

Lower Colorado River Authority, Administrative Agent
P.O. Box 220, Austin, Texas 78767
(512) 473-3200, Fax (512) 473-3551

May 1, 2017

VOTING MEMBERS

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Jim Totten
Paul Tybor
David Van Dresar
Jennifer Walker

Mr. Jeff Walker, Executive Administrator
Texas Water Development Board (TWDB)
P.O. Box 13231
1700 North Congress Avenue
Austin, Texas 78711-3231

Re: Request for Consideration and Approval of Adopted Amendment to 2016 Region K Water Plan for Creedmoor-Maha WSC project

Dear Mr. Walker:

During our April 26, 2017 meeting, Region K voted unanimously to adopt a minor amendment to the Region K 2016 Water Plan. The amendment is a water supply project for Creedmoor-Maha Water Supply Corporation. The adoption occurred following the required public comment period in which no comments were received. We are providing to you a copy of the adopted amendment, supporting materials, as well as Region K's updated prioritization spreadsheet. We understand that the TWDB will review this amendment and consider approval of it to move through the public hearing process.

We appreciate your consideration of this amendment. If you have any questions about this request, please contact me as shown below.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "John E. Burke".

John E. Burke
Region K Chairman
512-914-3474
JohnEBurke@RegionK.org

COUNTIES

Bastrop
Blanco
Burnet
Colorado
Fayette
Gillespie
Hays (partial)
Llano
Matagorda
Mills
San Saba
Travis
Wharton (partial)
Williamson (partial)

Enclosures: Amendment Package, Prioritization Spreadsheet

Cc: Lann Bookout, TWDB
Jaime Burke, AECOM
Charles Laws, CMWSC General Manager
James Kowis, James Kowis Consulting LLC
Ricky Anderson, RSAH2O
Wade Wheatley, GDS Associates, Inc



GDS Associates, Inc.
Engineers and Consultants

Ph: 512.494.0369
Fax: 512.494.0205
richard.varnell@gdsassociates.com

Richard Varnell
Project Manager

April 11, 2017

Chairman John E. Burke
Lower Colorado Regional Water Planning Group
496 Shiloh Road
Bastrop, TX 78602

Re: Creedmoor-Maha Water Supply Corporation Request for Region K to Consider and Incorporate a Minor Amendment Into Its Approved 2016 Water Plan

Dear Chairman Burke,

GDS Associates, Inc. (GDS) has been retained by Creedmoor-Maha Water Supply Corporation (CMWSC) to assist them in pursuing a minor amendment to Region K's 2016 Regional Water Plan. We have engaged James Kowis from James Kowis Consulting LLC to assist us in this matter. We hope that this letter will provide you with sufficient information to approve the minor amendment during your regularly scheduled meeting on April 26, 2017.

At its last meeting (January 11, 2017), Region K authorized a public comment meeting and written comments period to receive comments on CMWSC's proposal to amend Region K's 2016 Regional Water Plan. Region K issued a "*Notice of Minor Amendment to 2016 Region K Water Plan*" on January 27, 2017 to take comments on CMWSC's proposed minor amendment via a February 13, 2017 public meeting. Region K also requested written comments by a February 28, 2017 deadline. It is our understanding that no person appeared on February 13th to provide comments, and no written comments were submitted by the February 28th deadline in relation to CMWSC's proposed minor amendment.

Following the last Region K meeting and the February 28th comment period deadline, Texas Water Development Board (TWDB) staff provided Mr. James Kowis with some general comments on some of the language contained in the draft proposed minor amendment. These comments suggested that the proposed minor amendment language put more emphasis on this project being described as a water supply versus a water conservation project.

With Mr. Kowis' assistance, we have slightly modified the language in the minor amendment proposal to better reflect the comments received from the TWDB. Mr. Kowis has shared these revisions with the TWDB and they did not recommend any modifications/changes.

Chairman. John E. Burke

April 11, 2017

Page 2 of 2

Attached for the consideration of Region K is the revised minor amendment package with the latest changes reviewed by the TWDB. CMWSC is requesting Region K approve its proposed minor amendment request at its upcoming April 26th meeting.

Following is a description of each of the Attachments:

- *Attachment A- Aerial extent of CMWSC's service area;*
- *Attachment B- Diagram of the State Water Plan Amendment Process Timeline;*
- *Attachment C- Brief description of CMWSC's Proposed Project;*
- *Attachment D- A summary of proposed changes to Region K's 2016 Water Plan identified as being needed to accomplish adding CMWSC's project as a minor amendment; and*
- *Attachment E- A copy of the Region K January 27th notice soliciting public comments on the CMWSC's proposed minor amendment.*

If you have any questions about this request, please contact me as shown below.

Respectfully submitted,



Richard Varnell, P.G.

Project Manager

GDS Associates, Inc.

(512) 494-0369

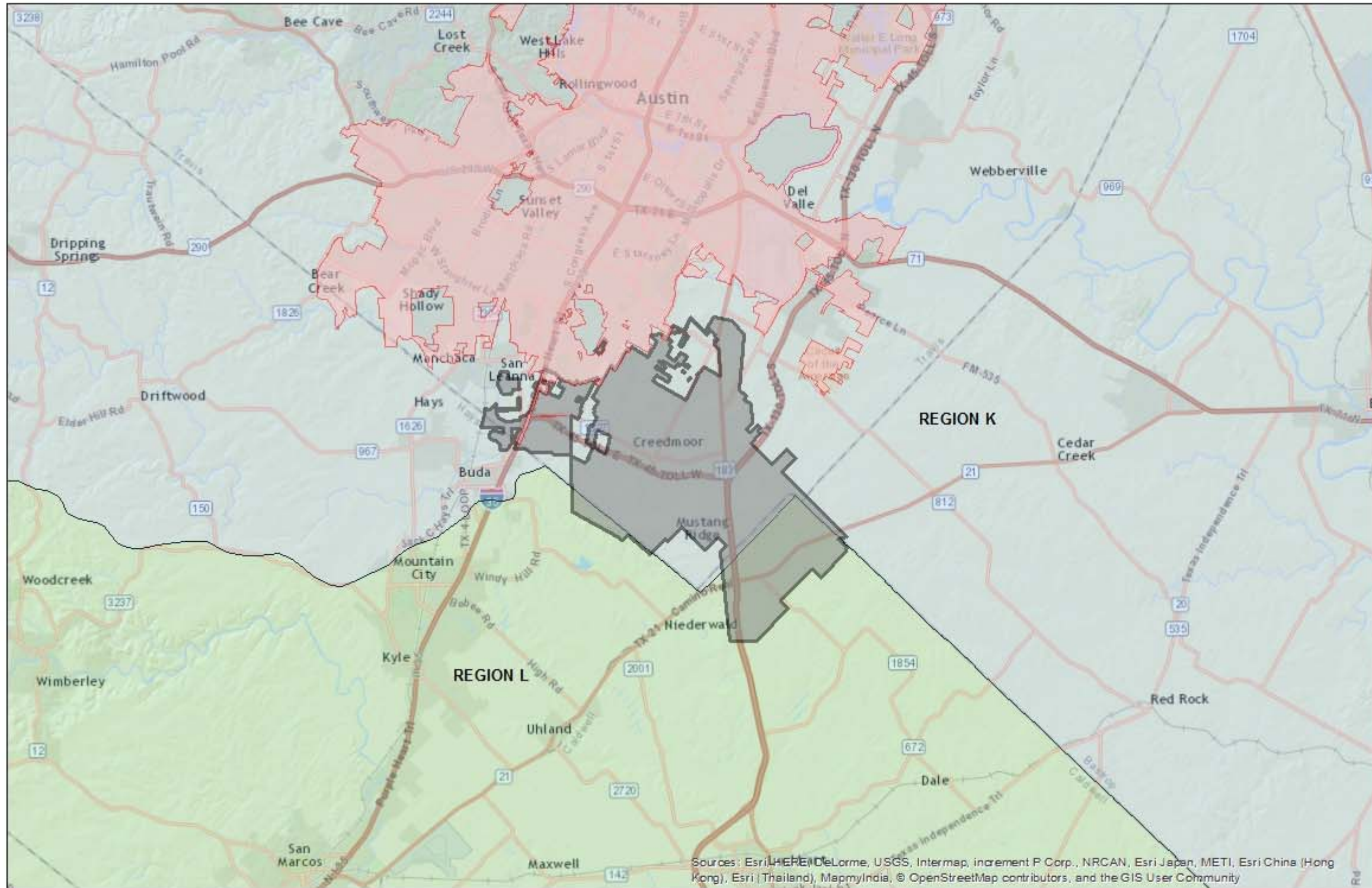
richard.varnell@gdsassociates.com

Enclosures (5)

cc: Charles Laws, GM - CMWSC
Jaime Burke, AECOM
Lann Bookout, TWDB
James Kowis, James Kowis Consulting LLC
Ricky Anderson, RSAH20

ATTACHMENT A

Aerial Extent of CMWSC's Service Area



Legend

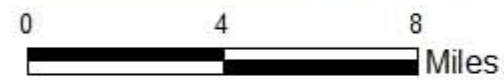
- Austin City Limits
- CMWSC 2015 CCN
- TWDB Regional Water Planning Areas**
- Region:**
- K - Lower Colorado
- L - South Central Texas



Notes:

1. TWDB Regional Water Planning area boundaries taken from TWDB GIS data.
2. 2015 CMWSC CCN area georeferenced and traced using ArcGIS.
3. Austin City Limits taken from CAPCOG GIS data.

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



SITE LOCATION MAP
CREEDMOOR-MAHA WATER SUPPLY CORPORATION
(CMWSC)



919 Congress Avenue, Suite 800
 Austin, Texas 78701
 Texas Registered Engineering Firm
 F-4089

GDS Associates, Inc.
 Engineers and Consultants

CMWSC
 Creedmoor-Maha
 Water Supply Corporation

FIGURE NO. 1

Drawn By: Kevin Ashley

Sheet No.
 1 of 1

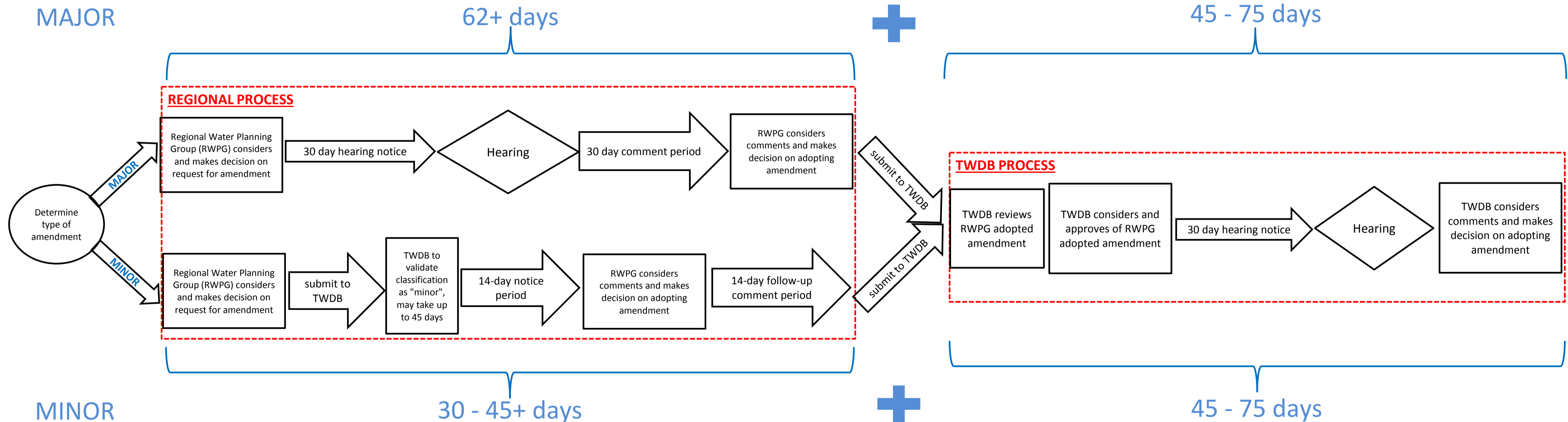
Checked by: Richard Varnell

Date: 19 September 2018

ATTACHMENT B

**Diagram of the
State Water Plan Amendment Process Timeline**

Texas Water Development Board State Water Plan Amendment Process Timeline



Please note: the Regional Process timeline outlined above is exclusive of any additional days needed to accommodate scheduling for public meetings, posting of public notice, or other variables. Also, the timeline does not reflect the additional days needed by the Regional Water Planning Group (RWPG) to prioritize the amended regional plan.

Example: If amendments to the 2012 State Water Plan are required to be adopted by the TWDB Board by May 1, 2015; then RWPGs would need to submit their final adopted 2011 Regional Water Plan amendments to TWDB no later than February 10, 2015. *

**This example timeframe is provided as a guide for RWPGs to use as a resource when considering the submission of amendments and providing supporting documentation to TWDB. Please note the dates set forth are not intended to represent actual deadlines. Rather, the dates are being provided only to illustrate the minimum amount of time necessary to process an amendment in accordance with all statutory and regulatory requirements. The dates do not account for additional time that may be needed by TWDB staff to review amendments based on the number of amendments received or complexity of major amendments.*

ATTACHMENT C

Description of Proposed Project

ATTACHMENT C

Brief Description of Creedmoor-Maha Water Supply Corporation's Proposed Water Project

Background

Creedmoor-Maha Water Supply Corporation (CMWSC) meets its service area's water demands from the following three existing sources of supply:

- Balcones Fault Zone (BFZ) Edwards- CMWSC's six groundwater wells;
- Colorado River- water supply contract with City of Austin (Austin) with three water supply connections; and
- Carrizo-Wilcox- water supply contract with Aqua Water Supply Corporation (Aqua) with one water supply connection.

CMWSC does not intend to change these sources of supply nor does it intend to add any additional sources of supply with this proposed project.

CMWSC has limited supplies available to it from its six groundwater wells, especially during drought conditions. This project will allow CMWSC to better utilize its contracted water supplies from Aqua during future drought events; and provide CMWSC with greater flexibility in the source of supplies needed to meet growing needs in its service area, including allowing CMWSC to regain some of the current supplies being lost as described in the next paragraph.

CMWSC's service area is in a rural setting with clay soils that have moderate to high shrink and swell characteristics. This, along with the under sizing of the lines, has presented some real problems with its main lines which range in age from 20 to 40 plus years old. Using TWDB methodology, CMWSC has documented it's Percent Total Water Loss in the range of 18-26% for the 2011-2015 timeframe (See table below showing CMWSC's water use and losses for this period).

CMWSC Water Use and Losses (2011-2015)

Year	Average # of Active Meters	Average Customer Use (Gallons/Month)	Total Water Pumped (Gallons/Yr)	Total Water Sold (Gallons/Yr)	Total Used for Fire/Flush (Gallons/Yr)	Total Water Loss (Gallons/Yr)	Total % Water Loss
2011	2,279	8,817	327,966,100	241,217,600	550,000	86,198,500	26.28%
2012	2,282	7,657	262,620,600	209,721,400	400,050	52,499,150	19.99%
2013	2,311	6,798	236,190,100	188,557,600	670,070	46,962,430	19.88%
2014	2,328	6,442	221,704,400	180,036,200	767,070	40,901,130	18.45%
2015	2,355	6,644	234,622,800	187,775,500	856,000	45,991,300	19.60%

CMWSC has worked with an engineering consultant to develop an approach to strategically replace old, undersized & leak prone water main lines. The water lines that will be installed are all transmission, not distribution lines.

This strategy and its associated costs were developed utilizing data and information from a preliminary engineering report submitted by CMWSC. The cost estimates provided in the engineering report did not utilize the TWDB Costing Tool. However, the TWDB Costing Tool was used by Region K to determine the largest annual costs.

CMWSC's proposed Water Project would be designed and implemented once funding has been obtained.

The proposed project would improve the water supply connection with Aqua and would replace existing transmission line from the Aqua connection point to CMWSC's Alexander elevated storage tank. The following items are included in the project:

1. Upsize the meter at the water supply connection to a 12-inch meter-Estimated Costs for this have not been broken out of the overall total;
2. Replace 6.8 miles of existing 4 and 6-inch transmission line with 12-inch HDPE pipe- Estimated Construction Costs: \$3,701,080;
3. Install a new booster pump on the 12-inch main line near the Aqua water supply connection to boost system pressure, ensure strong flow and complete timely filling of the Alexander storage tank- Estimated Construction Costs: \$800,000; and

4. The project would be designed and constructed in 2018-2019 (assuming funding is obtained in late 2017).

For informational purposes, CMWSC has included a map with this attachment showing the location of main line replacement.

ATTACHMENT D

Summary of Proposed Changes to Region K's 2016 Water Plan

ATTACHMENT D

Summary of Proposed Changes to the 2016 Region K Water Plan Related to the Minor Amendment Proposed by Creedmoor-Maha Water Supply Corporation

Chapter 5

Addition of a new Section 5.2.5.5 to the 2016 Region K Water Plan (all new text)

5.2.5.5 *Creedmoor-Maha Water Supply Corporation*

Creedmoor-Maha Water Supply Corporation (CMWSC) meets its service area's water demands from the following three existing sources of supply:

- Balcones Fault Zone (BFZ) Edwards- CMWSC's six groundwater wells;
- Colorado River- water supply contract with City of Austin (Austin) with three water supply connections; and
- Carrizo-Wilcox- water supply contract with Aqua Water Supply Corporation (Aqua) with one water supply connection.

CMWSC does not intend to change these sources of supply nor does it intend to add any additional sources of supply with its proposed water project.

CMWSC has limited supplies available to it from its six groundwater wells, especially during drought conditions. This project will allow CMWSC to better utilize its contracted water supplies from Aqua during future drought events; and provide CMWSC with greater flexibility in the source of supplies needed to meet growing needs in its service area, including allowing CMWSC to regain some of the current supplies being lost as described in the next paragraph.

CMWSC's service area is in a rural setting with clay soils that have moderate to high shrink and swell characteristics. This, along with the under sizing of the lines, has presented some real problems with its main lines which range in age from 20 to 40 plus years old. Using TWDB methodology, CMWSC has documented its Percent Total Water Loss in the range of 18-26% for the 2011-2015 timeframe (See Table 5-102A below showing CMWSC's water use and losses for this period).

Table 5-102A: CMWSC Water Use and Losses (2011-2015)

Year	Average # of Active Meters	Average Customer Use (Gallons/Month)	Total Water Pumped (Gallons/Yr)	Total Water Sold (Gallons/Yr)	Total Used for Fire/Flush (Gallons/Yr)	Total Water Loss (Gallons/Yr)	Total % Water Loss
2011	2,279	8,817	327,966,100	241,217,600	550,000	86,198,500	26.28%
2012	2,282	7,657	262,620,600	209,721,400	400,050	52,499,150	19.99%
2013	2,311	6,798	236,190,100	188,557,600	670,070	46,962,430	19.88%
2014	2,328	6,442	221,704,400	180,036,200	767,070	40,901,130	18.45%
2015	2,355	6,644	234,622,800	187,775,500	856,000	45,991,300	19.60%

CMWSC has worked with an engineering consultant to develop an approach to strategically replace old, undersized & leak prone water main lines in its system. The water lines that will be installed are all transmission, not distribution lines.

CMWSC’s proposed Water Project would be designed and implemented once funding has been obtained.

The proposed project would improve the water supply connection with Aqua and would replace existing transmission line from the Aqua connection point to CMWSC’s Alexander elevated storage tank. The following items are included in the project:

1. Upsize the meter at the water supply connection to a 12-inch meter-Estimated Costs for this have not been broken out of the overall total;
2. Replace 6.8 miles of existing 4 and 6-inch transmission line with 12-inch HDPE pipe- Estimated Construction Costs: \$3,701,080;
3. Install a new booster pump on the 12-inch main line near the Aqua water supply connection to boost system pressure, ensure strong flow and complete timely filling of the Alexander storage tank- Estimated Construction Costs: \$800,000; and
4. This project would be designed and constructed in 2018-2019 (assuming funding is obtained in late 2017).

The level of demands that would be reduced by this proposed project are shown in the following table.

Table 5-102B: Creedmoor-Maha Water Supply Corporation Reduction in Water Demands

WUG Name	County	River Basin	Water Management Strategies (ac-ft/yr)					
			2020	2030	2040	2050	2060	2070
Creedmoor-Maha WSC	Bastrop	Colorado	0	1	1	1	2	2
Creedmoor-Maha WSC	Travis	Colorado	19	20	22	25	27	30
Creedmoor-Maha WSC	Travis	Guadalupe	1	1	1	1	1	1

Cost Implication of Proposed Strategy

The capital cost for CMWSC is primarily driven by the cost of the replacement of 6.8 miles of existing transmission line and the associated new booster pump.

This strategy and its associated costs were developed utilizing data and information from a preliminary engineering report submitted by CMWSC. The cost estimates provided in the engineering report did not utilize the TWDB Costing Tool. However, the TWDB Costing Tool was used by Region K to determine the largest annual costs.

The following table shows the estimated total costs associated with this strategy.

Table 5-102C: Creedmoor-Maha Infrastructure Costs

Total Construction Cost	Total Capital Cost	Largest Annual Cost	Unit Cost (\$/ac-ft)
\$5,000,000	\$4,501,080	\$418,414	\$20,921

Environmental Considerations

Water for this strategy will come from existing sources of supply. This particular strategy should not have instream and bay and estuary inflow impacts.

Refer to Chapter 1, Appendix 1 A, for the complete list by County of threatened and endangered species in the Lower Colorado Regional Water Planning Area. These species may need to be considered during the construction/replacement of existing transmission line described above.

Agricultural and Natural Resources Considerations

No impacts to agriculture are expected, as a result of implementing this strategy.

Modification to Table 5A-1

What is shown below is just that portion of Table 5A-1 which has been modified; all other elements and values in the table were left unchanged.

Table 5A-1: Region K Water Management Strategies Considered and Evaluated

Every WUG Entity with an Identified Need		WMSs REQUIRED TO BE CONSIDERED BY STATUTE		
Water User Group Name	Maximum Need 2020-2070 (ac/yr)	Conservation	Reallocation/management of existing supplies	<u>Note: NO CHANGES PROPOSED TO OTHER SECTIONS OF TABLE, SO IT IS NOT SHOWN IN THIS ATTACHMENT</u>
<i>Aqua WSC</i>	26,269	PF	nPF	
<i>Bastrop</i>	6,390	PF	nPF	
<i>Bastrop County WCID #2</i>	644	nPF	nPF	
<i>County-Other, Bastrop</i>	1,490	PF	nPF	
<i>Creedmoor-Maha WSC</i>	609	nPF	PF	
<i>Elgin</i>	4,124	nPF	nPF	
<i>Smithville</i>	721	PF	nPF	
<i>Manufacturing, Bastrop</i>	199	nPF	nPF	

...

The **only** change on this table was to change the “nPF” in the Reallocation/management of existing supplies column to “PF” for Creedmoor-Maha WSC.

Modification to Table 5A-2 (What is shown below is just the portion of Table 5A-1 which has been modified; all other elements and values in the table were left unchanged- since table is very wide, the table is broken into sections beginning at far left of table and moving to the right with each section)

Added an Item 308 at end of Table to include the Creedmoor-Maha WSC and adding the following highlighted (yellow) information into the screening matrix table:

No.	Water Management Strategy	WUG	Strategy Description	Addressing A Need	Total Strategy Costs \$
308	Urgent Water Loss Reduction Project	Creedmoor-Maha WSC	Water Main Line Replacement and Installation of Booster Pump	Yes	\$5,000,000

Continued...

Annual Strategy Costs (\$)	Cost of Water (\$)	Max Yield AFY	Starting Decade	Basin	Interbasin Transfer (Yes/No)	Cost	Yield	Location
\$418,414	\$20,921.00	20	2020	Colorado & Guadalupe	No	-1	0	1

Continued...

Water Quality	Environmental And Natural Resources	Local Preference	Institutional Constraints	Impacts on Water Resources	Impacts on Agricultural Resources	Impacts on Recreation
0	0	0	0	1	0	0

Continued...

Impacts on Other Management Strategies	Total of Screening Factors	Quantified Environmental Impacts	Quantified Agriculture Impacts
0	1	Negligible impacts to streamflow and bay	Negligible impacts to agriculture

End.

Note: The description of this water management strategy, *Urgent Water Loss Reduction Project*, was chosen to remain consistent with Project Information Form (PIF) #12280. PIF #12280 was submitted for this project to the TWDB on March 3, 2017. It was accepted by the TWDB on March 7, 2017.

Modification of Appendix 5B-1 (What is shown on the next page is just the portion of Table 5B-1 which has been modified; all other elements and values in the table were left unchanged)

Adding the Creedmoor-Maha WSC’s project information (highlighted in yellow) on pages 2 of 22 (Bastrop County) and 16 of 22 (Travis County) of the Excel spreadsheet and the adding of this information into the table changed the “Remaining Surplus/Shortage” totals which is also highlighted in yellow:

Found on Page
2 of 22 of
Appendix 5B-1

WUG Name	County	River Basin	Water Management Strategy Name	Source Name	Water Management Strategies (ac-ft/yr)					
					2020	2030	2040	2050	2060	2070
Surplus/(Shortage)					16	12	5	0	0	0
Creedmoor-Maha WSC	Bastrop	Colorado	Drought Management	5%	1	1	2	2	3	4
Creedmoor-Maha WSC	Bastrop	Colorado	Urgent Water Loss Reduction Project		0	1	1	1	2	2
Remaining Surplus/Shortage					17	14	8	3	5	6
Surplus/(Shortage)					160	(182)	(284)	(412)	(550)	(686)
Creedmoor-Maha WSC	Travis	Colorado	Drought Management	5%	28	31	34	38	41	45
Creedmoor-Maha WSC	Travis	Colorado	Saline Edwards ASR Project	Saline Edwards ASR	0	300	300	300	300	300
Creedmoor-Maha WSC	Travis	Colorado	New LCRA Contract	LCRA System	0	400	400	400	400	400
Creedmoor-Maha WSC	Travis	Colorado	Urgent Water Loss Reduction Project		19	20	22	25	27	30
Creedmoor-Maha WSC	Travis	Guadalupe	Urgent Water Loss Reduction Project		1	1	1	1	1	1
Remaining Surplus/Shortage					208	570	473	352	219	90

Found on Page
16 of 22 of
Appendix 5B-1

End.

Note: The description of this water management strategy, *Urgent Water Loss Reduction Project*, was chosen to remain consistent with Project Information Form (PIF) #12280. PIF #12280 was submitted for this project to the TWDB on March 3, 2017. It was accepted by the TWDB on March 7, 2017.

Chapter 9

Additions to Table 9.1 (Inserting/adding the following highlighted (yellow) information into Table 9.1 on Page 9-3; No other changes are proposed for this table)

Table 9.1 Region K Recommended Water Management Strategies with Capital Costs

WMS Project Sponsor Region	Project Name	Project Sponsor Entity	Capital Cost
K	City of Austin –Rainwater Harvesting	AUSTIN	\$690,167,000
K	City of Austin Conservation	AUSTIN	\$41,434,437
K	Creedmoor-Maha WSC – Urgent Water Loss Reduction Project	CREEDMOOR-MAHA WSC	\$4,501,0800
K	Development of New Carrizo-Wilcox Aquifer Supplies – Bastrop	BASTROP	\$2,976,000
K	Development of New Carrizo-Wilcox Aquifer Supplies – Bastrop County Mining	MINING, BASTROP	\$3,391,000

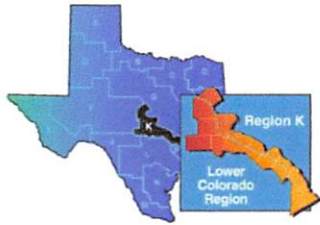
...

Other Potential Changes:

NOTE: There will need to be some additions/changes made to the TWDB database. CMWSC’s consultants will work with AECOM, Region K’s consultant, or TWDB staff to provide any needed information to accomplish that task.

ATTACHMENT E

Region K's January 27, 2017 Notice Soliciting Public Comments on the Proposed
Minor Amendment



Lower Colorado River Authority, Administrative Agent
P.O. Box 220, Austin, Texas 78767
512-473-3200, Fax 512-473-3551

VOTING MEMBERS

John Burke, Chair
David Wheelock, Vice-chair
Teresa Lutes, Secretary
Jim Brasher
John Dupnik
Ronald Fieseler
Daniel Berglund
Lauri Gillam
Karen Haschke
Barbara Johnson
Donna Klaeger
Jason Ludwig
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W.A. Roeder
Rob Ruggiero
Charles Shell
Billy Roeder
Paul Sliva
James Sultemeier
Byron Theodosis
Jim Totten
Paul Tybor
David Van Dresar
Jennifer Walker

COUNTIES

Bastrop
Blanco
Burnet
Colorado
Fayette
Gillespie
Hays (partial)
Llano
Matagorda
Mills
San Saba
Travis
Wharton (partial)
Williamson (partial)

January 27, 2017

TO: All Interested Parties
FROM: Lower Colorado Regional Water Planning Group (Region K)
SUBJECT: Notice of Minor Amendment to 2016 Region K Water Plan

A public meeting will be held on **February 13, 2017, at 3:30 p.m., at LCRA's Redbud Center Building, 3601 Lake Austin Blvd, Austin, TX 78703.**

The purpose of this meeting will be to take comments on adding a minor amendment to the approved 2016 Region K Water Plan.

Creedmoor-Maha Water Supply Corporation (CMWSC) has requested Region K to consider an amendment which will seek CMWSC to add a water conservation project to reduce system water loss as a recommended water management strategy in the 2016 Region K Water Plan. The project includes installing a new water meter, replacing about 6.8 miles of existing water transmission pipeline and constructing a new booster pump station to improve the water supply connection with Aqua Water Supply Corporation.

Copies of the amendment application materials are available from LCRA or online, on the 2016 Region K water plan page at www.regionk.org.

You can submit written comments regarding the amendment to LCRA:

David Wheelock
Administrative Agent for Region K
Lower Colorado River Authority
P.O. Box 220, Mail Stop R316
Austin, TX 78767-0220

The deadline for all written public comments is Tuesday, February 28, 2017.

For questions or additional information, please contact Stacy Pandey at spandey@lcra.org or 512-578-7471.