



Summary of the 2021 Region H Regional Water Plan¹

Texas' regional water plans

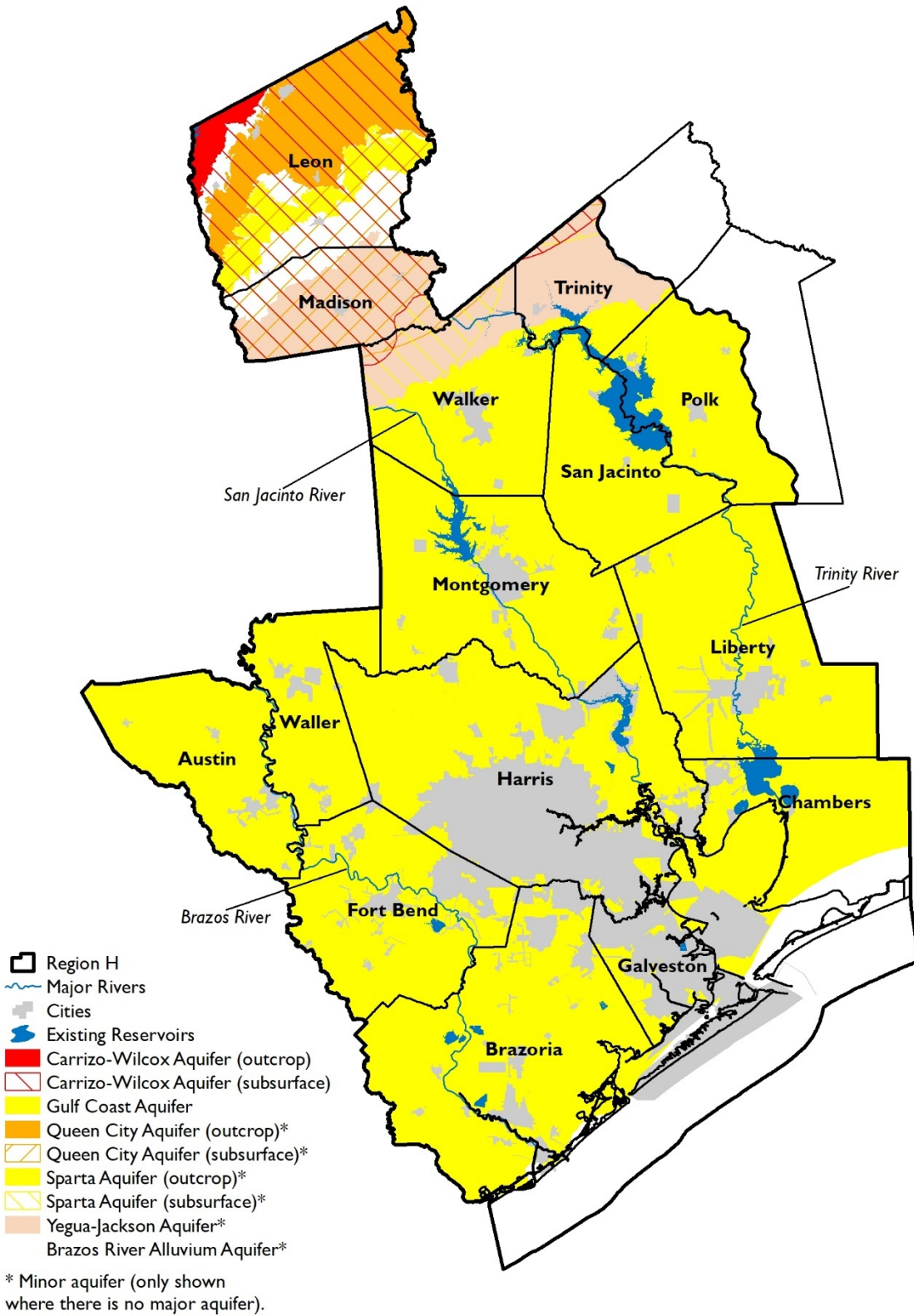
Regional water plans are funded by the Texas Legislature and developed every five years based on conditions that each region would face under a recurrence of a historical drought of record. The 16 regional water plans are developed by local representatives in a public, bottom-up process. The regional 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 Region H Regional Water Planning Area includes all or parts of 15 counties (Figure H.1) and portions of the Trinity, San Jacinto, Brazos, Neches, and Colorado river basins. The Houston metropolitan area is located within this region. The largest economic sector in Region H is the petrochemical industry, which accounts for two-thirds of the petrochemical production in the United States. Other major economic sectors in the region include medical services, tourism, government, agriculture, fisheries, and transportation, with the Port of Houston being the nation's second largest port based on total tonnage. The 2021 Region H Regional Water Plan can be found on the TWDB Web site at <http://www.twdb.texas.gov/waterplanning/rwp/plans/2021/#region-h>.

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

Figure H.1 - Region H regional water planning area



Plan highlights

- Additional supply needed in 2070—883,000 acre-feet per year
- Recommended water management strategy volume in 2070—1,942,000 acre-feet per year
- 818 recommended water management strategy projects with a total capital cost of \$20 billion
- Conservation accounts for 14 percent of 2070 strategy volumes
- Indirect reuse accounts for 19 percent of 2070 strategy volumes
- New major reservoirs account for 9 percent of 2070 strategy volumes, including Allen’s Creek and DOW Reservoir

Population and water demands

Approximately 25 percent of the state’s 2020 population were projected to reside in Region H. Between 2020 and 2070, the region’s population is projected to increase 60 percent (Table H.4, Figure H.2). By 2070, the total water demands for the region are projected to increase 32 percent (Table H.4).

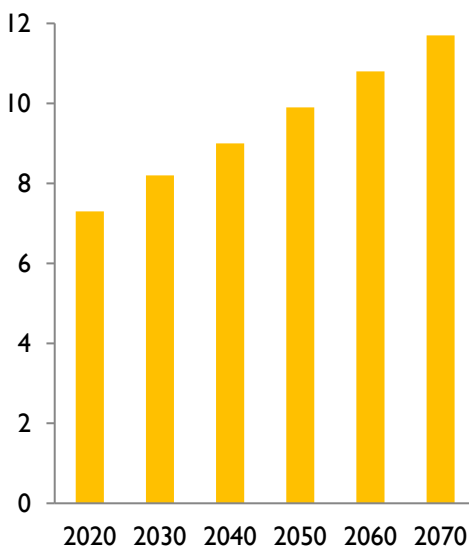
Existing water supplies

More than two-thirds of the existing water supply in Region H is associated with surface water (Table H.1, Figure H.3). By 2070, the total water supply is projected to decrease 5 percent primarily as a result of regulatory limits aimed at reducing groundwater pumping from the Gulf Coast Aquifer to limit land surface subsidence (Table H.4).

Needs

Although on a region-wide basis it might appear that Region H has enough water supplies to meet demands through 2020, with deficits from 2030 and 2070, the total water supply volume is not accessible to all water users throughout the region (Table H.4). In the event of drought, Region H is projected to have a total water supply need of 145,000 acre-feet in 2020 (Table H.4).

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



Recommended water management strategies and cost

The Region H 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 H.4 and H.5, Tables H.2 and H.3). In all, the 730 strategies and 818 projects would provide 1,942,000 acre-feet of additional water supply by the year 2070 at a total capital cost of \$20 billion.

Recommended water management strategies meet all identified needs in the plan except for 48,000 acre-feet per year associated with irrigation and livestock uses in 2020, increasing to approximately 49,000 acre-feet per year in 2070. An unmet need does not prevent an associated entity from pursuing development of additional water supply.

Conservation

Conservation strategies represent 14 percent of the total volume of water associated with all recommended strategies in 2070. Water conservation strategies were recommended for most municipal water users in the region, with limited exceptions for those with low existing per-capita demand. Conservation strategies included varying levels of outdoor residential water conservation and other measures. Water loss reduction strategies were recommended for entities with reported real water loss greater than 10 percent.

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

Water supply source	2020	2070
Surface water		
Livingston-Wallisville Lake/Reservoir System	908,000	915,000
Brazos Run-of-River	344,000	342,000
Houston Lake/Reservoir	139,000	140,000
Trinity Run-of-River	137,000	137,000
Brazos River Authority Main Stem Lake/Reservoir System	135,000	135,000
Sam Rayburn-Steinhagen Lake/Reservoir System	67,000	67,000
Remaining surface water (sources providing less than 2% each)	139,000	139,000
Surface water total	1,869,000	1,874,000
Groundwater		
Gulf Coast Aquifer System	783,000	636,000
Remaining groundwater (sources providing less than 2% each)	16,000	15,000
Groundwater total	799,000	651,000
Reuse		
	34,000	37,000
Region total	2,701,000	2,562,000

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

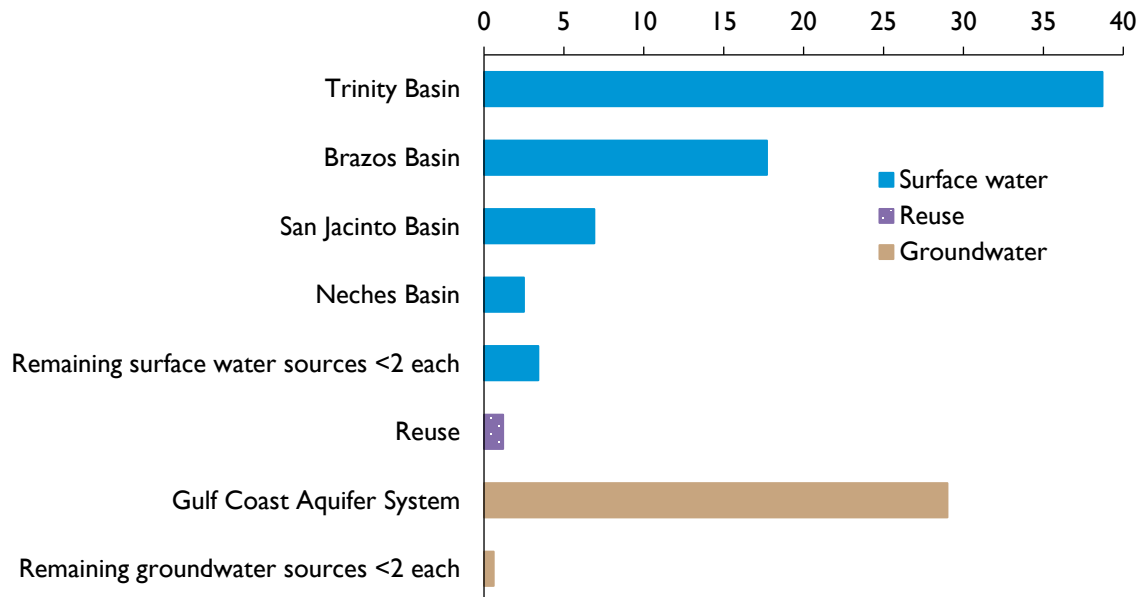


Table H.2 - Ten recommended water management strategy projects with largest capital cost

Recommended water management strategy project	Online Decade	Sponsor(s)	Associated capital cost
COH Northeast Water Purification Plant Expansion - Phases I and 2	2030	Central Harris County Regional Water Authority; Houston; North Fort Bend Water Authority; North Harris County Regional Water Authority; West Harris County Regional Water Authority	\$1,743,530,870
WHCRWA/NFBWA Transmission Line	2030	North Fort Bend Water Authority; West Harris County Regional Water Authority	\$1,310,701,901
City Of Houston West Water Purification Plant - Phase I	2040	Houston	\$768,820,060
Water Loss Reduction, Houston	2020	Houston	\$650,324,980
Municipal Conservation, Houston	2020	Houston	\$616,098,371
City of Houston Reuse Infrastructure	2040	Houston	\$555,093,731
COH, NHCRWA, and CHCRWA Shared Transmission	2030	Central Harris County Regional Water Authority; Houston; North Harris County Regional Water Authority	\$545,329,786
NHCRWA Distribution Expansion - 2025 Phase	2030	North Harris County Regional Water Authority	\$501,912,161
East Texas Transfer	2050	Houston; Lower Neches Valley Authority; Sabine River Authority	\$458,840,377
COH Northeast Water Purification Plant Expansion - Phase 3	2040	Houston	\$435,882,718
Other recommended projects	various	808 various	\$12,464,868,288
Total capital cost			\$20,051,403,243

Table H.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
East Texas Transfer	2,927,000	1	250,000
City of Houston Reuse	2,927,000	1	194,000
NHCRWA GRP	955,000	6	144,000
WHCRWA GRP	773,000	10	103,000
City of Houston GRP	3,510,000	42	99,000
DOW Reservoir and Pump Station Expansion	57,000	5	80,000
New / Expanded Contract with SJRA	1,208,000	10	74,000
New / Expanded Contract with LNVA	25,000	5	69,000
NFBWA GRP	655,000	6	67,000
SJRA GRP	1,714,000	39	62,000
Other recommended strategies	na	605	801,000
Total annual water volume			1,942,000

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.

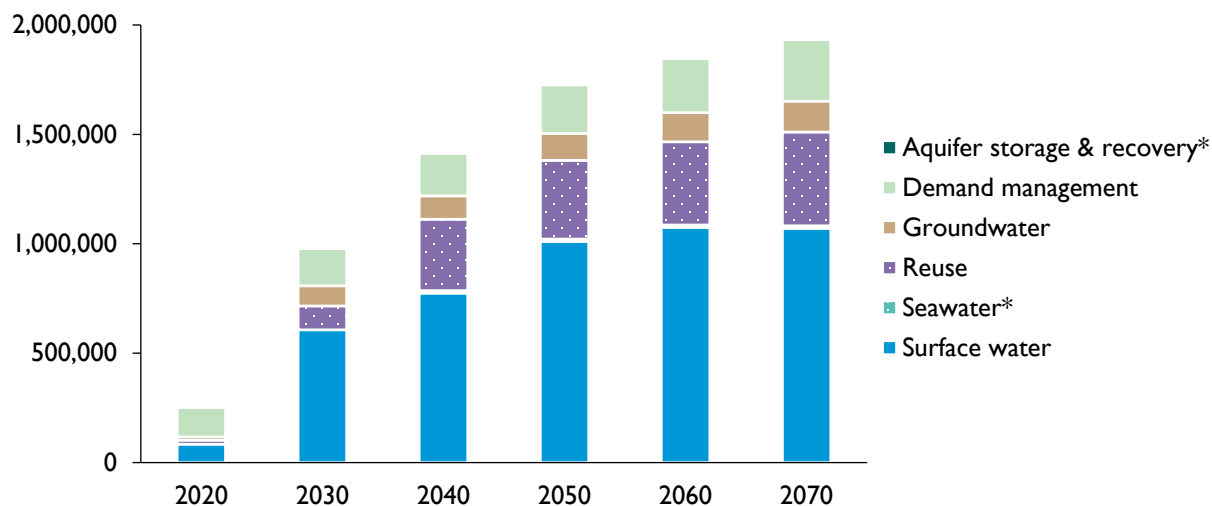
* Multiple strategies may serve portions of the same population

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

	Decade	2020	2030	2040	2050	2060	2070	Change
	Population	7,325,000	8,208,000	9,025,000	9,868,000	10,766,000	11,743,000	60%
Existing supplies	Surface water	1,869,000	1,870,000	1,873,000	1,872,000	1,873,000	1,874,000	0%
	Groundwater	799,000	653,000	580,000	603,000	627,000	651,000	-19%
	Reuse	34,000	34,000	35,000	35,000	36,000	37,000	9%
	Total water supplies	2,701,000	2,557,000	2,487,000	2,510,000	2,536,000	2,562,000	-5%
Demands	Municipal	1,176,000	1,273,000	1,359,000	1,442,000	1,525,000	1,610,000	37%
	County-other	89,000	116,000	145,000	183,000	235,000	297,000	234%
	Manufacturing	594,000	695,000	695,000	695,000	695,000	695,000	17%
	Mining	15,000	16,000	15,000	15,000	14,000	14,000	-7%
	Irrigation	343,000	343,000	343,000	343,000	343,000	343,000	0%
	Steam-electric	105,000	105,000	105,000	105,000	105,000	105,000	0%
	Livestock	14,000	14,000	14,000	14,000	14,000	14,000	0%
	Total water demand	2,337,000	2,561,000	2,675,000	2,796,000	2,931,000	3,077,000	32%
Needs	Municipal	9,000	212,000	357,000	414,000	473,000	535,000	5844%
	County-other	9,000	35,000	62,000	93,000	136,000	188,000	1989%
	Manufacturing	33,000	63,000	64,000	65,000	64,000	64,000	94%
	Mining	3,000	4,000	4,000	4,000	4,000	5,000	67%
	Irrigation	84,000	84,000	84,000	84,000	84,000	85,000	1%
	Steam-electric	5,000	5,000	5,000	5,000	5,000	5,000	0%
	Livestock	1,000	2,000	2,000	2,000	2,000	2,000	100%
	Total water needs	145,000	405,000	578,000	667,000	769,000	883,000	509%
Strategy supplies	Municipal	61,000	603,000	909,000	1,189,000	1,271,000	1,321,000	2066%
	County-other	11,000	52,000	77,000	109,000	150,000	198,000	1700%
	Manufacturing	72,000	213,000	250,000	251,000	248,000	246,000	242%
	Mining	3,000	5,000	5,000	5,000	6,000	6,000	100%
	Irrigation	98,000	98,000	165,000	165,000	165,000	165,000	68%
	Steam-electric	5,000	5,000	5,000	5,000	5,000	5,000	0%
	Livestock	1,000	1,000	1,000	1,000	1,000	1,000	0%
	Total strategy supplies	251,000	978,000	1,412,000	1,725,000	1,845,000	1,942,000	674%

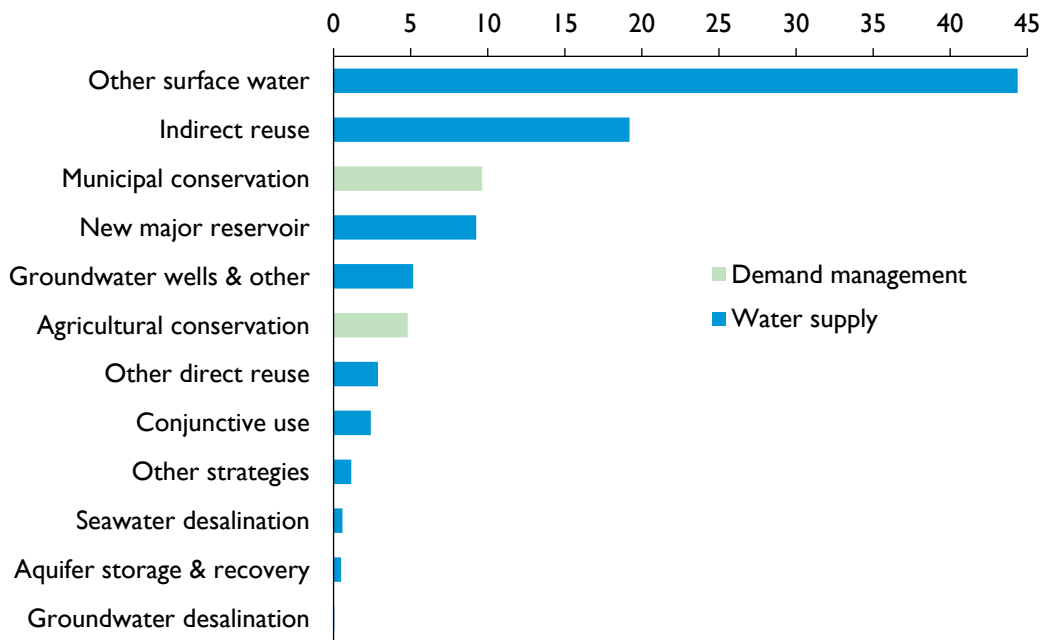
Note: Total values in this table are presented as rounded actual total values rather than the sum of rounded values to provide consistent referencing of total values. Calculated percent change is based on rounded values.

Figure H.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

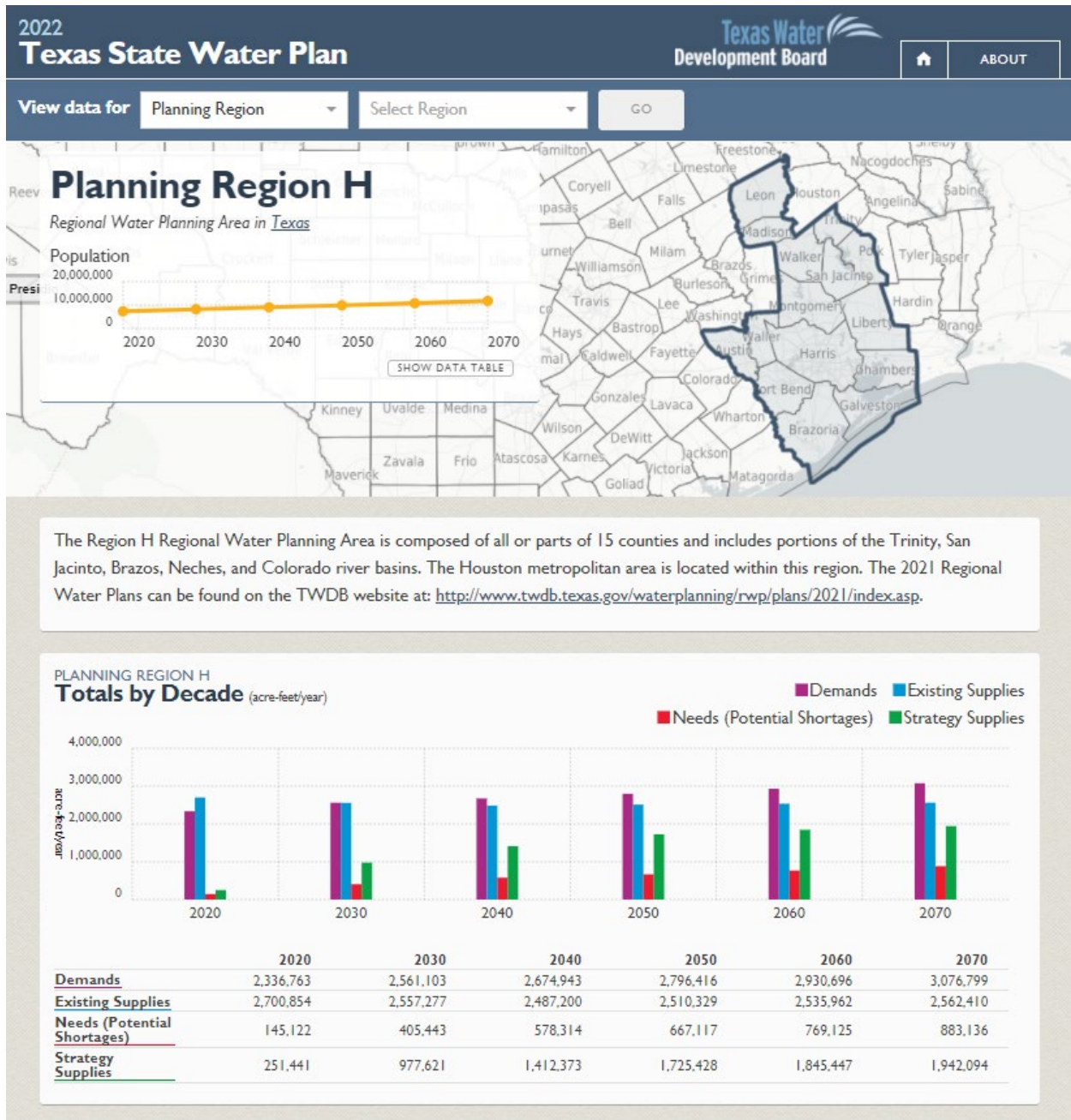
Figure H.5 - Share of recommended water management strategies by strategy type in 2070 (percent)



Region H voting planning group members (2017–2021)

Mark Evans, counties (Chair); Gary Ashmore, groundwater management areas; David Bailey, groundwater management areas; W.R. Baker, small business; John R. Bartos, environment; John Blount, counties; Robert Bruner, agriculture; Brad Brunett, river authorities; Carl Burch, electric generating utilities; Jun Chang, municipalities; David Collinsworth, river authorities; James Comin, industries; Gene Fisseler, electric generating utilities; Yvonne W. Forrest, municipalities; Bob Hebert, small business; Art Henson, counties; Jace Houston, river authorities; John Howard, small business; Robert Istre, municipalities; Kathy Turner Jones, groundwater management areas; Ivan Langford, water utilities; Glenn Lord, industries; Marvin Marcell, water districts; Carl Masterson, public; James Morrison, water utilities; Ron J. Neighbors, water districts; Jimmie Schindewolf, water districts; Ruth Stultz, small business; William Teer, water utilities; Michael Turco, water districts; Brandon Wade, water utilities; Kevin Ward, river authorities; and Pudge Willcox, agriculture.

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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