



Summary of the 2021 Rio Grande (M) Regional Water Plan¹

Texas' regional water plans

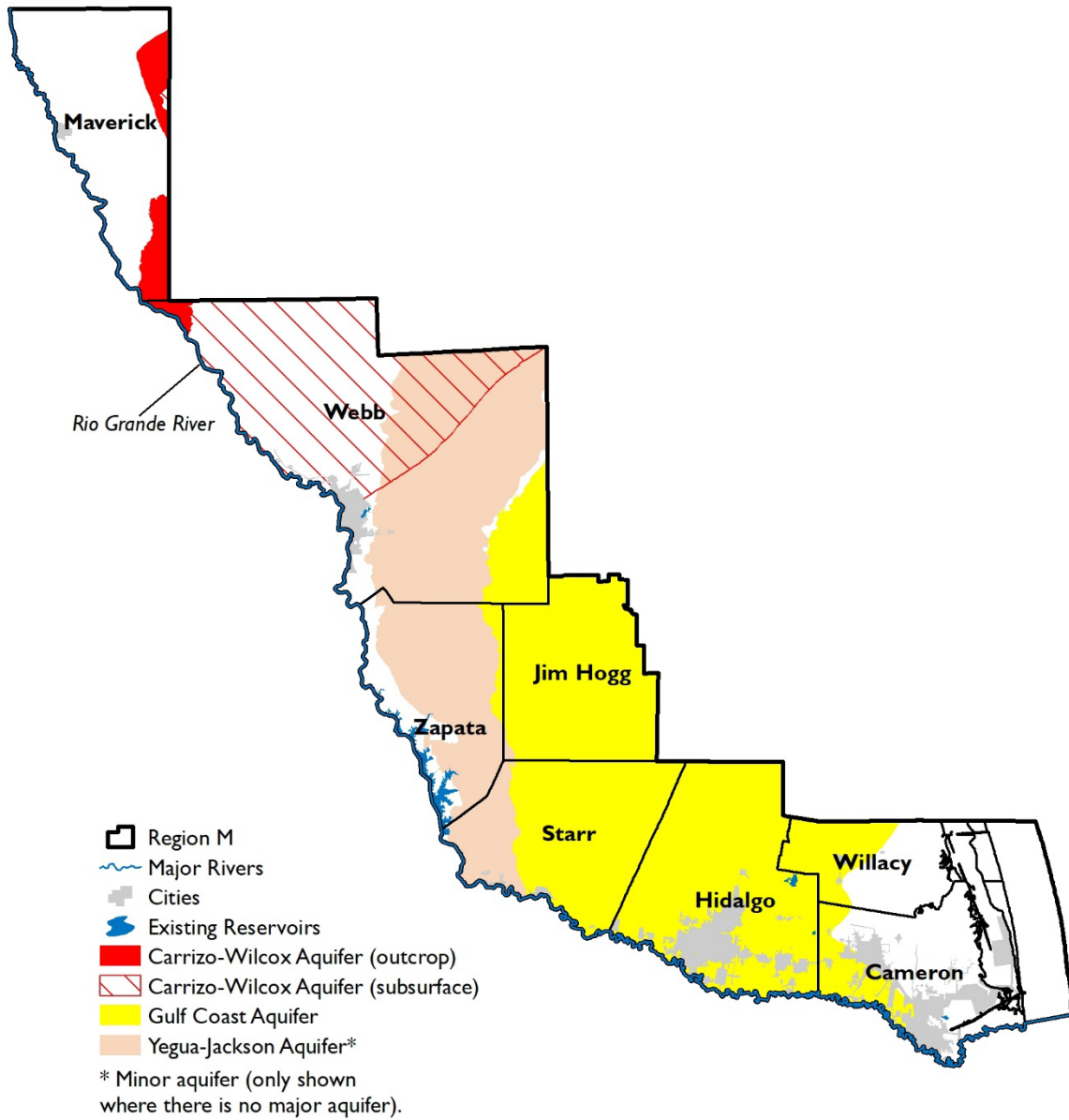
Regional water plans are funded by the Texas Legislature and developed every five years based on conditions that each region would face under a recurrence of a historical drought of record. The 16 regional water plans are developed by local representatives in a public, bottom-up process. The regional 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 Rio Grande (M) Regional Water Planning Area includes 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 region's economy is based primarily on public administration, health care, retail trade, real estate, and agriculture. Major cities in the region include Brownsville, McAllen, Harlingen, and Laredo. The 2021 Rio Grande (M) Regional Water Plan can be found on the TWDB website at <http://www.twdb.texas.gov/waterplanning/rwp/plans/2021/#region-m>.

¹ Planning numbers presented throughout this document and as compared to the 2022 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—970,000 acre-feet per year
- Recommended water management strategy volume in 2070—508,000 acre-feet per year
- 131 recommended water management strategy projects with a total capital cost of \$1.8 billion
- Municipal and agricultural conservation account for 54 percent of 2070 strategy volumes
- Surface water development, including the Banco-Morales minor reservoir, accounts for 26 percent of 2070 strategy volumes. Desalination of groundwater and seawater accounts for 4 percent of the 2070 strategy volumes.

Population and water demands

Approximately 7 percent of the state’s 2020 population were projected to reside in the Rio Grande (M) Region. Between 2020 and 2070, the region’s population is projected to increase approximately 105 percent (Table M.4, Figure M.2). By 2070, the total water demands for the region are projected to increase 4 percent (Table M.4).

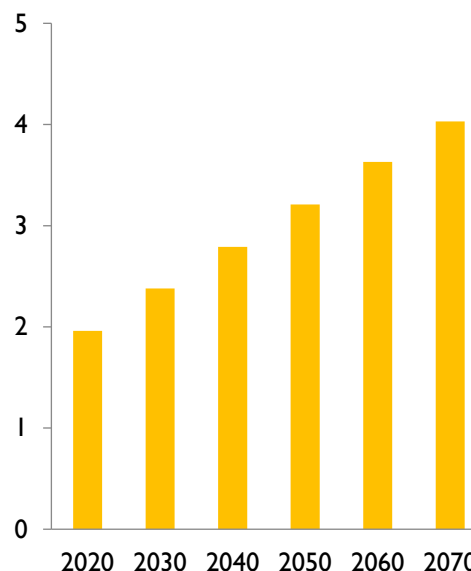
Existing water supplies

The Rio Grande (M) Region has surface water and groundwater existing supply sources, with over 90 percent associated with surface water (Table M.1, Figure M.3). Between 2020 and 2070, the total existing water supply is projected to remain relatively constant (Table M.4).

Needs

On a region-wide basis the Rio Grande (M) Region does not have enough water supplies to meet demands through 2070, with the majority of needs associated with irrigation (Table M.4). In the event of drought, Region M is projected to have a total water supply need of 937,000 acre-feet in 2020, increasing to 970,000 acre-feet by 2070 (Table M.4).

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 293 strategies and 131 projects would provide 508,000 acre-feet of additional water supply by the year 2070 at a total capital cost of \$1.8 billion.

Recommended water management strategies meet all identified needs in the plan except for 847,000 acre-feet per year associated with irrigation, manufacturing, mining, and steam-electric power uses in 2020. Unmet needs for these non-municipal water user groups decrease to 649,000 acre-feet per year in 2070. These needs were left unmet by the planning group due to limited supply and limited economically feasible water supply options. An unmet need does not prevent an associated entity from pursuing development of additional water supply.

Conservation

Conservation strategies represent about 54 percent of the total volume of water associated with all recommended strategies in 2070 and were recommended for every municipal water user group that had either a need or a water use greater than 140 gallons per capita per day. In addition, conveyance conservation measures were recommended for all 27 irrigation districts.

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

Water supply source	2020	2070
Surface water		
Amistad-Falcon Lake/Reservoir System	826,000	824,000
Remaining surface water (sources providing less than 2% each)	2,000	2,000
Surface water total	828,000	826,000
Groundwater		
Gulf Coast Aquifer System	52,000	53,000
Remaining groundwater (sources providing less than 2% each)	3,000	3,000
Groundwater total	55,000	56,000
Reuse	13,000	15,000
Region total	896,000	897,000

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

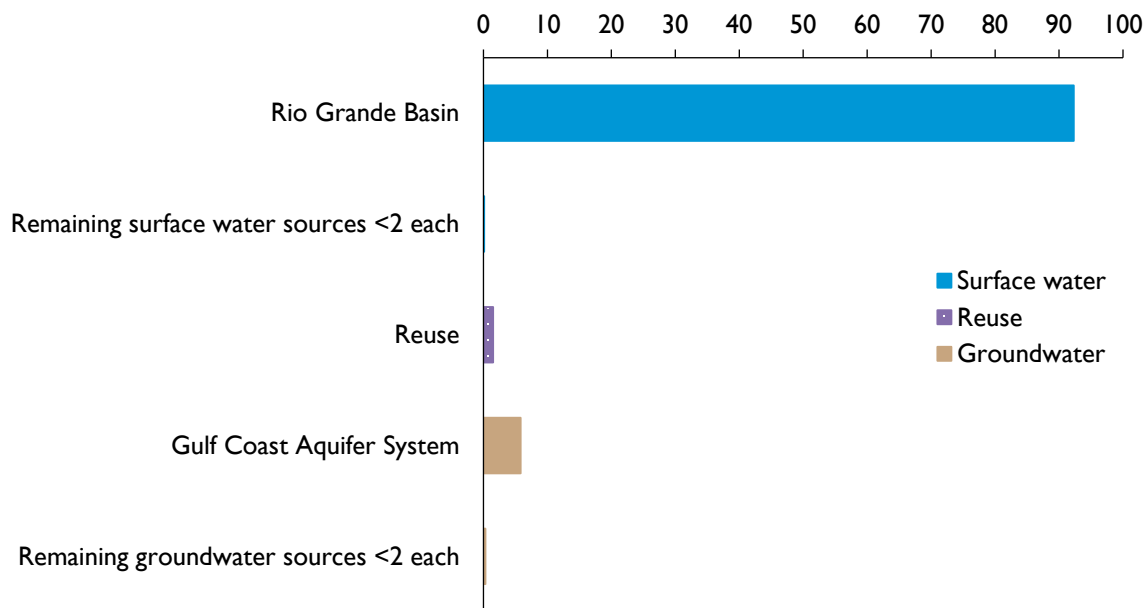


Table M.2 - Ten recommended water management strategy projects with largest capital cost

Recommended water management strategy project	Online Decade	Sponsor(s)	Associated capital cost
Brownsville - Non-Potable Water Reuse Pipeline	2030	Brownsville	\$99,249,000
Cameron County ID #2 Conservation	2020	Cameron County Irrigation District #2	\$79,856,194
Hidalgo County ID No. 3 Conservation	2020	Hidalgo County ID #3	\$70,572,603
Hidalgo and Cameron County ID No. 9 Conservation	2020	Hidalgo-Cameron County Irrigation District #9	\$63,146,985
La Feria ID Conservation	2020	La Feria Irrigation District-Cameron County #3	\$59,989,636
Delta Lake ID - ID Conservation	2020	Delta Lake Irrigation District	\$55,808,978
Pharr - Raw Water Reservoir Augmentation	2020	Pharr	\$53,015,000
Maverick County ID - ID Conservation	2020	Maverick County ID #1	\$50,136,923
McAllen - North WWTP Potable Reuse Phase I	2030	McAllen	\$49,777,000
ERHWSC - Surface WTP Phase I	2020	East Rio Hondo WSC	\$45,625,000
<i>Other recommended projects</i>	<i>various</i>	<i>121 various</i>	<i>\$1,207,103,806</i>
Total capital cost*			\$1,834,281,125

* Capital costs associated with some Region M projects have been corrected. Total capital costs may vary from those presented in the 2021 Region M Regional Water Plan.

Table M.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
Advanced Municipal Conservation	3,894,000	53	129,000
Urbanization	3,817,000	43	114,000
ID Conservation	1,651,000	25	65,000
Reuse	2,415,000	14	52,000
On-Farm Irrigation Conservation	na	8	27,000
Desalination	1,419,000	12	20,000
Municipal Infrastructure Improvements	1,394,000	14	18,000
Drought Management	3,628,000	40	18,000
Hidalgo and Cameron County ID No. 9 Conservation	553,000	8	13,000
Hidalgo County ID No. 2 Conservation	1,288,000	8	10,000
<i>Other recommended strategies</i>	<i>na</i>	<i>68</i>	<i>43,000</i>
Total annual water volume			508,000

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

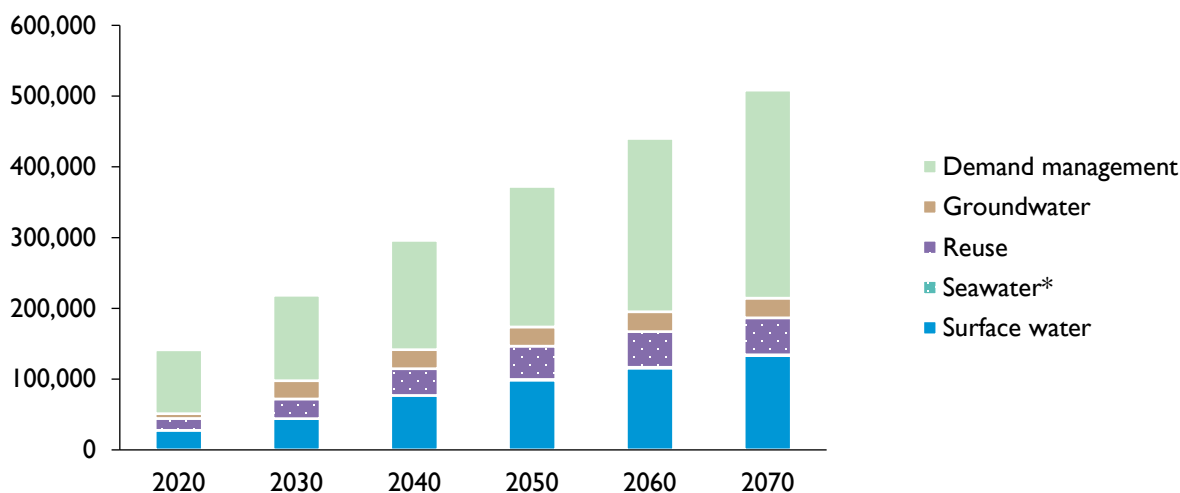
Table M.4 - Population, existing supplies, demands, needs, and strategies 2020–2070 (acre-feet per year)

	Decade	2020	2030	2040	2050	2060	2070	Change
	Population	1,961,000	2,379,000	2,795,000	3,212,000	3,626,000	4,029,000	105%
Existing supplies	Surface water	828,000	828,000	826,000	825,000	826,000	826,000	0%
	Groundwater	55,000	55,000	56,000	56,000	56,000	56,000	2%
	Reuse	13,000	14,000	14,000	14,000	14,000	15,000	15%
	Total water supplies	896,000	898,000	895,000	896,000	897,000	897,000	0%
Demands	Municipal	307,000	365,000	423,000	483,000	544,000	605,000	97%
	County-other	9,000	9,000	11,000	12,000	14,000	15,000	67%
	Manufacturing	4,000	5,000	5,000	5,000	5,000	5,000	25%
	Mining	17,000	16,000	15,000	13,000	10,000	10,000	-41%
	Irrigation	1,427,000	1,381,000	1,335,000	1,290,000	1,244,000	1,198,000	-16%
	Steam-electric	15,000	15,000	15,000	15,000	15,000	15,000	0%
	Livestock	5,000	5,000	5,000	5,000	5,000	5,000	0%
	Total water demand	1,784,000	1,797,000	1,809,000	1,822,000	1,837,000	1,853,000	4%
Needs	Municipal	32,000	65,000	111,000	167,000	227,000	287,000	797%
	County-other	4,000	4,000	6,000	7,000	9,000	10,000	150%
	Manufacturing	1,000	1,000	1,000	1,000	1,000	1,000	0%
	Mining	7,000	6,000	5,000	4,000	5,000	5,000	-29%
	Irrigation	889,000	844,000	798,000	753,000	707,000	662,000	-26%
	Steam-electric	5,000	5,000	5,000	5,000	5,000	5,000	0%
	Total water needs	937,000	924,000	926,000	937,000	953,000	970,000	4%
Strategy supplies	Municipal	63,000	123,000	187,000	252,000	308,000	366,000	481%
	County-other	4,000	5,000	7,000	8,000	11,000	12,000	200%
	Manufacturing	<500	1,000	1,000	1,000	1,000	1,000	0%*
	Mining	2,000	2,000	1,000	1,000	1,000	1,000	-50%
	Irrigation	70,000	81,000	92,000	102,000	111,000	121,000	73%
	Steam-electric	2,000	8,000	8,000	8,000	8,000	8,000	300%
	Total strategy supplies	141,000	219,000	296,000	372,000	440,000	508,000	260%

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.

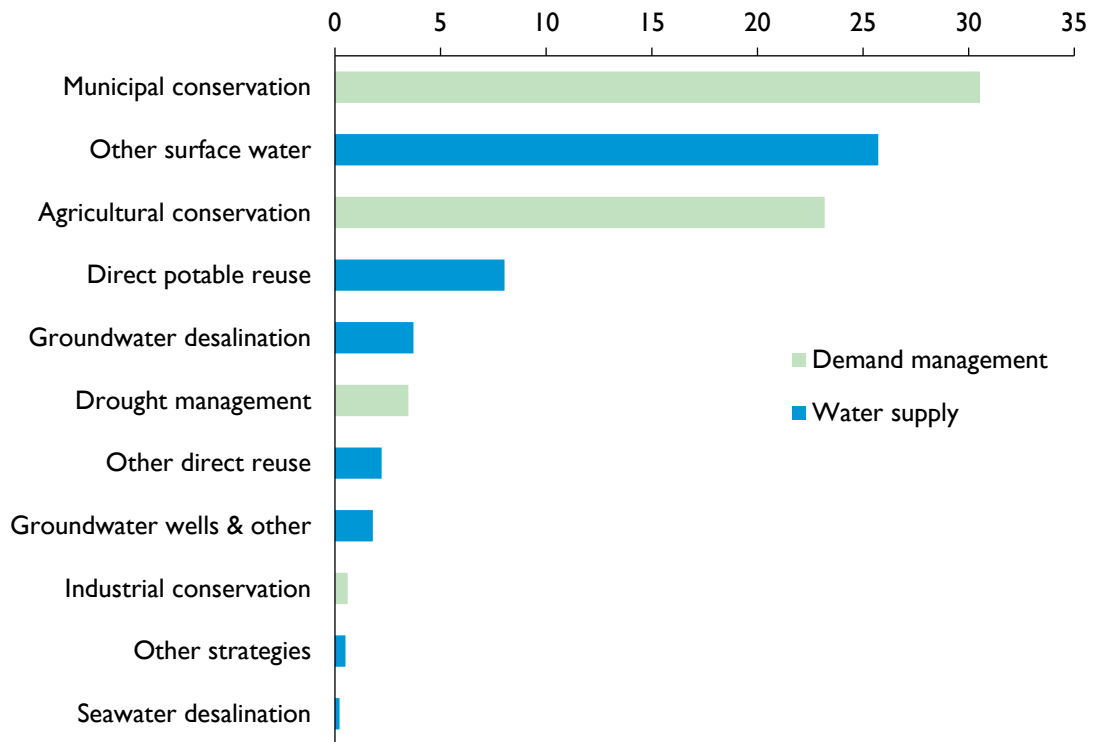
* Percentage based on change from the earliest decade with volumes ≥ 500 acre-feet per year.

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



* Strategy volume at a scale not represented in the figure

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



Rio Grande (M) voting planning group members (2017–2021)

Tomas Rodriguez, Jr., public (Chair); Jorge Barrera, municipalities; Nick Benavides, small business; John Bruciak, municipalities; James Darling, river authorities; Jaime Flores, environment; Jorge Flores, municipalities; David Fuentes, counties; Robert E. Fulbright, agriculture; Carlos Garza, small business; Dennis Goldsberry, water utilities; Humberto Gonzalez, counties; Sonny Hinojosa, water districts; Glenn Jarvis, other; Sonia Lambert, water districts; Donald K. McGhee, industries; Tom McLemore, water districts; Riazul Mia, municipalities; Dale Murden, agriculture; Robert Pena, Jr., electric generating utilities; Joe Rathmell, counties; Frank Schuster, other; Armando Vela, groundwater management areas; and Neal Wilkins, agriculture.

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

2022 Texas State Water Plan

View data for **Planning Region** Select Region GO

Planning Region M

Regional Water Planning Area in Texas

Population

4,000,000

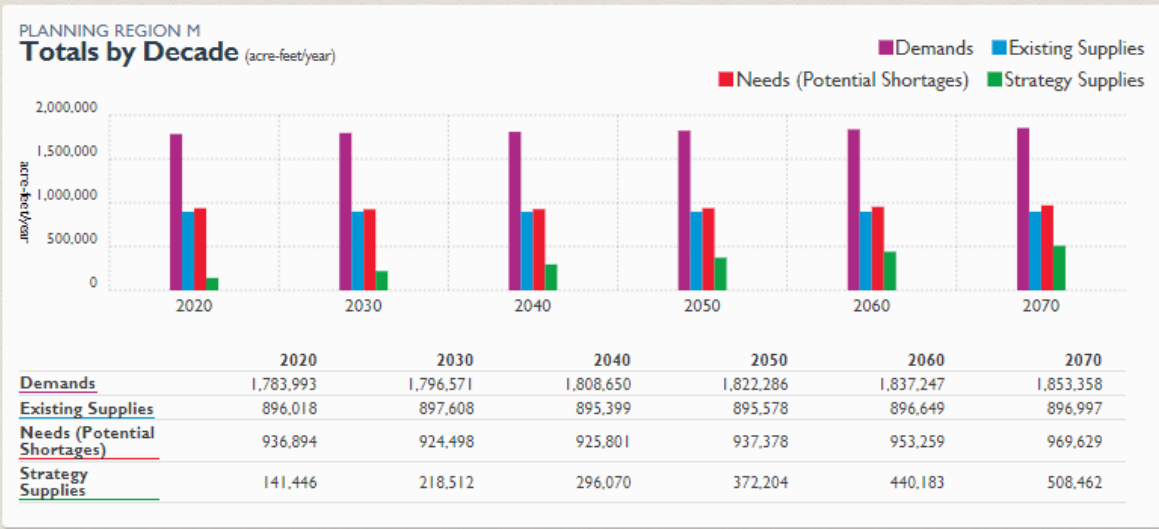
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2020 2030 2040 2050 2060 2070

SHOW DATA TABLE

Counties: Zavala, Frio, Atascosa, Karnes, DeWitt, Jackson, Maverick, Dimmit, La Salle, Menard, Bee, Goliad, Victoria, Matagorda, Refugio, San Patricio, Brazoria, Brazos, Nueces, Kleberg, Duval, Webb, Zapata, Brooks, Kenedy, Starr, Hidalgo, Willacy, Cameron.

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