

## Proposed Amendment to the 2001 *Region C Water Plan*

### Executive Summary

On August 31, 2004, the North Texas Municipal Water District (NTMWD) requested that the Region C Water Planning Group (RCWPG) consider an amendment to the 2001 *Region C Water Plan* based on changed conditions. The Region C Water Planning Group conducted a public hearing on the proposed amendment on December 6, 2004, received oral public comments at the public hearing, and accepted written comments on the amendment through January 5, 2005. The proposed amendment has been revised in response to the public comments and is presented for approval by the Region C Water Planning Group.

The 2001 *Region C Water Plan* envisioned that the NTMWD would obtain a supply of 50,000 acre-feet per year (ac-ft/yr) from Oklahoma sources by 2010. To date, negotiations for this supply have not been successful. In addition, the NTMWD service area has experienced more rapid growth than projected in the 2001 *Region C Water Plan*, adding urgency to the need for water.

Due to the immediate need, the NTMWD proposes to obtain additional water supplies through the East Fork Reuse Project. Although the 2001 plan identifies reuse as a water management strategy to help meet the region's water supply needs, it does not specifically identify the East Fork Reuse Project as a water management strategy for the NTMWD. Based on the changed conditions, the NTMWD proposes that the RCWPG amend the 2001 *Region C Water Plan* to specifically recommend the following water management strategy for the NTMWD:

- East Fork Reuse Project: Under the East Fork Reuse Project, reclaimed water originating from NTMWD sources would be diverted from the East Fork of the Trinity River near Crandall in Kaufman County and pumped to a large constructed wetland for nutrient removal and water quality polishing. After passage through the constructed wetland, water would be pumped to Lake Lavon for storage, blending, and use. The East Fork Reuse Project would provide a supply of 81,400 acre-feet per year (ac-ft/yr) by 2010, 96,400 ac-ft/yr by 2020, and 102,000 ac-ft/yr by 2030. The NTMWD is applying for a water right for the East Fork Reuse Project.

In addition, current planning rules require that water conservation strategies be considered for each projected water need. The NTMWD has developed a model water conservation plan for its Members and Customers. Based on elements of this model water conservation plan, the NTMWD proposes that the RCWPG amend the 2001 *Region C Water Plan* to specifically recommend the following water management strategies for NTMWD Members and Customers:

- Water System Audit, Pressure Control, and Leak Detection and Repair: This conservation strategy involves monitoring and minimizing unaccounted-for water

through pressure control and leak detection and repair. The target unaccounted-for water would be 12 percent of total water demand for urban and suburban water suppliers served by NTMWD and 18 percent for rural water suppliers served by NTMWD. Water saved by this strategy is projected to be the difference between the reported unaccounted-for water and the target unaccounted-for water. One-third of the savings is projected to occur by 2010, and the full savings is projected to occur by 2020. No water savings were projected for water user groups (WUGs) that have not reported their unaccounted-for water.

- Public and School Education: This conservation strategy involves continuing and expanding on existing public and school education programs. Public and school education is already included in the water demand projections for the 2001 *Region C Water Plan*, so no additional water savings are projected from this strategy.
- Water Conservation Pricing: This conservation strategy involves implementing an increasing block pricing structure for potable water. Water savings from this strategy are projected to be 1.5 percent of total water demand for WUGs that have not already implemented this strategy. One-half of the savings is projected to occur by 2010, and the full savings is projected to occur by 2020. No water savings were projected for WUGs that have not reported their water rate structure.
- Water Waste Prohibition: This conservation strategy involves implementing an ordinance prohibiting water waste. The ordinance would mandate one or more of the following: limited hours for lawn irrigation, rain sensors, freeze sensors, irrigation system design requirements, prohibition of spray on impervious surfaces, and prohibition of use of poorly maintained irrigation systems. Water saved by this strategy is projected to be 3.3 percent of irrigation water demand for WUGs that have not already implemented this strategy. One-half of the savings is projected to occur by 2010, and the full savings is projected to occur by 2020. No water savings were projected for WUGs that have not reported whether they have implemented a water waste prohibition.

For each customer and each of the above water conservation strategies, water conservation savings were estimated for each decade in which the customer has a projected water need and for each decade in which the customer is projected to use more than 140 gallons per capita per day (gpcd). Customers that reduce their per capita usage to less than 140 gpcd should continue striving to conserve water, but it is difficult to quantify the additional savings that will be achieved below this level of usage.

Table A shows the additional projected savings for NTMWD Members and Customers.

**Table A**  
**Projected Savings from Additional NTMWD Member and Customer Water Conservation**

Conservation Strategy	Water Savings (ac-ft/yr)					
	2000	2010	2020	2030	2040	2050
Water System Audit, Pressure Control, and Leak Detection and Repair	0	630	2,842	4,004	5,244	6,398
Water Conservation Pricing	0	914	2,627	2,786	3,338	3,813
Water Waste Prohibition	0	487	1,384	1,825	2,266	2,669
<b>TOTAL</b>	<b>0</b>	<b>2,031</b>	<b>6,853</b>	<b>8,615</b>	<b>10,848</b>	<b>12,880</b>

NOTE: Savings from public and school education are included in the water demand projections.

### Proposed Text Amendments

#### North Texas Municipal Water District

The NTMWD bullet item about reuse projects in the planning and permitting stage on page 5.12 would be modified to read:

- “North Texas Municipal Water District is in the planning and permitting stage of increasing its existing reuse project to supplement the water supply in Lake Lavon with reclaimed water. The NTMWD is also in the planning and permitting stage of supplementing its water supply in Lake Lavon with reclaimed water diverted from the East Fork of the Trinity River.”

The following bullet item would be added to the list of recommended water management strategies for the development of additional water supplies for the North Texas Municipal Water District on page 5.42:

- “**East Fork Reuse Project.** North Texas Municipal Water District is in the planning and permitting stage of supplementing its water supply in Lake Lavon with reclaimed water diverted from the East Fork of the Trinity River.”

The East Fork Reuse Project and Additional Customer Conservation would be added to Tables 5.12 and 5.13 and Figure 5.6. The amended Tables 5.12 and 5.13 and Figure 5.6 are presented below.

**Amended Table 5.12**  
**North Texas Municipal Water District Recommended Water Management Strategies**

Source	Supply by Source and Demand in Acre-Feet per Year					
	2000	2010	2020	2030	2040	2050
<i>Lake Lavon</i>	<i>103,900</i>	<i>102,200</i>	<i>100,600</i>	98,800	97,000	95,200
<i>Lake Texoma</i>	<i>77,300</i>	<i>77,300</i>	<i>77,300</i>	77,300	77,300	77,300
<i>Lake Chapman</i>	<i>53,600</i>	<i>53,200</i>	<i>52,800</i>	52,400	52,000	51,600
<i>Current Reuse</i>	<i>35,925</i>	<i>35,925</i>	<i>35,925</i>	35,925	35,925	35,925
Future Additional Reuse		17,936	26,904	35,872	35,872	35,872
Additional Lake Texoma		10,000	10,000	10,000	10,000	10,000
Additional Customer Conservation		2,031	6,853	8,615	10,848	12,880
East Fork Reuse Project		81,400	96,400	102,000	102,000	102,000
Oklahoma Water		50,000	50,000	50,000	50,000	50,000
Lower Bois d'Arc Creek Lake			98,000	98,000	98,000	98,000
Marvin Nichols I				81,650	81,650	163,300
<b>Total Connected Supply</b>	<b>270,725</b>	<b>429,992</b>	<b>554,782</b>	<b>650,562</b>	<b>650,595</b>	<b>732,077</b>
Estimated Demand	234,884	316,092	387,346	448,164	512,509	560,043
<b>Surplus (Shortage)</b>	<b>35,841</b>	<b>113,900</b>	<b>167,436</b>	<b>202,398</b>	<b>138,086</b>	<b>172,034</b>

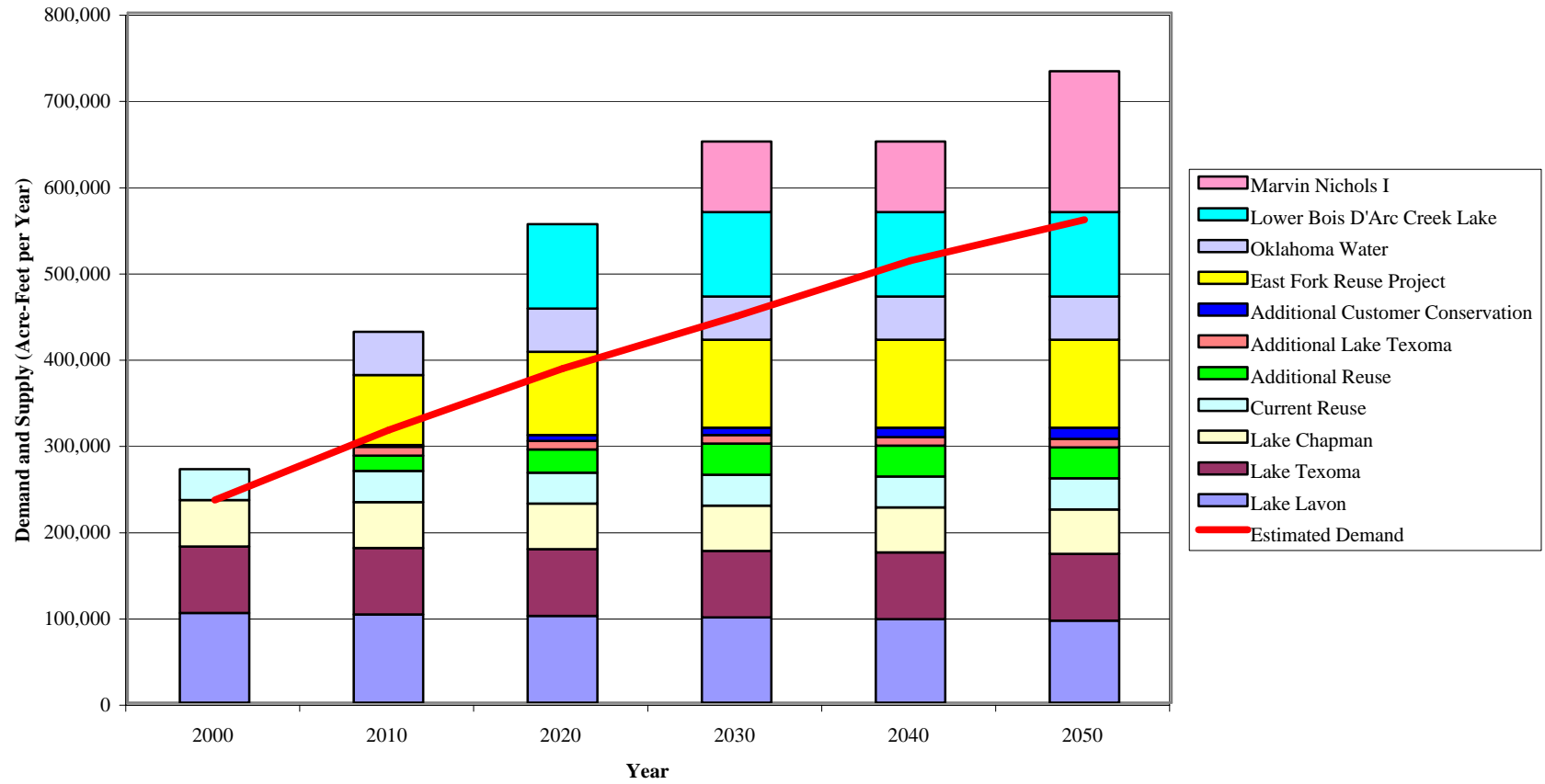
- Notes: (a) *Water supplies in italics are already available and connected.*  
(b) Other options for NTMWD include the development of substantial additional Lake Texoma supplies and extending the Lake Texoma pipeline to Lake Lavon.

**Amended Table 5.13**  
**Capital Costs for North Texas Municipal Water District Water Management Strategies**  
- Based on 1999 Construction Costs -

<b>Project</b>	<b>Approximate Year</b>	<b>Capital Cost</b>	<b>Additional 2050 Supply (Acre-Feet/Year)</b>
Future Additional Reuse	2005	\$1,000,000 <sup>(a)</sup>	35,900
Water Treatment Plant Expansions and Treated Water Transmission System Improvements	Various	\$801,455,000	- <sup>(b)</sup>
Additional Lake Texoma	2006	\$5,286,000 <sup>(c)</sup>	10,000
Additional Customer Conservation	2007	\$334,000	12,880
East Fork Reuse Project	2007	\$246,433,000	102,000
Oklahoma Water	2007	\$68,777,000	50,000
Lower Bois d'Arc Creek Lake and Transmission system	2014	\$167,324,000 <sup>(d)</sup>	98,000
Marvin Nichols I	2030	\$391,605,000	163,300
<b>Total</b>		<b>\$1,682,214,000</b>	<b>472,080</b>

- Notes:
- (a) The cost for future additional reuse does not include construction costs for wastewater treatment plant expansions, which would have to be built anyway.
  - (b) Water treatment plant expansions and treated water transmission system improvements do not provide additional supply but are needed to make use of supplies provided by other projects.
  - (c) Facilities are already constructed.
  - (d) This represents cost to NTMWD. It is assumed that approximately 20% of the total reservoir cost will be assumed by local interests in Fannin County.

**Amended Figure 5.6  
North Texas Municipal Water District Supply and Demand**



## Water Conservation

### *Collin County*

The discussion of water management strategies for Collin County near the bottom of page 5.46 will be modified to read:

“Water user groups that currently get water from NTMWD will use NTMWD to meet future increases to their needs. In addition, NTMWD customers will conserve water using water conservation strategies contained in the Model Water Conservation Plan for North Texas Municipal Water District Member Cities and Customers.”

### *Dallas County*

The discussion of water management strategies for Dallas County near the bottom of page 5.51 will be modified to read:

“Most of Dallas County’s current demands are met by Dallas Water Utilities, with North Texas Municipal Water District also providing major supplies. They will continue to be the largest water providers in the county in the future. In addition, NTMWD customers will conserve water using water conservation strategies contained in the Model Water Conservation Plan for North Texas Municipal Water District Member Cities and Customers.”

### *Denton County*

The NTWMD bullet item under the discussion of water management strategies for Denton County near the top of page 5.56 will be modified to read:

- “North Texas Municipal Water District will provide treated water to certain water suppliers in eastern Denton County. In addition, NTMWD customers will conserve water using water conservation strategies contained in the Model Water Conservation Plan for North Texas Municipal Water District Member Cities and Customers.”

### *Kaufman County*

The NTWMD bullet item under the discussion of water management strategies for Kaufman County near the top of page 5.74 will be modified to read:

- “Additional supplies from North Texas Municipal Water District for Crandall, Forney, Kaufman, Oak Grove, County-Other, and Manufacturing. In addition, NTMWD customers will conserve water using water conservation strategies contained in the Model Water Conservation Plan for North Texas Municipal Water District Member Cities and Customers.”

### *Rockwall County*

The discussion of water management strategies for Rockwall County near the bottom of page 5.81 will be modified to read:

“North Texas Municipal Water District currently supplies the majority of the demand in the county, and NTMWD will meet increases to demands for its customers. In addition, NTMWD customers will conserve water using water conservation strategies contained in the Model Water Conservation Plan for North Texas Municipal Water District Member Cities and Customers.”

### **Proposed Amendments to Plan Appendices**

Related additions are proposed to the following appendices to the 2001 *Region C Water Plan*:

- Appendix Q Environmental Evaluation
- Appendix R Cost Estimates
- Appendix S Texas Water Development Board Table 11 – Potentially Feasible Water Management Strategies
- Appendix T Texas Water Development Board Table 12 – Recommended Management Strategies by City and Category
- Appendix U Texas Water Development Board Table 13 – Recommended Management Strategies by Major Water Provider.

The proposed additions to each of the above *2001 Region C Water Plan* appendices are attached to this proposed amendment in Attachments 1 through 5, respectively.

### **Additional Information About the Proposed Amendment**

Changes to the regional water planning rules since approval of the *2001 Region C Water Plan* require additional information in support of the proposed amendment. The additional requirements include the following:

- A quantitative reporting of environmental factors
- Average annual cost by decade of water management strategies

The additional required information is also attached to this proposed amendment in Attachments 6 and 7, respectively.



Oral and written public comments regarding the proposed amendment are shown in Attachment 8 and 9. A response to comments received from the Texas Water Development Board is presented in Attachment 10. Finally, a response to all other comments is contained in Attachment 11.

# **ATTACHMENT 1**

**Proposed Additions to**

**Appendix Q Environmental Evaluation**

**Additions to Table Q-3**  
**Environmental Issues for Region C Water Management Strategies**  
**Major Water Providers and Other Regional Suppliers**

Entity	Project	Level of Difficulty to Address Environmental Issues (1)							Summary	Issues to be Addressed and Resolved During Planning and Design
		Instream Flows	Bay and Estuary Flows	Wildlife Habitat	Cultural Resources	Wetlands	Water Quality	Other		
NTMWD	Reuse from East Fork Trinity River. Diversion of Water Through Constructed Wetlands and into Lake Lavon.	M	L	L	L	L	M		M	See Reuse from Table 1. <b>Wetlands</b> will be enhanced as a result of the project. Increased dissolved oxygen level downstream of the diversion will improve <b>Water Quality</b> in the East Fork Trinity River.

(1) NOTE: L=Low, M=Moderate, H=High as pertains to the level of difficulty in avoidance or mitigation for any particular environmental issue

**ATTACHMENT 2**  
**Proposed Additions to**  
**Appendix R Cost Estimates**

**Table R-218**  
**North Texas Municipal Water District**  
**East Fork Reuse Project**

Owner North Texas Municipal Water District  
Amount 102,000 Ac-Ft/Yr

**CONSTRUCTION COSTS**

**WETLANDS FACILITIES**

Wetlands \$35,743,000  
Engineering & Contingencies \$12,510,000

**Subtotal Wetlands \$48,253,000**

**TRANSMISSION FACILITIES**

<b>Pipeline</b>	<b>Size</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Cost</b>
Pipeline	84	235,000	LF	\$ 441	\$103,635,000
Right of Way Easements	50	270	Acre	\$ 22,000	\$5,934,000
Engineering & Contingencies					\$32,871,000

**Subtotal Pipeline \$142,440,000**

**Pump Stations**

Pump Stations \$27,788,000  
Engineering & Contingencies \$9,726,000

**Subtotal Pump Stations \$37,514,000**

**OTHER FACILITIES**

Electrical Power \$1,764,000  
Visitors Center \$1,500,000  
Engineering & Contingencies \$1,142,000

**Subtotal Other \$4,406,000**

**ENVIRONMENTAL AND ARCHAEOLOGICAL STUDIES \$400,000**

**CONSTRUCTION TOTAL \$233,013,000**

Interest During Construction 18 Months \$13,420,000

**TOTAL COST \$246,433,000**

**ANNUAL COSTS (1st 30 years)**

Debt Service (6%, 30 years) \$17,903,000  
Electricity (\$0.06/kWh) \$3,960,000  
Operation and Maintenance \$3,037,000  
**Total Annual Costs \$24,900,000**

**UNIT COSTS (Average over 1st 30 years)**

Per Acre-Foot \$267  
Per 1,000 Gallons \$0.82

**UNIT COSTS (after 30 years)**

Per Acre-Foot \$69  
Per 1,000 Gallons \$0.21

# **ATTACHMENT 3**

**Proposed Additions to**

**Appendix S Texas Water Development Board Table 11  
Potentially Feasible Water Management Strategies**

Additions to TWDB Table 11: Potentially Feasible Water Management Strategies

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	Comments/Strategies	Notes	P	County Name	Basin Name	
Major Water Provider Name (If Applicable)	Water User Group Name	Major Water Provider (TWDB Alpha Number)	Water User Group Identifier	Regional Water Planning Group Letter	Sequence Number for Water User Group	City Number for Water User Group	County Number for Water User Group	Basin Number for Water User Group	Type of Water Supply	Regional Water Planning Group of Source	County Number of Source	Basin Number of Source	Specific Source Identifier	Name of Specific Source	Total Capital Cost	Cost for 2000 (Total Annual Cost per Acre-Foot)	Cost for 2010 (Total Annual Cost per Acre-Foot)	Cost for 2020 (Total Annual Cost per Acre-Foot)	Cost for 2030 (Total Annual Cost per Acre-Foot)	Cost for 2040 (Total Annual Cost per Acre-Foot)	Cost for 2050 (Total Annual Cost per Acre-Foot)	Year 2000 Value of Total Supply from Strategy	Year 2010 Value of Total Supply from Strategy	Year 2020 Value of Total Supply from Strategy	Year 2030 Value of Total Supply from Strategy	Year 2040 Value of Total Supply from Strategy	Year 2050 Value of Total Supply from Strategy						
North Texas Municipal Water District		160		C					4b	C	129	8	3508129	Indirect Reuse	\$246,433,000	\$0	\$306	\$258	\$244	\$69	\$69	0	81,400	96,400	102,000	102,000	102,000	East Fork Reuse Project			Kaufman	Trinity	
North Texas Municipal Water District	Allen		30012000	C	12	8	43	8	4a	C	43	8	38043	Conservation	\$8,800	\$0	\$264	\$135	\$131	\$134	\$137	0	79	203	223	226	229	Water Waste Prohibition			Collin	Trinity	
North Texas Municipal Water District	Fairview		30291000	C	291	772	43	8	4a	C	43	8	38043	Conservation	\$5,000	\$0	\$271	\$134	\$98	\$98	\$99	0	5	12	13	14	17	Water Waste Prohibition			Collin	Trinity	
North Texas Municipal Water District	Frisco		30319000	C	319	221	43	8	4a	C	43	8	38043	Conservation	\$0	\$0	\$468	\$148	\$141	\$137	\$133	0	299	1,434	2,164	2,985	3,741	Water System Audit, Pressure Control, and Leak Detection and Repair		P	Collin	Trinity	
North Texas Municipal Water District	Frisco		30319000	C	319	221	43	8	4a	C	43	8	38043	Conservation	\$31,281	\$0	\$18	\$6	\$0	\$0	\$0	0	153	489	738	1,018	1,275	Water Conservation Pricing		P	Collin	Trinity	
North Texas Municipal Water District	Frisco		30319000	C	319	221	43	8	4a	C	43	8	38043	Conservation	\$6,500	\$0	\$112	\$56	\$55	\$56	\$57	0	143	458	692	954	1,195	Water Waste Prohibition		P	Collin	Trinity	
North Texas Municipal Water District	McKinney		30577000	C	577	379	43	8	4a	C	43	8	38043	Conservation	\$0	\$0	\$730	\$233	\$228	\$224	\$221	0	292	1,252	1,619	1,966	2,296	Water System Audit, Pressure Control, and Leak Detection and Repair			Collin	Trinity	
North Texas Municipal Water District	McKinney		30577000	C	577	379	43	8	4a	C	43	8	38043	Conservation	\$42,000	\$0	\$15	\$5	\$0	\$0	\$0	0	248	709	916	1,113	1,299	Water Conservation Pricing			Collin	Trinity	
North Texas Municipal Water District	McKinney		30577000	C	577	379	43	8	4a	C	43	8	38043	Conservation	\$10,000	\$0	\$164	\$79	\$76	\$76	\$77	0	158	472	624	768	904	Water Waste Prohibition			Collin	Trinity	
North Texas Municipal Water District	Richardson		30747000	C	747	498	43	8	4a	C	43	8	38043	Conservation	\$1,335	\$0	\$689	\$304	\$277	\$266	\$254	0	5	12	14	16	18	Water Waste Prohibition		P	Collin	Trinity	
North Texas Municipal Water District	Sachse		30784000	C	784	742	43	8	4a	C	43	8	38043	Conservation	\$599	\$0	\$67	\$30	\$0	\$0	\$0	0	1	2	2	2	2	Water Conservation Pricing		P	Collin	Trinity	
North Texas Municipal Water District	Wylie		30991000	C	991	669	43	8	4a	C	43	8	38043	Conservation	\$0	\$0	\$1,640	\$534	\$505	\$483	\$469	0	32	133	193	264	330	Water System Audit, Pressure Control, and Leak Detection and Repair		P	Collin	Trinity	
North Texas Municipal Water District	Wylie		30991000	C	991	669	43	8	4a	C	43	8	38043	Conservation	\$4,976	\$0	\$746	\$282	\$229	\$212	\$205	0	7	25	44	65	84	Water Waste Prohibition		P	Collin	Trinity	
North Texas Municipal Water District	County-Other		30996043	C	996	757	43	5	4a	C	43	5	38043	Conservation	\$927	\$0	\$120	\$3	\$0	\$0	\$0	0	1	23	0	0	0	Water Conservation Pricing	b		Collin	Sabine	
North Texas Municipal Water District	County-Other		30996043	C	996	757	43	8	4a	C	43	8	38043	Conservation	\$13,170	\$0	\$120	\$3	\$0	\$0	\$0	0	10	340	0	0	0	Water Conservation Pricing	b		Collin	Trinity	
North Texas Municipal Water District	Garland		30334000	C	334	230	57	8	4a	C	57	8	38057	Conservation	\$70,358	\$0	\$22	\$11	\$0	\$0	\$0	0	278	557	557	557	557	Water Conservation Pricing		P	Dallas	Trinity	
North Texas Municipal Water District	Garland		30334000	C	334	230	57	8	4a	C	57	8	38057	Conservation	\$9,999	\$0	\$1,054	\$521	\$513	\$513	\$513	0	54	114	114	114	114	Water Waste Prohibition		P	Dallas	Trinity	
North Texas Municipal Water District	Mesquite		30592000	C	592	401	57	8	4a	C	57	8	38057	Conservation	\$61,774	\$0	\$28	\$12	\$0	\$0	\$0	0	191	443	501	557	547	Water Conservation Pricing			Dallas	Trinity	
North Texas Municipal Water District	Richardson		30747000	C	747	498	57	8	4a	C	57	8	38057	Conservation	\$8,665	\$0	\$689	\$304	\$277	\$266	\$254	0	32	77	85	91	98	Water Waste Prohibition		P	Dallas	Trinity	
North Texas Municipal Water District	Sachse		30784000	C	784	742	57	8	4a	C	57	8	38057	Conservation	\$18,959	\$0	\$67	\$30	\$0	\$0	\$0	0	25	56	63	70	74	Water Conservation Pricing		P	Dallas	Trinity	
North Texas Municipal Water District	Frisco		30319000	C	319	221	61	8	4a	C	61	8	38061	Conservation	\$0	\$0	\$468	\$148	\$141	\$137	\$133	0	7	23	28	29	31	Water System Audit, Pressure Control, and Leak Detection and Repair		P	Denton	Trinity	
North Texas Municipal Water District	Frisco		30319000	C	319	221	61	8	4a	C	61	8	38061	Conservation	\$580	\$0	\$18	\$6	\$0	\$0	\$0	0	3	8	9	10	11	Water Conservation Pricing		P	Denton	Trinity	
North Texas Municipal Water District	Frisco		30319000	C	319	221	61	8	4a	C	61	8	38061	Conservation	\$121	\$0	\$112	\$56	\$55	\$56	\$57	0	3	7	9	9	10	Water Waste Prohibition		P	Denton	Trinity	
North Texas Municipal Water District	Little Elm		30527000	C	527	790	61	8	4a	C	61	8	38061	Conservation	\$5,000	\$0	\$1,327	\$444	\$328	\$317	\$0	0	1	4	7	9	0	Water Waste Prohibition	b		Denton	Trinity	
North Texas Municipal Water District	Crandall		30210000	C	210	767	129	8	4a	C	129	8	38129	Conservation	\$14,743	\$0	\$492	\$0	\$0	\$0	\$0	0	4	0	0	0	0	0	Water Conservation Pricing	b		Kaufman	Trinity
North Texas Municipal Water District	County-Other		30996199	C	996	757	199	5	4a	C	199	5	38199	Conservation	\$3,691	\$0	\$0	\$0	\$0	\$146	\$35	0	0	0	0	2	9	Water Conservation Pricing	c		Rockwall	Sabine	
North Texas Municipal Water District	County-Other		30996199	C	996	757	199	8	4a	C	199	8	38199	Conservation	\$15,576	\$0	\$0	\$0	\$0	\$146	\$35	0	0	0	0	9	39	Water Conservation Pricing	c		Rockwall	Trinity	

Notes:  
a) Titles in BOLD are the columns required by TWDB  
b) Various entities are projected to use less than 140 gpcd in later decades (Collin County-Other in 2030, Little Elm in 2050, and Crandall in 2020). No water savings calculated for these decades and later.  
c) Rockwall County-Other does not have a projected water need until 2050. No water savings calculated until 2040.

# **ATTACHMENT 4**

**Proposed Additions to**

**Appendix T Texas Water Development Board Table 12  
Recommended Management Strategies by City and Category**



Additions to TWDB Table 12: Recommended Management Strategies by City and Category

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	Notes	W	X	Partial	County Name	Basin Name
Water User Group Name	Water User Group Identifier	Regional Water Planning Group Letter	Sequence Number for Water User Group	City Number for Water User Group	County Number for Water User Group	Basin Number for Water User Group	Name of Water Management Strategy	Type of Water Supply	Major Water Provider Number (TWDB Alpha Number)	Regional Water Planning Group of Source	County Number of Source	Basin Number of Source	Specific Source Identifier	Name of Specific Source	Total Capital Cost	Year 2000 Value of Total Supply from Strategy	Year 2010 Value of Total Supply from Strategy	Year 2020 Value of Total Supply from Strategy	Year 2030 Value of Total Supply from Strategy	Year 2040 Value of Total Supply from Strategy	Year 2050 Value of Total Supply from Strategy		Exception from Meeting Needs Due To	Scenario Number for Meeting Long-Term Needs (Blank if only one listed)			
Allen	30012000	C	12	8	43	8	Water Waste Prohibition	4a		C	43	8	38043	Conservation	\$8,800	0	79	203	223	226	229					Collin	Trinity
Fairview	30291000	C	291	772	43	8	Water Waste Prohibition	4a		C	43	8	38043	Conservation	\$5,000	0	5	12	13	14	17					Collin	Trinity
Frisco	30319000	C	319	221	43	8	Water System Audit, Pressure Control, and Leak Detection and Repair	4a		C	43	8	38043	Conservation	\$0	0	299	1,434	2,164	2,985	3,741				P	Collin	Trinity
Frisco	30319000	C	319	221	43	8	Water Conservation Pricing	4a		C	43	8	38043	Conservation	\$31,281	0	153	489	738	1,018	1,275				P	Collin	Trinity
Frisco	30319000	C	319	221	43	8	Water Waste Prohibition	4a		C	43	8	38043	Conservation	\$6,500	0	143	458	692	954	1,195				P	Collin	Trinity
McKinney	30577000	C	577	379	43	8	Water System Audit, Pressure Control, and Leak Detection and Repair	4a		C	43	8	38043	Conservation	\$0	0	292	1,252	1,619	1,966	2,296					Collin	Trinity
McKinney	30577000	C	577	379	43	8	Water Conservation Pricing	4a		C	43	8	38043	Conservation	\$42,000	0	248	709	916	1,113	1,299					Collin	Trinity
McKinney	30577000	C	577	379	43	8	Water Waste Prohibition	4a		C	43	8	38043	Conservation	\$10,000	0	158	472	624	768	904					Collin	Trinity
Richardson	30747000	C	747	498	43	8	Water Waste Prohibition	4a		C	43	8	38043	Conservation	\$1,335	0	5	12	14	16	18				P	Collin	Trinity
Sachse	30784000	C	784	742	43	8	Water Conservation Pricing	4a		C	43	8	38043	Conservation	\$599	0	1	2	2	2	2				P	Collin	Trinity
Wylie	30991000	C	991	669	43	8	Water System Audit, Pressure Control, and Leak Detection and Repair	4a		C	43	8	38043	Conservation	\$0	0	32	133	193	264	330				P	Collin	Trinity
Wylie	30991000	C	991	669	43	8	Water Waste Prohibition	4a		C	43	8	38043	Conservation	\$4,976	0	7	25	44	65	84				P	Collin	Trinity
County-Other	30996043	C	996	757	43	5	Water Conservation Pricing	4a		C	43	5	38043	Conservation	\$927	0	1	23	0	0	0	b				Collin	Sabine
County-Other	30996043	C	996	757	43	8	Water Conservation Pricing	4a		C	43	8	38043	Conservation	\$13,170	0	10	340	0	0	0	b				Collin	Trinity
Garland	30334000	C	334	230	57	8	Water Conservation Pricing	4a		C	57	8	38057	Conservation	\$70,358	0	278	557	557	557	557				P	Dallas	Trinity
Garland	30334000	C	334	230	57	8	Water Waste Prohibition	4a		C	57	8	38057	Conservation	\$9,999	0	54	114	114	114	114				P	Dallas	Trinity
Mesquite	30592000	C	592	401	57	8	Water Conservation Pricing	4a		C	57	8	38057	Conservation	\$61,774	0	191	443	501	557	547					Dallas	Trinity
Richardson	30747000	C	747	498	57	8	Water Waste Prohibition	4a		C	57	8	38057	Conservation	\$8,665	0	32	77	85	91	98				P	Dallas	Trinity
Sachse	30784000	C	784	742	57	8	Water Conservation Pricing	4a		C	57	8	38057	Conservation	\$18,959	0	25	56	63	70	74				P	Dallas	Trinity
Frisco	30319000	C	319	221	61	8	Water System Audit, Pressure Control, and Leak Detection and Repair	4a		C	61	8	38061	Conservation	\$0	0	7	23	28	29	31				P	Denton	Trinity

Additions to TWDB Table 12: Recommended Management Strategies by City and Category

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	Notes	W	X	Partial	County Name	Basin Name	
Water User Group Name	Water User Group Identifier	Regional Water Planning Group Letter	Sequence Number for Water User Group	City Number for Water User Group	County Number for Water User Group	Basin Number for Water User Group	Name of Water Management Strategy	Type of Water Supply	Major Water Provider Number (TWDB Alpha Number)	Regional Water Planning Group of Source	County Number of Source	Basin Number of Source	Specific Source Identifier	Name of Specific Source	Total Capital Cost	Year 2000 Value of Total Supply from Strategy	Year 2010 Value of Total Supply from Strategy	Year 2020 Value of Total Supply from Strategy	Year 2030 Value of Total Supply from Strategy	Year 2040 Value of Total Supply from Strategy	Year 2050 Value of Total Supply from Strategy		Exception from Meeting Needs Due To	Scenario Number for Meeting Long-Term Needs (Blank if only one listed)				
Frisco	30319000	C	319	221	61	8	Water Conservation Pricing	4a		C	61	8	38061	Conservation	\$580	0	3	8	9	10	11				P	Denton	Trinity	
Frisco	30319000	C	319	221	61	8	Water Waste Prohibition	4a		C	61	8	38061	Conservation	\$121	0	3	7	9	9	10				P	Denton	Trinity	
Little Elm	30527000	C	527	790	61	8	Water Waste Prohibition	4a		C	61	8	38061	Conservation	\$5,000	0	1	4	7	9	0	b				Denton	Trinity	
Crandall	30210000	C	210	767	129	8	Water Conservation Pricing	4a		C	129	8	38129	Conservation	\$14,743	0	4	0	0	0	0	0	b				Kaufman	Trinity
County-Other	30996199	C	996	757	199	5	Water Conservation Pricing	4a		C	199	5	38199	Conservation	\$3,691	0	0	0	0	2	9	c				Rockwall	Sabine	
County-Other	30996199	C	996	757	199	8	Water Conservation Pricing	4a		C	199	8	38199	Conservation	\$15,576	0	0	0	0	9	39	c				Rockwall	Trinity	

Notes:

- a) Titles in BOLD are the columns required by TWDB
- b) Various entities are projected to use less than 140 gpd in later decades (Collin County-Other in 2030, Little Elm in 2050, and Crandall in 2020). No water savings calculated for these decades and later.
- c) Rockwall County-Other does not have a projected water need until 2050. No water savings calculated until 2040.

# **ATTACHMENT 5**

**Proposed Additions to**

**Appendix U Texas Water Development Board Table 13  
Recommended Management Strategies by Major Water Provider**

**Additions to TWDB Table 13: Recommended Management Strategies by Major Provider of Municipal and Manufacturing Water**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>	<b>L</b>	<b>M</b>	<b>N</b>	<b>O</b>	<b>P</b>	<b>Q</b>	<b>R</b>	<b>S</b>		
<b>Major Water Provider Name</b>	<b>Major Water Provider Number (TWDB Alpha Number)</b>	<b>Basin Number for Basin of Use</b>	<b>Type of Water Supply</b>	<b>Regional Water Planning Group of Source</b>	<b>County Number of Source (Groundwater Supplies only)</b>	<b>Basin Number of Source</b>	<b>Name of Water Management Strategy</b>	<b>Specific Source Identifier</b>	<b>Name of Specific Source</b>	<b>Total Capital Cost</b>	<b>Year 2000 Value of Total Supply from Strategy</b>	<b>Year 2010 Value of Total Supply from Strategy</b>	<b>Year 2020 Value of Total Supply from Strategy</b>	<b>Year 2030 Value of Total Supply from Strategy</b>	<b>Year 2040 Value of Total Supply from Strategy</b>	<b>Year 2050 Value of Total Supply from Strategy</b>	<b>Exception from Meeting Needs Due To</b>	<b>Scenario Number for Meeting Long-Term Needs (Blank if only one listed)</b>	<b>County Name of Source</b>	<b>Basin Name of Source</b>
North Texas Municipal Water District	160	8	4b	C	129	8	East Fork Reuse Project	3508129	Indirect Reuse	\$246,433,000	0	81,400	96,400	102,000	102,000	102,000			Kaufman	Trinity

Note:  
Titles in BOLD are the columns required by TWDB

# **ATTACHMENT 6**

## **Quantitative Reporting of Environmental Factors**

## **Quantitative Reporting of Environmental Factors**

North Texas Municipal Water District's East Fork Reuse Project will involve the construction of the following facilities:

- A diversion pump station on the East Fork of the Trinity River near U.S. Highway 175.
- Approximately 1,840 acres of constructed wetlands to improve water quality.
- A conveyance pump station.
- A raw water transmission pipeline from the conveyance pump station to Lake Lavon.
- A discharge structure at Lake Lavon.
- A visitor and education center near the constructed wetland.

Analyses conducted by Alan Plummer Associates, Inc., and Freese and Nichols, Inc., have shown that the East Fork Reuse Project could potentially have positive and negative environmental impacts in the following categories: acreage disturbed during construction, creation of additional wetlands, reduction of low streamflows in the East Fork of the Trinity River, and endangered and threatened species. Each of these categories is discussed in the following sections.

### *Acreage Disturbed During Construction and Creation of Additional Wetlands*

It is anticipated that construction of the required facilities could disturb approximately 2,487 acres. Of this, approximately 200 acres would be existing wetlands, and approximately 6 acres would be "Waters of the United States." The remainder would be unclassified land associated with the construction of wetlands, pipelines, and pump stations.

The existing wetlands at the project site are maintained by flow control structures that were installed within agricultural drainage channels to detain stormwater from adjacent agricultural land and to release the stormwater in a controlled manner. Currently, this system is managed to provide duck habitat. Ancillary wetland functions include potential habitat for other birds and wildlife, potential stopover feeding and resting grounds for migratory birds, water purification, and some stormwater storage.

Approximately 56 acres of the existing wetlands are located outside the footprint of the proposed constructed wetland for the East Fork Reuse Project. During and after construction of the East Fork Reuse Project, this portion of the existing wetlands will continue to be operated as described above. These drainageways and their existing flow control structures will be incorporated into a stormwater routing system that directs stormwater runoff from the adjacent hillside around the constructed wetland directly to the river. There will be no direct impact to the wetland acreage within the stormwater

routing system during construction or afterward, and it will continue to provide the environmental functions described above.

The remainder of the existing wetland area (approximately 144 acres) is located within the footprint of the proposed constructed wetland for the East Fork Reuse Project. Several species of wetland plants desirable for planting the constructed wetland cells will be harvested from the existing wetland areas and transplanted to an on-site nursery for propagation of future plant material needs. The topsoil from areas with existing desirable wetland plants will also be removed and stockpiled for future use in final grading of the constructed wetland cells. This acreage within the existing wetland areas will be graded as necessary for construction of the wetland cells and then replanted following construction. Establishment of emergent wetland plants across the wetland cells will be facilitated by both planting of nursery plant stock and colonization from soils with wetland plant seed bank. Therefore, this acreage will again provide all the environmental functions described above soon after planting and the start of constructed wetlands operations.

The environmental impact to the existing wetland will be mitigated in several important ways:

- Approximately 56 acres of the existing wetland will continue to be operated as it is today.
- Prior to disturbance of the remainder of the existing wetland (approximately 144 acres), the following will take place:
  - o Several species of wetland plants will be transplanted from the existing wetland to an on-site nursery. Eventually, wetland plants will be transplanted from the nursery to the constructed wetland cells.
  - o Initial construction will take place on other parts of the property. There will be no net loss of wetland area at any time during construction. Prior to construction on the remainder of the existing wetland, more than 200 acres of constructed wetlands will be completed, replanted, and placed in the initial stages of operation.
  - o The uppermost six inches of topsoil from the disturbed portion of the existing wetland will be removed and stockpiled to preserve the existing seed bank. The stockpiled soil will then be used for final grading within the constructed wetland cells to aid in the establishment of wetland vegetation within these cells.
- The total wetland acreage at the site will ultimately be increased from approximately 200 acres to approximately 1,840 acres, providing significant additional wildlife habitat.

Therefore, although individual wetland areas will be disturbed and have reduced environmental function for a brief period, there will be no net loss of environmental function at any time. Ultimately, the large increase in wetland acreage will greatly enhance environmental functions at the site.

#### *Reduction of Low Streamflows in the East Fork of the Trinity River*

The bypass flow proposed for the permit will leave 25.8 cfs in the East Fork of the Trinity River at all times. This is greater than low flows in the stream that existed before the increasing wastewater flows of recent decades.

The permitted diversion would maintain flow variability in the East Fork of the Trinity River downstream from the diversion.

Based on water quality modeling, the proposed reuse project will improve water quality downstream from the diversion by raising dissolved oxygen levels, as shown in Figure A. For example, under low flow conditions, the dissolved oxygen 10 kilometers upstream from the mouth of the East Fork of the Trinity River would be approximately 6.55 milligrams per liter with the reuse project, compared to approximately 5.29 milligrams per liter without the project. This occurs because the diversion will decrease wastewater loading in the segment and cause the stream to be shallower, improving re-aeration conditions.

The proposed reuse project will also improve water quality in the Trinity River downstream from the East Fork by reducing nutrient loads from the East Fork.

#### *Endangered and Threatened Species*

The East Fork Reuse Project will have facilities in three counties: Collin, Kaufman, and Rockwall. According to the U.S. Fish and Wildlife Service (USFWS) county-by-county endangered and threatened species list, there are only two listed species that may be present in these counties: the whooping crane and the bald eagle. The USFWS lists the whooping crane as an endangered species that may be present in Collin County and lists the bald eagle as a threatened species that may be present in Collin and Kaufman Counties. Table B shows state-listed<sup>1</sup> endangered and threatened species for Collin, Kaufman, and Rockwall Counties.

Each of these species is discussed below:

- Whooping cranes may stop in the project counties briefly during migration to and from nesting areas on the Texas coast and breeding grounds in Canada. Because of the temporary nature of the whooping cranes' potential presence in Collin County and the wide range of potential stopover locations, no adverse impacts to whooping cranes are anticipated as a result of the proposed project.

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<sup>1</sup> Personal communication, Texas Parks and Wildlife Department Wildlife Habitat Assessment Program, January 6, 2005.



**Table B**  
**State-Listed Endangered and Threatened Species for Project Counties**

Species	State Status <sup>a</sup>	Riparian or Wetland-Dependent	County		
			Collin	Kaufman	Rockwall
Whooping crane	E	X	X	X	X
Bald eagle	T	X	X	X	X
Arctic peregrine falcon	T		X	X	X
Interior least tern	E	X	X	X	X
White-faced ibis	T	X	X	X	X
Wood stork	T	X	X	X	X
Texas horned lizard	T		X	X	X
Timber/canebrake rattlesnake	T		X	X	X

a: "E" indicates listing as an endangered species. "T" indicates listing as a threatened species.

- In general, bald eagles nest in Texas from October to July and then migrate north, although an occasional pair will remain within a territory year-round. Preferred nesting habitat is large, tall trees along river systems or within one to two miles of a lake or reservoir. Nearby wetland areas (within about one half mile) are necessary for feeding. The East Fork Reuse Project will not impact known bald eagle nesting areas. In conjunction with other environmental permitting requirements (e.g., a Section 404 permit), a survey of the wetland site must be conducted to identify potential nesting sites prior to the final project design. Therefore, no adverse impacts to bald eagles are anticipated as a result of the proposed project.
- Arctic peregrine falcons migrate from their nesting areas in Alaska, Canada, and Greenland to their wintering areas in South America and vice versa, potentially passing through Texas on the way. Because of the temporary nature of their potential presence in the project counties and the wide range of potential stopover locations, no adverse impacts to Arctic peregrine falcons are anticipated as a result of the proposed project.
- From April to August, the interior least tern nests on barren to sparsely vegetated sandbars along rivers, sand and gravel pits, and lake or reservoir shorelines. The interior least tern winters in Central and South America. Based on the above description and site conditions, it is not anticipated that the East Fork Reuse Project will disturb any potential nesting sites for the interior least tern.

- The white-faced ibis prefers marshes, swamps, ponds, and rivers. In Texas, they breed and winter along the Gulf Coast and may occur as migrants elsewhere. Because of the temporary nature of their potential presence in the project counties and the wide range of potential stopover locations, no adverse impacts to white-faced ibises are anticipated as a result of the proposed project.
- Two separate populations of wood storks exist in North America. One population lives in Florida, Georgia, and South Carolina, and one population breeds in southern Mexico during nesting season and migrates to Texas, Louisiana, Arkansas, Arizona, and California during other seasons. The wood stork prefers low-water areas in marshes and swamps where there is a high concentration of fish (they catch fish by feel). Wood storks tend to use the same colony sites over many years. Wood storks could potentially use wetlands at the project site as a feeding and resting stop during their winter migration. Because there will be no net loss of wetland acreage at any time at the site, no adverse impacts to wood storks are anticipated.
- The Texas horned lizard is found in arid and semi-arid, open areas with scarce plant cover. They dig for hibernation, nesting, and insulation, and are commonly found in loose sand or loamy soils. They hibernate from roughly September or October through April or May. Neither the constructed wetland site nor the proposed pipeline route is located in suitable habitat as described above. Therefore, no adverse impacts to Texas horned lizards are anticipated as a result of the proposed project.
- The timber/canebrake rattlesnake generally lives in densely vegetated, low bottomlands, river beds, swamps, fallen logs, and cane thickets. They do not like cold weather and will hibernate up to 7 months per year, returning to the same den each year. Dens are often located in rock crevices. During summer, they are migratory predators, ranging several miles from their winter den and having no permanent home. Because the preferred habitat is not found in project areas, no adverse impacts to timber/canebrake rattlesnakes are anticipated as a result of the proposed project.

### *Quantitative Summary*

Table C quantifies potential environmental impacts of the East Fork reuse project.

**Figure A**  
**Lower East Fork QUAL-TX Model Results**  
**Dissolved Oxygen (DO) vs. Distance, Summer Conditions**  
**Projected 2050 Flows**

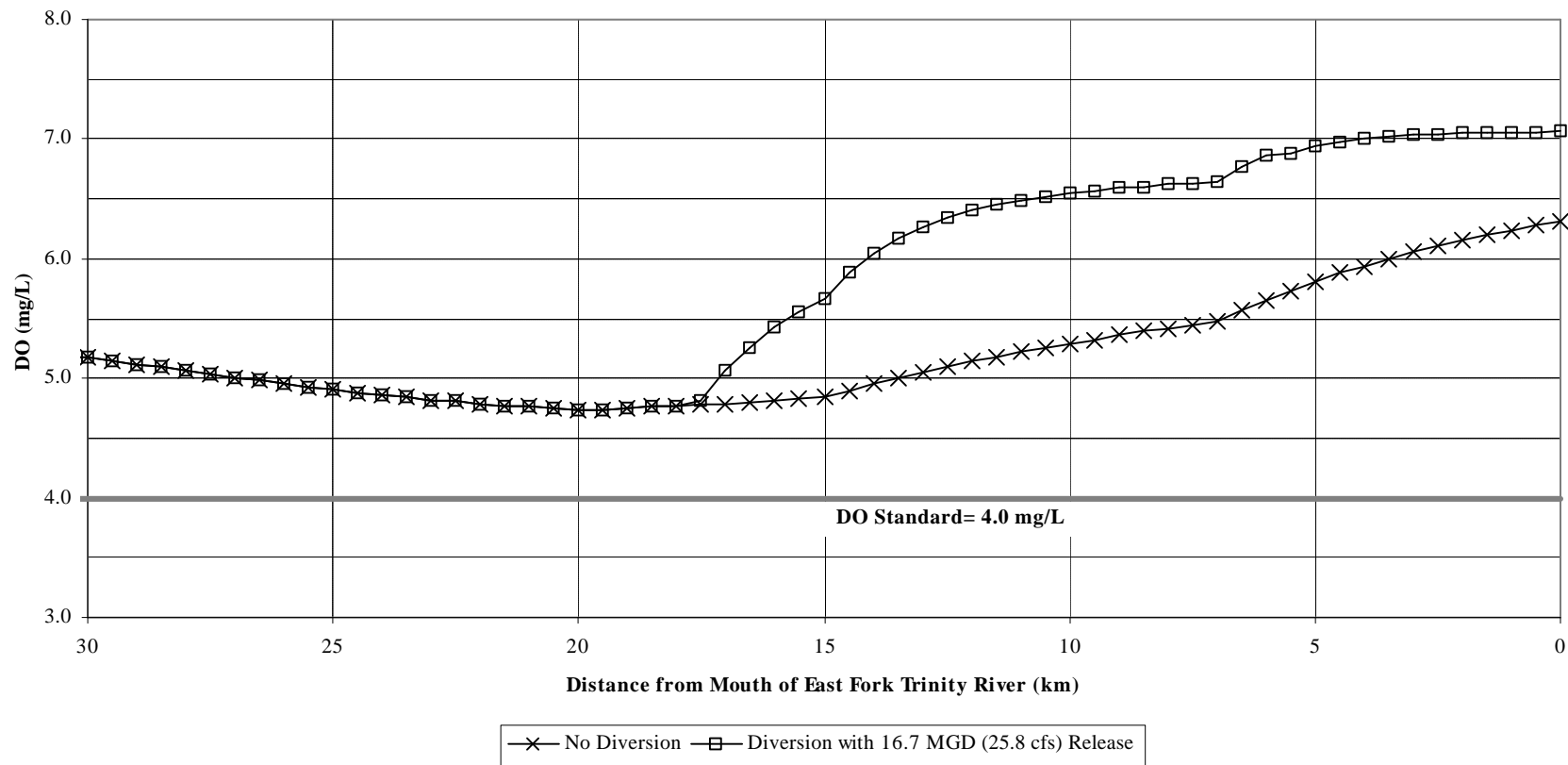


Table C  
Quantified Potential Environmental Impacts of NTMWD East Fork Reuse Project

Description	Classification	Approximate Quantity	Units	Comment
Land impacted by pipeline and pump station construction	Waters of the United States	6	acres	
	Unclassified	641	acres	
Land impacted by wetland construction	Existing wetlands	200	acres	
	Unclassified	1,640	acres	
New constructed wetland		1,840	acres	Net gain of 1,640 wetland acres.
Endangered/threatened species		8	species	Whooping crane, bald eagle listed by U.S. Fish and Wildlife Service and Texas Parks and Wildlife Department (TPWD). TPWD also lists Arctic peregrine falcon, interior least tern, white-faced ibis, wood stork, Texas horned lizard, and timber/canebrake rattlesnake. See text for discussion.

# **ATTACHMENT 7**

## **Projected Average Annual Cost by Decade of Water Management Strategies**

Projected Average Annual Costs by Decade of Water Management Strategies

Major Water Provider Name (If Applicable)	Water User Group Name	Major Water Provider (TWDB Alpha Number)	Water User Group Identifier	Regional Water Planning Group Letter	Sequence Number for Water User Group	City Number for Water User Group	County Number for Water User Group	Basin Number for Water User Group	Type of Water Supply	Regional Water Planning Group of Source	County Number of Source	Basin Number of Source	Specific Source Identifier	Name of Specific Source	Comments/Strategies	County Name	Basin Name	WMS Average Annual Cost 2000-2009	WMS Average Annual Cost 2010-2019	WMS Average Annual Cost 2020-2029	WMS Average Annual Cost 2030-2039	WMS Average Annual Cost 2040-2049	WMS Average Annual Cost 2050
North Texas Municipal Water District		160		C					4b	C	129	8	3508129	Indirect Reuse	East Fork Reuse Project	Kaufman	Trinity	\$0	\$24,900,000	\$24,900,000	\$24,900,000	\$6,997,000	\$6,997,000
North Texas Municipal Water District	Allen		30012000	C	12	8	43	8	4a	C	43	8	38043	Conservation	Water Waste Prohibition	Collin	Trinity	\$0	\$23,761	\$28,558	\$29,741	\$30,754	\$31,324
North Texas Municipal Water District	Fairview		30291000	C	291	772	43	8	4a	C	43	8	38043	Conservation	Water Waste Prohibition	Collin	Trinity	\$0	\$1,494	\$1,652	\$1,319	\$1,512	\$1,678
North Texas Municipal Water District	Frisco		30319000	C	319	221	43	8	4a	C	43	8	38043	Conservation	Water System Audit, Pressure Control, and Leak Detection and Repair	Collin	Trinity	\$0	\$172,972	\$254,043	\$351,703	\$449,110	\$499,113
North Texas Municipal Water District	Frisco		30319000	C	319	221	43	8	4a	C	43	8	38043	Conservation	Water Conservation Pricing	Collin	Trinity	\$0	\$2,729	\$2,739	\$0	\$0	\$0
North Texas Municipal Water District	Frisco		30319000	C	319	221	43	8	4a	C	43	8	38043	Conservation	Water Waste Prohibition	Collin	Trinity	\$0	\$20,302	\$31,538	\$45,132	\$60,023	\$67,982
North Texas Municipal Water District	McKinney		30577000	C	577	379	43	8	4a	C	43	8	38043	Conservation	Water System Audit, Pressure Control, and Leak Detection and Repair	Collin	Trinity	\$0	\$248,303	\$326,575	\$401,568	\$470,737	\$507,929
North Texas Municipal Water District	McKinney		30577000	C	577	379	43	8	4a	C	43	8	38043	Conservation	Water Conservation Pricing	Collin	Trinity	\$0	\$3,663	\$3,661	\$0	\$0	\$0
North Texas Municipal Water District	McKinney		30577000	C	577	379	43	8	4a	C	43	8	38043	Conservation	Water Waste Prohibition	Collin	Trinity	\$0	\$30,929	\$42,190	\$52,478	\$63,372	\$69,282
North Texas Municipal Water District	Richardson		30747000	C	747	498	43	8	4a	C	43	8	38043	Conservation	Water Waste Prohibition	Collin	Trinity	\$0	\$3,526	\$3,813	\$4,053	\$4,404	\$4,580
North Texas Municipal Water District	Sachse		30784000	C	784	742	43	8	4a	C	43	8	38043	Conservation	Water Conservation Pricing	Collin	Trinity	\$0	\$62	\$56	\$0	\$0	\$0
North Texas Municipal Water District	Wylie		30991000	C	991	669	43	8	4a	C	43	8	38043	Conservation	Water System Audit, Pressure Control, and Leak Detection and Repair	Collin	Trinity	\$0	\$60,738	\$82,955	\$111,136	\$139,752	\$154,607
North Texas Municipal Water District	Wylie		30991000	C	991	669	43	8	4a	C	43	8	38043	Conservation	Water Waste Prohibition	Collin	Trinity	\$0	\$5,965	\$8,607	\$11,736	\$15,311	\$17,185
North Texas Municipal Water District	County-Other		30996043	C	996	757	43	5	4a	C	43	5	38043	Conservation	Water Conservation Pricing	Collin	Sabine	\$0	\$79	\$78	\$0	\$0	\$0
North Texas Municipal Water District	County-Other		30996043	C	996	757	43	8	4a	C	43	8	38043	Conservation	Water Conservation Pricing	Collin	Trinity	\$0	\$1,151	\$1,149	\$0	\$0	\$0
North Texas Municipal Water District	Garland		30334000	C	334	230	57	8	4a	C	57	8	38057	Conservation	Water Conservation Pricing	Dallas	Trinity	\$0	\$6,140	\$6,138	\$0	\$0	\$0
North Texas Municipal Water District	Garland		30334000	C	334	230	57	8	4a	C	57	8	38057	Conservation	Water Waste Prohibition	Dallas	Trinity	\$0	\$57,954	\$59,385	\$58,518	\$58,520	\$58,520
North Texas Municipal Water District	Mesquite		30592000	C	592	401	57	8	4a	C	57	8	38057	Conservation	Water Conservation Pricing	Dallas	Trinity	\$0	\$5,386	\$5,388	\$0	\$0	\$0
North Texas Municipal Water District	Richardson		30747000	C	747	498	57	8	4a	C	57	8	38057	Conservation	Water Waste Prohibition	Dallas	Trinity	\$0	\$22,604	\$23,824	\$23,854	\$24,534	\$24,935
North Texas Municipal Water District	Sachse		30784000	C	784	742	57	8	4a	C	57	8	38057	Conservation	Water Conservation Pricing	Dallas	Trinity	\$0	\$1,669	\$1,655	\$0	\$0	\$0
North Texas Municipal Water District	Frisco		30319000	C	319	221	61	8	4a	C	61	8	38061	Conservation	Water System Audit, Pressure Control, and Leak Detection and Repair	Denton	Trinity	\$0	\$3,033	\$3,639	\$3,950	\$4,038	\$4,136
North Texas Municipal Water District	Frisco		30319000	C	319	221	61	8	4a	C	61	8	38061	Conservation	Water Conservation Pricing	Denton	Trinity	\$0	\$47	\$39	\$0	\$0	\$0
North Texas Municipal Water District	Frisco		30319000	C	319	221	61	8	4a	C	61	8	38061	Conservation	Water Waste Prohibition	Denton	Trinity	\$0	\$342	\$442	\$502	\$534	\$569
North Texas Municipal Water District	Little Elm		30527000	C	527	790	61	8	4a	C	61	8	38061	Conservation	Water Waste Prohibition	Denton	Trinity	\$0	\$1,505	\$2,213	\$2,548	\$2,992	\$0
North Texas Municipal Water District	Crandall		30210000	C	210	767	129	8	4a	C	129	8	38129	Conservation	Water Conservation Pricing	Kaufman	Trinity	\$0	\$1,967	\$0	\$0	\$0	\$0
North Texas Municipal Water District	County-Other		30996199	C	996	757	199	5	4a	C	199	5	38199	Conservation	Water Conservation Pricing	Rockwall	Sabine	\$0	\$0	\$0	\$0	\$307	\$311
North Texas Municipal Water District	County-Other		30996199	C	996	757	199	8	4a	C	199	8	38199	Conservation	Water Conservation Pricing	Rockwall	Trinity	\$0	\$0	\$0	\$0	\$1,340	\$1,346

# **ATTACHMENT 8**

## **Summary of Oral Public Comments on the Proposed Amendment**

## **Summary of Speaker Comments at the December 6, 2004 RCWPG Public Hearing**

### **Comments Regarding Public Hearing on Proposed Amendment to the 2001 Plan to Add NTMWD Reuse Project**

1. Jack Hittson (Landowner, Rockwall County)

Mr. Hittson asked the RCWPG to consider that the proposed project will affect a lot of people in a negative way. The pipeline will have a negative impact on the private land that it crosses. Mr. Hittson noted that there had not been much publicity about the proposed project in Rockwall County. The County Judge, County Commissioners, and other officials were unaware of the proposed project. He also suggested that the public relations efforts ought to stem from the North Texas Municipal Water District instead of the surveyors.

2. Elizabeth Hittson

Mrs. Hittson passed on the opportunity to speak.

3. Kevin Smith (Lawyer, Rockwall County)

Mr. Smith expressed concern that only one path has been considered for the pipeline. He asked how many routes will be considered in light of other transportation work. He understood that the SB1 legislation, passed in 1997, was to address water needs during drought. He asked if this project will solve water problems during drought years. He also commented that the reuse project could impact riparian areas and other uses downstream.

4. Beth Johnson

Ms. Johnson represented the Lone Star Chapter of the Sierra Club and the Texas Committee on Natural Resources. Ms. Johnson stated that she was concerned with procedural and public participation issues. She mentioned that the 22-page document posted on the web site had no map and that should be added. Ms. Johnson stated that the information on the web site was different than the presentation shown today. She commented that there were no copies of the 22-page document available at today's meeting.

Ms. Johnson stated that the newspaper mentioned "wetland credits" but this term was not mentioned in the 22-page document. The 22-page document mentions "net gain" on page 16. She asked how the two terms were related.

Ms. Johnson also told the group that it appeared as if the RCWPG was being asked to vote on the proposed reuse project and water conservation. Water conservation was first mentioned in today's public hearing. She stated that this was a confusing, piecemeal approach to solving the water needs. Ms. Johnson questioned the idea of amending the water conservation before discussing it.

5. Sheri Fowler (Rockwall County landowner)

Ms. Fowler stated that the early residents of Rockwall County settled along the river because of the water. She requested that NTMWD identify plans and pathways that



are the least destructive to the river and value of the land. She does not believe that NTMWD has taken into account all of the proposals. Some specific points stated:

- Underestimated the cost of right-of-way (ROW) in Rockwall County
- Why not use the ROW easement of TXDOT. Other states use transportation ROW for pipelines.
- She understands the need for a utility easement, but the amendment would allow “our way or the highway” approach.
- There is land further east that is less developed and less expensive.
- She asked NTMWD to be diligent in assessing pathways for the pipeline.

6. David Nabors

Mr. Nabors agrees with the principle of reuse. He asked the RCWPG and NTMWD to be diligent in choosing the pipeline location. He encouraged Region C to use all the reuse water possible.

7. Alan Plummer

Mr. Plummer passed on the opportunity to speak.

# **ATTACHMENT 9**

**Written Public Comments on the Proposed Amendment**

January 5, 2005

Mr. James M. Parks  
North Texas Municipal Water District  
P.O. Box 2408  
Wylie, Texas 75098-2408

Re: TWDB Staff Review of the proposed Region C Plan Amendment for the North Texas Municipal Water District Reuse Project

Dear Mr. Parks:

TWDB staff has reviewed the proposed Region C Plan Amendment for the North Texas Municipal Water District Reuse Project. Staff's review of the proposed amendments identified the following specific items that require clarification or additional analysis:

1. Please verify that the reuse supply is available during drought of record.
2. The following comments pertain to Tables 11, 12, and 13:
  - a. Please include Source Names as follows:
    - i. For Reuse Projects, use "Indirect Reuse" or "Direct Reuse" as the Source Name. If the source is "Indirect Reuse", the county-basin of the diversion must be listed as the location. If the source is "Direct Reuse", the location of the water treatment plant should be listed as the location.
    - ii. For Conservation, use "Conservation" as the Source Name.
  - b. Verify that Kaufman County (County Number 129) applies in the "County Number of Source" field. Please enter the appropriate information in this field in all tables.
  - c. The correct code for indicating a Reuse WMS Type in the "Type of Water Supply" field is "4B".
  - d. Incorporate the correct Source IDs as follows:
    - i. The Source IDs for Reuse Source Types are.
      1. Indirect Reuse is 35BBCCC, where BB equals the two-digit code for the Basin and CCC equals the three digit code for the county of the diversion location.
      2. Direct Reuse is 36BBCCC, where BB equals the two-digit code for the Basin and CCC equals the three digit code for the county of the diversion location.

Mr. Jim Parks  
January 5, 2005  
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- ii. The Source IDs for Conservation Source Types is 38CCC, where CCC equals the three digit code for the county where the conservation is occurring.
  - e. Clarify if the 50,000 acre-feet of NTMWD strategy supply for "Oklahoma Water" should be removed from Table 13.
3. Please include an assessment of the environmental impacts of disturbing 200 acres of existing wetlands.
  4. When considering state and federally endangered species, please include the federally endangered Interior Least Tern and any state-listed endangered species. There are two state endangered species of birds, four threatened bird species, and two threatened reptiles listed for Collin County that must be considered.
  5. Indicate total annual costs by decade per data requirement (4.3 of Exhibit B.) This information will be needed by TWDB to calculate the Total Discounted Present Value of the project and the associated unit costs of water.
  6. Please include citations for the basis of all cost estimates (e.g. sources of unit costs for pipelines) as required per 4.2.9 A(1) of Exhibit B.
  7. Please include any costs associated with environmental studies, permitting, or mitigation activities of the East Fork Reuse Project, if any.

If you have any questions about the comments provided above or need more information, please contact Ms. Virginia Towles at (512) 475-2056.

Sincerely,

William F. Mullican, III  
Deputy Executive Administrator  
Office of Planning

c: Tom Gooch, Freese and Nichols, Inc.  
Carolyn Brittin, Director, Water Resources Planning Division  
Virginia Towles, Project Manager

November 24, 2004

**VIA COURIER**

Mr. James Parks  
Chair - Region C Water Planning Group  
P.O. Box 2408  
Wylie, Texas 75098-2408

Mr. Tom Gooch, P.E.  
Freese and Nichols, Inc.  
4055 International Plaza, Suite 200  
Fort Worth, Texas 76109-4895

Re: Comments on Proposed Amendment to the 2001 Region C Water Plan

Gentlemen:

Mesa Water, Inc. and its consultants have reviewed the proposal to amend the Region C Water Plan to add the East Fork Reuse Project as a North Texas Municipal Water District (NTMWD) water management strategy. As discussed in more detail below, various elements of the NTMWD strategy rely upon what appear to be unrealistically optimistic assumptions, particularly with respect to meeting project deadlines. Our comments regarding the proposed amendment are set forth below.

East Fork Reuse Project

The proposed amendment indicates that the East Fork Reuse Project would provide a supply of 81,400 acre-ft/yr (AFY) by 2010. Under the circumstances at hand, it appears highly unlikely that this project will be operational by 2010 mostly because the project has yet to be permitted. In fact, to our knowledge, the Texas Commission on Environmental Quality (TCEQ) has not yet even deemed Amendment Application F to Certificate of Adjudication 08-2410 (Certificate 08-2410) administratively complete. Due to the complex nature of the application and the potential for the application to be contested, it seems at best optimistic to assume that the amendment will be granted by TCEQ in the short time frame required for commencement and completion of project construction by 2010. That time frame further assumes that any appeals regarding the amendment have been exhausted, or that project investments are made notwithstanding litigation. Finally, a significant portion of the water associated with the East Fork Reuse Project is based upon the assumption that NTMWD has an exclusive right to 100%

of the effluent treated at the wastewater treatment plants (WWTP)-an assumption not supported by the record.

Wilson Creek WWTP Current Reuse and Future Additional Reuse

Authorization for the current reuse of discharges from the Wilson Creek WWTP is provided in Certificate 08-2410D. NTMWD seeks authorization for reuse of future Wilson Creek WWTP discharges in its Amendment Application E. Consistent with Certificate 08-2410D, Amendment Application E proposes a municipal consumptive-use cap equal to the sum of NTMWD's authorized municipal diversions from Lake Lavon and interbasin transfers into Lake Lavon. Amendment Application E proposes a municipal consumptive-use limit of 234,514 AFY, which is equal to NTMWD's authorized municipal consumptive uses of 100,000 AFY from Lake Lavon, 77,300 from Lake Texoma, and 57,214 AFY. Amended Table 5.12 of the proposed 2001 Region C Water Plan amendment does not reflect the proposed municipal consumptive-use cap of 234,514 AFY which essentially prevents reuse of Wilson Creek WWTP discharges from increasing NTMWD's water supply above 238,514 AFY (234,514 AFY for municipal use and 4,000 AFY for industrial and municipal use).

Additional Lake Texoma

It is our understanding that the Greater Texoma Utility Authority recently submitted an application to amend its Lake Texoma water right to allow the interbasin transfer of 10,000 AFY from Lake Texoma to the Trinity River Basin for NTMWD's use. Amended Table 5.12 indicates that the additional 10,000 AFY of Lake Texoma water will be available beginning in 2010. Once again, it is overly optimistic to assume that this needed supply will be available by 2010 given the onerous procedures and extensive notice and public meeting requirements associated with an interbasin transfer permit.

Oklahoma Water

Amended Table 5.12 indicates that 50,000 AFY of Oklahoma water will be available beginning in 2010. Since negotiations to obtain a supply of water from Oklahoma have been ongoing for years and completely unsuccessful to date, it is unlikely that this project will be successfully constructed and operational by 2010.

We appreciate the opportunity to submit the above comments.

Sincerely,

Vinson & Elkins, L.L.P.

By.   
Lila C. Marsh

cc: Bobby Stillwell, Mesa Water, Inc.

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\*BY APPOINTMENT ONLY

December 1, 2004

Mr. James Parks  
Chair-Region C, Water Planning Group  
P.O. Box 2408  
Wylie, Texas 75098-2408

VIA FACSIMILE  
AND FIRST-CLASS MAIL

Mr. Tom Gooch, P.E.  
Freese & Nichols, Inc.  
Suite 200  
4055 International Plaza  
Ft. Worth, Texas 76109-4895

VIA FACSIMILE  
AND FIRST-CLASS MAIL

Re: Comments to Proposed Amendment to the 2001 Region C Water Plan

Dear Mr. Parks and Mr. Gooch:

I am in receipt of a letter to you dated November 24, 2004 from a representative of Mesa Water, Inc. ("Mesa"), related to the above-referenced matter. In such letter, Mesa comments on the efforts of the North Texas Municipal Water District ("District") to amend the Region C Water Plan to add the East Fork Reuse Project as a recommended water management strategy to assist the District in meeting its future water supply demands. As the District's attorney, I am familiar with the East Fork Reuse Project and the District's current and proposed water rights, and I forward this letter to you on behalf of the District in response to Mesa's comments.

East Fork Reuse Project. With specific regard to the East Fork Reuse Project, Mesa opines that it is unlikely that the project will be operational by 2010, due to permitting, construction and/or financing constraints, and that the District's permitting approach is inconsistent with an approach that Mesa would consider appropriate. Please be advised that the District's application to the Texas Commission on Environmental Quality ("TCEQ") for the East Fork Reuse Project is being aggressively pursued at the agency, and that the District has every intention of securing the water rights authorization for this project in a timeframe that will allow for financing and construction of project infrastructure within the proposed timelines. Moreover, the District's permitting approach mirrors that of other Metroplex reuse applicants, and while there are water interests in the Trinity River Basin that may take a different approach,

Mr. James Parks  
Mr Tom Gooch  
December 1, 2004  
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the District will work with them and make every effort to address their concerns such that the 2010 timeline can be achieved.

While the only amendment currently being sought to the 2001 Region C Plan relates to the District's East Fork Reuse Project, Mesa expresses concerns in its letter related to the District's Wilson Creek WWTP reuse; and, new water supplies proposed to be imported to the Trinity River Basin from Lake Texoma and eastern Oklahoma.

Wilson Creek WWTP Reuse. Mesa opines that the consumptive use limitation in the District's base water right, Certificate of Adjudication No. 08-2410, as amended, renders meaningless its efforts to secure additional supplies through the reuse of Wilson Creek WWTP return flows. This opinion fails to acknowledge the difference between the regulatory limits on the diversion of water and limits on the consumptive use of water. In *consideration* of its reuse of Wilson Creek WWTP return flows, the District's base water right includes limits on both diversion of water and consumptive use of water. The consumptive use limit restricts how much water the District can physically consume (i.e., no more than the total of its water rights/supplies in Lake Lavon, Lake Texoma and Chapman Lake), but such a limitation does not restrict the District's ability to divert and reuse Wilson Creek WWTP return flows. The District has the authority to divert such return flows from the perimeter of Lake Lavon, and such flows do serve as additional water supplies for the District's diversion and use. Thus, the consumptive use limit in the District's base water right is adequate and appropriate and does not foreclose the right of the District to divert and use its Wilson Creek WWTP return flows, nor to count such rights as additional supplies.

Additional Lake Texoma Water Rights and Oklahoma Water Supplies. Finally, Mesa opines that the District's proposal to bring additional water supplies from Lake Texoma and eastern Oklahoma by 2010 is unduly optimistic. Please note that the 2001 Region C Plan currently includes these sources of water supply, and the proposed amendment to this Plan does not contemplate any changes to those sources or the timelines by which they may be available. Notwithstanding the foregoing, and with regard to the additional Lake Texoma supplies that will be provided by the Greater Texoma Utility Authority ("GTUA"), once permitted, please note that sizeable interbasin diversions of water from Lake Texoma to the Metroplex already occur, and that the District's existing infrastructure can be utilized for this proposed additional interbasin transfer. GTUA has made meaningful progress with its application at TCEQ. Given the existing interbasin transfers to the Metroplex, we do not foresee meaningful challenges to GTUA's application or delays in the availability of such supplies to meet the District's needs. And, while recent legislation in Oklahoma has placed a temporary moratorium on the export of water from the state, the permitting and regulatory issues associated with such a transfer are relatively straightforward. Given the abundance of water supplies in eastern Oklahoma, and the financial benefits to the entire state of making



Mr. James Parks  
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this supply available to the District, we believe it is likely that this export of water will be approved. Thus, for the time being, the District supports the 2010 timeline for these supplies.

On behalf of the District, I appreciate the opportunity to provide these comments to the Region C Planning Group, and we look forward to the approval of the proposed amendment to the 2001 Region C Water Plan. If you or Region C Planning Group members have questions concerning this letter or any other aspect of the District's long-range water planning proposals, I hope you will feel free to contact me at your convenience.

Sincerely,



Martin C. Rochelle

MCR/ldp  
446\12\tr041129mcr

TO: Region C Water Planning Group, c/o  
RCWPG Administrator Jim Parks  
North Texas Municipal Water District  
P.O. Box 2408  
Wylie, TX 75098  
(delivered by fax to 972-442-5405 and by email to [jparks@ntmwd.com](mailto:jparks@ntmwd.com) and  
[mfuller@ntmwd.com](mailto:mfuller@ntmwd.com))

FROM: Beth Johnson, consultant, on behalf of Lone Star Chapter of the Sierra Club

DATE: Jan. 5, 2005

RE: Comments on proposed amendment of the 2001 Region C Water Plan regarding:

- adding a water management strategy to include NTMWD's proposed East Fork Reuse Project
- adding water conservation strategies for NTMWD members and customers

We offer comments and questions below on the following documents:

1. "Public Notice of a Proposed Amendment of the 2001 Region C Plan – NTMWD East Fork Reuse Project" at <http://www.regioncwater.org/Documents/Draft/Public%20Notice%20NTMWD%20East%20Fork%20Reuse%20Project.pdf>
2. "Presentation for public hearing on 12/6/04" at <http://www.regioncwater.org/Documents/Presentations/Public%20Hearing%2012-6-04.pdf>
3. "NTMWD's Consultant presentation at public hearing on 12/6/04" at <http://www.regioncwater.org/Documents/Presentations/APAI%20Public%20Hearing%20Presentation%2012-6-04.pdf>

On behalf of the 23,000 members of the Lone Star Chapter of the Sierra Club that covers most of Texas, I thank the Region C Water Planning Group for the opportunity to comment on this proposed amendment to the 2001 Region C Water Plan. While these comments should not be considered the official position of the Chapter due to lack of time to coordinate with relevant leaders, they are based upon past positions and policies of the Chapter and we hope they will prove helpful as the RCWPG considers adopting this amendment.

### **Overview:**

As indicated in our August, 2004, comments to the RCWPG on potentially relevant feasible management strategies:

- we agree that it is appropriate for the RCWPG to expect reuse to continue to play a major role in Region C plans
- we feel that projects such as the Tarrant Regional Water District's Richland-Chambers reuse project (with its associated wetlands) have much to recommend them
- we urge expanded consideration and greater priority for the potential for additional direct reuse projects, which we feel are more akin to the traditional concept of reuse that environmentalists and others have supported for many years and which represent a greater efficiency in the reuse of water than does indirect reuse

- we believe that for both direct and indirect reuse projects, careful consideration must be given to the impact of projects on instream uses and flows, downstream water rights, and maintenance of freshwater inflows to bays and estuaries.

In cases where additional water supplies are needed to meet future theoretical projected demand, we are supportive of reuse in general because it is less environmentally harmful than building new reservoirs and thus—along with conservation and drought management and fully utilizing available supplies from existing impoundments—it is one of several environmentally preferable strategies.

However, we feel that for the Region C Water Planning Group to amend your 2001 regional water plan in piecemeal consideration of one supplier's specific water rights application and conservation strategies at this time is procedurally unnecessary, unfair and inappropriate. This is especially true since this amendment is for a large volume of water and you are on the brink of your comprehensive assessment of all suppliers' reuse, conservation and other water management strategies.

Please note that our comments are based only on the somewhat superficial level of information and review that is possible at this plan-amendment stage and should not be taken as necessarily indicative of questions or concerns we might raise at a later date when provided with permit-application level of information and review opportunities.

### **Procedural Concerns:**

The RCWPG is within 5 months of completing your Initially Prepared Regional Plan for the second round of regional planning. The East Fork reuse project and NTMWD's conservation strategies ought to be part of the comprehensive evaluation of all potential water management strategies to determine which ones are most appropriate to choose for the regional plan. These two strategies brought forward at this time by NTMWD should not have any special status over any other water management strategy to be considered during the second round over the next few months.

That "to date, negotiations for [a supply of 50,000 AFY from Oklahoma sources by 2010] have not been successful" is cited (pg. 4 of public notice) as one of the "changed conditions" to justify the need for a plan amendment. Yet, incongruously, along with adding the new East Fork Reuse as a water source, NTMWD simultaneously proposes that the RCWPG re-adopt unchanged the rest of Table 5.12 (pg. 7 of the public notice) that included the currently-unavailable Oklahoma water. This has the effect of inflating sources above demand for one supplier. If the RCWPG amends the 2001 plan to add the East Fork Reuse source and subsequently the Oklahoma water were to become available, having re-adopted the table in this way could have the effect of giving one supplier prior claim or "consistency with the plan" advantage over others who might need the Oklahoma water.

### **Maps:**

No map of the proposed location of the constructed wetland is included for public review in the "public notice," and the description as "near Crandall in Kaufman County" is overly vague. There are perfunctory maps in the Consultant's presentation available online, but the one in slide 4 appears to show the constructed wetlands on the east side of the river (left-hand side of the river if you're headed downstream) while slide 5 appears to show them on the west side (river right), compounded by the failure of each slide to indicate which direction is north. The Dec. 6 *Dallas Morning News* article says very specifically that "the wetlands would be created on ranchland leased from the Hunt family," so obviously a specific site has been chosen, yet the public notice avoids a detailed location description.

## **Public Participation:**

Members of the public who might have learned of the Dec. 6 public hearing from the Dec. 6 *Dallas Morning News* article and attended the Dec. 6 hearing in person were not provided with the 22-page Public Notice at the hearing. RCWPG's failure to provide copies of this document at the hearing thus decreased the public's ability to engage in informed questions and comments on the only occasion where appropriate consultants and RCWPG members were all present. This is unfortunate, was a missed public participation opportunity, and was potentially skirting the edge of TWDB and other public-participation rules.

## **Reuse Questions:**

Will any land condemnation occur in connection with this project? How much, where, and for which aspects of the project?

What are the environmental impacts associated with the project?

## **Conservation Amendment:**

**Pre-Approval?** We are aware, as stated on pg. 4 of the public notice, that current planning rules require that water conservation strategies be considered for each projected water need and thus form the basis for inclusion along with the East Fork reuse amendment. It is commendable that NTMWD is making plans for conservation strategies. However, as with our concern stated above, the proposed conservation amendment could be construed as one supplier's getting its conservation measures adopted in a piecemeal way, without giving the RCWPG benefit of having the same level of information as the other suppliers' measures will have, and ahead of the others'. Consultants have not completed providing data and recommendations, and the RCWPG has not had benefit of public review and comment, to enable the RCWPG to make comprehensive decisions on conservation strategies. Yet some might attempt to construe this amendment as obtaining RCWPG pre-approval of NTMWD's "model conservation plan" before conservation has been discussed and evaluated for all suppliers. Some might attempt to characterize adoption of this amendment as setting a precedent for the level of scrutiny and types of strategies that might be adopted in the current round of planning.

- The discussion at the Dec. 6 meeting in response to a procedural question I posed was ambiguous: Consultant Tom Gooch with Freese and Nichols answered that any amendment has to meet 2006 rules including conservation and that NTMWD's conservation strategies would be "analyzed" the same as other suppliers' in the current planning round, but that fails to answer my question as to whether NTMWD's conservation strategies in the amendment will be subject to new scrutiny and modification in this planning round or will instead be considered tacitly pre-approved and merely be factored into volume savings as supply without further evaluation, review, or modification. TWDB's liaison to RCWPG Virginia Towles, meanwhile, has indicated to me that NTMWD's conservation strategies will be completely re-analyzed, reconsidered, and subject to new approval like all other strategies for all other water user groups and suppliers in the current planning round.
  - Please confirm that the latter is the case. If NTMWD conservation strategies will not receive the same level of analysis, scrutiny, and approval again in this planning round as that conducted for other suppliers and user groups, then we strongly object.

**“Model Water Conservation Plan.”** The public notice (pg. 4) refers to a “model water conservation plan” that NTMWD has developed for its Members and Customers, from which are drawn several strategies for the proposed amendment. Several concerns and questions arise:

- This document seems central to the issue at hand, procedurally and substantively. Why does the notice not include the model water conservation plan itself for public review? Since this document is described as forming the basis for strategies from which the recommended ones are drawn, is its inclusion required to meet TWDB planning rules, Open Meetings Act requirements, or other state requirements?
- The notice mentions conservation strategies that are “based” on “elements of” the model water conservation plan. Are the full elements of the plan encompassed in the amendment’s proposed strategies or not? What are the full elements of the plan?
- The notice offers only a brief outline of the proposed conservation strategies with little specific detail, and only in the Executive Summary. The language in the proposed amendment itself refers to the Model Water Conservation Plan for NTMWD Member Cities and Customers but gives no detail or specific commitments and fails to include the plan.
- Has this model conservation plan been provided to RCWPG members? If so, it forms part of the basis for your judgment as to whether to approve the amendment, and it should be included for public review. If not, how can the RCWPG adopt a conservation amendment that relies on a document you haven’t seen?
- Does the NTMWD model conservation plan (or the amendment) commit to adhering to any of the recommendations of the State Water Conservation Implementation Task Force’s report to the Legislature in Nov., 2004 on the many ways that achieving optimum levels of water-use efficiency and conservation-based water management can be one of the most effective strategies to help meet future water demands? Both the public and the RCWPG should know this answer before adoption of the amendment. This process should address to what extent the NTMWD model plan adheres to the Task Force’s recommendations regarding, for example, voluntary:
  - **Best Management Practices.** The public notice, amendment, public participation process, and RCWPG review should address which BMPs are being adopted and provide a rationale for declining to adopt others, if any.
  - **Targets and Goals for Per-Capita Water Use.** The public notice, amendment, public participation process, and RCWPG review should address whether any are being adopted, what the rationale is for adopting a specific level, and to what extent they track the Task Force’s recommended 140 total gpcd goal, one-percent reduction per year target, and indoor water use goal of 50 gpcd.

**Insufficient information to enable RCWPG to “consider” conservation.** For 3 of the 4 conservation strategies discussed, the notice states that 1 or more NTMWD cities have not reported whether they plan to or are already implementing the strategy. Therefore, the RCWPG cannot itself consider whether any conservation strategy is occurring for one or more unnamed user groups for that particular strategy. Thus, on the basis of the insufficient information provided to the RCWPG in the notice, it appears the RCWPG cannot meet its obligation under TWDB planning rules and/or state law to assure that at least one conservation strategy has been considered to help meet each city’s projected need.

**Most BMPs ignored.** 16 of the 21 voluntary Best Management Practices recommended by the statewide Conservation Implementation Task Force for consideration by municipal users are neither addressed in

the public notice nor proposed as chosen strategies. Therefore, the RCWPG cannot evaluate or consider whether such BMPs would be appropriate to help meet this demand. Surely this superficial level of review, addressing and adopting a minimal number of strategies, and projecting minimal water savings, is not how the Water Planning Group of one of the state's least efficient regions in terms of municipal per-capita use intends to meet its evaluation, planning, and leadership duties regarding the wise use of water resources. Assuming that full review of NTMWD's conservation strategies occurs in the current round as indicated by Virginia Towles, we hope that the RCWPG will conduct a much more thorough evaluation.

**A "reliable" supply?** It is unclear from the information provided whether the reuse volume anticipated in this amendment assumes one or more new Interbasin Transfer permits or amendments. This should be made clear. If such permits are contemplated, the claimed volume should not be considered by the RCWPG as a reliable supply for a regional plan unless the entities receiving the water can demonstrate that they are achieving the "highest practicable levels of water conservation and efficiency", a necessary pre-condition for TCEQ approval of interbasin transfers. The RCWPG's amendment approval process should evaluate the likelihood of whether the paired conservation amendment is sufficient to meet this requirement. One method by which the RCWPG could make this evaluation would be to reveal and discuss whether each NTMWD customer city considered and either adopted or rejected each of the state-taskforce-recommended BMPs. If a member city rejected one or more BMPs, the RCWPG would presumably need to evaluate whether the strategy was impracticable for that entity.

January 5, 2005

P.O. Box 641  
Rockwall, Texas 75087-0641  
(972) 772-8836

VIA FACSIMILE 972-442-5405

RCWPG  
c/o North Texas Municipal Water District  
P.O. Box 2408  
Wylie, Texas 75098

RE: *Comment to Public Hearing of December 6, 2004*  
*Proposed Amendment to 2001 Region C Water Plan - East Fork Reuse Project*

Ladies and Gentlemen:

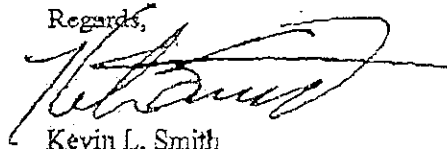
As understood, the proposed amendment of the 2001 Region C Water Plan is for the addition of an "East Fork Reuse Project."

The topic of water reuse was brought as a draft concept in the August 2004 meeting agenda of the RCWPG, and the concept presented at the December 6, 2004 meeting. At the meeting, no details were to be discussed of the proposed project, but only the general concept of reuse in the scheme of water planning for Region C.

This proposed project appears to have been hastily brought to the forefront as an approved project, even before the December meeting, without compliance with administrative procedures, and certainly before the opportunity for input to the proposed project details.

The comment provided is (a) the need for public hearings on the details of this proposed amendment, and (b) a showing of compliance of the proposed project with the Region C Regional Water Plan under the requirements TAC § 357 and the Texas Water Code.

Regards,



Kevin L. Smith

# **ATTACHMENT 10**

**Response to Comments Received from the  
Texas Water Development Board**



# REGION C WATER PLANNING GROUP

Senate Bill One Second Round of Regional Water Planning - Texas Water Development Board

## Board Members

James M. Parks, Chair  
Robert M. Johnson, Vice-Chair  
Roy J. Eaton, Secretary  
Brad Barnes  
Jerry W. Chapman  
Dale Fisseler  
Russell Laughlin  
G. K. Maenius  
Howard Martin  
Jim McCarter  
Elaine J. Petrus  
Dr. Paul Phillips  
Irvin M. Rice  
Robert O. Scott  
George Shannon  
Connie Standridge  
Danny Vance  
Mary E. Vogelson  
Paul Zweacker

January 10, 2005

Mr. William F. Mullican, III  
Deputy Executive Administrator  
Office of Planning  
Texas Water Development Board  
P.O. Box 13231  
Austin, TX 78711-3231

Re: Response to the TWDB Review of the Proposed Region C Plan Amendment for the North Texas Municipal Water District East Fork Reuse Project

Dear Mr. Mullican,

The Texas Water Development Board (TWDB) provided written comments to the Region C Water Planning Group (RCWPG) regarding the proposed amendment for the North Texas Municipal Water District's East Fork Reuse Project. The TWDB's comments are shown in italics, and the RCWPG's response to each comment follows.

1. *Please verify that the reuse supply is available during drought of record.*

The consultants have verified that the reuse supply will be available during drought of record conditions. The reuse supply depends on discharges from wastewater treatment plants and not on climatological conditions.

2. *The following comments pertain to Tables 11, 12, and 13:*

a. *Please include Source Names as follows:*

i. *For Reuse Projects, use "Indirect Reuse" or "Direct Reuse" as the Source Name. If the source is "Indirect Reuse", the county-basin of the diversion must be listed as the location. If the source is "Direct Reuse", the location of the water treatment plant should be listed as the location.*

ii. *For Conservation, use "Conservation" as the Source Name.*

b. *Verify that Kaufman County (County Number 129) applies in the "County Number of Source" field. Please enter the appropriate information in this field in all tables.*

c/o NTMWD  
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P. O. Box 2408  
Wylie, Texas 75098-2408  
972/442-5405  
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www.regioncwater.org

- c. *The correct code for indicating a Reuse WMS Type in the “Type of Water Supply” field is “4B”.*
- d. *Incorporate the correct Source IDs as follows:*
  - i. *The Source IDs for Reuse Source Types are.*
    - 1. *Indirect Reuse is 35BBCCC, where BB equals the two-digit code for the Basin and CCC equals the three digit code for the county of the diversion location.*
    - 2. *Direct Reuse is 36BBCCC, where BB equals the two-digit code for the Basin and CCC equals the three digit code for the county of the diversion location.*
  - ii. *The Source IDs for Conservation Source Types is 38CCC, where CCC equals the three digit code for the county where the conservation is occurring.*

Tables 11, 12, and 13 have been revised to incorporate each of the changes requested in items 2.a. through 2.d. See Attachments 3, 4, and 5.

- e. *Clarify if the 50,000 acre-feet of NTMWD strategy supply for “Oklahoma Water” should be removed from Table 13.*

The proposed amendment does not remove the Oklahoma Water strategy for NTMWD from Table 13.

- 3. *Please include an assessment of the environmental impacts of disturbing 200 acres of existing wetlands.*

The amendment materials have been revised to include an assessment of the environmental impacts of disturbing 200 acres of existing wetlands. See Attachment 6.

- 4. *When considering state and federally endangered species, please include the federally endangered Interior Least Tern and any state-listed endangered species. There are two state endangered species of birds, four threatened bird species, and two threatened reptiles listed for Collin County that must be considered.*

The amendment materials have been revised to include information on state-listed endangered and threatened species for the project counties. See Attachment 6.

- 5. *Indicate total annual costs by decade per data requirement (4.3 of Exhibit B.) This information will be needed by TWDB to calculate the Total Discounted Present Value of the project and the associated unit costs of water.*

The amendment materials have been revised to include projected average annual costs by decade, consistent with section 4.3.5 of Exhibit B. See Attachment 7.

6. *Please include citations for the basis of all cost estimates (e.g. sources of unit costs for pipelines) as required per 4.2.9 A(1) of Exhibit B.*

Costs for the East Fork Reuse Project were obtained from the engineer's opinion of probable cost for the project (from Alan Plummer Associates, Inc.). Construction costs for the project were based on the preliminary project design, site conditions, and prevailing market conditions. Engineering and contingency costs were estimated consistent with Exhibit B (30 percent of total construction costs for pipelines and 35 percent for other facilities). Right-of-way costs were based on prevailing market conditions. Environmental costs are discussed in the response to item 7. Interest during construction is based on an 18-month construction period, a 6 percent annual interest rate on borrowed funds, and a 4 percent rate of return on unspent funds. Annualized costs (debt service, electricity, and operation and maintenance) were estimated according to Exhibit B guidelines.

Costs for conservation strategies were based on the following assumptions:

- Implementation of a water conservation pricing structure will require a one-time pricing study and a corresponding ordinance. Based on the consultants' experience, the projected cost of these items will range from a minimum of \$13,000 for small water user groups to a maximum of \$100,000 for cities of one million people or more.
  - A water system audit, pressure control, and leak detection and repair strategy would be funded annually. Based on the consultants' experience, projected annual costs for a desktop-style audit will range from a minimum of \$5,000 for small water user groups to a maximum of \$50,000 for cities of one million people or more. Pressure control is considered to be a part of normal operating procedure, so no additional costs were included. Annual leak detection and repair costs were projected based on a unit cost of \$400 per mile of water main (from consultants' experience) and a correlation between water user group population and miles of water main. The correlation was drawn using data from a number of Texas cities.
  - Implementation of a water waste prohibition will require a one-time cost to implement an ordinance and annual enforcement costs. Based on the consultants' experience, the projected cost of an ordinance will range from \$5,000 for small cities to \$10,000 for large cities, and the projected annual enforcement cost will be \$0.25 per person in the service area.
7. *Please include any costs associated with environmental studies, permitting, or mitigation activities of the East Fork Reuse Project, if any.*

Table R-218 from the amendment materials has been revised (see Attachment 2) to include a line item for \$400,000 for "environmental and archaeological studies." The projected cost includes anticipated environmental studies, permitting, and mitigation.

Mr. William F. Mullican, III  
January 10, 2005  
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The projected cost is based on the consultants' experience, the preliminary project design, and site conditions. Costs for the East Fork Reuse Project have also been updated in Tables 11 and 13 (see Attachments 3 and 5).

Amended Table 5.13 has been revised to reflect the additional cost for environmental and archaeological studies (see main text).

If you have additional questions concerning our responses, please contact Tom Gooch, the Region C consultant, at (817) 735-7314 or myself at (972) 442-5405.

Sincerely,

James M. Parks

Chairman

Region C Water Planning Group

Cc: Roy Eaton, Region C Water Planning Group Secretary  
Tom Gooch, Freese and Nichols, Inc.  
Harald Petrini, Director, Water Resources Planning Division, TWDB  
Virginia Towles, Project Manager, TWDB

# **ATTACHMENT 11**

## **Response to Other Public Comments**

## ATTACHMENT 11

### **Response to Comments on Amendment to the 2001 Region C Water Plan to Add the East Fork Reuse Project as a Recommended Water Management Strategy for the North Texas Municipal Water District**

On August 31, 2004, the Region C Water Planning Group received a request to amend the *2001 Region C Water Plan* from the North Texas Municipal Water District. The District requested that the proposed East Fork Reuse Project be added to the *2001 Region C Water Plan*. As required by Texas Water Development Board regulations governing amendments to regional water plans, the Region C Water Planning Group held a public hearing on the requested amendment on December 6, 2004. The water planning group also accepted written comments until January 5, 2005.

Five individuals made comments at the public hearing. The comments delivered at the public hearing are summarized in Attachment 8 to the proposed amendment. In addition, the Region C Water Planning Group received 5 written comments on the proposed amendment, and they are included as Attachment 9 to the proposed amendment.

The response to the written comments from the Texas Water Development Board is included in Attachment 10 to the proposed amendment. Responses to the other written comments and to the verbal comments on the proposed amendment are provided below.

#### **Response to Written Comments**

The written comments themselves are included in full in Attachment 9 to the amendment. In these responses, the points addressed by the response are summarized in *italics*, and the response itself is in normal font.

#### Response to the November 24, 2004 Letter from Lila C. Marsh of Vinson and Elkins

*The project has yet to be permitted and is highly unlikely to be operational by 2010 (page 1).* Through its legal counsel, the North Texas Municipal Water District has indicated that the project is being aggressively pursued and that the District has every intention of securing the water rights authorization in a timeframe that will allow for completion of the project within the proposed time.

The other comments in the letter do not address the proposed amendment.

Response to the December 1, 2004, Letter from Martin C. Rochelle of Lloyd, Gosselink, Blevins, Rochelle, and Townsend, P.C.

There is no response to the comment.

Response to the January 5, 2005, E-Mail from Beth Johnson, Consultant, on behalf of the Lone Star Chapter of the Sierra Club

*Overview:* Amending the 2001 regional water plan is procedurally unnecessary, unfair, and inappropriate. The North Texas Municipal Water District has requested an amendment to the 2001 Region C Water Plan. The regulations governing regional water planning clearly allow the Region C Water Planning Group to amend the plan.

*Procedural Concerns:* The East Fork Reuse Project and the proposed conservation strategies should not be given special status over other strategies in the second round of regional water planning. If the Region C Water Planning Group chooses to amend the 2001 Region C Water Plan as requested by the North Texas Municipal Water District, that action does not give the strategies added to the plan any special status in development of the 2006 regional water plan.

*The proposed amendment will give one supplier a “consistency with the plan” advantage in pursuing Oklahoma water if that should become available.* Water from Oklahoma is a recommended water management strategy for the North Texas Municipal Water District in the original 2001 Region C Water Plan. The proposed amendment does not change that.

*Maps:* There were no maps at the public hearing showing the proposed wetland location. The presentation made by the consultant for the North Texas Municipal Water District at the public hearing included a slide showing a map of the proposed wetland. Detailed maps are not included in the 2001 Region C Water Plan for other recommended water management strategies and are not required. The information provided at the hearing and in the proposed amendment is sufficient to allow the Region C Water Planning Group to decide whether or not to amend the plan.

*Public Participation:* Copies of the text of the proposed amendment were not provided to the public at the December 6 public hearing. The notice for the public hearing and the information made available to the public met all requirements of the regulations governing amendments to the regional plans. In addition, the consultant for the North Texas Municipal Water District made a presentation describing the project at the public hearing. Any member of the public who wished to see the text of the proposed amendment could obtain a copy on request, view one at public libraries and county clerk’s offices throughout Region C, or obtain the amendment from the Region C web site. The opportunity for written comments was kept open for 30 days after the public hearing, until January 5, 2005.

*Reuse Questions: Will any condemnation occur in connection with this project? That is not known at this time. The Region C Water Planning Group does not have any role in condemnation proceedings, which are governed by applicable law.*

*What are the environmental impacts associated with the project? The environmental impacts are described in the Attachment 6 to the proposed amendment.*

*Conservation Amendment: Pre-Approval. Some might attempt to construe this amendment as obtaining RCWPG pre-approval of NTMWD's model conservation plan. The North Texas Municipal Water District has not requested Region C Water Planning Group approval of its model water conservation plan, such approval is not required, and the proposed amendment does not include such approval.*

*Please confirm that NTMWD's water conservation strategies will be completely re-analyzed, reconsidered, and subject to new approval in the current planning round (for the 2006 regional water plan). As required by the regulations governing regional water planning, water conservation strategies will be analyzed for the 2006 regional water plan for all water user groups showing water needs, including the customers of the North Texas Municipal Water District. The approval of the proposed amendment would make no difference in the analysis required by the regulations and no difference in the analysis done by the Region C Water Planning Group and its consultants.*

*Conservation Plan: - "Model Water Conservation Plan." Do TWDB planning rules require the inclusion of the North Texas Municipal District Model Water Conservation Plan required as part of the proposed amendment? The North Texas Municipal Water District has not requested Region C Water Planning Group approval of its model water conservation plan, such approval is not required, and the proposed amendment does not include such approval. The TWDB planning rules do not require that the North Texas Municipal Water District Model Water Conservation Plan be included as part of the amendment. In fact, the rules do not require or suggest that individual water conservation plans developed by any water user group or wholesale supplier be included in the regional water plan. (The inclusion of such individual plans for the several hundred suppliers covered in the Region C water plan would be entirely impractical.)*

*What are the elements of the North Texas Municipal District Model Water Conservation Plan? The North Texas Municipal Water District Model Water Conservation Plan is a public document and is available from the District.*

*Has the plan been provided to RCWPG members? If not, how can they approve the conservation strategies proposed in the amendment? The North Texas Municipal Water District Model Water Conservation Plan has not been provided to the members of the Region C Water Planning Group. The proposed water conservation strategies are described in the proposed amendment, and the water savings and cost of those strategies are also included. This provides the information needed for the Region C Water Planning Group to decide whether or not to approve the proposed amendment.*



*The proposed amendment should review the best management practices outlined in the report of the State Water Conservation Implementation Task Force completed in November of 2004 and should specify which best management practices are adopted. The analysis of water conservation in the proposed amendment meets the requirements of the regulations governing regional water planning.*

*Conservation Plan: - Insufficient information to enable the RCWPG to consider conservation.* As required by the regulations governing regional water planning, the Region C Water Planning Group has considered one or more water conservation strategies for every water user group showing a need for water and receiving water from the proposed East Fork Reuse Project.

*Conservation Plan: A reliable supply.* *The comment suggests a specific analytical approach to water conservation if any interbasin transfer permits are required for the proposed amendment. The East Fork Reuse Project does not require any new interbasin transfers, and the proposed amendment to the 2001 Region C Water Plan does not add any interbasin transfers to the plan.*

#### Response to the January 5, 2005, Letter from Kevin L. Smith

*The proposed project appears to have been approved without compliance with administrative procedures. There is need for public hearings on the details of the proposed amendment. As of January 7, 2005, the Region C Water Planning Group has not approved the proposed amendment. The notice for the public hearing and the information made available to the public met all requirements of the regulations governing amendments to the regional plans. The level of detail in the presentation of the proposed East Fork Reuse Project is consistent with the level of detail provided on other water management strategies in the 2001 Region C Water Plan.*

The proposed project will require a water right permit from the Texas Commission on Environmental Quality and a Section 404 permit from the U.S. Corps of Engineers. The approval process for those permits involves a more detailed analysis than the consideration of the project as a recommended water management strategy for the regional water plan.

## **Response to Comments at the Public Hearing**

*Jack Hittson – Please consider the effect of the proposed pipeline on people in the area. It is not possible to develop water supplies for Region C without developing pipelines to deliver the water where it is needed. The proposed East Fork Reuse Project is nearer to the area where water is needed than many other potential sources of supply for Region C and thus requires fewer miles of pipeline.*

*Kevin Smith – Mr. Smith is concerned that other routes should be considered for the pipeline and asked whether the project will solve water problems in drought years. The Region C Water Planning Group does not control the specific route of the pipeline. The proposed project will provide a reliable water supply during drought years.*

*Beth Johnson representing the Lone Star Chapter of the Sierra Club and the Texas Committee on Natural Resources. The issues raised by Ms. Johnson's comments in the public hearing are covered in the response to her written comments.*

*Sheri Fowler – Ms. Fowler spoke on pipeline routing issues. The Region C Water Planning Group does not control the specific route of the pipeline.*

*David Nabors – Mr. Nabors spoke in favor of reuse and urged diligence in locating the pipeline. The Region C Water Planning Group does not control the specific route of the pipeline.*