

Collin
Cooke
Dallas
Denton
Ellis
Fannin
Freestone
Grayson
Henderson
Jack
Kaufman
Navarro
Parker
Rockwall
Tarrant
Wise

REGION C

Water Planning for North Texas

December 2015 Newsletter

Planning Group Re-Elects Officers

At its November 9, 2015, public meeting, the RCWPG considered nominations for its 2015-16 slate of officers. The following have been re-elected to a one-year term: Jody Puckett, chair; Russell Laughlin, vice chair; and Kevin Ward, secretary.

Please see the back panel of this newsletter for a full roster of current Planning Group members.

Next Meeting

No meetings currently scheduled.

Timeline for Planning Activities

Over the coming year, most water planning activities affecting Region C will take place at the state level. Key dates in the statewide water planning process are as follows:

- **Late 2015:** Texas Water Development Board (TWDB) reviews final plans, combines 16 approved regional plans to produce a draft State Water Plan.
- **Early 2016:** TWDB reports to the Texas Legislature.
- **Late 2016:** TWDB produces final 2017 State Water Plan and delivers it to the Legislature by January 2017.

To receive this newsletter, send your name plus an e-mail and/or mailing address to Colby Walton at colby@cookseypr.com or via fax to 972-580-0852.

Visit www.regioncwater.org for the latest updates on RCWPG activities, documents, meetings and other water planning news, or contact Amy Kaarlela with Freese & Nichols at adk@freese.com.

2016 Water Plan Approved for North Central Texas

The Region C Water Planning Group (RCWPG), the group responsible for development of the long-range water plan for North Central Texas, approved the 2016 Region C Water Plan at a public meeting on November 9, 2015. The final plan and Region C's prioritization of the nearly 600 recommended water management strategies were subsequently submitted to the Texas Water Development Board (TWDB), which now begins the process of reviewing plans from regions across Texas and combining them into the 2017 State Water Plan.

This issue of the RCWPG newsletter provides an overview of the regional water planning process, a summary of the updated Region C Water Plan and details about next steps that could affect Region C's planned supply strategies.

Who is the Region C Water Planning Group?

The RCWPG is one of 16 regional water planning groups selected by the TWDB to help develop a comprehensive state water plan for Texas through 2070. Each water planning group is responsible for preparing and adopting a regional plan for its area. The RCWPG is made up of 22 members representing 12 different interest groups.

What is Region C's Geographic Area?

Region C, as designated by the TWDB, covers all or part of 16 counties in North Central Texas, including Collin, Cooke, Dallas, Denton, Ellis, Fannin, Freestone, Grayson, Henderson (Trinity River Basin portion), Jack, Kaufman, Navarro, Parker, Rockwall, Tarrant and Wise.

How Does Regional Water Planning Work?

In 1997, the Texas Legislature enacted Senate Bill 1 (SB 1), comprehensive water legislation that called for the development of a State Water Plan to address Texas' growing water needs. SB 1 outlined a bottom-up, regionally driven planning process and created regional water planning groups across the state. These groups began planning in 1997 and submitted their initial regional water plans, covering needs for the next 50 years, to the TWDB in 2001. The TWDB incorporated those plans into a comprehensive State Water Plan in 2002.

After two more five-year planning cycles, from 2002-2007 and 2007-2011, the RCWPG and other regional water planning groups are now completing their fourth planning cycle, which will ultimately result in the production of the 2017 State Water Plan by the TWDB.



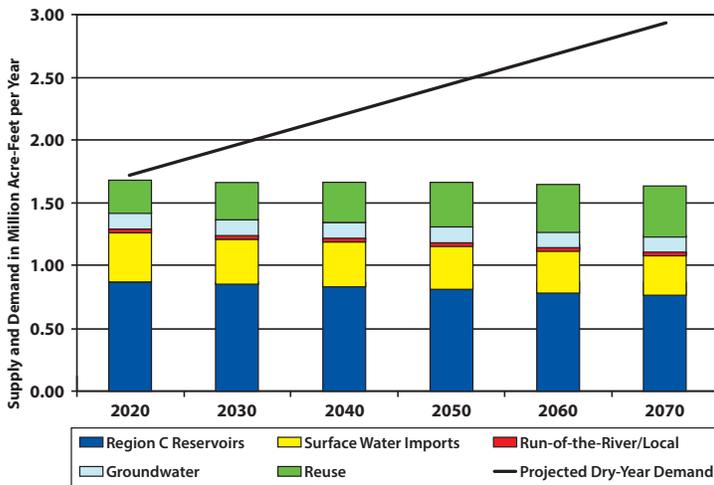
Why is Regional Water Planning Important?

Water planning in North Central Texas is critical to prepare for the contingencies of the future:

- Texas is prone to severe droughts, as witnessed in the 1950s and in very recent years
- The population of Region C is projected to more than double over the next 50 years, from nearly 6.5 million in the year 2010 to over 14.3 million by 2070
- As a result, water demands in dry years will grow tremendously, from just over 1.5 million acre-feet in 2011, to 2.9 million acre-feet per year by 2070
- Currently available water supplies for the region are only about 1.7 million acre-feet per year

Figure ES.3

Comparison of Currently Available Supplies and Projected Demands



- Consequently, Region C faces a potential shortage of 1.2 million acre-feet per year by 2070 if new supplies are not developed
- If no new supplies are developed, the TWDB calculates that a single year of severe drought could have significant, adverse socio-economic impacts on Region C, including:
 - Regional income would be reduced by \$34.6 billion
 - Regional employment would be reduced by over 373,000 jobs
 - Regional population would be reduced by nearly 70,000 persons
 - It is important to note that this socio-economic impact analysis only considers a severe drought occurring in a single year. A drought several years long would have an even greater impact on the region.

What Was the Public Input Process?

The RCWPG conducts all of its meetings in public, and members of the public are invited to attend, observe and provide comments throughout the planning process. Additionally, once a draft version of the updated Region C Water Plan was prepared in the spring of 2015, the RCWPG distributed it to county clerks' offices and public libraries throughout the region, published notices in major regional newspapers and hosted a public hearing in Arlington to solicit public feedback on the plan. The RCWPG also sought input from water suppliers and other public agencies on the draft plan, and made the plan available on its website for public inspection.

After a substantial public comment period ending in August 2015, the Planning Group carefully considered all of the verbal and written comments received. Many of the comments led to revisions before the 2016 Region C Water Plan was approved by the Planning Group in November 2015.

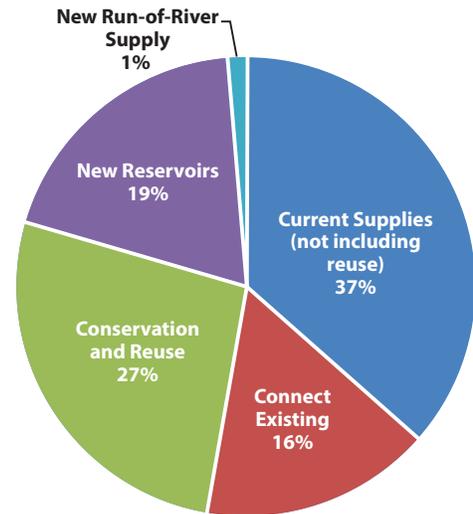
What Are the Plan's Recommended Strategies?

To meet projected, future shortfalls, Region C's 2016 Water Plan includes recommendations for a variety of water management strategies to be implemented between now and 2070.

Of the water supplies available by 2070 under the plan:

- More than one-third would come from **currently available supplies** (including surface water and groundwater)
- More than one-quarter would be developed from **water conservation and reuse strategies** – perhaps the most ambitious conservation and reuse effort in the entire state
- About one-fifth would be provided through the development of **new reservoirs and run-of-river projects**
- The remainder would come from establishing **new connections to existing water supply sources**

Figure ES.6 Sources of Water Available to Region C as of 2070



Major new reservoirs recommended in the plan are the Lower Bois d'Arc Creek Reservoir, Lake Columbia, Lake Ralph Hall, Lake Tehuacana and development of Sulphur River Basin supplies, potentially including the Marvin Nichols Reservoir.

Most recently, the TWDB determined that a potential conflict existed between the draft 2016 plans for Region C and Region D (Northeast Texas), with respect to allocation of Sulphur River Basin supplies. As a result of this finding, representatives of the two groups came together and jointly negotiated a resolution that was subsequently ratified by both planning groups. Under that agreement, Region C will focus first on reallocating flood storage to conservation storage in the existing Lake Wright Patman, with proposed development of the Marvin Nichols Reservoir now deferred until the year 2070. Region C also will discourage water suppliers from seeking permits for new reservoir development in Region D over the next five years, and will support Region D's efforts to request state funding for further study of reservoir alternatives. At the same time, Region D has agreed not to challenge designation of the Marvin Nichols Reservoir's unique reservoir site over

the next five years. Regions C and D have further committed to work more cooperatively, in the next round of regional water planning, to develop a mutually beneficial plan for Sulphur River Basin water use.

The total projected cost of implementing the recommended water management strategies in the plan is \$23.8 billion.

Table ES.1

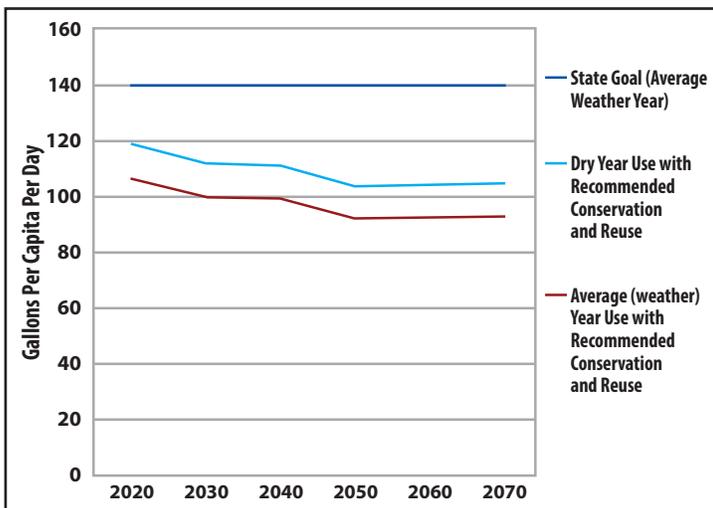
Recommended Major Water Management Strategies for Region C

Strategy	Supplier	Supply in 2070 (Ac-Ft/Yr)	Supplier Capital Cost
Conservation	Multiple	135,991	\$420,878,859
Reuse Implementation (Main Stem Trinity River)	Dallas	149,093	\$718,944,000
Connect Lake Palestine	Dallas	110,670	\$900,817,000
Sulphur Basin Supplies	TRWD	280,000	\$3,004,413,000
	NTWMD	174,800	\$1,097,994,000
	UTRWD	35,000	\$284,157,000
Lower Bois d'Arc Creek Reservoir	NTWMD	120,200	\$625,610,000
Toledo Bend	NTWMD	100,000	\$1,248,461,000
Cedar Creek Wetlands (Reuse)	TRWD	88,059	\$139,078,000
Lake Texoma blending	NTWMD	96,134	\$512,775,000
Lake Columbia	Dallas	56,050	\$327,187,000
Lake Ralph Hall and Associated Reuse	UTRWD	50,121	\$316,160,000
Oklahoma	NTWMD	50,000	\$167,541,000
Neches Run-of-River	Dallas	47,250	\$226,790,000
Lake Tehuacana	TRWD	41,600	\$742,730,000
Lake Texoma Desalination	GTUA	41,076	\$142,222,000

How Important Are Conservation and Reuse in the Plan?

Region C remains strongly focused on water conservation and reuse strategies, and in fact, the North Central Texas region is both a statewide and national leader in its development of

Projected Municipal Per Capita Water Use in Region C



such forward-thinking water supply projects. Under the 2016 Region C Water Plan, conservation and reuse will account for more than one-quarter of the region’s water supply by 2070. A number of major water reuse projects are also currently under development, or already in use, across the region.

Region C’s 2016 plan incorporates more municipal water conservation and reuse supplies than those included in any other Texas region’s newest plans. This reflects the commitment of the RCWPG to conservation and reuse as critical elements of a balanced approach to long-term planning.

Which Major, Feasible Strategies Were Not Recommended, and Why?

A number of potentially feasible strategies were considered during the RCWPG’s planning efforts, but were not recommended in the 2016 Region C Water Plan, for various reasons. Among the most significant such strategies were:

- **Gulf of Mexico with Desalination:** Although the Gulf of Mexico offers a potentially limitless supply of water, the cost of desalinating this water and transporting it all the way to Region C makes this a very expensive option compared to other available strategies.
- **George Parkhouse Lakes (North and South):** The yield of these proposed reservoirs, located on the North Sulphur River in Delta and Lamar Counties, and on the South Sulphur River in Delta and Hopkins Counties, respectively, would be substantially reduced by the development of either Lake Ralph Hall or the Marvin Nichols Reservoir. Both lakes are alternative strategies in the plan for the North Texas Municipal Water District and the Upper Trinity Regional Water District.
- **Cypress Basin Supplies (Lake O’ the Pines):** The distance of this existing lake from the Metroplex and the limited supply available make this a relatively expensive water management strategy. The lake is an alternative strategy in the plan for the North Texas Municipal Water District.

For a discussion of other potentially feasible water management strategies evaluated by the RCWPG, see Chapter Five of the Region C Water Plan or visit www.regioncwater.org.

How Can I Obtain a Copy of the Plan?

The 2016 Region C Water Plan may be viewed on the Region C website, www.regioncwater.org, and hard copies or CDs of the plan may also be ordered via the website. The plan is also available on CD at major public libraries throughout the region.

What Happens Next in Region C?

The RCWPG will begin work on the next regional water planning cycle in the fall of 2016. The next planning cycle will take into account new groundwater availability data and desired future conditions for groundwater in the region, based on the work of Groundwater Management Area 8 (see sidebar).

GMA 8 Continues Assessment of Available Groundwater

As discussed in previous newsletters, Groundwater Management Area 8 (GMA 8), which covers almost all of Region C, has continued developing updates to its Northern Trinity/Woodbine Groundwater Availability Model (GAM), a process that began in early 2012. The new model will play a critical role in helping GMA 8 to set desired future conditions in Region C's major aquifers, and to determine how much groundwater can be considered "available" for purposes of future regional water planning.

Partnering with the groundwater conservation districts (GCDs) within its geographic area, GMA 8 has been performing model runs to understand the hydrological impacts of different predictive scenarios. Most recently, GMA 8 completed runs five and six of the new GAM. It is possible that more runs of the model will be performed by GMA 8's consultant, but this is still uncertain. There could also be localized model runs requested by individual districts or a small group of neighboring districts.

After analysis of the model run results, GMA 8 will propose a set of desired future conditions early next year, and must do so no later than May 1, 2016. For more information on GMA 8 and the new model runs, see <http://gma8.org/>.

Planning Group Adds Two New Members

The Region C Water Planning Group (RCWPG) has added two new members to replace former members Frank Crumb and Dr. Thomas La Point. Crumb recently retired after working for more than 30 years with the City of Fort Worth Water Department, where he served as water director. Dr. La Point served as a professor in the department of biology at the University of North Texas, but recently moved to Colorado.

John Carman

(representing municipalities)



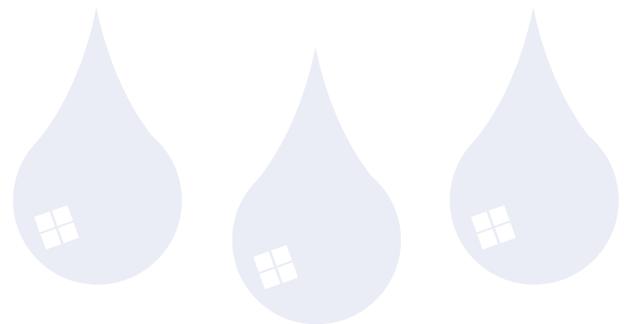
Carman is the current water director for the City of Fort Worth, where he began working on April 6, 2015. He brings more than 30 years of experience in water and wastewater-related roles. Carman previously worked for the city of Raleigh, N.C., where he served as the public utilities director.

John Lingenfelder

(representing the public)



Lingenfelder previously served as the alternate for Dr. La Point. He is semi-retired from his career as a software engineer. Lingenfelder is deeply involved in community and environmental groups across North Texas, including serving as a board member of the Native Plant Society of Texas, Blackland Prairie Chapter, and as founder of the Plano Solar Initiative, which focuses on local alternative energy efforts.



A Language All Its Own: Glossary of Regional Water Planning Terms

As you are reading the Region C Water Plan, you may encounter unfamiliar words or phrases that are integral to water planning. Among the key terms are the following:

Acre-Foot: Volume of water needed to cover one acre to a depth of one foot. It equals 325,851 gallons.

Aquifer: Geologic formation that contains sufficient saturated permeable material to yield significant quantities of groundwater to wells and springs. The formation could be sand, gravel, limestone, sandstone or fractured igneous rocks.

Desalination: Process of removing salt from seawater or brackish water.

Drought of Record: Period of time during recorded history when natural hydrological conditions provided the least amount of water supply. For Texas as a whole, the drought of record is generally considered to be from about 1950 to 1957.

Groundwater: Water located beneath the ground's surface in soil pore spaces and in the fractures of lithologic formations, including water found in underground aquifers.

Instream Flow: Water flow and water quality regime adequate to maintain an ecologically sound environment in streams and rivers.

Interbasin Transfer: Physical conveyance of surface water from one river basin to another.

Reuse: Use of surface water that has already been beneficially used once under a water right, or the use of groundwater that has already been used.

Surface Water: Water collecting on the ground or in a stream, river, lake, wetland or ocean, as differentiated from groundwater or atmospheric water.

Water User Group (WUG): Identified user or group of users for which water demands and water supplies have been identified and analyzed, and plans developed to meet water needs.

Wholesale Water Provider (WWP): Person or entity, including river authorities and irrigation districts, that had contracts to sell more than 1,000 acre-feet of water wholesale in any one year during the five years immediately preceding the adoption of the last regional water plan.

For a more complete list of key water planning terms, see the glossary from the 2012 State Water Plan: https://www.twdb.texas.gov/publications/state_water_plan/2012/12.pdf.

Map of Region C



About the Region C Water Planning Group

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<i>Jody Puckett</i>	Chair	Municipalities	<i>Bob Riley</i>	Member	Environment
<i>Russell Laughlin</i>	Vice Chair	Industry	<i>Drew Satterwhite</i>	Member	Water Districts
<i>Kevin Ward</i>	Secretary	River Authority	<i>Bob Scott</i>	Member	Environment
<i>David Bailey</i>	Member	GMA 12*	<i>Gary Spicer</i>	Member	Electric Generating Utilities
<i>John Carman</i>	Member	Municipalities	<i>Connie Standridge</i>	Member	Water Utilities
<i>Bill Ceverha</i>	Member	Public	<i>Jack Stevens</i>	Member	Water Districts
<i>Gary Douglas</i>	Member	GMA 11*	<i>Dr. Tom Woodward</i>	Member	Agriculture
<i>James Hotopp</i>	Member	Municipalities	<i>Curtis Campbell</i>	Non-Voting Member	Region B
<i>Tom Kula</i>	Member	Water Districts	<i>Alva Cox</i>	Non-Voting Member	Brazos G RWPG
<i>Harold Latham</i>	Member	GMA 8*	<i>Darrell Dean</i>	Non-Voting Member	Texas Dept. of Agriculture
<i>John Lingenfelder</i>	Member	Public	<i>Mike Harbordt</i>	Non-Voting Member	Region I
<i>G. K. Maenius</i>	Member	Counties	<i>Sharon Nabors</i>	Non-Voting Member	Region D
<i>Howard Martin</i>	Member	Municipalities	<i>Connie Townsend</i>	Non-Voting Member	Texas Water Development Board
<i>Jim McCarter</i>	Member	Water Utilities	<i>Adam Whisenant</i>	Non-Voting Member	Texas Parks & Wildlife Dept.
<i>Steve Mundt</i>	Member	Small Business			

**GMA = Groundwater Management Area*



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