

# Summary of the 2016 North East Texas (D) Regional Water Plan<sup>1</sup>

## Texas' regional water plans

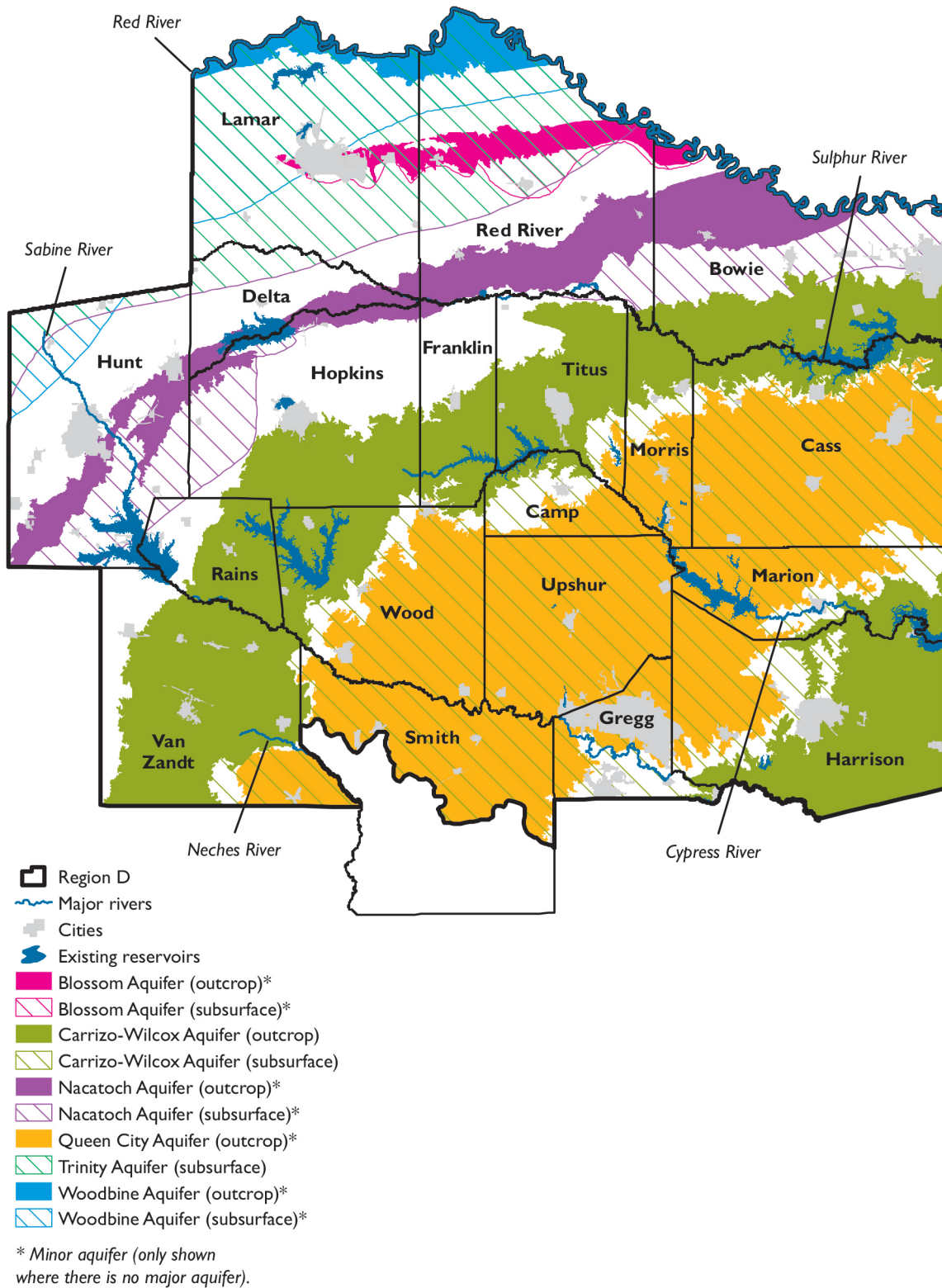
Regional water plans are funded by the Texas Legislature and developed every five years based on conditions that each region would face under a recurrence of a historical drought of record. The 16 regional water plans are developed by local representatives in a public, bottom-up process. The regional 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 Red, Sulphur, Cypress and the Sabine 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 North East Texas 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, oil and gas industries are important, as is mining. The 2016 North East Texas (D) Regional Water Plan can be found on the TWDB website at <http://www.twdb.texas.gov/waterplanning/rwp/plans/2016/#region-d>

<sup>1</sup> Planning numbers presented throughout this document and as compared to the 2017 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—411,000 acre-feet per year
- Recommended water management strategy volume in 2070—369,000 acre-feet per year
- 120 recommended water management strategy projects with a total capital cost of \$1.24 billion
- Conservation accounts for 17 percent of 2070 strategy volumes
- Major recommended strategies include acquiring surface water supplies from existing sources (Toledo Bend, Pat Mayse, and Jim Chapman Raw Water Pipelines) and dredging Lake Wright Patman

## Population and water demands

Approximately 3 percent of the state's 2020 population will 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 51 percent (Table D.4).

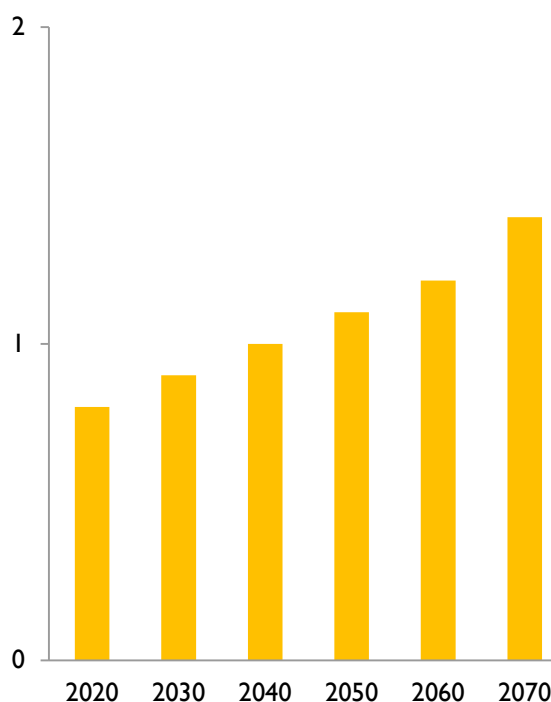
## Existing water supplies

The North East Texas (D) Region has a variety of surface water and groundwater supply sources, with nearly 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 decline 2 percent (Table D.4). This projected decline in supply is primarily a result of surface water declines due to reservoir sedimentation.

## Needs

Needs in the North East Texas (D) Region generally trend upward from 2020 to 2070. The largest increases in needs are projected in the steam-electric 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 150,000 acre-feet in 2020 (Table D.4).

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



## 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 137 strategies and 120 projects would provide 369,000 acre-feet of additional water supply by the year 2070 at a total capital cost of \$1.24 billion.

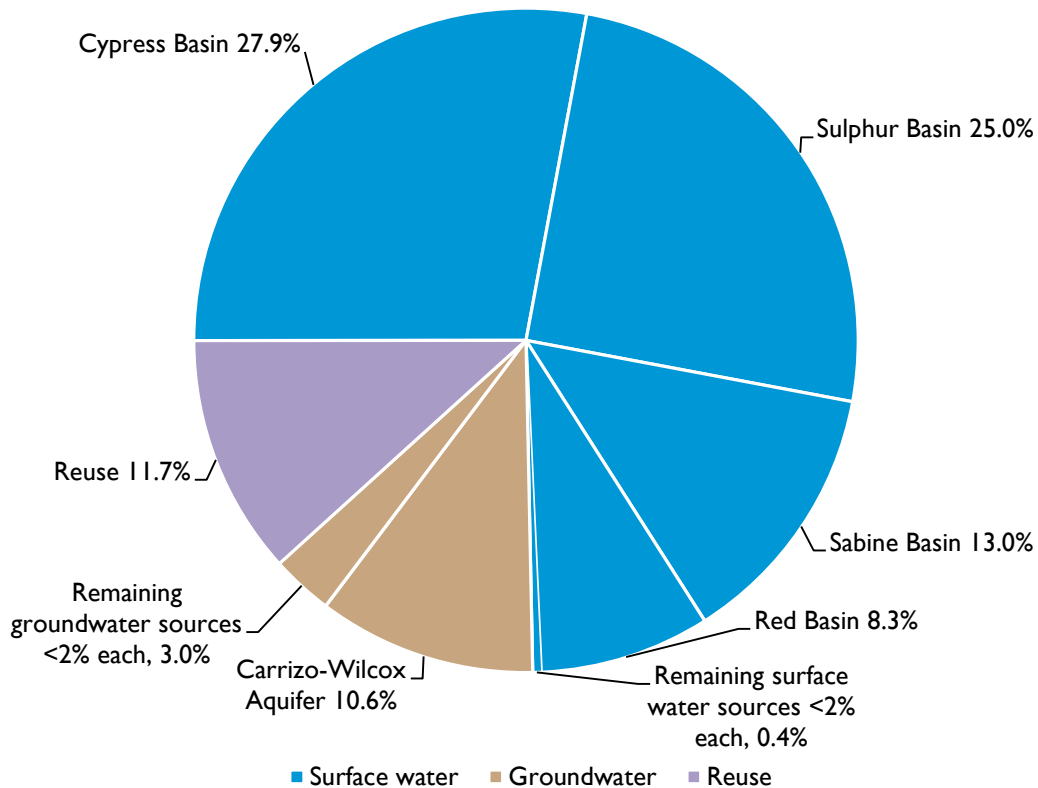
## Conservation

Conservation strategies represent 17 percent of the total volume of water associated with all recommended strategies in 2070. Water conservation was considered, for every municipal water user group that had both a need and a water use greater than 140 gallons per capita per day. A water conservation worksheet 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>  |                |                |
| Wright Patman Lake/Reservoir                                | 121,000        | 89,000         |
| Lake O' The Pines/Reservoir                                 | 105,000        | 107,000        |
| Pat Mayse Lake/Reservoir                                    | 51,000         | 51,000         |
| Ellison Creek Lake/Reservoir                                | 27,000         | 27,000         |
| Fork Lake/Reservoir   | 27,000         | 34,000         |
| Cherokee Lake/Reservoir                                     | 20,000         | 20,000         |
| Bob Sandlin Lake/Reservoir                                  | 18,000         | 20,000         |
| Grays Creek Run-Of-River                                    | 16,000         | 16,000         |
| Sulphur Run-Of-River  | 15,000         | 16,000         |
| Chapman/Cooper Lake/Reservoir Non-System Portion            | 15,000         | 14,000         |
| Sabine Run-Of-River   | 14,000         | 14,000         |
| Remaining surface water sources providing less than 2% each | 75,000         | 80,000         |
| <b>Surface water subtotal:</b>                              | <b>504,000</b> | <b>488,000</b> |
| <b>Groundwater</b>  |                |                |
| Carrizo-Wilcox Aquifer                                      | 72,000         | 79,000         |
| Remaining groundwater sources providing less than 2% each   | 21,000         | 20,000         |
| <b>Groundwater subtotal:</b>                                | <b>93,000</b>  | <b>99,000</b>  |
| <b>Reuse</b>  | <b>79,000</b>  | <b>74,000</b>  |
| <b>Region total</b>   | <b>676,000</b> | <b>661,000</b> |

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



**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 |
|---|----------------|---------------------------|-------------------------|
| Toledo Bend Intake And Raw Water Pipeline (Manufacturing Harrison, Sabine)          | 2020           | Manufacturing, Harrison   | \$498,773,000           |
| Dredge Wright Patman (Texarkana)  | 2050           | Texarkana                 | \$205,862,000           |
| Chapman Raw Water Pipeline And New WTP (Greenville, Sulphur)                        | 2050           | Greenville                | \$193,438,000           |
| Riverbend Strategy (Texarkana)  | 2020           | Texarkana                 | \$117,116,000           |
| Toledo Bend Tie-In Pipeline (Greenville, Sabine)                                    | 2070           | Greenville                | \$42,470,000            |
| WTP Expansion (Greenville, Sabine)  | 2020           | Greenville                | \$36,074,000            |
| Greenville Tie-In Pipeline (County-Other Hunt, Sabine)                              | 2070           | County-Other, Hunt        | \$25,670,000            |
| Contract With Texarkana And Treated Water Pipeline To Dekalb (Clarksville, Sulphur) | 2040           | Clarksville               | \$10,053,000            |
| Canton Indirect Reuse   | 2020           | Canton                    | \$6,803,000             |
| Drill New Wells (Mining Harrison, Carrizo-Wilcox, Sabine)                           | 2020           | Mining, Harrison          | \$5,994,000             |
| <i>Other recommended projects</i>   | <i>various</i> | <i>110 various</i>        | <i>\$98,797,000</i>     |
|   |                | <b>Total capital cost</b> | <b>\$1,241,050,000</b>  |

**Table D.3 - Ten recommended water management strategies with largest supply volume**

| Recommended water management strategy name                       | Population served by strategy* | Number of water user groups served | Supply in acre-feet per year in 2070 |
|--|--------------------------------|------------------------------------|--------------------------------------|
| Dredge Wright Patman (Texarkana, Sulphur)                        | 34,000                         | 2                                  | 66,000                               |
| Toledo Bend Intake And Raw Water Pipeline (Harrison)             | na                             | 2                                  | 47,000                               |
| Increase Existing Contract (Steam Electric Power Titus, 2040)    | na                             | 1                                  | 39,000                               |
| Increase Existing Contract (Steam Electric Power Titus, 2020)    | na                             | 1                                  | 23,000                               |
| Pat Mayse Raw Water Pipeline (Irrigation Lamar)                  | na                             | 1                                  | 18,000                               |
| Increase Existing Contract (Steam Electric Power Titus, 2070)    | na                             | 1                                  | 18,000                               |
| Advanced Water Conservation (Manufacturing Cass, Carrizo-Wilcox) | na                             | 1                                  | 15,000                               |
| Advanced Water Conservation (Manufacturing Harrison, Sabine)     | na                             | 1                                  | 14,000                               |
| Riverbend Strategy   | 82,000                         | 15                                 | 13,000                               |
| Advanced Water Conservation (Manufacturing Morris)               | na                             | 1                                  | 13,000                               |
| <i>Other recommended strategies</i>                              |                                | <i>150</i>                         | <i>95,000</i>                        |
|  |                                | <b>Total annual water volume</b>   | <b>361,000</b>                       |

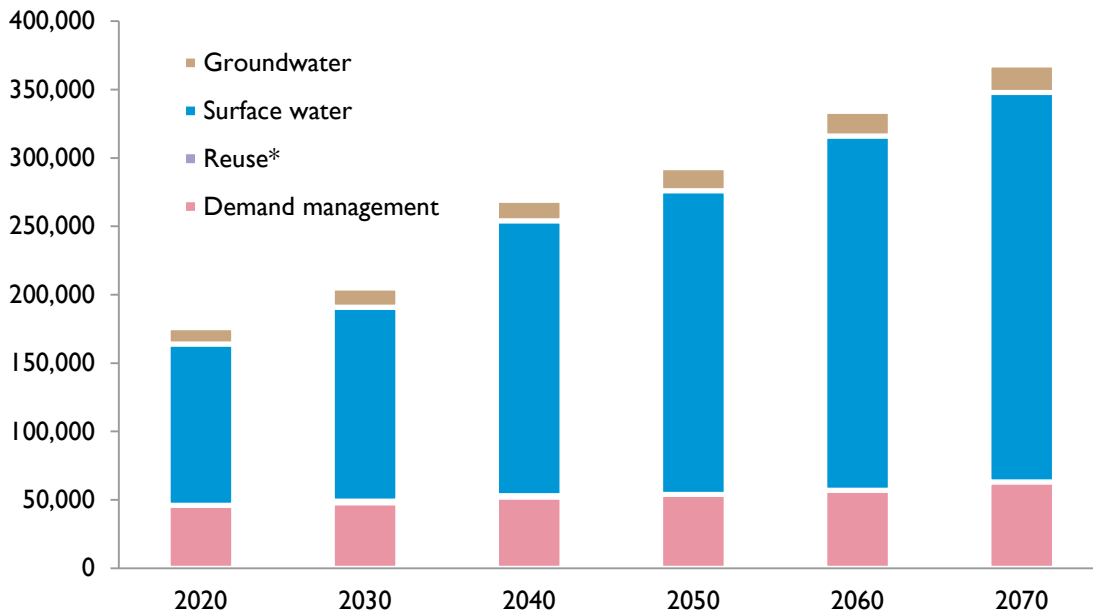
\* Multiple strategies may serve portions of the same population

**Table D.4 - Population, existing water 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                  | 504,000        | 513,000        | 512,000        | 515,000          | 518,000          | 488,000          | -3%         |
|                          | Groundwater                    | 92,000         | 94,000         | 95,000         | 97,000           | 98,000           | 99,000           | 8%          |
|                          | Reuse                          | 79,000         | 74,000         | 69,000         | 70,000           | 80,000           | 74,000           | -6%         |
|                          | <b>Total water supplies</b>    | <b>675,000</b> | <b>681,000</b> | <b>676,000</b> | <b>682,000</b>   | <b>695,000</b>   | <b>661,000</b>   | <b>-2%</b>  |
| <b>Demands</b>           | Municipal                      | 114,000        | 121,000        | 129,000        | 141,000          | 155,000          | 174,000          | 53%         |
|                          | County-other                   | 20,000         | 21,000         | 23,000         | 26,000           | 29,000           | 34,000           | 70%         |
|                          | Manufacturing                  | 332,000        | 355,000        | 377,000        | 396,000          | 426,000          | 457,000          | 38%         |
|                          | Mining                         | 7,000          | 8,000          | 8,000          | 7,000            | 7,000            | 7,000            | 0%          |
|                          | Irrigation                     | 41,000         | 41,000         | 40,000         | 40,000           | 39,000           | 39,000           | -5%         |
|                          | Steam-electric                 | 97,000         | 113,000        | 133,000        | 157,000          | 187,000          | 223,000          | 130%        |
|                          | Livestock                      | 23,000         | 23,000         | 23,000         | 23,000           | 23,000           | 23,000           | 0%          |
|                          | <b>Total water demand</b>      | <b>634,000</b> | <b>682,000</b> | <b>734,000</b> | <b>790,000</b>   | <b>866,000</b>   | <b>957,000</b>   | <b>51%</b>  |
| <b>Needs</b>             | Municipal                      | 22,000         | 25,000         | 28,000         | 31,000           | 35,000           | 44,000           | 100%        |
|                          | County-other                   | <500           | 1,000          | 1,000          | 2,000            | 4,000            | 8,000            | 700%*       |
|                          | Manufacturing                  | 62,000         | 72,000         | 87,000         | 101,000          | 120,000          | 176,000          | 184%        |
|                          | Mining                         | 3,000          | 3,000          | 3,000          | 2,000            | 2,000            | 1,000            | -67%        |
|                          | Irrigation                     | 31,000         | 31,000         | 30,000         | 30,000           | 30,000           | 29,000           | -6%         |
|                          | Steam-electric                 | 33,000         | 45,000         | 64,000         | 88,000           | 117,000          | 153,000          | 364%        |
|                          | <b>Total water needs</b>       | <b>150,000</b> | <b>177,000</b> | <b>215,000</b> | <b>254,000</b>   | <b>308,000</b>   | <b>411,000</b>   | <b>174%</b> |
| <b>Strategy supplies</b> | Municipal                      | 24,000         | 29,000         | 32,000         | 43,000           | 45,000           | 70,000           | 192%        |
|                          | County-other                   | <500           | 1,000          | 2,000          | 3,000            | 5,000            | 9,000            | 800%*       |
|                          | Manufacturing                  | 87,000         | 95,000         | 107,000        | 114,000          | 144,000          | 100,000          | 15%         |
|                          | Mining                         | 3,000          | 4,000          | 4,000          | 4,000            | 4,000            | 3,000            | 0%          |
|                          | Irrigation                     | 26,000         | 26,000         | 26,000         | 26,000           | 26,000           | 25,000           | -4%         |
|                          | Steam-electric                 | 34,000         | 49,000         | 98,000         | 104,000          | 111,000          | 161,000          | 374%        |
|                          | <b>Total strategy supplies</b> | <b>176,000</b> | <b>205,000</b> | <b>269,000</b> | <b>294,000</b>   | <b>335,000</b>   | <b>369,000</b>   | <b>110%</b> |

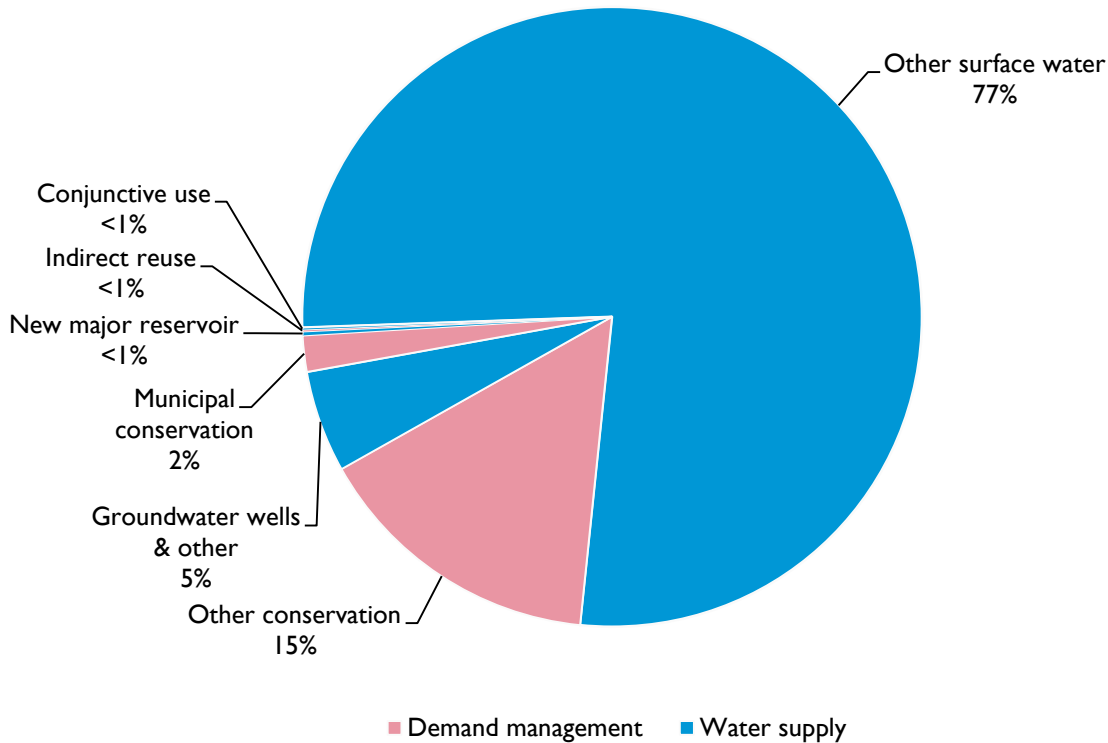
\* Based on change from the earliest decade of volumes ≥500 acre-feet per year

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



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

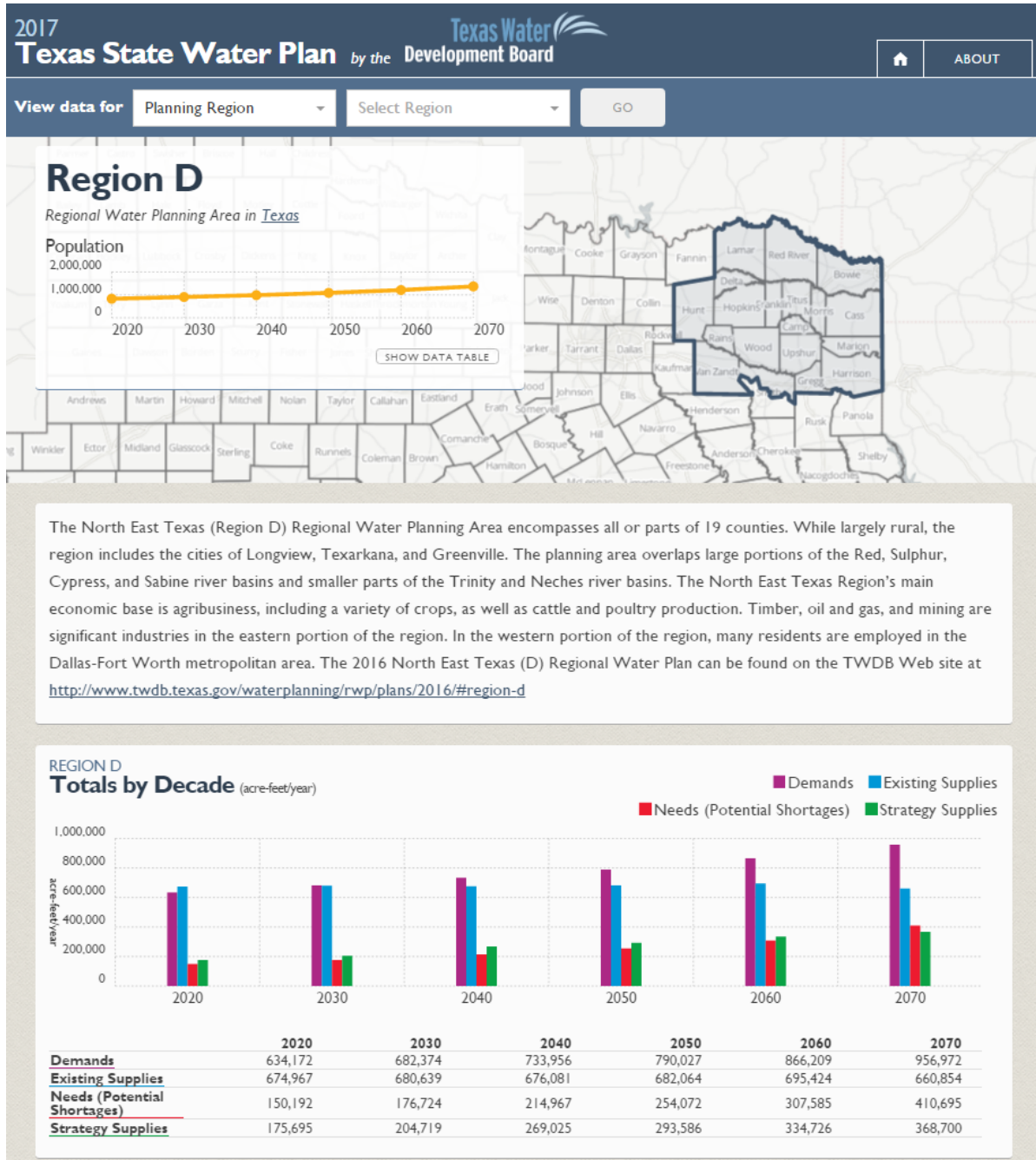
**Figure D.5 - Share of recommended water management strategies by strategy type in 2010**



### North East Texas (D) voting planning group members (2012 – 2016)

Linda Price (Chair), industry; Adam Bradley, agriculture; Johnny Mack Bradley, agriculture; Michael Brown, municipalities; Larry Calvin, environment; Greg Carter, electric-generating utilities; Nancy Clements, agriculture; Doug Conner, municipalities; Mark Crews, agriculture; Darwin Douthit, agriculture; Jo Ann Duman, environment; Jeremy DuMond, industry; Mike Dunn, municipal; Jim Eidson, environment; Danny Evans, counties; George Frost, public; Jerry Gaskill, counties; Charles Gillis, environment; Brice "Chan" Glidewell, environment; Darrell Grubbs, water districts; Troy Henry, river authorities; Don Hightower, counties; Dennis Hilliard, agriculture; Robert Holt, public; Bill Kirby, river authorities; Sam Long, agriculture; Bret McCoy, small business; Mike McCoy, small business; David Nabors, agriculture; Sharon Nabors, agriculture; Tim Nicholson, small business; Jim Nickerson, industry; Don Patterson, counties; Drew Roberts, municipal; Kenneth Shaw, industry; Shirley Shumake, public; Tommy Slater, electric-generating utilities; Robert Speight, Jr., water districts; Kevin Spence, water utilities; Bob Staton, agriculture; Cheri Stuart, industry; Doug Wadley, industry; Mark Williams, environment

For more information on Texas or specific regions, counties, or cities, please visit the 2017 Interactive State Water Plan website: [texasstatewaterplan.org](http://texasstatewaterplan.org)



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