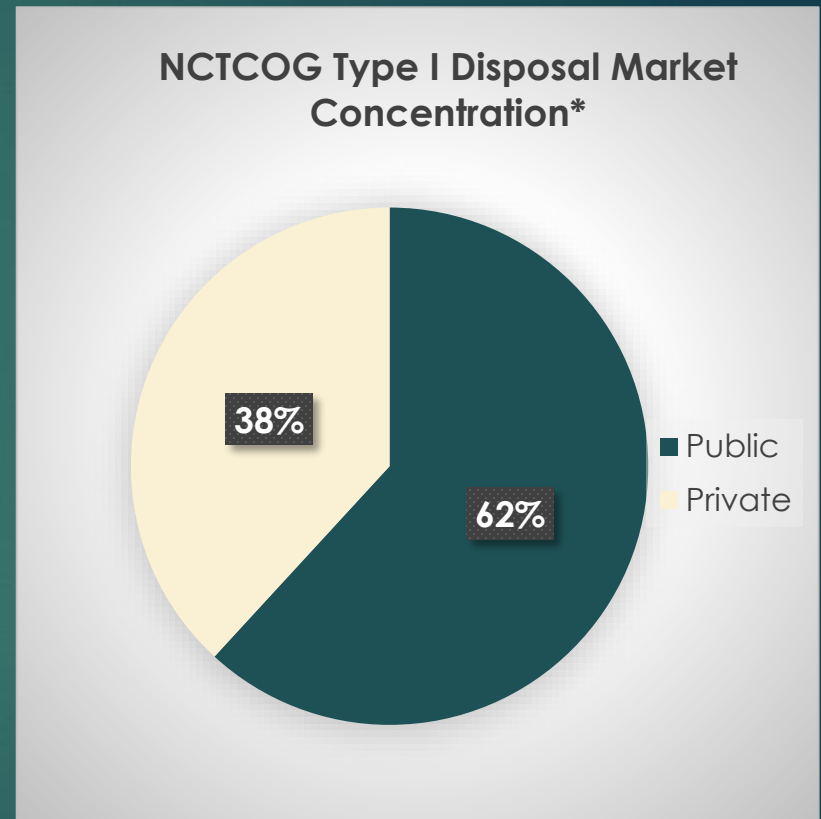
# New Landfill Capacity Issues

## Technical Issues

- ▶ Type I & Type IV
- ▶ Site Selection
- ▶ Regulatory Requirements & Permitting
- ▶ Design Configuration

## Institutional Issues

- ▶ Ownership
- ▶ Flow Control
- ▶ Funding
- ▶ Risk Management



\*three are publicly owned, but privately operated

# Site Selection Criteria

- ▶ Regulatory
  - ▶ Faults
  - ▶ Seismic Impact
  - ▶ Unstable Conditions
  - ▶ Floodplains
  - ▶ Wetlands & Waters of US
  - ▶ Airport Zones
  - ▶ Other criteria
    - ▶ Existing and Future Land use
    - ▶ Schools, hospitals, other
    - ▶ Access
    - ▶ Local land use / zoning



**Harder to find sites with residential and commercial developments and oil & gas wells**

# Landfill sites are getting bigger

Facility	Acres	Tons/Day
BVSWMA	609	1,000
Skyline	666	3,980
Denton	668	865
121 Regional	676	3,250
Arlington	774	3,220
McCommas	965	6,900
Lubbock	1,200	940
130 Environmental	1,229	1,500
Corpus Christi	2,200	1,387

# Permitting Process

- ▶ Application
  - ▶ Part I – Forms
  - ▶ Part II – Land use, Transportation, Environmental Conditions, Geology & Groundwater Conditions
  - ▶ Part III – Site Design, Closure and Post-closure Care, Financial Assurance
  - ▶ Part IV – Site Operating Plan

TCEQ Review

Hearing Opportunities

**PROCESS FOR NEW CAPACITY IS A 10 – 15 YEAR TIMEFRAME**

<b>Site selection</b>	<b>3-5 years</b>
<b>Permitting</b>	<b>3-5 years</b>
<b>Construction</b>	<b>3-5 years</b>

# Design Configuration & Regulatory Requirements

- Buffer
- Liner
- Leachate Control
- Cover
- Gas
- Closure & Post-closure care financial responsibility
- Site Operating Requirements
- Closure & Post closure requirements

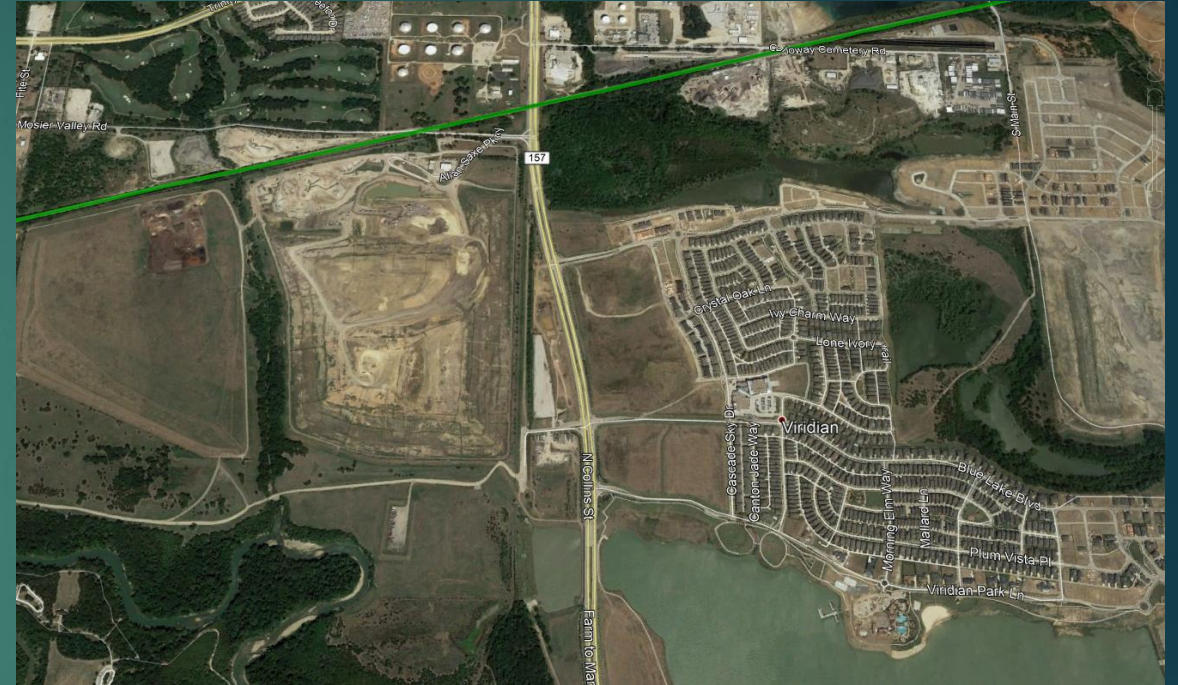
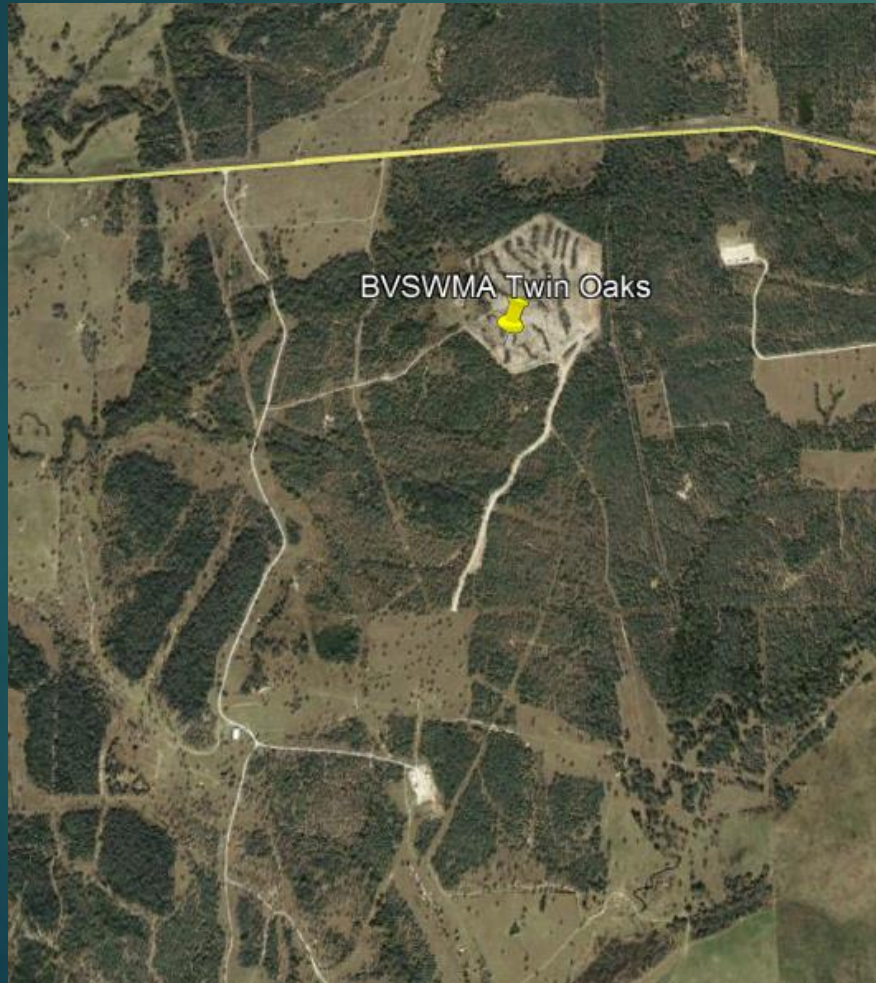


# Landfill infrastructure





# How does landfill fit into the community



City of Arlington Landfill and Viridian Development



# City of Garland Hinton Landfill



1995



2017



# Cost & Time to Develop

## Costs to Develop

Land - \$3000 to \$6000 per acre @ 1000 acres = \$3.0 to \$6.0 million

Permit - \$1.5 – \$3.0 million

Construction - \$5 - \$10 million

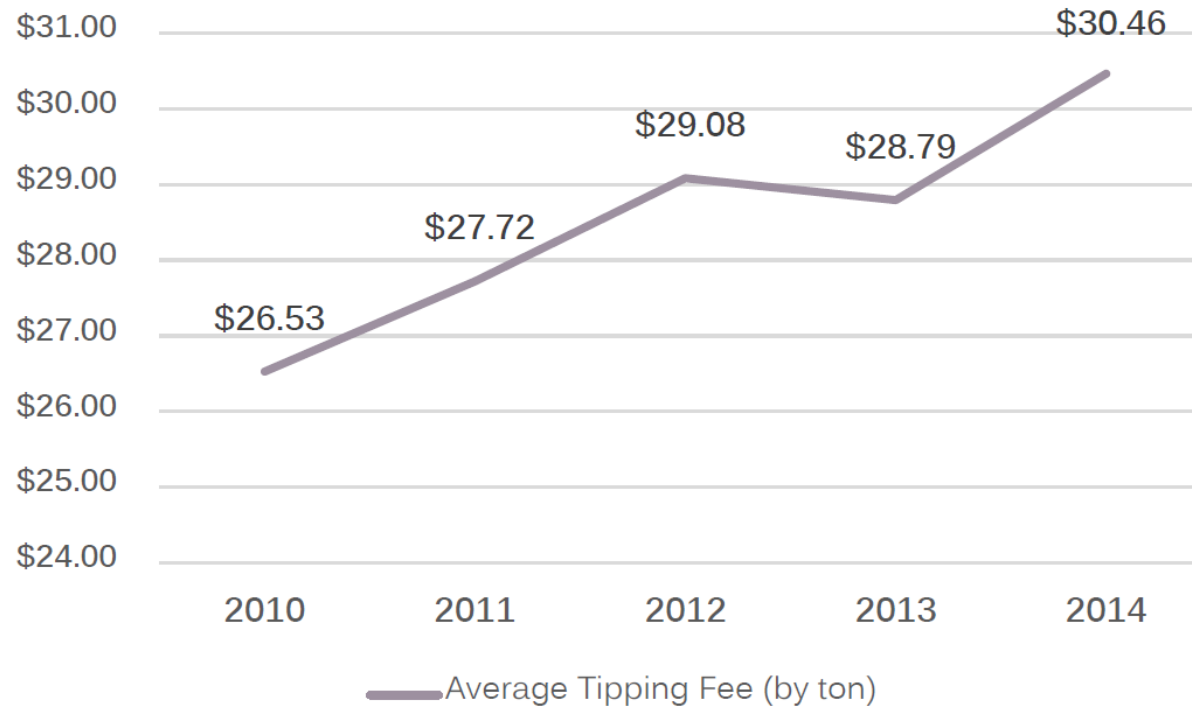
Total Capital Costs - \$10 - \$19 million

Current market rates \$25 - \$40 per ton.

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Land Purchase	█														
	█	█	█												
Permitting		█	█	█											
				█	█	█	█	█	█						
Construction					█	█	█								
										█	█	█	█		
Best Case	█														
Worst Case	█														

# Historic Tip Fees

Figure 12. Average Annual Tipping Fees in North Central Texas 2010-2014  
(Source: TCEQ, 2015)

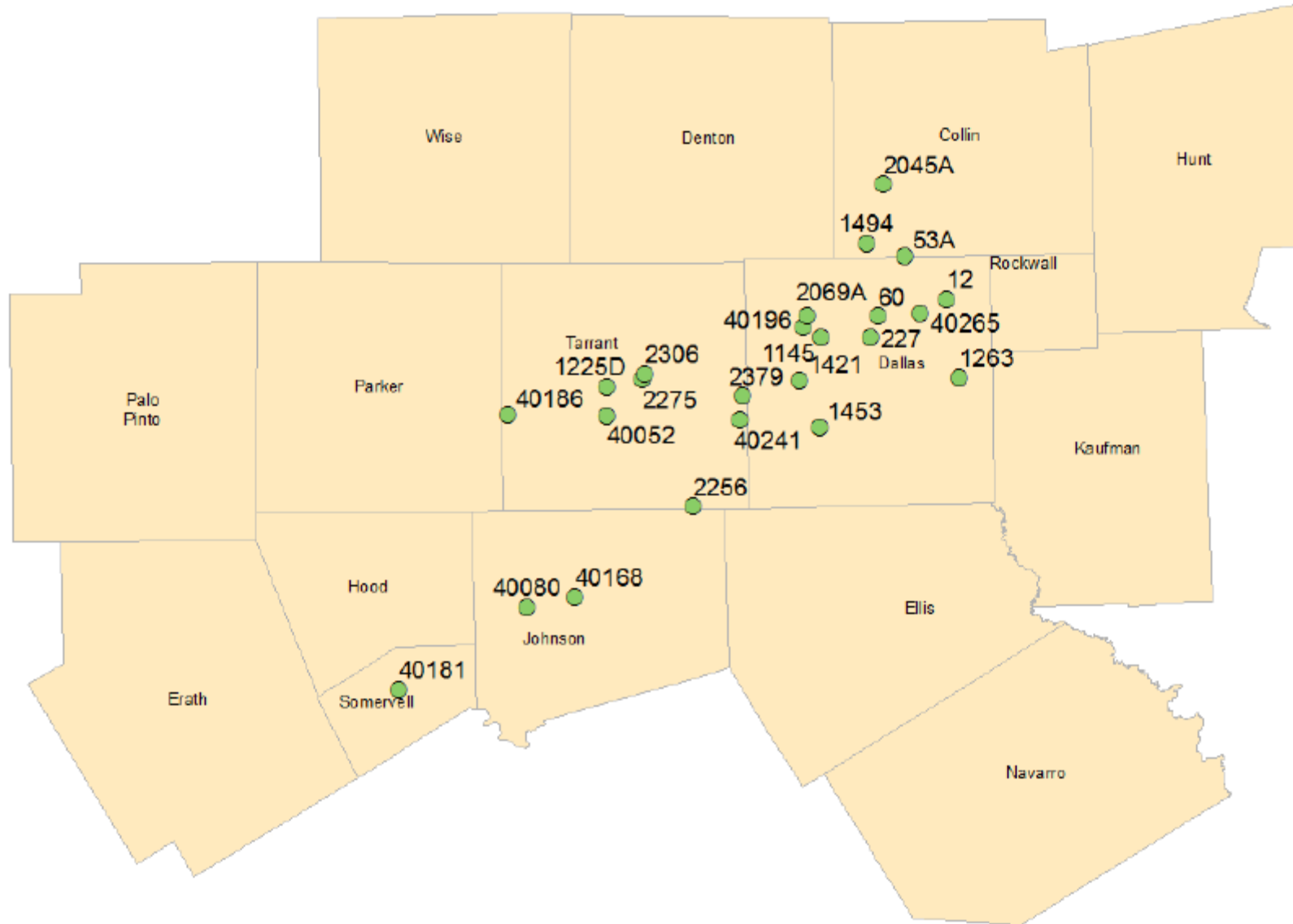


# Transfer Stations



Purpose of transfer station is to improve transport efficiency moving waste from collection vehicles to larger haul trucks

### COG 4: North Central Texas Council of Governments



# Processing Facilities in NCTCOG

COG 4: North Central Texas Council of Governments—List of Processing Facilities

COG	Permit or Registration	Site Name	County	Type	2016 Tons
4	53A	Lookout Drive Transfer Station	Collin	5TS	156,383
4	1494	Parkway Transfer Station	Collin	5TS	120,092
4	2045A	Custer Road Transfer Station	Collin	5TS	285,363
4	40284	Town and Country Recycling Facility	Collin	5TS	14,734
4	12	City of Garland Transfer Station	Dallas	5TS	124,182
4	60	City of Dallas Transfer Station - Fair Oaks Ave	Dallas	5TS	72,737
4	227	City of University Park Transfer Station	Dallas	5TS	12,947
4	1145	City of Dallas Transfer Station - Harry Hines Blvd	Dallas	5TS	142,315
4	1263	City of Mesquite Transfer Station	Dallas	5TS	53,054
4	1421	PSC Recovery Systems Liquid Waste Processing Facility	Dallas	5GG	50,796
4	1453	City of Dallas Transfer Station - Westmoreland Rd	Dallas	5TS	79,193
4	2069A	Liquid Environmental Solutions of Texas Dallas Facility	Dallas	5GG	166,278
4	40196	Community Waste Disposal Transfer Station	Dallas	5TS	58,083
4	40265	Stericycle Garland Facility	Dallas	5AC	13,775
4	40080	Harrington Environmental Liquid Transfer Station	Johnson	5TL	5,300
4	40168	Cleburne Transfer Station	Johnson	5TS	62,745
4	40181	Somervell County Transfer Station	Somervell	5TS	1,461
4	1225D	Cold Springs Liquid Waste Processing Facility	Tarrant	5GG	66,191
4	2256	Southwaste Disposal Dallas Facility	Tarrant	5GG	100,610
4	2275	North Texas Recycling Complex (facility reported all incoming materials as diverted and no waste transferred for disposal)	Tarrant	5TS	0
4	2306	IESI Minnis Drive Transfer Station	Tarrant	5TS	127,300
4	2379	Liquitek Arlington Liquid Waste Processing Facility	Tarrant	5GG	69,498
4	40052	Southwest Paper Stock Transfer Station	Tarrant	5TS	28,560
4	40186	Westside Transfer Station	Tarrant	5TS	169,044
4	40241	Oncore Technology Facility	Tarrant	5MW	966

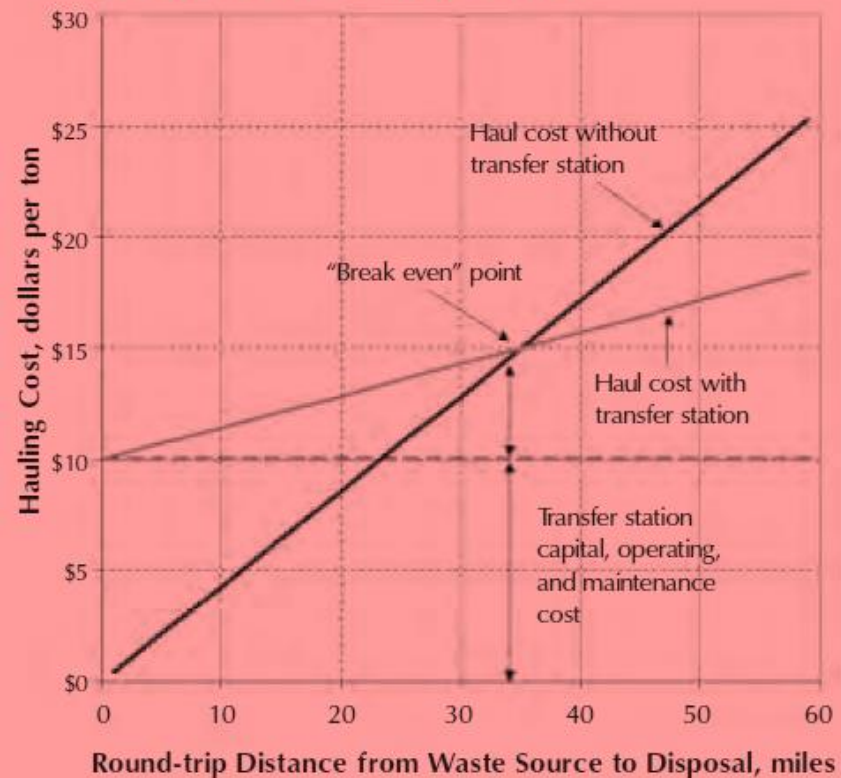
Approximately 390,000 tons of waste is processed at one of 6 Western Area Region Transfer Stations



# Costs & Benefits

Major cost consideration is the construction and operation of the transfer station.

Figure 1.  
Sample Comparison of Hauling Costs With  
and Without a Transfer Station



The following assumptions were used to create this sample comparison:

Cost to build, own, and operate transfer station—dollars per ton	\$10
Average payload of collection truck hauling directly to landfill—tons	7
Average payload of transfer truck hauling from transfer station to landfill—tons	21
Average trucking cost (direct or transfer hauling)—dollars per mile	\$3

The comparison shows a break-even distance of about 35 miles (round-trip). In other words, for this example, using a transfer station is cost-effective when the round-trip distance exceeds 35 miles. When the round-trip distance is less than 35 miles, direct haul is more cost-effective. Although the same economic principles apply, break-even distances will vary in different situations based on the site-specific input data.

# Transfer Station Design Issues

- ▶ Site location (access & compatible land use)
- ▶ Facility sizing
- ▶ Traffic flow
- ▶ Loading configuration
- ▶ Other facilities (recycling, brush management, etc.)
- ▶ Screening

# Transfer Stations- Design Concepts



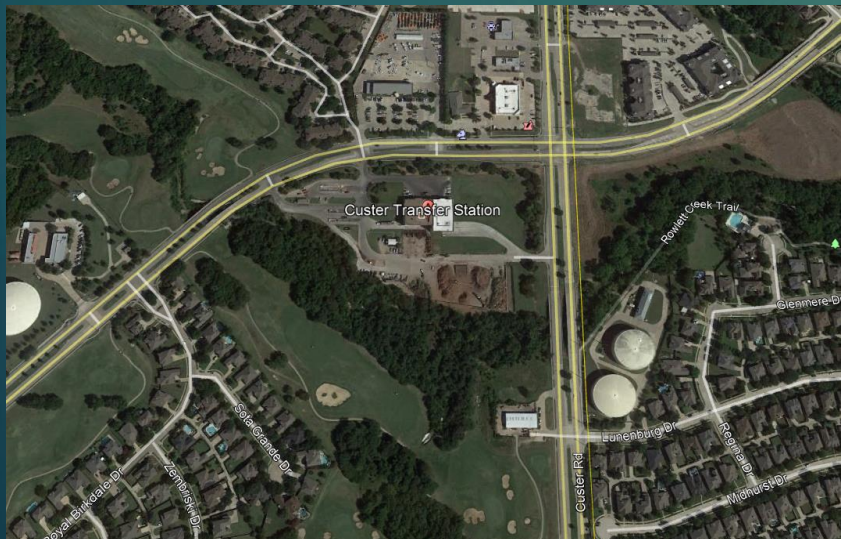
# Transfer Stations



Corpus Christi Transfer Station  
\$7 million to construct, 500 tpd, open top trailers, push floor,  
annual operational expense \$3,060,932 includes the 20 year  
debt service



# Custer fits into neighborhood that grew into it



# Regional Collaboration – *It already exists in some form*

Public / Private Partnerships

Public / Public Partnerships

- ▶ Contracts & Inter-local agreements
- ▶ Solid Waste Management Co-op
- ▶ Municipal Solid Waste Agency
- ▶ Utility District
- ▶ Planning Organization

# Regionalization is not new



## Household Hazardous Waste

Chemicals, detergents, petroleum products, pesticides, herbicides, and fertilizers are stormwater pollutants. Stormwater runoff enters storm drains during rain and discharges directly into the nearest body of water without any treatment to remove pollutants. This is unlike the sinks and toilets in your home that drain to a water reclamation plant for treatment. Responsible use and recycling of these wastes helps protect the quality of water sources for drinking and recreation.



The City of Fort Worth's award-winning regional collection programs help citizens of Fort Worth and participating cities dispose of household hazardous waste in a safe, responsible, no-hassle manner.

Environmental Collection Center



# IV. Regional Collaboration

Pros	Cons
Efficiencies in facility development & operations	Loss of control
Reduced environmental impacts	Distances required to get to facilities
Increased available capital for projects	Public acceptance
Sufficient waste flow – economies of scale	
Greater flexibility	
Public Acceptance	



# Key Issues

- ▶ Purpose
- ▶ Controls
- ▶ Who pays
- ▶ Representation
- ▶ Legal authority
- ▶ Major benefits
- ▶ Key risks
- ▶ Waste flow control
- ▶ Role of private sector
- ▶ Status of current contracts
- ▶ Audits & Performance

# Inter-local Agreements

## BVSWMA & TASWA

- ▶ Organization & Responsibilities
- ▶ Cost sharing
- ▶ Closure Costs
- ▶ Revenue sharing
- ▶ Reporting
- ▶ Liability Sharing
- ▶ Operations

# BVSWMA & Cities

- ▶ College Station and Bryan Provide Collection Services
- ▶ Recycling is responsibility of cities
- ▶ Composting is responsibility of BVSWMA
- ▶ Landfill is responsibility of BVSWMA
- ▶ HHW is responsibility of BVSWMA
- ▶ Maintenance of previous landfill

# BVSMWA Inc.

## Governance

- Non-profit local government corporation
- Founded in 2010 by the City of Bryan and City of College Station
- Seven member Board of Directors
- City staff provides additional guidance via Technical Advisory Committee
- Annual third party financial audits

# BVSWMA

- ▶ Inter-local agreement between College Station & Bryan
- ▶ Services Provided
  - ▶ Public Education
  - ▶ Composting
  - ▶ Household Hazardous Waste Collection
  - ▶ Landfill Operations

## MISSION STATEMENT:

Provide long-term, cost effective solid waste disposal and processing services that meet the needs and expectations of the Cities of Bryan and College Station.

# Funding & Organization

## Financial

- ▶ BVSWMA is financially self sufficient
- ▶ Tipping fees pay for operation
- ▶ Cities have to carry financial assurance for landfill closure
- ▶ Ultimately, Cities have responsibility for BVSWMA financing

## Organization

- ▶ Board Representation
- ▶ Cities have equal representation
- ▶ Alternating Board Chair
- ▶ Member from Grimes County where the landfill is located
- ▶ Hires a Manager who oversees staff
- ▶ Use College Station's city HR and Accounting staff

# Municipal Solid Waste Management Cooperative

## **Kaufman County Environmental Co-op**

Formed in October of 1997, the Environmental Co-op (the Co-op) is the result of an ongoing effort by concerned officials and citizens of Kaufman County to take an active and positive stance on the problem of disposing of household wastes of an increasing population with increased concerns about the environment.

The Co-op is a 501c(3), member-owned non-profit environmental business that specializes in setting up waste disposal programs in Kaufman County. With no landfills in the county and diminishing space in nearby landfills, the problem of municipal solid waste is getting more serious every day. The Co-op's primary focus is to provide education on issues such as solid waste reduction, composting, recycling and resource conservation.

Our mission is the conservation of natural resources through education and management of all aspects of solid and hazardous waste, recycling, and overuse of resources.

# Kaufman County Coop success at grants

From 1996-2012  
\$1.8 million for  
27 different  
projects

## Grants Managed By Environmental CO-OP

✓	1996	\$44,564 - Litter Abatement Grant
✓	1996	\$100,000 - Write 20 Year Solid Waste Plan
✓	1998	\$212,000 - To Implement Solid Waste & Kaufman Convenience Station
✓	1999	\$92,000 - Update Terrell Citizen Convenience Station
✓	2000	\$60,000 - Chipper Grinder
✓	2000	\$17,000 - Household Hazardous Waste One Day Collection
✓	2000	\$107,000 - Comprehensive Solid Waste Education
✓	2001	\$22,000 - Cardboard Study
✓	2002	\$200,862 - Stop Illegal Dumping Campaign
✓	2004	\$74,744 - Commercial Recycling
✓	2004/07	\$10,000 - Wal-Mart, NUCOR, Oncor, Madix, Wal-Mart Distribution Center, Hotel-Motel Tax-donation
✓	2005/07	\$36,000 - Texas Forestry Service-Urban Forestry
✓	2005/07	\$12,000 - SEP-Supplemental Env. Project (Bushy Creek Cleanup)
✓	2005/07	\$10,000 - Tarrant Regional Water District (cleanups)
✓	2006	\$39,000 - Compost Education
✓	2006	\$145,000 - Citizen Convenience Station Kemp
✓	2006	\$73,578 - HHW Facility Kemp
✓	2006	\$25,000 - County Facility Siting Ordinance
✓	2007	\$10,000 - BlueBonnet RC&D (Tire Cleanup)
✓	2008/09	\$213,250 - Greening Kaufman County
✓	2008	\$2,000 - Tarrant Regional Water District (cleanups)
✓	2008/09	\$15,000 - Tarrant Regional Water Grants (Includes Talking Trash)
✓	2009/11	\$89,000 Kauf Co. Stop Illegal Dumping Grant
✓	2010/11	\$120,054 - Kauf. Co. Government and Commercial Recy. Grant
✓	2010/11	\$70,978 - Scurry Rosser ISD Recycling Implementation Grant
✓	2012/13	\$48,414 Kauf. Co. Stop Illegal Dumping Grant
✓	2012/13	\$1,300 - IP Foundation Grant for Environmental Leadership
✓	<b>Total Grant funds awarded to date: \$1,850,744.00</b>	



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✓	2005/07	\$12,000 - SEP-Supplemental Env. Project (Bushy Creek Cleanup)
✓	2005/07	\$10,000 - Tarrant Regional Water District (cleanups)
✓	2006	\$39,000 - Compost Education
✓	2006	\$145,000 - Citizen Convenience Station Kemp
✓	2006	\$73,578 - HHW Facility Kemp
✓	2006	\$25,000 - County Facility Siting Ordinance
✓	2007	\$10,000 - BlueBonnet RC&D (Tire Cleanup)
✓	2008/09	\$213,250 - Greening Kaufman County
✓	2008	\$2,000 - Tarrant Regional Water District (cleanups)
✓	2008/09	\$15,000 - Tarrant Regional Water Grants (Includes Talking Trash)
✓	2009/11	\$89,000 Kauf Co. Stop Illegal Dumping Grant
✓	2010/11	\$120,054 - Kauf. Co. Government and Commercial Recy. Grant
✓	2010/11	\$70,978 - Scurry Rosser ISD Recycling Implementation Grant
✓	2012/13	\$48,414 Kauf. Co. Stop Illegal Dumping Grant
✓	2012/13	\$1,300 - IP Foundation Grant for Environmental Leadership

# Utilities

## NTMWD

- ▶ Provides landfill and transfer station services to cities of McKinney, Plano, Richardson, Frisco and Allen, Collin County and surrounding areas
- ▶ Cities pay for landfill budget based on tonnages disposed at facilities
- ▶ Three Transfer Stations
- ▶ One Landfill

# General Law Districts

## **General Law Districts that Can Provide Municipal Solid Waste Services**

### **Water Control and Improvement District (WCID)**

- Created under Chapter 51 of the Texas Water Code
- Has the authority to tax, borrow, and issue bonds
- May include all or part of one or more counties, including any town, village, or municipal corporation, and may include other political subdivisions of the state or any defined district

### **Municipal Utility District (MUD)**

- Created under Chapter 54 of the Texas Water Code
- Has the authority to tax, borrow, and issue bonds
- May include all or part of any county or counties, including all or part of any cities of other public agencies

### **Special Utility District (SUD)**

- Created under Chapter 65 of the Texas Water Code
- Lack the authority to tax, but can incur debt through bonds
- Customer-owned rural water supply corporations that have chosen to form governmental districts

# Next Steps- It is up to you

- ▶ Continued meetings
- ▶ Establishment of a planning group
- ▶ Establish common goals & objectives
- ▶ Identify path
- ▶ Evaluate collection and disposal contracts in light of capacity

# Benefits & Risks of Planning Committee

## Benefits

- ▶ No major investment required
- ▶ Offers opportunity for discussion with peers
- ▶ Understanding of what is happening on regional basis
- ▶ Identify opportunities for joint programs

## Negatives

- ▶ Possibility for no-action to occur (just meetings and talk)
- ▶ Loss of control over future
- ▶ Decision making process may result in unwanted results

# Thanks

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