

4B.12 San Patricio County Water Supply Plan

Table 4B.12-1 lists each water user group in San Patricio 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. 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.

**Table 4B.12-1.
San Patricio County Surplus/(Shortage)**

Water User Group	Surplus/(Shortage)¹		Comment
	2030 (acft/yr)	2060 (acft/yr)	
City of Aransas Pass	0	0	Supply equals demand
City of Gregory	0	0	Supply equals demand
City of Ingleside	0	0	Supply equals demand
City of Ingleside on the Bay	0	0	Supply equals demand
Lake City	(11)	(37)	Projected shortage — see plan below
City of Mathis	0	0	Supply equals demand
City of Odem	0	0	Supply equals demand
City of Portland	0	0	Supply equals demand
City of Sinton	0	0	Supply equals demand
City of Taft	0	0	Supply equals demand
County-Other	0	0	Supply equals demand
Manufacturing	0	(4,299)	Projected shortage — see plan below
Steam-Electric	none	none	No demands projected
Mining	0	0	Supply equals demand
Irrigation	83	83	Projected surplus
Livestock	0	0	Supply equals demand

¹ From Tables 4A-21 and 4A-22, Section 4 – Comparison of Water Demands with Water Supplies to Determine Needs.

4B.12.1 City of Aransas Pass

The City of Aransas Pass is in Aransas, Nueces and San Patricio Counties, consequently, its water demand and supply values are split into the tables for each county. Aransas Pass contracts with the San Patricio Municipal Water District (SPMWD) to purchase treated water from the CCR/LCC/Texana System. The contract allows the City to purchase only the water that it needs. No shortages are projected for the City of Aransas Pass and no changes in water supply are recommended.

4B.12.2 City of Gregory

The City of Gregory has a contract with the SPMWD to purchase treated water. The contract allows the City to purchase only the water that it needs. No shortages are projected for the City of Gregory and no changes in water supply are recommended.

4B.12.3 City of Ingleside

The City of Ingleside has a contract with the SPMWD to purchase treated water. The contract allows the City to purchase only the water that it needs. No shortages are projected for the City of Ingleside and no changes in water supply are recommended.

4B.12.4 City of Ingleside on the Bay

The City of Ingleside on the Bay has a contract with the SPMWD to purchase treated water. The contract allows the City to purchase only the water that it needs. No shortages are projected for the City of Ingleside on the Bay and no changes in water supply are recommended.

4B.12.5 Lake City

4B.12.5.1 Description

- Source: Groundwater – Gulf Coast Aquifer
- Estimated Reliable Supply: 88 acft/yr
- System Description: Limited by well capacity.

4B.12.5.2 Options Considered

Lake City users have projected shortages of 11 acft/yr in 2030 increasing to 37 acft/yr in 2060. Table 4B.12-2 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 Lake City’s shortages.

**Table 4B.12-2.
Water Management Strategies Considered for Lake City**

Option	Yield (acft/yr)	Approximate Cost ¹	
		Total	Unit (\$/acft)
Gulf Coast Aquifer Supplies — Drill Additional Well (Section 4C.7)		\$262,000	\$300 ²
¹ 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. ² Source of Cost Estimate: Section 4C.7. Table 4C.7-13, 0.07 MGD water treatment plant fully utilized. Cost estimates are based on size and depth of well(s) to meet needs.			

4B.12.5.3 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 Lake City:

- Gulf Coast Aquifer Supplies- Drill one additional well.

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

4B.12.5.4 Costs

Groundwater supplies for Lake City users are currently limited by well capacity. One new well would be required to meet the projected shortages for Lake City. The recommended Water Supply Plan including anticipated costs is summarized by decade in Table 4B.12-3.

**Table 4B.12-3.
Recommended Plan Costs by Decade for Lake City**

Plan Element	2010	2020	2030	2040	2050	2060
Projected Surplus/(Shortage) (acft/yr)	—	(1)	(11)	(19)	(28)	(37)
Gulf Coast Aquifer Supplies-Drill additional well						
Supply From Plan Element (acft/yr)	—	80	80	80	80	80
Total Annual Cost (\$/yr)	—	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000
Total Unit Cost (\$/acft)	—	\$300	\$300	\$300	\$300	\$300

4B.12.6 City of Mathis

The City of Mathis has a contract with the City of Corpus Christi to purchase raw water from the CCR/LCC System. The contract allows the City to purchase only the water that it needs. No shortages are projected for the City of Mathis and no changes in water supply are recommended.

4B.12.7 City of Odem

The City of Odem has a contract with the SPMWD to purchase treated water. The contract allows the City to purchase only the water that it needs. No shortages are projected for the City of Odem and no changes in water supply are recommended.

4B.12.8 City of Portland

The City of Portland has a contract with the SPMWD to purchase treated water. The contract allows the City to purchase only the water that it needs. No shortages are projected for the City of Portland and no changes in water supply are recommended.

4B.12.9 City of Sinton

The City of Sinton meets its demands with groundwater pumped from the Gulf Coast Aquifer. The City has three wells with a total capacity of 3.67 MGD, or 2,055 acft/yr. The City of Sinton is expected to only pump water needed to meet projected demands. No shortages are projected for the City of Sinton and no changes in water supply are recommended.

4B.12.10 City of Taft

The City of Taft has a contract with the SPMWD to purchase treated water. The contract allows the City to purchase only the water that it needs. No shortages are projected for the City of Taft and no changes in water supply are recommended.

4B.12.11 County-Other

County-Other demands are met with surface water from the CCR/LCC/Texana System provided by the SPMWD and groundwater from the Gulf Coast Aquifer. No shortages are projected for County-Other entities and no changes in water supply are recommended.

4B.12.12 Manufacturing

4B.12.12.1 Description

The City of Corpus Christi provides the surface water for manufacturing in Nueces County from the CCR/LCC/Texana System. Additional manufacturing supplies are from the Gulf Coast Aquifer. The City also provides surface water for manufacturing in San Patricio County. *In the analysis that follows, the manufacturing needs of Nueces and San Patricio Counties are considered jointly.* A shortage in manufacturing supply occurs in 2040.

4B.12.12.2 Options Considered

Over 90 percent of the water supplied to Manufacturing users in Nueces and San Patricio Counties is from the CCR/LCC/Lake Texana System via Wholesale Water Providers (City of Corpus Christi and SPMWD). Beginning in 2040, shortages begin to appear and grow to a combined 42,192 acft/yr in 2060 (37,893 acft/yr in Nueces County and 4,299 acft/yr in San Patricio County). Table 4b.12-4 lists the water management strategies, references to the report section discussing the strategy, total project cost, and unit costs that were considered for meeting the shortage for manufacturing in Nueces and San Patricio Counties.

4B.12.12.3 Water Supply Plan

Working within the planning criteria established by the Coastal Bend RWPG and TWDB, the following water supply plan is one potential plan to meet the projected 2040 through 2060 shortages for manufacturing in Nueces and San Patricio Counties:

- Manufacturing Water Conservation
- Reclaimed Wastewater Supplies
- Gulf Coast Aquifer Groundwater Supplies
- Garwood Pipeline
- Stage II of Lake Texana
- Voluntary Redistribution and USCOE Nueces Feasibility Projects

The USCOE is currently studying six projects as part of the Nueces River Basin Feasibility Study to evaluate opportunities for flood damage reduction, ecosystem restoration, and/or benefit water supplies in South Texas. The six projects selected by the USCOE and participating sponsors for feasibility studies are: desalination facilities, wastewater diversion to

the Nueces Delta, Cotulla Diversion Project, CCR/LCC Pipeline with Off Channel Storage, Recharge Enhancement Projects, and brush management opportunities.

Table 4B.12-4.
Water Management Strategies Considered for
Manufacturing in Nueces and San Patricio Counties

Option	Yield (acft/yr)	Approximate Cost ¹	
		Total	Unit (\$/acft)
Manufacturing Conservation (Section 4C.3)	up to 2,050	N/A	N/A
Reclaimed Wastewater Supplies (Section 4C.5)	250	\$1,500,000 ²	\$725 ²
Gulf Coast Aquifer Groundwater Supplies (Section 4C.7)	up to 18,000	\$45,642,000 ³	\$598 ³
Garwood Pipeline (Section 4C.14)	35,000	\$81,117,000 ⁵	\$505 ⁵
Stage II Lake Texana (Palmetto Bend) (Section 4C.13)	23,000	\$149,185,000 ⁴	\$788 ⁴
Voluntary Redistribution and USCOE Nueces Feasibility Projects (Section 4C.12)	up to 62,205 ⁶	\$178,281,250 ⁶	\$348-491 ⁶

¹ 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.

² See Section 4C.5. Total cost provided by City for Allison Demonstration Project. Unit costs based on annual program costs of \$500,000 per year and \$225 per acft for treatment.

³ Source of Cost Estimate: Section 4C.7, Table 4C.7-15. Unit cost includes \$225/acft for treatment.

⁴ Source of Cost Estimate: Section 4C.13, Table 4C.13-6, cost of construction of the dam and delivery to Lake Texana. Unit cost = \$225/acft for treatment + \$563/acft for raw water supply development.

⁵ Source of Cost Estimate: Section 4C.14, Table 4C.14-2. Unit cost = \$225/acft for treatment + \$280/acft for raw water supply development.

⁶ Water supplied is 65 percent of project potential, with 35 percent dedicated for ecosystem restoration. Source of Cost Estimate: Includes off-Channel Reservoir (Section 4C.11), CCR/LCC Pipeline (Section 4C.10), and Seawater Desalination Projects (Section 4C.17) with cost reduction of 65 percent due to Federal participation. Unit cost includes \$225/acft for treatment of water associated with CCR/LCC Pipeline and Off-Channel Reservoir Project, and varies based on project implementation schedule.

Three of the six projects were considered in the cost estimate in Table 4B.12-5 (desalination, CCR/LCC Pipeline, and Off-Channel Storage). Costs to implement these projects could potentially be reduced through Federal participation as may be available through the USCOE Nueces River Basin Feasibility Study.

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

4B.12.12.4 Costs

The recommended Water Supply Plan including anticipated costs is summarized by decade in Table 5.12-5.

**Table 4B.12-5.
Potential Plan Costs by Decade for Manufacturing in Nueces and San Patricio Counties¹**

<i>Plan Element</i>	2010	2020	2030	2040	2050	2060
Projected Surplus/(Shortage) ² (acft/yr)	—	—	—	(11,627)	(25,283)	(42,192)
Manufacturing Water Conservation³						
Supply From Plan Element (acft/yr)	1,260	1,418	1,576	1,734	1,892	2,050
Annual Cost (\$/yr)	—	—	—	—	—	—
Unit Cost (\$/acft)	—	—	—	—	—	—
Reclaimed Wastewater Supplies⁴						
Supply From Plan Element (acft/yr)	250	250	250	250	250	250
Annual Cost (\$/yr)	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000
Unit Cost (\$/acft)	\$725	\$725	\$725	\$725	\$725	\$725
Gulf Coast Aquifer Groundwater Supplies						
Supply From Plan Element (acft/yr)	11,000	11,000	11,000	11,000	11,000	18,000
Annual Cost (\$/yr)	\$9,182,000	\$9,182,000	\$9,182,000	\$9,182,000	\$9,182,000	\$10,757,000
Unit Cost (\$/acft)	\$598 ⁵	\$598 ⁵	\$598 ⁵	\$598 ⁵	\$598 ⁵	\$598 ⁵
Garwood Pipeline						
Supply From Plan Element (acft/yr)	—	—	35,000	35,000	35,000	35,000
Annual Cost (\$/yr)	—	—	\$17,679,000	\$17,679,000	\$17,679,000	\$17,679,000
Unit Cost (\$/acft)	—	—	\$505	\$505	\$505	\$505
Stage II of Lake Texana						
Supply From Plan Element (acft/yr)	—	—	—	—	—	23,000
Annual Cost (\$/yr)	—	—	—	—	—	\$18,132,000
Unit Cost (\$/acft)	—	—	—	—	—	\$788
Voluntary Redistribution and USCOE Nueces Feasibility Projects⁶						
Supply From Plan Element (acft/yr)	—	25,000	25,000	62,205	62,205	62,205
Annual Cost (\$/yr)	—	\$8,699,400	\$8,699,400	\$30,549,725	\$30,549,725	\$30,549,725
Unit Cost (\$/acft)	—	\$348	\$348	\$491	\$491	\$491
Total Annual Cost (\$/yr)	\$9,307,000	\$18,006,400	\$35,685,400	\$57,535,725	\$57,535,725	\$77,242,725
Total Unit Cost (\$/acft)	\$540	\$410	\$455	\$499	\$498	\$550
¹ Supplies exceed shortages in case water growth patterns and demands exceed TWDB projections or supplies are reduced under the City's contract with LNRA for Lake Texana water. ² Surplus/(Shortage) includes both Nueces and San Patricio Counties. ³ Water supply represents water saved by blending of Lake Texana water with Nueces River water. ⁴ Costs to maintain ongoing Nueces Delta studies are \$500,000 per year (assumed cost associated with Allison Demonstration Project is 25 percent). Water supply for Allison Project based on ratio of yield recovered by a 2-MGD project as compared to an 8.8-MGD project (See Section 4C.5). Costs to supply Allison discharge to delta includes \$225/acft for treatment of additional yield. ⁵ Assumes full utilization of project. Unit cost based on 18,000 acft project + \$225/acft for treatment (See Section 4C.7) although treatment may not be required if separate pipeline is constructed so that groundwater would not be blended with water in Mary Rhodes pipeline. ⁶ Annual costs and unit cost are based on Federal funding participation of 65 percent. Water supplied is 65 percent of project potential, with 35 percent dedicated for ecosystem restoration. \$225/acft added for treatment for supplies from Off-Channel and CCR/LCC Pipeline. Assumes implementation of CCR/LCC pipeline in 2020 with desalination plant and off-channel reservoir by 2040.						

4B.12.13 Steam-Electric

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

4B.12.14 Mining

The mining demands in San Patricio County are met by groundwater from Gulf Coast Aquifer. No shortages are projected for mining and no changes in water supply are recommended.

4B.12.15 Irrigation

The irrigation demands in San Patricio County are met by groundwater from Gulf Coast Aquifer and small San Antonio-Nueces Basin run-of-river water rights. No shortages are projected for irrigation and no changes in water supply are recommended.

4B.12.16 Livestock

The livestock water demands in San Patricio 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.