

# Texas Water Development Board

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

**TO:** Board Members

**THROUGH:** Kevin Patteson, Executive Administrator  
Les Trobman, General Counsel  
Jeff Walker, Deputy Executive Administrator, Water Supply & Infrastructure

**FROM:** Matt Nelson, Director, Water Use Projections & Planning

**DATE:** June 12, 2015

**SUBJECT:** Amending the 2012 State Water Plan to incorporate amendments to the 2011 Region C Regional Water Plan relating to municipal conservation and the 2011 Region L Regional Water Plan relating to GBRA's Lower Basin Storage Project.

## **ACTION REQUESTED**

Consider public comments received at a public hearing held on June 29, 2015 and, if appropriate, amend the 2012 State Water Plan, in accordance with 31 TAC §357.50(k) and §358.4(a).

## **BACKGROUND**

At their May 19, 2015 meeting, Board members of the Texas Water Development Board (TWDB) approved amendments to the 2011 Region C Regional Water Plan (Attachment 1).

The Region C minor amendments revised recommended water management strategies (WMS) for municipal conservation for the Cities of Bedford and Fort Worth. Project details and capital costs were added to the water loss components of the previously recommended WMS. The pipeline repair/replacement and metering upgrades for the City of Bedford will provide 1,687 acre-fee per year in 2060 at a capital cost of \$77,308,705. The metering upgrade project for the City of Fort Worth will provide 29,345 acre-feet per year in 2060 at a capital cost of \$65,282,908.

The Region L alternative WMS substitution replaces a previously recommended 100-acre site for the GBRA Lower Basin Storage Project with a 500-acre site that was fully evaluated in the 2011 Region L Regional Water Plan but classified as an alternative strategy. Alternative WMS are fully evaluated for inclusion in regional water plans and, with Executive Administrator approval, may be substituted for a WMS that is no longer recommended. The Executive Administrator approved the substitution under 31 TAC §357.51(e) and documented this in a letter to the

Our Mission : Board Members  
: Bech Bruun, Chairman | Carlos Rubinstein, Member | Kathleen Jackson, Member  
: Kevin Patteson, Executive Administrator  
To provide leadership, information, education, and  
support for planning, financial assistance, and  
outreach for the conservation and responsible  
development of water for Texas

Planning Group dated November 3, 2014 (Attachment 2). The Region L Planning Group adopted the substitution at their April 2, 2015 meeting. The new 500-acre recommended GBRA Lower Basin Storage Project will provide 57,674 acre-feet per year beginning in the 2020 decade at a capital cost of \$77,876,000.

### **KEY ISSUES**

1. The amendment to the 2012 State Water Plan being recommended is to incorporate the amendments to the 2011 Region C Regional Water Plan that were approved by the Board on May 19, 2015 and the strategy substitution in the 2011 Region L Regional Water Plan approved by the Executive Administrator on November 3, 2014. The changes to the 2012 State Water Plan are summarized in Attachment 3.
2. A public hearing on amending the 2012 State Water Plan, as required by 31 TAC §358.4(a), is to be held on June 29, 2015.
3. Comments received will be presented to the Board for consideration of the potential amendment to the State Water Plan.
4. If approved, this fourth amendment to the 2012 State Water Plan will be incorporated into the 2012 State Water Plan as Amendment No. 4 as shown in Attachment 3.

### **RECOMMENDATION**

The Executive Administrator recommends approval of this item.

This recommendation has been reviewed by legal counsel and complies with applicable statutes and TWDB rules.

---

Les Trobman, General Counsel

#### Attachments:

1. May 19, 2015 Board Item regarding approval of a minor amendment to the 2011 Region C Regional Water Plan
2. November 3, 2014 Executive Administrator substitution approval response letter
3. Water for Texas 2012: Amendment #4

# Texas Water Development Board



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

**TO:** Board Members

**THROUGH:** Kevin Patteson, Executive Administrator  
Les Trobman, General Counsel  
Jeff Walker, Deputy Executive Administrator, Water Supply & Infrastructure

**FROM:** Temple McKinnon, Manager, Regional Water Planning

**DATE:** May 6, 2015

**SUBJECT:** Minor Amendment to the 2011 Region C Regional Water Plan, relating to the City of Bedford and City of Fort Worth.

**ACTION REQUESTED**

Approve the adopted minor amendment to the 2011 Region C Regional Water Plan; and, authorize the Executive Administrator (EA) to develop the corresponding amendment to the 2012 State Water Plan, with associated public hearing, as appropriate per 31 TAC §357.51(f).

**BACKGROUND**

At the January 26, 2015 meeting of the Region C Regional Water Planning Group (Group), the Group approved requesting a minor amendment determination from the EA for a revision to the City of Bedford’s recommended municipal conservation water management strategy (WMS) by adding additional project detail and capital cost. This action was documented in a letter dated March 6, 2015.

The City of Bedford’s revisions to their recommended WMS include the project details and capital costs to the water loss component of the WMS. The pipeline repair/replacement and metering upgrade project to address system water losses has a firm yield of 1,687 acre-feet per year and a capital cost of \$77,308,705.

At their March 2, 2015 meeting, the Group approved requesting a minor amendment determination from the EA for a revision to the City of Fort Worth’s recommended municipal conservation WMS by adding additional project detail and capital cost. This action was documented in a letter dated March 11, 2015.

The City of Fort Worth’s revisions to their recommended WMS include the project details and capital costs to the water loss component of the WMS. The metering upgrade project to address system water losses has a firm yield of 29,345 acre-feet per year and a capital cost of \$65,282,908.

Our Mission : To provide leadership, information, education, and support for planning, financial assistance, and outreach for the conservation and responsible development of water for Texas	: Board Members : Carlos Rubinstein, Chairman   Bech Bruun, Member   Kathleen Jackson, Member : : : Kevin Patteson, Executive Administrator
--	---

The EA made determinations (Attachment A) that revising the recommended municipal conservation WMS for the City of Bedford and the City of Fort Worth constitutes a minor amendment under 31 TAC §357.51(c), based on the amendment having met the following criteria:

1. Does not result in over-allocation of an existing or planned source of water.
2. Does not relate to a new reservoir.
3. Does not have a significant effect on instream flows, environmental flows or freshwater flows to bays and estuaries.
4. Does not have a significant substantive impact on water planning or previously adopted management strategies. This amendment simply reflects strategy details and costs not previously included in the plan.
5. Does not delete or change any legal requirements of the plan.

The EA provided written responses to the Region C Regional Water Planning Group for this minor amendment determination on March 27, 2015 and the Group adopted the minor amendment at their April 20, 2015 meeting. Following this adoption, a two-week public comment period was held and no public comments were received. No revision to the proposed minor amendment was found to be necessary by the Regional Water Planning Group.

#### **KEY ISSUES**

1. The Region C Regional Water Planning Group submitted to the Texas Water Development Board (TWDB) on May 5, 2015, the required written documentation of their adopted minor amendment, including an addendum to the current 2011 Region C Regional Water Plan (Attachment B).
2. The EA has reviewed the adopted amendment and determined that statutory and rule requirements have been met.
3. If approved, an associated amendment to the 2012 State Water Plan will be presented for the Board's consideration following a 30-day notice period and public hearing in accordance with 31 TAC §358.4 (a).

#### **RECOMMENDATION**

The Executive Administrator recommends approval of this item.

This recommendation has been reviewed by legal counsel and complies with applicable statutes and Board rules.

---

Les Trobman, General Counsel

#### Attachments:

- A. March 27, 2015 Executive Administrator Minor Amendment Determination Response Letters
- B. Minor amendment documentation, including the addendum to the 2011 Region C Regional Water Plan.



DRAFT  
 Summary of Amendment to the 2012 State Water Plan  
 (July 2014)

Change	Description	Region	Recommended Water Management Strategy	Total Capital Costs	Water Supply Volume (acre-feet per year)					
					2010	2020	2030	2040	2050	2060
Region C Minor Amendment	<u>Revise</u> water management strategy	C	Municipal Conservation Basic - City of Bedford	\$77,308,705	274	1,270	2,231	2,357	2,496	2,641
	<u>Revise</u> water management strategy	C	Municipal Conservation Basic - City of Fort Worth	\$65,282,908	4,871	23,428	31,998	41,888	54,191	70,134
Region L Substitution	<u>Replace</u> water management strategy	L	GBRA Lower Basin Storage Project	\$77,876,000	0	57,674	57,674	57,674	57,674	57,674

# Texas Water Development Board

## *Water for Texas 2012: Amendment #4:*

The following changes are proposed to the 2012 State Water Plan as a result of a minor amendment to the Region C 2011 Regional Water Plan and a strategy substitution in the Region L 2011 Regional Water Plan.

This amendment will be considered by the Texas Water Development Board on July 2, 2015.

## SUMMARY OF CHANGES:

Changes to Appendix A.2 of the 2012 State Water Plan: Recommended Water Management Strategies and Costs Estimates											
Change	Region	Recommended Water Management Strategy	Total Capital Costs	First Decade Estimated Annual Average Unit Cost (\$/acre- foot/year)	Water Supply Volume (acre-feet per year)						Estimated Annual Average Unit Cost (\$/acre- foot/year)
					2010	2020	2030	2040	2050	2060	
REVISED	C	Municipal conservation - basic	\$143,743,188	\$200	41,967	111,049	155,586	197,325	242,667	295,461	\$85
REVISED	L	GBRA lower basin storage	\$77,876,000	\$113	0	57,674	57,674	57,674	57,674	57,674	\$14

# Texas Water Development Board

## Water for Texas 2012: Amendment #4:

The following changes are proposed to the 2012 State Water Plan as a result of a minor amendment to the Region C 2011 Regional Water Plan and a strategy substitution in the Region L 2011 Regional Water Plan.

This amendment will be considered by the Texas Water Development Board on July 2, 2015

### CHANGES TO WATER FOR TEXAS 2012 STATE WATER PLAN

Text:	
Page 4 : Paragraph 5 : Change first sentence to:	The strategies recommended by regional water planning groups would provide, if implemented, <u>9.3</u> million acre-feet per year in additional water supplies by 2060 (Figure ES.4).
Page 5 : Paragraph 4 : Change first sentence to:	The estimated total capital cost of the 2012 State Water Plan, representing the capital costs of all water management strategies recommended in the 2011 regional water plans, is \$55.6 billion.
Page 44 : Paragraph 2 : Change second bullet to:	Recommended water management strategy volume in 2060 - <u>2,391,334</u> acre-feet per year
Page 44 : Paragraph 2 : Change third bullet to:	Total capital cost - <u>\$21.6</u> billion
Page 44 : Paragraph 2 : Change fourth bullet to:	Conservation accounts for <u>13.5</u> percent of 2060 strategy volumes
Page 46 : Paragraph 4 : Change second sentence to:	In all, the strategies provide an additional 2.4 million acre-feet by 2060 (Figures C.3 and C.4), with a total capital cost of <u>\$21.6</u> billion (Appendix A) if all the recommended water management strategies are implemented.
Page 46 : Paragraph 5 : Change first sentence to:	Conservation strategies account for approximately <u>13.5</u> percent ( <u>321,741</u> acre-feet) of the total volume of water associated with all recommended strategies.
Page 98 : Paragraph 2 : Change second bullet to:	Recommended water management strategy volume in 2060 - <u>895,043</u> acre-feet per year
Page 98 : Paragraph 2 : Change third bullet to:	Total capital cost - <u>\$8.9</u> billion
Page 98 : Paragraph 2 : Change fourth bullet to:	Conservation accounts for <u>9</u> percent of 2060 strategy volumes
Page 100 : Paragraph 4 : Change second sentence to:	Implementing all the water management strategies recommended in the Region L plan would result in <u>895,043</u> acre-feet of additional water supplies in 2060 at a total capital cost of <u>\$8.9</u> billion (Appendix A).
Page 100 : Paragraph 5 : Change first sentence to:	Conservation strategies account for <u>9</u> percent of the total amount of water that would be provided by the region's recommended water management strategies.
Page 187 : Paragraph 1 : Change first sentence to:	The regional planning groups recommended 569 unique water projects designed to meet needs for additional water supplies for Texas during drought, resulting in a total, if implemented, of <u>9.3</u> million acre-feet per year in additional water supplies by 2060.
Page 189 : Paragraph 4 : Change first sentence to:	To meet the needs for water during a repeat of the drought of record, regional water planning groups evaluated an recommended water management strategies that would account for an additional <u>9.3</u> million acre-feet per year of water by 2060 if all are implemented (Tables 7.1 and 7.2).
Page 190 : Paragraph 3 : Change second and third sentence to:	Surface water strategies, excluding desalination and non-traditional strategies, compose about <u>50</u> percent of the recommended volume of new water, compared to 9 percent from groundwater strategies in the 2012 State Water Plan. Surface water management strategies recommended by the regional planning groups total in excess of <u>4.6</u> million acre-feet per year by 2060.
Page 190 : Paragraph 4 : Change third sentence to:	These new reservoirs would produce <u>1.6</u> million acre-feet per year in 2060 if all are built, representing <u>17.2</u> percent of the total volume of all recommended strategies for 2060 combined (Figure 7.2).
Page 198 : Paragraph 1 : Change first sentence to:	As discussed further in Chapter 9 (Financing Needs), the total capital costs of the 2012 State Water Plan - representing all of the water management strategies recommended by the regional water planning groups - is <u>\$55.6</u> billion.

Note : No further corrections to Chapter 9 are captured since the chapter speaks to financing needs at the time the 2012 State Water Plan was initially published.

# Texas Water Development Board

## Water for Texas 2012: Amendment #4:

The following changes are proposed to the 2012 State Water Plan as a result of a minor amendment to the Region C 2011 Regional Water Plan and a strategy substitution in the Region L 2011 Regional Water Plan. This amendment will be considered by the Texas Water Development Board on July 2, 2015

### CHANGES TO WATER FOR TEXAS 2012 STATE WATER PLAN

#### Tables and Figures:

		UNITS	DECADE					TOTAL	
			2010	2020	2030	2040	2050		2060
Page 5 :	Figure ES.4. : Water Plan (AFY)	Update to the following: acre-feet per year	2,049,353	4,744,059	6,068,301	6,758,523	8,153,657	9,254,512	
Page 7 :	Figure ES.6. : Total Capital Costs for Water supplies, Water Treatment and Distribution, Wastewater Treatment and Collection, and Flood Control (Billions of Dollars)	Update to the following: billions of dollars	Capital costs of water management strategies recommended in 2012 State Water Plan \$55.6. Total capital costs: \$233.7 billion						
Page 49 :	Figure C.3 : Recommended Water Management Strategy Water Supply Volumes for 2010-2060 (AFY)	Update to the following: Municipal Conservation	46,723	120,911	169,493	214,235	261,491	316,002	
Page 49 :	Figure C.4 : 2060 Recommended Water Management Strategies - Relative Share of Supply.	Update to the following: percent	Municipal Conservation 13.2%; Other Conservation 0.1%; Irrigation Conservation 0.1%; New Major Reservoir 30.4%; Other Surface Water 44.5%; Groundwater 0.2%; Reuse 11.4%						
Page 103 :	Figure L.3 : Recommended Water Management Strategy Water Supply Volumes for 2010-2060 (AFY)	Update to the following: new major reservoir	0	141,800	214,731	214,731	214,731	214,731	
Page 103 :	Figure L.4 : 2060 Recommended Water Management Strategies - Relative Share of Supply.	Update to the following: percent	Municipal Conservation 8.1%; Irrigation Conservation 0.8%; Other Conservation 0.3%; New Major Reservoir 24.0%; Other Surface Water 4.4%; Groundwater 26.2%; Reuse 5.2%; Groundwater Desalination 4.7%; ASR 5.7%; Seawater Desalination 20.6%						
Page 188 :	Table 7.1. : Recommended Water Management Strategy Supply Volumes by Region (AFY)	Update to the following:	Region C acre-feet per year	79,898	688,673	1,148,938	1,324,470	2,070,986	2,391,334
			Region L acre-feet per year	188,297	533,677	671,911	700,858	760,781	895,043
			Total acre-feet per year	2,049,353	4,744,059	6,068,301	6,758,523	8,153,657	9,254,512
Page 189 :	Table 7.2. : Recommended Water Management Strategy Supply Volumes by Type of Strategy (AFY)	Update to the following:	Municipal Conservation	137,847	278,894	371,501	458,099	564,723	678,393
			New major reservoir	19,672	548,165	1,005,896	1,035,860	1,318,078	1,587,176
			Total Supply Volume acre-feet per year	2,049,353	4,744,059	6,068,301	6,758,523	8,153,657	9,254,512

Note: No further corrections to Chapter 9 are captured since the chapter speaks to financing needs at the time the 2012 State Water Plan was initially published.

# Texas Water Development Board

## Water for Texas 2012: Amendment #4:

The following changes are proposed to the 2012 State Water Plan as a result of a minor amendment to the Region C 2011 Regional Water Plan and a strategy substitution in the Region L 2011 Regional Water Plan. This amendment will be considered by the Texas Water Development Board on July 2, 2015

### CHANGES TO WATER FOR TEXAS 2012 STATE WATER PLAN

#### Tables and Figures (cont.):

				DECADE						TOTAL	
		UNITS	2010	2020	2030	2040	2050	2060			
Page 190 :	Table 7.3. : Region (AFY)	Supply Volumes from Recommended Conservation Strategies by Region C	Update to the following:	Region C	46,780	121,984	172,831	218,755	266,638	321,741	
		Total		766,658	1,413,630	1,738,653	1,892,382	2,049,940	2,207,290		
Page 191 :	Figure 7.2. : in 2060.	Relative Volumes of Recommended Water Management Strategies	Update to the following:	percent	Groundwater 8.7%; Municipal Conservation 7.3%; Groundwater Desalination 2.0%; Conjunctive Use 1.5%; Seawater Desalination 2.7%; Aquifer Storage and Recovery 0.9%; Other Conservation 0.3%; Brush Control 0.2%; Weather Modification 0.2%; Surface Water Desalination <0.1%; Other Surface Water 33.0%; Irrigation Conservation 16.3%; New Major Reservoir 17.2%; Reuse 9.9%						
Page 195 :	Table 7.5. : Region (Millions of Dollars)	Recommended Water Management Strategy Capital Costs by Region (Millions of Dollars)	Update to the following:	Region C Millions of Dollars	\$9,922	\$4,119	\$3,891	\$928	\$17	\$2,747	\$21,625
				Region L Millions of Dollars	\$1,022	\$4,333	\$2,287	\$2	\$12	\$1,294	\$8,950
				Total Millions of Dollars	\$22,097	\$17,025	\$7,558	\$3,127	\$1,094	\$4,702	\$55,604
Page 195 :	Figure 7.4. : Supplies by Region (AFY)	Existing Supplies and Recommended Water Management Strategy	Update to the following:	Region C acre-feet per year	Water Management Strategy Supplies 2,391,334						
				Region L acre-feet per year	Water Management Strategy Supplies 895,043						
Page 197 :	Figure 7.5. : (AFY)	Water Needs, Needs Met by Plans, and Strategy Supply by Region	Update to the following:	Region C acre-feet per year	Water Management Strategy Supplies 2,391,334						
				Region L acre-feet per year	Water Management Strategy Supplies 895,043						

Note: No further corrections to Chapter 9 are captured since the chapter speaks to financing needs at the time the 2012 State Water Plan was initially published.