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December 21, 2016

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

Re: NEW 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. This letter has been prepared to summarize recent submittals regarding this project (both to the Texas Water Development Board [TWDB] and Region K), memorialize a subsequent conversation between GDS and TWDB Staff, and to summarize why the proposed project (as documented in the attachments to this letter) have been reduced in scope.

BACKGROUND

GDS provided information related to a minor amendment request to Region K by letter dated September 23, 2016. GDS and Mr. James Kowis also presented the proposed plan to Region K during your October 12, 2016 meeting. During that meeting Region K voted to provide that information to the TWDB for a determination on the type of amendment (minor or major) that adding the proposed plan to the Region K and State Water Plans would represent.

Region K sent the Determination Request to the TWDB by letter dated October 17, 2016. TWDB requested additional information by email shortly thereafter. The additional information was submitted to them on November 11, 2016. TWDB responded to the additional information by letter dated November 30, 2016 (emailed to Region K's board members on December 8, 2016) that indicated that portions of the proposed project represented a minor amendment, but that the remainder of the project could not be added to the State Water Plan.

Based on direction from CMWSC, GDS discussed the necessary modifications with TWDB staff on December 19, 2016. Based on that discussion, we have concluded the following:

- 1) That the portion of the original project is appropriate for inclusion in the State Water Plan as a conservation project. It consists of most of what was previously called “Phase 1”.
- 2) That CMWSC should submit new information documenting this new (not revised) request to Region K.
- 3) That Region K would then need to submit that new information to the TWDB for review to confirm that the proposed project will still qualify as a minor amendment.

PROJECT DISCUSSION

CMWSC has been experiencing significant (18-26%) losses of unaccounted for water from its system over at least the past five years. CMWSC is located in a rural area (*See Attachment A showing the aerial extent of CMWSC’s service area*) near Austin. It has limited groundwater sources available to it and therefore has to rely on contracts with the City of Austin and Aqua Water Supply Corporation for supplemental water supplies to meet its water needs.

To improve its system efficiency and position itself for the future, CMWSC has been working over the past year on a water conservation project with the following objectives:

- replace its old, undersized and leak prone water mains to reduce unaccounted for losses;
- insure its water system has proper fire flow capability; and
- insure the capability of having a diversity of water supply.

This project is now to the point CMWSC is ready to begin implementation and would like to pursue State Water Implementation Fund for Texas (SWIFT) funding from the TWDB in its next cycle. For this to occur, CMWSC needs to have its water conservation project recognized as a recommended water management strategy (WMS) in the approved 2016 Region K Water Plan.

CMWSC respectfully requests that Region K consider its proposed water conservation project as a recommended WMS through the minor amendment process – *See Attachment B showing a diagram of the State Water Plan Amendment Process Timeline*. CMWSC is aware there is a defined process for considering and approving a minor amendment. However, time is of the essence, so please accept this letter as our official request to have Region K put an item on its January 11, 2017 proposed meeting agenda to:

- 1) consider and act on CMWSC’s request to amend the 2016 Region K Water Plan to include its proposed water conservation project; and
- 2) to begin the process for inclusion of a minor amendment into Region K’s 2016 Water Plan.

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CMWSC will have representatives present to answer questions regarding this project, how it has changed from the previous proposal, and to answer any questions the planning group may have about this minor amendment request.

CMWSC has consulted with TWDB Representative, Lann Bookout, and with Region K consultant, Jaime Burke with AECOM, on this proposal to solicit their input and guidance. In addition, GDS has retained James Kowis of James Kowis Consulting, LLC to assist GDS in identifying and proposing the modifications to the appropriate areas in the 2016 Region K Water Plan which will need to be amended/modified/updated in order to accomplish a minor amendment to Region K's 2016 Water Plan.

In addition to Attachments A and B (referenced above), GDS has attached the following for Region K consideration at its October 12th meeting:

- *Attachment C- Brief description of CMWSC's proposed Water Conservation Project; and*
- *Attachment D- A summary of proposed changes to Region K's 2016 Water Plan identified as being needed to accomplish adding CMWSC's water conservation project as a minor amendment.*

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

Respectfully submitted,



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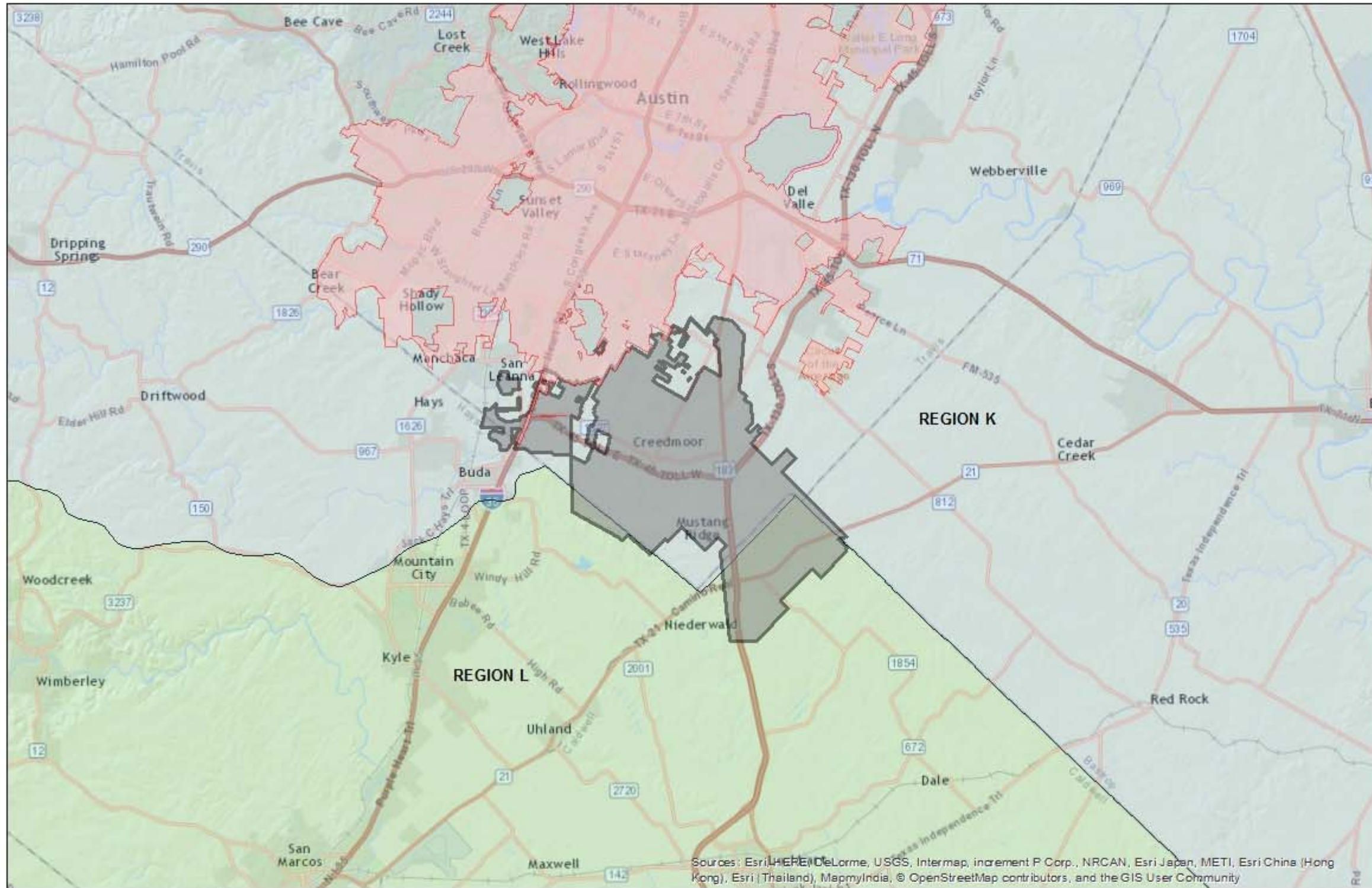
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Enclosures (4)

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

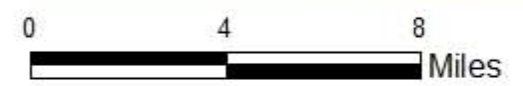


- Legend**
- Austin City Limits
 - CMWSC 2015 CCN
- TWDB Regional Water Planning Areas**
- Region:**
- K - Lower Colorado
 - L - South Central Texas



- 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




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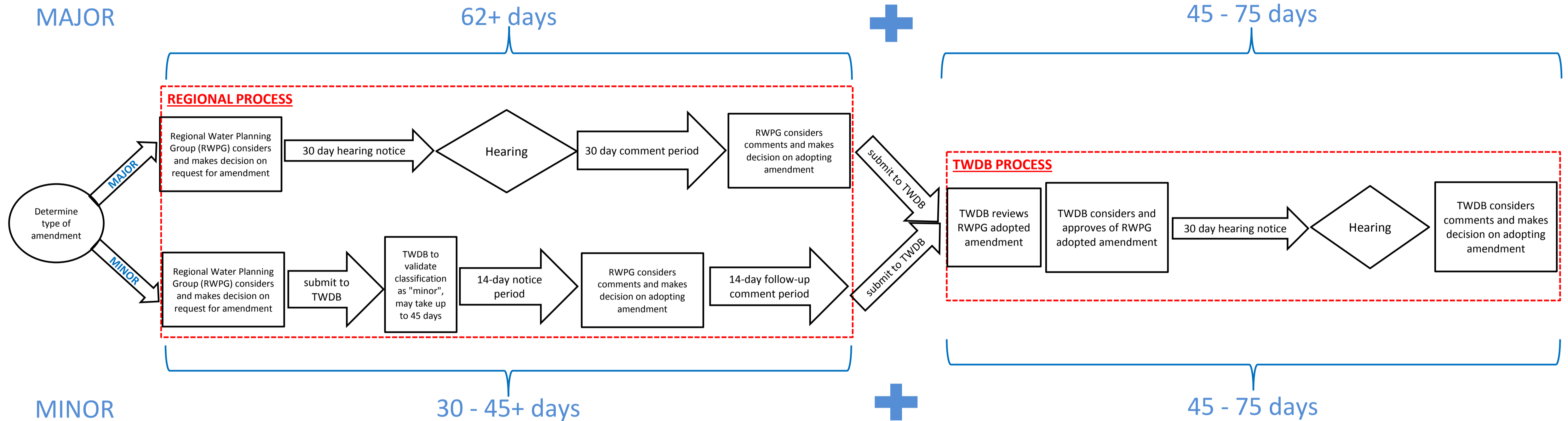
SITE LOCATION MAP
CREEDMOOR-MAHA WATER SUPPLY CORPORATION
(CMWSC)

CMWSC <small>Creedmoor-Maha Water Supply Corporation</small>	FIGURE NO. 1	
	Drawn By: Kevin Ashley	Checked by: Richard Varnell
Sheet No. 1 of 1	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 Conservation 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 a new source of supply with this proposed project.

CMWSC's service area is in a rural setting with clay soils that have moderate to high shrink and swell characteristics. This 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 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%

Although, CMWSC cannot show definitive calculations demonstrating that the great majority of the losses are associated with it aging main lines, its repair history over this time period shows the great majority of water losses has been associated with the main lines that are identified to be replaced in the proposed project.

CMWSC has set a goal to reduce its total water losses to 10% or less. To accomplish this, it first embarked on a project to complete replacement of all of its members' supply meters with smart meters (this project is set to be completed by the end of 2016); and secondly, CMWSC has worked with an engineering consultant to develop a phased approach to strategically replace old, undersized & leak prone water main lines and to improve the fire flow capability in its system. 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 shown in Table 5-8 of the proposed minor amendment.

CMWSC's proposed Water Conservation 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 phase 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

Chapter 5

Modifications to Section 5.2.2.3 of 2016 Region K Water Plan (all new text- underlined; and deletions-strikeouts are highlighted in yellow)

5.2.2.3 Municipal Conservation

Reduction of municipal water demand through conservation was a focal point of the 2011 round of Regional Water Planning in Texas and continues to be a focal point for the 2016 round. The water demands approved by TWDB and the individual Regional Water Planning Groups (RWPGs) have already been adjusted to incorporate the effects of the 1991 State Water Saving Performance Standards for Plumbing Fixtures Act. In addition, RWPGs are required to consider further water conservation measures in their plan or explain reasons for not recommending conservation for Water User Groups (WUG) with water needs.

The LCRWPA currently anticipates 61 municipal WUGs with shortages in the year 2070. Forty-one (41) of these WUGs have per capita water demands in excess of the 140 gallons per capita per day (gpcd) limit proposed by the Water Conservation Implementation Task Force (WCITF) and may be able to reduce their shortages through conservation practices. In addition, many of the WUGs have per capita water demands in excess of 200 gpcd.

A methodology was developed to determine the anticipated municipal water conservation savings for the WUGs within the LCRWPA. First, WUGs were required to meet the following criteria to be chosen for conservation measures:

- Be a municipal WUG.
- Have a year 2020 per capita water usage of greater than 140 gpcd indicating a potential for savings through conservation.
- Conservation was considered, regardless of whether a municipality had a water need.

Per capita water demands were determined from the measured or projected population and water demands for each WUG during each decade. The following methodology was used in calculating water demand reductions:

- If the 2020 GPCD is greater than 200
 - Apply a 10% GPCD reduction per decade until 200 GPCD is reached.
 - Then apply a 5% GPCD reduction per decade until 140 GPCD is reached.
- If the 2020 GPCD is greater than 140
 - 5% GPCD reduction per decade until 140 GPCD is reached.
- If the 2020 GPCD is less than 140

– No conservation considered

- Defer to Water Conservation goals, if applicable

This method follows the recommendation of a 1 percent per year reduction in per capita water demand in order to reach of 200 gpcd, followed by a 0.5 percent per year reduction in per capita water demand until the target demand of 140 gpcd was reached, as proposed by WCITF. Conservation was applied immediately in 2020 regardless of the beginning year of a WUG shortage so that conservation could be implemented early enough to have significant effects on demand by the time the shortage was realized.

A lower limit of 140 gpcd was set, unless a WUG specified in their Water Conservation Plan their intent to reduce further. This was done so that conservation was only recommended to reach reasonable levels. For WUGs that were anticipated to reach a per capita usage below 140 gpcd without conservation in later decades, the lower demands approved by the Regional Planning Group and TWDB were carried forward.

The new per capita usage for each decade was then used along with the WUG population to determine the new water demands for each decade. These values were subtracted from the original water demands to determine the amount of water conserved in each decade.

Burnet County-Other did not fall under the above criteria, but is recommended to receive water from the Buena Vista Regional Project (*Section 5.2.4.2.1*) through an interbasin transfer, requiring that the highest practicable level of achievable water conservation be considered. Therefore, municipal conservation is recommended for Burnet County-Other, Brazos Basin, based on the achievement of 130 gpcd by 2020 and 125 gpcd by 2030. This strategy is recommended using these criteria, and is shown in Table 5.7.

Also, Creedmoor-Maha WSC (CMWSC) did not fall under the above criteria and methodology since its current system per capita (about 100 gpcd) demands are below the criteria described above. CMWSC has been experiencing unaccounted for water losses in its water transmission lines of between 18-26 % of total metered flows. CMWSC has worked with an engineering consultant to develop an approach to strategically replace old, undersized and leak prone water transmission lines and to improve the water delivery to its system. Therefore, municipal conservation (transmission line replacement) is recommended for CMWSC based on a goal of lowering its overall unaccounted water losses to 10% of total metered flows. This strategy is recommended using data and information from an engineering report submitted by CMWSC using the criteria above, and is shown in Table 5-7.

The City of Austin Water Conservation is a separate strategy and is discussed in *Section 5.2.2.2*; therefore, it is not included in this table.

Examples of measures that can be implemented to meet this strategy include the following:

Utility water loss audits and repair. System water audits are required every five years for all retail utilities and every year for utilities over 3,300 connections. To maximize the benefits of this measure, a utility would use the information from the water audit to revise meter testing and repair practices, reduce unauthorized water use, improve accounting for unbilled water, and implement effective water loss management strategies. Water loss strategies for new development to minimize the need for line flushing can include the addition of extra meters along various line routes to collect more accurate data on water flowing through those routes, creating loops in the water distribution lines, and placing chlorine injection stations strategically throughout the development to avoid the need for excessive flushing to keep chlorine residuals in compliance.

“Smart” meters and automatic meter infrastructure (AMI). A "smart" water meter is a measuring device that has the ability to store and transmit consumption data frequently. Sometimes "smart" meters are referred to as "time-of-use" meters because in addition to measuring the volume consumed, they also record the date and time the consumption occurs. "Smart" meters can be read remotely and more frequently, providing instant access to water consumption information for both customers and water utilities. "Smart" water meters are one component of an automated meter infrastructure (AMI) system that water utilities may choose to deploy. AMI systems using "smart" water meters are capable of measuring, collecting, and analyzing water use information and then communicating this information back to the customer via the internet either on request or on a fixed schedule. AMI systems can include hardware, software, communications, consumer water use portals and controllers, and other related systems. AMI differs from automatic meter reading (AMR) in that it enables two-way communications with the meter and the water utility. AMI extends current advanced meter reading (AMR) technology by providing two-way meter communications for purposes such as real-time usage and pricing information, leak and abnormal usage detection, and targeted water efficiency messaging.

Customer behavioral engagement software. Software programs are now available that utilize customer water use data to develop individual water use reports for customers. This software works best when a utility has AMI, but can also be used without AMI. The objectives of this measure are to assist customers with their personal water management, identify potential water savings, achieve water and cost savings, and increase customer participation in the utility's incentive programs. These software programs can provide information in a variety of ways and have the ability to run on multiple platforms, including computers, tablets and mobile phone devices. One utility utilizing this type of program identified a 3-5% savings in total water use of customers utilizing this information compared to a control group.

A permanent landscape watering schedule limiting spray irrigation of ornamental landscape to no more than twice per week. Several communities in Region K have already adopted a permanent watering schedule for the hot periods of the year, typical from May 1 to September 30 each year. The City of Austin has adopted a year round similar schedule on a year-round basis. This measure, if enforced, saves a substantial amount of water and also lowers peak use during the summer, reducing pressure on water treatment plants and extending the period of time before a new plant is needed.

TCEQ 344 landscape irrigation standards for all new development. House Bill 1656, passed in 2007, requires all municipalities with a population of more than 20,000 to adopt these standards. Municipal utility districts and water control improvement districts were also allowed to adopt the standards. Some of the requirements include requiring licensed irrigators to properly design and install the irrigation including proper pressure and zoning for plan requirements, installing a rain sensor, no spray on narrow strips of landscape and other design standards. The licensed irrigator is also required to leave a water schedule and design plan with the customer.

Landscape standards for new development. Several Region K WUGs have adopted a variety of landscape standards, including requiring the use of native and adapted plants and drought tolerant turf, limits on irrigated landscape or turf area and a minimum of six inches of adequate soil. The Capital Area Homebuilder's Association has recently adopted recommended standards for new development that have many of these same requirements.

Landscape irrigation evaluations. WUGs can provide or hire a service to provide this service if a majority of customers in the utility service area utilize automatic in-ground irrigation systems. These evaluations can identify irrigation system issues such as leaks, as well as provide the customer with an efficient, appropriate watering schedule. This service also provides a positive customer service image for the utility and can effect positive behavior change through face to face site visits with individual customers.

Public outreach and education programs. To be effective, water conservation education and outreach should be planned and implemented in a consistent and continual manner. Traditional methods such as print and electronic media activities and staffing of community events can be combined effectively with social media applications to relay messaging quickly and frequently to a wide audience with little cost. For smaller utilities, there are many low-cost or free resources available that can be utilized to implement effective public outreach and education programs.

Region K encourages the TWDB to provide funding for all types of conservation measures for WUGs and wholesale water providers within Region K and around the state. The Texas Water Conservation Advisory Council provides ongoing development and updates of many conservation measures – or best management practices (BMPs) – that can meet a WUGs water conservation strategy. More information can be found at the Council’s website www.savetexaswater.org.

Modifications to Table 5-7 (Additions highlighted in yellow) (Only that part of table affected by changes is shown- Bastrop County section and Travis County Section of Table)

Table Error! No text of specified style in document.-7: Municipal Water Conservation Savings (ac-ft/yr)

WUG Name	County	River Basin	Conservation Water Savings (ac-ft/yr)					
			2020	2030	2040	2050	2060	2070
AQUA WSC	BASTROP	BRAZOS	6	9	10	11	15	20
AQUA WSC	BASTROP	COLORADO	619	895	960	1,128	1,499	1,992
AQUA WSC	BASTROP	GUADALUPE	5	7	8	9	12	14
BASTROP	BASTROP	COLORADO	195	440	688	1,084	1,459	1,958
COUNTY-OTHER	BASTROP	BRAZOS	1	2	4	7	8	10
COUNTY-OTHER	BASTROP	COLORADO	89	191	337	403	515	663
COUNTY-OTHER	BASTROP	GUADALUPE	2	3	3	4	4	4
CREEDMOOR-MAHA WSC	BASTROP	COLORADO	0	1	1	1	2	2
SMITHVILLE	BASTROP	COLORADO	44	72	76	88	117	155
BLANCO	BLANCO	GUADALUPE	19	32	28	26	27	27
JOHNSON CITY	BLANCO	COLORADO	18	30	30	28	26	26
BERTRAM	BURNET	BRAZOS	41	64	91	126	164	204
BURNET	BURNET	BRAZOS	1	1	2	3	4	4
BURNET	BURNET	COLORADO	183	281	403	568	736	913
COTTONWOOD SHORES	BURNET	COLORADO	22	21	20	19	21	23
COUNTY-OTHER	BURNET	BRAZOS	60	93	83	80	87	94
HORSESHOE BAY	BURNET	COLORADO	75	194	343	519	710	901
MARBLE FALLS	BURNET	COLORADO	234	587	1,016	1,397	1,764	2,059
MEADOWLAKES	BURNET	COLORADO	84	188	309	443	573	708
COLUMBUS	COLORADO	COLORADO	112	206	296	347	404	464
WEIMAR	COLORADO	COLORADO	19	24	30	39	47	57
WEIMAR	COLORADO	LAVACA	37	50	60	78	97	114
AQUA WSC	FAYETTE	COLORADO	0	1	1	0	1	1
FLATONIA	FAYETTE	GUADALUPE	4	6	9	12	16	20
FLATONIA	FAYETTE	LAVACA	13	23	34	48	68	85
LA GRANGE	FAYETTE	COLORADO	42	21	0	0	0	0
SCHULENBURG	FAYETTE	LAVACA	37	63	96	141	188	232
FREDERICKSBURG	GILLESPIE	COLORADO	317	599	733	916	1,094	1,301
BUDA	HAYS	COLORADO	88	206	434	552	709	888
DRIPPING SPRINGS	HAYS	COLORADO	48	67	98	141	195	262

WUG Name	County	River Basin	Conservation Water Savings (ac-ft/yr)					
			2020	2030	2040	2050	2060	2070
DRIPPING SPRINGS WSC	HAYS	COLORADO	54	124	152	187	232	283
WEST TRAVIS COUNTY PUA	HAYS	COLORADO	405	1,070	2,064	3,501	5,348	7,674
HORSESHOE BAY	LLANO	COLORADO	189	360	509	638	791	938
LLANO	LLANO	COLORADO	88	118	143	169	209	252
BAY CITY	MATAGORDA	BRAZOS-COLORADO	252	199	114	94	95	96
GOLDTHWAITE	MILLS	COLORADO	10	13	24	38	54	58
SAN SABA	SAN SABA	COLORADO	114	211	302	377	463	510
AQUA WSC	TRAVIS	COLORADO	74	94	87	87	96	103
BARTON CREEK WEST WSC	TRAVIS	COLORADO	42	77	108	122	137	152
BEE CAVE VILLAGE	TRAVIS	COLORADO	175	374	608	863	1,136	1,323
CEDAR PARK	TRAVIS	COLORADO	246	479	614	724	822	921
CREEDMOOR-MAHA WSC	TRAVIS	COLORADO	19	20	22	25	27	30
CREEDMOOR-MAHA WSC	TRAVIS	GUADALUPE	1	1	1	1	1	1
JONESTOWN	TRAVIS	COLORADO	20	36	51	73	96	122
LAGO VISTA	TRAVIS	COLORADO	187	301	426	604	773	972
LAKEWAY	TRAVIS	COLORADO	702	1,652	2,408	3,052	3,640	3,921
LOOP 360 WSC	TRAVIS	COLORADO	116	224	333	441	546	648
LOST CREEK MUD	TRAVIS	COLORADO	108	137	171	215	254	294
PFLUGERVILLE	TRAVIS	COLORADO	604	2,105	2,625	3,029	3,514	3,966

...

Modifications to Table 5-8 (Additions highlighted in yellow) (Only that part of table affected by changes is shown- Bastrop County section and Travis County Section of Table)

Table Error! No text of specified style in document.-8 Cost Estimate for Municipal Conservation Strategies

WUG Name	County	River Basin	Total Construction Cost	Total Capital Cost	Largest Annual Cost	Unit Cost (\$/ac-ft)
AQUA WSC	BASTROP	BRAZOS	\$12,126	\$12,126	\$2,126	\$352
AQUA WSC	BASTROP	COLORADO	\$1,217,517	\$1,217,517	\$217,485	\$352
AQUA WSC	BASTROP	GUADALUPE	\$8,625	\$8,625	\$1,691	\$352
BASTROP	BASTROP	COLORADO	\$224,866	\$224,866	\$59,136	\$303
COUNTY-OTHER	BASTROP	BRAZOS	\$2,918	\$2,918	\$391	\$374
COUNTY-OTHER	BASTROP	COLORADO	\$225,540	\$225,540	\$33,303	\$374
COUNTY-OTHER	BASTROP	GUADALUPE	\$4,278	\$4,278	\$707	\$374
CREEDMOOR-MAHA WSC**	BASTROP	COLORADO	\$205,450	\$205,450	\$17,192	\$17,192
SMITHVILLE	BASTROP	COLORADO	\$109,412	\$109,412	\$16,524	\$376
BLANCO	BLANCO	GUADALUPE	\$47,867	\$47,867	\$7,181	\$378
JOHNSON CITY	BLANCO	COLORADO	\$45,790	\$45,790	\$6,805	\$378
BERTRAM	BURNET	BRAZOS	\$41,421	\$41,421	\$11,952	\$292
BURNET	BURNET	BRAZOS	\$762	\$762	\$291	\$291
BURNET	BURNET	COLORADO	\$183,624	\$183,624	\$53,199	\$291
COTTONWOOD SHORES	BURNET	COLORADO	\$30,672	\$30,672	\$7,087	\$322
COUNTY-OTHER	BURNET	BRAZOS	\$164,771	\$164,771	\$23,754	\$396
HORSESHOE BAY	BURNET	COLORADO	\$44,289	\$44,289	\$19,252	\$257
MARBLE FALLS	BURNET	COLORADO	\$221,276	\$221,276	\$66,986	\$286
MEADOWLAKES	BURNET	COLORADO	\$64,541	\$64,541	\$22,755	\$271
COLUMBUS	COLORADO	COLORADO	\$100,974	\$100,974	\$31,570	\$282
WEIMAR	COLORADO	COLORADO	\$18,316	\$18,316	\$5,495	\$290
WEIMAR	COLORADO	LAVACA	\$37,462	\$37,462	\$10,780	\$290
AQUA WSC	FAYETTE	COLORADO	\$531	\$531	\$352	\$352
FLATONIA	FAYETTE	GUADALUPE	\$7,126	\$7,126	\$1,321	\$330
FLATONIA	FAYETTE	LAVACA	\$30,427	\$30,427	\$4,633	\$356
LA GRANGE	FAYETTE	COLORADO	\$117,647	\$117,647	\$16,612	\$396
SCHULENBURG	FAYETTE	LAVACA	\$78,947	\$78,947	\$12,692	\$343
FREDERICKSBURG	GILLESPIE	COLORADO	\$291,489	\$291,489	\$90,113	\$284
BUDA	HAYS	COLORADO	\$221,686	\$221,686	\$32,923	\$374
DRIPPING SPRINGS	HAYS	COLORADO	\$49,510	\$49,510	\$14,081	\$293
DRIPPING SPRINGS WSC	HAYS	COLORADO	\$68,043	\$68,043	\$16,895	\$313
WEST TRAVIS COUNTY PUA	HAYS	COLORADO	\$292,384	\$292,384	\$108,146	\$267
HORSESHOE BAY	LLANO	COLORADO	\$109,915	\$109,915	\$48,496	\$257
LLANO	LLANO	COLORADO	\$87,599	\$87,599	\$25,621	\$291
BAY CITY	MATAGORDA	BRAZOS-COLORADO	\$405,403	\$405,403	\$84,675	\$336
GOLDTHWAITE	MILLS	COLORADO	\$41,809	\$41,809	\$4,486	\$449

WUG Name	County	River Basin	Total Construction Cost	Total Capital Cost	Largest Annual Cost	Unit Cost (\$/ac-ft)
SAN SABA	SAN SABA	COLORADO	\$91,823	\$91,823	\$31,295	\$275
AQUA WSC	TRAVIS	COLORADO	\$146,071	\$146,071	\$26,025	\$352
BARTON CREEK WEST WSC	TRAVIS	COLORADO	\$38,391	\$38,391	\$11,855	\$282
BEE CAVE VILLAGE	TRAVIS	COLORADO	\$137,097	\$137,097	\$47,590	\$272
CEDAR PARK	TRAVIS	COLORADO	\$238,695	\$238,695	\$71,011	\$289
CREEDMOOR-MAHA WSC**	TRAVIS	COLORADO	\$4,574,100	\$4,574,100	\$382,758	\$20,145
CREEDMOOR-MAHA WSC**	TRAVIS	GUADALUPE	\$220,450	\$220,450	\$18,447	\$18,447
JONESTOWN	TRAVIS	COLORADO	\$46,456	\$46,456	\$7,130	\$356
LAGO VISTA	TRAVIS	COLORADO	\$187,406	\$187,406	\$54,394	\$291
LAKEWAY	TRAVIS	COLORADO	\$544,773	\$544,773	\$191,119	\$272
LOOP 360 WSC	TRAVIS	COLORADO	\$71,683	\$71,683	\$29,963	\$258

...

After end of Table 5-8 add the following new text:

**Note: The cost estimates for Creedmoor-Maha WSC (CMWSC) shown in Table 5-8 Cost Estimate for Municipal Conservation Strategies above are significantly higher than the other proposed water conservation strategies listed in the table. This significant difference in costs appears to be due to: CMWSC's service area covers a large suburban/rural area with fewer meters per mile of main line as compared to a more compact municipal system; a portion of the CMWSC service area is located in Region L and the additional savings associated with that portion of the service is not part of the calculation of unit cost in this region; and lastly, the per capita (gpcd) usage in the CMWSC system is already well below other systems and therefore the overall return in savings is much less.

Modification to Table 5A-1

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.

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			<i>Note: NO CHANGES PROPOSED TO THIS SECTION OF TABLE, SO IT IS NOT SHOWN IN THIS ATTACHMENT</i>
Water User Group Name	Maximum Need 2020-2070 (ac/yr)	Conservation	Drought Management	Reuse	
<i>Aqua WSC</i>	26,269	PF	PF	nPF	
<i>Bastrop</i>	6,390	PF	PF	PF	
<i>Bastrop County WCID #2</i>	644	nPF	PF	nPF	
<i>County-Other, Bastrop</i>	1,490	PF	PF	nPF	
<i>Creedmoor-Maha WSC</i>	609	PF	PF	nPF	
<i>Elgin</i>	4,124	nPF	PF	nPF	
<i>Smithville</i>	721	PF	PF	nPF	
<i>Manufacturing, Bastrop</i>	199	nPF	nPF	nPF	

...

The **only** change on this table was to change the “nPF” in the Conservation 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 136 at end of Conservation Projects 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 \$
136	Conservation	Creedmoor-Maha WSC	Conservation- 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.

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 (Bastrop County) and 16 (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:

APPENDIX 5B-1

					Water Management Strategies (ac-ft/yr)					
WUG Name	County	River Basin	Water Management Strategy Name	Source Name	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	Conservation		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	Conservation		19	20	22	25	27	30
Creedmoor-Maha WSC	Travis	Guadalupe	Conservation		1	1	1	1	1	1
Remaining Surplus/Shortage					208	570	473	352	219	90

Found on Page 2 of Appendix 5B-1

Found on Page 16 of Appendix 5B-1

Chapter 9

Additions to Table 9.1 (Inserting/adding the following highlighted (yellow) information into Table 9.1; 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 - Conservation	CREEDMOOR-MAHA WSC	\$5,000,000
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.