P.O. Box 13231, 1700 N. Congress Ave.
Austin, TX 78711-3231, www.twdb.texas.gov
Phone (512) 463-7847, Fax (512) 475-2053

AGENDA ITEM MEMO

BOARD MEETING DATE: January 16, 2025

TO: Board Members

THROUGH: Bryan McMath, Executive Administrator
Ashley Harden, General Counsel
Matt Nelson, Deputy Executive Administrator, Office of Planning

FROM: Sarah Lee, Manager, Regional Water Planning
Elizabeth McCoy, P.G., Senior Planner, Regional Water Planning

SUBJECT: Amendment to the 2022 State Water Plan

ACTION REQUESTED

Consider amending the 2022 State Water Plan to incorporate amendments to the 2021 Regional Water Plans for Regions B, F, G, H, L and M.

BACKGROUND

This proposed third amendment to the 2022 State Water Plan incorporates amendments to the 2021 Regional Water Plans for Regions B, F, G, and M to remove identified infeasible water management strategies and projects and for Regions G, H, and L to add or revise water management strategies and projects and thereby make the projects eligible for State Water Implementation Fund for Texas program funding.

The TWDB Board approved these 2021 Regional Water Plan amendments on August 15, 2024, and November 6, 2024. Copies of the regional water plan amendment materials are available on the TWDB website.

KEY ISSUES

1. Detailed changes resulting from the proposed state water plan amendment are outlined in the attachment. The most notable changes to the 2022 State Water Plan include:
    a. Total capital costs increase by approximately $1.2 billion. The rounded total capital cost of the plan increases to $81 billion.
    b. Statewide existing water supplies decrease by approximately 6,000 acre-feet/year in 2020 and 58,000 acre-feet/year in 2030-2070.

c. Statewide municipal and total water supply needs decrease by approximately 100 acre-feet/year in 2020 and increase by 58,000 acre-feet/year in 2030-2070.
d. Water management strategy supply volumes decrease by approximately 7,000 acre-feet/year in 2020 but increase in the remaining planning decades by up to 67,000 acre-feet/year in 2070.
e. The total number of recommended projects in the plan remains unchanged. At the regional level, the number of recommended projects changes for Regions F, G, and H.
f. Statewide water supply needs that are not met by the plan increase for municipal and steam electric water use categories. Municipal unmet needs increase by 4,000 acre-feet/year in 2020, 3,000 acre-feet/year in 2030, and 2,000 acre-feet/year in 2040. Steam-electric unmet needs increase by approximately 1,000 acre-feet/year in 2020-2070. In the event of a drought of record, the municipal unmet needs would have to be met by demand management until the strategies are online.

2. A public hearing on amending the 2022 State Water Plan was held on December 18, 2024.
3. No public comments were received on the proposed amendment to the 2022 State Water Plan.
4. If approved, this proposed amendment will be incorporated into the 2022 State Water Plan as Amendment No. 3.

RECOMMENDATION

The Executive Administrator recommends adoption of this 2022 State Water Plan amendment to incorporate the amendments to the 2021 Regional Water Plans for Regions B, F, G, H, L and M in accordance with 31 TAC §357.51 and §358.4.

Attachment:

Water for Texas 2022 State Water Plan: Proposed Amendment No. 3

Water for Texas 2022 State Water Plan: *Proposed Amendment No. 3*

This state water plan amendment incorporates amendments to the 2021 Regional Water Plans for Regions B, F, G, and M to remove identified infeasible water management strategies and projects and for Regions G, H, and L to add or revise water management strategies and projects in order for the projects to be eligible for State Water Implementation Fund for Texas program funding. Regional water plan amendment materials are available on the 2021 Regional Water Plan webpage.

The following 2022 State Water Plan tables and figures are revised to incorporate data from the regional amendments. Updated values are highlighted. Select 2022 State Water Plan figures with minimal visible impacts are not shown.

The online Interactive State Water Plan will display resulting data changes following board action on the amendment.

Figure ES.5 - Annual volume of recommended water management strategies (millions of acre-feet)

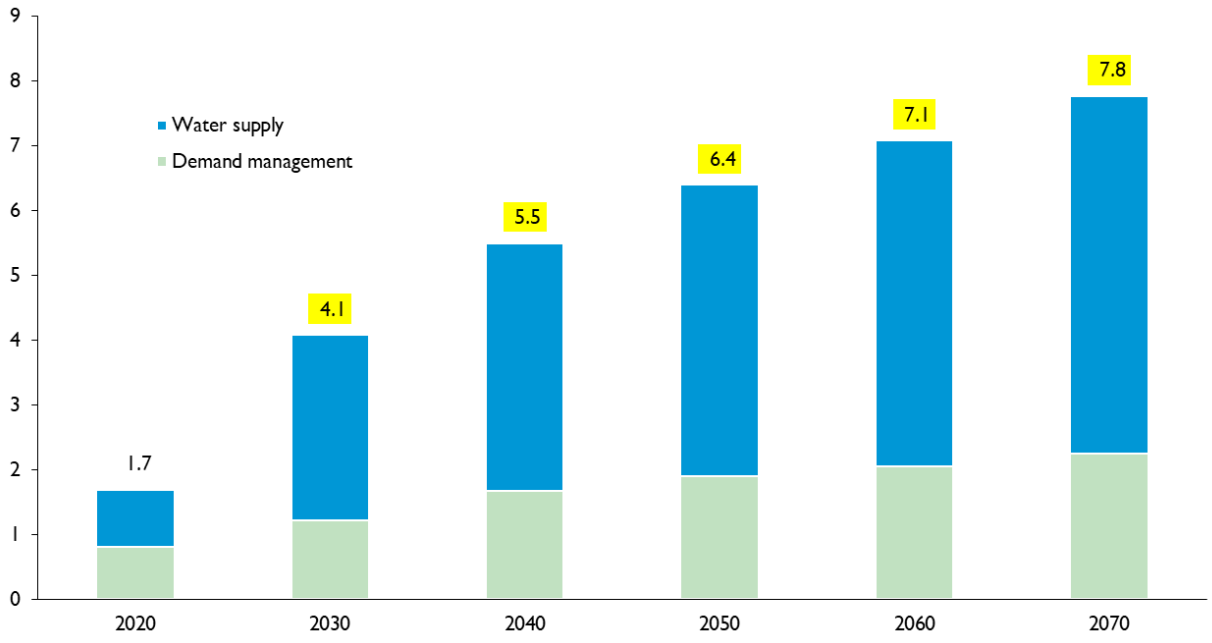


Table ES-1. Statewide annual water supply needs that are unmet by the plan (acre-feet)

Water use category	2020	2030	2040	2050	2060	2070
Irrigation	1,917,000	2,724,000	2,512,000	2,421,000	2,377,000	2,336,000
Steam-electric	123,000	95,000	95,000	95,000	95,000	95,000
Manufacturing	110,000	1,000	1,000	1,000	1,000	1,000
Mining	52,000	46,000	41,000	35,000	29,000	32,000
Municipal	22,000	4,000	4,000	3,000	4,000	6,000
Livestock	9,000	2,000	3,000	4,000	5,000	7,000
Total	**2,233,000**	**2,872,000**	**2,656,000**	**2,559,000**	**2,511,000**	**2,477,000**

Table 5-1. Texas' annual existing water supply (acre-feet)

Source	2020	2030	2040	2050	2060	2070	Percent change
Surface water	7,216,000	7,116,000	7,085,000	7,059,000	7,039,000	7,013,000	-3
Groundwater	8,912,000	7,638,000	6,869,000	6,408,000	6,092,000	6,023,000	-32
Reuse	620,000	640,000	661,000	676,000	704,000	714,000	15
Texas[a]	**16,748,000**	**15,394,000**	**14,615,000**	**14,143,000**	**13,835,000**	**13,750,000**	**-18**

[a] *Does not reflect some portions of existing supplies that are associated with purely saline water sources such as untreated seawater.*

Table 6-1. Projected annual water needs by water use category (acre-feet)

Category	2020	2030	2040	2050	2060	2070	Percent change
Irrigation	2,396,000	3,319,000	3,280,000	3,188,000	3,094,000	3,046,000	*27*
Municipal	215,000	860,000	1,430,000	1,970,000	2,561,000	3,203,000	*1,390*
Steam-electric	187,000	192,000	196,000	199,000	201,000	203,000	*9*
Manufacturing	159,000	264,000	275,000	286,000	295,000	301,000	*89*
Mining	119,000	123,000	111,000	102,000	96,000	101,000	*-15*
Livestock	40,000	44,000	48,000	54,000	60,000	63,000	*58*
Texas[a]	**3,116,000**	**4,802,000**	**5,340,000**	**5,799,000**	**6,307,000**	**6,917,000**	***122***

[a] *Statewide totals may vary between tables due to rounding.*

Table 6-2. Projected annual water needs by region (acre-feet)

Region	2020	2030	2040	2050	2060	2070
A	148,000	394,000	411,000	394,000	369,000	378,000
B	25,000	26,000	30,000	32,000	36,000	41,000
C	66,000	307,000	530,000	769,000	1,016,000	1,278,000
D	81,000	87,000	91,000	98,000	106,000	117,000
E	61,000	66,000	76,000	89,000	104,000	119,000
F	63,000	72,000	75,000	81,000	91,000	103,000
G	211,000	255,000	291,000	344,000	404,000	478,000
H	145,000	464,000	637,000	726,000	828,000	942,000
I	139,000	182,000	183,000	190,000	199,000	206,000
J	6,000	6,000	7,000	8,000	8,000	9,000
K	283,000	281,000	289,000	291,000	297,000	319,000
L	204,000	232,000	268,000	305,000	350,000	401,000
M	937,000	924,000	926,000	937,000	953,000	970,000
N	15,000	31,000	36,000	40,000	45,000	49,000
O	726,000	1,467,000	1,483,000	1,485,000	1,493,000	1,500,000
P	8,000	8,000	8,000	8,000	8,000	8,000
Texas[a]	**3,118,000**	**4,802,000**	**5,341,000**	**5,797,000**	**6,307,000**	**6,918,000**

[a] *Statewide totals may vary between tables due to rounding.*

Table 6-4. Statewide projected annual water needs that are unmet by the plan (acre-feet)

Water use category	2020	2030	2040	2050	2060	2070
Irrigation	1,917,000	2,724,000	2,512,000	2,421,000	2,377,000	2,336,000
Steam-electric	123,000	95,000	95,000	95,000	95,000	95,000
Manufacturing	110,000	1,000	1,000	1,000	1,000	1,000
Mining	52,000	46,000	41,000	35,000	29,000	32,000
Municipal	22,000	4,000	4,000	3,000	4,000	6,000
Livestock	9,000	2,000	3,000	4,000	5,000	7,000
Total	**2,233,000**	**2,872,000**	**2,656,000**	**2,559,000**	**2,511,000**	**2,477,000**

Table 6-5. Projected annual unmet water needs by region and water use category (acre-feet)

Region	Water use category	2020	2030	2040	2050	2060	2070
A	Irrigation	81,000	260,000	123,000	66,000	48,000	42,000
B	Irrigation	15,000	15,000	16,000	14,000	14,000	13,000
B	Mining	1,000	<500	<500	<500	<500	<500
B	Steam-electric	2,000	0	0	0	0	0
C	Irrigation	3,000	3,000	3,000	3,000	3,000	3,000
C	Mining	5,000	5,000	5,000	5,000	5,000	6,000
C	Municipal	<500	<500	<500	<500	<500	<500
C	Steam-electric	7,000	7,000	7,000	7,000	7,000	7,000
D	Irrigation	<500	<500	<500	<500	<500	<500
D	Manufacturing	1,000	0	0	0	0	0
D	Municipal	<500	<500	<500	1,000	1,000	2,000
E	Irrigation	13,000	10,000	15,000	15,000	15,000	15,000
E	Mining	<500	1,000	1,000	<500	1,000	1,000
F	Irrigation	11,000	13,000	17,000	19,000	22,000	25,000
F	Livestock	<500	<500	<500	<500	<500	<500
F	Manufacturing	<500	<500	<500	<500	<500	<500
F	Mining	6,000	6,000	3,000	2,000	1,000	1,000
F	Municipal	1,000	1,000	1,000	1,000	2,000	3,000
F	Steam-electric	12,000	12,000	12,000	12,000	12,000	12,000
G	Irrigation	61,000	61,000	52,000	51,000	51,000	54,000
G	Manufacturing	<500	0	0	0	0	0
G	Mining	16,000	16,000	16,000	16,000	17,000	19,000
G	Municipal	17,000	3,000	2,000	0	0	0
G	Steam-electric	72,000	71,000	71,000	71,000	71,000	72,000
H	Irrigation	47,000	47,000	47,000	47,000	47,000	47,000
H	Livestock	1,000	1,000	1,000	1,000	1,000	1,000
I	Irrigation	1,000	0	0	0	0	0
I	Livestock	8,000	0	0	0	0	0
I	Manufacturing	101,000	0	0	0	0	0
I	Mining	8,000	0	0	0	0	0
I	Municipal	<500	0	0	0	0	0
I	Steam-electric	3,000	0	0	0	0	0
J	Livestock	<500	<500	<500	<500	<500	<500
J	Municipal	<500	<500	<500	<500	<500	1,000
K	Irrigation	76,000	84,000	70,000	63,000	54,000	44,000
K	Mining	<500	4,000	5,000	3,000	0	0

Table 6-5. Projected annual unmet water needs by region and water use category (acre-feet) – *continued*

Region	Water use category	2020	2030	2040	2050	2060	2070
K	Steam-electric	5,000	5,000	5,000	5,000	5,000	5,000
L	Irrigation	137,000	138,000	140,000	142,000	151,000	155,000
L	Manufacturing	8,000	0	0	0	0	0
L	Mining	10,000	10,000	8,000	5,000	2,000	<500
L	Steam-electric	19,000	0	0	0	0	0
M	Irrigation	839,000	791,000	761,000	723,000	682,000	644,000
M	Manufacturing	<500	1,000	1,000	1,000	1,000	1,000
M	Mining	5,000	4,000	4,000	4,000	4,000	5,000
M	Municipal	3,000	0	0	0	0	0
M	Steam-electric	4,000	<500	<500	<500	<500	<500
O	Irrigation	634,000	1,302,000	1,268,000	1,279,000	1,288,000	1,293,000
O	Livestock	<500	<500	1,000	2,000	4,000	5,000
Texas[a]	**All**	**2,233,000**	**2,871,000**	**2,655,000**	**2,558,000**	**2,509,000**	**2,476,000**

[a] *Statewide totals may vary between tables due to rounding.*

Table 7-1. Annual volume of recommended water management strategies by region (acre-feet)

Region	2020	2030	2040	2050	2060	2070
A	155,000	295,000	529,000	616,000	618,000	658,000
B	9,000	14,000	38,000	43,000	45,000	49,000
C	129,000	361,000	588,000	830,000	1,075,000	1,336,000
D	83,000	149,000	161,000	175,000	192,000	221,000
E	82,000	118,000	130,000	146,000	150,000	156,000
F	78,000	140,000	165,000	170,000	175,000	181,000
G	119,000	271,000	357,000	407,000	453,000	501,000
H	251,000	1,045,000	1,480,000	1,793,000	1,913,000	2,010,000
I	24,000	251,000	272,000	285,000	295,000	279,000
J	13,000	26,000	26,000	26,000	26,000	26,000
K	251,000	297,000	373,000	418,000	476,000	565,000
L	199,000	429,000	551,000	596,000	692,000	737,000
M	138,000	215,000	296,000	370,000	440,000	508,000
N	24,000	255,000	266,000	271,000	278,000	282,000
O	119,000	199,000	249,000	236,000	239,000	242,000
P	16,000	17,000	17,000	17,000	17,000	17,000
Texas[a]	**1,690,000**	**4,082,000**	**5,498,000**	**6,399,000**	**7,084,000**	**7,768,000**

[a] *Statewide totals may vary between tables due to rounding.*

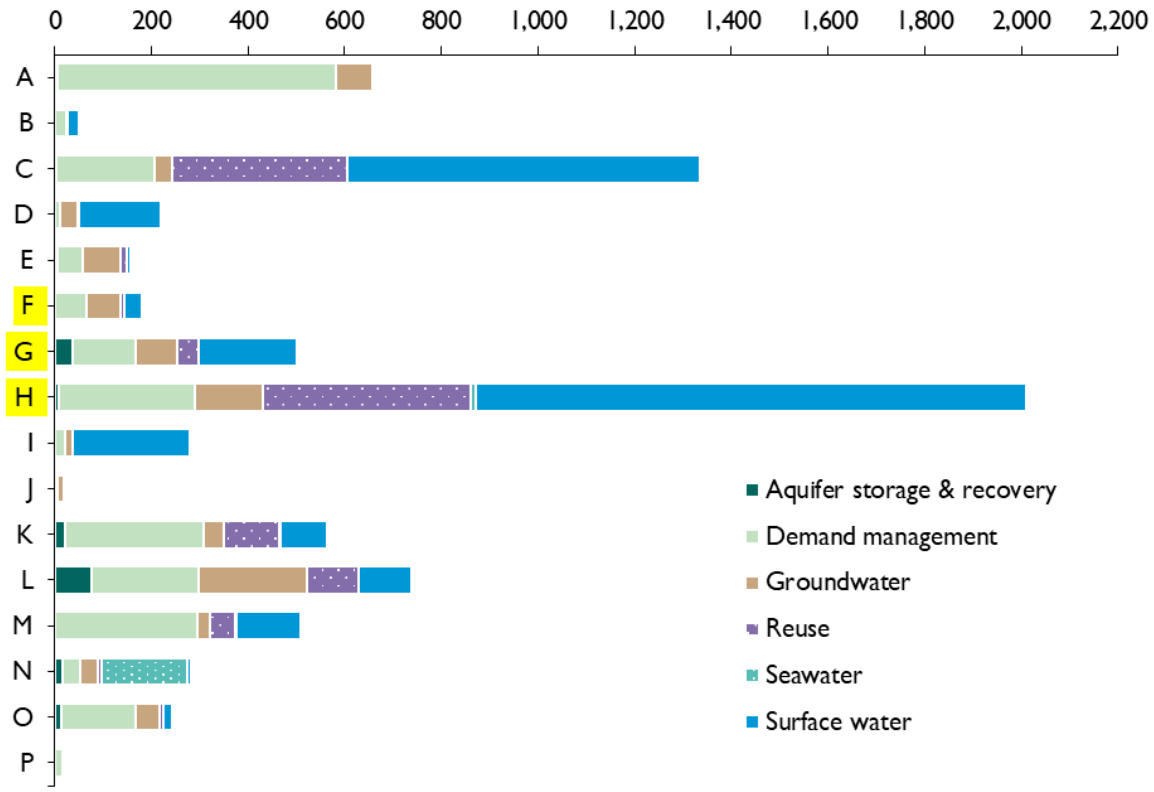
Table 7-2. Capital costs, by required online decade, of all recommended water management strategy projects by region (in millions)

Region	2020	2030	2040	2050	2060	2070	Total capital cost[a]	Number of projects[b]
A	$308	$584	$88	$49	$5	$113	$1,147	65
B	$207	$7	$443	$0	$0	$0	$657	20
C	$4,363	$5,482	$4,796	$7,437	$4,061	$3,793	$29,932	506
D	$157	$295	$39	$118	$31	$90	$730	103
E	$371	$243	$569	$320	$0	$0	$1,503	39
F	$397	$968	$66	$171	$6	$0	$1,608	110
G	$1,848	$2,279	$990	$646	$5	$13	$5,781	220
H	$4,124	$9,636	$4,125	$1,279	$907	$451	$20,522	821
I	$871	$1,466	$726	$11	$31	$6	$3,111	59
J	$70	$150	$0	$0	$0	$0	$220	45
K	$1,539	$1,484	$873	$173	$15	$510	$4,594	162
L	$1,618	$1,592	$1,019	$132	$203	$0	$4,564	57
M	$1,016	$478	$256	$188	$39	$25	$2,002	134
N	$166	$3,110	$0	$0	$0	$0	$3,276	64
O	$184	$118	$275	$1	$104	$126	$808	26
P	$26	$56	$340	$0	$0	$0	$422	12
Texas	**$17,265**	**$27,948**	**$14,605**	**$10,525**	**$5,407**	**$5,127**	**$80,877**	**2,443**

[a] Capital costs represent approximations based on anticipated online dates. Projects with capital costs that would occur over multiple decades are reported as a single, total capital cost in the project's online decade and may therefore differ from those presented in the regional water plans.

[b] Some projects are associated with multiple sponsors.

Figure 7-2. Annual volume of recommended water management strategies by region and water resource in 2070 (thousands of acre-feet)*



* *Strategy types are presented left to right in the order listed in the legend.*

Table 7-3. Annual volume of recommended water management strategies by online decade and strategy type (acre-feet)

Water management strategy type	2020	2030	2040	2050	2060	2070
Agricultural conservation	535,000	757,000	1,066,000	1,142,000	1,151,000	1,197,000
Aquifer storage & recovery	19,000	132,000	155,000	162,000	180,000	193,000
Conjunctive use	5,000	57,000	65,000	64,000	64,000	67,000
Direct potable reuse	12,000	31,000	44,000	55,000	61,000	62,000
Drought management	87,000	110,000	129,000	140,000	149,000	158,000
Groundwater desalination	19,000	97,000	123,000	124,000	154,000	157,000
Groundwater wells & other	253,000	428,000	553,000	614,000	674,000	714,000
Indirect reuse	58,000	209,000	510,000	560,000	648,000	739,000
Industrial conservation	23,000	32,000	35,000	37,000	39,000	44,000
Municipal conservation	220,000	395,000	530,000	675,000	822,000	977,000
New major reservoir	60,000	297,000	464,000	658,000	793,000	866,000
Other direct reuse	47,000	179,000	202,000	232,000	265,000	304,000
Other strategies	8,000	44,000	52,000	57,000	67,000	78,000
Other surface water	345,000	1,136,000	1,379,000	1,687,000	1,825,000	2,018,000
Seawater desalination	0	179,000	190,000	192,000	192,000	192,000
Texas[a]	**1,691,000**	**4,083,000**	**5,497,000**	**6,399,000**	**7,084,000**	**7,766,000**

[a] *Statewide totals may vary between tables due to rounding.*

Table 7-4. Number of water user groups relying on different types of water management strategies by region*

Water management strategy type	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Texas
Agricultural conservation	21	3	4	0	2	30	20	8	0	3	6	0	8	5	18	1	**129**
Aquifer storage & recovery	2	0	111	1	1	0	20	1	0	3	7	9	0	1	5	0	**161**
Conjunctive use	0	0	0	0	1	0	31	95	0	0	0	0	0	0	0	0	**127**
Direct potable reuse	1	0	0	0	0	1	1	0	0	1	4	1	9	0	0	0	**18**
Drought management	0	0	0	0	0	0	0	0	0	1	118	39	40	1	0	8	**207**
Groundwater desalination	0	0	0	0	4	1	2	1	0	1	1	5	11	3	0	0	**29**
Groundwater wells & other	32	8	150	49	13	18	77	28	23	17	31	64	11	24	26	0	**571**
Indirect reuse	0	5	240	10	0	7	11	9	5	0	7	0	0	0	0	0	**294**
Industrial conservation	0	12	2	3	0	32	40	0	0	0	5	0	17	13	12	3	**139**
Municipal conservation	40	23	283	9	10	68	114	345	58	9	70	106	58	23	38	6	**1,260**
New major reservoir	0	18	246	9	0	0	30	10	15	0	18	4	0	0	1	0	**351**
Other direct reuse	0	0	10	0	2	1	18	18	0	2	14	11	5	2	2	0	**85**
Other strategies	0	0	36	0	1	11	0	1	0	1	8	0	7	0	0	0	**65**
Other surface water	0	5	277	40	2	41	93	133	28	2	11	5	47	4	1	0	**689**
Seawater desalination	0	0	0	0	0	0	0	1	0	0	0	0	1	3	0	0	**5**

* *Water user groups associated with more than one planning region may be counted more than once with different region and strategy type combinations.*

Table 7-5. Weight-averaged unit costs (dollars per acre-foot)* of strategy water supplies by region and strategy type in 2070

Water management strategy type	A	B	C	D	E	F	G	H	I
Agricultural conservation	$66	$83	$307	na	$39	$0	$1,330	$132	na
Aquifer storage & recovery	$391	na	$99	$99	$212	na	$418	$3,256	na
Conjunctive use	na	na	na	na	$251	na	$235	$1,060	na
Direct potable reuse	$1,228	na	na	na	na	$2,443	$606	na	na
Drought management**	na	na	na	na	na	na	na	na	na
Groundwater desalination	na	na	na	na	$818	$403	$1,540	$4,927	na
Groundwater wells & other	$355	$396	$408	$383	$710	$339	$1,019	$481	$173
Indirect reuse	na	$698	$273	$1,032	na	$269	$275	$326	$435
Industrial conservation	na	$385	$147	$0	na	$0	$0	na	na
Municipal conservation	$779	$356	$103	$679	$92	$663	$546	$584	$398
New major reservoir	na	$384	$625	$540	na	na	$723	$411	$281
Other direct reuse	na	na	$278	na	$479	$191	$384	$525	na
Other strategies	na	na	$899	na	$307	$10	na	$1,560	na
Other surface water	na	$828	$527	$199	$290	$80	$537	$274	$475
Seawater desalination	na	na	na	na	na	na	na	$1,293	na

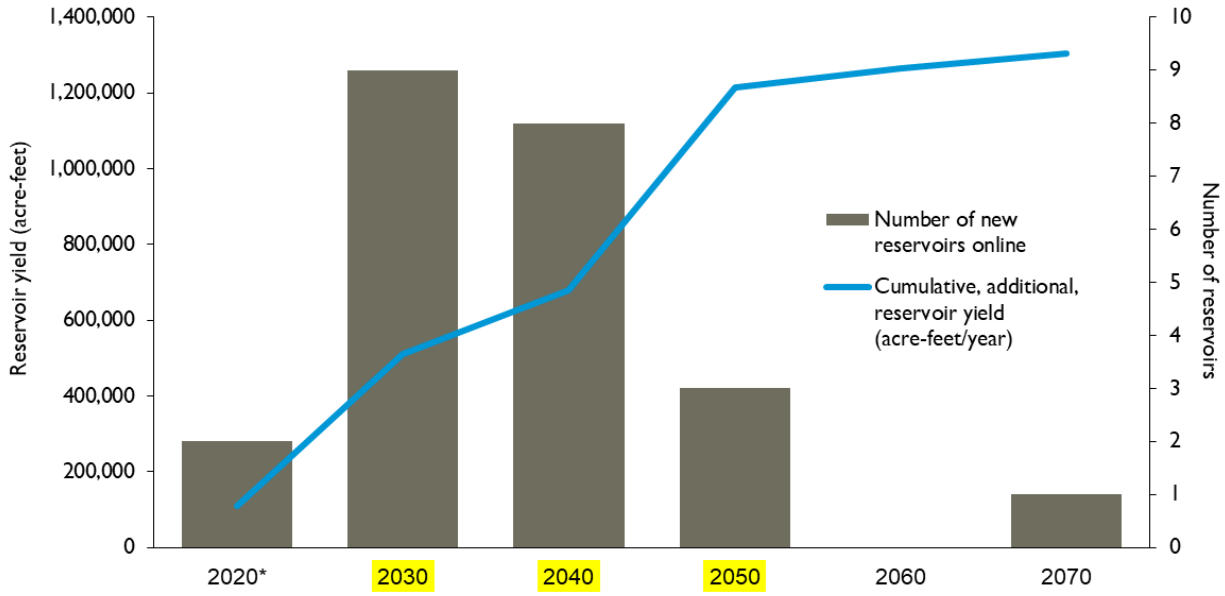
Water management strategy type	J	K	L	M	N	O	P	Texas
Agricultural conservation	$0	$151	na	$315	$3,597	$450	$200	$181
Aquifer storage & recovery	$148	$2,109	$221	na	$171	$824	na	$664
Conjunctive use	na	na	na	na	na	na	na	$814
Direct potable reuse	$6	$1,961	$1,980	$1,841	na	na	na	$1,591
Drought management**	$0	$66	$358	$55	$0	na	$100	$169
Groundwater desalination	$294	$2,995	$1,227	$1,085	$1,088	na	na	$1,080
Groundwater wells & other	$154	$523	$435	$85	$93	$174	na	$465
Indirect reuse	na	$214	na	na	na	na	na	$297
Industrial conservation	na	$109	na	$2,983	$0	$0	$0	$292
Municipal conservation	$408	$999	$625	$582	$502	$332	$1,990	$515
New major reservoir	na	$715	$177	na	na	$518	na	$523
Other direct reuse	$56	$1,036	$625	$354	$157	$1,407	na	$631
Other strategies	$0	$1,618	na	$10	na	na	na	$1,066
Other surface water	$244	$143	$621	$2,890	$229	$783	na	$516
Seawater desalination	na	na	na	$3,188	$1,364	na	na	$1,371

* *Unit costs include a mixture of projects, some of which will be beyond their debt service period by 2070.*

** *Unit costs for drought management strategies represent possible costs to municipal water users from foregone consumer surplus of imposed reduced water use rather than capital expended to produce water supply.*

na = not applicable or not available.

Figure 7-5. Online decade count and cumulative yield of recommended new major reservoirs



** Reservoirs shown as online in 2020 are anticipated to have construction completed by January 2023.*

Table 7-6. Statewide weight-averaged unit costs (dollars per acre-foot)* of strategy water supplies by strategy type 2020–2070

Water management strategy type	2020	2030	2040	2050	2060	2070
Agricultural conservation	$284	$273	$202	$188	$186	$181
Aquifer storage & recovery	$437	$666	$904	$609	$509	$664
Conjunctive use	$1,724	$1,738	$1,986	$1,147	$903	$814
Direct potable reuse	$1,321	$1,411	$1,402	$1,471	$1,590	$1,591
Drought management**	$70	$119	$168	$168	$169	$169
Groundwater desalination	$920	$1,618	$1,430	$899	$994	$1,080
Groundwater wells & other	$589	$745	$668	$593	$504	$465
Indirect reuse	$383	$697	$541	$391	$266	$297
Industrial conservation	$680	$597	$513	$339	$311	$292
Municipal conservation	$675	$607	$503	$498	$519	$515
New major reservoir	$760	$667	$826	$696	$533	$523
Other direct reuse	$997	$891	$873	$484	$559	$631
Other strategies	$10	$2,128	$2,016	$1,073	$1,055	$1,066
Other surface water	$744	$1,018	$973	$570	$542	$516
Seawater desalination	na	$2,402	$2,394	$1,440	$1,383	$1,371

* *Unit costs include a mixture of projects, some of which will be beyond their debt service period by 2070.*

** *Unit costs for drought management strategies represent possible costs to municipal water users from foregone consumer surplus of imposed reduced water use rather than capital expended to produce water supply.*

na = not applicable or not available.

Figure 9-2. Total capital costs of all recommended water management strategy projects by wholesale water providers and water user group sponsor type (in billions)

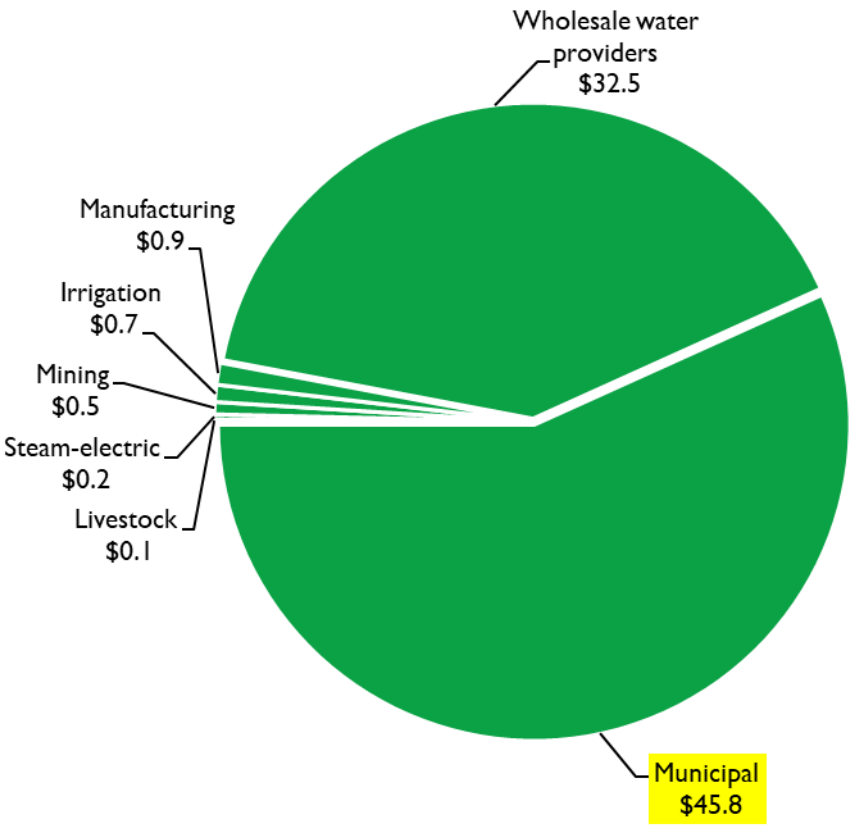


Table B-3. Annual surface water existing supplies by river and coastal basin (acre-feet)

Surface water basin	2020	2030	2040	2050	2060	2070	Percent change
Brazos	1,028,398	1,027,522	1,027,471	1,024,880	1,021,226	1,016,537	-1
Brazos-Colorado	18,146	18,146	18,146	18,146	18,146	18,146	0
Canadian	37,884	37,851	37,818	37,784	37,750	37,716	0
Colorado	850,792	849,674	848,806	846,861	847,167	845,952	-1
Colorado-Lavaca	4,289	4,289	4,289	4,289	4,289	4,289	0
Cypress	188,035	183,161	182,029	181,321	180,470	179,575	-5
Guadalupe	172,627	169,329	166,256	166,874	169,350	169,365	-2
Lavaca	78,055	78,136	78,136	78,136	78,136	78,136	0
Lavaca-Guadalupe	297	297	297	297	297	297	0
Neches	495,915	500,538	503,810	506,896	510,377	514,747	4
Neches-Trinity	88,962	88,962	88,962	88,962	88,962	88,962	0
Nueces	118,408	116,486	114,285	112,076	109,878	107,379	-9
Nueces-Rio Grande	926	926	926	926	926	926	0
Red	170,041	166,889	164,581	162,546	160,859	154,978	-9
Rio Grande	943,633	944,086	941,201	941,050	941,819	941,943	0
Sabine	591,377	573,717	573,540	573,113	572,665	576,570	-3
Sabine-Louisiana	343	343	343	343	343	343	0
San Antonio	52,444	52,445	52,445	52,446	52,455	52,455	0
San Antonio-Nueces	444	444	444	444	444	444	0
San Jacinto	187,038	187,816	188,218	187,201	187,441	187,646	0
San Jacinto-Brazos	35,989	35,989	35,989	35,989	35,989	35,989	0
Sulphur	121,575	121,149	121,323	121,616	121,803	121,938	0
Trinity	2,025,240	1,952,479	1,930,646	1,910,772	1,892,903	1,872,959	-8
Trinity-San Jacinto	5,537	5,537	5,537	5,537	5,537	5,537	0
Texas[a]	**7,216,395**	**7,116,211**	**7,085,498**	**7,058,505**	**7,039,232**	**7,012,829**	**-3**

[a] *Does not reflect some portions of existing supplies that are associated with purely saline water sources such as untreated seawater.*

Table B-5. Annual groundwater existing supplies by aquifer (acre-feet)

Aquifer	2020	2030	2040	2050	2060	2070	Percent change
Austin Chalk	3,618	3,618	3,618	3,618	3,618	3,618	0
Blaine	30,692	30,793	30,807	30,831	30,873	30,931	1
Blossom	723	723	722	722	722	722	0
Bone Spring-Victorio Peak	68,642	68,642	68,642	68,642	68,642	68,642	0
Brazos River Alluvium	148,920	145,718	145,392	145,303	145,262	145,239	-3
Buda Limestone	50	50	114	168	229	289	478
Capitan Reef Complex	13,629	13,629	8,104	8,104	8,104	8,104	-41
Carrizo-Wilcox	672,841	681,209	687,886	693,615	694,922	694,693	3
Cross Timbers	9,184	9,348	8,201	7,808	7,812	7,820	-15
Dockum	67,779	67,183	66,880	66,805	66,873	66,816	-1
Edwards (Balcones Fault Zone)	265,040	265,281	265,854	266,261	266,442	266,618	1
Edwards-Trinity (Plateau)/Pecos Valley[a]	175,622	168,286	172,014	170,072	167,656	164,760	-6
Edwards-Trinity (Plateau)	3,857	3,857	3,857	3,857	3,857	3,857	0
Edwards-Trinity (Plateau)/Pecos Valley/Trinity[a]	227,299	228,437	221,056	211,168	205,130	204,366	-10
Ellenburger-San Saba	21,386	21,349	20,476	19,938	19,492	19,175	-10
Frio River Alluvium	609	609	609	609	609	609	0
Gulf Coast	1,395,614	1,251,219	1,179,114	1,202,922	1,227,311	1,252,253	-10
Hickory	28,708	28,164	27,070	26,421	25,917	25,508	-11
Hueco-Mesilla Bolsons	167,028	167,028	167,028	167,028	167,028	167,028	0
Igneous	8,756	8,756	8,756	8,756	8,756	8,756	0
Leona Gravel	9,854	10,086	10,236	10,412	10,634	10,877	10
Lipan	45,696	45,703	45,702	45,702	45,701	45,701	0
Marathon	566	566	566	566	566	566	0
Marble Falls	1,826	1,826	1,826	1,826	1,826	1,826	0
Nacatoch	6,637	6,670	6,661	6,580	6,501	6,485	-2
Navasota River Alluvium	58	58	58	58	58	58	0
Nueces River Alluvium	13	13	13	13	13	13	0
Ogallala/Edwards-Trinity (High Plains)[a]	2,877,633	1,995,757	1,466,426	1,180,748	1,025,520	933,924	-68
Ogallala/Rita Blanca[a]	626,332	432,477	337,860	252,457	176,937	177,993	-72
Ogallala	1,266,282	1,223,996	1,156,231	1,047,358	943,288	945,346	-25
Other	178,613	178,741	178,389	177,794	177,362	177,139	-1

Table B-5. Annual groundwater existing supplies by aquifer (acre-feet) *– continued*

Aquifer	2020	2030	2040	2050	2060	2070	Percent change
Pecos Valley	150	150	150	150	150	150	0
Queen City	29,053	29,758	30,181	30,350	30,422	30,551	5
Rustler	4,719	4,719	4,719	4,719	4,719	4,719	0
San Bernard River Alluvium	-	-	-	-	-	-	na
San Jacinto River Alluvium	-	-	-	-	-	-	na
San Marcos River Alluvium	-	-	-	-	-	-	na
Seymour	179,640	170,290	170,887	172,459	173,310	170,425	-5
Sparta	19,058	20,218	20,414	20,527	20,655	20,806	9
Trinity	266,544	264,284	263,868	264,586	266,517	268,473	1
Trinity River Alluvium	-	-	-	-	-	-	na
West Texas Bolsons	43,620	43,620	43,620	43,620	43,620	43,620	0
Woodbine	21,740	21,221	21,224	21,206	21,210	21,202	-3
Yegua-Jackson	23,862	23,898	23,865	23,883	23,560	23,619	-1
Texas	**8,911,893**	**7,637,950**	**6,869,096**	**6,407,662**	**6,091,824**	**6,023,297**	**-32**

[a] *Noted aquifer combinations reflect specific groundwater management policy decisions based on aquifer properties. In these cases, the modeled available groundwater and existing supply values have likewise been developed to honor these aquifer combinations.*

na = not applicable

Table C-1. Annual water needs by region and water use category (acre-feet)

Region	Water use category	2020	2030	2040	2050	2060	2070
A	Irrigation	146,064	381,557	385,041	351,667	309,784	310,602
	Manufacturing	1,008	2,585	4,015	6,932	9,372	9,684
	Municipal	1,387	9,961	21,873	35,686	49,380	58,136
A Total		**148,459**	**394,103**	**410,929**	**394,285**	**368,536**	**378,422**
B	Irrigation	21,165	22,979	24,793	26,606	28,419	30,233
	Manufacturing	0	0	0	0	13	145
	Mining	1,616	678	556	201	137	137
	Municipal	263	532	1,298	2,135	3,149	6,028
	Steam-electric	1,701	2,303	2,905	3,506	4,109	4,713
B Total		**24,745**	**26,492**	**29,552**	**32,448**	**35,827**	**41,256**
C	Irrigation	4,584	4,654	4,712	4,757	5,042	5,395
	Livestock	478	478	478	478	478	478
	Manufacturing	402	5,350	9,072	12,148	14,601	17,532
	Mining	11,005	11,350	12,545	14,852	17,334	21,425
	Municipal	42,659	274,237	489,855	723,029	963,130	1,217,573
	Steam-electric	6,824	10,569	12,957	14,233	15,195	16,023
C Total		**65,952**	**306,638**	**529,619**	**769,497**	**1,015,780**	**1,278,426**
D	Irrigation	13,188	13,206	13,208	13,209	13,211	13,213
	Livestock	14,542	14,552	14,540	14,455	14,477	14,491
	Manufacturing	2,914	5,578	5,455	5,465	5,735	5,865
	Mining	2,390	2,278	1,916	1,534	1,224	1,039
	Municipal	17,488	20,418	24,510	30,368	38,414	49,331
	Steam-electric	30,066	30,866	31,766	32,566	32,814	33,083
D Total		**80,588**	**86,898**	**91,395**	**97,597**	**105,875**	**117,022**
E	Irrigation	46,737	46,737	52,262	52,262	52,262	52,262
	Manufacturing	0	860	860	860	860	860
	Mining	2,530	3,223	3,840	4,407	5,038	5,796
	Municipal	4,102	8,061	11,815	24,605	38,953	52,666
	Steam-electric	7,260	7,260	7,260	7,260	7,260	7,260
E Total		**60,629**	**66,141**	**76,037**	**89,394**	**104,373**	**118,844**
F	Irrigation	13,529	17,957	19,544	21,240	24,585	27,060
	Livestock	9	17	25	39	50	60
	Manufacturing	951	1,065	1,108	1,327	1,527	1,710
	Mining	21,261	21,357	17,834	12,088	7,677	5,407
	Municipal	14,048	18,792	23,899	33,706	44,212	55,512
	Steam-electric	12,794	12,678	12,678	12,800	12,923	13,039
F Total		**62,592**	**71,866**	**75,088**	**81,200**	**90,974**	**102,788**

Table C-1. Annual water needs by region and water use category (acre-feet) *– continued*

Region	Water use category	2020	2030	2040	2050	2060	2070
G	Irrigation	75,658	81,687	76,700	75,374	76,180	78,660
	Manufacturing	1,024	3,458	3,088	2,718	2,379	1,916
	Mining	30,305	31,798	28,925	29,692	30,753	33,008
	Municipal	30,981	65,298	109,384	163,655	221,762	290,855
	Steam-electric	72,721	72,816	72,912	73,008	73,104	73,200
G Total		**210,689**	**255,057**	**291,009**	**344,447**	**404,178**	**477,639**
H	Irrigation	84,455	84,455	84,455	84,455	84,455	84,538
	Livestock	1,259	1,642	1,898	1,898	1,898	1,906
	Manufacturing	32,615	63,357	64,445	65,239	64,442	63,506
	Mining	3,293	4,193	4,004	4,024	4,228	4,565
	Municipal	18,532	305,248	476,964	564,953	667,554	782,073
	Steam-electric	4,968	4,968	4,968	4,968	4,968	4,968
H Total		**145,122**	**463,863**	**636,734**	**725,537**	**827,545**	**941,556**
I	Irrigation	526	526	526	526	556	576
	Livestock	23,708	26,613	30,128	34,381	39,483	40,666
	Manufacturing	102,587	145,222	145,206	145,188	145,171	145,155
	Mining	8,413	5,281	903	468	308	207
	Municipal	501	877	2,551	5,832	10,120	15,540
	Steam-electric	3,494	3,494	3,494	3,494	3,494	3,494
I Total		**139,229**	**182,013**	**182,808**	**189,889**	**199,132**	**205,638**
J	Irrigation	75	75	75	75	75	75
	Livestock	357	357	357	357	357	357
	Mining	221	281	294	259	229	210
	Municipal	5,082	5,735	6,366	7,016	7,641	8,607
J Total		**5,735**	**6,448**	**7,092**	**7,707**	**8,302**	**9,249**
K	Irrigation	254,364	239,922	225,869	212,193	198,886	185,938
	Manufacturing	0	40	40	40	40	40
	Mining	2,677	6,937	8,264	7,708	5,472	6,860
	Municipal	4,927	13,378	34,037	50,170	72,550	105,401
	Steam-electric	20,546	20,546	20,546	20,546	20,546	20,546
K Total		**282,514**	**280,823**	**288,756**	**290,657**	**297,494**	**318,785**
L	Irrigation	131,184	131,915	134,104	136,099	137,596	140,812
	Manufacturing	10,427	12,940	13,041	13,073	13,073	13,073
	Mining	15,921	16,809	15,105	12,334	10,454	9,180
	Municipal	24,468	48,817	83,667	121,804	167,216	216,255
	Steam-electric	21,707	21,707	21,707	21,707	21,707	21,707
L Total		**203,707**	**232,188**	**267,624**	**305,017**	**350,046**	**401,027**

Table C-1. Annual water needs by region and water use category (acre-feet) *– continued*

Region	Water use category	2020	2030	2040	2050	2060	2070
M	Irrigation	888,896	843,532	798,075	753,082	707,399	662,060
	Manufacturing	632	851	851	851	851	851
	Mining	6,662	6,007	4,834	4,386	4,566	5,318
	Municipal	35,487	69,080	117,113	174,131	235,515	296,472
	Steam-electric	5,217	5,028	4,928	4,928	4,928	4,928
M Total		**936,894**	**924,498**	**925,801**	**937,378**	**953,259**	**969,629**
N	Irrigation	1,283	1,474	1,474	1,474	1,474	1,474
	Manufacturing	1,479	16,617	21,509	25,741	30,222	34,441
	Mining	2,203	2,430	2,327	2,185	2,158	2,216
	Municipal	10,235	10,571	10,769	10,931	11,107	11,233
N Total		**15,200**	**31,092**	**36,079**	**40,331**	**44,961**	**49,364**
O	Irrigation	705,992	1,440,091	1,450,917	1,446,461	1,445,719	1,445,026
	Livestock	112	122	844	2,041	3,689	5,442
	Manufacturing	5,454	6,482	6,482	6,482	6,482	6,482
	Mining	10,118	10,503	9,517	8,145	6,908	6,016
	Municipal	4,345	9,345	15,418	21,861	30,062	36,931
O Total		**726,021**	**1,466,543**	**1,483,178**	**1,484,990**	**1,492,860**	**1,499,897**
P	Irrigation	8,067	8,067	8,067	8,067	8,067	8,067
P Total		**8,067**	**8,067**	**8,067**	**8,067**	**8,067**	**8,067**
Texas	Irrigation	2,395,767	3,318,834	3,279,822	3,187,547	3,093,710	3,045,991
	Livestock	40,465	43,781	48,270	53,649	60,432	63,400
	Manufacturing	159,493	264,405	275,172	286,064	294,768	301,260
	Mining	118,615	123,125	110,864	102,283	96,486	101,384
	Municipal	214,505	860,350	1,429,519	1,969,882	2,560,765	3,202,613
	Steam-electric	187,298	192,235	196,121	199,016	201,048	202,961
Texas Total		**3,116,143**	**4,802,730**	**5,339,768**	**5,798,441**	**6,307,209**	**6,917,609**