

# Summary of the 2016 Rio Grande (M) Regional Water Plan<sup>1</sup>

## Texas' regional water plans

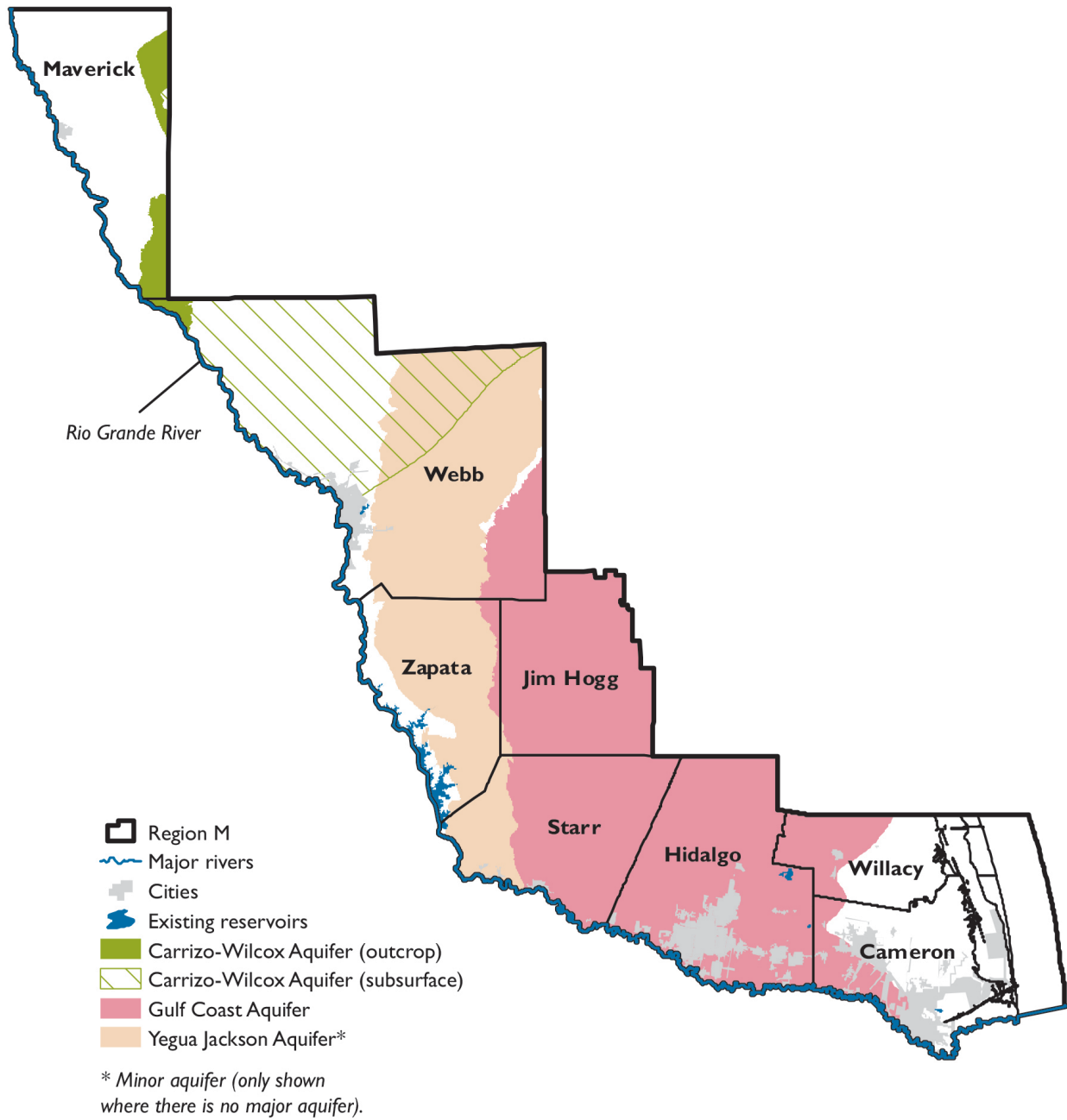
Regional water plans are funded by the Texas Legislature and developed every five years based on conditions that each region would face under a recurrence of a historical drought of record. The 16 regional water plans are developed by local representatives in a public, bottom-up process. The regional 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 Rio Grande (M) Regional Water Planning Area** includes all or parts of eight counties within the middle and lower Rio Grande valley (Figure M.1). Over 60 percent of the region lies within the Rio Grande Basin, with the basin's two international reservoirs being the region's primary source of water. Portions of two major aquifers, the Gulf Coast and the Carrizo-Wilcox, underlie a large portion of Region M. The largest economic sectors in the region are agriculture, trade, services, manufacturing, and hydrocarbon production. Major cities in the region include Brownsville, McAllen, and Laredo. The 2016 Rio Grande (M) Regional Water Plan can be found on the TWDB website at <http://www.twdb.texas.gov/waterplanning/rwp/plans/2016/#region-m>

<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 M.1 - Rio Grande (M) regional water planning area**



## Plan highlights

- Additional supply needed in 2070—797,000 acre-feet per year
- Recommended water management strategy volume in 2070—669,000 acre-feet per year
- 195 recommended water management strategy projects with a total capital cost of \$1.87 billion
- Municipal and irrigation conservation account for 66 percent of 2070 strategy volumes
- Three new reservoirs recommended (Banco-Morales, Delta Watershed, and United Irrigation District Off-Channel Reservoir)

## Population and water demands

Approximately 7 percent of the state's 2020 population will reside in the Rio Grande (M) Region. Between 2020 and 2070, the region's population is projected to increase approximately 106 percent (Table M.4, Figure M.2). By 2070, the total water demands for the region are projected to increase 7 percent (Table M.4).

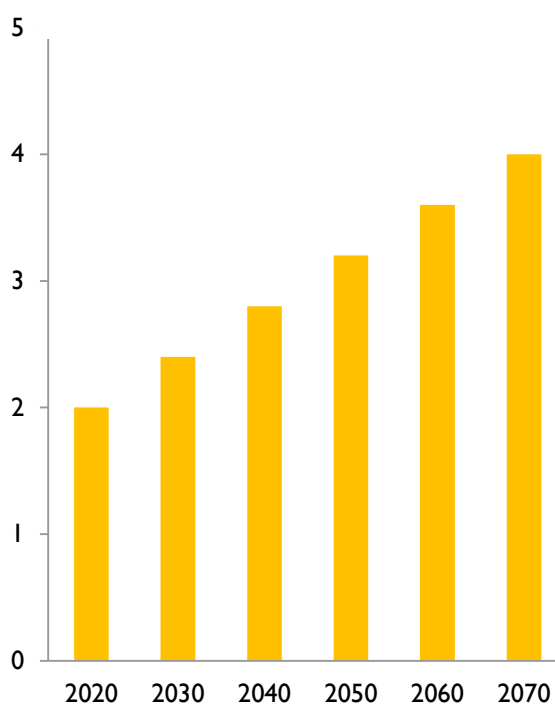
## Existing water supplies

The Rio Grande (M) Region has a variety of surface water and groundwater existing supply sources, with over 90 percent associated with surface water (Table M.1, Figure M.3). By 2070 the total existing water supply is projected to decline about approximately 1 percent (Table M.4), due primarily to anticipated reservoir sedimentation.

## Needs

On a region-wide basis the Rio Grande (M) Region does not have enough water supplies to meet demands through 2070, with the vast majority of deficits occurring in the irrigation category. However, this irrigation deficit is projected to improve somewhat by the end of the planning horizon due to decreasing demands (Table M.4). In the event of drought, Region M is projected to have a total water supply need of 717,000 acre-feet in 2020, increasing to 797,000 acre-feet by 2070 (Table M.4). The region has projected unmet needs mainly in irrigation with small unmet needs in the mining and manufacturing water user group categories.

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



## Recommended water management strategies and cost

The Rio Grande (M) Planning Group recommended a variety of water management strategies and projects that would provide less water than is required to meet future needs (Figures M.4 and M.5, Tables M.2 and M.3). In all, the 478 strategies and 195 projects would provide 669,000 acre-feet of additional water supply by the year 2070 at a total capital cost of \$1.87 billion.

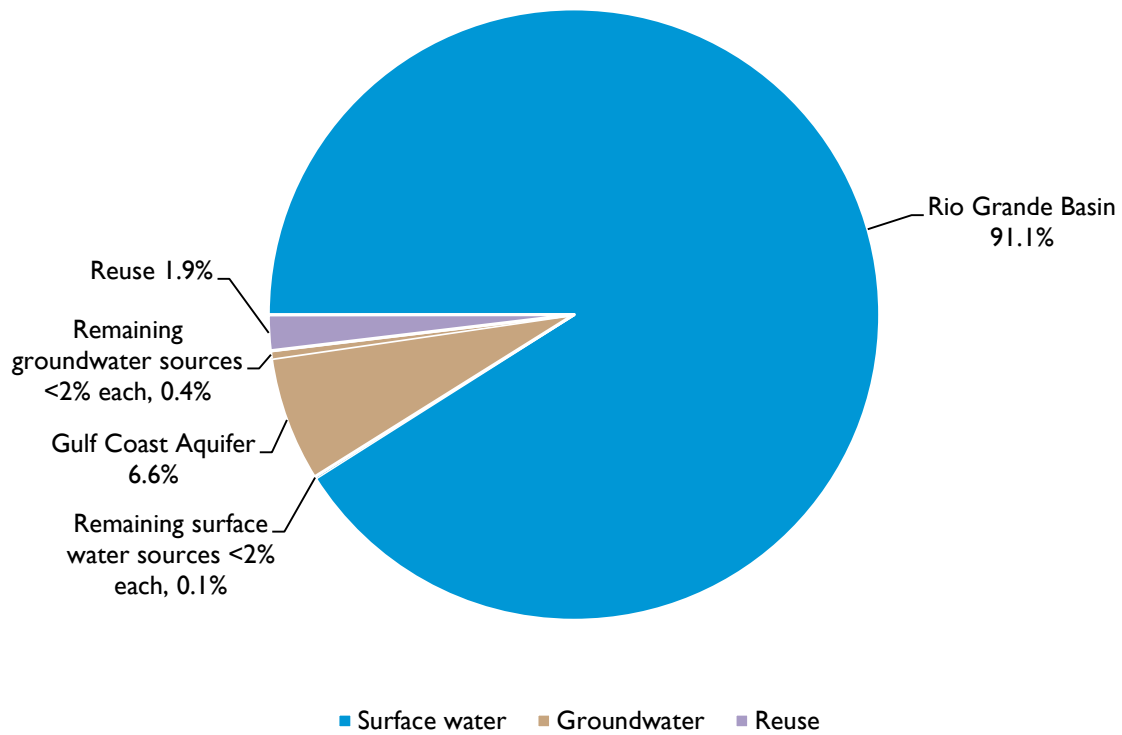
## Conservation

Conservation strategies represent about 66 percent of the total volume of water associated with all recommended strategies in 2070 and was recommended for every municipal water user group that had either a need or a water use greater than 140 gallons per capita per day, as well as conveyance conservation for 27 Irrigation Districts.

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

Water supply source	2020	2070
<b>Surface water</b>		
Amistad-Falcon Lake/Reservoir System	760,000	756,000
Remaining surface water sources providing less than 2% each	2,000	2,000
<b>Surface water subtotal:</b>	<b>762,000</b>	<b>758,000</b>
<b>Groundwater</b>		
Gulf Coast Aquifer	55,000	55,000
Remaining groundwater sources providing less than 2% each	3,000	3,000
<b>Groundwater subtotal:</b>	<b>58,000</b>	<b>58,000</b>
<b>Reuse</b>	<b>16,000</b>	<b>16,000</b>
<b>Region total</b>	<b>836,000</b>	<b>832,000</b>

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



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

Recommended water management strategy project	Online decade	Sponsor(s)	Associated capital cost
Brownsville Seawater Desalination Implementation	2060	Brownsville	\$319,115,000
Cameron County ID #2 Conservation	2020	Cameron County Irrigation District #2	\$63,145,000
Brownsville Seawater Desalination Demonstration	2020	Brownsville	\$56,756,000
Hidalgo County ID No. 1 Conservation	2020	Hidalgo County Irrigation District #1	\$54,933,000
Hidalgo and Cameron County ID No. 9 Conservation	2020	Hidalgo-Cameron County Irrigation District #9	\$54,000,000
Delta Lake ID Conservation	2020	Delta Lake Irrigation District	\$52,378,000
La Feria ID Conservation	2020	La Feria Irrigation District-Cameron County #3	\$51,300,000
Roma WTP and Purchase of Water Rights	2020	Roma	\$45,625,000
South Laredo WWTP Potable Reuse - Phase I	2030	Laredo	\$43,467,000
Maverick County WCID Conservation	2020	Maverick County WCID #1	\$42,874,000
<i>Other recommended projects</i>	<i>various</i>	<i>185 various</i>	<i>\$1,082,430,000</i>
		<b>Total capital cost</b>	<b>\$1,866,023,000</b>

**Table M.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
On-Farm Irrigation Conservation	na	8	98,000
Conversion of Irrigation Water Rights to DMI	1,664,000	27	62,000
Delta Lake ID Conservation	776,000	18	35,000
Advanced Municipal Conservation - McAllen	363,000	1	29,000
Brownsville Seawater Desalination	456,000	4	28,000
Cameron County ID No. 2 Conservation	243,000	8	18,000
Hidalgo County ID No. 1 Conservation	1,268,000	15	18,000
Hidalgo County ID No. 2 Conservation	1,436,000	13	17,000
Hidalgo and Cameron County ID No. 9 Conservation	1,052,000	17	17,000
Donna ID Conservation	857,000	9	15,000
<i>Other recommended strategies</i>		358	333,000
		<b>Total annual water volume</b>	<b>670,000</b>

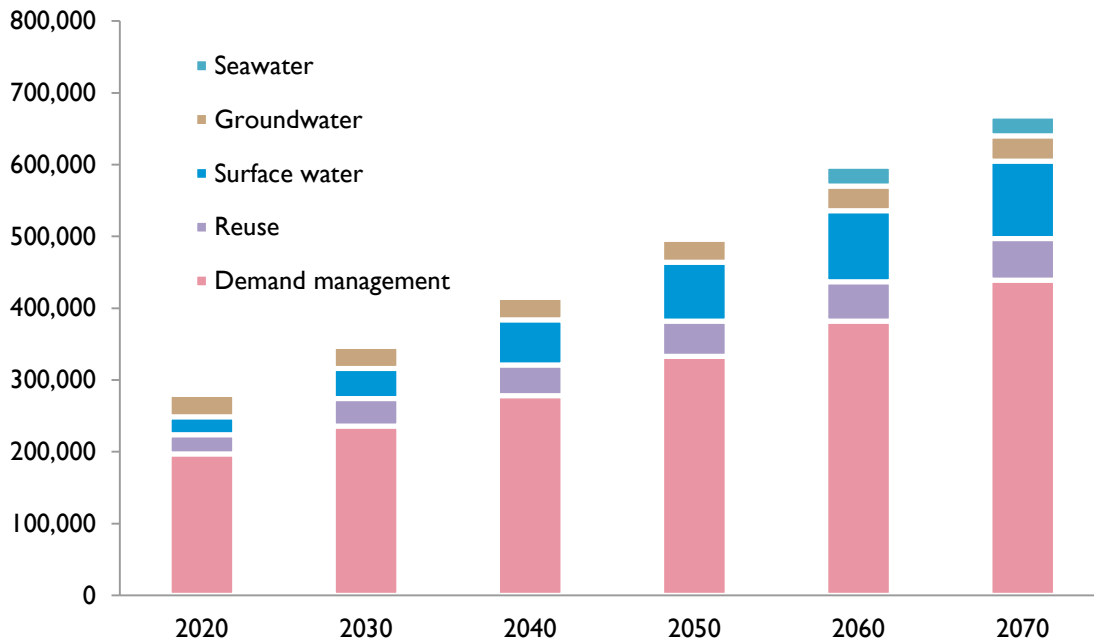
\* Multiple strategies may serve portions of the same population

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

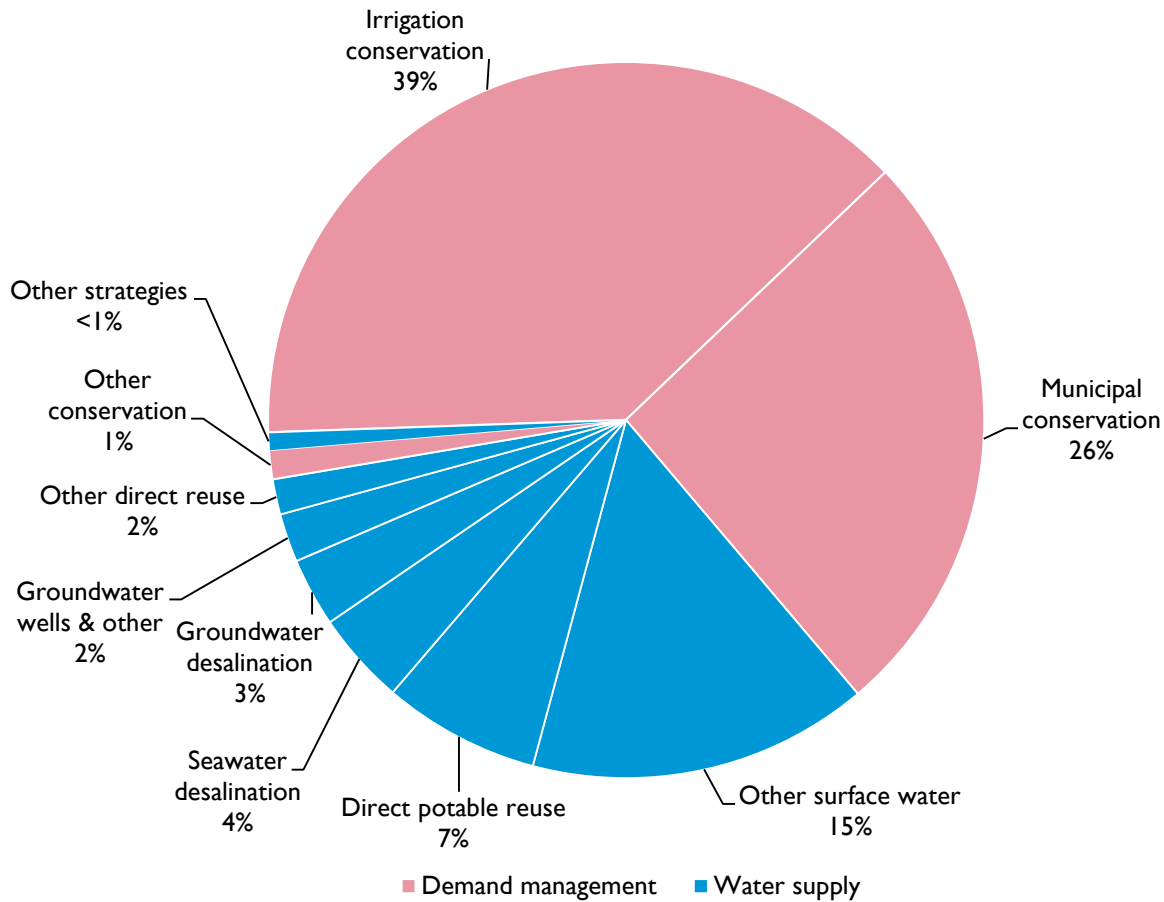
	Decade	2020	2030	2040	2050	2060	2070	change
<b>Population</b>		<b>1,961,000</b>	<b>2,379,000</b>	<b>2,795,000</b>	<b>3,212,000</b>	<b>3,626,000</b>	<b>4,029,000</b>	<b>105%</b>
<b>Existing supplies</b>	Surface water	762,000	761,000	760,000	759,000	758,000	758,000	-1%
	Groundwater	57,000	57,000	57,000	57,000	57,000	57,000	0%
	Reuse	16,000	16,000	16,000	16,000	16,000	16,000	0%
	<b>Total water supplies</b>	<b>835,000</b>	<b>835,000</b>	<b>833,000</b>	<b>833,000</b>	<b>832,000</b>	<b>831,000</b>	<b>0%</b>
<b>Demands</b>	Municipal	290,000	344,000	401,000	459,000	518,000	577,000	99%
	County-other	22,000	25,000	27,000	30,000	33,000	35,000	59%
	Manufacturing	10,000	11,000	12,000	13,000	14,000	15,000	50%
	Mining	17,000	16,000	15,000	13,000	10,000	10,000	-41%
	Irrigation	1,144,000	1,094,000	1,041,000	983,000	925,000	925,000	-19%
	Steam-electric	17,000	20,000	23,000	28,000	33,000	39,000	129%
	Livestock	5,000	5,000	5,000	5,000	5,000	5,000	0%
	<b>Total water demand</b>	<b>1,505,000</b>	<b>1,515,000</b>	<b>1,524,000</b>	<b>1,530,000</b>	<b>1,538,000</b>	<b>1,606,000</b>	<b>7%</b>
<b>Needs</b>	Municipal	38,000	74,000	118,000	174,000	233,000	291,000	666%
	County-other	10,000	12,000	14,000	16,000	19,000	21,000	110%
	Manufacturing	3,000	3,000	4,000	5,000	6,000	7,000	133%
	Mining	5,000	5,000	5,000	6,000	6,000	6,000	20%
	Irrigation	658,000	609,000	557,000	503,000	447,000	448,000	-32%
	Steam-electric	3,000	6,000	9,000	13,000	18,000	24,000	700%
	<b>Total water needs</b>	<b>717,000</b>	<b>709,000</b>	<b>708,000</b>	<b>717,000</b>	<b>729,000</b>	<b>797,000</b>	<b>11%</b>
<b>Strategy supplies</b>	Municipal	83,000	125,000	166,000	218,000	289,000	333,000	301%
	County-other	12,000	18,000	21,000	25,000	30,000	32,000	167%
	Manufacturing	3,000	3,000	3,000	4,000	5,000	6,000	100%
	Mining	2,000	2,000	2,000	2,000	1,000	1,000	-50%
	Irrigation	172,000	191,000	210,000	229,000	248,000	267,000	55%
	Steam-electric	9,000	12,000	15,000	19,000	25,000	28,000	211%
	Livestock	<500	<500	<500	1,000	1,000	1,000	0%*
	<b>Total strategy supplies</b>	<b>282,000</b>	<b>351,000</b>	<b>418,000</b>	<b>498,000</b>	<b>599,000</b>	<b>669,000</b>	<b>137%</b>

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

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



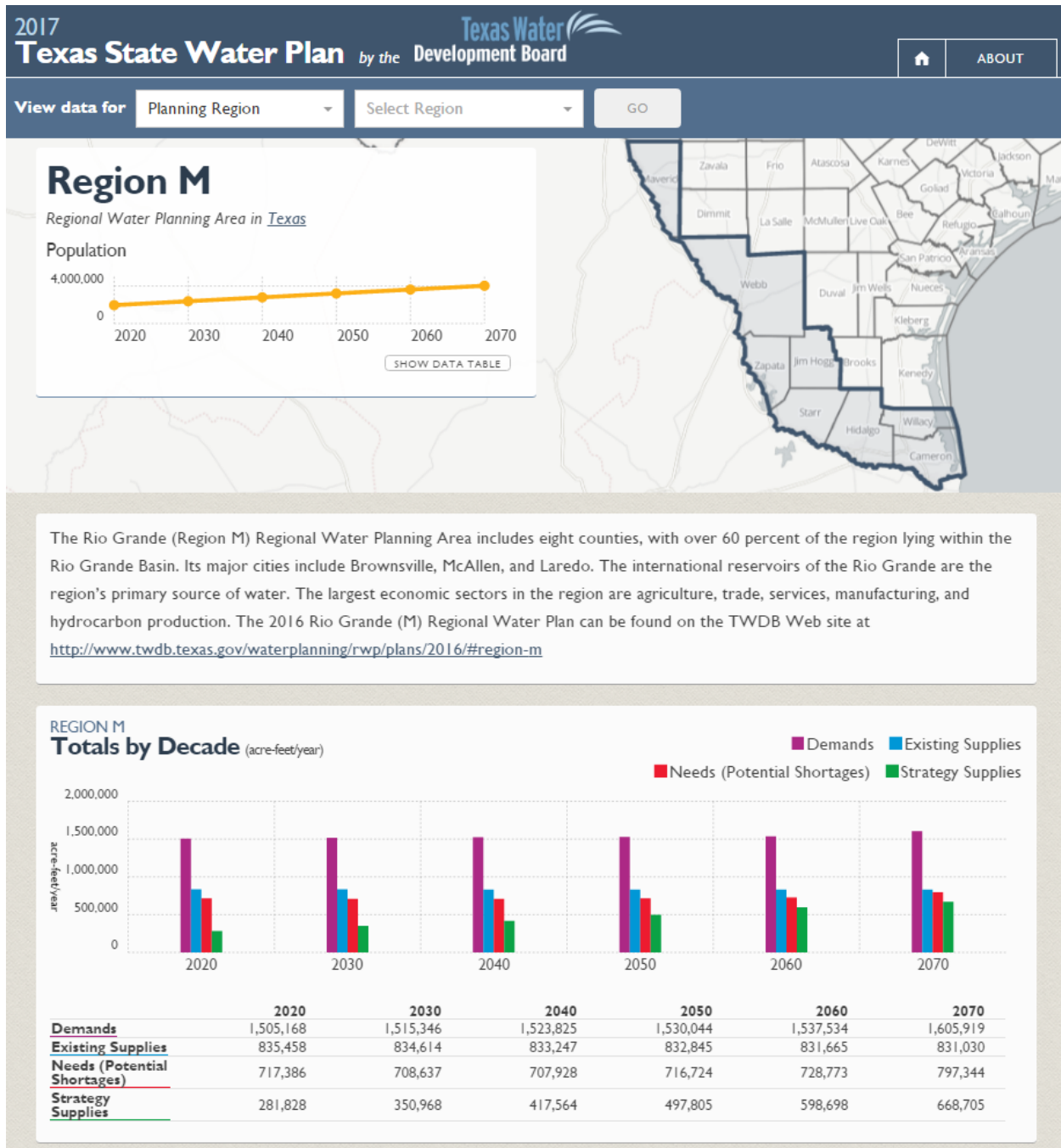
**Figure M.5 - Share of recommended water management strategies by strategy type in 2070**



## Rio Grande (M) voting planning group members (2012 – 2016)

Glenn Jarvis, other (Chair); Jorge Barrera, municipalities; Nick Benavides, small business; John Bruciak, municipalities; Mary Lou Campbell, public; James Darling, river authorities; Ella de la Rosa, electric-generating utilities; Jaime Flores, environment; Robert Fulbright, agriculture; Carlos Garza, small business; Dennis Goldsberry, water utilities; Humberto Gonzalez, counties; Sonny Hinojosa, water districts; Sonia Lambert, water districts; Donald McGhee, industry; Robert Pena, electric-generating utilities; Ray Prewitt, agriculture; Joel Quintanilla, counties; Joe Rathmell, counties; Tomas Rodriguez, municipalities; Frank Schuster, other; Armando Vela, groundwater management areas.

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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