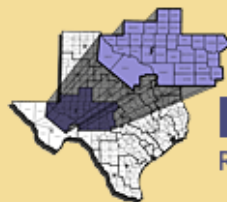


# Region F Planning Group Meeting

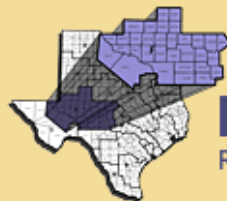
July 18, 2013



**REGION F WATER PLAN**  
Regional Water Planning Group

**Change Requests**

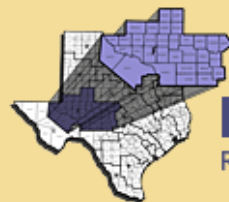
# **MUNICIPAL POPULATION AND WATER DEMAND PROJECTIONS**



**REGION F WATER PLAN**  
Regional Water Planning Group

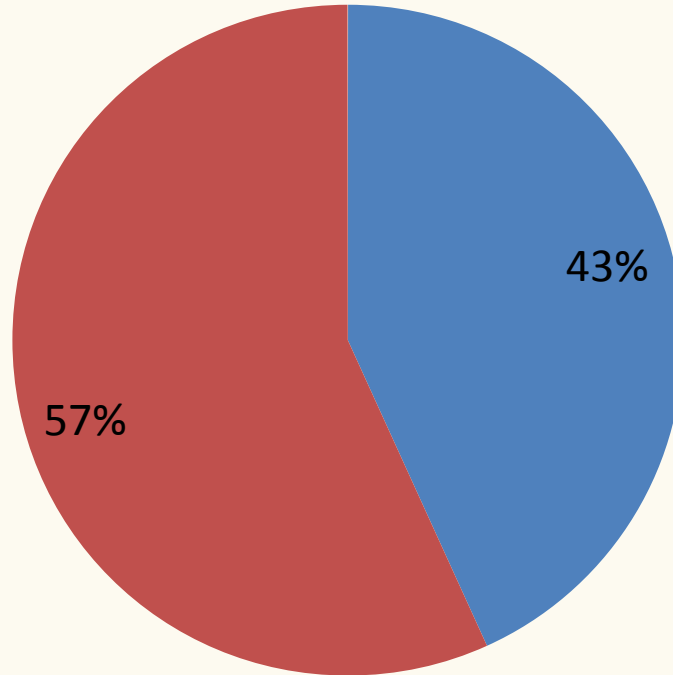
# Municipal Water User Group Survey

- TWDB draft population and demand projections sent to RWPG March 2013
- Survey sent to each WUG for comment in May 2013
- Changes suggested based on survey results

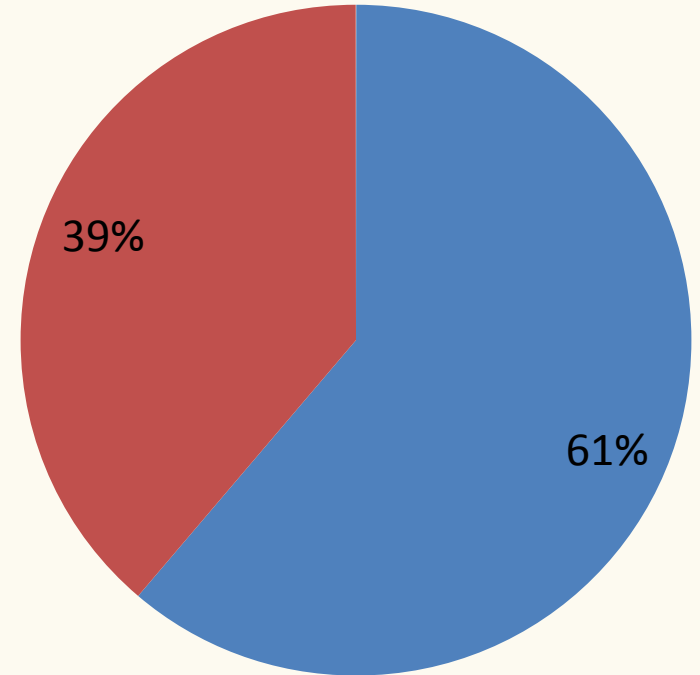


# Survey Response Rates

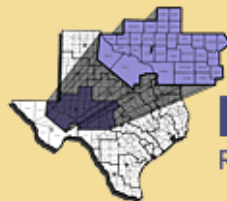
**All WUGs**



**Non-County Other WUGs (49)**

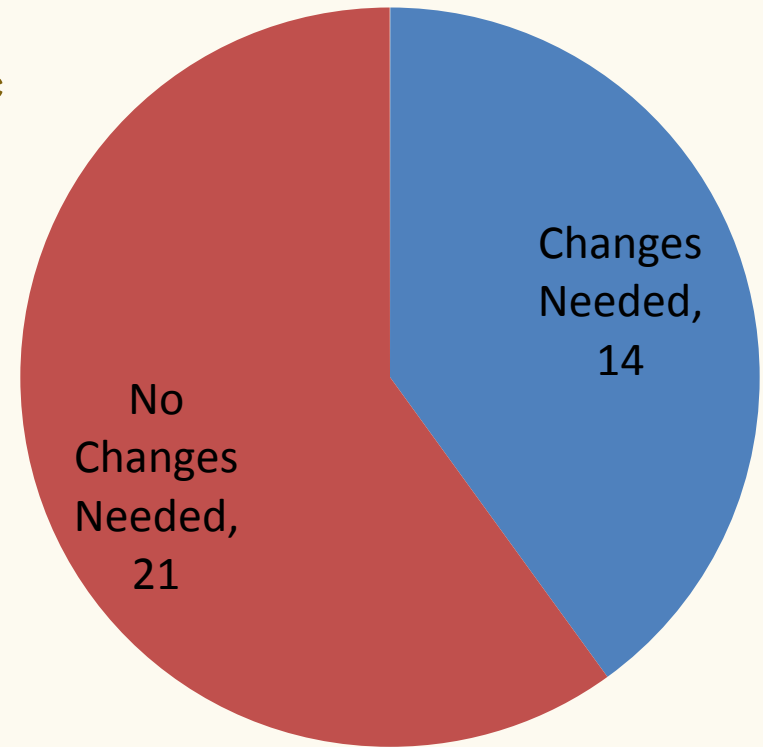


■ Response Received  
■ No Response

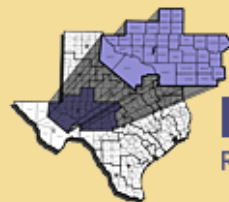


# Survey Results – Change Requests Summary

- 14 WUGs Needed Changes\*
  - Population Adjustments = 6
  - GPCD Changes = 7
  - Plumbing Code Implementation Rate Changes = 3

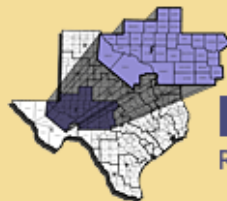


\*Some WUGs had multiple changes



# Population Changes

- Errors and Corrections
  - Zephyr WSC
- Increased overall population due to an increase of oil and gas production activity in the region
  - Active Permian Basin Shale Oil Boom
    - City of Andrews
    - City of Midland
    - City of Miles
    - City of San Angelo
  - Expected Cline Shale Oil Boom
    - City of Colorado City
    - City of Snyder

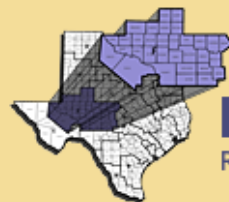


# Errors & Corrections

## Zephyr WSC & Brown County-Other

- Acquisition of new CCN
- 150 connections = about 450 additional people
- Net zero change

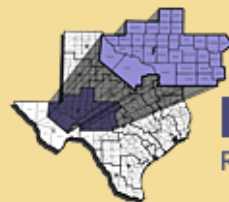
Zephyr WSC	Census 2000	Census 2010	2020	2030	2040	2050	2060	2070
TWDB Draft Population	3,450	3,983	4,156	4,256	4,256	4,256	4,256	4,256
Proposed Population	3,450	3,983	<b>4,606</b>	<b>4,706</b>	<b>4,706</b>	<b>4,706</b>	<b>4,706</b>	<b>4,706</b>
<b>Brown County-Other</b>								
TWDB Draft Population	3,484	2,730	2,847	2,915	2,915	2,915	2,915	2,915
Proposed Population	3,484	2,730	<b>2,397</b>	<b>2,465</b>	<b>2,465</b>	<b>2,465</b>	<b>2,465</b>	<b>2,465</b>



# Active Permian Basin Oil Boom

- Shale Oil Boom – increased oil & gas production
- Recent sharp increase in growth rates
- Not captured by the 2010 Census
- Increased growth rates in near decades (2020-2030)
- Levelled off growth in subsequent decades

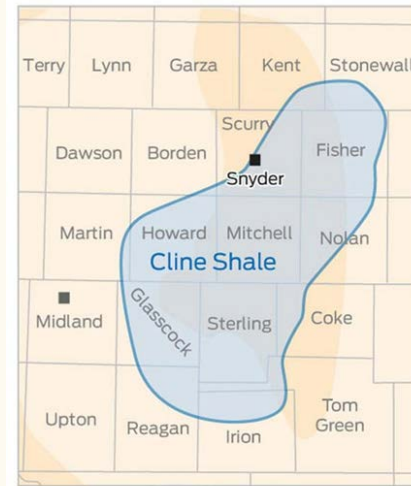
WUG		Census 2000	Census 2010	2020	2030	2040	2050	2060	2070
City of Andrews	TWDB Draft Population	9,652	11,088	12,852	14,697	16,532	18,310	20,064	21,760
	Proposed Population	9,652	11,088	<b>14,967</b>	<b>18,281</b>	<b>21,239</b>	<b>24,676</b>	<b>28,669</b>	<b>33,309</b>
City of Midland	TWDB Draft Population	94,996	111,147	124,949	139,416	153,566	167,838	181,927	195,734
	Proposed Population	94,996	111,147	<b>130,267</b>	139,416	153,566	167,838	181,927	195,734
City of Miles	TWDB Draft Population	850	829	851	873	873	873	873	873
	Proposed Population	850	829	<b>963</b>	<b>1,119</b>	<b>1,119</b>	<b>1,119</b>	<b>1,119</b>	<b>1,119</b>
City of San Angelo	TWDB Draft Population	88,439	93,200	98,378	104,053	108,831	113,024	116,984	120,578
	Proposed Population	88,439	93,200	<b>105,083</b>	<b>118,480</b>	<b>125,807</b>	<b>133,586</b>	<b>141,847</b>	<b>150,618</b>





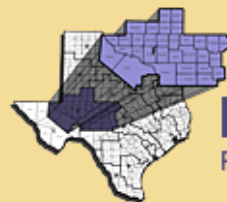
# Expected Cline Shale Oil Boom

- Has yet to happen
- Modeled after growth rates currently seen in the Permian Basin Oil Boom

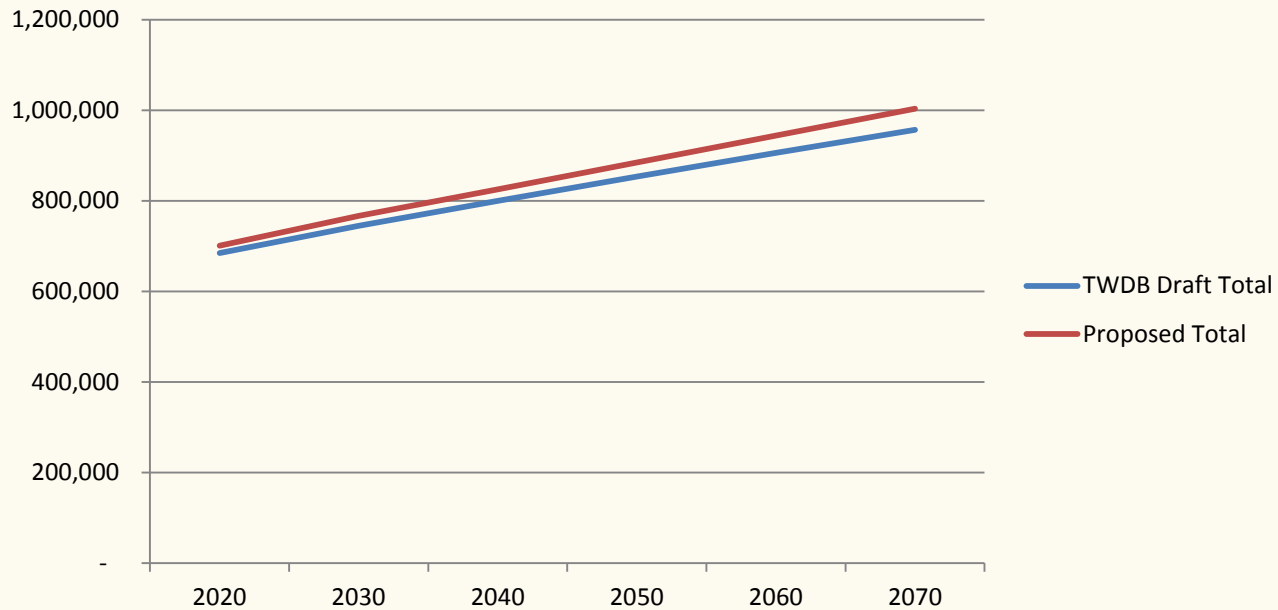


Source: Keith Schaefer, Oil and Gas Investments Bulletin (4/19/12)

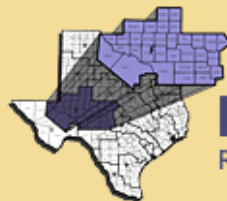
WUG		Census 2000	Census 2010	2020	2030	2040	2050	2060	2070
Colorado City	TWDB Draft Population	4,281	4,146	4,312	4,451	4,547	4,612	4,660	4,695
	Proposed Population	4,281	4,146	<b>5,064</b>	<b>5,686</b>	<b>5,801</b>	<b>5,859</b>	<b>5,918</b>	<b>5,978</b>
City of Snyder	TWDB Draft Population	10,783	11,202	12,201	13,240	14,272	15,433	16,606	17,824
	Proposed Population	10,783	11,202	<b>13,682</b>	<b>15,738</b>	<b>16,964</b>	<b>18,358</b>	<b>19,769</b>	<b>21,223</b>



# Region F Population



Region F Total	Census 2000	Census 2010	Population 2020	Population 2030	Population 2040	Population 2050	Population 2060	Population 2070
TWDB Draft Total	578,814	623,354	684,450	744,622	799,506	853,205	905,663	956,830
Proposed Total	578,814	623,354	700,933	766,613	825,381	884,552	943,797	1,003,347
Numerical Difference	-	-	16,483	21,991	25,875	31,347	38,134	46,517
Percent Change	-	-	2%	3%	3%	4%	4%	5%



# Demand Changes

- **Baseline GPCD Changes**

- Errors and Corrections

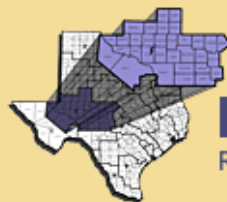
- Colorado City

- Dry Year GPCD Adjustments

- Big Spring
- Brownwood
- Midland
- Odessa
- Robert Lee
- Snyder

- **Plumbing Code Implementation Rate Changes**

- Bangs
- Brookesmith SUD
- Brownwood

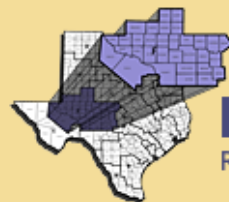


# Errors & Corrections

## Colorado City

- Incorrect estimate of percentage of intake used within city limits

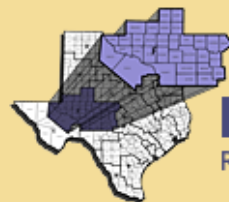
Colorado City	
TWDB Draft GPCD	147
Corrected GPCD	238



# Dry Year GPCD Adjustments

- 2011 - extreme drought
- Heavy water restrictions
- 2011 not representative of a typical dry year
- Used an average of some combination of 2006-2011 gpcd

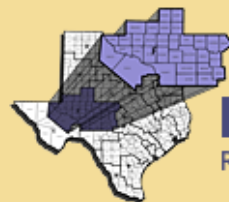
WUG Name	2011 Draft Base Year GPCD	Recommended Base Dry Year GPCD
Big Spring	124	198
Brownwood	169	176
Midland	219	234
Odessa	158	195
Robert Lee	162	261
Snyder	121	155



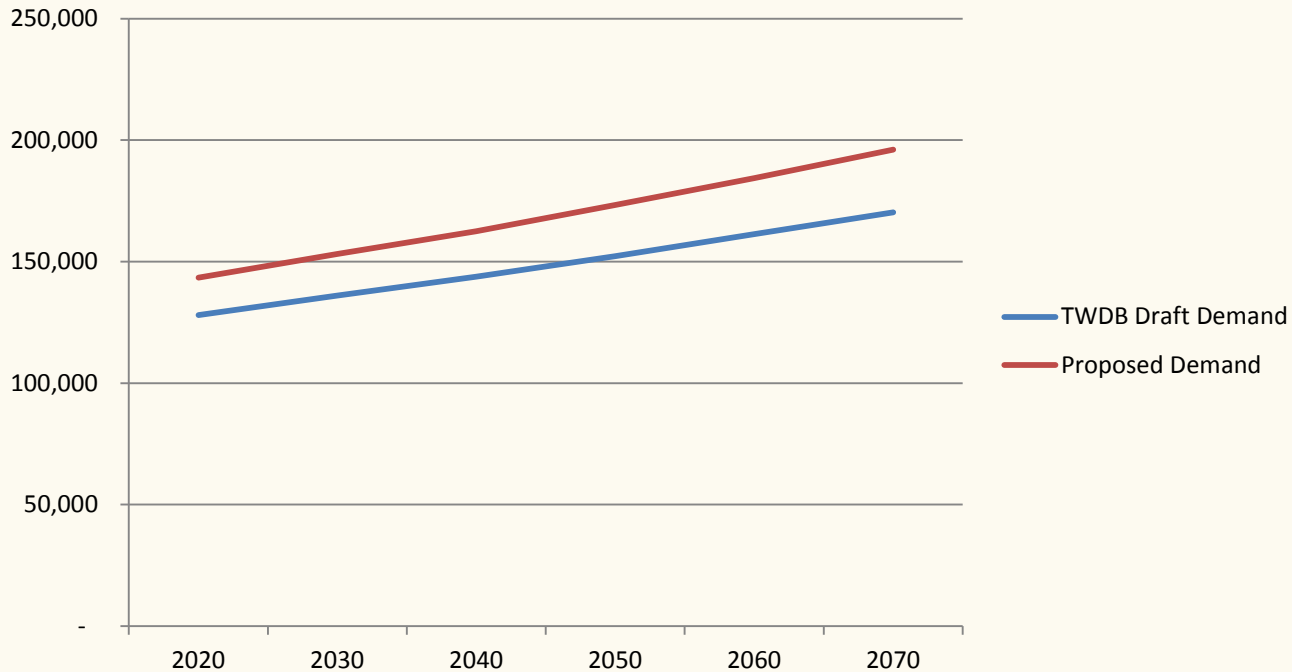
# Plumbing Code Implementation Rates

- Rural WUGs are likely to see slower implementation of water saving fixtures and appliances

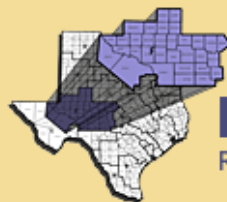
WUG		Base Year GPCD	2020 GPCD	2030 GPCD	2040 GPCD	2050 GPCD	2060 GPCD	2070 GPCD
Bangs	TWDB Draft	120	110	106	103	102	101	101
	Proposed	120	<b>115</b>	<b>111</b>	<b>108</b>	<b>107</b>	<b>106</b>	<b>106</b>
Brookesmith SUD	TWDB Draft	142	133	130	127	125	125	125
	Proposed	142	<b>140</b>	<b>137</b>	<b>135</b>	<b>130</b>	<b>127</b>	<b>127</b>
Brownwood	TWDB Draft	169	160	155	152	151	150	150
	Proposed	176	<b>170</b>	<b>164</b>	<b>161</b>	<b>159</b>	<b>157</b>	<b>157</b>



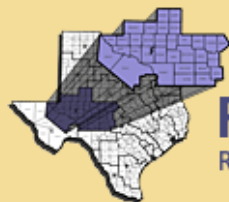
# Region F Municipal Demands



<b>REGION F TOTAL</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>	
TWDB Draft Demand	128,028	136,067	143,762	152,284	161,286	170,216	
Proposed Demand	143,414	153,101	162,523	173,341	184,325	196,074	
Numerical Difference	15,386	17,034	18,761	21,057	23,039	25,858	
Percent Change		12%	13%	13%	14%	14%	15%



# NON-MUNICIPAL DEMANDS

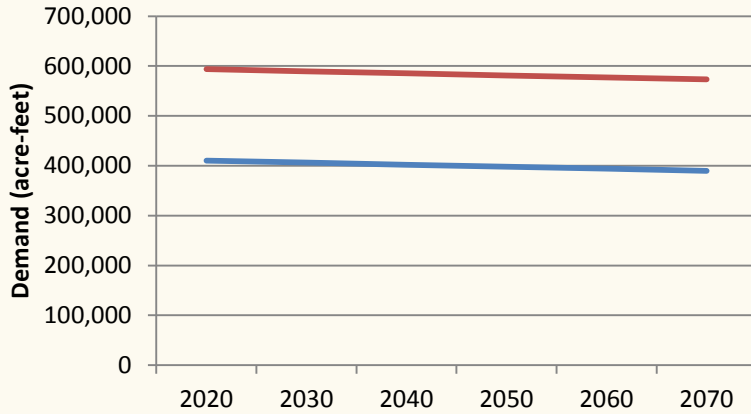


**REGION F WATER PLAN**  
Regional Water Planning Group

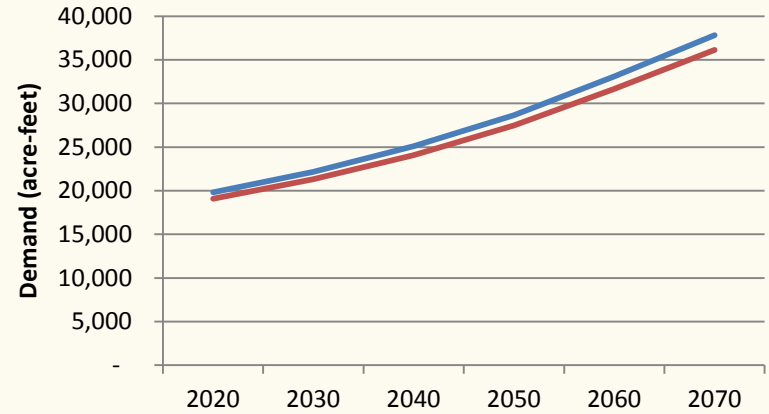


# Previously Approved Demands – TWDB Accepted

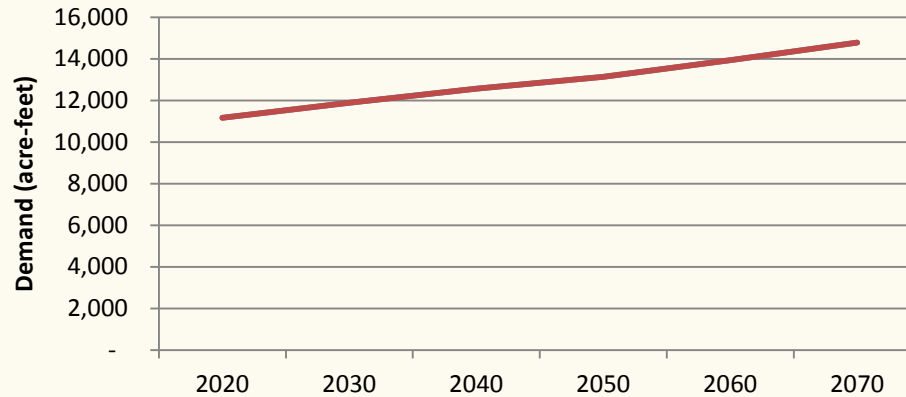
## Irrigation Demand



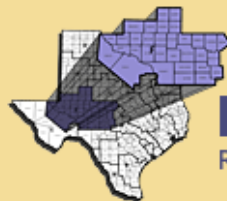
## Steam-Electric Power Demand



## Manufacturing Demand (No Changes)



— TWDB Draft — RWPG Approved & TWDB Accepted Revisions



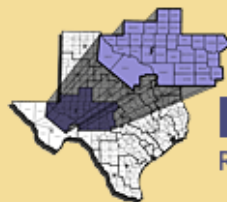
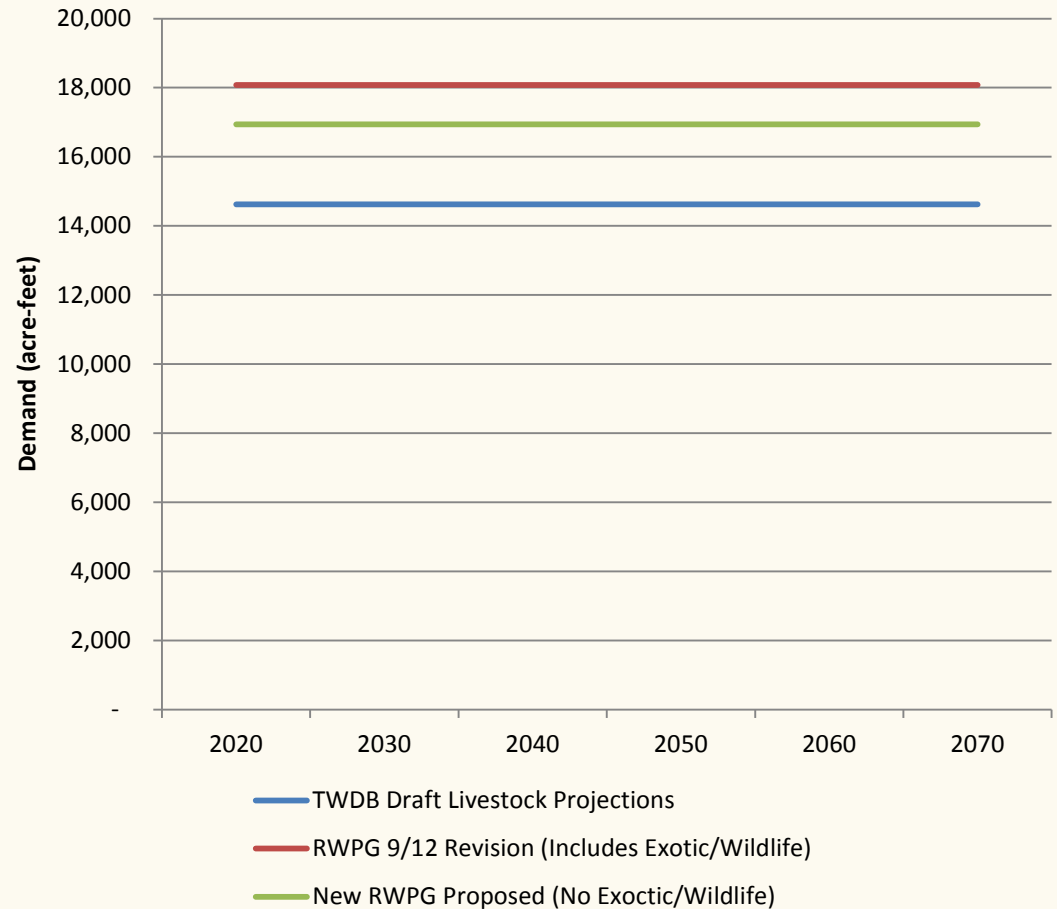
# Livestock Demands

RWPG revised the TWDB Draft Livestock Demands

Included Exotic/Wildlife Water Demand

TWDB denied request for increased demand due to Exotics/Wildlife

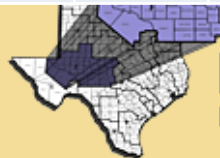
New Revisions for RWPG consideration and approval



# Mining Demands

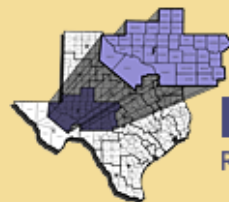
County	2020	2030	2040	2050	2060	2070
Andrews	3,959	3,710	3,177	2,509	1,929	1,483
Borden	679	927	784	494	244	121
Brown	943	948	951	952	948	944
Coke	488	482	430	376	328	286
Coleman	108	107	97	86	77	69
Concho	480	474	422	367	320	279
Crane	617	840	861	692	531	407
Crockett	1,732	1,843	1,261	682	207	63
Ector	1,977	2,164	1,926	1,574	1,272	1,076
Glasscock	3,423	3,101	2,384	1,679	1,100	798
Howard	2,491	2,747	1,940	1,138	476	199
Irion	3,192	3,357	2,423	1,487	713	342
Kimble	19	19	19	19	19	19
Loving	792	1,058	934	762	601	474
Martin	3,527	2,998	2,251	1,441	771	413
Mason	1,023	941	708	568	460	372
McCulloch	8,927	8,347	6,641	5,627	4,836	4,201
Menard	1,086	1,071	952	827	717	622
Midland	3,893	3,418	2,630	1,774	1,056	743
Mitchell	593	738	632	493	375	290
Pecos	690	1,068	1,072	861	672	524
Reagan	4,211	3,395	2,457	1,406	529	199
Reeves	1,531	2,632	2,537	2,068	1,632	1,288
Runnels	272	269	240	210	184	161
Schleicher	621	732	562	392	241	148
Scurry	280	456	483	363	246	167
Sterling	780	953	812	522	270	140
Sutton	446	720	763	573	389	264
Tom Green	1,056	1,080	1,119	1,112	1,134	1,156
Upton	4,237	3,634	2,873	1,926	1,150	803
Ward	797	964	840	645	458	329
Winkler	787	1,169	991	756	531	373
<b>TOTAL</b>	<b>55,657</b>	<b>56,362</b>	<b>46,172</b>	<b>34,381</b>	<b>24,416</b>	<b>18,753</b>

- Projections from the 2012 BEG Report Update
- Presented at last RWPG Meeting
- One comment received
- No changes

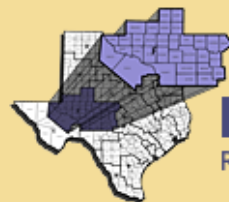


# Next Steps

- RWPG approval:
  - Population revisions
  - Municipal demand changes
  - Mining demands
  - Livestock demands
  - Manufacturing, steam electric power and irrigation
- Submit changes to TWDB by August 16
- TWDB plans to take population and demands to Board in September



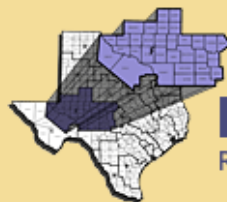
# **EVALUATION OF WATER MANAGEMENT STRATEGIES (TASK 4D) SCOPE OF WORK**



**REGION F WATER PLAN**  
Regional Water Planning Group

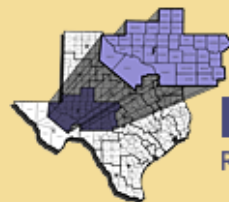
# Water Management Strategies

- 30 Strategies from 2011 Region F Plan to be retained
- 5 strategies have been implemented:
  - CRMWD Ward County well field expansion
  - Big Spring reuse
  - Midland T-Bar ranch well field development
  - Phase 1 – Hickory well field – San Angelo
  - Eden RO plant (in progress)



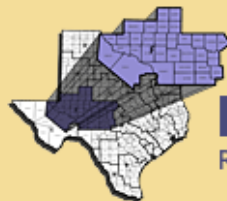
# New Water Management Strategies

- West Texas Water Partnership (Midland, San Angelo)
- Reuse Projects (Midland, Brownwood, Crockett Co WCID #1, non-municipal users)
- Infrastructure Improvements with Purchase (Bronte)
- Desalination:
  - CRMWD Diverted water system
  - Odessa Brackish desalination
- New groundwater with ASR (CRMWD)
- Red Arroyo surface water project



# New Water Management Strategies

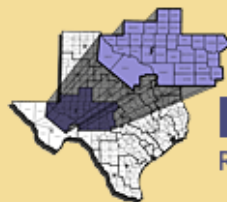
- City of Junction dredging of intake storage
- Mining
  - New groundwater
  - Voluntary Re-distribution (sales)
  - Reuse





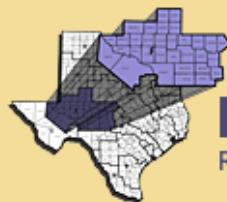
# Water Management Strategy Scope

- Working Draft
- Includes 6 Major Strategy Types:
  - Subordination
  - Conservation
  - Desalination
  - Infrastructure Improvements
  - New Groundwater Development
  - Voluntary Re-distribution



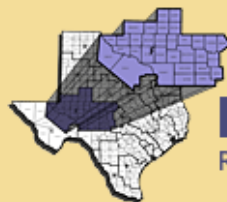
# Next Steps

- Coordinate with WWPs on future strategies
- Develop draft needs analysis and identify WUGs with needs
- Refine list of Potentially Feasible Strategies
- Finalize scope of work and fee
- RWPG approve scope/fee



# RWPG Schedule

- **August 16, 2013** – Approved population and water demands due to TWDB
- **October 2013** – Water Needs/ Strategies
- **March 2014** – Technical Memorandum
  - Submit to TWDB by May 1, 2014
- **July 2014** – Strategies, Drought, Legislative Recommendations



# RWPG Schedule

- **November 2014** – Financing Report, Region Description, Implementation
- **March 2015** – Initially Prepared Plan
  - Submit to TWDB by May 1, 2015
- **May/ June 2015** – Public Hearing
  - 30 days after distribution of IPP
- **September 2015** – Final 2016 Region F Plan
  - Submit to TWDB by November 1, 2015

