

4B.11 Nueces County Water Supply Plan

Table 4B.11-1 lists each water user group in Nueces 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 water from wholesale water providers.

**Table 4B.11-1.
Nueces County Surplus/(Shortage)**

Water User Group	Surplus/(Shortage)¹		Comment
	2030 (acft/yr)	2060 (acft/yr)	
City of Agua Dulce	0	0	Supply equals demand
City of Aransas Pass	0	0	Supply equals demand
City of Bishop	0	0	Supply equals demand
City of Corpus Christi	0	0	Projected surplus through 2020, then supply equals demand
City of Driscoll	0	0	Supply equals demand
Nueces County WCID #4	0	0	Supply equals demand
City of Port Aransas	0	0	Supply equals demand
River Acres WSC	(355)	(590)	Projected shortage for entire planning period — see plan below
City of Robstown	0	0	Supply equals demand
County-Other	146	383	Projected shortage in 2010; Projected surplus from 2030 through 2060
Manufacturing	0	(37,893)	Projected shortage – see plan below
Steam-Electric	0	0	Supply equals demand
Mining	(570)	(1,612)	Projected shortage in 2030 and continuing through 2060 – see plan below
Irrigation	2,944	3,329	Projected Surplus
Livestock	0	0	Supply equals demand
¹ From Tables 4A-19 and 4A-20, Section 4 – Comparison of Water Demands with Water Supplies to Determine Needs.			

4B.11.1 City of Agua Dulce

The City of Agua Dulce has a contract with the South Texas Water Authority (STWA) to purchase treated surface water from the CCR/LCC/Texana System. No shortages are projected for the City of Agua Dulce and no changes in water supply are recommended.

4B.11.2 City of Aransas Pass

The City of Aransas Pass is in Aransas, Nueces and San Patricio Counties; consequently, the 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.11.3 City of Bishop

The City of Bishop has a contract with STWA to purchase treated surface water. The current contract allows Bishop to purchase as much as 10 percent above what it has purchased in the previous 12 months. Additionally, the City pumps groundwater from the Gulf Coast Aquifer. No shortages are projected for the City of Bishop and no changes in water supply are recommended.

4B.11.4 City of Corpus Christi

The City of Corpus Christi meets its demands with its own water rights in the CCR/LCC System and through a contract with the Lavaca-Navidad River Authority (LNRA) that provides water from Lake Texana. Although no shortages are projected for the City's own municipal needs, the City also provides surface water to SPMWD, STWA, and manufacturing and steam-electric water user groups in Nueces and San Patricio Counties. The City's contract with LNRA expires in 2035; however, it is anticipated that this contract will be renewed when it expires. Therefore, water supply tables in Section 4 and in the water supply plans for Nueces County-Manufacturing (Section 4B.11.10) and San Patricio County-Manufacturing (Section 4B.12.11) include Lake Texana contract water as existing supply throughout the 60-year planning horizon.

In addition to these water supply sources, the City has a permit to divert up to 35,000 acft/yr of run-of-river water under its interbasin transfer permit on the Colorado River (via the Garwood Irrigation Co.). While the City owns the water right on the Colorado River, it does not have the facilities to divert and convey this water to the City. In the long-term (beyond 2030), the City will have to access this water—either directly or via a trade—to help offset the manufacturing shortages in Nueces and San Patricio Counties.

4B.11.5 City of Driscoll

The City of Driscoll has a contract with STWA to purchase treated surface water from the CCR/LCC/Texana System. No shortages are projected for the City of Driscoll and no changes in water supply are recommended.

4B.11.6 Nueces County WCID #4

The Nueces County WCID #4 has contracts with City of Corpus Christi and SPMWD to purchase treated surface water from the CCR/LCC/Texana System and serves the City of Port Aransas. Nueces County WCID #4 and Port Aransas water demands were separately identified by the TWDB. Water supplies for Nueces County WCID #4 are provided by City of Corpus Christi. Water supplies for Port Aransas are provided by SPMWD. No shortages are projected for the Nueces County WCID #4. In 2000 Nueces County WCID #4 has a per capita per day usage of 187 gallons per capita per day (gpcd) and an estimated usage of 177 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.

4B.11.7 City of Port Aransas

The Nueces County WCID #4 has contracts with City of Corpus Christi and SPMWD to purchase treated surface water from the CCR/LCC System and serves the City of Port Aransas. Nueces County WCID #4 and Port Aransas water demands were separately identified by the TWDB. Water supplies for Nueces County WCID #4 are provided by City of Corpus Christi. Water supplies for Port Aransas are provided by SPMWD. No shortages are projected for Port Aransas. In 2000 the City of Port Aransas has a per capita per day usage of 424 gallons per capita per day (gpcd) and an estimated usage of 413 gpcd in 2060 (after built-in savings for low

flow plumbing fixtures), based on TWDB water demand and population projections. A possible reason for the high usage is due to high influx of tourists. The CBRWPG recommends additional water conservation of 15 percent by 2060 for all municipal entities with reported use greater than 165 gpcd in 2060.

4B.11.8 River Acres WSC

4B.11.8.1 Description

- Source: Surface Water — Nueces River (via Nueces County WCID #3)
- Estimated Reliable Supply: 291 acft/yr (surface water)
- System Description: Small Water Supply Systems

4B.11.8.2 Options Considered

River Acres WSC in Nueces County has a shortage for the entire planning period and increases from 138 acft/yr in 2010 to 590 acft/yr in 2060. River Acres WSC receives surface water supplies from Nueces County WCID #3. Nueces County WCID #3 has projected surpluses sufficient to meet River Acres WSC needs (Section 4A.4). Table 4B.11-2 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 River Acres WSC.

**Table 4B.11-2.
Water Management Strategies Considered for River Acres WSC**

Option	Yield (acft/yr)	Approximate Cost¹	
		Total	Unit (\$/acft)
Voluntary Redistribution- increase contracted amount from Nueces County WCID #3 (Section 4C.12)	138 to 590	\$0 ²	\$225 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 Unit cost of \$225 per acft is to treat water for municipal use.			

4B.11.8.3 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 2010 through 2060 shortages for River Acres WSC:

- Voluntary Redistribution- increase contracted amount from Nueces County WCID #3

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

4B.11.8.4 Costs

The recommended Water Supply Plan including anticipated costs is summarized by decade in Table 4B.11-3.

**Table 4B.11-3.
Recommended Plan Costs by Decade for River Acres WSC**

<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)	(138)	(255)	(355)	(445)	(522)	(590)
Voluntary Redistribution – increase contracted amount from Nueces County WCID #3						
Supply From Plan Element (acft/yr)	138	255	355	445	522	590
Total Annual Cost (\$/yr)	N/A	N/A	N/A	N/A	N/A	N/A
Total Unit Cost (\$/acft)	\$225	\$225	\$225	\$225	\$225	\$225
N/A = Not applicable.						

4B.11.9 City of Robstown

The City of Robstown has a contract with the Nueces County WCID #3 to purchase treated surface water from the Nueces River. No shortages are projected for the City of Robstown and no changes in water supply are recommended.

4B.11.10 County-Other

4B.11.10.1 Description

- Source: Surface Water – CCR/LCC/Texana System (via Corpus Christi, & STWA)
– Nueces River (via Nueces County WCID #3)
Groundwater – Gulf Coast Aquifer
- Estimated Reliable Supply: 484 acft/yr (surface water)
17 to 194 acft/yr (groundwater)
- System Description: Individual Wells and Small Water Supply Systems

4B.11.10.2 Options Considered

County-Other demand in Nueces County has a shortage of 261 acft/yr in 2010. The Nueces County-Other water demands may have been underestimated, as reflected by decreasing demands over the planning period which contradicts water demand trends for water supply corporations included in Nueces County-Other projections. These water demand projections should be reevaluated for future water planning efforts. There is a surplus projected from 2030 through 2060 to counterbalance low water demand estimates. Table 4B.11-4 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 Nueces County-Other.

**Table 4B.11-4.
Water Management Strategies Considered for Nueces County-Other**

Option	Yield (acft/yr)	Approximate Cost¹	
		Total	Unit (\$/acft)
Increase contracted amount provided by Wholesale Water Providers	261	\$0 ²	\$225 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 Unit cost of \$225 per acft is to treat water for municipal use.			

4B.11.10.3 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 2010 shortages for County-Other in Nueces County:

- Increase contracted amount provided by Wholesale Water Provider (City of Corpus Christi)

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

4B.11.10.4 Costs

The recommended Water Supply Plan including anticipated costs is summarized by decade in Table 4B.11-5.

**Table 4B.11-5.
Recommended Plan Costs by Decade for Nueces 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)	(261)	—	—	—	—	—
Increase Contracted Amount provided Wholesale Water Provider (City of Corpus Christi)						
Supply From Plan Element (acft/yr)	261	—	—	—	—	—
Total Annual Cost (\$/yr)	\$58,725	—	—	—	—	—
Total Unit Cost (\$/acft)	\$225	—	—	—	—	—

4B.11.11 Manufacturing

4B.11.11.1 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.11.11.2 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.11-6 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.

**Table 4B.11-6.
Water Management Strategies Considered for
Manufacturing in Nueces and San Patricio Counties**

Option	Yield (acft/yr)	Approximate Cost¹	
		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 ⁴	\$505 ⁴
Stage II Lake Texana (Palmetto Bend) (Section 4C.13)	23,000	\$149,185,000 ⁵	\$788 ⁵
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. Treatment may not be required if separate pipeline is constructed so that groundwater would not be blended with water in Mary Rhodes pipeline.

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

⁵ 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.

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.

4B.11.11.3 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.

Three of the six projects were considered in the cost estimate in Table 4B.11-7 (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.11.11.4 Costs

The recommended Water Supply Plan including anticipated costs is summarized by decade in Table 4B.11-7.

**Table 4B.11-7.
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.11.12 Steam-Electric

The steam-electric users in Nueces County are provided water by City of Corpus Christi. No shortages are projected for steam-electric users and no changes in water supply are recommended.

4B.11.13 Mining

4B.11.13.1 Description of Supply

- Source: Groundwater – Gulf Coast Aquifer
Surface water – CCR/LCC System via City of Corpus Christi and small Nueces River Basin run-of-river water rights for mining users in Nueces County
- Estimated Reliable Supply: 74 to 100 acft/yr (groundwater)
12 to 1,465 acft/yr (surface water)
- System Description: Various mining operations

4B.11.13.2 Options Considered

The Nueces County mining water user group has shortages of 570 acft/yr in 2030 increasing to 1,612 acft/yr in 2060, respectively. Table 4B.11-8 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 mining in Nueces County.

**Table 4B.11-8.
Water Management Strategies Considered for Mining in Nueces County**

Option	Yield (acft/yr)	Approximate Cost¹	
		Total	Unit (\$/acft)
Manufacturing Conservation (Section 4C.3)	up to 2,050	N/A	N/A
Mining Conservation (Section 4C.4)	up to 259	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 ⁴	\$505 ⁴
Stage II Lake Texana (Palmetto Bend) (Section 4C.13)	23,000	\$149,185,000 ⁵	\$788 ⁵
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. Treatment may not be required if separate pipeline is constructed so that groundwater would not be blended with water in Mary Rhodes pipeline. ⁴ Source of Cost Estimate: Section 4C.14, Table 4C.14-2. Unit cost = \$225/acft for treatment + \$280/acft for raw water supply development. ⁵ 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. 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.			

4B.11.13.3 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 2030 through 2060 shortages for mining in Nueces County:

- Manufacturing Water Conservation
- Mining 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.

Three of the six projects were considered in the cost estimate in Table 4B.11-9 (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.11.13.4 Costs

The recommended Water Supply Plan including anticipated costs is summarized by decade in Table 4B.11-9.

4B.11.14 Irrigation

Irrigation demands in Nueces County are met with surface water supplies from Rio Grande-Nueces Basin run-of-river water supplies and Nueces County WCID #3 water permits from the Nueces River. There are no shortages in irrigation use in Nueces County and no changes in water supply are recommended.

4B.11.15 Livestock

The livestock demands in Nueces 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.

**Table 4B.11-9.
Potential Plan Costs by Decade for Mining in Nueces County¹**

<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) ² (acft/yr)	—	—	(570)	(1,534)	(1,572)	(1,612)
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)	—	—	—	—	—	—
Mining Water Conservation⁴						
Supply From Plan Element (acft/yr)	—	—	60	123	189	259
Annual Cost (\$/yr)	—	—	—	—	—	—
Unit Cost (\$/acft)	—	—	—	—	—	—
Reclaimed Wastewater Supplies⁵						
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 ⁶	\$598 ⁶	\$598 ⁶	\$598 ⁶	\$598 ⁶	\$598 ⁶
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 Projects⁷						
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 Water supply represents water saved by implementing best management practices to reduce demand by 15% (Section 4C.4). ⁵ 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. ⁶ 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. ⁷ 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.						