

**4B.6 Jim Wells County Water Supply Plan**

Table 4B.6-1 lists each water user group in Jim Wells County and their corresponding surplus or shortage in years 2030 and 2060. For each water user group with a projected shortage, a water supply plan has been developed and is presented in the following subsections.

**Table 4B.6-1.  
Jim Wells County Surplus/(Shortage)**

| Water User Group   | Surplus/(Shortage) <sup>1</sup> |                | Comment   |
|--|---------------------------------|----------------|---|
|  | 2030 (acft/yr)                  | 2060 (acft/yr) |   |
| City of Alice  | 0                               | 0              | Supply equals demand  |
| City of Orange Grove   | 0                               | 0              | Supply equals demand  |
| City of Premont  | 0                               | 0              | Supply equals demand  |
| City of San Diego  | 0                               | 0              | Supply equals demand  |
| County-Other   | (262)                           | (170)          | Projected shortages for entire planning period — see plan below |
| Manufacturing  | none                            | none           | No demands projected  |
| Steam-Electric   | none                            | none           | No demands projected  |
| Mining   | 0                               | 0              | Supply equals demand  |
| Irrigation   | 0                               | 0              | Supply equals demand  |
| Livestock  | 0                               | 0              | Supply equals demand  |
| <sup>1</sup> From Tables 4A-9 and 4A-10, Section 4 – Comparison of Water Demands with Water Supplies to Determine Needs. |                                 |                |   |

**4B.6.1 City of Alice**

The City of Alice has a contract to purchase water from the City of Corpus Christi via Lake Corpus Christi. The City also maintains a small reservoir in town, Lake Alice, which serves as temporary storage of waters from Lake Corpus Christi. This reservoir is fed naturally by a small watershed and has no effective firm yield. No shortages are projected for the City of Alice. In 2000 the City of Alice has a per capita per day usage of 248 gallons per capita per day (gpcd) and an estimated usage of 234 gpcd in 2060 (after built-in savings for low flow plumbing fixtures), based on TWDB water demand and population projections. The CBRWPG recommends additional water conservation of 15 percent by 2060 for all municipal entities with

reported use greater than 165 gpcd in 2060 (Section 4C.1). The City of Alice is currently studying ways to reduce water use.

#### **4B.6.2 City of Orange Grove**

The City of Orange Grove's water supply is from the Gulf Coast Aquifer. No shortages are projected for the City of Orange Grove. In 2000 the City of Orange Grove has a per capita per day usage of 245 gallons per capita per day (gpcd) and an estimated usage of 230 gpcd in 2060 (after built-in savings for low flow plumbing fixtures), based on TWDB water demand and population projections. The CBRWPG recommends additional water conservation of 15 percent by 2060 for all municipal entities with reported use greater than 165 gpcd in 2060 (Section 4C.1).

#### **4B.6.3 City of Premont**

The City of Premont's water supply is from the Gulf Coast Aquifer. No shortages are projected for the City of Premont. In 2000 the City of Premont has a per capita per day usage of 260 gallons per capita per day (gpcd) and an estimated usage of 246 gpcd in 2060 (after built-in savings for low flow plumbing fixtures), based on TWDB water demand and population projections. The CBRWPG recommends additional water conservation of 15 percent by 2060 for all municipal entities with reported use greater than 165 gpcd in 2060 (Section 4C.1).

#### **4B.6.4 City of San Diego**

The City of San Diego is in both Duval and Jim Well Counties; consequently, its water demand and supply values are split into tables for each county. The City of San Diego receives groundwater supplies from the Goliad Sands of the Gulf Coast Aquifer. The City of Alice has run a 16-inch water transmission line to Hwy 281 bypass, approximately 8 to 9 miles from the City of San Diego.<sup>1</sup> This pipeline could be extended to provide water supply from the City of Alice to San Diego.

No shortages are projected for the City of San Diego. Although projections indicate that San Diego's current wells will produce adequate supply to meet their anticipated demand, there is local concern that the quality of the water produced by the city's wells will decline to the point that advanced treatment will be necessary to stay in compliance with regulatory water quality

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<sup>1</sup> Conservation with Carl Crull, July 2005.

guidelines. If the City of San Diego requires groundwater desalination for their highest water demand over the planning period, a 1 MGD reverse osmosis membrane system would be sufficient. If no additional infrastructure is required, it is estimated that the total capital cost for a membrane WTP will be \$3,280,000, and total project cost will be \$4,844,000. Total annual cost will be \$662,000, resulting in a unit cost of \$591 per acft, or \$1.81 per 1,000 gallons assuming full utilization of treatment plant.

#### **4B.6.5 County-Other**

##### **4B.6.5.1 Description**

- Source: Groundwater - Gulf Coast Aquifer
- Estimated Reliable Supply: 1,944- 1,976 acft/yr
- System Description: Limited by well capacity in Nueces-Rio Grande River Basin.

##### **4B.6.5.2 Options Considered**

The function of the County-Other demand projection category is to capture the demands of single-family rural municipal demands as well as demands for small rural water supply systems. Jim Wells County-Other users have projected shortages of 167 acft/yr in 2010, 262 acft/yr in 2030, and 170 acft/yr in 2060. Near-term (2010) and long-term shortages (2060) are about 8 percent of demand. Table 4B.6-2 lists the water management strategies, references to the report sections discussing the strategy, total project cost, and unit costs that were considered for meeting the Jim Wells County Other shortages.

**Table 5.6-2.  
Water Management Strategies Considered for Jim Wells County-Other**

| <b>Option</b>   | <b>Yield<br/>(acft/yr)</b> | <b>Approximate Cost<sup>1</sup></b> |                           |
|---|----------------------------|-------------------------------------|---------------------------|
|   |                            | <b>Total</b>                        | <b>Unit<br/>(\$/acft)</b> |
| Gulf Coast Aquifer Groundwater Supplies —<br>Drill Additional Well(s) (Section 4C.7)  | 565                        | \$746,000 <sup>2</sup>              | \$140 <sup>2</sup>        |
| <sup>1</sup> Unless otherwise noted, costs are Total Project Cost and Unit Cost (\$/acft/yr) for treated water delivered to the water supply entity or entities. Unit cost is for full utilization of project capacity.<br><sup>2</sup> Source of Cost Estimate: Section 4C.7. Table 4C.7-11, 0.6 MGD WTP, fully utilized. Cost estimates are based on size and depth of well(s) to meet needs. |                            |                                     |                           |

#### 4B.6.5.3 Water Supply Plan

Working within the planning criteria established by the Coastal Bend RWPG and TWDB, the following water supply plan is recommended to meet the projected shortages for the Jim Wells County-Other users:

- Gulf Coast Aquifer Supplies – Drill additional well(s).

In addition to the management strategy listed above, the RWPG supports strategies for increased conservation and reuse of existing supplies.

#### 4B.6.5.4 Costs

Groundwater supplies for Jim Wells County-Other users are currently limited by well capacity. Two new wells would be required to meet the projected shortages for Jim Wells County-Other. The recommended Water Supply Plan including anticipated costs is summarized by decade in Table 4B.6-3.

**Table 4B.6-3.  
Recommended Plan Costs by Decade for Jim Wells County-Other**

| <i>Plan Element</i>   | <i>2010</i> | <i>2020</i> | <i>2030</i> | <i>2040</i> | <i>2050</i> | <i>2060</i> |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| Projected Surplus/(Shortage) (acft/yr)                                    | (167)       | (238)       | (262)       | (241)       | (210)       | (170)       |
| <b>Gulf Coast Aquifer Groundwater Supplies — Drill Additional Well(s)</b> |             |             |             |             |             |             |
| Supply From Plan Element (acft/yr)  | 565         | 565         | 565         | 565         | 565         | 565         |
| Total Annual Cost (\$/yr)   | \$79,000    | \$79,000    | \$79,000    | \$79,000    | \$79,000    | \$79,000    |
| Total Unit Cost (\$/acft)   | \$140       | \$140       | \$140       | \$140       | \$140       | \$140       |

#### 4B.6.6 Manufacturing

No manufacturing demand exists or is projected for the county.

#### 4B.6.7 Steam-Electric

No steam-electric demand exists or is projected for the county.

#### 4B.6.8 Mining

Mining demands are met by groundwater from the Gulf Coast Aquifer. No shortages are projected for mining and no changes in water supply are recommended.

**4B.6.9 Irrigation**

Irrigation demands are met by groundwater from the Gulf Coast Aquifer. No shortages are projected for irrigation and no changes in water supply are recommended.

**4B.6.10 Livestock**

The livestock water demands in Jim Wells County are met by groundwater from the Gulf Coast Aquifer and surface water from local on-farm sources. No shortages are projected for livestock and no changes in water supply are recommended.

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