

**5B.37 Young County Water Supply Plan**

Table 5B.37-1 lists each water user group in Young County and their corresponding surplus or shortage in years 2030 and 2050. For each water user group with a projected shortage, a water supply plan has been developed and is presented in the following subsections. Water supply plans are also presented for some entities that need pumping/conveyance facilities to utilize their existing water resources, or to become a regional provider. In addition, long-term considerations are provided for some entities with projected surpluses.

**Table 5B.37-1.  
Young County Surplus/(Shortage)**

Water User Group	Surplus/(Shortage) <sup>1</sup>		Comment
	2030 (acft/yr)	2050 (acft/yr)	
City of Graham	6,078	6,163	Projected surplus
City of Newcastle	0	0	Supply equals demand
County-Other	129	123	Projected surplus
Manufacturing	(223)	(299)	Projected shortage – see plan below
Steam-Electric	(3,500)	(3,500)	Projected shortage – see plan below
Mining	375	380	Projected surplus
Irrigation	(265)	(235)	Projected shortage – see plan below
Livestock	0	0	Supply equals demand

<sup>1</sup> From Tables 4-73 and 4-74, Section 4 – Comparison of Water Demands with Water Supplies to Determine Needs.

**5B.37.1 The City of Graham**

The City of Graham obtains surface water from Lakes Graham and Eddleman. No future shortages are projected and no changes in water supply are recommended.

**5B.37.2 The City of Newcastle**

No future shortages are projected for the City of Newcastle and no changes in water supply uses are recommended.

**5B.37.3 County-Other Category**

No future shortages are projected and no changes in water supply uses are recommended.

**5B.37.4 Manufacturing**

**5B.37.4.1 Description of Supply**

Currently, there is no water supply categorized for Manufacturing use.

**5B.37.4.2 Options Considered**

Table 5B.37-2 lists the water management strategies, references to the report section discussing the strategy, total project cost, and unit costs that were considered for the Manufacturing category.

**Table 5B.37-2.  
Water Management Strategies Considered for Young County Manufacturing**

Option	Yield (acft/yr)	Approximate Cost	
		Total	Unit (\$/acft)
Voluntary redistribution from Municipal supply	223	\$0	\$0
South Bend Reservoir (Section 5A.14.2)	106,700	\$205,000,000	\$141
No Action	-	\$39,929,000*	\$179,053*

\* Economic impact of not meeting shortage (i.e., "no action" alternative) in 2030 as estimated by TWDB.

**5B.37.4.3 Water Supply Plan**

Working within the planning criteria established by the Brazos G RWPG and TWDB, the following water supply plan is recommended to meet the projected 2030 shortage of the Manufacturing category:

- Voluntary redistribution from Municipal Supply

The South Bend Reservoir has been recommended for consideration for long-term needs for the Brazos River Authority, as a major water provider, as described in Section 5B.38. The project is much too large to be pursued by any individual municipality, but if the BRA pursues it, this source should be considered by local entities.

**5B.37.4.4 Costs**

Costs of the Recommended Plan for Manufacturing:

- a. Voluntary redistribution from Municipal Supply:
  - Cost Source: Estimated wholesale of \$650/acft for treated water
  - Date to be Implemented: In place
  - Total Project Cost: \$0

### **5B.37.5 Steam-Electric**

#### **5B.37.5.1 Description of Supply**

Currently there is no water supply allocated to meet the Steam-Electric demand, which is from a TXU power plant on Lake Graham.

#### **5B.37.5.2 Options Considered**

During the public comment and review period, the consultant will be in contact with TXU and City of Graham to clarify under what water right this existing plant obtains its water supply.

### **5B.37.6 Mining**

The water supply entities for Mining show a projected surplus. Therefore, no changes in the water supply system are recommended.

### **5B.37.7 Irrigation**

#### **5B.37.7.1 Description of Supply**

Surface water supplies for Irrigation in Young County have been obtained from the Clear Fork of the Brazos, Salt Creek, and other small tributaries to these streams in the past. The estimated reliable supply of surface water for Irrigation is 143 acft until 2050. There are no significant groundwater supplies in the county.

#### **5B.37.7.2 Options Considered**

Table 5B.37-4 lists the water management strategies that were considered for Young County Irrigation shortages, and references the report section discussing the strategy, total project cost, and unit costs for meeting the shortage.

#### **5B.37.7.3 Water Supply Plan**

According to the Texas Agriculture Experiment Station, Young County has not practiced any significant irrigation in the past several years. Conversion to dryland production has occurred. Brush control and weather modification may be used to enhance dryland farming efficiency. The projected shortages for Irrigation are probably overstated, based on previous data.

**Table 5B.37-3.  
Water Management Strategies Considered for Young County Irrigation**

<i>Option</i>	<i>Yield (acft/yr)</i>	<i>Approximate Cost</i>	
		<i>Total</i>	<i>Unit (\$/acft)</i>
Brush Control <sup>1</sup>	(*)	(*)	(*)
Weather Modification <sup>2</sup>	(*)	\$500,000 to \$850,000/yr	(*)
No Action	-	\$38,000*	\$144*
<sup>1</sup> Source of Cost Estimate: Section 5B.9. <sup>2</sup> Source of Cost Estimate: Section 5B.1. * Economic impact of not meeting shortage (i.e., "no action" alternative) in 2030 as estimated by TWDB.			

**5B.37.7.4 Costs**

Costs of the Recommended Plan for irrigation supply are outlined in Table 5B.37-5. Costs for some options, such as brush control and weather modification, can not be directly quantified due to lack of specific data. Costs for these options have been estimated based on generally available data outlined in the corresponding chapter in Section 5B.

**5B.37.8 Livestock**

Livestock water use category shows no projected shortage and no changes in water supply are recommended.

**Table 5B.37-4.  
Recommended Plan Costs by Decade for the Young County Irrigation<sup>1</sup>**

<i>Plan Element</i>	<i>2000</i>	<i>2010</i>	<i>2020</i>	<i>2030</i>	<i>2040</i>	<i>2050</i>
<b>Brush Control</b>						
Projected Shortage (acft/yr)	(313)	(296)	(280)	(265)	(250)	(235)
Supply from Plan Element (acft/yr)	(*)	(*)	(*)	(*)	(*)	(*)
Annual Cost (\$/yr)	(*)	(*)	(*)	(*)	(*)	(*)
Unit Cost (\$/acft)	(*)	(*)	(*)	(*)	(*)	(*)
<b>Weather Modification<sup>2</sup></b>						
Supply from Plan Element (acft/yr)	(*)	(*)	(*)	(*)	(*)	(*)
Annual Cost (\$/yr)	\$500,000 to \$850,000	\$500,000 to \$850,000	\$500,000 to \$850,000	\$500,000 to \$850,000	\$500,000 to \$850,000	\$500,000 to \$850,000
Unit Cost (\$/acft)	(*)	(*)	(*)	(*)	(*)	(*)
<b>Sum of Supply from Plan Elements (acft/yr)</b>	(*)	(*)	(*)	(*)	(*)	(*)
<b>Unmet Demands<sup>3</sup></b>	(313)	(296)	(280)	(265)	(250)	(235)
<sup>1</sup> Unless otherwise noted, costs are Total Project Cost and Unit Cost (\$/acft per year) for water conserved through management practices. Unit cost is for full utilization of project capacity. <sup>2</sup> Source of Cost Estimate: Section 5B.10. <sup>3</sup> Projected shortages listed as unmet demands are probably overstated. Irrigation demand in Young County has been significantly reduced in recent years due to conversion to dryland farming. * Definitive yield and/or cost cannot be determined.						