



January 22, 2015

Jo M. (Jody) Puckett, P.E.
 Chair
 Region C Water Planning Group
 c/o Trinity River Authority
 P.O. Box 240
 Arlington Texas 76004-0240

Re: 2016 Region C Water Plan, Dallas Water Utilities Water Supply Strategies

Attached are the proposed strategies to meet the City of Dallas' long range water supply needs to the year 2070 for inclusion in the 2016 Region C Water Plan. These strategies, including Recommended Water Supply Strategies, Alternate Supply Recommendations and Infrastructure Recommendations, were reviewed and adopted by the Dallas City Council on October 8, 2014. The attached water supply strategies were developed through Dallas' 2014 Long Range Water Supply Plan (LRWSP).

The attached Council adopted water supply strategies are based on a managed supply approach. The basis of Dallas' managed supply can be found in Dallas' 2014 LRWSP. The managed supply for Dallas' individual reservoirs and system can also be referenced in terms of safe yield, which is defined as the water that could be supplied from a reservoir or reservoir system during a repeat of the drought-of-record conditions leaving a predetermined water supply reserve measured in time. The safe yield of Dallas' system is approximately three months in 2020 and approximately nine months in 2070. Table 1 below provides the projected demands, managed supply and resulting needs for Dallas by decade.

Table 1.
Demands, Managed Supply and Needs
(Million Gallons per Day)

	2020	2030	2040	2050	2060	2070
DWU Demand	469	504	558	614	678	718
<i>DWUSupplies</i>						
<i>Lake Grapevine</i>	<i>12.8</i>	<i>12.3</i>	<i>11.8</i>	<i>11.2</i>	<i>10.7</i>	<i>10.2</i>
<i>Elm Fork System</i>						
<i>Lake Ray Roberts</i>						
<i>Lake Lewisville</i>	<i>162</i>	<i>155</i>	<i>149</i>	<i>143</i>	<i>136</i>	<i>130</i>
<i>Elm Fork Run-of-River</i>						
<i>Elm Fork Reuse</i>	<i>12.2</i>	<i>16.7</i>	<i>20.2</i>	<i>26.8</i>	<i>42.3</i>	<i>48.8</i>
<i>Lake Ray Hubbard</i>	<i>50</i>	<i>49.1</i>	<i>48.2</i>	<i>47.2</i>	<i>46.3</i>	<i>45.4</i>
<i>Lake Tawakoni</i>	<i>157</i>	<i>152</i>	<i>148</i>	<i>144</i>	<i>139</i>	<i>135</i>
<i>Lake Fork</i>	<i>107</i>	<i>104</i>	<i>101</i>	<i>97.3</i>	<i>93.8</i>	<i>90.4</i>
Total Available Supply	501	489.1	478.2	469.5	468.1	459.8
Buffer/Deficit	32	-15	-80	-144	-210	-258

Our Vision: To be an efficient provider of superior water and wastewater service and a leader in the water industry

Ms. Puckett
Re: 2016 Region C Water Plan,
Dallas Water Utilities Water Supply Strategies

January 22, 2015
Page 2

In addition to the inclusion of Dallas' water supply strategies please include Dallas' managed supplies in the 2016 Region C Water Plan.

Please let me know if you have any questions or need any additional information.

Sincerely,

A handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

Denis Qualls, P.E., D.WRE
Senior Program Manager, Planning

Enclosure

cc: Amy Kaarlela, Freese and Nichols

WHEREAS, on September 26, 2012 the City Council authorized a contract with HDR Engineering, Inc. to prepare the City's Long Range Water Supply Plan (the Plan) to the year 2070 and beyond; and,

WHEREAS, on April 10, 2013, the City Council approved the City's participation in the Sulphur River Basin Wide Study and Neches River Basin Study; and,

WHEREAS, the Plan identified reductions in demands due to a decline in the rate of population growth and the reduction in the per capita water usage, due to substantial water savings from Dallas' water conservation programs as identified in Dallas' Water Conservation Five-Year Strategic Plan including time of day watering and maximum twice weekly outdoor watering; and,

WHEREAS, the Plan identified a reduction in the currently connected water supply due to sedimentation and the projected increase in evaporation due to increased temperatures associated with climate change over the 55 year planning horizon; and,

WHEREAS, comparing the water demands with the currently connected water supply by decade the City's projected water needs were identified and the City needs to obtain and connect additional water supply in order to meet the future needs of the citizens and customers of Dallas; and,

WHEREAS, to meet the projected water needs the Plan identified over 300 possible strategies and through a multi level screening process identified 41 Potential Strategies that were further analyzed and narrowed down to a list of 14 Preferred Strategies; and,

WHEREAS, seven of the top nine ranked Preferred Strategies were then selected as Recommended Strategies to meet Dallas' water needs to 2070 and beyond; and,

WHEREAS, the Recommended Strategies are additional water conservation, indirect reuse implementation (main stem pump station and main stem balancing reservoir), connection of the Integrated Pipeline Project to connect Lake Palestine (including the connection to the Bachman Water Treatment Plant) and additional water from the Neches River and Lake Columbia; and,

WHEREAS, the remaining seven of the 14 Preferred Strategies were identified as Alternate Strategies; and,

WHEREAS, the Alternate Strategies are direct reuse, Carrizo Wilcox groundwater, off-channel reservoir and Carrizo Wilcox groundwater from the Sabine River Basin, Red River off-channel reservoir, Sulphur River Basin water from Wright Patman and Marvin Nichols, Toledo Bend and Lake Texoma desalination; and,

WHEREAS, the Plan identified infrastructure improvements needed as a result of growth, anticipated regulation changes and reliability, and water treatment plant modifications and expansions, distribution system enhancements and raw water transmission modifications and enhancements; and,

WHEREAS, the Recommended Strategies and Alternate Strategies are required to be submitted to the Region C Water Planning Group for inclusion into the 2016 Region C Water Plan and the 2017 State Water Plan prior to January 2015.

Now, Therefore,

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DALLAS:

Section 1. That the Recommended Strategies, Alternate Strategies and the Infrastructure Recommendations identified in the City of Dallas 2014 Long Range Water Supply Plan are hereby adopted as shown on Exhibit A.

Section 2. That the City Manager be directed to submit Exhibit A for the City of Dallas to the Region C Water Planning Group.

Section 3. That this resolution shall take effect immediately from and after its passage in accordance with the provisions of the Charter of Dallas, and it is accordingly so resolved.

APPROVED BY
CITY COUNCIL

OCT 08 2014


City Secretary

Water Supply Strategies

<u>Strategy</u>	<u>Date</u>	<u>Supply (MGD)</u>
Conservation (savings)	2020	11.0
	2030	25.0
	2040	37.0
	2050	43.0
	2060	45.0
	2070	47.0
Indirect Reuse Implementation		
Main Stem Pump Station (NTMWD Swap Agreement)	2020	31.0
Main Stem Balancing Reservoir	2050	75.0
	2060	91.0
	2070	102.0
Connect Existing Supplies		
Lake Palestine (Integrated Pipeline Project)	2030	102.0
IPL Connection to Palestine		
IPL Connection to Bachman WTP		
Neches Run-of-River	2060	40.0
Lake Columbia	2070	50.0

Alternative Supply Recommendations

Direct Reuse Alternative 1

Carrizo Wilcox Groundwater 2

Sabine Conjunctive Sys Ops (Off Channel Reservoir and Groundwater)

Red River Off Channel Reservoir 1

Wright Patman (232.5)/Marvin Nichols (296.5)

Toledo Bend to West System

Lake Texoma Desalinization

Infrastructure

Project	Drivers	Recommended Implementation
Elm Fork WTP Pre-sedimentation Basin	G / R	2017
East Side WTP WQI	G / R / M	2018
72-inch Treated Water Pipeline (Bachman WTP to Elm Fork WTP)	G / R / M	2018
Elm Fork WTP Residuals Handling Improvements	G / R / M	2018
Elm Fork WTP Pump Station 1	R / M	2018
Iron Bridge Pump Station Rehab	R / M	2018
East Side WTP Residuals Basins and Sludge PS Improvements	M	2022
Elm Fork WTP WQI6	G / R / M	2024
144-in Pipeline (from Tawakoni Interconnect to Balancing Reservoir and on to East Side WTP)	G / M	2030
Wintergreen Pump Station and Southwest Pipelines	G	2030
Tawakoni Balancing Reservoir Expansion	G / M	2030
East Side WTP Electrical Distribution System Improvements and Substation 3	G / M	2030
East Side WTP Stage V Filters	G / R	2030
Western WTP Expansion	G	2045

Drivers:

G – Growth

R – Regulatory

M – Maintenance/Reliability