

AGENDA ITEM MEMO

BOARD MEETING DATE: January 19, 2021

TO: Board Members

THROUGH: Jeff Walker, Executive Administrator
Ashley Harden, General Counsel
Jessica Zuba, Deputy Executive Administrator, Water Supply & Infrastructure

FROM: Kevin Smith, Planner, Regional Water Planning
Sarah Backhouse, Manager, Regional Water Planning

SUBJECT: Approval of the 2021 Region B Regional Water Plan

ACTION REQUESTED

Consider approval of the 2021 Regional Water Plan (RWP) for the Region B Regional Water Planning Group (RWPG).

BACKGROUND

In accordance with §16.051 of the Texas Water Code (TWC), the Texas Water Development Board (TWDB) is required to develop and adopt a comprehensive state water plan every five years that incorporates the RWPs developed and approved in accordance with TWC §16.053. RWPGs are required to submit their adopted RWPs to the TWDB for approval every five years pursuant to 31 Texas Administrative Code (TAC) §357.50.

In accordance with 31 TAC §357.50, the Board is required to consider approval of submitted RWPs and may approve a RWP only after it has determined that the RWP complies with statute and rules including TWC §16.053 and 31 TAC §355, §357, §358.

In accordance with TWC §16.053, the TWDB may approve a RWP only after it has determined that:

- all interregional conflicts involving the regional water planning area, if any, have been resolved;
- the plan includes water conservation practices and drought management measures; and
- the plan is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources.

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Jeff Walker, Executive Administrator

The Executive Administrator (EA) has conducted a review of the final adopted Region B 2021 RWP related to all applicable legal and contractual requirements, including the following key issues:

1. Determinations of whether the plans were developed according to the general provisions for planning included in statute, rule, and guidance.
2. Determination that there are no interregional conflicts associated with the plan.
3. Determination that environmental planning criteria, including consideration of environmental flow standards adopted by the Texas Commission on Environmental Quality, related to instream and bay and estuary inflows were followed appropriately in evaluations of water management strategies utilizing surface water.
4. Determination that existing and recommended water supplies could reasonably be expected to be available under a repeat of the historic drought of record.
5. Determination that impacts to agricultural resources and environmental factors were quantified.
6. Determination that cost estimates developed in the plan were prepared in general accordance with the provisions of the contract.
7. Determination that water conservation and drought management was considered as a means to meet all identified water needs.
8. Determination that all comments received by the regional water planning groups on the initially prepared plans from the TWDB have been satisfactorily addressed.
9. Determination that, in aggregate, the plan was found to meet the requirements related to:
 - a. consideration of a balance of economic, social, and ecological viability as well as consideration of the interests of the state and entities providing water.
 - b. providing for the orderly development, management, and conservation of water resources and preparation for and response to drought conditions in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare, and further economic development.
10. Determination that the plan is consistent with long-term protection of the state and regional water resources, agricultural resources, and natural resources.

Summary data of the projected population, existing supplies, demands, needs, and strategy supplies, as well as a summary of recommended water management strategies and projects are included as an attachment.

KEY ISSUES

1. The total recommended water management strategy volume is approximately 10,000 acre-feet per year in 2020 and 49,000 acre-feet per year in 2070.
2. The recommended water management strategies in the 2021 Region B RWP meets all identified needs in the plan except for approximately 17,000 acre-feet per year associated with irrigation, mining, and steam-electric power uses in 2020

decreasing to approximately 14,000 acre-feet per year associated with irrigation and mining uses in 2070. These needs were left unmet by the planning group due to limited, economically feasible water supply options.

3. The total capital cost of the 20 recommended projects in the 2021 Region B RWP is approximately \$657 million.
4. Conservation accounts for 49.2 percent of 2070 strategy volumes.
5. New major reservoir (Lake Ringgold) accounts for 47.4 percent of 2070 strategy volumes.
6. The Region B RWPG formally adopted their final 2021 RWP on September 2, 2020.
7. The EA has reviewed the adopted 2021 Region B RWP and determined that the plan complies with statute and rules.
8. The EA has reviewed the 2021 Region B RWP for interregional conflicts and has found none.

RECOMMENDATION

The EA recommends approval of the 2021 Region B RWP.

Attachment: Data Summary of the 2021 Region B RWP

Region B 2021 Regional Water Plan Data Summary

Table 1 - Population, existing water supplies, demands, needs, and strategies 2020-2070 (acre-feet per year)*

	Decade	2020	2030	2040	2050	2060	2070
	Population	206,000	214,000	219,000	223,000	226,000	229,000
Existing supplies	Surface water	60,000	56,000	53,000	49,000	46,000	40,000
	Groundwater	71,000	71,000	70,000	69,000	69,000	69,000
	Reuse	10,000	10,000	10,000	9,000	9,000	9,000
	Total water supplies	141,000	137,000	132,000	128,000	124,000	118,000
Demands	Municipal Utility	31,000	31,000	31,000	32,000	32,000	32,000
	Municipal County-other	2,000	2,000	2,000	2,000	2,000	2,000
	Manufacturing	2,000	3,000	3,000	3,000	3,000	3,000
	Mining	5,000	4,000	3,000	2,000	2,000	2,000
	Irrigation	96,000	96,000	96,000	96,000	96,000	96,000
	Steam-electric	8,000	8,000	8,000	8,000	8,000	8,000
	Livestock	11,000	11,000	11,000	11,000	11,000	11,000
	Total water demand	156,000	156,000	155,000	154,000	154,000	155,000
Needs	Municipal Utility	<500	1,000	1,000	2,000	3,000	6,000
	Municipal County-other	<500	<500	<500	<500	<500	<500
	Manufacturing	0	0	0	0	<500	<500
	Mining	2,000	1,000	1,000	<500	<500	<500
	Irrigation	21,000	23,000	25,000	27,000	28,000	30,000
	Steam-electric	2,000	2,000	3,000	4,000	4,000	5,000
	Total water needs	25,000	26,000	30,000	32,000	36,000	41,000
	Strategy supplies	Municipal Utility	2,000	2,000	24,000	25,000	25,000
Municipal County-other		<500	<500	<500	<500	<500	<500
Manufacturing		<500	<500	1,000	1,000	1,000	1,000
Mining		1,000	1,000	1,000	<500	<500	<500
Irrigation		7,000	8,000	9,000	13,000	14,000	17,000
Steam-electric		<500	2,000	3,000	4,000	4,000	5,000
Total strategy supplies		10,000	14,000	38,000	43,000	45,000	49,000

* 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.

Table 2 - Ten recommended water management strategies with largest supply volume

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
Lake Ringgold	166,000	18	23,000
Irrigation Conservation - WCWID No. 2	na	1	13,000
Alternative Cooling Technology - Steam Electric Power Wilbarger County	na	1	5,000
Chloride Control Project - RRA	na	1	3,000
Irrigation Conservation - Wichita	na	1	1,000
Municipal Conservation - Wichita Falls	122,000	5	1,000
Additional Groundwater Supply - City Of Vernon	14,000	2	1,000
Indirect Reuse - Bowie	6,000	1	1,000
Water Conservation (Replace Transmission Pipeline) - Vernon	14,000	1	<500
Develop Ogallala Aquifer In Donley County - Greenbelt MIWA	6,000	5	<500
<i>Other recommended strategies</i>	na	42	1,000

Table 3 - Ten recommended water management strategy projects with largest capital cost

Recommended water management strategy project	Online decade	Sponsor(s)	Capital Cost
Lake Ringgold	2040	Wichita Falls	\$442,867,000
Alternative Cooling Technology - Steam Electric Power Wilbarger County	2020	Steam Electric Power (Wilbarger)	\$101,500,000
Chloride Control Project	2020	Red River Authority of Texas	\$69,430,000
WCWID No. 2 Canal Conversion To Pipeline	2020	Wichita WCID #2	\$9,713,000
Water Conservation (Replace Transmission Pipeline) - Vernon	2020	Vernon	\$8,820,000
Mining Conservation - Montague	2020	Mining (Montague)	\$8,554,000
Indirect Reuse - Bowie	2020	Bowie	\$5,123,000
Treated Water Line - RRA Clay County	2020	Red River Authority of Texas	\$3,546,000
Mining Conservation - Clay	2020	Mining (Clay)	\$1,852,000
Automated Meter Infrastructure (AMI) - Red River Authority	2030	Red River Authority of Texas	\$1,430,000
<i>Other recommended projects</i>	<i>various</i>	<i>10 various</i>	<i>\$3,687,000</i>
Total capital cost			\$656,522,000

Table 4 - Unmet water needs by water user group type 2020-2070 (acre-feet per year)

Water User Group Category	2020	2030	2040	2050	2060	2070
Irrigation	14,535	15,265	16,092	13,952	14,105	13,473
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	605	282	277	131	84	84
Municipal County-Other	0	0	0	0	0	0
Municipal Utility	0	0	0	0	0	0
Steam Electric Power	1,701	0	0	0	0	0
Total unmet needs	16,841	15,547	16,369	14,083	14,189	13,557

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THROUGH: Jeff Walker, Executive Administrator
Ashley Harden, General Counsel
Jessica Zuba, Deputy Executive Administrator, Water Supply & Infrastructure

FROM: Kevin Smith, Planner, Regional Water Planning
Sarah Backhouse, Manager, Regional Water Planning

SUBJECT: Approval of the 2021 Region C Regional Water Plan

ACTION REQUESTED

Consider approval of the 2021 Regional Water Plan (RWP) for the Region C Regional Water Planning Group (RWPG).

BACKGROUND

In accordance with §16.051 of the Texas Water Code (TWC), the Texas Water Development Board (TWDB) is required to develop and adopt a comprehensive state water plan every five years that incorporates the RWPs developed and approved in accordance with TWC §16.053. RWPGs are required to submit their adopted RWPs to the TWDB for approval every five years pursuant to 31 Texas Administrative Code (TAC) §357.50.

In accordance with 31 TAC §357.50, the Board is required to consider approval of submitted RWPs and may approve a RWP only after it has determined that the RWP complies with statute and rules including TWC §16.053 and 31 TAC §355, §357, §358.

In accordance with TWC §16.053, the TWDB may approve a RWP only after it has determined that:

- all interregional conflicts involving the regional water planning area, if any, have been resolved;
- the plan includes water conservation practices and drought management measures; and
- the plan is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources.

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Jeff Walker, Executive Administrator

The Executive Administrator (EA) has conducted a review of the final adopted Region C 2021 RWP related to all applicable legal and contractual requirements, including the following key issues:

1. Determinations of whether the plans were developed according to the general provisions for planning included in statute, rule, and guidance.
2. Determination that there are no interregional conflicts associated with the plan.
3. Determination that environmental planning criteria, including consideration of environmental flow standards adopted by the Texas Commission on Environmental Quality, related to instream and bay and estuary inflows were followed appropriately in evaluations of water management strategies utilizing surface water.
4. Determination that existing and recommended water supplies could reasonably be expected to be available under a repeat of the historic drought of record.
5. Determination that impacts to agricultural resources and environmental factors were quantified.
6. Determination that cost estimates developed in the plan were prepared in general accordance with the provisions of the contract.
7. Determination that water conservation and drought management was considered as a means to meet all identified water needs.
8. Determination that all comments received by the RWPGs on the initially prepared plans from the TWDB have been satisfactorily addressed.
9. Determination that, in aggregate, the plan was found to meet the requirements related to:
 - a. consideration of a balance of economic, social, and ecological viability as well as consideration of the interests of the state and entities providing water.
 - b. providing for the orderly development, management, and conservation of water resources and preparation for and response to drought conditions in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare, and further economic development.
10. Determination that the plan is consistent with long-term protection of the state and regional water resources, agricultural resources, and natural resources.

Summary data of the projected population, existing supplies, demands, needs, and strategy supplies, as well as a summary of recommended water management strategies and projects are included as an attachment.

KEY ISSUES

1. The total recommended water management strategy volume is approximately 129,000 acre-feet per year in 2020 and 1,336,000 acre-feet per year in 2070.
2. The recommended water management strategies in the 2021 Region C RWP meets all identified needs in the plan except for approximately 15,000 acre-feet per year associated with irrigation, mining, municipal utility, and steam-electric power uses in 2020 increasing to approximately 16,000 acre-feet per year associated with

irrigation, mining, municipal utility, and steam electric power uses in 2070. Irrigation needs and mining needs were generally left unmet by the planning group due to water supply limitations. In the case of the steam-electric power unmet needs, the plan states that Freestone County steam-electric power demands included an unidentified new facility however it is unknown what supply the facility may use. The unmet municipal need is due to modeled available groundwater limitations. To address the unmet municipal needs, the plan states that the needs will be met by the legal development of new groundwater supplies, therefore public health, safety, and welfare is anticipated to be protected. This municipal entity is not located within a groundwater conservation district.

3. The total capital cost of the 506 recommended projects in the 2021 Region C RWP is approximately \$29.9 billion.
4. Conservation accounts for 15.2 percent of 2070 strategy volumes.
5. New major reservoirs serving water user groups in Region C (Bois d'Arc Lake, Lake Columbia, Lake Ralph Hall, Lake Tehuacana, Marvin Nichols Reservoir, Turkey Peak Reservoir, and Main Stem Balancing Reservoir for Dallas Water Utility reuse supplies) accounts for 32.7 percent of 2070 strategy volumes; aquifer storage and recovery accounts for 0.3 percent of 2070 strategy volumes.
6. The Region C RWPG formally adopted their final 2021 RWP on September 21, 2020.
7. The EA has reviewed the adopted 2021 Region C RWP and determined that the plan complies with statute and rules.
8. The EA has reviewed the 2021 Region C RWP for interregional conflicts and has found none.

RECOMMENDATION

The EA recommends approval of the 2021 Region C RWP.

Attachment: Data Summary of the 2021 Region C RWP

Region C 2021 Regional Water Plan Data Summary

Table 1 - Population, existing water supplies, demands, needs, and strategies 2020–2070 (acre-feet per year)*

	Decade	2020	2030	2040	2050	2060	2070
Existing supplies	Population	7,638,000	8,858,000	10,150,000	11,533,000	13,052,000	14,685,000
	Surface water	1,326,000	1,264,000	1,240,000	1,222,000	1,206,000	1,185,000
	Groundwater	112,000	111,000	110,000	110,000	110,000	110,000
	Reuse	261,000	288,000	308,000	323,000	340,000	354,000
	Total water supplies	1,699,000	1,662,000	1,658,000	1,654,000	1,656,000	1,649,000
Demands	Municipal Utility	1,488,000	1,691,000	1,913,000	2,138,000	2,367,000	2,586,000
	Municipal County-other	27,000	26,000	25,000	35,000	54,000	88,000
	Manufacturing	48,000	53,000	53,000	53,000	53,000	53,000
	Mining	46,000	38,000	34,000	36,000	39,000	44,000
	Irrigation	44,000	44,000	44,000	44,000	44,000	44,000
	Steam-electric	63,000	67,000	67,000	67,000	67,000	67,000
	Livestock	18,000	18,000	18,000	18,000	18,000	18,000
	Total water demand	1,734,000	1,937,000	2,152,000	2,391,000	2,641,000	2,899,000
Needs	Municipal Utility	41,000	272,000	487,000	715,000	943,000	1,172,000
	Municipal County-other	2,000	3,000	3,000	8,000	20,000	46,000
	Manufacturing	<500	5,000	9,000	12,000	15,000	18,000
	Mining	11,000	11,000	13,000	15,000	17,000	21,000
	Irrigation	5,000	5,000	5,000	5,000	5,000	5,000
	Steam-electric	7,000	11,000	13,000	14,000	15,000	16,000
	Livestock	<500	<500	<500	<500	<500	<500
	Total water needs	66,000	307,000	530,000	769,000	1,016,000	1,278,000
Strategy supplies	Municipal Utility	114,000	334,000	550,000	778,000	1,004,000	1,231,000
	Municipal County-other	4,000	6,000	8,000	14,000	26,000	51,000
	Manufacturing	1,000	6,000	10,000	13,000	16,000	19,000
	Mining	7,000	7,000	9,000	11,000	14,000	17,000
	Irrigation	2,000	3,000	4,000	6,000	6,000	7,000
	Steam-electric	<500	4,000	6,000	8,000	9,000	10,000
	Livestock	<500	<500	<500	<500	<500	<500
	Total strategy supplies	129,000	361,000	588,000	830,000	1,075,000	1,336,000

* 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.

Table 2 - Ten recommended water management strategies with largest supply volume

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
Marvin Nichols (328) Strategy for NTMWD, TRWD, and UTRWD	10,061,000	211	218,000
DWU - Indirect Reuse Implementation	5,310,000	62	96,000
Integrated Pipeline	5,243,000	111	95,000
NTMWD - Bois d'Arc Lake	4,202,000	79	89,000
Wright Patman Reallocation for NTMWD, TRWD, and UTRWD	10,061,000	211	74,000
DWU - Lake Palestine	5,310,000	61	57,000
NTMWD - Texoma Blending	4,163,000	81	52,000
TRWD - Reuse from TRA Central WWTP	5,243,000	110	44,000
UTRWD - Ralph Hall Reservoir and Reuse	942,000	26	39,000
Conservation - Dallas	1,905,000	1	36,000
<i>Other recommended strategies</i>	<i>na</i>	<i>1,914</i>	<i>535,000</i>

Table 3 - Ten recommended water management strategy projects with largest capital cost

Recommended water management strategy project	Online decade	Sponsor(s)	Capital Cost
Marvin Nichols (328) - TRWD, NTMWD, UTRWD	2050	North Texas MWD; Tarrant Regional WD; Upper Trinity Regional WD	\$4,467,478,000
DWU - Infrastructure to Treat and Deliver to Customers 2030	2040	Dallas	\$1,827,578,000
TRWD - Additional Transmission Pipeline	2060	Tarrant Regional WD	\$1,765,505,000
NTMWD Treatment & Treated Water Distribution Improvements 2020-2030	2020	North Texas MWD	\$1,693,455,000
Wright Patman Reallocation NTMWD, TRWD, and UTRWD	2070	North Texas MWD; Tarrant Regional WD; Upper Trinity Regional WD	\$1,645,711,000
NTMWD Treatment & Treated Water Distribution Improvements 2040-2050	2040	North Texas MWD	\$1,085,848,000
NTMWD Treatment & Treated Water Distribution Improvements 2030-2040	2030	North Texas MWD	\$1,021,378,000
NTMWD Treatment & Treated Water Distribution Improvements 2050-2060	2050	North Texas MWD	\$957,348,000
NTMWD - Bois D'Arc Lake	2020	North Texas MWD	\$939,638,000
DWU - Parallel IPL	2070	Dallas	\$795,236,000
<i>Other recommended projects</i>	<i>various</i>	<i>496 various</i>	<i>\$13,732,373,107</i>
Total capital cost			\$29,931,548,107

Table 4 - Unmet water needs by water user group type 2020-2070 (acre-feet per year)

Water User Group Category	2020	2030	2040	2050	2060	2070
Irrigation	2,990	2,955	2,921	2,903	2,886	2,870
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	5,054	4,644	4,601	4,926	5,288	5,952
Municipal County-Other	0	0	0	0	0	0
Municipal Utility	11	23	34	46	63	85
Steam Electric Power	6,766	6,766	6,766	6,766	6,766	6,766
Total unmet needs	14,821	14,388	14,322	14,641	15,003	15,673

AGENDA ITEM MEMO

BOARD MEETING DATE: January 19, 2021

TO: Board Members

THROUGH: Jeff Walker, Executive Administrator
Ashley Harden, General Counsel
Jessica Zuba, Deputy Executive Administrator, Water Supply & Infrastructure

FROM: Kevin Smith, Planner, Regional Water Planning
Sarah Backhouse, Manager, Regional Water Planning

SUBJECT: Approval of the 2021 Region N Regional Water Plan

ACTION REQUESTED

Consider approval of the 2021 Regional Water Plan (RWP) for the Coastal Bend (Region N) Regional Water Planning Group (RWPG).

BACKGROUND

In accordance with §16.051 of the Texas Water Code (TWC), the Texas Water Development Board (TWDB) is required to develop and adopt a comprehensive state water plan every five years that incorporates the RWPs developed and approved in accordance with TWC §16.053. RWPGs are required to submit their adopted RWPs to the TWDB for approval every five years pursuant to 31 Texas Administrative Code (TAC) §357.50.

In accordance with 31 TAC §357.50, the Board is required to consider approval of submitted RWPs and may approve a RWP only after it has determined that the RWP complies with statute and rules including TWC §16.053 and 31 TAC §355, §357, §358.

In accordance with TWC §16.053, the TWDB may approve a RWP only after it has determined that:

- all interregional conflicts involving the regional water planning area, if any, have been resolved;
- the plan includes water conservation practices and drought management measures; and
- the plan is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources.

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Jeff Walker, Executive Administrator

The Executive Administrator (EA) has conducted a review of the final adopted Region N 2021 RWP related to all applicable legal and contractual requirements, including the following key issues:

1. Determinations of whether the plans were developed according to the general provisions for planning included in statute, rule, and guidance.
2. Determination that there are no interregional conflicts associated with the plan.
3. Determination that environmental planning criteria, including consideration of environmental flow standards adopted by the Texas Commission on Environmental Quality, related to instream and bay and estuary inflows were followed appropriately in evaluations of water management strategies utilizing surface water.
4. Determination that existing and recommended water supplies could reasonably be expected to be available under a repeat of the historic drought of record.
5. Determination that impacts to agricultural resources and environmental factors were quantified.
6. Determination that cost estimates developed in the plan were prepared in general accordance with the provisions of the contract.
7. Determination that water conservation and drought management was considered as a means to meet all identified water needs.
8. Determination that all comments received by the RWPGs on the initially prepared plans from the TWDB have been satisfactorily addressed.
9. Determination that, in aggregate, the plan was found to meet the requirements related to:
 - a. consideration of a balance of economic, social, and ecological viability as well as consideration of the interests of the state and entities providing water.
 - b. providing for the orderly development, management, and conservation of water resources and preparation for and response to drought conditions in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare, and further economic development.
10. Determination that the plan is consistent with long-term protection of the state and regional water resources, agricultural resources, and natural resources.

Summary data of the projected population, existing supplies, demands, needs, and strategy supplies, as well as a summary of recommended water management strategies and projects are included as an attachment.

KEY ISSUES

1. The total recommended water management strategy volume is approximately 24,000 acre-feet per year in 2020 and 282,000 acre-feet per year in 2070.
2. The recommended water management strategies in the 2021 Region N RWP meet all identified water needs in the plan.
3. The total capital cost of the 64 recommended projects in the 2021 Region N RWP is approximately \$3.3 billion.

4. Conservation accounts for 13.3 percent of 2070 strategy volumes.
5. Seawater desalination accounts for 63.6 percent of 2070 strategy volumes; groundwater desalination accounts for 9.3 percent of 2070 strategy volumes; and aquifer storage and recovery accounts for 5.2 percent of 2070 strategy volumes.
6. The Region N RWPG formally adopted their final 2021 RWP on September 24, 2020.
7. The EA has reviewed the adopted 2021 Region N RWP and determined that the plan complies with statute and rules.
8. The EA has reviewed the 2021 Region N RWP for interregional conflicts and has found none.

RECOMMENDATION

The EA recommends approval of the 2021 Region N RWP.

Attachment: Data Summary of the 2021 Region N RWP

Region N 2021 Regional Water Plan Data Summary

Table 1 - Population, existing water supplies, demands, needs, and strategies 2020–2070 (acre-feet per year)*

	Decade	2020	2030	2040	2050	2060	2070
	Population	615,000	662,000	693,000	715,000	731,000	745,000
Existing supplies	Surface water	178,000	176,000	174,000	172,000	170,000	167,000
	Groundwater	60,000	61,000	61,000	60,000	59,000	58,000
	Reuse	2,000	2,000	2,000	2,000	2,000	2,000
	Total water supplies	240,000	239,000	237,000	233,000	230,000	227,000
Demands	Municipal Utility	107,000	112,000	115,000	118,000	120,000	122,000
	Municipal County-other	9,000	9,000	9,000	9,000	10,000	10,000
	Manufacturing	89,000	98,000	98,000	98,000	98,000	98,000
	Mining	9,000	10,000	10,000	7,000	6,000	5,000
	Irrigation	30,000	30,000	30,000	30,000	30,000	30,000
	Steam-electric	4,000	4,000	4,000	4,000	4,000	4,000
	Livestock	6,000	6,000	6,000	6,000	6,000	6,000
	Total water demand	253,000	270,000	273,000	273,000	275,000	276,000
Needs	Municipal Utility	5,000	5,000	5,000	5,000	5,000	5,000
	Municipal County-other	6,000	6,000	6,000	6,000	6,000	6,000
	Manufacturing	1,000	17,000	22,000	26,000	30,000	34,000
	Mining	2,000	2,000	2,000	2,000	2,000	2,000
	Irrigation	1,000	1,000	1,000	1,000	1,000	1,000
	Total water needs	15,000	31,000	36,000	40,000	45,000	49,000
	Strategy supplies	Municipal Utility	7,000	21,000	29,000	31,000	32,000
Municipal County-other		7,000	7,000	7,000	7,000	7,000	7,000
Manufacturing		5,000	221,000	224,000	226,000	231,000	234,000
Mining		3,000	3,000	3,000	3,000	3,000	3,000
Irrigation		2,000	3,000	3,000	4,000	4,000	5,000
Total strategy supplies		24,000	255,000	266,000	271,000	278,000	282,000

* 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.

Table 2 - Ten recommended water management strategies with largest supply volume

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
Port of Corpus Christi Authority Seawater Desalination - Harbor Island	na	2	56,000
Poseidon Regional Seawater Desalination Project at Ingleside	na	1	56,000
Port of Corpus Christi Authority Seawater Desalination - La Quinta Channel	na	1	34,000
Evangeline/Laguna Treated Groundwater Project	na	2	23,000
City of Corpus Christi Seawater Desalination (La Quinta)	na	1	22,000
Manufacturing Water Conservation	na	5	15,000
City of Corpus Christi ASR	na	1	15,000
City of Corpus Christi Seawater Desalination (Inner Harbor)	405,000	2	11,000
Municipal Conservation - Corpus Christi	405,000	1	11,000
Regional Industrial Wastewater Reuse Plan (SPMWD)	na	1	5,000
<i>Other recommended strategies</i>	<i>na</i>	<i>66</i>	<i>35,000</i>

Table 3 - Ten recommended water management strategy projects with largest capital cost

Recommended water management strategy project	Online decade	Sponsor(s)	Capital Cost
Port of Corpus Christi Authority Seawater Desalination - Harbor Island	2030	Port of Corpus Christi Authority	\$802,807,000
Poseidon Regional Seawater Desalination Project at Ingleside	2030	Poseidon Water	\$724,984,000
Port of Corpus Christi Authority Seawater Desalination - La Quinta Channel	2030	Port of Corpus Christi Authority	\$457,732,000
City of Corpus Christi Seawater Desalination (La Quinta)	2030	Corpus Christi	\$420,372,000
City of Corpus Christi Seawater Desalination (Inner Harbor)	2030	Corpus Christi	\$236,693,000
Evangeline/Laguna Treated Groundwater Project	2030	San Patricio MWD; Corpus Christi	\$157,550,000
Regional Industrial Wastewater Reuse Plan (SPMWD)	2030	San Patricio MWD	\$115,502,000
City of Corpus Christi ASR	2030	Corpus Christi	\$90,199,000
O.N. Stevens WTP Improvements	2020	Corpus Christi	\$68,212,000
Municipal Conservation - Corpus Christi	2030	Corpus Christi	\$53,940,000
<i>Other recommended projects</i>	<i>various</i>	<i>54 various</i>	<i>\$148,504,317</i>
Total capital cost			\$3,276,495,317

Table 4 - Unmet water needs by water user group type 2020-2070 (acre-feet per year)

Water User Group Category	2020	2030	2040	2050	2060	2070
Irrigation	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	0	0	0	0	0	0
Municipal County-Other	0	0	0	0	0	0
Municipal Utility	0	0	0	0	0	0
Steam Electric Power	0	0	0	0	0	0
Total unmet needs	0	0	0	0	0	0