Regional Water Planning Group - Area B

in cooperation with the Texas Water Development Board

June 3, 2024

Mr. Bryan McMath
Executive Administrator
Texas Water Development Board
1700 Congress Avenue
Austin, TX 78701

RE: Minor Amendment to the 2021 Region B Regional Water Plan

Dear Mr. McMath:

On April 12, 2024, the Texas Water Development Board (TWDB) determined that amending the Region B 2021 Regional Water Plan (RWP) to revise the infeasible water management strategy and project identified for the City of Bowie (Indirect Reuse) constitutes a minor amendment under 31 Texas Administrative Code (TAC) §357.51(c). Following this determination by the TWDB, the Regional Water Planning Group – Area B (RWPG-B) voted to officially adopt the minor amendment during a meeting on May 15, 2024.

A memo outlining the revisions to the 2021 Region B RWP included in the minor amendment is attached, along with the updated DB22 reports relevant to the amendment. The RWPG-B requests that the TWDB considers approving the minor amendment and amending the 2022 State Water Plan, as appropriate.

Should you have any questions regarding this request, please reach out to Mr. Jeremy Rice (Region B Lead Consultant) at jjr@freese.com or 918-238-1930.

Sincerely,

REGIONAL WATER PLANNING GROUP – AREA B

Kyle W. Miller
Chair

KWM:wc

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MINOR AMENDMENT TO 2021 REGION B REGIONAL WATER PLAN FOR INFEASIBLE STRATEGY

Prepared for:

Texas Water Development Board

On behalf of the Region B Water Planning Group

March 15, 2024

1.0 INTRODUCTION AND PLANNING GROUP ACTION

The Texas legislature passed a new requirement for the 2026 planning cycle that requires the Regional Water Planning Groups (RWPG) to review strategies and projects from the 2021 Regional Water Plan (RWP) that require construction or a permit for potential infeasibility. Infeasible Water Management Strategies (WMS)s are defined as "WMSs where proposed sponsors have not taken an affirmative vote or other action to make expenditures necessary to construct or file applications for permits required in connection with implementation of the WMS on a schedule in order for the WMS to be completed by the time the WMS is needed to address drought in the plan." Any strategy determined to be infeasible must either be removed from the 2021 plan, or have the online decade revised in the 2021 plan to make them feasible. All strategies identified by TWDB as potentially infeasible were reviewed in accordance with regional water planning guidelines and determined to be either feasible or infeasible.

One strategy, Indirect Reuse (also referred to as Wastewater Reuse in some parts of the 2021 RWP) for the City of Bowie, was determined to be infeasible at the current online decade of 2020, since no affirmative steps had been taken by the City of Bowie towards implementation. The methodology and results of the infeasibility analysis was presented to the Region B RWPG at several meetings, and opportunity for public comment was provided. At the February 7, 2024 meeting, the RWPG approved this request for a minor amendment to the 2021 Region B RWP to amend the online decade for the Indirect Reuse strategy for the City of Bowie. The following sections of this memo detail the requested changes to be made to the 2021 Region B RWP and document the associated administrative and public processes.

2.0 SUMMARY OF AMENDMENT AND INFEASIBLE WMS

The City of Bowie is a water user group (WUG) located in Montague County in the eastern portion of Region B. The City's current water supply is Lake Amon Carter. In the 2021 Region B RWP, Bowie was expected to have firm supply need beginning in 2040. To meet this projected need, the recommended strategies for Bowie from the 2021 RWP were Water Conservation and Indirect Reuse. Both strategies have online decades of 2020. Water Conservation was projected to provide an additional 35 ac-ft/yr in 2020 and 56 ac-ft/yr in 2070. Indirect Reuse was projected to provide an additional 550 ac-ft/yr from 2020 to 2070. This additional projected supply would cover Bowie's firm supply needs through 2070.

Following the infeasible strategy analysis required by TWDB, it was determined that the Indirect Reuse WMS for Bowie did not meet the minimum requirements to be considered a feasible WMS at its current online decade of 2020. The Region B consultant team reached out to the City of Bowie on behalf of the RWPG. After discussion

with the City of Bowie, it was determined that there had been discussions, but no affirmative actions taken towards project implementation. Therefore, Region B is submitting this minor amendment request to TWDB to change the online decade for Bowie's indirect reuse strategy and project from 2020 to 2030. The project components for the WMS, including the transmission pipeline and water treatment plant, will not be impacted by the minor amendment.

3.0 CONSISTENCY WITH 31 TAC §357.51(C)(2)

The request to change the online decade for the Bowie Indirect Reuse strategy in the 2021 Region B RWP was determined to be a minor amendment rather than a major amendment because it meets the following requirements of Title 31 Texas Administrative Code (TAC) §357.51(C)(2):

- *31 TAC§357.51(C)(2)(A) – "does not result in over-allocation of an existing or planned source of water"* The amendment only changes the online decade of a new water source for Bowie from 2020 to 2030, which does not result in over-allocation of any water source.

- *31 TAC§357.51(C)(2)(B) – "does not relate to a new reservoir"* The amendment related to an indirect reuse strategy and is not related to a new reservoir.

- *31 TAC§357.51(C)(2)(C) – "does not increase unmet needs or produce new unmet needs in the adopted RWP unless the increase in unmet needs or new unmet needs is the result of removing infeasible WMSs and/or WMSPs in accordance with subsection (g) of this section and Texas Water Code §16.053(h)(10)"* There is currently no unmet needs for Bowie in the 2021 Region B RWP until 2040. Therefore, changing the online decade from 2020 to 2030 does not increase or create new unmet needs for Bowie or any other WUG.

- *31 TAC§357.51(C)(2)(D) – "does not have a significant effect on instream flows, environmental flows or freshwater flows to bays and estuaries"* Changing the online decade of the WMS does not have a significant effect on instream flows, environmental flows or freshwater flows to bays and estuaries.

- *31 TAC§357.51(C)(2)(E) – "does not have a significant substantive impact on water planning or previously adopted management strategies"* Changing the online decade of the WMS does not modify or impact other recommended WMS or strategies or projects in the 2021 Region B RWP and do not have a significant substantive impact on the overall nature of the Plan or its ability to meet TWDB and statutory requirements.

- *31 TAC§357.51(C)(2)(F) – "does not delete or change any legal requirements of the plan."* The amendment does not delete or change any legal requirement of the plan.

4.0 CHANGES TO UNMET NEEDS

Bowie has a firm supply need shortage beginning in 2040 of 17 ac-ft/yr. This need can be met through water conservation which is projected to supply 55 ac-ft/yr in 2040. The first firm supply need for Bowie that requires additional supply from the Indirect Reuse WMS begins in 2050. Since this minor amendment request would change the online decade of 2020 to 2030, this would not result in any changes to unmet needs for Bowie or any WUG in the 2021 Region B RWP.

5.0 CHANGES TO 2021 RWP

The following sections outline the changes to the 2021 Region B RWP that will result from this minor amendment to update the online decade for the Bowie Indirect Reuse WMS from 2020 to 2030. Tables from the 2021 RWP that require changes are provided in this memo with the appropriate changes highlighted and the previous values stricken through, if applicable.

5.1 Executive Summary

Table ES-21 is revised to change the online decade from 2020 to 2030 for the Bowie Reuse strategy.

Table ES-21

Montague County Recommended Strategies Summary

Water User	Strategy Description	Max Supply (ac-ft/yr)	Max Cost/ 1,000 gal	Implement Decade
Bowie	Water Conservation	57	$1.24	2020
	Wastewater Reuse	550	$3.62	~~2020~~ 2030
County Other	Water Conservation	63	$1.24	2020
	Voluntary Transfer	23	$3.50	2020
Nocona Hills WSC	Water Conservation	6	$1.39	2020
Mining	Water Conservation	910	$7.67	2020
TOTAL		1,609		
Unmet Mining Need of 381 acre-feet per year in 2020.				
Unmet Safe Bowie Need of 90 acre-feet per year by 2070.				
ALTERNATE STRATEGIES – NONE IDENTIFIED				

5.2 Chapter 5 – Water Management Strategies

Several tables within Chapter 5 require revisions due to the change in online decade for the Bowie Reuse strategy. Table 5-54 is revised to change the available supply for the reuse strategy from 555 ac-ft/yr to 0 ac-ft/yr, and the total supply from 585 ac-ft/yr to 35 ac-ft/yr. Table 5-55 is revised to change the annual cost for the reuse strategy from $648,000 to $0 and the total annual cost from $662,142 to $14,142. Table 5-61 is revised to change the online decade from 2020 to 2030 for the Bowie Reuse strategy.

Table 5-1 Bowie Need and Recommended Strategies

	Values in Acre-Feet per Year					
	2020	**2030**	**2040**	**2050**	**2060**	**2070**
Water Needs	-	-	17	110	208	305
Safe Supply Shortage	40	138	216	310	410	509
	Supply in Acre-Feet per Year					
Recommended Strategies	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Water Conservation	35	55	55	57	56	56
Wastewater Reuse	~~550~~ 0	550	550	550	550	550
Total	~~585~~ 35	605	605	607	606	606

Table 5-2 Bowie Capital and Annual Cost

Recommended Strategies	Capital Cost	Annual Cost					
		2020	**2030**	**2040**	**2050**	**2060**	**2070**
Conservation	$0	$14,142	$22,197	$21,964	$22,933	$22,359	$22,474
Wastewater Reuse	$5,123,000	~~$648,000~~ $0	$648,000	$288,000	$288,000	$288,000	$288,000
Total	$5,123,000	~~$662,142~~ $14,142	$670,197	$309,964	$310,933	$310,359	$310,474

Table 5-3 Montague County Recommended Strategies Summary

Water User	Strategy Description	Max Supply (ac-ft/yr)	Max Cost/ 1,000 gal	Implement Decade
Bowie	Water Conservation	57	$1.24	2020
	Wastewater Reuse	550	$3.62	~~2020~~ 2030
County Other	Water Conservation	63	$1.24	2020
	Voluntary Transfer	23	$3.50	2020
Nocona Hills WSC	Water Conservation	6	$1.39	2020
Mining	Water Conservation	910	$7.67	2020
TOTAL		1,609		

Unmet Mining Need of 381 acre-feet per year in 2020.
Unmet Safe Bowie Need of 90 acre-feet per year by2070.
ALTERNATE STRATEGIES – NONE IDENTIFIED

5.3 Attachment 5-3 – Summary of Recommended Strategies

Attachment 5-3 is revised to change the expected online date from 2020 to 2030, and the total yield in 2020 from 550 ac-ft/yr to 0 ac-ft/yr. The portion of Attachment 5-3 with the revisions is provided below.

Entity	County Used	Expected Online Date	Capital Cost	First Decade Unit Cost ($/ac-ft/yr)	Total Yield						Last Decade Unit Cost ($/ac-ft/yr)
					2020	2030	2040	2050	2060	2070	
Reuse											
Bowie	Montague	~~2020~~ 2030	$5,123,000	$1,178	~~550~~ 0	550	550	550	550	550	$524

5.4 Appendix G – DB22 Reports

Revisions are required to Appendix G of the 2021 RWP which includes the DB22 reports. The report titled "Recommended Water User Group (WUG) Water Management Strategies (WMS)" should be revised to update the "UNIT COST 2020" from $1,178 to "N/A" and the "WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)" from 550 to 0. Since the DB22 reports were generated from the TWDB online database and then downloaded to include in the 2021 RWP, the revisions will need to be updated within the RWP22 online database and the appropriate DB22 reports must be downloaded and included in the amended 2021 RWP.

6.0 RWP DATABASE REVISIONS

Any information related to the Indirect Reuse WMS for Bowie in the RWP database, also know as DB22, should be revised as necessary to reflect the updated online decade of 2030. This includes online decade, supply availability prior to 2030, and cost information prior to 2030. Included along with this memo as part of the minor amendment materials is a workbook named "20240223_2022SWPInfeasibleWMS_SWPUpdates_RegB.xlsx" which highlights changes to be made to the 2021 RWP WMS database associated with this minor amendment.

Region B Recommended Water User Group (WUG) Water Management Strategies (WMS)

						WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	2020	2030	2040	2050	2060	2070
Archer City	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	283	283	280	277
Archer City	B	MUNICIPAL CONSERVATION - ARCHER CITY	DEMAND REDUCTION	$438	$407	3	6	9	12	12	12
Archer County MUD 1	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	71	71	70	71
Archer County MUD 1	B	MUNICIPAL CONSERVATION - ARCHER COUNTY MUD 1	DEMAND REDUCTION	$368	$403	2	4	5	7	7	7
Archer County MUD 1	B	MUNICIPAL CONSERVATION - WICHITA FALLS	B | Red Indirect Reuse	$1140	N/A	61	0	0	0	0	0
Archer County MUD 1	B	WICHITA FALLS VOLUNTARY TRANSFER (ARCHER COUNTY MUD 1)	B | Little Wichita River Lake/Reservoir System	N/A	N/A	0	57	0	0	0	0
Baylor SUD*	B	ADDITIONAL GROUNDWATER SUPPLY - BAYLOR SUD	B | Seymour Aquifer | Baylor COUNTY	$355	$32	26	26	25	28	29	31
Baylor SUD*	B	MUNICIPAL CONSERVATION - BAYLOR SUD	DEMAND REDUCTION	$430	$389	2	5	7	9	11	14
Baylor SUD*	G	MUNICIPAL WATER CONSERVATION - BAYLOR SUD	DEMAND REDUCTION	N/A	$560	0	19	40	60	69	67
Bowie	B	INDIRECT REUSE - BOWIE	B | Trinity Indirect Reuse	N/A	$524	0	550	550	550	550	550
Bowie	B	MUNICIPAL CONSERVATION - BOWIE	DEMAND REDUCTION	$404	$401	35	55	55	57	56	56
Burkburnett	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	1,579	1,574	1,560	1,546
County-Other, Archer	B	LAKESIDE CITY VOLUNTARY TRANSFER	B | Little Wichita River Lake/Reservoir System	$1140	$1140	37	17	9	8	6	6
County-Other, Archer	B	MUNICIPAL CONSERVATION - ARCHER COUNTY OTHER	DEMAND REDUCTION	$483	$415	1	2	4	4	5	5
County-Other, Clay	B	MUNICIPAL CONSERVATION - CLAY COUNTY OTHER	DEMAND REDUCTION	$387	$405	7	12	16	22	21	21
County-Other, Hardeman	A	DEVELOP OGALLALA AQUIFER IN DONLEY COUNTY - GREENBELT MIWA	A | Ogallala Aquifer | Donley COUNTY	N/A	$743	0	0	0	0	3	7
County-Other, Montague	B	MUNICIPAL CONSERVATION - MONTAGUE COUNTY OTHER	DEMAND REDUCTION	$395	$402	11	25	37	44	63	63
County-Other, Wichita	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	236	235	233	231
County-Other, Young*	B	MUNICIPAL CONSERVATION - YOUNG COUNTY OTHER	DEMAND REDUCTION	N/A	$425	0	1	2	4	4	4
Crowell	A	DEVELOP OGALLALA AQUIFER IN DONLEY COUNTY - GREENBELT MIWA	A | Ogallala Aquifer | Donley COUNTY	N/A	$743	0	0	0	0	13	24
Crowell	B	MUNICIPAL CONSERVATION - CROWELL	DEMAND REDUCTION	$419	$419	1	3	3	4	5	6
Dean Dale SUD	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	390	389	385	382

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

Region B Recommended Water User Group (WUG) Water Management Strategies (WMS)

						WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	2020	2030	2040	2050	2060	2070
Electra	B	IOWA PARK VOLUNTARY TRANSFER	B | Little Wichita River Lake/Reservoir System	$1629	N/A	124	147	0	0	0	0
Electra	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	687	681	672	651
Electra	B	MUNICIPAL CONSERVATION - ELECTRA	DEMAND REDUCTION	$395	$399	9	17	29	38	47	48
Harrold WSC	B	IOWA PARK VOLUNTARY TRANSFER	B | Little Wichita River Lake/Reservoir System	$1629	N/A	15	18	0	0	0	0
Harrold WSC	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	22	26	29	43
Harrold WSC	B	MUNICIPAL CONSERVATION - HARROLD WSC	DEMAND REDUCTION	$451	$400	1	2	3	4	6	6
Holliday	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	221	218	215	213
Holliday	B	MUNICIPAL CONSERVATION - HOLLIDAY	DEMAND REDUCTION	$338	$395	3	7	10	14	13	13
Iowa Park	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	1,182	1,178	1,167	1,157
Iowa Park	B	MUNICIPAL CONSERVATION - IOWA PARK	DEMAND REDUCTION	$413	$403	11	25	30	41	47	47
Irrigation, Archer	B	IRRIGATION CONSERVATION - ARCHER	DEMAND REDUCTION	N/A	$10	0	6	13	19	25	31
Irrigation, Wichita	B	CHLORIDE CONTROL PROJECT - RRA	DEMAND REDUCTION	$987	$227	5,800	5,220	4,640	4,060	3,480	2,900
Irrigation, Wichita	B	IRRIGATION CONSERVATION - WCWID NO. 2	DEMAND REDUCTION	$56	$56	830	2,292	3,656	7,988	10,026	12,850
Irrigation, Wichita	B	IRRIGATION CONSERVATION - WICHITA	DEMAND REDUCTION	N/A	$10	0	196	392	587	783	979
Irrigation, Young*	G	IRRIGATION WATER CONSERVATION	DEMAND REDUCTION	N/A	N/A	0	0	0	0	0	0
Lakeside City	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	151	151	149	148
Lakeside City	B	MUNICIPAL CONSERVATION - LAKESIDE CITY	DEMAND REDUCTION	$460	$392	1	2	4	5	6	6
Manufacturing, Hardeman	A	DEVELOP OGALLALA AQUIFER IN DONLEY COUNTY - GREENBELT MIWA	A | Ogallala Aquifer | Donley COUNTY	N/A	$743	0	0	0	0	17	36
Manufacturing, Wichita	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	557	555	550	545
Manufacturing, Wilbarger	B	ADDITIONAL GROUNDWATER SUPPLY - CITY OF VERNON	B | Seymour Aquifer | Wilbarger COUNTY	$400	$270	192	210	210	210	210	223
Mining, Archer	B	MINING CONSERVATION - ARCHER	DEMAND REDUCTION	$2800	$2800	101	121	86	70	53	53
Mining, Baylor	B	MINING CONSERVATION - BAYLOR	DEMAND REDUCTION	$2800	$2800	4	4	3	3	3	3
Mining, Clay	B	MINING CONSERVATION - CLAY	DEMAND REDUCTION	$2800	$2800	153	197	146	118	89	89
Mining, Cottle	B	MINING CONSERVATION - COTTLE	DEMAND REDUCTION	$2800	$2800	10	10	10	9	8	8
Mining, Foard	B	MINING CONSERVATION - FOARD	DEMAND REDUCTION	$2800	$2800	3	3	3	3	3	3
Mining, Hardeman	B	MINING CONSERVATION - HARDEMAN	DEMAND REDUCTION	$2800	$2800	4	4	5	5	5	5

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

Region B Recommended Water User Group (WUG) Water Management Strategies (WMS)

						WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	2020	2030	2040	2050	2060	2070
Mining, King	B	MINING CONSERVATION - KING	DEMAND REDUCTION	$2800	$2800	95	83	72	63	55	55
Mining, Montague	B	MINING CONSERVATION - MONTAGUE	DEMAND REDUCTION	$2800	$2800	910	644	402	173	194	194
Mining, Wichita	B	MINING CONSERVATION - WICHITA	DEMAND REDUCTION	$2800	$2800	16	15	14	12	11	11
Mining, Wilbarger	B	MINING CONSERVATION - WILBARGER	DEMAND REDUCTION	$2800	$2800	5	5	5	5	5	5
Nocona Hills WSC	B	MUNICIPAL CONSERVATION - NOCONA HILLS WSC	DEMAND REDUCTION	$453	$373	1	2	3	3	5	6
Olney	B	MUNICIPAL CONSERVATION - OLNEY	DEMAND REDUCTION	$400	$399	122	152	142	140	141	145
Olney	B	WICHITA FALLS VOLUNTARY TRANSFER (OLNEY)	B | Little Wichita River Lake/Reservoir System	N/A	$815	0	0	0	4	60	150
Quanah	A	DEVELOP OGALLALA AQUIFER IN DONLEY COUNTY - GREENBELT MIWA	A | Ogallala Aquifer | Donley COUNTY	N/A	$743	0	0	0	0	36	76
Quanah	B	MUNICIPAL CONSERVATION - QUANNAH	DEMAND REDUCTION	$396	$394	8	12	20	20	20	20
Red River Authority of Texas*	A	DEVELOP OGALLALA AQUIFER IN DONLEY COUNTY - GREENBELT MIWA	A | Ogallala Aquifer | Donley COUNTY	N/A	$743	0	0	0	9	56	106
Red River Authority of Texas*	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	350	349	346	343
Red River Authority of Texas*	B	MUNICIPAL CONSERVATION - RED RIVER AUTHORITY	DEMAND REDUCTION	N/A	$124	0	92	95	98	102	105
Red River Authority of Texas*	B	MUNICIPAL CONSERVATION - WICHITA FALLS	B | Red Indirect Reuse	N/A	$1656	0	100	100	100	100	100
Scotland	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	170	170	168	167
Scotland	B	MUNICIPAL CONSERVATION - SCOTLAND	DEMAND REDUCTION	$464	$409	2	6	9	12	12	12
Scotland	B	MUNICIPAL CONSERVATION - WICHITA FALLS	B | Red Indirect Reuse	N/A	N/A	0	37	0	0	0	0
Sheppard Air Force Base	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	784	773	764	757
Sheppard Air Force Base	B	MUNICIPAL CONSERVATION - SHEPPARD AIR FORCE BASE	DEMAND REDUCTION	$387	$401	11	17	29	39	44	44
Steam-Electric Power, Wichita	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$482	0	0	26	26	26	26
Steam-Electric Power, Wichita	B	STEAM-ELECTRIC POWER CONSERVATION	DEMAND REDUCTION	$3235	$3235	3	4	5	6	7	10
Steam-Electric Power, Wilbarger	B	ALTERNATIVE COOLING TECHNOLOGY - STEAM-ELECTRIC POWER WILBARGER COUNTY	DEMAND REDUCTION	N/A	$160	0	2,302	2,903	3,504	4,105	4,706
Vernon	B	ADDITIONAL GROUNDWATER SUPPLY - CITY OF VERNON	B | Seymour Aquifer | Wilbarger COUNTY	$400	$270	408	390	390	390	390	377

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

Region B Recommended Water User Group (WUG) Water Management Strategies (WMS)

						WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
WUG ENTITY NAME	**WMS SPONSOR REGION**	**WMS NAME**	**SOURCE NAME**	**UNIT COST 2020**	**UNIT COST 2070**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Vernon	B	MUNICIPAL CONSERVATION - VERNON	DEMAND REDUCTION	N/A	$402	0	0	24	49	76	102
Vernon	B	WATER CONSERVATION (REPLACE TRANSMISSION PIPELINE) - VERNON	DEMAND REDUCTION	N/A	$185	0	313	313	313	313	313
Wichita Falls	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	14,389	14,426	14,514	14,591
Wichita Falls	B	MUNICIPAL CONSERVATION - WICHITA FALLS	DEMAND REDUCTION	$399	$400	100	185	412	586	771	784
Wichita Valley WSC	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	1,524	1,520	1,505	1,492
Windthorst WSC	B	LAKE RINGGOLD	B | Ringgold Lake/Reservoir	N/A	$384	0	0	355	353	350	347
Windthorst WSC	B	MUNICIPAL CONSERVATION - WICHITA FALLS	B | Red Indirect Reuse	$1140	N/A	8	18	0	0	0	0
Windthorst WSC	B	MUNICIPAL CONSERVATION - WINDTHORST WSC	DEMAND REDUCTION	$382	$404	5	12	17	22	22	22

					REGION B RECOMMENDED WMS SUPPLY TOTAL	9,141	13,652	37,934	42,509	45,183	48,503

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Region B Recommended Projects Associated with Water Management Strategies

SPONSOR NAME	SPONSOR IS WWP?	ONLINE DECADE	PROJECT NAME	PROJECT DESCRIPTION	CAPITAL COST
Baylor SUD	NO	2020	ADDITIONAL GROUNDWATER SUPPLY - BAYLOR COUNTY SUD	SINGLE WELL	$138,000
Bowie	NO	2030	INDIRECT REUSE - BOWIE	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT	$5,123,000
Mining, Archer	NO	2020	MINING CONSERVATION - ARCHER	CONSERVATION - MINING	$1,137,000
Mining, Baylor	NO	2020	MINING CONSERVATION - BAYLOR	CONSERVATION - MINING	$38,000
Mining, Clay	NO	2020	MINING CONSERVATION - CLAY	CONSERVATION - MINING	$1,852,000
Mining, Cottle	NO	2020	MINING CONSERVATION - COTTLE	CONSERVATION - MINING	$94,000
Mining, Foard	NO	2020	MINING CONSERVATION - FOARD	CONSERVATION - MINING	$28,000
Mining, Hardeman	NO	2020	MINING CONSERVATION - HARDEMAN	CONSERVATION - MINING	$47,000
Mining, King	NO	2020	MINING CONSERVATION - KING	CONSERVATION - MINING	$893,000
Mining, Montague	NO	2020	MINING CONSERVATION - MONTAGUE	CONSERVATION - MINING	$8,554,000
Mining, Wichita	NO	2020	MINING CONSERVATION - WICHITA	CONSERVATION - MINING	$150,000
Mining, Wilbarger	NO	2020	MINING CONSERVATION - WILBARGER	CONSERVATION - MINING	$47,000
Red River Authority of Texas	NO	2030	AUTOMATED METER INFRASTRUCTURE (AMI) - RED RIVER AUTHORITY	DATA GATHERING/MONITORING TECHNOLOGY	$1,430,000
Red River Authority of Texas	NO	2020	CHLORIDE CONTROL PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; PUMP STATION	$69,430,000
Red River Authority of Texas	NO	2020	TREATED WATER LINE - RRA CLAY COUNTY	CONVEYANCE/TRANSMISSION PIPELINE	$3,546,000
Steam-Electric Power, Wilbarger	NO	2020	ALTERNATIVE COOLING TECHNOLOGY - STEAM-ELECTRIC POWER WILBARGER COUNTY	CONSERVATION - INDUSTRIAL	$101,500,000
Vernon	YES	2020	ADDITIONAL SEYMOUR AQUIFER - VERNON	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD	$1,115,000
Vernon	YES	2020	WATER CONSERVATION (REPLACE TRANSMISSION PIPELINE) - VERNON	WATER LOSS CONTROL	$8,820,000
Wichita Falls	YES	2040	LAKE RINGGOLD	CONVEYANCE/TRANSMISSION PIPELINE; RESERVOIR CONSTRUCTION	$442,867,000
Wichita WCID 2	YES	2020	WCWID 2 CANAL CONVERSION TO PIPELINE	CONVEYANCE/TRANSMISSION PIPELINE	$9,713,000

REGION B RECOMMENDED CAPITAL COST TOTAL	**$656,522,000**

Region B Water User Group (WUG) Management Supply Factor

WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. To calculate the Management Supply Factor for each WUG as a whole, not split by region-county-basin, the combined total of existing and future supply is divided by the total projected demand. If a WUG is split by more than one planning region, the whole WUG's management supply factor will show up in each of its planning region's management supply factor reports.

	WUG MANAGEMENT SUPPLY FACTOR					
WUG NAME	2020	2030	2040	2050	2060	2070
Archer City	1.1	1.2	2.3	2.3	2.3	2.1
Archer County MUD 1	1.0	1.0	1.1	1.1	1.1	1.0
Baylor SUD*	1.2	1.3	1.4	1.5	1.5	1.5
Bowie	1.2	1.7	1.6	1.5	1.4	1.3
Burkburnett	2.0	2.0	3.0	3.0	2.9	2.7
County-Other, Archer	1.0	1.0	1.0	1.0	1.0	1.0
County-Other, Baylor	1.6	1.9	2.1	2.3	2.3	2.5
County-Other, Clay	1.0	1.0	1.1	1.1	1.1	1.1
County-Other, Cottle	4.8	4.9	5.0	5.0	5.0	5.0
County-Other, Foard	2.9	2.5	2.5	2.5	2.5	2.5
County-Other, Hardeman	1.4	1.4	1.5	1.5	1.6	1.7
County-Other, King	1.9	1.7	1.7	1.7	1.7	1.7
County-Other, Montague	1.2	1.2	1.2	1.2	1.2	1.2
County-Other, Wichita	13.8	7.4	8.0	6.7	5.7	4.7
County-Other, Wilbarger	1.3	1.3	1.4	1.4	1.4	1.5
County-Other, Young*	1.3	1.2	1.2	1.1	1.1	1.0
Crowell	1.2	1.2	1.2	1.0	1.0	1.0
Dean Dale SUD	2.0	1.9	3.6	3.6	3.5	3.2
Electra	1.0	1.0	1.6	1.5	1.5	1.3
Harrold WSC	1.0	1.0	1.0	1.0	1.0	1.0
Henrietta	1.6	1.6	1.7	1.7	1.7	1.7
Holliday	1.1	1.0	1.8	1.8	1.8	1.6
Iowa Park	1.2	1.1	2.6	2.6	2.5	2.3
Irrigation, Archer	0.6	0.6	0.5	0.5	0.5	0.4
Irrigation, Baylor	1.0	1.0	1.0	1.0	1.0	1.0
Irrigation, Clay	1.0	1.0	1.0	1.0	1.0	1.0
Irrigation, Cottle	1.0	1.0	1.0	1.0	1.0	1.0
Irrigation, Foard	1.0	1.0	1.0	1.0	1.0	1.0
Irrigation, Hardeman	1.0	1.0	1.0	1.0	1.0	1.0
Irrigation, Montague	1.5	1.5	1.5	1.5	1.5	1.5
Irrigation, Wichita	0.6	0.6	0.6	0.7	0.7	0.7
Irrigation, Wilbarger	1.0	1.0	1.0	1.0	1.0	1.0
Irrigation, Young*	1.0	1.0	1.1	1.1	1.1	1.1
Lakeside City	1.1	1.3	2.6	2.6	2.6	2.4
Livestock, Archer	1.1	1.1	1.1	1.1	1.1	1.1
Livestock, Baylor	1.0	1.0	1.0	1.0	1.0	1.0
Livestock, Clay	1.0	1.0	1.0	1.0	1.0	1.0
Livestock, Cottle	1.0	1.0	1.0	1.0	1.0	1.0
Livestock, Foard	1.0	1.0	1.0	1.0	1.0	1.0
Livestock, Hardeman	1.0	1.0	1.0	1.0	1.0	1.0
Livestock, King	1.0	1.0	1.0	1.0	1.0	1.0
Livestock, Montague	1.0	1.0	1.0	1.0	1.0	1.0
Livestock, Wichita	1.0	1.0	1.0	1.0	1.0	1.0
Livestock, Wilbarger	1.0	1.0	1.0	1.0	1.0	1.0

*A single asterisk next to a WUG's name denotes that the WUG is split by more than one planning region.

Region B Water User Group (WUG) Management Supply Factor

	WUG MANAGEMENT SUPPLY FACTOR					
WUG NAME	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Livestock, Young*	1.0	1.0	1.0	1.0	1.0	1.0
Manufacturing, Archer	1.0	1.0	1.0	1.0	1.0	1.0
Manufacturing, Hardeman	1.2	1.1	1.1	1.0	1.0	1.0
Manufacturing, Montague	1.0	1.0	1.0	1.0	1.0	1.0
Manufacturing, Wichita	1.1	1.1	1.6	1.5	1.5	1.4
Manufacturing, Wilbarger	1.2	1.2	1.2	1.2	1.2	1.2
Mining, Archer	0.4	0.4	0.5	0.5	0.6	0.6
Mining, Baylor	1.7	1.7	1.8	1.8	1.8	1.8
Mining, Clay	1.3	1.3	1.3	1.3	1.4	1.4
Mining, Cottle	1.2	1.2	1.3	1.3	1.3	1.3
Mining, Foard	1.3	1.3	1.3	1.3	1.3	1.3
Mining, Hardeman	1.4	1.4	1.3	1.3	1.3	1.3
Mining, King	1.3	1.3	1.2	1.3	1.3	1.3
Mining, Montague	0.9	1.2	1.1	1.3	1.3	1.3
Mining, Wichita	1.3	1.2	1.3	1.2	1.3	1.3
Mining, Wilbarger	2.3	2.3	2.4	2.4	2.5	2.5
Nocona	1.5	1.5	1.5	1.5	1.5	1.4
Nocona Hills WSC	1.1	1.1	1.1	1.1	1.1	1.1
Olney	1.5	1.6	1.5	1.4	1.4	1.4
Paducah	1.7	1.7	1.8	1.8	1.8	1.8
Quanah	1.2	1.2	1.3	1.1	1.1	1.1
Red River Authority of Texas*	1.2	1.3	1.4	1.3	1.3	1.3
Saint Jo	1.4	1.4	1.4	1.4	1.3	1.3
Scotland	1.1	1.0	1.6	1.5	1.5	1.4
Seymour	1.4	1.4	1.4	1.4	1.4	1.4
Sheppard Air Force Base	1.1	1.0	1.8	1.8	1.8	1.6
Steam-Electric Power, Wichita	1.1	1.1	1.9	2.0	1.9	1.9
Steam-Electric Power, Wilbarger	0.8	1.0	1.0	1.0	1.0	1.0
Vernon	1.4	1.5	1.5	1.4	1.4	1.4
Wichita Falls	1.1	1.0	1.8	1.8	1.7	1.6
Wichita Valley WSC	3.1	3.0	5.6	5.5	5.3	4.9
Windthorst WSC	1.0	1.0	1.7	1.7	1.7	1.6

*A single asterisk next to a WUG's name denotes that the WUG is split by more than one planning region.

Region B Water User Group (WUG) Strategy Supplies by Water Management Strategy (WMS) Type

WMS TYPE *	STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
Agricultural conservation	6,630	7,714	8,701	12,654	14,314	16,760
Aquifer storage and recovery	0	0	0	0	0	0
Conjunctive use	0	0	0	0	0	0
Direct potable reuse	0	0	0	0	0	0
Drought management	0	0	0	0	0	0
Groundwater desalination	0	0	0	0	0	0
Groundwater wells and other	626	626	625	637	754	880
Indirect reuse	69	705	650	650	650	650
Industrial conservation	1,304	3,392	3,654	3,971	4,538	5,142
Municipal conservation	336	976	1,318	1,607	1,878	1,928
New major reservoir	0	0	22,977	22,978	22,983	22,987
Other direct reuse	0	0	0	0	0	0
Other strategies	0	0	0	0	0	0
Other surface water	176	239	9	12	66	156
Seawater desalination	0	0	0	0	0	0
TOTAL STRATEGY SUPPLIES	**9,141**	**13,652**	**37,934**	**42,509**	**45,183**	**48,503**

* WMS type descriptions can be found on the interactive state water plan website at http://texasstatewaterplan.org/ using the 'View data for' drop-down menus to navigate to a specific WMS Type page. The data used to create each WMS type value is available in Appendix 3 of the Guidelines for Regional Water Planning Data Deliverable (Exhibit D) document at http://www.twdb.texas.gov/waterplanning/rwp/planningdocu/2021/doc/current_docs/contract_docs/ExhibitD.pdf.

Region B Water User Group (WUG)
Recommended Water Management Strategy (WMS) Supplies by Source Type

SOURCE SUBTYPE*	STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
Aquifer Storage and Recovery	0	0	0	0	0	0
Groundwater	626	626	625	637	754	880
Groundwater TOTAL STRATEGY SUPPLIES	**626**	**626**	**625**	**637**	**754**	**880**
Direct Non-Potable Reuse	0	0	0	0	0	0
Direct Potable Reuse	0	0	0	0	0	0
Indirect Non-Potable Reuse	0	0	0	0	0	0
Indirect Potable Reuse	69	705	650	650	650	650
Reuse TOTAL STRATEGY SUPPLIES	**69**	**705**	**650**	**650**	**650**	**650**
Atmosphere	0	0	0	0	0	0
Gulf of Mexico	0	0	0	0	0	0
Livestock Local Supply	0	0	0	0	0	0
Other Local Supply	0	0	0	0	0	0
Rainwater Harvesting	0	0	0	0	0	0
Reservoir	0	0	22,977	22,978	22,983	22,987
Reservoir System	176	239	9	12	66	156
Run-of-River	0	0	0	0	0	0
Surface Water TOTAL STRATEGY SUPPLIES	**176**	**239**	**22,986**	**22,990**	**23,049**	**23,143**
REGION B TOTAL STRATEGY SUPPLIES	**871**	**1,570**	**24,261**	**24,277**	**24,453**	**24,673**

* A full list of source subtype definitions can be found in section 3 of the Guidelines for Regional Water Planning Data Deliverable (Exhibit D) document at http://www.twdb.texas.gov/waterplanning/rwp/planningdocu/2021/doc/current_docs/contract_docs/ExhibitD.pdf.