Summary of the 2016 East Texas (I) Regional Water Plan[1]

Texas' regional water plans

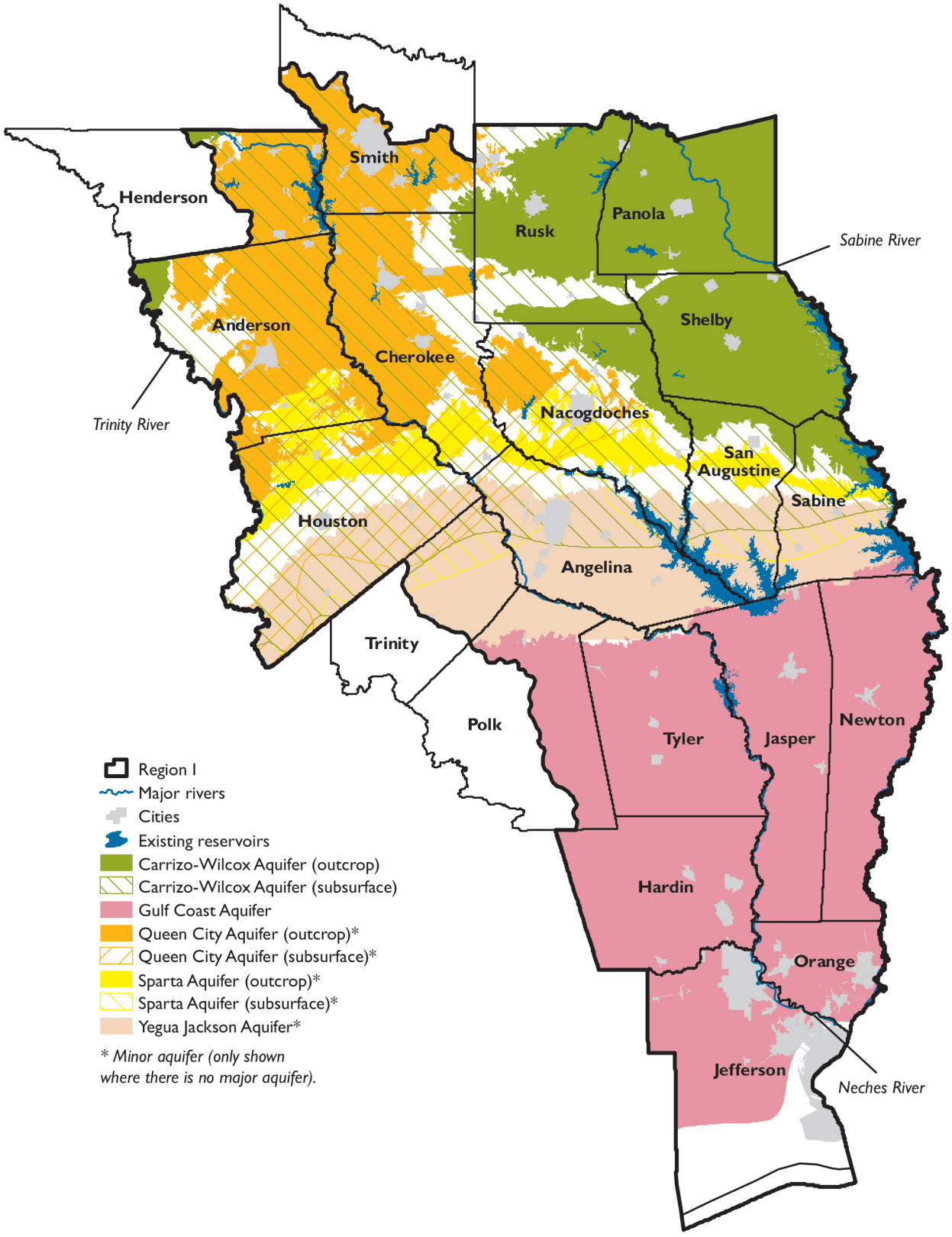
Regional water plans are funded by the Texas Legislature and developed every five years based on conditions that each region would face under a recurrence of a historical drought of record. The 16 regional water plans are developed by local representatives in a public, bottom-up process. The regional 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 principle surface water sources are the Sabine and Neches Rivers and their tributaries. Major groundwater sources are the Gulf Coast and the 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 six percent t of the total area of the State of Texas. The 2016 East Texas (I) Regional Water Plan can be found on the TWDB website at http://www.twdb.texas.gov/waterplanning/rwp/plans/2016/#region-i

[1] Planning numbers presented throughout this document and as compared to the 2017 Interactive State Water Plan may vary due to rounding.

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



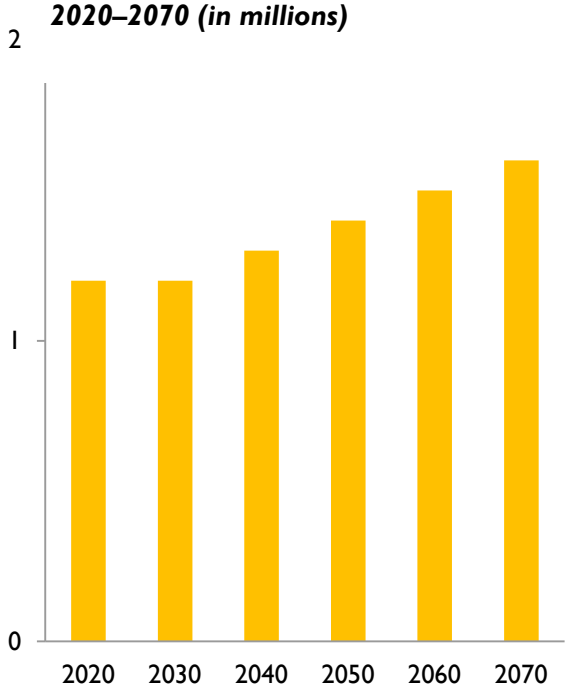
Plan highlights

- Additional supply needed in 2070—508,000 acre-feet per year
- Recommended water management strategy volume in 2070—594,000 acre-feet per year
- 58 recommended water management strategy projects with a total capital cost of $2.75 billion
- Conservation accounts for 3 percent of 2070 strategy volumes
- One new major reservoir recommended (Lake Columbia)

Population and water demands

Approximately 4 percent of the state's 2020 population will 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 45 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 more than 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 18 percent (Table I.4). This projected increase in supply is primarily a result of other surface water development in the region.

Needs

The East Texas (I) Region appears to have sufficient supplies for most municipal users but other water user group categories have deficits from 2020 to 2070. Some individual municipal water user groups are projected to have deficits during the planning period (Table I.4). In the event of drought, Region I is projected to have a total water supply need of 237,000 acre-feet in 2020 (Table I.4). A relatively small volume of municipal needs remain unmet in the region, however an unmet need does not prevent an associated entity from pursuing development of additional water supply.

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 86 strategies and 58 projects would provide 594,000 acre-feet of additional water supply by the year 2070 at a total capital cost of $2.75 billion.

Conservation

Conservation strategies represent 3 percent of the total volume of water associated with all recommended strategies in 2070. Water conservation was recommended for every municipal water user group that had both a need and a water use greater than 140 gallons per capita per day.

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	391,000	406,000
Sam Rayburn-Steinhagen Lake/Reservoir System	119,000	265,000
Sabine Run-Of-River	78,000	78,000
Neches-Trinity Run-Of-River	55,000	55,000
Toledo Bend Lake/Reservoir	27,000	27,000
Martin Lake/Reservoir	25,000	25,000
Remaining surface water sources providing less than 2% each	108,000	122,000
Surface water subtotal:	**803,000**	**978,000**
Groundwater		
Gulf Coast Aquifer	100,000	102,000
Carrizo-Wilcox Aquifer	91,000	102,000
Remaining groundwater sources providing less than 2% each	20,000	21,000
Groundwater subtotal:	**211,000**	**225,000**
Reuse	**14,000**	**14,000**
Region total	**1,028,000**	**1,217,000**

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

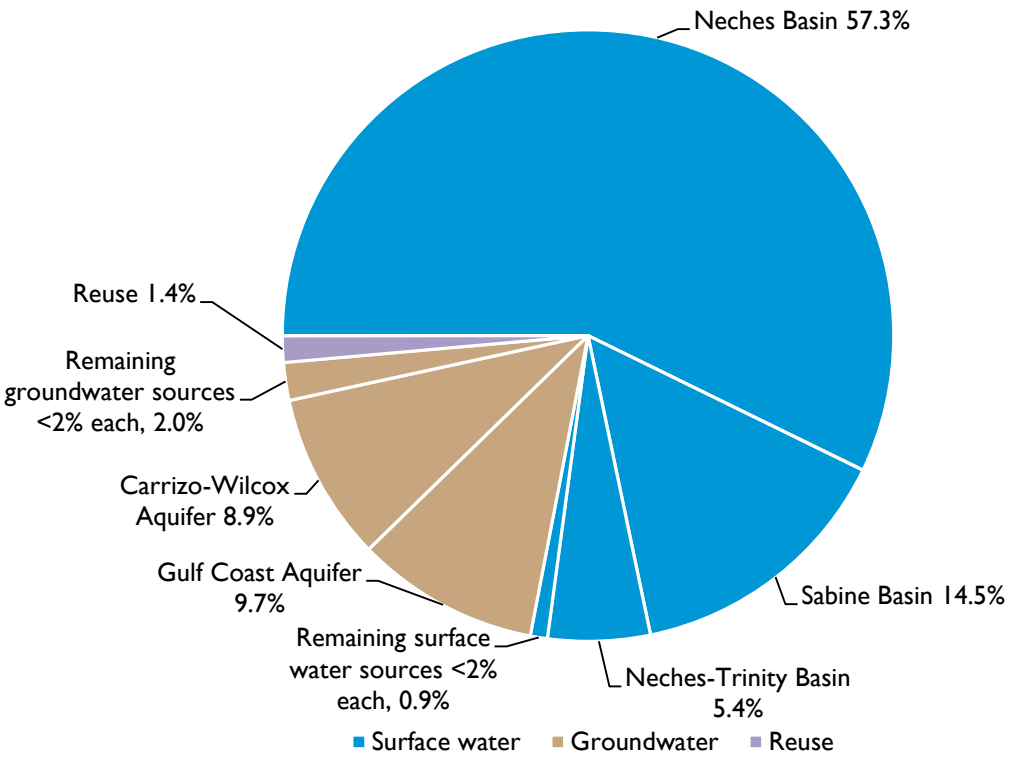


Table I.2 - Ten recommended water management strategy projects with largest capital cost

Recommended water management strategy project	Online decade	Sponsor(s)	Associated capital cost
UNM-ROR-Neches Run of River Infrastructure	2020	Upper Neches River Municipal Water Authority	$444,085,000
LNVA-SRA Infrastructure	2040	Lower Neches Valley Authority	$399,955,000
ANRA-COL - Lake Columbia Construction	2030	Angelina & Neches River Authority	$344,498,000
JEFF-MFG Infrastructure	2020	Manufacturing, Jefferson	$312,255,000
ANRA-WTP-WTP Construction	2030	Angelina & Neches River Authority	$117,250,000
TYL-PAL - Palestine Infrastructure	2030	Tyler	$93,050,000
SRA-INF - Pumpstation for SRA	2020	Sabine River Authority	$72,833,000
RUSK-SEP Infrastructure	2050	Steam Electric Power, Rusk	$57,718,000
JEFF-SEP Infrastructure	2020	Steam Electric Power, Jefferson	$54,518,000
BEAU Enhanced Water Loss Control Program	2030	Beaumont	$52,623,000
Other recommended projects	*various*	*48 various*	*$805,150,000*
		Total capital cost	**$2,753,935,000**

Table I.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
Jeff-Mfg Contract Expansion	na	1	309,000
SRA-INF-Pumpstation	na	5	60,000
Jeff-SEP New Contract	na	1	31,000
Lufk-Ray Sam Rayburn Infrastructure	48,000	2	28,000
Ande-SEP1 Anderson Steam Electric Power	na	1	22,000
ANRA-Run-of-River (New Application)	na	2	20,000
ANRA-COL - Lake Columbia	174,000	14	20,000
RUSK-SEP New Contract	na	1	19,000
Port Enhanced Water Loss Control Program	58,000	1	9,000
Beau Enhanced Water Loss Control Program	175,000	1	9,000
Other recommended strategies		*72*	*67,000*
		Total annual water volume	**594,000**

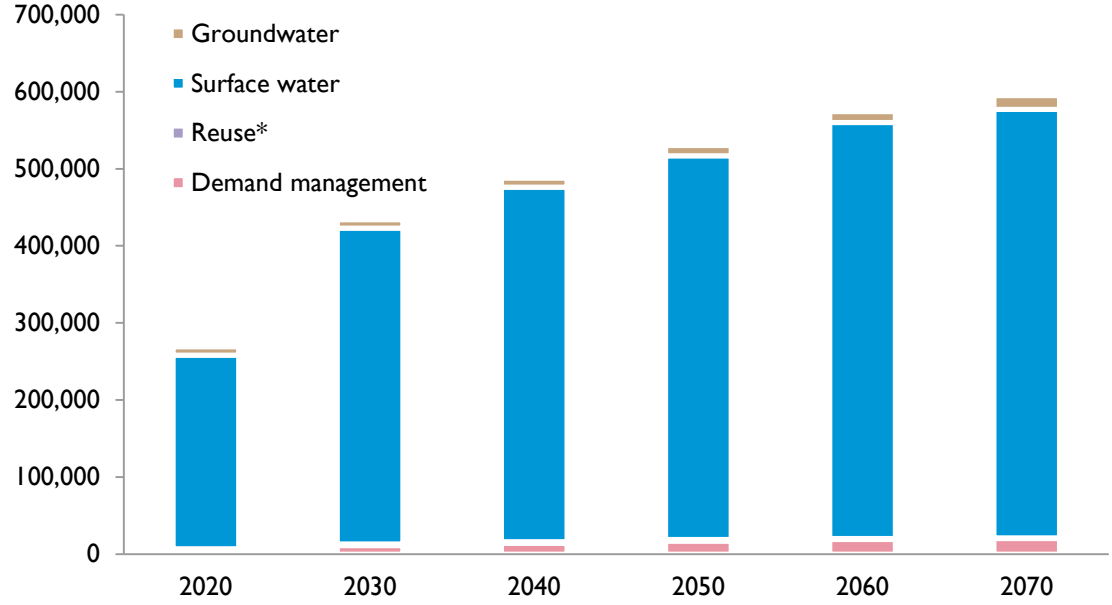
** Multiple strategies may serve portions of the same population*

Table I.4 - Population, existing water 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	803,000	907,000	925,000	942,000	959,000	978,000	***22%***
	Groundwater	211,000	213,000	216,000	219,000	221,000	225,000	***7%***
	Reuse	14,000	14,000	14,000	14,000	14,000	14,000	***0%***
	Total water supplies	**1,028,000**	**1,134,000**	**1,155,000**	**1,174,000**	**1,195,000**	**1,217,000**	***18%***
Demands	Municipal	158,000	165,000	171,000	180,000	190,000	200,000	***27%***
	County-other	30,000	32,000	33,000	35,000	37,000	39,000	***30%***
	Manufacturing	609,000	801,000	839,000	875,000	909,000	946,000	***55%***
	Mining	28,000	25,000	18,000	15,000	13,000	12,000	***-57%***
	Irrigation	178,000	188,000	195,000	198,000	195,000	192,000	***8%***
	Steam-electric	82,000	96,000	112,000	132,000	157,000	185,000	***126%***
	Livestock	24,000	26,000	27,000	30,000	32,000	33,000	***38%***
	Total water demand	**1,109,000**	**1,331,000**	**1,395,000**	**1,464,000**	**1,533,000**	**1,607,000**	***45%***
Needs	Municipal	<500	1,000	1,000	4,000	7,000	10,000	***900%****
	County-other	0	0	0	1,000	2,000	3,000	***200%****
	Manufacturing	195,000	287,000	309,000	329,000	349,000	369,000	***89%***
	Mining	10,000	7,000	3,000	2,000	2,000	2,000	***-80%***
	Irrigation	4,000	4,000	4,000	5,000	5,000	5,000	***25%***
	Steam-electric	25,000	33,000	43,000	56,000	80,000	108,000	***332%***
	Livestock	3,000	4,000	6,000	7,000	10,000	10,000	***233%***
	Total water needs	**237,000**	**336,000**	**367,000**	**405,000**	**455,000**	**508,000**	***114%***
Strategy supplies	Municipal	8,000	59,000	81,000	89,000	91,000	70,000	***775%***
	County-other	<500	4,000	4,000	5,000	6,000	4,000	***0%****
	Manufacturing	199,000	295,000	317,000	338,000	357,000	377,000	***89%***
	Mining	10,000	7,000	3,000	3,000	3,000	3,000	***-70%***
	Irrigation	3,000	4,000	4,000	4,000	5,000	5,000	***67%***
	Steam-electric	45,000	59,000	72,000	82,000	103,000	125,000	***178%***
	Livestock	5,000	6,000	7,000	9,000	11,000	11,000	***120%***
	Total strategy supplies	**269,000**	**433,000**	**488,000**	**530,000**	**575,000**	**594,000**	***121%***

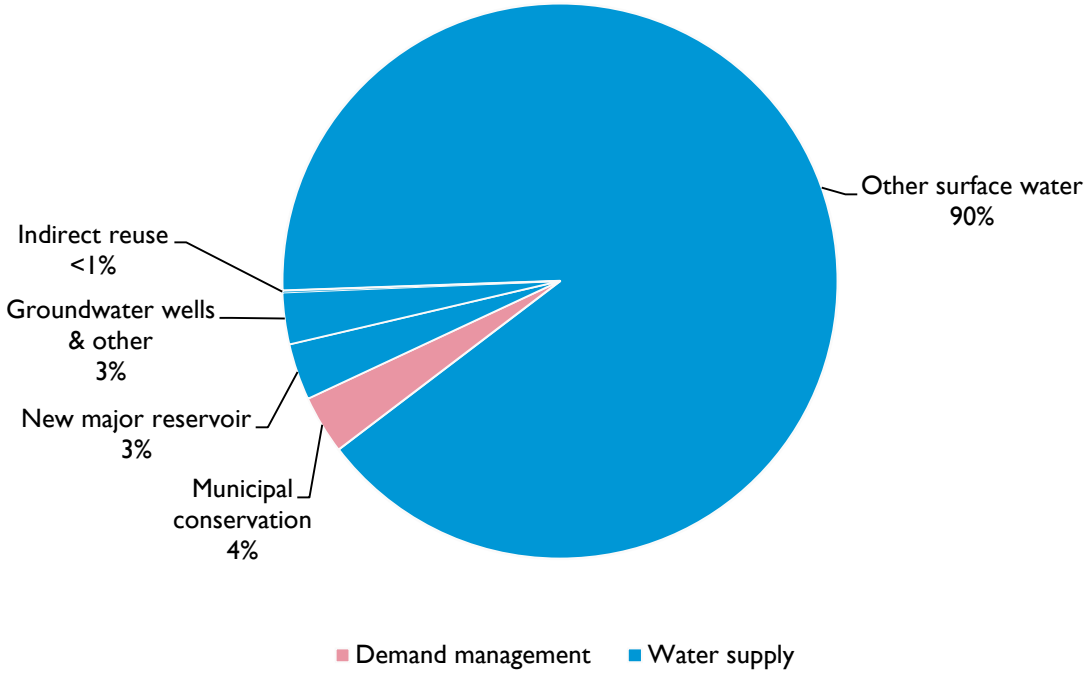
** Based on change from the earliest decade of volumes ≥500 acre-feet per year*

Figure I.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*

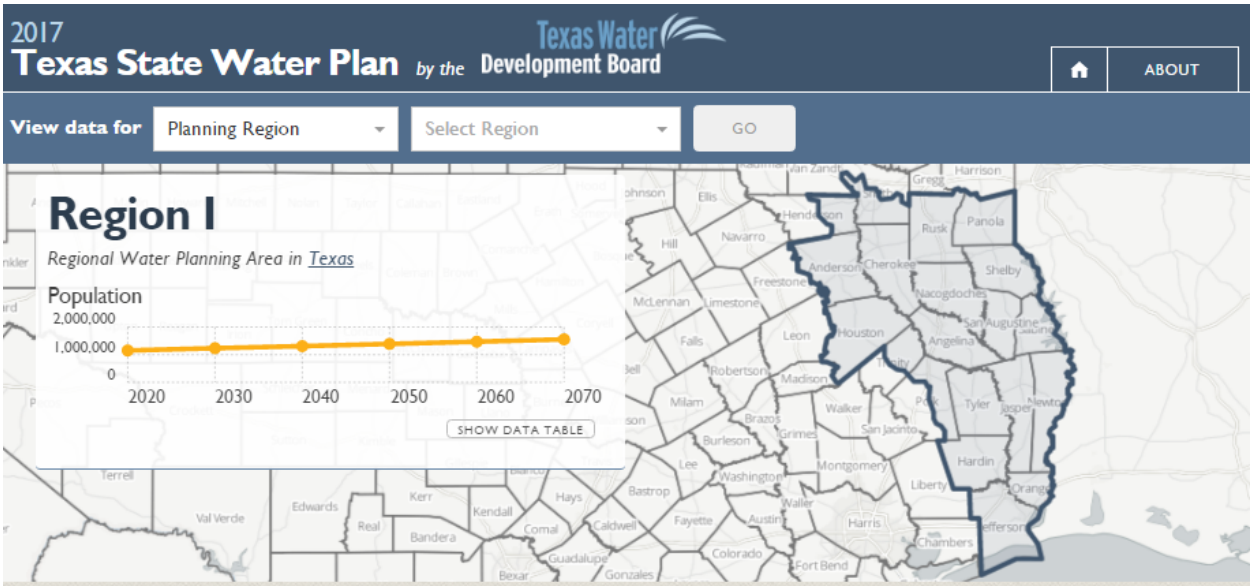
Figure I.5 - Share of recommended water management strategies by strategy type in 2070



East Texas (I) voting planning group members (2012 – 2016)

Kelly Holcomb, river authorities (Chair); Gregory Morgan, municipal; David Alders, agriculture; George Cambell, other; Jerry Clark, river authorities; Jeff Branick, counties; Dr. C. M. Harbordt, industry; Bill Kimbrough, public; Glenda Kindle, public; Monty Shank, river authorities; Herman Reed, agriculture; Worth Whithead, water districts; Dr. Leon Young, environment; Josh David, agriculture; Scott Hall, river authorities; William Heugel, public; Dale Peddy, industry; David Brock, municipalities; Duke Lyons, municipalities; Chris Davis, counties; Darla Smith, industry; Joe Holcomb, small business, Leah Adams, groundwater management areas; John Martin, groundwater management areas; Mark Dunn, small business; David Mantagne, river authorities

For more information on Texas or specific regions, counties, or cities, please visit the 2017 Interactive State Water Plan website: **texasstatewaterplan.org**



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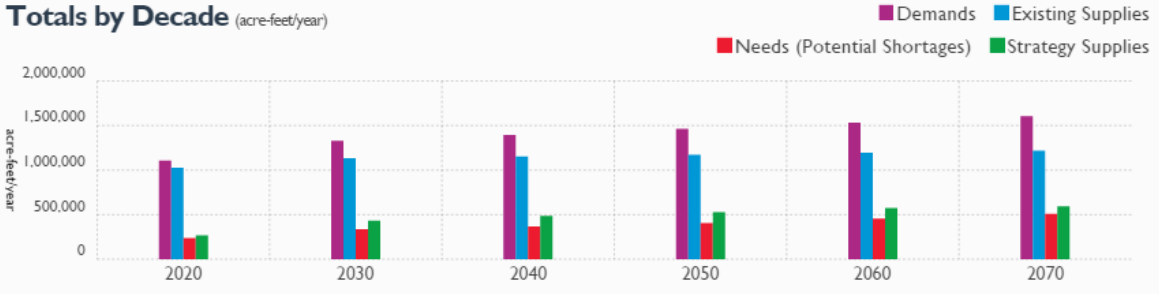

	2020	2030	2040	2050	2060	2070
Demands	1,108,800	1,330,825	1,395,212	1,463,778	1,533,147	1,607,250
Existing Supplies	1,027,695	1,134,166	1,154,625	1,174,320	1,194,601	1,216,723
Needs (Potential Shortages)	236,971	335,545	366,547	405,049	454,590	508,008
Strategy Supplies	268,502	433,489	488,144	530,002	574,923	594,154

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