FIGURE 2.1. REGIONAL WATER PLANNING AREAS.
Regional Summaries

The 16 regional water planning groups are the foundation for developing the regional water plans and the state water plan. With technical and administrative assistance from TWDB, each group worked to create a regional water plan that would meet the water supply needs of their planning area during a drought of record. Chapter 2 of this report summarizes key findings from each regional plan including

- a brief description of each region;
- highlights of each plan;
- population and water demand projections;
- existing water supplies, including groundwater, surface water, and reuse;
- future water supply needs;
- recommended water management strategies and their costs;
- water conservation recommendations;
- select major water management strategies;
- a description of region-specific studies; and
- planning group members and interests represented.

Individual regional water plans and a comprehensive database of regional water plan information are available on the TWDB’s website. In addition, Appendix A contains a detailed table of recommended and alternative water management strategies for each region, including total capital and unit costs for each strategy and water supply volumes projected for each strategy by decade.
The South Central Texas Regional Water Planning Area includes all or parts of 21 counties, portions of nine river and coastal basins, the Guadalupe Estuary, and San Antonio Bay.

The South Central Texas Regional Water Planning Area includes all or parts of 21 counties, portions of nine river and coastal basins, the Guadalupe Estuary, and San Antonio Bay (Figure L.1). The largest cities in the region are San Antonio, Victoria, San Marcos, and New Braunfels. The region’s largest economic sectors are tourism, military, medical, service, manufacturing, and retail trade. The region contains the two largest springs in Texas: Comal and San Marcos. Water planning in the region is particularly complex because of the intricate relationships between the region’s surface and groundwater resources. The 2011 South Central Texas (L) Regional Water Plan can be found on the TWDB Web site at [https://www.twdb.state.tx.us/wrpi/rwp/3rdRound/2011_RWP/RegionL/](https://www.twdb.state.tx.us/wrpi/rwp/3rdRound/2011_RWP/RegionL/).

**PLAN HIGHLIGHTS**

- Additional supply needed in 2060—436,751 acre-feet per year
- Recommended water management strategy volume in 2060—765,738 acre-feet per year
- Total capital cost—$7.6 billion
- Conservation accounts for 11 percent of 2060 strategy volumes
- Five new, major off-channel reservoirs (Guadalupe-Blanco River Authority: Mid-Basin, Exelon, and Lower Basin New Appropriation Projects; Lower Colorado River Authority/San Antonio Water System Project Off-Channel; Lavaca Off-Channel)
- Significant Carrizo-Wilcox Aquifer development
- Five unique stream segments recommended for designation (Figure ES.7)
- Limited unmet irrigation needs
Chapter 2: South Central Texas (L) Region Summary

The South Central Texas Regional Water Planning Area includes all or parts of 21 counties, portions of nine river and coastal basins, the Guadalupe Estuary, and San Antonio Bay (Figure L.1). The largest cities in the region are San Antonio, Victoria, San Marcos, and New Braunfels. The region’s largest economic sectors are tourism, military, medical, service, manufacturing, and retail trade. The region contains the two largest springs in Texas: Comal and San Marcos. Water planning in the region is particularly complex because of the intricate relationships between the region’s surface and groundwater resources. The 2011 South Central Texas (L) Regional Water Plan can be found on the TWDB Web site at https://www.twdb.state.tx.us/wrpi/rwp/3rdRound/2011_RWP/RegionL/.

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- Limited unmet irrigation needs

**FIGURE L.1. SOUTH CENTRAL TEXAS (L) REGIONAL WATER PLANNING AREA.**
POPULATION AND WATER DEMANDS
Approximately 10 percent of the state’s total population resided in Region L in the year 2010, and between 2010 and 2060 its population is projected to increase by 75 percent (Table L.1). By 2060, the total water demands for the region are projected to increase 32 percent (Table L.1). Starting in 2020, municipal water use makes up the largest share of these demands in all decades and is projected to experience the greatest increase over the planning period; a 62 percent increase (Table L.1, Figure L.2). Agricultural irrigation water demand will remain significant but is projected to decline 20 percent over the planning period.

EXISTING WATER SUPPLIES
The Edwards Aquifer is projected to provide approximately half of the region’s existing groundwater supply in 2010, with the Carrizo-Wilcox Aquifer providing approximately 40 percent of the groundwater supplies. There are five major aquifers supplying water to the region, including the Edwards (Balcones Fault Zone), Carrizo-Wilcox, Trinity, Gulf Coast, and Edwards-Trinity (Plateau). The two minor aquifers supplying water are the Sparta and Queen City aquifers. The region includes portions of six river basins and three coastal basins. The principal surface water sources in the region are the Guadalupe, San Antonio, Lavaca, and Nueces rivers. The region’s existing water supply is expected to decline slightly between 2010 and 2060 as groundwater use is reduced in certain areas (Table L.1, Figure L.2).

NEEDS
Because total water supplies are not accessible by all water users throughout the region, in the event of drought, the South Central Texas Region faces water supply needs of up to 174,235 acre-feet as early as 2010 (Table L.1, Figure L.2). In 2010 these water supply needs consist primarily of municipal (55 percent) and irrigated agricultural needs (39 percent). By the year 2060, the water needs are significantly larger and are dominated to an even greater extent (68 percent) by municipal water users.

RECOMMENDED WATER MANAGEMENT STRATEGIES AND COST
The South Central Texas Planning Group recommended a variety of water management strategies to meet water supply needs (Figures L.3 and L.4). Implementing all the water management strategies recommended in the Region L plan would result in 765,738 acre-feet of additional water supplies in 2060 at a total capital cost of $7.6 billion (Appendix A). Because there were no economically feasible strategies identified to meet the needs, Atascosa and Zavala Counties have limited projected unmet irrigation needs.

CONSERVATION RECOMMENDATIONS
Conservation strategies account for 11 percent of the total amount of water that would be provided by the region’s recommended water management strategies. Water conservation was recommended in general for all municipal and non-municipal water user groups. In instances where the municipal water conservation goals could be achieved through anticipated use of low-flow plumbing fixtures, additional conservation measures were not recommended.
Chapter 2: South Central Texas (L) Region Summary

Population and Water Demands

Approximately 10 percent of the state's total population resided in Region L in the year 2010, and between 2010 and 2060 its population is projected to increase by 75 percent (Table L.1). By 2060, the total water demands for the region are projected to increase 32 percent (Table L.1). Starting in 2020, municipal water use makes up the largest share of these demands in all decades and is projected to experience the greatest increase over the planning period; a 62 percent increase (Table L.1, Figure L.2). Agricultural irrigation water demand will remain significant but is projected to decline 20 percent over the planning period.

Existing Water Supplies

The Edwards Aquifer is projected to provide approximately half of the region's existing groundwater supply in 2010, with the Carrizo-Wilcox Aquifer providing approximately 40 percent of the groundwater supplies. There are five major aquifers supplying water to the region, including the Edwards (Balcones Fault Zone), Carrizo-Wilcox, Trinity, Gulf Coast, and Edwards-Trinity (Plateau). The two minor aquifers supplying water are the Sparta and Queen City aquifers. The region includes portions of six river basins and three coastal basins. The principal surface water sources in the region are the Guadalupe, San Antonio, Lavaca, and Nueces rivers. The region's existing water supply is expected to decline slightly between 2010 and 2060 as groundwater use is reduced in certain areas (Table L.1, Figure L.2).

Needs

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Recommended Water Management Strategies and Cost

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Conservation Recommendations

Conservation strategies account for 11 percent of the total amount of water that would be provided by the region's recommended water management strategies. Water conservation was recommended in general for all municipal and non-municipal water user groups. In instances where the municipal water conservation goals could be achieved through anticipated use of low-flow plumbing fixtures, additional conservation measures were not recommended.

Table L.1. Population, Water Supply, Demand, and Needs 2010–2060

<table>
<thead>
<tr>
<th>Projected Population</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
<th>2060</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,460,599</td>
<td>2,892,933</td>
<td>3,292,970</td>
<td>3,644,661</td>
<td>3,984,258</td>
<td>4,297,786</td>
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Existing Supplies (acre-feet per year)

<table>
<thead>
<tr>
<th>Type</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
<th>2060</th>
</tr>
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<tbody>
<tr>
<td>Surface water</td>
<td>301,491</td>
<td>301,475</td>
<td>299,956</td>
<td>295,938</td>
<td>295,922</td>
<td>295,913</td>
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<tr>
<td>Groundwater</td>
<td>717,263</td>
<td>716,541</td>
<td>712,319</td>
<td>711,521</td>
<td>710,539</td>
<td>709,975</td>
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<tr>
<td>Reuse</td>
<td>16,049</td>
<td>16,049</td>
<td>16,049</td>
<td>16,049</td>
<td>16,049</td>
<td>16,049</td>
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<tr>
<td><strong>Total Water Supplies</strong></td>
<td><strong>1,034,803</strong></td>
<td><strong>1,034,065</strong></td>
<td><strong>1,028,324</strong></td>
<td><strong>1,023,508</strong></td>
<td><strong>1,022,510</strong></td>
<td><strong>1,021,937</strong></td>
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Demands (acre-feet per year)

<table>
<thead>
<tr>
<th>Type</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
<th>2060</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal</td>
<td>369,694</td>
<td>422,007</td>
<td>471,529</td>
<td>512,671</td>
<td>555,281</td>
<td>597,619</td>
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<tr>
<td>County-other</td>
<td>26,302</td>
<td>29,104</td>
<td>31,846</td>
<td>34,465</td>
<td>37,062</td>
<td>39,616</td>
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<tr>
<td>Manufacturing</td>
<td>119,310</td>
<td>132,836</td>
<td>144,801</td>
<td>156,692</td>
<td>167,182</td>
<td>179,715</td>
</tr>
<tr>
<td>Mining</td>
<td>14,524</td>
<td>15,704</td>
<td>16,454</td>
<td>17,212</td>
<td>17,977</td>
<td>18,644</td>
</tr>
<tr>
<td>Irrigation</td>
<td>379,026</td>
<td>361,187</td>
<td>344,777</td>
<td>329,395</td>
<td>315,143</td>
<td>301,679</td>
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<tr>
<td>Steam-electric</td>
<td>46,560</td>
<td>104,781</td>
<td>110,537</td>
<td>116,068</td>
<td>121,601</td>
<td>128,340</td>
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<td>Livestock</td>
<td>25,954</td>
<td>25,954</td>
<td>25,954</td>
<td>25,954</td>
<td>25,954</td>
<td>25,954</td>
</tr>
<tr>
<td><strong>Total Water Demands</strong></td>
<td><strong>981,370</strong></td>
<td><strong>1,091,573</strong></td>
<td><strong>1,145,898</strong></td>
<td><strong>1,192,457</strong></td>
<td><strong>1,240,200</strong></td>
<td><strong>1,291,567</strong></td>
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</table>

Needs (acre-feet per year)

<table>
<thead>
<tr>
<th>Type</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
<th>2060</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal</td>
<td>94,650</td>
<td>134,541</td>
<td>173,989</td>
<td>212,815</td>
<td>249,735</td>
<td>288,618</td>
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<td>County-other</td>
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<td>3,073</td>
<td>4,228</td>
<td>5,430</td>
<td>7,042</td>
<td>8,768</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>6,539</td>
<td>13,888</td>
<td>20,946</td>
<td>27,911</td>
<td>34,068</td>
<td>43,072</td>
</tr>
<tr>
<td>Mining</td>
<td>521</td>
<td>726</td>
<td>1,171</td>
<td>1,992</td>
<td>2,293</td>
<td>2,493</td>
</tr>
<tr>
<td>Irrigation</td>
<td>68,465</td>
<td>62,376</td>
<td>56,519</td>
<td>50,894</td>
<td>45,502</td>
<td>41,782</td>
</tr>
<tr>
<td>Steam-electric</td>
<td>2,054</td>
<td>50,962</td>
<td>50,991</td>
<td>51,021</td>
<td>51,657</td>
<td>52,018</td>
</tr>
<tr>
<td>Livestock</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Water Needs</strong></td>
<td><strong>174,235</strong></td>
<td><strong>265,567</strong></td>
<td><strong>308,444</strong></td>
<td><strong>350,063</strong></td>
<td><strong>390,297</strong></td>
<td><strong>436,751</strong></td>
</tr>
</tbody>
</table>

Figure L.2. 2060 South Central Texas (L) Existing Supplies, Projected Demands, and Identified Water Needs by Water Use Category (Acre-Feet per Year).
SELECT MAJOR WATER MANAGEMENT STRATEGIES

- Three Brackish Groundwater Desalination (Wilcox Aquifer) projects would provide a total of up to 42,220 acre-feet per year of water in the year 2060 with a capital cost of $378 million.
- Hays/Caldwell Public Utility Agency Project would provide up to 33,314 acre-feet per year of groundwater (Carrizo Aquifer) in 2060 with a capital cost of $308 million.
- Guadalupe-Blanco River Authority Mid-Basin Project would provide 25,000 acre-feet per year of Guadalupe run-of-river supplies stored in an off-channel reservoir starting in 2020 with a capital cost of $547 million.
- Off-channel reservoir project (Lower Colorado River Authority/San Antonio Water System) would provide 90,000 acre-feet per year of water starting in 2030 with a capital cost of $2 billion.
- Recycled Water Programs would provide up to 41,737 acre-feet per year of water in 2060 with a capital cost of $465 million.
- Seawater Desalination Project would provide 84,012 acre-feet per year of water in 2060 with a capital cost of $1.3 billion.

REGION-SPECIFIC STUDIES

The Regional Water Planning Group developed five region-specific studies during the initial phase of the third planning cycle. The final reports documenting the findings can be found on the TWDB Web site at https://www.twdb.state.tx.us/wrpi/rwp/rwp_study.asp#l.

- Lower Guadalupe Water Supply Project for Guadalupe-Blanco River Authority Needs
- Brackish Groundwater Supply Evaluation
- Enhanced Water Conservation, Drought Management, and Land Stewardship
- Environmental Studies
- Environmental Evaluations of Water Management Strategies

SOUTH CENTRAL TEXAS PLANNING GROUP MEMBERS AND INTERESTS REPRESENTED

Voting members during adoption of the 2011 Regional Water Plan:

Con Mims (Chair), river authorities; Jason Ammerman, industries; Tim Andruss, water districts; Donna Balin, environmental; Evelyn Bonavita, public; Darrell Brownlow, Ph.D., small business; Velma Danielson, water districts; Garrett Engelking, water districts; Mike Fields, electric generating utilities; Bill Jones, agriculture; John Kight, counties; David Langford, agriculture; Mike Mahoney, water districts; Gary Middleton, municipalities; Jay Millikin, counties; Ron Naumann, water utilities; Illiana Pena, environmental; Robert Puente, municipalities; Steve Ramsey, water utilities; Suzanne B. Scott, river authorities; Milton Stolte, agriculture

Former voting members during the 2006 – 2011 planning cycle:

Doug Miller, small business; David Chardavoynne, municipalities; Gil Olivares, water districts
Chapter 2: South Central Texas (L) Region Summary

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FIGURE L.3. RECOMMENDED WATER MANAGEMENT STRATEGY WATER SUPPLY VOLUMES FOR 2010–2060 (ACRE-FEET PER YEAR).

FIGURE L.4. 2060 RECOMMENDED WATER MANAGEMENT STRATEGIES—RELATIVE SHARE OF SUPPLY.