

Summary of the 2016 Region C Regional Water Plan¹

Texas' regional water plans

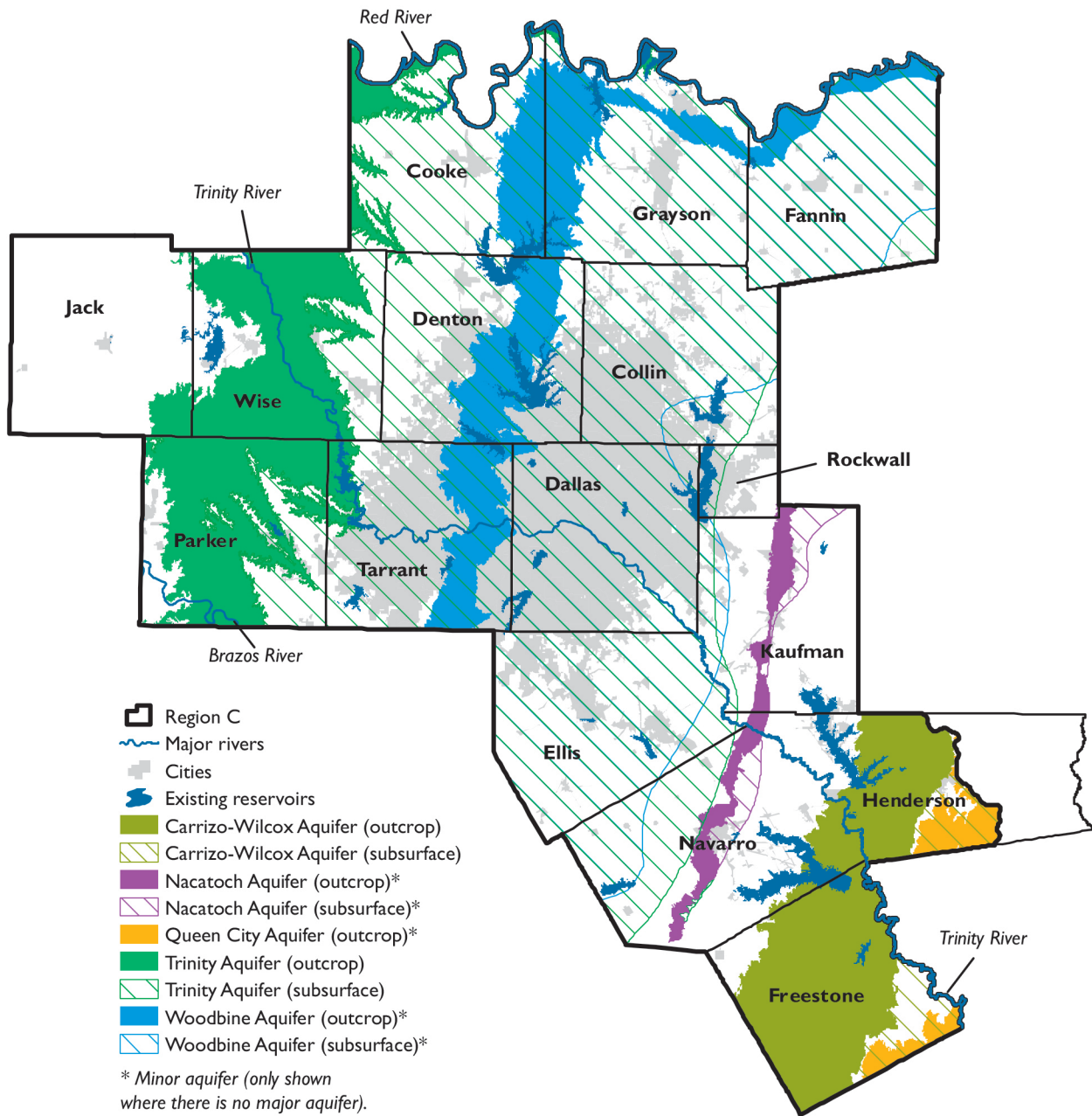
Regional water plans are funded by the Texas Legislature and developed every five years based on conditions that each region would face under a recurrence of a historical drought of record. The 16 regional water plans are developed by local representatives in a public, bottom-up process. The regional 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 C Regional Water Planning Area includes all or parts of 16 counties (Figure C.1). Overlapping much of the upper portion of the Trinity River Basin, Region C also includes smaller parts of the Red, Brazos, Sulphur, and Sabine basins. The Trinity Aquifer provides the largest supply of groundwater. The Dallas-Fort Worth metropolitan area is centrally located in the region, and its surrounding counties are among the fastest growing in the state. Major economic sectors in the region include service, trade, manufacturing, and government. The 2016 Region C Regional Water Plan can be found on the TWDB website at <http://www.twdb.texas.gov/waterplanning/rwp/plans/2016/#region-c>

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

Figure C.1 - Region C regional water planning area



Plan highlights

- Additional supply needed in 2070—1,356,000 acre-feet per year
- Recommended water management strategy volume in 2070—1,436,000 acre-feet per year
- 557 recommended water management strategy projects with a total capital cost of \$23.6 billion
- Conservation accounts for 9 percent of 2070 strategy volumes
- Five new major reservoirs recommended (Ralph Hall, Lower Bois d'Arc, Dallas Water Utilities Mainstem Balancing Off-Channel Reservoir, Tehuacana, and Marvin Nichols)

Population and water demands

Approximately 25 percent of the state's 2020 population will reside in Region C. Between 2020 and 2070, the region's population is projected to increase 91 percent (Table C.4, Figure C.2). By 2070, the total water demands for the region are projected to increase 71 percent (Table C.4).

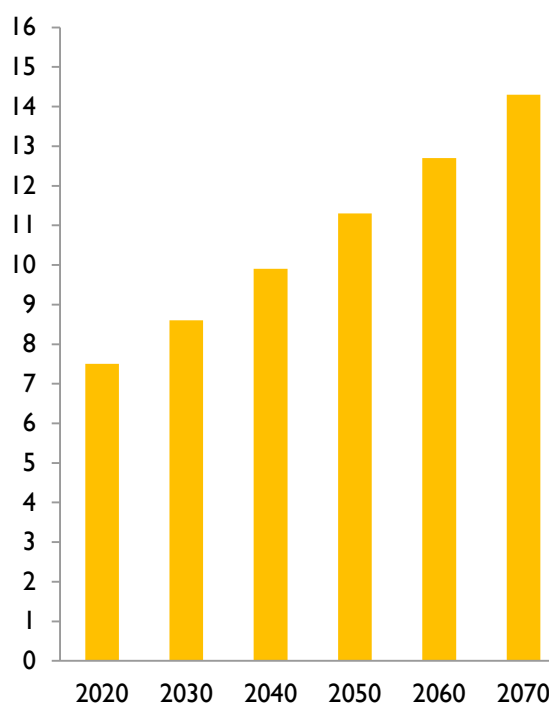
Existing water supplies

More than three-quarters of the existing water supply in Region C is associated with surface water (Table C.1, Figure C.3). By 2070 the total existing water supply is projected to decline about 3 percent (Table C.4), due primarily to anticipated reservoir sedimentation.

Needs

On a region-wide basis Region C does not have enough water supplies to meet demands through 2070, with the vast majority of deficits occurring in the municipal category (Table C.4). In the event of drought, Region C is projected to have a total water supply need of 125,000 acre-feet in 2020, increasing to 1,356,000 acre-feet by 2070 (Table C.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.

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



Recommended water management strategies and cost

The Region C 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 C.4 and C.5, Tables C.2 and C.3). In all, the 2,341 strategies and 557 projects would provide 1,436,000 acre-feet of additional water supply by the year 2070 at a total capital cost of \$23.6 billion.

Conservation

Conservation strategies represent about 9 percent of the total volume of water associated with all recommended strategies in 2070. Municipal water conservation was recommended for every municipal water user group in the region that had a projected need, a water use greater than 140 gallons per capita per day, an identified strategy sponsor, and a strategy cost less than \$5.00 per 1,000 gallons.

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

Water supply source	2020	2070
Surface water		
TRWD Lake/Reservoir System	389,000	342,000
Tawakoni Lake/Reservoir	201,000	145,000
Ray Roberts-Lewisville-Grapevine Lake/Reservoir System	170,000	132,000
Lavon Lake/Reservoir North Texas MWD System	82,000	74,000
Fork Lake/Reservoir	68,000	68,000
Texoma Lake/Reservoir North Texas MWD System	67,000	62,000
Ray Hubbard Lake/Reservoir	56,000	45,000
Chapman/Cooper Lake/Reservoir Non-System Portion	52,000	46,000
Chapman/Cooper Lake/Reservoir North Texas MWD System	39,000	35,000
Texoma Lake/Reservoir Non-System Portion	33,000	33,000
Remaining surface water sources providing less than 2% each	141,000	137,000
Surface water subtotal:	1,298,000	1,119,000
Groundwater		
Trinity Aquifer	79,000	80,000
Remaining groundwater sources providing less than 2% each	42,000	42,000
Groundwater subtotal:	121,000	122,000
Reuse	229,000	361,000
Region total	1,648,000	1,602,000

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

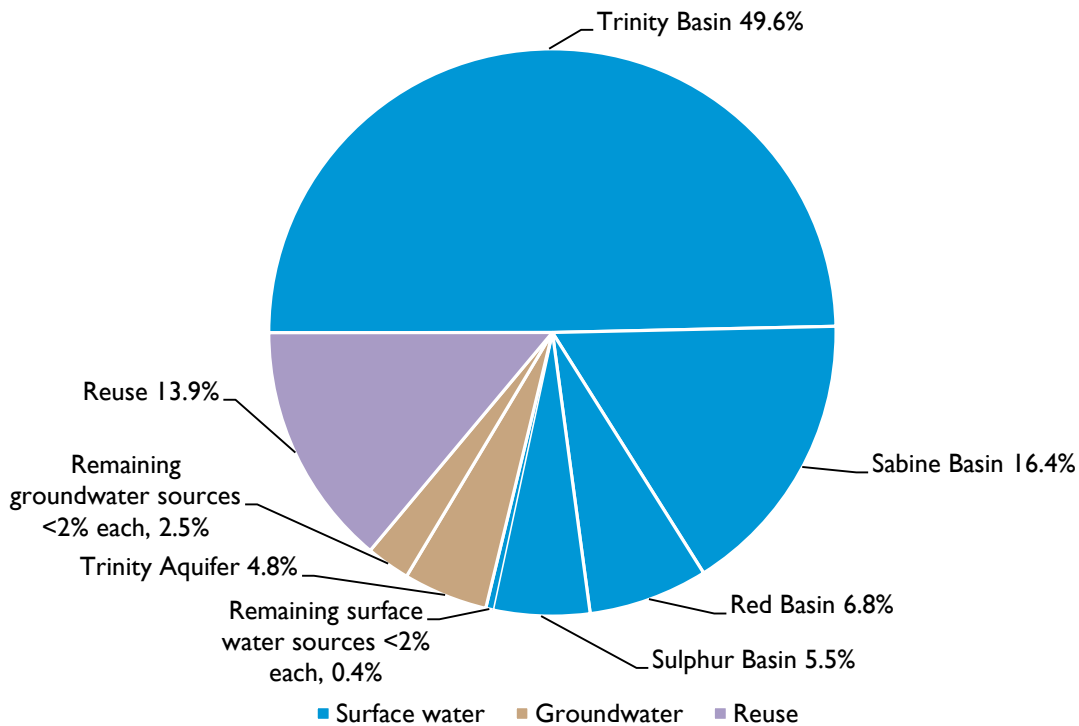


Table C.2 - Ten recommended water management strategy projects with largest capital cost

Recommended water management strategy project	Online decade	Sponsor(s)	Associated capital cost
Sulphur Basin Supplies - TRWD, NTWMD, UTRWD Q-18	2050	North Texas MWD	\$1,206,634,000
Sulphur Basin Supplies - TRWD, NTWMD, UTRWD Q-18	2050	Tarrant Regional WD	\$3,004,413,000
Sulphur Basin Supplies - TRWD, NTWMD, UTRWD Q-18	2050	Upper Trinity Regional WD	\$305,499,000
TRWD & DWU Integrated Pipeline Q-48	2030	Dallas	\$386,752,000
TRWD & DWU Integrated Pipeline Q-48	2030	Tarrant Regional WD	\$1,733,914,000
NTMWD - Toledo Bend Q-57	2060	North Texas MWD	\$1,248,461,000
DWU - Infrastructure to Treat and Deliver to Customers 2035 WTP Expansions Q-40	2040	Dallas	\$1,211,133,000
NTMWD Treatment & Treated Water Distribution Improvements 2020-2030 Q-28	2030	North Texas MWD	\$1,099,314,000
NTMWD Treatment & Treated Water Distribution Improvements 2010-2020 Q-28	2020	North Texas MWD	\$1,015,469,000
TRWD - Lake Tehuacana Q-50	2040	Tarrant Regional WD	\$742,730,000
NTMWD Treatment & Treated Water Distribution Improvements 2040-2050 Q-28	2050	Heart of Texas Water Suppliers LLC	\$704,883,000
DWU - Main Stem Balancing Reservoir Q-35	2050	Dallas	\$674,463,000
NTMWD Treatment & Treated Water Distribution Improvements 2030-2040 Q-28	2040	North Texas MWD	\$663,032,000
<i>Other recommended projects</i>	<i>various</i>	<i>547 various</i>	<i>\$9,638,562,000</i>
		Total capital cost	\$23,635,259,000

Table C.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
Sulphur Basin Supply	8,770,000	219	349,000
DWU - Main Stem Reuse	8,498,000	119	101,000
NTMWD - Lower Bois d'Arc Creek Reservoir	3,861,000	88	94,000
TRWD - Cedar Creek Wetlands	4,972,000	116	85,000
Lake Palestine	6,193,000	104	71,000
NTMWD - Toledo Bend Phase I	3,637,000	78	56,000
Denton Unallocated Supply Utilization	571,000	2	49,000
Conservation - Dallas	1,905,000	1	42,000
TRWD - Additional Cedar Creek and Richland-Chambers	5,080,000	118	40,000
TRWD - Tehuacana	4,972,000	113	40,000
<i>Other recommended strategies</i>		<i>1,482</i>	<i>485,000</i>
		Total annual water volume	1,412,000

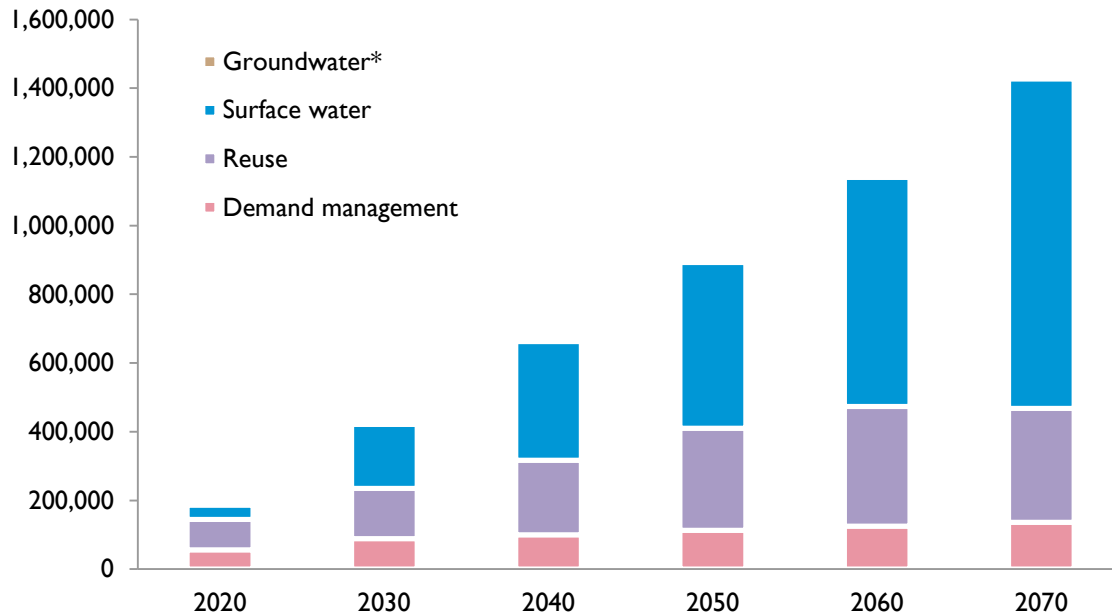
* Multiple strategies may serve portions of the same population

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

	Decade	2020	2030	2040	2050	2060	2070	change
Population		7,504,000	8,649,000	9,909,000	11,260,000	12,742,000	14,348,000	91%
Existing supplies	Surface water	1,300,000	1,237,000	1,202,000	1,175,000	1,145,000	1,119,000	-14%
	Groundwater	121,000	121,000	122,000	122,000	123,000	123,000	2%
	Reuse	229,000	261,000	285,000	318,000	344,000	361,000	58%
	Total water supplies	1,650,000	1,619,000	1,609,000	1,615,000	1,612,000	1,602,000	-3%
Demands	Municipal	1,443,000	1,638,000	1,857,000	2,063,000	2,268,000	2,463,000	71%
	County-other	38,000	37,000	38,000	57,000	85,000	132,000	247%
	Manufacturing	80,000	88,000	96,000	103,000	108,000	113,000	41%
	Mining	39,000	35,000	34,000	36,000	39,000	44,000	13%
	Irrigation	33,000	33,000	34,000	34,000	34,000	34,000	3%
	Steam-electric	71,000	94,000	106,000	114,000	124,000	135,000	90%
	Livestock	19,000	19,000	19,000	19,000	19,000	19,000	0%
	Total water demand	1,723,000	1,945,000	2,183,000	2,426,000	2,677,000	2,940,000	71%
Needs	Municipal	106,000	316,000	535,000	737,000	947,000	1,158,000	992%
	County-other	1,000	3,000	4,000	14,000	35,000	70,000	6900%
	Manufacturing	3,000	11,000	21,000	29,000	37,000	44,000	1367%
	Mining	6,000	6,000	7,000	10,000	12,000	16,000	167%
	Irrigation	<500	<500	1,000	1,000	1,000	1,000	0%*
	Steam-electric	9,000	30,000	36,000	44,000	55,000	68,000	656%
	Total water needs	125,000	367,000	604,000	834,000	1,086,000	1,356,000	985%
Strategy supplies	Municipal	159,000	353,000	576,000	771,000	982,000	1,206,000	658%
	County-other	5,000	9,000	12,000	22,000	42,000	80,000	1500%
	Manufacturing	4,000	13,000	23,000	31,000	39,000	47,000	1075%
	Mining	2,000	2,000	3,000	6,000	8,000	11,000	450%
	Irrigation	8,000	9,000	10,000	12,000	12,000	13,000	63%
	Steam-electric	14,000	40,000	46,000	59,000	65,000	78,000	457%
	Livestock	1,000	1,000	1,000	1,000	<500	<500	-100%
	Total strategy supplies	192,000	427,000	670,000	900,000	1,147,000	1,436,000	648%

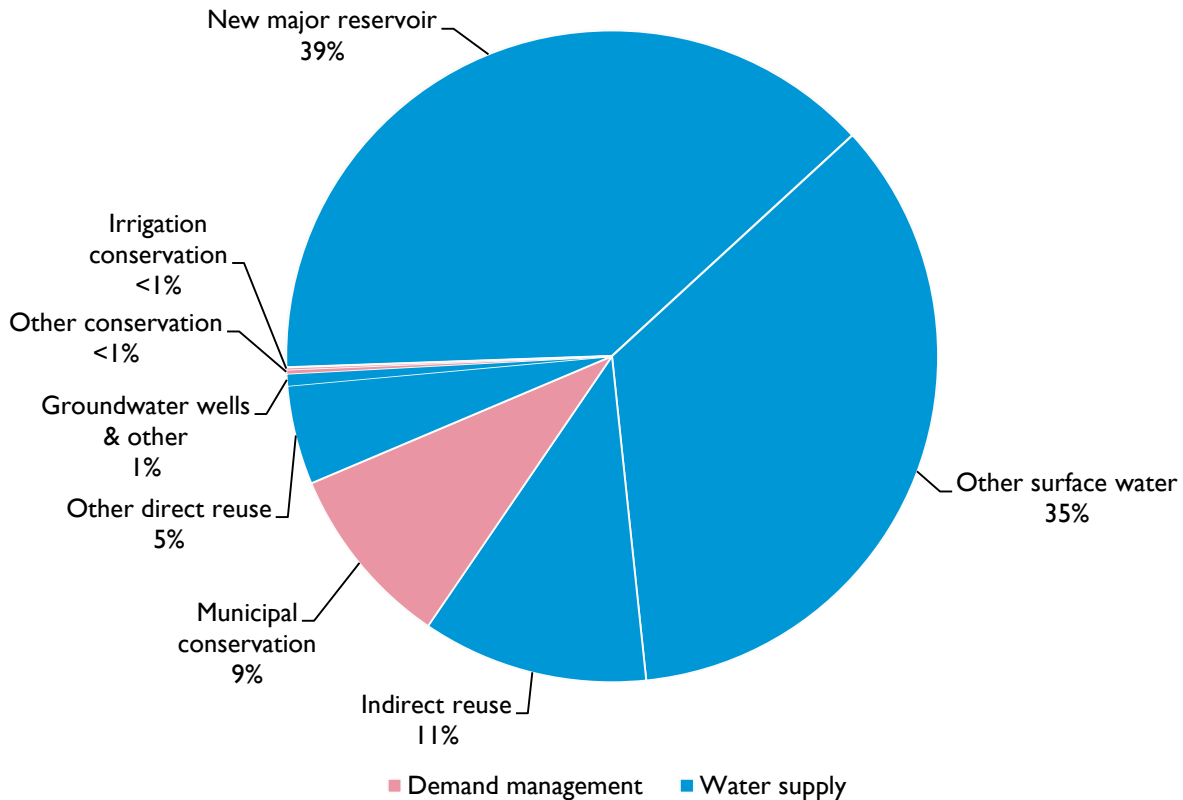
* Based on change from the earliest decade of volumes ≥500 acre-feet per year

Figure C.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

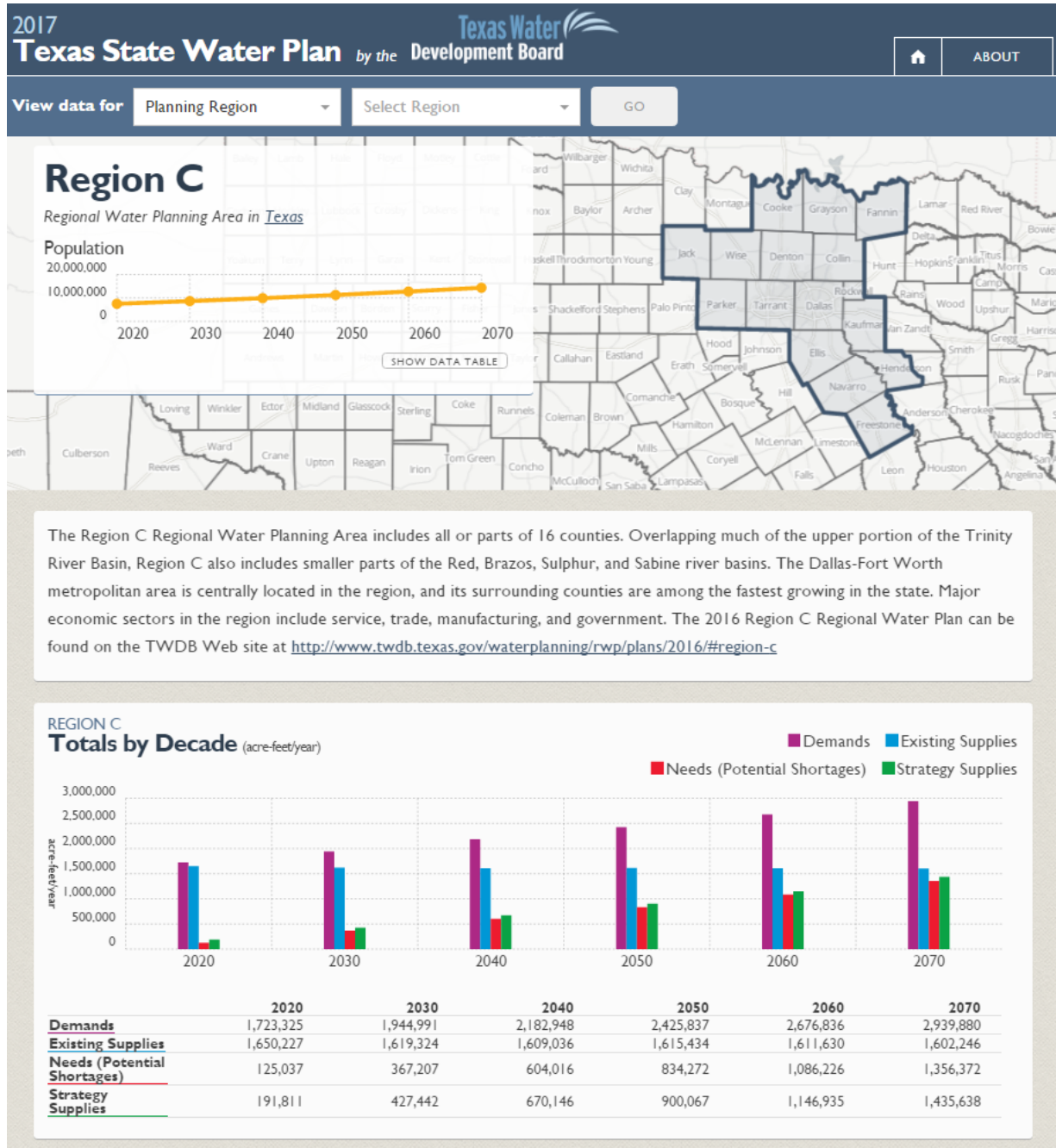
Figure C.5 - Share of recommended water management strategies by strategy type in 2070



Region C voting planning group members (2012 – 2016)

Jody Puckett, municipalities (Chair); David Bailey, groundwater management areas; Steve Berry, environment; John Carman, municipalities; Bill Ceverha, public; Jerry Chapman, water districts; Frank Crumb, municipalities; Gary Douglas, groundwater management areas; James Hotopp, municipalities; Tom Kula, water districts; Thomas La Point, public; Harold Latham, groundwater management areas; Russell, Laughlin, industry; Bill Lewis, small business; John Lingenfelter, public; G.K. Maenius, counties; Howard Martin, municipalities; Jim McCarter, water utilities; Steve Mundt, small business; Jim Parks, water districts; Paul Phillips municipalities; Bob Riley, environment; Drew Satterwhite, water districts; Bob Scott, environment; Gary Spicer, electric-generating utilities; Connie Standridge, water utilities; Jack Stevens, water districts; Danny Vance, river authorities; Mary Vogelsson, public; Kevin Ward, river authorities; Tom Woodward, agriculture

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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