



# Summary of the 2021 North East Texas (D) Regional Water Plan<sup>1</sup>

## Texas' regional water plans

Regional water plans are funded by the Texas Legislature and developed every five years based on conditions that each region would face under a recurrence of a historical drought of record. The 16 regional water plans are developed by local representatives in a public, bottom-up process. The regional plans are reviewed and approved by the TWDB and become the basis for the state water plan. Regional and state water plans are developed to

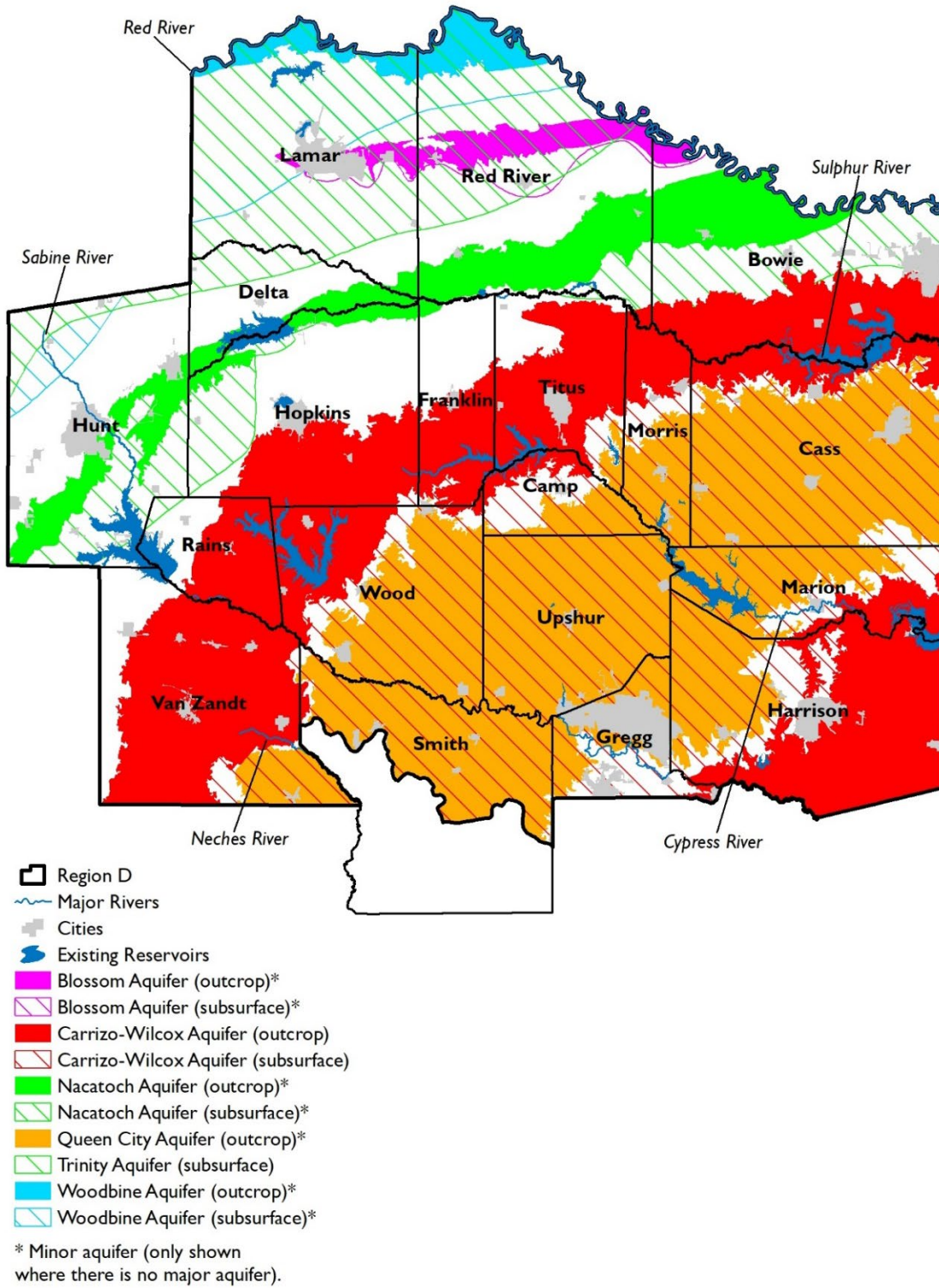
- provide for the orderly development, management, and conservation of water resources,
- prepare for and respond to drought conditions, and
- make sufficient water available at a reasonable cost to ensure public health, safety, and welfare and further economic development while protecting the agricultural and natural resources of the entire state.

**The North East Texas (D) Regional Water Planning Area** includes all or parts of 19 counties (Figure D.1). The region contains portions of the Cypress, Neches, Red, Sabine, Sulphur, and Trinity river basins. The Carrizo-Wilcox and Trinity aquifers are two major aquifers in the North East Texas Region. Minor aquifers in the region are the Blossom, Nacatoch, Queen City, and Woodbine aquifers. Groundwater is limited in quality and quantity in large portions of the region, and consequently a majority of the region relies on surface water supplies. The North East Texas Region's main economic base is agribusiness. Crops are varied, and include vegetables, fruits, and grains. Cattle and poultry production are important. In the eastern half of the region, the timber and oil and gas industries are important, as is mining. The 2021 North East Texas (D) Regional Water Plan can be found on the TWDB website at <http://www.twdb.texas.gov/waterplanning/rwp/plans/2021/#region-d>.

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<sup>1</sup> Planning numbers presented throughout this document and as compared to the 2022 Interactive State Water Plan may vary due to rounding.

Figure D.1 - North East Texas (D) regional water planning area



## Plan highlights

- Additional supply needed in 2070—117,000 acre-feet per year
- Recommended water management strategy volume in 2070—221,000 acre-feet per year
- 103 recommended water management strategy projects with a total capital cost of \$731 million
- Conservation accounts for 5 percent of 2070 strategy volumes
- A major recommended strategy is the Riverbend Strategy, which consists of a water right amendment, new intake, new pipeline, and new water treatment plant to develop additional supplies from Lake Wright Patman and provide those supplies to 13 water user groups serving 104,000 people in 2070.

## Population and water demands

Approximately 3 percent of the state's 2020 population were projected to reside in the North East Texas (D) Region. Between 2020 and 2070, the region's population is projected to increase 65 percent (Table D.4, Figure D.2). By 2070, the total water demands for the region are projected to increase 19 percent (Table D.4).

## Existing water supplies

The North East Texas (D) Region has a variety of surface water and groundwater supply sources, with three-quarters of the existing water supply in the region associated with surface water (Table D.1, Figure D.3). By 2070, the total water supply is projected to increase by 2 percent (Table D.4). This projected increase in supply is partially driven by a small increase in groundwater supplies due to planning supply increases approved by the TWDB under the process created by Senate Bill 1101, 84th Legislative Session.

## Needs

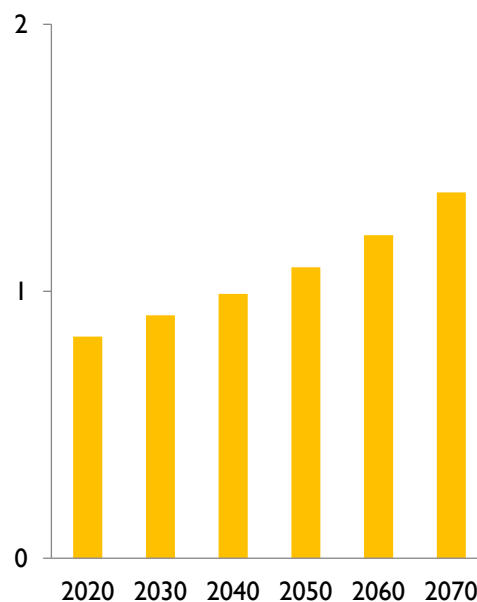
Needs in the North East Texas (D) Region trend upward from 2020 to 2070. The largest increases in needs are projected in the county-other, municipal, and manufacturing water user groups (Table D.4). In the event of drought, Region D is projected to have a total water supply need of 81,000 acre-feet in 2020 (Table D.4).

## Recommended water management strategies and cost

The North East Texas (D) Planning Group recommended a variety of water management strategies and projects that would overall provide more water than is required to meet future needs (Figures D.4 and D.5, Tables D.2 and D.3). In all, the 175 strategies and 103 projects would provide 221,000 acre-feet of additional water supply by 2070 at a total capital cost of \$731 million.

Recommended water management strategies meet all identified needs in the plan except for approximately 800 acre-feet per year associated with irrigation, manufacturing, and municipal uses in 2020. These unmet needs increase to approximately 2,100 acre-feet per year in 2070 and are associated with irrigation and municipal uses. The Region D plan demonstrated that municipal unmet needs would not pose a threat to public health, safety, and welfare in the event of a repeat of the drought of record. An unmet need does not prevent an associated entity from pursuing development of additional water supply.

**Figure D.2 - Projected population for 2020–2070 (in millions)**



## Conservation

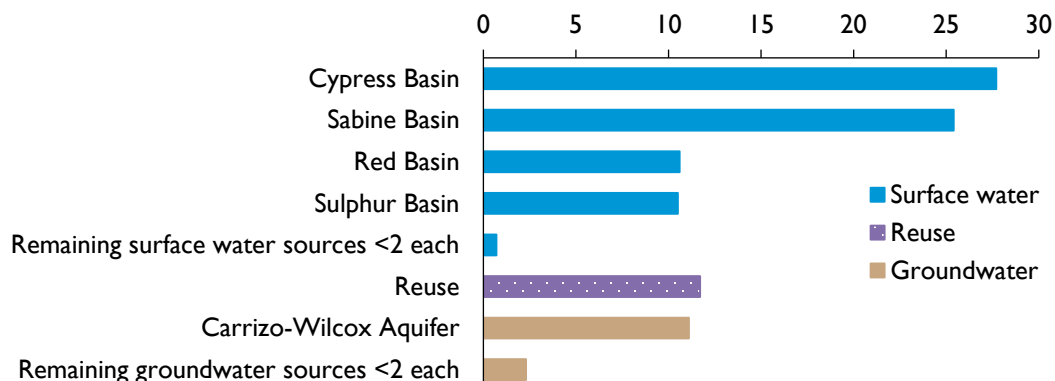
Conservation strategies represent 5 percent of the total volume of water associated with all recommended strategies in 2070. Water conservation was considered for municipal water user groups that had both an identified need and water use greater than 140 gallons per capita per day. A model water conservation plan for the entities was included in the Region D Plan.

**Table D.1 - Existing water supplies for 2020 and 2070 (acre-feet per year)**

| Water supply source   | 2020           | 2070           |
|---|----------------|----------------|
| <b>Surface water</b>  |                |                |
| Sabine Run-of-River   | 110,000        | 110,000        |
| Lake O' the Pines Lake/Reservoir                              | 106,000        | 108,000        |
| Pat Mayse Lake/Reservoir                                      | 51,000         | 51,000         |
| Wright Patman Lake/Reservoir                                  | 34,000         | 34,000         |
| Bob Sandlin Lake/Reservoir                                    | 31,000         | 27,000         |
| Sulphur Run-of-River  | 20,000         | 20,000         |
| Red Run-of-River  | 18,000         | 18,000         |
| Cherokee Lake/Reservoir                                       | 16,000         | 16,000         |
| Ellison Creek Lake/Reservoir                                  | 14,000         | 14,000         |
| Fork Lake/Reservoir   | 14,000         | 30,000         |
| Remaining surface water (sources providing less than 2% each) | 94,000         | 95,000         |
| <b>Surface water total</b>                                    | <b>507,000</b> | <b>522,000</b> |
| <b>Groundwater</b>  |                |                |
| Carrizo-Wilcox Aquifer  | 75,000         | 81,000         |
| Remaining groundwater (sources providing less than 2% each)   | 15,000         | 15,000         |
| <b>Groundwater total</b>                                      | <b>91,000</b>  | <b>97,000</b>  |
| <b>Reuse</b>  |                |                |
|   | <b>79,000</b>  | <b>74,000</b>  |
| <b>Region total</b>   | <b>678,000</b> | <b>693,000</b> |

Note: Total values in this table are presented as rounded actual total values rather than the sum of rounded values to provide consistent referencing of total values.

**Figure D.3 - Share of existing water supplies by water source in 2020 (percent)**



**Table D.2 - Ten recommended water management strategy projects with largest capital cost**

| Recommended water management strategy project         | Online Decade | Sponsor(s)                         | Associated capital cost |
|---|---------------|------------------------------------|-------------------------|
| Riverbend WMS New WTP 25 MGD 2030                     | 2030          | Riverbend Water Resources District | \$127,811,000           |
| New WTP Greenville                                    | 2070          | Greenville                         | \$81,786,000            |
| Riverbend WMS New Raw Water Pipeline 32 MGD 2050      | 2050          | Riverbend Water Resources District | \$61,647,000            |
| Riverbend WMS Raw Water Pump Station 66 MGD 2030      | 2030          | Riverbend Water Resources District | \$45,041,000            |
| WTP Expansion 2030 (Greenville, Sabine)               | 2030          | Greenville                         | \$43,955,000            |
| Riverbend WMS Raw Water Pipeline 72 MGD 2030          | 2030          | Riverbend Water Resources District | \$36,061,000            |
| Riverbend WMS WTP Expansion 10 MGD 2050               | 2050          | Riverbend Water Resources District | \$33,348,000            |
| Riverbend Strategy Cass New WTP and Transmission Line | 2030          | Riverbend Water Resources District | \$22,807,000            |
| Riverbend WMS Pump Station Expansion 30 MGD 2060      | 2060          | Riverbend Water Resources District | \$22,130,000            |
| Riverbend WMS Interim to Ultimate Storage Conversion  | 2020          | Riverbend Water Resources District | \$20,550,000            |
| Other recommended projects                            | various       | 93 various                         | \$235,589,428           |
| <b>Total capital cost</b>                             |               |                                    | <b>\$730,725,428</b>    |

**Table D.3 - Ten recommended water management strategies with largest supply volume assigned to water user groups**

| Recommended water management strategy name                    | 2070 projected population served by strategy* | Number of water user groups served | Strategy volume in acre-feet per year in 2070 |
|---|---|------------------------------------|---|
| Riverbend Strategy  | 104,000                                       | 13                                 | 116,000                                       |
| Increase Existing Contract (Steam-Electric Power Titus)       | na  | 1                                  | 33,000  |
| Greenville Conservation and WTP                               | 143,000                                       | 3                                  | 17,000  |
| New WTP Greenville  | 78,000  | 1                                  | 5,000   |
| Drill New Wells (Irrigation Bowie, Carrizo-Wilcox, Sulphur)   | na  | 1                                  | 4,000   |
| Drill New Wells (Livestock, Camp, Queen City, Cypress)        | na  | 1                                  | 4,000   |
| Drill New Wells (Irrigation Hopkins, Carrizo-Wilcox, Sulphur) | na  | 1                                  | 4,000   |
| Drill New Wells (Irrigation, Red River)                       | na  | 1                                  | 2,000   |
| Drill New Wells (Livestock, Titus)                            | na  | 1                                  | 2,000   |
| Drill New Wells (Manufacturing, Wood, Queen City, Sabine)     | na  | 1                                  | 2,000   |
| Other recommended strategies                                  | na  | 151                                | 32,000  |
| <b>Total annual water volume</b>                              |   |                                    | <b>221,000</b>                                |

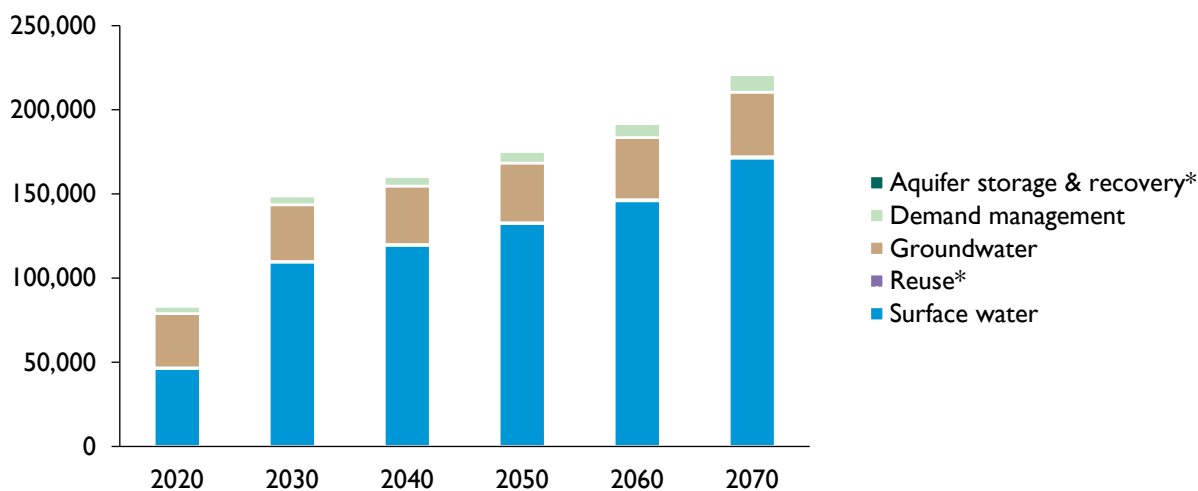
\* Multiple strategies may serve portions of the same population

**Table D.4 - Population, existing supplies, demands, needs, and strategies 2020–2070 (acre-feet per year)**

|                          | Decade                         | 2020           | 2030           | 2040           | 2050             | 2060             | 2070             | Change      |
|--------------------------|--------------------------------|----------------|----------------|----------------|------------------|------------------|------------------|-------------|
|                          | <b>Population</b>              | <b>831,000</b> | <b>908,000</b> | <b>989,000</b> | <b>1,089,000</b> | <b>1,212,000</b> | <b>1,370,000</b> | <b>65%</b>  |
| <b>Existing supplies</b> | Surface water                  | 507,000        | 521,000        | 520,000        | 519,000          | 519,000          | 522,000          | 3%          |
|                          | Groundwater                    | 91,000         | 93,000         | 94,000         | 95,000           | 96,000           | 97,000           | 7%          |
|                          | Reuse                          | 79,000         | 74,000         | 69,000         | 71,000           | 80,000           | 74,000           | -6%         |
|                          | <b>Total water supplies</b>    | <b>678,000</b> | <b>688,000</b> | <b>683,000</b> | <b>685,000</b>   | <b>695,000</b>   | <b>693,000</b>   | <b>2%</b>   |
| <b>Demands</b>           | Municipal                      | 119,000        | 126,000        | 136,000        | 149,000          | 165,000          | 185,000          | 55%         |
|                          | County-other                   | 11,000         | 11,000         | 11,000         | 12,000           | 14,000           | 18,000           | 64%         |
|                          | Manufacturing                  | 100,000        | 105,000        | 105,000        | 105,000          | 105,000          | 105,000          | 5%          |
|                          | Mining                         | 7,000          | 8,000          | 8,000          | 7,000            | 7,000            | 7,000            | 0%          |
|                          | Irrigation                     | 35,000         | 35,000         | 35,000         | 35,000           | 35,000           | 35,000           | 0%          |
|                          | Steam-electric                 | 94,000         | 94,000         | 94,000         | 94,000           | 94,000           | 94,000           | 0%          |
|                          | Livestock                      | 36,000         | 36,000         | 36,000         | 35,000           | 35,000           | 35,000           | -3%         |
|                          | <b>Total water demand</b>      | <b>401,000</b> | <b>415,000</b> | <b>425,000</b> | <b>438,000</b>   | <b>456,000</b>   | <b>479,000</b>   | <b>19%</b>  |
| <b>Needs</b>             | Municipal                      | 17,000         | 20,000         | 24,000         | 29,000           | 36,000           | 45,000           | 165%        |
|                          | County-other                   | 1,000          | 1,000          | 1,000          | 1,000            | 2,000            | 4,000            | 300%        |
|                          | Manufacturing                  | 3,000          | 6,000          | 5,000          | 5,000            | 6,000            | 6,000            | 100%        |
|                          | Mining                         | 2,000          | 2,000          | 2,000          | 2,000            | 1,000            | 1,000            | -50%        |
|                          | Irrigation                     | 13,000         | 13,000         | 13,000         | 13,000           | 13,000           | 13,000           | 0%          |
|                          | Steam-electric                 | 30,000         | 31,000         | 32,000         | 33,000           | 33,000           | 33,000           | 10%         |
|                          | Livestock                      | 15,000         | 15,000         | 15,000         | 14,000           | 14,000           | 14,000           | -7%         |
|                          | <b>Total water needs</b>       | <b>81,000</b>  | <b>87,000</b>  | <b>91,000</b>  | <b>98,000</b>    | <b>106,000</b>   | <b>117,000</b>   | <b>44%</b>  |
| <b>Strategy supplies</b> | Municipal                      | 19,000         | 22,000         | 26,000         | 31,000           | 38,000           | 47,000           | 147%        |
|                          | County-other                   | 1,000          | 1,000          | 1,000          | 2,000            | 3,000            | 5,000            | 400%        |
|                          | Manufacturing                  | 3,000          | 64,000         | 70,000         | 78,000           | 87,000           | 105,000          | 3400%       |
|                          | Mining                         | 3,000          | 3,000          | 3,000          | 3,000            | 3,000            | 3,000            | 0%          |
|                          | Irrigation                     | 13,000         | 13,000         | 13,000         | 13,000           | 13,000           | 13,000           | 0%          |
|                          | Steam-electric                 | 30,000         | 31,000         | 32,000         | 33,000           | 33,000           | 33,000           | 10%         |
|                          | Livestock                      | 15,000         | 15,000         | 15,000         | 15,000           | 15,000           | 15,000           | 0%          |
|                          | <b>Total strategy supplies</b> | <b>83,000</b>  | <b>149,000</b> | <b>161,000</b> | <b>175,000</b>   | <b>192,000</b>   | <b>221,000</b>   | <b>166%</b> |

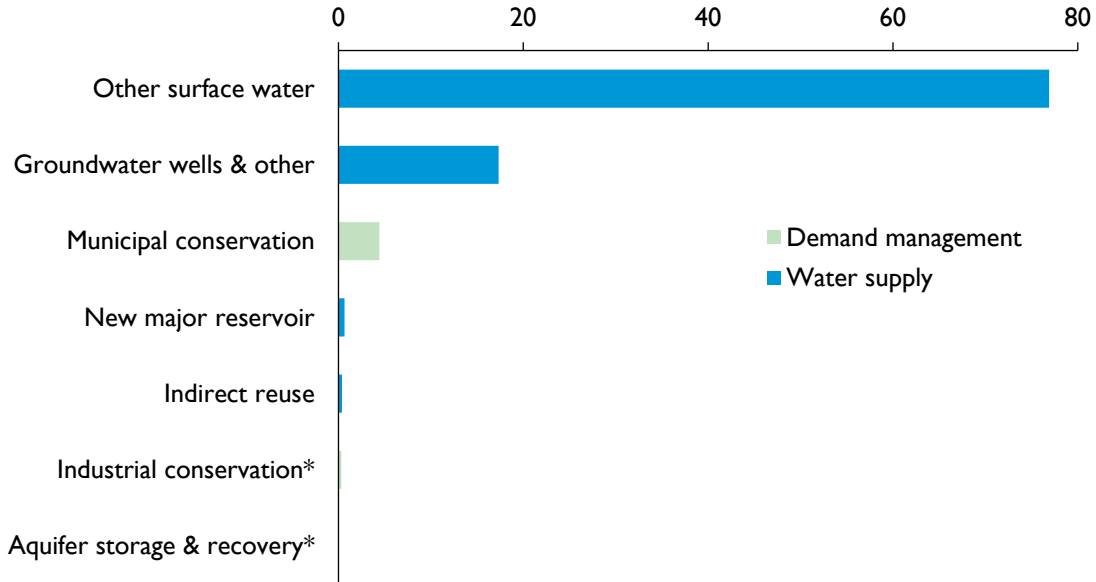
Note: Total values in this table are presented as rounded actual total values rather than the sum of rounded values to provide consistent referencing of total values. Calculated percent change is based on rounded values.

**Figure D.4 - Volume of recommended water management strategies by water resource (acre-feet per year)**



\* Strategy volume at a scale not represented in the figure

**Figure D.5 - Share of recommended water management strategies by strategy type in 2070 (percent)**

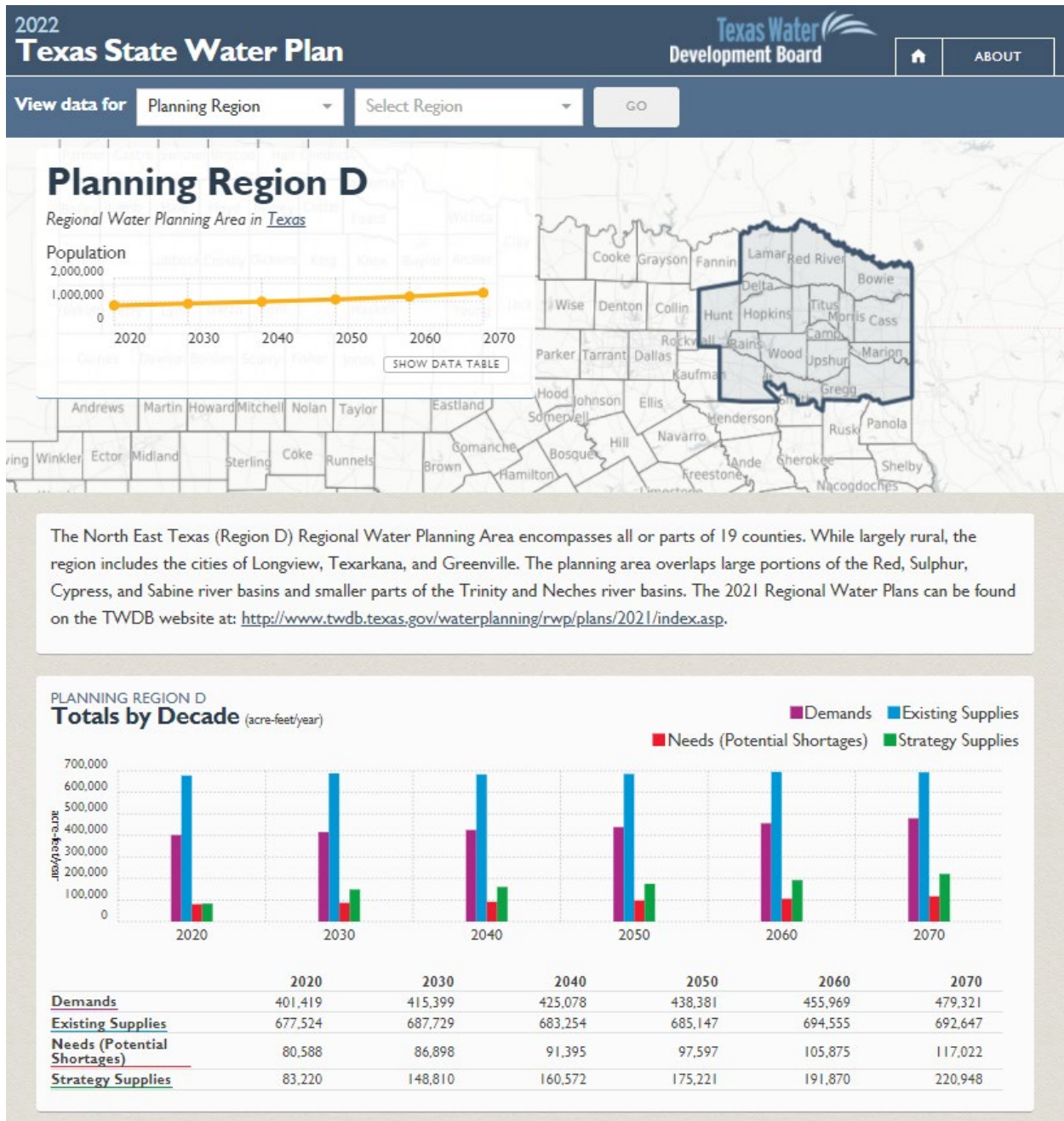


\* Strategy share at a scale not represented in the figure

## North East Texas (D) voting planning group members (2017–2021)

Jim Thompson, public (Chair); Russell Acker, counties; Wade Bartley, counties; Allen Beeler, environment; Brandon Belcher, environment; Johnny Mack Bradley, agriculture; Bruce Bradley, agriculture; John Brooks, public; Joe Bumgarner, industries; Larry Calvin, environment; Greg Carter, electric generating utilities; Joe Coats, environment; Doug Conner, municipalities; Donnie Duffee, electric generating utilities; JoAnn Dumon, environment; Danny Evans, counties; Nicolas Fierro, water districts; George Frost, public; Jerry Gaskill, counties; Brice Glidewell, environment; Cindy Gwinn, industries; Dennis Hilliard, agriculture; Conrad King, river authorities; Bill Kirby, river authorities; Richard LeTourneau, environment; Mike McCoy, small business; Janet McCoy, small business; Rolin McPhee, municipalities; Fred Milton, water districts; Ned Muse, municipalities; David Nabors, agriculture; Sharron Nabors, agriculture; Lloyd Parker, water utilities; Robert Speight, Jr., water districts; Bob Staton, agriculture; Cheri Stuart, industries; and Harlton Taylor, municipalities.

For more information on Texas or specific regions, counties, or cities, please visit the 2022 Interactive State Water Plan website: [2022.texasstatewaterplan.org](https://2022.texasstatewaterplan.org).



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