

## 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:** Lann Bookout, Planner, Regional Water Planning  
Sarah Backhouse, Manager, Regional Water Planning

**SUBJECT:** Approval of the 2021 Region H Regional Water Plan

### **ACTION REQUESTED**

Consider approval of the 2021 Regional Water Plan (RWP) for the Region H 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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#### [Board Members](#)

Peter M. Lake, Chairman | Kathleen Jackson, Board Member | Brooke T. Paup, Board Member  
Jeff Walker, Executive Administrator

The Executive Administrator (EA) has conducted a review of the final adopted Region H 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 251,000 acre-feet per year in 2020 and 1,942,000 acre-feet per year in 2070.
2. The recommended water management strategies in the 2021 Region H RWP meets all identified needs in the plan except for approximately 48,000 acre-feet per year associated with irrigation and livestock uses in 2020 increasing to approximately 49,000 acre-feet per year associated with irrigation and livestock 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 818 recommended projects in the 2021 Region H RWP is approximately \$20 billion.
4. Conservation accounts for 14.4 percent of 2070 strategy volumes.
5. Seawater desalination accounts for 0.6 percent of 2070 strategy volumes, aquifer storage and recovery accounts for 0.5 percent of 2070 strategy volumes, and new major reservoirs accounts for 9.3 percent of 2070 volumes.
6. The Region H RWPG formally adopted their final 2021 RWP on September 2, 2020.
7. The EA has reviewed the adopted 2021 Region H RWP and determined that the plan complies with statute and rules.
8. The EA has reviewed the 2021 Region H RWP for interregional conflicts and has found none.

### **RECOMMENDATION**

The EA recommends approval of the 2021 Region H RWP.

Attachment: Data Summary of the 2021 Region H RWP

## Region H 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
	<b>Population</b>	<b>7,325,000</b>	<b>8,208,000</b>	<b>9,025,000</b>	<b>9,868,000</b>	<b>10,766,000</b>	<b>11,743,000</b>
<b>Existing supplies</b>	Surface water	1,869,000	1,870,000	1,873,000	1,872,000	1,873,000	1,874,000
	Groundwater	799,000	653,000	580,000	603,000	627,000	651,000
	Reuse	34,000	34,000	35,000	35,000	36,000	37,000
	<b>Total water supplies</b>	<b>2,701,000</b>	<b>2,557,000</b>	<b>2,487,000</b>	<b>2,510,000</b>	<b>2,536,000</b>	<b>2,562,000</b>
<b>Demands</b>	Municipal Utility	1,176,000	1,273,000	1,359,000	1,442,000	1,525,000	1,610,000
	Municipal County-other	89,000	116,000	145,000	183,000	235,000	297,000
	Manufacturing	594,000	695,000	695,000	695,000	695,000	695,000
	Mining	15,000	16,000	15,000	15,000	14,000	14,000
	Irrigation	343,000	343,000	343,000	343,000	343,000	343,000
	Steam-electric	105,000	105,000	105,000	105,000	105,000	105,000
	Livestock	14,000	14,000	14,000	14,000	14,000	14,000
<b>Total water demand</b>	<b>2,337,000</b>	<b>2,561,000</b>	<b>2,675,000</b>	<b>2,796,000</b>	<b>2,931,000</b>	<b>3,077,000</b>	
<b>Needs</b>	Municipal Utility	9,000	212,000	357,000	414,000	473,000	535,000
	Municipal County-other	9,000	35,000	62,000	93,000	136,000	188,000
	Manufacturing	33,000	63,000	64,000	65,000	64,000	64,000
	Mining	3,000	4,000	4,000	4,000	4,000	5,000
	Irrigation	84,000	84,000	84,000	84,000	84,000	85,000
	Steam-electric	5,000	5,000	5,000	5,000	5,000	5,000
	Livestock	1,000	2,000	2,000	2,000	2,000	2,000
<b>Total water needs</b>	<b>145,000</b>	<b>405,000</b>	<b>578,000</b>	<b>667,000</b>	<b>769,000</b>	<b>883,000</b>	
<b>Strategy supplies</b>	Municipal Utility	61,000	603,000	909,000	1,189,000	1,271,000	1,321,000
	Municipal County-other	11,000	52,000	77,000	109,000	150,000	198,000
	Manufacturing	72,000	213,000	250,000	251,000	248,000	246,000
	Mining	3,000	5,000	5,000	5,000	6,000	6,000
	Irrigation	98,000	98,000	165,000	165,000	165,000	165,000
	Steam-electric	5,000	5,000	5,000	5,000	5,000	5,000
	Livestock	1,000	1,000	1,000	1,000	1,000	1,000
<b>Total strategy supplies</b>	<b>251,000</b>	<b>978,000</b>	<b>1,412,000</b>	<b>1,725,000</b>	<b>1,845,000</b>	<b>1,942,000</b>	

\* 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
East Texas Transfer	2,927,000	1	250,000
City of Houston Reuse	2,927,000	1	194,000
NHCRWA GRP	955,000	6	144,000
WHCRWA GRP	773,000	10	103,000
CITY OF HOUSTON GRP	3,510,000	42	99,000
Dow Reservoir and Pump Station Expansion	57,000	5	80,000
New / Expanded Contract with SJRA	1,208,000	10	74,000
New / Expanded Contract with LNVA	25,000	5	69,000
NFBWA GRP	655,000	6	67,000
SJRA GRP	1,714,000	39	62,000
<i>Other recommended strategies</i>	<i>na</i>	<i>605</i>	<i>801,000</i>

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

Recommended water management strategy project	Online decade	Sponsor(s)	Capital Cost
COH Northeast Water Purification Plant Expansion - Phases 1 and 2	2030	Central Harris County Regional Water Authority; Houston; North Fort Bend Water Authority; North Harris County Regional Water Authority; West Harris County Regional Water Authority	\$1,743,530,870
WHCRWA/NFBWA Transmission Line	2030	North Fort Bend Water Authority; West Harris County Regional Water Authority	\$1,310,701,901
City of Houston West Water Purification Plant - Phase 1	2040	Houston	\$768,820,060
Water Loss Reduction, Houston	2020	Houston	\$650,324,980
Municipal Conservation, Houston	2020	Houston	\$616,098,371
City of Houston Reuse Infrastructure	2040	Houston	\$555,093,731
COH, NHCRWA, and CHCRWA Shared Transmission	2030	Central Harris County Regional Water Authority; Houston; North Harris County Regional Water Authority	\$545,329,786
NHCRWA Distribution Expansion - 2025 Phase	2030	North Harris County Regional Water Authority	\$501,912,161
East Texas Transfer	2050	Houston; Lower Neches Valley Authority; Sabine River Authority	\$458,840,377
COH Northeast Water Purification Plant Expansion - Phase 3	2040	Houston	\$435,882,718
<i>Other recommended projects</i>	<i>various</i>	<i>808 various</i>	<i>\$12,464,868,288</i>
<b>Total capital cost</b>			<b>\$20,051,403,243</b>

**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	47,305	47,305	47,305	47,305	47,305	47,305
Livestock	721	1,104	1,360	1,360	1,360	1,368
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
<b>Total unmet needs</b>	<b>48,026</b>	<b>48,409</b>	<b>48,665</b>	<b>48,665</b>	<b>48,665</b>	<b>48,673</b>

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**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:** Lann Bookout, Planner, Regional Water Planning  
Sarah Backhouse, Manager, Regional Water Planning

**SUBJECT:** Approval of the 2021 Region I Regional Water Plan

### **ACTION REQUESTED**

Consider approval of the 2021 Regional Water Plan (RWP) for the East Texas (Region I) 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 I 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 279,000 acre-feet per year in 2070.
2. The recommended water management strategies in the 2021 Region I Regional Water Plan meets all identified needs in the plan except for approximately 122,000 acre-feet per year associated with irrigation, livestock, manufacturing, mining,

steam electric power, and municipal uses in 2020. No unmet needs are projected for any category of use in future decades. The East Texas RWPG considers these unmet needs to be artificial, due to the TWDB requirement that 2020 strategy supply be online by 1/5/23. To address the unmet municipal needs, the plan states that project sponsors have developed a timeline for implementing strategies prior to the anticipated increases in demands that would, under drought conditions, exceed supply late in the 2020 planning decade, therefore public health, safety, and welfare is anticipated to be protected. Conservation has also been recommended for these users.

3. The total capital cost of the 59 recommended projects in the 2021 Region I RWP is approximately \$3.1 billion.
4. Conservation accounts for 7.9 percent of 2070 strategy volumes.
5. Desalination and aquifer storage and recovery strategies were considered by the East Texas RWPG but not recommended. New major reservoirs accounts for 6.9 percent of 2070 strategy volumes
6. The Region I RWPG formally adopted their final 2021 RWP on September 16, 2020.
7. The EA has reviewed the adopted 2021 Region I RWP and determined that the plan complies with statute and rules.
8. The EA has reviewed the 2021 Region I RWP for interregional conflicts and has found none.

**RECOMMENDATION**

The EA recommends approval of the 2021 Region I RWP.

Attachment: Data Summary of the 2021 Region I RWP



## Region I 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
	<b>Population</b>	<b>1,152,000</b>	<b>1,234,000</b>	<b>1,310,000</b>	<b>1,389,000</b>	<b>1,470,000</b>	<b>1,554,000</b>
<b>Existing supplies</b>	Surface water	631,000	638,000	641,000	644,000	646,000	650,000
	Groundwater	194,000	196,000	199,000	201,000	205,000	207,000
	Reuse	14,000	14,000	14,000	14,000	14,000	14,000
	<b>Total water supplies</b>	<b>839,000</b>	<b>849,000</b>	<b>854,000</b>	<b>859,000</b>	<b>864,000</b>	<b>871,000</b>
<b>Demands</b>	Municipal Utility	175,000	182,000	189,000	198,000	209,000	220,000
	Municipal County-other	17,000	18,000	19,000	20,000	22,000	24,000
	Manufacturing	306,000	353,000	353,000	353,000	353,000	353,000
	Mining	28,000	25,000	18,000	15,000	13,000	12,000
	Irrigation	98,000	98,000	98,000	98,000	98,000	98,000
	Steam-electric	67,000	67,000	67,000	67,000	67,000	67,000
	Livestock	47,000	50,000	54,000	59,000	64,000	65,000
	<b>Total water demand</b>	<b>738,000</b>	<b>793,000</b>	<b>799,000</b>	<b>811,000</b>	<b>826,000</b>	<b>840,000</b>
<b>Needs</b>	Municipal Utility	1,000	1,000	3,000	6,000	9,000	14,000
	Municipal County-other	0	0	0	0	1,000	2,000
	Manufacturing	103,000	145,000	145,000	145,000	145,000	145,000
	Mining	8,000	5,000	1,000	<500	<500	<500
	Irrigation	1,000	1,000	1,000	1,000	1,000	1,000
	Steam-electric	3,000	3,000	3,000	3,000	3,000	3,000
	Livestock	24,000	27,000	30,000	34,000	39,000	41,000
	<b>Total water needs</b>	<b>139,000</b>	<b>182,000</b>	<b>183,000</b>	<b>190,000</b>	<b>199,000</b>	<b>206,000</b>
<b>Strategy supplies</b>	Municipal Utility	7,000	65,000	87,000	96,000	100,000	85,000
	Municipal County-other	<500	4,000	4,000	4,000	5,000	3,000
	Manufacturing	2,000	145,000	145,000	145,000	145,000	145,000
	Mining	<500	5,000	1,000	1,000	<500	<500
	Irrigation	0	1,000	1,000	1,000	1,000	1,000
	Steam-electric	0	3,000	3,000	3,000	3,000	3,000
	Livestock	15,000	27,000	30,000	34,000	40,000	41,000
	<b>Total strategy supplies</b>	<b>24,000</b>	<b>251,000</b>	<b>272,000</b>	<b>285,000</b>	<b>295,000</b>	<b>279,000</b>

\* 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
Jeff-Mfg-Purchase from Lower Neches Valley Authority (Sam Rayburn)	na	1	143,000
Lufk-Ray Sam Rayburn Infrastructure	56,000	1	28,000
ANR-Col - Lake Columbia	161,000	14	19,000
Shel-Ltk-Purchase from Sabine River Authority (Toledo Bend)	na	1	19,000
Nacw-Ltk-New Wells in Carrizo-Wilcox Aquifer	na	1	9,000
Jasp-Ltk-Purchase from Lower Neches Valley Authority (Sam Rayburn)	na	1	9,000
Port-Cons-City of Port Arthur - Advanced Conservation	56,000	1	8,000
Jeff-Bea-Advanced Conservation	181,000	1	7,000
Ancd-Vol-Volumetric Survey and Normal Pool Elevation Adjustment	24,000	1	6,000
Jeff-Sep-Purchase from Lower Neches Valley Authority (Sam Rayburn)	na	1	2,000
<i>Other recommended strategies</i>	<i>na</i>	<i>108</i>	<i>28,000</i>

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

Recommended water management strategy project	Online decade	Sponsor(s)	Capital Cost
LNVA-SRA-Purchase from Sabine River Authority (Toledo Bend)	2040	Lower Neches Valley Authority	\$529,606,000
UNM-LP-Run of River, Neches with Lake Palestine	2020	Upper Neches River Municipal Water Authority	\$518,977,000
ANRA-Col-Lake Columbia	2030	Angelina And Neches River Authority	\$402,862,000
Jeff-Mfg-Purchase From Lower Neches Valley Authority (Sam Rayburn)	2030	Manufacturing (Jefferson)	\$279,210,000
ANRA-WTP-ANRA Treatment Plant and Distribution System	2030	Angelina And Neches River Authority	\$228,001,000
Tylr-Pal-City of Tyler - Lake Palestine Expansion	2030	Tyler	\$111,190,000
Lufk-Ray-Conveyance from Sam Rayburn to Kurth Lake - Phase 1	2030	Lufkin	\$78,220,000
Lufk-Ray-Conveyance from Sam Rayburn to Kurth Lake - Phase 2	2040	Lufkin	\$78,199,000
Jeff-Bea-Advanced Conservation	2020	Beaumont	\$60,175,000
Wug-Cons-Municipal Conservation-Tyler	2020	Tyler	\$58,766,000
<i>Other recommended projects</i>	<i>various</i>	<i>49 various</i>	<i>\$765,226,000</i>
<b>Total capital cost</b>			<b>\$3,110,432,000</b>

**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	526	0	0	0	0	0
Livestock	8,285	0	0	0	0	0
Manufacturing	101,138	0	0	0	0	0
Mining	8,298	0	0	0	0	0
Municipal County-Other	0	0	0	0	0	0
Municipal Utility	302	0	0	0	0	0
Steam Electric Power	3,494	0	0	0	0	0
<b>Total unmet needs</b>	<b>122,043</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

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**TO:** Board Members

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

**FROM:** Lann Bookout, Planner, Regional Water Planning  
Sarah Backhouse, Manager, Regional Water Planning

**SUBJECT:** Approval of the 2021 Region K Regional Water Plan

### **ACTION REQUESTED**

Consider approval of the 2021 Regional Water Plan (RWP) for the Lower Colorado (Region K) 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:

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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.
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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 251,000 acre-feet per year in 2020 and 565,00 acre-feet per year in 2070.
2. The recommended water management strategies in the 2021 Region K RWP meets all identified needs in the plan except for approximately 81,000 acre-feet per year associated with irrigation, mining and steam-electric power uses in 2020 decreasing

to approximately 49,000 acre-feet per year associated with irrigation and steam-electric power uses in 2070. Irrigation needs were left unmet by the planning group due to water availability limitations and limited, economically feasible water supply options. Unmet mining needs are due to mining industry dewatering operations in Bastrop County. The steam-electric power unmet needs are not considered a true water shortage due to facility information determined to be incorrect late in the planning cycle and which will be corrected in the next planning cycle.

3. The total capital cost of the 162 recommended projects in the 2021 Region K RWP is approximately \$4.6 billion.
4. Conservation accounts for 36 percent of 2070 strategy volumes.
5. New major reservoirs account for 10.4 percent of 2070 strategy volumes; while aquifer storage and recovery and groundwater desalination accounts for 4 percent and 0.9 percent of 2070 strategy volumes, respectively.
6. The Region K RWPG formally adopted their final 2021 RWP on October 14, 2020.
7. The EA has reviewed the adopted 2021 Region K RWP and determined that the plan complies with statute and rules.
8. The EA has reviewed the 2021 Region K RWP for interregional conflicts and has found none.

**RECOMMENDATION**

The EA recommends approval of the 2021 Region K RWP.

Attachment: Data Summary of the 2021 Region K RWP

## Region K 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
	<b>Population</b>	<b>1,763,000</b>	<b>2,095,000</b>	<b>2,417,000</b>	<b>2,697,000</b>	<b>2,971,000</b>	<b>3,290,000</b>
<b>Existing supplies</b>	Surface water	740,000	740,000	740,000	739,000	740,000	741,000
	Groundwater	292,000	294,000	297,000	301,000	300,000	299,000
	Reuse	10,000	10,000	10,000	10,000	10,000	10,000
	<b>Total water supplies</b>	<b>1,042,000</b>	<b>1,044,000</b>	<b>1,047,000</b>	<b>1,050,000</b>	<b>1,050,000</b>	<b>1,050,000</b>
<b>Demands</b>	Municipal Utility	299,000	351,000	404,000	450,000	495,000	546,000
	Municipal County-other	17,000	17,000	18,000	20,000	21,000	23,000
	Manufacturing	20,000	22,000	22,000	22,000	22,000	22,000
	Mining	21,000	26,000	28,000	27,000	23,000	25,000
	Irrigation	582,000	568,000	553,000	539,000	525,000	512,000
	Steam-electric	166,000	166,000	166,000	166,000	166,000	166,000
	Livestock	12,000	12,000	12,000	12,000	12,000	12,000
	<b>Total water demand</b>	<b>1,117,000</b>	<b>1,163,000</b>	<b>1,204,000</b>	<b>1,237,000</b>	<b>1,265,000</b>	<b>1,308,000</b>
<b>Needs</b>	Municipal Utility	4,000	13,000	33,000	49,000	71,000	103,000
	Municipal County-other	1,000	1,000	1,000	1,000	1,000	2,000
	Manufacturing	0	<500	<500	<500	<500	<500
	Mining	3,000	7,000	8,000	8,000	5,000	7,000
	Irrigation	254,000	240,000	226,000	212,000	199,000	186,000
	Steam-electric	21,000	21,000	21,000	21,000	21,000	21,000
	<b>Total water needs</b>	<b>283,000</b>	<b>281,000</b>	<b>289,000</b>	<b>291,000</b>	<b>297,000</b>	<b>319,000</b>
<b>Strategy supplies</b>	Municipal Utility	46,000	101,000	171,000	215,000	263,000	340,000
	Municipal County-other	3,000	10,000	13,000	13,000	13,000	14,000
	Manufacturing	0	<500	<500	<500	<500	<500
	Mining	3,000	5,000	6,000	6,000	6,000	7,000
	Irrigation	180,000	156,000	159,000	158,000	169,000	179,000
	Steam-electric	19,000	25,000	25,000	25,000	25,000	25,000
	<b>Total strategy supplies</b>	<b>251,000</b>	<b>297,000</b>	<b>373,000</b>	<b>418,000</b>	<b>476,000</b>	<b>565,000</b>

\* 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
Irrigation Conservation	na	6	119,000
Drought Management	3,290,000	118	83,000
Austin - Conservation	1,702,000	1	41,000
Municipal Conservation	995,000	65	40,000
Austin Return Flows	na	5	32,000
Austin - Off-Channel Reservoir and Evaporation Suppression	1,702,000	1	26,000
Austin - Centralized Direct Non-Potable Reuse	1,702,000	2	25,000
LCRA - Import Return Flows from Williamson County	319,000	4	25,000
Expanded Use of Local Groundwater	556,000	22	24,000
Austin - Indirect Potable Reuse through Lady Bird Lake	1,702,000	1	20,000
<i>Other recommended strategies</i>	na	97	131,000

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

Recommended water management strategy project	Online decade	Sponsor(s)	Capital Cost
Austin Conservation	2020	Austin	\$719,616,000
LCRA - Excess Flows Permit Off-Channel Reservoir	2030	Lower Colorado River Authority	\$540,110,000
Austin - Aquifer Storage and Recovery	2040	Austin	\$370,527,000
LCRA- Mid-Basin Off-Channel Reservoir	2030	Lower Colorado River Authority	\$344,259,000
Austin - Off-Channel Reservoir and Evaporation Suppression	2070	Austin	\$334,642,000
Austin - Direct Reuse	2020	Austin	\$286,031,000
LCRA - Baylor Creek Reservoir	2040	Lower Colorado River Authority	\$219,883,000
New Surface Water Infrastructure - Bastrop Regional Project	2050	Bastrop; Aqua WSC; Bastrop County WCID 2	\$168,347,000
Austin - Brackish Groundwater Desalination	2070	Austin	\$167,689,000
LCRA - Aquifer Storage and Recovery	2040	Lower Colorado River Authority	\$146,592,000
<i>Other recommended projects</i>	<i>various</i>	<i>152 various</i>	<i>\$1,292,082,633</i>
<b>Total capital cost</b>			<b>\$4,589,778,633</b>

**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	75,896	84,490	70,054	62,648	53,500	44,455
Livestock	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0
Mining	449	3,947	4,557	3,220	0	0
Municipal County-Other	0	0	0	0	0	0
Municipal Utility	0	0	0	0	0	0
Steam Electric Power	4,971	4,971	4,971	4,971	4,971	4,971
<b>Total unmet needs</b>	<b>81,316</b>	<b>93,408</b>	<b>79,582</b>	<b>70,839</b>	<b>58,471</b>	<b>49,426</b>