



Summary of the 2021 East Texas (I) Regional Water Plan¹

Texas' regional water plans

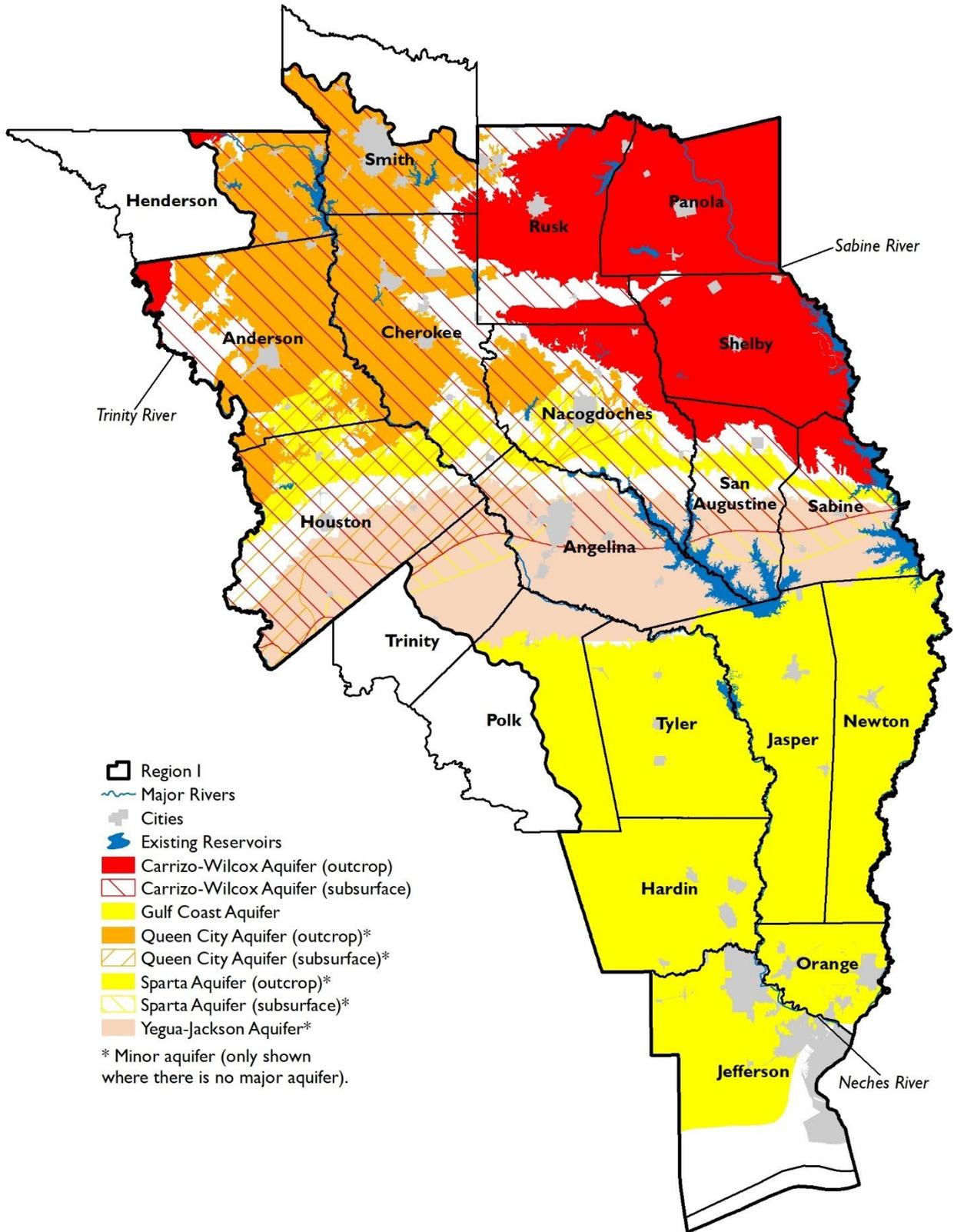
Regional water plans are funded by the Texas Legislature and developed every five years based on conditions that each region would face under a recurrence of a historical drought of record. The 16 regional water plans are developed by local representatives in a public, bottom-up process. The regional 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 East Texas (I) Regional Water Planning Area includes all or parts of 20 counties (Figure I.1). The largest cities include Beaumont, Tyler, Port Arthur, Nacogdoches, and Lufkin. The principal surface water sources are the Sabine and Neches rivers and their tributaries. Major groundwater sources are the Gulf Coast and Carrizo-Wilcox aquifers. The major economic sectors are petrochemical, timber, and agriculture. The East Texas (I) Region consists of approximately 10,329,800 acres of land, accounting for roughly 6 percent of the total area of the State of Texas. The 2021 East Texas (I) Regional Water Plan can be found on the TWDB website at <http://www.twdb.texas.gov/waterplanning/rwp/plans/2021/#region-i>.

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

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



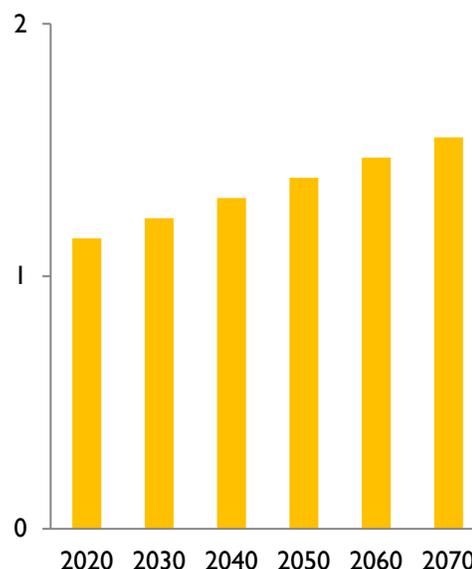
Plan highlights

- Additional supply needed in 2070—206,000 acre-feet per year
- Recommended water management strategy volume in 2070—279,000 acre-feet per year
- 59 recommended water management strategy projects with a total capital cost of \$3.1 billion
- Conservation accounts for 8 percent of 2070 strategy volumes
- One new major reservoir is recommended (Lake Columbia) and accounts for 7 percent of 2070 strategy volumes

Population and water demands

Approximately 4 percent of the state’s 2020 population were projected to reside in the East Texas (I) Region. Between 2020 and 2070, the region’s population is projected to increase 35 percent (Table I.4, Figure I.2). By 2070, the total water demands for the region are projected to increase 14 percent (Table I.4).

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



Existing water supplies

The East Texas (I) 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. The region has more existing total supply than demand, but connection or authorization to that supply does not yet exist (Table I.1, Figure I.3). By 2070, the total water supply is projected to increase 4 percent (Table I.4). This projected increase in supply is primarily a result of other surface water development in the region.

Needs

On a region-wide basis, the East Texas (I) Region has water supply deficits from 2020 through 2070, with the majority of needs associated with manufacturing (Table I.4). In the event of drought, Region I is projected to have a total water supply need of 139,000 acre-feet in 2020 (Table I.4).

Recommended water management strategies and cost

The East Texas (I) 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 I.4 and I.5, Tables I.2 and I.3). In all, the 131 strategies and 59 projects would provide 279,000 acre-feet of additional water supply by the year 2070 at a total capital cost of \$3.1 billion.

Recommended water management strategies meet all identified needs in the plan except for 122,000 acre-feet per year associated with irrigation, livestock, manufacturing, mining, municipal, and steam-electric power uses in 2020. No unmet needs were identified for any category of use in 2070. The Region I 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.

Conservation

Conservation strategies represent 8 percent of the total volume of water associated with all recommended strategies in 2070. Water conservation was evaluated for municipal water user groups with water use greater than 140 gallons per capita per day, regardless of whether the user had an identified water need.

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

Water supply source	2020	2070
Surface water		
Neches Run-of-River	249,000	244,000
Sam Rayburn-Steinhagen Lake/Reservoir System	105,000	115,000
Sabine Run-of-River	77,000	77,000
Neches-Trinity Run-of-River	51,000	51,000
Toledo Bend Lake/Reservoir	28,000	28,000
Martin Lake/Reservoir	25,000	25,000
Remaining surface water (sources providing less than 2% each)	97,000	111,000
Surface water total	631,000	650,000
Groundwater		
Carrizo-Wilcox Aquifer	93,000	105,000
Gulf Coast Aquifer System	80,000	81,000
Remaining groundwater (sources providing less than 2% each)	20,000	21,000
Groundwater total	194,000	207,000
Reuse	14,000	14,000
Region total	839,000	871,000

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 I.3 - Share of existing water supplies by water source in 2020 (percent)

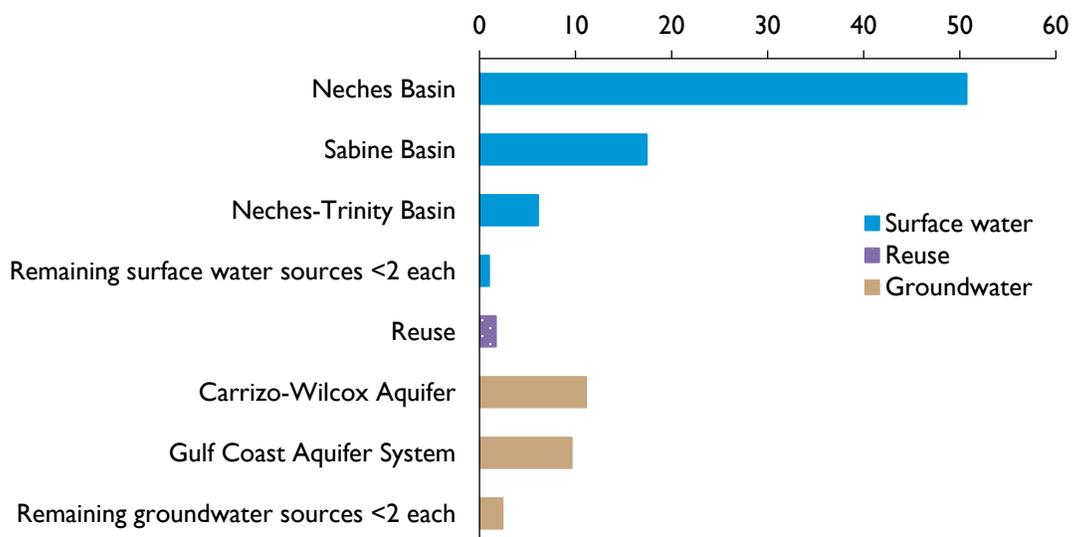


Table I.2 - Ten recommended water management strategy projects with largest capital cost

Recommended water management strategy project	Online Decade	Sponsor(s)	Associated capital cost
LNVA-SRA-Purchase from Sabine River Authority (Toledo Bend)	2040	Lower Neches Valley Authority	\$529,606,000
UNM-LP-Run-of-River, Neches with Lake Palestine	2020	Upper Neches River Municipal Water Authority	\$518,977,000
ANRA-COL-Lake Columbia	2030	Angelina and Neches River Authority	\$402,862,000
JEFF-MFG-Purchase from Lower Neches Valley Authority (Sam Rayburn)	2030	Manufacturing (Jefferson)	\$279,210,000
ANRA-WTP-ANRA Treatment Plant and Distribution System	2030	Angelina and Neches River Authority	\$228,001,000
TYLR-PAL-City of Tyler - Lake Palestine Expansion	2030	Tyler	\$111,190,000
LUFK-RAY-Conveyance from Sam Rayburn to Kurth Lake - Phase 1	2030	Lufkin	\$78,220,000
LUFK-RAY-Conveyance from Sam Rayburn to Kurth Lake - Phase 2	2040	Lufkin	\$78,199,000
JEFF-BEA-Advanced Conservation	2020	Beaumont	\$60,175,000
WUG-CONS-Municipal Conservation-Tyler	2020	Tyler	\$58,766,000
Other recommended projects	various	49 various	\$765,226,000
Total capital cost			\$3,110,432,000

Table I.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
JEFF-MFG-Purchase from Lower Neches Valley Authority (Sam Rayburn)	na	1	143,000
LUFK-RAY Sam Rayburn Infrastructure	56,000	1	28,000
ANRA-COL - Lake Columbia	161,000	14	19,000
SHEL-LTK-Purchase from Sabine River Authority (Toledo Bend)	na	1	19,000
NACW-LTK-New Wells in Carrizo-Wilcox Aquifer	na	1	9,000
JASP-LTK-Purchase from Lower Neches Valley Authority (Sam Rayburn)	na	1	9,000
PORT-CONS-City of Port Arthur - Advanced Conservation	56,000	1	8,000
JEFF-BEA-Advanced Conservation	181,000	1	7,000
ANCD-VOL-Volumetric Survey and Normal Pool Elevation Adjustment	24,000	1	6,000
JEFF-SEP-Purchase from Lower Neches Valley Authority (Sam Rayburn)	na	1	2,000
Other recommended strategies	na	108	28,000
Total annual water volume			279,000

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.

* Multiple strategies may serve portions of the same population

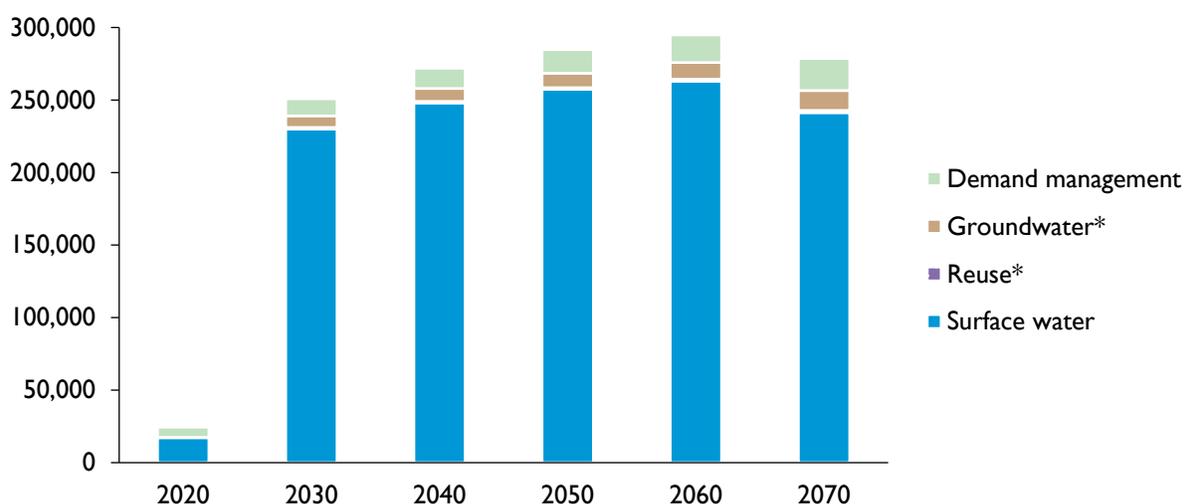
Table I.4 - Population, existing supplies, demands, needs, and strategies 2020–2070 (acre-feet per year)

	Decade	2020	2030	2040	2050	2060	2070	Change
	Population	1,152,000	1,234,000	1,310,000	1,389,000	1,470,000	1,554,000	35%
Existing supplies	Surface water	631,000	638,000	641,000	644,000	646,000	650,000	3%
	Groundwater	194,000	196,000	199,000	201,000	205,000	207,000	7%
	Reuse	14,000	14,000	14,000	14,000	14,000	14,000	0%
	Total water supplies	839,000	849,000	854,000	859,000	864,000	871,000	4%
Demands	Municipal	175,000	182,000	189,000	198,000	209,000	220,000	26%
	County-other	17,000	18,000	19,000	20,000	22,000	24,000	41%
	Manufacturing	306,000	353,000	353,000	353,000	353,000	353,000	15%
	Mining	28,000	25,000	18,000	15,000	13,000	12,000	-57%
	Irrigation	98,000	98,000	98,000	98,000	98,000	98,000	0%
	Steam-electric	67,000	67,000	67,000	67,000	67,000	67,000	0%
	Livestock	47,000	50,000	54,000	59,000	64,000	65,000	38%
	Total water demand	738,000	793,000	799,000	811,000	826,000	840,000	14%
Needs	Municipal	1,000	1,000	3,000	6,000	9,000	14,000	1300%
	County-other	0	0	0	0	1,000	2,000	100%*
	Manufacturing	103,000	145,000	145,000	145,000	145,000	145,000	41%
	Mining	8,000	5,000	1,000	<500	<500	<500	-100%
	Irrigation	1,000	1,000	1,000	1,000	1,000	1,000	0%
	Steam-electric	3,000	3,000	3,000	3,000	3,000	3,000	0%
	Livestock	24,000	27,000	30,000	34,000	39,000	41,000	71%
	Total water needs	139,000	182,000	183,000	190,000	199,000	206,000	48%
Strategy supplies	Municipal	7,000	65,000	87,000	96,000	100,000	85,000	1114%
	County-other	<500	4,000	4,000	4,000	5,000	3,000	-25%*
	Manufacturing	2,000	145,000	145,000	145,000	145,000	145,000	7150%
	Mining	<500	5,000	1,000	1,000	<500	<500	-100%*
	Irrigation	0	1,000	1,000	1,000	1,000	1,000	0%*
	Steam-electric	0	3,000	3,000	3,000	3,000	3,000	0%*
	Livestock	15,000	27,000	30,000	34,000	40,000	41,000	173%
	Total strategy supplies	24,000	251,000	272,000	285,000	295,000	279,000	1063%

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.

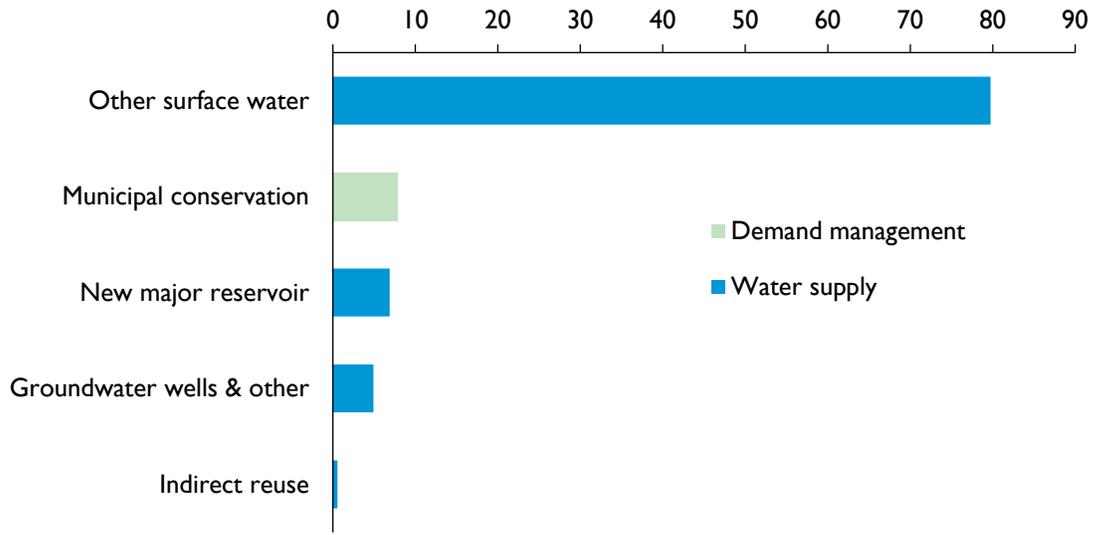
* Percentage based on change from the earliest decade with volumes ≥ 500 acre-feet per year.

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



* Strategy volume at a scale not represented in the figure in at least one decade

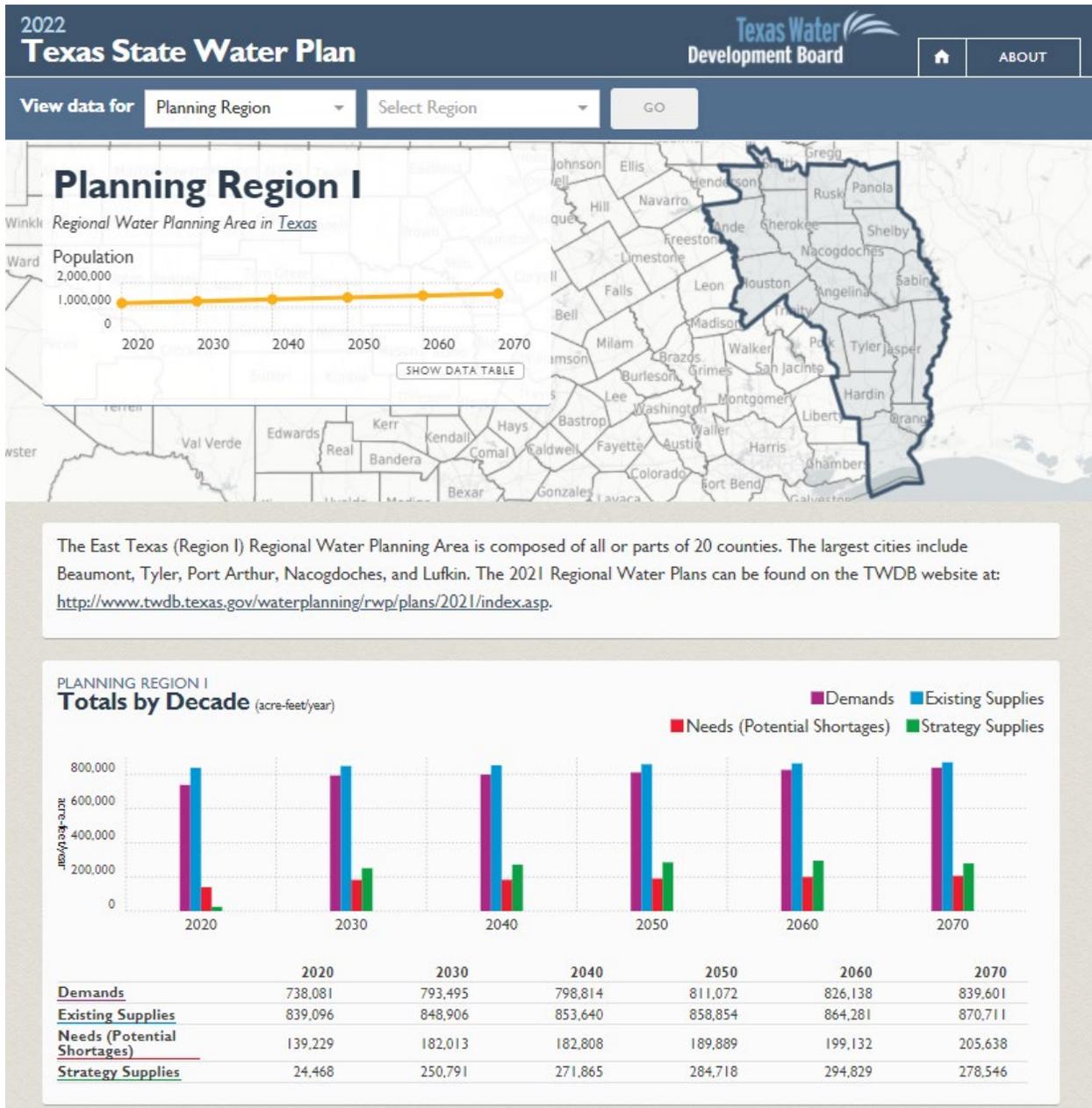
Figure I.5 - Share of recommended water management strategies by strategy type in 2070 (percent)



East Texas (I) voting planning group members (2017–2021)

Kelley Holcomb, river authorities (Chair); Leah Adams, groundwater management areas; David Alders, agriculture; Jeff Branick, counties; David Brock, municipalities; Josh Wilson David, agriculture; Chris Davis, counties; Mark Dunn, small business; Roger Fussell, water utilities; Steven Gelwicks, public; David Gorsich, electric generating utilities; Scott Hall, river authorities; Dr. C. Michael Harbordt, industries; William Heugel, public; Joe Holcomb, small business; Don Isles, public; Fred Jackson, counties; Bill Kimbrough, public; Amanda Maloukis, groundwater management areas; John Martin, groundwater management areas; Dr. Matthew McBroom, environment; John McFarland, groundwater management areas; David Montagne, river authorities; Gregory Morgan, municipalities; Dale Peddy, electric generating utilities; Monty Shank, river authorities; Darla Smith, industries; Randy Stanton, electric generating utilities; Terry Stelly, public; Worth Whitehead, water districts; and Dr. J. Leon Young, environment.

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



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